

Stormwater Utility Feasibility Study

Public Outreach & Education Action Plan

Prepared for: City of Roswell

Prepared by: Integrated Science & Engineering, Inc.

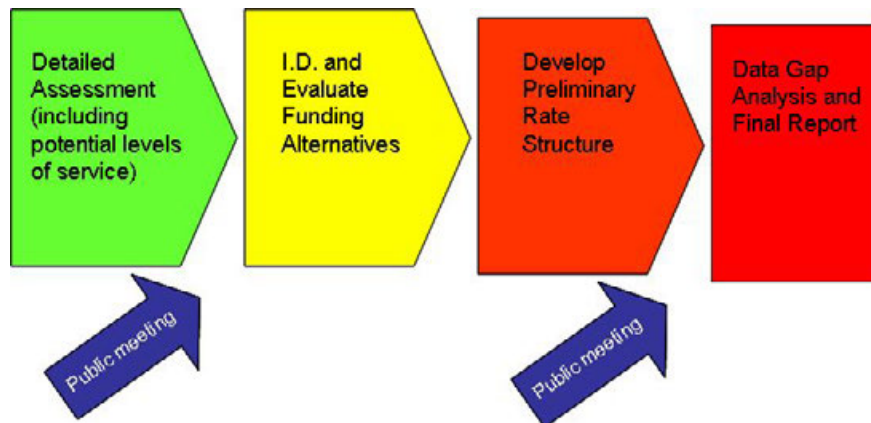
Date: September 18, 2006

The City of Roswell has initiated a study of the feasibility of creating a Stormwater Utility to provide a dedicated source of funding for the management of stormwater. The feasibility study consists of a detailed assessment to determine if alternatives to a Stormwater Utility exist, the appropriate level of service the utility would fund, an equitable method of assessing properties, and recommendations on a preliminary rate structure, should a utility be created. Once the assessment and recommendations are compiled in a report, the report will be presented to the City Council for consideration.

The public will be invited to participate in the feasibility study by attending general information public meetings and providing comments on the proposed levels of service and the potential costs to property owners for each level of service. These comments will be included and addressed, as appropriate, in the final feasibility study report.

To provide the public with the opportunity to learn about the feasibility study, to ask questions of the project team and to provide comments, several open house meetings will be held throughout Roswell during the study period. These meetings will be appropriately advertised and will be held in conjunction with existing organized groups, such as homeowners associations, civic organizations and religious congregations.

Following is a diagram showing the elements of the study and the opportunities for public education and involvement:



A detailed outline of the Public Education and Outreach Plan follow.

Goals of the Public Education and Outreach Plan:

- To offer information to interested members of the public on the City of Roswell's Stormwater Feasibility Study.
- To provide opportunities for interested members of the public to learn more about and comment on the feasibility study, specifically the various proposed levels of service and the decision-making process that will be used to move forward.
- To gather public opinion on the ranking of the level-of-service options being considered by the project team.
- To address relevant public comments in the process of developing the final SWU Feasibility Report.

Elements of the Plan:

- Public open house meetings
- Education and outreach materials
- Documentation of public input

Description of Plan Elements:

Public open house meetings:

- 1) A total of 8 meetings will be held. The meeting format will be based on an "open house" model, wherein attendees will see a presentation, visit several information stations, review information at their own pace, interact with client and project staff, and have an opportunity to enter a comment into the project record.
- 2) Seven of the meetings will be focused on the general public, while the eighth will be focused on the business community.
- 3) Key church congregation leadership will be incorporated/invited into the eight meetings, but will be especially encouraged to attend the October 10, 2006 meeting in City Hall, which will also include the business community.
- 4) The meetings will have two parts. The first part will consist of a standard presentation, while the second part will consist of an "open house" with information stations.
- 5) The standard presentation will be formatted as follows:
 - Introduction to Stormwater (5 minutes);
 - Roswell's Existing SWMP (10 minutes);
 - SW Utility Introduction and Overview (5 minutes);

Future Roswell SWMP Options (10 minutes);
 Audience Feedback (10 minutes);
 Conclusions and Timeline to Move Forward (5 minutes).

6) The Open House portion will have three (3) stations:

Station 1 - Stormwater Management Program Overview: Station 1 will include a summary of the stormwater program level of service options for review and discussion by attendees.

Materials provided	Format for Environmental Committee Meeting	Format for Open House
Stormwater Program Funding Level of Service Table (including three categories, program cost and services provided)	Handout	Large scale on foam board

Station 2 - Capital Project & Drainage System Maintenance: Attendees will be encouraged to identify additional project issues that the City is not currently aware of for future assessment by City staff.

Materials provided	Format for Environmental Committee Meeting	Format for Open House
Capital Project & Maintenance Backlog Maps (divided into three or four map segments)	Large scale on foam board	
“Drainage Easements: What Every Citizen Needs to Know”	Handout	Handout
CIP Prioritization Criteria (narrative)	Handout	Handout
Extent of Service & Level of Service Matrix	Handout	Handout
Extent of Service / Level of Service Fact Sheet (<i>previously developed by Kim</i>)	Handout	Handout

Station 3 - Stormwater Management Program Funding Overview: Station 3 will focus on the various primary and secondary funding options that exist for a local stormwater management program.

Materials provided	Format for Environmental Committee Meeting	Format for Open House
Example ERU Definition & Fee Calculation Flowchart	Handout	Large scale on foam board
Stormwater Management Program Fact Sheet	Handout	Handout
Stormwater Utility FAQ	Handout	Handout

- 7) We will endeavor to keep the meetings to 90 minutes and no more than 120 minutes.

➤ **Meeting Schedule:**

Date	Location	Status
Tuesday, Sept. 26 th 7pm – 9pm	East Roswell Park	Confirmed
Tuesday, Oct. 3 rd 7pm – 9pm	Community Activity Building, Roswell Area Park	Confirmed
Tuesday, Oct. 10 th 2pm – 4pm	City Hall	Confirmed
Tuesday, Oct. 10 th 7pm – 9pm	City Hall	Confirmed
Tuesday, Oct. 17 th 7pm – 9pm	Hembree Park	Confirmed
Tuesday, Oct. 24 th 7pm – 9pm	Roswell High School	Confirmed
Thursday, Nov. 2 nd 7pm – 9pm	Centennial High School	Confirmed
Tuesday, Nov. 8 th 7pm – 9pm	City Hall	Confirmed

➤ **Tasks (responsible party):**

- 1) Identify location of meetings (City)
- 2) Make logistical arrangement for each meeting (City)
- 3) Publicize meetings (paid advertisements, use web sites, etc.) (City)
- 4) Prepare materials for each meeting (sign-in sheets, signage, comment forms, information boards and/or PowerPoint presentation, etc.) (City and Team)
- 5) Set-up meeting room (if necessary) (City or HOA)
- 6) Attend meeting (City and Team)
- 7) Review comment forms and prepare responses (as part of the final feasibility study report) (Team)

Education and outreach materials/tasks:

Additional materials include: sign-in sheets and comment cards, a comment card collection box, signage directing attendees to the meeting room, text for web pages.

➤ **Tasks (responsible party):**

- 1) Draft text for information boards, signage and other materials (Team)
- 2) Create art/layout for information materials (Team)
- 3) Produce finished materials (Team)
- 4) City to develop a program for RCTV to include field examples
- 5) Inserts in quarterly newsletter (to include comment card)
- 6) Tape public meetings and air on RCTV

- 7) Booth at Rivers Alive
- 8) Additional meetings (City):
 - Rotary
 - Kiwanis
 - Lions
 - Seniors Enriched Living
 - Chamber QG 20/20
- 9) Local media coverage beyond the inserts noted above to include Around Roswell and local newspaper

Documentation of Public Input:

All public input received throughout the project will be compiled and addressed in the final feasibility study report.

➤ **Tasks (responsible party):**

- 1) Review and categorize all comments (Team)
- 2) Prepare brief response paragraphs for each comment or comment category (Team)
- 3) Include comments and responses in final report (Team)

Stormwater Utility Feasibility Study

Five-Year Stormwater Management Plan

Prepared for: City of Roswell

Prepared by: Integrated Science & Engineering, Inc.

Date: December 14, 2006

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1. BACKGROUND

The City of Roswell wishes to develop and implement an expanded stormwater management program (SWMP) to address regulatory compliance issues related to the NPDES Phase I MS4 Permit and the Metropolitan North Georgia Water Planning District (MNGWPD) requirements. Additionally, the City desires a more proactive operations and maintenance program (O&M) and Capital Improvement Program (CIP) to address aging infrastructure and a growing backlog of work orders and projects. The City currently has limited financial and manpower resources to implement a proactive SWMP program. Available funding from the General Fund is often split between competing City programs, and stormwater often ranks as a lower priority than other City programs such as public safety and emergency management services.

Accordingly the City initiated a SWMP Funding Feasibility Study to:

- 1) Assess future SWMP needs and priorities;
- 2) Evaluate current and future SWMP costs;
- 3) Investigate the viability of implementing various funding options to provide additional financial resources into the existing SWMP;
- 4) Evaluate the legal implications of implementing the various funding methods;
- 5) Develop a recommendation related to the most fair, equitable and stable funding method(s) for the future SWMP;
- 6) Formulate a strategy to implement the recommended funding method (or combination of methods); and
- 7) Educate the public on various funding options and solicit feedback to provide to Mayor and City Council (M&CC).

Technical Memorandum #2 (TM#2) summarizes our findings as they relate to Step 2 (*Detailed Assessment Work*) from our contract dated July 15, 2006 as described below:

Existing Level of Service (LOS)

The Project Team has reviewed and updated information developed in the *Stormwater Management Program Action Plan* dated September 30, 2005 (2005 Action Plan Report) to outline the City's existing SWMP level of service (LOS) and existing program cost expenditure data.

Future Level of Service (LOS)

A well-defined future LOS is critical in developing a fair and equitable SWMP funding mechanism. Future LOS alternatives for the various operational areas of the SWMP have been developed. These alternatives were evaluated with respect to the City's ability to fund the future program. The alternatives include an expanded LOS and a comprehensive LOS. This document is intended to provide pertinent details to Mayor and City Council in selecting a future LOS.

Develop a Five-Year Plan for Stormwater Management Improvements

Utilizing the information outlined from the previous tasks, the Project Team has developed a five-year plan that consolidates the SWMP priorities for the extensive and comprehensive LOS alternatives into the overall SWMP funding strategy. The Project Team has developed a preliminary cost of service analysis broken out into the following areas: Administration & Development Regulation; Regulatory Compliance; Operations & Maintenance; and Capital Improvement Program.

GIS/Mapping of the O&M List and CIP List

The Project Team worked with the City staff to develop a GIS database and maps of the existing CIP List that was developed by ISE as part of the 2005 Action Plan Report. The Project Team developed a GIS deliverable in ESRI format (shapefile or personal geodatabase) that spatially located the various projects from the CIP List. The attribute information for each of the projects on the CIP List was incorporated into the GIS database for use by the City staff in ranking projects and future management of the City's capital construction program. The Project Team performed similar work effort for the City's O&M List of 250 to 300 projects. The O&M projects were spatially located and pertinent database information was incorporated to assist the City Public Works staff with routine and remedial maintenance activities. The Project Team delivered (on October 17, 2006) an electronic GIS database and city-wide hard-copy maps of the CIP List and O&M List to the City for use in managing the City's future SWMP activities.

The Project Team utilized the information that was developed in the 2005 Action Plan Report to update the City's existing SWMP LOS and existing program cost expenditure data. The 2005 Action Plan Report served as the "foundation" for development of the Stormwater Utility Feasibility Study and this Technical Memorandum.

2. EXISTING SWMP LEVEL OF SERVICE

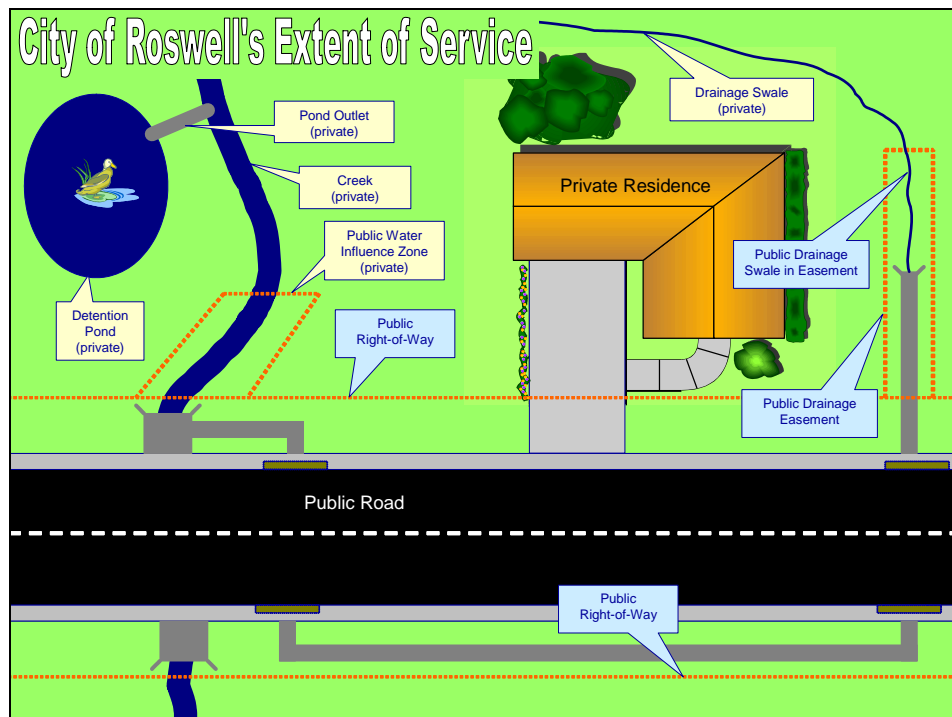
It is essential to establish an Extent of Service (EOS) and LOS for the stormwater system in order to identify SWMP priorities and to develop a plan for the future program. In other words, the City must identify the parts of the drainage network that are “public” and for which the City bears the operations and maintenance responsibility. The City can then define the LOS for each element of the system, and move forward with identifying resources to implement the proposed SWMP.

2.1 SWMP EXTENT OF SERVICE POLICY

A local EOS policy classifies the “responsibility status” of the various drainage infrastructure components based upon system component location and ownership. As part of the previous phase of this effort, the SWMP Assessment and 2005 Action Plan Report, the City of Roswell established a formal EOS Policy that identified three major types of drainage systems for which the City will provide a defined LOS:

- *Public Systems:* Systems within the right-of-way (ROW)
- *Public-Private Systems:* Systems not within the public ROW, but still carry some public drainage
- *Private Systems:* Systems not within the public ROW that carry only drainage from private property

The graphic below illustrates the various system elements and the City’s established EOS.



2.2 SWMP LEVEL OF SERVICE (LOS) POLICY

The LOS is defined as the types of services provided to different drainage system components and SWMP elements. The LOS may vary from component to component within the drainage system depending on the City's defined EOS and legal responsibilities.

Public Systems

For the components within the publicly owned ROW or on City-owned property, the initial O&M and CIP LOS consists of the following activities/responsibilities for the City:

- Drainage system inventory via mapping implementation plan
- Prioritized system inspections
- Routine and corrective maintenance based on priority
- CIP based on priority
- Emergency response (critical conveyance systems, and public stormwater controls)
- Enforcement of ordinances, maintenance agreements, etc.
- Regulatory compliance, water quality monitoring, illicit discharge and detection
- Public education

Public-Private Systems

For those elements of the system on private property but that treat/convey some public drainage and are within a private drainage easement, the LOS is currently less comprehensive and consists of the following activities/responsibilities for the City:

- Limited system inspections (critical conveyance systems, stormwater controls and detention ponds)
- Limited City assistance with drainage issues (priority based when within the EOS/LOS)
- Emergency response (critical conveyance systems, and limited stormwater controls)
- Enforcement of ordinances, maintenance agreements, etc.
- Regulatory compliance, water quality monitoring, illicit discharge and detection
- Public education

Private Systems

The City's LOS for those elements of the drainage system for which the City is not responsible for maintenance, whether an easement exists or does not exist. However, because the public and private drainage systems interconnect, and because some legal responsibility exists on behalf of the City for those elements discharging to the public system, the City has included private systems in its EOS. By including private drainage systems in the EOS, the City does not assume responsibility for the maintenance or operation of these elements or indicate intent to acquire easements or ROW for these elements. The City commits, however, to the following activities to ensure the continued function of the private drainage system.

- Emergency response (critical conveyance systems, and stormwater controls)
- Enforcement of ordinances, maintenance agreements, etc.
- Regulatory compliance, water quality monitoring, illicit discharge and detection
- Public education

2.3 CURRENT SWMP EXPENDITURES

The cost expenditures included in the table below were compiled based on the percentage of operating budgets/staff salaries that were expended implementing the City’s current SWMP (FY06). Because the City had historically split the responsibility for SWMP implementation between several departments, there is no long term history of stormwater specific expenditures. Rather, it is the assumption of this analysis that the expenditures related to SWMP implementation for FY06 provide an accurate representation of the annual cost for the City’s SWMP. Expenditures were divided between the functional areas of Personnel/Overhead, Operations, Capital Projects, Consulting Services (as apposed to departments or budget cost centers).

Table 1. Current SWMP Expenditures

SWMP Budget Element	Cost
Personnel / Overhead	\$926,360
Operations	\$281,859
Capital Projects (Lakes and Ponds Program & CIP)	\$300,000
Consulting Services	\$183,951
TOTAL	\$1,692,170

2.4 CURRENT SWMP REVENUES

Primary funding for the SWMP is currently provided through General Fund appropriations, with supplementary funding provided through Special Service Fees (Plan Review, Permit Fees, etc.). Some development activities generate revenue through Land Disturbance Activity (LDA) Permit and building permit application fees associated with the City’s E&S programs. Site plan review fees generate a small portion of the total stormwater program expenditures. The table below summarizes the funding sources currently being utilized to fund the City’s SWMP.

Table 2. Current City SWMP Funding

Revenue Source	Annual Revenue
General Fund	\$1,238,770
Erosion Control Fees per State Law (\$40 per acre)	\$23,900
LDA Permit and Plan Review Fees	\$100,000
Building Permits (Zoning Ordinance review, Code Enforcement, 10% of total cost for stormwater related activity)	\$79,500
Drainage Improvement Projects (capital funds allocation)	\$250,000
TOTAL	\$1,692,170

The City's SWMP will continue to evolve as a result of local needs, changes in internal policy and external State / Federal regulations. As such, current funding levels may not be sufficient to meet the expanding needs of the City's SWMP, and the continued evolution of the local SWMP will inevitably require additional funding in the future.

3. FUTURE SWMP LOS & COST OF SERVICE

3.1 FUTURE SWMP COST IMPLICATION ANALYSIS

ISE has reviewed and analyzed the recommendations included in the 2005 Action Plan Report. The following table was developed from the aforementioned information and analysis. The first column shows the specific SWMP element and the second column shows the qualitative cost implication of implementing that specific SWMP element in the future.

Table 3. Future SWMP Cost Implications¹

SWMP Element	Cost Implication
Administration	Minor
Public Education & Involvement	Minor
Development Regulation	Moderate
Regulatory Compliance	Moderate
Floodplain Management	Moderate
Watershed Monitoring & Restoration	Significant
Operations & Maintenance Comprehensive MS4 Inventory Proactive Drainage System O&M Capital Maintenance/Replacement	Significant
Capital Improvement Program (CIP)	Significant
Overall Cost Implication	Moderate to Significant

3.2 SWMP LOS PROGRAM TYPES AND PROJECTED COSTS

The table below contains a description of the current Limited SWMP LOS as well as the three future LOS options: Expanded, Comprehensive, and Extensive. All three of the future LOS program types address identified SWMP priorities and ensure that the City fully meets regulatory requirements. Services associated with each of these program types are summarized in the following table. The Future SWMP LOS may ultimately include services related to some combination of expanded, comprehensive, or extensive LOS program types. A preliminary cost range, associated with each LOS, was provided because the willingness of the future customers to cover the increased cost will play a large part in determining the future LOS. The funding sources and available resources are related to the future LOS.

¹ Information taken from the *Stormwater Management Program Action Plan* report dated September 30, 2005 prepared by ISE.

Table 4. LOS Program Type and Cost

LOS Type	Typical Program Features	Preliminary Annual Program Cost Range
Limited (Existing Program)	<ul style="list-style-type: none"> • Reactive maintenance programs • Meets minimum regulatory compliance requirements • Inspections & limited capital improvements 	\$1.4 mil - \$1.6 mil
Expanded	ADD: <ul style="list-style-type: none"> • Proactive O&M of public drainage system • Priority drainage basin master planning & CIP • Expanded land development regulation & enforcement services • Program exceeds minimum regulatory standards • Limited private stormwater structure O&M 	\$2.2 mil - \$2.5 mil
Comprehensive	ADD: <ul style="list-style-type: none"> • Advanced flood plain & development regulation • Comprehensive master planning & CIP • BMP demonstration projects • Private stormwater structure O&M 	\$3.7 mil - \$4.0 mil
Extensive¹	ADD: <ul style="list-style-type: none"> • Category I and Category II dam restoration 	\$6.4 mil - \$8.5 mil

¹*Note: In order to address citizen inquires related to Category I & II dam restoration and maintenance, the City of Roswell assessed an Extensive LOS that would include these services. The City analyzed the cost burden associated with this LOS as it related to the benefit to all City residents. The program costs associated with the Extensive LOS are similar to the program costs associated with a Comprehensive LOS, only with a significant increase in the Capital Improvement Program budget related to the implementation of the Category I & II dam program. The Extensive LOS option was presented at the public meetings and included on the City's website survey. Based upon this feedback, the City has elected to focus further analysis on the Expanded and Comprehensive LOS program types only, and to remove the Extensive LOS from consideration at the present time.*

3.3 FUTURE SWMP LOS/BUDGET PROJECTION

Preliminary and quantitative cost projections for the future SWMP were developed based on review of the SWMP needs and priorities, and local experience. The SWMP cost projections include manpower estimates based on current and future staff resource needs/priorities, administration costs, regulatory compliance considerations, professional services, O&M, and CIP. The following cost analysis considers the anticipated annual program needs for the different program types.

*Note: It is important to note when comparing future SWMP cost projections with current SWMP expenditures that the Erosion & Sedimentation (E&S) Control program is included in the existing SWMP, but **not** in the Expanded or Comprehensive LOS program types for the purpose of this initial evaluation. The E&S program may or may not remain under the Community Development Department in the future. Please also note that due to the current budgeting structure and cost center allocation associated with the Current program type costs, it was not always possible to extract information regarding each individual budget item as outlined in the table below.*

Table 5. SWMP Cost Projections

Program Element	Program Type				
	Current	Expanded		Comprehensive	
Administration/Development Regulation					
Personnel	\$715,822*				
Water Resources Manager		.75 FTE	\$76,500	1 FTE	\$102,000
Drainage System Investigator		1 FTE	\$52,000	1 FTE	\$52,000
Environmental Compliance Officer		.5 FTE	\$26,000	1 FTE	\$52,000
City Engineer		.2 FTE	\$20,200	.4 FTE	\$40,400
Site Plan Review Engineer		1 FTE	\$64,000	1 FTE	\$64,000
Post Construction Inspector		1 FTE	\$58,000	1 FTE	\$58,000
Utility Administration (10% of Program Cost)			\$230,000		\$380,000
Operating (Mileage/Expenses)	\$41,837		\$80,000		\$80,000
Engineering Outsourced	\$55,521		\$75,000		\$150,000
Subtotal	\$813,180		\$681,700		\$978,400
Regulatory Compliance					
Water Quality Monitoring			\$50,000		\$75,000
Watershed Restoration Projects			\$75,000		\$125,000
Stormwater Master Planning (Future Floodplain Delineation)			\$75,000		\$125,000
Outsourced Regulatory Compliance			\$25,000		\$25,000
FEMA Floodplain Mapping and Update					
Update Zone A → AE			\$75,000		\$75,000
Update Zone AE (not including Chattahoochee)					\$141,000

Program Element	Program Type		
	Current	Expanded	Comprehensive
Complete Stormwater System Inventory			
MS4 Inventory (15,000 structures)		\$177,500	\$487,500
Permit Compliance			
Illicit Discharge Detection & Elimination		\$20,000	\$50,000
Public Education		\$25,000	\$75,000
Contract	\$83,430		
Subtotal	\$83,430	\$522,500	\$1,178,500
Operations & Maintenance			
Drainage Maintenance Superintendent		\$85,000	\$85,000
Crew 1	\$210,538		
Equipment Operator III		\$55,000	\$55,000
Equipment Operator II		\$45,000	\$45,000
Equipment Operator I		\$40,000	\$40,000
Crew Worker		\$35,000	\$35,000
Crew 2			
Equipment Operator III		\$55,000	\$55,000
Equipment Operator II		\$45,000	\$45,000
Equipment Operator I		\$40,000	\$40,000
Crew Worker		\$35,000	\$35,000
Crew 3			
Equipment Operator III			\$55,000
Equipment Operator II			\$45,000
Equipment Operator I			\$40,000
Crew Worker			\$35,000
Field Crew Operations	\$240,022	\$200,000	\$250,000
Capital Maintenance		\$225,000	\$425,000
Outsourced Construction	\$45,000		
Subtotal	\$495,560	\$860,000	\$1,285,000
Capital Improvement Program			
Amortized CIP**	\$300,000	\$250,000	\$350,000
Equipment Purchase***		\$100,000	\$150,000
Subtotal	\$300,000	\$350,000	\$500,000
PROGRAM COSTS	\$1,692,170	\$2,414,200	\$3,941,900

* The cost includes the salaries of six E&S Inspectors.

** Current CIP cost is not currently amortized.

*** Annual average cost for equipment purchase.

NOTES:

- The costs in the table above are for a single program year. In order to project the program costs for years 2 through 5, please see Table 6.
- Personnel costs include estimated salary with associated benefits and indirect costs.
- In the Current program type, Field Crew Operations includes both operations and capital maintenance costs.

Based on this preliminary analysis, the Expanded program type would increase annual SWMP funding from its current level of approximately \$1.7 million/year (which includes the \$600,000 associated with the E&S program) to approximately \$2.4 million/year for an Expanded LOS program type and up to as much as \$3.9 million per year for a Comprehensive LOS program type.

From a regulatory perspective, the Expanded LOS program type is recommended. The current program type minimally addresses regulatory requirements and is not sufficient to address maintenance issues within the public drainage system. The initial feedback from the Public Involvement Program indicated strong support for the Expanded and Comprehensive LOS Programs. While adding programs included in a Comprehensive LOS will increase the cost burden of the SWMP, it is also important that the public is satisfied with the services provided. Citizens must receive a tangible benefit from the expanded program and be satisfied that the additional expenditures are justified. The information collected throughout the public involvement phase of this project will be provided to Mayor and City Council for consideration.

3.4 NEW RECOMMENDED SWMP EXPENDITURES

In order to address the identified SWMP priority needs, as well as selected recommendations made in the 2005 Action Plan Report, it is recommended that the City consider adding the following program elements/activities, as well as the associated expenditures. New expenditures listed under each programmatic element in the table above include: the addition of new staff positions, increase operating budgets, addition of new programs, and capital projects. The additional expenditures will be necessary to implement an Expanded or Comprehensive SWMP LOS program type that addresses the recommendations within this document. Additional cost details associated with transitioning the City's SWMP from a Limited LOS program type to an Expanded or Comprehensive LOS program type are described below.

Program Administration & Development Regulation

While the City of Roswell has already begun to expand this programmatic area, several future SWMP recommendations will necessitate further expansion of this programmatic area. The City will create an additional position for the future post-construction BMP Inspection Program. The position would be responsible for inspecting post-construction stormwater controls in compliance with the City's NPDES Phase I MS4 Stormwater Permit and SW Plan, and providing guidance to assist dam owners with ongoing maintenance and regulatory compliance issues. Funding has been included to cover existing salaries, professional services (in association with capital maintenance projects) and the operating budget. Lastly, additional funding equal to approximately 10% of the total program cost has been added to cover the administration cost of an Expanded or Comprehensive SWMP.

Regulatory Compliance & Watershed Management

This programmatic area will see the greatest expansion in scope and budget as the City moves from the existing program to an Expanded or Comprehensive Program. Several resource-intensive programs have been recommended as part of the future LOS including stormwater system inventory, floodplain updates, and future floodplain mapping. In the Expanded LOS program type the City would complete a map-grade stormwater inventory, update all Zone A floodplains to Zone AE floodplains, and would systematically develop the future build out floodplains. In the Comprehensive LOS program the City would complete a survey grade stormwater system inventory and would also update all Zone AE floodplains, with the exception of those specific to the Chattahoochee River. Additionally, both the Expanded and Comprehensive LOS program types include funding to perform water quality monitoring, illicit discharge and detection, and public education in association with NPDES and MNGWPD requirements. The budget for watershed restoration is intended to be leveraged as match money for grant and/or loan programs.

Operations & Maintenance

This is the programmatic area to which a large part of the additional future budget has been allocated. The City is aware that lack of a proactive O&M program for the MS4 is a major contributor to existing problems in the City, and it has become a key concern for City staff and the elected officials. Moving the City's O&M program from a reactive to proactive status will require additional resources, and the Project Team has incorporated the anticipated costs into the future O&M budget, as well as the CIP budget. Specifically, the future budget projection for the Expanded LOS program type includes the addition of another four-man crew to take on added O&M responsibilities related to the public system, in an effort to begin addressing the backlog of maintenance projects in a time efficient manner. In the Comprehensive LOS program type, a third crew was included to allow the City the resources to further reduce the backlog and to begin to address issues within the private drainage system on a prioritized basis.

This budget also includes additional funding for materials and operations that would be necessary to implement the recommended O&M program for each program type, as well as a line item for capital maintenance, which is intended to cover the cost of maintenance projects completed primarily by City resources.

Capital Projects

The projected budget for CIP represents the estimated total cost for the high priority projects in the City's CIP Prioritization Matrix with the cost being amortized over a 20 year period with the associated debt service payments. Please note that additional CIP costs may be necessary but we have estimated the budget at approximately \$3.5 million for the Expanded program type and \$5 million for the Comprehensive program type at this time. If the City desired to increase the CIP funding level, the debt service requirements would need to be adjusted accordingly. Additionally, costs associated with equipment purchases have been included, and are represented as an annual average.

3.5 PRELIMINARY FIVE-YEAR COST OF SERVICE ANALYSIS

The Cost of Service analysis and data outlined herein has been developed based on the recommended expenditures discussed above. The following table outlines the estimated costs by SWMP operational area and level of service. The costs have been inflated each year where applicable by either 3% to account for inflation or 5% in the case of personnel to account for annual raises and increases to employee benefit programs.

Table 6. Preliminary SWMP 5-Year Cost of Service Projections

	YEAR 1 – FY 2008		YEAR 2 – FY 2009		YEAR 3 – FY 2010		YEAR 4 – FY 2011		YEAR 5 – FY 2012	
	Expanded	Comprehensive	Expanded	Comprehensive	Expanded	Comprehensive	Expanded	Comprehensive	Expanded	Comprehensive
Administration/Development Regulation										
Personnel										
Water Resources Manager	\$76,500	\$102,000	\$80,325	\$107,100	\$84,341	\$112,455	\$88,558	\$118,078	\$92,986	\$123,982
Drainage System Investigator	\$52,000	\$52,000	\$54,600	\$54,600	\$57,330	\$57,330	\$60,197	\$60,197	\$63,206	\$63,206
Environmental Compliance Officer	\$26,000	\$52,000	\$27,300	\$54,600	\$28,665	\$57,330	\$30,098	\$60,197	\$31,603	\$63,206
City Engineer	\$20,200	\$40,400	\$21,210	\$42,420	\$22,271	\$44,541	\$23,384	\$46,768	\$24,553	\$49,106
Site Plan Review Engineer	\$64,000	\$64,000	\$67,200	\$67,200	\$70,560	\$70,560	\$74,088	\$74,088	\$77,792	\$77,792
Post Construction Inspector	\$58,000	\$58,000	\$60,900	\$60,900	\$63,945	\$63,945	\$67,142	\$67,142	\$70,499	\$70,499
Utility Administration (10% of Program Cost)	\$230,000	\$380,000	\$241,500	\$399,000	\$253,575	\$418,950	\$266,254	\$439,898	\$279,566	\$461,892
Operating (Mileage/Expenses)	\$80,000	\$80,000	\$84,000	\$84,000	\$88,200	\$88,200	\$92,610	\$90,846	\$97,241	\$95,388
Engineering Outsourced	\$75,000	\$150,000	\$78,750	\$157,500	\$82,688	\$165,375	\$86,822	\$173,644	\$91,163	\$182,326
Subtotal	\$681,700	\$978,400	\$715,785	\$1,027,320	\$751,574	\$1,078,686	\$789,153	\$1,130,856	\$828,611	\$1,187,399
Regulatory Compliance										
Water Quality Monitoring	\$50,000	\$75,000	\$51,500	\$77,250	\$53,045	\$79,568	\$54,636	\$81,955	\$56,275	\$84,413
Watershed Restoration Projects	\$75,000	\$125,000	\$77,250	\$128,750	\$79,568	\$132,613	\$81,955	\$136,591	\$84,413	\$140,689
Stormwater Master Planning (Future Floodplain Delineation)	\$75,000	\$125,000	\$77,250	\$128,750	\$79,568	\$132,613	\$81,955	\$136,591	\$84,413	\$140,689
Outsourced Regulatory Compliance	\$25,000	\$25,000	\$25,750	\$25,750	\$26,523	\$26,523	\$27,318	\$27,318	\$28,138	\$28,138
FEMA Floodplain Mapping and Update										
Update Zone A → AE	\$75,000	\$75,000								
Update Zone AE (not including Chattahoochee)		\$141,000		\$141,000		\$141,000		\$141,000		\$141,000
Complete Stormwater System Inventory										
MS4 Inventory (15,000 structures)	\$177,500	\$487,500	\$177,500	\$487,500						
Permit Compliance										
Illicit Discharge Detection & Elimination	\$20,000	\$50,000	\$20,600	\$51,500	\$21,218	\$53,045	\$21,855	\$54,636	\$22,510	\$56,275
Public Education	\$25,000	\$75,000	\$25,750	\$77,250	\$26,523	\$79,568	\$27,318	\$81,955	\$28,138	\$84,413
Contract					\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$522,500	\$1,178,500	\$455,600	\$1,117,750	\$286,443	\$644,928	\$295,036	\$660,045	\$303,887	\$675,617
Operations & Maintenance										
Drainage Maintenance Superintendent	\$85,000	\$85,000	\$89,250	\$89,250	\$93,713	\$93,713	\$98,398	\$98,398	\$103,318	\$103,318
Crew 1										
Equipment Operator III	\$55,000	\$55,000	\$57,750	\$57,750	\$60,638	\$60,638	\$63,669	\$63,669	\$66,853	\$66,853
Equipment Operator II	\$45,000	\$45,000	\$47,250	\$47,250	\$49,613	\$49,613	\$52,093	\$52,093	\$54,698	\$54,698
Equipment Operator I	\$40,000	\$40,000	\$42,000	\$42,000	\$44,100	\$44,100	\$46,305	\$46,305	\$48,620	\$48,620
Crew Worker	\$35,000	\$35,000	\$36,750	\$36,750	\$38,588	\$38,588	\$40,517	\$40,517	\$42,543	\$42,543
Crew 2										
Equipment Operator III	\$55,000	\$55,000	\$57,750	\$57,750	\$60,638	\$60,638	\$63,669	\$63,669	\$66,853	\$66,853

	YEAR 1 – FY 2008		YEAR 2 – FY 2009		YEAR 3 – FY 2010		YEAR 4 – FY 2011		YEAR 5 – FY 2012	
	Expanded	Comprehensive	Expanded	Comprehensive	Expanded	Comprehensive	Expanded	Comprehensive	Expanded	Comprehensive
Equipment Operator II	\$45,000	\$45,000	\$47,250	\$47,250	\$49,613	\$49,613	\$52,093	\$52,093	\$54,698	\$54,698
Equipment Operator I	\$40,000	\$40,000	\$42,000	\$42,000	\$44,100	\$44,100	\$46,305	\$46,305	\$48,620	\$48,620
Crew Worker	\$35,000	\$35,000	\$36,750	\$36,750	\$38,588	\$38,588	\$40,517	\$40,517	\$42,543	\$42,543
Crew 3										
Equipment Operator III		\$55,000		\$57,750		\$60,638		\$63,669		\$66,853
Equipment Operator II		\$45,000		\$47,250		\$49,613		\$52,093		\$54,698
Equipment Operator I		\$40,000		\$42,000		\$44,100		\$46,305		\$48,620
Crew Worker		\$35,000		\$36,750		\$38,588		\$40,517		\$42,543
Field Crew Operations	\$200,000	\$250,000	\$206,000	\$257,500	\$212,180	\$265,225	\$218,545	\$273,182	\$225,102	\$281,377
Capital Maintenance	\$225,000	\$425,000	\$231,750	\$437,750	\$238,703	\$450,883	\$245,864	\$464,409	\$253,239	\$478,341
Outsourced Construction										
Subtotal	\$860,000	\$1,285,000	\$894,500	\$1,335,750	\$930,470	\$1,388,633	\$967,976	\$1,443,742	\$1,007,086	\$1,501,177
Capital Improvement Program										
Amortized CIP*	\$250,000	\$350,000	\$250,000	\$350,000	\$250,000	\$350,000	\$250,000	\$350,000	\$250,000	\$350,000
Equipment Purchase**	\$100,000	\$150,000	\$100,000	\$150,000	\$100,000	\$150,000	\$100,000	\$150,000	\$100,000	\$150,000
Subtotal	\$350,000	\$500,000	\$350,000	\$500,000	\$350,000	\$500,000	\$350,000	\$500,000	\$350,000	\$500,000
PROGRAM COSTS	\$2,414,200	\$3,941,900	\$2,415,885	\$3,980,820	\$2,318,487	\$3,612,246	\$2,402,165	\$3,734,644	\$2,489,584	\$3,864,193

* Current CIP cost is not currently amortized.

** Annual average cost for equipment purchase.

NOTES:

- Personnel costs include estimated salary with associated benefits and indirect costs.
- The SWMP LOS type selected may affect the percent FTE that an employee dedicates to the future SWMP.
- The costs have been inflated each year where applicable by either 3% to account for inflation or 5% in the case of personnel to account for annual raises and increases to employee benefit programs.

Stormwater Utility Feasibility Study

Preliminary SWMP Funding Analysis

Prepared for: City of Roswell

Prepared by: Integrated Science & Engineering, Inc.

Date: December 14, 2006

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1. BACKGROUND

The City of Roswell desires to formulate and implement an enhanced stormwater management program (SWMP) to address regulatory compliance issues related to the NPDES Phase I Municipal Separate Storm Sewer System (MS4) Permit and the Metropolitan North Georgia Water Planning District (MNGWPD) requirements. Additionally, the City desires to implement a more proactive operations and maintenance (O&M) program to address aging infrastructure and a growing backlog of projects. Accordingly, the City has undertaken a SWMP Funding Feasibility Study to determine the most fair, equitable and stable funding method(s) for the future, enhanced SWMP. Technical Memorandum #3 (TM#3) summarizes our findings as they relate to Step 3 (*Identify & Evaluate Alternative Funding Options*) and Step 4A (*Preliminary Rate Methodology & Rate Structure Analysis*) from our contract dated July 15, 2006.

Step 3: Identify and Evaluate Alternative Funding Options

Successful stormwater programs typically utilize a combination of funding methods that collectively provide the necessary level of funding for a comprehensive SWMP. The Project Team evaluated potential funding mechanisms that could fund (partially or wholly) the future SWMP. The funding methods evaluated included the following:

Primary Funding Alternatives

- General Fund
- Stormwater User Fee/SW Utility

Secondary Funding Alternatives

- Special Assessments
- Special Service Fees
- Revenue Bonds/Debt Financing
- In-Lieu of Construction Fees
- System Development Charges
- Impact Fees
- Connection Fees
- Developer Extension/Latecomer Fees
- Federal/State Grant Funding
- Other Options

Step 4: Preliminary Rate Structure Development

In accordance with information gathered as part of Step 3, the Project Team developed a preliminary stormwater user fee rate structure. Geographical Information System (GIS) data from the City of Roswell was utilized to estimate the City's future equivalent residential unit (ERU) in accordance with an impervious area rate methodology. The work effort for this task included the following activities:

- Evaluation of potential SW Utility rate methodologies and rate structure options that would be best suited to the City's overall land use characteristics and SWMP needs.

- Assessment of potential rate modifiers that will enhance the overall equity of the future SW Utility rate structure including flat rate residential billing and residential tiering.
- Formulation of a preliminary SW Utility revenue projection based on the estimated total number of billing units.
- Summary of the current legal implications regarding SW Utility development in Georgia.
- Analysis of the proposed SW Utility user fee rate structure vs. a property tax increase.

2. SWMP COST OF SERVICE

2.1 CURRENT SWMP BUDGET ANALYSIS

2.1.1 Current SWMP Expenditures

The cost expenditures included in the table below were compiled based on the percentage of operating budgets/staff salaries that were expended implementing the City’s current SWMP (FY06). Expenditures were divided between the functional areas of Personnel/Overhead, Operations, Capital Projects, Consulting Services (as apposed to departments or budget cost centers).

Table 1. Current SWMP Expenditures

SWMP Budget Element	Cost
Personnel / Overhead	\$926,360
Operating	\$281,859
Capital Projects (Lakes and Ponds Program & CIP)	\$300,000
Consulting	\$183,951
TOTAL	\$1,692,170

2.1.2 Current SWMP Revenues

Primary funding for the SWMP is currently provided through General Fund appropriations, with supplementary funding provided through Special Service Fees (Plan Review, Permit Fees, etc.). Some development activities generate revenue through Land Disturbance Activity (LDA) Permit and building permit application fees associated with the City’s erosion and sedimentation (E&S) control program. Site plan review fees generate a small portion of the total stormwater program expenditures. The table below summarizes the funding sources currently being utilized to fund the City’s SWMP.

Table 2. Current City SWMP Funding

Revenue Source	Annual Revenue
General Fund	\$1,238,770
Erosion Control Fees per State Law (\$40 per acre)	\$23,900
LDA Permit and Plan Review Fees	\$100,000
Building Permits (Zoning Ordinance review, Code Enforcement, 10% of total cost for stormwater related activity)	\$79,500
Drainage Improvement Projects (capital funds allocation)	\$250,000
TOTAL	\$1,692,170

* The City of Roswell has also received approximately \$5.1 million in Federal Special Appropriations for the design and construction of a BMP demonstration/stream bank restoration project. Since this appropriation is not a regular funding source and because the appropriation funds only special projects and not the overall SWMP, it is not considered part of the annual revenue.

The City’s SWMP will continue to evolve as a result of local needs, changes in internal policy and external State / Federal regulations. Current funding levels will not be sufficient to meet the expanding needs of the City’s SWMP, which initiated the assessment of future funding alternatives for the SWMP.

2.2 FUTURE SWMP BUDGET ANALYSIS & PROJECTION

2.2.1 Future SWMP Cost Implication Analysis

The Project Team has reviewed and analyzed the recommendations included in the *Stormwater Management Program Action Plan* (dated September 30, 2005), and the proposed SWMP activities to be implemented in the future by the City. The following table was developed from the aforementioned information and analysis. The first column shows the specific SWMP element and the second column shows the qualitative cost implication of implementing that specific SWMP element in the future.

Table 3. Future SWMP Cost Implications

SWMP Element	Cost Implication
Administration	Minor
Public Education & Involvement	Minor
Development Regulation	Moderate
Regulatory Compliance	Moderate
Floodplain Management	Moderate
Operations & Maintenance Comprehensive MS4 Inventory Proactive Drainage System O&M Capital Maintenance/Replacement	Moderate to Significant
Capital Improvement Program (CIP)	Significant
Overall Cost Implication	Moderate to Significant

2.2.2 Future SWMP Budget Projection

Based on review of the current and future SWMP needs within the City and our experience with numerous SWMPs across the State of Georgia, we have developed a preliminary, quantitative cost projection for the future SWMP implementation. The table below examines the program type (and the typical LOS features) funded by the current and proposed future SWMP expenditure levels for the City. The SWMP cost projections include manpower estimates based on current and future staff resource needs/priorities, administration costs, regulatory compliance considerations, consultant fees, and SWMP operations including O&M. The following cost analysis considers the anticipated annual program needs to implement the Current LOS program, an “Expanded” LOS program, and a “Comprehensive” LOS program type.

If the City decided to enhance the SWMP to include the activities and programs recommended within this document and the 2005 Action Plan document, the City would need to increase the future SWMP funding level to be consistent with an “Expanded” LOS Program Type as defined below. Based on this preliminary analysis, the Expanded Program Type would increase annual SWMP funding from its current level of approximately \$1.7 million/year (which includes the \$600,000 associated with the City’s E&S program) to approximately \$2.4 million/year for an Expanded LOS Program Type.

Table 4. SWMP Cost Projections

Program Element	Program Type		
	Current	Expanded	Comprehensive
Administration/Development Regulation	\$813,180*	\$681,700	\$978,400
Regulatory Compliance & Watershed Management	\$83,430	\$522,500	\$1,178,500
Operations & Maintenance	\$495,460	\$860,000	\$1,285,000
Capital Improvement Program	\$300,000**	\$350,000	\$500,000
SW UTILITY COSTS	\$1,692,170	\$2,412,200	\$3,914,900

* The cost includes the salaries of six E&S Inspectors.

** Current CIP cost is not currently amortized.

NOTES:

1. The costs in the table above are for a single program year. In order to project the program costs for years 2 through 5, please see Table X in Technical Memorandum #2.
2. The table above is a summary of the information presented in Table 5 of Technical Memorandum No. 2 dated November 7, 2006.
3. All personnel costs include salaries, benefits, and related indirect costs.

3. SWMP FUNDING METHODS

Local governments can utilize various funding methods including taxes, service charges, fees, etc. to fund stormwater management programs. The four major funding categories are taxes, service charges, exactions and assessments.¹

- Taxes: Revenue collected from various types of taxes can generally be used for the operation of local government programs without any specific justification except for special sales taxes such as Special Purpose Local Option Sales Tax (SPLOST).
- Assessments: Geographically applied fees assessed/levied for infrastructure improvements that result in “direct and special benefit” to those being assessed, and is not realized by the other property owners within the community as a matter of course. These “improvement areas” are sometimes referred to as Tax Improvement Districts (TIDs) or Community Improvement Districts (CIDs).
- Service Charges: These are charges that are collected for administering a specific service or program to a customer/user. The service fee collected must be tied to the cost of providing that service (operations, administrative, capital, etc.) such that the amount paid by the customer is proportionate to the use of the system or demand placed on the system by the user.
- Exactions: This includes franchise fees associated with use of an asset (such as public right-of-way), and it also includes impact fees, business or other licenses, utility tap fees, fee in-lieu, and other capital reimbursement costs associated with previous public expense and capital outlay.

3.1 SWMP FUNDING ALTERNATIVES

A number of options potentially exist to fund the City’s future SWMP as outlined herein. The challenge will be to find the right funding method (or combination of methods) to meet the appropriate SWMP funding level needs. Successful SWMPs typically do not utilize a single funding method; rather, there is a blend of several methods which, when implemented correctly, provides adequate funding for the comprehensive SWMP (i.e. regulatory compliance, O&M, CIP, engineering, development regulation, planning, etc.). The following is a list of the various funding options that have been utilized by other communities to fund a SWMP with an enhanced LOS.

¹ Selected portions of the text in Section 3 were taken from the *Regional Surface Water Agency Feasibility Study* prepared by Reese, Cyre & Whalen dated November 1, 2004 for Henry, Rockdale, Newton and Walton Counties.

In basic financial terms, revenue is the consistent and stable flow of funds that is adequate to financially support the major SWMP elements and activities outlined herein. Primary funding methods have the potential to fully fund most (if not all) of the SWMP elements/components via a consistent and stable revenue stream. Secondary funding methods typically only fund specialized components of a SWMP. Secondary funding sources typically provide supplemental funds to augment the consistent and stable primary revenue stream that is necessary to adequately fund an expanded or comprehensive SWMP type. The funding options detailed in TM#3 are as follows:

Primary Funding Methods:

- Stormwater User Fees (SW Utility)
- General Fund Appropriations

Secondary Funding Methods:

- Special Assessments
- Special Service Fees
- Revenue Bonds for Capital Improvements
- In-Lieu of Construction Fees
- System Development Charges
- System Connection Fees
- Impact Fees
- Developer Extension/Latecomer Fees
- Federal & State Funding

3.1.1 Primary Funding Methods

3.1.1.1 Stormwater User Fees (SW Utility)

Georgia law does not have a specific section for mandating how municipalities structure a local SWMP, nor the methods to use for funding stormwater management. However, the Georgia Constitution does specifically enable counties and municipalities to conduct stormwater management as a “supplementary power”. Georgia legislature provides broad power to municipalities under “home rule” provisions. Under those broad rules, it appears feasible and legal for the cost of stormwater management to be distributed across a community as deemed appropriate by the elected officials. Throughout the United States, stormwater user fee programs have been operated as an enterprise fund. They are legally and organizationally patterned after the most common utilities – water and sewer.

In establishing a SW Utility, the basic principles of public utility operation and funding are followed. This would involve the formation of an enterprise fund operation. One of the greatest benefits is that funds raised by this approach are legally dedicated to stormwater management. This new source of revenue is directly linked to the program that demands the funds.

Generally, stormwater user fees are based on the relationship of impervious area and the amount of rainfall that runs off a parcel. This runoff creates a demand on the drainage conveyance system that is beneficially utilized to convey the flows. Simplified rates have been used to help implement the program, which in some cases have been based on a flat-rate charge for single-family residential properties. Non-residential properties generally pay higher fees since they are comprised of highly impervious surfaces and generate large quantities of runoff. Their use of the system is greater and, consequently, their fees are greater.

Stormwater user fees may be (and should be) applied to tax exempt properties, as well as private properties. When tax exempt parcels are charged a stormwater user fee for their impervious surface, the taxable properties are thus relieved of a portion of the cost of stormwater management as compared to SWMP funding via the General Fund. Credits should be given offsetting a portion of stormwater user fees to encourage and reward responsible stormwater management activities (i.e. on-site detention of runoff) and to recognize activities performed by the property owners that reduce the cost of providing SWMP services to that property. For example, if a property has a properly operating detention pond that mitigates the stormwater runoff pollutant discharge and peak discharge from the site then the City's cost of efficiently conveying that runoff downstream is reduced. The stability of revenue from a stormwater user fee ensures that long-range scheduling of O&M and capital replacement projects can be performed with reasonable assurance that funding will be available. Another possible advantage of a stormwater user fee is that it could potentially free up General Fund resources for other purposes.

The biggest potential disadvantages of a stormwater user fee are its high visibility and the "newness" of the approach. Regardless of technical distinctions between "taxes", "exactions", "assessments", and "service charges", any form of revenue generation by the local government could be viewed by citizens/property owners as a "tax" and thus might be unpopular.

The cost of implementation can be high, and there is an ongoing administrative cost to implement the expanded SWMP and maintain the billing database. Generally, the cost to create a user-fee system (SW Utility) for a community the size of Roswell is approximately \$200,000 (not including updated aerial photography). The annual administration cost of running a SW Utility (and Enterprise Fund) is entirely based upon the program elements, and typically ranges between 10 percent to 20 percent of the gross revenues.

3.1.1.2 General Fund Appropriations

The historical problem associated with appropriating General Fund revenues is the nature of competing priorities. As public services have been funded, each program competes for funding from the established budget. Traditionally, stormwater management has been one of the lowest priorities for a community. However, despite the low level of funding, there is a growing understanding of stormwater runoff's impact on a community, and water

resources management is becoming the subject of increasing federal and state environmental management programs. Furthermore, compliance with the recently enacted regulations is forcing local governments to increase funding for stormwater management compliance programs. If expanding stormwater programs are to be funded with General Fund money, either taxes must be raised or funding for other programs will have to be reduced. Most importantly, often times General Fund revenue does not have a direct correlation to the cost of providing a particular service, and it certainly does not correlate well to the City's cost of delivering stormwater management services to individual properties.

Regulatory compliance requirements for stormwater management are growing and citizens expectations for delivery of stormwater services is also increasing. There is a widespread understanding that expanded management efforts must be undertaken and historical spending levels will need to be increased to address the SWMP needs and priorities in an effective manner. Even if stormwater management continued to be funded with General Fund money, increased funding will be required. Therein lies one of the key concerns related to the use of General Fund money to fund the future expanded SWMP – no one wants to raise taxes or cut existing program funding.

Primary Funding Options Discussion: The question is often asked as to why a community would consider implementation of a SW Utility to fund an expanded SWMP instead of just raising taxes. The answer to this question lies in the premise that implementation of a stormwater user fee system is generally a more fair and equitable method to fund the future SWMP. Under the City's current SWMP funding system which relies heavily on the City's General Fund Tax Revenues, a disproportionate amount of the cost burden is placed on residential property owners. Preliminary research indicates that approximately 71% of the City General Fund Tax Revenue/tax digest comes from residential properties and approximately 29% of the revenue comes from non-residential properties (i.e. commercial, industrial, etc.). Furthermore, there is little or no direct correlation between the appraised value of a piece of property and its stormwater runoff characteristics; so an inequity likely exists regarding SWMP funding using General Fund taxes.

Additional research performed as part of this study indicates that residential properties constitute approximately 46% of the total impervious area for the City, yet these parcels account for approximately 71% of the General Fund Tax Revenues as described above. Engineering studies have shown that impervious coverage on a piece of property is the primary factor influencing stormwater runoff characteristics (i.e. runoff volume, discharge rate, velocity and pollution). The preliminary revenue breakdown for a future SW Utility in the City (see Section 7.2) indicates that approximately 58% of the user fee revenue would come from non-residential properties (i.e. commercial, retail, industrial, institutional, churches and City owned) and 42% of the user fee revenue would come from residential properties, *which is consistent with the citywide impervious area breakdown*. Using this information, one can conclude that for every dollar spent of stormwater services using General Fund Tax Revenues, residential properties contribute 71 cents. Under the potential stormwater user fee concept, the residential properties

would account for approximately 42 cents of every dollar spent on stormwater services. It should be noted that the City's future SW Utility/user fee bill would be paid in part using residential property tax dollars which would affect the user fee scenario to some degree. However, based on this preliminary information one can deduce that the stormwater user fee approach would be a more fair and equitable manner in which to apportion the cost of providing SWMP services to developed properties within the City as compared to an increase in the City's millage rate.

3.1.2 Secondary Funding Methods

These funding methods cannot independently fund the entire SWMP. However, they do have some applicability in funding portions of the SWMP, and are presented with that in mind.

3.1.2.1 Special Assessments

Special assessment districts or Community Improvement Districts (CIDs) have been used across the United States for many years to finance capital improvements. While not specifically limited in application to stormwater infrastructure, they have been used to finance improvements such as street landscaping, street lighting, traffic signals, and parks and recreation. A unique aspect of special assessments is the need to identify the "direct and special benefit" that properties receive as a result of the assessment. Project costs are assessed within the boundaries of the designated benefit area. Then the overall cost of the project is weighed against the individual properties within the benefit area to determine the benefit each area (or parcel) will receive from the improvement project. This can be a very challenging undertaking with regard to stormwater management and drainage related improvements, especially as it relates to specific water quality benefits. Property owners are usually offered the opportunity to pay the assessment amount in cash or allow a lien to be placed on their property. Then, payments are submitted over a predetermined 10 to 20 year period to pay for the bonds issued to finance the infrastructure improvements.

The difficulties in applying this approach to stormwater management are numerous. In practice, it is easier to apply this approach to capital improvements rather than drainage system O&M. The major disadvantage is that the costs must be distributed in proportion to the direct and special benefit received by each parcel. It is not sufficient to merely show the general benefit received by the assessment area. It appears that the creation of special assessment districts in the City would require substantial effort and documentation of the benefit derived would be difficult. Administration costs to address each specific special tax district would likely be substantially higher than the administration cost for a single enterprise fund. The reader should also refer to Section 4.3.2.3. of this Technical Memorandum for additional insight on CIDs.

3.1.2.2 Special Service Fees

Special service fees are fees collected to offset the local governments cost of providing specific services. Examples include plan review fees, E&S fees, LDA application fees, building inspection fees, and special permit fees. These are services that are provided to specific users of the service. Special service fees have typically been combined with other funds to help pay for certain operational aspects of stormwater management. However, use of these fees is generally limited to a select few activities that are charged a fee.

Generally these fees can range from nominal fees to very high fees in growing areas that have sufficient development to support the use of this system at higher levels. If implemented for stormwater services, the fees would only be assessed to applicants for the special service. The City would need to identify the special service being provided, and then determine the cost of that service in order to fully recover the costs. Consequently, it would only be of limited value, since it is limited in how it is applied (i.e. only applicants for a development plan review would be paying for the service). While this might be useful in paying for administrative and/or engineering review and inspection costs, it would not be appropriate for funding O&M and regulatory compliance elements. Additionally, the slowing rate of new development in the City of Roswell will likely lead to a decrease in revenue generated from special service fees; however administration cost would remain relatively the same despite the decreased revenue.

3.1.2.3 Bonds for Capital Improvement

Bonds are not a revenue source but simply a method of borrowing funds with the payback occurring over time. Bonds are typically used for capital-intensive projects. The chief advantage of bonding is that it allows construction of major improvements to be expedited in advance of what could be funded from today's current revenue sources. The disadvantage is that bonds cannot fund 'day-to-day' SWMP operations such as O&M and regulatory compliance. Generally there are two types of bonds – general obligation and revenue.

- *General Obligation (GO) Bonds* are backed by the full faith and credit of the local government. Georgia law limits City bonding capacity to ten percent of the total assessed value as set for property tax purposes. All revenues, including various taxes, may be used to service a general obligation debt. Use of a GO Bond requires voter approval.
- *Revenue Bonds* are backed by revenue – such as user fees, therefore, it does not require voter approval. The revenues obtained through the user service fees are then pledged for making debt service payments. If the City were to establish a SW Utility Enterprise Fund, once the revenue history became predictable and

stable then it would be able to pursue obtaining revenue bonds for construction projects.

3.1.2.4 In-Lieu of Construction Fees

Instead of constructing on-site facilities to meet local development standards, developers can be given the option of paying a comparable fee to reimburse the City for constructing regional facilities that are designed to meet the same objectives as the developer-constructed on-site mitigation. A key distinction between In-Lieu Construction Fees and Impact Fees (see below) is that In-Lieu Fees are typically utilized to offset the cost of the installation of on-site stormwater controls (i.e. parcel specific detention ponds) with the shared construction of “basin wide stormwater controls” such as regional detention ponds. Conversely, Impact Fees are typically utilized to address off-site impacts resulting from new development that cannot be effectively mitigated on-site.

The major disadvantage is that the In-Lieu fees paid are generally less than the entire construction and O&M costs for the regional facility. In addition, the regional facility must typically be built before all the fees are collected – requiring some “up-front” funding mechanism by the local government to pay for construction. A high level of masterplanning is usually required to prove that the regional facility is an acceptable substitution for the developer’s on-site stormwater control facility. One of the advantages is that regional, watershed based approaches to addressing stormwater impacts are generally more effective than small, local on-site facilities. Having developers participate in the total solution is generally better than a ‘checkerboard’ approach with respect to on-site detention pond construction and operation. However, in an open-space limited area like the City of Roswell, new large scale regional facilities would not be practical or feasible. As such, In-Lieu fees related to future development will likely not provide a sufficient stream of revenue for the future SWMP.

3.1.2.5 System Development Charges

System development charges are one-time charges assessed at the time of development to recover a proportionate share of the cost of existing facilities and planned future facilities. They are not specifically provided for by the General Assembly. They differ from both In-Lieu construction fees and impact fees primarily in terms of: 1) the fundamental purpose of the charges; 2) their relationship to the point in time when improvements are made versus when the charges are collected; and 3) their relationship to specific facilities which are funded through service charges.²

The System Development Charges approach is most often applied for sewer related services whereby a sewer utility builds excess capacity (i.e. gravity lines, force mains, lift stations, etc.) into the overall collection system and then new development pays a “proportionate share fee” for the capacity they will need to secure from the sewer system. Construction of excess capacity would obviously require a thorough knowledge of the

² Source: *Rockdale County Watershed Assessment – Stormwater Funding Options*. Ogden. December 14, 1999.

existing system, as well as the anticipated demand of the future system. As such, detailed and comprehensive stormwater masterplans for the City's drainage basins (which the City does not fully possess at this time) would be necessary to implement this funding method effectively.

3.1.2.6 System Connection Fees

The City has requested that the Project Team evaluate the potential for utilizing connection fees relative to City owned stormwater management facilities. The two previous funding methods described above (i.e. In-Lieu of Construction Fees and System Development Charges) could be utilized with respect to the concept of connection fees. In each case, the City would be responsible for the planning and construction of the stormwater management systems as well as establishing the proportionate share cost for future properties to connect onto the systems. The most straightforward method in which to calculate a possible connection fee would be through determination of the future site's impervious area based on zoning/land use. It would be prudent of the City to analyze the likely development time frame in order to estimate the potential fees that would be recovered and estimated the time duration for pay back. Although it would be possible to implement connection fees system-wide, our research indicates that this approach has been limited in application with regard to stormwater management programs in Georgia.

3.1.2.7 Impact Fees

Impact Fees are charges imposed against new development to recover the construction costs of capital facilities necessitated by that growth and impact. Existing residents find them popular since it shifts the cost of new facilities to new development. Obviously, developers do not favor their use and have exerted political pressure to limit their application. There are several administrative steps and limitations codified by Georgia Code that make impact fees difficult to utilize. Based on our understanding of the current law, Impact Fees are restricted to situations whereby the impact of new development on existing infrastructure is definable and quantifiable in terms of the required capital expense that would be required to maintain (not attain) an adequate LOS.³

Cities and counties have taken action to utilize impact fees for parks, roads, schools, and public safety facilities. The difficulty in following this same approach with stormwater management is that most of the needed capital improvements are related to "fixing the deteriorated system" rather than building additional capacity into new facilities to mitigate the impacts of the development. As stated earlier, Impact Fees can only be imposed for capital improvements necessitated by new growth, the fees collected must be spent quickly and geographic limitations regarding fee expenditure must be adhered to, otherwise the fees must be returned to the developer. Certainly there might be situations where an impact fee system could apply, but it would likely be challenging to apply this method Citywide in light of the issues cited herein.

³ Source: *Rockdale County Watershed Assessment – Stormwater Funding Options*. Ogden. December 14, 1999.

Impact Fee Discussion: If the City desires to utilize Impact Fees for SWMP issues in the future, the use of these fees would be limited to CIP projects since it is our understanding that Impacts Fees can only be used for this purpose. Once again, the absence of comprehensive stormwater masterplanning data for all drainage basins within the City would make it difficult for the City to establish the “adequacy” of the existing drainage system, as well as establish where new development transitioned the system to an inadequate LOS. Furthermore, since Impact Fees can only be applied for selected capital needs, the City will not be able to fund other SWMP elements including O&M, regulatory compliance, development regulation, engineering and planning – even though new development/growth will have both a direct and indirect impact on these SWMP elements. The complexity of applying Impact Fees to stormwater management would appear to make this funding method impractical.

3.1.2.8 Developer Extension/Latecomer Fees

Developer extension/latecomer fees are a means of distributing capital investment costs among several properties. The practical application is commonly seen for extending water and sewer service into adjacent areas. The approach is applied whereby one developer builds the facility with excess capacity to accommodate adjacent or nearby properties that are to be developed subsequently. It is difficult to apply this type approach to existing stormwater infrastructure because the existing system in many cases was only constructed to adequately convey the existing demand for a particular development. A master plan, based on full build-out, would be needed to guide the sizing of downstream facilities. Practically, this methodology does not provide funds, limiting its usefulness as a revenue source. However, in some limited situations, it could be used to help minimize infrastructure construction costs. This funding mechanism will have limited applicability in Roswell since there is a low level of new development and because it covers only the cost of capital construction, not O&M, which is one of Roswell’s primary SWMP priorities.

3.1.2.9 Federal and State Funding

Most of the federal and state funding programs are in the form of grants and loans. In order to receive these types of funding, a community would have to complete the necessary paperwork or application. The monetary amounts are generally small, and the process is often very competitive. With the exception of the funding available from the State of Georgia’s revolving loan fund for water quality management, there are few federal and state funding mechanisms for local SWMPs. Our recommendation to communities is to apply grant funds to projects and/or activities that would be considered “beyond the basic SWMP”, or would accelerate the funding of a future planned project or activity. The following paragraphs outline some of the programs that are available for funding components of a SWMP. Primary funding sources are still needed to provide the local match requirement for grant funds.

- *Federal Emergency Management Agency (FEMA); Hazardous Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDMP).* During

periods of natural disaster such as floods, hurricanes and tornadoes; the FEMA releases funds to the state Emergency Management Agencies (EMAs) to aid local municipalities in disaster relief and reconstruction. Occasionally, when funds are left after relief efforts are completed, the EMAs will utilize these funds to complete more proactive flood control projects. Limited primarily to purchasing homes that have been damaged, the HMGP and the PDMP have been utilized to improve stormwater infrastructure projects such as detention facilities, stormwater controls and roadway culverts. Financially, the program is structured as a reimbursement program designed to pay out 75% of the cost of a project.

- *Environmental Protection Agency (EPA); Section 319(h) Grant Program.* Funded as part of the Federal Clean Water Act, the 319(h) program focuses on mitigating non-point source pollution in surface waters. The program funds two basic types of projects: (1) non-point source pollution control practices as a demonstration project and (2) watershed restoration projects. Financially, the program is designed to reimburse communities 60% of the cost of a project. These grants are highly competitive and only approximately 10% of submittals are approved.
- *Georgia Environmental Facilities Authority (GEFA); State Revolving Loan Program (SRF).* Designed originally to aid local communities with the costs of construction and improvements to publicly owned water and wastewater treatment plants, the SRF has expanded into collection and distribution systems, as well as stormwater infrastructure improvements. A community that applies for and receives a loan under the SRF program pays a 2% closing cost and then pays the loan back with 3% interest (approximate) over a typical 20-year period.
- *Federal Highway Administration (FHWA); Transportation Equity Act for the 21st Century (TEA-21) Grant Program.* Used typically for road and sidewalk improvement projects, some communities have had success with implementing stormwater improvement projects related to urban roadway corridors for both water quantity and quality. The TEA-21 program will reimburse a community for approximately 80% of the project cost.
- *United States Army Corps of Engineers (ACOE); Various Grants.* With a long history of water resources management, the ACOE provides local assistance in several areas of flood and environmental mitigation. Typical financial assistance is provided for small flood control projects, emergency stream bank protection, dredging for flood control, environmental improvement projects, aquatic ecosystem restoration and floodplain management / planning support services. The ACOE has various matching contributions for each type of project that ranges from 25% to 50% of the project cost. It should be noted however, that in many cases contributions of land and other in-kind services can be utilized against needed matching local contributions.

- *U.S. EPA Various Grants:* The US EPA has several grant programs through which Roswell has previously received funding, including, but not limited to the following programs:
 - *State and Tribal Assistance Grant (STAG) Programs:* Developing partnerships and providing funding assistance is an important aspect of EPA's enforcement and compliance assurance program. One key partnership with states involves work planning and support through cooperative agreements, referred to as State and Tribal Assistance Grants (STAG). The Multimedia STAG program provides grant funds to states, tribes, inter-tribal consortia, territories and multi-jurisdictional organizations to help build capacity in implementing our nation's environmental laws and regulations
 - *Targeted Watershed Grants:* The Targeted Watersheds Grant Program (TWG) promotes successful community-based approaches and management techniques to protect and restore the nation's waters. The program is an integral approach to the Agency's watershed approach to clean water by providing assistance to watershed groups and service provider organizations working to protect and restore watersheds valued for fishing, swimming, drinking and other important uses. The Targeted Watersheds Grant program is a competitive grant program that provides funding to community-driven, environmental results oriented watershed projects. To date, more than \$37 million has been awarded to 46 watershed organizations. The program also provides capacity building grants to service provider organizations that can deliver training and tools for all watershed organizations across the country.

4. STORMWATER UTILITY OVERVIEW & LEGAL CONSIDERATIONS

4.1 BACKGROUND & INTRODUCTION

A Stormwater Utility (SW Utility) – or user fee system – is a charge assigned to a property parcel and its owner to recover the cost to the local government entity of managing the stormwater runoff generated by that parcel or customer. Throughout the country, more than 400 SW Utility programs have been established. Each has been established to meet the unique needs of the community it serves. The establishment of the utility provides that the costs, including expenses and depreciation, of providing SWMP related services to the utility customers on a continuing basis are to be financed or recovered through user fee charges that are fair and equitable to all property owners utilizing the local government’s drainage system, facilities and services.

The amount of runoff generated by a parcel represents that parcel’s proportionate share of the cost of service delivery provided by the City. The amount of runoff from a parcel is largely determined by the amount of impervious surface areas (i.e. concrete, asphalt, roof tops, etc.) that are present on a particular parcel. The amount of impervious area for a parcel is directly related to the increased quantity of runoff and the potential for an increase in non-point source pollutants to be discharged into the City’s drainage system. This increased burden or demand (water quantity and quality) placed on the City’s drainage system results in a higher cost to provide stormwater management services for that parcel. The increased demand associated with impervious surface related impacts to the City’s drainage system is the basis for the user fee charge to the parcel owner. As such, one can deduce that larger parcels with greater amounts of impervious surface area will be charged a higher fee based on the relative demand placed on the City’s drainage system.

4.2 STRUCTURAL CHARACTERISTICS OF STORMWATER UTILITIES

Like all utilities, a SW Utility has two fundamental structural characteristics:

1. A SW Utility is a defined *organizational entity* charged with accountability for the execution of a defined SWMP and specific service delivery to its customers, and
2. It is a stand-alone, self-contained *accounting entity* with defined revenues and restricted expenditures, such as an enterprise fund. The enterprise fund accounts for operations that are financed and operated in a manner similar to private business enterprises.

4.2.1 Organizational Entity

As an organizational entity, a SW Utility has a defined mission or purpose – to provide a defined level of stormwater management services to the community and its customers. It is provided financial resources and charged with the management of human resources and the support equipment necessary for those personnel to accomplish the mission effectively and efficiently.

As an organizational entity, stormwater utilities can pursue one of two general courses in providing services: it can “contract” with other units within the local government’s organizational structure to provide services; or it can acquire its own resources and provide the required services directly. In either event, the fundamental objective of the organizational aspect of a utility is the clear assignment of accountability. All final responsibility for performance in achieving the stormwater program objectives lies with the utility structure. The full range of stormwater management services provided by a full service utility would include:

- Regulatory Compliance
- SWMP Administration
- Stormwater Masterplanning
- Public Information & Education
- Planning & Engineering
- Programmatic Elements (i.e. ordinances, design standards, etc.)
- Geographic Information Systems (GIS)
- Water Quality Management
- Operations & Maintenance (O&M)
- Capital Improvement Program (CIP)
- Billing, Collections & Customer Service

While all of the SWMP elements listed above may be funded through a utility, it is not necessary that all costs be so recovered. The City may elect to fund any portion of eligible costs via a user fee charge and fund the remaining portion through non-utility sources. Please refer to Section 3 herein for a summary of primary and secondary SWMP funding sources.

4.2.2 Accounting (Financial) Entity

The second fundamental characteristic of a SW Utility is its stand-alone accounting entity status. Consistent with Generally Accepted Accounting Practices (GAAP), the SW Utility must be structured as either a special revenue fund or as an enterprise fund. These fund designations require that revenues generated by (or transferred to) the utility must be

spent solely for specific stormwater management functions. This classification segregates revenues and expenditures associated with the special purpose for which the enterprise fund was established. By design, it prohibits the co-mingling of fund balances. In contrast to general funds, an enterprise fund operates similar to a private business venture, and sometimes generates an excess fund balance. The enterprise fund concept allows for excess fund balances to be easily rolled over to future years for use in various SWMP related projects and functions.

4.3 STORMWATER UTILITY IMPLEMENTATION LEGAL CONSIDERATIONS

Creation of an enterprise fund program to finance a SWMP is an emerging concept in Georgia. Currently, there are no state laws that specifically address formulation of a SW Utility like are present in the State of Florida where over 100 utilities currently exist. As such, we recommend that the City staff work closely with the City attorney to develop the required ordinances and other legal documents.

4.3.1 Atlanta Case Study

The City of Atlanta attempted to form a utility in an unconventional manner and was challenged in Superior Court. They unsuccessfully defended their rate methodology and SW Utility formation approach. The following summarizes the court rulings for the Atlanta Case and should be a substitute for a complete review of the Superior Court's ruling.

The City of Atlanta approached the SW Utility formation process without having completed a SWMP cost of services analysis or a rate analysis. It appears that the City was looking for a way to balance the budget and they reflected SW Utility fees to assist with the process. Several staff meetings were focused on creating an interim SW Utility. An initial rate methodology was developed and an ordinance establishing the interim utility was enacted on March 1, 1998.

The interim rate methodology did not follow the pattern most successful utilities have utilized. They chose to develop a method based on gross property size and an intensity of development (land use from zoning records) factor. Money raised from this interim utility was to be spent specifically on a detailed cost of service analysis, as well as establishment of a permanent rate methodology and rate structure. Other start-up costs would be paid from the initial revenues. Additionally, the revenue would be used to pay for some stormwater management needs, however the details of various program elements that would be funded via the user fee were absent from any published documents.

The City staff did not hire a consultant to guide them. Instead, they undertook primary responsibility for creating the utility, developing the master account file, calculating the bills and implementing a limited public awareness campaign. They chose to issue a single bill for the annual amount of the fee. The average single-family resident received

a bill of approximately \$48.00; however many residents received bills greater – some in excess of \$150.00.

By mid-February 1999, the City had collected over \$3 million in stormwater fees. A lawsuit was filed in March 1999 in Fulton County Superior Court that effectively ended collection activities. In October 1999, Judge Rowland W. Barnes ruled against the City and instructed all the money to be refunded with interest. The Court offered the following: “Clearly, the City has the authority to provide stormwater services to its citizens and expect the citizens to pay for this service.” The ruling further states, “... the question before the Court is not whether the County has the power to assess a charge for providing stormwater maintenance services, the question is whether the City followed the appropriate steps to exact this charge from the owners of parcels of property in the City of Atlanta.”

4.3.1.1 Atlanta Approach vs. Griffin Approach

The approach taken by the City of Griffin differed significantly from Atlanta. The City hired a consultant to lead them and to perform the necessary due diligence steps (similar to the four step process outlined herein) to avoid the possibility of the utility being overturned by a legal challenge. The process that they followed (which is consistent with the approach outlined herein) was to employ a multi-step process. The multi-step process ensures that the applicable due diligence efforts are considered and addressed as a part of the overall process.

The initial step undertaken by Griffin involved analysis of the existing and future stormwater program followed by development of a detailed cost of service analysis. Questions and issues regarding the future SW Utility enterprise fund were addressed including how it is organized and staffed, what the stormwater program priorities will encompass and establishment of the LOS and extent of service (EOS) policies. The effort culminated in development of an ordinance that legally codifies the formation of the SW Utility enterprise fund.

The next step implemented by Griffin addressed the financial aspects of the SW Utility enterprise fund. During this step, details concerning the rate structure analysis, cash flow considerations, master account file development, creation of the billing system and customer service functions were established. A second ordinance was created that codified the rate methodology/rate structure including the SW Utility credit program.

The multi-step process discussed herein offers several advantages for the City of Roswell. First, it provides the general public an opportunity to provide comment and input for consideration by the City as they make important policy decisions regarding the future SW Utility. Secondly, it separates the stormwater program and cost of service development process from the master account and billing database aspects of the future stormwater program. It was previously recommended that the City follow a multi-step process in implementing a SW Utility.

4.3.2 Columbia County SW Utility Legal Challenge Summary

In 2003, two legal rulings were issued with respect to the existing Columbia County SW Utility (CCSU). The first ruling was issued by the United States District Court, Augusta, Georgia Division on March 31, 2003, and the second ruling was issued by the State of Georgia Superior Court for Columbia County on July 29, 2003. The Federal Court ruling in March 2003 was issued as a result of the plaintiffs filing a class action lawsuit against the Columbia County Board of Commissioners (BOC) challenging the stormwater service charge. The State Superior Court ruling in July 2003 was issued as a result of the previous Federal Court ruling in March 2003, which as part of its March 2003 ruling remanded the case to the State Superior Court of Columbia County. In June 2004, the Georgia Supreme Court issued their ruling following an appeal of the Superior Court decision in Columbia County. We encourage the reader to review the ruling in its entirety to supplement the report text provided herein.

4.3.2.1 United States District Court Ruling – March 31, 2003

The primary issue put before the Federal Court was whether the SW Utility charge was a tax or a fee. The court evaluated several details related to the CCSU and offered its opinion on several of these issues. The primary issue addressed by the court related to the Tax Injunction Act (TIA) and the Court's ability to adjudicate the case under Federal Law. The TIA imposes restrictions on the jurisdiction of Federal Courts with respect to the administration of state/local tax systems. As such, the Federal Court had to first determine if it had jurisdiction under the TIA. In order to determine whether it was vested with the subject matter jurisdiction, the Court had to determine whether the SW Utility charge in Columbia County was tax or a fee. If the charge was a tax, the Federal Court was without jurisdiction to hear the case.

The Three-Factor Test

To distinguish a tax from a fee, for the purposes of the TIA, the court considers: (1) the entity that imposed the fee, (2) the parties that are being assessed the fee; and (3) whether revenue was generated by the fee is expended for general public purposes or used for regulation and benefit of parties upon whom assessment was imposed. Please note that the CCSU service charge is imposed on customers located within five main watersheds, not the entire County. The five watersheds represent the most urbanized areas of the County.

Question 1: Who imposed the charge? In Columbia County, the BOC created the stormwater charge, established the rate methodology, established the amount of the stormwater charge, and maintained the authority to set/adjust the charge. The Court concluded that the BOC imposes the charge, not the CCSU.

Question 2: Who is assessed the fee? In Columbia County the charge is billed to properties located within a certain service district whose property meets certain criteria for imperviousness without regard to use. The Court concluded that the

charge is assessed against a wide variety of property owners with varying uses and the imposed charge includes a majority of the County's population.

Question 3: Whom does the revenue benefit? The County held the position that the funds are segregated into an enterprise fund account so the charge is a fee not a tax. The Court contended that segregation of the collected monies in a separate account is not reason enough to conclude that the charge is a fee and not a tax.

The court also concluded that stormwater management was, and is, the type of service that is often funded by general tax revenue. Furthermore, the Court found that Columbia County had previously owned, operated and maintained drainage systems and facilities throughout the County and used general tax revenues to manage/maintain the systems prior to formation of the CCSU. Finally, all of the "threshold or base level" stormwater services are funded via general tax revenues throughout the entire County.

Conclusions of Law – United States District Court (March 31, 2003)

Based on the aforementioned information, the Federal Court ruled that the stormwater charge in Columbia County was a tax because it was:

1. Imposed by the BOC;
2. Imposed upon many citizens who own property of various uses, sizes, etc.;
3. Resulted in a benefit to all the citizens of the County; and
4. Prior to formation of the CCSU, the County general tax revenues funded (and continue to fund) stormwater management services within the County.

The Federal Court concluded that it lacked jurisdiction (under the TIA) to adjudicate the issue given that the charge was ruled a tax. As a result, the case was remanded to the Superior Court of Columbia County, Georgia.

Discussion

In review of the March 2003 ruling, the Court's opinion that the stormwater charge in Columbia County was a tax and not a fee was detrimental to the overall SW Utility concept in Georgia. It is our understanding that the efforts of several communities that were contemplating the SW Utility concept were impacted by this ruling, and some of the communities reevaluated their plans to issue stormwater bills while they awaited the Superior Court decision.

4.3.2.2

Superior Court of Columbia County Ruling – July 29, 2003

As a result of the Federal Court ruling summarized above, the case was heard before the Superior Court of Columbia County on June 24, 2003. In this case, the plaintiffs challenged the CCSU (and associated ordinance) under the Georgia and United States Constitutions. Columbia County outlined the administrative, operational and financial responsibilities and components of the CCSU to the Court. The CCSU contented that:

- The SW Utility provides a drainage system to safely collect and properly dispose of stormwater runoff within the designated service area.
- The SW Utility provides a specific service to property owners/customers within the service area by reducing flooding, erosion and water pollution caused by stormwater runoff.
- The SW Utility serves as a mechanism whereby customer complaints related to stormwater management issues can be taken and addressed by the CCSU.
- The SW Utility assists property owners with the management and control of runoff originating from, and traveling through, private property such that downstream damage/impacts are minimized.
- The SW Utility provides incentives for non-residential property owners to effectively manage runoff through the construction and maintenance of on-site stormwater facilities so that the property owner can capitalize on available credits to their stormwater fee.
- The SW Utility assists the County in achieving compliance with their NPDES Phase II Stormwater Permit by regulating various aspects of stormwater management which are also required under the Permit.
- The SW Utility charges are utilized for the maintenance and repair of existing stormwater facilities, as well as the construction of new stormwater facilities.
- The SW Utility funds are placed in a separate enterprise fund account dedicated solely to the management, maintenance, protection, control, regulation, use and enhancement of stormwater management services within the County.
- The SW Utility does not have the power to impose liens directly against the property of those that do not pay the fee and must seek to collect delinquent fees by filing suit to obtain a judgment.

The CCSU also elaborated on the rate methodology (i.e. impervious surface) and the stormwater runoff related impacts (i.e. increased volume and velocity) that higher amounts of impervious surface can have on the watershed.

Conclusions of Law – Superior Court of Columbia County (July 29, 2003)

The Court found that Columbia County has the constitutional and statutory authority for the SW Utility service charge. In general, the Court cited the Georgia Constitution which grants any county in the state the power to provide stormwater and sewage collection services {GA Const. Art 9, §2, ¶3(a)}. The Court further stated that the County was authorized to collect “rates, fees, tolls, or charges” for services made available by the County {O.C.G.A. §36-82-62(a)(3)}. It was the opinion of the Court that these constitutional and statutory provisions permit Columbia County to provide stormwater management services and to fund these services by charging fees. The Court also issued opinions on several other matters related to the CCSU:

- The Court ruled that the County need not establish a Community Improvement District (CID) to impose the CCSU fee.
- The Court ruled that the SW Utility service charge is a fee, not a tax.
- The Court ruled that the SW Utility fee is not a taking under the Georgia or United States Constitution.
- The Court ruled that the CCSU was entitled to payment of any and all unpaid stormwater charges incurred by the plaintiffs.
- The Court ruled that the stormwater management ordinance and SW Utility service charge are constitutional.

Discussion

Review of the Superior Court ruling from July 2003 was very favorable/supportive of the SW Utility concept, and this ruling should serve as the foundation for many communities to build upon.

4.3.2.3 *Georgia Supreme Court Ruling – June 28, 2004*

Following the ruling by the Superior Court of Columbia County, the case was appealed to the Georgia Supreme Court for review and consideration. The Supreme Court stated the following in their ruling dated June 28, 2004:

- Pursuant to the Home Rule section of the Georgia Constitution and general statutory law, the County was authorized to establish the SW Utility and to impose a utility charge for the provision and delivery of stormwater management services.
- The constitutional CID provisions of the Georgia Constitution were not applicable to this case; therefore, it was not required that the County establish a CID to implement the user fee. In accordance with the Georgia Constitution, CIDs may levy taxes, fees and assessments “only on real property used nonresidentially, specifically excluding all property used for residential, agricultural or forestry

purposes...”. Ga. Const. Of 1983, Art IX, Sec. VII, Par III (c). Therefore, the Court concluded that the CID provisions of the State of Georgia did not furnish the County an opportunity to create a CID which, like a SW Utility, would charge residents for stormwater management services.

- The SW Utility charge is not an invalid tax and cited case law from throughout the United States regarding the issue of tax versus fee. The Georgia Supreme Court has defined a tax as “an enforced contribution exacted pursuant to legislative authority for the purposes of raising revenue to be used for public or governmental purposes, and not as payment for a special privilege or service rendered.” The Court went on further to state that a charge (presumably a user fee charge) is not a tax if its objective and purpose is to provide compensation for services rendered. The ruling then went into extensive detail regarding their case law research on this issue to support their conclusion that the stormwater user fee is not an invalid tax. We suggest that the reader review the June 28, 2004 Supreme Court ruling to gain additional insight into this very important aspect of the ruling.
- The County’s “method of apportioning the costs of the stormwater services is not arbitrary and bears a reasonable relationship to the benefits received by the individual developed properties in the treatment and control of stormwater runoff.”
- The trial court was correct in granting summary judgment in favor of the County with all Justices concurring.

Discussion

Review of the Supreme Court ruling from June 2004 essentially upheld (from a legal perspective) the utility setup and implementation methodology utilized by Columbia County. The Supreme Court’s action serves as a landmark ruling with respect to SW Utility setup and implementation in the State of Georgia. Adherence to the ruling, and the associated conclusions set forth by the Court, should serve as the legal foundation from which a community should establish a SW Utility in Georgia.

5. STORMWATER UTILITY RATE METHODOLOGY OPTIONS

The most common approach in funding a SW Utility Enterprise Fund is through a user fee system based on a legally defensible rate methodology. Use of the City drainage system can be defined by utilizing two methods. The first and most common method is to define the ‘demand’ that a property places on the storm drainage system. The demand is directly related to the amount of runoff, calculated as the peak flow rate, leaving the property, i.e. the larger the impervious area and corresponding volume of runoff, the greater the demand that is placed on the drainage conveyance system. As the flow volume increases and the demand on the system increases, the user fee becomes larger. The conveyance system and facilities assist in protecting the property, downstream properties and safely conveying the flows into the receiving waters.

The second method for defining use of the drainage system is to determine the benefit received by the property. Each property generates stormwater runoff that flows into the drainage system and each property owner benefits, in some way, from reduced flooding, improved water quality, etc. Georgia case law focuses more on the demand that a property places on the SWMP and the public drainage system and not so much on the benefit received.

The total property area and the total impervious area are the two major parameters that are related to defining the demand that a property places on the drainage system. Accordingly, large properties with large impervious area generate large volumes of runoff. An example of a large parcel generating a significant amount of runoff would be a shopping center. Clearly, a shopping center should pay a higher user fee as compared to a single-family residence since the shopping center generates significantly more runoff.

Creation of the rate methodology must follow several legal parameters. It must have a detailed and sound SWMP cost of service as its basis. In adopting a rate methodology, the City must be fair and equitable. The rate methodology is typically divided into three modules:

1. The method for defining and calculating the rate
2. Rate modification factors to enhance equity, reduce costs and meet other objectives
3. The secondary funding methods that support funding the program

There are three basic rate methodology approaches, all based around the two principle factors – impervious area and gross area. Variations of the three rate methodologies exist and should be researched in more detail if the City elects to move forward with setting up a SW Utility. Each approach has advantages and disadvantages. However, the relationship between the runoff (demand) and the corresponding user fee charge needs to be maintained (i.e. the greater the demand the higher the fee). Furthermore, the established rate structure must be able to demonstrate that there is a nexus between the user fee charge to a specific parcel and the SWMP services provided to that parcel. The three basic rate methodologies consist of the following:

- Impervious Area*
- Impervious Area plus Pervious Area
- Land Use

** NOTE: The impervious area methodology is the most common method utilized throughout the United States. The impervious area methodology is used by over 95% of the 20 active SW Utilities in Georgia, and the Columbia County Stormwater Utility utilizes the impervious area methodology.*

No single stormwater service charge rate structure is likely to be judged “perfect.” For practical reasons however, the perception of equity by the customers is clearly one of the most important factors. Both public and judicial acceptance will be predicated primarily on whether the basic rate concept is perceived by the customer as a fair and equitable means of distributing the costs of stormwater management. In order to be perceived as equitable, the preferred rate methodology should be easy to understand, as well as technically defensible.

Table 5. Rate Methodology Comparison

Model	Customer Perspective		City Considerations	
	Equity	Understanding	Data	Applicability
Impervious Area	A+	A	Moderate	Most Common
Pervious + Impervious	A-	B	High	Occasional
Land Use	B	C	Very High	Least Common

Secondary funding methods and modification factors are used to enhance equity or improve ease of SW Utility implementation and management without unduly sacrificing equity. Typical modification factors might include:

- A flat rate charge for Single Family Residential (SFR) customers
- A base rate for certain costs which are fixed per account
- Tiered SFR flat rate structures to ensure equity where the SFR impervious area footprints dictate
- Intensity of development factor
- Impervious percentage considerations
- Basin-specific surcharges for major capital improvements
- Credits against the monthly service charge for properties which have on-site detention/retention systems or BMPs

The City should thoroughly review the various rate methodologies before selecting the one that best fits their situation. It is important to base the service charges on the impact that individual properties have on the City's cost of providing stormwater services and facilities. This approach to rate structure design is consistent with the technical/legal defense tests that are usually applied to utility service charges.

5.1 RATE METHODOLOGY CONSIDERATIONS

As discussed above, Columbia County has successfully utilized the impervious area methodology, and this rate methodology (among other aspects of the CCSU) was upheld by both the Columbia County Superior Court and Georgia Supreme Court. As such, it is assumed for the purposes of this study that an impervious area rate methodology would likely be utilized if the City decided to implement a SW Utility in the future. The ensuing sections constitute a cursory level analysis of the City implementing an impervious area methodology with appropriate modification factors incorporated into the final rate structure.

5.2 IMPERVIOUS AREA METHODOLOGY

Stormwater rate structures employing impervious area as the sole parameter have been widely used for nearly 20 years. A majority of the existing SW Utilities in Georgia have utilized an impervious rate methodology as its rate methodology foundation. The first SW Utility in Georgia was set up in Griffin in 1998 and the City utilized a SFR rate modifier, applying a flat-rate charge for all SFR properties with two SFR tiers. Griffin established parcel specific charges for non-single family residential (NSFR) properties based on calculated impervious area data obtained from aerial photography and field verification. The CCSU took an approach that was based on calculating the parcel specific impervious area for each property (i.e. no flat rate charge for SFR parcels) and generating a customer bill for each property.

6. MASTER ACCOUNT FILE DEVELOPMENT

It has been our experience that master account file development is best completed using GIS software and database tools. The data requirements depend upon the rate methodology selection. For example, an impervious area based approach would require individual parcel information and impervious surface data tied to the specific parcel, typically in GIS. The rate methodology would create a drainage system usage factor, or demand factor, which is the basis for the stormwater user fee charge.

In this scenario, parcel-based charges taken from the GIS must be converted to customer account-based bills before billing can be accomplished. A policy decision will need to be made regarding whom to bill (i.e. tenants, public utility customers, property owners, etc.). Regardless of the decision, it will be important to be able to logically explain the policy decision regarding whom to bill, and the City should have a customer account database program which is easy to maintain and update.

6.1 RATE METHODOLOGY & PARCEL DATA DEVELOPMENT

As stated previously, the amount of impervious surface is the most significant factor in estimating peak runoff volume from individual parcels. The final decision on a rate methodology and structure might require that other factors be considered in determining stormwater user fee charges for each parcel. Given that the two most common factors are impervious area and gross area, closed parcel lines and impervious site data features are required inputs for development of the master account file database.

Typically, NSFRs would have impervious areas determined through aerial photo interpretation and some field delineation methods. The computation may not be exact due to parcel line and aerial photograph inaccuracies, as well as the inherent error associated with accurately interpreting some features. This inherent inaccuracy is not expected to cause large numbers of billing errors, assuming the billing unit (i.e. ERU) is set sufficiently large, which it is at an estimated 4,600 square feet for the City of Roswell.

6.1.1 Master Account File Database Development

The first step in billing database development would involve compilation of parcel ownership and land use data to assist the City in segregating parcels into the necessary billing categories needed to generate a stormwater user fee bill (SFR, NSFR and vacant/undeveloped). A limited amount of this work has been done to initially categorize parcels into various broad classes: SFR, NSFR and vacant. This GIS database information would be necessary if the City elects to develop and implement a stormwater user fee system in the future.

The next step would involve development of a GIS impervious area layer/database that would tie to the existing land use and impervious area data to the City's current address and parcel information. The end product of this effort would be development of a database of information that contains: 1) land use data; 2) impervious area information by parcel; and 3) address information. Tying all this information together will be critical with respect to a future stormwater user fee billing database regardless of the rate methodology utilized or the customer billed (i.e. tenant or property owner).

7. PRELIMINARY RATE STRUCTURE EVALUATION

7.1 CITY LAND USE ANALYSIS

The City of Roswell covers an area of approximately 39.2 square miles based on data derived from the City. Current property data obtained from the GIS indicates that the City has a widely varied mix of land development that includes large tracts of residential single-family detached housing, commercial development in select areas of the City and industrial development on the southeast side of the City. When examining these types of developments with respect to a potential future SW Utility, the developments are categorized into three types of properties: 1) single-family residential (SFR) detached housing; 2) non-single-family residence (NSFR) properties; and 3) properties that have not been developed (i.e. vacant). The reader should note that the NSFR classification can include all types of property usage including attached housing (duplexes, triplexes, apartments, townhomes, etc.), commercial development, institutional, tax exempt, industrial complexes, etc. and in common use is the “catch-all” category for all developments that are not SFR properties.

The amount of development on a property affects how much of a demand the property puts on the City’s stormwater system infrastructure and in some cases the amount of regulatory responsibility that the City must take on due to Federal, State and regional regulatory requirements. This can best be described by looking at the amount of rainfall that a property can absorb or infiltrate before development and then the amount of infiltration after development. As the property is developed, houses, buildings, driveways, parking lots, etc. are placed on the property and soil/vegetation that once absorbed rainfall is now removed or blocked. Infiltration is thus decreased and the amount of rainfall that flows from the property is now increased in the form of additional stormwater runoff.

Experience has demonstrated that in many cases, the more intense the development of the property, the amount of stormwater generated is increased. As such, SFR properties tend to have the least amount of impact and various developments in the NSFR category typically have the greatest impact on runoff volume increases. This is due to the fact that the amount of impervious area can be directly tied to the increase stormwater runoff. Additionally, because the impervious area is relatively minor when comparing SFR properties to NSFR properties, the assumption of SFR properties having less impact than NSFR properties is valid in most cases.

Impervious area for NSFR parcels is not typically averaged due to the wide variance found in property size and development intensity. This can be best exemplified by examining the differences between large golf courses and smaller commercial developments. While golf courses make up very large property sizes, these properties tend to have smaller impervious areas associated with them. Conversely, smaller commercial properties tend to have relatively small property sizes and significant impervious areas associated with the development relative to the lot size.

7.2 PRELIMINARY RATE STRUCTURE ANALYSIS

A SW Utility and user fee rate methodology is based upon several factors. The most important factor in the determination of any rate methodology is the perceived fairness and equity by the customers. Based on our preliminary work effort completed thus far, the *Impervious Area Rate Methodology with Modifying Factors* appears to be the most viable method to be considered for a future Stormwater User Fee/SW Utility for the City of Roswell. As stated previously, impervious area is the most common rate structure method in Georgia at this time. This methodology is currently being utilized by the Cities of Griffin, Peachtree City, Woodstock, Fayetteville and Fairburn.

7.2.1 Preliminary Equivalent Residential Unit (ERU) Billing Unit

An ERU is based upon the median amount of impervious area for SFR properties. Many communities that currently operate stormwater utilities or user fee charges have ERUs within the 2,000 to 5,000 square foot range. Griffin established an ERU of 2,200 square feet; Peachtree City established an ERU of 4,600 square feet; Fairburn established an ERU of 3,300 square feet; and Fayetteville established an ERU of 3,800 square feet. This number is used to calculate the charges for the NSFR properties by equating the NSFR properties to an equivalent number of SFR parcels. The non-residential units are then typically charged based on this equivalent number of “homes”. For example, if a commercial development has the same amount of impervious area as 20 homes then the bill would be 20 times the amount of a residential bill.

7.2.1.1 Single Family Residential Customers

A sample of 800 SFR properties throughout the City of Roswell was selected in order to give a preliminary estimate of the median impervious area for SFR properties. Based on preliminary review of parcel and impervious area data from the aerial photos, the impervious area range for a SFR property in the City was found to be between 1,629 and 31,613 square feet. For purposes of discussion and example calculations, the study has calculated that the preliminary City ERU billing unit is between 4,587 square feet (median) and 5,420 square feet (average). We have assumed an ERU of 4,600 for the purposes of this study and the sample calculations shown below.

Under a modified impervious area rate methodology, detached SFR customers are typically billed a flat rate amount based on one ERU per SFR parcel. In some situations where the housing stock in the community varies, the detached SFR customers will be segregated into “tiers” because of the variance in the impervious area footprints for the SFR parcels. Tiering the SFR customers accounts increases equity among the customer base since SFR parcels with less impervious area will pay a lower fee than SFR parcels with larger impervious area. This is typically accomplished by establishing a rate structure with a flat rate, fractional ERU. The SFR customers proximate to the overall median impervious area footprint (i.e. 4,600 square feet) would be charged 1.0 ERU. The smaller impervious area footprints would be charged say 0.75 ERUs and the larger

impervious area footprints would be charged say 1.3 ERUs. The tier breaks would be established based on a detailed statistical review of the SFR impervious area database.

7.2.1.2 Non-Single Family Customers

Under an impervious area rate methodology, charges are calculated for NSFR parcels by: (1) dividing the total amount of impervious area for the NSFR parcel by the ERU; and (2) multiplying the result times a base charge rate per ERU. Stormwater user fees are calculated on ERUs that are based on the equivalent number of average residential homes as shown below in the example calculation.

Assumptions	Preliminary Roswell ERU = 4,600 SF Example Billing Rate = \$4.15/ERU/month										
Sample Calculation for NSFR Parcel	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Building =</td> <td style="text-align: right;">24,630 SF</td> </tr> <tr> <td>Sidewalks =</td> <td style="text-align: right;">7,710 SF</td> </tr> <tr> <td>Driveways/Parking =</td> <td style="text-align: right;"><u>44,160 SF</u></td> </tr> <tr> <td><i>Total Impervious Area =</i></td> <td style="text-align: right;"><i>76,500 SF</i></td> </tr> <tr> <td>ERU Equivalent = 76,500 SF/4,600 SF/ERU = 16.6 ERUs (16 ERUs)</td> <td></td> </tr> </table>	Building =	24,630 SF	Sidewalks =	7,710 SF	Driveways/Parking =	<u>44,160 SF</u>	<i>Total Impervious Area =</i>	<i>76,500 SF</i>	ERU Equivalent = 76,500 SF/4,600 SF/ERU = 16.6 ERUs (16 ERUs)	
Building =	24,630 SF										
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<i>Total Impervious Area =</i>	<i>76,500 SF</i>										
ERU Equivalent = 76,500 SF/4,600 SF/ERU = 16.6 ERUs (16 ERUs)											
Bill Calculation	16 total ERUs x \$4.15/ERU/month = \$66.40/month stormwater bill										

SF = Square Feet

7.2.2 Total ERU Development

For the impervious area rate model, the number of projected ERUs (or billing units) must be determined. This consists of calculating the total impervious areas of the NSFR parcels and dividing that number by 4,600 square feet to calculate the total number of NSFR ERUs. The total number of SFR ERUs would be roughly equivalent to the total number of SFR parcels assuming they would be billed a single flat rate or tiered. Please be advised that we have assumed this billing approach for SFR parcels for the purposes of this study and because a flat rate SFR billing is the most common approach currently utilized in Georgia. However, other SFR billing options (i.e. tiering) might be appropriate for the City to utilize and further analysis of this issue will be warranted in the future to ensure equity and fairness to all SW Utility customers. The future work will also further define the actual ERU to be utilized by the future SW Utility. The number of NSFR ERUs combined with the number of SFR ERUs establishes the total number ERUs (or billing units) to be billed by a future SW Utility.

As part of the ERU development effort, the City will also need to include the impervious area associated with City-owned property (including City streets) that will be charged a stormwater user fee charge. The amount of revenue for City facilities will be based on the number of ERUs that the City owns with respect to their impervious surfaces for City properties and facilities, such as libraries, public works, City owned recreation facilities, fire stations and the City streets. If the City were to move forward with a traditional SW Utility, City owned property would be accounted for in the NSFR ERU development. Table 6 depicts the estimated number of ERUs for all parcels within the City.

Table 6. Preliminary ERU Development

Account		Number of Parcels	Estimated ERUs per parcel	Total ERUs
SFR		20,784	1	20,784
NSFR	Commercial	1,074	12	12,888
	Multi-Family Units	3,810	½	1,905
	Schools	n/a		1,766*
	Private Roads	n/a		698*
City Roads ERUs (preliminary estimate)		n/a		11,563**
TOTAL				49,604

* Number of ERUs estimated based on preliminary impervious area measurements from aerial photography.

** Number of ERUs based on a preliminary calculation of the impervious area from the estimated linear feet of roadway centerline.

Note: The parcel database summarized in the table above is the City's 2006 tax digest information.

7.2.3 Preliminary User Fee Rate

The user fee rate is established based on the proposed SWMP LOS program type such that the SW Utility will be able to produce sufficient revenue to fund the SWMP entirely, or in conjunction with other supplemental funding sources (i.e. special service fees, etc.). The total number of ERUs, and the associated user fee rate charged, should be sufficient to fund the desired SWMP LOS Program Type. Finally, consideration should be given to the customer's "willingness to pay" for the proposed SWMP LOS Program Type when establishing the final billing rate.

According to recent surveys conducted by the Florida Stormwater Association, the median user fee rate for the approximately 100 SW Utilities surveyed is approximately \$3.88. Based on the recommendations set forth in this report, we recommend that an Expanded Program Type SWMP LOS, with a corresponding initial user fee rate range of between \$3.90 to \$4.40 per ERU per month, be considered for implementation by the City. Under the Expanded SWMP Program Type and this proposed rate structure, the City would essentially charge \$4.15 (the average for the range stated above) for each 4,600 square feet of impervious area within the City with a minimum charge of one ERU. The final user fee billing rate will be dependent on the total number of ERUs and the ultimate cost of the future SWMP. If more ERUs are added into the system, the final stormwater user fee billing rate could be modified. *It should be noted that any services or activities added to the SWMP that results in an increase to the SWMP cost of service data outlined herein will affect the initial user fee billing rate range shown above.*

Typically, the monetary needs are not constant during the first five years of a SW Utility, and often times a fund balance carry-over from the initial SW Utility years can help offset higher SWMP costs for later years. In addition, SWMP activities will “ramp-up” over the five-year period, resulting in a lower cost of service in the first year of the program and an increased cost of service in years two through five. This is especially important because it has been our experience that most communities do not want to institute a rate increase during the initial five-year period and a fund balance carry over can help to “level out” the user fee rate. Utilization of the appropriate user fee rate based on the final number of ERUs should enable the SWMP to be adequately funded via a SW Utility for the initial five-year planning period.

7.2.3.1 SW Utility User Fee Rate Comparison

Table 7 below compares the “example” City of Roswell user fee rate to some of the other existing SW Utilities in Georgia. As you can see, the example billing rate of \$4.15 per ERU would fall in the lower 30% of the existing stormwater user fee billing rates (when normalized per 1,000 square feet of impervious surface).

Table 7. Georgia SW Utility User Fee Rates Comparison

Community	ERU/Month	Cost per 1,000 SF of Impervious Surface per Month
City of Covington	\$4.79	\$1.84
City of Decatur	\$5.00	\$1.72
City of Griffin	\$3.50	\$1.59
Douglas County	\$4.00	\$1.57
City of Woodstock	\$4.20	\$1.56
Athens-Clarke County	\$3.60	\$1.38
DeKalb County	\$4.00	\$1.33
City of Fairburn	\$4.08	\$1.24
Rockdale County	\$3.39	\$0.99
City of Roswell	\$4.15	\$0.90
City of Peachtree City	\$3.95	\$0.86
Columbia County	\$3.20	\$0.80
City of Fayetteville	\$2.95	\$0.77

7.2.4 **Estimated Stormwater Utility Bills**

ISE has estimated a select group of SW Utility bills for various customers throughout the City. A diverse cross section of potential bills provides the City with a sense of what a “typical” monthly stormwater bill might amount to using an example billing rate of \$4.15/ERU/month and an ERU of 4,600 square feet. As described previously in this document, the individual NSFR customer bills are calculated by taking the total impervious area divided by the ERU (4,600 square feet) to obtain the total number of

ERUs (or billing units) for the property/customer. The total billing units are then multiplied by the billing rate to calculate the stormwater user fee bill amount. The following is a preliminary list of customers with their estimated monthly bill amount:

Table 8. Estimated Monthly Bill Amount for Select Customers

Customer	Impervious Surface Area (SF)	Billing ERUs	Bill Amount per Month
Detached SFR Property (Single Tier)	n/a	1	\$4.15 (flat rate)
City Hall	224,915	49	\$202.91
Hembree Springs Elementary	764,678	166	\$689.87
Roswell Town Center	1,325,767	288	\$1,196.07
Shopping Plaza at Crossville Rd. & Alpharetta Hwy.	258,878	56	\$233.55
World Harvest Church	98,804	21	\$89.14
Wachovia Bank (Holcomb Bridge Rd. at Grimes Bridge Rd.)	37,168	8	\$33.53

Review of the estimated stormwater bills shows that the larger impervious area parcels pay a higher stormwater user fee bill. This is consistent with the concept discussed earlier in the report whereby larger parcels with greater amounts of impervious area generate larger volumes of stormwater runoff and increased pollutant loads from those impervious surfaces. The larger volumes of runoff and pollutant loadings must be managed by the City’s drainage infrastructure as the stormwater runoff is conveyed through the drainage system.

7.2.5 Preliminary Stormwater Utility Revenue Projections

For purposes of this feasibility study, we would estimate that a SW Utility user fee system (based on a modified impervious rate methodology) would generate a total of approximately 49,604 ERUs. At an example billing rate of \$4.15/ERU/month, the future SW Utility would generate approximately \$2.47 million annually. Please note that approximately 20% (or \$575,000) of this revenue total would be associated with the City account (i.e. City streets) and some additional amount would be associated with City properties (i.e. City Hall, Recreation facilities, etc.). In addition, other government entities (Fulton County and the Fulton County Board of Education) would also pay a SW Utility fee. As such, the total estimated user fee revenues from private customer accounts would be approximately \$1.9 million.

Review of the information indicates that projected stormwater user fee revenue of approximately \$2.5 million per year plus approximately \$200,000 per year of special service fees would likely be sufficient to cover a majority of the anticipated expenses associated with implementation of an Expanded SWMP LOS Program Type in the future. Please note that the total projected user fee revenue of approximately \$2.7 million

(stormwater user fees and special service fees) is a *gross revenue* number, and the final SW Utility Rate Study will need to account for both user fee charge credits and account delinquencies (see Section 7.2.6). Based on information presented herein, it appears that the City could implement an Expanded SWMP LOS Program Type with an approximate annual budget of \$2.5 million under the proposed SW Utility rate structure scenario described above. Please note that this assumes that the City's E&S program cost of \$600,000/year is funded entirely by General Fund tax revenues in the future and will **not** be funded via SW Utility user fee revenues. Otherwise, the Expanded SWMP LOS Program Type budget would have to increase from \$2.5 million to \$3.1 million to account for the additional cost associated with funding the City's E&S program. In addition, the SW Utility rate model would have to be re-run to assess the impact of the E&S Program expense on the various SWMP cost of service scenarios evaluated herein.

7.2.5.1 Current and Future General Fund Allocations for the SWMP

The City currently has an SWMP operating budget of approximately \$1.7 million/year for the current SWMP LOS with \$200,000 being generated from special service fees and the remaining \$1.5 million for operations and CIP is allocated from the City General Fund. It should be noted that the City's future stormwater user fee bill for the impervious surface associated with its properties (i.e. City streets) is estimated to be approximately \$575,000 with some additional cost associated with City properties. As stated above, the City's annual E&S program cost is approximately \$600,000/year. In the future, the City's SW Utility bill will still be paid from the General Fund and the E&S program cost will likely be funded entirely by a General Fund allocation. Therefore, the City's current annual General Fund allocation for SWMP services will nearly equal to the combined cost of the City's future SW Utility user fee bill and the future E&S program. As such, it does not seem practical that the City could "roll back" the current millage rate significantly as a result of the future City SWMP being funded via SW Utility user fee revenues.

It should be noted that if the City elects to fund the E&S Program via the SW Utility and user fee revenues then a potential millage roll back might be possible. Preliminary estimates indicate that a millage roll back of between 0.15 mils to 0.20 mils could be possible if the E&S Program were to be funded via the SW Utility. However, it is likely that an increase to the SW Utility user fee billing rate would be necessary to fund the additional cost associated with the E&S Program. The potential exists that the increased user fee billing rate could be offset for *selected* SW Utility customers as a result of the millage roll back. The increased user fee billing rate could potentially result in a small to moderate reduction in property tax to selected parcels that receive a tax bill, but tax exempt properties (i.e. churches, public schools, etc.) will not realize the rollback benefit. Furthermore, a potential millage rate roll back would benefit properties with higher assessed value (both residential and non-residential) because the tax savings would be greater. As stated previously, a correlation between a property's assessed/taxable value and the parcel's imperious surface characteristics does not always exist. Additional research into this issue would be necessary to more clearly define the affects on the various customer types of the future SW Utility.

7.2.6 Stormwater User Fee Credits & Delinquencies

Several existing SW Utilities across the country have established a service fee credit if a customer properly designs, constructs and maintains an on-site stormwater detention, or a best management practice (BMP) facility(s) on their property to mitigate the stormwater runoff impacts from the site. The typical process is that the SW Utility would develop a credit mechanism whereby the customer could apply for the credit by meeting certain eligibility criteria and then maintaining compliance with the criteria over time. The process could involve the property owner hiring a professional engineer on a periodic basis (say every two years) to certify that the detention facility or stormwater BMP was constructed and continues to be maintained in accordance with the design plans approved by the City. The City Code Enforcement personnel would also have responsibility for conducting inspections of stormwater facilities that were receiving a credit to ensure continued compliance with the credit criteria established in the ordinance. The application of credits will have an impact on the gross revenue generated. The future SW Utility credit program would reduce a property owner's user fee bill amount. The amount of the credit would vary depending on the credit policies but would likely result in a reduction in the customer's user fee bill of between 10% and 50%. Based on our experience with other existing SW Utilities in Georgia and research, the gross revenue stream of the SW Utility will likely be reduced by approximately 5% (or less) as a result of credits issued to all customers.

An additional 10% to 15% reduction in the annual gross revenue amount of the SW Utility would likely result from delinquencies although some (if not most) of the delinquent accounts would likely be collected in future years as appropriate collection efforts were undertaken. The smallest reductions in annual gross revenue amounts (i.e. less than 5%) are typically associated with SW Utilities that utilize an existing public utilities billing system (i.e. water, sewer, sanitation, etc.) because of the threat that a customer's water service will be turned off for failure to pay their public utilities bill in full each month. The annual gross revenue reductions are higher (i.e. 10% to 20%) for SW Utilities that utilize stand alone billing systems. The annual gross revenue reductions associated with the tax billing system are somewhere in between 5% and 20%, depending on the accuracy of the tax digest database. In summary, it has been our experience that the net reduction in the annual gross revenues of the SW Utility related to credits and delinquencies is on the order of 10% to 20% per year.

8. STORMWATER UTILITY/USER FEE RATE RECOMMENDATIONS

Based on information outlined herein, we offer the following recommendations for your consideration:

- The SWMP LOS should be increased to address existing and future regulatory requirements, as well as stormwater runoff impacts resulting from new development and aging infrastructure. Implementation of an Expanded SWMP LOS Program Type should help the City get “out in front” of the stormwater runoff impact issues that can adversely affect a growing community such as the City of Roswell. Furthermore, implementation of a more proactive drainage system O&M would likely reduce the long-term cost burden for the citizens of the City. Several other local governments in metro-Atlanta have neglected/deferred taking action with SWMP issues, and the projected cost to address CIP and O&M backlog has increased significantly over the last few years.
- The City should consider formation of a SW Utility and user fee charge to pay for services associated with the future Expanded SWMP LOS Program Type. If this approach is chosen for implementation, the City should further evaluate the SWMP cost of service and LOS issues to ensure that the user fee rate is amenable to the future customers, and to ensure that a legally defensible correlation/relationship exists between the services provided by the City and the user fee rate paid by customers of the SW Utility.

8.1 FEASIBILITY STUDY LIMITATIONS

Please be advised that the analysis presented herein is preliminary and several of the variables and/or assumptions could change as part of a future, more detailed study. The variables that could change include (but are not necessarily limited to) the final ERU based on actual impervious surface delineations for additional SFR parcels within the City, the SW Utility user fee billing rate and the total number of billing units (or ERUs). In addition, the actual number of ERUs from the City road system could also vary depending on more detailed analysis. Future SFR delineation work should include a more detailed analysis of parcels to confirm the ERU and the total number of ERUs. Finally, the projected SWMP cost of service may need revision based on needs and priorities that are unknown at this time. However, we feel that the scenarios, conclusions and recommendations outlined herein are adequate from a feasibility study perspective to make knowledgeable decisions regarding the viability of implementing a SW Utility in the City of Roswell.

Stormwater Funding Feasibility Study

SWMP Implementation Data Gap Analysis

Prepared for: City of Roswell

Prepared by: Integrated Science & Engineering, Inc.
CH2M HILL

Date: December 14, 2006

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1. INTRODUCTION

The City of Roswell is evaluating the feasibility of implementing a Stormwater Utility (SW Utility) to support the new and expanded requirements for stormwater management and infrastructure maintenance and repair. One of the initial steps in this process is the evaluation of existing City data and systems for use in the development of a SW Utility customer database with linkage to a billing system. This Technical Memorandum (TM) summarizes the key requirements for the billing system to support implementation and operation of the SW Utility. This information will be used by the City to identify the most equitable and cost-effective approach (short-term and long-term) to billing a possible stormwater user fee charge by January 2008.

1.1 PURPOSE

Development of a flexible and sustainable SW Utility customer billing system is essential to the long-term success of a defensible SW Utility in the City of Roswell. There are multiple alternatives available for developing and billing a stormwater fee, each with pros and cons. TM#4 completes Step 5 of the scope of work by reviewing the primary input data needs and providing recommendations for the development of the following data-intensive tasks in the next phase of SW Utility implementation:

- Determine final Equivalent Residential Unit (ERU) and the corresponding Single Family Residential (SFR) Tiers as appropriate.
- Determine the parcel-specific amount of impervious area associated with the non-single family residential (NSFR) parcels within the City.
- Populate the SW Utility customer database.
- Link the SW Utility customer database to the City's existing financial software (Pentamation).

2. DATA & INFORMATION NEEDS

The amount of impervious surface is the most significant factor influencing the quantity and quality of stormwater runoff leaving a property parcel during and after a rainfall event. As such, it is used as the basic metric to determine each property's approximate impact on the City of Roswell's MS4. Two key pieces of data are needed for basic SW Utility rate structure and billing database development: parcel / ownership information and total impervious area by parcel. Of essential importance is that both data components consist of closed polygons and are spatially accurate relative to each other. The following sections assess the City's readily available data and outline alternatives for addressing key data gaps as part of future SW Utility implementation.

2.1 PARCEL BOUNDARIES

Tax parcel boundaries are a key component of SW Utility rate structure and billing development and typically contain tax digest information such as a parcel identification number (PIN), street address and land use. Parcel ownership and boundary data for the City of Roswell is maintained concurrently by both the Fulton County Board of Assessor and the City’s Financial Services Division. Property owners in Roswell receive a property tax bill that includes a description of the property, its taxable value, and details of how the City calculated the tax bill. The City of Roswell receives its property value assessments from the Fulton County Tax Assessor in August / September of each year.

The 2005 parcel boundaries from the City of Roswell possess a significantly more robust attribute data set than those of Fulton County (see Appendix A). As a result, it is recommended that the City proceed forward with SW Utility implementation utilizing its own parcel database information. To estimate the amount of time needed to potentially process some of the stormwater fee data inputs, Table 1 categorizes the number of parcels in the City by super class code.

Table 1. City of Roswell Parcels by Super Class

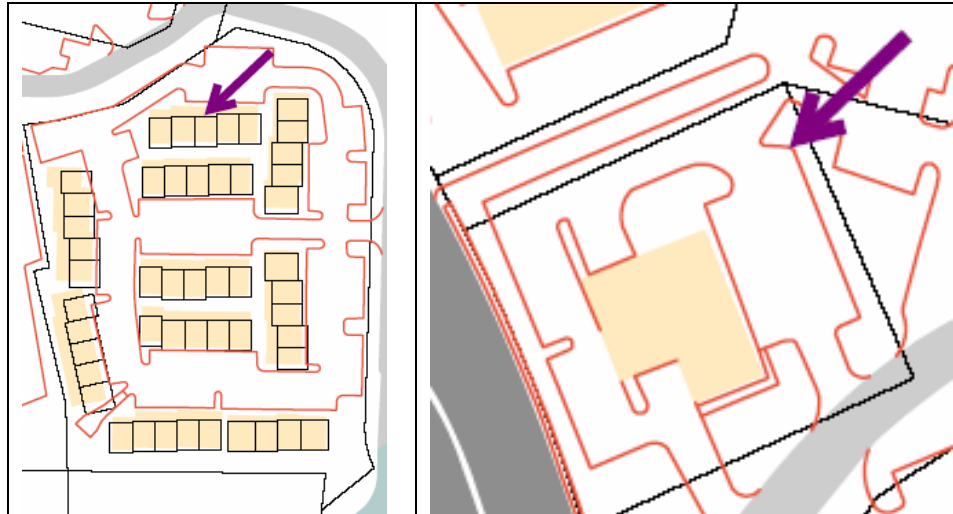
	Count	Total Area (acres)	% of 2005 Count	% of 2005 Area
No Classification	1,440	6,614	5%	20%
Commercial	1,078	2,644	4%	8%
Exempt	385	2,601	1%	8%
Industrial	109	438	0%	1%
Residential	24,604	20,072	89%	62%
TOTAL - 2005	27,616	32,369		

2.1.1 Data Gaps

As discussed above, it is recommended that the City proceed with use of its own parcel database versus using the Fulton County parcel database due to better quality control and a more robust attribute dataset. Use of this data during future SW Utility implementation will require two data processing tasks:

1. Population of the Super Class field for 5% of the City’s parcels, see Table 1, and verification of a sample of these attributes so that they can be used in the assignment of proper customer billing class.
2. Many of the parcels, NSFR in particular, will need additional verification to rectify shifts in the impervious data with the actual parcel boundaries (see Exhibit 1).

Exhibit 1. Examples of Data Rectification Issues & Polyline Impervious Data



2.2 IMPERVIOUS SURFACE DATA

The second key piece of data needed is total impervious surface by parcel: first, for a statistically significant sample of SFR properties so that a tiered residential rate structure can be established if appropriate; and secondly, for all NSFR properties since each parcel will receive a custom bill based on the actual impervious area for that parcel. The following table summarizes the readily available impervious area data for the City of Roswell based on information provided by the City GIS Department which is based on 2005 aerial photography. From this data, impervious area features, including buildings, driveways, parking lots, and roads can be delineated in a GIS layer as either a polygon or polyline. Section 7 of TM#3 describes impervious data for a sample of SFR parcels and for institutional/educational properties that was developed as part of the project effort.

Table 2. Readily-available Impervious Surface Data

Feature	Source	Current Feature Type	Notes
Residential and Nonresidential Buildings	2005 / Roswell	Polygon	Available, some shifting due to shadows on the source aerial photography, see Exhibit 1.
Sidewalks, Driveways, and Parking	2005 / Roswell	Polyline	As illustrated in Exhibit 1, non-structure related impervious data is not polygon based.
Sidewalks, Driveways, and Parking	2005 / ISE	Polygon	Available for limited residential sample (800) and school properties.
Roads	2005 / ISE	Polygon	Ownership: Roswell, GDOT, Private, Other.

2.2.1 Data Gaps

TM#4 was tasked with identifying potential data gaps and recommending alternatives to address those identified data gaps. The lack of polygon data for sidewalks, driveways, and parking areas is a significant data gap issue due to the time and effort associated with generating this data. The critical path element from a data perspective is the identification of a reasonable method for generating this information for completion of the final ERU analysis and for estimating NSFR ERUs as part of the future SW Utility implementation effort.

There are three primary alternatives for filling this gap. The first approach would be to utilize traditional aerial photo interpretation with some field verification. This effort would entail contracting with the aerial firm that produced the City's aerial photography to identify and digitize all impervious surfaces within the images. It is likely that this would result in the highest degree of accuracy but would also involve the highest costs associated with the project. Additionally, given the delays that the City experienced in delivery of the original aerial photos, a significant time / scheduling cost could also be incurred.

A second approach would be for a private consultant or City GIS staff, with as needed assistance from a consultant, to digitize the impervious information for the nonresidential properties. The computation may not be exact due to parcel line and aerial photograph inaccuracies, as well as the inherent error associated with accurately interpreting some features. This inherent inaccuracy is not expected to cause large numbers of billing errors, assuming the billing unit (i.e. ERU) is set sufficiently large, which it is currently an estimated 4,600 square feet. It is estimated that this approach would need:

- approximately 550 working days at full time or 1,100 working days at half time to digitize the imperviousness of all parcels in the City of Roswell.
- approximately 90 working days at full time or 180 working days at half time to digitize all of the non-residential parcels.
- approximately 21 working days at full time or 42 working days at half time to digitize additional residential parcels to expand the ERU sample size.

At the time of this memorandum, the City had begun to delineate impervious surfaces utilizing in house resources.

The third approach would entail use of infrared imaging of impervious surface data tied to each parcel. The result of the infrared analysis is a GIS raster identifying impervious surfaces in an image. Use of the imaging approach would significantly increase the accuracy associated with segregating residential parcels into various billing tiers over statistical sampling but would not be as detailed as true photo interpretation. It is estimated that this approach would take three to four months and would cost \$18,000 to establish the preliminary impervious surface. However, each non-residential parcel and some residential parcels would need to be checked and edited for accuracy after the initial delivery.

3. BILLING & DATABASE DEVELOPMENT ASSESSMENT

Section 5 (*Stormwater Utility Rate Methodology*) and Section 6 (*Master Account File Development*) of TM#3 provide a general overview of the different approaches to developing a SW Utility fee and billing database. This section provides an overview of the different SW Utility bill delivery methods available to the City and the specific steps necessary to develop the future SW Utility Master Account File (MAF) database. Based on a review of the data and meetings with City staff, the most efficient path to billing the SW Utility user fee charge in 2008 would be to add it to their existing City billing system (Pentamation) described in this section. This section proceeds with the assumption that the City will pursue establishing a SW Utility rate structure based on the modified impervious area rate methodology. In this scenario, parcel-based charges taken from the GIS must be converted to customer account-based bills in the City's proprietary Pentamation software before billing can be accomplished.

3.1 EQUIVALENT RESIDENTIAL BILLING UNIT DEVELOPMENT

Using the modified impervious area methodology, the ERU will form the basis for billing future SW Utility user fee charges in the City of Roswell. The ERU is based on the median impervious area amount for a typical detached SFR parcel. SW Utility user fee charges for NSFR properties are billed in proportion to the ratio of their total impervious area to that of the typical SFR property, as represented by the ERU. SW Utility user fee charge assessed to SFR parcels will likely be billed via a multi-tiered rate structure for the SFR parcels based on a statistical analysis of the SFR database.

As discussed in more detail in TM#3, a sample of 800 SFR properties (or approximately 3% of all SFR properties in the City) throughout the City of Roswell was selected in order to give a preliminary estimate of the median impervious area for SFR properties. This data was then used to establish a preliminary ERU. Based on preliminary review of parcel and impervious area data from the aerial photos, the impervious area range for a SFR property in the City was found to be between 1,629 and 31,613 square feet. For purposes of discussion and example calculations, the study has calculated that the preliminary City ERU billing unit is approximately 4,587 square feet (median) and has been rounded up to 4,600 square feet for calculation purposes.

3.1.1 Recommended Actions

A major consideration in designing the SFR sampling strategy for properties to be digitized depends upon the relative similarities among different residential properties. If properties differ in characteristics that are potentially correlated with impervious surface on the property (such as either parcel or building footprint size), a more precise estimate of impervious surface area within the City would be achieved by sampling independently within residential classes. SW Utility implementation should further evaluate the characteristics of the residential tax digest and current land use data to evaluate potential

differences graphically through box plots and explicitly through a nonparametric statistical analysis.

It is likely that this analysis will lead to an expansion of the sample size so that it is statistically significant and to ensure that the sample set reflects the wide range of residential development / residential housing stock within the City. For planning purposes, a sample target of at least 10% of the approximately 24,600 SFR properties would result in the need for an additional 1,600 to be sampled and analyzed. An estimated 21 hours (5 minutes per parcel for digitizing) would be needed to complete this additional sample data analysis work. It should be noted that the selection of the sample parcels is critical to ensure that the analysis is not skewed. Since it is likely that the ERU developed via this analysis will become the basis for all billing in the City, errors in determining the ERU can significantly impact the rate and thus the costs to the utility customers.

For example, if a commercial shopping center has approximately 300,000 square feet of impervious surface and the ERU is established at 4,600 square feet and the rate is established as \$5.00 per ERU per month then the shopping center will be billed \$3,913.04 per year ($300,000 \text{ sf} / 4,600 \text{ sf} \times \$5.00 \times 12 \text{ months}$). However, if the ERU is established at 4,400 square feet and the rate is held the same then the bill will be \$4,090.91 per year or a difference of \$177.87 per year in additional stormwater charges. As can be seen above, small changes in the ERU can significantly impact the billing for the customers.

3.2 MASTER ACCOUNT FILE DATABASE DEVELOPMENT

After the data layers have been refined and the charges are ready to be calculated, a series of steps will take place to implement a MAF billing database. The first step would involve compilation of parcel ownership and land use data to assist the City in segregating parcels into the necessary billing categories needed to generate a SW Utility user fee charge bill (SFR, NSFR and vacant/undeveloped). A limited amount of this work has been done to initially categorize parcels into various broad classes: SFR, NSFR, exempt and vacant (see Table 2); however further work necessary to populate the 5% with no classification and to tier the SFR properties.

3.2.1 Master Account File Database Fields

The SW Utility MAF database will be based on the most recent City of Roswell tax parcel boundaries and Utilities accounts and would be maintained as a geodatabase by the GIS Department. Environmental / Public Works will work with the City Finance Department as data is modified and accounts are added or removed to the MAF. Based on limitations to the amount of customizations that can be done to the existing billing software, it is assumed that the City will perform all calculations within the master account geodatabase, outside of the Pentamation billing software.

The geodatabase will store stormwater account data, including but not limited the following anticipated fields:

- Utility Account Number – Account number corresponding to customer location and / or customer.
- Parcel Identification Number (PIN) – Fulton County PIN, attribute used to link master account database with Pentamation.
- Master Stormwater Utility Class – The stormwater utility class (for example NSFR), see next section.
- Effective Stormwater Utility Class – The stormwater utility class with any applicable credits (for example NSFR w/ Detention Credit), see next section.
- Customer Billing Codes – Specific to the type of credit the customer is receiving.
- Total impervious surface area – Total square footage of impervious surfaces.
- Number of raw stormwater units – Total impervious surface area divided by ERU.
- Number of stormwater units to be billed – Typically the same as the number of raw stormwater units except in cases where the community establishes a minimum billing amount (1 ERU / NSFR customer for example).
- Stormwater units source – How the number of stormwater units was determined. Values include GIS, plans and survey.
- Credit amount – One decimal value for percentage of credit allocated to this account.
- Credit start date – Date when stormwater credit amount is issued.
- Credit end date – Date when stormwater credit amount expires and account will need to be reviewed for credit modification.
- Rate – Rate to be charged per ERU.
- Effective Rate – Rate to be charged per ERU including Credit Reductions.
- Monthly Bill – Bill to be charged per month equal to the number of stormwater units to be billed times the effective rate.
- Equivalent Yearly Bill – Monthly bill times 12 months to establish the yearly bill if the bill were to be paid in one payment.
- Special Notes – General.

3.2.2 SW Utility Billing Classes

Once the MAF database is created, the next step is to assign two SW Utility billing class attributes to each account. The overall SW Utility class indicates the general customer class such as SFR, Tier 1 (SFR1) or NSFR. A second SW Utility billing class will be populated with attributes that represent both the SW Utility class and the credit status, which will indicate how the fee will be calculated for that individual account. Based on discussions with Finance Department staff, the Pentamation billing software allows for many billing class fields that can be populated with this more descriptive stormwater billing class label for billing purposes, which could eliminate the need for additional customizations.

An example of how this might be implemented is shown in the conceptual billing classes below:

- Class 01 – NSFR
- Class 02 – NSFR w/ Detention Credit
- Class 03 – NSFR w/ Detention & Water Quality Credit
- Class 04 – NSFR w/ Detention & Water Quality & Channel Protection Credit
- Class 05 – NSFR w/ Detention & Channel Protection Credit
- Class 06 – NSFR w/ Water Quality Credit
- Class 07 – NSFR w/ Water Quality & Channel Protection Credit
- Class 08 – NSFR w/ Channel Protection Credit

3.3 BILLING ALTERNATIVES

In establishing a SW Utility, the selection of the bill delivery method should be cost effective, timely, and able to capture all affected properties. Three billing methods are commonly used to bill and collect SW Utility charges including, property tax statements; water / sewer utility bills; and separate, stand alone billing systems.

3.3.1 Billing Methods

There are three possible billing options that are typically evaluated for delivery of a SW Utility bill:

- Utilize the existing property tax billing system
- Develop a separate billing and collection system
- Utilize an existing public utility billing system

The following sections briefly describe the advantages and disadvantages of each option. As stated in TM#3, a policy decision will need to be established as to whom the City will bill for the services to be provided by the SW Utility. Two distinct customer types can be billed for the services, the first is the property owner as established by the tax billing system and the second is the tenant who receives City services via the public utilities (i.e. water, sewer, sanitation, etc.).

Property Tax Billing System

A primary advantage of using the property tax billing system is that it is based upon an existing database and billing system in place. Also, there is an existing staff in place to implement the billing process. Using an existing process reduces duplication in administrative costs such as postage. Therefore, this option typically has relatively smaller costs than setting up a separate billing system, although there are still some costs that need to be incurred to include properties paying the fee but exempt from property taxes into the databases and to compute and include the fee on the property tax bills.

One disadvantage of using the property tax billing system to bill and collect the SW Utility user fee charge is that some property owners will likely view the SW Utility “user fee” as a tax, just because it is included on the property tax bill for billing purposes. Decatur, Georgia currently utilizes the tax bill as the billing surrogate for their stormwater utility. However, it should be noted that Decatur also bills for sanitation on the tax bill and as a result had established a history of billing utilities on the tax bill prior to implementation of their stormwater utility. Obviously, the use of the tax system would be geared to billing the property owner for stormwater services.

Separate, Stand Alone Billing System

Developing and maintaining a stand alone billing system typically requires setting up a new, separate database, and ongoing staff to maintain the system. Due to the substantial administrative cost to set up and implement a separate, stand alone billing system, the separate billing system option is typically more costly than the property tax or public utility billing systems. Peachtree City currently utilizes a stand alone billing system to deliver their bills since all public utilities (water, sewer and sanitation) are billed via other government agencies, authorities or private companies and tax bills are delivered via the Fayette County tax bill. Typically, the stand alone billing system is utilized to bill property owners since the system is not tied to public utilities.

Public Utility Billing System

Advantages of using the public utility billing system to deliver and collect the SW Utility user fee charge are similar to advantages for using the property tax system. The public utility billing system is: (1) an existing billing database and the mechanism is in place; (2) an existing staff is in place to support the billing process; and (3) it avoids duplication of administrative expenses such as postage. As with the property tax billing system option, there can be significant costs and level of effort associated with capturing information for properties not currently paying a public utility bill. Since the public utility billing processes are typically less comprehensive than property tax systems, there is a greater likelihood that additional staffing support would need to be added if billing is done through the public utility billing system. Given the fact that the utility system will likely not cover every developed property in the City, a number of “stormwater only” accounts would need to be created in order to capture these properties.

Unlike the previous billing methods, the use of the utility billing system can be geared to either the tenant or the property owner. For example, it is our understanding that the City of Griffin was originally setup to bill the property owner via the utility bills. Where the tenant and the property owner were different, a “stand alone” bill was established. Fayetteville, Georgia however chose to bill the holder of the utilities account in lieu of the property owner (if they were different) under the theory that the tenant received the most direct benefit to the services provided. “Stand alone” bills were only established for properties that did not receive other utility services or a property where no utilities account was active (i.e. vacant homes / businesses, etc.) in which either case the property owner was billed. It should also be noted that if the tenant is to be billed, then a means of

apportioning the costs for common developments must be identified (for example where each store in a shopping center is billed for utilities but shares a common parking lot) and the corresponding supporting data developed.

3.3.2 Current City Billing Systems

The City of Roswell utilizes CRM (ACTion by SUNGARD Pentamation) software to generate both the sanitation and property tax bills. Administered by the Finance Department, it is anticipated that the City will continue to use this proprietary software through 2008 at which point the City may consider its next major upgrade or a system change. The City currently has the stormwater billing module for Pentamation which provides four billing methodologies: acreage, living units, square footage and zoning / land use code. One of the potential data gaps in the current software system is the lack of specific fields for potentially important attributes such as credit status or billing code. We understand that customizations (i.e. additional data fields) can be made to the module at relatively low costs, however the turnaround time for software modification from the company ranges from two to four months.

The City is currently working through the billing system by cross-checking the owner versus occupant accounts to confirm that the correct PIN is assigned to the correct location. Since a SW Utility user fee charge is calculated based on parcel information, proactively ensuring that the billing software is populated with the correct PIN will save significant time and effort when the time comes to link, or join, it to the MAF database.

Table 3. Current City of Roswell Billing Systems

Billing System	Ownership ¹	Billing Target	Frequency	Comments
Sanitation and Utilities	City of Roswell	Occupant	Every other month – 6 billings a year	Currently allows for liens on property for non-payment of sanitation charges.
Property Tax	City and Fulton County	Owner	Annual	Fulton County provides assessment data to the City in September / October, who in turn bills residents.

¹ Entity responsible for updating and maintaining database.

3.3.3 Recommended Approach

Discussions with the City indicate that in the short term, the most efficient path towards implementation of a SW Utility user fee charge is to utilize the bi-monthly public utility / sanitation bill. Delivery and integration of the MAF would depend on whether the tenant or property owner will be billed for stormwater services. For discussion purposes within this memorandum, it has been assumed that the City will elect to bill the tenant. The following discussion documents the tasks this process would likely evolve:

Task 1 – Map the existing utilities customers in a GIS environment such that the customers can be correlated geographically with the master SW Utility billing class (i.e. SFR, NSFR, etc.), impervious surface area and tax parcel.

Task 2 – Update the City’s impervious surface data for all NSFR customers. As stated earlier, the City is currently performing this task with in-house resources. Additionally, the sample of SFR parcels will need to be expanded to incorporate a statistically significant sample of the City and establish the ERU as well as the residential tiering.

Task 3 – Update the City’s tax parcel database to reflect recent developments and changes in parcel ownership.

Task 4 – Develop a methodology and data for apportioning impervious surface areas among multiple utility accounts which share common impervious surface areas such as parking lots and other amenities. Communities that have performed this task have often utilized building area as a means of apportioning the impervious surface area. For example if a shopping center has two stores and shared parking then the apportioning might be divided by the percentage of total building area each occupies.

Store A Building Area =	5,000 square feet (25% of Total Building Area)
Store B Building Area =	15,000 square feet (75% of Total Building Area)
Total Building Area on Parcel =	20,000 square feet
Shared Parking Lot Area =	100,000 square feet
Total Impervious Surface Area =	120,000 square feet (5,000 sf + 15,000 sf + 100,000 sf)
<u>Apportioned Impervious Surface Area</u>	
Store A =	5,000 sf + 25,000 sf (100,000 sf x
25%) =	30,000 sf
Store B =	15,000 sf + 75,000 sf (100,000 sf
x 75%) =	90,000 sf

Task 5 – Verify location of parcel lines where error in parcel line would affect SW Utility bill.

Task 6 – Establish credit policies regarding type and amount of credit for each credit class.

Task 7 – Establish billing codes to be utilized in Pentamation software based on customer type and credit policies.

Task 8 – Establish MAF GIS feature class / database and establish relationships with supporting data to automate data transfer process between supporting data and MAF GIS field.

Task 9 – Establish the location of all “stormwater only” bills to be delivered to properties with no City provided utilities services.

Task 10 – Populate all data fields within MAF GIS feature class.

Task 11 – Export data to external database (Access, Excel, text file, etc.) and send to Pentamation for programming of new automation process.

Task 12 – Establish update policies for changes in Utilities, Parcel, Impervious Surface and other applicable databases until final transfer of MAF to Pentamation software prior to initial billing.

Task 13 – After receiving updated automation process from Pentamation and prior to initial billing, link MAF GIS and Pentamation billing database to facilitate data transfer from GIS to Pentamation of billing information. This process could consist of an active database link or occur via a periodic manual database transfer from one software to another. We recommend that the two databases not be linked automatically until such time as the utility is up and running and a sufficient level of comfort can be established that the two software platforms are compatible.

Task 14 – Continue updates between GIS and Pentamation software such that MAF is current on both platforms at all times. It is assumed that the GIS will serve as the primary source of bill verification and some customer service issues.

4. KEY ISSUES

A number of critical issues need to be addressed in the next phase of the SW Utility development process. These issues include:

- Identify the customer as either the property owner or the tenant of the property. This policy decision will need to be discussed and finalized early in the process since key data development procedures (see Tasks 4, 5 and 9 in Section 3.3.3 above) will be designed based on who will receive the bill.
- Establish the final ERU via sampling of residential parcels as well the preliminary NSFR impervious surface database. These two data items are critical to the establishment of a final rate and level of service policy via a rate.
- Establish a credit policy early in the process such that the MAF database design can be finalized and incorporated into the automation process with Pentamation.
- Establish an Update Policy / Standard Operating Procedure (SOP) prior to linking utilities accounts database with the GIS (see Tasks 1 and 12 in Section 3.3.3 above) such that data conflicts are minimized when the GIS MAF is loaded into the Pentamation database.

Although, other issues will need to be evaluated, the issues listed above are considered critical path elements and could significantly impact the implementation schedule of the SW Utility.

APPENDIX A - CURRENT PARCEL ATTRIBUTES

Table A-1. Current City of Roswell Parcel Attribute Fields

Attribute Field	Residential Example	Key Field
COMPUT_ACR	1.47750000000	
ATRPIN	22 -3301-1005-036-1	X
ADDRESS	725	
DIRECTION		
STREET	Valley Summit	
STREET_SUF	Drive	
UNIT_NUM		
CITY	Roswell	
STATE	GA	
ZIP	30075	
SUBDIV2	Litchfield Hundred 4-2	X
TAXYEAR	2005.0000000000	
SITUS	725 VALLEY SUMMIT DR	
OWNER	CAPARAS ROLANDO S JR &	
ADD2	SAMPSON TERI L	
ADD3	725 VALLEY SUMMIT DR	
ADD4	ROSWELL GA 30075	
ADD5		
ADD6		
TAX_DISTR	45	
ATL_EX_COD		
FUL_EX_COD	H01	
TOT_ASSESS	217880.0000000000	
TOT_APPR	544700.0000000000	
TOT_APPEAL	0.0000000000	
TOT_TAXABL	217880.0000000000	
LAND_ASSES	28880.0000000000	
IMPR_ASSES	189000.0000000000	
PROP_CLASS	R1	X
CITYBILL	0.0000000000	
COUNTYBILL	5821.9600000000	
CITYNOWDUE	0.0000000000	
CNTYNOWDUE	5821.9600000000	
STR_NUMBER	000725	
STR_SUFF		
STR_NAME	VALLEY SUMMIT	
STR_TYPE	DR	
STR_DIR		

Attribute Field	Residential Example	Key Field
APT_NUM		
ALTKEY	2700777.00000000000	
SKIP		
SUSE_CODE	1X	
CITYEXAMT	0.00000000000	
CNTYEXAMT	714.87000000000	
FILE_DATE	20050803	
TAXPIN	22 33011005036	X
DPSU	22 03300001036	
CONFIDENCE	1	
PIN	22 33011005036	
LUC	101	
LIV_UNITS	1.00000000000	
SITUS_SRCH	'dr' '725' 'summit' 'valley'	
OWNER_SRCH	's' 'jr' 'capara' 'rolando'	
NBHD	24083	
SUPERCLASS	RESIDENTIAL	
CLASS	RESIDENTIAL, 1 FAMILY	X
SUBCLASS	1 Family per bldg	X
CODE	101	?
LANDONLY		
Acct_Type	SFR	
SFR_SAMPLE		X
Shape_Leng	1081.55934073000	
Shape_Area	64337.92187500000	

Table A-2. Current Fulton County Parcel Attribute Fields

Attribute Field	Example	Key Field
OBJECTID	71885	
AREA	439841.35126999900	
PERIMETER	2689.28937000000	
PIN	22 35801213064	X
CODE	6031.00000000000	
PARC_TYPE	W	X
ASSESS_ACR	0.00000000000	
COMPUT_ACR	10.09737000000	
DEEDED_ACR	0.00000000000	
ADDRESS	12345	X
STR_NUM	0.00000000000	X
ADD_EXT		X
BLOCK_NUM		

Attribute Field	Example	Key Field
LOT_NUM		
CONFIDENCE	0	
SUNRISE	1995	
SUNSET	9999	
TRANSID	3242.000000000000	
SRC_TYPE		
DPSU	22 03580000	
MODID	0	
DIST_NUM	22	
GEO_OID	261491.000000000000	
MIN_X	2235030.75382999000	
MIN_Y	1484796.53141000000	
MAX_X	2235937.30592999000	
MAX_Y	1485497.38999999000	
UNIT_NUM	064	
ACRES	10.077000000000	
RECNO	261490.000000000000	
Shape_Leng	2689.28139616000	
Shape_Area	439839.59500799900	

STATE OF GEORGIA

FULTON COUNTY

December 27, 2010

A RESOLUTION TO ESTABLISH FEES FOR STORMWATER UTILITY PROGRAM

WHEREAS, the City of Roswell is a Georgia municipal corporation; and

WHEREAS, the Mayor and Council are the governing authority of the City of Roswell; and

WHEREAS, the Mayor and Council are charged with the protection of the public health, safety and welfare; and

WHEREAS, on October 6, 2008, Mayor and Council adopted the Stormwater Utility Ordinance however the fees for services were not established at that time, and

WHEREAS, the City Charter provides that the City may provide conditions of service and provide for the manner of collection of fees for services and utilities:

NOW, THEREFORE, to accomplish the foregoing, the Mayor and Council of the City of Roswell, pursuant to their authority, do hereby adopt the following Resolution:

The proposed rate structure of the Stormwater Utility will include five (5) classes of customers consisting of the following:

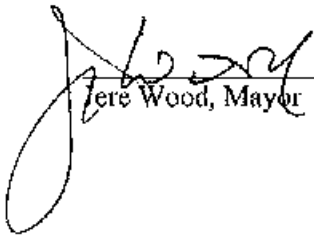
- 1) Residential Tier 1 Customers (up to 3,400 sq. ft. of impervious area) -\$2.57 per month (0.65 ERU);
- 2) Residential Tier 2 Customers (3,401 sq. ft. to 4,950 sq. ft. of impervious area) - \$3.95 per month (1.0 ERU);
- 3) Residential Tier 3 Customers (4,951 sq. ft. to 10,000 sq. ft. of impervious area) - \$5.92 per month (1.5 ERU);
- 4) Residential Tier 4 Customers (greater than 10,000 sq. ft. of impervious area) - \$3.95 per ERU (4,100 sq. ft.); and
- 5) Non-Single Family Residential Customer (schools, churches, shopping, condos, etc.) (specific to impervious surface for that parcel) -\$3.95 per ERU (4,100 sq. ft.).

A program of Credits was established for both Residential and Non-Residential properties to provide fee reductions in exchange for certain documented beneficial practices. See **Exhibit "A"** attached hereto and incorporated by reference.

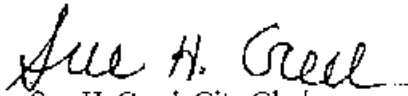
Along with the Stormwater Utility fee, there is proposed a reduction of Sanitation fees for all property accounts, amounting to the equivalent of 1.0 ERU (\$3.95) for residential properties, and 3.0 ERU (\$11.85) for non-residential properties. Billing will begin in July 2011, or as soon thereafter as practicable.

The above Resolution was read and approved by the Mayor and Council of the City of Roswell, Georgia on the 27th day of December 2010.

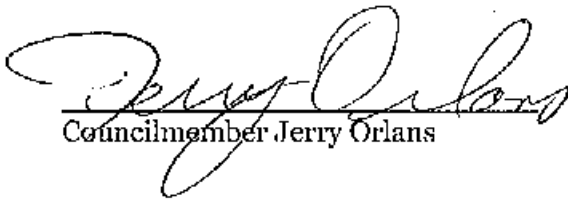
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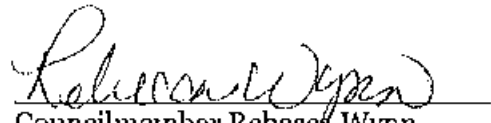

Jerry Wood, Mayor

Attest

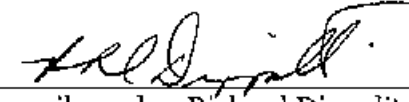

Sue H. Creel, City Clerk

SEAL


Councilmember Jerry Orleans


Councilmember Rebecca Wynn

Councilmember Betty Price


Councilmember Richard Dippolito


Councilmember Kent Igleheart



Councilmember Nancy Diamond



Exhibit "A"

City of Roswell Stormwater Utility

Stormwater Utility Credit Manual

December 27, 2010

Section 1 – Introduction and Overview

Stormwater utility credits recognize efforts by private and public entities to help reduce the City's Stormwater Management Program (SWMP) costs by reducing their Stormwater fee. Credits are generally reviewed and considered annually and support the City's regulatory program compliance activities. Credits are typically given for: detention facilities, best management practices (BMPs) and other activities such as open space & greenspace preservation. Many programs also include innovative programs that involve education and public participation.

This manual outlines the methodology for the City of Roswell (City) Stormwater Utility customers to secure and maintain a stormwater utility rate credit(s) for their property. A Stormwater Utility rate credit, or stormwater credit, represents a reduction in the customer's Stormwater Utility fee. The credit is only applicable for instances where stormwater management best management practices (BMPs) are operated and maintained to reduce the impact of runoff from the subject property on the City's stormwater management systems or in recognition of activities undertaken by the customer to reduce the cost of operating the stormwater management program.

Credit Program Procedures

- Application submitted and reviewed by City personnel, including a inspection of the facility (if applicable) to insure functionality and appropriateness
- Periodic Renewal – must be renewed at the specified interval (usually one year)
- Activities/Participation results in a credit on the bill following approval of the application

Table 1 summarizes the credits available to property owners within the City. Each credit is explained in further detail later in this manual.

Summary of the City of Roswell Potential Stormwater Utility Credits			
Credit	Term	Potential Stormwater Utility Credit	
		Residential (RES)	Non Single Family Residential (NSFR)
Residential Rain Barrels	3 years	100% first year 25% on-going	
Residential Environmental Technologies	3 years	100% first year 20 % on-going	
Low-Impact Parcel	3 years	25 %	
No Impact Parcel	3 years	100%	
Watershed Stewardship	1 year	5 %	5 %
Septic Tank Maintenance	5 years	25 %	25 %
Water Resources Education Program (only applicable to public and private institutions with at least 500 participants)	1 year		40 %
NPDES Industrial Stormwater General Permit	1 year		5 %
Reduced Imperviousness Parcel	10% removal One-time only		100 %
Unified Stormwater Sizing Criteria:			
Water Quality	3 years		10 %
Channel Protection	3 years		10 %
Overbank Flood Protection	3 years		10 %
Extreme Flood Protection	3 years		10 %

** The credits described in this manual are applicable as indicated and are subject to the requirements of the latest version of the Georgia Stormwater Management Manual (GSMM), complete with all appendices and attachments.*

Definitions

Credit: A reduction in the amount of a customer’s Stormwater Utility fee in recognition of a property’s efforts to mitigate the runoff impact that the property improvements (i.e. impervious areas) have on the City stormwater management system.

Best Management Practice (BMP): Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, flood controls,

operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Detention Facility: A system which provides temporary storage of stormwater runoff with a designed release of the stored runoff over time to manage the discharge volume, rate, pollutant loading and/or velocity and mitigate the property's impact on the City stormwater management system.

Georgia Stormwater Management Manual (GSMM): A document governing stormwater management activities in Georgia. This document serves as a comprehensive technical handbook for stormwater management design, construction and long-term maintenance.

Impervious Area: Areas that do not allow, or only allow to a small extent, the infiltration of rainfall or stormwater runoff into the soil.

Residential (RES): A developed property that contains a main dwelling by means of a roof and/or interior wall, with each dwelling unit occupying its own parcel. A RES property shall be classified as residential and shall not be, commercial, industrial, institutional, educational, religious, municipal, or recreational.

Non-Single Family Residential (NSFR): A developed property that contains structures utilized for purposes other than a residential dwelling unit. Examples of NSFR properties include those classified as commercial, industrial, institutional, educational, religious, municipal, and recreational.

Retention Facility: A system that provides storage of stormwater runoff, preventing release of a certain volume to a surface water body.

Runoff: Portion of stormwater, snow/ice melt, irrigation, and drainage that is collected in a stormwater management system that does not infiltrate into the soil.

General Policies

The following general policies apply when considering stormwater credits:

- Credits are only applied to eligible customers. Since the stormwater fee is being assessed on an individual parcel basis, a group of customers cannot apply for a credit unless otherwise noted. An eligible property is defined as a property that contributes runoff to the qualifying stormwater BMP located on the same property via natural and/or manmade conveyance systems.
- If a group of properties are served by a BMP(s) then the credit will be applied to the customer on whose property which the BMP resides. This applicant will be referred to as the primary applicant. If the primary applicant provides a memorandum of agreement (MOA) between the primary applicant and another customer for which the BMP(s) provides adequate treatment for the applicable credit, the City will apply the credit to all customers named in the MOA. The credit shall be applied to all applicants until such time as the primary applicant notifies the City that the MOA is no longer in effect or the term of the credit expires, whichever is sooner. If the MOA

is revoked by the primary applicant, the credit shall only apply to the primary applicant.

- A residential homeowner's association (HOA) which has its own properly designed, constructed, and maintained stormwater BMP(s) should contact the City Stormwater Manager to determine if a credit can be provided.
- For the purposes of the credit, the BMP(s) must be located on a parcel that is platted within the subdivision and owned by the HOA (or a property owner in the subdivision). BMPs located within City owned greenbelts or rights-of-way are not eligible. Additionally, BMPs that the City maintains through a dedicated maintenance easement or other legal agreement though lying within private property are also ineligible.
- For the purposes of awarding the credit, the credit being applied for must be met for the entire development and must meet the credit conditions. For example, if a credit for channel protection is applied for, the channel protection requirements must be met for the entire development.
- Any resulting credit awarded will be divided among eligible customers within the subdivision.
- Applications for a stormwater credit for existing facilities may be submitted to the City of Roswell at any time. Approved credits will be applied prior to the customer's next billing cycle.
- Applications for a stormwater credit for new construction may be submitted once the BMP is in place or when the Stormwater Utility rate is applied, whichever is later.
- The City will, at its discretion, undertake periodic visual inspections of the BMPs being utilized to obtain a credit. Consequently, a Right-of-Entry or an access easement must be granted to the City for credits to be approved.
- The term of the credit varies based upon the type credit. See **Table 1** for credit terms. During the credit term, the City may conduct random inspections such that each credit could potentially be revoked. If the BMP facility is found to be functional and being properly maintained, the credit will remain in effect. Likewise, if the BMP facility is not functional or is not being maintained, the credit will be voided on the next billing cycle. Before a credit is re-instated, the customer will have to reapply for the credit as outlined in this manual.

Basic Procedures

Most of the credits in this manual require an application, and some of the credit applications require engineering calculations to verify eligibility to receive the credit. The credits associated with engineering calculations are identified in the manual and the credit application forms. The City requires that these calculations be performed, signed, and sealed in accordance with the professional certification provisions outlined herein. The procedure for filing a credit application includes the following tasks:

- Obtain an application packet from the City.
- If required by the credit, retain a professional engineer to perform the required analysis.
- Submit the completed application with all sections appropriately filled out, and all required information contained within or attached to the application, including the Right of Entry form.
- The City will review and rule on the eligibility of the credit application within 30 days of receipt of the completed Stormwater Utility credit application. Incomplete packages will not be considered by the City and will be returned to the customer for correction/revision. The decision of the City regarding credit eligibility is final.
- If the credit application is approved, the City will apply the stormwater credit to the next billing cycle.
- During the credit term, the City has the right to inspect the BMP facility to ensure it is functioning per the design documents and is being properly maintained.
- Stormwater Utility credits expire automatically at the end of the credit term. A new credit application is required at the end of the credit term. It is the customer's responsibility to ensure that reapplication is made within 90 days of expiration and a maximum of 60 days prior to the credit expiring for the City to review and approve.

Design and Implementation

Any stormwater management system within the City must follow the recommendations and guidelines presented in Chapter 7 of the City's Land Development and Environmental Protection Ordinance, as well as the Georgia Stormwater Management Manual (GSMM). The City's Water Resources Protection Ordinance provides the local framework for stormwater management within the City of Roswell. Technical guidance for implementation of the goals outlined therein was incorporated into the ordinance via the GSMM by reference.

The GSMM can be found on the Internet by using the following link: <http://www.georgiastormwater.org/>. This document discusses stormwater management planning and design, unified stormwater sizing criteria, and specific BMP controls achieving various levels of treatment. The unified stormwater sizing criteria accounts for varying levels of treatment provided for calculating BMP effectiveness.

Section 2 – Credit Policy and Procedures

This section explains the procedures involved in applying for a stormwater credit. The procedures include step-by-step instructions and eligibility requirements for obtaining the Stormwater Utility credit.

Residential

Listed below are the stormwater credits that Residential customers are eligible to apply for. Each credit is explained in more detail in the pages that follow. The Residential customer shall follow the credit application procedures outlined herein for each credit.

- Residential Rain Barrels
- Residential Environmental Technologies
- Low-Impact Parcel
- No-Impact Parcel
- Watershed Stewardship
- Septic Tank Maintenance

Residential Rain Barrels

The City recognizes that reducing the amount of runoff leaving residential properties via interception and storage in rain barrels not only reduces the demand on the downstream drainage network but also reduces the need for irrigation water from the potable water system. As such, the City has implemented a credit for those residential customers who install rain barrels on their property to intercept rain water from the roof of their house.

Credit Description

A credit shall apply to those Residential customers who can provide documentation that a minimum of one-half of the downspouts from their roof gutter system are connected to rain barrels of at least 40 gallons in size. Upon approval of the credit, the customer shall receive a credit of 100% of the stormwater utility fee for a period of one year. After the first year, the customer shall receive a credit of 25% for the following two years.

Please note: This credit is good for three years, upon re-application for this credit, the credit shall be 25% for all subsequent re-applications and years.

Each Residential customer shall utilize the following procedures:

- The customer shall provide documentation via a sketch of the home and / or photographs of the barrels such that each downspout is connected to an approved rain barrel.
- Approved rain barrels shall consist of a water tight barrel with a capacity of 40 gallons or more which shall allow interception of rain water from a downspout. Additionally, the rain barrel must have a spigot such that stored runoff water can be drained in a controlled manner at a later time.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for a Residential Rain Barrel credit:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall submit the credit application, complete with the relevant documentation and calculations, and a Right of Entry Agreement to the City.

Upon receipt of the credit application, the City shall review the documentation. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

The customer shall continue to maintain the Residential Rain Barrels during the full credit term. Renewal of the stormwater utility credit shall be in accordance with the Basic Procedures section of this manual.

Residential Environmental Technologies

Residential customers are eligible for a stormwater credit if the customer participates in an eligible, City approved residential environmental technology. These stormwater management practices may include but are not limited to such items as cisterns, rain gardens, pervious pavements and infiltration areas. The City wishes to encourage the installation of these types of stormwater management devices to increase the effectiveness of the utility. Instead of a blanket 'one size fits all' approach, the City has determined that it would be better for the individual customer to determine what kinds of BMPs they desire. The City shall provide an updated list of the latest approved Residential Environmental Technology devices, and customers are encouraged to work with the City Stormwater Manager to implement approved devices. However, if the customer can prove that an alternative Residential Environmental Technology is effective in controlling stormwater on their property, then upon approval from the City Stormwater Manager, the customer shall be eligible for this credit. In each case, the City will be using the GSMM standards to evaluate the BMP and its eligibility.

Credit Description

A credit shall apply to those Residential customers who can prove that their property has successfully installed a City approved residential environmental technology.

Each Residential customer that wishes to apply for this credit shall work with the City to calculate the effectiveness of the Residential Environmental Technology and be responsible for calculating the total site area, impervious surface area, and natural conservation area. Each Residential customer shall utilize the following procedures:

- Determine the type of Residential Environmental Technology. This must be a City approved technology or, if an alternative method is implemented, the customer must be able to show the alternative devices' effectiveness in controlling stormwater on their property.
- If the Residential parcel meets all the requirements above, the customer shall receive a credit of 100% of the stormwater utility fee for a period of one year. After the first year, the customer shall receive a credit of 20% for the following two years.

Please note: This credit is good for three years, upon re-application for this credit, the credit shall be 20% for all subsequent re-applications and years.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for a Residential Environmental Technology:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall identify the BMP being utilized and ensure it is designed, maintained, and operated in accordance with general stormwater management requirements listed in the GSMM.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation and calculations, and a Right of Entry Agreement to the City.

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

The customer shall continue to maintain the Residential Environmental Technology during the full credit term. Renewal of the stormwater utility credit shall be in accordance with the Basic Procedures section of this manual.

Low-Impact Parcel

There are several areas in the City where parcels are relatively large and the amount of impervious area, in comparison to the total lot size, is relatively small. These parcels generally have reduced runoff impacts since most of the parcel is in an undeveloped or low impact condition.

Credit Description

A credit shall apply to Residential customers who can prove that their lots comply with the "low-impact" development provisions presented herein. This shall be achieved through the use of large lot Residential parcels and natural area conservation. Low impact parcel credit requirements are included in Table 2:

Parameter	Requirement
Total Impervious Cover (%)	Must be less than 15% of total site area
Total Site Area (Acres)	Must be greater than 2 acres

Each Residential customer that wishes to apply for this credit shall be responsible for calculating the total site area and impervious surface area. Each Residential customer shall utilize the following procedures:

- Determine the total area of the parcel. This must be a minimum of two acres.
- Determine the impervious area for the parcel. The impervious area shall include the structure, driveway, sidewalk (do not include the sidewalk in front of the house next to the street), pool, pool deck, patio, shed, or any other accessory impervious area. The impervious surface must be less than 15% of the total parcel area (pervious area plus impervious surfaces) area of the parcel.
- If the Residential parcel meets all the requirements above, the customer would be eligible for a Stormwater Utility rate credit of 25%.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for Low-Impact Parcel:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall provide a copy of the information where the customer determined total parcel area and total impervious area. Total impervious area shall be detailed to include which portion pertains to the structure, driveway, sidewalk, and other accessory areas. This information should be documented in the form of a sketch that will allow City personnel to verify the measurements, calculations and other pertinent information.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation and calculations, and a Right of Entry Agreement to the City.

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 25% credit is available for the Low-Impact Parcel credit.

No Impact Parcel

Residential customers are eligible for a stormwater credit if the customer can demonstrate that through innovative on-site stormwater management practices that the impacts of development have been successfully mitigated. The City believes that it is possible through grading, landscaping and other practices to reduce the resultant runoff from a parcel to a level less than that which existed prior to development.

Credit Description

The No Impact Parcel will be available to those customers that can demonstrate through scientific studies and documentation that stormwater peak flow values and total stormwater volume leaving the property mimic the conditions that would exist on the property in a naturally wooded state with no development. This analysis should be shown for the 1-, 2-, 5-, 10-, 25-, 50- and 100-year, 24-hour storm events. In order to qualify for this credit, the customer will need to provide the following information:

- Pre-Development runoff rates and volumes leaving their property prior to development in a naturally wooded state.
- Post-Development runoff rates and volumes leaving their property in its current state.
- Description of the methods and calculations utilized to develop the predictions of pre-development and post-development flow rates and volumes.
- Description of the site improvements implemented to induce a reduction in the increased runoff rates and volumes to pre-development conditions or less.
- Description of the Best Management Practices (BMPs) utilized along with supporting calculations demonstrating that the site conforms to the water quality standards for individual site development as outlined in the GSMM (i.e. capture and treat the first 1.2-inches of runoff for 80% TSS removal).
- Maintenance plan for those site features necessary to maintain the reduction in stormwater runoff to pre-development runoff rates and volumes or less.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for a no-impact parcel:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall provide a hydrologic report prepared under the direct supervision and sealed by a Professional Engineer or Professional Hydrologist demonstrating compliance with the requirements outlined above.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation, to the City.

Upon receipt of the credit application, the City shall review the application and documentation. Upon approval, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the documentation submitted by the residential customer applying for the Stormwater Utility credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to conduct maintenance as per the maintenance plan provided with the original application. The customer may reapply for the credit every three years. If a customer is reapplying for a No Impact Parcel credit and site conditions have not changed since the original application, the application only needs to include a copy of the original hydrological study and certification that all maintenance has been performed per the maintenance plan for re-issuance of the credit. If site improvements have been made to the property then the hydrological study will need to be updated to prove compliance with the standards. A 100% credit is available for a No Impact Parcel Credit.

Watershed Stewardship

Residential customers are eligible for a stormwater credit if the customer participates in a City approved local watershed stewardship event. Eligible events are set up, organized, and executed through a partnership with citizens, local groups, county, and federal agencies.

Credit Description

In general, eligible watershed stewardship activities will include community programs such as Adopt-A-Stream, Adopt-A-Park and Adopt-A-Mile that require participation in at least 4 events per year. Other eligible programs may be added in the future, but customers should verify activity eligibility with the City Stormwater Manager in advance.

There shall only be one stormwater credit certificate issued per Residential property. Participation may include more than one person. However, the certificate may only be issued for those properties where the customer or adult over the age of 18 that is responsible for paying rent or mortgage is one of the participants, unless otherwise approved by the City Stormwater Manager.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for watershed stewardship:

STEP 1: The customer shall secure the appropriate certificate for the City of Roswell's Watershed Stewardship Program event. Attendance at events not sponsored by the City of Roswell is not transferable to the City of Roswell's Stormwater Utility credit program, unless approved by the City Stormwater Manager.

STEP 2: The customer shall submit the credit application, complete with the relevant certificate, to the City.

Upon receipt of the credit application, the City shall verify that applicant is on the roster for the appropriate program. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reappplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to participate in the stewardship events annually to receive a certificate. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 5% credit is available for watershed stewardship.

Septic Tank Maintenance

Residential customers are eligible for a stormwater credit if the customer conducts maintenance on existing septic systems located on the resident's property. Residential customers with septic systems can receive a credit by having their septic tanks pumped out on a regular basis, at a minimum of every five years. By submitting documentation in the form of a receipt from a licensed hauler of septic wastes, homeowners would be eligible for a 25% credit for the five years after the septic tank was pumped out. Customers may reapply for this credit at the end of every five year term.

Credit Description

The septic system maintenance credit will be applied to the customer applying for the stormwater credit.

There shall only be one stormwater credit issued per Residential property in which regular maintenance is conducted on the septic system and it shall only be good for a period of five years. It is the customer's responsibility to contact a licensed hauler of septic wastes and submit the proper documentation citing that the septic system has had maintenance conducted on the system.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for septic system maintenance:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall secure the pertinent documentation from a licensed hauler of septic waste.

For the purposes of this manual, a receipt from the hauler will be sufficient if the receipt contains the date the maintenance was performed (must be within 6 months of the date of the application for a credit), the address of the property matching the address on the Stormwater Utility bill and the name of the company performing the work.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation, to the City.

Upon receipt of the credit application, the City shall review the application and documentation from the licensed hauler of septic waste. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the documentation submitted by the residential customer applying for the Stormwater Utility credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to conduct maintenance on the septic system at a minimum of every five years in order to qualify and receive the stormwater credit. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 25% credit is available for septic tank maintenance.

Non-Single Family Residential (NSFR)

NSFR customers can apply for the credits listed below provided they meet specified eligibility requirements. Each credit is explained in more detail in the pages that follow:

- Watershed Stewardship
- Septic Tank Maintenance
- Water Resources Education Programs
- NPDES Industrial Stormwater General Permit Compliance
- Reduced Imperviousness Parcel
- Management of the Stormwater Runoff Water Quality Volume
- Management of the Stormwater Runoff Channel Protection Volume
- Management of the Stormwater Runoff Overbank Flood Protection Volume
- Management of the Stormwater Runoff Extreme Flood Protection Volume

The last four credits listed above are part of the Unified Stormwater Sizing Criteria discussed in the GSMM. These four credits will be discussed as a group under the Unified Stormwater Sizing Criteria heading.

Watershed Stewardship

Non-Residential customers are eligible for a stormwater credit if the customer participates in a City approved local watershed stewardship event. Eligible events are set up, organized, and executed through a partnership with citizens, local groups, county, and federal agencies.

Credit Description

In general, eligible watershed stewardship activities will include community programs such as Adopt-A-Stream, Adopt-A-Park and Adopt-A-Mile that require participation in at least 4 events per year. Other eligible programs may be added in the future, but customers should verify activity eligibility with the City Stormwater Manager in advance.

There shall only be one stormwater credit certificate issued per NSFR property. Participation may include more than one person. However, the certificate may only be issued for those properties where the customer or adult over the age of 18 that is affiliated with the organization responsible for or is a tenant of the property is one of the participants, unless otherwise approved by the City Stormwater Manager.

Stormwater Credit Application Procedures

The Non-Residential customer shall follow the procedures below when applying for a stormwater credit for watershed stewardship:

STEP 1: The customer shall secure the appropriate certificate for the City of Roswell's Watershed Stewardship Program event. Attendance at events not sponsored by the City of Roswell is not transferable to the City of Roswell's Stormwater Utility credit program, unless approved by the City Stormwater Manager.

STEP 2: The customer shall submit the credit application, complete with the relevant certificate, to the City.

Upon receipt of the credit application, the City shall verify that applicant is on the roster for the appropriate program. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to participate in the stewardship events annually to receive a certificate. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 5% credit is available for watershed stewardship.

Septic Tank Maintenance

NSFR customers are eligible for a stormwater credit if the customer conducts maintenance on existing septic systems located on the customer's property. NSFR customers with septic systems can receive a credit by having their septic tanks pumped out on a regular basis, at a minimum of every five years. By submitting documentation in the form of a receipt from a licensed hauler of septic wastes, customers would be eligible for a 25% credit for the five years after the septic tank was pumped out. Customers may reapply for this credit at the end of every five year term.

Credit Description

The septic system maintenance credit will be applied to the customer applying for the stormwater credit.

There shall only be one stormwater credit certificate issued per NSFR property in which regular maintenance is conducted on the septic system and it shall only be good for a period of five years. It is the customer's responsibility to contact a licensed hauler of septic wastes and submit the proper documentation citing that the septic system has had maintenance conducted on the system.

Stormwater Credit Application Procedures

The NSFR customer shall follow the procedures below when applying for a stormwater credit for septic system maintenance:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall secure the pertinent documentation from a licensed hauler of septic waste.

For the purposes of this manual, a receipt from the hauler will be sufficient if the receipt contains the date the maintenance was performed (must be within 6 months of the date of the application for a credit), the address of the property matching the address on the Stormwater Utility bill and the name of the company performing the work.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation, to the City.

Upon receipt of the credit application, the City shall review the application and documentation from the licensed hauler of septic waste. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the documentation submitted by the NSFR customer applying for the Stormwater Utility credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to conduct maintenance on the septic system at a minimum of every five years in order to qualify and receive the stormwater credit. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 25% credit is available for septic tank maintenance.

Water Resources Education Programs

It is the goal of the City of Roswell to strongly and financially encourage both public and private organizations to educate and inform the public on the importance of surface water, ground water and stormwater resources, and how they can play a role in preserving and restoring the physical, chemical, and biological integrity of the City's water resources. Consequently, the property which is used as a site to teach an environmental science curriculum that includes an eligible water resources education program may receive a credit against the stormwater user fee charge.

Eligibility

The education credit shall be available to all public or private organizations, which teach the Water Wise program or any program approved by the City Stormwater Manager:

- The credit shall be available to properties which allow organizations to teach at least 500 participants in an approved program.
- No other curriculum shall be eligible for such credit unless granted by the City Stormwater Manager.

Amount of Credit

The education credit will not exceed 40% of the total user fee charge. Education credits may be taken in conjunction with, and in addition to, other credits available under this section that the customer is eligible to secure.

Stormwater Credit Application Procedures

Prior to submittal of the application, a person responsible for the property shall certify to the City Stormwater Manager, that a water resources based curriculum has been taught at the facility / property and the extent to which such curriculum is being taught.

The following additional information should be provided to help assess the credit eligibility:

- Address of site (property) and point of contact.
- Approximate number of participants that have been taught the curriculum (must be at least 500).

NPDES Industrial Stormwater General Permit Compliance

By complying with NPDES Industrial Stormwater General Permit requirements for industrial facilities, NSFR customers are helping the City address potential water quality issues onsite before they are discharged into the public drainage system and/or Waters of the State. Therefore, these properties are eligible for a Stormwater Utility credit. If the NSFR customer has properly secured coverage under the NPDES Industrial Stormwater General Permit, and is in compliance with all applicable requirements (i.e. development and implementation of a Stormwater Pollution Prevention Plan (SWPPP)), a credit application may be filed with the City.

Stormwater Credit Application Procedures

The following requirements will apply for NSFR customers who qualify for an NPDES Industrial Stormwater General Permit Stormwater Utility credit:

Step 1: NSFR properties that operate under compliance with their NPDES Industrial Stormwater General Permit are eligible for a credit in their Stormwater Utility fee. The credit shall only be applied to that portion of the property covered by the permit.

Step 2: It is the customer's responsibility to obtain a credit application from the City. The customer shall complete the application, attaching any required documents verifying compliance with the NPDES Industrial Stormwater General Permit. At a minimum, the documentation attached to the credit application shall include the following:

- Address of site and point of contact
- Copy of the current NPDES Industrial Stormwater Permit NOI
- Copy of a summary annual report of compliance
- Copy of the SWPPP
- Certification by the responsible party/permit holder that the SWPPP is being implemented

Step 3: Once complete, the application shall be submitted to the City.

Upon receipt of the credit application, the City shall review the documentation and upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved. Upon approval, the credit will be applied at the next billing cycle following approval. The maximum credit amount available for NPDES Industrial Stormwater General Permit compliance is 5%.

The NSFR customer shall continue to send a copy of an annual summary report of compliance to the City Stormwater Manager and continue to comply with their NPDES Industrial Stormwater General Permit requirements. The customer will be responsible for sending the annual report to the City. Failure to do so will nullify the Stormwater Utility fee credit. The NSFR customer shall also prepare and submit a Right of Entry Agreement.

Reduced Imperviousness Parcel

The City desires to promote the reduction of impervious cover in the watersheds in Roswell and has developed this credit for NSFR customers who voluntarily choose to reduce the amount of existing impervious surface on their property. The removal of impervious surfaces from the NSFR property will result in a reduction of runoff and will therefore be classified as a Reduced – Imperviousness Parcel.

Credit Description

A credit shall apply to those NSFR customers who can prove that they have successfully removed impervious surfaces from their property and replaced the areas with a pervious area. Customers who can show that they have removed 10% of the existing impervious surfaces on their property shall qualify for this credit for a period of one year.

Table 4 Stormwater Utility Credit Requirements for Reduced Imperviousness Parcel	
Parameter	Requirement
Impervious Cover (%)	Removal must be equal to or greater than 10% of the existing impervious surface

Stormwater Credit Application Procedures

Each NSFR customer that wishes to apply for this credit shall be responsible for calculating the total site area, impervious surface area, impervious area removed and total impervious area replaced with pervious area. Each NSFR customer shall utilize the following procedures:

Step 1: Determine the impervious area for the NSFR parcel. The impervious area shall include the structure, driveways, parking lots, sidewalks (do not include the sidewalk in front of the NSFR property next to the street), patios, sheds, or any other ancillary impervious area. Develop and coordinate this plan illustrating which impervious areas will be removed as part of the credit application with the Water Resources Division staff. The impervious surface removed must be at least 10% of the total impervious surface area of the parcel.

Step 2: Coordinate the plan with the City to determine if any zoning or land disturbance permits / variances need to be secured prior to removal of the impervious surfaces.

Step 3: Remove the impervious surface areas identified in the plan and vegetate the area disturbed prior to submittal of an application for credit to the City.

Step 4: Submit a credit application to the City including the plan showing the area of impervious surface removed and documenting that it reduced the total impervious area of the site by at least 10%.

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

If the NSFR parcel meets all the requirements above, the customer would be eligible for a Stormwater Utility rate credit of 100% of the revised stormwater bill applicable for 1 year. Additionally, the NSFR customer will likely qualify for a permanent reduction in stormwater fees through the reduction in impervious surface area fees calculated for the parcel.

Unified Stormwater Sizing Criteria

Credit Description

The four treatment levels of the unified stormwater sizing criteria include water quality, channel protection, overbank flood protection, and extreme flood protection. **Table 5** presents each treatment level with a description of each, as provided in the Georgia Stormwater Management Manual (GSMM).

Treatment Level	Maximum Available Credit	Description ¹
Water Quality	10%	Treat the runoff from 85% of the storms that occur in an average year. Per the GSMM, this equates to providing water quality treatment for the runoff resulting from a rainfall depth of 1.2 inches. Reduce average annual post-development TSS loadings by 80%.
Channel Protection	10%	Provide extended detention of the 1-year storm event released over a period of 24 hours to reduce bankfull flows and protect downstream channels from erosive velocities and unstable conditions.
Overbank Flood Protection	10%	Provide peak discharge control of the 25-year storm event such that the post-development peak rate does not exceed the predevelopment rate to reduce overbank flooding.
Extreme Flood Protection	10%	Evaluate the effects of the 100-year storm on the stormwater management system, adjacent property, and downstream facilities and property. Manage the impacts of the extreme storm event through detention controls and/or floodplain management.

1) Description of each treatment level is as published in Chapter 1.3 of the GSMM (August 2001).

The various options available for providing the desired level of treatment can be found in the GSMM. Volume 2, Chapter 1.3 provides an overall comparison of BMP options as they apply to the four levels of the unified stormwater sizing criteria. Volume 2, Chapter 3 provides more detailed information on each BMP. Design examples for a select number of BMPs are provided in Volume 2, Appendix D.

Stormwater Credit Application Procedures

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application,

the City will send a letter to the customer explaining why the credit application was not approved.

NOTE: All work associated with pursuit of a Stormwater Utility fee credit shall be done in strict accordance with the City's current ordinances related to the management of stormwater runoff.

Credit Applications

Credit applications are required for all credits included in this manual. Appendix A provides the credit application forms for the applicable credits described in this manual. Appendix B contains miscellaneous forms required as part of the Stormwater Utility credit application process, including a Right-of-Entry Agreement and a City inspection form.

APPENDIX A

A-1: Stormwater Utility Credit Application Forms

**A-2: NPDES Industrial Stormwater General Permit Credit
Application Form**

Appendix A-1

Stormwater Utility Credit Application Forms

CITY OF ROSWELL

Residential Stormwater Utility Credit Application Form

Instructions:

Fill out this form completely. One application must be submitted for each separate property location. Follow the steps outlined in the applicable section of this Credit Manual. Attach all appropriate documentation to support this request, as outlined herein.

Fill out and attach appropriate documentation. Mail completed form (with attachments) to:

City of Roswell
 Attn: Stormwater Manager
 Public Works/Environmental Dept
 38 Hill Street
 Roswell, GA 30075

Place a check next to the credit being applied for with this application:

Type Credit	Applicability/Requirements
Residential Rain Barrels	Residential
Residential Environmental Technologies	Residential
Low Impact Parcel	Residential
No Impact Parcel	Residential
Watershed Stewardship	Residential
Septic Tank Maintenance	Residential
Reduced – Impact Parcel	Residential

General Information:

Owner Name:	
Owner Mailing Address:	
Owner Mailing City/Zip:	
Contact Phone/Fax Number:	
Contact E-mail Address:	

Property Information:

Account Number:	
Parcel Address (number and street):	
Parcel Address (city and state and zip):	
Parcel Location/Development:	
Authorized Contact, if different than owner:	

CITY OF ROSWELL

NSFR Stormwater Utility Credit Application Form

Instructions:

Fill out this form completely. One application must be submitted for each separate property location. Multiple stormwater controls may be included in the application for a single property location. Please ensure all stormwater management facilities are in a proper state of repair and maintained. Attach all appropriate documentation to support this request. Documentation shall include:

1. Site plan with stormwater facilities and contributory drainage area.
2. Description of stormwater control facilities.
3. Appropriate pages from Volume 2 of the Georgia Stormwater Management Manual (August 2001, or as amended) identifying design requirements for each on-site stormwater control.
4. Documentation that the stormwater control facilities meet one or more criteria for the user fee credit (technical report).
5. Seal by professional engineer licensed in Georgia (does not apply to educational credit).

Fill out and attach a Right-of-Entry Agreement. Mail completed form (with attachments), and Right-of-Entry to:

City of Roswell
 Attn: Stormwater Manager
 Public Works/Environmental Dept
 38 Hill Street
 Roswell, GA 30075

Place a check next to the credit being applied for with this application:

Type Credit	Applicability/Requirements
Watershed Stewardship	NSFR
Septic Tank Maintenance	NSFR
Reduced – Impact Parcel	NSFR
Water Resources Education Program	NSFR
Water Quality	NSFR - requires PE
Channel Protection	NSFR - requires PE
Overbank Flood Protection	NSFR - requires PE
Extreme Flood Protection	NSFR - requires PE

General Information:

Owner Name:	
Owner Mailing Address:	
Owner Mailing City/Zip:	
Contact Phone/Fax Number:	
Contact E-mail Address:	

CITY OF ROSWELL

NSFR Stormwater Utility Credit Application Form (continued)

Property Information:

Account Number:	
Parcel Address (number and street):	
Parcel Address (city and state and zip)	
Parcel Location/Development:	
Authorized Contact, if different than owner:	

I hereby request the City of Roswell to review this application for a stormwater service fee credit. I further authorize the City of Roswell to inspect the above identified stormwater facility(ies) for the purpose of assessment for a stormwater service fee credit. I certify that I have authority to make such a request and grant such authority for this property. The attached information is true and correct to the best of my knowledge and belief. (The financially responsible person must sign this form if an individual, or if not an individual by an officer, director, partner, or registered agent with authority to execute instruments for the financially responsible person). I agree to provide corrected information should there be any change in the information provided herein.

Type or print name

Title or Authority

Signature

Date

Approval:

City Stormwater Manager

Date

Appendix A-2

NPDES Industrial Stormwater General Permit Credit Application Form

CITY OF ROSWELL

NPDES Industrial Stormwater General Permit Compliance Credit Application/Renewal Form

Instructions:

Fill out this form completely. A separate application must be made for each separate property location. One application must be submitted for each separate NPDES Industrial Stormwater General Permit. Please ensure all NPDES permitted facilities are in a proper state of repair and maintained.

Fill out and attach the following:

- NPDES permit
- Previous year's annual report
- Copy of the Stormwater Pollution Prevention Plan (SWPPP)
- Right of Entry Agreement

Mail the completed forms, annual report, the NPDES Industrial Stormwater Permit NOI, and SWPPP to:

City of Roswell
 Attn: Stormwater Manager
 Public Works/Environmental Dept
 38 Hill Street
 Roswell, GA 30075

Account Number:	
Property Owner Name:	
Property Address:	
Property City/Zip Code:	
Property Owner E-mail Address:	
Property Owner Phone/Fax Number:	
Mailing Address:	

I hereby request the City of Roswell to review this application for a stormwater service fee credit. I certify that I have authority to make such a request and grant such authority for this property. The attached information is true and correct to the best of my knowledge and belief. (This form must be signed by the financially responsible person if an individual, or if not an individual by an officer, director, partner, or registered agent with authority to execute instruments for the financially responsible person). I agree to provide corrected information should there be any change in the information provided herein.

 Type or print name

 Title or Authority

 Signature

 Date

APPENDIX B

Right-of-Entry Agreement

CITY OF ROSWELL

Right of Entry Agreement – Stormwater Utility Credit Inspection

STATE OF GEORGIA
FULTON COUNTY

I/We _____, the owner(s) of the property commonly identified as _____, the City of Roswell, Fulton County, State of Georgia, do hereby grant and give freely and without coercion, the right of access and entry to said property to the City of Roswell, its agents, contractors, and subcontractors thereof, for the purpose of performing necessary inspections of onsite stormwater controls and site activities related to stormwater runoff management on the _____ (hereinafter "facility") located on Lot _____ subdivision in the City of Roswell, Georgia.

The undersigned agrees and warrants to waive and hold harmless the City of Roswell, its agents, employees, contractors, and subcontractors, for damage of any type, or any claim or action, either legal or equitable that might arise out of any activities on the above described property that are conducted by the City of Roswell, its agents, employees, contractors and subcontractors, pursuant to this Agreement.

In consideration of this Right of Entry Agreement and the rights granted to the City of Roswell herein, the receipt and sufficiency of which is hereby acknowledged, the City of Roswell agrees, to perform only visual inspections, and review pertinent facility records, necessary to verify stormwater utility credit eligibility.

I/We, will not receive(d) any compensation for this Right of Entry agreement.

For the considerations and purposes set forth herein, I set my hand this _____ day of _____ 20____.

Witness

Owner

Notary

Owner

Address

Exhibit “A”

City of Roswell Stormwater Utility

Stormwater Utility Credit Manual

December 27, 2010

Section 1 – Introduction and Overview

Stormwater utility credits recognize efforts by private and public entities to help reduce the City's Stormwater Management Program (SWMP) costs by reducing their Stormwater fee. Credits are generally reviewed and considered annually and support the City's regulatory program compliance activities. Credits are typically given for: detention facilities, best management practices (BMPs) and other activities such as open space & greenspace preservation. Many programs also include innovative programs that involve education and public participation.

This manual outlines the methodology for the City of Roswell (City) Stormwater Utility customers to secure and maintain a stormwater utility rate credit(s) for their property. A Stormwater Utility rate credit, or stormwater credit, represents a reduction in the customer's Stormwater Utility fee. The credit is only applicable for instances where stormwater management best management practices (BMPs) are operated and maintained to reduce the impact of runoff from the subject property on the City's stormwater management systems or in recognition of activities undertaken by the customer to reduce the cost of operating the stormwater management program.

Credit Program Procedures

- Application submitted and reviewed by City personnel, including a inspection of the facility (if applicable) to insure functionality and appropriateness
- Periodic Renewal – must be renewed at the specified interval (usually one year)
- Activities/Participation results in a credit on the bill following approval of the application

Table 1 summarizes the credits available to property owners within the City. Each credit is explained in further detail later in this manual.

Summary of the City of Roswell Potential Stormwater Utility Credits			
Credit	Term	Potential Stormwater Utility Credit	
		Residential (RES)	Non Single Family Residential (NSFR)
Residential Rain Barrels	3 years	100% first year 25% on-going	
Residential Environmental Technologies	3 years	100% first year 20 % on-going	
Low-Impact Parcel	3 years	25 %	
No Impact Parcel	3 years	100%	
Watershed Stewardship	1 year	5 %	5 %
Septic Tank Maintenance	5 years	25 %	25 %
Water Resources Education Program (only applicable to public and private institutions with at least 500 participates)	1 year		40 %
NPDES Industrial Stormwater General Permit	1 year		5 %
Reduced Imperviousness Parcel	10% removal One-time only		100 %
Unified Stormwater Sizing Criteria:			
Water Quality	3 years		10 %
Channel Protection	3 years		10 %
Overbank Flood Protection	3 years		10 %
Extreme Flood Protection	3 years		10 %

** The credits described in this manual are applicable as indicated and are subject to the requirements of the latest version of the Georgia Stormwater Management Manual (GSMM), complete with all appendices and attachments.*

Definitions

Credit: A reduction in the amount of a customer’s Stormwater Utility fee in recognition of a property’s efforts to mitigate the runoff impact that the property improvements (i.e. impervious areas) have on the City stormwater management system.

Best Management Practice (BMP): Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, flood controls,

operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Detention Facility: A system which provides temporary storage of stormwater runoff with a designed release of the stored runoff over time to manage the discharge volume, rate, pollutant loading and/or velocity and mitigate the property's impact on the City stormwater management system.

Georgia Stormwater Management Manual (GSMM): A document governing stormwater management activities in Georgia. This document serves as a comprehensive technical handbook for stormwater management design, construction and long-term maintenance.

Impervious Area: Areas that do not allow, or only allow to a small extent, the infiltration of rainfall or stormwater runoff into the soil.

Residential (RES): A developed property that contains a main dwelling by means of a roof and/or interior wall, with each dwelling unit occupying its own parcel. A RES property shall be classified as residential and shall not be, commercial, industrial, institutional, educational, religious, municipal, or recreational.

Non-Single Family Residential (NSFR): A developed property that contains structures utilized for purposes other than a residential dwelling unit. Examples of NSFR properties include those classified as commercial, industrial, institutional, educational, religious, municipal, and recreational.

Retention Facility: A system that provides storage of stormwater runoff, preventing release of a certain volume to a surface water body.

Runoff: Portion of stormwater, snow/ice melt, irrigation, and drainage that is collected in a stormwater management system that does not infiltrate into the soil.

General Policies

The following general policies apply when considering stormwater credits:

- Credits are only applied to eligible customers. Since the stormwater fee is being assessed on an individual parcel basis, a group of customers cannot apply for a credit unless otherwise noted. An eligible property is defined as a property that contributes runoff to the qualifying stormwater BMP located on the same property via natural and/or manmade conveyance systems.
- If a group of properties are served by a BMP(s) then the credit will be applied to the customer on whose property which the BMP resides. This applicant will be referred to as the primary applicant. If the primary applicant provides a memorandum of agreement (MOA) between the primary applicant and another customer for which the BMP(s) provides adequate treatment for the applicable credit, the City will apply the credit to all customers named in the MOA. The credit shall be applied to all applicants until such time as the primary applicant notifies the City that the MOA is no longer in effect or the term of the credit expires, whichever is sooner. If the MOA

is revoked by the primary applicant, the credit shall only apply to the primary applicant.

- A residential homeowner's association (HOA) which has its own properly designed, constructed, and maintained stormwater BMP(s) should contact the City Stormwater Manager to determine if a credit can be provided.
- For the purposes of the credit, the BMP(s) must be located on a parcel that is platted within the subdivision and owned by the HOA (or a property owner in the subdivision). BMPs located within City owned greenbelts or rights-of-way are not eligible. Additionally, BMPs that the City maintains through a dedicated maintenance easement or other legal agreement though lying within private property are also ineligible.
- For the purposes of awarding the credit, the credit being applied for must be met for the entire development and must meet the credit conditions. For example, if a credit for channel protection is applied for, the channel protection requirements must be met for the entire development.
- Any resulting credit awarded will be divided among eligible customers within the subdivision.
- Applications for a stormwater credit for existing facilities may be submitted to the City of Roswell at any time. Approved credits will be applied prior to the customer's next billing cycle.
- Applications for a stormwater credit for new construction may be submitted once the BMP is in place or when the Stormwater Utility rate is applied, whichever is later.
- The City will, at its discretion, undertake periodic visual inspections of the BMPs being utilized to obtain a credit. Consequently, a Right-of-Entry or an access easement must be granted to the City for credits to be approved.
- The term of the credit varies based upon the type credit. See **Table 1** for credit terms. During the credit term, the City may conduct random inspections such that each credit could potentially be revoked. If the BMP facility is found to be functional and being properly maintained, the credit will remain in effect. Likewise, if the BMP facility is not functional or is not being maintained, the credit will be voided on the next billing cycle. Before a credit is re-instated, the customer will have to reapply for the credit as outlined in this manual.

Basic Procedures

Most of the credits in this manual require an application, and some of the credit applications require engineering calculations to verify eligibility to receive the credit. The credits associated with engineering calculations are identified in the manual and the credit application forms. The City requires that these calculations be performed, signed, and sealed in accordance with the professional certification provisions outlined herein. The procedure for filing a credit application includes the following tasks:

- Obtain an application packet from the City.
- If required by the credit, retain a professional engineer to perform the required analysis.
- Submit the completed application with all sections appropriately filled out, and all required information contained within or attached to the application, including the Right of Entry form.
- The City will review and rule on the eligibility of the credit application within 30 days of receipt of the completed Stormwater Utility credit application. Incomplete packages will not be considered by the City and will be returned to the customer for correction/revision. The decision of the City regarding credit eligibility is final.
- If the credit application is approved, the City will apply the stormwater credit to the next billing cycle.
- During the credit term, the City has the right to inspect the BMP facility to ensure it is functioning per the design documents and is being properly maintained.
- Stormwater Utility credits expire automatically at the end of the credit term. A new credit application is required at the end of the credit term. It is the customer's responsibility to ensure that reapplication is made within 90 days of expiration and a maximum of 60 days prior to the credit expiring for the City to review and approve.

Design and Implementation

Any stormwater management system within the City must follow the recommendations and guidelines presented in Chapter 7 of the **City's Land Development and Environmental Protection Ordinance**, as well as the Georgia Stormwater Management Manual (GSMM). The City's Water Resources Protection Ordinance provides the local framework for stormwater management within the City of Roswell. Technical guidance for implementation of the goals outlined therein was incorporated into the ordinance via the GSMM by reference.

The GSMM can be found on the Internet by using the following link: <http://www.georgiastormwater.org/>. This document discusses stormwater management planning and design, unified stormwater sizing criteria, and specific BMP controls achieving various levels of treatment. The unified stormwater sizing criteria accounts for varying levels of treatment provided for calculating BMP effectiveness.

Section 2 – Credit Policy and Procedures

This section explains the procedures involved in applying for a stormwater credit. The procedures include step-by-step instructions and eligibility requirements for obtaining the Stormwater Utility credit.

Residential

Listed below are the stormwater credits that Residential customers are eligible to apply for. Each credit is explained in more detail in the pages that follow. The Residential customer shall follow the credit application procedures outlined herein for each credit.

- Residential Rain Barrels
- Residential Environmental Technologies
- Low-Impact Parcel
- No-Impact Parcel
- Watershed Stewardship
- Septic Tank Maintenance

Residential Rain Barrels

The City recognizes that reducing the amount of runoff leaving residential properties via interception and storage in rain barrels not only reduces the demand on the downstream drainage network but also reduces the need for irrigation water from the potable water system. As such, the City has implemented a credit for those residential customers who install rain barrels on their property to intercept rain water from the roof of their house.

Credit Description

A credit shall apply to those Residential customers who can provide documentation that a minimum of one-half of the downspouts from their roof gutter system are connected to rain barrels of at least 40 gallons in size. Upon approval of the credit, the customer shall receive a credit of 100% of the stormwater utility fee for a period of one year. After the first year, the customer shall receive a credit of 25% for the following two years.

Please note: This credit is good for three years, upon re-application for this credit, the credit shall be 25% for all subsequent re-applications and years.

Each Residential customer shall utilize the following procedures:

- The customer shall provide documentation via a sketch of the home and / or photographs of the barrels such that each downspout is connected to an approved rain barrel.
- Approved rain barrels shall consist of a water tight barrel with a capacity of 40 gallons or more which shall allow interception of rain water from a downspout. Additionally, the rain barrel must have a spigot such that stored runoff water can be drained in a controlled manner at a later time.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for a Residential Rain Barrel credit:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall submit the credit application, complete with the relevant documentation and calculations, and a Right of Entry Agreement to the City.

Upon receipt of the credit application, the City shall review the documentation. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

The customer shall continue to maintain the Residential Rain Barrels during the full credit term. Renewal of the stormwater utility credit shall be in accordance with the Basic Procedures section of this manual.

Residential Environmental Technologies

Residential customers are eligible for a stormwater credit if the customer participates in an eligible, City approved residential environmental technology. These stormwater management practices may include but are not limited to such items as cisterns, rain gardens, pervious pavements and infiltration areas. The City wishes to encourage the installation of these types of stormwater management devices to increase the effectiveness of the utility. Instead of a blanket 'one size fits all' approach, the City has determined that it would be better for the individual customer to determine what kinds of BMPs they desire. The City shall provide an updated list of the latest approved Residential Environmental Technology devices, and customers are encouraged to work with the City Stormwater Manager to implement approved devices. However, if the customer can prove that an alternative Residential Environmental Technology is effective in controlling stormwater on their property, then upon approval from the City Stormwater Manager, the customer shall be eligible for this credit. In each case, the City will be using the GSMM standards to evaluate the BMP and its eligibility.

Credit Description

A credit shall apply to those Residential customers who can prove that their property has successfully installed a City approved residential environmental technology.

Each Residential customer that wishes to apply for this credit shall work with the City to calculate the effectiveness of the Residential Environmental Technology and be responsible for calculating the total site area, impervious surface area, and natural conservation area. Each Residential customer shall utilize the following procedures:

- Determine the type of Residential Environmental Technology. This must be a City approved technology or, if an alternative method is implemented, the customer must be able to show the alternative devices' effectiveness in controlling stormwater on their property.
- If the Residential parcel meets all the requirements above, the customer shall receive a credit of 100% of the stormwater utility fee for a period of one year. After the first year, the customer shall receive a credit of 20% for the following two years.

Please note: This credit is good for three years, upon re-application for this credit, the credit shall be 20% for all subsequent re-applications and years.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for a Residential Environmental Technology:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall identify the BMP being utilized and ensure it is designed, maintained, and operated in accordance with general stormwater management requirements listed in the GSMM.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation and calculations, and a Right of Entry Agreement to the City.

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

The customer shall continue to maintain the Residential Environmental Technology during the full credit term. Renewal of the stormwater utility credit shall be in accordance with the Basic Procedures section of this manual.

Low-Impact Parcel

There are several areas in the City where parcels are relatively large and the amount of impervious area, in comparison to the total lot size, is relatively small. These parcels generally have reduced runoff impacts since most of the parcel is in an undeveloped or low impact condition.

Credit Description

A credit shall apply to Residential customers who can prove that their lots comply with the “low-impact” development provisions presented herein. This shall be achieved through the use of large lot Residential parcels and natural area conservation. Low impact parcel credit requirements are included in Table 2:

Table 2 Stormwater Utility Credit Requirements for Low-Impact Parcels	
Parameter	Requirement
Total Impervious Cover (%)	Must be less than 15% of total site area
Total Site Area (Acres)	Must be greater than 2 acres

Each Residential customer that wishes to apply for this credit shall be responsible for calculating the total site area and impervious surface area. Each Residential customer shall utilize the following procedures:

- Determine the total area of the parcel. This must be a minimum of two acres.
- Determine the impervious area for the parcel. The impervious area shall include the structure, driveway, sidewalk (do not include the sidewalk in front of the house next to the street), pool, pool deck, patio, shed, or any other accessory impervious area. The impervious surface must be less than 15% of the total parcel area (pervious area plus impervious surfaces) area of the parcel.
- If the Residential parcel meets all the requirements above, the customer would be eligible for a Stormwater Utility rate credit of 25%.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for Low-Impact Parcel:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall provide a copy of the information where the customer determined total parcel area and total impervious area. Total impervious area shall be detailed to include which portion pertains to the structure, driveway, sidewalk, and other accessory areas. This information should be documented in the form of a sketch that will allow City personnel to verify the measurements, calculations and other pertinent information.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation and calculations, and a Right of Entry Agreement to the City.

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 25% credit is available for the Low-Impact Parcel credit.

No Impact Parcel

Residential customers are eligible for a stormwater credit if the customer can demonstrate that through innovative on-site stormwater management practices that the impacts of development have been successfully mitigated. The City believes that it is possible through grading, landscaping and other practices to reduce the resultant runoff from a parcel to a level less than that which existed prior to development.

Credit Description

The No Impact Parcel will be available to those customers that can demonstrate through scientific studies and documentation that stormwater peak flow values and total stormwater volume leaving the property mimic the conditions that would exist on the property in a naturally wooded state with no development. This analysis should be shown for the 1-, 2-, 5-, 10-, 25-, 50- and 100-year, 24-hour storm events. In order to qualify for this credit, the customer will need to provide the following information:

- Pre-Development runoff rates and volumes leaving their property prior to development in a naturally wooded state.
- Post-Development runoff rates and volumes leaving their property in its current state.
- Description of the methods and calculations utilized to develop the predictions of pre-development and post-development flow rates and volumes.
- Description of the site improvements implemented to induce a reduction in the increased runoff rates and volumes to pre-development conditions or less.
- Description of the Best Management Practices (BMPs) utilized along with supporting calculations demonstrating that the site conforms to the water quality standards for individual site development as outlined in the GSMM (i.e. capture and treat the first 1.2-inches of runoff for 80% TSS removal).
- Maintenance plan for those site features necessary to maintain the reduction in stormwater runoff to pre-development runoff rates and volumes or less.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for a no-impact parcel:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall provide a hydrologic report prepared under the direct supervision and sealed by a Professional Engineer or Professional Hydrologist demonstrating compliance with the requirements outlined above.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation, to the City.

Upon receipt of the credit application, the City shall review the application and documentation. Upon approval, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the documentation submitted by the residential customer applying for the Stormwater Utility credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to conduct maintenance as per the maintenance plan provided with the original application. The customer may reapply for the credit every three years. If a customer is reapplying for a No Impact Parcel credit and site conditions have not changed since the original application, the application only needs to include a copy of the original hydrological study and certification that all maintenance has been performed per the maintenance plan for re-issuance of the credit. If site improvements have been made to the property then the hydrological study will need to be updated to prove compliance with the standards. A 100% credit is available for a No Impact Parcel Credit.

Watershed Stewardship

Residential customers are eligible for a stormwater credit if the customer participates in a City approved local watershed stewardship event. Eligible events are set up, organized, and executed through a partnership with citizens, local groups, county, and federal agencies.

Credit Description

In general, eligible watershed stewardship activities will include community programs such as Adopt-A-Stream, Adopt-A-Park and Adopt-A-Mile that require participation in at least 4 events per year. Other eligible programs may be added in the future, but customers should verify activity eligibility with the City Stormwater Manager in advance.

There shall only be one stormwater credit certificate issued per Residential property. Participation may include more than one person. However, the certificate may only be issued for those properties where the customer or adult over the age of 18 that is responsible for paying rent or mortgage is one of the participants, unless otherwise approved by the City Stormwater Manager.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for watershed stewardship:

STEP 1: The customer shall secure the appropriate certificate for the City of Roswell's Watershed Stewardship Program event. Attendance at events not sponsored by the City of Roswell is not transferable to the City of Roswell's Stormwater Utility credit program, unless approved by the City Stormwater Manager.

STEP 2: The customer shall submit the credit application, complete with the relevant certificate, to the City.

Upon receipt of the credit application, the City shall verify that applicant is on the roster for the appropriate program. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to participate in the stewardship events annually to receive a certificate. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 5% credit is available for watershed stewardship.

Septic Tank Maintenance

Residential customers are eligible for a stormwater credit if the customer conducts maintenance on existing septic systems located on the resident's property. Residential customers with septic systems can receive a credit by having their septic tanks pumped out on a regular basis, at a minimum of every five years. By submitting documentation in the form of a receipt from a licensed hauler of septic wastes, homeowners would be eligible for a 25% credit for the five years after the septic tank was pumped out. Customers may reapply for this credit at the end of every five year term.

Credit Description

The septic system maintenance credit will be applied to the customer applying for the stormwater credit.

There shall only be one stormwater credit issued per Residential property in which regular maintenance is conducted on the septic system and it shall only be good for a period of five years. It is the customer's responsibility to contact a licensed hauler of septic wastes and submit the proper documentation citing that the septic system has had maintenance conducted on the system.

Stormwater Credit Application Procedures

The Residential customer shall follow the procedures below when applying for a stormwater credit for septic system maintenance:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall secure the pertinent documentation from a licensed hauler of septic waste.

For the purposes of this manual, a receipt from the hauler will be sufficient if the receipt contains the date the maintenance was performed (must be within 6 months of the date of the application for a credit), the address of the property matching the address on the Stormwater Utility bill and the name of the company performing the work.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation, to the City.

Upon receipt of the credit application, the City shall review the application and documentation from the licensed hauler of septic waste. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the documentation submitted by the residential customer applying for the Stormwater Utility credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to conduct maintenance on the septic system at a minimum of every five years in order to qualify and receive the stormwater credit. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 25% credit is available for septic tank maintenance.

Non-Single Family Residential (NSFR)

NSFR customers can apply for the credits listed below provided they meet specified eligibility requirements. Each credit is explained in more detail in the pages that follow:

- Watershed Stewardship
- Septic Tank Maintenance
- Water Resources Education Programs
- NPDES Industrial Stormwater General Permit Compliance
- Reduced – Imperviousness Parcel
- Management of the Stormwater Runoff Water Quality Volume
- Management of the Stormwater Runoff Channel Protection Volume
- Management of the Stormwater Runoff Overbank Flood Protection Volume
- Management of the Stormwater Runoff Extreme Flood Protection Volume

The last four credits listed above are part of the Unified Stormwater Sizing Criteria discussed in the GSMM. These four credits will be discussed as a group under the Unified Stormwater Sizing Criteria heading.

Watershed Stewardship

Non-Residential customers are eligible for a stormwater credit if the customer participates in a City approved local watershed stewardship event. Eligible events are set up, organized, and executed through a partnership with citizens, local groups, county, and federal agencies.

Credit Description

In general, eligible watershed stewardship activities will include community programs such as Adopt-A-Stream, Adopt-A-Park and Adopt-A-Mile that require participation in at least 4 events per year. Other eligible programs may be added in the future, but customers should verify activity eligibility with the City Stormwater Manager in advance.

There shall only be one stormwater credit certificate issued per NSFR property. Participation may include more than one person. However, the certificate may only be issued for those properties where the customer or adult over the age of 18 that is affiliated with the organization responsible for or is a tenant of the property is one of the participants, unless otherwise approved by the City Stormwater Manager.

Stormwater Credit Application Procedures

The Non-Residential customer shall follow the procedures below when applying for a stormwater credit for watershed stewardship:

STEP 1: The customer shall secure the appropriate certificate for the City of Roswell's Watershed Stewardship Program event. Attendance at events not sponsored by the City of Roswell is not transferable to the City of Roswell's Stormwater Utility credit program, unless approved by the City Stormwater Manager.

STEP 2: The customer shall submit the credit application, complete with the relevant certificate, to the City.

Upon receipt of the credit application, the City shall verify that applicant is on the roster for the appropriate program. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to participate in the stewardship events annually to receive a certificate. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 5% credit is available for watershed stewardship.

Septic Tank Maintenance

NSFR customers are eligible for a stormwater credit if the customer conducts maintenance on existing septic systems located on the customer's property. NSFR customers with septic systems can receive a credit by having their septic tanks pumped out on a regular basis, at a minimum of every five years. By submitting documentation in the form of a receipt from a licensed hauler of septic wastes, customers would be eligible for a 25% credit for the five years after the septic tank was pumped out. Customers may reapply for this credit at the end of every five year term.

Credit Description

The septic system maintenance credit will be applied to the customer applying for the stormwater credit.

There shall only be one stormwater credit certificate issued per NSFR property in which regular maintenance is conducted on the septic system and it shall only be good for a period of five years. It is the customer's responsibility to contact a licensed hauler of septic wastes and submit the proper documentation citing that the septic system has had maintenance conducted on the system.

Stormwater Credit Application Procedures

The NSFR customer shall follow the procedures below when applying for a stormwater credit for septic system maintenance:

STEP 1: Obtain a credit application packet from the City.

STEP 2: The customer shall secure the pertinent documentation from a licensed hauler of septic waste.

For the purposes of this manual, a receipt from the hauler will be sufficient if the receipt contains the date the maintenance was performed (must be within 6 months of the date of the application for a credit), the address of the property matching the address on the Stormwater Utility bill and the name of the company performing the work.

STEP 3: The customer shall submit the credit application, complete with the relevant documentation, to the City.

Upon receipt of the credit application, the City shall review the application and documentation from the licensed hauler of septic waste. Upon verification, the stormwater credit will be applied starting with the next billing cycle.

If the City Stormwater Manager does not approve of the documentation submitted by the NSFR customer applying for the Stormwater Utility credit, the City will send a letter to the customer explaining why the credit application was not approved. If the customer reapplies, and the verification results in an approval of the application, the City will notify the customer of the credit amount and the date the credit will become effective.

The customer shall continue to conduct maintenance on the septic system at a minimum of every five years in order to qualify and receive the stormwater credit. Renewal of the Stormwater Utility credit shall be in accordance with the Basic Procedures section of this manual and the requirements listed above. A 25% credit is available for septic tank maintenance.

Water Resources Education Programs

It is the goal of the City of Roswell to strongly and financially encourage both public and private organizations to educate and inform the public on the importance of surface water, ground water and stormwater resources, and how they can play a role in preserving and restoring the physical, chemical, and biological integrity of the City's water resources. Consequently, the property which is used as a site to teach an environmental science curriculum that includes an eligible water resources education program may receive a credit against the stormwater user fee charge.

Eligibility

The education credit shall be available to all public or private organizations, which teach the Water Wise program or any program approved by the City Stormwater Manager:

- The credit shall be available to properties which allow organizations to teach at least 500 participants in an approved program.
- No other curriculum shall be eligible for such credit unless granted by the City Stormwater Manager.

Amount of Credit

The education credit will not exceed 40% of the total user fee charge. Education credits may be taken in conjunction with, and in addition to, other credits available under this section that the customer is eligible to secure.

Stormwater Credit Application Procedures

Prior to submittal of the application, a person responsible for the property shall certify to the City Stormwater Manager, that a water resources based curriculum has been taught at the facility / property and the extent to which such curriculum is being taught.

The following additional information should be provided to help assess the credit eligibility:

- Address of site (property) and point of contact.
- Approximate number of participants that have been taught the curriculum (must be at least 500).

NPDES Industrial Stormwater General Permit Compliance

By complying with NPDES Industrial Stormwater General Permit requirements for industrial facilities, NSFR customers are helping the City address potential water quality issues onsite before they are discharged into the public drainage system and/or Waters of the State. Therefore, these properties are eligible for a Stormwater Utility credit. If the NSFR customer has properly secured coverage under the NPDES Industrial Stormwater General Permit, and is in compliance with all applicable requirements (i.e. development and implementation of a Stormwater Pollution Prevention Plan (SWPPP)), a credit application may be filed with the City.

Stormwater Credit Application Procedures

The following requirements will apply for NSFR customers who qualify for an NPDES Industrial Stormwater General Permit Stormwater Utility credit:

Step 1: NSFR properties that operate under compliance with their NPDES Industrial Stormwater General Permit are eligible for a credit in their Stormwater Utility fee. The credit shall only be applied to that portion of the property covered by the permit.

Step 2: It is the customer's responsibility to obtain a credit application from the City. The customer shall complete the application, attaching any required documents verifying compliance with the NPDES Industrial Stormwater General Permit. At a minimum, the documentation attached to the credit application shall include the following:

- Address of site and point of contact
- Copy of the current NPDES Industrial Stormwater Permit NOI
- Copy of a summary annual report of compliance
- Copy of the SWPPP
- Certification by the responsible party/permit holder that the SWPPP is being implemented

Step 3: Once complete, the application shall be submitted to the City.

Upon receipt of the credit application, the City shall review the documentation and upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved. Upon approval, the credit will be applied at the next billing cycle following approval. The maximum credit amount available for NPDES Industrial Stormwater General Permit compliance is 5%.

The NSFR customer shall continue to send a copy of an annual summary report of compliance to the City Stormwater Manager and continue to comply with their NPDES Industrial Stormwater General Permit requirements. The customer will be responsible for sending the annual report to the City. Failure to do so will nullify the Stormwater Utility fee credit. The NSFR customer shall also prepare and submit a Right of Entry Agreement.

Reduced Imperviousness Parcel

The City desires to promote the reduction of impervious cover in the watersheds in Roswell and has developed this credit for NSFR customers who voluntarily choose to reduce the amount of existing impervious surface on their property. The removal of impervious surfaces from the NSFR property will result in a reduction of runoff and will therefore be classified as a Reduced – Imperviousness Parcel.

Credit Description

A credit shall apply to those NSFR customers who can prove that they have successfully removed impervious surfaces from their property and replaced the areas with a pervious area. Customers who can show that they have removed 10% of the existing impervious surfaces on their property shall qualify for this credit for a period of one year.

Parameter	Requirement
Impervious Cover (%)	Removal must be equal to or greater than 10% of the existing impervious surface

Stormwater Credit Application Procedures

Each NSFR customer that wishes to apply for this credit shall be responsible for calculating the total site area, impervious surface area, impervious area removed and total impervious area replaced with pervious area. Each NSFR customer shall utilize the following procedures:

Step 1: Determine the impervious area for the NSFR parcel. The impervious area shall include the structure, driveways, parking lots, sidewalks (do not include the sidewalk in front of the NSFR property next to the street), patios, sheds, or any other ancillary impervious area. Develop and coordinate this plan illustrating which impervious areas will be removed as part of the credit application with the Water Resources Division staff. The impervious surface removed must be at least 10% of the total impervious surface area of the parcel.

Step 2: Coordinate the plan with the City to determine if any zoning or land disturbance permits / variances need to be secured prior to removal of the impervious surfaces.

Step 3: Remove the impervious surface areas identified in the plan and vegetate the area disturbed prior to submittal of an application for credit to the City.

Step 4: Submit a credit application to the City including the plan showing the area of impervious surface removed and documenting that it reduced the total impervious area of the site by at least 10%.

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application, the City will send a letter to the customer explaining why the credit application was not approved.

If the NSFR parcel meets all the requirements above, the customer would be eligible for a Stormwater Utility rate credit of 100% of the revised stormwater bill applicable for 1 year. Additionally, the NSFR customer will likely qualify for a permanent reduction in stormwater fees through the reduction in impervious surface area fees calculated for the parcel.

Unified Stormwater Sizing Criteria

Credit Description

The four treatment levels of the unified stormwater sizing criteria include water quality, channel protection, overbank flood protection, and extreme flood protection. **Table 5** presents each treatment level with a description of each, as provided in the Georgia Stormwater Management Manual (GSMM).

Table 5 Unified Stormwater Sizing Criteria		
Treatment Level	Maximum Available Credit	Description ¹
Water Quality	10%	Treat the runoff from 85% of the storms that occur in an average year. Per the GSMM, this equates to providing water quality treatment for the runoff resulting from a rainfall depth of 1.2 inches. Reduce average annual post-development TSS loadings by 80%.
Channel Protection	10%	Provide extended detention of the 1-year storm event released over a period of 24 hours to reduce bankfull flows and protect downstream channels from erosive velocities and unstable conditions.
Overbank Flood Protection	10%	Provide peak discharge control of the 25-year storm event such that the post-development peak rate does not exceed the predevelopment rate to reduce overbank flooding.
Extreme Flood Protection	10%	Evaluate the effects of the 100-year storm on the stormwater management system, adjacent property, and downstream facilities and property. Manage the impacts of the extreme storm event through detention controls and/or floodplain management.

1) Description of each treatment level is as published in Chapter 1.3 of the GSMM (August 2001).

The various options available for providing the desired level of treatment can be found in the GSMM. Volume 2, Chapter 1.3 provides an overall comparison of BMP options as they apply to the four levels of the unified stormwater sizing criteria. Volume 2, Chapter 3 provides more detailed information on each BMP. Design examples for a select number of BMPs are provided in Volume 2, Appendix D.

Stormwater Credit Application Procedures

Upon receipt of the credit application, the City shall review the documentation and calculations. Upon verification, the stormwater credit will be applied, starting with the next billing cycle. If the City inspector does not approve of the customer's application,

the City will send a letter to the customer explaining why the credit application was not approved.

NOTE: All work associated with pursuit of a Stormwater Utility fee credit shall be done in strict accordance with the City's current ordinances related to the management of stormwater runoff.

Credit Applications

Credit applications are required for all credits included in this manual. Appendix A provides the credit application forms for the applicable credits described in this manual. Appendix B contains miscellaneous forms required as part of the Stormwater Utility credit application process, including a Right-of-Entry Agreement and a City inspection form.

APPENDIX A

A-1: Stormwater Utility Credit Application Forms

A-2: NPDES Industrial Stormwater General Permit Credit Application Form

Appendix A-1

Stormwater Utility Credit Application Forms

CITY OF ROSWELL

Residential Stormwater Utility Credit Application Form

Instructions:

Fill out this form completely. One application must be submitted for each separate property location. Follow the steps outlined in the applicable section of this Credit Manual. Attach all appropriate documentation to support this request, as outlined herein.

Fill out and attach appropriate documentation. Mail completed form (with attachments) to:

City of Roswell
Attn: Stormwater Manager
Public Works/Environmental Dept
38 Hill Street
Roswell, GA 30075

Place a check next to the credit being applied for with this application:

	Type Credit	Applicability/Requirements
<input type="checkbox"/>	Residential Rain Barrels	Residential
<input type="checkbox"/>	Residential Environmental Technologies	Residential
<input type="checkbox"/>	Low Impact Parcel	Residential
<input type="checkbox"/>	No Impact Parcel	Residential
<input type="checkbox"/>	Watershed Stewardship	Residential
<input type="checkbox"/>	Septic Tank Maintenance	Residential
<input type="checkbox"/>	Reduced – Impact Parcel	Residential

General Information:

Owner Name:	
Owner Mailing Address:	
Owner Mailing City/Zip:	
Contact Phone/Fax Number:	
Contact E-mail Address:	

Property Information:

Account Number:	
Parcel Address (number and street):	
Parcel Address (city and state and zip)	
Parcel Location/Development:	
Authorized Contact, if different than owner:	

CITY OF ROSWELL

Residential Stormwater Utility Credit Application Form (continued)

I hereby request the City of Roswell to review this application for a stormwater service fee credit. I further authorize the City of Roswell to investigate the impervious area characteristics of the above identified parcel for the purpose of assessment for a stormwater service fee credit. I certify that I have authority to make such a request and grant such authority for this property. The attached information is true and correct to the best of my knowledge and belief. (The financially responsible person must sign this form if an individual, or if not an individual by an officer, director, partner, or registered agent with authority to execute instruments for the financially responsible person). I agree to provide corrected information should there be any change in the information provided herein.

Type or print name

Title or Authority

Signature

Date

Approval:

City Stormwater Manager

Date

CITY OF ROSWELL

NSFR Stormwater Utility Credit Application Form

Instructions:

Fill out this form completely. One application must be submitted for each separate property location. Multiple stormwater controls may be included in the application for a single property location. Please ensure all stormwater management facilities are in a proper state of repair and maintained. Attach all appropriate documentation to support this request. Documentation shall include:

1. Site plan with stormwater facilities and contributory drainage area.
2. Description of stormwater control facilities.
3. Appropriate pages from Volume 2 of the Georgia Stormwater Management Manual (August 2001, or as amended) identifying design requirements for each on-site stormwater control.
4. Documentation that the stormwater control facilities meet one or more criteria for the user fee credit (technical report).
5. Seal by professional engineer licensed in Georgia (does not apply to educational credit).

Fill out and attach a Right-of-Entry Agreement. Mail completed form (with attachments), and Right-of-Entry to:

City of Roswell
Attn: Stormwater Manager
Public Works/Environmental Dept
38 Hill Street
Roswell, GA 30075

Place a check next to the credit being applied for with this application:

	Type Credit	Applicability/Requirements
<input type="checkbox"/>	Watershed Stewardship	NSFR
<input type="checkbox"/>	Septic Tank Maintenance	NSFR
<input type="checkbox"/>	Reduced – Impact Parcel	NSFR
<input type="checkbox"/>	Water Resources Education Program	NSFR
<input type="checkbox"/>	Water Quality	NSFR - requires PE
<input type="checkbox"/>	Channel Protection	NSFR - requires PE
<input type="checkbox"/>	Overbank Flood Protection	NSFR - requires PE
<input type="checkbox"/>	Extreme Flood Protection	NSFR - requires PE

General Information:

Owner Name:	
Owner Mailing Address:	
Owner Mailing City/Zip:	
Contact Phone/Fax Number:	
Contact E-mail Address:	

CITY OF ROSWELL

NSFR Stormwater Utility Credit Application Form (continued)

Property Information:

Account Number:	
Parcel Address (number and street):	
Parcel Address (city and state and zip)	
Parcel Location/Development:	
Authorized Contact, if different than owner:	

I hereby request the City of Roswell to review this application for a stormwater service fee credit. I further authorize the City of Roswell to inspect the above identified stormwater facility(ies) for the purpose of assessment for a stormwater service fee credit. I certify that I have authority to make such a request and grant such authority for this property. The attached information is true and correct to the best of my knowledge and belief. (The financially responsible person must sign this form if an individual, or if not an individual by an officer, director, partner, or registered agent with authority to execute instruments for the financially responsible person). I agree to provide corrected information should there be any change in the information provided herein.

Type or print name

Title or Authority

Signature

Date

Approval:

City Stormwater Manager

Date

Appendix A-2

NPDES Industrial Stormwater General Permit Credit Application Form

CITY OF ROSWELL

NPDES Industrial Stormwater General Permit Compliance Credit Application/Renewal Form

Instructions:

Fill out this form completely. A separate application must be made for each separate property location. One application must be submitted for each separate NPDES Industrial Stormwater General Permit. Please ensure all NPDES permitted facilities are in a proper state of repair and maintained.

Fill out and attach the following:

- NPDES permit
- Previous year’s annual report
- Copy of the Stormwater Pollution Prevention Plan (SWPPP)
- Right of Entry Agreement

Mail the completed forms, annual report, the NPDES Industrial Stormwater Permit NOI, and SWPPP to:

City of Roswell
 Attn: Stormwater Manager
 Public Works/Environmental Dept
 38 Hill Street
 Roswell, GA 30075

Account Number:	
Property Owner Name:	
Property Address:	
Property City/Zip Code:	
Property Owner E-mail Address:	
Property Owner Phone/Fax Number:	
Mailing Address:	

I hereby request the City of Roswell to review this application for a stormwater service fee credit. I certify that I have authority to make such a request and grant such authority for this property. The attached information is true and correct to the best of my knowledge and belief. (This form must be signed by the financially responsible person if an individual, or if not an individual by an officer, director, partner, or registered agent with authority to execute instruments for the financially responsible person). I agree to provide corrected information should there be any change in the information provided herein.

Type or print name

Title or Authority

Signature

Date

APPENDIX B

Right-of-Entry Agreement

CITY OF ROSWELL

Right of Entry Agreement – Stormwater Utility Credit Inspection

STATE OF GEORGIA
FULTON COUNTY

I/We _____, the owner(s) of the property commonly identified as _____, the City of Roswell, Fulton County, State of Georgia, do hereby grant and give freely and without coercion, the right of access and entry to said property to the City of Roswell, its agents, contractors, and subcontractors thereof, for the purpose of performing necessary inspections of onsite stormwater controls and site activities related to stormwater runoff management on the _____ (hereinafter “facility”) located on Lot _____ subdivision in the City of Roswell, Georgia.

The undersigned agrees and warrants to waive and hold harmless the City of Roswell, its agents, employees, contractors, and subcontractors, for damage of any type, or any claim or action, either legal or equitable that might arise out of any activities on the above described property that are conducted by the City of Roswell, its agents, employees, contractors and subcontractors, pursuant to this Agreement.

In consideration of this Right of Entry Agreement and the rights granted to the City of Roswell herein, the receipt and sufficiency of which is hereby acknowledged, the City of Roswell agrees, to perform only visual inspections, and review pertinent facility records, necessary to verify stormwater utility credit eligibility.

I/We, will not receive(d) any compensation for this Right of Entry agreement.

For the considerations and purposes set forth herein, I set my hand this _____ day of _____ 20____.

Witness

Owner

Notary

Owner

Address

City of Roswell
Green Infrastructure/
Low Impact Development
Program



June 2018

Introduction

The City of Roswell is a vibrant riverside community, which strives to connect strong neighborhoods, celebrate arts and culture, preserve our rich cultural heritage, and cultivate an entrepreneurial spirit. The City of Roswell's Green Infrastructure/Low Impact Development (GI/LID) program, which helps Roswell to achieve practical and effective stormwater management, is critical to this vision. As part of a modern approach to managing stormwater, Roswell strives to ensure that its ordinances, regulations, and policies support and encourage the use and remove barriers to the use of GI/LID practices.

The use of green infrastructure, low impact development and practical stormwater design has been introduced by the EPA and passed down to states, counties and cities. The goal is to reduce runoff and mimic the natural water cycle to protect against erosion and flooding and to provide water quality treatment. As part of this new stormwater approach, the Metropolitan North Georgia Water Planning District along with support from EPA and EPD and collaboration with metro Atlanta communities and agencies has released the 2016 Georgia stormwater Management Manual. This Manual forms the technical backdrop to Roswell's stormwater and GI/LID Program.

Roswell's program includes updating stormwater regulations to encourage green infrastructure; identifying potential locations for installing green infrastructure in City property; encouraging GI/LID including runoff reduction on private and public development and redevelopment projects; maintaining a comprehensive inventory and inspection program; and providing a maintenance program.

Background Information

Location and Soils Information

Roswell is located in the Piedmont region of Georgia in the north part of the Atlanta metropolitan area. Most of the land consists of Type B and Type C soils, rolling hills and a moderately deep water table. Because of the soils types and general ability for soils to infiltrate, the City requires the evaluation of runoff reduction measures and encourages the use of GI/LID on all private and public development and redevelopment projects.

EPD - MS4

Roswell holds a Phase I Large Municipal Separate Storm System (MS4) NPDES Permit. This MS4 permit was most recently renewed June 11, 2014. The permit renewal included a variety of updated requirements for compliance with the NPDES program. The Permit requires the City to 'continue to review and revise, where necessary, building codes, ordinances, and other

regulations to ensure they do not prohibit or impede the use of GI/LID practices, including infiltration, reuse, and evapotranspiration.' Another requirement is the creation of a GI/LID Program (3.3.10(b)). The Permit states that the City should 'develop a program describing the GI/LID techniques and practices to be implemented by the permittee. The program shall include procedures for evaluating the feasibility and site applicability of different GI/LID techniques and practices, and various structures and practices to be considered.' It goes on to require a GI/LID inventory of both privately owned non-residential and publicly owned water quality-related GI/LID structures constructed after June 11, 2014. Further it requires an inspection program to ensure 100% of the privately owned non-residential and publicly owned GI/LID structures are inspected within a 5 year period and that the maintenance is enforced.

Asset Management

Roswell has a strong stormwater asset management program. The city has a robust GIS map of publicly owned stormwater infrastructure which is used as the platform for our inspection and maintenance work order record system. Approximately twenty percent of all stormwater structures and pipes are inspected each year (providing 100% inspection completed every 5 years). Data is collected in a GIS application and added to the database in real time. Maintenance work orders are created following the inspection. Work orders are then prioritized and crews work toward completing each one.

Roswell is concerned about pipe capacity and an aging infrastructure in the City. Roswell has a comprehensive evaluation system to identify and prioritize infrastructure upgrades, and a capital improvement program to fund upgrades and replacement projects as funding allows for pipe, structure, and BMP repair and maintenance. The City has personnel dedicated to maintaining our infrastructure system including repairs, maintenance and pipe cleaning. Roswell also has on-call contracts with companies to complete a variety of larger capital repairs and pipe lining services.

Flood Control

Runoff reduction can significantly reduce the flash floods found in the piedmont region of Georgia. Flooding occurs after quick inundation of significant rainfall that is conveyed over pavement and through pipes to the streams and creeks. With limited or no opportunity to infiltrate, the water volume and velocity are a substantial concern. The streams and creeks show signs of erosion and they are overwhelmed by the volume of water which leads to rising waters and flooding. By mimicking the natural water cycle, infiltration, evaporation, and transpiration can help to reduce the runoff volumes and hope to mitigate future flooding. Recent increased flooding throughout the country has brought to light some of the importance of planning ahead and adopting a proactive approach.

Funding

Roswell has a Stormwater Utility which imposes a fee for all property owners. The fee is based on impervious area for non-residential properties and residential properties with large amounts of impervious area, and a flat fee for most residential properties. This Utility provides dedicated stormwater funding for Roswell to meet long term water quality goals and infrastructure maintenance and replacement goals. All property owners, including the City of Roswell as the single largest payer, contribute to the stormwater utility.

Ordinances and Procedures Supporting GI/LID Local Policies

The City of Roswell has adopted Metropolitan North Georgia Water Planning District's Stormwater Model Ordinance. Roswell uses the latest Georgia Stormwater Management Manual to provide technical guidance, and local design guidelines. Roswell adopted enhancements to the Model Ordinance by expanding the requirement for water quality and by adding incentives for green infrastructure on redevelopment properties.

The City of Roswell was among the first municipalities in the Atlanta metro area to enhance the Model Ordinance by lowering the trigger threshold at which water quality treatment is required. Roswell worked with EPD to revise our local ordinance to enhance water quality treatment, reducing the trigger threshold for new or replaced impervious area from 5,000 square feet as recommended in the Model Ordinance, to a trigger threshold for new or replaced impervious area of 1,000 square feet.

Roswell has also provided incentives for the redevelopment and inclusion of LID/GI practices by allowing (as appropriate) the use of existing conditions of a site to be taken into account when analyzing the hydraulics of the property if the downstream area is not negatively impacted by current conditions. The engineer of record must show compliance to be granted this incentive. LID practices must be part of the final stormwater solution for the project as well.

Roswell is a leader in the Atlanta Metropolitan area implementing LID/GI practices. City personnel participated with EPA to evaluate and provide feedback on EPA's Sustainable Design and Green Building Toolkit FOR LOCAL GOVERNMENTS EPA 904B10001 finalized June 2013. This toolkit helps municipalities find and correct policies which are barriers to GI/LID.

Roswell also recognizes the value of stream buffers to preserve and enhance water quality. Roswell consistently requires preservation of State 25-foot and 50-foot Stream Buffers, expands stream protections on many creeks including a 50-foot and 100-foot No Disturbance Stream Buffer, and enforces a 75-foot and 150-foot No Impervious setback on many creeks.

Roswell's recently revised and adopted Unified Development Code provides enhanced greenspace requirements for new and redeveloped properties which results in more stormwater infiltration and more environmentally friendly, livable development.

Roswell provides up to a 50% a discount on the stormwater utility fees for developments which include water quality treatment features on the site which are compliant with the GSMM.

The City of Roswell has developed an innovative program where Roswell installs a stormwater facility (water quality treatment or volume control or both) and allows private individuals developing a site within the sub-basin to buy in to the facility to reduced or eliminate the amount of stormwater treatment required for their site. The funds generated from the sale of the water quality treatment or the volume will be used to install another facility.

Evaluating Public Sites/Projects for GI/LID Installations

Roswell conducts annual visits to City owned facilities and evaluates these facilities for retrofitting opportunities to enhance the stormwater system and increase water quality protection. In addition to these annual visits and evaluations, Roswell has a long track record at getting practical and effective GI/LID stormwater infrastructure installed on new and redeveloped City of Roswell projects. When new public projects are designed, an evaluation of the hydrology of the site is conducted and GI/LID water quality installations are considered.

Public Projects Incorporating GI/LID Installations

The following list includes public projects where Roswell has included GI/LID installations over the past decade.

- Big Creek Wetlands Park and Greenway - In 2006 Roswell built Big Creek Park which includes 4 acres of stormwater wetlands and provides water quality treatment, wildlife habitat, and recreation pathways which connects to the Alpharetta Greenway.
- Swaybranch Extended Detention Wetland – In 2012 Roswell accepted responsibility for a private dam which was failing. The City rebuilt the embankment and retrofitted the pond to provide water quality treatment through the use of an extended detention wetland.
- Hembree Pond – In 2014 Roswell retrofitted an existing pond to provide additional water quality treatment for a City vehicle maintenance facility.
- Roswell Area Park - In 2013 Roswell retrofitted two existing parking lots and a ball field at Roswell Area Park with bioretention areas and an enhanced swale. Formerly water from these existing features flowed directly into the creek, bringing oils, sediment, fertilizers and herbicides to the creek along with the stormwater. Post-construction

stormwater from the parking lots and ball field is treated by these installations and then flows to the creek resulting in less pollutants reaching the creek.

- Roswell Water Treatment Plant - In 2015 Roswell completed construction of a new 3.3 Million Gallon Water Treatment Plant. The plant area includes two bioretention cells and two pervious paver installations which provide water quality treatment for the new impervious area and third bioretention area which provides water quality treatment for a redeveloped equipment lay-down area.
- Goulding Street - In 2017 a joint project was funded between homeowners on Goulding Street in historic Roswell and the City of Roswell to install pervious paver underlain by a rock reservoir installed in the ROW to provide water quality treatment and detention storage for a localized flooding problem.
- Sun Valley -The City of Roswell is in the process of retrofitting a City-owned site with an existing detention pond to additional detention and water quality. Upon completion, this system of detention and bioretention cells will become part of Roswell's Shared Stormwater Infrastructure program.
- Myrtle/Zion Demonstration Project - In 2017 and 2018 pervious paver underlain by a rock reservoir were installed in the ROW of Myrtle Street and Zion Circle. This installation is part of the Shared Stormwater Infrastructure program.
- East Alley – Under construction during Spring 2018 is a rehabilitation of an existing alley hear Roswell's historic Canton Street which is converting this industrial area to a walkable alley. Pervious pavers underlain by a rock reservoir provide water quality treatment where no treatment was provided in the existing condition.
- Fire Station No. 4 – Brought into service in 2017, Fire Station Number 4 includes a bioretention cell to provide water quality compliance.

Plan Review for New and Redeveloped Properties

Overview

According to the EPA publication 'Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure' dated August 2010, green infrastructure approaches have a range of benefits for the social, environmental, and economic conditions of a community. EPA's publication 'Green Infrastructure Opportunities that Arise During Municipal Operations,' dated January 2015 further illustrates some of the benefits of incorporating GI projects into the municipal landscape.

Roswell is committed to incorporating GI/LID practices into public and private development. Including GI/LID can reduce the demand on existing infrastructure, provide more efficient land use, promote pedestrian and bicycle friendly corridors, increase property values, and encourage economic development.

Plan Review Process

The great majority of new and redevelopment projects which require stormwater compliance in Roswell include GI/LID practices. Roswell has over 220 individual water quality installations on private property. Roswell has required a pre-submittal meeting for all major land development permits for over 10 years. This early conceptual design meeting is a critical step to incorporate GI/LID on a site. At this meeting the design engineer presents the conceptual stormwater plan. The City Stormwater Engineering Plan Reviewer reviews the site survey, conceptual site plans, and the plan to address stormwater for congruence with the Roswell's ordinances and design practices and makes recommendations for ways to incorporate GI/LID practices.

The City Arborist, Transportation Engineer Plan Reviewer, Fire Marshal, and Planning and Zoning Director are also at the pre-submittal meeting. All disciplines have an opportunity to collaborate with the design engineer, property owner, and developer to achieve the smartest design possible.

City projects are evaluated with a special process to encourage the use of GI/LID and retrofitting of existing structures. Forms showing the evaluation process in flowcharts are included in Appendix A

Focus on GI/LID and Preservation

Preservation of an area's landscape features (vegetation, soils, and natural processes) help manage and reduce stormwater runoff. The practice of thoughtful site development to preserve the existing natural advantages of a site is applied to every project review. The addition of structurally engineered practices such as bioretention areas, bioswales, pervious paving, greenroofs, stormwater street tree wells, and cisterns is a critical part of meeting the overall goal of modern stormwater management of mimic natural processes to infiltrate stormwater, manage stormwater as close to its source as possible, and reduce stormwater runoff.

Runoff Reduction

Runoff Reduction methods, per the new ordinances, are required. The most common means of achieving Runoff Reduction is by infiltration. Runoff Reduction can also be achieved through evaporation, transpiration, rainwater harvesting, or reuse. In many instances Runoff Reduction methods are appropriate for a site. An engineer must show that these methods are not appropriate for the site, otherwise Roswell requires their use. Consideration of soils, high water table, utility conflicts, shallow bedrock, property use, and site layout is taken for each project to incorporate Runoff Reduction methods. As an incentive, if Runoff Reduction methods per the Georgia Stormwater Management Manual (latest edition) are employed for

the first 1 inch of rainfall, treatment of the water quality volume (traditional 1.2 inch treatment volume) will be waived. If an aspect of Runoff Reduction is shown not to be appropriate for a site, GI/LID practices which do not include this aspect are still required.

An example of this policy and process follows: A common development scenario is the lack of the minimum infiltration ability of 0.5 inches per hour to allow a BMP reliant on an infiltration component. If infiltration is not appropriate for a site because of slow infiltration rates, a bioretention cell system equipped with an underdrain at the bottom of the cell could be designed. The components of Runoff Reduction including evaporation and transpiration will still be achieved. The bioretention cell size will be larger because of the lack of an infiltration component will require the facility to be sized with a higher rainfall amount that when infiltration is expected for a system.

For the purpose of this policy the following stormwater management structural measures will be considered GI/LID that will be included in the inventory: bioretention, extended detention wetlands, cisterns, green roofs, stormwater street tree wells, enhanced swales, bioswales, underground chambers with infiltration, pervious paving or pavers, infiltration trenches, and sand filters. If new techniques are introduced to the area that encourage infiltration or water reuse or that are proposed that meet the definition of GI/LID structural measures, the city will make additions to this list. Roswell will report all inspections on privately owned non-residential GI/LID structures in the Annual Report each year. A current inventory of GI/LID practices will be included in each annual report.

Detention Ponds

Roswell allows detention ponds for water quality treatment only for appropriate watersheds; contributing watersheds must include 10 acres draining to the pond, as recommended in the GSMM. For watershed with smaller contributing areas, GI/LID techniques to provide water quality treatment, or proprietary devices approved by the MNGWPD Proprietary Technology Assessment Protocol are allowed. Because much of Roswell is already developed, previously undeveloped and redevelopments sites are generally smaller than the 10 contributing acre watershed, restricting the use of detention ponds with water quality treatment to only appropriately sized basins has resulted in the installation of hundreds of private and public LID/GI water quality BMP's.

Inventory, Inspection, and Maintenance

The inventory of all publicly owned and privately owned non-residential GI/LID installations is included as Appendix B along with a map of all GI/LID facilities. This inventory will be updated annually as private development occurs and more GI/LID installations are approved and installed, and as the City continues to incorporate GI/LID installations and retrofits into

municipal projects. Of the 106 GI/LID non-residential structures currently included on the inventory 20 are publicly owned and 86 are privately owned. The process of adding structures to the inventory is more fully explained in the following section.

Process for Adding Newly Installed Structural Practices

All GI/LID structural practices are added to the City GIS map when construction is complete. Included in the inventory is a designation of the type of structure, the construction year (if known), and the project or development name or permit number.

- Additions to the inventory will be made each year as new City capital projects and privately owned non-residential development or redevelopment is completed. This will be done as a joint effort between Community Development (who approves permits and completes all construction inspections) and Public Works (who completes all post construction inspections and manages most of the Capital Improvement Construction Projects).
- Community Development will be responsible for approving the design and location of the GI structure and will be responsible for the inspection during construction. They will provide Environmental/Public Works with the address of the property and the type of facility which was constructed, the date of construction, the type of structure, and the development name and permit number. For all new or modified stormwater management facilities, Roswell requires the property owner to complete a Stormwater Management Facilities and Practices Covenant, which documents the location of all stormwater management facilities, including GI/LID structures, and includes inspection requirements specific to the installation on site. This Covenant is recorded with the parcel identification information and identifies a responsible person associated with the privately owned GI/LID structures who will be responsible for maintaining the stormwater management facilities in accordance with the inspection requirements, and will submit Annual Inspection Reports to the City. A sample of the Covenant is included in Appendix C. These recorded Covenants are tied to the inventory as well as the GIS data.
- Environmental/Public Works will be responsible for maintaining the overall GIS map and the post construction inspection obligations.

Private GI/LID Inspections and Maintenance

The City of Roswell is committed to inspecting and/or ensuring that inspections are completed on 100% of the non-residential privately owned GI/LID structures included on the GI/LID inventory in a 5 year period. Using the inventory list and recorded Stormwater Management the Environmental/Public Works Department will log Annual Inspection Reports as they are received from the Responsible Person identified in the recorded Stormwater Management

Facilities and Practices Covenant. If reports are not received at the annual frequency, the Environmental/Public Works Department will contact the Responsible Person to request the required report. Failure to meet the requirements of the inspection and maintenance agreement shall constitute a violation of Section 12.5 of the City of Roswell UDC and shall be punishable under Section 13.14.4 of said code.

If an Annual Report is not received, the City will inspect the GI/LID structures and will provide the Property Owner and/or Responsible Person copies of the inspection findings and a directive to commence with repairs as necessary. If the City determines from its inspection that maintenance, repair, restoration, and/or mitigation work is required for the stormwater management facilities and practices, the City may notify the Property Owner and/or Responsible Person of the specific maintenance, repair, restoration, and/or mitigation work required. If the Property Owner or Responsible Person does not complete required maintenance or repairs within a specified time period, the City is authorized to perform the specified inspections, maintenance or repairs. The City may require reimbursement from the Property Owner for the reasonable and actual costs and expenses of such inspections, maintenance or repair-related actions. Example inspection forms are included in the attachments.

Public GI/LID Inspections and Maintenance

Roswell is committed to installing, inspecting, and maintaining GI/LID practices on public projects. Approximately 20% of the publicly owned GI/LID structure will be inspected each year with the goal of completing 100% of the inspections over the 5-year inspection period. Upon inspection in maintenance is recommended, a work order will be created so that Roswell's stormwater crews can provide recommended maintenance. Inspection forms for public GI/LID structures will be catalogued and maintenance records will be maintained. Completed inspection forms will be submitted with each year's Annual Report. Example inspection forms are included as Appendix D.

Appendix A
Flow Charts for City Projects for GI/LID

Appendix B
GI/LID Inventory & Map

Appendix C
Sample BMP Covenant

Appendix D
GI/LID Sample Inspection Forms



**STORMWATER MANAGEMENT
FACILITIES AND PRACTICES COVENANT**

City of Roswell, GA
Community Development Department
(770) 641-3780

THIS INSTRUMENT, made and entered into this _____ day of _____, 20____, by and between (Insert Full Name of Owner) _____ hereinafter called the “Landowner”, and the City of Roswell, Georgia, hereinafter called the “City”. WITNESSETH, that

WHEREAS, the Landowner is the owner of certain real property described as (Fulton County Tax Map/Parcel Identification Number) _____ as recorded by deed in the land records of Fulton County, Georgia, Deed Book _____, Page _____, hereinafter called the “Property”; and

WHEREAS the Landowner is proceeding to build on and develop the property; and

WHEREAS, the Site Plan/Subdivision Plan and/or Stormwater Management Plan known as _____(Name of Development or Address) hereinafter called the “Plan”, which is expressly made a part hereof, as approved or to be approved by the City, provides for management of stormwater within the confines of the property; and

WHEREAS, the City and the Landowner, its successors and assigns, including any homeowners or property owners association agree that the health, safety and welfare of the residents of the City of Roswell, Georgia, require that stormwater management facilities be constructed and adequately maintained on the Property; and

WHEREAS, the City requires that stormwater management facilities and practices as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns, including any homeowners or property owners association; and

WHEREAS, Landowner, its successors and assigns, understand the execution and adherence to the provisions of this Instrument is a condition precedent to the City’s permitting of the contemplated development;

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The stormwater management facilities and practices shall be constructed and operated by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan.

2. The Landowner, its successors and assigns, including any homeowners association, shall adequately maintain the stormwater management facilities and practices as identified on the Plan. This includes all pipes and channels built to convey stormwater to the facilities, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions.
3. The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order. In the event a maintenance schedule for the stormwater management facilities and practices (including sediment removal) is outlined on Exhibit B and/or the approved plans, the schedule will be followed.
4. The Landowner, its successors and assigns, shall inspect the stormwater management facilities and practices and submit an inspection report annually to the City. The purpose of the inspection is to ensure proper functioning of the facilities. The inspections shall cover the entire facilities, berms, outlet structure, pond area, access roads, etc., as outlined in Exhibit B. Deficiencies shall be noted in the inspection report.
5. The Landowner, its successors and assigns, hereby grant permission to the City, its authorized agents and employees, upon reasonable notice to the Landowner to enter upon the Property and to inspect the stormwater management facilities and/or practices with reasonable notice to the Landowner by the City. In the case of an emergency situation, as determined by the City, no notice shall be required prior to the City performing inspections and emergency maintenance or repairs. The purpose of inspection is to follow-up on reported deficiencies and/or to respond to citizen complaints. The City shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.
6. If the City determines from its inspection that maintenance, repair, restoration, and/or mitigation work is required for the stormwater management facilities and practices, the City may notify the Landowner of the specific maintenance, repair, restoration, and/or mitigation work required. If the Landowner does not complete required maintenance or repairs within a specified time period, the City is authorized, but not required, to perform the specified inspections, maintenance or repairs. The City may require reimbursement from the Landowner for the reasonable and actual costs and expenses of such inspections, maintenance or repair-related actions.
7. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said facilities or practices, and in no event shall this Agreement be construed to impose any such obligation on the City.
8. In the event the Landowner, its successors and assigns, fails to maintain the stormwater management facilities and practices as identified in the Plan in good working condition acceptable to the City, the City may enter upon the Property and take what steps are necessary to correct deficiencies identified in the inspection report and to charge the reasonable and actual costs of such repairs to the Landowner, its successor and assigns. This provision shall not be construed to allow the City to erect any structure of permanent nature on the land of the Landowner outside of the easement for the stormwater management facilities and practices identified in the Plan.

9. This Instrument imposes no liability of any kind whatsoever on the City and the Landowner agrees to hold the City harmless from any liability in the event the on-site stormwater management facilities and practices fail to operate properly.

10. This Instrument shall be recorded among the land records of Fulton County, Georgia, and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners or property owners association.

WITNESS the following signatures and seals:

 Company/Corporation/Partnership Name (Seal)

By: _____
 (Signature)

 (Type Name)

 (Type Title)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20_____, by

_____.

 NOTARY PUBLIC (Seal)

My Commission Expires: _____



**STORMWATER MANAGEMENT
FACILITIES AND PRACTICES COVENANT**

**Exhibit A
Responsible Person**

As required by Section 12.5.2.D of the City of Roswell Unified Development Code (UDC) identify, by name or official title, the person responsible for carrying out the inspection and maintenance of the stormwater management facilities and practices in accordance with the Inspection and Maintenance Schedule prepared by the engineer of record for this facility and attached as Exhibit B.

Name and Address of Facility

As required by Section 12.5.5.C of the UDC, parties responsible for the operation and maintenance of on-site stormwater management facilities and practices must provide records of all maintenance and repairs to the City. Any action or inaction that violates the provisions of the UDC, the requirements of an approved stormwater management plan, or any permit issued subject to this UDC may be subject to an enforcement action. Failure to meet the requirements of the inspection and maintenance agreement shall constitute a violation of Section 12.5 of the City of Roswell UDC and shall be punishable under Section 13.14.4 of said code.

Responsible Entity (Name or Official Title)

Contact Person's Name

Signature

Address

City, State, Zip Code

Phone Number

E-Mail Address



**STORMWATER MANAGEMENT
FACILITIES AND PRACTICES COVENANT**

**Exhibit B
Inspection and Maintenance Schedule**

Attached is the inspection and maintenance schedule prepared
by the Stormwater Design Engineer of Record (EOR).

Copies of the required Annual Inspection Reports shall be
mailed to:

City of Roswell
Department of Community Development
38 Hill Street, Suite G-30
Roswell, Georgia 30075
Attention: City Engineer

As-built documentation of the stormwater management facilities and practices, and a schedule of maintenance activities for each type of stormwater facility or practice used within the project shall be provided in place of this page in the Stormwater Management and Facilities Practice Covenant prior to approval by the City and recording with Fulton County Clerk of Superior Court.

For additional information on inspection and maintenance, refer to Chapter 3, of the “Georgia Stormwater Management Manual (GSMM), latest edition for minimum recommended inspection and maintenance requirements.

The following is an **EXAMPLE** of typical maintenance activities for ponds.

Facility/Practice ID: Stormwater Pond #1	
Activity	Schedule
<ul style="list-style-type: none"> Remove debris from basin surface to minimize outlet clogging and improve aesthetics. 	Annually and following significant storm events.
<ul style="list-style-type: none"> Mow to limit unwanted vegetation. 	Routine.
<ul style="list-style-type: none"> Repair undercut or eroded areas. 	As needed based on inspection.
<ul style="list-style-type: none"> Perform structural repairs to inlets and outlets. 	As needed based on inspection.
<ul style="list-style-type: none"> If wetland components are included, inspect for invasive vegetation 	Semiannual Inspection
<ul style="list-style-type: none"> Perform wetland plant management and harvesting. 	Annually (if needed)
<ul style="list-style-type: none"> Prepare an annual inspection report and submit to City of Roswell. This report should include inspection of entire facilities, berms, outlet structure, pond area, access roads, etc. 	Annually.
<ul style="list-style-type: none"> Remove sediment from the forebay. 	5 to 7 years Or after 50% of the total forebay capacity has been lost
<ul style="list-style-type: none"> Monitor sediment accumulations, and remove sediment when the pool volume has become reduced significantly, or the pond becomes eutrophic. 	10 to 20 years or after 25% of the permanent pool volume has been lost.

Additional Maintenance Considerations and Requirements per GSMM Table 3.2.1-1 Typical Maintenance Activities for Ponds:

- A sediment marker should be located in the forebay to determine when sediment removal is required.
- Sediments excavated from stormwater ponds that do not receive runoff from designated hotspots are not considered toxic or hazardous material and can be safely disposed of by either land application or landfilling. Sediment testing may be required prior to sediment disposal when a hotspot land use is present.
- Periodic mowing of the pond buffer is only required along maintenance rights-of-way and the embankment. The remaining buffer can be managed as a meadow (mowing every other year) or forest.
- Care should be exercised during pond drawdowns to prevent downstream discharge of sediments, anoxic water, or high flows with erosive velocities. The approving jurisdiction should be notified before draining a stormwater pond.

Note: Maintenance activities shall conform to the “Georgia Stormwater Management Manual”, latest edition (GSMM)

Shared Stormwater Facility - Policy and Procedure

Purpose

This policy and procedure outlines the City of Roswell's (City) process for consideration and participation in shared stormwater management facilities, when such facilities are determined to be in the interest of the City. This policy applies when at least two parties desire the benefits of stormwater management and are willing to enter into a Memorandum of Agreement (MOA).

Phase I – Application, Concept Development, and Memorandum of Agreement

Project(s) seeking approval of a shared stormwater facility must address community and watershed stormwater issues, as approved by the Director of Environmental/Public Works. The Director or designee will be available for consultation on project development. Collaboration among appropriate City Departments, or others, will be sought. The Transportation Director, or their designee, must approve best management practices located in the roadway.

Letter of Interest and Application: A "Letter of Interest" shall be submitted to the Environmental/ Public Works Director from the Applicant(s) including a completed application form. Upon receipt of the "Letter of Interest", the Environmental/Public Works Department will perform a preliminary review of the application and letter of interest. The Environmental/Public Works Department shall distribute the "Letter of Interest" to appropriate departments for coordination.

Hydrology Study and Stormwater Management System (Plan): A "Plan" shall be completed with supporting calculations for the proposed stormwater management system. The Plan shall be provided to the City subject to review and approval by the Director of Environmental/Public Works, or their designee. All facilities proposed as shared stormwater facilities shall be clearly identified in the Plan. Applicable design criteria and the estimated construction cost of shared facilities shall also be included. Each property involved must satisfy all requirements for stormwater management.

Shared Stormwater Facility Benefits: Project benefits shall be based on the impervious acreage for which stormwater benefits are provided by the shared facility. Current benefits shall be quantified separately from potential future benefits, if applicable.

Project Cost: Project costs shall be based on the fair market value of the stormwater benefits (detention, water quality enhancement, or channel protection) provided by the shared facility. Fair market value of stormwater benefits shall be determined based on an estimate of the avoided construction cost on the Applicant(s) site in question. Fair market value project costs shall be determined and agreed upon by participants following completion of the hydrology study as part of the Plan. The City shall have sole authority for determination of project cost issues that are not agreed to by all participants.

Cost Sharing: Cost sharing shall be based on impervious area from each property contributing stormwater to the shared facility/BMP. Cost sharing shall be documented in the Memorandum of Agreement. A provision to adjust maintenance cost shares for future owners is encouraged where

appropriate. Each shared stormwater facility partner must demonstrate and pledge financial responsibility to complete all aspects of the stormwater management shared facility.

Maintenance and Operations: Ongoing Maintenance and Operating responsibilities including periodic inspections for all facilities shall be documented with evidence of financial and legal backing. Ongoing Maintenance and Operating responsibilities shall be included in the MOA.

City Participation: The primary factor determining the level of City participation in a shared stormwater facility shall be the stormwater quantity and quality management benefit return per City dollar invested. The City may participate in the project in one or more of the following ways:

- a. Assist the applicant with zoning and permitting issues. The City may also be the applicant for zoning and permitting issues in special circumstances.
- b. Review and approval of related plans, supporting documentation, and stormwater benefits.
- c. Participate in cost-sharing and reimbursement negotiations between parties.
- d. Provide financial assistance to the project (e.g., a share of design, construction, or operating responsibilities).
- e. The City's program funding available for Shared Stormwater Facility participation in a fiscal year shall be limited to 25% of the annually approved Stormwater Utility Capital Improvement Program or as approved by the Mayor and City Council
- f. City participation prior to the approval of the MOA shall be limited to a share of MOA development in accordance with City policies and procedures as approved by the applicable Department Director, City Administrator, or City Council.
- g. Allow the utilization of City owned assets (e.g., existing stormwater drainage infrastructure, rights of way, etc.) where approved.
- h. Draft, review and approve Memorandum of Agreement language.
- i. When City deems appropriate, act as owner of shared stormwater facility and sell stormwater volume credits to current and future private parties based on impervious area contributing to the facility on a case-by-case approval by City.

Memorandum of Agreement (MOA): When the Plan is agreed to by all parties, and the cost projection and cost-sharing arrangement are established and agreed to, a mutually agreeable MOA shall be drafted for approval by all parties. Any supplemental technical or economic information upon which the MOA is based shall be included as an exhibit to the MOA. A MOA shall include at least the following mutually agreed upon components:

- a. Shared Stormwater Facility Plan including: project area, affected and potentially affected properties, hydrology study, design criteria, construction and operating cost estimates, and operating and maintenance plan.
- b. Responsibilities of all parties to the agreement during all phases of the project life (design, construction, and maintenance).
- c. Agreement to provide necessary easements and/or rights of way.
- d. Funding and cost-sharing arrangements.
- e. Facility ownership.

Phase II – Shared Facility Project Implementation

Project Implementation: When the applicant has developed the details of the project and created the MOA with approval of all parties, detailed design and subsequent construction may begin. Project

implementation shall follow all permit and regulatory requirements and the City's Land Disturbance Permit process.

Design: The applicant shall retain the services of a professional engineer, knowledgeable in civil engineering and experienced specifically in stormwater management, who shall act as the applicant's Certified Agent. The Stormwater Management Facility/System shall be designed by a professional engineer, licensed in the State of Georgia. All storm system facilities shall be designed in accordance with the City of Roswell Code of Ordinances, Georgia Stormwater Management Manual, and where applicable, Georgia DOT Specifications. The Applicant(s) must provide signed and sealed design drawings to the Environmental/Public Works Department Director.

Construction: Construction of the shared stormwater facility shall be completed in accordance with the approved design drawings, the City of Roswell Development Guide, and Roswell Standard Construction Specifications.

Operation and Maintenance: The stormwater facility owner will be responsible for the inspection, maintenance and reporting of the facility. Inspections shall be conducted at least annually by the owner, and maintenance or design adjustments completed within the succeeding quarter. The City reserves the right to inspect facilities and require maintenance to facility as needed.

Reporting: An annual certification of performance and maintenance of the stormwater facility will be provided to the City Environmental/Public Works Stormwater Utility.

Article 10. Site Development

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Sec. 10.1. Parking

10.1.1. Applicability

- A. **New Construction.** Any new building or site improvement must comply with the parking requirements of this UDC.
- B. **Maintenance and Repair.** An existing building or site may be repaired, maintained or modernized without providing additional parking, provided there is no increase in gross floor area or improved site area.
- C. **Additions**
 1. When an existing building, use or site is increased in gross floor area or improved site area by up to 25% cumulatively, parking is required for the additional floor or site area only.
 2. When an existing building, use or site is increased in gross floor area or improved site area by more than 25% cumulatively, both the existing building, use or site and the additional floor or site area must conform to the parking requirements.
- D. **Change in Use**
 1. A change in use based on the parking table of [Sec. 10.1.3.B.](#) must comply with the parking requirements unless the use has the same or a lesser parking demand than the previous use.
 2. Where the required number of parking spaces for a new use according to [Sec. 10.1.3.B.](#) is 125% or less of the parking spaces required for the existing use, no additional parking spaces are required.
 3. Where required parking spaces for the new use exceed 125% of the required parking spaces for the existing use, additional parking is only required for the difference between the current parking spaces required and the parking spaces required for the new use.

10.1.2. Parking Plan Required

Before any building permit is issued, the parking lot layout and area must be found by the Zoning Director to be in compliance with all requirements of this UDC. The Building Inspector cannot allow occupancy or use of a building until advised by the Zoning Director that parking facilities meet the requirements of this UDC.

10.1.3. Vehicle and Bicycle Parking

A. Calculation of Required Parking Spaces

1. Vehicle and bicycle parking spaces must be provided in accordance with [Sec. 10.1.3.B.](#) Where a use is not specifically listed or only a broad use category is shown, the Zoning Director is responsible for categorizing the use in accordance with [Sec. 9.1.](#)
2. When a site or lot is used for a combination of uses, the parking requirements are the sum of the requirements for each use, and no parking space for one use can be included in the calculation of parking requirements for any other use, except as allowed in [Sec. 10.1.7.](#)
3. In determining the required number of parking spaces, fractional spaces are rounded to the nearest whole number, with one-half or more counted as an additional space.
4. Unless otherwise noted, the parking requirement is based on the gross floor area of the building devoted to the particular use specified.
5. In industrial buildings where tenants are specified, parking is calculated according to the uses identified in the floor plan. Where tenants are not specified, parking is calculated using 20% office and 80% warehouse.

B. Required Parking Spaces

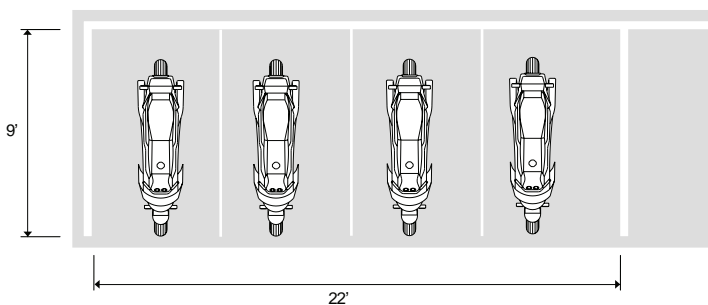
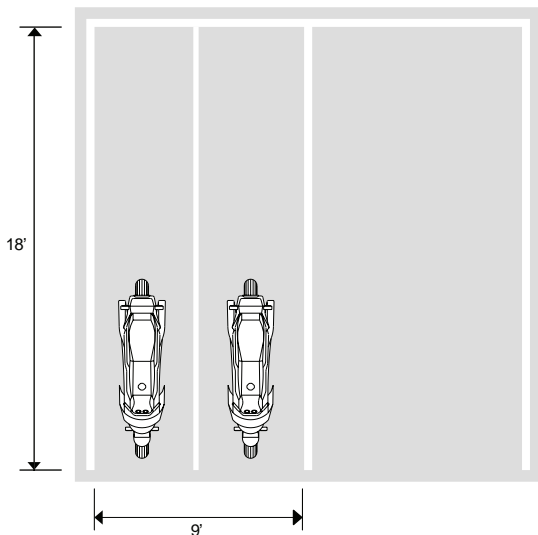
1. Unless specifically provided otherwise in this parking section, parking spaces must be provided in accordance with the following table.
2. Where guest parking is shown in the following table, it is required only for development containing 10 or more residential units. Guest parking is not required on each lot, but must be provided within the subdivision or development site.
3. Alternative parking requirements apply in the Downtown Historic Districts (see [Sec. 10.1.6.](#))

Use	Vehicle Parking (min)	Bicycle parking (min)
Open Uses		
All agriculture uses	None	None
Residential Uses		
All household living, as listed below:		
Single-family over 4,000 SF lot Single-family up to 4,000 SF lot	2 per unit, on lot 2 per unit, on lot + 0.2 per unit for guests	None None
Two-family (all parking on lot)	2 per unit, on lot	None
Townhouse	1.75 per unit + 0.5 per unit for guests	None
Multi-family: 0 - 1 bedroom Multi-family: 2 bedrooms Multi-family: 3+ bedrooms	1 per unit + 0.2 per unit for guests 2 per unit + 0.2 per unit for guests 2.5 per unit + 0.2 per unit for guests	1 per 20 units, 2 min
Manufactured home	2 per unit	None
All group living, except as listed below:		
Continuing care retirement community	Calculated based on required spaces for each individual use	Calculated based on required spaces for each individual use
Group home	1.5 per bedroom	None
Rooming house	1.5 per bedroom	None
All social service	1 per 4 beds	None
Public/Institutional Uses		
All civic, as listed below:		
College, university	1 per 500 SF	1 per 5,000 SF, 2 min
Club or lodge, nonprofit	1 per 4 seats in room with greatest seating capacity or 1 per 40 SF in largest assembly area without fixed seating	1 per 5,000 SF, 2 min
Library	1 per 400 SF	1 per 5,000 SF, 2 min
Museum	1 per 500 SF	1 per 5,000 SF, 2 min
Nonprofit service organization	1 per 400 SF	1 per 5,000 SF, 2 min
Place of worship	1 per 4 seats in room with greatest seating capacity or 1 per 40 SF in largest assembly area without fixed seating	1 per 5,000 SF, 2 min
Public use	1 per 400 SF	1 per 5,000 SF, 2 min
School, public or private (K-8)	1 per 1,000 SF	1 per 5,000 SF, 2 min
School, public or private (9-12)	1 per 500 SF	1 per 5,000 SF, 2 min
School, special	1 per 500 SF	None
All parks and open space, as listed below:		
Cemetery	3 per acre of land utilized as grave space	None
Community recreation: meeting room	1 per 500 SF	1 per 5,000 SF, 2 min
Community recreation: swimming pool	1 per 200 SF square feet of surface water area	1 per 1,000 SF of surface water area, 3 min
Community recreation: tennis court	2 per court	1 per 2 courts, 2 min
Conservation area	None	None
Golf course	2.5 per hole	1 per 6 holes
Reservoir, water supply, water well	None	None
All major utilities	1 per 300 SF of office space	None
All minor utilities	None	None

Use	Vehicle Parking (min)	Bicycle parking (min)
Commercial Uses		
All day care	1 per 500 SF	1 per 5,000 SF, 2 min
All indoor recreation, except as listed below:	1 per 300 SF	1 per 5,000 SF, 2 min
Assembly hall, auditorium, meeting hall	1 per 4 seats in room with greatest seating capacity or 1 per 40 SF in largest assembly area without fixed seating	1 per 5,000 SF, 2 min
Bowling alley	2 per lane	1 per 5,000 SF, 2 min
Miniature golf facility	2 per hole	1 per 5,000 SF, 2 min
Movie theater or other indoor theater	1 per 4 seats	1 per 5,000 SF, 2 min
All medical, except as listed below:	1 per 300 SF	1 per 5,000 SF, 2 min
Hospital	1.5 per bed	1 per 5,000 SF, 2 min
All office, except as listed below:	1 per 300 SF	1 per 5,000 SF, 2 min
Call center	1 per 150 SF	1 per 5,000 SF, 2 min
All outdoor recreation, except as listed below:	1 per 300 SF + 1 per 1,000 SF of outdoor use area	1 per 5,000 SF + 1 per 10,000 of outdoor use area
Golf driving range	0.75 per tee	None
Stadium, arena	1 per 12' of bench seating	1 per 5,000 SF
All overnight lodging, except as listed below:	1 per lodging room	1 per 5,000 SF, 2 min
Bed and breakfast	2 + 1 per lodging room	None
All parking	None	None
All personnel service	1 per 300 SF	1 per 5,000 SF, 2 min
All restaurants	1 per 150 SF	1 per 5,000 SF, 2 min
All retail sales	1 per 300 SF + 1 per 1,000 SF of outdoor use area	1 per 5,000 SF, 2 min
All vehicle sales/rental	1 per 1,000 SF or 1 per 4,500 SF of vehicle display area, whichever is greater	None
Industrial Uses		
All industrial, except as listed below:	1 per 300 SF of office + 1 per 2,000 SF of additional indoor area	1 per 10,000 SF, 2 min
All light manufacturing	1 per 300 SF of office + 1 per 2,000 SF of additional indoor area	1 per 10,000 SF, 2 min
All research and development	1 per 300 SF of office + 1 per 2,000 SF of additional indoor area	1 per 5,000 SF, 2 min
All self-service storage	1 per 40 storage units	1 per 10,000 SF, 2 min
All vehicle service and repair	1 per 300 SF	None
All warehouse and distribution	1 per 300 SF of office + 1 per 2,000 SF of additional indoor area	None

10.1.4. Motorcycle Parking

- A. Facilities that require 25 or more vehicle parking spaces must provide a minimum of 1 motorcycle parking space, plus 1 space for each additional 25 required parking spaces. After the initial 100 parking spaces, 1 additional motorcycle parking space for each additional 100 required spaces must also be provided.
- B. Motorcycle parking spaces may be counted as fulfilling the vehicle parking requirements at the rate of 2 motorcycle spaces for 1 vehicle space (90 degree, head-in) or 4 motorcycle spaces for one vehicle space (parallel). Only the minimum required motorcycle spaces may be used to reduce the vehicle parking requirements.



- C. Motorcycle parking spaces must be at least 4 feet in width and 7 feet in length and be accessed by a drive aisle at least 8 feet in width.

10.1.5. Vehicle Parking Maximums

- A. The following maximum parking requirements apply to:
 1. All medical uses;
 2. All office uses; and
 3. All retail sales uses.
- B. Surface parking spaces cannot exceed 133% of the required minimum vehicle parking. Parking spaces provided in an underground or structured parking garage do not count toward the maximum number of spaces permitted.

10.1.6. Downtown Required Parking

- A. **Applicability.** The following parking requirements apply in a Downtown Historic District (-HOD).
- B. **Building Constructed Prior to 1959.** The reuse of any building built prior to 1959 located within the Historic Overlay District (-HOD) is exempt from meeting the vehicle or motorcycle parking requirements below. The bicycle parking requirements of [Sec. 10.1.3.B.](#) apply.
- C. **Buildings Constructed Since 1959**
 1. **Residential.** Vehicle parking and bicycle parking spaces are required per [Sec. 10.1.3.B.](#)
 2. **Nonresidential.** Except for restaurants, one vehicle parking space per 500 square feet is required for all nonresidential gross floor area or the minimum number of parking spaces specified in [Sec. 10.1.3.B.](#), whichever is less. The bicycle parking requirements of [Sec. 10.1.3.B.](#) apply.
 3. **Restaurants.** One vehicle parking space per 300 square feet of gross floor area is required. The bicycle parking requirements of [Sec. 10.1.3.B.](#) apply.
 4. **Motorcycle Parking.** The motorcycle parking requirements of [Sec. 10.1.4](#) apply.

10.1.7. Shared Parking

- A. Applicants wishing to use shared parking as a means of reducing the total number of required spaces may submit a shared parking analysis using the Urban Land Institute (ULI) Shared Parking Model (latest edition).

10.1.8. Reserved Parking

- B. The study must be provided in a form established by the Zoning Director.
- C. Reductions in the total number of required spaces for shared parking are not permitted unless the Zoning Director determines a reduction is appropriate on a case-by-case basis through the use of the ULI Shared Parking Model (latest edition).
- D. Uses providing shared parking must have either mutually exclusive or compatibly overlapping normal hours of operation. The Zoning Director will determine whether hours of operation are compatibly overlapping on a case-by-case basis through the use of the ULI Shared Parking Model (latest edition).

10.1.8. Reserved Parking

Parking spaces may be reserved for a specific tenant or unit, provided that the following standards are not exceeded.

A. Residential

- 1. One space per efficiency or one-bedroom multi-family dwelling unit.
- 2. Two spaces per two-bedroom or greater multi-family dwelling unit.

- B. Nonresidential.** No more than one-third of the total provided spaces may be reserved.

10.1.9. Alternative Compliance

- A. The Zoning Director may allow parking at a rate of up to 10% above the maximum permitted number of vehicle parking spaces, or at a rate of no more than 20% below the minimum required, on a case-by-case basis based on applicant-submitted parking data that illustrates that the parking ratios do not accurately apply to their specific development, or on the basis of transit service, or transportation demand management measures. The Zoning Director may take into consideration design requirements that restrict on-site parking on the property by City approvals.
- B. The procedure for applying for an alternative compliance is specified in Sec. 13.9.

- C. In approving an alternative compliance, the Zoning Director may, as a condition of approval, require an area to be reserved or set-aside for additional parking area for future use if needed.

10.1.10. Location of Vehicle Parking

Required vehicles parking spaces must be located on the same lot or site they are intended to serve, except as provided below.

A. On-Street Parking

- 1. Where on-street parking spaces exist in the public right-of-way, one on-street parking space may be substituted for every required on-site parking space, provided the on-street space immediately abuts the subject property.
- 2. Each on-street parking space may only be counted for one property. Where a space straddles an extension of a property line, the space may only be counted by the owner whose property abuts 50% or more of the on-street parking space.
- 3. The Zoning Director may determine that to ensure future roadway capacity, the on-street parking credit may not be available.

B. Remote Parking

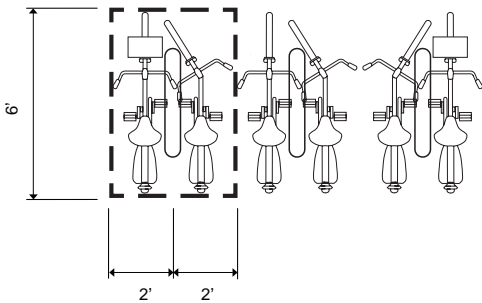
- 1. All required vehicle and motorcycle parking spaces, except required accessible spaces, may be located off-site, provided the remote parking spaces are located within 800 feet of the primary entrance of the use served and are located within the same or more intense zoning district as the principal use served.
- 2. Lease agreements must be for a term of not less than 1 year to serve the use or uses proposed to be satisfied by the off-site leased parking. Each year the use is renewed (as shown by the renewed application for a business license), the applicant for the business license must show a current lease agreement for not less than 1 year for the necessary off-site parking.
- 3. The distances referred to above are measured by the most direct route of travel on the ground and are measured in the following manner:

- a. From the front door of the principal structure on the applicant's property;
 - b. In a straight line to the nearest public sidewalk, street, road or highway;
 - c. Along a public sidewalk, walkway, street, road, or highway by the nearest route; and
 - d. To the edge of the off-site parking area to be used by the applicant to meet parking requirements.
4. Additional requirements for remote parking lots are provided under Sec. 9.5.7.C.

10.1.11. Bicycle Parking Facilities

The following general provisions apply to all required bicycle parking facilities (see Sec. 10.1.3.B.).

- A. In no case is a single use required to provide more than 20 bicycle parking spaces.
- B. Each required bicycle parking space must be at least 2 feet by 6 feet. Where a bike can be locked on both sides of a bicycle rack without conflict, each side can be counted as a required space.



- C. Bicycle racks must be securely anchored, be easily usable with both U-locks and cable locks, and support a bicycle at 2 points of contact to prevent damage to the bicycle wheels and frame.
- D. Bicycle racks must be publicly accessible and be located no more than 100 feet from the building entrance the bicycle rack is intended to serve.
- E. Bicycle parking must be provided in a well-lit area.
- F. Spacing of the bicycle racks must provide clear and maneuverable access.

- G. Bicycle facilities may be placed within the public right-of-way, provided the encroachment is approved by the Zoning Director.

10.1.12. Accessible Parking

A. General Provisions

1. Accessible parking spaces must be provided in accordance with the requirements of the Americans with Disabilities Act (ADA) (Public Law 101-136), the State Building Code, and the American National Standards Institute.
2. The required number of accessible spaces, which must be provided on-site, must be as provided below. Accessible spaces toward the requirements of Sec. 10.1.3.B.

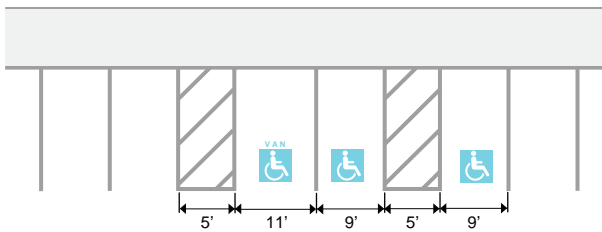
Total Required Parking Spaces	Number of Accessible Spaces (min)
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of total
1001 and over	20 + 1 for each 100 over 1,000

3. In addition, accessible van spaces are required at a rate of 1 van space for every 8 required accessible spaces, with a minimum of 1.
- B. **Location.** Accessible parking spaces serving a particular building must be located on the shortest accessible route of travel from the parking area to an accessible entrance. In parking facilities that do not serve a particular building, or buildings with multiple entrances, accessible parking must be located on the shortest accessible route of travel to an accessible pedestrian entrance of the parking facility.

10.1.13. Stacking

C. Dimensions

1. An accessible parking space must be at least 9 feet wide with a minimum 5-foot-wide access aisle.
2. For van spaces, the width of the parking space must be at least 11 feet with a minimum 5-foot-wide access aisle.
3. Parking access aisles must be part of an accessible route to the building or facility entrance;
4. Two accessible parking spaces may share a common access aisle.



- D. Signs. Accessible parking spaces must be designated as reserved by a sign showing the symbol of accessibility. Such signs must be located so that they cannot be obscured by a vehicle parked in that space.

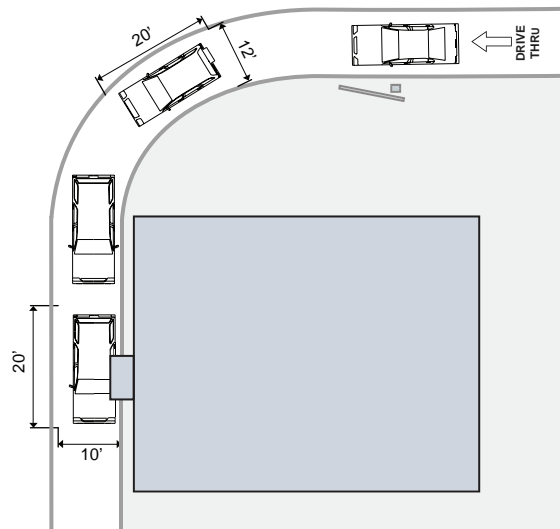
10.1.13. Stacking

- A. **Applicability.** Adequate stacking space must be made available on-site for any use having a drive-thru, control gate or areas having drop-off and pick-up.
- B. **Restaurant.** A restaurant (including a coffee shop) with a drive-thru must provide a minimum of 6 spaces before the order board, with another 4 spaces provided between the order board and the transaction window.
- C. **Bank.** A bank with a drive-thru must provide a minimum of 3 spaces measured from the teller box.
- D. **Pharmacy.** A pharmacy with a drive-thru must provide a minimum of 3 spaces measured from the order box.
- E. **Dry Cleaner.** A dry cleaner with a drive-thru must provide a minimum of 3 spaces measured from the pick up door.
- F. **Control Gate.** If a control gate is used to restrict entry for vehicles, a minimum of 1 space must be provided.

- G. **All Other Uses.** All other uses will be determined by the Zoning Director.

H. Dimensions

1. The number of required stacking spaces includes the space at the window or communication/mechanical device (e.g., order board, pick up window).
2. If a drive-thru has multiple order boxes, teller boxes or pick up windows, the number of required stacking spaces may be split between each order box, teller box or pick up window.
3. Each stacking space must be a minimum of 20 feet in length and 10 feet in width along straight portions. Stacking spaces and stacking lanes must be a minimum of 12 feet in width along curved segments.
4. Vehicles may not encroach on or interfere with the public use of streets and sidewalks by vehicles, bicycles or pedestrians.
5. Drive-thru lanes must be separated by striping or curbing from other parking areas. Individual lanes must be striped, marked or otherwise distinctly delineated.

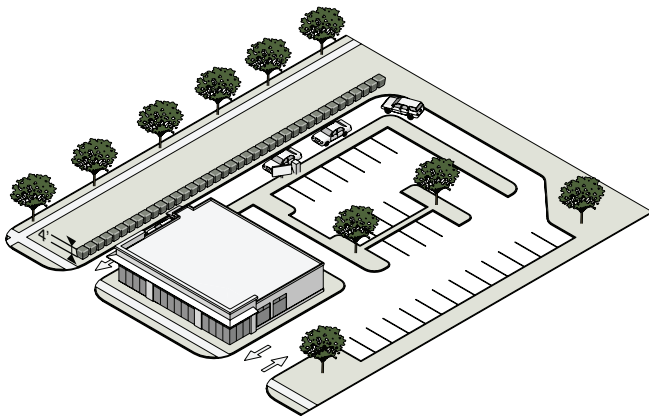


I. Screening

1. Where drive-thru windows and lanes are allowed to be placed between a public street (see [Sec. 9.7.5](#) for additional requirements), not including an alley,

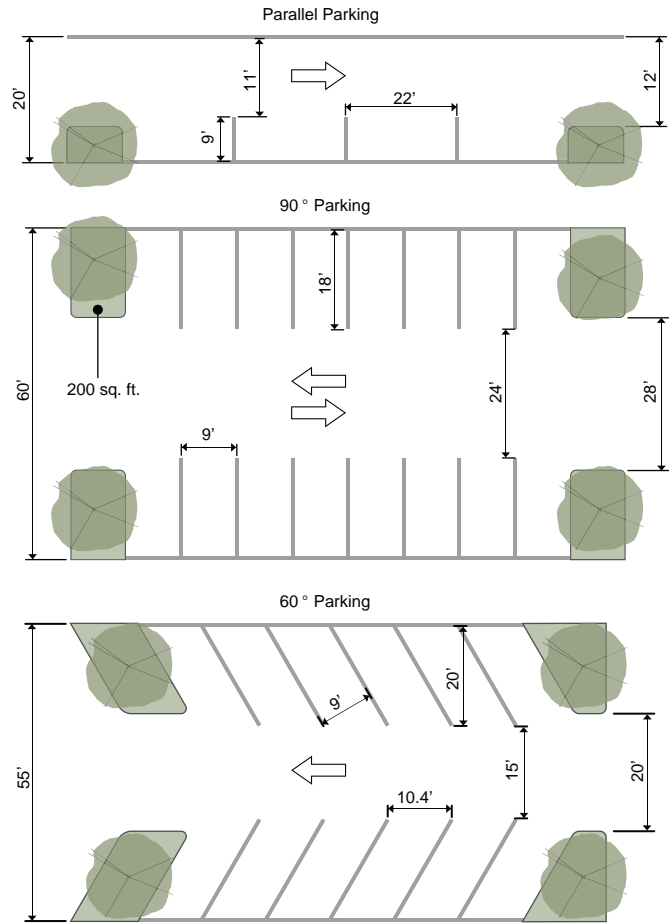
or ground floor residential use and the associated building, the entire length of the drive-thru lane, including but not limited to menu boards, stacking lanes, trash receptacles, ordering box, drive up windows, and other objects associated with the drive-thru must be screened.

2. Screening must be a continuous compact evergreen hedge. At the time of installation, the screening must be at least 3 feet in height and reach a height of 4 feet within 3 years of planting.
3. In lieu of the compact evergreen hedge, a screening wall with a minimum height of 4 feet may be installed. The wall must be compatible with the principal building in terms of texture, quality, material and color.



10.1.14. Parking Lot Layout and Design

- A. **Access.** All on-site parking must be arranged so that no vehicle is forced to back out on a public street or forced to use a public street, not including an alley, to gain access from one parking aisle to another parking aisle.
- B. **Parking Space and Aisle Specifications.** Parking spaces and drive aisles must meet the following dimensions. Parking spaces and drive aisles using dimensions other than those specified may be approved if prepared and sealed by a registered engineer in the State of Georgia with expertise in parking facility design, subject to approval by the Zoning Director.



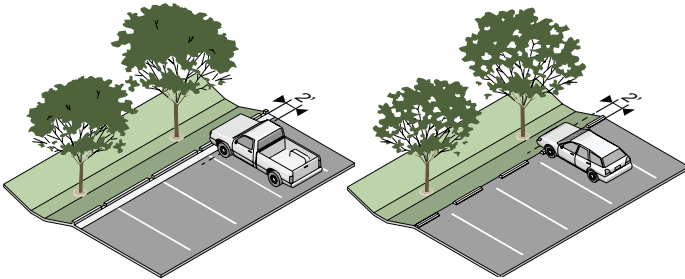
C. Compact Parking

1. Compact car parking spaces may be used in place of a standard size parking space. The total number of compact car parking spaces may not exceed 15% of the total number of required parking spaces.
 2. No more than 2 compact parking spaces may be placed side by side. Compact spaces may be reduced to 8 feet in width and 18 feet in depth. All compact parking spaces must be clearly and visibly striped and labeled for compact car use only.
- D. **Parking Lot Landscaping.** All on-site surface parking lots with more than 20 spaces must be landscaped as specified in [Sec. 10.2.6.](#)
 - E. **Visibility at Intersections.** No parking or loading area may interfere with a clear sight triangle as established in [Sec. 11.4.6.](#)

F. **Surfacing.** Parking and loading areas must be surfaced with concrete, asphaltic concrete, asphalt, or other dust-free surface. Porous pavement material may be substituted for standard dust-free pavements subject to the approval of the Zoning Director. Permitted materials may include, but are not limited to, grass, “grasscrete,” ring and grid systems used in porous or grid pavers. Within the Historic Overlay District, aggregate surface may be considered appropriate.

G. **Curbs and Drainage**

1. Parking and loading areas must be graded and drained to collect, retain and infiltrate surface water on-site so as to prevent damage to abutting properties or public streets.
2. Curbing or parking block must be installed as required by the Zoning Director. Curbing must have openings to allow drainage to enter and percolate through landscaped areas.



H. **Lighting.** Parking and loading area lighting must be installed as specified in [Sec. 10.4.](#)

I. **Residential Parking.** Parking requirements for single-family and two-family uses are specified in [Sec. 2.2.18.](#)

10.1.15. Design of Parking Structures

The following applies to parking structures in RX-, CX-, SH-, DR-, DX-, DS- and OR-.

- A. The ground story of a structured parking garage must have active uses (such as, but not limited to, residential, commercial, office or civic space) located between the parking structure and the street (not including an alley).
- B. Where upper stories of structured parking are located at the perimeter of a building, they must be screened so that cars are not visible from ground level view from adjacent property or adjacent public street right-of-way (not including an alley).

10.1.16. Vehicle Loading

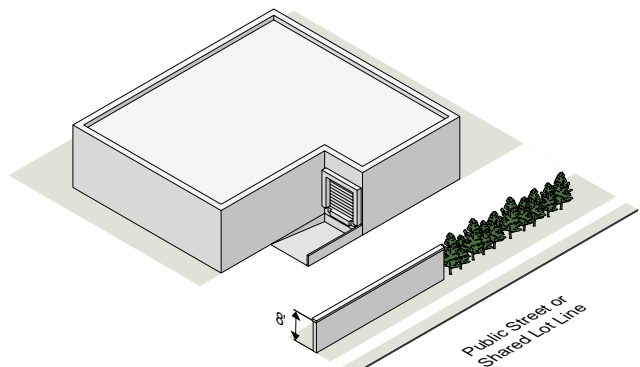
A. **Loading Not Required.** If determined necessary by the Zoning Director, adequate space must be made available on-site for the unloading and loading of goods, materials, items or stock for delivery and shipping, otherwise on-site loading space is not required.

B. **Location.** If a loading area is provided or required, it must meet the following.

1. With the exception of areas specifically designated by the City, loading and unloading activities are not permitted in a public street, not including an alley.
2. Loading and unloading activities may not encroach on or interfere with the use of sidewalks, drive aisles, stacking areas and parking areas by vehicles, bicycles or pedestrians.
3. In NX-, CX- SH-, CC-, DX-, DS- and OP-, loading areas must be located to the rear of buildings. Loading areas may not be placed between a public street (not including an alley) and the associated building.
4. No loading area is permitted within 50 feet of a ground floor residential use (measured from the residential lot line to the closest point of the loading area);

C. **Screening.** If a loading area is provided or required, it must meet the following.

1. Where a loading dock designed for tractor-trailers is placed between a public street (not including an alley) or a shared lot line and the associated building, the entire length of the loading area must be screened.



2. Screening must consist of either:
 - a. An 8-foot high wall compatible with the principal building in terms of texture, quality, material and color; or
 - b. Evergreen plant material that can be expected to reach a height of 8 feet with a spread of 4 feet within 3 years of planting.

10.1.17. Use of Parking and Loading Areas

Parking and loading areas must be operated and maintained in accordance with the following.

- A. Parking and loading areas cannot be used for the repair or dismantling of any vehicle, equipment, materials or supplies.
- B. Parking and loading areas cannot be used to store vehicles for sale, except in cases where the property owner owns the vehicle, provided auto sales is a permitted use in the district in which the property is located. This provision does not apply to the placing of a "For Sale" sign on or in one licensed vehicle, boat, or other vehicle located in a private residential driveway and which licensed vehicle, boat or other vehicle is owned by an occupant of the private residence.
- C. An attendant's building less than 50 square feet in size that is set back at least than 20 feet from any boundary of the parking lot may be permitted.
- D. Upon application, the Zoning Director may approve temporary structures and uses such as tent sales within required parking spaces that are not used on a continuous basis, provided that such uses are movable from the site upon order by the Zoning Director. Such activities are allowed to occur on the same site no more than 3 times a year and each time for a period not to exceed 10 days (see also [Sec. 9.8.6](#)).

Sec. 10.2. Landscaping and Screening Walls

10.2.1. Applicability

- A. **New Construction.** Any new building or site improvement must comply with the landscaping and screening requirements of this UDC.
- B. **Maintenance and Repair.** An existing building or site may be repaired, maintained or modernized without providing additional landscaping or screening, provided there is no increase in gross floor area or improved site area.
- C. **Additions**
 - 1. When an existing building is increased in gross floor area or improved site area by up to 25% cumulatively, landscaping and screening is required for the additional floor or site area only.
 - 2. When an existing building is increased in gross floor area or improved site area by more than 25% cumulatively, both the existing building and the additional floor or site area must conform to the landscaping and screening requirements of this UDC.
- D. **Change in Use.** A change in use does not trigger the application of these requirements except when there is a specific use standard requiring landscaping or screening for the new use.

10.2.2. Landscape Plan Required

- A. Before any building permit is issued, the building, use or site must be found by the Zoning Director to be in compliance with all requirements of this UDC. The Building Inspector cannot allow occupancy or use of a building until advised by the Zoning Director that building, use or site meet the requirements of this UDC.
- B. Landscape design and planning must be integrated with the overall design concept for any project; therefore, site plan approval will evaluate landscaping schemes as to their relationship to the existing natural landscape, developed or proposed landscapes on adjacent properties and public rights-of-way, and the building or buildings existing or proposed on the subject property and adjacent sites.

10.2.3. Neighborhood Compatibility Buffers

Neighborhood compatibility buffers are required as specified in the table below. No buffer is required for new development in in AG-43, RS-87, RS-30, RS-18, RS-12, REC or CON districts. Any variance request for a change in the standards set forth in this section shall be heard and decided by the Mayor and City Council.

NEW PROJ-ECT	<-- EXISTING ADJACENT DISTRICT -->														
	AG-43	RS-87	RS-30	RS-18	RS-12	RS-9	RS-6	RS-4	R-CC	R-TH	RM-2	RM-3	PRD	DR	CIV
RS-9	C/D	C/D	C/D	C/D	C/D								C/D		C/D
RS-6	C/D	C/D	C/D	C/D	C/D								C/D		C/D
RS-4	C/D	C/D	C/D	C/D	C/D								C/D		C/D
R-CC	C/D	C/D	C/D	C/D	C/D								C/D		C/D
R-TH	C/D	C/D	C/D	C/D	C/D								C/D		C/D
RM-2	C/D	C/D	C/D	C/D	C/D	A/B	A/B	A/B	A/B	A/B			C/D		C/D
RM-3	C/D	C/D	C/D	C/D	C/D	A/B	A/B	A/B	A/B	A/B			C/D		C/D
PRD ⁽¹⁾	C/D	C/D	C/D	C/D	C/D								(1)		C/D
RX	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
NX	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
CX	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
SH	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
CC	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
PV	D,PV	D,PV	D,PV	D,PV	D,PV	C/D, PV	C/D, PV	C/D, PV	C/D, PV	C/D, PV			C/D, PV		
CH	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
DR	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B			A/B		
DX	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B			A/B		
DS	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B			A/B		
DH	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B			A/B		
OR	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			D	C/D	
OP	D	D	D	D	D	C/D	C/D	C/D	C/D	C/D			D	C/D	
IX	D	D	D	D	D	D	D	D	D	D	D	D	D	C/D	C/D
IL	D	D	D	D	D	D	D	D	D	D	D	D	D	C/D	C/D
CIV	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D			C/D	C/D	
REC															
CON															

NEW PROJ-ECT	<-- EXISTING ADJACENT DISTRICT -->															
	RX	NX	CX	SH	CC	PV	CH	DS	DX	DH	OR	OP	IX	IL	REC	CON
IX	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D			C/D	C/D
IL	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D	C/D			C/D	C/D

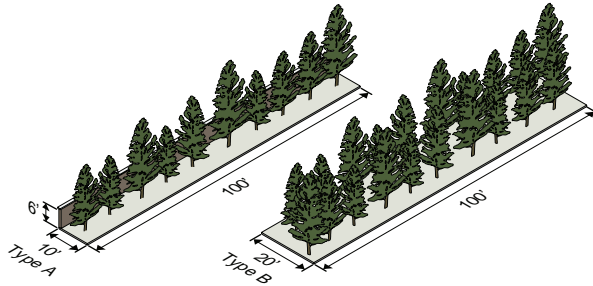
KEY:

- A/B = Buffer A or B required, choice of A or B at applicant's discretion
- C/D = Buffer C or D required, choice of C or D at applicant's discretion
- C/D, PV = Buffer C or D required, choice of C or D at applicant's discretion, PV Buffer D required for village of 7 acres+
- D = Buffer D required
- D, PV = Buffer D required, PV Buffer D required for village of 7 acres+

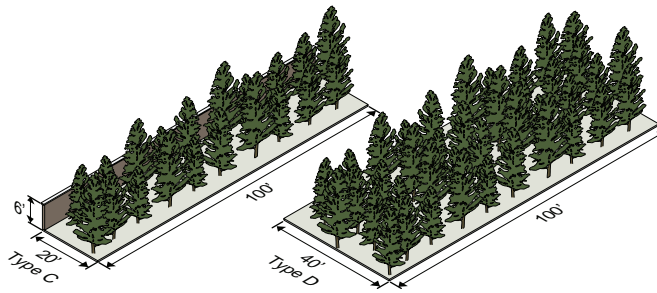
⁽¹⁾ In the event a proposed PRD abuts existing residential PRD, the required buffer will be determined by first establishing a PRD Lot Size by calculating the lesser of: a) the average lot size of the proposed lots abutting the existing residential and b) the average lot size for the entire PRD. Then, using Table 10.2.3, identify a comparable zoning category for the PRD based on the PRD Lot Size. The comparable zoning category will be used to determine the required proposed PRD buffer.

10.2.4. Buffers

A buffer is required along perimeter lot lines for specific uses as specified in Article 9. While screening walls may be incorporated into buffers as described below, retaining walls are not to be constructed within buffers.



	Type A	Type B
Depth (min)	10'	20'
Screening wall height	6'	Not required
Evergreen trees (min per 100', planted on average 10' on center)	10	20

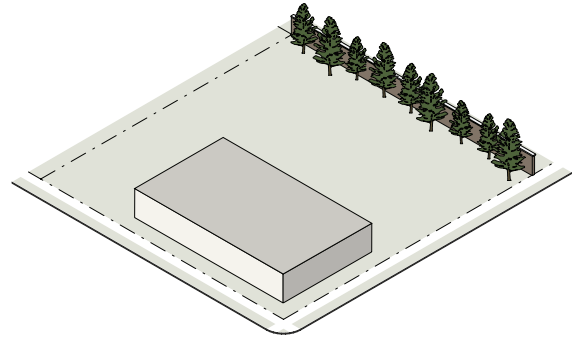


	Type C	Type D
Depth (min)	20'	40'
Depth in PV when 7-acre or more village development abuts a protected district	--	150'
Screening wall height	6'	Not required
Evergreen trees (min per 100', planted on average 10' on center)	20	40

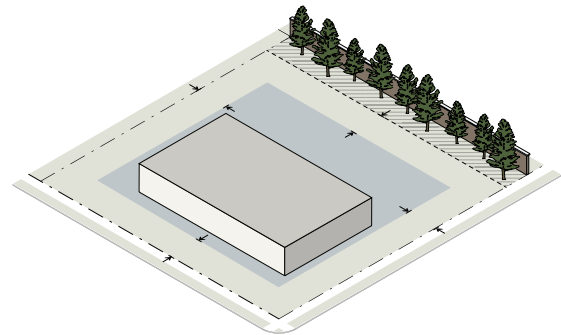
10.2.5. Buffer Installation Requirements

A. Location

1. A required buffer must be located at the outer perimeter of the site or lot, parallel to and extending to the property boundary line and must be provided along the entire site or lot immediately abutting the property line.



2. Breaks for pedestrian, bicycle and vehicle access are allowed, as approved by the Design Review Board or Historic Preservation Commission, as applicable. Driveways or walkways must cross a buffer at as near a perpendicular angle as practical.
3. The width of a required buffer is calculated on the average width per 100 feet of the buffer.
4. All building and structure setbacks are measured from the inside edge of the landscape buffer.



5. The parking of vehicles and the placement of buildings or structures, except as provided below, is not allowed in a required buffer.

B. Screening Walls. Screening walls in a required buffer must meet the following.

1. Screening walls must be opaque and be constructed of high quality materials including

one or a combination of the following: decorative blocks; brick; stone; cast-stone; split-faced block; stucco over standard concrete masonry blocks; glass block; or other material approved by the Design Review Board or Historic Preservation Commission, as applicable.

2. No screening wall can be located within any required drainage or utility easement.

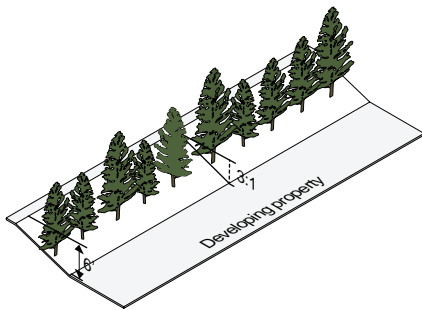
C. **Fences.** Fences are not required but if provided must meet the requirements of Sec. 10.2.10.

D. **Evergreen Trees.** Trees in a required buffer must meet the following.

1. To the extent practical, natural vegetation must be used to meet the buffer requirements. Where the natural buffer is insufficient, supplemental plantings must be used.
2. All required evergreen trees must be chosen from the approved tree list and be at least 8 feet tall at time of planting. The approved tree list is available from the City Arborist.
3. Required trees must be distributed along the entire length of the buffer at an average rate of 10 feet on center.
4. Evergreen trees installed in a required buffer count toward the minimum tree unit density requirements of Sec. 12.1.

E. **Grade Change**

1. In lieu of a required screening wall or fence, a natural or man-made grade separation of at least 6 feet in elevation may be provided.

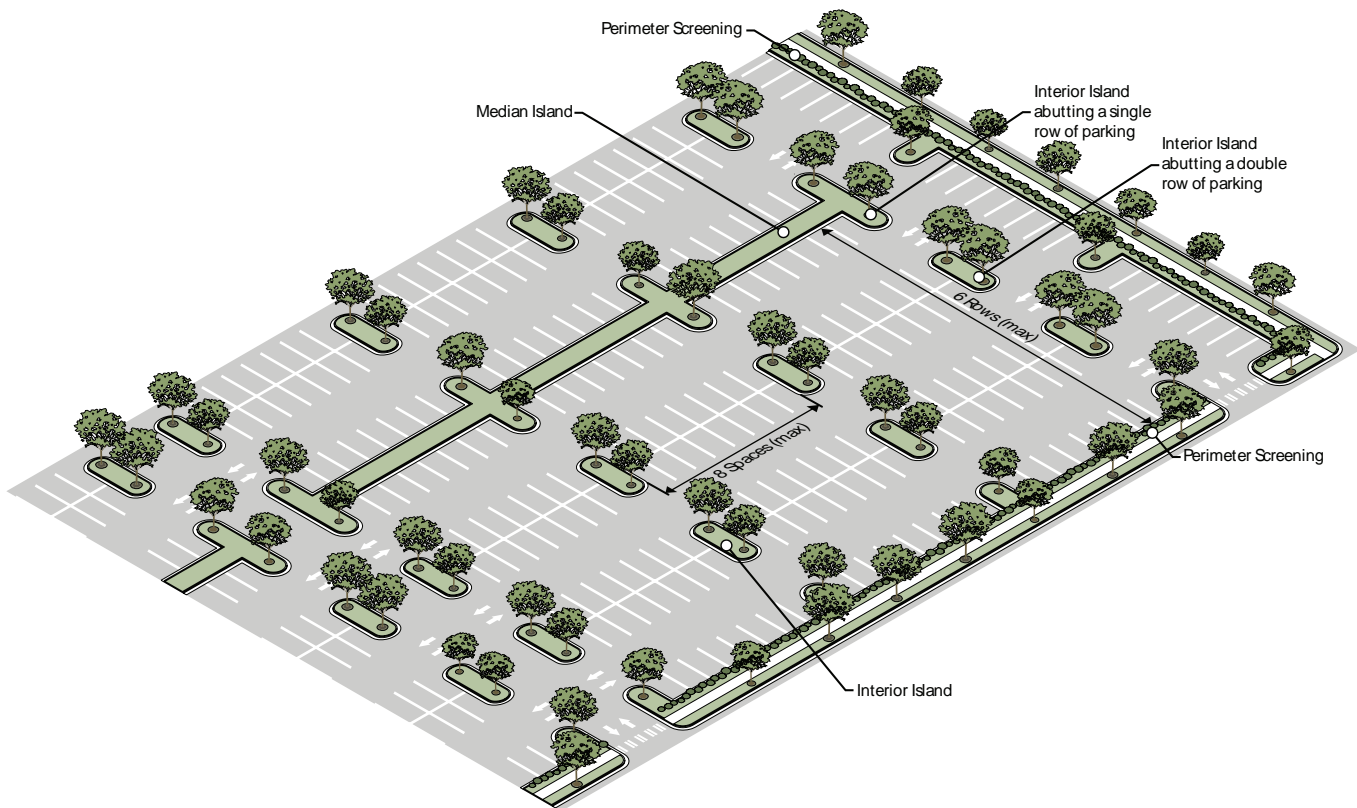


2. The developing property must be located at an elevation lower than the property to be screened.

3. The stabilized side slopes of the grade change can be no greater than 3: 1.

F. **Alternative Compliance**

1. The neighborhood compatibility buffer and use buffer requirements may be modified by the Design Review Board or the Historic Preservation Commission, as applicable.
2. Design Review Board or the Historic Preservation Commission will consider the following criteria, among others, in determining the appropriateness of alternative compliance:
 - a. The existing topography or vegetation achieve the purpose and intent of the landscaping and screening requirements of this UDC; or
 - b. For topographic reasons, a fence or screening wall or other required screening device could not screen activities from an abutting property as required by this UDC.



10.2.6. Parking Lot Landscaping

A. Applicability. Parking lot landscaping is required on all on-site surface parking lots with more than 20 spaces created after the effective date of this UDC. Multiple platted lots contained on a single site plan and any separate parking areas connected with drive aisles are considered a single parking area.

B. Perimeter Screening. All surface parking areas (of any size) abutting a public street (not including an alley) must be screened by a landscape strip as specified in [Sec. 10.2.7](#) Perimeter screening that is not next to a public street must be a minimum of 5 feet in width with a single hedgerow.

C. Interior Islands

1. A landscaped interior island must be provided every 8 parking spaces. Interior islands must be distributed evenly throughout the parking area. Interior islands may be consolidated or intervals may be expanded in order to preserve existing trees.
2. An interior island abutting a single row of parking spaces must be a minimum of 9 feet in width and 200 square feet in area. Each island must include 1 shade tree.

3. An interior island abutting a double row of parking spaces must be a minimum of 9 feet in width and 400 square feet in area. Each island must include 2 shade trees.
4. All required shade trees must be chosen from the approved tree list. The approved tree list is available from the City Arborist.
5. All required shade trees must have a minimum caliper of 3 inches and be at least 10 feet tall at time of planting.
6. Interior islands must be installed below the level of the parking lot surface to allow for runoff capture.

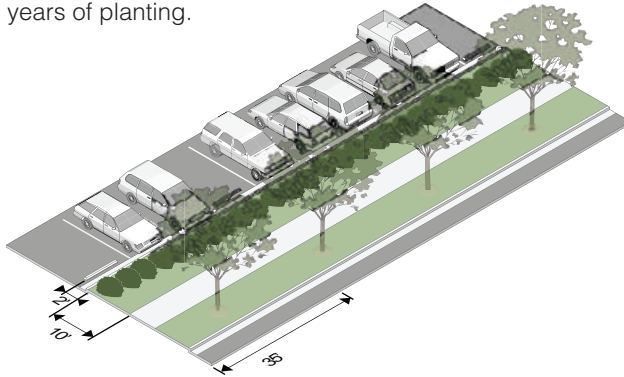
D. Median Islands

1. A landscape median island must be provided between every 6 single parking rows. Intervals may be expanded in order to preserve existing trees.
2. A landscape median island must be a minimum of 6 feet wide.
3. Median islands must be installed below the level of the parking lot surface to allow for runoff capture.

10.2.7. Landscape Strips

A. **Applicability.** All surface parking areas (of any size) abutting a public street (not including an alley) must be screened using one of the following options.

B. **Landscape Strip with Shrubs.** A minimum 10-foot wide landscape strip planted with a minimum of 10 shrubs per 35 linear feet of street frontage, excluding driveway openings. Shrubs shall be provided to screen paved areas and parking lots from the right-of-way. Shrubs shall be 2 feet tall at time of planting. They must be planted 2 rows deep, and provide a screen within 3 years of planting.



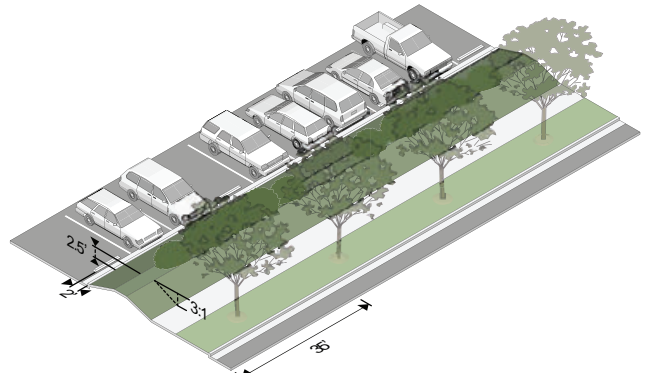
C. **Landscape Strip with Screening Wall.**

1. A 2.5-foot high screening wall in a minimum 4-foot planting strip.
2. Screening walls must be closed and be constructed of high quality materials including one or a combination of the following: decorative blocks; brick; stone; cast-stone; split-faced block; stucco over standard concrete masonry blocks; glass block; or other material approved by the Design Review Board or Historic Preservation Commission, as applicable.



D. **Landscape Strip with Berm.**

1. An earth berm a minimum of 2.5 feet higher than the finished elevation of the parking area, planted with 5 shrubs for every 35 linear feet of street frontage, excluding driveway openings.
2. The berm must contain a rounded crown suitable for planting, and a stabilized side slope of no greater than 3:1.



E. **Landscape Strip with Grade Change.**

1. A 6-foot landscaped strip with a minimum 3-foot grade drop from the public street to the parking area, planted with 5 shrubs for every 35 linear feet of street frontage, excluding driveway openings.



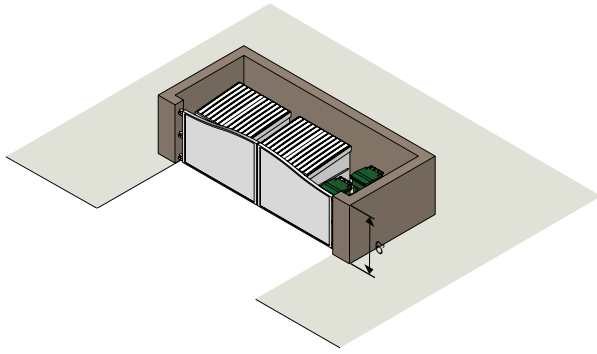
F. **Location.** A required landscape strip must be located at the outer perimeter of the parking area and must be provided along the entire parking area abutting the street, excluding breaks for pedestrians, bicycles and driveways.

G. **Plant Material.** Required shrubs must be a minimum of 2.5 feet in height at time of planting. 70% of the required amount of shrubs must be evergreen.

10.2.8. Screening

A. Service Areas

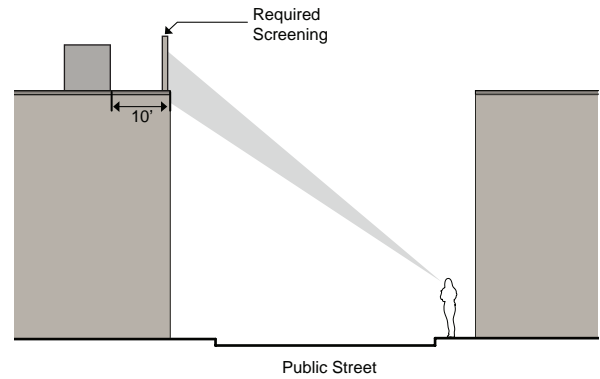
1. Trash and recycling collection and other similar service areas must be located to the side or rear of buildings. Trash and recycling collection areas must be located as far away from residential structures on neighboring properties as practical.
2. Service areas must be screened on 3 sides by a screening wall a minimum 6 feet in height and on the 4th side by a solid gate at a minimum of 6 feet in height.



3. The screening wall must be opaque and be constructed of high quality materials including one or a combination of the following: decorative blocks: brick: stone; cast-stone; split-faced block: stucco over standard concrete masonry blocks: or other material approved by the Design Review Board or Historic Preservation Commission, as applicable.
4. The gate and screening wall must be maintained in good working order and must remain closed except when trash pick-ups occur.

B. Roof-Mounted Equipment

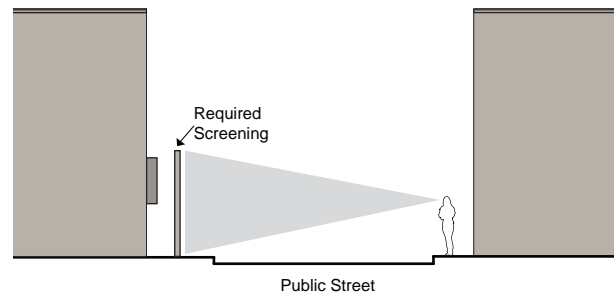
1. Roof-mounted equipment must be set back at least 10 feet from the edge of the roof and screened from ground level view from abutting property or abutting public street (not including an alley).
2. New buildings must provide a parapet wall or other architectural element that is compatible with the principal building in terms of texture, quality, material and color that fully screens roof-mounted equipment from ground level view.



3. Buildings with no or low parapet walls, roof-mounted equipment must be screened on all sides by an opaque screen compatible with the principal building in terms of texture, quality, material and color.

C. Wall-Mounted Equipment

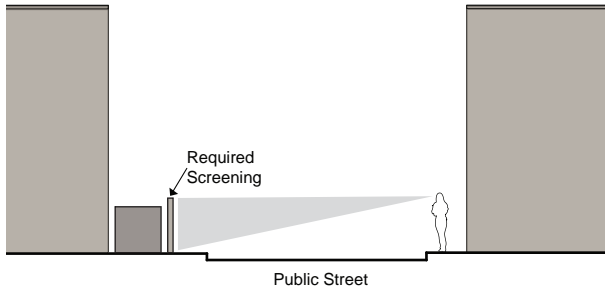
1. Wall-mounted equipment located on any surface that is visible from a public street (not including an alley) must be fully screened by landscaping or an opaque screening wall or fence that is compatible with the principal building in terms of texture, quality, material and color.



2. Screening must be of a height equal to or greater than the height of the mechanical equipment being screened.

D. Ground-Mounted Equipment

1. Ground-mounted mechanical equipment that is visible from a public street (not including an alley) must be fully screened by landscaping or an opaque wall or fence that is compatible with the principal building in terms of texture, quality, material and color.



2. Screening must be of a height equal to or greater than the height of the mechanical equipment being screened.

10.2.9. Street Trees

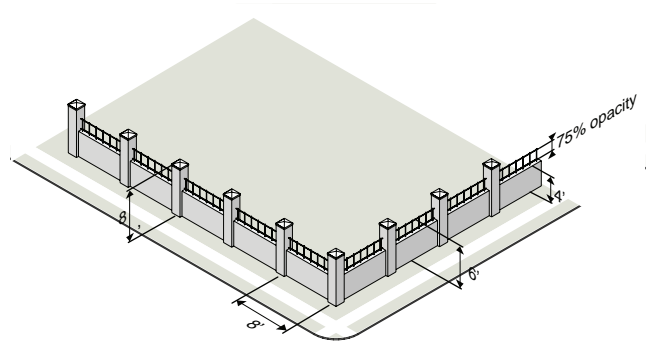
Street trees may be required in conformance with [Sec. 11.4.](#)

10.2.10. Screening Walls and Fences

A. General Standards

1. Fences must be constructed of high quality materials including one or a combination of the following: wood; wrought iron; composite fencing, PVC; aluminum; and metal. If subject to design or historic review, an alternative fence material may be approved by the Design Review Board or Historic Preservation Commission, as applicable.
2. Screening walls must be constructed of high quality materials including one or a combination of the following: decorative blocks; brick; stone; cast-stone; splitfaced block; stucco over standard concrete masonry blocks; and glass block. If subject to design or historic review, an alternative wall material may be approved by the Design Review Board or Historic Preservation Commission, as applicable.
3. No screening wall or fence may be constructed of tires, junk, or other discarded materials.

4. No screening wall or fence may be located within any required drainage or utility easement.
5. Chain-link fence, barbed wire and concertina wire are allowed only in a rear or side yard in a Corridors and Nodes District or Employment District. Chain-link fence, barbed wire and concertina wire are not allowed in the Historic Overlay District. Chain link is allowed as a fence material around a tennis court, community swimming pool or sports field in the Residential, Civic and Recreational districts.
6. The maximum length of a continuous, unbroken and uninterrupted fence or screening wall plane is 100 feet. Breaks must be provided through the use of columns, landscaped areas, transparent sections or a change in material.
7. A screening wall or fence located in a side or rear setback can be no more than 8 feet in height.
8. A screening wall or fence located in a primary or side street setback may not exceed 6 feet in height, provided the transparency of the screening wall or fence above 4 feet in height exceeds 25%. Columns that are a maximum width of 18 inches each and spaced a minimum of 8 feet apart, are allowed to reach a maximum height of 8 feet.



9. The finished face of all wall and fences must be located toward the abutting property.
10. Screening wall or fence height is measured from the subject property grade to the highest point of the fence.

B. **Subdivision Entrances.** A subdivision entrance wall or fence may not exceed 8 feet in height and is subject to location and architectural approval by the Zoning Director as part of a Minor Design Plan (see Sec. 13.6.6).

10.2.11. Design and Installation

A. Replacement Bond

1. Prior to issuance of a Certificate of Occupancy, a performance bond or cash escrow must be paid guaranteeing all landscaping and screening materials and work for a period of 2 years after issuance of the Certificate of Occupancy.
2. The bond must be in the amount of 100% of the estimated cost of replacing all of the landscaping required by this UDC.
3. At the end of 2 years, the City Arborist must make an inspection and notify the owner and the bond company of any corrections to be made.

B. **Visibility at Intersections.** No landscaping or screening may interfere with a clear sight triangle as established in Sec. 11.4.6.

C. Plant Material

1. Plant materials must be hardy to zone 7b in accordance with the U.S. Department of Agriculture's Plant Hardiness Zone Map.
2. Plant materials must be able to survive on natural rainfall once established with no loss of health.
3. Tree height is measured from the top of the root ball to the tip of the main stem.
4. No artificial plants, trees, or other vegetation may be installed as required landscaping and screening.

conforms to this UDC within 90 days (or within 180 days where weather concerns would jeopardize the health of plant materials).

B. Soil Erosion

1. All planting areas must be stabilized from soil erosion immediately upon planting and must be maintained for the duration of the use.
2. Grass areas must be sodded prior to the issuance of a Certificate of Occupancy. If grass seed must be used, it must be a variety suitable to the area that produces complete coverage.

C. Pruning and Trimming

1. All required landscaping must be allowed to reach its required size and must be maintained at no less than required size.
2. To prevent long-term harm to the health of required landscaping, all pruning of shrubs and trees must be done in accordance with the International Society of Arboriculture Standards entitled "ANSI A300 Standards."
3. "Topping," defined as removal of more than one-third of the leaves and branches of a tree, as measured from the lowest branch on the trunk of the tree to the top of the tree, is prohibited, except where necessary to maintain public overhead utilities.

10.2.12. Maintenance of Landscaping

A. **Responsibility.** The property owner is responsible for maintaining all required landscaping and screening in good health and condition. Any dead, unhealthy, damaged or missing landscaping and screening must be replaced with landscaping and screening that

Sec. 10.3. Signs

10.3.1. Applicability

No sign may be erected, altered, refurbished or otherwise modified after the effective date of this UDC except in accordance with the requirements of this UDC.

10.3.2. Sign Permit Required

- A. Except as specifically excluded, it is unlawful for any person to post, display, substantially change, or erect a sign or advertising device in the City without first having obtained a sign permit.
- B. An application for a sign permit must be filed with the Zoning Director.

10.3.3. Nonconforming Signs

- A. A nonconforming sign cannot be replaced by another nonconforming sign, including face material, except that the substitution or interchange of poster panels or painted boards on a nonconforming sign is permitted. All nonconforming signs must be maintained in a safe manner and in good repair.
- B. Minor repairs and maintenance of nonconforming signs is permitted. However, no structural repairs, structural changes or changes in the size, shape or technology currently being used on the sign is permitted except to bring the sign out if its nonconforming condition and into compliance with the requirements of this UDC. To the extent that this section is alleged to conflict with O.C.G.A. § 32-6-83 or the Georgia Constitution, this section will provide affected parties the minimum protections provided by O.C.G.A. § 32-6-83 and the Georgia Constitution as both may be amended from time to time.
- C. Nonconforming signs may stay in place until one of the following conditions occurs:
 1. The business advertised ceases at that location, except that the substitution or interchange of poster panels or painted boards is permitted;
 2. The deterioration of the sign makes it a hazard; or
 3. The sign has damage exceeding 50% of its replacement cost.

10.3.4. Noncommercial Messages

- A. Whenever these sign regulations permit a commercial sign, a noncommercial message may be substituted in lieu of the commercial message.
- B. The right to substitute the noncommercial message does not waive any other requirement imposed by this UDC as to number, size, construction, location, lighting, safety or any other regulated attribute.

10.3.5. Prohibited Signs

The following types of signs or advertising devices are prohibited.

- A. Any sign constructed and maintained wholly upon or over the roof of a building.
- B. Any sign that is not permanently affixed to the ground or to a structure, including but not limited to trailer signs or signs mounted or painted on vehicles which are parked in such a manner as to serve the purpose of an advertising device, except sidewalk signs.
- C. Any freestanding sign that sits upon a pylon that is less than 75% of the width of the sign face, does not include a post sign or double-post sign.
- D. Rotating or animated signs involving motion or sound.
- E. Permanent off-premises signs, except non-illuminated school, hospital, or other quasi-public signs not exceeding 4 square feet in area.
- F. Flashing, blinking, or varying light intensity signs.
- G. Signs that contain or are an imitation of an official traffic sign or signal.
- H. Any reflective or mirrored sign.
- I. Pennants, streamers and banners except as allowed in [Sec. 10.3.6.](#)
- J. Search lights.
- K. Human Sign. A sign held by or attached to a human for the purposes of advertising or otherwise drawing attention to an individual, business, commodity, service or product, mere costumes without wording or logos shall not be considered signage.

10.3.6. Temporary Signs

A. **Temporary Sign Permit Required.** The following temporary signs are permitted following issuance of a temporary sign permit.

1. **Promotional Signs.** A temporary sign or attention getting device used to advertise a temporary special event.
 - a. Air- or gas-filled balloons or other devices that have a capacity for air or gas that does not exceed 3 cubic feet.
 - b. Flags, signs, pennants, streamers and banners, a maximum size of 32 square feet, except official government flags.
 - c. Promotional signs can be used for a period not exceeding 10 consecutive days.
 - d. No temporary sign permit for a promotional sign will be issued for the same premises more than 80 days per year.
 - e. No business will be issued a promotional sign for more than one sign or device per street frontage to be located on the premises at any one time. Each individual establishment within a multi-tenant center is considered to have one street frontage.
 - f. No sign can be located within the public right-of-way.
2. **Yard/Garage Sale Sign.** A temporary sign used to advertise a yard/garage sale.
 - a. No sign can be located within the public right-of-way.
 - b. Signs must be on private property with the property owner's consent.
 - c. No sign is allowed on a telephone pole, tree or traffic sign.
 - d. The maximum size of a sign is 4 square feet per sign.
 - e. Decals must be attached to each sign.

- f. Signs are permitted 2 days prior to sale and must be removed the day after the sale.
- g. The temporary sign permit must be displayed upon the request of any municipal officer or citizen requesting identification or proof of permission for the yard/garage sale.
- h. A maximum of 6 signs per yard/garage sale are allowed.
- i. The temporary sign permit is valid only for family use and may not exceed 3 per year.
- j. Additional requirements for yard/garage sales are in [Sec. 9.8.3.](#)

3. **Grand Opening Signs.** A temporary sign used to advertise a grand opening or final closing sale.
 - a. On-premises temporary signs relating to the initial opening or final closing of a business or service are allowed, provided each sign does not exceed 32 square feet each and is not located in the public right-of-way.
 - b. The Zoning Director can approve signs for a maximum period of 2 weeks for initial opening signs and 4 weeks for final closing signs, after which all signs must be removed.

4. Farmers' Market

- a. One temporary banner identifying a city-approved farmers' market with a maximum size of 32 square feet is allowed no more than 24 hours before and 2 hours after the hours of operation for the farmers' market. The banner cannot be located in the public right-of-way.
- b. Additional requirements for Farmers' Market are in [Sec. 9.7.7.](#)

5. **Off-Site Real Estate Directional Signs.** A temporary sign erected by the owner, or their agent, conveying the route to real property, but not located on the property itself.

- a. Signs are allowed for a maximum period of 2 consecutive days in any one week.
- b. A maximum of 3 signs per house/lot are allowed.

- c. Signs must be located within 2 miles of the property to which they refer, as measured along existing streets.
 - d. No sign can be located within the public right-of-way.
 - e. Signs cannot exceed a maximum area of 4 square feet per sign.
 - f. Not more than 1 sign is allowed at any "T" intersection and no more than 2 signs are allowed at any 4-way intersection.
 - g. Signs cannot have any balloons, streamers, and pennants attached to them.
 - h. Such signs cannot be illuminated.
 - i. Signs can only be placed on property with the owner's express written permission.
6. **On-Site Real Estate Signs.** A temporary sign erected by the owner, or their agent, advertising the real property upon which the sign is located for rent, lease, or for sale.
- a. **Single-Family Residential District**
 - i. Only one sign is permitted per lot or home for sale.
 - ii. The sign cannot be illuminated.
 - iii. The sign cannot exceed 6 square feet in area.
 - iv. Signs must be removed within 10 days after the lot or building is leased, or sold.
 - v. Signs cannot be located within the public right-of-way.
 - b. **All Other Districts**
 - i. Only 1 sign is permitted per parcel for sale or lease, except that corner lots may have 1 sign per frontage, separated by not less than 50 feet.
 - ii. Once the building is occupied, no on-site real estate signs are allowed on the ground; they must be located on a panel on an existing monument sign or placed in the window of an empty tenant space.
 - iii. The sign cannot be illuminated.
 - iv. Each sign cannot exceed 32 square feet in area and 10 feet in height.
 - v. Signs must be removed within 10 days after the lot or building is leased, or sold.
 - vi. Signs cannot be located within the public right-of-way
7. **Construction Sign.** A temporary sign erected and maintained on premises for a proposed construction project.
- a. Only 1 sign is permitted per lot or parcel, except that corner lots may have 1 sign per frontage, separated by not less than 50 feet.
 - b. Each sign cannot exceed 32 square feet in area.
 - c. Signs cannot be illuminated.
 - d. Signs may be erected once the first development permit for the project has been issued. If development is not begun in 60 days or if construction is not continuously and actively pursued to completion, all signs must be removed.
 - e. Signs must be removed upon completion of the project or when the development permit expires.
 - f. Signs cannot be located within the public right-of-way.
- B. **Temporary Signs Not Requiring a Permit.** The following temporary signs are allowed without the issuance of a temporary sign permit, provided they meet the specified standards below.
- 1. **Political Signs.** A sign identifying or urging voter support for a particular election issue, political party, or candidate for public office. A political sign cannot exceed 32 square feet in area and 8 feet in height.
 - 2. **Civic or Educational Institutions.** Temporary signs

not exceeding 4 feet in area pertaining to drives or events of civic, philanthropic, educational, religious organizations are allowed, provided signs are posted not more than 2 days before the event and removed the day after the event.

3. New and Used Automobile Sales

- a. New and used automobile sales establishments may display 8-inch vinyl letters professionally made, not hand lettered, indicating the price, model and year of vehicles for sale on the front windshield, not to exceed a total of 320 square inches of area per vehicle.
- b. Establishments are allowed to use 2 of the following 3 colors: non-fluorescent white, pastel blue and yellow.
- c. Vehicles must set back at least 15 feet from the edge of pavement of the public street.

10.3.7. Signs Not Requiring a Permit

The following types of signs are exempt from Sec. 10.3.6 and Sec. 10.3.8.

- A. **Public Interest Signs.** Signs of a noncommercial nature and in the public interest, erected by or on the order of a public officer in the performance of their duty, such as public notices, safety sign, danger signs, trespassing signs, traffic and street signs, memorial plaques and signs of historical interest.
- B. **Traffic Movement Signs on Private Property.** Signs on private property directing traffic movement, not exceeding 3 square feet in area, and not advertising any business, service or product. Signs cannot be located within the public right-of-way.
- C. **Credit Card Identification Signs.** On-premises credit card identification signs up to 3 square feet in total area, located on the building of the business to which they relate.
- D. **Signs not Visible from the Public Right-of Way.** Any sign not visible from a public street.
- E. **Window Signs**

1. A sign installed inside a window for purposes of viewing from outside the premises. Signs cannot exceed 30% of the window area.
2. An exposed neon window sign stating "open" that is not greater than 5 square feet in area and does not exceed 30% of the window area, limited to 1 per establishment. Neon signs are not allowed in the -HOD or -PV districts.

- F. **Quasi-Public Signs.** Off-premises non-illuminated school, hospital, or other quasi-public signs not exceeding 4 square feet in area. Signs cannot be located within the public right-of-way.
- G. **Public Notice Signs.** On-premises warning or similar public notice type signs not exceeding 6 square feet in area. Signs cannot be located within the public right-of-way. Signs can be placed no closer than 100 feet from one another.
- H. **Flags.** Any fabric or other flexible material containing distinctive colors, patterns or symbols used to identify a local, state, or national government or private organization designed to be flown from a flagpole.

1. A maximum of 3 of the following flags are permitted per lot or site:
 - a. The official flag of The United States of America;
 - b. Any official flag of a state or territory of the United States of America;
 - c. Any official flag adopted by a member state of the United Nations;
 - d. Any official flag adopted by a sovereign nation, including Switzerland; and
 - e. Any flag that contains the official logo or trademarked symbol of the business, entity or development on which the flagpole is located.
2. An individual flag cannot exceed 60 square feet in area.
3. The maximum height of a flagpole is 40 feet, measured from the highest point of the flagpole to the top of the abutting sidewalk or parking area.

4. A flagpole must be set back from a property line a distance equal to the height of the pole. For example, a flagpole 40 feet in height must be set back at least 40 feet from a property line.
- I. **Murals.** A mural or work of visual art that conforms with the following standards:
1. Is located on the wall of a building in any district, except a Residential District;
 2. Includes no text legible from a public right-of-way;
 3. Includes no logo or trademarked symbol;
 4. Includes no specific commercial product, although it may include generic products such as automobiles, furniture, soft drinks or other items where the brand is not apparent; and
 5. Includes no picture, symbol or device of any kind that relates to a commercial business, product or service offered on the premises where the wall is located.
- J. **One Percent Rule.** On premise signs attached to the outside wall of any business establishment, which are designed to identify services rendered, products sold or activities conducted on the premises are allowed provided:
1. The total area of such signs does not exceed 1% of the total area of the wall on which they are affixed; and
 2. No more than two such signs are allowed per building.

10.3.8. Signs in the Right-of-Way

- A. Ground signs, subdivision entrance signs, double post signs and single post signs cannot encroach into the public right-of way.
- B. Wall signs, awning signs, canopy signs, projecting signs, crown signs, shingle signs and sidewalk signs may encroach over the public sidewalk but not over any public street, parking area, driveway or alley. All signs must be a minimum of 18 inches inside the curb line or edge of pavement, whichever is greater.

10.3.9. Signs Requiring a Permit

Signs are allowed by district as set forth below. Specific requirements for each sign are shown on the following pages. All of the following sign types require a sign permit.

	Residential													Standards
	AG-43	RS-87	RS-30	RS-18	RS-12	RS-9	RS-6	R-S4	R-CC	R-TF	R-TH	RM-2	RM-3	
Wall Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.10
Awning Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.11
Canopy Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.12
Projecting Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.13
Crown Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.14
Shingle Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.15
Ground Sign	--	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.16
Subdivision Entrance Sign	●	●	●	●	●	●	●	●	●	●	●	●	●	Sec. 10.3.17
Subdivision Community Information Sign	●	●	●	●	●	●	●	●	●	●	●	●	●	Sec. 10.3.18
Double Post Sign	▲	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.19
Single Post Sign	▲	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.20
Sidewalk Sign	▲	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.21

KEY: ● = Sign type allowed ▲ = Allowed sign type for nonresidential uses only -- = Sign type not allowed

	Corridors and Nodes							Downtown				Employment				Civic/Open Space			Standards
	RX-	NX-	CX-	SH-	CC-	PV-	CH-	DR-	DX-	DS-	DH-	OR-	OP-	IX-	IL-	CIV	REC	CON	
Wall Sign	▲	●	●	●	●	●	●	▲	●	●	●	●	●	●	●	●	●	--	Sec. 10.3.10
Awning Sign	--	●	●	●	●	●	●	--	●	●	●	●	●	●	●	--	--	--	Sec. 10.3.11
Canopy Sign	--	●	●	●	●	●	●	--	●	●	●	●	●	●	●	--	--	--	Sec. 10.3.12
Projecting Sign	--	●	●	●	●	●	●	--	●	--	--	●	●	●	●	●	--	--	Sec. 10.3.13
Crown Sign	--	--	●	●	●	●	●	--	--	--	--	●	●	●	--	--	--	--	Sec. 10.3.14
Shingle Sign	--	●	●	●	--	--	--	--	●	●	●	--	--	--	--	--	--	--	Sec. 10.3.15
Ground Sign	--	●	●	--	●	●	●	--	●	--	--	●	●	●	●	●	--	--	Sec. 10.3.16
Subdivision Entrance Sign	●	●	●	--	●	●	●	●	●	--	--	●	●	●	●	--	--	--	Sec. 10.3.17
Subdivision Community Information Sign	●	●	●	--	--	●	--	--	--	--	--	--	--	--	--	--	--	--	Sec. 10.3.18
Double Post Sign	--	●	●	--	●	●	●	--	●	--	●	●	●	●	●	●	●	--	Sec. 10.3.19
Single Post Sign	--	●	●	--	●	●	●	--	●	--	●	●	●	●	●	●	●	--	Sec. 10.3.20
Sidewalk Sign	--	--	--	--	--	--	--	--	●	●	●	--	--	--	--	--	--	--	Sec. 10.3.21

KEY: ● = Sign type allowed ▲ = Allowed sign type for nonresidential uses only -- = Sign type not allowed

10.3.10. Wall Sign



Description

A sign applied to or mounted to the wall or surface of a building or structure, the display surface of which does not project more than 12 inches from the outside wall of the building or structure.

General Provisions

1. A wall sign must be placed no higher than 18 feet above the sidewalk.
2. No portion of a wall sign may extend above the roof line or above a parapet wall of a building with a flat roof.
3. No portion of a wall sign may extend above the lower eave line of a building with a pitched roof.
4. A wall sign cannot cover windows or architectural details.
5. Channel letters are not allowed in a Downtown Historic District.
6. A wall sign can be externally or internally illuminated in accordance with [Sec. 10.3.24](#).

Total Sign Area Allocation

1 SF of sign area per linear foot of store frontage or 32 SF if the store frontage is less than 32 feet wide. This allocation includes area allocated for awning signs, canopy signs and projecting signs. Area allocation may be divided between all allowable wall signs.

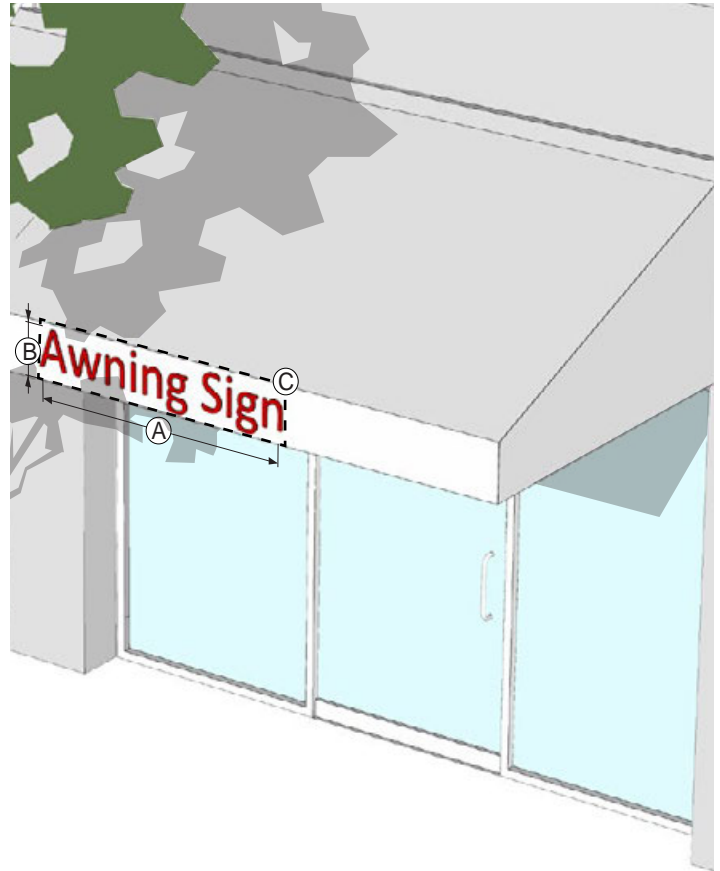
Dimensions

A) Sign area (max)	
DS-	9 SF
RX-, DR-, DX-, DH-, REC	32 SF
NX-, OR-, OP-	50 SF
PV-	96 SF
All other districts	128 SF
B) Projection - measured from building facade (max)	
	12"
C) Raceway (max % of letter height)	
	--

Number of Signs

Maximum of one wall sign per individual establishment per public street frontage. A second wall sign is allowed on a side or rear wall if an individual establishment has a second public entrance (not including a service entrance) on a side or rear wall.

10.3.11. Awning Sign



Description

A sign where graphics or symbols are painted, sewn, or otherwise adhered to the awning material as an integrated part of the awning itself.

General Provisions

1. An awning sign cannot extend outside the awning.
2. Only awnings over ground story doors or windows may contain signs.
3. An awning sign may only be externally illuminated in accordance with [Sec. 10.3.24](#).

Total Sign Area Allocation

1 SF of sign area per linear foot of store frontage or 32 SF if the store frontage is less than 32 feet wide. This allocation includes area allocated for canopy signs, projecting signs and wall signs.

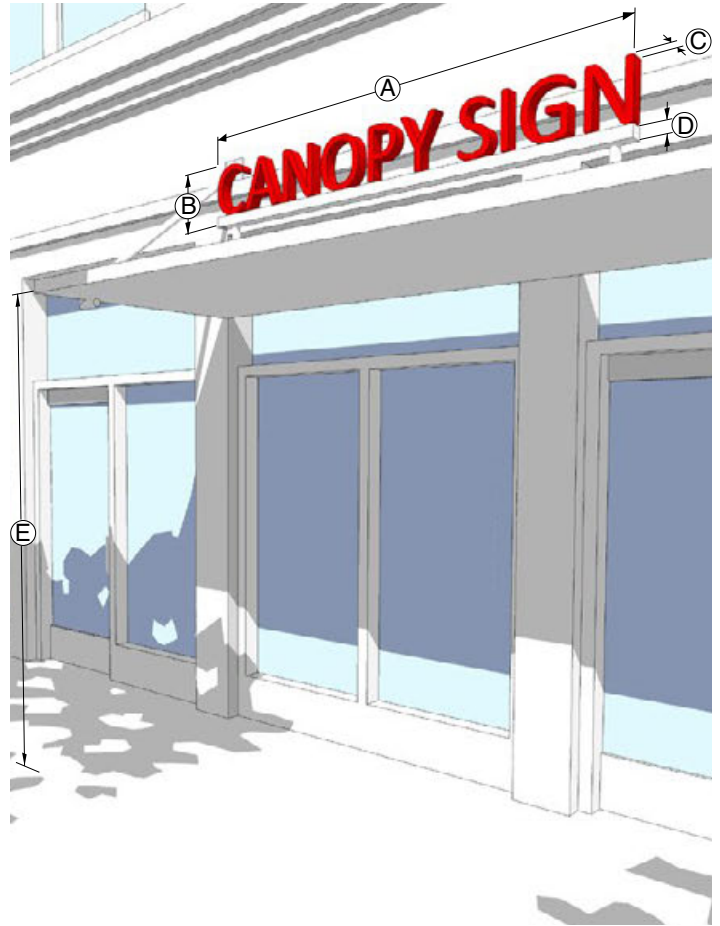
Dimensions

(A) Width (max % of awning width/depth)	75%
(B) Height of text and graphics on valance (max)	2'
(C) Area (max) - DS- only	9 SF

Number of Signs

A maximum of one awning sign is allowed per awning. A sign can be on either the front or side valance. Signs are not allowed on the sloping face of the awning.

10.3.12. Canopy Sign



Description

A sign placed on a canopy so that the display surface is parallel to the plane of the front building facade.

General Provisions

1. A canopy sign cannot extend outside the overall length or width of the canopy. However, a canopy sign may extend above or below the canopy.
2. Raceways are permitted for signs extending below or above the canopy. Otherwise, raceways are not permitted and the sign must be flush with the canopy face.
3. A canopy sign can be externally or internally illuminated in accordance with [Sec. 10.3.24.](#)

Total Sign Area Allocation

1 SF of sign area per linear foot of store frontage or 32 SF if the store frontage is less than 32 feet wide. This allocation includes area allocated for awning signs, projecting signs and wall signs.

Dimensions

(A) Width (max % of canopy width)	75%
(B) Height of text and graphics (max)	2'
(C) Depth (max)	1'
(D) Raceway (max % of letter height)	--
(E) Clear height above sidewalk if sign extends below canopy (min)	10'

Number of Signs

A maximum of one sign is allowed per canopy.

10.3.13. Projecting Sign



Description

A sign applied to or mounted to the wall or surface of a building or structure, the display surface of that projects 12 inches or more from the outside wall of the building or structure.

General Provisions

1. A projecting sign may be erected on a building corner when the building corner adjoins the intersection of two streets. Allocation of sign area from both streets may be used, however, in no case can the sign exceed the maximum height and width standards.
2. The top of a projecting sign can be no higher than the top of the building. However, on one-story buildings, the top of a projecting sign may have a maximum of 20% of the sign height above the top of the building.
3. Buildings 4 stories and higher, a projecting sign must be located below the window sills of the 4th story.
4. A projecting sign can be externally or internally illuminated in accordance with [Sec. 10.3.24.](#)

Total Sign Area Allocation

1 SF of sign area per linear foot of store frontage or 32 SF if the store frontage is less than 32 feet wide. This allocation includes area allocated for awning signs, canopy signs and wall signs.

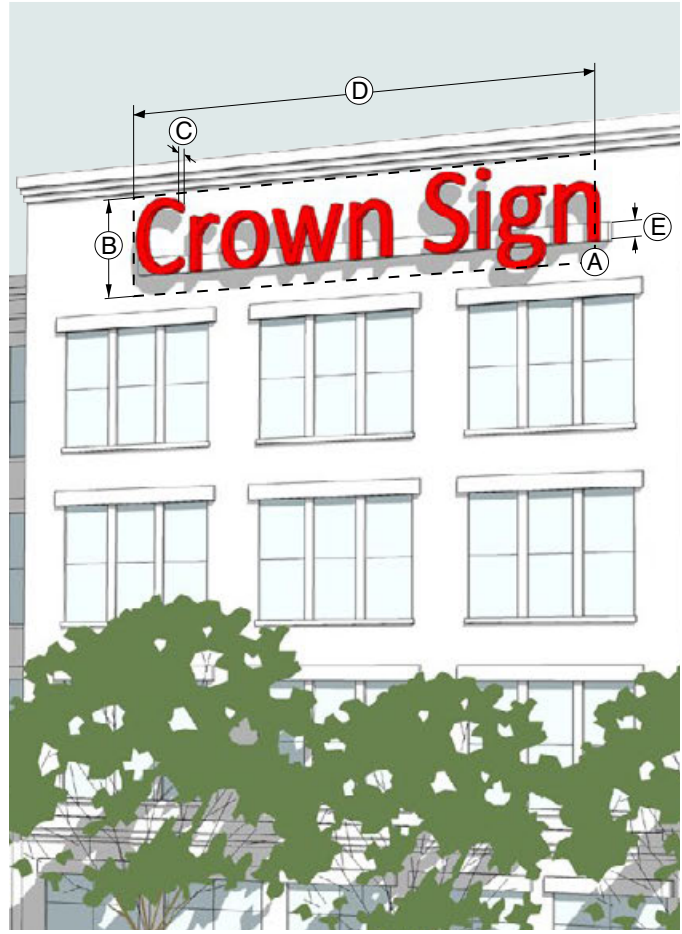
Dimensions

(A) Height (max)	
Mounted below 2nd floor	4'
Mounted between 2nd and 3rd floor	8'
Mounted above 3rd floor	12'
(B) Spacing from building facade (min/ max)	1 1/2'
(C) Projection width (max)	6'
(D) Depth (max)	1'
(E) Clear height above sidewalk (min)	10'

Number of Signs

1. Maximum of one projecting sign or shingle sign per individual establishment per public street frontage.
2. A projecting sign must be located at least 25 feet from any other projecting sign or shingle sign.

10.3.14. Crown Sign



Description

A wall sign extending not more than 3 feet from the building facade located on the upper horizontal band of a building at least 55 feet and 4 stories in height.

General Provisions

1. A crown sign is only allowed on buildings at least 55 feet or 4 stories in height.
2. A crown sign cannot be placed below the start of the highest floor and cannot extend above the roof line.
3. A crown sign cannot cover windows or architectural details.
4. A crown sign can only be internally illuminated in accordance with [Sec. 10.3.24.](#)

Dimensions

(A) Sign area (max per sign)	250 SF
(B) Height (max)	8'
(C) Projection - measured from building facade (max)	3'
(D) Width (max % of facade width)	75%
(E) Raceway (max % of letter height)	--

Number of Signs

1. No more than one crown sign per building facade and no more than 2 crown signs per building are allowed.
2. No more than one tenant can be identified on the sign.

10.3.15. Shingle Sign



Description

A small projecting sign that hangs from a bracket or support and is located over or near a building entrance.

General Provisions

1. A shingle sign must be located within 5 feet of an accessible building entrance.
2. The hanging bracket must be an integral part of the sign design.
3. A shingle sign must be located below the window sills of the second story on a multi-story building or below the roof line on a single-story building.
4. A shingle sign cannot be illuminated.

Dimensions

(A) Sign area (max per sign)	9 SF
(B) Height (max)	3'
(C) Spacing from building facade (min/max)	6"/12"
(D) Projection width (max)	3'
(E) Depth (max)	6"
(F) Clear height above sidewalk (min)	10'

Number of Signs

1. Maximum of one shingle sign or projecting sign per individual establishment per street frontage.
2. No tenant can have more than one shingle sign per street frontage.

10.3.16. Ground Sign



Description

A permanently affixed sign which is wholly independent of a building for support attached along its entire width to a continuous pedestal.

General Provisions

1. Ground signs located within 100 feet of a public right-of-way must display the street address of the property. Where multiple addresses exist, the highest and lowest street address numbers must be identified. This provision does not apply to any ground sign where the sign is located on property which has more than one street frontage and the property address is assigned from a street other than the street frontage where the ground sign is erected. Numbers must be a minimum of 8 inches in height and be visible from both directions of travel.
2. A ground sign must be set back at least 10 feet from the front lot line and 15 feet from a side lot line.
3. A ground sign can be externally or internally illuminated in accordance with [Sec. 10.3.24.](#)

Dimensions

(A) Sign area (max per sign)	
-HOD, -PV	48 SF
All other districts - by number of tenants	
1 tenant	50 SF
2 to 3 tenants	64 SF
4 to 5 tenants	72 SF
6 or more tenants	96 SF
(B) Height (max)	
-HOD, -PV	8'
All other districts	12'
(C) Sign base height (min/max)	2'/5'

Number of Signs

1. Only one ground sign or double post sign is allowed per street frontage, except that one additional sign is allowed for properties with 1,000 feet or more of street frontage, provided all signs are conforming.
2. Where more than one ground sign or double post sign is allowed, signs along the same street frontage must be spaced a minimum of 500 feet apart.

10.3.17. Subdivision Entrance Sign



Description

A permanently affixed sign which is wholly independent of a building for support attached along its entire width to a continuous pedestal that is used to identify entry to a development.

General Provisions

1. A subdivision entrance sign must be set back at least 10 feet from the front property line and 15 feet from a side property line.
2. A subdivision entrance sign can be externally or internally illuminated in accordance with [Sec. 10.3.24](#).
3. A subdivision entrance sign must not conflict with the required sight triangle (see [Sec. 11.4.6](#)).

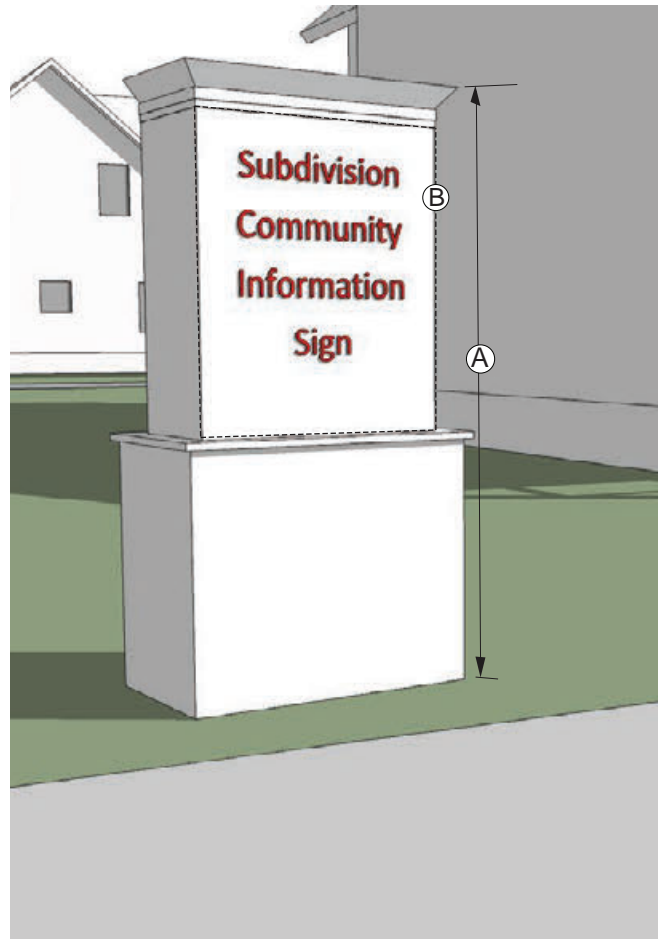
Dimensions

Ⓐ Sign area (max per sign)	32 SF
Ⓑ Height (max)	8'

Number of Signs

Two subdivision entrance signs are allowed per street frontage, one on each side of the entrance to the subdivision.

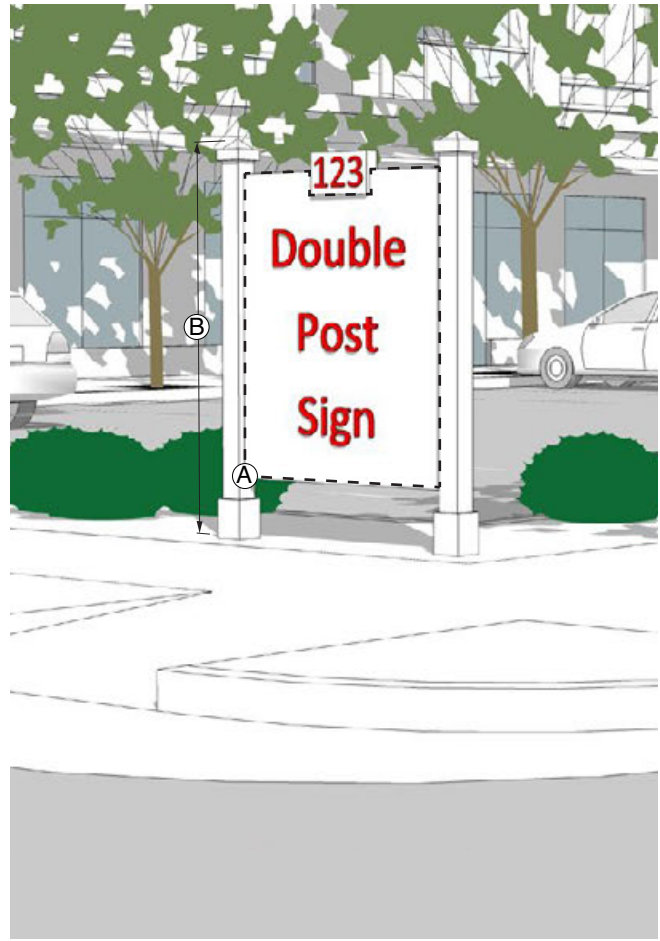
10.3.18. Subdivision Community Information Sign



Description	
A permanent ground sign used to provide a non-commercial message for the residential community in which the sign is located.	
General Provisions	
<ol style="list-style-type: none"> 1. A subdivision community information sign must be for the subdivision only and cannot be used in any manner for advertisement. 2. A subdivision community information sign can be externally or internally illuminated in accordance with Sec. 10.3.24. 	

Dimensions	
(A) Sign area (max per sign)	24 SF
(B) Height (max)	7'
Setback from exterior of subdivision	50'
Number of Signs	
One sign is allowed per main subdivision entrance.	

10.3.19. Double Post Sign



Description

A permanently affixed sign which is wholly independent of a building for support where the primary support is supplied by two posts positioned no more than 2 inches from the outer edge of the sign face.

General Provisions

1. Double post signs located within 100 feet of a public right-of-way must display the street address of the property. Where multiple addresses exist, the highest and lowest street address numbers must be identified. This provision does not apply to any ground sign where the sign is located on property which has more than one street frontage and the property address is assigned from a street other than the street frontage where the ground sign is erected. Numbers must be a minimum of 8 inches in height and be visible from both directions of travel.
2. A double post sign must be set back at least 10 feet from the front lot line and 15 feet from a side lot line.
3. A double post sign can only be externally illuminated in accordance with [Sec. 10.3.24.](#)

Dimensions

(A) Sign area (max per sign)

DH-	36 SF
All other districts	48 SF

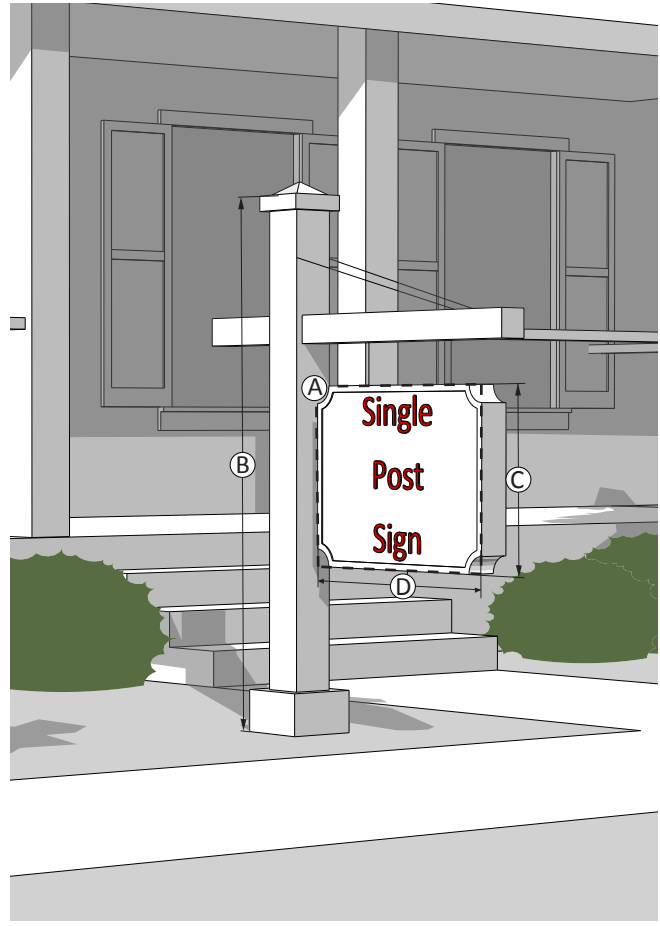
(B) Height (max)

DH-	6'
All other districts	8'

Number of Signs

1. Only one ground sign or double post sign is allowed per street frontage, except that one additional sign is allowed for properties with 1,000 feet or more of street frontage, provided all signs are conforming.
2. Where more than one ground sign or double post sign is allowed, signs along the same street frontage must be spaced a minimum of 500 feet apart.

10.3.20. Single Post Sign



Description

A permanently affixed sign which is wholly independent of a building for support where the primary support is supplied by a post and where the sign hangs from a bracket or support.

General Provisions

1. A single post sign must be set back at least 5 feet from the front lot line and 5 feet from a side lot line.
2. The hanging bracket must be an integral part of the sign design.
3. A single post sign can only be externally illuminated in accordance with [Sec. 10.3.24.](#)

Dimensions

(A) Sign area (max per sign)	9 SF
Structure height (max)	
(B) -HOD, PV-	9'
All other districts	12'
(C) Sign height (max)	5'
(D) Sign width (max)	3'

Number of Signs

1. Only one single post sign is allowed per building.
2. A single post sign must be located at least 25 feet from any other single post sign.

10.3.21. Sidewalk Sign



Description	
A movable sign not secured or attached to the ground or surface upon which it is located.	
General Provisions	
<ol style="list-style-type: none"> 1. Sidewalk signs must be removed and placed indoors at the close of business each day. 2. Sidewalk signs cannot obstruct vehicular, bicycle or pedestrian traffic and must comply with ADA clearance and accessibility. 3. A sidewalk sign cannot be illuminated. 	

Dimensions	
(A) Sign area (max per sign)	9 SF
(B) Sign height (max)	5'
(C) Sign width (max)	3'
Number of Signs	
<ol style="list-style-type: none"> 1. Each ground floor tenant can have one sidewalk sign located adjacent to the primary facade with the principal customer entrance, or up to 8 feet from that facade. 2. A sidewalk sign must be located at least 25 feet from any other sidewalk sign, unless the building frontage is less. Sidewalk signs must be located as far apart as possible and cannot obstruct pedestrian traffic. 	

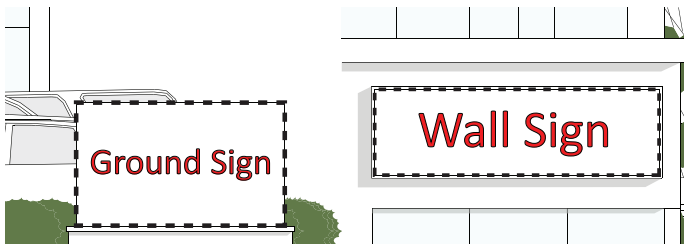
10.3.22. Sign Measurements

A. **Computation of Sign Area.** The area of all signs is determined as follows:

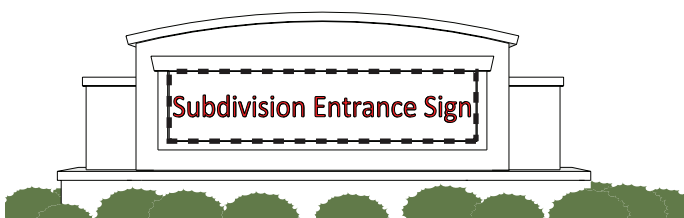
1. For wall signs, awning signs, canopy signs and crown signs consisting of freestanding letters or logos, sign area is calculated as the total area of the rectangle, circle or square that fully encloses all the letters or logo.



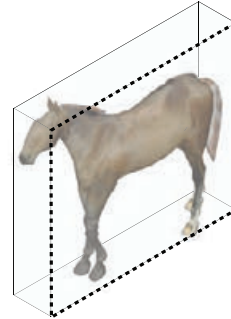
2. For signs on a background, the entire area of the background is calculated as sign area, including any material or color forming the sign face and the background used to differentiate the sign from the structure on which it is mounted. For ground signs, projecting signs, shingle signs, double post signs, single post signs and sidewalk signs, sign area includes the face of the structure that the message is affixed to, not including any supports, bracing or street number.



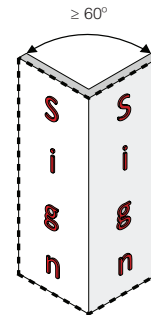
3. For subdivision entrance signs, sign area does not include the wall the sign is located on. Sign area only includes the background designed to hold the sign or in the case of freestanding letters, the total area of the rectangle, circle or square that fully encloses all the letters or logo.



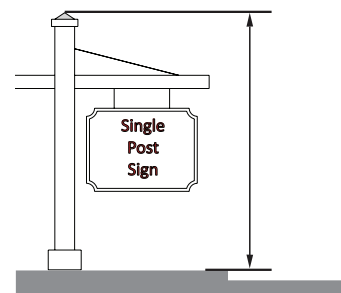
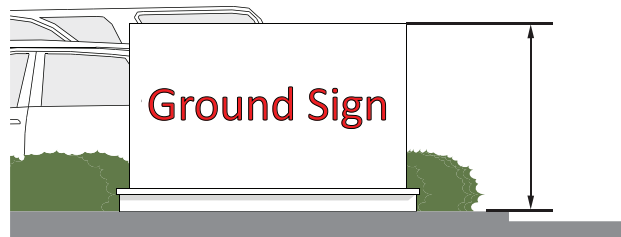
4. The sign area of a three-dimensional sign is calculated as total area of the smallest rectangle, circle or square that fully encloses the largest profile of the three-dimensional sign.



5. The area for a sign with more than one face is computed by adding together the area of all sign faces greater than 60 degrees; if the sign face angle is less than 60 degrees, only the area of the largest sign face is computed as part of the sign area.



- B. **Measurement of Sign Height.** The total height of a ground or post sign is measured from the highest point of the sign or supporting structure to the top of the abutting sidewalk.



10.3.23. Sign Maintenance

- A. All signs must be maintained in good condition and present a neat and orderly appearance. The Zoning Director may cause to be removed after due notice any sign which shows gross neglect, becomes dilapidated, or if the ground area around it is not well maintained.
- B. The Zoning Director will give the owner 10 days written notice to correct the deficiencies or to remove the sign or signs. If the owner refuses to correct the deficiencies or remove the sign, the Zoning Director will have the sign removed at the expense of the owner.

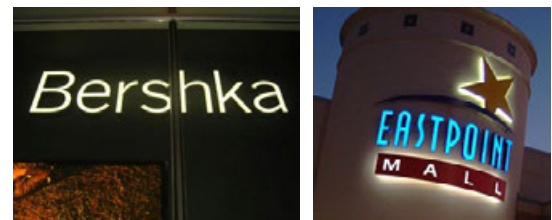


External light sources

10.3.24. Sign Illumination

Illumination of signs must be in accordance with the following requirements.

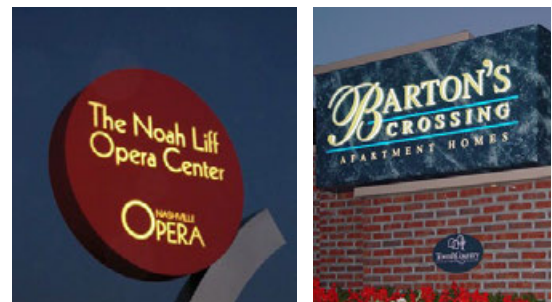
- A. **Prohibited Light Sources.** The following light sources are not allowed:
 1. Blinking, flashing and chasing;
 2. Bare bulb illumination.
 3. Colored lights used in any manner so as to be confused with or construed as traffic control devices.
 4. Direct reflected light that create a hazard to operators of motor vehicles.
- B. **Brightness.** The light from any illuminated sign cannot be of an intensity or brightness that will interfere with the peace, comfort, convenience, and general welfare of residents or occupants of adjacent properties.
- C. **Internal Illumination**
 1. Internally illuminated signs are not allowed in the -HOD district.
 2. Channel letters may be internally lit or back-lit.
 3. For internally illuminated signs on a background, the background must be a contrasting color.
 4. Neon window signs stating "Open" are allowed as specified in Sec. 10.3.7.E.2.



Internally lit channel letters



Back lit channel letters



Internally lit cabinet signs with darker background

5. The number of neon strokes used in internally illuminated channel letters is based on the width of the letters as follows:
 - a. 0" to 4" - no more than a single stroke;
 - b. >4" to 8" - no more than a double stroke; and
 - c. >8" - no more than a triple stroke.
6. Light emitting diodes (LED)'s are allowed as a light source in a manner that the LED is behind acrylic, aluminum or similar sign face and returns in such a manner that the LED modules are not visible from the exterior of the sign.

D. External Illumination

1. Lighting directed toward a sign must be shielded so that it illuminates only the face of the sign and does not shine directly onto public right-of-way or adjacent properties.
2. Projecting light fixtures used for externally illuminated signs must be simple and unobtrusive in appearance, and not obscure the sign.

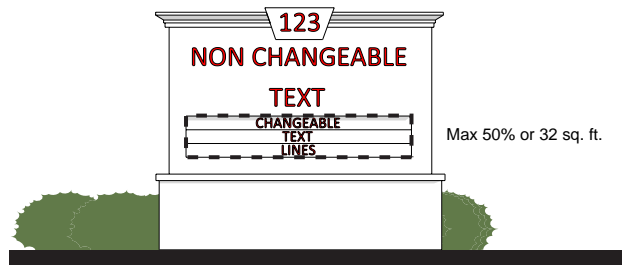
E. Raceways and Transformers

1. If a raceway is necessary, it cannot extend in width or height beyond the area of the sign.
2. A raceway must be finished to match the background wall or canopy, or integrated into the overall design of the sign.
3. Visible transformers are not allowed.

letters, or illustrations that can be changed or rearranged without altering the face or the surface of the sign.

B. Signs Allowed

1. Manual changeable copy is allowed in conjunction with a permitted ground sign. No electronic changeable copy is allowed.
2. The changeable copy portion of the ground sign can be no greater than 50% of the total sign area, however, in no case can the changeable copy portion of the ground sign exceed 32 square feet in area.



3. Ground signs permitted with the use of a convenience store with fuel pumps are allowed to have changeable copy as provided for by the laws and regulations of the State of Georgia.

10.3.25. Changeable Copy Signs

Changeable copy signs must be in accordance with the following requirements.

- A. **Manual changeable copy sign.** A sign or portion of a sign that has a readerboard for the display of text information in which each alphanumeric character, graphic or symbol is defined by objects, not consisting of an illumination device and may be changed or rearranged manually or mechanically with characters,

Sec. 10.4. Outdoor Site Lighting

10.4.1. Purpose and Intent

The purpose and intent of this Section is to provide a regulatory strategy for outdoor lighting that will permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce; curtail and reverse the degradation of the nighttime visual environment and the night sky; preserve the dark night sky for astronomy; minimize glare, obtrusive light and artificial sky glow by limiting outdoor lighting that is misdirected, excessive or unnecessary; conserve energy and resources to the greatest extent possible; and help to protect the natural environment from the damaging effects of night lighting from man-made sources.

10.4.2. Conformance With Applicable Codes

All outdoor illuminating devices must be installed in conformance with the provisions of this UDC, the Building Code and the Electrical Code as applicable and under appropriate permit and inspection.

10.4.3. Applicability

For all land uses, developments and buildings that require a permit, all outdoor lighting fixtures shall meet the requirements of this UDC. All building additions of 50% or more in terms of additional dwelling units, gross floor area, or parking spaces, either with a single addition or with cumulative additions subsequent to the effective date of this Section, will invoke the requirements of this Section for the entire property, including previously installed and any new outdoor lighting. Cumulative modification or replacement of outdoor lighting constituting 60% or more of the permitted lumens for the parcel, no matter the actual amount of lighting already on a nonconforming site, will constitute a major addition for purposes of this Section.

A. **Minor Additions.** Additions of less than 50% of additional dwelling units, gross floor area, or parking spaces that require a permit, and that include changes to existing lighting require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting on the site must meet the requirements of this Section with regard to shielding and lamp type.

- B. **Exempt Lighting.** The following luminaires and lighting systems are exempt from these requirements:
1. Lighting for pools used at night;
 2. Underwater lighting used for the illumination of swimming pools and fountains;
 3. Temporary holiday lighting;
 4. Lighting required and regulated by the Federal Aviation Administration, or other federal, state or local agency;
 5. Emergency lighting used by police, fire, or medical personnel, or at their direction;
 6. All outdoor light fixtures producing light directly from the combustion of fossil fuels, such as kerosene and gasoline; and
 7. Security lighting controlled and activated by a motion sensor device for a duration of 10 minutes or less.
- C. **Prohibited Lighting.** The following lighting systems are prohibited:
1. Aerial lasers;
 2. Searchlight style lights;
 3. Other very intense lighting, defined as having a light source exceeding 200,000 lumens or intensity in any direction of 2 million candelas or more;
 4. Mercury vapor lamps;
 5. Neon lighting, excluding neon lighting used for accent lighting or backlighting of signs so long as the neon source is not visible.

10.4.4. Outdoor Lighting Standards

All nonexempt outdoor lighting fixtures shall meet the following criteria:

- A. Fixtures must be full cutoff placed so as to allow no light above the horizontal as measured at the luminaire, except as noted in this Section (as in the case of period fixtures, cutoff fixtures may be used).

- B. Shall be located, aimed or shielded so as to minimize glare and stray light trespassing across property boundaries and into the public right of way in accordance with the following standards:

At Property Lines, Including Rights-of-Way	Maximum Foot-Candles
At property line abutting a residential or an agricultural use	1.0
At property line abutting an office or institutional use	1.5
At property line abutting a commercial or industrial use	1.5

Off-Street Parking Lots	Minimum Foot-Candles	Average Foot-Candles	Maximum Foot-Candles
Residential areas	0.5	2.0	4.0
Office-professional areas	1.0	3.0	6.0
Commercial areas	2.0	6.0	12.0
Light industrial areas	1.0	4.0	8.0

- C. Flood or spot lamps must be positioned no higher than 45 degrees above straight down (half-way between the vertical and the horizontal) when the source is visible from any off-site residential property or public roadway.
- D. All light fixtures that are required to be shielded shall be installed and maintained in such a manner that the shielding is effective as described herein for fully shielded fixtures.
- E. Multi use development lighting must conform to the standards of its respective use.
- F. Illumination levels are measured from any height and orientation of the measuring device at any location along the property line, except the lighting of parking lots shall be measured at grade with the meter sensor held horizontally on the surface.

10.4.5. Special Uses

All lighting not directly associated with the special use areas designated below must conform to the lighting standards described in this Section.

- A. **Outdoor Sports, Recreation Fields, or Performance Areas.** Lighting of outdoor recreational facilities (public or private), such as, but not limited to, outdoor athletic fields, courts, tracks, special event or show areas shall meet the following requirements:

1. **Luminaires.** Facilities designed for municipal leagues, elementary to high school levels of play and training fields for recreational or social levels of play, college play, semi-professional, professional or national levels of play shall utilize luminaires with minimal upright consistent with the illumination constraints of the design. Where fully shielded fixtures are not used, acceptable luminaires shall include those which:
 - a. Are provided with internal or external glare control louvers or lenses, and are installed so as to minimize upright and offsite light trespass and glare; and
 - b. Are installed and maintained so as to avoid aiming more than 2.5 times the mounting height.
2. **Illuminance.** All lighting installations shall be designed to achieve the illuminance levels for the activity as recommended by the Illuminating Engineering Society of North America (IESNA RP-6).
3. **Off-Site Spill.** The installation must also limit off-site spill (off the parcel containing the sports facility) to the maximum extent possible consistent with the illumination constraints of the design. For all recreational or social levels of play and training fields, as well as, performance areas, illumination levels must not exceed 1.5 foot-candles at any location along any non-residential property line, and 0.5 foot-candles at any location along any residential property line.
4. **Curfew.** All events shall be scheduled so as to complete all activity no later than 10:30 p.m. Illumination of the playing field, court or track shall be permitted after the curfew only to conclude a scheduled event that was unable to conclude before the curfew due to unusual circumstances. Field lighting for these facilities shall be turned off within 30 minutes after the last event of the night.

5. **Setback.** All light poles shall be set back the greater of 50 feet or one foot for every foot in height from any residential property line or right-of-way.

B. Service Station Canopies and Parking Structures

1. All luminaires mounted on or recessed into the lower surface of service station canopies and parking structures must be fully shielded and use flat lenses.
2. The total light output of luminaires mounted on the lower surface, or recessed into the lower surface of the canopy, and any lighting within signage or illuminated panels over the pumps, must not exceed 50 foot-candles.
3. The total light output of illuminated areas of a service station other than as detailed in paragraph 2. above shall not exceed 15 foot-candles.
4. Illuminance levels for the interior of parking structures, where interior lighting is visible from outside the structure, must conform to the IESNA recommendation (RP-20).
5. Lights must not be mounted on the top or sides of a canopy and the sides of a canopy must not be illuminated.

C. Security Lighting

1. Security lighting is lighting that provides a level of illumination to clearly identify persons or objects and creates a psychological deterrent to unwanted or unsafe activity in the area being protected.
2. Security lighting must be directed toward the targeted area.
3. Sensor activated lighting must be located in such a manner as to prevent direct glare and lighting into properties of others or into a public right-of-way, and the light must not be triggered by activity off the property.

- D. Pedestrian Path Lighting.** Lighting posts must not exceed 16 feet from the finished grade.

E. Architectural Accent Lighting

1. Fixtures used to accent architectural features, materials, colors, style of buildings, landscaping, or art must be located, aimed and shielded so that light is directed only on those features. Such fixtures must be aimed or shielded to minimize light spill into the dark night sky in conformance with the luminaire standards.
2. Lighting fixtures must not generate glare, or direct light beyond the facade onto a neighboring property, streets or into the night sky.

F. Temporary Lighting Permits

1. Permits for temporary lighting will be granted by the Zoning Director where the total output from the luminaires does not exceed 50 foot-candles and the following conditions apply:
 - a. The purpose for which the lighting is proposed can be completed within 30 days, except that the permit for a major construction project may extend to completion.
 - b. The proposed lighting is designed in such a manner as to minimize light trespass and glare.
2. The application for the Temporary Lighting Permit must include, but not be limited to, the following information:
 - a. Name and address of applicant and property owner;
 - b. Location of proposed luminaires;
 - c. Date and times for the lighting;
 - d. Type, wattage and lumen output of lamps;
 - e. Type and shielding of proposed luminaires;
 - f. Intended use of the lighting;
 - g. Duration of time for requested exemption;
 - h. The nature of the exemption; and
 - i. The means to minimize light trespass and glare.

G. Commercial Parking Areas

1. All lighting fixtures servicing parking lots, except floodlights, must be cutoff fixtures, directed downward and not toward buildings or other areas.
2. The minimum illumination level for a parking lot is 0.4 foot-candles at grade level and the ratio of the average illumination to the minimum illumination must not exceed 4:1.
3. Floodlights must be aimed or shielded to minimize uplight.
4. Light poles used in parking lots must not exceed 35 feet in height.

H. Street Lights. All street light fixtures installed as new, repaired (outside of normal maintenance) or replaced must be cutoff fixtures.

10.4.6. Variances

A. Any person may submit an application to the Board of Zoning Appeals for a variance from the provisions of this Section. The application should include, but not be limited to, evidence about the following:

1. How the proposed design and appearance of the luminaire are superior;
2. How light trespass and glare will be limited;
3. How the proposed solution will provide a benefit without negative impact on the health, safety, or welfare of the community.

B. The application may include the recommended practices of the Illuminating Engineering Society of North America, a professional engineer, or other authority on outdoor lighting.

10.4.7. Plans and Evidence of Compliance

A. The applicant for any permit required by any provision of the laws of the City of Roswell in connection with proposed work involving outdoor lighting fixtures must submit, as part of the application for permit, evidence that the proposed work will comply with this Section. Even should no other permit be required, the installation or modification, except for routine servicing and same-type lamp replacement of any exterior lighting, will

require submission of the information described below. The submission must contain but is not necessarily limited to the following, all or part of which may be part or in addition to the information required elsewhere in the laws of the City of Roswell upon application for the required permit:

1. Plans indicating the location on the premises of each illuminating device, both proposed and any already existing on the site.
2. Description of all illuminating devices, fixtures, lamps, supports, reflectors, both proposed and existing. The description may include, but is not limited to catalog cuts and illustrations by manufacturers.
3. Photometric data, such as that furnished by manufacturers or similar, showing the angle of cut off of light emissions.

B. Additional Submission. The above required plans, descriptions and data must be sufficiently complete to enable the Department to readily determine whether compliance with the requirements of this Section will be secured. If such plans, descriptions and data cannot enable this ready determination, the applicant must submit additional evidence of compliance to enable such determination, such as certified reports of tests, provided that the tests have been performed and certified by a recognized testing laboratory.

C. Subdivision Plats. All new subdivided properties must submit information as described above for installed street lights and other common or public area outdoor lighting.

D. Certification. For all projects, certification that the lighting as installed conforms to the approved plans shall be provided by an illumination engineer/professional before the Certificate of Occupancy is issued. Until this certification is submitted, approval for use by the issuance of the Certificate of Occupancy will not be issued.

E.

Sec. 10.5. Retaining Walls

10.5.1. New Construction and Redevelopment

New or replaced retaining walls for all non-single-family residential applications must meet the requirements of the UDC and the City Standard Construction Specifications.

10.5.2. General Standards

- A. Retaining walls must be constructed of high quality materials; material approval shall be subject to approval by the Design Review Board or Historic Preservation Commission, as applicable.
- B. When finished grades are proposed to be steeper than 2:1 (one vertical foot of rise for every two feet of horizontal displacement) an appropriate retaining structure shall be designed to reinforce or retain the resulting embankment.
- C. All retaining walls equal to or greater than 8 feet shall be designed by a qualified registered professional engineer. All proposed retaining walls equal to or greater than 6 feet in height will be subject to review and approval by the Mayor and City Council. Retaining walls that are not in substantial accordance with a previously approved site plan, as defined in Article 13, will be also subject to review and approval by the Mayor and City Council.
- D. Stepped retaining walls shall have the upper wall setback a minimum distance of 1.5 times the height of the tallest wall or as approved by the City Engineer, with review by the Community Development and Transportation Committee.
- E. All structural components of the wall shall meet the minimum building codes for the proposed use.
- F. Wall design will consider foundation drainage and select backfill material for the proposed conditions.
- G. Walls shall be located in such a fashion as to not encroach upon existing or proposed drainage easements, drainage courses or floodplains or to encumber the natural flow of surface runoff of stormwater. Walls shall be located at a distance from such watercourses to allow for anticipated future maintenance of the easement.
- H. Retaining walls that are proposed for the purpose of stormwater detention/retention must be designed to demonstrate that the walls are capable of a hydrostatic load.
- I. Where stormwater detention/retention walls are exposed equal to or greater than 6 feet they are required to be faced with stone, brick or decorative concrete modular block, as approved, modified, or denied by the Design Review Board and/or the Historic Preservation Commission, as applicable.
- J. The maximum length of continuous, unbroken and uninterrupted retaining wall equal to or greater than 6 feet in height is 100 feet. For walls greater than 100 feet in length, breaks must be provided through the use of columns or change in material.
- K. Retaining walls equal to or greater than 6 feet in height shall be screened with landscaping, as approved by the Design Review Board or Historic Preservation

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Sec. 11.1. General Provisions

11.1.1. Applicability

The Article applies to any Minor Plat, Preliminary Plat, Final Plat, Design Plan, Certificate of Appropriateness and Land Disturbance Permit (see Article 13).

11.1.2. Conformance to Adopted Plans

- A. All streets and other features of the adopted Transportation Master Plan must be platted by the applicant in the location and to the dimension indicated on the Transportation Master Plan adopted by the City Council. In development related to or affecting any State or Federally numbered highway, prior approval from Georgia Department of Transportation may be required.
- B. When features of other plans adopted by the City (such as schools or other public building sites, parks or other land for public uses) are located in whole or in part in a development, such features must either be dedicated or reserved by the applicant for acquisition by the appropriate public agency within a 6-month period from the date of preliminary plat submittal.
- C. All proposed development must conform to the Comprehensive Plan and development policies in effect at the time of submission.

11.1.3. Phasing

- A. Public improvements may be constructed in phases, provided a phasing plan is approved as part of the Land Disturbance Permit.
- B. Each phase must stand alone, meeting all the requirements of this UDC without the need for improvements in later phases.

Sec. 11.2. Subdivision

11.2.1. Division of Land

- A. No real property within the City may be divided and offered for sale until approved in accordance with Sec. 13.5.

- B. The description by metes and bounds in the instrument of transfer or other document used in the process of selling or transfer does not exempt the transaction from these requirements. The City, through its Attorney or other official designated City Council, may enjoin such transfer of, sale or agreement by appropriate action.
- C. Building permits will not be issued for structures located in a subdivision unless a Final Plat of the subdivision has been approved and recorded.

11.2.2. Suitability of Land

Land subject to flooding, improper drainage or erosion or that is for topographical or other reasons unsuitable for development, must not be platted for any use that will continue or increase the danger to health, safety or proper construction, unless hazards can be and are corrected.

11.2.3. Easements

- A. Platted easements and deed of easements must be provided in locations and dimensions required by the City in order to:
 - 1. Allow for adequate storm drainage facilities;
 - 2. Allow for proper installation of water and sewer lines, whether immediately proposed or necessary for adequate service in the future;
 - 3. Allow for cross-access between properties;
 - 4. Allow for adequate transit facilities and access;
 - 5. Allow for adequate pedestrian and bicycle access;
 - 6. Allow for adequate right-of way for street types;
 - 7. Allow for adequate public access; and
 - 8. Allow for adequate slope for roadway construction.
- B. Easement widths will be specified by the City as necessary to accommodate existing and future needs as well as construction and repair of facilities. For drainage easements, the widths should be sufficient to accommodate areas anticipated to be inundated by stormwater.

11.2.4. Naming of Subdivisions and Streets

- A. The name of each subdivision must have the approval of the Community Development Director. The name must not duplicate or closely approximate the name of any existing subdivision.
- B. Street names must conform to the City of Roswell Street Name Regulations.

11.2.5. Markings

All lot and block corners or changes in direction must be marked by either a metal or concrete monument approved by the Engineering Director.

11.2.6. Common Open Space

- A. **Applicability.** Any subdivision of 10 lots or more in the RS-9, RS-6, RS-4 and R-TH districts platted after the effective date of this UDC must provide Common Open Space as required in Article 3.
- B. **Design Standards.**
 - 1. **Access.** The required common open space must be directly accessible to the largest practicable number of lots within the subdivision. Common open space may be either public or private.
 - 2. **Permitted Uses of Common Open Space.** Uses of common open space may include the following:
 - a. Conservation areas for natural, archaeological or historical resources;
 - b. Meadows, woodlands, wetlands, wildlife corridors or similar conservation-oriented areas;
 - c. Pedestrian or multipurpose trails and passive recreation areas;
 - d. Agriculture, horticulture, silviculture or pasture uses, provided that all applicable best management practices are used to minimize environmental impacts; and
 - e. Easements for underground drainage, easements for access, and easements for underground utility lines.
- C. **Impervious Surface.** Impervious surface must be limited to no more than 15% of the common open space area.

D. Approval of Common Open Space

- 1. In the case of a development with phases, the amount of open space must be computed separately for each phase, but may be combined with existing open space in earlier phases.
- 2. The City reserves the right to refuse to accept public dedication of open space used to meet the requirements of this Section. The location of the proposed open space, its suitability for recreational and public use, and any adopted recreational or open space plans will be considered in determining whether to accept dedication.

11.2.7. Homeowners Association

In residential subdivisions, common areas, private streets and stormwater management facilities associated with the subdivision must be maintained by a homeowners association unless the facilities are dedicated to and accepted by the City. Documents of homeowners association incorporation must be submitted to the Community Development Department prior to the recording of a Final Plat.

11.2.8. Construction in Right-of-Way

- A. No person or company may perform construction work in the street right-of-way without a permit issued by the Transportation Director. The permit must be at the construction site at all times. Such construction must conform to the construction/maintenance guidelines and specifications of the City of Roswell and/or the Georgia Department of Transportation.
- B. No person or company may construct a driveway to any public road without a permit from the Transportation Director.
- C. It is unlawful for any person or organization (such as a homeowners association or building owner) to construct any permanent feature such as an irrigation system, sign or fence in the street right-of-way without a permit from the Transportation Director.

Sec. 11.3. Blocks and Access

11.3.1. Intent

- A. The intent of the block and access standards is to provide a well-connected street network. Large blocks with limited connectivity discourage walking, contribute to street congestion and add driving distance that can negatively impact emergency services. New streets should be designed to consider future development.
- B. The intent of the access standards is to provide safe and convenient vehicular and pedestrian access within developments and between adjacent developments and to lessen traffic congestion and increase connectivity. Pedestrian, bike and vehicular access should be safe, direct and convenient.

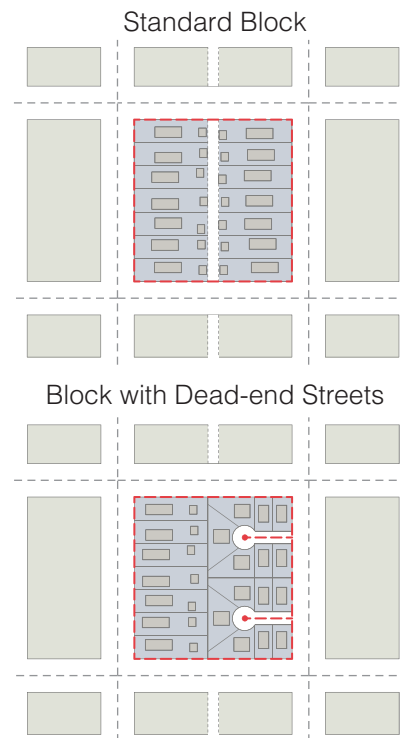
11.3.2. Blocks

- A. **Connectivity Map.** The Transportation Master Plan Connectivity Map must first be consulted when designing new development and must be complied with, as determined by the Transportation Director.
- B. **Block Perimeters.** Where the Transportation Director determines that adequate connections exist, the block standards below do not apply. However, where additional connections are required, the block standards will guide the location of any new connections required by the Transportation Director.

	Block Perimeter (max)
Residential Districts	
AG-43, RS-87, RS-30	n/a
RS-18, RS-12	5,000'
RS-9, RS-6	3,000'
RS-4, R-CC, R-TH	3,000'
RM-2, RM-3	3,000'
Corridor and Node Districts	
RX-, NX-, CX-, SH-	3,000'
CC-, CH-	3,000'
Downtown Historic Districts	
DR-, DH-	2,000'
DX-, -DS-	2,000'
Employment Districts	
OR-	3,000'
OP-, IX-, IL-	5,000'
Civic and Open Space Districts	
CIV, REC, CON	n/a

11.3.3. Block Measurement

- A. A block is bounded by a public or private right-of-way (not including an alley). All public or private rights-of-way proposed as part of a development must be improved with a street (except that in some cases a trail will be on a public or private right-of-way).
- B. Block perimeter is measured along the edge of the property adjoining the public or private right-of-way, except for the measurement of dead-end streets, which are measured from intersecting centerlines.



- C. The Transportation Director may modify the block perimeter requirements when steep slopes in excess of 25%, freeways, waterways, preexisting development, tree protection areas, stream buffers, cemeteries, open space or easements would make the provision of a complete block infeasible.
- D. Where the block pattern is interrupted by public parkland, including greenways, that is open and accessible to the public, pedestrian access points must be provided with a minimum spacing equal to half of the maximum block perimeter.

11.3.4. Gated Streets

Gated public streets are not allowed. Gates installed on private streets serving more than one lot must comply with the following:

- A. No gate may be installed within public right-of-way;
- B. Plan approval and permit must be obtained prior to installing any gates. Gates must not prohibit public access to any areas dedicated to public use;
- C. Each gate must provide for stacking under [Sec. 10.1.13](#) and emergency vehicle access as required by the City;
- D. Gate permits may be denied by the Transportation Director based on traffic conditions, interconnectivity needs and when not in compliance with the Connectivity Map; and
- E. Gates must be removed if private streets are to become public.

11.3.5. Lots

- A. **Lot Frontage.** Every lot must have frontage on a public or private street that meets the requirements of this Article, except for a cottage court.
- B. **Lot Dimensions.** Lots that are occupied or are intended to be occupied must conform with the lot size, lot width and lot depth requirements provided under Articles 2 through 8.

11.3.6. Subdivision Access

A. General

1. When land is subdivided, parcels must be arranged and designed so as to allow for the opening of future streets and must provide access to those areas not presently served by streets. No subdivision may be designed to completely eliminate street access to adjoining parcels of land without current street access.
2. All subdivisions must provide at least one entrance/exit to a public or private street, as determined by the Transportation Director.

3. The subdivision must provide all necessary easements for ingress and egress for police, fire, emergency vehicles and all operating utilities.

B. Stub Streets

1. Stub Required

- a. Where a development adjoins unsubdivided land, stub streets within the new subdivision must be installed to meet the block standards of [Sec. 11.3.2](#).
- b. The stub street right-of-way, pavement and curbing must extend to the boundary of the abutting property to the point where the connection to the anticipated street is expected.
- c. Where a stub street is provided, a barricade using a design approved by the Transportation Director must be constructed at the end of the stub street, pending the extension of the street into abutting property. A sign noting the future street extension must be posted at the applicant's expense.

2. **Connecting to an Existing Stub Street.** If a stub street exists on an abutting property, the street system of any new subdivision must connect to the stub street to form a through street.

3. **Exception.** The Transportation Director may eliminate the requirement for a stub street or require pedestrian only access when:

- a. Steep slopes in excess of 25%, freeways, waterways, tree conservation areas, stream buffers, cemeteries, open space or easements would make the provision of a stub street infeasible; or
- b. A high intensity nonresidential use is located adjacent to a proposed residential subdivision.

C. Mobility

1. When land is proposed for development or redevelopment requiring a land disturbance permit such proposal shall identify at a minimum 2 access connections to the current City of Roswell Transportation network.

2. The first access connection shall be as required under this Unified Development Code and/or subdivision development code for vehicular access to a public road.
3. In addition the development shall provide a second access connection based upon mobility standards.
4. The mobility standard requirement is measured by the number of trips generated by the development according the International Transportation Engineering (ITE) standards for land use. Single-family residential, townhome and multifamily units are all equated with Office and Commercial Space based upon ADT generated and mobility requirement shall be provided as follows:
 - a. First Mobility Priority: The development trip generation exceeds 750 ADT: There shall be a second access connection provided to be constructed as a public road with vehicle, bike and pedestrian elements with access connection to a road that is not the same as the first public right-of-way.
 - b. Second Mobility Priority: The development trip generation is between 360 to 750 ADT: The developer shall endeavor to meet first priority but if not a second access connection shall be required to connect with vehicle, bike and pedestrian elements to the same road as the first access but located as far from the first as is possible.
 - c. Third Mobility Priority: The development trip generation is between 225 to 360 ADT: The developer shall endeavor to meet first priority or second priority but if not shall provide a second access connection built to support a fire truck with full time pedestrian and bike access and may have either a vehicle gate or removable bollard as long as the fire department is provided an accessible lock.
 - d. Fourth Mobility Priority: The development trip generation is less than 225 ADT: The developer shall endeavor to meet first, second, or third priority but if not shall provide a second access connection built to support a fire truck that connects to a multi-use path for bike and pedestrian access.

11.3.7. Interparcel Access

All nonresidential and multi-family lots abutting another nonresidential or multi-family lot must comply with the following standards.

- A. Internal vehicular circulation areas must be designed and installed to allow for interparcel access between abutting lots.
- B. When an abutting lot is vacant or already developed, a stub for a future interparcel connection must be provided at the point where the connection to the abutting property is expected to occur in the future.
- C. If an interparcel access driveway stub exists on an abutting property, the internal vehicular circulation area must connect to the stub to form an interparcel connection.
- D. When interparcel access for vehicles is deemed impractical by the Transportation Director on the basis of topography, the presence of natural features, or vehicular safety factors, the requirement for interparcel access may be waived. Bicycle and pedestrian connections must be provided between abutting properties when interparcel access is waived.
- E. Property owners who establish interparcel access easements must:
 1. Allow pedestrian and vehicular access to all properties on the same block face as the property owner establishing the interparcel access. Pedestrian and vehicular access is contingent upon the granting of reciprocal vehicular and pedestrian access rights to the granting property;
 2. Record an easement allowing interparcel access to and from properties served by the interparcel access easement;
 3. Record a joint maintenance agreement requiring each property owner to maintain the vehicular and pedestrian access areas on their lot;
 4. Contain a provision prohibiting the erection of fences, walls and other obstructions that prevent the use of vehicular and pedestrian accessways;

5. Include a statement that the interparcel access agreement is conveyed with the land, is binding on all successors, heirs and assigns and that the easement rights are perpetual; and
6. The interparcel access agreement must be signed by all of owners of the granting property.

Sec. 11.4. Streets

11.4.1. Intent

- A. The intent of this Section is to provide a palette of street types and design elements that reflect the character of different areas within the City, as referenced in the Transportation Master Plan.
- B. The regulations provide adequate accommodations for vehicles, cyclists and pedestrians.
- C. The City supports the use of context sensitive design solutions and complete streets and will review projects on a case-by-case basis for conformance with these concepts.
- D. The street typical cross-sections displayed in this Section provide a guide to balancing the needs of all modes of travel. Modifications to these typical cross-sections may be made by the Transportation Director.
- E. The appropriate street typical cross-section will be selected by the Transportation Director based on both engineering and land use context factors, including anticipated vehicle volumes.

11.4.2. Applicability

- A. When a Preliminary Plat, Final Plat, Design Plan or Land Disturbance Permit proposes the construction of a new street, the requirements of this Section apply.
- B. When constructing a public or private street or reconstructing an existing street, sidewalks, bike lanes, curb and gutter and street trees must be installed and constructed in accordance with this Section and the Standard Construction Specifications.
- C. Existing streets may continue serving existing development in their current configuration; however, they must not be extended or substantially rebuilt except in conformance with this Section.

- D. All projects in overlay districts must conform to the approved overlay design guidelines for the respective area.

11.4.3. Street Right-of-Way Width

- A. Street right-of-way width for Major Streets must be dedicated as specified in the Transportation Master Plan or as otherwise required by the Transportation Director.
- B. Applicants must dedicate sufficient right-of-way to the City for streets and sidewalks. Typical street right-of-way widths are illustrated in this Section.
- C. A median may be added to the street cross-sections by increasing the right-of-way width. A median should be 20 feet in width in order to provide for landscaping and turn lanes. In no case will a median less than 6 feet in width be considered.
- D. The Transportation Director may require turn lanes, and additional right-of-way beyond that shown in the applicable street typical cross-section to accommodate these lanes.

11.4.4. Improvements Along State Highways

- A. For any development that abuts a State highway or other right-of-way controlled by the State of Georgia, improvements to the roadway and the location and design of any street or driveway providing access from the State highway must comply with the standards and requirements of the Georgia Department of Transportation.
- B. An approved permit for proposed access or improvements is required by Georgia Department of Transportation and must be incorporated into the construction drawings for the project prior to the issuance of a Land Disturbance Permit.

11.4.5. Street Dedication

The Engineer Director, with input from the Transportation Director, must review, inspect and accept for dedication streets and sidewalks constructed in relation to the development of private lands or uses.

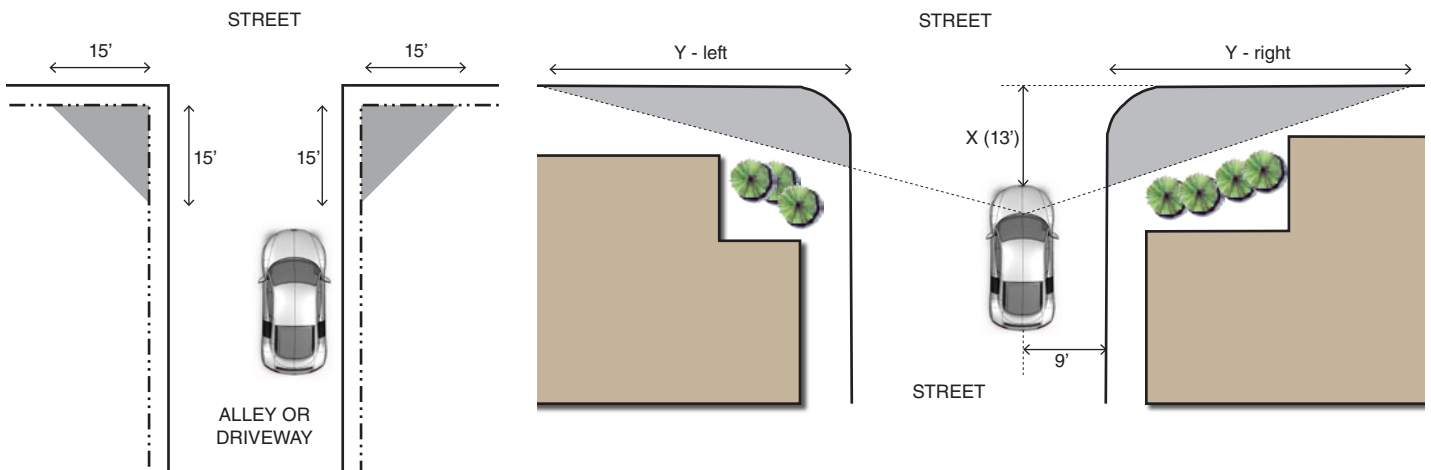
11.4.6. Visibility at Intersections

- A. **Sight Triangle Required.** Where a driveway intersects a public or private right-of-way or where property abuts the intersection of two public or private rights-of-way, unobstructed sight distance must be provided at all times within the sight triangle area on the property adjacent to the intersection in order to ensure that safe and adequate sight distance is provided.
- B. **Obstruction Prohibited.** No structures, fences, landscaping or any other object within the sight triangle area can obstruct or obscure sight distance visibility by more than 25% of the total view in the vertical plane above the sight triangle area between a height of 30 inches and 96 inches above the roadway surface.
- C. **Sight Triangle Area.** The sight triangle area is:

1. **Driveways.** The area formed at a corner intersection of public or private right-of-way and a driveway, whose two sides are 15 feet, measured along the right-of-way line of the street and the edge of the driveway, and whose third side is a line connecting the two sides;
2. **Alleys.** The area formed at a corner intersection of an alley public right-of-way and a street right-of-way whose two sides are fifteen feet, measured along the right-of-way line of the alley and the right-of-way line of the street, and whose third side is a line connecting the two sides; or

3. **Streets.** The area formed at a corner intersection of two public or private rights-of-way lines defined by a width of dimension X (13 feet) and a length of dimension Y. The Y dimension will vary depending on the speed limit of the intersecting street. The X distance is 13 feet measured perpendicular from the curb line of the intersecting street.

Speed limit/ Average running speed	Left turn (Y) Distance	Right turn (Y) Distance
25 mph	280 feet	240 feet
35 mph	390 feet	335 feet



The shaded area is required to be kept free of all structures, landscaping, fences, and other materials. The triangle is measured from the property line within alleys and the edge of pavement for driveways.

The shaded area is required to be kept free of all structures, fences, landscaping and other materials. The size of the sight triangle is based on the size of the road and speed limit, as shown in the table below. The triangle is measured from the curbline.

11.4.7. Street Tree Planting

- A. One shade tree must be planted every 40 feet on center, on average on all streets, as illustrated in this Section. Where overhead utilities exist, one understory tree planted every 20 feet on center, on average, must be substituted for the required shade tree.
- B. All required street trees must meet the design, installation and maintenance requirements of Sec. 10.2.11 and Sec. 10.2.12.

11.4.8. Private Streets

- A. All private streets must be constructed to equal or exceed the standards for public streets and must be certified by the Engineering Director.
- B. Private streets are not dedicated to the public and will not be publicly maintained.
- C. A Final Plat or Design Plan that contains private streets must clearly state that such streets are private streets.
- D. All private streets must be treated as public street rights-of-way for purposes of determining required development and dimensional standards.
- E. In residential subdivisions where private streets are proposed, the Transportation Director may require a public street for inter-parcel connection and cross-access may also be required.
- F. The Transportation Director will evaluate requests from homeowners association residents for converting a street from public to private or private to public and make a recommendation to approve or disapprove a request as outline by the Private to Public Streets Policy adopted May 12, 2014 as amended from time to time.

11.4.9. Street Types

Unless modified by the Transportation Director, all new or extended streets must meet the requirements of the following street types.

A. Local Streets

- 1. Residential Yield
- 2. Residential
- 3. Sensitive

- 4. Local Street in Historic Overlay District

- 5. Woonerf

B. Collector Streets

- 1. Collector, 2 Lanes
- 2. Collector, 2 Lanes, Parallel Parking

C. Minor Arterials

- 1. Minor Arterial, 3 Lanes, Parallel Parking
- 2. Minor Arterial, 4 Lanes, Parallel Parking

D. Principal Arterials

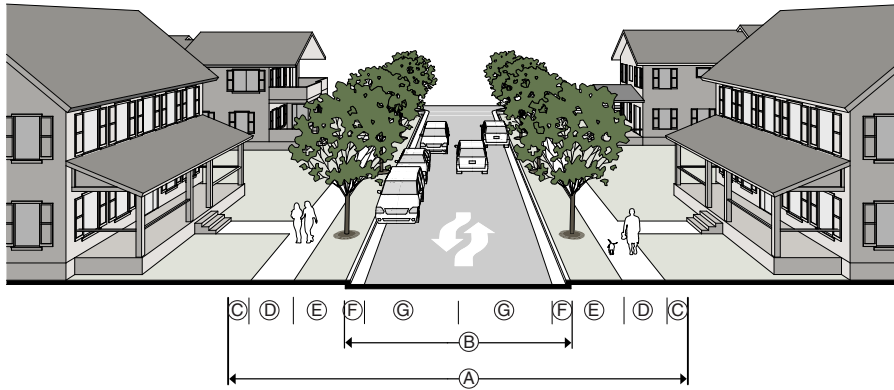
- 1. Principal Arterial, 5 Lanes
- 2. Principal Arterial, 6 Lanes
- 3. Multi-way Boulevard

E. Accessways

- 1. Alley, Residential
- 2. Alley, Mixed Use
- 3. Pedestrian Passage
- 4. Multi-Use Trail
- 5. Service Road

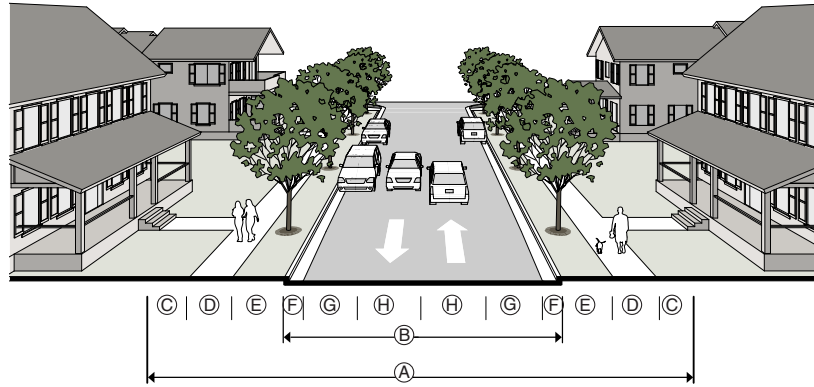
11.4.10. Local Street

A. Residential Yield



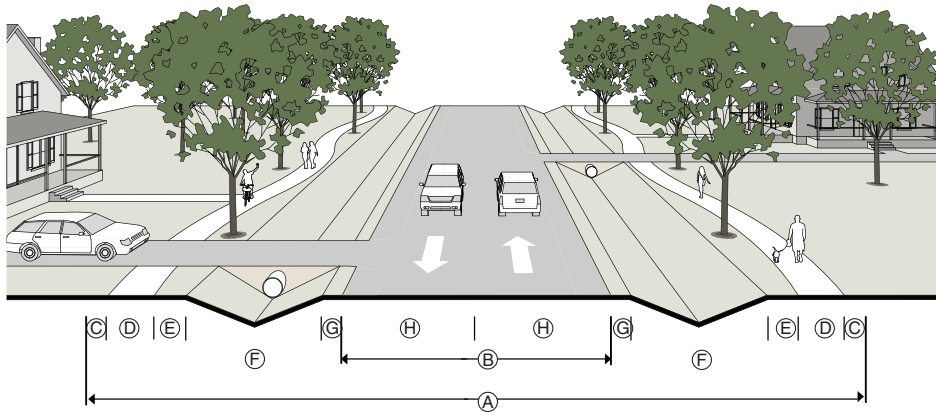
Width	
Ⓐ Right-of-way width (min)	50'
Ⓑ Back-of-curb to back-of-curb (min)	28'
Streetscape	
Ⓒ Maintenance strip (min)	1'
Ⓓ Sidewalk (min)	5'
Ⓔ Planting area (min)	5'
Ⓕ Curb and gutter	2'
Travelway	
Ⓖ Parallel parking/travel lane	12'
General	
Walkway type	Sidewalk
Planting type	Tree lawn
Tree spacing	40' o.c. avg
Parking type	Parallel

B. Residential



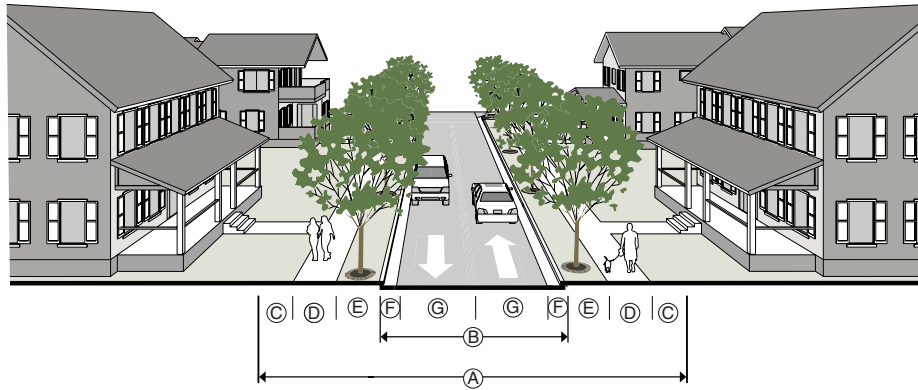
Width	
Ⓐ Right-of-way width (min)	70'
Ⓑ Back-of-curb to back-of-curb (min)	36'
Streetscape	
Ⓒ Utility placement (min)	5'
Ⓓ Sidewalk (min)	6'
Ⓔ Planting area (min)	6'
Ⓕ Curb and gutter	2'
Travelway	
Ⓖ Parallel parking	7'
Ⓗ Travel lane	9'
General	
Walkway type	Sidewalk
Planting type	Tree lawn
Tree spacing	40' o.c. avg
Parking type	Parallel

C. Sensitive



Width	
Ⓐ Right-of-way width (min)	66'
Ⓑ Pavement width (min)	20'
Streetscape	
Ⓒ Maintenance strip (min)	1'
Ⓓ Sidewalk (min) utilities underneath	5'
Ⓔ Planting area (min)	5'
Ⓕ Drainage (min) utilities underneath	10'
Travelway	
Ⓖ Grassed Shoulder (min)	2'
Ⓗ Travel lane	10'
General	
Walkway type	Sidewalk
Planting type	Tree lawn
Tree spacing	50' o.c. avg

D. Local Street in Historic Overlay District



Width	
Ⓐ Right-of-way width (min)	39'
Ⓑ Pavement width (min)	17'
Streetscape	
Ⓒ Maintenance strip (min)	1'
Ⓓ Sidewalk (min) utilities underneath	5'
Ⓔ Planting strip (min)	5'
Ⓕ Header curb	6"
Travelway	
Ⓖ Travel lane	8'
General	
Walkway type	Sidewalk
Planting type	Tree well
Tree spacing	50' o.c. avg

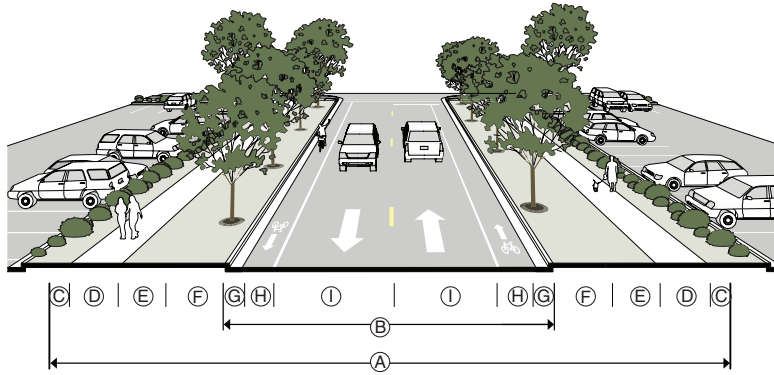
E. Woonerf



Width		
Ⓐ Right-of-way width (min)	two-way	42'
	one-way	38'
Ⓑ Fire access - alternate (min)		20'
Streetscape		
Ⓒ Optional planting area (min)		3'
Ⓓ Sidewalk (min)		6'
Ⓔ Parallel parking (min)		8'
Ⓖ Pavement (min)		8'
Ⓕ Maintenance strip (min)		1'
Travelway		
Ⓕ Travel lane	two-way	16'
	one-way	12'
General		
Walkway type		-
Planting type		-
Tree spacing		-
Notes		
Pedestrians and cyclists have legal priority over motorists		
Gateway signs indicate entrance to a woonerf		
Maximum length of a woonerf is between 1,200'-1,800'		

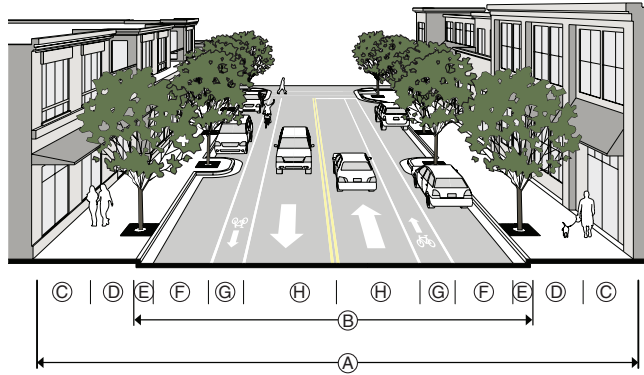
11.4.11. Collector Streets

A. Collector, 2 Lanes, No Parking



Width	
Ⓐ Right-of-way width (min)	72'
Ⓑ Back-of-curb to back-of-curb (min)	36'
Streetscape	
Ⓒ Maintenance strip (min)	1'
Ⓓ Sidewalk (min)	6'
Ⓔ Utility placement (min)	5'
Ⓕ Planting area (min)	6'
Ⓖ Curb and gutter	2'
Travelway	
Ⓗ Bike lane	5'
Ⓘ Travel lane	11'
General	
Walkway type	Sidewalk
Planting type	Tree lawn
Tree spacing	40' o.c. avg

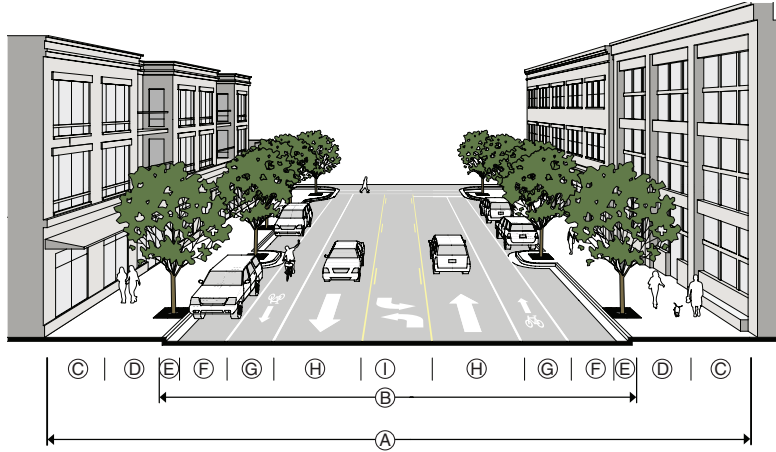
B. Collector, 2 Lanes, Parallel Parking



Width	
Ⓐ Right-of-way width (min)	78'
Ⓑ Back-of-curb to back-of-curb (min)	54'
Streetscape	
Ⓒ Sidewalk (min)	6'
Ⓓ Planting area (min)	6'
Ⓔ Curb and gutter	2'
Travelway	
Ⓕ Parallel parking	8'
Ⓖ Bike lane	6'
Ⓗ Travel lane	11'
General	
Walkway type	Sidewalk
Planting type	Tree grate / lawn
Tree spacing	40' o.c. avg
Parking type	Parallel

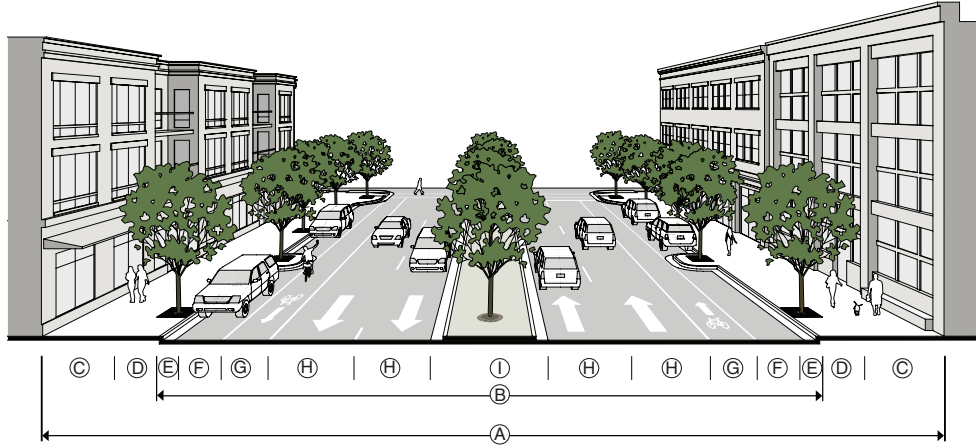
11.4.12. Minor Arterials

A. Minor Arterial, 3 Lanes, Parallel Parking



Width	
Ⓐ Right-of-way width (min)	94'
Ⓑ Back-of-curb to back-of-curb (min)	68'
Streetscape	
Ⓒ Sidewalk (min)	6'
Ⓓ Planting area (min)	7'
Ⓔ Curb and gutter	2'
Travelway	
Ⓕ Parallel parking	8'
Ⓖ Bike lane	6'
Ⓗ Travel lane	11'
Ⓘ Center turn lane	14'
General	
Walkway type	Sidewalk
Planting type	Tree grate / lawn
Tree spacing	40' o.c. avg
Parking type	Parallel

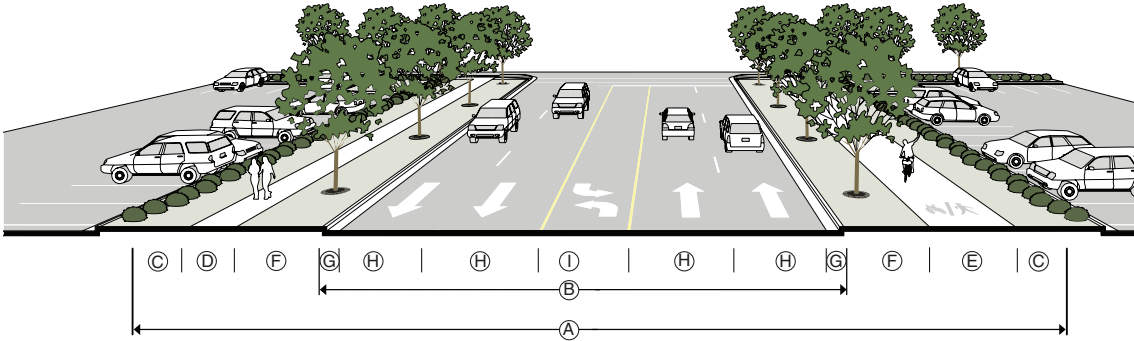
B. Minor Arterial, 4 Lanes, Parallel Parking



Width	
Ⓐ Right-of-way width (min)	122'-130'
Ⓑ Back-of-curb to back-of-curb (min)	96'
Streetscape	
Ⓒ Sidewalk (min)	6'-10'
Ⓓ Planting area (min)	7'
Ⓔ Curb and gutter	2'
Travelway	
Ⓕ Parallel parking	8'
Ⓖ Bike lane	6'
Ⓗ Travel lane	11'
Ⓘ Median/turn lane	20'
General	
Walkway type	Sidewalk
Planting type	Tree grate / lawn
Tree spacing	40' o.c. avg
Parking type	Parallel

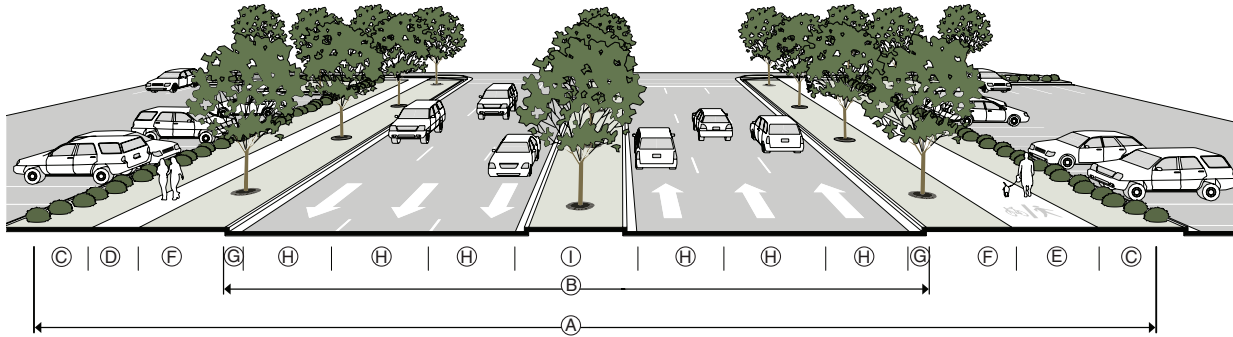
11.4.13. Principal Arterials

A. Principal Arterial, 5 Lanes



Width	
Ⓐ Right-of-way width (min)	103'
Ⓑ Back-of-curb to back-of-curb (min)	63'
Streetscape	
Ⓒ Utility placement (min)	5'
Ⓓ Sidewalk (min)	6'
Ⓔ Multiuse path (min)	10'
Ⓕ Planting area (min)	7'
Ⓖ Curb and gutter	2.5'
Travelway	
Ⓗ Travel lane	11'
Ⓘ Turn lane	14'
General	
Walkway type	Sidewalk/ multiuse path
Planting type	Tree lawn
Tree spacing	40' o.c. avg

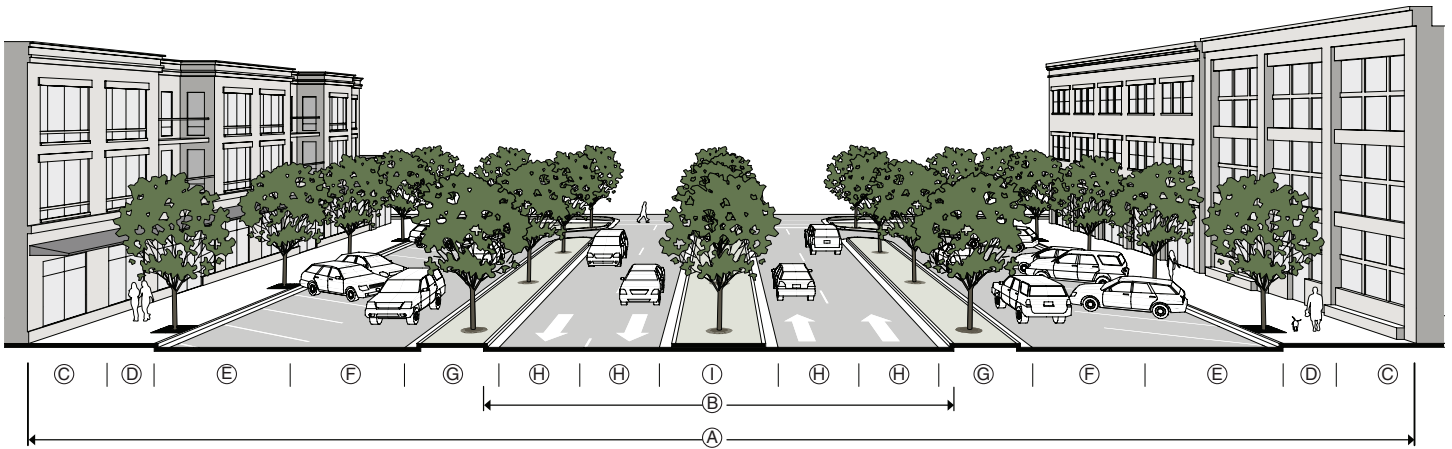
B. Principal Arterial, 6 Lanes



Width	
Ⓐ Right-of-way width (min)	137'
Ⓑ Back-of-curb to back-of-curb (min)	97'
Streetscape	
Ⓒ Utility placement (min)	5'
Ⓓ Sidewalk (min)	6'
Ⓔ Multiuse path (min)	10'
Ⓕ Planting area	7'
Ⓖ Curb and gutter	2.5'
Travelway	
Ⓗ Travel lane	12'
Ⓘ Median (min)	20'
General	
Walkway type	Sidewalk/ multiuse path
Planting type	Tree lawn
Tree spacing	40' o.c. avg

Note: May need a service road parallel to a Principal Arterial within 1/4 mile.

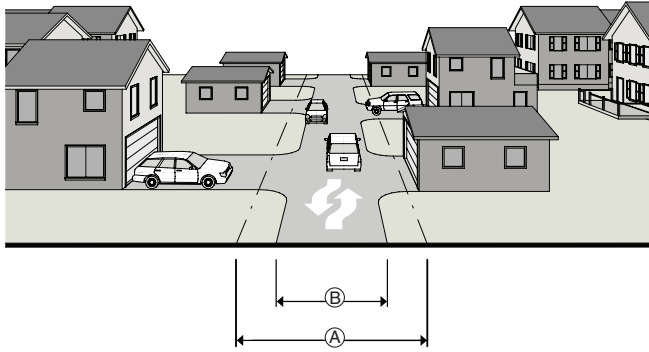
C. Multi-way Boulevard



Width	
Ⓐ Right-of-way width (min)	193'
Ⓑ Back-of-curb to back-of-curb (min)	69'
Streetscape	
Ⓒ Sidewalk (min)	10'
Ⓓ Planting area (min)	8'
Access Lane	
Ⓔ 60° angle parking	19.5'
Ⓕ Access lane	16'
Ⓖ Outside Median	11'
Travelway	
Ⓗ Travel lane	11'
Ⓘ Median	20'
General	
Walkway type	Sidewalk
Planting type	Tree grate / lawn
Tree spacing	40' o.c. avg
Parking type	60°angle in access lane

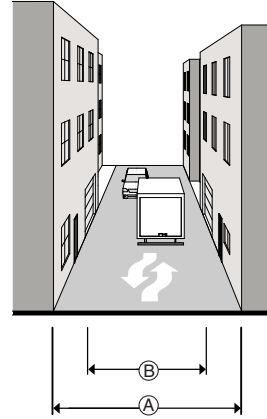
11.4.14. Accessways

A. Alley, Residential



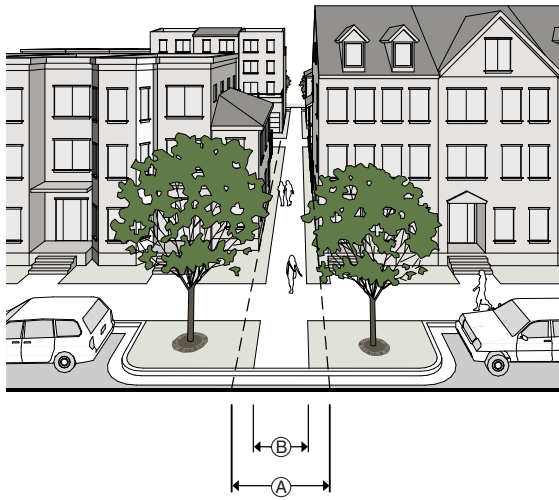
Width	
Ⓐ Easement width (min)	20'
Travelway	
Ⓑ Travel lane	16'
Ⓒ Travel lane, fire service route (min)	20'

B. Alley, Mixed Use



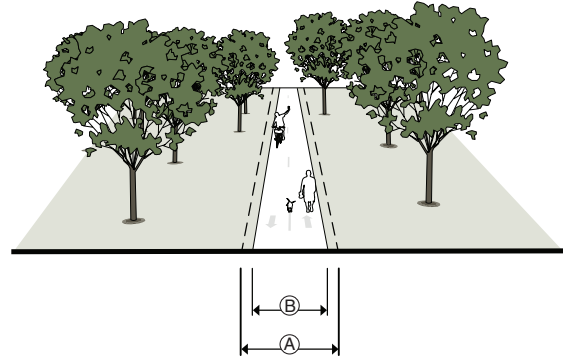
Width	
Ⓐ Easement width (min)	24'
Travelway	
Ⓑ Travel lane (min)	20'

C. Pedestrian Passage



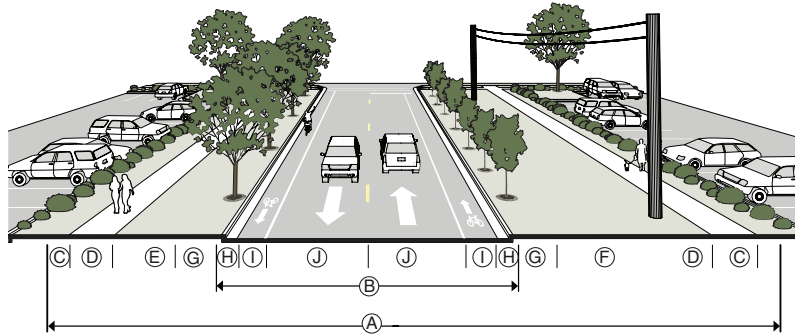
Width	
Ⓐ Public access easement (min)	20'
Travelway	
Ⓑ Paved area (min)	10'
General	
Walkway type	Sidewalk
Users	Pedestrians

D. Multi-Use Trail



Width		
Ⓐ Public access easement (min)	20'	
Travelway		
Ⓑ Paved area	Desirable	12'
	Adequate	10'
	Minimum	8'
General		
Walkway type	Trail	
Users	Pedestrians, Cyclists and Personal Transportation Vehicles.	

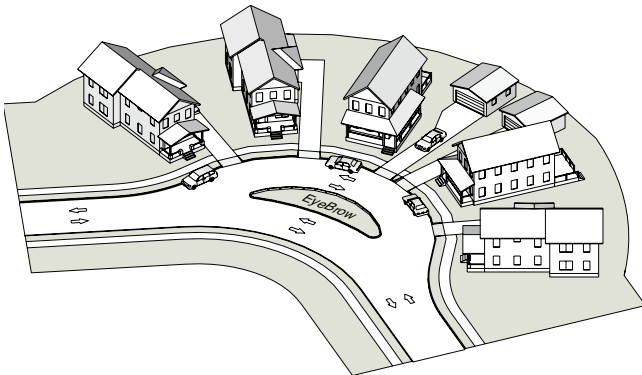
E. Service Road



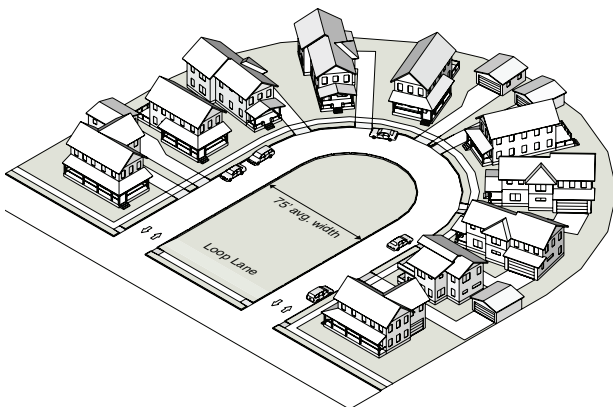
Width	
Ⓐ Right-of-way width (min)	89'
Ⓑ Back-of-curb to back-of-curb (min)	38'
Streetscape	
Ⓒ Maintenance strip (min)	1'
Ⓓ Sidewalk (min)	6'
Ⓔ Utility placement (min)	5'
Ⓕ Overhead power line strip (min)	20'
Ⓖ Planting strip (min)	6'
Ⓗ Curb and gutter	2'
Travelway	
Ⓛ Bike lane	5'
Ⓜ Travel lane	12'
General	
Walkway type	Sidewalk
Planting type	Tree lawn
Tree spacing	50' o.c. avg
Notes	
Parallel to a Principal Arterial	

11.4.15. Dead-End Streets

- A. Dead-end streets are permitted only with the approval of the Engineering Director, the Transportation Director and the Planning Commission. A application must not be submitted to the Planning Commission for review without the approval of both the Engineering Director and the Transportation Director for the dead-end location and configuration.
- B. Dead-end streets that exceed 150 feet in length must provide an adequate turn-around as approved by the Fire Department. Street length is measured from the end of the improved surface to the center of the intersection with the connecting street.
- C. The following alternatives to dead end streets may be approved at the time of subdivision.
 - 1. **Eyebrow.** An eyebrow is a rounded expansion of a street beyond the normal curb line. An eyebrow must have a landscaped island.



- 2. **Loop Lane.** A loop lane is a two-way street, no portion of which is more than the maximum allowable dead-end street length. The interior landscaped area is required and must have an average width of 75 feet.



11.4.16. Existing Streets

A. Applicability

- 1. A building or site may be renovated or repaired without meeting the requirements of this Section, provided there is no increase in gross floor area or improved site area.
- 2. When a building or site is increased in gross floor area or improved site area cumulatively by more than 25%, the streetscape provisions of this Section must be met.

B. Sidewalk and Street Trees Required

- 1. On existing streets, sidewalks and street trees that do not meet the width and planting standards of Sec. 11.4. must be brought into compliance with the current standards prior to the issuance of a Land Disturbance Permit or Building Permit.
- 2. An inspection of the existing sidewalk and street trees will be made by the Transportation Director. If the inspection shows the sidewalk or street trees are substandard or do not exist, the applicant must install the sidewalk and street trees to the current design specifications, as required by the Transportation Director.

C. Exemptions. This Section does not apply to:

- 1. Any lot or parcel for which a Land Disturbance Permit or Building Permit is issued but where the Community Development Director determines that the permit is for an accessory use or structure to the principal use or structure or for minor repairs or additions to the principal building or structure in existence.
- 2. Established communities originally permitted without sidewalks, unless required by the Community Development Director.

D. Exceptions

- 1. Where the Transportation Director determines the topography of the road is such that a special hardship exists on the property, payment to the City of Roswell in lieu of the required installation of the sidewalk and street trees may be authorized.

11.4.17. Traffic Calming Measures

2. Along public streets where a City sidewalk project is being or has been awarded for construction, the Transportation Director may accept payment to the City of Roswell in lieu of the required installation of the sidewalk and street trees. This will only occur in rare circumstances where the applicant can prove hardship.
3. Any payment in lieu of the installation of the sidewalk and street trees must be in an amount determined by the Transportation Director.
4. The funds received must be deposited in an account of the City of Roswell and restricted to use for the installation of sidewalks and street trees.

11.4.17. Traffic Calming Measures

Where residential streets are longer than 600 feet, traffic calming devices may be required by the Transportation Director. These measures may include green space, median islands, roundabouts and or other traffic calming devices.

11.4.18. Personal Transportation Vehicles

The City permits Personal Transportation Vehicles on local roads and multi-use trails. Every effort should be made to accommodate these vehicles into the design and lay-out.

**Sec. 11.5. Infrastructure Sufficiency/
Public Improvements**

11.5.1. Required Improvements Generally

- A. To facilitate the efficient and adequate provision of transportation, water and sewer and to secure public safety, every subdivision and site plan is subject to a determination of the sufficiency of infrastructure.
- B. Infrastructure is considered sufficient when it is demonstrated to have capacity to accommodate the demand generated by the proposed development.
- C. Every applicant is required to install all improvements and utilities (or provide surety for the installation, where applicable), as indicated on approved plans and specifications, before lots can be sold.
- D. If the internal roadway network within a development is substandard, it must be brought up to City standards prior to issuance of any Certificate of Occupancy.

11.5.2. Compliance and Completion of Improvements

- A. **Letter of Approval.** Signature by the Engineering Director on the Final Plat indicates substantial completion and approval of the required provisions of this UDC.
- B. **Inspection.** All underground installations, subgrades, bases or courses of asphalt must not be covered or hidden before they are inspected and accepted by the Engineering Director.
- C. **Certification.** All improvements required under this UDC must be installed by a person, firm or corporation competent, qualified, licensed and bonded to do such work.

11.5.3. Design of Utilities and Other Improvements

- A. All utility systems, including water, sewerage, gas and electric, along with component parts, structures, appendages and materials, must be designed to City of Roswell, Fulton County or other applicable standards and be approved by the Public Works Director and Engineering Director.

- B. All utility systems must be installed underground. Above-ground utility systems will not be permitted, except where certain appurtenances and accessories must be installed above-ground for servicing.
- C. All subdivisions shall meet the stormwater requirements of the City of Roswell. When serving more than three lots, detention ponds, (including all required access easements, landscape strips and fences) must be located on an individual lot of record where no home can be constructed. This parcel must be owned and maintained by the homeowners association or the lots of record being served by this facility. The parcel must have a minimum 20-foot wide continuous access to a public or private road in a manner that allows access and maintenance of this parcel. This lot will not be required to meet the normal lot standards for that zoning district. Water Quality treatment facilities (such as bioretention ponds) need not be located on an individual lot of record, however a drainage easement shall be applied to the water quality facility and the facility shall be maintained by the homeowners association or the lots of record being served by this facility.
- D. For all development or redevelopment that requires detention ponds, retention ponds or water quality features, such features must be located outside any required buffer.
- E. Underground detention ponds are allowed under public roadways when approved by the Transportation Director with input from the Public Works Director .

11.5.4. Fulton County Septic Tank Requirements

- A. The minimum lot size required for considering approval of installation of an on-site sewage management system serving a single residence is 43,560 square feet of usable area and must accommodate the initial system and the reserve area.
- B. The reserve area must remain undisturbed, available for future repair, must not conflict with applicable zoning requirements and must not be used to accommodate any other construction (aboveground or underground) precluding its use or availability in the event of initial-system failure.

- C. Development on individual lots with less than 43,560 square feet of usable area are restricted to those served by public or community sewerage systems.

Sec. 11.6. Development Impact Fees

11.6.1. Intent and Purpose

- A. The intent of this Section is to comply with the Development Impact Fee Act (O.C.G.A. Title 36, Chapter 71), as amended.
- B. The purpose of this Section is to provide procedures and standards for payment of impact fees so that land development bears a proportionate share of the cost of expanded or new system improvements. The assessment of impact fees correlates with public facilities identified in the Capital Improvement Element. Impact fees are collected for public safety, recreation and parks and transportation facilities.

11.6.2. Impact Fee Required

- A. Any person who engages in a “development activity” must pay an impact fee in the manner and amount established by this ordinance.
- B. Impact fees must be collected at the time of the issuance of a building permit.
- C. Impact fees shall be calculated at the time of the issuance of a building permit based on the current impact fee schedule in place at that time.

11.6.3. Computation of Impact Fees

The impact fee assessment will be through an individual fee determination or in accordance with the methodology report. Computation in accordance with [Sec. 11.6.4](#), the methodology report must be as follows:

11.6.4. Development Impact Fee Computation

Citywide Service Area	Transportation	Public Safety	Parks and Recreation	Admin (3%)	Total Fee
					c
Residential (per housing unit) by Square Feet of Finished Living Space					
1,000 or less	\$964	\$521	\$318	\$41	\$1,844
1,001 to 1,500	\$1,285	\$695	\$424	\$55	\$2,459
1,501 to 2,000	\$1,514	\$821	\$501	\$66	\$2,902
2,001 to 2,500	\$1,690	\$916	\$559	\$73	\$3,238
2,501 to 3,000	\$1,835	\$995	\$607	\$80	\$3,517
3,001 to 3,500	\$1,957	\$1,062	\$648	\$85	\$3,752
3,501 to 4,000	\$2,064	\$1,117	\$682	\$89	\$3,952
4,001 or more	\$2,159	\$1,169	\$713	\$94	\$4,135
Nonresidential (per 1,000 square feet of floor area)					
Industrial	\$865	\$180	\$0	\$20	\$1,065
Commercial	\$2,718	\$260	\$0	\$55	\$3,033
Office & Other Services	\$1,176	\$320	\$0	\$30	\$1,526

11.6.5. Individual Fee Determination

- A. If a developer must elect not to have the impact fee determined according to this Section, then pursuant to O.C.G.A. § 36-71-4(g) the developer may apply for an individual fee determination. A developer applying for an individual fee determination must prepare and submit to the Administrator an individual fee calculation study for the development activity for which a building permit is sought. The individual fee calculation study must follow the methodology and format of the “methodology report” or subject to prior approval of the Administrator, such other professionally accepted methodology that identifies a project’s proportionate share.
- B. The developer must attend a pre-application meeting with the Administrator, and no agreement or understanding in regard to data assumptions or methodology will be binding upon the City unless specifically agreed to by the City in writing. The documentation submitted must show the basis upon which the individual fee calculation was made.
- C. The Administrator must provide the developer with the individual fee determination within 30 days after presentation of the individual fee calculation study.

11.6.6. City Fee Determination

In the sole discretion of the Administrator, the City of Roswell staff may undertake an individual fee study on behalf of the applicant. In the event the staff does not find cause for a fee adjustment, the applicant must pay the impact fee in accordance with the fee schedule or the applicant may elect to undertake an individual fee calculation study pursuant to this Section.

11.6.7. Application for Certification of Impact Fee

Upon application to the Administrator, any person contemplating development activity requiring payment of an impact fee may apply for and must receive from the Administrator a certification of the impact fee schedule or a certification of an individual fee determination. Applications for certification must include the following information and items:

- A. A full and complete description of the project;
- B. A full and complete description of the proposed land use and development activity;
- C. A statement as to whether the applicant seeks a certification of the impact fee schedule or a certification of an individual fee determination; and

- D. If the applicant seeks a certification of an individual fee determination, an individual fee calculation study complying with the requirements of Sec. 11.6.5.

11.6.8. Procedures for Certification

- A. The Administrator must provide an applicant with a written certification of the impact fee schedule within 5 working days after the Administrator’s receipt of a completed application. The fee schedule certified by the Administrator will establish the impact fee schedule for the proposed development activity for a period of 180 days from the date of certification. The Administrator will provide the applicant with a written certification of an individual fee determination within 30 days after receipt of a completed application.
- B. The individual fee determination certified by the Administrator will establish the impact fee for the proposed development activity for the 180-day period immediately following the date of such certification. Notwithstanding the issuance of any such certification, any changes in or additions to the proposed development activity different from the development activity identified in the original application will be subject to increased or additional impact fees to the extent that such changes or additions require capital improvements or facilities expansions. The additional impact fees will be based upon the impact fee schedule in effect at the time of any such change or addition.

11.6.9. Additional Requirements

- A. Notwithstanding any other provision of this Section, prior to engaging in development activity and in addition to any other applicable requirements, the developer must certify in writing to the Administrator:
 - 1. A full and complete description of the project;
 - 2. A full and complete description of the proposed land use or uses; and
 - 3. A statement of the gross square footage applicable to each category of land use.
- B. Prior to the completion of the project, and as a condition to the issuance of a certificate of occupancy, the developer must recertify in writing to the Administrator the actual land use or uses of the project,

and must present an architect’s certificate of the actual gross square footage attributable to each use. In the event that the actual land use or uses and/or the actual gross square footage applicable to the actual land use or uses differs from that originally certified, and in the event that the impact fee applicable to the actual land use or uses and/or gross square footage exceeds the impact fee previously paid, the developer will be required to pay the amount of the excess as a condition to the issuance of a certificate of occupancy. The amount of the excess will be based upon the impact fee schedule in effect on the date the certificate of occupancy is issued. If the actual gross square footage constructed after the issuance of the building permit is less than the amount originally certified, the developer will be entitled to a refund of the excess portion of the fee.

11.6.10. Payment of Impact Fees

- A. Any person required to pay impact fees pursuant to this Section must pay such fees to the Administrator prior to the issuance of a building permit unless the City has previously approved a private development agreement providing for an alternative method of payment.
- B. All funds collected pursuant to this Section must be properly identified by the impact fee service area from which it was collected and promptly transferred for deposit into the appropriate impact fee trust fund to be held in separate accounts as provided for in this Section. Funds must be used solely for the purposes specified in this Section.
- C. In lieu of all or part of the impact fee, the City may accept an offer to provide the items and/or services specified in this Section. Any such offer must comply with the requirements of the Sec. 11.6.12 The portion of the fee represented by facility improvements will be deemed paid when the construction is completed and accepted by the City or when the person claiming such credit posts security for the cost of such construction as provided in the Sec. 11.6.12 The portion of the fee represented by land dedication will be deemed paid when the title to said land has been accepted by the City.

11.6.11. Use of Funds

- A. Funds collected as impact fees must be used for system improvements. No funds may be used for periodic or routine maintenance or for any purpose not in accordance with the requirements of O.C.G.A. § 36-71-8.
- B. Impact fees must be used exclusively for system improvements in the service area in which the project for which the fees were paid is located.
- C. Funds must be expended in the order in which they are collected.
- D. Each fiscal period the City of Roswell Finance Director must present to the Mayor and City Council an annual report describing the amount of impact fees collected, encumbered and used during the preceding year. Monies, including any accrued interest, not encumbered in any fiscal period will be retained in the same impact fee trust fund(s) until the next fiscal period except as provided in Sec. 11.6.14.
- E. The City will be entitled to retain up to 3% of all impact fees it collects as an administrative fee to offset the costs of administering this Section.
- F. Impact fees may be used for the payment of principal and interest on bonds, notes or other financial obligations issued by or on behalf of the City to finance system improvements.

11.6.12. Credits

When eligible, fee payers will be entitled to a credit against impact fees otherwise due and owing under the circumstances and in the manner set forth in this Section.

- A. Except as provided in Sec. 11.6.12.B. below, no credit will be given for construction, contribution, or dedication of any system improvement or funds for system improvements made before the effective date of this Section.
- B. If the value of any construction, dedication of land, or contribution of money made by a developer (or his predecessor in title or interest) for system improvements that are included among the improvements constituting the amount of an impact fee assessment (the impact fee project listing), prior to the effective date of this

Section or amendment thereto, is greater than the impact fee that would otherwise have been paid for the project, then the developer will be entitled to a credit for such excess construction, dedication, or funding. Notwithstanding anything to the contrary in this Section, any credit due under this Section will not constitute a liability of the City of Roswell and will accrue to the developer to the extent of impact fees assessed for new development for the same category of system improvements within the same service area.

- C. In no event will credit be given for project improvements.
- D. Credit will be given for the present value of construction of any portion of a project that is included in the impact fee project listing, or for the contribution or dedication of land or payment of money for such project, by a developer (or their predecessor in title or interest) for system improvements of the same public facilities category and in the same service area for which a development impact fee is imposed, provided that the City Administrator must have explicitly approved the granting of such credit for the improvement, contribution, dedication, or payment and the value thereof prior to its construction, dedication, or transfer.
- E. Developers who, following the approval of the City of Roswell, construct system improvements for which impact fees would otherwise be imposed and which are included in the impact fee project listing, will be entitled to a credit. The credit allowed pursuant to this Section will be equal to the present value of the cost of construction of the system improvement, up to a maximum of the impact fee due for such system improvement. In the event that a developer enters into a private agreement with the City of Roswell to construct, fund, or contribute system improvements such that the amount of the credit created is in excess of the impact fee which would otherwise have been paid for the development project, the developer must be reimbursed for such excess construction, funding, or contribution from impact fees paid by other development located in the service area which is benefited by such improvements.
- F. For the construction of any system improvements by a developer or his predecessor in title or interest and accepted by the City of Roswell, the developer must present evidence satisfactory to the Administrator of the

original cost of the improvement, from which present value may be calculated. A person proposing credit for system improvements must present cost estimates and property appraisals prepared by duly licensed and qualified professionals to be used by the Administrator in determining the amount of the credit. All construction must be carried out in accordance with applicable City, County or State development and design standards.

- G. For any contribution or dedication of land for system improvements by a developer or his predecessor in title or interest and accepted by the City of Roswell, the original value of the land must be the same as that attributed to the property by the validated tax appraisal at the time of dedication, from which present value may be calculated.
- H. For any contribution of capital equipment that qualifies as a system improvement by a developer or his predecessor in title or interest and accepted by the City of Roswell, the value must be the original cost to the developer of the capital equipment or the cost that the City of Roswell would normally pay for such equipment, whichever is less.
- I. For any contribution of money for system improvements from a developer or his predecessor in title or interest accepted by the City of Roswell, the original value of the money must be the same as that at the time of contribution, from which present value may be calculated.
- J. In making a present value calculation, the discount rate used must be the net of the interest returned on a State of Georgia, AA rated or better municipal bond less average annual inflation, or such other discount rate as the Mayor and council in its sole discretion may deem appropriate.
- K. Credits will be given only upon written request of the developer to the City of Roswell. Credits must be claimed at the time of the application for a building permit. Any credit not so claimed will not be available as to any impact fee owing with respect to that building permit.
- L. In the event that an impact fee is paid but the building permit is abandoned, credit will be given for the present value of the impact fee against future impact fees for the same parcel of land, upon submission of adequate evidence to the Administrator that an impact fee was received by the City of Roswell, the amount paid, and that the building permit was abandoned. Such credit will be given upon issuance of the subsequent building permit. A building permit will be deemed abandoned if no construction has been commenced prior to the expiration of the building permit.
- M. Security in the form of a performance bond, or escrow agreement must be posted with the City, made payable to the City in the amount approved by the Administrator equal to 110% of the full cost of the construction of such improvements. If a facility construction project will not be constructed within one year of the acceptance of the offer by the City, the amount of the security must be increased by 10% compounded, for each year of the life of the security. The security must be reviewed and approved by the City Attorney's office prior to the acceptance of the security by the City.
- N. Credits must be represented by a written certificate (the "credit certificate") setting forth the name of the person or entity to whom the credit certificate is issued, the number of the credit certificate, and the amount of the credit. Each credit certificate must be numbered in the order in which it is issued, and must be signed, either manually or facsimile, by the City Finance Director with the seal of the City affixed thereto. The City must also maintain a register (the "credit certificate register") which sets forth the name of the credit holder, the number of the credit certificate, the amount of the credit, and the name of any party entitled to the credit represented by the credit certificate.
- O. The interest of a secured party will not be effective and will not be recognized by the City unless and until the City is in receipt of a written document satisfactory to the City signed by the secured party and the holder of the credit certificate verifying the creation of the security interest and directing the City to enter the secured party's name in the credit certificate register. Credits are transferable from one developer to another and from one project to another provided that such credits must not be transferred to a project in a different impact fee service area, and provided further that the transfer is accomplished in accordance with the provisions of this Section.

11.6.13. Exemptions

P. Transfers of credit certificates will only be effective when entered in the credit certificate register of the City upon surrender of the credit certificate signed and dated as of the date of the purported transfer by the person in whose name the credit certificate is registered or on his behalf by a person legally authorized to so sign. Any attempted transfer not in compliance with the terms of this Section will not be effective, will not be recognized by the City, and will result in the waiver and forfeiture of the credit. If the credit certificate to be transferred is subject to a security interest reflected in the credit certificate register, the surrendered credit certificate must also be accompanied by a written consent to transfer or release of security interest signed by the secured party. Upon compliance with the transfer provisions of this Section, the City will issue a new credit certificate in the name of the authorized transferee.

11.6.13. Exemptions

- A. The following are exempted from payment of impact fees:
 1. Alteration or expansion of an existing building or use of land where no additional living units are created, where the use is not changed, and where no additional demand for system improvement facilities will result.
 2. The construction of accessory buildings or structures which will not result in additional demand for system improvement facilities.
 3. The replacement of a building or structure that was in place on the effective date of this Section, or the replacement of a building or structure that was constructed subsequent thereto and for which the correct impact fee had been paid or otherwise provided for, with a new building or structure of the same use, provided that no additional vehicular trips will result.
 4. All or part of a particular project determined by the City Council as constituting economic development, as defined herein.
 5. All or part of a particular project which constitutes affordable housing, as defined in this Section.

- B. A person claiming exemption(s) pursuant to 1., 2. or 3. above must submit to the Administrator information and documentation sufficient to permit the Administrator to determine whether such exemption claimed is proper, and, if so, the extent of such exemption.
- C. A person seeking exemption under paragraph 4. above must submit to the City Council information and documentation sufficient to permit the City Council to determine whether such exemption claimed is proper, and, if so, the extent of such exemption.
- D. Exemptions must be applied for at the time of the application for a building permit except in the case of a private development agreement. Any exemptions not so applied for will be deemed waived.

11.6.14. Refunds

Refunds of impact fees will be made only in the following instances and in the following manner:

- A. Upon application to the Administrator by the feepayor, the City will refund 97% of the impact fee paid if capacity is available and service is denied. The City will retain 3% of the fee paid as an administrative fee.
- B. Upon application to the Administrator by the feepayor, the City will refund 97% of the impact fee paid and not expended or encumbered if the City, after collecting the fee when service is not available, has failed to encumber the fee or commence construction within 6 years from the date the impact fee was paid. The City will retain 3% of the fee paid as an administrative fee. In determining whether impact fees have been expended or encumbered, fees will be considered encumbered on a first-in, first-out (FIFO) basis.
- C. When the right to a refund exists due to a failure to encumber impact fees, the City must provide written notice of entitlement to a refund to the feepayor who paid the impact fee at the address shown on the application for development approval, or to a feepayor's successor in interest who has given the City notice of the transfer or assignment of the right or entitlement to a refund and who has provided the City a mailing address. The City must also publish such notice within 30 days of the expiration of the 6-year period after the

date the impact fee was paid. The published notice must contain the heading “notice of entitlement to development impact fee refund.”

- D. A refund application must be made to the Administrator within one year from the date such refund becomes payable under this Section or within one year from the date of publication of the notice of entitlement of a refund as provided under this Section, whichever is later. Any refund not applied for within said time period will be deemed waived.
- E. A refund application must include information and documentation sufficient to permit the Administrator to determine whether the refund claimed is proper, and, if so, the amount of such refund.
- F. A refund will include a pro rata share of interest actually earned on the unused or excess impact fee paid.
- G. All refunds will be paid within 60 days after the Administrator determines that such refund is due.

11.6.15. Review of Fee Structure

The impact fee structure must be reviewed by the Mayor and the City Council annually; provided, however, the failure to review such structure does not invalidate this Section.

11.6.16. Impact Fee Service Areas Established

The geographic limits of the City of Roswell comprise one service area for collection of impact fees relating to public safety, recreation and parks, and transportation facilities.

11.6.17. Impact Fee Trust Funds Established

- A. There are hereby established separate public safety, recreation and parks, and transportation impact fee trust funds, and impact fees collected pursuant to this UDC must be deposited in the appropriate new trust fund.
- B. Funds must be deposited and maintained in one or more interest bearing accounts. Interest earned on funds must be funds of the account on which it is earned and is subject to all restrictions imposed by Section “Use of Funds” of this Section.

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Sec. 12.1. Tree Protection

12.1.1. General Provisions

A. **Purpose and Intent.** The purposes of the following tree protection requirements are to:

1. Provide standards for the preservation of trees as part of the land development process;
2. Protect trees during construction and land development whenever possible in order to enhance the quality of life within Roswell;
3. Protect specimen trees while providing for reasonable use of land; and
4. Promote a healthy urban forest.

B. **Applicability**

1. The tree protection requirements of this UDC apply to any activity that requires a development permit, except as specifically exempted in Sec. 12.1.1.C. below.
2. No Land Disturbance Permit may be issued until it is determined that the proposed development conforms with the tree protection requirements of the UDC.
3. No person may remove, cause to be removed, poison, damage, trim or transplant any tree with a trunk diameter of 3 inches in diameter at breast height (DBH) which normally attains a mature height of 15 feet or more without first obtaining a permit as provided in this UDC.

C. **Exemptions.** The tree protection requirements that protect specimen trees apply to all properties. The following activities are exempt from the remaining tree protection provisions.

1. The removal of trees other than specimen trees from any lot of less than 1 acre in size and which contains or is zoned and platted or to be platted for purposes of constructing a detached house or attached house.
2. The removal of trees from horticultural properties such as farms, nurseries, orchards or tree harvesting.

3. The removal of trees by a utility company within dedicated utility easements, where necessary to install, remove, repair, or maintain utilities within the easement.
4. The removal of trees on public rights-of-way by or on behalf of any federal, state, county, municipal, or other government agency with jurisdiction, where necessary to lawfully construct, maintain, repair or improve public rights-of-way.
5. The removal of trees, other than specimen trees, from detention ponds and drainage easements where necessary for the construction, maintenance, or operation of detention ponds or drainage improvements within drainage easements.
6. The removal of any tree which has become or threatens to become a danger to human life or property, as determined by the City Arborist.
7. The removal of trees less than 3 inches DBH where no Land Disturbance Permit is required.

12.1.2. Tree Protection Survey and Plan

A. **Tree Survey Required**

1. **Survey Required.** A tree survey must be submitted to the City Arborist before the commencement of any alteration, defoliation or land disturbing activity that requires the issuance of a Land Disturbance Permit or a Preliminary Plat.
2. **Survey Requirements.** The tree survey must be in the form of a map drawn to scale or a site plan prepared and sealed by a registered land surveyor, registered professional engineer, registered landscape architect, an arborist certified by the International Society of Arboriculture, or a registered forester.
3. **Natural Features.** Important natural features such as streams, stream buffers and wetlands must be shown on the tree survey.
4. **Specimen Trees.** All specimen trees and their critical root zones and drip lines must be labeled, even if the tree trunk is not on the subject property, and must be shown on the tree survey and

inventoried by size and species. This includes specimen trees to be preserved as well as those proposed for removal, if any, and the portion of critical root zones and drip lines of trees on abutting properties which are contained within the subject property, to the extent that drip lines and critical root zones can be determined from the vantage point of the property to be developed. This provision does not authorize trespassing on private property abutting the site.

5. **Other Trees To Be Retained.** All other trees to be counted toward meeting tree density unit requirements must be shown on the survey and inventoried by size and species. Only trees of 3 inches DBH or greater are eligible for tree density unit compliance purposes. Trees to be retained must be designated as tree save areas, including their drip line and critical root zones.
 6. **Trees To Be Removed.** Trees other than specimen trees that are proposed to be removed are not required to be counted and shown individually on the tree survey. Such trees may be estimated in number, size and species and quantified as part of the total site inventory of tree population.
 7. **Sampling.** Sampling methods may be used to determine tree densities for forested areas over 2 acres with approval of the City Arborist.
 8. **Tree Save Areas.** All tree save areas must be delineated on the tree survey. All buffers with existing trees must be delineated as tree save areas. Land disturbance within any buffer must be approved by the City Arborist.
 9. **List and Tree Density Unit Calculations.** The tree survey must provide an accurate list of trees to be saved and their tree density units.
- B. Tree Survey Inspection.** Within 10 working days following the receipt of a tree survey, the City Arborist will conduct an inspection of the proposed development site. The applicant will be advised as to the date and time of the inspection and given an opportunity to attend and observe the inspection. Following inspection, the City Arborist will advise the applicant in writing or on the survey of any recommended changes to the applicant's tree survey.
- C. Tree Protection Plan Required.** Before commencement of any alteration, defoliation or land disturbing activity which requires the issuance of a Land Disturbance Permit or Preliminary Plat, a tree protection plan must be submitted to the City Arborist.
- D. Tree Protection Plan Specifications.** A tree protection plan is a detailed plan designed to protect and preserve trees before, during and for a period of 2 years after issuance of a Final Certificate of Occupancy, including the following:
1. **Separate Drawing.** The tree protection plan must be submitted as a separate drawing unless the City Arborist approves the combination of tree protection plan with a tree replacement plan on a single drawing.
 2. **Boundary Survey.** The tree protection plan must be submitted on a current boundary survey of the proposed site, drawn to scale, and clearly show all information required in this paragraph.
 3. **Tract Identification.** The plan must identify the tract of land involved by acreage and location.
 4. **Owner and Contact.** The name, address and phone number of the owner of the land and the name, address and phone number of any tenant of the property, and 24-hour emergency contact phone number
 5. **Trees To Be Protected.** The type, location and size in DBH of all trees to be protected. Only trees designated on the approved tree protection plan will be counted toward meeting the minimum required tree density requirements.
 6. **Specimen Trees.** Location, species, size, critical root zone, and drip line for specimen trees proposed to be protected or removed. Where a critical root zone or drip line for a tree on abutting property is proposed to be protected, it must be included in the tree protection plan.
 7. **Tree Save Areas and Clearing Limits.** All natural areas to be retained and buffers must be included in a tree save area.
 8. **Tree Protection Methods.** Methods of tree protection for all tree save areas, including tree fencing,

erosion control, retaining walls, tunneling for utilities, aeration systems, transplanting, staking, signage, geoweb or similar material, permeable paving, bollards, and similar methods, must be included in the tree protection plan.

9. **Development Characteristics.** The plan must identify the location of roads, existing and proposed structures, paving, driveways, cut and fill areas, drainage before and after construction including detention areas, and similar aspects of the proposed project that may affect tree protection.
 10. **Utilities and Easements.** The plan must include the location of all existing and proposed utility lines or easements, including the location of any boring sites for underground utilities.
 11. **Tree Density Units.** Calculations showing the trees to be retained to meet minimum required tree density units must be included in the plan.
 12. **Irrigation Systems.** The tree protection plan must indicate any irrigation systems.
 13. **Additional Information.** Additional information may be required on a case-by-case basis by the City Arborist.
- E. **City Arborist Authority.** As part of a tree protection plan, the City Arborist may require relocation or replacement of trees as uniformly as possible throughout the site. The City Arborist may also require the use of active tree protection fencing for any or all tree save areas.

12.1.3. Tree Removal

A. Applicability

1. The tree removal provisions apply to any person removing trees, as well as any person removing trees on behalf of any other person, including all tree removal companies, utility companies or persons in the business of removing trees or construction.
2. It is unlawful for any person or company to remove any tree or undertake any work for which a Land Disturbance Permit is required unless a valid permit is in effect and displayed on the site.

3. Where any such work or removal is performed without the permit being displayed, the removal or work constitutes a violation and will subject the person or company violating this UDC in accordance with Sec. 13.14.
4. Utility companies may conduct emergency work without formal approval; provided, however, that emergency actions are reported in writing to the City Arborist within 3 working days after completion of all emergency services. Further, the permit taken by any person, company or utility may include defined areas of tree cutting and trimming under one permit.

B. Removal of Specimen Trees.

No specimen tree may be removed except in accordance with the following requirements.

1. **Justification for Removal.** Any applicant proposing to remove a specimen tree must apply for a tree removal permit. In addition to the requirements for tree removal permits, the applicant must provide a written explanation as to why the specimen tree cannot be retained on the site. This description must include a description of alternative site plans considered to avoid the removal of the specimen tree. The written explanation must at minimum include the following:
 - a. Consideration of whether any buildings or structures, parking areas, stormwater facilities, utilities, driveways, or other features of the proposed development can be relocated or designed to retain the specimen tree, and the additional costs of redesign, if any.
 - b. Consideration of whether the land area consumed by the proposed development can be reduced via decked parking, reduction of the footprint of a building or structure by increasing the height or number of stories, placement of stormwater facilities underground, and other appropriate means, to retain the specimen tree, and the additional costs involved in the surface area modifications, if any.

2. **Engineering Director Approval.** The Engineering Director will approve or deny the application to remove a specimen tree, after review and recommendation from the City Arborist. The Engineering Director may issue a permit to remove one or more specimen trees after finding that one or more of the following conditions are met:
 - a. The written analysis provides convincing evidence that alternative site and building designs have been considered by the applicant, but would not result in retention of the specimen tree.
 - b. The additional cost associated with developing the site or constructing buildings as redesigned or reducing the site area consumed to retain one or more specimen trees would be disproportional to the value of the specimen tree retained, calculated at \$100 per tree density unit.
 - c. Where more than one specimen tree is proposed to be removed, the site design results in the minimum number of specimen trees removed that are necessary to accommodate the proposed development.
 - d. The request to remove one or more specimen trees is reasonable considering the remaining specimen trees on the site that will be retained.
 - e. A variance to the district dimensional requirements may be an appropriate remedy to preserve a specimen tree. Where, in the opinion of the Zoning Director, one or more variances would enable a site and building design to be accomplished while saving one or more specimen trees, and where the objectives of tree protection would outweigh the purposes of the dimensional requirements that would be varied, the Zoning Director may suggest an applicant apply for variances instead of proposing to remove one or more specimen trees. A determination by the Zoning Director that one or more variances to the dimensional requirements would not be appropriate may support a finding by the Zoning Director in favor of granting approval to remove one or more specimen trees.
3. **Fee in Lieu of Specimen Tree Preservation**
 - a. If removal of a specimen tree is approved by the Engineering Director, then prior to issuing the tree removal permit, the applicant must contribute to the Roswell Tree Bank an amount of \$500 for each tree density unit of the specimen trees removed.
 - b. Where a specimen tree was removed without or prior to a lawfully issued tree removal permit, the amount contributed to the Roswell Tree Bank must be \$1,000 per tree density unit of the specimen trees removed.
 - c. The tree removal permit must not be issued or the specimen tree removed until funds are received for deposit in the Roswell Tree Bank.
 - d. Any contribution for specimen trees is in addition to any contribution required in Sec. 12.1.7.
4. **Credit for Planting Trees.** Contributions to the Roswell Tree Bank may be reduced by planting trees. Credit may be approved by the City Arborist for newly planted trees of 4-inch caliper or greater located on the subject site, where the planting is above and beyond the minimum site density requirement.

12.1.4. Variances and Appeals

- A. Applicants with a hardship imposed by the standards for tree protection may seek a variance to the standards (see Sec. 13.11.).
- B. Applicants dissatisfied with a staff decision regarding tree protection may appeal the decision to the Board of Zoning Appeals (see Sec. 13.12.).

C. Removal of Non-Specimen Trees

1. Tree removal is not allowed where soil erosion or runoff problems will occur due to topography, soil type, or proximity to floodplain or river protection areas; or if the removal will substantially alter the existing soils adversely with regard to runoff and erosion. Information submitted by the Engineer Director or other environmental specialist may be used by the City Arborist in such an evaluation.
2. Removal of non-specimen trees from a site may be allowed at the discretion of the City Arborist when:
 - a. The tree is located in an area where a structure or improvement will be placed, and the tree cannot be relocated on the site because of age, species or size;
 - b. The tree is diseased or structurally unsound;
 - c. The tree is injured or poses an imminent danger;
 - d. The tree interferes with existing utility service; or
 - e. The tree creates an unsafe vision clearance for vehicular movement.

D. Site Clean-Up Required. All tree removal companies, utility companies or persons in the business of removing trees or construction must remove from the site any trees, stumps, limbs or debris caused by tree removal activities.

12.1.5. Minimum Tree Density

A. Minimum. All sites subject to the tree protection requirements, including all detached house or attached house lots 1 acre or greater in size, must maintain a minimum tree density, measured in units per acre. The term “unit” is an expression of basal area, and is not synonymous with “tree”. The tree density requirement must be met whether or not a site has trees prior to development.

FORMULA:

$$\frac{\text{Required Tree Density Units (Sec. 12.1.5.B.)} - \text{Existing Tree Density Units (Sec. 12.1.5.D.)}}{\text{}} = \text{Replacement Tree Density Units}$$

B. Required Tree Density Units. Tree density units required vary based on the location of the site.

Site Location	Tree Density Units Required Per Acre
Downtown Historic Districts (-HOD)	10
GA 400/Holcomb Bridge Node	15
Estate, Suburban Residential	20
All Other Character Areas	30

C. Methods of Achievement. The minimum required tree unit density may be achieved by protecting existing trees and by planting new trees on the site.

D. Calculation of Existing Tree Density. Required tree density units are calculated on the basis of total (gross) area of the site or lot in question, excluding existing easements that are required to be cleared of trees. Only existing trees of not less than 3 inches DBH left in good growing condition and protected in tree save areas on the site count toward the minimum required tree density units. Protected trees are eligible for tree density credit based on the following table.

Existing Tree Size (DBH)	Tree Density Units
3"	1.0
4"	1.5
5"	2.0
6"	2.4
8"	3.0
10"	3.6
12"	4.2
14"	4.8
16"	5.3
18"	5.7
20"	6.0
22"	6.3
24"	6.6
26"	6.9
28"	7.2
30"	7.5
32"	7.8
34"	8.1
36"	8.4
38"	8.7
40"	9.0
42"	9.3
44"	9.6
46"	9.9
48"	10.2
50" or more	10.5

Sample Tree Unit Density Calculation

FORMULA:

$$\begin{aligned} & \text{Total Tree Density Units (Required Tree Density Units Per Acre from Sec. 12.1.5.B. x Site Acres)} \\ & - \text{Existing Tree Density Units Protected in Tree Save Areas} \\ & = \text{Replacement Tree Density Units (Required Density of Newly Planted Trees)} \end{aligned}$$

EXAMPLE:

Step 1: Calculate total requirement for your site.

2.2 acre site with a requirement of 30 tree density units per acre (see table in [Sec. 12.1.5.B.](#))

Total tree density units required is **66** (2.2 x 30)

Step 2: Conduct a tree survey on your site. Calculate existing tree density units protected in a tree save area.

A total of 8 existing trees will be protected in tree save areas on the site.

3 - 14" pines

3 - 18" oaks

1 - 20" hickory

1 - 30" oak

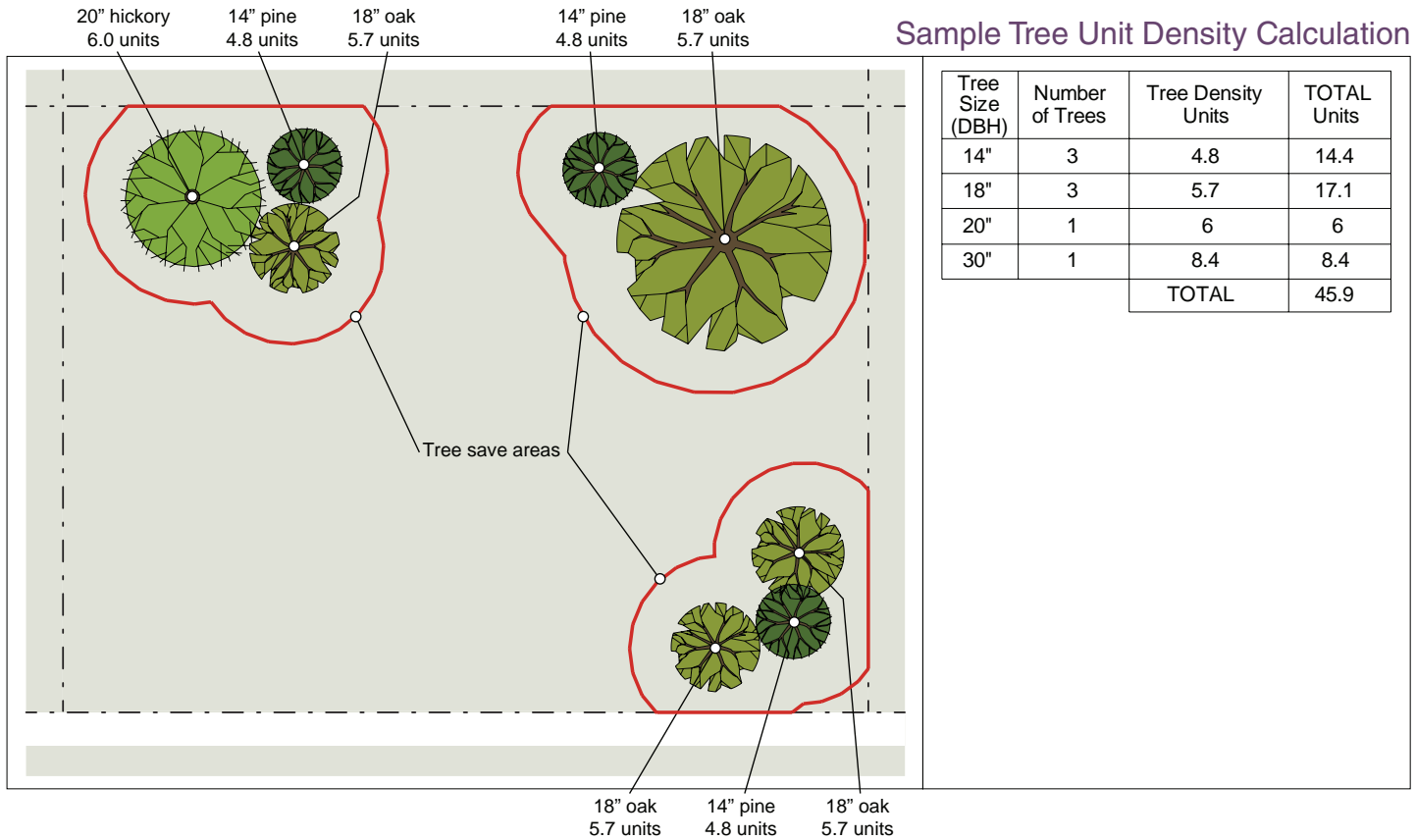
Converted to tree density units using table.

Tree Size (DBH)	Number of Trees	Tree Density Units (see Sec. 12.1.6.D)	TOTAL Tree Density Units
14"	3	4.8	14.4
18"	3	5.7	17.1
20"	1	6.0	6.0
30"	1	8.4	8.4
TOTAL			45.9

Step 3: Calculate any tree density unit deficit by subtracting the existing protected tree density units from the total required.

66 tree density units required - **45.9** protected tree density units = **20.1** additional tree density units needed.

Newly planted trees ([Sec. 12.1.6](#)) or a fee in lieu ([Sec. 12.1.7](#)) are required to make up any deficit.



12.1.6. Tree Replacement

A. **Tree Replacement Plan.** Trees must be relocated or replaced on site unless a fee in lieu of replanting is contributed. As many trees as can reasonably be expected to survive must be planted on the site. This provision may require planting less trees of a larger caliper than the minimum required caliper.

- 1. Separate Drawing.** A separate tree replacement plan indicating the location of all proposed trees for revegetation is required. This plan must be submitted as a separate drawing, but with the City Arborist's approval, may be included as a part of the tree protection plan.
- 2. Planting Schedules and Species Names.** The tree replacement plan must include planting schedules with proposed tree species names (botanical and common), quantity, size, spacing and any special planting notes.
- 3. Overstory/Understory Ratio.** Replanting must be at a ratio of not less than 1 overstory tree for every 3 understory trees. Tree density credit may be met by planting all overstory trees, but not by planting only understory trees.
- 4. Diversity.** No more than 40% of any one genus may be included in any replanting plan. Exceptions to this requirement may be authorized by the City Arborist.
- 5. Approved Trees.** Unless otherwise approved by the City Arborist, trees selected for replanting must be on the tree species selection list maintained by the City. Invasive trees are not allowed under any circumstances. Trees selected must be free from injury, pests, disease, nutritional disorders or root defects, and must be in good vigor in order to assure a reasonable expectation of survival. It is desirable that replanted trees be ecologically compatible with the site and neighboring sites. Accordingly, replanted trees must be of the same or similar species as those removed, when practical.
- 6. Flowering Ornamental Trees.** The use of flowering ornamental trees or plants classified as large shrubs may be included in the tree replacement plan, but must not be used for the purpose of meeting minimum tree density unit requirements for the site unless approved by the City Arborist.

7. **Transplanting of Trees.** Standards for transplanting must be in keeping with those established in the International Society of Arboriculture Tree and Shrub Planting Manual.
8. **Planting and Staking Details.** Planting and staking details must be provided on the tree replacement plan as determined by the City Arborist using International Society of Arboriculture (ISA) standards.
9. **Practices.** Roswell encourages environmentally sustainable design practices such as drought-tolerant landscaping, keeping turf away from native trees, and planting trees strategically for energy conservation.
10. **Debris.** All debris from trees cut or substantially damaged must be removed from the site or chipped in a timely fashion, including the removal or chipping of any portion of the tree stump above the original natural grade or elevation of land.

B. Calculation of Replacement Tree Density. Newly planted trees are eligible for tree density credit based on the following table. Replacement trees may include street trees planted in public rights-of-way adjacent to the site.

Replacement Tree Size (caliper)	Tree Density Units
2" (understory only)	0.5
3"	0.5
4"	0.9
5"	1.5
6"	2.4
7"	3.2
8"	4.0
9" or more	6.0

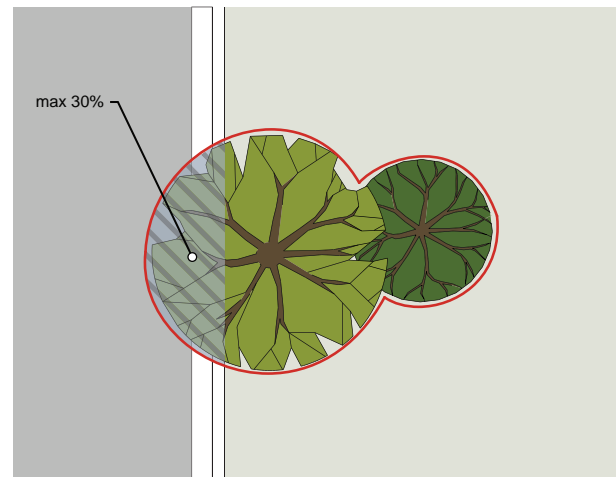
1. A 7-gallon container-grown pine tree is given replacement credit of 0.3 units.
2. For tree relocation, replacement units will be granted to trees relocated on site. Tree relocation is subject to approval by the City Arborist.

C. Replacement Tree Size and Height

1. All replanted overstory trees must be a minimum of 8 feet tall and have a trunk of not less than 3 caliper inches.
2. All replanted understory trees must be a minimum of 6 feet tall and have a trunk of not less than 2 caliper inches.

D. Minimum Root Zone

1. In order to provide sufficient growing area for planted trees, the following minimum criteria must be observed unless otherwise approved by the City Arborist:
 - a. Overstory Tree: 200 square feet of pervious root zone.
 - b. Understory Tree: 75 square feet of pervious root zone.
2. Impervious surface area may encroach into no more than 30% of the pervious root zone of a tree to be protected or planted, with techniques approved by the City Arborist.



- E. **Permit.** No land disturbance permit may be issued until the City Arborist has approved the tree replacement plan and a performance bond.
- F. **Maintenance.** All replacement trees must be maintained properly to ensure their survival.

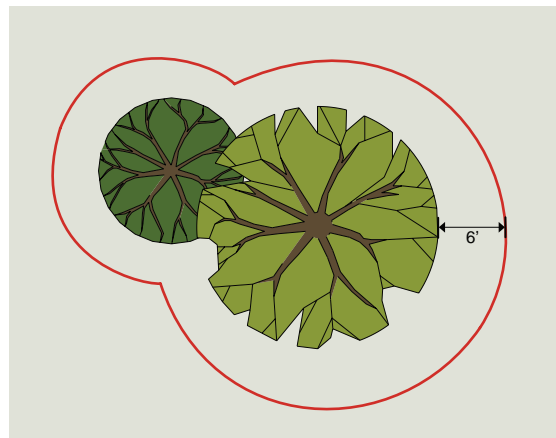
12.1.7. Fee in Lieu of Replacement Trees

- A. **Intent.** The intent of this section is to ensure that a minimum density of trees is maintained on all developed sites. Occasionally, this intent cannot be met on-site, because a site will not bear the required density of trees once development is completed. To provide relief in such cases, at the discretion of the City Arborist, the applicant may contribute funds to the Roswell Tree Bank.
- B. **City Arborist Authority.** The City Arborist must review and approve or deny all requests for a fee in lieu of replacement trees. In no instance may more than 90% of the required tree density units be met through payment of a fee in lieu.
- C. **Permit.** No Land Disturbance Permit may be issued until the City Arborist has approved any fee in lieu request and funds are received for deposit in the Roswell Tree Bank.
- D. **Roswell Tree Bank.** The City will accept donations to the Roswell Tree Bank. These donations will be used for the sole purpose of planting and maintaining trees and other applicable landscaping for public benefit on public property or private property within a public easement within the City of Roswell. Proposed landscaping may include shrubs and small trees. Maintenance is limited to tree, shrubs, and small trees, and excludes maintenance of grassed lawns. Other associated project tasks that may be permitted to use the Roswell Tree Bank funds include tree boxes or porous pavement that may enhance tree growth; these applications are subject to approval by Mayor and City Council.
- E. **Required Contribution.** The required contribution amount is \$220 per tree density unit, based on cost of materials, labor and guarantee for trees planted in the Roswell area.
- F. **Fund Administration.** The Roswell Tree Bank will be administered by the City Finance Department, with disbursements of tree bank funds initiated by the City Arborist and approved by the Mayor and City Council. An annual report must be prepared by the Roswell Finance Department and submitted to the City Administrator showing amounts collected, amounts spent, and the type and location of plantings or

maintenance completed. An annual audit prepared by an independent auditor will suffice to meet this requirement.

12.1.8. Tree Protection During Construction

- A. **Materials Prohibited in Tree Save Areas.** No structure, improvement, or any activity including solvents, material, construction machinery, portable toilets, construction trailers, or temporary soil deposits may encroach or be placed within a drip line or within 6 feet of the area immediately outside the drip line of any specimen tree or any tree within a tree save area unless authorized by the City Arborist in writing.



- B. **Tree Protection Devices.** Before development, land clearing, filling, or any land alteration, the developer is required to erect suitable protective barriers required by the City Arborist pursuant to an approved tree protection plan, including tree fences, tree protection signs, and erosion barriers. City inspection of tree protection barriers is required prior to the commencement of any land disturbance or development. Tree protection measures must remain in functioning condition until completion of site landscaping, completion of the project, or until the certificate of occupancy is issued. Authorization to remove the protective devices must be evidenced by approval in writing by the City Arborist or issuance of a final certificate of occupancy.
- C. **Active Tree Protection Devices.** Materials for active tree protection must consist of chain link, orange laminated plastic, wooden post and rail fencing or other equivalent restraining material. In addition to fencing,

where active tree protection is required, each tree to be saved must be marked at the base of the trunk with blue colored water-based paint.

- D. **Passive Tree Protection.** Passive tree protection fencing is to be used only for areas remote from construction activity. Materials for passive tree protection must consist of heavy mil. plastic flagging, a minimum of 4 inches wide with dark letters reading "Tree Protection Area - Do Not Enter" or equivalent signage on a continuous, durable restraint.
- E. **Additional Measures.** The developer must take measures to ensure the health of protected trees during construction, including, but not limited to:
1. Water, fertilize and treat the trees for pests or disease as needed, in accordance with standards of the International Society of Arboriculture.
 2. Where grading covers the trees with dust, hose them off.
 3. Do not prune branches so that equipment or structures "fit" within the tree's protected zone.
 4. Do not strip the topsoil or remove the natural leaf mulch or material from beneath a protected tree.
 5. Trees should be felled away from, rather than into, tree save areas.
 6. Provide adequate mulching and water for trees that will be retained.
- F. **Tree Damage.** Any tree designated on a tree protection plan to be saved damaged during construction or as a result of construction, as determined by the City Arborist, must be treated according to accepted standards of the National Arborists Association, or replaced with trees equal to the tree density unit value of the tree removed or damaged. However, any specimen tree damaged must be replaced with trees equal to 2 times the tree density unit value of the tree removed or damaged. Where a damaged specimen tree must be removed, the area occupied by its drip line must remain in a previous state. A replacement plan must be approved by the City Arborist.

12.1.9. Tree Maintenance

- A. To prevent long-term harm to the health of trees or their structure, all pruning of trees within the City of Roswell must be done in accordance with ANSI A300 Tree, Shrub, and Other Woody Plant Management Standard Practices (Pruning).
- B. On a single lot that contains, or is zoned and platted for purposes of constructing, a detached or attached house, this paragraph applies only to specimen trees.
- C. "Topping," defined as removal of more than one-third of the leaves and branches of a tree, as measured from the lowest branch on the trunk of the tree to the top of the tree, is prohibited.
- D. The applicant must post a maintenance bond in the form of cash or an irrevocable letter of credit covering a period of two years. If the applicant does not continue to comply with this Section and the conditions of the permit after issuance, the City may call the bond or any part of the bond to be forfeited and use the proceeds to hire a contractor to bring the site into compliance.

Sec. 12.2. Stream Buffers

12.2.1. Purpose and Intent

- A. The intent of the stream buffer requirements is to comply with the requirements of O.C.G.A. §12-5-453(a), the Metropolitan River Protection Act, and to comply with requirements of the Rules for Environmental Planning Criteria relative to water supply watersheds as specified by rules of the Georgia Department of Natural Resources, Environmental Protection Division.
- B. The purpose of the stream buffer requirements is to promote the public health, safety and general welfare and to minimize public and private losses due to erosion, reduction of stream quality and vitality, or changes in hydraulic characteristics in specific areas by provisions designed to:
 - 1. Restrict or prohibit land-disturbing activities, adjacent to streams, which lead to increases in erosion or to increased flood heights and velocities.
 - 2. Control the alteration of natural floodplains, stream channels, and natural protective barriers.
 - 3. Preserve and protect water and land resources in city watersheds by protecting fish and wildlife habitats and water quality, preventing erosion of stream banks or siltation of stream waters, and maintaining cool water temperatures and adequate food supplies.
 - 4. Protect, conserve, and promote the orderly and efficient development of water and land resources.

12.2.2. Water Resources Map

The water resources map is hereby adopted and made a part of this UDC.

12.2.3. Applicability

No person may engage in any land disturbance activity or otherwise alter the hydraulic or vegetative characteristics of an area of special flood hazard, a perennial stream or a flowing stream, or the required buffer of any such area or stream without meeting the following requirements.

12.2.4. Exceptions

The stream buffer requirements do not apply to.

- A. Any public agency or its contractor exempted by law from the application of these requirements.
- B. Any person performing work within a right-of-way of any public agency pursuant to a permit issued by a public agency.
- C. Emergency work necessary to preserve life or property. When emergency work is performed, the person performing it must report the pertinent facts relating to the work to the Engineering Director within 3 days after commencement of the work and obtain a Land Disturbance Permit and perform the work as may be determined to be reasonably necessary to correct any impairment the emergency work may have caused to the water conveyance capacity, stability or water quality of the protection area.
- D. Work consisting of the operation, repair or maintenance of any lawful use of land existing on the date of adoption of this ordinance or May 15, 2000, whichever is earlier.
- E. Any project that had a development plan approved by any officer, department, board or bureau of the City on or before the date of adoption of this ordinance or May 15, 2000, whichever is earlier.
- F. To any land-disturbing activity undertaken by any governmental entity in the development of a trail system or to any structure lawfully permitted as of the date of enactment of this chapter.

12.2.5. Land Disturbance Permit Application

A separate application for a Land Disturbance Permit must be made for each land-disturbing activity or any other act which alters the hydraulic or vegetative characteristics of a protection area. The application must include a map of the site and such information concerning the proposed action as the Engineering Director deems necessary to describe the nature and extent of the proposed action and to determine the effect of the proposed action on the protection area.

12.2.6. Land Disturbance Permit Issuance

No application for a Land Disturbance Permit may be approved and no permit may be issued for any land-disturbing activity inconsistent with these requirements.

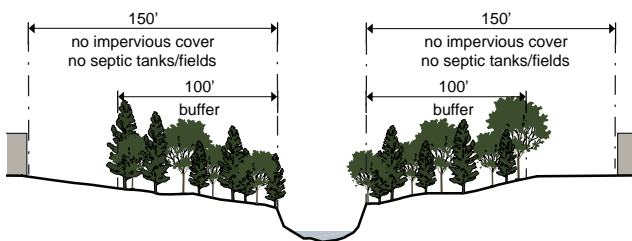
12.2.7. State Requirements for All Streams

All perennial and flowing streams must provide a minimum 25-foot stream buffer on each side of the stream bank. This buffer lies within the required distances for perennial and flowing streams, but does not allow for local variance to reduce the buffer.

12.2.8. Requirements for Perennial Streams

No application for a Land Disturbance Permit may be approved or permit issued for any land-disturbing activity within the corridor of any perennial stream unless:

- A. A buffer is maintained for a distance of 100 feet on both sides of the stream as measured from the stream banks;
- B. No impervious surface is constructed within a 150-foot setback area on both sides of the stream as measured from the stream banks; and



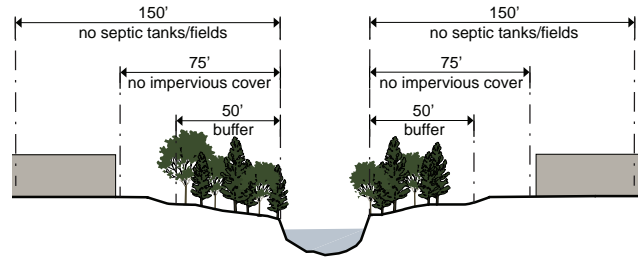
- C. Septic tanks and septic tank drainfields are not in the setback area of paragraph B. above.

12.2.9. Requirements for Flowing Streams

No application for a Land Disturbance Permit may be approved or permit issued for any land-disturbing activity within the corridor of any flowing stream unless:

- A. A buffer is maintained for a distance of 50 feet on each side of the stream bank as measured horizontally from the stream bank;
- B. No impervious surface is constructed within a 75-foot setback along each side of the stream bank as measured horizontally from the stream bank; and

- C. Septic tanks or septic tank drain fields are not located within 150 feet of the stream bank.



12.2.10. Land Disturbance Permit Requirements

An application for a Land Disturbance Permit inconsistent with these requirements may only be approved and a permit issued for any land-disturbing activity in one of the following instances.

- A. The Engineering Director after consulting with the Zoning Director, authorizes land disturbance for the construction of:
 - 1. A stream crossing by a drive-way, transportation route, or public utility, a dam or impoundment; or
 - 2. A transportation route or utility line parallel to a stream but not closer than 25 feet to a stream bank unless due to natural conditions in an area, the construction would be less harmful to the environment than if it were located outside the protection area.
- B. The City Council authorizes redevelopment of a tract or parcel where an equivalent amount of clearance and improvement can be located; or, where the opinion of the Engineering Director after consulting with the Public Works Director, the proposed work will not impair the quality, vitality and stability of the protection area.
- C. A structure is being repaired or rebuilt after being damaged by fire or other disaster and the Engineering Director determines that reasonable efforts to protect the adjacent stream have been taken.
- D. The City Council grants a variance from the stream buffer requirements because exceptional circumstances exist that strict adherence to the provisions would result in unnecessary hardship or would not further the intent of the requirements.

- E. The Engineering Director, after consulting with the Public Works Director, authorizes the proposed work and the following conditions are met:
1. A buffer is maintained for a width of 100 feet on each side of the stream as measured horizontally from the stream bank. This buffer requirement can be achieved by maintaining an average width of 100 feet and a minimum distance of 50 feet on each side of the stream as measured horizontally from the stream bank; and
 2. No impervious surface is constructed within 150 feet of a stream as measured horizontally from the stream bank. This requirement can be achieved by restricting the construction of any impervious surfaces within an average setback of 150 feet from the stream bank and a minimum distance of 75 feet as measured horizontally from the stream bank.
- F. The Engineering Director, after consulting with the Public Works Director, authorizes an exception to these stream buffers requirements to allow construction of a detention, retention or sediment control pond, facility or storm drainage structure within a required buffer, setback or protection area where it is deemed to be in the best interest of the water resources system.

12.2.11. Conditions

The Engineering Director may issue a Land Disturbance Permit subject to conditions specifically set forth in the permit.

12.2.12. Responsibility

- A. Neither the issuance of a Land Disturbance Permit or compliance with the conditions of the permit, or with the provisions of these requirements relieve any person from any responsibility otherwise imposed by law for damage to persons or property; nor will the issuance of any Land Disturbance Permit serve to impose any liability upon the City, its officers or employees, for injury or damage to persons or property.

- B. A permit issued pursuant to these requirements does not relieve the permittee of the responsibility of securing and complying with any other permit which may be required by any part of this UDC or any county, state or federal regulation or law.

12.2.13. Term of Permit; Extension; Renewal

The permittee must complete the work authorized by the Land Disturbance Permit within the time limits as specified in this UDC.

12.2.14. Inspection

- A. The Engineering Director may cause inspections of the work to be made periodically during the course of the work and must make a final inspection following completion of the work.
- B. The permittee must give assistance in making inspections, if required. The Engineering Director has the power to conduct investigations as may reasonably deem necessary to carry out their duties as prescribed, and for this purpose to enter upon any property, public or private, for the purpose of investigating and inspecting the sites of any land-disturbing activities.
- C. No person may refuse entry or access to any authorized representative or agent who requests entry for purposes of inspection, and who presents appropriate credentials, and person may obstruct, hamper or interfere with any representative while in the process of carrying out their official duties.

12.2.15. Variances and Appeals

- A. Applicants with a hardship imposed by the standards for stream buffers may seek a variance to the standards (see [Sec. 13.11.](#)). Note that some buffers are established by the State of Georgia and some by the Atlanta Regional Commission.
- B. Applicants dissatisfied with a staff decision regarding a Land Development Permit may appeal the decision to the Board of Zoning Appeals (see [Sec. 13.12.](#)).

Sec. 12.3. Groundwater Recharge

12.3.1. Purpose and Intent

The groundwater recharge requirements are intended to implement rules of the Georgia Department of Natural Resources Environmental Protection Division known as the “Rules for Environmental Planning Criteria” as they specifically relate to groundwater recharge areas (Rule 391-3-16-.02).

12.3.2. Applicability

- A. The groundwater recharge requirements apply to all lands that are mapped as significant recharge areas.
- B. No Land Disturbance Permit or Building Permit may be issued for any building or structure to be served by a septic tank unless the land use or building conforms to the groundwater recharge requirements of the UDC.
- C. Prior to a Land Disturbance Permit or Building Permit being issued, a site plan or subdivision plat in sufficient detail to review the proposed development for compliance with the groundwater recharge requirements must be submitted.

12.3.3. County Health Department Approval

No Land Disturbance Permit or Building Permit may be issued for a building or structure to be served by a septic tank unless the Fulton County Health Department first approves the proposed septic tank installation as meeting the requirements of the Georgia Department of Human Resources Manual for On-Site Sewage Management Systems (DHR Manual) and this Section.

12.3.4. Minimum Lot Size

- A. Within an area governed by the groundwater recharge requirements, new homes or land uses served by a septic tank and drain field system must be on lots having minimum lot sizes as follows, based on application of Table MT-1 of the DHR Manual. The minimums set forth in DHR Table MT-1 may be increased further based on consideration of other factors set forth in Sections A—F of the DHR Manual, as determined by the Fulton County Health Department.

1. 150% of the minimum lot size calculated based on application of DHR Table MT-1 if they are within a high pollution susceptibility area;
2. 125% of the minimum lot size calculated based on application of DHR Table MT-1 if they are within an average or medium pollution susceptibility area;
3. 110% of the minimum lot size calculated based on application of DHR Table MT-1 if they are within a low pollution susceptibility area.

- B. Any lot of record approved prior to the adoption of these requirements is exempt from the minimum lot size requirements.
- C. Within an area governed by the groundwater recharge requirements, no subdivision plat may be recorded until the plat has been approved by the Zoning Director as being in compliance with the minimum lot sizes established by these requirements.

12.3.5. Uses Prohibited

Within an area governed by the groundwater recharge requirements, the following uses are prohibited:

- A. Above-ground chemical or petroleum storage tanks;
- B. Agricultural waste impoundment sites;
- C. Hazardous materials handling facilities;
- D. Manufactured homes; and
- E. Manufactured home parks.

12.3.6. Variances and Appeals

- A. Applicants with a hardship imposed by the standards for groundwater recharge may seek a variance to the standards (see [Sec. 13.11.](#)).
- B. Applicants dissatisfied with a staff decision regarding groundwater recharge may appeal the decision to the Board of Zoning Appeals (see [Sec. 13.12.](#)).

Sec. 12.4. Wetlands

12.4.1. Purpose and Intent

The purpose of these requirements are to promote wetlands protection by withholding land use and building permits in areas designated as wetlands until a jurisdictional wetland determination is completed, and establishing permitted and prohibited land uses within wetlands.

12.4.2. Applicability

These requirements apply to all lands that are shown on the National Wetlands Database as wetlands.

12.4.3. Permit Required

- A. No Land Disturbance Permit or Building Permit may be issued by the Engineering Director for a land use, building or structure, or any regulated activity commence, unless the land use, building, structure, or regulated activity conforms to the wetland requirements of this UDC.
- B. A regulated activity is considered any activity that will or may reasonably be expected to result in the discharge of dredged or fill material into waters of the U.S., excepting those activities exempted in Section 404 of the Federal Clean Water Act.
- C. Prior to a Land Disturbance Permit or Building Permit being issued, the Engineering Director will require a site plan or subdivision plat in sufficient detail to review the proposed development for compliance with the provisions of these requirements.

12.4.4. Jurisdictional Wetland Determination

If an area proposed for development is located within 50 feet of a wetland as shown on the National Wetlands Database, as determined by the Engineering Director, no Land Disturbance Permit or Building Permit for the area designated wetland or any area within 50 feet of the designated wetland may be issued until a jurisdictional wetland determination has been completed and either of the following occur:

- A. The U.S. Army Corps of Engineers determines that there are jurisdictional wetlands present on the proposed development site, a Section 404 permit

is required, and either a Section 404 Permit or a letter of permission is issued by the Corps for the proposed development; or

- B. The U.S. Army Corps of Engineers determines that jurisdictional wetlands are not present on the proposed development site, and no Section 404 permit or letter of permission is required.

12.4.5. Prohibited and Permitted Uses

- A. Receiving areas for toxic or hazardous waste or other contaminants, and hazardous or sanitary waste landfills, are prohibited.
- B. The following uses are permitted, subject to use restrictions for the zoning district in which the wetland is located, within an area shown as a wetland on the generalized wetlands map, to the extent that they are not prohibited by any other ordinance or law, including laws of trespass, and provided they do not require structures, grading, fill, draining, or dredging except as provided here:
 - 1. Conservation or preservation of soil, water, vegetation, fish and other wildlife, provided it does not affect waters of Georgia or of the United States in such a way that would require an individual 404 Permit;
 - 2. Outdoor passive recreational activities, including fishing, bird watching, hiking, boating, horseback riding and canoeing;
 - 3. Forestry practices applied in accordance with best management practices approved by the Georgia Forestry Commission and as specified in Section 404 of the Clean Water Act;
 - 4. The cultivation of agricultural crops, subject to best management practices approved by the Georgia Department of Agriculture;
 - 5. The pasturing of livestock, provided that riparian wetlands are protected, that soil profiles are not disturbed and that approved agricultural best management practices are followed; and
 - 6. Education, scientific research and nature trails.

12.4.6. Variances and Appeals

No local variance or appeal processes are available for issues related to federal wetlands.

Sec. 12.5. Stormwater Management

12.5.1. General Provisions

- A. **Purpose and Intent.** The purpose of the stormwater management requirements are to protect, maintain and enhance the public health, safety, environment and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff and nonpoint source pollution associated with new development and redevelopment. It has been determined that proper management of post-development stormwater runoff will minimize damage to public and private property and infrastructure, safeguard the public health, safety, environment and general welfare of the public, and protect water and aquatic resources. This stormwater management requirements seek to meet that purpose through the following objectives:
1. Establish decision-making processes surrounding land development activities that protect the integrity of the watershed and preserve the health of water resources;
 2. Require that new development and redevelopment maintain the pre-development hydrologic response in their post-development state as nearly as practicable in order to reduce flooding, streambank erosion, nonpoint source pollution and maintain the integrity of stream channels and aquatic habitats;
 3. Allow, in appropriate situations, the use of existing conditions curve numbers for redevelopment sites where it can be shown through rigorous and detailed downstream engineering analysis that no existing downstream drainage problems exist or are anticipated as a result of the redevelopment;
 4. Establish design and application criteria for the construction and use of structural stormwater control facilities that can be used to meet the minimum post-development stormwater management standards;
 5. Encourage the use of nonstructural stormwater management and stormwater better site design practices, such as the preservation of green space and other conservation areas, to the maximum

extent practicable. Coordinate site design plans, which include green space, with the County's Green Space Protection Plan;

6. Establish provisions for the long-term responsibility for and maintenance of structural stormwater control facilities and nonstructural stormwater management practices to ensure that they continue to function as designed, are maintained, and pose no threat to public safety; and
7. Establish administrative procedures for the submission, review, approval and disapproval of stormwater management plans, and for the inspection of approved active projects, and long-term follow up.

B. Applicability

1. The stormwater management requirements apply to all land development, including, but not limited to, site plan applications, subdivision applications and grading applications, unless exempted in paragraph 2. below. These standards apply to any new development or redevelopment site that meets one or more of the following criteria unless the requirements are waived by the Public Works Director:
 - a. New development that involves the creation of 5,000 square feet or more of impervious cover, or that involves other land development activities of 1 acre or more;
 - b. Redevelopment that includes the creation, addition or replacement of 5,000 square feet or more of impervious cover, or that involves land development activity of 1 acre or more;
 - c. Any new development or redevelopment, regardless of size, that is defined by the Engineering Director or the Public Works Director to be a hotspot land use;
 - d. Land development activities that are smaller than the minimum applicability criteria in paragraphs a. and b. above, where the activities are part of a larger common plan of development, even though multiple, separate

and distinct land development activities may take place at different times on different schedules; or

- e. New nonresidential development or redevelopment that involves the creation or replacement of between 1,000 square feet and 5,000 square feet of impervious cover for nonresidential property must provide water quality protection only using approved low impact development methods.

2. The following activities are exempt from the stormwater management requirements:

- a. Individual single-family or two-family lots that are not part of a subdivision or phased development project;
- b. Additions or modifications to existing detached or attached houses;
- c. Agricultural or silvicultural land management activities within areas zoned for these activities; and
- d. Repairs to any stormwater management facility or practice deemed necessary by the Public Works Director.

- C. **Ordinance Administrator.** The Public Works Director will administer and implement the stormwater management requirements.

D. Stormwater Design Manual

1. The City will apply the policy, criteria and information, including technical specifications and standards, in the latest edition of the Georgia Stormwater Management Manual and any relevant local regulations or procedures adopted by the Public Works Department for the proper implementation of the requirements.
2. The manual may be updated and expanded periodically, based on improvements in science, engineering, monitoring and local maintenance experience.

12.5.2. Permit Procedures

A. Permit Application Requirements

1. No owner or developer may perform any land development activities without first meeting the stormwater management requirements prior to commencing the proposed activity.
2. Unless specifically exempt, any owner or developer proposing a land development activity must submit a permit application to the City on a form provided for that purpose.
3. Unless otherwise exempt, a permit application must be accompanied by the following items in order to be considered:
 - a. Stormwater concept plan and consultation meeting certification in accordance with Sec. 12.5.2.B.;
 - b. Stormwater management plan in accordance with Sec. 12.5.2.C.;
 - c. Inspection and maintenance agreement in accordance with Sec. 12.5.2.D., if applicable;
 - d. Performance bond, if applicable; and
 - e. Permit application and plan review fees in accordance with Sec. 12.5.2.E.

B. Stormwater Concept Plan and Consultation Meeting

1. Before any Land Disturbance Permit application is submitted, the land owner or developer must meet with the Public Works Director for a consultation meeting on a concept plan for the post-development stormwater management system to be utilized in the proposed project.
2. This consultation meeting must take place at the time of the preliminary plan of subdivision or other early step in the development process.
3. The purpose of this meeting is to discuss the post-development stormwater management measures necessary for the proposed project, as well as to discuss and assess constraints, opportunities and potential ideas for stormwater management designs before the formal site design engineering is commenced. To accomplish this goal, the

following information should be included in the concept plan which must be submitted in advance of the meeting:

a. Existing Conditions/Proposed Site Plans.

Existing conditions and proposed site layout sketch plans, which illustrate at a minimum: existing and proposed topography; perennial and intermittent streams; mapping of predominant soils from soil surveys (when available); boundaries of existing predominant vegetation and proposed limits of clearing and grading; and location of existing and proposed roads, buildings, parking areas and other impervious surfaces.

b. Natural Resources Inventory. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project. This description should include a discussion of soil conditions, forest cover, topography, wetlands, and other native vegetative areas on the site, as well as the location and boundaries of other natural feature protection and conservation areas such as wetlands, lakes, ponds, floodplains, stream buffers and other setbacks (e.g., drinking water well setbacks, septic setbacks, etc.). Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for development.

c. Stormwater Management System Concept Plan. A written or graphic concept plan of the proposed post-development stormwater management system including: preliminary selection and location of proposed structural stormwater controls; location of existing and proposed conveyance systems such as grass channels, swales, and storm drains; flow paths; location of floodplain/floodway limits; relationship of site to upstream and downstream properties and drainages; and preliminary location of proposed stream channel modifications, such as bridge or culvert crossings. Local watershed plans, the

green space projection plan, and any relevant resource protection plans will be consulted in the discussion of the concept plan.

C. Stormwater Management Plan Requirements

1. The stormwater management plan must detail how post-development stormwater runoff will be controlled or managed and how the proposed project will meet the stormwater management requirements, including the performance criteria set forth in Sec. 12.5.3.
2. This plan must meet or exceed the established criteria and must be submitted with the stamp and signature of a professional engineer (PE) licensed in the State of Georgia, and qualified in the field of water resources who must verify that the design of all stormwater management facilities and practices meet the submittal requirements outlined in the submittal checklists found in the stormwater design manual.
3. The stormwater management plan must ensure that the requirements and criteria are complied with and that opportunities are taken to minimize adverse post-development stormwater runoff impacts from the development. The plan must consist of maps, narrative, and supporting design calculations (hydrologic and hydraulic) for the proposed stormwater management system. The plan must include all of the information required in the stormwater management site plan checklist found in the stormwater design manual. This includes:
 - a. Common address and legal description of site;
 - b. Vicinity map;
 - c. Existing conditions hydrologic analysis;
 - d. Post-development hydrologic analysis;
 - e. Stormwater management system;
 - f. Post-development downstream analysis;
 - g. Construction-phase erosion and sedimentation control plan;
 - h. Landscaping and open space plan;

- i. Operations and maintenance plan;
- j. Maintenance access easements;
- k. Inspection and maintenance agreements; and
- l. Evidence of acquisition of applicable local and non-local permits.

D. Inspection and Maintenance Agreements

1. Prior to the issuance of any permit for a land development activity requiring a stormwater management facility or practice for which the City requires ongoing maintenance, the applicant or owner of the site must, unless the stormwater management facility or practice is dedicated to and accepted by the City, execute an inspection and maintenance agreement or a conservation easement, if applicable, that is binding on all subsequent owners of the site.
2. The inspection and maintenance agreement, if applicable, must be approved by the City prior to plan approval, and recorded in the deed records upon final plat approval.
3. The inspection and maintenance agreement must identify, by name or official title, the person responsible for carrying out the inspection and maintenance. Responsibility for the operation and maintenance of the stormwater management facility or practice, unless assumed by the City, must remain with the property owner and must pass to any successor owner. If portions of the land are sold or otherwise transferred, legally binding arrangements must be made to pass the inspection and maintenance responsibility to the appropriate successors in title. These arrangements must designate, for each portion of the site, the person to be permanently responsible for its inspection and maintenance.
4. As part of the inspection and maintenance agreement, a schedule must be developed for when and how often routine inspection and maintenance will occur to ensure proper function of the stormwater management facility or practice. The agreement must also include plans for annual inspections to ensure proper performance of the

facility between scheduled maintenance and also include remedies for the default under the agreement.

5. In addition to enforcing the terms of the inspection and maintenance agreement, the City may also enforce all of the provisions for ongoing inspection and maintenance in Sec. 12.5.5.
6. The Mayor and Council, in lieu of an inspection and maintenance agreement, may accept dedication of any existing or future stormwater management facility for maintenance, provided the facility meets all the requirements of this UDC and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.
7. The City is not legally responsible for the inspection or maintenance of any stormwater management facility including detention facilities or channels unless the facilities have been expressly dedicated to and accepted by the City for such purposes.

E. Application Procedure

1. Applications for land development permits must be filed with the City.
2. The City will inform the applicant whether the application, stormwater management plan and inspection and maintenance agreement are approved or disapproved within 45 working days after a complete application with all necessary elements has been submitted.
3. If either the permit application, stormwater management plan or inspection and maintenance agreement are disapproved, the City will notify the applicant in writing. The applicant may then revise any item not meeting the requirements and resubmit the application.
4. Upon a finding by the City that the permit application, stormwater management plan and inspection and maintenance agreement, if applicable, meet the stormwater management requirements, the City may issue a permit for the land development project, provided all other legal requirements for the issuance of the permit have been met.

5. In conducting the land development project, the applicant or other responsible person is subject to the following requirements:
 - a. The applicant must comply with all applicable requirements of the approved plan and these stormwater management requirements and must certify that all land clearing, construction, land development and drainage will be done according to the approved plan;
 - b. The land development project must be conducted only within the area specified in the approved plan;
 - c. The City must be allowed to conduct periodic inspections of the project;
 - d. No changes may be made to an approved plan without review and written approval by the City; and
 - e. Upon completion of the project, the applicant or other responsible person must submit the engineer's report and certificate and as-built plans required by [Sec. 12.5.4.B.](#)

F. Application Review Fees. The fee for review of any stormwater management application is based on the fee structure established by the City.

G. Modifications for Off-Site Facilities

1. The stormwater management plan for each land development project (part of the Land Development Permit) must provide for stormwater management measures located on the site of the project, unless provisions are made to manage stormwater by an off-site or regional facility. The off-site or regional facility must be located on property legally dedicated for the purpose, must be designed and adequately sized to provide a level of stormwater quantity and quality control that is equal to or greater than that which would be afforded by on-site practices and there must be a legally-obligated entity responsible for long-term operation and maintenance of the off-site or regional stormwater facility. In addition, on-site measures must be implemented, where necessary,

to protect upstream and downstream properties and drainage channels from the site to the off-site facility.

2. A stormwater management plan must be submitted to the City which shows the adequacy of the off-site or regional facility.
3. To be eligible for a modification, the applicant must demonstrate to the satisfaction of the City that the use of an off-site or regional facility will not result in the following impacts to upstream or downstream areas:
 - a. Increased threat of flood damage to public health, life, and property;
 - b. Deterioration of existing culverts, bridges, dams, and other structures;
 - c. Accelerated stream bank or stream bed erosion or siltation;
 - d. Degradation of in-stream biological functions or habitat; or
 - e. Water quality impairment in violation of state water quality standards, or violation of any state or federal regulations.

12.5.3. Performance Criteria

The following performance criteria apply to all stormwater management plans, unless otherwise provided for.

- A. Water Quality.** All stormwater runoff generated from a site must be adequately treated before discharge. It is presumed that a stormwater management system complies with this requirement when:
1. It is sized to treat the prescribed water quality treatment volume from the site, as defined in the Georgia Stormwater Management Manual;
 2. Appropriate structural stormwater controls or nonstructural practices are selected, designed, constructed or preserved, and maintained according to the specific criteria in the Georgia Stormwater Management Manual; and

3. Runoff from hotspot land uses and activities identified by the Public Works Director are adequately treated and addressed through the use of appropriate structural stormwater controls, nonstructural practices and pollution prevention practices.

B. Stream Channel Protection. Protection of stream channels from bank and bed erosion and degradation must be provided by using all of the following approaches:

1. Preservation, restoration and reforestation (with native vegetation) of the applicable stream buffer;
2. Extended (24 hour) detention storage of the 1-year, 24-hour return frequency storm event;
3. Erosion prevention measures, such as energy dissipation and velocity control.

C. Overbank Flooding Protection. Downstream overbank flood and property protection must be provided by controlling (attenuating) the post-development peak discharge rate to the pre-development rate for the 25-year, 24-hour return frequency storm event. If control of the 1-year, 24-hour storm is exempted, then peak discharge rate attenuation of the 2-year through 25-year return frequency storm event must be provided.

D. Extreme Flooding Protection. Extreme flood and public safety protection must be provided by controlling and safely conveying the 100-year, 24-hour return frequency storm event such that flooding is not exacerbated.

E. Structural Stormwater Controls

1. All structural stormwater management facilities must be selected and designed using the appropriate criteria from the Georgia Stormwater Management Manual. All structural stormwater controls must be designed appropriately to meet their intended function. For structural stormwater controls not included in the Georgia Stormwater Management Manual, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the structural control must be documented through prior studies, literature reviews, or other means, and receive approval from the City before being included in the design of a stormwater management system.

In addition, where hydrologic or topographic conditions, or land use activities warrant greater control than that provided by the minimum control requirements, the City may impose additional requirements deemed necessary to protect upstream and downstream properties and aquatic resources from damage due to increased volume, frequency, and rate of stormwater runoff or increased nonpoint source pollution loads created on the site in question.

2. Applicants must consult the Georgia Stormwater Management Manual for guidance on the factors that determine site design feasibility when selecting and locating a structural stormwater control.

F. Stormwater Credits for Nonstructural Measures

1. The use of one or more site design measures by the applicant may allow for a reduction in the water quality treatment volume required under Sec. 12.5.3.A. The applicant may, if approved by the City, take credit for the use of stormwater better site design practices and reduce the water quality volume requirement.
2. For each potential credit, there is a minimum set of criteria and requirements that identify the conditions or circumstances under which the credit may be applied. The site design practices that qualify for this credit and the criteria and procedures for applying and calculating the credits are included in the Georgia Stormwater Management Manual.

G. Drainage System Guidelines. Stormwater conveyance facilities, which may include, but are not limited to, culverts, stormwater drainage pipes, catch basins, drop inlets, junction boxes, headwalls, gutter, swales, channels, ditches, and energy dissipaters must be provided when necessary for the protection of public right-of-way and private properties adjoining project sites or public rights-of-way. Stormwater conveyance facilities that are designed to carry runoff from more than 1 parcel, existing or proposed, must meet the following requirements:

1. Methods to calculate stormwater flows must be in accordance with the stormwater design manual;

2. All culverts, pipe systems and open channel flow systems must be sized in accordance with the stormwater management plan using the methods included in the stormwater design manual; and,
 3. Design and construction of stormwater conveyance facilities must be in accordance with the criteria and specifications found in the stormwater design manual.
- H. **Dam Design Guidelines.** Any land-disturbing activity that involves a site which proposes a dam must comply with the Georgia Safe Dams Act and Rules for Dam Safety as applicable.
- I. **Detailed Downstream Analysis Guidelines**
1. For a redevelopment site, flexibility in determining curve numbers to quantify hydraulic values may be considered. In some basins and for some sites, it may be possible to show through a rigorous and detailed engineering analysis that detention or additional detention should not be required for a particular site. The criteria that must be evaluated and submitted to the Public Works Director includes:
 - a. Analysis and review of habitable and non-habitable built structures downstream of the subject property for riverine flooding;
 - b. Analysis of the infrastructure for conveyance and current condition; and
 - c. Completion of a field investigation of the downstream receiving waters to evaluate scouring and stream bank and stream bed stability.
 2. The Public Works Director will evaluate the engineering submittal to decide if additional detention or channel protection will be required. Water quality treatment utilizing low impact development methods will be required regardless of outcome of decision regarding additional detention or channel protection.
 3. The detailed downstream analysis must be conducted from the downstream point on the subject property to the 10% analysis point or to a point where the drainage basin downstream equals

10 times the subject site drainage basin or to a point where receiving waters are met which have a minimum 640 acres of drainage area.

12.5.4. Construction Inspections

- A. **Inspections to Ensure Plan Compliance During Construction.** Periodic inspections of the stormwater management system construction must be conducted, if required, by the City or conducted and certified by a professional engineer who has been approved by the Engineering Director. Inspections must follow procedures established for subdivisions and construction inspections must utilize the approved stormwater management plan for establishing compliance. In no instance will the inspection impose any duty or liability upon the City, its agents, officers, or employees.
- B. **Final Inspection and As Built Plans.** Upon completion of a project and before a certificate of occupancy will be granted, the applicant is responsible for certifying that the completed project is in accordance with the approved stormwater management plan. All applicants are required to submit actual "as built" plans for any stormwater management facilities or practices after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and practices and must be certified by a professional engineer. As built plans must be approved by the Public Works Director. A final inspection by the City is required before the release of any performance securities can occur.

12.5.5. Ongoing Inspection and Maintenance

- A. **Long-Term Maintenance Inspection**
1. Stormwater management facilities and practices included in a stormwater management plan that are subject to an inspection and maintenance agreement must undergo ongoing inspections to document maintenance and repair needs and ensure compliance with the requirements of the agreement, the plan and these stormwater management requirements.
 2. A stormwater management facility or practice must be inspected on a periodic basis by the responsible person in accordance with the

approved inspection and maintenance agreement. In the event that the stormwater management facility has not been maintained or becomes a danger to public safety or public health, the City will notify the person responsible for carrying out the maintenance plan by registered or certified mail to the person specified in the inspection and maintenance agreement. The notice will specify the deficiencies that must be corrected to comply with the agreement and the plan and the time within which such measures must be completed. If the responsible person fails or refuses to meet the requirements of the inspection and maintenance agreement, the City, may correct the violation as provided in Sec. 12.5.5.D.

3. Inspection programs by the City may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in stormwater management facilities; and evaluating the condition of stormwater management facilities and practices.

- B. **Right-of-Entry for Inspection.** The terms of the inspection and maintenance agreement must provide for the City to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this UDC is occurring or has occurred and to enter when necessary for abatement of a public nuisance or correction of a violation of these stormwater management requirements.
- C. **Records of Maintenance Activities.** Parties responsible for the operation and maintenance of a stormwater management facility must provide records of all maintenance and repairs to the City.
- D. **Failure to Maintain.** If a responsible person fails or refuses to meet the requirements of the inspection and maintenance agreement, the City, after 30 days' written notice (except, that in the event the violation constitutes

an immediate danger to public health or public safety, 24 hours' notice is sufficient), may correct a violation of the design standards or maintenance requirements by performing the necessary work to place the facility or practice in proper working condition. The City may assess the owner of the facility for the cost of repair work which will be a lien on the property, and may be placed on the *ad valorem* tax bill for such property and collected in the ordinary manner for such taxes.

12.5.6. Variances and Appeals

- A. Applicants with a hardship imposed by the standards for stormwater management may seek a variance to the standards (see Sec. 13.11.).
- B. Applicants dissatisfied with a staff decision regarding stormwater management may appeal the decision to the Board of Zoning Appeals (see Sec. 13.12.).

Sec. 12.6. Soil Erosion, Sedimentation and Pollution Control

12.6.1. Applicability and Exemptions

These soil erosion, sedimentation and pollution control requirements apply to any land-disturbing activity undertaken by any person on any land except for the following:

- A. Surface mining, as the same is defined in O.C.G.A. § 12-4-72, "The Georgia Surface Mining Act of 1968";
- B. Granite quarrying and land clearing for such quarrying;
- C. Minor land-disturbing activities such as home gardens and individual home landscaping, repairs, maintenance work, fences, and other related activities which result in minor soil erosion;
- D. The construction of single-family, when the construction disturbs less than 1 acre and is not a part of a larger common plan of development or sale with a planned disturbance of equal to or greater than 1 acre and not otherwise exempted under this paragraph; provided, however, that construction of any such residence must conform to the minimum requirements as set forth in O.C.G.A. § 12-7-6 and this paragraph. For single-family residential and associated accessory structure construction covered by the provisions of this paragraph, there must be a buffer zone between the residence and any state waters classified as trout streams pursuant to Article 2 of Chapter 5 of the Georgia Water Quality Control Act. In any such buffer zone, no land-disturbing activity may be constructed between the residence and the point where vegetation has been wrested by normal stream flow or wave action from the banks of the trout waters. For primary trout waters, the buffer zone must be at least 50 horizontal feet, and no variance to a smaller buffer will be granted. For secondary trout waters, the buffer zone must be at least 50 horizontal feet, but the Engineering Director may grant variances to no less than 25 feet. Regardless of whether a trout stream is primary or secondary, for first order trout waters, which are streams into which no other streams flow except for springs, the buffer must be at least 25 horizontal feet, and no variance to a smaller buffer will be granted. The minimum requirements of O.C.G.A. § 12-7-6(b) and the buffer zones provided by this paragraph will be enforced by the local issuing authority through a Minor Land Disturbance Permit process;
- E. Agricultural operations as defined in O.C.G.A. § 1-3-3, "definitions", to include raising, harvesting or storing of products of the field or orchard; feeding, breeding or managing livestock or poultry; producing or storing feed for use in the production of livestock, including but not limited to cattle, calves, swine, hogs, goats, sheep, and rabbits or for use in the production of poultry, including but not limited to chickens, hens and turkeys; producing plants, trees, fowl, or animals; the production of aqua culture, horticultural, dairy, livestock, poultry, eggs and apiarian products; farm buildings and farm ponds;
- F. Forestry land management practices, including harvesting; provided, however, that when exempt forestry practices cause or result in land-disturbing or other activities otherwise prohibited in a buffer, as established in [Sec. 12.6.2.C.15 and 16](#), no other land-disturbing activities, except for normal forest management practices, will be allowed on the entire property upon which the forestry practices were conducted for a period of 3 years after completion of such forestry practices;
- G. Any project carried out under the technical supervision of the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture;
- H. Any project involving less than 5,000 square feet of disturbed area; provided, however, that this exemption does not apply to any land-disturbing activity within a larger common plan of development or sale with a planned disturbance of equal to or greater than 1 acre or within 200 feet of the bank of any state waters, and for purposes of this paragraph, "state waters" excludes channels and drainage ways which have water in them only during and immediately after rainfall events and intermittent streams which do not have water in them year-round; provided, however, that any person responsible for a project which involves less than 5,000 square feet, which involves land-disturbing activity, and which is within 200 feet of any such excluded channel or drainage way, must prevent sediment from moving beyond the boundaries of the property on which such project is located and provided, further, that nothing

contained here prevents the local issuing authority from regulating any such project which is not specifically exempted by Sec 12.6.1.A. through J.;

- I. Construction or maintenance projects, or both, undertaken or financed in whole or in part, or both, by the Department of Transportation, the State Highway Authority, or the State Road and Tollway Authority; or any road construction or maintenance project, or both, undertaken by any county or municipality; provided, however, that construction or maintenance projects of the Department of Transportation or the State Road and Tollway Authority which disturb one or more contiguous acres of land will be subject to provisions of O.C.G.A. § 12-7-7.1; except where the Department of Transportation, the State Highway Authority, or the State Road and Tollway Authority is a secondary permittee for a project located within a larger common plan of development or sale under the state general permit, in which case a copy of a notice of intent under the state general permit must be submitted to the local issuing authority, the local issuing authority must enforce compliance with the minimum requirements set forth in O.C.G.A. § 12-7-6 as if a permit had been issued, and violations must be subject to the same penalties as violations by permit holders;
- J. Any land-disturbing activities conducted by any electric membership corporation or municipal electrical system or any public utility under the regulatory jurisdiction of the public service commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in O.C.G.A. § 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission, or distribution of power; except where an electric membership corporation or municipal electrical system or any public utility under the regulatory jurisdiction of the public service commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in O.C.G.A. § 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission, or distribution of power is a secondary permittee for a project located within a larger common plan of development or sale under the state general permit, in which case the local issuing authority will enforce compliance with the minimum requirements set forth in O.C.G.A. § 12-7-6 as if a

permit had been issued, and violations will be subject to the same penalties as violations by permit holders; and

- K. Any public water system reservoir.

12.6.2. Best Management Practices

- A. **General Provisions.** Excessive soil erosion and resulting sedimentation can take place during land-disturbing activities if requirements of the Section and the NPDES general permit are not met. Therefore, plans for those land-disturbing activities which are not exempted by this Section must contain provisions for application of soil erosion, sedimentation and pollution control measures and practices. The provisions must be incorporated into the erosion, sedimentation and pollution control plans. Soil erosion, sedimentation and pollution control measures and practices must conform to the minimum requirements of paragraphs B. and C. below. The application of measures and practices must apply to all features of the site, including street and utility installation, drainage facilities and other temporary and permanent improvements. Measures must be installed to prevent or control erosion, sedimentation and pollution during all stages of any land-disturbing activity in accordance with requirements of this Section and the NPDES general permit.
- B. **Minimum Requirements for Erosion, Sedimentation and Pollution Control using Best Management Practices**
 1. Best management practices as set forth in Sec. 12.6.2.B. and Sec. 12.6.2.C. are required for all land-disturbing activities. Proper design, installation, and maintenance of best management practices will constitute a complete defense to any action by the Engineering Director or to any other allegation of noncompliance with paragraph 2. below or any substantially similar terms contained in a permit for the discharge of storm water issued pursuant to O.C.G.A. § 12-5-30(f), the "Georgia Water Quality Control Act". As used in this paragraph, the terms "proper design" and "properly designed" mean designed in accordance with the hydraulic design specifications contained in the Manual for Erosion and Sediment Control in Georgia specified in O.C.G.A. § 12-7-6(b).

2. A discharge of storm water runoff from disturbed areas where best management practices have not been properly designed, installed, and maintained will constitute a separate violation of any land-disturbing permit issued by a local issuing authority or of any state general permit issued by the Environmental Protection Division pursuant to O.C.G.A. § 12-5-30(f), the “Georgia Water Quality Control Act”, for each day on which such discharge results in the turbidity of receiving waters being increased by more than 25 nephelometric turbidity units for waters supporting warm water fisheries or by more than 10 nephelometric turbidity units for waters classified as trout waters. The turbidity of the receiving waters will be measured in accordance with guidelines to be issued by the Engineering Director. This paragraph does not apply to any land disturbance associated with the construction of single family homes which are not part of a larger common plan of development or sale unless the planned disturbance for such construction is equal to or greater than 5 acres.
3. Failure to properly design, install or maintain best management practices will constitute a violation of any land-disturbing permit issued by a local issuing authority or of any state general permit issued by the Environmental Protection Division pursuant to O.C.G.A. § 12-5-30(f), the “Georgia Water Quality Control Act”, for each day on which such failure occurs.
4. The Director may require, in accordance with regulations adopted by the Board of Natural Resources, reasonable and prudent monitoring of the turbidity level of receiving waters into which discharges from land disturbing activities occur.
5. The LIA may set more stringent buffer requirements than stated in Sec.12.6.2.C.15. and Sec.12.6.2.C.16. in light of O.C.G.A. § 12-7-6(c). Stream buffer requirements are listed Sec. 12.2.

C. General Design Principles. The rules and regulations, ordinances, or resolutions adopted pursuant to O.C.G.A. § 12-7-1 et seq. for the purpose of governing land-disturbing activities will require, as a minimum, protections at least as stringent as the state general permit; and best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant

sedimentation, which are consistent with, and no less stringent than those practices contained in the Manual for Erosion and Sediment Control in Georgia published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, as well as the following:

1. Stripping of vegetation, regrading and other development activities must be conducted in a manner so as to minimize erosion;
2. Cut-fill operations must be kept to a minimum;
3. Development plans must conform to topography and soil type so as to create the lowest practicable erosion potential;
4. Whenever feasible, natural vegetation must be retained, protected and supplemented;
5. The disturbed area and the duration of exposure to erosive elements must be kept to a practicable minimum;
6. Disturbed soil must be stabilized as quickly as practicable;
7. Temporary vegetation or mulching must be employed to protect exposed critical areas during development;
8. Permanent vegetation and structural erosion control practices must be installed as soon as practicable;
9. To the extent necessary, sediment in run-off water must be trapped by the use of debris basins, sediment basins, silt traps, or similar measures until the disturbed area is stabilized. As used in this paragraph, a disturbed area is stabilized when it is brought to a condition of continuous compliance with the requirements of O.C.G.A. § 12-7-1 et seq.;
10. Adequate provisions must be provided to minimize damage from surface water to the cut face of excavations or the sloping of fills;
11. Cuts and fills may not endanger adjoining property;

12. Fills may not encroach upon natural watercourses or constructed channels in a manner so as to adversely affect other property owners;
13. Grading equipment must cross flowing streams by means of bridges or culverts except when such methods are not feasible, provided, in any case, that such crossings are kept to a minimum;
14. Land-disturbing activity plans for erosion, sedimentation and pollution control must include provisions for treatment or control of any source of sediments and adequate sedimentation control facilities to retain sediments on-site or preclude sedimentation of adjacent waters beyond the levels specified in Sec. 12.6.2.B.2.;
15. Except as provided in the Sec. 12.6.2.C.16., there is established a 25-foot buffer along the banks of all state waters, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, except where the Director determines to allow a variance that is at least as protective of natural resources and the environment, where otherwise allowed by the Director pursuant to O.C.G.A. § 12-2-8, where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specifications, and are implemented; or along any ephemeral stream. As used in this provision, the term 'ephemeral stream' means a stream that under normal circumstances has water flowing only during and for a short duration after precipitation events; that has the channel located above the ground-water table year round; for which ground water is not a source of water; and for which runoff from precipitation is the primary source of water flow, unless exempted as along an ephemeral stream, the buffers of at least 25 feet established pursuant to Part 6 of Article 5, Chapter 5 of Title 12, the Georgia Water Quality Control Act, will remain in force unless a variance is granted by the Director as provided in this paragraph. The following requirements must apply to any such buffer:
 - a. No land-disturbing activities may be conducted within a buffer and a buffer must remain in its natural, undisturbed state of vegetation until all land-disturbing activities on the construction site are completed. Once the final stabilization of the site is achieved, a buffer may be thinned or trimmed of vegetation as long as a protective vegetative cover remains to protect water quality and aquatic habitat and a natural canopy is left in sufficient quantity to keep shade on the stream bed; provided, however, that any person constructing a single-family residence, when such residence is constructed by or under contract with the owner for their own occupancy, may thin or trim vegetation in a buffer at any time as long as protective vegetative cover remains to protect water quality and aquatic habitat and a natural canopy is left in sufficient quantity to keep shade on the stream bed; and
 - b. The buffer does not apply to the following land-disturbing activities, provided that they occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream; cause a width of disturbance of not more than 50 feet within the buffer; and adequate erosion control measures are incorporated into the project plans and specifications and are implemented:
 - i. Stream crossings for water lines; or
 - ii. Stream crossings for sewer lines.
16. There is established a 50 foot buffer as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, along the banks of any state waters classified as "trout streams" pursuant to Article 2 of Chapter 5 of Title 12, the "Georgia Water Quality Control Act", except where a roadway drainage structure must be constructed ; provided, however, that small springs and streams classified as trout streams which discharge an average annual flow of 25 gallons per minute or less shall have a 25 foot buffer or they may be piped, at the discretion of the landowner, pursuant to the terms of a rule providing for a general variance promulgated by the Board, so long as any such pipe stops short of the downstream landowner's property and the landowner complies with the buffer requirement for

any adjacent trout streams. The Director may grant a variance from such buffer to allow land-disturbing activity, provided that adequate erosion control measures are incorporated in the project plans and specifications and are implemented. The following requirements shall apply to such buffer:

- a. No land-disturbing activities shall be conducted within a buffer and a buffer shall remain in its natural, undisturbed, state of vegetation until all land-disturbing activities on the construction site are completed. Once the final stabilization of the site is achieved, a buffer may be thinned or trimmed of vegetation as long as a protective vegetative cover remains to protect water quality and aquatic habitat and a natural canopy is left in sufficient quantity to keep shade on the stream bed: provided, however, that any person constructing a single-family residence, when such residence is constructed by or under contract with the owner for his or her own occupancy, may thin or trim vegetation in a buffer at any time as long as protective vegetative cover remains to protect water quality and aquatic habitat and a natural canopy is left in sufficient quantity to keep shade on the stream bed; and
- b. The buffer shall not apply to the following land-disturbing activities, provided that they occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream; cause a width of disturbance of not more than 50 feet within the buffer; and adequate erosion control measures are incorporated into the project plans and specifications and are implemented: (i) Stream crossings for water lines; or (ii) Stream crossings for sewer lines.

D. Steep Slopes

1. Rezoning plans and development plans must conform to topography and soil type so as to create the lowest practical erosion potential. No rezoning application or development plan application may be considered on any slope in excess of 25% within 500 feet of any state waters or stream identified on the Water Resources

Protection Map, latest version, without the submittal of a Steep Slope and Erodible Soils Evaluation. For purposes of this paragraph, "state waters" excludes channels and drainage ways which have water in them only during and immediately after rainfall events and intermittent streams that based on a field evaluation do not have a discernible flow at the time of the evaluation. Field evaluations must not be made within 48 hours of any rainfall event of 0.10 inches or greater or within 7 days of any rainfall event of 0.5 inches or greater. The rainfall measurement must be based on the City rainfall gauge closest to the site.

2. This Section is in addition to other buffer requirements and does not exempt any project from any other requirements of the City. This Section also applies to filling activities that occur within 500 feet of a "state waters" or included streams, as defined here, when any part of that fill slope exceeds 25%.
3. This section does not apply to projects with a total site area of less than 1 acre.
4. A Steep Slopes and Erodible Soils Evaluation must consist of the following:
 - a. A Steep Slope and Erodible Soils Evaluation must be conducted in accordance with the evaluation procedures and criteria specified here or a comparable method approved by the Engineering Director for sites containing or near to streams, wetlands, or other water bodies where:
 - i. Slopes exceed 10% within 500 feet of a state water or included stream.
 - ii. Soil erodibility K values exceed 0.24 within 500 feet of the streams, wetlands, or water bodies; or
 - iii. The vegetative cover within 100 feet of the streams, wetlands, or water bodies is: bare soil; fallow land; crops; active pasture in poor or fair condition; orchard - tree farm in poor or fair condition; brush - weeds in poor condition; or woods in poor condition.

Table 1: Evaluation Criteria for Steep Slopes and Erodible Soils

Factor Scores	Low - 0 points	Medium - 5 points	High - 10 points
Slope	Less than 10%	10% and 20%	Over 20%
Slope Length	Less than 50 feet	50 to 200 feet	Greater than 200 feet
Soil Erodibility (K)	Less than 0.24	0.24 to 0.32	Greater than 0.32
Vegetative Cover	Undisturbed meadow; active pasture in good condition; orchard-tree farm or woods in good condition Good condition: > 75% ground cover	Active pasture in fair condition; brush-weeds in fair condition; orchard-tree farm in fair condition; woods in fair condition Fair condition: 50% to 75% ground cover	Bare soil, fallow land, crops; active pasture in poor condition; brush-weeds in poor condition; orchard-tree farm in poor condition; woods in poor condition Poor condition: < 50% ground cover
Sediment Delivery (Distance from downslope limit of disturbance to outer edge of wetlands or top of streambank)	Not adjacent to watercourses or wetlands. (> 300' buffer)	Adjacent to watercourses or wetlands (100'—300' buffer)	Adjacent to watercourses or wetlands (<100' buffer)

- b. The evaluation report must be submitted for review to the Engineering Director. This report must include, as a minimum, the following:
 - i. A plan, at a scale not smaller than 1 inch equals 100 feet, that shows:
 - ii. Existing topography with contour intervals no greater than 5 feet;
 - iii. Mapped soils as shown in soil surveys;
 - iv. Field delineated, marked and surveyed streams and wetlands;
 - v. Existing vegetation;
 - vi. Existing sub drainage areas of the site; and
 - vii. Slopes in each sub drainage area segmented into sections of slopes less than or equal to 10%; 11% to 19%; and greater than or equal to 20%;
 - viii. All slope analysis data forms;
 - ix. A summary of findings including information pertinent to the evaluation of the site; and
- x. A mitigation plan that describes the proposed additional protective measures for those areas where development is allowed with restrictions.
- c. The site will be evaluated by assessing each segment of each subdrainage area using the evaluation criteria in Table 1. Each segment must be given a score for slope, slope length, soil erodibility, vegetative cover, and sediment delivery. A total score will be assigned for each segment. A segment of a sub drainage area with a total score of 35 or greater must be designated as part of the buffer and no development may be approved in that segment. A segment with a total score of 25 or 30 requires the application of additional protective measures as required by the Engineering Director; however, development is not prohibited and that area is not part of the buffer. A segment with a score of 20 or less may be developed with standard protective measures and that area is not required to be part of the buffer.

- E. **Exemptions.** No application for a Land Disturbance Permit may be approved for activity inconsistent with this section, unless:
1. The Engineering Director, after consulting with the Public Works Director, authorizes land disturbance for the construction of: a stream crossing by a drive-way, transportation route, or utility line parallel to a stream but not closer than 25 feet from a stream bank unless due to natural conditions in an area, such construction would be less harmful to the environment than if it were located outside the protection area; or
 2. The Engineering Director with the approval of the Mayor and City Council finds and determines that the proposed work will not impair the quality, vitality and stability of the protection area and will not destroy more than a minimum amount of the riparian cover within the parcel; or
 3. The Engineering Director with the approval of the Mayor and City Council authorizes redevelopment of a tract or parcel where an equivalent amount of clearance and improvement are located; or, where the opinion of the Engineering Director, after consulting with the Public Works Director, is that the proposed work will not impair the quality, vitality and stability of the protection area; or
 4. A structure is being repaired or rebuilt after being damaged by fire or other disaster and the Engineering Director determines that reasonable efforts to protect the adjacent stream have been taken; or
 5. The Engineering Director with the approval of the Mayor and City Council grants a variance from the requirements of this Section because exceptional circumstances exist such that a strict adherence to the provisions of this article would result in unnecessary hardship and/or would not further the intent of the Article; or
 6. The Engineering Director, after consulting with the Public Works Director, authorizes an exception to these rules to allow construction of a detention, retention or sediment control pond, facility or storm drainage structure within a required buffer, setback or protection area where it is deemed to be in the best interest of the water resources system.

- F. Nothing contained in O.C.G.A. § 12-7-1 et seq. prevents any local issuing authority from adopting rules and regulations, ordinances, or resolutions which contain stream buffer requirements that exceed the minimum requirements Sec. 12.6.2.B. and C.
- G. The fact that land-disturbing activity for which a permit has been issued results in injury to the property of another will neither constitute proof of nor create a presumption of a violation of the standards provided for in this Section or the terms of the permit.

12.6.3. Application/Permit Process

- A. **General.** The property owner, developer and designated planners and engineers must design and review the general development plans before submittal. The local issuing authority will review the tract to be developed and the area surrounding it. They will consult this UDC and any other ordinances, rules, regulations or permits, which regulate the development of land within the jurisdictional boundaries of the local issuing authority. However, the owner or operator are the only parties who may obtain a permit.
- B. **Application Requirements**
1. No person may conduct any land-disturbing activity within the jurisdictional boundaries of the City without first obtaining a permit from the Engineering Director to perform such activity, and providing a copy of notice of intent submitted to the Environmental Protection Division, if applicable.
 2. The application for a permit must be submitted to the Engineering Director and include the applicant's erosion, sedimentation and pollution control plan with supporting data as necessary. Plans must include, as a minimum, the data specified in Sec. 12.6.3.C. Erosion, sedimentation and pollution control plans, together with supporting data, must demonstrate affirmatively that the land disturbing activity proposed will be carried out in such a manner that the provisions of Sec. 12.6.2.B. and C. will be met. All applications must contain a certification stating that the plan preparer visited the site prior to creation of the plan in accordance with the Environmental Protection Division Rule 391-3-7-.10.

3. A fee payable to the City in the amount set by resolution of the Mayor and City Council, as amended from time to time, will be charged for each application. For projects with a disturbed area of 1 acre or more, additional fees will also be assessed pursuant to O.C.G.A. § 12-5-23(a)(5), provided that such fees must not exceed \$80 per acre of land-disturbing activity, and these fees must be calculated and paid by the primary permittee as defined in the state general permit for each acre of land-disturbing activity included in the planned development or each phase of development. All applicable fees must be paid prior to issuance of the land disturbance permit. In a jurisdiction that is certified pursuant to O.C.G.A. § 12-7-8(a) half of such fees levied must be submitted to the Environmental Protection Division; except that any and all fees due from an entity which is required to give notice pursuant to O.C.G.A. § 12-7-17(9) or (10) must be submitted in full to the Environmental Protection Division, regardless of the existence of a local issuing authority in the jurisdiction.
4. Immediately upon receipt of an application and plan for a permit, the local issuing authority will refer the application and plan to the Fulton County Soil and Water Conservation District for its review and approval or disapproval concerning the adequacy of the erosion, sedimentation and pollution control plan. The Fulton County Soil and Water Conservation District must approve or disapprove a plan within 35 days of receipt. Failure of the Fulton County Soil and Water Conservation District to act within 35 days will be considered an approval of the pending plan. The results of the Fulton County Soil and Water Conservation District review must be forwarded to the local issuing authority. No permit will be issued unless the plan has been approved by the Fulton County Soil and Water Conservation District, and any variances required by Sec. 12.6.2.B. and C. have been obtained, all fees have been paid, and bonding, if required by Sec. 12.6.3.B.6. have been obtained. Such review will not be required if the local issuing authority and the Fulton County Soil and Water Conservation District have entered into an agreement which allows the local issuing authority to conduct such review and approval of the plan without referring the application and plan to the Fulton County Soil and Water Conservation District. The local issuing authority with plan review authority must approve or disapprove a revised plan submittal within 35 days of receipt. Failure of the local issuing authority with plan review authority to act within 35 days will be considered an approval of the revised plan submittal.
5. The local issuing authority may reject a permit application if the applicant has had 2 or more violations of previous permits or the Erosion and Sedimentation Act permit requirements within 3 years prior to the date of the application, in light of O.C.G.A. § 12-7-7(f)(1).
6. The local issuing authority may require the permit applicant to post a bond in the form of government security, cash, irrevocable letter of credit, or any combination up to, but not exceeding, \$3,000 per acre or fraction of an acre of the proposed land-disturbing activity, prior to issuing the permit. If the applicant does not comply with this Section or with the conditions of the permit after issuance, the local issuing authority may call the bond or any part of the bond to be forfeited and may use the proceeds to hire a contractor to stabilize the site of the land-disturbing activity and bring it into compliance. These provisions do not apply unless there is in effect an ordinance or statute specifically providing for hearing and judicial review of any determination or order of the local issuing authority with respect to alleged permit violations.

C. Plan Requirements

1. Plans must be prepared to meet the minimum requirements as contained in Sec. 12.6.2.B. and C. or through the use of more stringent, alternate design criteria which conform to sound conservation and engineering practices. The Manual for Erosion and Sediment Control in Georgia is incorporated by reference into this Section. The plan for the land-disturbing activity must consider the interrelationship of the soil types, geological and hydrological characteristics, topography, watershed, vegetation, proposed permanent structures including roadways, constructed waterways, sediment control and storm water management facilities, local ordinances and state laws. Maps, drawings and supportive computations must bear the signature

and seal of the certified design professional. Persons involved in land development design, review, permitting, construction, monitoring, or inspections or any land disturbing activity must meet the education and training certification requirements, dependent on their level of involvement with the process, as developed by the Georgia Soil and Water Conservation Commission and in consultation with the Environmental Protection Division and the Stakeholder Advisory Board created pursuant to O.C.G.A. § 12-7-20.

2. Data required for site plan must include all the information required from the appropriate Erosion, Sedimentation and Pollution Control Plan Review Checklist established by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted.

D. Permits

1. Permits must be issued or denied as soon as practicable but in any event not later than 45 days after receipt by the local issuing authority of a completed application, providing variances and bonding are obtained, where necessary and all applicable fees have been paid prior to permit issuance. The permit must include conditions under which the activity may be undertaken.
2. No permit will be issued by the local issuing authority unless the erosion, sedimentation and pollution control plan has been approved by the Fulton County Soil and Water Conservation District and the local issuing authority has affirmatively determined that the plan is in compliance with this article, any variances required by Sec. 12.6.2.C.15. and 16 are obtained, bonding requirements, if necessary, as per Sec. 12.6.3.B.6. are met and all ordinances and rules and regulations in effect within the jurisdictional boundaries of the local issuing authority are met. If the permit is denied, the reason for denial must be furnished to the applicant.
3. Any land-disturbing activities by a local issuing authority is subject to the same requirements of this article, and any other ordinances relating to land development, as are applied to private persons

and the Environmental Protection Division will enforce such requirements upon the local issuing authority.

4. If the tract is to be developed in phases, then a separate permit is required for each phase.
5. The permit may be suspended, revoked, or modified by the local issuing authority, as to all or any portion of the land affected by the plan, upon finding that the holder or their successor in the title is not in compliance with the approved erosion and sedimentation control plan or that the holder or their successor in title is in violation of this Section. A holder of a permit must notify any successor in title as to all or any portion of the land affected by the approved plan of the conditions contained in the permit.

12.6.4. Inspection and Enforcement

- A. The Engineering Director will periodically inspect the sites of land-disturbing activities for which permits have been issued to determine if the activities are being conducted in accordance with the plan and if the measures required in the plan are effective in controlling erosion and sedimentation. Also, the local issuing authority will regulate primary, secondary and tertiary permittees as such terms are defined in the state general permit. Primary permittees will be responsible for installation and maintenance of best management practices where the primary permittee is conducting land-disturbing activities. Secondary permittees will be responsible for installation and maintenance of best management practices where the secondary permittee is conducting land-disturbing activities. Tertiary permittees will be responsible for installation and maintenance where the tertiary permittee is conducting land-disturbing activities. If, through inspection, it is deemed that a person engaged in land-disturbing activities has failed to comply with the approved plan, with permit conditions, or with the provisions of this Section, a written notice to comply will be served upon that person. The notice must set forth the measures necessary to achieve compliance and state the time within which such measures must be completed. If the person engaged in the land-disturbing activity fails to comply within the time specified, that person will be deemed in violation of this Section.

- B. The local issuing authority must amend its ordinances to the extent appropriate 12 months of any amendments to the Erosion and Sedimentation Act of 1975.
- C. The Engineering Director has the power to conduct any investigations deemed necessary to carry out duties as prescribed in this Section, and for this purpose to enter at reasonable times upon any property, public or private, for the purpose of investigation and inspecting the sites of land-disturbing activities.
- D. No person may refuse entry or access to any authorized representative or agent of the local issuing authority, the Georgia Soil and Water Conservation Commission, the Fulton County Soil and Water Conservation District, or Environmental Protection Division who requests entry for the purposes of inspection, and who presents appropriate credentials, nor may any person obstruct, hamper or interfere with any such representative while in the process of carrying out their official duties.
- E. The Fulton County Soil and Water Conservation District or the Georgia Soil and Water Conservation Commission or both must semi-annually review the actions of counties and municipalities which have been certified as Local Issuing Authorities pursuant to O.C.G.A. § 12-7-8(a). The Fulton County Soil and Water Conservation District or the Georgia Soil and Water Conservation Commission or both may provide technical assistance to any county or municipality for the purpose of improving the effectiveness of the county's or municipality's erosion, sedimentation and pollution control program. The Fulton County Soil and Water Conservation District or the Georgia Soil and Water Conservation Commission must notify the Environmental Protection Division and request investigation by the Environmental Protection Division if any deficient or ineffective local program is found.
- F. The Environmental Protection Division may periodically review the actions of counties and municipalities which have been certified as local issuing authorities pursuant to O.C.G.A. § 12-7-8(a). Such review may include, but must not be limited to, review of the administration and enforcement of a governing authority's ordinance and review of conformance with an agreement, if any, between the Fulton County Soil and Water Conservation District and the governing authority. If such review indicates that the governing authority of any county or municipality certified pursuant to O.C.G.A. § 12-7-8(a)

has not administered or enforced its ordinances or has not conducted the program in accordance with any agreement entered into pursuant to O.C.G.A. § 12-7-7(e), the Environmental Protection Division must notify the governing authority of the county or municipality in writing. The governing authority of any county or municipality so notified will have 90 days within which to take the necessary corrective action to retain certification as a local issuing authority. If the county or municipality does not take necessary corrective action within 90 days after notification by the Environmental Protection Division, the Environmental Protection Division will revoke the certification of the county or municipality as a local issuing authority.

12.6.5. Penalties and Incentives

- A. **Failure to Obtain a Permit for Land Disturbing Activity.**
If any person commences any land-disturbing activity requiring a land-disturbing permit as prescribed in this ordinance without first obtaining said permit, the person shall be subject to revocation of his business license, work permit, or other authorization for the conduct of a business and associated work activities within the jurisdictional boundaries of the Local Issuing Authority.
- B. **Stop Work Orders**
 - 1. For the first and second violations of the provisions of this ordinance, the Director or the Local Issuing Authority shall issue a written warning to the violator. The violator shall have five days to correct the violation. If the violation is not corrected within five days, the Director or the Local Issuing Authority shall issue a stop-work order requiring that land-disturbing activities be stopped until necessary corrective action or mitigation has occurred; provided, however, that, if the violation presents an imminent threat to public health or waters of the state or if the land-disturbing activities are conducted without obtaining the necessary permit, the Director or the Local Issuing Authority shall issue an immediate stop-work order in lieu of a warning;
 - 2. For a third and each subsequent violation, the Director or the Local Issuing Authority shall issue an immediate stop-work order; and

3. All stop-work orders shall be effective immediately upon issuance and shall be in effect until the necessary corrective action or mitigation has occurred.
4. When a violation in the form of taking action without a permit, failure to maintain a stream buffer, or significant amounts of sediment, as determined by the Local Issuing Authority or by the Director or his or her Designee, have been or are being discharged into state waters and where best management practices have not been properly designed, installed, and maintained, a stop work order shall be issued by the Local Issuing Authority or by the Director or his or her Designee. All such stop work orders shall be effective immediately upon issuance and shall be in effect until the necessary corrective action or mitigation has occurred. Such stop work orders shall apply to all land-disturbing activity on the site with the exception of the installation and maintenance of temporary or permanent erosion and sediment controls.

- C. Bond Forfeiture.** If, through inspection, it is determined that a person engaged in land-disturbing activities has failed to comply with the approved plan, a written notice to comply shall be served upon that person. The notice shall set forth the measures necessary to achieve compliance with the plan and shall state the time within which such measures must be completed. If the person engaged in the land-disturbing activity fails to comply within the time specified, he shall be deemed in violation of this ordinance and, in addition to other penalties, shall be deemed to have forfeited his performance bond, if required to post one under the provisions of Sec. 12.6.3.B.6. The Local Issuing Authority may call the bond or any part thereof to be forfeited and may use the proceeds to hire a contractor to stabilize the site of the land-disturbing activity and bring it into compliance.
- D. Monetary Penalties.** Any person who violates any provisions of this ordinance, or any permit condition or limitation established pursuant to this ordinance, or who negligently or intentionally fails or refuses to comply with any final or emergency order of the Director issued as provided in this ordinance shall be liable for a fine not to exceed \$2,000 per day. For the purpose of

enforcing the provisions of this ordinance, the municipal courts is authorized to impose a penalty not to exceed \$2,000.00 for each violation. Notwithstanding any limitation of law as to penalties which can be assessed for violations of county ordinances, any magistrate court or any other court of competent jurisdiction trying cases brought as violations of this ordinance under county ordinances approved under this ordinance shall be authorized to impose penalties for such violations not to exceed \$2,000.00 for each violation. Each day during which violation or failure or refusal to comply continues shall be a separate violation.

12.6.6. Education and Certification

- A. Persons involved in land development design, review, permitting, construction, monitoring, or inspection or any land-disturbing activity must meet the education and training certification requirements, dependent on their level of involvement with the process, as developed by the Georgia Soil and Water Conservation Commission in consultation with the Environmental Protection Division and the Stakeholder Advisory Board created pursuant to O.C.G.A. § 12-7-20.
- B. For each site on which land-disturbing activity occurs, each entity or person acting as either a primary, secondary, or tertiary permittee, as defined in the state general permit, must have as a minimum 1 person who is in responsible charge of erosion and sedimentation control activities on behalf of the entity or person and meets the applicable education or training certification requirements developed by the Georgia Soil and Water Conservation Commission present on site whenever land-disturbing activities are conducted on that site. A project site is defined as any land-disturbance site or multiple sites within a larger common plan of development or sale permitted by an owner or operator for compliance with the state general permit.
- C. Persons or entities involved in projects not requiring a state general permit, but otherwise requiring certified personnel on site, may contract with certified persons to meet the requirements of this Section.
- D. If a state general permittee who has operational control of land-disturbing activities for a site has met the certification requirements of O.C.G.A. § 12-7-19(b)(1), then any person or entity involved in land-disturbing activity at that site and operating in a subcontractor

capacity for such permittee must meet those educational requirements specified in O.C.G.A. § 12-7-19(b)(4) and is not required to meet any educational requirements that exceed those specified.

12.6.7. Administrative Appeal/Judicial Review

- A. **Administrative Remedies.** The suspension, revocation, modification or grant with condition of a permit by the local issuing authority upon finding that the holder is not in compliance with the approved erosion, sediment and pollution control plan; or that the holder is in violation of permit conditions; or that the holder is in violation of any ordinance; or the call of a bond; entitles the person submitting the plan or holding the permit; or cited as an owner to a hearing before the City Council within 30 days after receipt by the local issuing authority of written notice of appeal.
- B. **Judicial Review.** Any person, aggrieved by a decision or order of the local issuing authority, after exhausting their administrative remedies, must have the right to appeal *denovo* to the Superior Court of Fulton County.

12.6.8. Soil Erosion Fund and Committee

- A. The intent of this Section is to provide procedures and standards for the payment of erosion and sediment fees by developers of any project which requires a building permit to meet the demands placed on the community to remedy problems, hazards, or undesirable effects caused by soil erosion from undeterminable sources.
- B. A soil erosion fee is required to be submitted to the Engineering Director prior to the issuance of any building permit for any improvement, grading, or alteration of land or buildings commences, for all structures and uses except as provided below:
1. Minor repairs or additions to the principal building in existence on the tract or lot where a determination is made by the Engineering Director that the permit issued will not result in any land disturbance activity.
 2. Where any permit is issued for any repair, addition, or improvement solely within the interior of any building or structure.

3. For any accessory use or structure to the principal use or structure where a building permit is issued where a determination is made by the Engineering Director that either no land disturbance will occur, or the permit is for such use or structure that will result in no soil erosion.

- C. Where any fee is required in accord with this Section, the amount of the fee is set by resolution of the Mayor and City Council, as amended from time to time.
- D. A City Erosion and Sediment Control Fund is hereby established. All fees collected under this Section will be credited to this fund. Disbursements from this fund will be made by the Mayor, after an affirmative recommendation from the Erosion and Sediment Control Fund Committee ("Committee") is received. The Committee is composed of the Mayor, the Councilperson assigned to be the liaison to the Public Works Director, the Councilperson assigned to be the liaison to the Community Development Department, the City Administrator, the Public Works Director, the Community Development Director and the Transportation Director. Staff members of the Soil Erosion Fund Committee may designate an alternative staff member from their respective department, if they choose. The City Administrator, two of the three elected officials (the Mayor and two Department liaisons), and two of the three directors (Department heads) constitute a quorum and are able to transact business of the Committee. To ensure that a quorum is achieved, the Mayor and City Council members of the Soil Erosion Fund Committee may designate another member of City Council, if they choose. Each member has equal voting privileges on Committee issues. The Engineering Director serves as the fund coordinator and will review properly completed applications for eligibility to fund proceeds. The Engineering Director will also serve as the technical presenter of the application to the members of the Committee, but will not be considered a member of the Committee for voting purposes.
- E. All funds arising from the collection of fees under this Section must be used for the purpose of reducing hazards, damage, unsightliness, or other effect of soil erosion which has been determined by the committee to be an erosion and sediment control problem from an undeterminable source. It is the intent of this Section that any soil erosion resulting from a determinable

source be corrected by appropriate legal means available to the City. Funds under this Section may be used for the stated purposes for erosion and sediment control problems arising from a determinable source, where the Committee has consulted the City Attorney and judged such to be in the best interest of the community.

12.6.9. Liability

- A. Neither the approval of a plan under the provisions of this Section, nor the compliance with provisions of this Section relieve any person from the responsibility for damage to any person or property otherwise imposed by law nor impose any liability upon the local issuing authority or Fulton County Soil and Water Conservation District for damage to any person or property.
- B. The fact that a land-disturbing activity for which a permit has been issued results in injury to the property of another neither constitutes proof of nor creates a presumption of a violation of the standards provided for in this Section or the terms of the permit.
- C. No provision of this Section permits any persons to violate the Georgia Erosion and Sedimentation Act of 1975, the Georgia Water Quality Control Act or the rules and regulations promulgated and approved under those Acts or pollute any waters of the state as defined by those Acts.

12.6.10. Variances and Appeals

- A. Applicants with a hardship imposed by the standards for erosion and sedimentation control may seek a variance to the standards (see [Sec. 13.11.](#)).
- B. Applicants dissatisfied with a staff decision regarding erosion and sedimentation control may appeal the decision to the Board of Zoning Appeals (see [Sec. 13.12.](#)).

12.6.11. Definitions for Soil Erosion, Sedimentation and Pollution Control Only

The following definitions shall apply in the interpretation and enforcement of this ordinance, unless otherwise specifically stated:

Best Management Practices (BMPs). These include sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in the 'Manual for Erosion and Sediment Control in Georgia' published by the Commission as of January 1 of the year in which the land-disturbing activity was permitted.

Board. The Board of Natural Resources.

Buffer. The area of land immediately adjacent to the banks of state waters in its natural state of vegetation, which facilitates the protection of water quality and aquatic habitat.

Certified Personnel. A person who has successfully completed the appropriate certification course approved by the Georgia Soil and Water Conservation Commission.

Commission. The Georgia Soil and Water Conservation Commission (GSWCC).

CPESC. Certified Professional in Erosion and Sediment Control with current certification by Certified Profession in Erosion and Sediment Control Inc., a corporation registered in North Carolina, which is also referred to as CPESC or CPESC, Inc.

Cut. A portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to the excavated surface. Also known as excavation.

Department. The Georgia Department of Natural Resources (DNR).

Design Professional. A professional licensed by the State of Georgia in the field of: engineering, architecture, landscape architecture, forestry, geology, or land surveying; or a person that is a Certified Professional in Erosion and Sediment Control (CPESC) with a current certification by Certified Professional in Erosion and Sediment Control Inc.

Director. The Director of the Environmental Protection Division or an authorized representative.

District. The Fulton County Soil and Water Conservation District.

Division. The Environmental Protection Division (EPD) of the Department of Natural Resources.

Drainage Structure. A device composed of a virtually nonerodible material such as concrete, steel, plastic or other such material that conveys water from one place to another by intercepting the flow and carrying it to a release point for storm water management, drainage control, or flood control purposes.

Erosion. The process by which land surface is worn away by the action of wind, water, ice or gravity.

Erosion, Sedimentation and Pollution Control Plan. A plan required by the Erosion and Sedimentation Act, O.C.G.A. Chapter 12-7, that includes, as a minimum protections at least as stringent as the State General Permit, best management practices, and requirements [Sec. 12.6.2.C.](#)

Fill. A portion of land surface to which soil or other solid material has been added; the depth above the original ground surface or an excavation.

Final Stabilization. All soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or equivalent permanent stabilization measures (such as the use of rip rap, gabions, permanent mulches or geotextiles) have been used. Permanent vegetation shall consist of: planted trees, shrubs, perennial vines; a crop of perennial vegetation appropriate for the time of year and region; or a crop of annual vegetation and a seeding of target crop perennials appropriate for the region. Final stabilization applies to each phase of construction.

Finished Grade. The final elevation and contour of the ground after cutting or filling and conforming to the proposed design.

Grading. Altering the shape of ground surfaces to a predetermined condition; this includes stripping, cutting, filling, stockpiling and shaping or any combination thereof and shall include the land in its cut or filled condition.

Ground Elevation. The original elevation of the ground surface prior to cutting or filling.

Imminent Threat to State Waters. When the site is within 200 feet of state waters, significant rain is in the five day forecast and the best management practices have not been designed, installed or maintained correctly as determined by the Engineering Director.

Land-Disturbing Activity. Any activity which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands within the state, including, but not limited to, clearing, dredging, grading, excavating, transporting, and filling of land but not including agricultural practices as [Sec. 12.6.1.E.](#)

Larger Common Plan of Development or Sale. A contiguous area where multiple separate and distinct construction activities are occurring under one plan of development or sale. For the purposes of this paragraph, "plan" means an announcement; piece of documentation such as a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, or computer design; or physical demarcation such as boundary signs, lot stakes, or surveyor markings, indicating that construction activities may occur on a specific plot.

Local Issuing Authority. The governing authority of any county or municipality which is certified pursuant to subsection (a) O.C.G.A. 12-7-8.

Metropolitan River Protection Act (MRPA). A state law referenced as O.C.G.A. 12-5-440 et.seq. which addresses environmental and developmental matters in certain metropolitan river corridors and their drainage basins.

Natural Ground Surface. The ground surface in its original state before any grading, excavation or filling.

Nephelometric Turbidity Units (NTU). Numerical units of measure based upon photometric analytical techniques for measuring the light scattered by finely divided particles of a substance in suspension. This technique is used to estimate the extent of turbidity in water in which colloiddally dispersed or suspended particles are present.

NOI. A Notice of Intent form provided by EPD for coverage under the State General Permit.

NOT. A Notice of Termination form provided by EPD to terminate coverage under the State General Permit.

Operator. The party or parties that have: (A) operational control of construction project plans and specifications, including the ability to make modifications to those plans and specifications; or (B) day-to-day operational control of those activities that are necessary to ensure compliance with an erosion, sedimentation and pollution control plan for the site or other permit conditions, such as a person authorized to direct workers at a site to carry out activities required by the erosion, sedimentation and pollution control plan or to comply with other permit conditions.

Outfall. The location where storm water in a discernible, confined and discrete conveyance, leaves a facility or site or, if there is a receiving water on site, becomes a point source discharging into that receiving water.

Permit. The authorization necessary to conduct a land-disturbing activity under the provisions of this ordinance.

Person. Any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, state agency, municipality or other political subdivision of the State of Georgia, any interstate body or any other legal entity.

Phase or Phased. Sub-parts or segments of construction projects where the sub-part or segment is constructed and stabilized prior to completing construction activities on the entire construction site.

Project. The entire proposed development project regardless of the size of the area of land to be disturbed.

Properly Designed. Designed in accordance with the design requirements and specifications contained in the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted and amendments to the Manual as approved by the Commission up until the date of NOI submittal.

Roadway Drainage Structure. A device such as a bridge, culvert, or ditch, composed of a virtually nonerodible material such as concrete, steel, plastic, or other such material that conveys water under a roadway by intercepting the flow on one side of a traveled roadway consisting of one or more defined lanes, with or without shoulder areas, and carrying water to a release point on the other side.

Sediment. Solid material, both organic and inorganic, that is in suspension, is being transported, or has been moved from its site of origin by wind, water, ice, or gravity as a product of erosion.

Sedimentation. The process by which eroded material is transported and deposited by the action of water, wind, ice or gravity.

Soil and Water Conservation District Approved Plan. An erosion, sedimentation and pollution control plan approved in writing by the Soil and Water Conservation District.

Stabilization. The process of establishing an enduring soil cover of vegetation by the installation of temporary or permanent structures for the purpose of reducing to a minimum the erosion process and the resultant transport of sediment by wind, water, ice or gravity.

State General Permit. The National Pollution Discharge Elimination System (NPDES) general permit or permits for storm water runoff from construction activities as is now in effect or as may be amended or reissued in the future pursuant to the state's authority to implement the same through federal delegation under the Federal Water Pollution Control Act, as amended, 33 U.S.C. Section 1251, et seq., and subsection (f) of Code Section 12-5-30.

State Waters. Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of Georgia which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation.

Structural Erosion, Sedimentation and Pollution Control Practices. Practices for the stabilization of erodible or sediment-producing areas by utilizing the mechanical properties of matter for the purpose of either changing the surface of the land or storing, regulating or disposing of runoff to prevent excessive sediment loss. Examples of structural erosion and sediment control practices are riprap, sediment basins, dikes, level spreaders, waterways or outlets, diversions, grade stabilization structures and sediment traps, etc. Such practices can be found in the publication Manual for Erosion and Sediment Control in Georgia.

Trout Streams. All streams or portions of streams within the watershed as designated by the Wildlife Resources Division of the Georgia Department of Natural Resources under the provisions of the Georgia Water Quality Control Act, O.C.G.A. 12-5-20, in the rules and regulations for Water Quality Control, Chapter 391-3-6 at www.gaepd.org. Streams designated as primary trout waters are defined as water supporting a self-sustaining population of rainbow, brown or brook trout. Streams designated as secondary trout waters are those in which there is no evidence of natural trout reproduction, but are capable of supporting trout throughout the year. First order trout waters are streams into which no other streams flow except springs.

Vegetative Erosion and Sedimentation Control Measures.

Measures for the stabilization of erodible or sediment-producing areas by covering the soil with:

- 1) Permanent seeding, sprigging or planting, producing long-term vegetative cover; or
- 2) Temporary seeding, producing short-term vegetative cover; or
- 3) Sodding, covering areas with a turf of perennial sod-forming grass.
- 4) Such measures can be found in the publication Manual for Erosion and Sediment Control in Georgia.

Watercourse. Any natural or artificial watercourse, stream, river, creek, channel, ditch, canal, conduit, culvert, drain, waterway, gully, ravine, or wash in which water flows either continuously or intermittently and which has a definite channel, bed and banks, and including any area adjacent thereto subject to inundation by reason of overflow or floodwater.

Wetlands. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Sec. 12.7. Flood Damage Prevention

12.7.1. Authorization, Findings of Fact, Purpose

- A. **Statutory Authorization.** Article IX, Section II of the Constitution of the State of Georgia and O.C.G.A. §36-1-20(a) have delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City establishes this set of floodplain management and flood hazard reduction provisions for the purpose of regulating the use of flood hazard areas. It is determined that the regulation of flood hazard areas and the prevention of flood damage are in the public interest and will minimize threats to public health and safety, as well as to private and public property.
- B. **Findings of Fact**
 1. The flood hazard areas of the City are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood relief and protection, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.
 2. Flood hazard areas can serve important stormwater management, water quality, streambank protection, stream corridor protection, wetland preservation and ecological purposes when permanently protected as undisturbed or minimally disturbed areas.
- C. **Statement of Purpose.** Effective floodplain management and flood hazard protection activities can:
 1. Protect human life and health;
 2. Minimize damage to private property;
 3. Minimize damage to public facilities and infrastructure such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains; and

4. Minimize expenditure of public money for costly flood control projects associated with flooding and generally undertaken at the expense of the general public.

12.7.2. General Provisions

- A. Purpose and Intent.** The ordinance requires that a local government regulate development in the floodplains that will be expected with future land-use conditions, which are based upon the communities adopted future land use map, zoning, or watershed study projections. The ordinance also requires the local government to regulate floodplains on all streams with a drainage area of 100 acres and greater. The purpose of this Section is to protect, maintain and enhance the public health, safety, environment and general welfare and to minimize public and private losses due to flood conditions in flood hazard areas, as well as to protect the beneficial uses of floodplain areas for water quality protection, streambank and stream corridor protection, wetlands preservation and ecological and environmental protection by provisions designed to:
1. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
 2. Restrict or prohibit uses which are dangerous to health, safety and property due to flooding or erosion hazards, or which increase flood heights, velocities, or erosion;
 3. Control filling, grading, dredging and other development which may increase flood damage or erosion;
 4. Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands;
 5. Limit the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters; and
 6. Protect the stormwater management, water quality, streambank protection, stream corridor protection, wetland preservation and ecological functions of natural floodplain areas.
- B. Applicability.** This Section is applicable to all areas of Special Flood Hazard or areas of Future-conditions Flood Hazard within the City.
- C. Designation of Ordinance Floodplain Administrator.** The Public Works Director is appointed to administer and implement the provisions of this Section, and may designate a Floodplain Ordinance Administrator.
- D. Basis for Establishing Areas of Special Flood Hazard, Areas of Future-Conditions Flood Hazard and Associated Floodplain Characteristics – Flood Area Maps and Studies.** For the purposes of defining and determining “Areas of Special Flood Hazard”, “Areas of Future-conditions Flood Hazard”, “Areas of Shallow Flooding”, “Base Flood Elevations”, “Floodplains”, “Floodways”, “Future-conditions Flood Elevations”, “Future-conditions Floodplains”, potential flood hazard or risk categories as shown on FIRM maps, and other terms used in this ordinance, the following documents and sources may be used for such purposes and are adopted by reference thereto:
1. The Flood Insurance Study (FIS), dated September 18, 2013, with accompanying maps and other supporting data and any revisions.
 2. Other studies which may be relied upon for the establishment of the base flood elevation or delineation of the base or one-percent (100 year) floodplain and flood-prone areas including:
 - a. Any flood or flood-related study conducted by the United States Army Corps of Engineers, the United States Geological Survey or any other local, State or Federal agency applicable to the City; and
 - b. Any base flood study conducted by a licensed professional engineer which has been prepared utilizing FEMA-approved methodology and approved by the Floodplain Ordinance Administrator.
 3. Other studies which may be relied upon for the establishment of the future-conditions flood elevation or delineation of the future-conditions floodplain and flood-prone areas including:

a. Any flood or flood-related study conducted by the United States Army Corps of Engineers, the United States Geological Survey, or any other local, State or Federal agency applicable to the City; and

b. Any future-conditions flood study conducted by a licensed professional engineer which has been prepared utilizing FEMA-approved methodology approved by the Floodplain Ordinance Administrator.

4. The repository for public inspection of the FIS, accompanying maps and other supporting data is located at City Hall, 38 Hill Street, Roswell, Georgia.

E. **Compatibility with Other Regulations.** This Section is not intended to modify or repeal any other ordinance, rule, regulation, statute, easement, covenant, deed restriction or other provision of law. The requirements of this Section are in addition to the requirements of any other ordinance, rule, regulation or other provision of law, and where any provision of this Section imposes restrictions different from those imposed by any other ordinance, rule, regulation or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment will control.

F. **Warning and Disclaimer of Liability.** The degree of flood protection required by this Section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur; flood heights may be increased by man-made or natural causes. This Section does not imply that land outside the areas of special flood hazard or areas of future-conditions flood hazard or uses permitted within such areas will be free from flooding or flood damages. This Section does not create liability on the part of the City or any officer or employee of the City for any flood damages that result from reliance on this Section or any administrative decision lawfully made under this Section.

12.7.3. Permit Procedures and Requirements

A. Permit Application Requirements

1. No owner or developer can perform any development activities on a site where an Area of Special Flood Hazard or Area of Future-

conditions Flood Hazard is located without first meeting the requirements of this ordinance prior to commencing the proposed activity.

2. Unless specifically excluded by this Section, any landowner or developer desiring a permit for a development activity must submit to the Floodplain Ordinance Administrator a permit application on a form provided by the Floodplain Ordinance Administrator for that purpose.

3. No permit will be approved for any development activities that do not meet the requirements, restrictions and criteria of this ordinance.

B. **Floodplain Management Plan Requirements.** An application for a development project within any Area of Special Flood Hazard or Area of Future-conditions Flood Hazard located on the site shall include a floodplain management/flood damage prevention plan. This plan must include the following items:

1. Site plan drawn to scale, which includes but is not limited to:
 - a. Existing and proposed elevations of the area in question and the nature, location and dimensions of existing and proposed structures, earthen fill placement, amount and/or location of excavation material, and storage of materials or equipment;
 - b. For all proposed structures, spot ground elevations at building corners and 20-foot or smaller intervals along the foundation footprint, or 1-foot contour elevations throughout the building site;
 - c. Proposed locations of water supply, sanitary sewer, and utilities;
 - d. Proposed locations of drainage and stormwater management facilities;
 - e. Proposed grading plan;
 - f. Base flood elevations and future-conditions flood elevations;
 - g. Boundaries of the base flood floodplain and future-conditions floodplain;

- h. If applicable, the location of the floodway; and
 - i. Certification of the above by a licensed professional engineer or surveyor.
2. Building and foundation design detail, including but not limited to:
- a. Elevation in relation to mean sea level (or highest adjacent grade) of the lowest floor, including basement, of all proposed structures;
 - b. Elevation in relation to mean sea level to which any nonresidential structure will be floodproofed;
 - c. Certification that any proposed non-residential floodproofed structure meets the criteria in Sec. 12.7.5.B.2.;
 - d. For enclosures below the base flood elevation, location and total net area of flood openings as required in Sec. 12.7.5.A.5.; and
 - e. Design plans certified by a licensed professional engineer or architect for all proposed structure(s).
3. Description of the extent to which any watercourse may be altered or relocated as a result of the proposed development;
4. Hard copies and digital files of computer models, if any, copies of work maps, comparison of pre- and post-development conditions base flood elevations, future-conditions flood elevations, flood protection elevations, special flood hazard areas or future-conditions flood hazard areas and regulatory floodways, flood profiles and all other computations and other information similar to that presented in the FIS;
5. Copies of all applicable state and federal permits necessary for proposed development, including but not limited to permits required by Section 404 of the Federal Water Pollution Control Act, Amendments of 1972, 33 U.S.C. 1334; and
6. All appropriate certifications required under this ordinance. The approved floodplain management/ flood damage prevention plan must contain certification by the applicant that all development activities will be done according to the plan or previously approved revisions. Any and all development permits and/or use and occupancy certificates or permits may be revoked at any time if the construction and development activities are not in strict accordance with approved plans.
- C. Construction Stage Submittal Requirements.** For all new construction and substantial improvements on sites with a floodplain management/flood damage prevention plan, the permit holder must provide to the Floodplain Ordinance Administrator a certified as-built Elevation Certificate or Flood-proofing Certificate for nonresidential construction including the lowest floor elevation or flood proofing level immediately after the lowest floor or flood-proofing is completed. A final Elevation Certificate must be provided after completion of construction including final grading of the site. Any lowest floor certification made relative to mean sea level must be prepared by or under the direct supervision of a licensed land surveyor or professional engineer and be certified by same. When floodproofing is utilized for nonresidential structures, the certification must be prepared by or under the direct supervision of a licensed professional engineer or architect and be certified using the FEMA Floodproofing Certificate. This certification shall also include the design and operation/ maintenance plan to assure continued viability of the floodproofing measures.
- D. Any work undertaken prior to approval of these certifications is at the permit holder's risk. The Floodplain Ordinance Administrator will review the above referenced certification data submitted. Deficiencies detected by the review must be corrected by the permit holder immediately and prior to further work being allowed to proceed. Failure to submit certification or failure to make the corrections required hereby shall be cause to issue a stop work order for the project.
- E. Duties and Responsibilities of the Floodplain Ordinance Administrator.** Duties of the Floodplain Ordinance Administrator include, but are not limited to:

1. Review all development applications and permits to assure that the requirements of this ordinance have been satisfied and to determine whether proposed building sites will be reasonably safe from flooding;
2. Review proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334;
3. When base flood elevation data or floodway data have not been provided, then the Floodplain Ordinance Administrator will require the applicant to obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other sources in order to meet the provisions of Sec. 12.7.4 and Sec. 12.7.5.
4. Review and record the actual elevation in relation to mean sea level (or highest adjacent grade) of the lowest floor, including basement, of all new or substantially improved structures;
5. Review and record the actual elevation, in relation to mean sea level to which any substantially improved structures have been floodproofed;
6. When floodproofing is utilized for a nonresidential structure, the Floodplain Ordinance Administrator must review the design and operation/maintenance plan and obtain certification from a licensed professional engineer or architect;
7. Notify affected adjacent communities and the Georgia Department of Natural Resources (GA DNR) prior to any alteration or relocation of a watercourse and submit evidence of notification to the Federal Emergency Management Agency (FEMA);
8. Where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard or areas of future-conditions flood hazard (e.g., where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Ordinance Administrator will make the necessary interpretation. Any person contesting the location of the boundary must be

given a reasonable opportunity to appeal the interpretation, as provided in this ordinance. Where floodplain elevations have been defined, the floodplain is determined based on flood elevations rather than the area graphically delineated on the floodplain maps;

9. All records pertaining to the provisions of this ordinance will be maintained by the Floodplain Ordinance Administrator and made available for public inspection.
10. Coordinate all FIRM revisions with the GA DNR and FEMA; and
11. Review variance applications and make recommendations to the Board of Zoning Appeals.

12.7.4. Standards for Development

A. Definition of Floodplain Boundaries

1. Studied "A" zones, as identified in the FIS, must be used to establish base flood elevations whenever available.
2. For all streams with a drainage area of 100 acres or greater, the future-conditions flood elevations will be provided by the Floodplain Ordinance Administrator. If future-conditions elevation data is not available from the Floodplain Ordinance Administrator, then it must be determined by a licensed professional engineer using a method approved by FEMA and the Floodplain Ordinance Administrator.

- B. **Definition of Floodway Boundaries.** The width of a floodway must be determined from the FIS or FEMA approved flood study. For all streams with a drainage area of 100 acres or greater, the regulatory floodway will be provided by the Floodplain Ordinance Administrator. If floodway data is not available from the Floodplain Ordinance Administrator, it must be determined by a licensed professional engineer using a method approved by FEMA and the Floodplain Ordinance Administrator.

C. General Standards

1. No development is allowed within any Area of Special Flood Hazard or Area of Future-conditions Flood Hazard that could result in any of the following:

- a. Raising the base flood elevation or future-conditions flood elevation equal to or more than 0.01 foot;
- b. Reducing the base flood or future-conditions flood storage capacity;
- c. Changing the flow characteristics as to the depth and velocity of the waters of the base flood or future-conditions flood as they pass both the upstream and the downstream boundaries of the development area; or,
- d. Creating hazardous or erosion-producing velocities, or resulting in excessive sedimentation.

2. Any development within any Area of Special Flood Hazard or Area of Future-conditions Flood Hazard allowed under paragraph C.1 above must also meet the following conditions:

- a. Compensation for storage capacity must occur between the average ground water table elevation and the base flood elevation for the base flood, and between the average ground water table elevation and the future-condition flood elevation for the future-conditions flood, and lie either within the boundaries of ownership of the property being developed and must be within the immediate vicinity of the location of the encroachment. Acceptable means of providing required compensation include lowering of natural ground elevations within the floodplain, or lowering of adjoining land areas to create additional floodplain storage. In no case can any required compensation be provided via bottom storage or by excavating below the elevation of the top of the natural (pre-development) stream channel unless the excavation results from the widening or relocation of the stream channel;

- b. Cut areas must be stabilized and graded to a slope of no less than 2%;
- c. Effective transitions must be provided so that flow velocities occurring on both upstream and downstream properties are not increased or decreased;
- d. Verification of no-rise conditions (0.01 foot or less), flood storage volumes, and flow characteristics must be provided via a step-backwater analysis meeting the requirements of Sec. 12.7.4.D.;
- e. Public utilities and facilities, such as water, sanitary sewer, gas, and electrical systems, must be located and constructed to minimize or eliminate infiltration or contamination from flood waters; and
- f. Any significant physical changes to the base flood floodplain must be submitted as a Conditional Letter of Map Revision (CLOMR) or Conditional Letter of Map Amendment (CLOMA), whichever is applicable. The CLOMR submittal is subject to approval by the Floodplain Ordinance Administrator using the FEMA community Concurrence forms before forwarding the submittal package to FEMA for final approval. The responsibility for forwarding the CLOMR to FEMA and for obtaining the CLOMR approval is the responsibility of the applicant. Within 6 months of the completion of development, the applicant must submit as-built surveys and plans for a final Letter of Map Revision (LOMR).

D. Engineering Study Requirements for Floodplain Encroachments. An engineering study is required, as appropriate to the proposed development activities on the site, whenever a development proposes to disturb any land within the future-conditions floodplain, except for a residential single-lot development on streams without established base flood elevations and floodways. This study must be prepared by a licensed professional engineer and made a part of the application for a permit. This information must be submitted to and approved by the Floodplain Ordinance Administrator prior to the approval of any

permit which would authorize the disturbance of land located within the future-conditions floodplain. The study must include:

1. Description of the extent to which any watercourse or floodplain will be altered or relocated as a result of the proposed development;
2. Step-backwater analysis, using a FEMA-approved methodology approved by the Floodplain Ordinance Administrator. Cross-sections (which may be supplemented by the applicant) and flow information will be obtained whenever available. Computations will be shown duplicating FIS results and will then be rerun with the proposed modifications to determine the new base flood profiles, and future-conditions flood profiles;
3. Floodplain storage calculations based on cross-sections (at least 1 every 100 feet) showing existing and proposed floodplain conditions to show that base flood floodplain and future-conditions floodplain storage capacity would not be diminished by the development;
4. The study must include a preliminary plat, grading plan, or site plan, as appropriate, which must clearly define all future-conditions floodplain encroachments.

E. **Floodway Encroachments.** Located within areas of special flood hazard or areas of future-conditions flood hazard are areas designated as floodway. A floodway may be an extremely hazardous area due to velocity flood waters, debris or erosion potential. In addition, floodways must remain free of encroachment in order to allow for the discharge of the base flood without increased flood heights. Therefore, the following provisions apply:

1. Encroachments are prohibited, including earthen fill, new construction, substantial improvements or other development within the regulatory floodway, except for activities specifically allowed in paragraph 2 below;
2. Encroachments for bridges, culverts, roadways and utilities within the regulatory floodway may be permitted provided it is demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice

that the encroachment will not result in any increase to the pre-project base flood elevations, floodway elevations, or floodway widths during the base flood discharge. A licensed professional engineer must provide supporting technical data and certification; and

3. If the applicant proposes to revise the floodway boundaries, no permit authorizing the encroachment into or an alteration of the floodway will be issued by the Floodplain Ordinance Administrator until an affirmative Conditional Letter of Map Revision (CLOMR) is issued by FEMA or a no-rise certification is approved by the Floodplain Ordinance Administrator.

F. **Maintenance Requirements.** The property owner is responsible for continuing maintenance as may be needed within an altered or relocated portion of a floodplain on the property so that the flood-carrying or flood storage capacity is maintained. The Floodplain Ordinance Administrator may direct the property owner (at no cost to the City) to restore the flood-carrying or flood storage capacity of the floodplain if the owner has not performed maintenance as required by the approved floodplain management plan on file with the Floodplain Ordinance Administrator.

12.7.5. Flood Damage Reduction

A. **General Standards.** In all Areas of Special Flood Hazard or Areas of Future-conditions Flood Hazard the following provisions apply:

1. New construction and substantial improvements of structures (residential or nonresidential), including manufactured homes, is not allowed within the limits of the future-conditions floodplain, unless all requirements of Sec. 12.7.5.C., D. and E. have been met;
2. New construction and substantial improvements must be anchored to prevent flotation, collapse and lateral movement of the structure;
3. New construction and substantial improvements must be constructed with materials and utility equipment resistant to flood damage;

4. New construction and substantial improvements must be constructed by methods and practices that minimize flood damage;
5. Elevated Buildings. All new construction and substantial improvements that include any fully enclosed area located below the lowest floor formed by foundation and other exterior walls must be designed so as to be an unfinished or flood resistant enclosure. The enclosure must be designed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of flood water.
 - a. Designs for complying with this requirement must either be certified by a licensed professional engineer or architect to meet or exceed the following minimum criteria:
 - i. Provide a minimum of 2 openings having a total net area of not less than 1 square inch for every square foot of enclosed area subject to flooding;
 - ii. The bottom of all openings must be no higher than 1 foot above grade; and
 - iii. Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwater in both directions.
 - b. So as not to violate the "lowest floor" criteria of this ordinance, the unfinished and flood resistant enclosure must solely be used for parking of vehicles, limited storage of maintenance equipment used in connection with the premises, or entry to the elevated area; and
 - c. The interior portion of the enclosed area must not be finished or partitioned into separate rooms.
6. All heating and air conditioning equipment and components (including ductwork), all electrical, ventilation, plumbing, and other service facilities must be designed and/or located 3 feet above the base flood elevation or 1 foot above the future-conditions flood elevation, whichever is higher, so as to prevent water from entering or accumulating within the components during conditions of flooding;
7. Manufactured homes must be anchored to prevent flotation, collapse, and lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard is in addition to and consistent with applicable state requirements for resisting wind forces;
8. All proposed development shall include adequate drainage and stormwater management facilities per the requirement of the City of Roswell to reduce exposure to flood hazards.
9. New and replacement water supply systems must be designed to minimize or eliminate infiltration of flood waters into the system;
10. New and replacement sanitary sewage systems must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;
11. On-site waste disposal systems must be located and constructed to avoid impairment to, or contamination from , such systems during flooding;
12. Other public utilities such as gas and electric systems shall be located and constructed to avoid impairment to them, or public safety hazards from them during flooding;
13. Any alteration, repair, reconstruction or improvement to a structure that is not compliant with the provisions of this ordinance, must be undertaken only if the nonconformity is not furthered, extended or replaced;
14. If the proposed development is located in multiple flood zones, or multiple base flood elevations cross the proposed site, the higher or more restrictive base flood elevation or future condition elevation and development standards takes precedence;
15. When only a portion of a proposed structure is located within a flood zone or the future conditions floodplain, the entire structure shall meet the requirements of this ordinance; and

16. Subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, shall be reasonably safe from flooding:

- a. All such proposals shall be consistent with the need to minimize flood damage within the flood-prone area;
- b. All public utilities and facilities, such as sewer, gas, electrical, and water systems shall be located and constructed to minimize or eliminate flood damage; and
- c. Adequate drainage shall be provided to reduce exposure to flood hazards.

B. Structures and Buildings within the Future-Conditions Floodplain. The following provisions, in addition to Sec. 12.7.5.A., apply:

1. Residential Buildings

- a. **New Construction.** New construction of principal residential structures is not allowed within the limits of the future-conditions floodplain unless all requirements of Sec. 12.7.4.C., D. and E. have been met. If all of the requirements of Sec. 12.7.4.C., D. and E. have been met, all new construction must have the lowest floor, including basement, elevated no lower than 3 feet above the base flood elevation or 1 foot above the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate the structure, openings sufficient to automatically equalize the hydrostatic flood forces on exterior walls must be provided in accordance with standards of Sec. 12.7.5.A.5.
- b. **Substantial improvements.** Substantial improvement of any principal residential structure must have the lowest floor, including basement, elevated no lower than 3 feet above the base flood elevation or 1 foot above the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to automatically equalize the

hydrostatic flood forces on exterior walls must be provided in accordance with standards of Sec. 12.7.5.A.5.

2. Nonresidential Buildings

- a. **New Construction.** New construction of principal nonresidential structures is not allowed within the limits of the future-conditions floodplain unless all requirements of Sec. 12.7.4.C., D. and E. have been met. If all of the requirements of Sec. 12.7.4.C., D. and E. have been met, all new construction shall have the lowest floor, including basement, elevated no lower than 1 foot above the base flood elevation or at least as high as the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate the structure, openings sufficient to automatically equalize the hydrostatic flood forces on exterior walls shall be provided in accordance with standards of Sec. 12.7.5.A.5.a. New construction that has met all of the requirements of Sec. 12.7.4.C., D. and E. may be floodproofed in lieu of elevation. The structure, together with attendant utility and sanitary facilities, must be designed to be watertight to 1 foot above the base flood elevation, or at least as high as the future-conditions flood elevation, whichever is higher, with walls substantially impermeable to the passage of water and structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A licensed professional engineer or architect must certify that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions above, and must provide certification to the Floodplain Ordinance Administrator using the FEMA Floodproofing Certificate along with the design and operation/maintenance plan.
- b. **Substantial Improvements.** Substantial improvement of any principal nonresidential structure located in A1-30, AE, or AH zones, may be authorized by the Floodplain Ordinance Administrator to be elevated or

floodproofed. Substantial improvements shall have the lowest floor, including basement, elevated no lower than 1 foot above the base flood elevation or at least as high as the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate the structure, openings sufficient to automatically equalize the hydrostatic flood forces on exterior walls shall be provided in accordance with standards of Sec. 12.7.5.A.5.a. Substantial improvements may be floodproofed in lieu of elevation. The structure, together with attendant utility and sanitary facilities, must be designed to be watertight to 1 foot above the base flood elevation, or at least as high as the future-conditions flood elevation, whichever is higher, with walls substantially impermeable to the passage of water and structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A licensed professional engineer or architect must certify that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions above, and must provide certification to the Floodplain Ordinance Administrator using the FEMA Floodproofing Certificate along with the design and operation/maintenance plan.

- c. **Accessory Structures and Facilities.** Accessory structures and facilities (i.e., barns, sheds, gazebos, detached garages, recreational facilities and other similar non-habitable structures and facilities) which meet the requirements of Sec. 12.7.4.C., D. and E and are permitted to be located within the limits of the future-conditions floodplain must be constructed of flood-resistant materials and designed to provide adequate flood openings in accordance with Sec. 12.7.5.A.5. and be anchored to prevent flotation, collapse and lateral movement of the structure.

3. **Recreational Vehicles.** All recreational vehicles placed on sites must either:

- a. Be on the site for fewer than 180 consecutive days and be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is licensed, on its wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached structures or additions); or
- b. Meet all the requirements for residential buildings— Substantial Improvements (Sec. 12.7.5.B.1.b.) including the anchoring and elevation requirements.

4. **Manufactured Homes**

- a. New manufactured homes are not allowed to be placed within the limits of the future-conditions floodplain unless all requirements of Sec. 12.7.4.C., D. and E have been met. If all of the requirements of Sec. 12.7.4.C., D. and E have been met, all new construction and substantial improvement shall have the lowest floor, including basement, elevated no lower than 3 feet above the base flood elevation or 1 foot above the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate the structure, openings sufficient to automatically equalize the hydrostatic flood forces on exterior walls shall be provided in accordance with standards of Sec. 12.7.5.B.1.b.
- b. Manufactured homes placed and/or substantially improved in an existing manufactured home park or subdivision must be elevated so that either:
 - i. The lowest floor of the manufactured home is elevated no lower than 3 feet above the level of the base flood elevation, or 1 foot above the future-conditions flood elevation, whichever is higher; or
 - ii. The manufactured home chassis is elevated and supported by reinforced piers (or other foundation elements of at least an equivalent strength) of no less than 3 feet in height above grade.

- c. All manufactured homes must be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement in accordance with standards of Sec. 12.7.5.A.7.

C. Structures and Buildings Adjacent to the Future-Conditions Floodplain

1. **Residential Buildings.** For new construction and substantial improvement of any principal residential building or manufactured home, the elevation of the lowest floor, including basement and access to the building, must be at least 3 feet above the base flood elevation or 1 foot above the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate the structure, openings sufficient to automatically equalize the hydrostatic flood forces on exterior walls shall be provided in accordance with standards of Sec.12.7.5.A.5.
2. **Nonresidential Buildings.** For new construction and substantial improvement of any principal nonresidential building, the elevation of the lowest floor, including basement and access to the building, must be at least 1 foot above the level of the base flood elevation or at least as high as the future-conditions flood elevation, whichever is higher. Should solid foundation perimeter walls be used to elevate the structure, openings sufficient to automatically equalize the hydrostatic flood forces on exterior walls shall be provided in accordance with standards of Sec. 12.7.5.A.5. Nonresidential buildings may be floodproofed in lieu of elevation.

D. Residential Single-Lot Developments on Streams Without Established Base Flood Elevations and/or Floodway (A-Zones)

1. For a residential single-lot development not part of a subdivision that has areas of special flood hazard or areas of future-conditions flood hazard, where streams exist but no base flood data have been provided (A-Zones), the Floodplain Ordinance Administrator will review and reasonably utilize any available scientific or historic flood elevation data, base flood elevation and floodway data, or future-conditions flood elevation data available

from a federal, state, local or other source, in order to administer the provisions and standards of this ordinance.

2. If data are not available from any of these sources, the following provisions apply:
 - a. No encroachments, including structures or fill material, can be located within an area equal to twice the width of the stream or 50 feet from the top of the bank of the stream, whichever is greater.
 - b. In special flood hazard areas or future-conditions flood hazard areas without base flood or future-conditions flood elevation data, new construction and substantial improvements must have the lowest floor of the lowest enclosed area (including basement) elevated no less than 3 feet above the highest adjacent grade at the building site. Flood openings sufficient to facilitate automatic equalization of hydrostatic flood forces must be provided for flood prone enclosures in accordance with Sec. 12.7.5.A.5.

E. Areas of Shallow Flooding (AO-Zones). Areas of special flood hazard or areas of future-conditions flood hazard may include designated "AO" shallow flooding areas. These areas have base flood depths of 1 to 3 feet above ground, with no clearly defined channel. In these areas the following provisions apply:

1. All new construction and substantial improvements of residential and nonresidential structures must have the lowest floor, including basement, elevated to no lower than 1 foot above the flood depth number in feet specified on the Flood Insurance Rate Map (FIRM), above the highest adjacent grade. If no flood depth number is specified, the lowest floor, including basement, must be elevated at least 3 feet above the highest adjacent grade. Flood openings sufficient to facilitate automatic equalization of hydrostatic flood forces must be provided in accordance with standards of Sec. 12.7.5.A.5.;
2. New construction and substantial improvement of a nonresidential structure may be floodproofed in lieu of elevation. The structure, together with

attendant utility and sanitary facilities, must be designed to be water tight to the specified FIRM flood level plus 1 foot above the highest adjacent grade, with walls substantially impermeable to the passage of water, and structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A licensed professional engineer or architect must certify that the design and methods of construction are in accordance with accepted standards of practice and shall provide such certification to the Floodplain Ordinance Administrator using the FEMA Floodproofing Certificate along with the design and operation/maintenance plan; and

3. Drainage paths must be provided to guide flood water around and away from any proposed structure.

F. Standards for Subdivisions of Land

1. All subdivision proposals must identify the Areas of Special Flood Hazard and Areas of Future-conditions Flood Hazard therein and provide base flood elevation data and future-conditions flood elevation data;
2. All residential lots in a subdivision proposal must have sufficient buildable area outside of the future-conditions floodplain so that encroachments into the future-conditions floodplain for residential structures will not be required;
3. All subdivision plans must provide the elevations of proposed structures in accordance with Sec. 12.7.3.B.

12.7.6. Variance Procedures

A. General Provisions. The following variance and appeals procedures apply to an applicant who has been denied a permit for a development activity, or to an owner or developer who has not applied for a permit because it is clear that the proposed development activity would be inconsistent with the provisions of this ordinance.

1. Requests for variances from the requirements of this ordinance must be submitted to the Floodplain Ordinance Administrator. All requests will be heard and decided in accordance with procedures to be published in writing by the Floodplain Ordinance

Administrator. At a minimum, the procedures must include notice to all affected parties and the opportunity to be heard.

2. Any person adversely affected by any decision of the Floodplain Ordinance Administrator has the right to appeal the decision to the Board of Zoning Appeals in accordance with procedures to be published in writing by the Board of Zoning Appeals. At a minimum, the procedures must include notice to all affected parties and the opportunity to be heard.
3. Any person aggrieved by the decision of the Board of Zoning Appeals may appeal such decision to the Fulton County Superior Court, as provided in O.C.G.A. § 5-4-1.
4. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance issued must be the minimum necessary to preserve the historic character and design of the structure.
5. Variances may be issued for development necessary for the conduct of a functionally dependent use, provided the criteria of this section are met, no reasonable alternative exists, and the development is protected by methods that minimize flood damage during the base flood and create no additional threats to public safety.
6. Variances cannot be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
7. In reviewing variance requests, the Floodplain Ordinance Administrator and the Board of Zoning Appeals will consider all technical evaluations, relevant factors, and all standards specified in this and other sections of this ordinance.

B. Conditions for Variances

1. A variance may be issued only when there is:
 - a. A finding of good and sufficient cause;

- b. A determination that failure to grant the variance would result in exceptional hardship; and
 - c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, or the creation of a nuisance.
2. The provisions of this ordinance are minimum standards for flood loss reduction; therefore, any deviation from the standards must be weighed carefully. Variances can only be issued upon determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
 3. Any person to whom a variance is granted must be given written notice specifying the difference between the base flood elevation and the elevation of the proposed lowest floor and stating that the cost of flood insurance resulting from the lowest floor elevation being placed below the base flood elevation will be commensurate with the increased risk to life and property and that such costs may be as high as \$25 for each \$100 of insurance coverage provided.
 4. The Floodplain Ordinance Administrator must maintain the records of all variance actions, both granted and denied, and report them to the Georgia Department of Natural Resources and the Federal Emergency Management Agency upon request.
 5. Any person requesting a variance must, from the time of the request until the time the request is acted upon, submit such information and documentation as the Floodplain Ordinance Administrator and the Board of Zoning Appeals deem necessary for the consideration of the request.
 6. Upon consideration of the factors listed above and the purposes of this ordinance, the Floodplain Ordinance Administrator and the Board of Zoning Appeals may attach such conditions to the

granting of variances as they deem necessary or appropriate, consistent with the purposes of this ordinance.

7. Variances cannot be issued "after the fact."

12.7.7. Violations, Enforcement and Penalties

Refer to [Sec. 13.14.](#)

12.7.8. Definitions for Flood Damage Prevention Only

Accessory Structure or Facility. A structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the primary structure.

Addition. Any walled and roofed expansion to the perimeter or height of a building

Adjacent. Those areas located within 200 horizontal feet (or greater as determined by the City) from the future-conditions floodplain boundary that are at or lower in elevation than either 3 feet above the base flood elevation or 1 foot above the future-conditions flood elevation, whichever is higher, unless the area is hydraulically independent (meaning absolutely no connection to the flooding source such as through pipes, sewer laterals, down drains, foundation drains, ground seepage, overland flow, gated or valved pipes, excavated and backfilled trenches, etc., with no fill or other manmade barriers creating the separation).

Appeal. A request for a review of the Floodplain Ordinance Administrator's interpretation of any provision of this ordinance.

Area of Future-conditions Flood Hazard. The land area that would be inundated by the one-percent-annual-chance flood based on future-conditions hydrology (100-year future-conditions flood).

Area of Shallow Flooding. A designated AO or AH Zone on a community's Flood Insurance Rate Map (FIRM) with ne percent or greater chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Area of Special Flood Hazard. The land area subject to a one percent or greater chance of flooding in any given year. This includes all floodplain and flood prone areas at or below the base flood elevation designated as Zones A, A1-30, A-99, AE, AO, AH, and AR on a community's Flood Insurance Rate Map (FIRM).

Base Flood. The flood having a one percent chance of being equaled or exceeded in any given year, also known as the 100-year flood.

Base Flood Elevation. The highest water surface elevation anticipated at any given location during the base flood.

Basement. Any area of a building having its floor subgrade below ground level on all sides.

Building. Has the same meaning as "Structure".

Development. Any man-made change to improved or unimproved real estate including but not limited to buildings or other structures, mining, dredging, filling, clearing, grubbing, grading, paving, any other installation of impervious cover, excavation or drilling operations or storage of equipment or materials.

Elevated Building. A non-basement building which has its lowest elevated floor raised above the ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

Existing Construction. Any structure for which the "start of construction" commenced before June 15, 1998.

Existing Manufactured Home Park or Subdivision. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before June 15, 1998.

Expansion to an Existing Manufactured Home Park or Subdivision. The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

FEMA. The Federal Emergency Management Agency.

Flood or Flooding. A general and temporary condition of partial or complete inundation of normally dry land areas from: (a) the overflow of inland or tidal waters; or (b) the unusual and rapid accumulation or runoff of surface waters from any source.

Flood Insurance Rate Map or FIRM. An official map of a community issued by FEMA delineating the areas of special flood hazard and/or risk premium zones applicable to the community.

Flood Insurance Study or FIS. The official report by FEMA providing an examination, evaluation and determination of flood hazards and corresponding flood profiles and water surface elevations of the base flood.

Floodplain or Flood-prone Area. Any land area susceptible to flooding.

Floodproofing. Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway or Regulatory Floodway. The channel of a stream, river, or other watercourse and the adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Functionally Dependent Use. A use which cannot perform its intended purpose unless is located or carried out in close proximity to water. The term includes only docking facilities and port facilities that are necessary for the loading and unloading of cargo or passengers, and the ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Future-conditions Flood. The flood having a one percent chance of being equaled or exceeded in any given year based on future-conditions hydrology. Also known as the 100-year future-conditions flood.

Future-conditions Flood Elevation. The highest water surface elevation anticipated at any given location during the future-conditions flood.

Future-conditions Floodplain. Any land area susceptible to flooding by the future-conditions flood.

Future-conditions Hydrology. The flood discharges associated with projected land-use conditions based on a community's zoning maps, comprehensive land-use plans, and/or watershed study projections, and without consideration of projected future construction of stormwater management (flood detention) structures or projected future hydraulic modifications within a stream or other waterway, such as bridge and culvert construction, fill, and excavation.

Highest Adjacent Grade. The highest natural elevation of the ground surface, prior to construction next to the proposed walls of a structure.

Historic Structure. Any structure that is::

- 1) Listed individually in the National Register of Historic Places (a listing maintained by the U.S. Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- 2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- 3) Individually listed on a state inventory of historic places by states with historic preservation programs which have been approved by the Secretary of the Interior; or
- 4) Individually listed on a local inventory of historic places by communities with historic preservation programs that have been certified either:
 - a. By an approved state program as determined by the Secretary of the Interior, or
 - b. Directly by the Secretary of the Interior in states without approved programs.

Lowest Floor. The lowest floor of the lowest enclosed area, including basement. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of other provisions of this ordinance.

Manufactured Home. A structure, transportable in one or more sections, which is built on a permanent chassis and is designed to be used with or without a permanent foundation when attached to the required utilities. The term includes any structure commonly referred to as a "mobile home" regardless of the date of manufacture. The term also includes parked trailers, travel trailers and similar transportable structures placed on a site for 180 consecutive days or longer and intended to be improved property. The term does not include a "recreational vehicle."

Mean Sea Level. The datum to which base flood elevations shown on a community's Flood Insurance Rate Map (FIRM) are referenced. For purposes of this ordinance the term is synonymous with National Geodetic Vertical Datum (NGVD) of 1929 or the North American Vertical Datum (NAVD) of 1988.

New Construction. Any structure (see definition) for which the "start of construction" commenced on or after June 15, 1998 and includes any subsequent improvements to the structure.

New Manufactured Home Park or Subdivision. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after June 15, 1998.

Owner. The legal or beneficial owner of a site, including but not limited to, a mortgagee or vendee in possession, receiver, executor, trustee, lessee or other person, firm or corporation in control of the site.

Permit. The permit issued by the City of Roswell to the applicant which is required prior to undertaking any development activity.

Recreational Vehicle. A vehicle which is:

- 1) Built on a single chassis;
- 2) 400 square feet or less when measured at the largest horizontal projection; (c) Designed to be self-propelled or permanently towable by light duty truck; and,
- 3) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Repetitive Loss. Flood related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

Site. The parcel of land being developed, or the portion thereof on which the development project is located.

Start of Construction. Includes substantial improvement, and means the date the permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of the structure on a site, such as the pouring of slabs or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include initial land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure. A walled and roofed building (including a gas or liquid storage tank), that is principally above ground, or a manufactured home

Subdivision. The division of a tract or parcel of land resulting in one or more new lots or building sites for the purpose, whether immediately or in the future, of sale, other transfer of ownership or land development, and includes divisions of land resulting from or made in connection with the layout or development of a new street or roadway or a change in an existing street or roadway.

Substantial Damage. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. This term also includes Repetitive Loss.

Substantial Improvement. Any reconstruction, rehabilitation, addition, or other improvement to a structure, taking place during a 10-year period, in which the cumulative cost equals or exceeds 50 percent of the market value of the structure prior to the improvement. The market value of the building means (1) the appraised value of the structure prior to the start of the initial repair or improvement, or (2) in the case of damage, the value of the structure prior to the damage occurring. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include those improvements of a structure required to comply with existing state or local health, sanitary, or safety code specifications which are the minimum necessary to assure safe living conditions, which have been identified by the Code Enforcement Official. The term does also not include any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

Substantially Improved Existing Manufactured Home Park or Subdivision. The repair, reconstruction, rehabilitation or improvement of the streets, utilities and pads equals or exceeds 50% of the value of the streets, utilities and pads before the repair, reconstruction or improvement commenced.

Variance. A grant of relief from the requirements of this ordinance.

Violation. The failure of a structure or other development to be fully compliant with the requirements of this ordinance. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this ordinance is presumed to be in violation until such time as that documentation is provided.

Sec. 12.8. Archaeological Sites

12.8.1. Historic Preservation Commission Jurisdiction

The Historic Preservation Commission shall have jurisdiction whenever there is a proposal to disturb land, develop property, or construct a building on or within 100 feet of an archaeological site, as defined by this UDC.

12.8.2. Certificate of Appropriateness Required

- A. In addition to requirements for complying with all applicable state laws, no person shall disturb land, develop property, or construct a building on or within 100 feet of an archaeological site until a certificate of appropriateness is granted by the Historic Preservation Commission.
- B. For purposes of enforcing this Section, when the Zoning Director receives a development proposal to develop property shown as having a high probability of containing an archaeological site on maps available to the Zoning Director (produced as a part of the Roswell Comprehensive Plan), the Zoning Director shall require the development applicant to consult and report the findings of reputable sources such as the Georgia Archaeological Site File in order to determine whether an archaeological site has been documented to exist. No development application on such property described in this paragraph shall be approved until such documentation is provided to the Zoning Director. The Zoning Director may consult with any professional archaeologist or appropriate association, official, society, or reputable data source in making determinations required by this Section.
- C. If the development applicant or other evidence available to the Zoning Director shows, to the satisfaction of the Zoning Director, that reputable sources do not reveal any evidence of an archaeological site, the Zoning Director shall consider the proposed development as complying with the provisions of this chapter and no further action or development approval shall be required.

12.8.3. Professional Archaeological Report Required

When a development proposal includes property containing a documented archaeological site, the property owner or proposed developer shall be required to file with the Zoning Director a report prepared by a professional archaeologist recognized by the Georgia Council of Professional Archaeologists. The report shall contain sufficient information about the location and character of the archaeological site. It shall also provide recommendations for preserving the archaeological site, or describe methods for mitigating damage to the archaeological site in light of the proposed development. The report shall be required to be submitted with an application for a certificate of appropriateness as required by this Section.

12.8.4. Action Based on Report

The Historic Preservation Commission may place conditions on the approval of a certificate of appropriateness based on the findings and recommendations of the archaeological report. The report may also provide the basis for denying a certificate of appropriateness.

Sec. 12.9. Refuse Regulations

12.9.1. In General

Refuse areas including dumpsters shall be identified on site plans for all lots improved with structures other than single-family homes. Effective site design, landscaping and 6-foot high screening walls shall be used to minimize the aesthetic impact of dumpsters without gates. The screening walls shall be constructed of a material approved by staff or the appropriate board, as applicable. Refuse containers shall not be visible from streets or adjacent properties. All refuse areas shall be located outside any required landscape strips and not located in required buffers, parking areas or required loading areas.

12.9.2. Screening Gates

Effective screening must be achieved with gates. The owner must enter into an agreement with the City where the owner agrees to the following:

- A. The owner shall agree that gates shall be installed consistent with IAW prescribed standards.
- B. The owner shall agree to take full responsibility for repairs and maintenance and ensure that the gates will be opened within 1 minute of the arrival of the service truck providing service to the dumpster.
- C. The owner agrees that failure to open the gate within the prescribed time period will result in the service truck leaving without servicing the dumpster and that no reduction in pick up fees will be granted for the missed pick-up.
- D. The owner shall agree to pay additional charges as may be approved by the Sanitation Director if the service truck is asked to return before the next regularly scheduled pick-up time.
- E. Automatic trip mechanisms may be utilized to open gates and shall be maintained as prescribed by the manufacturer.

12.9.3. Design Standards

- A. Refuse areas shall be clear of overhead power lines.
- B. Refuse areas shall be required to have a 10-foot approach paved with concrete.

- C. Refuse areas shall not be located next to drive-through access lanes.
- D. Any site that is required to have a commercial container (dumpster) shall install a pad in accordance with this Section, the City of Roswell Standard Construction Specification or the Fulton County Standard Construction Specifications as applicable.

12.9.4. Hours of Operation

In areas adjacent to residentially-zoned or used properties, dumpster collection hours shall be limited to 6:00 a.m. to 9:00 p.m. unless the property owner creates appropriate sound-regulating structures, as approved by the Zoning Director.

12.9.5. Solid Waste Analysis

- A. For any project on which the proposed improvements meet or exceed 50% of the market value of the property shall have a solid waste analysis completed by the City of Roswell.
- B. Any site that is determined by the Director of Environment and Public Works to be a hotspot, i.e. food service, automotive repair, medical office, etc., shall require a solid waste analysis regardless of project size.
- C. The solid waste analysis shall be used to determine the type of waste containment system required at the site and may include, but not be limited to, the amount of waste generated, the type of waste generated and accessibility for City vehicles.

12.9.6. Violation

Any existing solid waste container that fails to contain the solid waste or is found to contain solid waste of unacceptable content may be considered to be in violation of this Section and Article 7.5, Litter Control of the City of Roswell Code of Ordinances and shall be subject to the penalties as defined therein. For this chapter unacceptable content shall mean any material not meeting the definition of commercial waste or garbage as outline in Chapter 24, Article 24.1 of the City of Roswell Code of Ordinances.

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Georgia Department of Natural Resources

Environmental Protection Division • Watershed Protection Branch
2 Martin Luther King Jr. Dr • Suite 1152 East • Atlanta • Georgia 30334
(404) 463-1511; Fax (404) 656-2453
Judson H. Turner, Director

JUN 11 2014

Mr. Stuart A. Moring, Director of Public Works
City of Roswell
38 Hill Street, Suite 235
Roswell, Georgia 30075

RE : Municipal Separate Storm Sewer System
Phase I Large MS4 Permit
NPDES Permit No. GAS000131

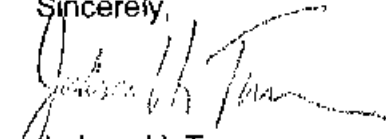
Dear Mr. Moring:

Pursuant to the Georgia Water Quality Control Act, as amended, the Federal Clean Water Act, as amended and the Rules and Regulations promulgated thereunder, we have today issued the attached National Pollutant Discharge Elimination System Permit (Permit) for your municipal separate storm sewer system.

On January 16, 2014, the Georgia Environmental Protection Division (EPD) transmitted a proposed draft Permit to you. The public review and comment period ended on February 28, 2014. We received comments from two entities. We have addressed the comments received and made minor Permit revisions. Attached please find a summary of the Permit revisions and EPD's response to comments.

Please be advised that on or after the effective date indicated in the attached NPDES Permit, the permittee must comply with all terms and conditions of this Permit.

Sincerely,



Judson H. Turner
Director

JHT/mag

Attachments

Phase I Large MS4
NPDES Permit No. GAS000131

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Discharges From The
City of Roswell

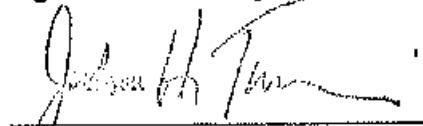
Municipal Separate Storm Sewer System

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1984, p. 416, as amended), hereinafter called the "State Act", the Federal Clean Water Act, as amended (33 U.S.C. 1251 et seq.), hereinafter called the "Clean Water Act", and the Rules and Regulations promulgated pursuant to each of these Acts, all new and existing stormwater point sources covered under this permit are authorized to discharge stormwater from this municipal separate storm sewer system to the waters of the State of Georgia in accordance with the limitations, monitoring requirements and other conditions set forth in Part I through Appendix B hereof.

This permit shall become effective on June 11, 2014.

This permit and the authorization to discharge shall expire at midnight,
June 10, 2019.

Signed this 11th day of June 2014.



Director,
Environmental Protection Division



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PART 1. COVERAGE UNDER THIS PERMIT

1.1 Coverage

- 1.1.1 This permit covers all new and existing point source discharges of storm water from the authorized municipal separate storm sewer system (MS4) to waters of the State of Georgia.
- 1.1.2 The permittee is liable for permit compliance and the implementation of the Storm Water Management Program (SWMP) for all point source discharges from the MS4 for which it is owner or operator.
- 1.1.3 Storm water discharges regulated by other National Pollutant Discharge Elimination System (NPDES) permits that do not discharge to the MS4 are not covered by this permit (e.g., Publicly Owned Treatment Works and Combined Sewer Overflows)
- 1.1.4 Discharges which are subject to regulation by other NPDES permits that discharge to waters of the State through the MS4 are still subject to those other NPDES permit requirements.

1.2 Definitions – See Appendix A

All terms used in this permit shall be interpreted in accordance with the definitions as set forth in the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act (CWA), as amended, unless otherwise defined in Appendix A.

PART 2. CRITERIA FOR RECEIVING WATERS

2.1 Receiving Water Standards

The permittee shall implement controls to reduce pollutants to the maximum extent practicable (MEP) in discharges from the MS4 to the waters of the State so as to not cause the following criteria to be exceeded in the receiving waters:

- 2.1.1 All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly, or otherwise objectionable;
- 2.1.2 All waters shall be free from oil, scum, and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amount sufficient to be unsightly or to interfere with legitimate water uses;

- 2.1.3 All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor, or other objectionable conditions which interfere with legitimate water uses;
- 2.1.4 All waters shall be free from turbidity which results in a substantial visual contrast in a water body due to a man-made activity. The upstream appearance of a body of water shall be as observed at a point immediately upstream of a turbidity-causing man-made activity. That upstream appearance shall be compared to a point which is located sufficiently downstream from the activity so as to provide an appropriate mixing zone. For land disturbing activities, proper design, installation, and maintenance of best management practices (BMPs) and compliance with issued permits shall constitute compliance with this criteria.
- 2.1.5 All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries, or other sources, such as nonpoint sources, in amounts, concentrations, or combinations which are harmful to humans, animals or aquatic life.

PART 3. STORM WATER MANAGEMENT PROGRAM

The permittee shall update, implement, and enforce a SWMP designed to reduce the discharge of pollutants from the MS4 to the MEP, in order to protect water quality and to satisfy the appropriate water quality requirements of the State Act and Rules. The SWMP must include management practices, control techniques and system design and engineering methods, and other provisions appropriate for the control of such pollutants. For co-applicants, the SWMP must specify the entity responsible for each SWMP component. The SWMP shall be submitted for approval to EPD within 180 days of the date of issuance of this permit. The SWMP and its amendments, upon approval by EPD, shall become a part of this permit.

3.1 Legal Authority

The permittee must have adequate legal authority to control pollutant discharges into and from its MS4, and to meet the legal requirements of this permit.

3.2 Sharing Responsibility

The permittee may share implementation of one or more of the SWMP components with another entity, or the entity may assume full responsibility for that component. However, the permittee may rely on another entity only if:

- 3.2.1 The other entity is either implementing or will be implementing the SWMP component;

3.2.2 The particular component is at least as stringent as the corresponding permit requirement; and

3.2.3 The other entity agrees to implement the component on the permittee's behalf through a written agreement, memorandum of understanding, memorandum of agreement, contract, or other signed document that establishes the obligations of each party.

Written acceptance of this obligation is mandatory and must be maintained as a part of the SWMP. Conducting maintenance on a structure does not infer that the entity conducting the maintenance is the owner or operator of that structure. Even though the permittee may contract with another entity for component implementation, it is the permittee's responsibility to submit all Permit Applications, Annual Reports, Certification Statements, or any other information requested by EPD.

If the other entity fails to implement the component on the permittee's behalf, the permittee remains liable for any enforcement actions due to the failure to implement and/or report.

3.3 SWMP Components

The following information should be used in developing and implementing the permittee's SWMP. The specific requirements can be found in Title 40 of the Code of Federal Regulations (CFR), Part 122.26. A detailed description of the activities related to each requirement must be reported on the Annual Report form provided by EPD.

3.3.1 Structural and Source Control Measures

The permittee must implement a program which incorporates structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the MS4 and includes a schedule for implementing the controls. At a minimum, the program must contain the elements listed in Table 3.3.1 below:

Table 3.3.1

SWMP Component	Measurable Goals
1. MS4 Control Structure Inventory and Map	1.a. Provide an inventory and map of MS4 control structures as defined in the SWMP. At a minimum, the inventory and map must include catch basins, ditches (miles or linear feet), detention/retention ponds, and storm drain lines (miles or linear feet). Include the total number of each type of structure with the 2014-2015 annual report, due June 15, 2015. The inventory and map must be completed and submitted with the 2015-2016 annual report,

	<p>due June 15, 2016.</p> <p>1.b. Update the inventory and map as necessary. Provide the number of MS4 structures added during the reporting period, and the total number of structures in the inventory, in subsequent annual reports.</p>
<p>2. MS4 Inspection and Maintenance Program</p>	<p>2.a. Conduct inspections of the MS4 structures so that 100% of the structures are inspected within the 5-year period. The permittee must conduct a percentage of the inspections each year. The MS4 inspections shall be executed in accordance with the schedule contained in the SWMP. Provide the number and percentage of the total structures inspected during the reporting period in each annual report.</p> <p>2.b. Conduct maintenance on the MS4 structures as needed. Provide the number and percentage of the total structures maintained during the reporting period in each annual report.</p>
<p>3. Planning Procedures</p>	<p>3.a. Develop or update, as needed, a comprehensive planning document which addresses, in part, areas of new development and redevelopment to reduce pollutants in discharges from the MS4. Describe any changes made to the stormwater portion of the document during the reporting period in each annual report.</p>
<p>4. Street Maintenance</p>	<p>4.a. Implement street maintenance and cleaning procedures specified in the SWMP. Documentation on activities conducted during the reporting period, such as litter removal, street sweeping, deicing material removal, road repair, etc., must be submitted in each annual report. Report details such as the amount of litter removed, miles of street swept, etc., in each annual report.</p>
<p>5. Flood Management Projects</p>	<p>5.a. Implement the procedures specified in the SWMP to ensure new flood management projects (e.g., detention and retention basins) are assessed for water quality impacts. Provide details in each annual report on the assessments conducted during the reporting period.</p> <p>5.b. Implement the procedures specified in the SWMP to ensure existing structural flood control devices are evaluated during each reporting period to determine if retrofitting the devices for additional pollutant removal is feasible. Provide documentation of the evaluations conducted during the reporting period.</p>

<p>6. Municipal Waste Facilities Excluding Any Facilities Addressed in Section 3.3.3</p>	<p>6.a. Establish, maintain, and/or update an inventory of municipal waste facilities and provide in the 2014-2015 annual report, due June 15, 2015. Provide an updated inventory in each subsequent annual report.</p> <p>6.b. Implement the program to control runoff from municipal waste facilities. The program shall include the facility inspection prioritization, inspection frequency, and inspection documentation protocol as described in the SWMP. Conduct an inspection on 100% of the inventoried facilities within the 5-year period. The permittee must conduct a percentage of the inspections each year. Provide documentation of inspections in each annual report.</p>
<p>7. Municipal Facilities with the Potential to Cause Pollution Excluding Any Facilities - Addressed in Item 6 Above or in Section 3.3.3.</p>	<p>7.a. Establish, maintain, and/or update an inventory of municipal facilities with the potential to cause pollution and provide in the 2014-2015 annual report, due June 15, 2015. Provide an updated inventory in each subsequent annual report.</p> <p>7.b. Implement the program to control runoff from municipal facilities with the potential to cause pollution. The program shall include the facility inspection prioritization, inspection frequency, and inspection documentation protocol described in the SWMP. Conduct an inspection on 100% of the inventoried facilities within the 5-year period. The permittee must conduct a percentage of the inspections each year. Provide documentation of inspections in each annual report.</p>
<p>8. Pesticide, Fertilizer, and Herbicide Application</p>	<p>8.a. Utilize a program to reduce pollution by the application of pesticides, fertilizer, and herbicides by commercial applicators and distributors in accordance with the Georgia Department of Agriculture requirements.</p> <p>8.b. Implement the program to reduce pollution caused by the municipal use of pesticides, fertilizers, and herbicides, including an inventory, municipal staff training in application and safety by the Georgia Department of Agriculture, etc., described in the SWMP. Provide documentation of program activities in each annual report.</p>
<p>9. Municipal Employee Training</p>	<p>9.a. Ensure that MS4 staff involved in municipal facility operation activities obtain the appropriate education and training.</p> <p>9.b. Provide a summary of a training conducted during the reporting period.</p>

3.3.2 Illicit Discharge Detection and Elimination Program (IDDE)

The permittee must implement and enforce a program to detect and eliminate illicit discharges and improper disposal of pollutants into the MS4. At a minimum, the program, described in the SWMP, must include the elements listed in Table 3.3.2. below:

Table 3.3.2

SWMP Component	Measurable Goals
1. Legal Authority	1.a. Re-evaluate and modify the existing IDDE ordinance when necessary for compliance with this permit. The permittee must ensure that the ordinance provides the authority to conduct inspections and monitoring, control illicit discharges and connections, and control illegal dumping and spills into the MS4. The ordinance must include the permittee's authority to take legal action to eliminate illicit discharges or connections. If the ordinance is revised during the reporting period, submit a copy of the adopted ordinance with the annual report.
2. Outfall Inventory and Map	2.a. Provide an inventory and a map showing the location of all outfalls from the MS4 and the names and location of all waters of the State that receive discharges from those outfalls with the 2014-2015 annual report, due June 15, 2015. 2.b. Provide the number of outfalls added during the reporting period, and the total number of outfalls in the inventory, in subsequent annual reports.
3. IDDE Plan	3. Implement the IDDE Plan to detect and address non-storm water discharges to the MS4 as described in the SWMP. The components of the Plan are as follows: 3.a. Conduct dry weather screening (DWS) inspections on 100% of total outfalls within the 5-year period in accordance with the procedures contained in the SWMP. If a permittee conducts stream walks in conjunction with the DWS inspection, then 100% of the stream miles must be inspected within the 5-year period. The permittee must conduct a percentage of the DWS inspections each year. Provide the number and percentage of outfall inspections conducted during the reporting period and documentation of the inspections in each annual report. 3.b. Implement investigative and follow-up

	<p>procedures when the results of the screening indicate a potential illicit discharge, including the sampling and/or inspection procedures described in the SWMP. Provide information on illicit discharge detection activities performed to eliminate any illicit discharges identified during the reporting period in each annual report.</p> <p>3.c. Ensure any identified illicit discharges are eliminated. If necessary, implement the enforcement procedures described in the SWMP and in accordance with the Enforcement Response Plan (ERP) in Part 3.3.6 of this permit. Provide information on any enforcement actions taken for illicit discharges during the reporting period in each annual report.</p>
4. Spill Response Procedures	4.a. Implement the procedures described in the SWMP to prevent, contain, and respond to spills that may discharge to the MS4. Provide documentation on spill occurrences during the reporting period in each annual report.
5. Public Reporting Procedures	<p>5.a. Implement the procedures described in the SWMP to promote, publicize, and facilitate public reporting of illicit discharges. Provide documentation on any activities conducted during the reporting period in each annual report.</p> <p>5.b. Implement the procedures for receiving and responding to complaints related to illicit discharges described in the SWMP. Provide information on each complaint related to IDDE that was received and investigated during the reporting period in each annual report, including its resolution.</p>
6. Proper Management and Disposal of Used Oil and Toxic Materials	6.a. Implement the activities to facilitate the proper management and disposal of used oil and toxic materials, including educational activities, household waste collection programs, etc., described in the SWMP. Provide details on any activities performed during the reporting period in each annual report.
7. Sanitary Sewer Infiltration Controls	7.a. If the permittee owns or operates the sanitary sewer system within its jurisdiction, implement the activities to detect and eliminate seepage and spillage from municipal sanitary sewers to the MS4 described in the SWMP. Provide details on any activities performed during the reporting period in each annual report.
8. Municipal Employee Training	8.a. Ensure that MS4 staff involved in IDDE activities obtain the appropriate education and

	training. 8.b. Provide a summary of any training conducted during the reporting period.
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The following categories of non-stormwater discharges or flows must be addressed only if they are identified as significant contributors of pollutants to the MS4:

- water line flushing;
- landscape irrigation;
- diverted stream flows;
- rising ground waters;
- uncontaminated ground water infiltration (as defined in 40 CFR Part 35.2005(20));
- uncontaminated pumped ground water;
- discharges from potable water sources;
- foundation drains;
- air conditioning condensation;
- irrigation water;
- springs;
- water from crawl space pumps;
- footing drains;
- lawn watering;
- individual residential car washing;
- flows from riparian habitats and wetlands;
- swimming pool discharges;
- street wash water; and
- flows from fire fighting activities.

3.3.3 Industrial Facility Storm Water Discharge Control

The permittee must implement and enforce a program to monitor and control pollutants in stormwater discharges from industrial facilities into the MS4. At a minimum, the program must contain the elements listed in Table 3.3.3 below:

Table 3.3.3

SWMP Component	Measurable Goals
1. Industrial Facility Inventory	1.a. Develop and/or update an inventory of facilities with industrial activities that potentially discharge to the MS4. At a minimum, this shall include facilities listed on EPD's Industrial Storm Water General Permit (IGP) Notice of Intent (NOI) and No Exposure Exclusion (NEE) online listings. For a listing of industrial categories required to obtain IGP coverage, see Appendix B. Provide the

	inventory with the 2014-2015 annual report, due June 15, 2015. Provide an updated inventory in each subsequent annual report.
2. Inspection Program	<p>2.a. Implement the industrial facility inspection program which includes the facility inspection prioritization, inspection frequency, and inspection documentation protocol described in the SWMP. Conduct inspections on 100% of the inventoried facilities that discharge to the MS4 within the 5-year period. The permittee must conduct a percentage of the inspections each year. Provide the total number of facilities and the number and percentage of inspections conducted during the reporting period and documentation of the inspections in each annual report.</p> <p>2.b. Implement a monitoring program for stormwater runoff from industrial facilities, waste facilities, hazardous waste treatment, storage and disposal facilities, as defined in the SWMP. Provide the results of any monitoring conducted during the reporting period in each annual report. This shall include all facilities that the permittee determines are contributing a substantial pollutant loading to the MS4.</p>
3. Enforcement Procedures	3.a. Implement enforcement procedures described in the SWMP to be utilized if a stormwater violation is noted at an industrial facility that discharges to the MS4 during the reporting period and in accordance with the ERP in Part 3.3.6 of this permit. Provide documentation on any enforcement actions taken during the reporting period in each annual report.
4. Educational Activities	4.a. Implement educational activities for industrial facilities. Provide details of any educational activities performed during the reporting period in each annual report.
5. Municipal Employee Training	<p>5.a. Ensure that MS4 staff involved in industrial activities obtain the appropriate education and training.</p> <p>5.b. Provide a summary of any training conducted during the reporting period.</p>

3.3.4 Construction Site Management

The permittee must implement and enforce a program to maintain structural and/or non-structural BMPs to reduce pollutants in stormwater runoff from construction sites to the

MS4 as defined in the SWMP. At a minimum, the program must contain the elements listed in Table 3.3.4 below:

Table 3.3.4

SWMP Component	Measurable Goals
1. Legal Authority	<p>1.a. Re-evaluate and modify the existing Erosion and Sedimentation (E&S) ordinance when necessary for compliance with this permit. The permittee must ensure that the E&S ordinance provides the authority to issue land disturbing activity permits; require best management practices to prevent and minimize E&S; require erosion, sedimentation and pollution control plan submission and review prior to commencing construction, conduct inspections and enforcement, including stop work orders, bond forfeiture, and monetary penalties; and require education and certification for persons involved in land development, design, review permitting, construction, monitoring, inspection and other land disturbing activities. If the E&S ordinance is revised during the reporting period, submit a copy of the adopted ordinance in the annual report.</p>
2. Site Plan Review Procedures	<p>2.a. Implement the site plan review procedures described in the SWMP.</p> <p>2.b. Provide a list of the site plans received and the number of plans reviewed, approved, or denied during the reporting period in each annual report.</p> <p>2.c. Provide the number of Land Disturbance Activity (LDA) permits issued during the reporting period in each annual report.</p>
3. Inspection Procedures	<p>3.a. Implement the construction site inspection program to ensure that structural and non-structural BMPs at construction sites are properly designed and maintained as specified in the Construction General Permits (CGPs).</p> <p>3.b. The construction site inspection program shall include the facility inspection prioritization, inspection frequency, and inspection documentation protocol described in the SWMP or in accordance with the CGPs. At a minimum, inspections must occur following installation of initial BMPs, during active construction, and after the final site stabilization.</p>

4. Enforcement Procedures	<p>3.c. Provide the number of active sites and the number of inspections conducted during the previous calendar year in each annual report.</p> <p>4.a. Implement enforcement procedures for E&S violations documented at construction sites as described in the SWMP and in accordance with the ERP in Part 3.3.6 of this permit. Provide documentation on any enforcement actions taken during the reporting period in each annual report, including the number and type (Notice of Violation, Stop Work Order, etc.).</p>
5. Educational/Training Activities	<p>5.a. All builders, developers, contractors, and other entities involved in construction activities subject to the CGPs shall comply with the certification requirements of the Georgia Erosion and Sedimentation Act and the rules adopted by the Georgia Soil and Water Conservation Commission.</p> <p>Ensure that MS4 staff involved in construction activities subject to the CGPs are trained and certified in accordance with the rules adopted by the Georgia Soil and Water Conservation Commission. Provide the number and type of current certifications in each annual report.</p> <p>5.b. Provide a summary of the training conducted during the reporting period.</p>

3.3.5 Highly Visible Pollutant Sources (HVPS)

The permittee must implement and enforce a program to control pollutants in stormwater runoff from HVPS facilities into the MS4. At a minimum, the program must contain the elements listed in Table 3.3.5 below:

Table 3.3.5

SWMP Component	Measurable Goals
1. HVPS Facility Inventory Excluding Any Industrial Facilities listed in the inventory for Section 3.3.3	1.a. Establish, maintain and/or update an inventory for HVPS facilities that discharge to the MS4. Provide the inventory with the 2014-2015 annual report, due June 15, 2015. Provide an updated inventory in each subsequent annual report.
2. Inspection Program	2.a. Implement the HVPS facility inspection program which includes the facility inspection prioritization, inspection frequency, and inspection

	documentation protocol described in the SWMP. Conduct inspections on 100% of inventoried facilities that discharge to the MS4 during the 5-year period. The permittee must conduct a percentage of the inspections each year. Provide the total number of facilities and the number and percentage of inspections conducted during the reporting period and provide documentation in each annual report.
3. Enforcement Procedures	3.a. Implement enforcement procedures to be utilized if a stormwater violation is noted at an HVPS facility that discharges to the MS4 as described in the SWMP and in accordance with the ERP in Part 3.3.6 of this permit. Provide documentation on any enforcement actions taken at HVPS facilities during the reporting period in each annual report.
4. Educational Activities	4.a. Implement educational activities for HVPS facilities. Provide details of any educational activities performed during the reporting period in each annual report.
5. Municipal Employee Training	5.a. Ensure that MS4 staff involved in HVPS activities obtain the appropriate education and training. 5.b. Provide a summary of the training conducted during the reporting period.

3.3.6 Enforcement Response Plan (ERP)

The permittee must develop and implement an ERP that describes the action to be taken for violations associated with the IDDE, construction, industrial, HVPS, and other SWMP programs. The ERP will detail the permittee's responses to any noted storm water violations, including escalating enforcement responses to address repeat and continuing violations. The plan must detail:

- Names of ordinances providing the legal authority to undertake enforcement, including citation of specific ordinance sections;
- Types of enforcement mechanisms available. For each area (IDDE, construction, industrial, HVPS, etc.), the ERP must list the enforcement actions that the permittee has the authority to use, including such actions as:
 - verbal warnings;
 - written notice of violations;
 - citations (with fines);
 - stop work orders;
 - withholding plan approval or other authorizations;
 - any other available enforcement mechanisms;
 - order for cessation or elimination of discharge; and

- referral for judicial action/enforcement.
- Description of when each enforcement mechanism will be employed, including the path of escalation;
- Time frames for each step, including investigation of noncompliance, sequence and use of enforcement mechanisms, corrective action by responsible party, re-inspection of site, etc.
- Description of the methods to be used to track, either manually or electronically, instances of noncompliance, including such items as:
 - name of owner/operator of facility and/or the location or address;
 - type of site (IDDE, construction, industrial, HVPS, etc);
 - description of noncompliance;
 - description of enforcement action(s) used;
 - time frames for each step (e.g. investigation, corrective action, re-inspection);
 - documentation of inspection and enforcement actions taken;
 - documentation of referral to other departments or agencies; and
 - date of violation resolution.

The ERP must be submitted to EPD for review with the 2014-2015 annual report, due June 15, 2015. The ERP must be implemented within six (6) months of EPD approval. Once approved, the ERP will become an addendum to the permittee's SWMP.

3.3.7 Monitoring for Discharges to Impaired Waterbodies

The permittee must identify any impaired waterbodies located within its jurisdictional area, using the latest approved Georgia 305(b)/303(d) List of Waters (<http://www.gaepd.org/Documents/305b.html>), which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. Also, the pollutant of concern must be identified. For those impaired waterbodies with or without an approved total maximum daily load (TMDL) (http://www.gaepd.org/Documents/TMDL_page.html), the permittee shall propose a monitoring and implementation plan (Plan) addressing each pollutant of concern. The permittee must check annually whether an impaired waterbody, within its jurisdiction, has been added to the latest 305(b)/303(d) list. Newly listed waterbodies must be addressed in the Plan and the SWMP must be revised accordingly. The permittee must report on all monitoring activities in subsequent Annual Reports. If a TMDL containing a wasteload allocation specific to one or more of the permittee's outfalls is approved, then the wasteload allocation must be incorporated into the SWMP. All previous and newly approved TMDLs within the jurisdictional areas must be included in either the proposed Plan or a revision to the existing Plan.

The Plan shall include:

- Sample location, whether samples are collected instream (i.e., upstream and downstream), from outfalls during wet weather events, or a combination of

both locations. If the permittee chooses to conduct outfall sampling and there are multiple outfalls located on an impaired waterbody, then the permittee may choose representative outfalls for sampling in place of sampling all outfalls;

- Sample type, frequency, and any seasonal considerations;
- Implementation schedule to start monitoring for each pollutant of concern;
- Map showing the location of the impaired waterbodies, the monitoring location, and all identified MS4 outfalls located on the impaired waterbodies or occurring within one linear mile upstream of the waterbodies, or a schedule for confirming the location of these outfalls; and
- Description of proposed BMPs to be used to control and reduce the pollutants of concern and a schedule for implementation of these BMPs.

Each Annual Report shall include an assessment of the data trends for each pollutant of concern. The assessment shall initially include a characterization of baseline conditions to determine the effectiveness of the BMPs employed and what, if any, additional adaptive BMP measures may be necessary to return the waterbody to compliance with State water quality standards. Following review and comment on the Plan by EPD, the permittee will incorporate any necessary changes into the Plan. For those waterbodies where the permittee is conducting monitoring, the data must be made available to other MS4 permittees upon request. In the event that monitoring is performed in accordance with an EPD-approved Sampling Quality and Assurance Plan, and a waterbody is removed from the 303(d) list of impaired waterbodies, then monitoring conducted under the Plan may cease. Monitoring for the purposes of de-listing an impaired waterbody will benefit the permittee through reduced expenses associated with long-term testing.

3.3.8 Public Education

Conduct a public education program that addresses water quality issues and the protection of water resources and encourages the use of green infrastructure/low impact development. The program should consider such things as litter control, illicit discharges, household hazardous waste disposal, and residential pesticide, fertilizer, and herbicide application, and GI/LID techniques. If the permittee participates in an existing regional program, then the Annual Report should summarize the specific activities performed during the reporting period. If the permittee implements its own public education program, the proposed program must be described in the SWMP and the activities conducted during the reporting period must be documented in the Annual Report.

Public education materials are available on numerous websites, including these suggested sites: U.S. EPA (www.epa.gov), Clean Water Campaign (www.cleanwatercampaign.com) and Center for Watershed Protection (www.cwp.org).

3.3.9 Public Involvement

Conduct a public involvement program that creates opportunities for citizens to participate in the SWMP. This can include involving the public in planning and implementation of activities. These activities can include such things as Adopt-A-Stream, Adopt-A-Road, Rivers Alive, stormdrain stenciling, stakeholder advisory committees, etc. The proposed program must be described in the SWMP and the activities conducted during the reporting period must be documented in the Annual Report. Consider posting the SWMP on the permittee's website, where feasible.

3.3.10 Post-Construction

3.3.10(a) Post-Construction Stormwater Controls

3.3.10(a)(1) Ordinance Review

The permittee must adopt ordinances, or update existing ordinances, when necessary for compliance with this permit, to address development and redevelopment, and enforcement of post-construction controls. The ordinance must provide the authority to conduct plan reviews, conduct inspections, enter into inspection and maintenance agreements, and pursue enforcement. If the ordinance is revised during the reporting period, submit a copy of the adopted ordinance with the Annual Report.

3.3.10(a)(2) Performance Standards

At a minimum, for permittees located within Metropolitan North Georgia Water Planning District (District) and subject to the District requirements, the permittees shall apply the standards for new development and redevelopment to any site that meets one or more of the following criteria:

- New development that creates or adds 5,000 square feet or greater of new impervious surface area, or that involves land disturbing activity of 1 acre or greater.
- Redevelopment that creates or adds 5,000 square feet or greater of new impervious surface area, or that involves land disturbing activity of 1 acre or more.

The permittees must implement either the latest Georgia Stormwater Management Manual (GSMM) or an equivalent local design manual, which must include the performance standards listed below. Should the GSMM be updated during the term of this Permit, the latest requirements for these performance standards shall apply. The permittees must ensure that these standards are implemented where practicable during the site plan preparation process.

Stormwater Runoff Quality/Reduction

All stormwater runoff shall be adequately treated prior to discharge. The stormwater management system shall be designed to remove 80% of the average annual post-development total suspended solids (TSS) load or equivalent as defined in the GSMM or in the equivalent manual. Compliance with this performance standard is presumed to be met if the stormwater management system is sized to capture and treat the water quality treatment volume, which is defined as the runoff volume resulting from the first 1.2 inches of rainfall from a site.

Stream Channel/Aquatic Resource Protection

Stream channel and/or aquatic resource protection shall be provided by using the following approaches: 1) 24-hour extended detention storage of the 1-year, 24-hour return frequency storm event; 2) erosion prevention measures such as energy dissipation and velocity control; and 3) preservation of the applicable stream buffer.

Overbank Flood Protection

Downstream overbank flood protection shall be provided by controlling the post-development peak discharge rate to the predevelopment rate for the 25-year, 24-hour storm event.

Extreme Flood Protection

Extreme flood protection shall be provided by controlling the 100-year, 24-hour storm event such that flooding is not exacerbated.

3.3.10 (b) Green Infrastructure/Low Impact Development (GI/LID)

3.3.10(b)(1) Ordinance Review

EPD encourages the use of GI/LID practices and approaches on both new and redeveloped sites. The permittee shall continue to review and revise, where necessary, building codes, ordinances, and other regulations to ensure they do not prohibit or impede the use of GI/LID practices, including infiltration, reuse, and evapotranspiration. At a minimum, the permittee shall assess those regulations governing residential and commercial development, road design and parking requirements. During the regulatory review, the permittee should consider the inclusion of incentives for use of GI/LID practices into the ordinance.

3.3.10(b)(2) Techniques and Structures

The permittee must have a program in place for considering the use of GI/LID techniques and developing an inventory of structures. The

program must include an inspection and maintenance component. GI/LID can include the following:

- Better Site Planning Techniques (e.g. protection of conservation areas);
- Better Site Design Techniques (e.g. reducing roadway lengths and widths, reducing parking lot footprints); and/or
- Low Impact Development Structures (e.g. green roofs, permeable pavement, vegetated filter strips, rain gardens).

At a minimum, the program must address the elements listed in Table 3.3.10(b)(2) below to address post-construction runoff:

Table 3.3.10(b)(2)

GI/LID Program Elements	Measurable Goals
1. Legal Authority	1.a. Evaluate, and if necessary, modify existing ordinance(s). If the ordinance(s) are revised during the reporting period, submit a copy of the adopted ordinance(s) with the annual report.
2. GI/LID Program	2.a. Develop a program describing the GI/LID techniques and practices to be implemented by the permittee. The program shall include procedures for evaluating the feasibility and site applicability of different GI/LID techniques and practices, and various structures and practices to be considered. The program must be submitted to EPD for review with the 2016-2017 annual report, due June 15, 2017. Upon approval, the program will become a part of the SWMP ³ .
3. GI/LID Structure Inventory	3.a. Develop an inventory of privately owned non-residential and publicly owned water quality-related GI/LID structures located within the permittee's jurisdiction and at a minimum, constructed after the effective date of the permit, including the total number of each type of structure (e.g., bioswales, pervious pavement, rain gardens, cisterns, and green roofs). Provide the inventory with the 2016-2017 annual report, due June 15, 2017. 3.b. Track the addition of new water quality-related GI/LID structures through the plan review process and ensure the structures are

	<p>added to the inventory. Provide an updated inventory in each annual report, beginning with the 2017-2018 annual report, due June 15, 2018.</p>
<p>4. Inspection Program</p>	<p>4.a. Conduct inspections and/or ensure that inspections are conducted on 100% of the total privately owned non-residential and publicly owned GI/LID structures within a 5-year period, beginning in June 2017. Provide the number and/or percentage of the total structures inspected during the reporting period in each annual report.</p> <p>4.b. Conduct maintenance on the publicly owned GI/LID structures, as needed, beginning in June 2017. Provide the number and/or percentage of the total structures maintained during the reporting period in each annual report.</p> <p>4.c. Develop procedures for ensuring privately-owned non-residential GI/LID structures are maintained as needed. Provide the procedures to EPD for review with the 2016-2017 annual report, due June 15, 2017. Upon EPD approval, implement the procedures and provide documentation in each subsequent annual report.</p>

Design information on GI/LID practices can be found on EPD's website (www.gaepd.org) for the GSMM and the CSS to the GSMM (i.e., Model Stormwater Ordinance). Additional information on green infrastructure and better site design can be found on numerous websites, including these suggested sites: U.S. EPA (www.epa.gov), Center for Watershed Protection (www.cwp.org), Georgia Coastal Resource Division's "Georgia's Green Growth Guidelines" (crd.dnr.state.ga.us), and Green Infrastructure Center (www.gicinc.org). In addition, you may want to consult the following webpages on EPA's website: www.epa.gov/nps/lid and http://cfpub.epa.gov/npdes/home.cfm?program_id=298.

3.4 Program Amendments

EPD may require a revision of the SWMP at any time it is deemed necessary by the Director to comply with the goals and requirements of the State Act, but specifically for any of the following reasons:

- 3.4.1 A change has occurred which will significantly impact the potential for the discharge of pollutants to the waters of the State;

- 3.4.2 The permittee's program proves ineffective in controlling pollutants from the MS4 to the MEP;
- 3.4.3 An adverse impact to water quality has been documented as a result of discharges from the MS4; or
- 3.4.4 To include more stringent requirements necessary to comply with new State or Federal statutory or regulatory requirements.

The Director shall notify the permittee of the required modifications in writing and set forth a schedule for the permittee to develop and implement the modified SWMP. In the event the permittee is a co-applicant, then the SWMP shall be amended in conjunction with the other co-applicants. The permittee may propose alternative SWMP modifications to EPD.

3.5 Program Approval

The SWMP may be modified by the permittee at any time. However, if the modification will affect any of the co-applicants, then the affected co-applicant(s) must concur with the amendment in writing. Written notification of proposed SWMP modifications must be submitted to EPD at least 30 days prior to implementation of the modification. EPD reserves the right to disapprove the SWMP modification.

PART 4. MONITORING AND REPORTING REQUIREMENTS

4.1 Annual Report

The permittee shall prepare an annual system-wide report covering the reporting period May 1 through April 30. The report shall be submitted by June 15th following the reporting period. The report must include a comprehensive summary of all the SWMP activities conducted during the reporting period. In the event of a co-applicant agreement, each co-applicant is required to submit a separate Annual Report. The report shall be submitted using the form provided by EPD. The Phase I Large Annual Report form is available on EPD's website at www.gaepd.org. All applicable information required to complete the annual report shall be filled out and the certification statement shall be signed prior to submittal. A summary of the Annual Report requirements is as follows:

- 4.1.1 The status of implementing the components of the SWMP that are established as permit conditions;
- 4.1.2 Proposed changes to the SWMP;
- 4.1.3 Revisions, if necessary, to the assessments of controls;

- 4.1.4 A summary of data, including monitoring data that was accumulated throughout the reporting period;
- 4.1.5 Annual expenditures for the reporting period and the annual fiscal analysis for the upcoming reporting period. The permittee must submit its budget, including the necessary capital and operation and maintenance expenditures as supporting documentation with its Annual Report to EPD to demonstrate the funding source allocation for MS4 permit compliance and related SWMP activities;
- 4.1.6 A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
- 4.1.7 Identification of water quality improvements or degradation.

The permittee shall be responsible for the content of the report or the failure to provide information for the report relating to the MS4 for which it is the owner or operator, even if a co-applicant agreement exists. The permittee shall sign and certify the Annual Report as required under Part 5.10 of this permit.

4.2 Monitoring Procedures

- 4.2.1 The permittee must perform all monitoring described in the SWMP per Table 3.3.2, Table 3.3.3, and Table 3.3.7. The purpose of the monitoring is to identify potential sources of pollution, determine the best method to address water quality issues, and allow evaluation of the effectiveness of the SWMP. Implement additional monitoring if needed to identify pollution sources. If monitoring is being conducted for another reason (e.g., watershed assessment, watershed protection plan), then the data may be used to conduct the evaluation described above.
- 4.2.2 Monitoring must be conducted according to approved test procedures set forth in 40 CFR Part 136, unless other approved test procedures have been specified, excluding IDDE field screening procedures.
- 4.2.3 Parameters shall be analyzed to the detection limits specified by EPD. If a parameter is not detected at or above the detection limit, a value of "NOT DETECTED" will be reported for that sample and the detection limit will also be reported.
- 4.2.4 If the permittee monitors any parameter at the designated location(s) more frequently than required by this permit, the permittee shall analyze all samples using approved analytical methods specified in Part 4.2.2 of this permit. EPD may require more frequent monitoring or the monitoring of

other parameters not specified in this permit or the SWMP by written notification to the permittee.

4.2.5 Laboratory and Analyst Accreditation. All monitoring data not prepared in situ shall be prepared by a laboratory accredited by the State of Georgia in accordance with EPD Rules for Commercial Environmental Laboratories 391-3-26, or, where the permittee does their own analysis with their own personnel, by a Laboratory Analyst certified in compliance with the Georgia State Board of Examiners for Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act. In situ means that the sample is analyzed at the point of collection and has not been transported any distance.

4.3 Retention of Records

4.3.1 The permittee shall retain copies of all reports required by this permit, all monitoring information and records of all other data required by or used to demonstrate compliance with this permit, including any additional monitoring performed which is not required by this permit, for a period of at least three years. After EPD's approval, the permittee will implement the latest revision of the SWMP, while retaining on file the previous version of the program for a period of at least three years. These periods may be modified by the Director by written notification at any time.

4.3.2 Records of monitoring information shall include:

- The date, exact place, time of sampling, or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical techniques or methods used; and
- The results of the analyses.

4.3.3 The permittee must submit its records to EPD upon written request. The permittee must make its records, including the SWMP, available to the public as required by open records requirements.

PART 5. STANDARD PERMIT CONDITIONS

5.1 Duty to Comply

5.1.1 The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the CWA and the State Act and is grounds for:

- Enforcement action;
- Permit termination, revocation and reissuance, or modification; or
- Denial of a permit renewal application.

5.1.2 The CWA and the State Act both provide that any person who falsifies or tampers with, or knowingly renders inaccurate any monitoring device or method required under this permit, or who makes any false statement, representation, or certification in any record submitted or required by this permit, including monitoring reports or reports of compliance or noncompliance, shall, if convicted, be punished by a fine or by imprisonment, or by both. Both Acts include procedures for imposing civil penalties for violations or for negligent or intentional failure or refusal to comply with any final or emergency order of the Director.

5.1.3 If, for any reason, the permittee does not comply with, or will be unable to comply with any condition specified in this permit, the permittee shall provide EPD with an oral report within 24 hours from the time the permittee becomes aware of the circumstances, followed by a written report within five (5) days. The written submission shall contain:

- Description of the noncompliance and its cause;
- Exact dates and times of noncompliance or, if not corrected, the anticipated time the noncompliance is expected to continue; and
- Steps being taken to reduce, eliminate and prevent recurrence of the noncompliance.

5.1.4 The permittee shall give written notice to EPD at least ten (10) days before any planned changes in the permitted activity, which may result in noncompliance with permit requirements.

5.2 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee, in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5.3 Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of the permit, the permittee must apply for and obtain a new permit.

5.4 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5.5 Proper Operation and Maintenance

The permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), owned or operated by the permittee to achieve compliance with the terms and conditions of this permit and with the requirements of the SWMP. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of adequate backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

5.6 Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for permit modification, revocation, reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

5.7 Property Rights

The issuance of this permit does not convey any property rights of either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property, any invasion of personal rights, or any infringement of Federal, State, or local laws and regulations.

5.8 Duty to Provide Information

The permittee shall provide to EPD, within a reasonable time frame, any information which the Director may request to determine compliance with this permit. The permittee shall also provide EPD with any requested copies of records required by this permit.

5.9 Inspection and Entry

The permittee shall allow the Director, the Regional Administrator of USEPA, and their authorized representatives, agents, or employees, after presentation of credentials to:

- 5.9.1 Enter the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the terms and conditions of this permit;
- 5.9.2 Have access to and copy at reasonable times, any records required under the terms and conditions of this permit;
- 5.9.3 Inspect at reasonable times any facilities, equipment, (including monitoring and control equipment) practices, or operations regulated or required under this permit; and
- 5.9.4 Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

5.10 Signatory Requirements

5.10.1 All information submitted to EPD or that this permit requires the permittee to maintain shall be signed by either a principal executive officer or ranking elected official, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

5.10.1(a) The authorization is made in writing by the official person described above and submitted to EPD.

5.10.1(b) The authorization specifies either an individual or a position having responsibility for the overall operation of the municipality's SWMP such as the position of manager, operator, superintendent, or position of equivalent responsibility.

5.10.1(c) If an authorization is no longer accurate because of a different individual or position having been authorized, then a new authorization must be submitted to EPD prior to or together with any report, information, or application signed by the authorized representative.

5.10.2 Any person signing documents under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for

gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

5.11 Other Information

If the permittee becomes aware of a failure to submit any relevant facts or of submission of incorrect information in the SWMP, Annual Report, or any report to EPD, the permittee shall promptly submit the relevant facts or information.

5.12 Availability of Reports

Except for data determined by EPD to be confidential under Section 16 of the State Act or by the Regional Administrator of the USEPA under 40 CFR Part 2, all reports prepared according to the terms of this permit shall be available for public inspection at an office of EPD under the Georgia Open Records Act. All monitoring data, permit applications, permittees' names and addresses, and permits shall not be considered confidential.

5.13 Severability

The provisions of this permit are severable. If any permit provision or the application of any permit provision to any circumstance is held invalid, the provision does not affect other circumstances or the remainder of this permit.

5.14 Contested Hearings

Any person who is aggrieved or adversely affected by any action of the Director shall petition the Director for a hearing within thirty (30) days of notice of this action.

5.15 Civil and Criminal Liability

The permittee is liable for civil and criminal penalties for noncompliance with this permit and must comply with applicable State and Federal laws. The permit cannot be interpreted to relieve the permittee of this liability even if it has not been modified to incorporate new requirements.

5.16 Transfer of Ownership

This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the CWA.

5.17 Previous Permits

All previous State water quality permits issued to this permittee are hereby revoked by the issuance of this permit. The permit governs discharges from this MS4 under the NPDES.

Appendix A

Definitions

Annual Report means the document submitted by the permittee on an annual basis summarizing the SWMP activities conducted during the previous reporting period, in accordance with Part 4.1 of this permit.

Best Management Practice or **BMP** means both structural devices to store or treat storm water runoff and non-structural programs or practices which are designed to prevent or reduce the pollution of the waters of the State of Georgia.

Construction Activity means the disturbance of soils associated with clearing, grading, excavating, filling of land, or other similar activities which may result in soil erosion.

Construction General Permits or **CGPs** means the Georgia NPDES Permit for Stormwater Discharges Associated with Construction Activity Nos. GAR100001, GAR100002 and GAR100003, which identify the Manual for Erosion and Sediment Control in Georgia (Green Book) and stream buffer requirements.

CWA means the Federal Clean Water Act (formerly known as the Federal Water Pollution Control Act or the Federal Water Pollution Control Act Amendments of 1972), as amended.

Director means the Director of the Environmental Protection Division of the Department of Natural Resources, State of Georgia.

EPA or **USEPA** means the United States Environmental Protection Agency.

EPD means the Environmental Protection Division of the Department of Natural Resources, State of Georgia.

Highly Visible Pollutant Source or **HVPS** means a land use or activity that produces higher than normally found levels of pollutants in stormwater runoff. These facilities may include, but are not limited to, gasoline stations, auto repair shops, commercial car washes, home improvement stores, nurseries, kennels, veterinarian offices, etc. These facilities may also include industries that are not required to be covered under the IGP.

Illicit Connection means any man-made conveyance connecting a non-stormwater discharge directly to an MS4.

Illicit Discharge means any direct or indirect non-stormwater discharge to the separate storm sewer system, including but not limited to, sewage, process wastewater, and washwater. The discharge may be continuous or intermittent in occurrence.

Industrial Activity means the activities related to manufacturing, processing, or raw materials storage areas of an industrial plant.

Industrial Facility means a facility that is eligible to be permitted under the IGP because it has an industrial activity listed in Appendix B.

Industrial Storm Water General Permit or IGP means the Georgia NPDES Permit(s) for Storm Water Discharges Associated with Industrial Activity.

Maximum Extent Practicable or MEP means the technology-based discharge standards and controls necessary for the reduction of pollutants discharged from an MS4. These standards and controls may consist of a combination of BMPs, control techniques, system design and engineering methods, and such other provisions for the reduction of pollutants discharged from a MS4 as described in the SWMP.

Municipal Separate Storm Sewer System or an MS4 means a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels or storm drains, owned or operated by a municipality or other public body, designed or used for collecting or conveying storm water runoff and is not a combined sewer or part of a Publicly Owned Treatment Works.

National Pollutant Discharge Elimination System or NPDES means the program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits under the CWA.

Operator means the entity that has the primary day-to-day operational control of the activities necessary to ensure compliance with the SWMP requirements and the MS4 permit conditions.

Outfall means the most downstream point (i.e., final discharge point) on an MS4 where it discharges to the waters of the State.

Owner means the legal title holder to the real property on which is located the facility or site where an SWMP activity takes place.

Point Source means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged into the waters of the State of Georgia. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as

amended), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.

POTW means Publicly Owned Treatment Works.

State Act means the Georgia Water Quality Control Act, as amended.

State Rules or **Rules** means the Georgia Rules and Regulations for Water Quality Control.

Storm Water means storm water runoff, snowmelt runoff, and surface runoff and drainage.

SWMP or **Program** means the Storm Water Management Program required to be developed and implemented under the terms and conditions of this permit and refers to a comprehensive program to manage the quality of storm water discharged from a MS4.

Waters of the State means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, wetlands, and all other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation.

Appendix B

**Facilities and Activities Covered by the
Georgia Industrial Storm Water General Permit(s) (IGP)
NPDES Permit No. GAR050000**

*Refer to the latest IGP for the current industrial facilities and activities listing.

Table D-1. Sectors of Industrial Activity Covered by This Permit		
Subsector	SIC Code or Activity Code ¹	Activity Represented
SECTOR A: TIMBER PRODUCTS		
A1	2421	General Sawmills and Planing Mills
A2	2491	Wood Preserving
A3	2411	Log Storage and Handling
A4	2426	Hardwood Dimension and Flooring Mills
	2429	Special Product Sawmills, Not Elsewhere Classified
	2431-2439 (except 2434)	Millwork, Veneer, Plywood, and Structural Wood (see Sector W)
	2448	Wood Pallets and Skids
	2449	Wood Containers, Not Elsewhere Classified
	2451, 2452	Wood Buildings and Mobile Homes
	2493	Reconstituted Wood Products
A5	2499	Wood Products, Not Elsewhere Classified
A5	2441	Nailed and Lock Corner Wood Boxes and Shook
SECTOR B: PAPER AND ALLIED PRODUCTS		
B1	2631	Paperboard Mills
B2	2611	Pulp Mills
	2621	Paper Mills
	2652-2657	Paperboard Containers and Boxes
	2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes
SECTOR C: CHEMICALS AND ALLIED PRODUCTS		
C1	2873-2879	Agricultural Chemicals
C2	2812-2819	Industrial Inorganic Chemicals
C3	2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations
C4	2821-2824	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass

Table D-1. Sectors of Industrial Activity Covered by This Permit		
Subsector	SIC Code or Activity Code ¹	Activity Represented
C5	2833-2836	Medicinal Chemicals and Botanical Products; Pharmaceutical Preparations; in vitro and in vivo Diagnostic Substances; and Biological Products, Except Diagnostic Substances
	2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
	2861-2869	Industrial Organic Chemicals
	2891-2899	Miscellaneous Chemical Products
	3952 (limited to list of inks and paints)	Inks and Paints, Including China Painting Enamels, India Ink, Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints and Watercolors
	2911	Petroleum Refining
SECTOR D: ASPHALT PAVING AND ROOFING MATERIALS AND LUBRICANTS		
D1	2951, 2952	Asphalt Paving and Roofing Materials
D2	2992, 2999	Miscellaneous Products of Petroleum and Coal
SECTOR E: GLASS, CLAY, CEMENT, CONCRETE, AND GYPSUM PRODUCTS		
E1	3251-3259	Structural Clay Products
	3261-3269	Pottery and Related Products
E2	3271-3275	Concrete, Gypsum, and Plaster Products
E3	3211	Flat Glass
	3221, 3229	Glass and Glassware, Pressed or Blown
	3231	Glass Products Made of Purchased Glass
	3241	Hydraulic Cement
	3281	Cut Stone and Stone Products
3291-3299	Abrasive, Asbestos, and Miscellaneous Nonmetallic Mineral Products	
SECTOR F: PRIMARY METALS		
F1	3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
F2	3321-3325	Iron and Steel Foundries
F3	3351-3357	Rolling, Drawing, and Extruding of Nonferrous Metals
F4	3363-3369	Nonferrous Foundries (Castings)
F5	3331-3339	Primary Smelting and Refining of Nonferrous Metals
	3341	Secondary Smelting and Refining of Nonferrous Metals
	3398, 3399	Miscellaneous Primary Metal Products
SECTOR G: TRANSPORTATION EQUIPMENT, INDUSTRIAL OR COMMERCIAL MACHINERY		
G1	3511-3599 (except 3571-3579)	Industrial and Commercial Machinery, Except Computer and Office Equipment (see Sector H)

Table D-1. Sectors of Industrial Activity Covered by This Permit		
Subsector	SIC Code or Activity Code ¹	Activity Represented
	3711-3799 (except 3731,3732)	Transportation Equipment Except Ship and Boat Building and Repairing (see Sector R)
SECTOR H: ELECTRONIC, ELECTRICAL, PHOTOGRAPHIC, AND OPTICAL GOODS		
H1	3571-3579	Computer and Office Equipment
	3612-3699	Electronic and Electrical Equipment and Components, Except Computer Equipment
	3812-3873	Measuring, Analyzing, and Controlling Instruments; Photographic and Optical Goods, Watches, and Clocks
SECTOR I: OIL AND GAS EXTRACTION		
I1	1311	Crude Petroleum and Natural Gas
	1321	Natural Gas Liquids
	1381-1389	Oil and Gas Field Services
SECTOR J: MINING AND DRESSING		
J1	1011, 1021, 1031, 1041, 1044, 1061, 1081, 1094, 1099, 1411, 1422-1429, 1442, 1446, 1459, 1474- 1479, 1481, 1499	Mining
	1455	Kaolin and Clay Ball Mining
SECTOR K: HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES		
K1	HZ	Hazardous Waste Treatment, Storage, or Disposal Facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA
SECTOR L: LANDFILLS, LAND APPLICATION SITES, AND OPEN DUMPS		
L1	LF	All Landfills, Land Application Sites and Open Dumps
SECTOR M: AUTOMOBILE SALVAGE YARDS		
M1	5015	Automobile Salvage Yards
SECTOR N: SCRAP RECYCLING FACILITIES		
N1	5093	Scrap Recycling Facilities and Liquid Recycling Facilities
N2	5093	Source-separated Recycling Facility
SECTOR O: STEAM ELECTRIC GENERATING FACILITIES		
O1	SE	Steam Electric Generating Facilities, including coal handling sites

Table D-1. Sectors of Industrial Activity Covered by This Permit		
Subsector	SIC Code or Activity Code ¹	Activity Represented
SECTOR P: LAND TRANSPORTATION AND WAREHOUSING		
P1	4011, 4013	Railroad Transportation
	4111-4173	Local and Highway Passenger Transportation
	4212-4231	Motor Freight Transportation and Warehousing
	4311	United States Postal Service
	5171	Petroleum Bulk Stations and Terminals
SECTOR Q: WATER TRANSPORTATION: MAINTENANCE/CLEANING		
Q1	4412-4499	Water Transportation Facilities
SECTOR R: SHIP AND BOAT BUILDING AND REPAIRING YARDS		
R1	3731, 3732	Ship and Boat Building or Repairing Yards
SECTOR S: AIR TRANSPORTATION FACILITIES		
S1	4512-4581	Air Transportation Facilities
SECTOR T: TREATMENT WORKS		
T1	TW	Treatment Works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with section 405 of the CWA
SECTOR U: FOOD AND KINDRED PRODUCTS		
U1	2041-2048	Grain Mill Products
U2	2074-2079	Fats and Oils Products
U3	2011-2015	Meat Products
	2021-2026	Dairy Products
	2032-2038	Canned, Frozen, and Preserved Fruits, Vegetables, and Food Specialties
	2051-2053	Bakery Products
	2061-2068	Sugar and Confectionery Products
	2082-2087	Beverages
	2091-2099	Miscellaneous Food Preparations and Kindred Products
	2111-2141	Tobacco Products

Table D-1. Sectors of Industrial Activity Covered by This Permit		
Subsector	SIC Code or Activity Code ¹	Activity Represented
SECTOR V: TEXTILE MILLS, APPAREL, AND OTHER FABRIC PRODUCT MANUFACTURING; LEATHER AND LEATHER PRODUCTS		
V1	2211-2299	Textile Mill Products
	2311-2399	Apparel and Other Finished Products Made from Fabrics and Similar Materials
	3131-3199	Leather and Leather Products (note: see Sector Z1 for Leather Tanning and Finishing)
SECTOR W: FURNITURE AND FIXTURES		
W1	2434	Wood Kitchen Cabinets
	2511-2599	Furniture and Fixtures
SECTOR X: PRINTING AND PUBLISHING		
X1	2711-2796	Printing, Publishing, and Allied Industries
SECTOR Y: RUBBER, MISCELLANEOUS PLASTIC PRODUCTS, AND MISCELLANEOUS MANUFACTURING INDUSTRIES		
Y1	3011	Tires and Inner Tubes
	3021	Rubber and Plastics Footwear
	3052, 3053	Gaskets, Packing and Sealing Devices, and Rubber and Plastic Hoses and Belting
	3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
Y2	3081-3089	Miscellaneous Plastics Products
	3931	Musical Instruments
	3942-3949	Dolls, Toys, Games, and Sporting and Athletic Goods
	3951-3955 (except 3952 – see Sector C)	Pens, Pencils, and Other Artists' Materials
	3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal
3991-3999	Miscellaneous Manufacturing Industries	
SECTOR Z: LEATHER TANNING AND FINISHING		
Z1	311.1 (also see Sector V)	Leather Tanning and Finishing
SECTOR AA: FABRICATED METAL PRODUCTS		
AA1	3411-3499 (except 3479)	Fabricated Metal Products, Except Machinery and Transportation Equipment, and Coating, Engraving, and Allied Services.
	3911-3915	Jewelry, Silverware, and Plated Ware
AA2	3479	Fabricated Metal Coating and Engraving
SECTOR AB: NON-CLASSIFIED FACILITIES		

Subsector	SIC Code or Activity Code ¹	Activity Represented
AB1		Other storm water discharges designated by the Director as needing a permit (see 40 CFR 122.26(a)(9)(i)(C) & (D)) or any facility discharging storm water associated with industrial activity not described by any of Sectors A-AA. NOTE: Facilities may not elect to be covered under Sector AB. Only the Director may assign a facility to Sector AB.

¹ A complete list of SIC Codes can be found at: http://www.osha.gov/pls/imis/sic_manual.html. Conversions to and from the newer North American Industry Classification System" (NAICS)) can be obtained from the internet at: <http://www.census.gov/eos/www/naics/concordances/concordances.html> or in paper form from various locations in the document titled *Handbook of Standard Industrial Classifications*, Office of Management and Budget, 1987.



Stormwater Management Plan

For The

National Pollutant Discharge Elimination System (NPDES)
Phase I Municipal Separate Storm Sewer System Permit

Prepared For

City of Roswell

September 22, 2014

Prepared By



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Appendices

Appendix A – Roswell NPDES Phase I MS4 Permit
Appendix B – Enforcement Response Plan
Appendix C – Impaired Waterbodies
Appendix D – MS4 Inventory & Map
Appendix E – MS4 Inspection and Maintenance Protocols
Appendix F – Comprehensive Plan
Appendix G – Flood Management Worksheet
Appendix H – Municipal Facility Inspection
Appendix I – Illicit Discharge and Illegal Connection Ordinance
Appendix J – Outfall Sector Area Map and Inventory
Appendix K – Hazardous Material Response
Appendix L – Industrial Facility Inspection
Appendix M – Soil Erosion and Sedimentation Control Ordinance
Appendix N – HVPS Facility Inspection
Appendix O – Post Development Ordinances
Appendix P – Code and Ordinance Review

INTRODUCTION

This document provides the specifications outlining the City of Roswell, Georgia's plan to address the requirements of the NPDES Phase I MS4 program. The activities are collectively known as the City of Roswell's (City) SWMP to address the requirements of the State of Georgia (State) Department of Natural Resources (DNR) Environmental Protection Division (EPD) General NPDES Stormwater Permit No. GAS000131 (permit). The City has developed this SWMP in close consultation with the permit and believes the SWMP will serve as a valuable means of addressing the requirements of the permit as well as addressing water pollution control in the City's streams and rivers. Please note this SWMP is designed to address the requirements of the permit within the City Limits of Roswell and does not represent the entirety of the City's overall Stormwater Management Program.

This SWMP has been divided into eleven (11) major sections:

- Structural and Source Control Measures
- Illicit Discharge Detection and Elimination (IDDE)
- Industrial Facility Stormwater Discharge Control
- Construction Site Management
- Highly Visible Pollutant Sources (HVPS)
- Enforcement Response Plan (ERP)
- Impaired Waterbodies
- Public Education
- Public Involvement
- Post-Construction
- Green Infrastructure/Low Impact Development (GI/LID)

STRUCTURAL & SOURCE CONTROL MEASURES

Permit Requirement: The permittee must implement a program which incorporates structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the MS4, and includes a schedule for implementing the controls.

1. MS4 Control Structure Inventory & Map

Description:

The City of Roswell will continue to maintain a GIS based map and inventory of all MS4 components owned or maintained by the City within the City Limits. At a minimum, the inventory and map will include all of the following:

- Catch Basins
- Ditches
- Detention ponds
- Storm Drain Lines
- Flared End Sections, Drop Inlets, Hooded Grate Inlets, Pipe terminations with no structures, Junction Boxes, etc.

As part of the inventory / map, the City will include a summary of the totals for each MS4 component. The City will update the inventory and map annually as new structures are added or existing structures are removed. A summary of the total number of structures added / removed each year will be included in the annual report for that permit year. A copy of the City's current MS4 control structure inventory and map is included in **Appendix D**.

Measurable Goals:

- Provide an updated MS4 Control Structure Inventory & Map with each annual report
- Provide a Summary of the total number of structures added / removed each permit year with each annual report

Schedule

- April 2015 – Update MS4 Control Structure Inventory & Map
- April 2016 – Update MS4 Control Structure Inventory & Map
- April 2017 – Update MS4 Control Structure Inventory & Map
- April 2018 – Update MS4 Control Structure Inventory & Map
- April 2019 – Update MS4 Control Structure Inventory & Map

2. MS4 Inspection & Maintenance Program

Description:

Inspection Program

The City of Roswell will continue to implement an MS4 inspection program. Please note the City will be inspected on a geographic area basis. The City has been divided into 5 areas and will be inspected such that each area will be inspected once and 100% of the structures inside the City Limits will be inspected over the course of the permit. A copy of the City's MS4 inspection area map has been included in [Appendix D](#). Generally, the MS4 will be inspected for evidence of sedimentation, debris, or structural defects. Each year, the results of inspection will be recorded in a table format and provided in the annual report for that year. An example of the table format has been included in [Appendix E](#). Please note MS4 control structures added to the City after the inspections for that year have been completed will be inspected the following year if located in a previously screened area.

Maintenance Program

The City of Roswell will implement an MS4 maintenance program. The program will be based on the results of the MS4 inspection program (see above) as well as citizen complaints received via various reporting methods. The maintenance program will generally be implemented based on the maintenance protocols outlined in [Appendix E](#) and budget availability. Each year, the City will report the number of work orders created related to maintenance of the MS4 system as well as the actions taken on each work order during the permit year.

Measurable Goals:

- Map of MS4 Components Inspected During Permit Year Including Summary of Number of Structures Inspected and Percentage of Total Structures Inspected
- Copy of Inspection Records (table format) for Inspections Completed in Permit Year
- Summary of Work Orders Created and Completed Related to MS4 Structures
- Summary of Number of Structures Maintained and Percentage of Total Structures Maintained

Schedule

MS4 Inspections

- April 2015 – Complete Inspection of 2014/2015 Inspection Area 1
- April 2016 – Complete Inspection of 2015/2016 Inspection Area 2
- April 2017 – Complete Inspection of 2016/2017 Inspection Area 3
- April 2018 – Complete Inspection of 2017/2018 Inspection Area 4
- April 2019 – Complete Inspection of 2018/2019 Inspection Area 5

MS4 Maintenance

- On-going

3. Planning Procedures

Description:

The City has a comprehensive land use plan that addresses, in part, areas of new development and redevelopment to reduce pollutants in discharges from the MS4. The current plan was originally put together in 2011 and looks ahead to 2030. The document helps develop, implement, and enforce post-construction controls in areas of new development or redevelopment. The comprehensive plan is included in **Appendix F.**

Measurable Goals:

- Review and update as needed the stormwater portion of the 2030 comprehensive plan document and describe any changes made during the reporting period in each annual report

Schedule

- April 2015 – Review planning procedures
- April 2016 – Review planning procedures
- April 2017 – Review planning procedures
- April 2018 – Review planning procedures
- April 2019 – Review planning procedures

4. Street Maintenance

Description:

To reduce polluted runoff originating from streets, roads, and highways from vehicle traffic, leaks and spills, and atmospheric deposition, the City utilizes a contracted sweeping service to sweep public curb and gutter roads within an area of the City on a monthly basis. Public Works Department personnel are utilized to collect litter and debris from the City rights-of-way (ROW). These employees inspect the roadways throughout the City daily and remove litter as necessary. Debris collected by the street sweeping and manual collection operations is disposed at a local solid waste landfill via a third party vendor (waste management company).

Measurable Goals:

- The City will Report the Estimated Amount of Litter and Debris Collected Each Year
- The City will Report the Number of Miles of Street Swept Per Year

Schedule

- Litter and Debris Removal – Ongoing
- Street Sweeping – Ongoing

5. Flood Management Projects

Description:

New Flood Management Projects

The City of Roswell requires new development and redevelopment to comply with the Post-Development Stormwater Management ordinance. These requirements include provisions mandating water quality enhancements be included within the design of the development. Typically this requirement includes a water quality component in the flood management design (i.e. detention/retention pond), unless water quality requirements have been met as a separate component in the overall site design. Additionally, the City will assess all new flood management projects (i.e. projects not associated with development of a new building, parking lot, etc.) to determine if water quality will be impacted by the project and if water quality measures are warranted.

Existing Structure Flood Control Devices

The City of Roswell will select an existing City owned / maintained drainage flood control facility (i.e. detention pond) each year and conduct an assessment for potential retrofitting to address water quality impacts. To determine if the facility should be retrofitted, the City will utilize the worksheet included in the SWMP in **Appendix G**. If a facility is determined to be suitable for retrofit, the facility will be added to the City's Capital Improvements Program needs list and programmed for funding as part of Roswell's budget process.

Measurable Goal:

- The City will report the number of plans reviewed during the reporting period
- The City will provide a copy of a completed worksheet for one existing flood management project per year

Schedule

- New Flood Management Projects Review – Ongoing
- December 2014 – Review One Existing Flood Management Facility
- December 2015 – Review One Existing Flood Management Facility
- December 2016 – Review One Existing Flood Management Facility
- December 2017 – Review One Existing Flood Management Facility
- December 2018 – Review One Existing Flood Management Facility

6. Municipal Waste Facilities

Description:

The City of Roswell does not own or operate any facilities that handle municipal waste and there are no open or closed landfills within the City Limits. The City provides garbage service and has a transfer station where waste is transferred to a third party and taken to a landfill.

7. Municipal Facilities with the Potential to Cause Pollution

Description:

The City of Roswell will develop a municipal facility inventory documenting the location of each facility owned and/or maintained by the City with the potential to cause pollution. As part of this measure, the City will implement an inspection program for the facilities to identify and address potential pollution sources. The municipal facility inventory of the City will be developed within the first year of the permit. As part of the inventory, the City will establish an inspection schedule for each facility. Following establishment of the inventory, the City will begin inspecting each facility per the schedule identified in the inventory. It is the intent of this schedule to ensure 100% of City facilities are inspected prior to April 30, 2019. A copy of the inspection checklist for each facility inspected in that reporting period will be included in each the annual report. An example of the inspection checklist is included in **Appendix H**. If sites are found to need improvements, the appropriate department will be notified of the need for improvements. The Public Works Department will perform a re-inspection, after the improvements have been made, to ensure proper action has been taken.

Measurable Goals:

- The City will provide an initial municipal facilities inventory with the annual report due June 15, 2015
- The City will provide an inspection schedule for all municipal facilities with the annual report due June 15, 2015
- The City will update the municipal facilities inventory annually (if required) with each annual report following delivery of the initial inventory
- The City will provide a copy of the completed inspection checklist for each municipal facility inspected within the applicable permit year

Schedule

- December 2014 – Complete Municipal Facilities Inventory & Inspection Schedule
- April 2015 – Inspect all City Facilities Scheduled for Inspection that Permit Year
- April 2016 – Inspect all City Facilities Scheduled for Inspection that Permit Year
- April 2017 – Inspect all City Facilities Scheduled for Inspection that Permit Year
- April 2018 – Inspect all City Facilities Scheduled for Inspection that Permit Year
- April 2019 – Inspect all City Facilities Scheduled for Inspection that Permit Year

8. Pesticide, Fertilizer & Herbicide Application

Description:

The City of Roswell Public Works maintains an updated inventory of pesticide, fertilizer and herbicide based upon the Material Safety Data Sheets (MSDSs). The City contracts landscaping services and effects reduced needs for excess pesticides, fertilizers, and herbicides by using native, drought tolerant, low maintenance trees and vegetation.

Measurable Goals:

- Updated inventory of pesticides, herbicides and fertilizers
- Certification card of staff member certified to handle pesticides, herbicides, and fertilizers

Schedule

- April 2015 – Pesticide, Herbicide, Fertilizer Inventory and Certification Card
- April 2016 – Pesticide, Herbicide, Fertilizer Inventory and Certification Card
- April 2017 – Pesticide, Herbicide, Fertilizer Inventory and Certification Card
- April 2018 – Pesticide, Herbicide, Fertilizer Inventory and Certification Card
- April 2019 – Pesticide, Herbicide, Fertilizer Inventory and Certification Card

9. Municipal Employee Training

Description:

The City of Roswell will conduct employee training for those employees who work in any municipal facility with the potential to cause pollution as defined in measure #7 of the structural and source control measures of this SWMP, and/or perform inspections and maintenance related to stormwater infrastructure. The training will encompass pollution prevention, good housekeeping, techniques for the proper handling/storage of chemicals, spill prevention and response, NPDES Permit requirements, structural and non-structural control methods, and inspection and maintenance procedures. Initially, training will be performed prior to work assignments and every other year thereafter. Following the initial training in March 2015 and in between biannual training events, the City will train new employees covered by this measure within 2 months of their employment start date. A log of training materials and a list of employees trained will be submitted with each annual report.

Measurable Goals:

- List of Employees Trained Each Permit Year
- Materials Presented to Employees Each Permit Year

Schedule

- March 2015 – Conduct Employee Training
- March 2016 – Conduct Employee Training
- March 2017 – Conduct Employee Training
- March 2018 – Conduct Employee Training
- March 2019 – Conduct Employee Training

ILLICIT DISCHARGE DETECTION & ELIMINATION (IDDE)

Permit Requirement: The permittee must develop, implement and enforce a program to detect and eliminate illicit discharges (as defined in 40 CFR Part 122.26(b)(2)) and improper disposal of pollutants into its MS4. The permittee must:

- Develop, if not already completed, a storm sewer map, showing the location of all outfalls and the names and location of all waters of the State that receive discharges from those outfalls;
- Prohibit through ordinance, or other regulatory mechanisms, non-stormwater discharges into the MS4 and implement appropriate enforcement procedures and actions;
- Develop and implement a plan to detect and address non-stormwater discharges including illegal dumping to the MS4;
- Inform public employees, businesses, and the general public of the hazards associated with illegal discharges and improper disposal of wastes; and
- Address the following categories of non-stormwater discharges or flows only if they are identified as significant contributors of pollutants to the MS4:
 - Water line flushing;
 - Landscape irrigation;
 - Diverted stream flows;
 - Rising ground waters;
 - Uncontaminated ground water infiltration (as defined in 40 CFR Part 35.2005(20));
 - Uncontaminated pumped ground water;
 - Discharges from potable water sources;
 - Foundation drains;
 - Air conditioning condensation;
 - Irrigation water;
 - Springs;
 - Water from crawl space pumps;
 - Footing drains;
 - Lawn watering;
 - Individual residential car washing;
 - Flows from riparian habitats and wetlands;
 - Swimming pool discharges;
 - Street wash water; and
 - Flows from firefighting activities.

1. Legal Authority

Description:

The City of Roswell will maintain an illicit discharge and illegal connection ordinance within the City of Roswell Code of Ordinances meeting the requirements of the NPDES Phase I MS4 permit as well as the requirements of the Metropolitan North Georgia Water Planning District. If the requirements of the aforementioned programs conflict, the more stringent requirement will be maintained. Please note the ordinance was adopted in a previous permit year and a copy of the ordinance can be found in [Appendix I](#).

Measurable Goal:

- The City will maintain an illicit discharge and illegal connection ordinance within the City of Roswell Code of Ordinances at all times during the course of the permit. Each year, the City will evaluate the ordinance to determine if revisions are required. If revisions are required, the City will submit a copy of the revised ordinance to EPD to be included in the SWMP

Schedule

- April 2015 – Annual Review of Illicit Discharge and Illegal Connection Ordinance
- April 2016 – Annual Review of Illicit Discharge and Illegal Connection Ordinance
- April 2017 – Annual Review of Illicit Discharge and Illegal Connection Ordinance
- April 2018 – Annual Review of Illicit Discharge and Illegal Connection Ordinance
- April 2019 – Annual Review of Illicit Discharge and Illegal Connection Ordinance

2. Outfall Inventory & Map

Description:

The City of Roswell has created a map of all regulated outfalls in the City Limits. This map is included in the SWMP in **Appendix J**. Each year, the City will update the map to reflect the addition of outfalls from new infrastructure projects or developments. The City has also created a database inventory of all MS4 outfalls and included it in the SWMP in **Appendix J**. In subsequent annual reports, the City will remove from the inventory any outfalls that have been reclassified or removed.

Measurable Goals:

- The City will maintain and update a map of all MS4 outfalls within the City Limits of Roswell and provide a copy of the map with streams and stream names as part of the City's annual report
- The City will maintain and update a database inventory of all MS4 outfalls within the City Limits of Roswell and provide with the City's annual report

Schedule

- April 2015 – Update MS4 Outfall Map and Inventory
- April 2016 – Update MS4 Outfall Map and Inventory
- April 2017 – Update MS4 Outfall Map and Inventory
- April 2018 – Update MS4 Outfall Map and Inventory
- April 2019 – Update MS4 Outfall Map and Inventory

3. IDDE Plan

Description:

The City of Roswell's dry weather screening program consists of inspecting outfalls and sampling any dry weather flow to determine if upstream facilities/connections are discharging non-stormwater flows to the drainage system. The City will utilize approved EPD procedures to conduct dry weather screening annually. Please note the City will be screened on a watershed basis. The City has seven watersheds and will be divided into 5 DWS sectors. Each sector will be screened once resulting in 100% of total outfalls inside the City Limits being screened over the course of the permit. A copy of the City's DWS watershed map is included in [Appendix J](#).

Upon finding a dry weather flow, and if the detected limits of any of the sampling parameters are above their acceptable baseline limits, the City will initiate a source tracing and removal program. City outfalls that are found to have a dry weather flow will be screened and appropriate action taken as outlined in the approved Illicit Discharge and Illegal Connection Ordinance in [Appendix I](#) and the Enforcement Response Plan in [Appendix B](#).

Measurable Goals:

- Provide a map and completed dry weather screening forms for all dry weather screened outfalls completed within the permit year in each year's annual report
- 100% of suspected illicit discharges investigated
- 100% of identified illicit connections removed
- All dry weather flow investigations will be reported in each year's annual report

Schedule

- January 2015 – Complete Dry Weather Screening of 2014-2015 Sector 1 (Foe Killer Creek Watershed)
- January 2016 – Complete Dry Weather Screening of 2015-2016 Sector 2 (Willeo Creek and Roswell Lower Chattahoochee Watersheds)
- January 2017 – Complete Dry Weather Screening of 2016-2017 Sector 3 (Roswell Upper Chattahoochee Watershed)
- January 2018 – Complete Dry Weather Screening of 2017-2018 Sector 4 (Rocky Creek and Upper Little River Watersheds)
- January 2019 – Complete Dry Weather Screening of 2018-2019 Sector 5 (Middle Big Creek Watershed)

4. Spill Response Procedures

Description:

The Roswell Fire Department is trained in hazardous spill response. A copy of their Hazardous Material Response procedure is attached in [Appendix K](#).

Measurable Goal:

- Provide documentation on any spill occurrences and describe cleanup performed during the reporting period

Schedule

- April 2015 – Documentation of any spills and cleanup
- April 2016 – Documentation of any spills and cleanup
- April 2017 – Documentation of any spills and cleanup
- April 2018 – Documentation of any spills and cleanup
- April 2019 – Documentation of any spills and cleanup

5. Public Reporting Procedures

Description:

The City of Roswell has established procedures for encouraging and addressing citizen concerns about water quality. City staff that receive citizen complaint calls will forward the calls to the Water Resources Division of the Public Works / Environmental Department. Actions taken by the Water Resources Division may include visual inspections, field screening, line televising, or contacting another agency to investigate.

The City maintains a database of all reports made regarding potential illicit discharges, illegal dumping, and other water quality violations. The records also include all actions taken by City staff in response to the complaint.

The Water Resources Division has developed and maintains a webpage on the City's official website that contains information on stormwater management issues. The link to this page is <http://www.roswellgov.com>. This website is used to promote the City's and other local educational programs, workshops and public meetings. The website also has an area where any citizen can report a water quality concern. These issues are logged electronically and forwarded to the proper department for investigation and resolution.

Measurable Goals:

- Continuous update of database
- Roswell staff investigate 100% of all water quality concerns received
- Roswell staff takes appropriate action for 100% of issues requiring action
- Submit Water Quality Investigations Summary to EPD in annual report

Schedule

- Database update – As calls are received
- Water Quality investigation – As calls are received

6. Proper Management & Disposal of used Oil & Toxic Materials

Description:

The Roswell Recycling Center is open seven days a week to accept motor oil, anti-freeze, used cooking oil, automotive batteries, printer cartridges, tires, electronics, and latex paint from residents.

Additionally, the City hosts a Household Hazardous Waste (HHW) Collection event for city residents. Mercury thermometers, florescent bulbs, pesticides, pool chemicals, and household cleaners are some of the materials accepted at the event. All products collected are properly disposed.

Measurable Goals:

- Annual update of web page
- Include screen shot of web page with information on annual HHW event

Schedule

- April 2015 – Webpage Screenshot
- April 2016 – Webpage Screenshot
- April 2017 – Webpage Screenshot
- April 2018 – Webpage Screenshot
- April 2019 – Webpage Screenshot

7. Sanitary Sewer Infiltration Controls

Description:

The Fulton County Department of Water Resources maintains and operates the sanitary sewer system in the City of Roswell. Section 4D of the “*Capacity, Management, Operation and Maintenance Program Summary*” provides a description of the County’s routine preventative operations and maintenance measures that seek to prevent overflows or discharges from the sanitary sewer to the MS4. Where the dry weather screening program returns results that could indicate infiltration of sewage into the MS4, the City will investigate the source of the illicit discharge in accordance with procedures described in the *Illicit Discharge Detection and Elimination Plan*.

The City responds to resident inquiries and complaints of possible contamination. Confirmed or suspected sewage spills from the sanitary sewer system are immediately reported to Fulton County Department of Water Resources “Tell Line” at 404-612-8355.

Measurable Goal:

- Log of all confirmed or suspected sewage spills from the sanitary sewer system reported to the Fulton County Department of Water Resources

Schedule

- Investigate and Report Suspected Sewer Overflows or Discharges – Ongoing

8. Municipal Employee Training

Description:

The City of Roswell will conduct employee training for those employees who are involved in illicit discharge detection elimination activities. The training will encompass pollution prevention, good housekeeping, spill prevention and response, and NPDES Permit requirements. Initially, training will be performed prior to work assignments and every other year thereafter. Following the initial training in March 2015 and in between biannual training events, the City will train new employees covered by this measure within 2 months of their employment start date. A **log of training materials** and a list of employees trained will be submitted with each Annual Report.

Measurable Goals:

- List of Employees Trained Each Permit Year
- **Materials Presented to Employees Each Permit Year**

Schedule

- March 2015 – Conduct Employee Training
- March 2016 – Conduct Employee Training
- March 2017 – Conduct Employee Training
- March 2018 – Conduct Employee Training
- March 2019 – Conduct Employee Training

INDUSTRIAL FACILITY STORMWATER DISCHARGE CONTROL

Permit Requirement: The permittee must implement and enforce a program to monitor and control pollutants in stormwater discharges from industrial facilities into the MS4.

1. Industrial Facility Inventory

Description:

The City of Roswell currently maintains an industrial facility inventory list. This list is based on EPD's Industrial Storm Water General Permit (IGP), Notice of Intent (NOI) and No Exposure Exclusion (NEE) online listings. The inventory contains facilities using, storing or manufacturing onsite hazardous or potentially polluting materials. The inventory contains the following information: name of facility, street address, facility type, NOI permit number and mailing address. The City of Roswell will continue to modify and update this list on an annual basis in accordance with the information sources listed above. A copy of the industrial facility inventory is provided in **Appendix L**.

Measurable Goals:

- Submit initial industrial facility inventory with the 2014-2015 annual report, due June 15, 2015
- Continuous update of industrial facility inventory

Schedule

- June 2015 – Submit Industrial Facility Inventory
- April 2016 – Update Industrial Facility Inventory
- April 2017 – Update Industrial Facility Inventory
- April 2018 – Update Industrial Facility Inventory
- April 2019 – Update Industrial Facility Inventory

2. Inspection Program

Description:

The City of Roswell Environmental / Public Works Department is responsible for conducting stormwater inspections onsite at industries on the industrial facility inventory. A customized Industrial Site Stormwater Inspection checklist shall be used, and a database shall be maintained on all inspections, problems found, and actions taken. A checklist is included in the **Appendix L** and will be amended as needed. City of Roswell staff will check to ensure that an NOI has been submitted (if it is required) and will review and check the implementation status of the associated SWP3. Should an inspection reveal a potential threat to water quality in the MS4, City staff will notify the industry or business, provide them with a copy of the inspection checklist, and perform a re-inspection to ensure all necessary corrections were made. City staff will also notify the GA EPD if assistance is needed for enforcement, if there is a threat to Waters of the State, or if a regulated facility has not submitted an NOI. Twenty percent of the facilities in the industrial facility inventory will be inspected annually resulting in 100% of industrial facilities being inspected over the course of the permit.

In order to monitor industrial facilities discharging to the City of Roswell MS4, the City will continue to operate the Industrial and Municipal Inspections program. If evidence is found during the inspection process that activities onsite are contributing to pollution in the MS4, the site owners will be notified of the violation. Site owners will be given a specific time period, proportional to the violation, in which to correct the problem. If the problem is not corrected, enforcement actions as described above, and in the City's Enforcement Response Plan, will be taken. If the violation remains, EPD will be notified of the problem. If EPD intervention does not ensure a resolution to the problem, the City of Roswell may elect to perform priority pollutant sampling at the facility outfall, as described in the CFR 126.26.

Additionally, the City may, during the investigation of a violation of the City's Stormwater Ordinance, complete or require monitoring of a suspected industrial facility to secure evidence supporting the alleged violation.

Measurable Goals:

- Inspect 20% of industrial facilities each reporting period
- Copy of completed inspection checklist for each industrial facility inspected during the reporting period

Schedule

- January 2015 – Inspect 20% of Industrial Facilities
- January 2016 – Inspect 20% of Industrial Facilities
- January 2017 – Inspect 20% of Industrial Facilities
- January 2018 – Inspect 20% of Industrial Facilities
- January 2019 – Inspect 20% of Industrial Facilities

3. Enforcement Procedures

Description:

If upon inspection a site is found to be in non-compliance, the owner will be notified. The owner is provided with a copy of the inspection report and will be given a specific time period, proportional to the violation, in which to correct the problem. City inspectors will then re-inspect the site to confirm the appropriate measures have been implemented. The Enforcement Response Plan will be used when a site is found to be in non-compliance.

Measurable Goals:

- Provide a log of all violations and enforcement procedures undertaken during the reporting period

Schedule

- April 2015 – Provide violation/enforcement log
- April 2016 – Provide violation/enforcement log
- April 2017 – Provide violation/enforcement log
- April 2018 – Provide violation/enforcement log
- April 2019 – Provide violation/enforcement log

4. Educational Activities

Description:

The City maintains educational materials at City Hall and on the City's website that address stormwater management BMPs and relevant issues. Additionally, the City will annually mail a brochure outlining the dangers of illicit discharges and spills to each industrial facility on the City's inventory.

Measurable Goals:

- Mail brochure to all industrial facilities on the City's inventory
- Include a copy of the brochure mailed with annual report

Schedule

- January 2015 – Mail brochure to industrial facilities
- January 2016 – Mail brochure to industrial facilities
- January 2017 – Mail brochure to industrial facilities
- January 2018 – Mail brochure to industrial facilities
- January 2019 – Mail brochure to industrial facilities

5. Municipal Employee Training

Description:

The City of Roswell will conduct employee training for those municipal employees who are involved in industrial activities or inspections. The training will encompass pollution prevention, good housekeeping, spill prevention and response, and NPDES Permit requirements. Initially, training will be performed prior to work assignments and every other year thereafter. Following the initial training in March 2015 and in between biannual training events, the City will train new employees covered by this measure within 2 months of their employment start date. A **log of training materials** and a list of employees trained will be submitted with each annual report.

Measurable Goals:

- List of Employees Trained Each Permit Year
- **Materials Presented to Employees Each Permit Year**

Schedule

- March 2015 – Conduct Employee Training
- March 2016 – Conduct Employee Training
- March 2017 – Conduct Employee Training
- March 2018 – Conduct Employee Training
- March 2019 – Conduct Employee Training

CONSTRUCTION SITE MANAGEMENT

Permit Requirement: The permittee must implement and enforce a program to maintain structural and/or non-structural BMPs to reduce pollutants in stormwater runoff from construction sites to the MS4. Included in the permittee's program are both construction activities that result in a land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre if the construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

Response: The City of Roswell is a Local Issuing Authority, and remains in compliance with Georgia Erosion and Sediment Control Act (GESA) of 1975 as amended in 2003. Accordingly, all developers are required to comply with the local E&S Ordinance and obtain a land disturbance permit prior to the start of any land disturbing activities (LDA) that will disturb one (1.0) or more acres of land within the City Limits. Erosion Sedimentation and Pollution Control Plans (ESPCP) submitted to Roswell are reviewed for compliance with the requirements of GESA. Plans must meet the requirements of GESA and the Roswell Soil Erosion and Sedimentation Control Ordinance, which includes the requirement to control turbidity in the site runoff, control impacts on receiving streams, and the implementation of the minimum control measures. Once an ESPCP is approved, the developer is issued a Land Disturbing Activities Permit by Roswell and can commence with land disturbing activities.

1. Legal Authority

Description:

The City of Roswell maintains a soil erosion and sedimentation control ordinance within the City of Roswell Code of Ordinances meeting the requirements of the NPDES Phase I MS4 permit as well as the requirements of the Georgia Erosion & Sedimentation Act (GESA). If the requirements of the aforementioned programs conflict, the more stringent requirement will be maintained. Please note the ordinance was adopted in a previous permit year and a copy of the ordinance can be found in [Appendix M](#).

Measurable Goals:

- The City will maintain a Soil Erosion and Sedimentation Control Ordinance within the City of Roswell Code of Ordinances at all times during the course of the permit. Each year, the City will evaluate the ordinance to determine if revisions are required. If revisions are required, the City will submit a copy of the adopted ordinance to EPD to be included in the SWMP.

Schedule

- April 2015 – Annual Review of Soil Erosion and Sedimentation Control Ordinance
- April 2016 – Annual Review of Soil Erosion and Sedimentation Control Ordinance
- April 2017 – Annual Review of Soil Erosion and Sedimentation Control Ordinance
- April 2018 – Annual Review of Soil Erosion and Sedimentation Control Ordinance
- April 2019 – Annual Review of Soil Erosion and Sedimentation Control Ordinance

2. Site Plan Review Procedures

Description:

The City of Roswell is a Local Issuing Authority, and remains in compliance with Georgia Erosion and Sediment Control Act (GESA) of 1975 as amended. Accordingly, all developers are required to comply with the Roswell Soil Erosion and Sedimentation Control Ordinance and obtain a land disturbance permit prior to the start of any land disturbing activities that will disturb one (1.0) or more acres of land within the City Limits.

Erosion Sedimentation and Pollution Control Plans (ESPCP) submitted to the City are reviewed by a Roswell staff member who is certified in accordance with the rules adopted by the Georgia Soil and Water Conservation Commission. Roswell has entered into a Memorandum of Agreement with the National Resources Conservation District to review and approve its own ESPCPs. Plans must meet the requirements of GESA and the Roswell Soil Erosion and Sedimentation Control Ordinance, which includes the requirement to control turbidity in the site runoff, control impacts on receiving streams and the implementation of the minimum control measures. City staff also review the site plan to ensure the stormwater management plan meets requirements for water quality and water quality treatment as described in the Stormwater Ordinance. City staff will work with a developer to improve a plan until it meets all applicable requirements. Once a plan is approved by Roswell, the developer is issued a Land Disturbance Activity Permit and can commence with land disturbing activities.

Measurable Goals:

- Review 100% of ESPCPs for compliance with GESA and the Roswell E&S Ordinance and grant Land Disturbance Activity Permit only after ESPCP is approved
- Provide a list of site plans received and the number of site plans reviewed, approved, or denied during the reporting period in each annual report

Schedule

- Site Plan Review – Ongoing

3. Inspection Procedures

Description:

The City of Roswell currently inspects all active construction projects within the City that maintain Land Disturbance Activity Permits. Sites are inspected for compliance with their approved ESPCP plan. All construction sites are inspected shortly after land disturbing activities commence to ensure all structural and non-structural BMPs are properly designed and maintained as specified in the Construction General Permits (CGPs). Regular inspections occur after that based on the following priorities:

- Evidence of erosion or sediment leaving the site
- History of non-compliance with ESPCP plan and E&S regulations
- Citizen complaints
- Proximity to local waterway

Throughout the length of the project, the E&S certified person responsible for the ESPCP implementation onsite is responsible for submitting weekly reports to Roswell on status of that implementation. All construction sites are inspected after construction activity has ceased to ensure the site has been properly stabilized. A log is maintained by Roswell of all E&S inspection records.

During inspections, City staff will check for compliance with the approved ESPCP, the City's Soil Erosion and Sedimentation Control Ordinance, and with the illicit discharge provisions of the Stormwater Ordinance. Staff will ensure the BMPs are in place to control truck washout, chemicals, litter, fuels, erosion, sedimentation, etc.

Measurable Goals:

- 100% of construction sites with LDA permits inspected after installation of initial BMPs
- 100% of construction sites with LDA permits inspected during construction
- 100% of construction sites with LDA permits inspected at the close of land disturbing activities
- 100% of records from inspections entered into City E&S log
- Submit E&S log containing number of sites and site inspections to EPD in annual report

Schedule

- Inspections – A minimum of three times per every construction site with a Land Disturbance Activity Permit

4. Enforcement Procedures

Description:

If upon inspection a site is found to be in non-compliance, the Land Disturbance Activity Permit holder will be notified. The contractor is provided with a written notice to comply that includes the measures necessary to achieve compliance within five (5) days from the issuance of the written warning. City E&S inspectors then re-inspect the site to ensure appropriate measures have been implemented. Following the third and each subsequent violation, an immediate stop-work order shall be issued. No work shall be allowed on the site except to address those deficiencies identified in the inspection and subsequent re-inspections.

Stop work orders shall be issued immediately without prior warnings if any of the following are identified on a site:

- Regulated land disturbing activities are being undertaken without a Land Disturbance Activity Permit
- Failure to maintain a stream buffer
- Significant amounts of sediment as determined by the City Engineer or by the Director or his or her designee, have been or are being discharged into state waters and where best management practices have not been properly designed, installed, and maintained

For a more detailed description of enforcement procedures regarding E&S violations, the reader is directed to the Soil Erosion and Sedimentation Control ordinance in [Appendix M](#) as well as the City's Enforcement Response Plan in [Appendix B](#).

Measurable Goals:

- Follow enforcement procedures outlined in the City's E&S ordinance and ERP
- Provide a log of enforcement actions taken during the reporting period in each annual report including the number and type (e.g. Notice of Violation, Stop Work Order)

Schedule

- Enforcement Procedures – Ongoing

5. Educational/Training Activities

Description:

Georgia Erosion and Sedimentation Act, as amended, requires all construction site operators and all local government staff involved with E&S inspections or ESPCP review receive training from the GSWCC on proper E&S control. The City of Roswell requires all its E&S inspectors receive this training.

Measurable Goals:

- Ensure all MS4 staff involved in construction activities subject to the Construction General Permits (CGPs) are trained and certified in accordance with the rules adopted by the Georgia Soil and Water Conservation Commission
- Provide a **summary of the training attended** during the reporting period in each annual report
- **Provide the number and type of current certifications held by MS4 staff in each annual report**

Schedule

- Education/Training Activities – Ongoing

HIGHLY VISIBLE POLLUTANT SOURCES (HVPS)

Permit Requirement: The permittee must implement and enforce a program to control pollutants in stormwater runoff from HVPS facilities into the MS4.

1. HVPS Facility Inventory

Description:

The City of Roswell will maintain an inventory of businesses and facilities that are considered to have the potential to be highly visible sources of pollutants. The types of businesses included in this list are as follows:

- Autobody/Repair Facilities
- Car Wash Facilities
- Retail Garden Centers
- Paint Retailers

This list is maintained from and updated annually based on the current business license database. The inventory will contain the following information: name of facility, street address, and potential pollutant source. The City of Roswell will develop the Highly Visible Pollutant Source list by December 2014.

Measurable Goals:

- Provide an updated HVPS Inventory

Schedule

- December 2014 – Update HVPS Inventory
- December 2015 – Update HVPS Inventory
- December 2016 – Update HVPS Inventory
- December 2017 – Update HVPS Inventory
- December 2018 – Update HVPS Inventory

2. Inspection Program

Description:

The Public Works Department will be responsible for conducting stormwater inspections onsite at facilities on the highly visible pollutant sources (HVPS) inventory. A standardized HVPS Site Stormwater Inspection checklist shall be used, and a database shall be maintained on all inspections, problems found, and actions taken. A checklist is included in **Appendix N**. Should an inspection reveal a potential threat to water quality in the MS4 that violates the Illicit Discharge Ordinance, City staff will notify the industry or business, provide them with a copy of the inspection checklist, and perform a re-inspection (if necessary) to ensure mandatory corrections were made. If available, the City will also provide the business owner with educational materials to assist them with making the necessary corrections. Twenty percent (20%) of the HVPS facilities in the inventory will be inspected annually. It is the intent of this measure to ensure 100% of identified HVPS sites are inspected over the course of the permit.

Measurable Goals:

- Provide a completed checklist for each HVPS site inspected during the permit year

Schedule

- April 2015 – Complete Inspections of 20% of HVPS Sites
- April 2016 – Complete Inspections of 20% of HVPS Sites
- April 2017 – Complete Inspections of 20% of HVPS Sites
- April 2018 – Complete Inspections of 20% of HVPS Sites
- April 2019 – Complete Inspections of 20% of HVPS Sites

3. Enforcement Procedures

Description:

If upon inspection an HVPS site is found to have issues that would be considered an illicit discharge, then the City will proceed to an enforcement action as outlined in the Illicit Discharge section of the SWMP and in keeping with the Enforcement Response Plan (once approved by the EPD). If an illicit discharge has not taken place but practices on site indicate a high probability that such a discharge could occur, then the City will meet with the property owner and/or the operator of the site to discuss the issues uncovered by the inspection. The City will also make the operator aware of Volume 3 of the Georgia Stormwater Management Manual that discusses pollution prevention and good housekeeping. Generally, the City will attempt to meet with property owners / operators within 45 days of the initial inspection if issues are discovered and that do not fall under the purview of the IDDE section of the SWMP. If after 45 days the City has been unsuccessful in reaching the owner, the City will mail a letter to the owner / operator outlining the concerns and then re-inspect the site within 1 year to determine if corrective actions have been taken.

Measurable Goal(s):

- Provide a summary of all enforcement actions taken on HVPS sites.

Schedule

- Enforcement Procedures – Ongoing

4. Educational Activities

Description:

The City of Roswell distributes the Clean Water Campaign's "When It Rains It Pollutes!" brochure to businesses within the City identified as HVPS sites explaining the problems associated with improper disposal of waste as it relates to the potential for water quality impacts. The brochure is educational in nature by providing tips on proper waste disposal. To assure the brochure is disseminated to all active HVPS businesses in the City, the brochure will be mailed following annual updating of the HVPS inventory.

Measurable Goal(s):

- Provide a list of HVPS sites / businesses that received a copy of the HVPS education brochure in that permit year.
- Provide a copy of the HVPS education brochure mailed during the permit year.

Schedule

- February 2015 – Mail HVPS Education Brochure to HVPS Sites / Businesses
- February 2016 – Mail HVPS Education Brochure to HVPS Sites / Businesses
- February 2017 – Mail HVPS Education Brochure to HVPS Sites / Businesses
- February 2018 – Mail HVPS Education Brochure to HVPS Sites / Businesses
- February 2019 – Mail HVPS Education Brochure to HVPS Sites / Businesses

5. Municipal Employee Training

Description:

The City of Roswell will conduct employee training for those employees who are involved in HVPS site inspections / enforcement. The training will encompass pollution prevention, good housekeeping, spill prevention and response, and NPDES Permit requirements. Initially, training will be performed prior to work assignments and every other year thereafter. Following the initial training in March 2015 and in between biannual training events, the City will train new employees covered by this measure within 2 months of their employment start date. A log of training materials and a list of employees trained will be submitted with each annual report.

Measurable Goal(s):

- List of Employees Trained Each Permit Year
- Materials Presented to Employees Each Permit Year

Schedule

- March 2015 – Conduct Employee Training
- March 2016 – Conduct Employee Training
- March 2017 – Conduct Employee Training
- March 2018 – Conduct Employee Training
- March 2019 – Conduct Employee Training

ENFORCEMENT RESPONSE PLAN (ERP)

Permit Requirement: The permittee must develop and implement an ERP that describes the action to be taken for violations associated with this permit and the SWMP. The ERP will detail the permittee's responses to any noted stormwater violations, including escalating enforcement responses to address repeat and continuing violations. The plan must detail:

- Names of ordinances providing the legal authority to undertake enforcement, including citation of specific ordinance sections;
- Types of enforcement mechanisms available. The ERP should list the enforcement actions the permittee has the authority to use, including such actions as:
 - verbal warnings;
 - written notice of violations;
 - citations (with fines);
 - stop work orders;
 - withholding plan approval or other authorizations;
 - any other available enforcement mechanisms;
 - order for cessation or elimination of discharge; and
 - referral for judicial action/enforcement.
- Description of when each enforcement mechanism will be employed, including the path of escalation;
- Time frames for each step, including investigation of noncompliance, sequence and use of enforcement mechanisms, corrective action by responsible party, re-inspection of site, etc.
- Description of the methods to be used to track, either manually or electronically, instances of noncompliance, including such items as:
 - name of the owner/operator of facilities and/or the location or address;
 - type of site (e.g. IDDE, construction, industrial, HVPS, etc.);
 - description of non-compliance;
 - description of enforcement action(s) used;
 - time frames for each step (e.g. investigation, corrective action, re-inspection);
 - documentation of inspection and enforcement actions taken;
 - documentation of referral to other departments or agencies; and
 - date of violation resolution.

Response: The City of Roswell will develop the ERP and submit a copy of the document to EPD with the annual report due on June 15, 2015. Following approval of the ERP, a copy of the document will be included in the SWMP in **Appendix B**.

IMPAIRED WATERBODIES

Permit Requirement: The permittee must identify any impaired waterbodies located within its jurisdictional area, using the latest approved Georgia 305(b)/303(d) List of Waters, which contain MS4 outfalls or are within one (1) linear mile downstream of MS4 outfalls. Also, the POC must be identified. For those impaired waterbodies with or without an approved TMDL, the permittee shall propose a monitoring and implementation plan (Plan) addressing each POC. The permittee must annually check whether an impaired waterbody, within its jurisdiction, has been added to the latest 305(b)/303(d) list. Newly listed waterbodies must be addressed in the Plan and the SWMP must be revised accordingly. The permittee must report on all monitoring activities in subsequent annual reports. If a TMDL containing a wasteload allocation specific to one or more of the permittee's outfalls is approved, then the wasteload allocation must be incorporated into the SWMP. All previous and newly approved TMDLs within the jurisdictional areas must be included in either the proposed Plan or a revision to the existing Plan. The Plan shall include:

- Sample location, whether samples are collected instream (i.e. upstream and downstream), from outfalls during wet weather events, or a combination of both locations. If the permittee chooses to conduct outfall sampling and there are multiple outfalls located on an impaired waterbody, then the permittee may choose representative outfalls for sampling in place of sampling all outfalls;
- Sample type, frequency, and any seasonal considerations;
- Implementation schedule to start monitoring for each POC;
- Map showing the location of the impaired waterbodies, the monitoring location, and all identified MS4 outfalls located on the impaired waterbodies or occurring within one linear mile upstream of the waterbodies, or a schedule for confirming the location of these outfalls; and
- Description of proposed BMPs to be used to control and reduce the POCs and a schedule for implementation of these BMPs.

Each Annual Report shall include an assessment of the data trends for each POC. The assessment shall initially include a characterization of baseline conditions to determine the effectiveness of the BMPs employed and what, if any, additional adaptive BMP measures may be necessary to return the waterbody to compliance with State water quality standards. Following review and comment on the Plan by EPD, the permittee will incorporate any necessary changes into the Plan. For those waterbodies where the permittee is conducting monitoring, the data must be made available to other MS4 permittees upon request. In the event that monitoring is performed in accordance with an EPD-approved Sampling Quality and Assurance plan, and a waterbody is removed from the 303(d) list of impaired waterbodies, then monitoring conducted under the Plan may cease. Monitoring for the purposes of de-listing an impaired waterbody will benefit the permittee through reduced expenses associated with long-term testing.

1. TMDL Water Quality Monitoring

Description:

The City of Roswell will review Georgia EPD's updated 305(b)/303(d) list annually for waters within their jurisdiction that are not supporting their designated use. The City will maintain TMDL monitoring and implementation plans for each reach not supporting its designated use. For newly listed waterbodies, the City will propose a monitoring and implementation plan (Plan) for the pollutant of concern (POC) and submit a copy of the document to EPD for approval. Following approval of the Plan, the Plan will be implemented and a copy will be incorporated into the SWMP with the existing TMDL Plans in **Appendix C**.

Measurable Goal:

- TMDL Monitoring and Evaluation Reports

Schedule

- April 2015 – Review 305(b)/303(d) list
- April 2016 – Review 305(b)/303(d) list
- April 2017 – Review 305(b)/303(d) list
- April 2018 – Review 305(b)/303(d) list
- April 2019 – Review 305(b)/303(d) list

PUBLIC EDUCATION

Permit Requirement: The permittee must conduct a public education program that addresses water quality issues and the protection of water resources and encourages the use of green infrastructure/low impact development. The program should consider such things as litter control, illicit discharges, household hazardous waste disposal, and residential pesticide, fertilizer, and herbicide application, and GI/LID techniques. If the permittee participates in an existing regional program, then the annual report should summarize the specific activities performed during the reporting period. If the permittee implements its own public education program, the proposed program must be described in the SWMP and the activities conducted during the reporting period must be documented in the annual report.

1. Clean Water Campaign

Description:

The Clean Water Campaign (CWC) is a regional education and outreach initiative focused on stormwater pollution and prevention for the greater Metropolitan Atlanta area. The campaign seeks to inform the public about the negative effects of stormwater pollution on our water supply, recreational opportunities, aquatic ecosystems, and quality of life. It began in 1999 with five counties: Clayton, Cobb, DeKalb, Fulton, and Gwinnett. In 2003 the campaign expanded to include all 15 counties in Metro Atlanta, and is coordinated by the Metropolitan North Georgia Water Planning District. Through collaboration with local, state, and federal agencies, environmental and community groups a consistent message is delivered to teach residents and businesses ways to prevent stormwater pollution and run-off.

The CWC has developed numerous brochures, posters and fact sheets to help educate residents and businesses about stormwater and to provide tips on how to prevent water pollution. These resources are available on the CWC website at <http://www.cleanwatercampaign.com>.

To ensure residents of Roswell receive the benefit of this program, the City has become a participating partner with the CWC. As a participating partner, the City of Roswell has provided a link to the CWC website on the City's Watershed Protection web page. In addition, the City provides, upon resident request, a selection of brochures and advertisements for community workshops and other CWC events.

Measurable Goal:

- Screenshot of City's Watershed Protection web page with link to the Clean Water Campaign website

Schedule

- Clean Water Campaign Participating Partner – Ongoing

2. Green Communities Program

Description:

The Green Communities Program is a Certification from the Atlanta Regional Commission recognizing local governments that implement sustainability practices and policies in multiple categories including Community Member Education. Roswell currently maintains Silver certification. The Roswell Green web page located on the City's website informs residents on conservation and sustainability measures.

The Environmental Education Coordinator is a dedicated staff position that administers the City's environmental education outreach program for the community. The position hosts programs on water conservation, litter prevention, and recycling for schools, civic organizations, and homeowners' associations.

Measurable Goals:

- Maintain Green Community certification by the Atlanta Regional Commission

Schedule

- Community Member Education - Ongoing

PUBLIC INVOLVEMENT

Permit Requirement: The permittee must conduct a public involvement program that creates opportunities for citizens to participate in the SWMP. This can include involving the public in planning and implementation of activities. These activities can include such things as Adopt-A-Stream, Adopt-A-Road, Rivers Alive, stormdrain stenciling, stakeholder advisory committees, etc. Consider posting the SWMP on the permittee's website, where feasible.

1. Environmental Events

Description:

Roswell has a local Adopt-A-Stream program that increases awareness of water quality issues while providing volunteers the tools and training to evaluate and protect local waterways. The City hosts clean-up programs that result in the removal of trash and debris. Past events have included Rivers Alive!, Adopt-A-Road, stormdrain stenciling, and Big Creek Wetlands workday.

The City hosts recycling events annually for light bulbs and electronics, household hazardous waste and paint, and the paper generated at the ShredFest. These events are advertised in local papers and on the City's website. Additionally, the City provides curbside recycling and collection of yard debris to single-family residents.

The City offers environmental curriculum workshops for formal and non-formal educators of K-12 students. Curriculums include Project WET, Monarchs in the Classroom, and Our Shared Forests.

Measurable Goal:

- Summary report detailing activities conducted in annual report

Schedule

- Clean-Up Events – Ongoing
- Recycling Events – Ongoing
- Workshops – Ongoing

2. Tree Recycling Program

Description:

The City participates in the “Bring One for the Chipper Program” Christmas tree recycling collection hosted by Keep Roswell Beautiful. Roswell’s drop off locations are the Home Depot Stores at 870 Woodstock Road and the Holcomb Woods Shopping Center. Davey Tree Company chips all the trees and distributes mulch to residents upon request. Georgia partners include The Davey Tree Company, The Home Depot, Keep Georgia Beautiful, and 11 Alive.

Measurable Goal:

- Include copies of the event advertisement and summary report detailing number of trees in annual report

Schedule

- January 2015 – Tree Recycling Program
- January 2016 – Tree Recycling Program
- January 2017 – Tree Recycling Program
- January 2018 – Tree Recycling Program
- January 2019 – Tree Recycling Program

POST-CONSTRUCTION

Permit Requirement: The permittee must develop, implement and enforce a program to address stormwater runoff into the MS4 from new development and redevelopment projects, including sites that create or add 5,000 square feet or greater of new impervious surface area, or that involve land disturbing activity of 1 acre or greater. The program must ensure controls are in place that will prevent or minimize water quality impacts. At a minimum, the Post-Construction Stormwater Management Program must include these performance standards:

- Stormwater Runoff Quality/Reduction;
- Stream Channel/Aquatic Resource Protection;
- Overbank Flood Protection; and
- Extreme Flood Protection.

1. Legal Authority

Description:

The City of Roswell recognizes the need to require stormwater management on newly developed and redeveloped properties. The City follows the requirements of the Metropolitan North Georgia Water Planning District model ordinances. Additionally, the City maintains and enforces within the City of Roswell Code of Ordinances the Post-Development Stormwater Management Ordinance. If the requirements of the aforementioned programs conflict, the more stringent requirement will be maintained. Please note the ordinance was adopted in a previous permit year and a copy of the ordinance is in **Appendix O**.

Measurable Goal:

- The City will maintain post development stormwater management ordinance within the Code of Ordinances at all times during the course of the permit. Each year, the City will evaluate the ordinance to determine if revisions are required. If revisions are required, the City will submit a copy of the adopted ordinance to EPD to be included in the SWMP.

Schedule

- April 2015 – Review of Post-Development Stormwater Management Ordinance
- April 2016 – Review of Post-Development Stormwater Management Ordinance
- April 2017 – Review of Post-Development Stormwater Management Ordinance
- April 2018 – Review of Post-Development Stormwater Management Ordinance
- April 2019 – Review of Post-Development Stormwater Management Ordinance

2. Georgia Stormwater Management Manual

Description:

The City of Roswell has adopted by reference the Georgia Stormwater Management Manual (GSMM), which includes design criteria/guidelines to assist developers in designing a site plan that will manage post-construction runoff quality and quantity as required in the Stormwater Ordinance. Stormwater site plans, system design, and construction must comply with the requirements in the GSMM.

Measurable Goals:

- Enforce the use of Georgia Stormwater Management Manual (GSMM) and local design manual in local development
- Utilize the GSMM and local design manual during 100% of all plan reviews
- Record number of plans reviewed using the GSMM and local design manual annually to EPD in annual report

Schedule

- April 2015 – Enforce and Utilize GSMM and local design manual during plan review
- April 2016 – Enforce and Utilize GSMM and local design manual during plan review
- April 2017 – Enforce and Utilize GSMM and local design manual during plan review
- April 2018 – Enforce and Utilize GSMM and local design manual during plan review
- April 2019 – Enforce and Utilize GSMM and local design manual during plan review

GREEN INFRASTRUCTURE/LOW IMPACT DEVELOPMENT

Permit Requirement: The permittee must develop a program to evaluate current ordinances and GI/LID techniques and practices. A program should also be developed which describes what practices and techniques should be implemented by the permittee. The permittee will also be responsible in creating an inspection and maintenance schedule for GI/LID structures.

1. Ordinance Review

Description:

As part of this SWMP, the City of Roswell will review and revise, where necessary, building codes, ordinances, and other regulations to ensure they do not prohibit or impede the use of GI / LID practices, including infiltration, reuse, and evapotranspiration. In order to determine if modifications are required, the City will utilize the Code & Ordinance Worksheet evaluation tool developed by the Center for Watershed Protection to evaluate the City's various codes, ordinances, and other regulations. The review will be completed within the first two years of the effective date of the permit and a summary of the review will be included in the 2016 annual report submitted no later than June 15, 2016. If revisions are determined to be warranted as a result of the evaluation, all changes will be completed within four years of the effective date of the permit and submitted to EPD as part of the 2018 annual report submitted no later than June 15, 2018. Once approved by EPD the review will be included in the SWMP in **Appendix P**.

Measurable Goals:

- Initial review to be completed by April 2016 and included in the June 15, 2016 annual report, along with any areas planned for improvement
- If revisions are determined to be warranted as a result of the evaluation, all changes will be completed within four years of the effective date of the permit and submitted to EPD as part of the 2018 annual report submitted no later than June 15, 2018

Schedule

- April 2016 – Initial Evaluation
- April 2018 – Complete revisions if necessary

2. GI/LID Program, Techniques, and Practices

Description:

The City of Roswell will develop a program describing the GI/LID techniques and practices that have been developed by the City. The program will evaluate the feasibility and site applicability of different GI/LID techniques and practices, and various structures.

Measurable Goals:

- Evaluate the feasibility and site applicability of different GI/LID techniques and practices and various structures
- The program will be submitted to EPD for review with the 2016-2017 annual report, due June 15, 2017

Schedule

- April 2017 – Submit GI/LID Program, Techniques, and Practices

3. GI/LID Structure Inventory

Description:

The City will develop an inventory of water quality-related Green Infrastructure (GI) / Low Impact Development (LID) structures located within the City Limits of Roswell. This inventory will contain all GI/LID structures constructed after June 11, 2014. The inventory will include at a minimum bioswales, pervious pavements, rain gardens, cisterns, green roofs, and any other structure deemed appropriate by the Stormwater Coordinator. The initial inventory will be reported in a table format that will include the following information:

- Type of Structure
- Location of Structure (Latitude & Longitude)
- Date Constructed

In addition to the type and location of each structure, the table will also include a summary of the total number of each structure. Following development of the initial inventory, new structures will be identified through the plan review process and added to the inventory. An updated inventory will be included with each annual report.

Measurable Goals:

- Develop an inventory of all GI/LID structures located inside the City Limits of Roswell and submit with the 2016-2017 annual report, due June 15, 2017
- Update the inventory with new structures and submit the updated inventory with each subsequent annual report

Schedule

- April 2017 – Initial GI/LID structure inventory
- April 2018 – Updated GI/LID structure inventory
- April 2019 – Updated GI/LID structure inventory

4. Inspection Program

Description:

The City will develop a program to ensure that inspections are conducted on 100% of the privately owned non-residential and publicly owned GI/LID structures within a 5-year period, beginning in June 2017. Maintenance will also be performed on all publicly owned GI/LID structures, as needed, beginning in June 2017.

The City will develop procedures to ensure privately-owned non-residential GI/LID structures are maintained as needed.

Measurable Goals:

- Inspect 100% of private non-residential and publicly owned GI/LID structures, beginning in June 2017. Provide number of structures inspected during the reporting period
- Conduct maintenance on all publicly owned GI/LID structures, beginning in June 2017
- Develop procedures to ensure privately-owned non-residential GI/LID structures are maintain as needed, and submit for review with the 2016-2017 annual report, due June 15, 2017

Schedule

- April 2017 – Develop procedures to ensure private non-residential GI/LID structures are maintained
- April 2018 – Inspect 50% of private non-residential and publicly owned GI/LID structures
- April 2018 – Maintain 100% publicly owned GI/LID structures
- April 2019 – Inspect 50% of private non-residential and publicly owned GI/LID structures
- April 2019 – Maintain 100% publicly owned GI/LID structures

Appendix 5-1
Complete CIP Project List

Powder Ridge Culvert Replacement	Drainage System Replacement	\$	24,000
Jones Drive Culvert Replacement	Drainage System Replacement	\$	75,000
Branch Valley Drive	Drainage System Replacement	\$	110,000
Martin Road @ Martin Ridge	Drainage System Replacement	\$	162,000
Saddlebrook Drive	Drainage System Replacement	\$	250,000
Northgate Drive	Drainage System Replacement	\$	320,000
Martin Road @ North Pond Circle	Drainage System Replacement	\$	88,000
Old Alabama Road	Drainage System Replacement	\$	92,000
225 Hollyberry Ln.	Drainage System Replacement	\$	52,000
Azalea Drive (2)	Large Maintenance	\$	575,000
Brookfield Club Drive	Maintenance	\$	4,000
Mountain Park Road	Maintenance	\$	53,000
Brightened Crest	Maintenance	\$	182,000
Charleston Trace	Maintenance	\$	30,000
Old Roswell Road	Maintenance	\$	9,000
10475 Crabapple Rd	Maintenance	\$	72,000
Pipe Repair near La Quinta Parking Lot	Pipe System Lining	\$	300,000
Moonshadow Drive Pipe Lining and Repair	Pipe System Lining	\$	220,000
Azalea Drive (1)	Pipe System Lining	\$	296,000
Hamilton Drive	Pipe System Lining	\$	250,000
Balmoral Lane	Pipe System Lining	\$	186,000
LAKE FOREST WAY	Pipe System Lining	\$	50,000
Kingsridge Dr.	Pipe System Lining	\$	39,000
Cold Harbor Drive	Pipe System Lining	\$	121,000
WILLOW STREAM CT.	Pipe System Lining	\$	36,000
Shady Marsh Trail	Pipe System Lining	\$	242,000
Hedgerose Lane	Pipe System Lining	\$	21,000
Kensington Pond Court	Pipe System Lining	\$	58,000
Pine Gove Point Dr.	Pipe System Lining	\$	11,000
Winmark Drive	Pipe System Lining	\$	55,000
Amberside Court	Pipe System Lining	\$	175,000
Pinebrook Road	Pipe System Lining	\$	79,000
Huntwick Road	Pipe System Lining	\$	231,000
Old Alabama Rd.	Drainage Structure Replacement	\$	65,000
Sentinae Chase Dr.	Drainage Structure Replacement	\$	7,000
Creekwood Crossing	Drainage Structure Replacement	\$	90,000
Branch Valley Way	Drainage Structure Replacement	\$	110,000
Oakwood Drive	Drainage Structure Replacement	\$	15,000
2770 Roxburgh Dr.	Drainage Structure Replacement	\$	16,000
2820 Roxburgh Dr.	Drainage Structure Replacement	\$	17,000
11705 NORTHGATE TRAIL	Drainage Structure Replacement	\$	30,000
Martin Road	Drainage Structure Replacement	\$	18,000
Saddle Lake Dr.	Drainage Structure Replacement	\$	15,000
Highland Colony	Drainage Structure Replacement	\$	70,000
Dogleg Ct	Drainage Structure Replacement	\$	15,000
FOLIAGE COURT	Drainage Structure Replacement	\$	15,000
ACROSS FROM 1015 HICKORY OAK HOLLOW	Drainage Structure Replacement	\$	15,000
RIVER LAKE DR.	Drainage Structure Replacement	\$	15,000
SPRING RIDGE DR.	Drainage Structure Replacement	\$	15,000
290 JONES RD.	Drainage System Replacement	\$	35,000
380 WAVETREE DR.	Drainage System Replacement	\$	40,000
Northgate Road	Drainage System Replacement	\$	320,000
22 RAMSEY ST.	Drainage System Replacement	\$	75,000
1245 Riverside Dr.	Drainage System Replacement	\$	30,000

Appendix 5-1
Complete CIP Project List

Cedar Knoll Drive	Drainage System Replacement	\$	600,000
1080 MOUNTAIN IVY DR.	Drainage System Replacement	\$	40,000
12130 BROOKFIELD CLUB DR.	Drainage System Replacement	\$	42,000
Saddlebrook Drive	Drainage System Replacement	\$	250,000
Wickerberry	Drainage System Replacement	\$	480,000
9795 LOBLOLLY LN.	Drainage System Replacement	\$	50,000
11320 CRANWOOD COVE	Drainage System Replacement	\$	31,000
Saddlelake Drive	Drainage System Replacement	\$	150,000
335 AUTUMN WOOD LN.	Drainage System Replacement	\$	15,000
80 FOAL DR.	Drainage System Replacement	\$	25,000
310 SADDLE CREEK DR.	Drainage System Replacement	\$	40,000
355 Alpine Dr	Maintenance	\$	12,000
Roxburgh Drive	Maintenance	\$	30,000
Roxburgh Drive	Maintenance	\$	15,000
Wavetree Drive	Maintenance	\$	15,000
Roxburgh Drive	Maintenance	\$	15,000
Oakhaven Drive	Maintenance	\$	15,000
Champions Green	Maintenance	\$	15,000
Crab Orchard	Maintenance	\$	15,000
Mountain Laurel	Maintenance	\$	15,000
Martin Road	Maintenance	\$	15,000
Lake Charles Drive	Maintenance	\$	15,000
Riverside Drive	Maintenance	\$	15,000
Mountain Laurel/Millsbee Lane	Maintenance	\$	18,000
12845 Bucksport Dr.	Maintenance	\$	20,000
Brandenburgh Way	Maintenance	\$	15,000
Cranberry Trail	Maintenance	\$	45,000
Lisa Drive and Thomas Circle	Maintenance	\$	15,000
Leather Hinge Road	Maintenance	\$	15,000
Grace Hill	Maintenance	\$	15,000
Crabapple Road	Maintenance	\$	15,000
Cashiers Way	Maintenance	\$	15,000
RIDGEFIELD DR.	Maintenance	\$	15,000
South Riversong Lane	Maintenance	\$	15,000
Willeo Drive	Maintenance	\$	15,000
Eves Rd. Ext. at caution light	Maintenance	\$	15,000
FERCREST PLACE	Maintenance	\$	15,000
HIGH CREEK TRACE	Maintenance	\$	15,000
HILLSIDE DRIVE	Maintenance	\$	15,000
HILLSIDE DRIVE	Maintenance	\$	15,000
RICHFIELD COURT	Maintenance	\$	15,000
RIVER BLUFF LANE	Maintenance	\$	15,000
SKYLAND DR.	Maintenance	\$	15,000
CLUBSIDE DR.	Maintenance	\$	15,000
Oakstone Way	Maintenance	\$	15,000
HOPE VINE	Maintenance	\$	15,000
NORTH MEADOW PARKWAY	Maintenance	\$	30,000
12100 LONSDALE LN.	Maintenance	\$	15,000
67 Skyland Dr.	Maintenance	\$	40,000
77 SKYLAND DR.	Maintenance	\$	40,000
89 SKYLAND DR.	Maintenance	\$	40,000
ACROSS FROM 1230 TRAILMOR DR.	Maintenance	\$	17,000
HIGH CREEK TRACE	Maintenance	\$	15,000
LONSDALE LANE	Maintenance	\$	15,000

**Appendix 5-1
Complete CIP Project List**

NESBIT RIDGE COURT	Maintenance	\$	15,000
Pine Grove Road	Maintenance	\$	85,000
Martin Road	Maintenance	\$	15,000
South Satinwood Place	Maintenance	\$	15,000
Battery Point	Maintenance	\$	18,000
1160 Old Valley Forge Drive	Maintenance	\$	15,000
Mimosa Blvd	New Drainage System Construction	\$	1,000,000
922 Myrtle Street	New Drainage System Construction	\$	250,000
Elgaen Place	New Drainage System Construction	\$	100,000
Kent Road	New Drainage System Construction	\$	150,000
Kent Road	New Drainage System Construction	\$	170,000
WOOD WORK WAY	New Drainage System Construction	\$	20,000
Etris Road	New Drainage System Construction	\$	160,000
Martin Road	New Drainage System Construction	\$	110,000
DOBBS	New Drainage System Construction	\$	80,000
Ridge Way	Pipe System Lining	\$	230,000
Woodcrest Drive	Pipe System Lining	\$	130,000
1000 Martin Ridge Road	Pipe System Lining	\$	180,000
Autumn Wood Lane	Pipe System Lining	\$	200,000
Strickland Rd	Pipe System Lining	\$	220,000
Wildwood Springs	Pipe System Lining	\$	430,000
Ascot Lane	Pipe System Lining	\$	360,000
Lake Crest Drive	Pipe System Lining	\$	130,000
SOUTHWIND CIR.	Pipe System Lining	\$	27,216
Wordworth Drive	Pipe System Lining	\$	210,000
Roxburgh Drive	Pipe System Lining	\$	270,000
RIVER LANDING DR. AND RIVERSIDE RD.	Pipe System Lining	\$	25,000
SOFTWOOD CIRCLE	Pipe System Lining	\$	49,000
HOLCOMB WOODS PARKWAY FROM HOME DEPOT	Pipe System Lining	\$	22,000
SADDLE LAKE DR.	Pipe System Lining	\$	38,000
SADDLE CREEK CIRCLE	Pipe System Lining	\$	160,000
775 GABLE RIDGE RD.	Pipe System Lining	\$	27,000
545 MILLSBEE LN.	Pipe System Lining	\$	43,000
200 SOFTWOOD CIR.	Pipe System Lining	\$	62,000
SADDLE HORN CIRCLE	Pipe System Lining	\$	50,000
FARM CT	Pipe System Lining	\$	15,000
120 ELAINE DR..	Pipe System Lining	\$	40,000

Western Kentucky University Stormwater Utility Survey 2018



C. Warren Campbell

Cover

The cover flood picture is of a group of students learning about floodplain management at Lower Antelope Canyon near Page Arizona. During heavy thunderstorms the canyon fills completely. On August 12, 1997 a flash flood here killed 11 hikers.

Preface to the 2018 Survey

I am always surprised by how worked up people get regarding stormwater fees. When I was the City Hydrologist for Huntsville, Alabama we formed a Flood Mitigation Committee to look at ways of protecting Huntsville people and properties from flooding. After a 10-month long process of education for Committee members, we decided that the best and fairest option was a stormwater utility. The Committee voted unanimously to propose that to the City Council. Our very supportive mayor said we needed to set up a meeting with the Huntsville Times Editorial Board. We did this and presented our case. To their credit, they backed us all the way. They wrote an editorial laying out the idea and backing it fully. I always say that the reaction by a small group of people could not have been stronger than if we had proposed to kill the first born child of every family in Huntsville. At the public meeting these ill informed people ranted and raved. They deluged the mayor's and Council member's offices with phone calls, emails, and letters. For residential customers we were planning on asking for less than the cost of a glass of wine at a restaurant each month. About 200 committed people controlled the destiny of 170,000 Huntsville residents. After the public meeting the Flood Mitigation Committee Chair wisely asked the committee to vote again on the proposal to develop a stormwater utility for Huntsville. Again, the vote was unanimous in support of a stormwater utility. This was quite a political science lesson for me. You can always educate a few, reasonable well-informed people of the need for adequate stormwater funding. However, informing the general population is much more difficult. Once the few who shoot from the hip without thinking hit the editorial pages and the television stations freely expressing their opinions, community opinion becomes fixed and it is an uphill battle to change it. If I had it to do over again, I would not have mentioned the fee before a year long public education campaign. I would approach those who had experienced floods and ask them to support the idea with letters and emails to the Council and mayor. Going to the Editorial Board seemed like a really good idea at the time, but it was premature. The purpose of this survey has always been to provide information for public education campaigns for those communities who need adequate funding for stormwater programs. I hope it fulfills that purpose.

Warren Campbell
Bowling Green, Kentucky
August 6, 2018

Methods

The main goal of this survey is to identify as many U.S. Stormwater Utilities (SWUs) as possible. Because many stormwater professionals do not have the time to respond to questionnaires, our primary method of identification was Internet searches. We searched on key terms such as “stormwater utility”, “stormwater fee”, and “drainage fee”. We scoured on-line municipal codes such as Municode, AmLegal, Sterling, LexisNexis, and others. We searched through many city web sites trying to find utilities. We have also had many people contact me to update fees and identify new utilities. However, the data primarily comes from Internet sources and is prone to errors. We hope the readers of this document will continue to help us correct them. This year our Virginia Tech team also phoned several cities to find missing data and we believe their scrub of the data has improved our quality control. However, it is difficult to keep up with fee changes in more than 1600 utilities, so if you discover errors in our data please contact me at warren.campbellwku.edu.

Disclaimer

The opinions expressed in this document are those of the author. They are not official opinions of Western Kentucky University, its administration, or of any other individuals associated in any way with WKU. The author is an engineer so that any opinions expressed should not in any way be construed by any individual or organization as sound legal advice. The use or misuse of any of the data and information provided herein is the sole responsibility of the user and is not the responsibility of Western Kentucky University, its employees, students, or of any organization associated with the University.

ACKNOWLEDGEMENTS

I want to thank Mike Gregory of Computational Hydraulics International for his updates on Canadian stormwater utilities. Also, the University of North Carolina Environmental Finance Center has identified several SWUs that I have included in this survey.

The author is grateful to Professor Randel Dymond and his graduate students Kandace Kea and Amanda Dritschel at Virginia Tech for work they did on past surveys and the database. Their contribution to this survey has been invaluable.

Since 2007, the majority of the SWUs in this survey were identified by our undergraduate students who are listed below. I am very proud of the fact that 55 of my students have passed the CFM exam. When I came to Kentucky in 2004, I was the 7th CFM in the state. There are 11 states with fewer than 55 CFMs so we are making a contribution to floodplain management. Students contributing to the 2014 and 2016 surveys were:

Kain Kotoucek, CFM
Cory Smith, CFM
Megan Jones, CFM

Students contributing to the 2013 Survey were:

Jordon Begley
Walker Bruns
Clayton Cook
Aaron Dockery
Gabriel Goncalves de Godoy
Chris Heil
Eathan Johnson
Carson Joyce
Zach Neihof
Ashley Penrod
Tyler Sweetland
Kirk Thomas
Dylan Ward
Rory Watson, CFM
Doug Woodson, CFM

Students participating in the 2012 survey were:

Benjamin Bell, CFM
Jeremy Brown, CFM
Will Spaulding, CFM
Justin Wallace, CFM

Contributors from previous years were:

Daniel Douglas

Allison Gee
Emily Kinslow, CFM
Lacie Lawson
Kendall McClenny, CFM
Kory McDonald
Daniel Skees, CFM
Brian Vincent, CFM
Jason Walker
Russ Whatley, CFM
Alex Krumenacher, CFM
Nick Lawhon, CFM
Austin Shields, CFM
Adam Disselkamp, CFM
Kenneth Marshall
Wesley Poynter, CFM
Tyler Williams, CFM
Brittany Griggs
Lisa Heartsill, CFM
Spenser Noffsinger, CFM
Pat Stevens
Tony Stylianides, CFM
Scott Wolfe, CFM
Darren Back, CFM
Robert Dillingham, CFM
James Edmunds
Scott Embry, CFM
Clint Ervin
Catie Gay Stevens, CFM
Sean O'Bryan, CFM
Casey Pedigo
Broc Porter
Kelly Stolt, CFM
Ben Webster, CFM
Jon Allen
Karla Andrew, CFM
Eric Broomfield, CFM
Kevin Collignon, CFM
Heath Crawford, CFM
Adam Evans
Cody Humble
Steve Hupper, CFM
Christine Morgan, CFM
Jeremy Rodgers, CFM
Matt Stone, CFM
Kyle Turpin, CFM
Kal Vencill, CFM

The author is grateful to all of these students who have participated in the survey over the past years. They have worked diligently at a somewhat tedious job, but one that should have taught them something about stormwater financing, municipal codes, and websites.

We are also indebted to AMEC for sharing their list of stormwater utilities with us. In 2008, Scott Embry had the foresight to ask them for it and they obliged. We continue to have a good relationship with AMEC.

I also wish to thank the Environmental Finance Center of the University of North Carolina which provided data on several North Carolina and Georgia stormwater utilities (Environmental Finance Center, 2013).

Several companies publish municipal and county codes which serve as a source for much of our data. We are particularly indebted to the Municipal Code Corporation, American Legal Publishing Corporation, Lexis Nexis, and Sterling Codifiers, Inc.

Introduction

We have been able to identify 1681 U.S. stormwater utilities nationwide and 29 in Canada. There are now 6 states with 100 or more stormwater utilities (SWUs). Forty states and DC have at least one SWU. Figure 1 shows U.S. stormwater utilities by location.

As Figure 2 shows, one of the very disappointing aspects of the SWU map is that Louisiana and Mississippi have missed a golden opportunity to encourage stormwater utilities. Twelve years after Hurricane Katrina, neither of the hardest hit states has formed a SWU as far as we can tell. However, New Orleans is considering a stormwater utility to maintain their extensive flood protection systems. Also, neither of the two states hardest hit by Hurricane Sandy (NJ and CT) have a stormwater utility that we could identify. We know that New York has its first stormwater utility in Ithaca. Hopefully this will lead to more SWUs there though we have been unable to identify any other New York SWUs. Anchorage, Alaska has let a contract to develop a stormwater utility. If these come to fruition, we will have another state with SWUs.

One community official said, “We are too small to have a stormwater utility.” The smallest community with a stormwater utility that we have found is Indian Creek Village, Florida with a 2010 census population of 88 (no, this is not a misprint). The largest community is Los Angeles with a population exceeding 3,000,000. The average SWU community population is about 69300 and the median is 18,400. No community is too small nor too large to have a stormwater utility.

At some point, this survey will become unnecessary as every community will have some appropriate stormwater funding mechanism. When will this occur? We have identified 1681 SWUs in the U.S. and 29 in Canada, and as this is written 22,322 communities participate in the National Flood Insurance Program (NFIP) (FEMA’s Community Status Book: <https://www.fema.gov/cis/nation.pdf>). This survey will be necessary for some years to come.

The Data

Part of our raw data is contained in the Table in Appendix A. As this is written, our survey contains data on 1681 stormwater utilities (SWUs) located in 40 states and the District of Columbia (Figure 1). Based on our current find rate, my best guess would be that there are between 1800 and 2000 SWUs in the U.S. More are being formed all the time and we are aware of several that will form within the next few months. Figure 2 shows the number of stormwater utilities by state. At least 6 states have more than 100 SWUs.

Nationwide, the average monthly single family residential fee was \$5.34, the standard deviation was \$6.60, and the median fee was \$4.00. Most fees go up over time reflecting an increase in the Consumer Price Index (CPI). Some communities actually tie the monthly fee to the CPI. However, several communities have reduced their fees. The quartile fees are: 25% - \$2.95, 50% - \$4.00, and 75% - \$6.00 for an interquartile range of \$3.16.

Fees ranged from zero up to \$69.25 per month. Figure 3 shows the spatial distribution of monthly fees. As has been observed in previous surveys, no state has all high fees. Even states with the higher fees also have utilities with much lower fees. The range of fee amounts probably reflects stormwater needs and local political realities.

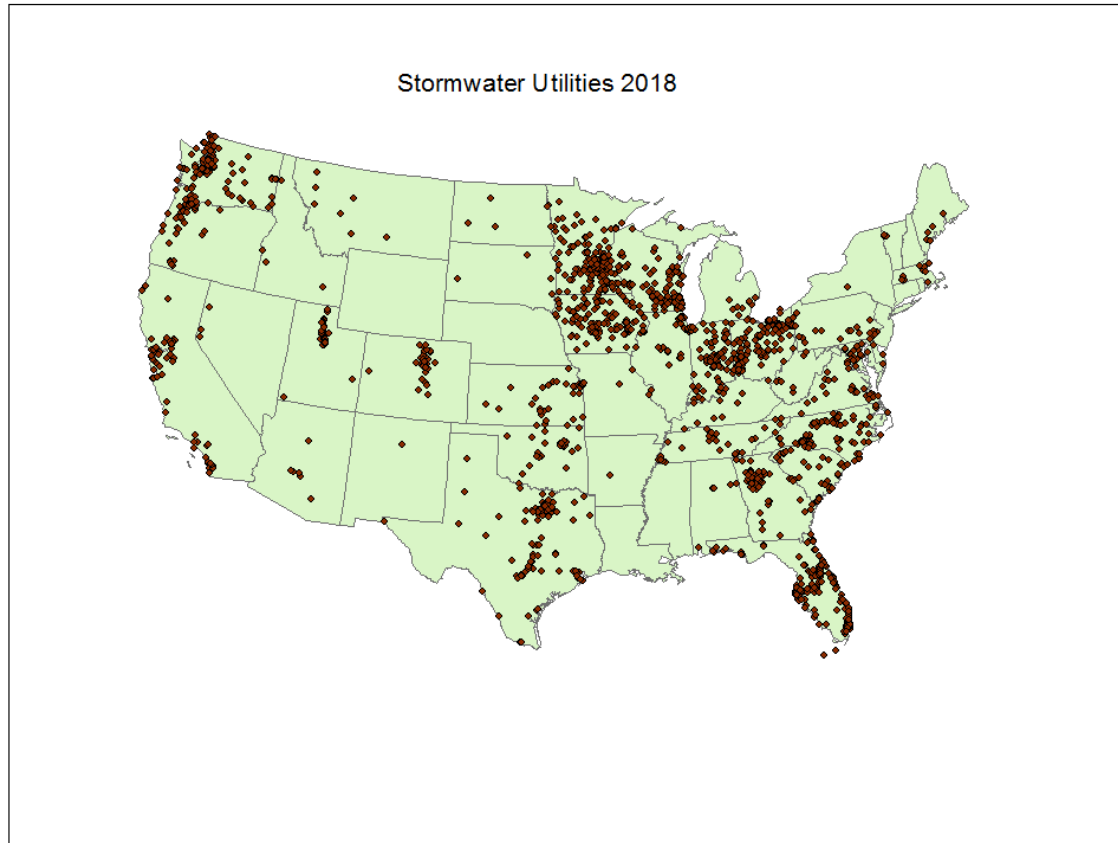


Figure 1. U.S. stormwater utilities (SWUs)

The most widely used method of funding is the ERU system. An Equivalent Residential Unit is usually the average impervious area on a single family residential parcel, although some communities define it as the average of all residential parcels. Fees for non-residential properties are proportional to the ratio of the parcel impervious area to the ERU. For the ERUs identified in our survey, the median was 2900 square feet impervious with a standard deviation of 8900 square feet. We were able to find ERUs for 786 utilities (Figure 4). It is important to have a good estimate of the ERU because an inaccurate ERU means that someone is paying a disproportionate amount which could increase legal exposure (Campbell [2010]). The second and third most popular fee systems were the tier fee (241 SWUs) and the flat fee (236 SWUs) systems. Next in popularity was the Residential Equivalent Factor (REF) system with 140 identified. We were able to identify 108 Dual Fee systems.

Figure 4 shows the spatial distribution of community ERUs. The chart includes communities that did not calculate a real ERU, that is, the average impervious area of residential properties. Usually most parcels in a community are residential parcels and these may all have a single fee or may be divided into a few tiers. This simplifies the administration of the utility.

As with the fees, there is no discernible spatial pattern of ERUs. Presumably, larger ERUs imply more affluent areas or residential parcels with larger homes. However, this may not always be the case. An ERU that is larger than the actual average single family impervious area means that non-residential

properties will pay less than their fair share of the SWU annual revenue and residential customers will pay more (Campbell [2010]).

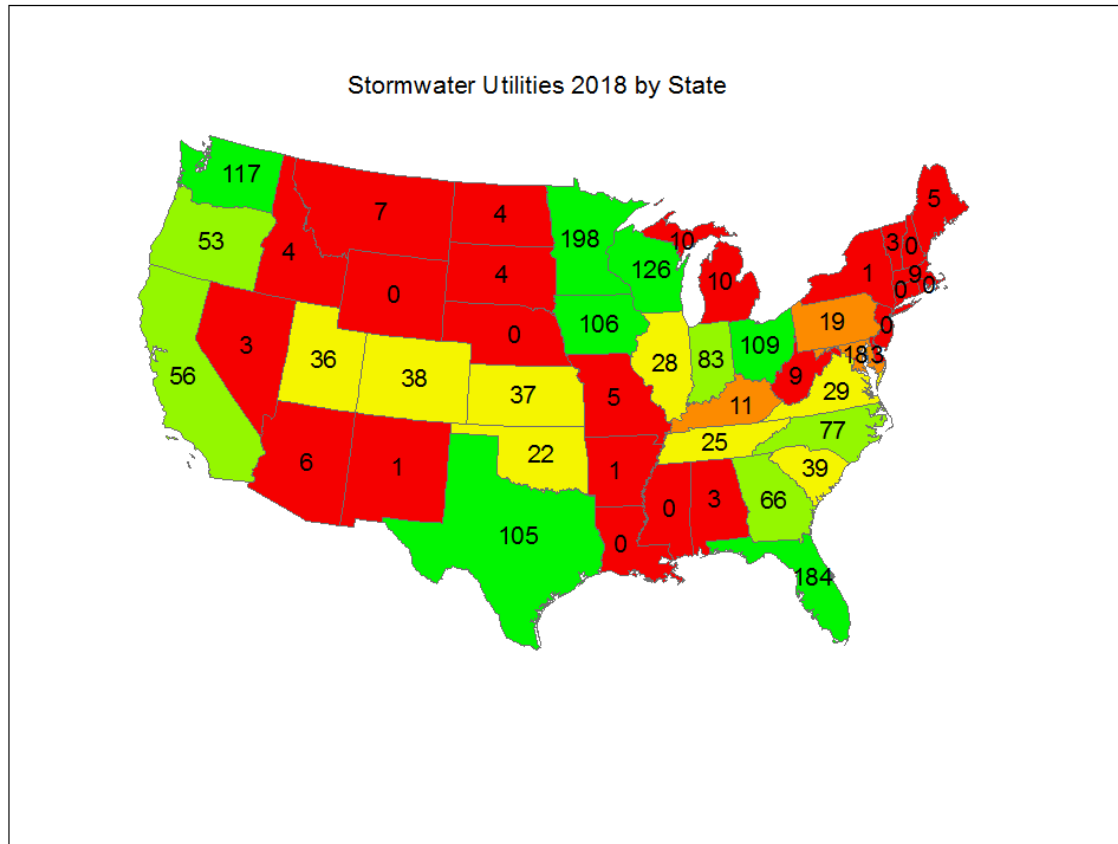


Figure 2. Number of stormwater utilities by state

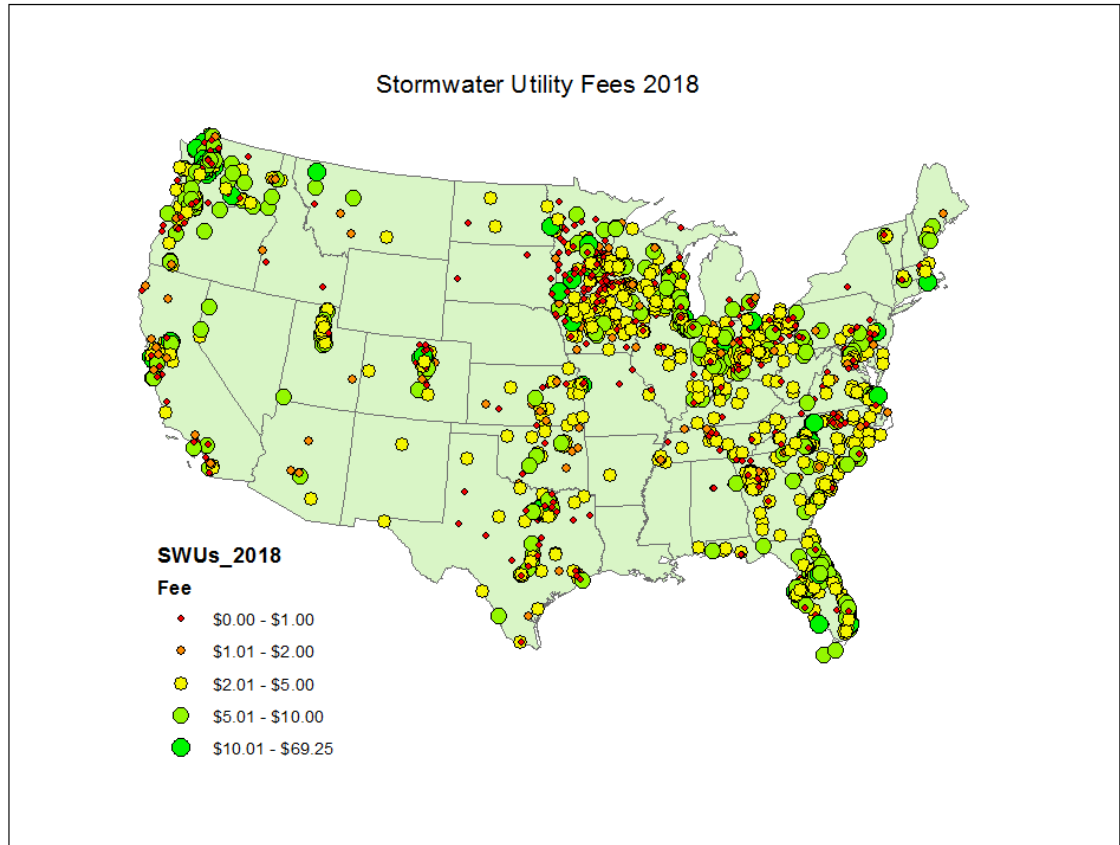


Figure 3. Spatial distribution of monthly stormwater fees

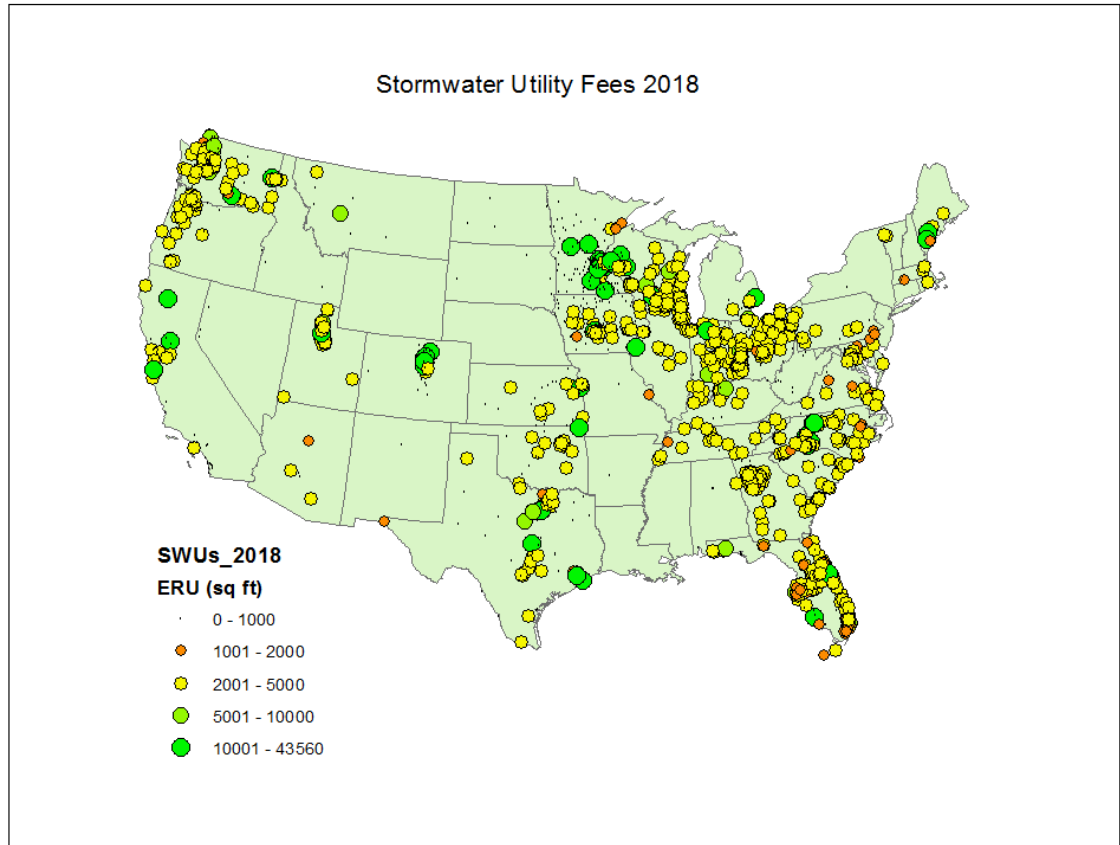


Figure 4. Equivalent Residential Units (ERUs)

Canadian Stormwater Utilities

Mike Gregory found 29 Canadian communities with stormwater utilities. From Figure 5, there appears to be some cross-border communication especially in British Columbia/Washington and in Ontario/Michigan/Ohio/Indiana. Of the 29 SWUs he was able to find 7 that used an ERU fee system. In Canada the most popular system is the tier system and he was able to identify 11 of those.

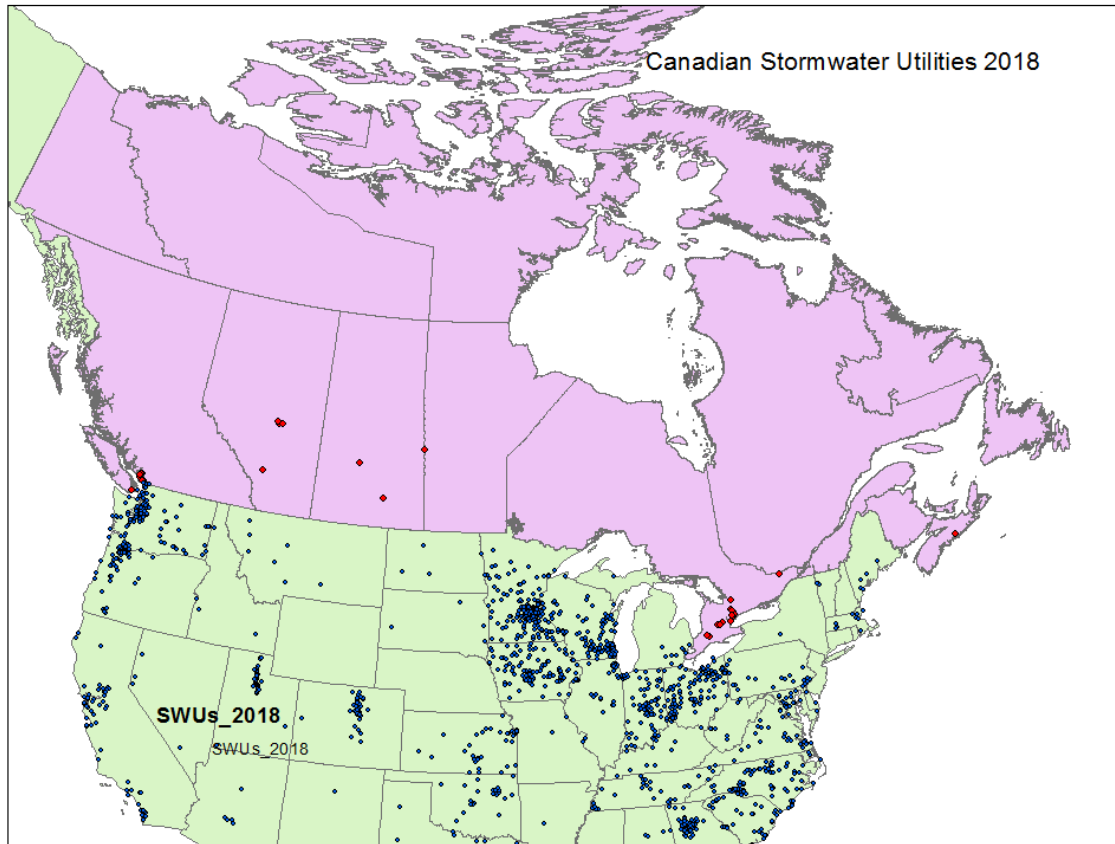


Figure 5. Canadian communities with stormwater utilities.

References

- Black and Veatch (2014). "2014 Stormwater Utility Survey," 24 pp.
- Campbell, C. Warren (2017). "The Western Kentucky University Stormwater Utility Survey 2017," <https://www.wku.edu/seas/undergradprogramdescription/stormwaterutilitysurvey.php>, Bowling Green, Kentucky.
- Campbell, C. Warren, Dymond, Randel, Dritschel, Amanda (2016). "The Western Kentucky University Stormwater Utility Survey 2016," [Stormwater Utility Surveys](#) Bowling Green, Kentucky.
- Campbell, C. Warren, Dymond, Randel, Kea, Kandace, Dritschel, Amanda (2014). "The Western Kentucky University Stormwater Utility Survey 2014," [Stormwater Utility Surveys](#), Bowling Green, Kentucky.
- Campbell, C. Warren (2013). "The Western Kentucky University Stormwater Utility Survey 2013," [Stormwater Utility Surveys](#) Bowling Green, Kentucky.
- Campbell, C. Warren (2012). "The Western Kentucky University Stormwater Utility Survey 2012," [Stormwater Utility Surveys](#), Bowling Green, Kentucky.
- Campbell, C. Warren (2011). "The Western Kentucky University Stormwater Utility Survey 2011," [Stormwater Utility Surveys](#) Bowling Green, Kentucky.
- Campbell, C. Warren (2010). "The Western Kentucky University Stormwater Utility Survey 2010," [Stormwater Utility Surveys](#)/, Bowling Green, Kentucky.
- Campbell, C. Warren (2009). "The Western Kentucky University Stormwater Utility Survey 2009," [Stormwater Utility Surveys](#), Bowling Green, Kentucky.
- Campbell, C. Warren, and Back, A. Darren (2008). "The Western Kentucky University Stormwater Utility Survey 2008," [Stormwater Utility Surveys](#)/, Bowling Green, Kentucky.
- Campbell, C. Warren (2007). "The Western Kentucky University Stormwater Utility Survey 2007," [Stormwater Utility Surveys](#)/, Bowling Green, Kentucky.
- England, Kate, New England Survey: <http://kate-england.com/new-england-stormwater-utilities/#link5>
- Environmental Finance Center (2013). University of North Carolina, <http://efc.unc.edu/index.html>.
- Otto, Rebecca (2011). "Minnesota City Finances: 2010 Revenues, Expenditures, and Debt," Office of the State Auditor, St. Paul, Minnesota, 312 pp.
- Wisconsin APWA Chapter (2010). "WI Stormwater User Charge Information," <http://wisconsin.apwa.net/chapters/wisconsin/documents/SUMatrixAPWA%285%29.pdf>, 1 p.

Appendix A. Raw Data Tables

The following data tables provide the information collected on 1639 U.S. stormwater utilities and 22 Canadian ones. Note that ERUs in the Canadian SWUs are in square meters impervious. The key for the fee types is given below.

Code	Meaning
E	ERU
F	Fixed Rate
T	Tier System
R	Residential Equivalence Factor (or similar)
D	Two Level System (Residential/Commercial)
X	No information
S	Fee per Parcel Square Footage
A	Fee per Parcel Acre
-	Repealed
M	Water Meter
W	By Water Usage
V	Existence of SWU/ Fee verified
IA	Fee per Square Foot Impervious Area
AV	Ad valorem fee

Table A-1. U.S. Stormwater Utility Database

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1	Anniston	AL	D		\$0.83	2014	22,112	
2	Birmingham	AL	T		\$3.81		212,157	
3	Jefferson County, Unincorp.	AL	F					
4	Mobile	AL	F		\$3.00	2009	195,111	
5	Hot Springs	AR	D		\$3.00	2008	35,680	\$671,500
6	Flagstaff	AZ	T	1500	\$1.30	2003	68,667	\$1,444,719
7	Mesa	AZ	F		\$7.32	2006	462,821	\$10,606,284
8	Oro Valley	AZ	E	5000	\$2.90	2008	41,627	\$762,600
9	Peoria	AZ	-			1995	154,065	\$798,700
10	Scottsdale	AZ	F		\$1.15	2016	226,918	
11	Surprise	AZ	E	3420	\$2.00	2016	117,517	
12	Albany	CA	F		\$3.47	1992	18,539	
13	Arcata	CA	E	2500	\$1.95	2001	17,231	
14	Berkeley	CA	R			1991	112,580	
15	Burlingame	CA	A		\$10.48	2009	28,806	\$2,500,000
16	Carlsbad	CA	F		\$1.95	1994	106,000	
17	Carmel-by-the-Sea	CA	E	4000	\$8.77	2001	15,677	
18	Chino	CA	T		\$8.96	1989	77,983	\$3,629,655
19	Citrus Heights	CA	R			1997	83,301	
20	Contra Costa County	CA	E	5,000	\$2.50	2012	1,041,274	
21	Davis	CA	D		\$0.00	2012	65,622	
22	Del Mar	CA	F		\$8.66	2009	4,161	
23	Dixon	CA	F		\$3.77		18,351	
24	El Paso de Robles	CA	V				24,297	
25	Elk Grove	CA	A		\$7.28	2004	153,015	
26	Escalon	CA	T			1993	7,132	
27	Escondido	CA	V		\$2.10	1994	143,911	
28	Folsom	CA	V			1990	72,203	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
29	Fortuna	CA	V		\$0.55	1993	11,926	
30	Galt	CA	F		\$2.43	2002	23,647	
31	Grover Beach	CA	F		\$4.64		13,275	
32	Hollister	CA	V				34,928	
33	Larkspur	CA	E	3,000		1995	11,926	\$93,000
34	Los Angeles	CA	R			1993	3,792,621	
35	Millbrae	CA	V				20,532	
36	Modesto	CA	F		\$3.23	2004	201,165	
37	Monterey	CA	F		\$5.44	1997	27,810	
38	Oceanside	CA	F		\$1.00	2002	167,086	
39	Ontario	CA	R			2002	163,924	
40	Palo Alto	CA	T	2,500	\$12.30	1990	64,403	
41	Pinole	CA	F		\$2.92	1979	18,390	\$280,000
42	Poway	CA	V		\$4.36		47,811	
43	Rancho Cordova	CA	E	3,500	\$5.54	1996	64,776	
44	Rancho Palos Verdes	CA	E	3,804	\$7.17	2005	41,643	
45	Redding	CA	T	43,560	\$1.32	1993	89,861	
46	Richmond	CA	V				103,701	
47	Sacramento	CA	D	43,560	\$11.31		466,488	
48	Sacramento County	CA	F		\$5.85	1995	1,400,949	
49	Salinas	CA	V				150,441	
50	San Bruno	CA	A		\$4.20	1993	41,114	\$542,300
51	San Carlos	CA	T			1994	28,755	
52	San Clemente	CA	T			1993	63,522	
53	San Diego	CA	W		\$0.95	1990	1,307,402	\$5,700,000
54	San Jose	CA	T		\$7.87	1982	945,942	\$32,504,256
55	San Marcos	CA	F		\$1.77	2001	83,781	
56	San Ramon	CA	F		\$1.92	1993	73,333	
57	Santa Clara County	CA	V				1,784,642	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
58	Santa Clarita	CA	F		\$2.00	1994	176,320	
59	Santa Cruz	CA	T	43,560	\$1.77	1994	59,946	\$2,152,000
60	Santa Monica	CA	R			1995	89,736	\$1,097,210
61	Santa Rosa	CA	F		\$1.96	1996	167,815	
62	South San Francisco	CA	V			1994	63,632	
63	Stockton	CA	E	2,347	\$2.10		291,707	
64	Tracy	CA	E	3,140	\$1.20		84,266	
65	Vallejo	CA	F		\$1.97		115,942	
66	Vista	CA	F		\$1.80		93,834	
67	Woodland	CA	T				55,468	
68	Adams County	CO	A		\$1.67	2012	469,193	\$2,032,626
69	Arvada	CO	IA		\$4.17	2002	106,433	\$3,100,000
70	Aurora	CO	E	2,500	\$8.16	2002	345,803	
71	Berthoud	CO	F		\$3.50	1989	5,105	
72	Boulder	CO	R		\$16.82	1974	310,048	\$5,301,116
73	Brighton	CO	T			2011	35,719	\$234,000
74	Canon City	CO	A		\$5.46	2004	16,318	\$964,698
75	Castle Rock	CO	E	3,255	\$6.65	2002	48,231	\$2,264,847
76	Colorado Springs	CO	A		\$5.00	2005	416,427	
77	Denver	CO	T			1980	649,495	
78	Englewood	CO	A		\$1.39		30,255	\$316,244
79	Erie	CO	A	43,560	\$5.00	2003	19,723	\$401,146
80	Evans	CO	A	43,560	\$4.08	1998	18,537	
81	Federal Heights	CO	A		\$3.15	2001	11,973	\$400,000
82	Firestone	CO	T			2009	11,175	\$114,500
83	Fort Collins	CO	R			1986	152,061	\$14,414,000
84	Fountain	CO	V				25,846	
85	Frederick	CO	A	43,560	\$6.23	2008	10,196	\$405,000
86	Golden	CO	F		\$3.20	1997	19,393	\$934,650

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
87	Grand Junction	CO	E	2,500	\$3.00	2015	61,881	
88	Greeley	CO	R			2002	96,539	\$3,766,814
89	Idaho Springs	CO	V			2006	1,717	
90	Lafayette	CO	F		\$4.27	2007	24,453	
91	Lakewood	CO	D	2,250	\$3.70	1998	147,214	\$2,480,000
92	Larimer County	CO	T				315,988	
93	Littleton	CO	A	43,560	\$2.00	1986	44,275	\$575,037
94	Longmont	CO	A		\$13.05	1984	89,919	\$3,765,252
95	Louisville	CO	E	3,500	\$2.00	2007	19,588	\$514,700
96	Loveland	CO	T			1987	71,334	\$4,601,940
97	Northglenn	CO	D	43,560	\$2.00	2004	37,499	\$430,000
98	Parker	CO	E	4,000	\$6.00	1999	48,608	\$1,769,200
99	Pueblo	CO	A		\$2.40	2003	108,249	\$100,000
100	Sheridan	CO	D		\$3.00	2005	5,874	\$71,500
101	Southeast Metro Stormwater Authority	CO	T			2006		\$9,285,550
102	Wellington	CO	T		\$6.33	2008	8,516	
103	Westminster	CO	T		\$3.00	2001	110,945	\$2,798,000
104	Windsor	CO	R			2003	20,422	\$243,924
105	Woodland Park	CO	D		\$2.00	1994	7,153	
106	Washington	DC	T				601,723	
107	Lewes	DE	F		\$5.00	2010	2,747	
108	Newark	DE	E	1,620	\$2.95	2017	33,398	
109	Wilmington	DE	T	789	\$4.95	2006	71,305	
110	Alachua County	FL	V			1996	243,574	\$895,000
111	Altamonte Springs	FL	E	2,492	\$6.75	1989	41,496	
112	Anna Maria	FL	E	2,254	\$3.75	2008	1,503	
113	Apopka	FL	T			2002	41,542	
114	Atlantic Beach	FL	E	1,790	\$8.39	1991	12,655	
115	Auburndale	FL	F		\$0.75		13,675	\$50,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
116	Aventura	FL	E	1,548	\$2.50	1997	36,610	
117	Bartow	FL	E	2,520	\$3.75	2005	17,501	
118	Bay County	FL	D		\$3.33	2005	169,856	\$1,500,000
119	Bay Harbor Islands	FL	E	1,548	\$5.00	1996	5,762	
120	Belle Glade	FL	V			1998	17,667	
121	Belle Isle	FL	E	4,087	\$4.00	2005	6,111	
122	Belleair	FL	E	5,459	\$11.92	2012		
123	Boca Raton	FL	E	2,837	\$3.11	1993	85,329	
124	Boynton Beach	FL	E	1,937	\$5.00	1993	68,996	
125	Bradenton	FL	F		\$4.50	1996	50,193	
126	Bradenton Beach	FL	F		\$9.58	2004	1,187	
127	Brevard County	FL	E	2,500	\$3.00	1990	543,566	\$3,000,000
128	Callaway	FL	F		\$1.00	1991	14,493	
129	Cape Canaveral	FL	T	2,074	\$5.00	2003	9,916	
130	Cape Coral	FL	A	43,560	\$3.00	2004	157,476	\$10,420,542
131	Casselberry	FL	E	2,304	\$7.00	1993	26,387	\$2,235,439
132	Charlotte County	FL	F		\$2.50	1991	160,511	
133	Clearwater	FL	E	1,830	\$14.15	1990	107,784	\$16,125,100
134	Clermont	FL	E	3,154	\$5.00	1990	29,126	
135	Cocoa	FL	E	2,166	\$6.00	1992	17,147	
136	Cocoa Beach	FL	E	2,900	\$6.00	2003	11,235	
137	Coconut Creek	FL	E	2,070	\$2.65	2004	53,915	
138	Collier County	FL	V			1991	328,134	\$9,060,000
139	Coral Gables	FL	E	2,346	\$6.70	1993	47,783	\$3,058,044
140	Cutler Bay	FL	E	1,548	\$4.00	2007	44,300	
141	Daytona Beach	FL	E	1,661	\$8.67	2004	61,028	\$9,785,395
142	De Land	FL	E	3,100	\$7.83	2009	27,041	
143	DeBary	FL	E	2,560	\$7.00	2005	19,324	
144	Delray Beach	FL	E	2,502	\$5.33	1990	61,209	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
145	Deltona	FL	E	3,484	\$6.34	1996	85,219	\$3,035,369
146	Doral	FL	E	1,548	\$4.00	2005	46,789	
147	Dundee	FL	E	4,749	\$1.20	2003	3,764	
148	Dunedin	FL	E	1,708	\$9.30	2007	35,354	
149	Eagle Lake	FL	D		\$4.00	2007	2,283	
150	Edgewater	FL	E	2,027	\$8.00	2004	20,761	
151	El Portal	FL	E	1,548	\$3.00		2,380	
152	Eustis	FL	D	2,187	\$6.00	1997	18,805	
153	Fellsmere	FL	F		\$4.00	2013	3,813	
154	Fernandina Beach	FL	F		\$4.00	2012	11,705	\$156,000
155	Florida City	FL	E	1,250	\$2.50	2000	11,511	
156	Fort Lauderdale	FL	T			1992	168,528	
157	Fort Meade	FL	T		\$4.25	1990	5,696	\$139,000
158	Fort Myers	FL	E	500	\$0.96	2009	63,512	
159	Fort Pierce	FL	E	2,186	\$4.50	2005	41,993	
160	Fort Walton Beach	FL	E	3,200	\$3.00	1990	19,793	\$652,663
161	Frostproof	FL	F		\$3.00	1997	3,030	
162	Fruitland Park	FL	F		\$2.00	2005	4,132	
163	Gainesville	FL	E	2,300	\$8.56	1988	125,326	
164	Golden Beach	FL	E	8,000	\$35.00	1993	940	
165	Grant-Valkaria	FL	E	2,500	\$3.00	2008	3,851	
166	Gulf Breeze	FL	E	4,450	\$5.07	2006	5,870	\$713,894
167	Gulfport	FL	E	2,300	\$3.21	1995	12,041	
168	Haines City	FL	T			2002	20,807	\$180,000
169	Hallandale Beach	FL	E	958	\$3.35	1980	37,800	
170	Hernando County	FL	-			2003	173,094	
171	Hialeah	FL	E	1,664	\$2.50	1998	229,969	
172	Hialeah Gardens	FL	E	1,267	\$2.00	1996	19,297	
173	Hillsborough County	FL	V			1989	1,267,775	\$23,925,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
174	Holly Hill	FL	E	2,050	\$6.00	1997	11,663	
175	Hollywood	FL	E	2,250	\$3.22	1993	143,357	
176	Homestead	FL	E	2,000	\$3.37	1992	61,940	
177	Indian Creek Village	FL	E	1,548	\$4.00	1999	88	
178	Indian Harbor Beach	FL	E	2,500	\$3.00		8,228	
179	Jacksonville	FL	T			2007	827,908	
180	Jacksonville Beach	FL	E	1,541	\$5.00	1990	21,523	
181	Jupiter	FL	E	2,651	\$4.37	1994	55,911	
182	Key Biscayne	FL	E	1,083	\$7.50	1993	12,637	
183	Key West	FL	E	1,400	\$7.35	2001	24,909	
184	Kissimmee	FL	E	2,404	\$7.38	1989	61,346	
185	Lake Alfred	FL	T		\$2.00	1999	5,077	
186	Lake Mary	FL	E	4,576	\$4.00		13,900	\$275,500
187	Lake Worth	FL	E	1,748	\$5.80	1993	35,306	
188	Lakeland	FL	E	5,000	\$6.00	1999	98,589	\$4,400,000
189	Largo	FL	E	2,257	\$5.32	1989	77,723	\$3,436,598
190	Lauderdale Lakes	FL	E	2,133	\$4.57	1997	33,191	
191	Lauderdale-by-the-Sea	FL	E	4,472	\$3.50	2004	6,168	
192	Lauderhill	FL	M				68,117	
193	Leesburg	FL	E	2,000	\$6.00	1994	20,390	
194	Leon County	FL	E	2,723	\$1.67	1991	277,971	
195	Longwood	FL	E	2,898	\$6.00		13,745	
196	Madeira Beach	FL	E	1,249	\$5.00		4,267	
197	Maitland	FL	E	2,532	\$7.25		16,076	
198	Malabar	FL	E	2,500	\$3.00	1992	2,758	
199	Manatee County	FL	V			1991	327,142	
200	Marathon	FL	E	4,769	\$10.00	2005	8,387	
201	Margate	FL	E	2,382	\$3.57	1993	54,270	
202	Marion County	FL	E	2,275	\$1.25		332,529	\$3,696,468

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
203	Martin County	FL	E	3,428		2009	147,495	\$7,200,000
204	Medley	FL	E	1,487	\$3.00	1991	857	\$1,800,000
205	Melbourne	FL	E	2,500	\$3.00	1999	76,095	\$750,000
206	Melbourne Beach	FL	E	2,500	\$3.00	2000	3,102	
207	Miami Beach	FL	E	791	\$9.06	1996	89,840	\$12,097,000
208	Miami Gardens	FL	E	1,800	\$4.00	2006	109,680	
209	Miami Shores	FL	E	2,466	\$3.75	2000	10,720	
210	Miami Springs	FL	F		\$3.67	1993	14,129	
211	Miami-Dade County	FL	E	1,548	\$4.00	2004	408,750	
212	Milton	FL	V			2008	8,984	
213	Minneola	FL	E	3,050	\$4.00	2001	9,531	\$226,302
214	Miramar	FL	F		\$5.00	1998	124,302	
215	Mount Dora	FL	E	2,500	\$5.00		12,534	
216	Mulberry	FL	E	3,250	\$4.00		3,867	
217	Naples	FL	E	1,934	\$12.39	1994	19,939	
218	Neptune Beach	FL	E	3,164	\$3.00	2002	7,090	\$280,000
219	New Port Richey	FL	E	2,629	\$3.36	2001	14,961	
220	New Smyrna Beach	FL	E	1,818	\$7.00	1995	22,481	
221	Niceville	FL	T	7,500	\$4.51	2004	12,941	
222	North Bay Village	FL	D	2,415	\$7.72	1994	7,305	
223	North Lauderdale	FL	E	2,138	\$3.00	1995	41,782	
224	North Miami	FL	E	1,760	\$4.93	1998	60,143	
225	North Miami Beach	FL	E	1,800	\$4.50	1992	42,504	
226	North Redington Beach	FL	E	1,687			1,418	
227	Oakland Park	FL	E	1,507	\$6.00	1989	42,126	\$2,800,000
228	Ocala	FL	E	1,948	\$5.00	1988	56,517	
229	Ocoee	FL	E	2,054	\$7.00		36,320	
230	Oldsmar	FL	E	2,550	\$3.00	1998	13,618	
231	Opa-Locka	FL	E	1,548	\$1.90		15,579	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
232	Orange County	FL	V			1996	1,169,107	
233	Orlando	FL	E	2,000	\$9.99	1989	243,195	
234	Ormond Beach	FL	E	3,000	\$8.00	1987	38,153	
235	Oviedo	FL	E	2,464	\$7.00	1993	33,528	
236	Palm Bay	FL	E	4,602	\$14.76	2010	103,227	\$3,500,000
237	Palm Coast	FL	E	3,432	\$8.00	2004	76,499	\$5,400,000
238	Palm Springs	FL				2015	18,928	
239	Palmetto	FL	T			1999	12,774	
240	Panama City	FL	V			1991	36,686	
241	Pasco County	FL	E	2,890	\$7.92	2007	466,457	
242	Pembroke Park	FL	E	1,548	\$6.25	1996	6,214	
243	Pensacola	FL	E	2,998	\$5.70	2001	52,197	\$2,631,250
244	Pinecrest	FL	E	1,548	\$4.00	2002	18,657	
245	Pinellas County	FL	E	2,339	\$9.67	2013	929,048	
246	Plant City	FL	E	2,280	\$5.50	2004	35,817	
247	Plantation	FL	E	4,489	\$2.50	2012	86,524	\$1,300,000
248	Polk City	FL	E	4,030	\$4.53	2012	1,580	
249	Polk County	FL	-			2012	609,492	
250	Pompano Beach	FL	E	2,880	\$3.00	1997	78,191	
251	Port Orange	FL	E	3,050	\$8.25	1993	45,823	
252	Port Saint Lucie	FL	T			1988	88,769	\$19,335,600
253	Redington Beach	FL	F		\$7.50		1,539	
254	Riviera Beach	FL	E	1,920	\$4.50	2003	29,884	\$500,000
255	Rockledge	FL	E	2,922	\$4.25	2000	20,170	
256	Royal Palm Beach	FL	E	2,723	\$4.00	2012	31,864	
257	Safety Harbor	FL	E	1,865	\$7.25		16,884	
258	Saint Augustine	FL	T		\$7.00	1993	14,280	
259	Saint Cloud	FL	E	2,664	\$6.35	2007	20,074	
260	Saint Johns County	FL	E	3,000	\$6.50	1994	123,135	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
261	Saint Pete Beach	FL	E	3,813	\$3.69		9,391	
262	Saint Petersburg	FL	E	2,719	\$9.00	1989	248,232	\$2,400,000
263	Sanford	FL	E	2,126	\$7.63	1991	38,291	
264	Sarasota County	FL	E	3,153	\$7.55	1989	325,957	
265	Satellite Beach	FL	E	3,000	\$5.42	1997	10,109	\$3,258,232
266	Sebastian	FL	E	3,285	\$4.00	2001	20,339	\$1,299,000
267	South Daytona	FL	E	2,000	\$9.00	1989	13,177	
268	South Miami	FL	E	1,865	\$3.00	2000	10,741	
269	Stuart	FL	E	3,707	\$3.95	2000	14,633	\$614,975
270	Sunny Isles Beach	FL	E	1,548	\$4.00	1999	15,315	
271	Sunrise	FL	E	1,884	\$6.82	1997	85,779	\$6,202,817
272	Surfside	FL	E	1,040	\$10.70	1998	4,909	
273	Sweetwater	FL	E	1,548	\$4.00	2000	14,226	
274	Tallahassee	FL	E	1,990	\$7.95	1986	150,624	
275	Tamarac	FL	E	1,830	\$9.58	1993	55,588	
276	Tampa	FL	E	3,310	\$3.75	2003	303,447	
277	Tarpon Springs	FL	E	1,945	\$5.65	1992	21,003	
278	Tavares	FL	E	3,000	\$4.50		14,248	\$684,490
279	Tequesta	FL	E	2,507	\$7.13		5,273	
280	Titusville	FL	R	11,000	\$6.96	1990	40,670	
281	Treasure Island	FL	E	1,513	\$4.74	1994	7,450	
282	Umatilla	FL	E	3,000	\$4.00	2008	2,896	
283	Venice	FL	R			1995	17,764	\$1,533,957
284	Volusia County	FL	E	2,775	\$6.00	1992	443,343	
285	West Melbourne	FL	E	2,500	\$3.00	1992	9,824	
286	West Miami	FL	E	1,400	\$2.50	1996	5,863	
287	West Palm Beach	FL	E	2,171	\$8.48		82,103	\$6,830,000
288	West Park	FL	E	1,351	\$3.50	2012	14,609	\$315,000
289	Wilton Manors	FL	E	3,460	\$4.37	1992	12,697	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
290	Winter Garden	FL	E	4,077	\$5.13	2006	14,351	
291	Winter Haven	FL	F		\$3.00	1998	26,487	
292	Winter Park	FL	E	2,324	\$11.56		24,090	
293	Winter Springs	FL	E	2,123	\$5.50	1992	31,666	
294	Albany	GA	E	2,700	\$2.50	2014	77,431	
295	Americus	GA	E	3,000	\$4.00	2010	17,103	\$860,000
296	Athens - Clarke County	GA	R		\$3.50	2004	101,489	\$3,400,000
297	Atlanta	GA	-				416,474	
298	Auburn	GA	T			2011	6,900	
299	Augusta	GA	E	2,200	\$6.40	2015	197,872	
300	Austell	GA	F		\$1.00		5,200	
301	Avondale Estates	GA	E	2,900	\$5.00	2004	2,995	
302	Barrow County	GA	E	3,478	\$1.50	2008	46,144	
303	Braselton	GA	E	3,478	\$1.50		1,206	
304	Brookhaven	GA	E	3,000		2013	52,444	
305	Camilla	GA	E	3,360	\$4.00	2010	5,669	
306	Canton	GA	E	2,000	\$2.65		7,709	
307	Cartersville	GA	E	3,000	\$3.75		15,925	
308	Centerville	GA	E	3,900	\$4.25	2016	7,148	
309	Chamblee	GA	E	3,000	\$4.00	2004	9,552	\$677,715
310	Chickamaugua	GA				2009	3,101	
311	Clayton County	GA	E	2,950	\$3.75	2006	236,517	
312	College Park	GA	E	3,523	\$3.00	2007	20,382	
313	Columbia County	GA	E	100	\$0.09	1999	89,288	
314	Conyers	GA	T			2002	10,689	\$413,000
315	Covington	GA	E	2,600	\$3.00	2005	13,226	
316	Dalton	GA	F		\$2.00	2018	34,077	
317	Decatur	GA	E	2,900	\$6.25	1999	18,147	
318	DeKalb County	GA	E	3,000	\$4.00	2003	665,865	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
319	Doraville	GA	E	3,000	\$4.00	2005	9,862	\$520,000
320	Douglasville-Douglas County	GA	E	2,543	\$4.00	2003	92,174	\$4,000,000
321	Duluth	GA	E	2,654	\$3.00	2011	22,122	\$837,836
322	Dunwoody	GA	E	3,000	\$5.75	2009	46,267	
323	East Point	GA	E	3,200	\$9.15			
324	Evans	GA	E	100	\$0.09		17,727	
325	Fairburn	GA	T	3,300	\$4.08	2005	5,464	\$450,000
326	Fayette County	GA	E	1,000	\$0.35	2011	107,784	
327	Fayetteville	GA	E	3,800	\$2.95	2004	11,148	\$500,000
328	Garden City	GA	E	3,000	\$4.75	2008	11,289	
329	Gilmer County	GA	V				23,456	
330	Griffin	GA	E	2,200	\$4.79	1998	23,451	\$1,700,000
331	Gwinnett County	GA	E	100	\$2.46	2006	588,448	
332	Henry County	GA	E	4,780	\$3.32	2006	119,341	
333	Hinesville	GA	E	2,635	\$6.42		30,392	
334	Holly Springs	GA	E	2,700	\$4.00	2009	3,195	
335	Kennesaw	GA	D	1,000	\$5.00		30,990	
336	Lawrenceville	GA	D		\$4.20	2007	29,258	
337	Lithonia	GA				2005	1,924	
338	Locust Grove	GA				2008	2,322	
339	Loganville	GA	E	3,000	\$4.00		5,435	
340	McDonough	GA	E	3,000	\$3.30		8,493	\$500,000
341	Norcross	GA	E	100	\$2.17		8,410	
342	Peachtree City	GA	E	4,600	\$3.95		31,580	
343	Perry	GA	F		\$2.00	2012	14,215	
344	Pine Lake	GA					730	
345	Powder Springs	GA	E	2,840	\$3.79	2012	13,940	
346	Richmond Hill	GA	E	3,300	\$4.75	2015	10,919	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
347	Rockdale County	GA	E	3,420	\$3.39	2005	70,111	
348	Roswell	GA	T				79,334	
349	Senoia	GA	E	4,400	\$5.00	2016	3,751	
350	Smyrna	GA	E	3,900	\$2.45	2007	40,999	
351	Snellville	GA	E	3,800	\$3.10	2008	19,983	
352	Statesboro	GA	E	3,200	\$3.95	2015	30	
353	Stockbridge	GA	E	2,000	\$1.31	2004	9,853	\$466,000
354	Stone Mountain	GA	E	3,000			7,145	
355	Sugar Hill	GA	E	1,000	\$1.50	2008	16,725	
356	Union City	GA	E	2,800	\$4.00	2013	20,501	\$734,301
357	Valdosta	GA	T	3,704	\$2.50	2006	43,724	
358	Warner Robbins	GA	E	3,000	\$4.25	2006	48,804	
359	Woodstock	GA	E	2,700	\$4.20	2006	10,050	
360	Ackley	IA	F		\$3.00		1,665	
361	Adel	IA	E	3,000	\$3.00		4,563	
362	Alburnett	IA	F		\$1.50	2012	673	
363	Algona	IA	T		\$3.00		5,741	
364	Altoona	IA	E	4,000	\$5.00	2010	10,345	
365	Ames	IA	F		\$3.45	1994	50,731	
366	Ankeny	IA	D	4,000	\$5.50		45,582	
367	Asbury	IA	F		\$4.00		4,357	
368	Atlantic	IA	E	2000	\$2.85		6,937	
369	Aurelia	IA	F		\$1.00		1,036	
370	Avoca	IA	E		\$2.50		1,506	
371	Belle Plaine	IA	F		\$4.00		2,537	
372	Bellevue	IA	F		\$5.00		2,191	
373	Belmond	IA	F		\$4.00	2009	2,376	
374	Bettendorf	IA	E	2,500	\$2.70	2003	32,445	
375	Bondurant	IA	E	2,450	\$3.25	2010	3,860	

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376	Boone	IA	E	3,000	\$2.00		12,633	
377	Brooklyn	IA	F		\$2.00		1,468	
378	Buffalo	IA	F		\$2.00		1,270	
379	Burlington	IA	E	25,000	\$2.00		26,839	\$455,000
380	Carroll	IA	E	2,500	\$3.00		10,103	
381	Cedar Falls	IA	F		\$3.00	2006	36,145	\$800,000
382	Cedar Rapids	IA	F		\$4.78		126,326	
383	Centerville	IA	F		\$3.00	2008	5,513	\$70,000
384	Charles City	IA	F		\$4.00	2008	7,812	
385	Cherokee	IA	F		\$3.00	2004	5,369	
386	Clarinda	IA	F		\$2.00	2006	5,690	
387	Clarion	IA	T			2011	2,850	
388	Clear Lake	IA	T		\$4.56		8,161	
389	Clive	IA	E	3,667	\$5.60	2005	15,000	
390	Conrad	IA	F		\$4.00	2008	1,108	
391	Coon Rapids	IA	F		\$2.00		1,305	
392	Coralville	IA	E	3,440	\$2.00	2005	18,907	
393	Creston	IA	V				7,597	
394	Dallas Center	IA	F		\$4.00		1,623	
395	Davenport	IA	E	2,600	\$2.42	2004	98,359	\$2,500,000
396	Decorah	IA	T		\$3.00	2016	7,957	
397	Deloit	IA	V				264	
398	Des Moines	IA	E	2,349	\$11.50	1995	206,599	\$13,763,000
399	DeWitt	IA	T		\$2.75		5,049	
400	Dubuque	IA	E	2,917	\$5.98	2003	57,686	
401	Elkhart	IA	D		\$2.21		691	
402	Ely	IA	F		\$2.00		1,766	
403	Farnhamville	IA	V				420	
404	Forest City	IA	F		\$5.00		4,362	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
405	Fort Dodge	IA	E	2,533	\$3.00	2007	26,309	\$500,000
406	Garnavillo	IA	T				745	
407	Garner	IA	V				2,922	
408	Grimes	IA	A	43,560	\$5.25	2012	8,378	
409	Grinnell	IA	E	3250	\$2.74		9,218	
410	Grundy Center	IA	D	3245	\$3.00		2,706	
411	Guttenberg	IA	F		\$1.50	2010	1,987	
412	Hancock	IA	V				207	
413	Hiawatha	IA	F		\$1.50	2000	6,694	
414	Hills	IA	V				703	
415	Hillsboro	IA	V				205	
416	Indianola	IA	E	3,400	\$2.00	2011	12,998	
417	Iowa City	IA	D	3,129	\$3.00	2004	67,831	
418	Johnston	IA	E	4,000	\$5.05	2012	17,278	
419	Kalona	IA	F		\$3.00	2010	2,363	\$40,000
420	Kelley	IA	T				300	
421	Lake City	IA	F		\$1.00	2005	1,727	
422	Lake Mills	IA	T				2,100	
423	Laurens	IA	F		\$3.00		1,258	
424	Le Mars	IA	D		\$7.00	2008	9,826	
425	Mallard	IA	V				298	
426	Mapleton	IA	V				1,224	
427	Marengo	IA	F		\$1.50		2,535	
428	Marion	IA	D	2,791	\$3.50		2,011	\$339,000
429	Marshalltown	IA	F		\$2.16		26,009	
430	Mason City	IA	F		\$1.00		29,172	
431	McGregor	IA	F		\$8.50		871	
432	Milford	IA	F		\$3.00	2012	2,954	
433	Nevada	IA	F		\$5.25		6,658	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
434	North Liberty	IA	F		\$2.00		15,000	
435	Norwalk	IA	F		\$7.50		8,821	
436	Odebolt	IA	F		\$1.00	2004	1,153	
437	Ogden	IA	F		\$3.00		2,044	
438	Olin	IA	F		\$1.00		698	
439	Oskaloosa	IA	E	2,750	\$2.00		10,938	\$250,000
440	Perry	IA	F		\$3.00	2004	7,633	
441	Pleasant Hill	IA	E	3,500	\$3.00		9,082	
442	Postville	IA	F		\$2.50	2007	2,273	
443	Princeton	IA				2015	886	
444	Reinbeck	IA	T		\$2.00	2008	1,751	
445	Ringsted	IA	V				422	
446	Rock Valley	IA	V			2015	3,345	
447	Rolfe	IA	D		\$3.00	2012	584	
448	Sac City	IA	F		\$3.00		2,368	
449	Sergeant Bluff	IA	R	1,000			4,326	\$183,782
450	Sioux Center	IA	T		\$2.00	2007	6,327	
451	Sioux City	IA	V			1990	85,013	
452	Slater	IA	D		\$3.00		1,306	
453	Solon	IA	F		\$0.50		2,173	
454	State Center	IA	T		\$5.08		1,349	
455	Storm Lake	IA	E	2,750	\$4.00		10,076	
456	Urbandale	IA	E	3,200	\$2.00	2010	40,311	\$500,000
457	Victor	IA	V				952	
458	Waterloo	IA	F		\$2.50	2009	68,406	\$1,720,000
459	Waukee	IA	E	2,973	\$4.25	2006	5,126	
460	Wellman	IA	F		\$2.75	2012	1,408	
461	West Branch	IA	E	3,500	\$2.25		2,326	\$90,000
462	West Des Moines	IA	E	4,000	\$4.25		46,403	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
463	Windsor Heights	IA	D	1,000	\$5.25		4,805	
464	Woodward	IA	F		\$3.00		1,200	
465	Wyoming	IA	F		\$1.00		515	
466	Coeur D'Alene	ID	E	3,000	\$4.00	2004	34,514	
467	Lewiston	ID	-			2008	31,794	\$700,000
468	Nampa	ID	-			2010	51,867	
469	Pocatello	ID	-				51,466	
470	Arlington Heights	IL	T		\$6.25		75,525	\$1,630,000
471	Aurora	IL	F		\$3.45	1998	170,617	\$3,000,000
472	Bloomington	IL	T			2004	70,970	\$2,760,000
473	Buffalo Grove	IL	A		\$5.08	2016		\$1,265,876
474	Champaign	IL	T	1,000	\$1.51	2012	81,055	\$3,200,000
475	Decatur	IL	E	4,500	\$3.00	2014	75,407	
476	Downer's Grove	IL	T	3,300	\$9.72	2012	48,163	\$3,500,000
477	East Moline	IL	T	2,200	\$2.61	2009	20,333	\$350,000
478	Eureka	IL	E	3,250		2015	5,295	
479	Freeport	IL	T				25,638	\$600,000
480	Highland Park	IL	E	2,765	\$6.00		31,614	
481	Hoffman Estates	IL	T	3,300	\$2.00	2013	51,895	
482	Matteson	IL	D	4,000	\$7.00	2013	19,147	
483	Moline	IL	T			2000	42,916	\$1,800,000
484	Morton	IL	E	3,300	\$4.88	2005	15,757	\$900,000
485	Normal	IL	E	3,200	\$4.60	2006	45,386	\$1,730,000
486	Northbrook	IL	W		\$1.00		33,170	\$1,200,000
487	Palatine	IL	F		\$6.13	2012		
488	Park Ridge	IL	E	2,800	\$2.75	2016	37,480	
489	Peoria	IL	E	2,600	\$7.80	2017	114,265	\$4,600,000
490	Rantoul	IL	F		\$3.43	2001	12,857	\$572,250
491	Richton Park	IL	D		\$4.66		12,533	\$500,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
492	Rock Island	IL	T	2,800	\$3.95	2002	39,020	\$1,600,000
493	Rolling Meadows	IL	E	3,604	\$3.71	2001	23,682	\$560,000
494	Tinley Park	IL	W		\$1.68	1983	56,703	\$475,000
495	Urbana	IL	E	3,100	\$4.94	2012	41,250	\$1,141,000
496	Wheeling	IL	E	3,000	\$2.00	2015	37,648	
497	Winetka	IL	E	3,400	\$21.83	2014	12,370	
498	Albany	IN	F		\$12.40		2,368	\$190,637
499	Anderson	IN	E	2,500	\$3.50	2002	59,734	\$2,106,667
500	Angola	IN	F		\$2.08		7,344	\$167,623
501	Avon	IN	E		\$6.00	2017	16,960	
502	Bargersville	IN	E	2,350	\$9.46	2005	2,120	\$258,301
503	Batesville	IN	T		\$2.00	2005	6,033	\$76,721
504	Beech Grove	IN	E	2,620		2006	14,192	
505	Berne	IN	T				4,114	\$569,207
506	Bloomington	IN	R			1998	69,291	\$1,362,231
507	Brownsburg	IN	E	2900	\$5.00	2006	14,520	\$1,249,094
508	Carmel	IN	E	4150	\$4.95	2013	85,927	
509	Cedar Lake	IN	E	2903	\$5.00	2006	9,279	\$398,249
510	Centerville	IN	E	3536	\$8.50		2,624	
511	Chandler	IN	F		\$4.00	2004	3,500	\$105,367
512	Chesterton	IN	D	3,585	\$6.10		11,139	\$444,694
513	Cicero	IN	V				4,303	\$88,649
514	Clark County	IN	F		\$3.33	2014		
515	Clarksville	IN	E	2,527	\$2.95	2004	21,400	\$1,017,246
516	Connersville	IN	E	2,662	\$5.15		15,411	\$799,615
517	Crawfordsville	IN	D		\$6.00		15,243	\$480,544
518	Crothersville	IN	F		\$3.00	2016	1,591	\$25,000
519	Crown Point	IN	D		\$6.00		19,806	\$1,037,243
520	Cumberland	IN	F		\$5.20	2007	5,500	\$185,259

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
521	Danville	IN	E	3,700			6,418	\$354,634
522	Delaware County	IN	T				48,682	\$238,851
523	Dyer	IN	E	4,343	\$6.00	1991	13,895	\$1,037,243
524	Elkhart County	IN	E	3,600	\$1.25		2,008	\$96,421
525	Farmersburg	IN	V				1,107	\$27,746
526	Fishers	IN	E	3,318	\$4.95		79,127	
527	Floyd County	IN	E	3,700	\$3.25	2007	70,823	\$1,072,563
528	Fort Wayne	IN	E	2,500	\$3.65		255,824	\$10,588,133
529	Fortville	IN	D		\$8.00		3,444	\$277,648
530	Franklin	IN	T		\$5.00	2009	23,712	\$523,292
531	Gary	IN				2011	80,294	
532	Goshen	IN	E	2,800	\$1.25		29,383	\$344,964
533	Greendale	IN	E	3,000	\$4.39		4,296	
534	Greenfield	IN	E	2,250	\$2.00	2005	14,600	\$864,647
535	Greenwood	IN	E	2,800	\$5.00	2012	51,584	\$733,756
536	Griffith	IN	F		\$7.50	2005	17,334	\$95,270
537	Highland	IN	T		\$8.69		64,322	
538	Howard County	IN	F		\$2.50		84,964	\$658,266
539	Indianapolis/Marion County	IN	E	2,800	\$3.45	2001	791,926	\$23,515,488
540	Jasper	IN	E	5,000	\$3.96	2003	12,100	\$354,228
541	Jeffersonville	IN	E	2,500	\$3.50		27,362	\$1,344,891
542	Lafayette	IN	E	3,200	\$5.00	2009	56,397	\$80,626
543	Lake County	IN	F		\$3.30		484,564	\$8,837
544	Lake Station	IN	F		\$8.33		12,572	\$542,202
545	Lebanon	IN	E	3,000	\$4.75		15,259	\$835,133
546	Leo Cedarville	IN	V				2,782	\$127,883
547	Logansport	IN	T		\$7.47		19,684	\$1,033,289
548	Marion	IN	F		\$5.00	2001	31,320	\$1,030,244
549	McCordsville	IN	E	2,250	\$7.50	2005	1,134	\$208,104

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
550	Merrillville	IN	E	2,784	\$5.00	2009	32,147	\$59,414
551	Middletown	IN	D		\$6.00		2,357	\$98,361
552	Monroe County	IN	E	5,200	\$2.93	2011	137,974	\$1,562,127
553	Muncie	IN	V			2005	70,087	\$4,290,127
554	Munster	IN	F		\$10.00		22,346	
555	New Albany	IN	E	2,500	\$4.17	2005	37,603	\$1,457,574
556	New Castle	IN	F		\$6.00		17,780	\$572,455
557	New Haven	IN	E	2,534	\$5.35		12,406	\$914,955
558	North Manchester	IN	E	2,650	\$3.45	1994	5,932	\$209,178
559	Ossian	IN	F		\$8.00	2005	2,943	\$167,296
560	Peru	IN	E	3,497	\$4.00		12,994	\$373,118
561	Pittsboro	IN	F		\$3.50		1,588	\$57,847
562	Plainfield	IN	E	3,000	\$8.34		18,396	
563	Plymouth	IN	E	12,000	\$2.05		9,840	\$172,728
564	Portage	IN	E		\$12.00	2009	36,828	
565	Porter County	IN			\$10.00	2016	164,343	\$3,400,000
566	Richmond	IN	D	2,980	\$6.00		39,124	\$1,459,275
567	Seymour	IN	E	2,840	\$4.00			
568	Shelbyville	IN	F		\$6.00		17,951	\$825,437
569	Valparaiso	IN	T			1998	27,428	\$2,299,346
570	Vincennes	IN	E	2,800	\$3.00		18,701	\$644,726
571	Wabash	IN	E	3,675			10,666	
572	Warrick County	IN	E	3,100	\$5.00	2006	52,383	\$1,293,987
573	Warsaw	IN	D	3,550	\$2.95			
574	Washington	IN	E	2,558	\$3.00	2004	11,380	\$414,686
575	West Layfayette	IN	E	3,200	\$8.00	2013	30,419	
576	Westfield	IN	T		\$2.75	2008	9,293	\$414,686
577	Whiteland	IN	E	3,704	\$7.50	2010	4,169	\$210,924
578	Winfield	IN	E	4,343	\$6.00	2010	4,530	\$203,663

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
579	Yorktown	IN	E	2,500	\$2.00		4,785	\$41,517
580	Zionsville	IN	E	4,400	\$3.86	2010	24,159	\$620,783
581	Abilene	KS	T			1999	6,844	
582	Andover	KS	T			2005	6,698	\$101,368
583	Arkansas City	KS	D		\$3.00	1993	11,963	\$192,000
584	Bonner Springs	KS	D		\$2.50		7,093	\$90,000
585	Caldwell	KS	D		\$1.00		1,043	
586	Coffeyville	KS	D		\$3.50	2006	10,387	\$160,000
587	Derby	KS	E	2,233	\$3.00	2012	22,158	\$550,830
588	Dodge City	KS	T			2009	25,176	
589	El Dorado	KS	E	2,314	\$3.00	2008	12,057	
590	Eudora	KS	F		\$2.25	2007	4,307	
591	Fairway	KS	E	3,200	\$5.00		3,952	
592	Garden City	KS	T		\$1.50		26,658	
593	Hays	KS	E	3,369	\$3.62	2011	20,013	
594	Hiawatha	KS	D		\$4.00	2009	3,417	
595	Hutchinson	KS	T		\$2.00		40,787	\$282,500
596	Junction City	KS	T		\$15.00		18,886	
597	Kansas City	KS	F		\$4.50		146,453	
598	Lawrence	KS	E	2,366	\$4.12	1997	80,098	\$3,014,086
599	Lenexa	KS	E	2,750	\$7.50	2000	40,238	\$4,802,460
600	Manhattan	KS	T		\$4.42	1992	44,831	
601	McPherson	KS	E		\$7.00		13,155	\$866,000
602	Mission	KS	E	2,600	\$19.00	2004	9,727	\$2,080,000
603	Mission Hills	KS	T			2012	3,498	\$500,000
604	Olathe	KS	A	20,000	\$5.45		114,662	\$3,511,290
605	Ottawa	KS	E	2,600	\$4.00	2012	12,620	
606	Overland Park	KS	E	2,485	\$2.00	2001	149,080	\$3,200,000
607	Paola	KS	F		\$3.00		5,602	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
608	Parsons	KS	D		\$2.50	2008	11,514	\$154,503
609	Pittsburg	KS	E	3,106	\$3.56	2003	19,243	\$750,000
610	Prairie Village	KS	A		\$0.04	2008	21,447	\$1,532,627
611	Shawnee	KS	E	2,773	\$3.00	2004	64,680	\$1,600,000
612	Topeka	KS	T	2,018		1996	122,377	
613	Valley Center	KS	T		\$5.00	2008	4,883	
614	Wamego	KS	D		\$2.00			
615	Westwood	KS	V	500	\$1.00	2013	1,658	
616	Wichita	KS	E	2,139	\$2.00		344,284	\$5,515,000
617	Winfield	KS	D		\$2.00	1991	11,900	
618	Danville	KY	E	3,813	\$3.36	2007	15,385	
619	Glasgow	KY	T			2012	14,059	\$493,000
620	Henderson	KY	E	3,000		1998	27,373	
621	Hopkinsville	KY	E	3,350	\$3.00	2006	30,089	\$1,108,128
622	Lexington/Fayette County	KY	E	2,500	\$4.54	2009	260,512	
623	Louisville/Jefferson Co.	KY	E	2,500	\$7.28	1987	693,604	\$17,100,000
624	Murray	KY	D	3,000	\$1.50	2004	14,950	
625	Oldham County	KY	E	6,000	\$3.91	2008	40,502	\$750,000
626	Radcliff	KY	E	2,800	\$4.50	2003	21,961	\$600,000
627	Sanitation District 1	KY	E	2,600	\$5.04	2003	290,000	\$13,500,000
628	Warren County	KY	D		\$4.00	2007	43,226	\$1,000,000
629	Chelmsford	MA	T		\$3.33	2017	33,802	\$2,000,000
630	Chicopee	MA	E	2,000	\$8.33	1998	54,653	\$1,000,000
631	Fall River	MA	E	2,800	\$11.67	2008	91,938	\$4,660,000
632	Gloucester	MA	F		\$4.42	2011	30,273	
633	Milton	MA	T		\$4.33	2016	27,003	\$705,000
634	Newton	MA	D	3,100	\$2.08	2006	83,829	\$575,000
635	Northampton	MA	F		\$5.00	2014	28,592	\$1,980,056
636	Reading	MA	D	3,210	\$3.33	2006	24,145	\$357,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
637	Westfield	MA	F			2010	41,094	\$600,000
638	Annapolis	MD	T		\$3.33	2003	35,838	
639	Anne Arundel County	MD	T	2,740		2013	544,403	
640	Baltimore	MD	E	1,050	\$6.00	2013	619,493	
641	Baltimore County	MD	E	2,000	\$5.75	2013	809,641	
642	Berlin	MD	D	2,100	\$4.16	2013	4,491	\$570,000
643	Centreville	MD	E	3,200	\$2.50	2013	4,334	
644	Charles County	MD	F				120,546	
645	Frederick	MD	E	1,000	\$1.25	2013		
646	Frederick County	MD	F		\$0.01	2013	236,745	\$483
647	Gaithersburg	MD	E	500	\$1.67	2015		
648	Harford County	MD	D	500	\$7.00	2013	246,849	\$1,065,725
649	Howard County	MD	E	3,000	\$7.50	2013	293,142	\$18,000,000
650	Montgomery County	MD	E	2,406	\$7.37	2002	873,341	
651	Prince George's County	MD	E	2,465	\$1.74	2013	871,233	\$92,307,692
652	Rockville	MD	E	2,330	\$8.30	2007	47,388	\$2,200,000
653	Salisbury	MD	E	3,344	\$1.67	2014	31,507	\$598,500
654	Silver Spring	MD	-				76,540	
655	Takoma Park	MD	E	1,228	\$4.58	1996	17,299	\$200,000
656	Augusta	ME	E	2,700	\$7.54		18,560	
657	Bangor	ME	E	3,000	\$1.83	2012	33,011	
658	Lewiston	ME	D	43,560	\$4.17	2006	35,690	
659	Long Creek Watershed	ME	D	12,000	\$6.89	2010		\$1,400,000
660	Portland	ME	E	1,200	\$6.00			
661	Adrian	MI	-			2012	21,122	
662	Ann Arbor	MI	T			1980	114,024	\$5,300,000
663	Berkley	MI	E	2,600	\$5.18	2001	15,531	
664	Birmingham	MI	E	4,317	\$3.98	2017	21,007	
665	Chelsea	MI	A					

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
666	Detroit	MI	A		\$125.00	1979	951,270	
667	Jackson	MI	D	2,125	\$7.05	2011	36,316	\$800,000
668	Lansing	MI	V			1995	119,128	
669	Marquette	MI	T				19,661	
670	New Baltimore	MI	D	43,560	\$2.00	2005	7,405	
671	Albert Lea	MN	V			2005	17,967	
672	Albertville	MN	V				7,044	\$209,418
673	Alexandria	MN	T	43,560	\$3.00	2005	8,820	
674	Andover	MN	R			2003	30,222	\$358,708
675	Annandale	MN	V				3,228	\$27,046
676	Anoka	MN	R	43,560	\$2.95	2003	18,076	\$419,839
677	Apple Valley	MN	R			1988	45,527	\$1,370,348
678	Arden Hills	MN	R	43,560	\$4.49	1993	9,642	\$532,531
679	Ashby	MN	R			2005	444	\$11,135
680	Austin	MN	A	43,560	\$4.00	2003	24,834	\$423,091
681	Barnesville	MN	F		\$2.61		2,563	\$29,081
682	Baxter	MN	A		\$2.63	2006	7,642	\$243,100
683	Belle Plaine	MN	F		\$3.12	1999	6,792	
684	Bemidji	MN	T		\$6.44		13,657	\$1,086,338
685	Big Lake	MN	R		\$4.63		10,060	\$198,040
686	Bird Island	MN	F		\$5.00	2007	1,027	\$31,106
687	Blaine	MN	R			2007	57,584	\$866,961
688	Bloomington Prairie	MN	V				1,996	\$22,224
689	Bloomington	MN	R			1988	84,057	\$4,373,221
690	Brainerd	MN	R			2002	13,646	
691	Brooklyn Center	MN	R			1991	30,529	\$1,620,970
692	Brooklyn Park	MN	R			2002	76,853	\$1,113,433
693	Browerville	MN	F		\$6.00		788	\$19,633
694	Buffalo	MN	R			1986	15,665	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
695	Burnsville	MN	R			2012	60,828	\$3,966,430
696	Byron	MN	R			2008		
697	Cambridge	MN	R			2000	8,209	\$285,593
698	Canby	MN	V				1,795	\$121,304
699	Cannon Falls	MN	R			2009	4,086	\$186,000
700	Carver	MN	T			2004	3,790	\$127,389
701	Centerville	MN	A		\$4.33	1997	3,818	\$75,719
702	Champlin	MN	R			2008	23,418	\$585,580
703	Chanhassen	MN	T		\$3.42	2007	23,358	\$571,288
704	Chaska	MN	R				23,770	\$504,604
705	Chokio	MN	V				400	\$30,907
706	Circle Pines	MN	F		\$6.00	2005	4,953	\$123,546
707	Clarks Grove	MN	V				706	\$4,690
708	Cloquet	MN	E	4,312	\$4.00	2011	12,148	\$245,170
709	Cologne	MN	V				1,519	\$19,310
710	Columbia Heights	MN	R			1999	19,632	\$349,964
711	Coon Rapids	MN	R		\$4.47	2002	61,904	\$1,358,007
712	Cottage Grove	MN	R	43,560	\$4.00	2001	35,052	
713	Crosby	MN	R				2,386	\$47,248
714	Crystal	MN	R			1991	22,463	\$656,761
715	Dassel	MN	T			2001	1,467	\$13,680
716	Deephaven	MN	F		\$5.00	1994	3,693	\$84,993
717	Delano	MN	R				5,541	
718	Detroit Lakes	MN	R				8,641	
719	Duluth	MN	E	1,708	\$6.08	1998	86,227	\$4,632,541
720	Dundas	MN	R				1,371	\$3,254
721	Eagan	MN	R			1990	64,765	\$1,319,530
722	East Grand Forks	MN	R				8,601	\$213,691
723	Eden Prairie	MN	R			1993	61,657	\$1,054,077

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
724	Edina	MN	R			1985	48,620	
725	Elko-New Market	MN	R			2000	4,194	\$123,976
726	Excelsior	MN	R			1999	2,219	\$127,402
727	Eyota	MN	F		\$2.00		1,998	\$17,586
728	Fairfax	MN	R			1995	1,218	\$106,097
729	Fairmont	MN	R			1987	10,589	\$611,391
730	Falcon Heights	MN	R			1986	5,381	\$123,585
731	Faribault	MN	E	3,500	\$3.50	2001	23,450	\$573,375
732	Farmington	MN	R			1989	21,267	\$468,063
733	Fergus Falls	MN	T				13,125	\$388,292
734	Forest Lake	MN	R			2008	18,619	
735	Frazee	MN	R			2005	1,360	
736	Fridley	MN	R			1985	27,398	\$431,401
737	Gaylord	MN	R				2,275	\$159,095
738	Glencoe	MN	R			1993	5,598	\$114,560
739	Glyndon	MN	F		\$9.50	2007	1,413	\$58,039
740	Golden Valley	MN	T			1992	20,655	\$2,321,983
741	Grand Rapids	MN	T			2004	10,862	\$507,541
742	Hamburg	MN	D		\$27.00		513	\$15,902
743	Hanover	MN	R				2,980	\$53,710
744	Harmony	MN	D		\$1.00	2009	1,020	\$9,642
745	Hastings	MN	R			2010	22,359	\$432,761
746	Hopkins	MN	R			1989	17,837	\$805,251
747	Hutchinson	MN	R			2001	14,093	\$569,336
748	Inver Grove Heights	MN	R			2007	34,157	
749	Jordan	MN	R			1995	5,583	\$175,900
750	Kasson	MN	R				5,978	\$164,053
751	Kenyon	MN	R				1,817	\$27,895
752	Lake City	MN	V				5,063	\$81,958

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
753	Lake Elmo	MN	T			2003	8,177	\$218,146
754	Lakeville	MN	R			1994	56,443	\$662,863
755	Lamberton	MN	D		\$10.67		824	\$14,468
756	Lauderdale	MN	R			1994	2,408	\$56,439
757	Le Seuer	MN	R			2017	4,058	
758	Lexington	MN	D		\$2.50		2,049	\$13,615
759	Lilydale	MN	V				623	\$28,078
760	Lindstrom	MN	V				4,442	\$46,847
761	Little Falls	MN	R				8,349	\$76,939
762	Long Lake	MN	R			1999	1,792	\$90,916
763	Loretto	MN	R			2003	658	\$42,772
764	Luverne	MN	R		\$45.00		4,745	\$86,745
765	Madison	MN	R			2002	1,540	\$130,152
766	Mahnomen	MN	R				5,413	\$2,895
767	Mahtomedi	MN	R			2001	7,775	
768	Mankato	MN	A	43,560	\$3.25		39,528	\$1,269,232
769	Mantorville	MN	V				1,971	\$16,435
770	Maple Lake	MN	D		\$1.00		2,088	\$13,807
771	Maple Plain	MN	T			2005	1,792	\$98,470
772	Mapleton	MN	V				1,756	\$25,693
773	Maplewood	MN	R			2003	38,472	
774	Marshall	MN	R			2003	13,700	\$977,357
775	Mayer	MN	R			2005	1,780	\$18,857
776	Medina	MN	R		\$2.53	2008	4,963	\$205,150
777	Mendota Heights	MN	A	43,560	\$2.42	1992	11,168	\$276,602
778	Minneapolis	MN	E	1,530	\$11.42	2005	387,753	\$39,038,000
779	Minnnetonka	MN	F		\$5.76	2003	50,435	\$2,026,316
780	Minnnetonka Beach	MN	F		\$2.67	2011	539	
781	Minnetrista	MN	F		\$6.17	2004	6,474	\$99,089

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
782	Montrose	MN	F		\$3.00	2000	2,887	\$43,980
783	Moorhead	MN	F		\$10.21	2005	38,566	\$2,065,908
784	Mora	MN	F		\$1.25	2005	3,556	
785	Mound	MN	R			2001	9,180	\$255,633
786	Mounds View	MN	T			1993	12,305	\$289,619
787	New Brighton	MN	R	43,560	\$4.40	1994	21,715	\$702,237
788	New Hope	MN	D		\$6.30	1991	20,616	\$1,186,073
789	New Prague	MN	R			1992	7,401	\$200,490
790	Newport	MN	R				3,481	\$19,473
791	North Branch	MN	R			2008	10,131	\$311,436
792	North Monkato	MN	A		\$3.25		13,437	\$326,086
793	North Saint Paul	MN	T			1990	11,601	\$694,559
794	Northfield	MN	R			1986	20,084	\$576,867
795	Norwood Young America	MN	R			2003	3,611	\$66,855
796	Oak Park Heights	MN	T			1999	4,389	\$79,934
797	Oakdale	MN	R			2002	27,743	
798	Olivia	MN	T				2,449	\$151,555
799	Orono	MN	R			2001	7,543	\$252,706
800	Ortonville	MN	D		\$2.00		1,916	\$13,554
801	Osakis	MN	T				1,746	
802	Osseo	MN	R			2007	2,463	\$50,687
803	Otsego	MN	T			2009	13,761	\$72,081
804	Owatonna	MN	R				25,599	\$339,905
805	Park Rapids	MN	R			2010	3,686	\$28,777
806	Pierz	MN	R	43,560	\$32.92		1,394	\$38,771
807	Plymouth	MN	R			2001	71,561	
808	Preston	MN	V			2001	1,325	\$61,127
809	Princeton	MN	R			2008	4,676	\$119,019
810	Prior Lake	MN	R	43,560	\$6.76	1993	25,282	\$845,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
811	Ramsey	MN	R			2000	18,510	\$652,996
812	Red Wing	MN	R				16,116	\$557,890
813	Redwood Falls	MN	R			2003	5,459	\$211,290
814	Richfield	MN	R			1985	34,439	\$1,662,530
815	Robbinsdale	MN	R			1985	14,123	\$765,602
816	Rochester	MN	R			2003	85,806	\$4,786,160
817	Rogers	MN	T			2002	3,588	\$313,554
818	Rosemount	MN	T			1992	14,619	\$987,051
819	Roseville	MN	R			1984	33,690	\$928,157
820	Saint Anthony	MN	R			1993	8,226	
821	Saint Bonifacius	MN	F		\$5.00	2004	1,873	\$47,949
822	Saint Charles	MN	T			2006	3,735	\$82,853
823	Saint Cloud	MN	R			2003	59,107	\$1,080,700
824	Saint Joseph	MN	R				6,646	\$100,093
825	Saint Louis Park	MN	R			2000	44,126	\$1,852,729
826	Saint Michael	MN	R			2003	9,099	\$142,532
827	Saint Paul	MN	R			1986	287,151	
828	Saint Paul Park	MN	R			2007	5,070	
829	Saint Peter	MN	R			2004	9,747	\$700,000
830	Sandstone	MN	R			2008	2,849	\$37,803
831	Sartell	MN	D		\$6.00		14,445	\$242,440
832	Sauk Rapids	MN	R			2010	11,957	\$174,549
833	Savage	MN	R			1994	27,292	\$1,485,082
834	Shafer	MN	R			2003	383	\$7,388
835	Shakopee	MN	R			1985	20,568	\$995,855
836	Shoreview	MN	R			1991	25,924	\$937,550
837	Shorewood	MN	R			1993	7,400	\$209,432
838	South Saint Paul	MN	R			2010	20,167	\$367,102
839	South Washington Watershed District	MN	F		\$7.41	2010		\$3,475,949

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
840	Spring Valley	MN	F		\$5.00		2,479	\$79,536
841	Stacy	MN	R			2003	1,456	\$26,927
842	Starbuck	MN	V				1,302	\$36,497
843	Stewart	MN	V				571	\$93,308
844	Stewartville	MN	R			2001	5,916	\$71,101
845	Stillwater	MN	R			1996	15,143	\$493,807
846	Taylors Falls	MN	R		\$1.50	2003	976	\$10,519
847	Thief River Falls	MN	R				8,410	\$160,843
848	Tonka Bay	MN	R			1993	1,547	\$24,164
849	Truman	MN	V				1,115	\$25,392
850	Twin Valley	MN	D		\$4.50		821	\$25,528
851	Two Harbors	MN	E	1,718	\$4.00	1999	3,613	\$135,091
852	Vadnais Heights	MN	R			1992	12,525	\$405,000
853	Vadnais Lake Water Management Organization	MN	F		\$2.20	2007		
854	Victoria	MN	R			1997	4,025	\$118,930
855	Waconia	MN	F		\$7.00	1992	6,814	\$537,376
856	Walker	MN	V				941	\$2,574
857	Walnut Grove	MN	V				871	\$63,315
858	Watertown	MN	F		\$3.00	1993	3,029	\$51,597
859	Waverly	MN	D		\$3.50	2003	1,089	\$28,665
860	Wayzata	MN	R			1991	4,113	\$226,226
861	West Concord	MN	V				782	\$26,111
862	West Saint Paul	MN	R			2005	19,405	\$355,200
863	White Bear Township	MN	E	4,000	\$2.00	1992	11,293	
864	Winnebago	MN	V				1,437	\$28,593
865	Winona	MN	R			2003	27,069	\$298,051
866	Woodbury	MN	F		\$5.79	1992	46,463	\$1,719,000
867	Worthington	MN	R			2004	11,283	\$497,442

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
868	Wyoming	MN	R			1997	7,716	\$28,343
869	Arnold	MO	E	1,750	\$3.00	2005	21,013	
870	Columbia - Boone County	MO	T			1993	115,276	\$33,970,000
871	Hannibal	MO				2017	17,808	
872	Kansas City	MO	E	500	\$0.50	1992	463,202	
873	Saint Louis	MO	A		\$0.24	2008	318,069	\$41,840,000
874	Billings	MT	F		\$2.69		89,847	
875	Bozeman	MT	M		\$1.75	2012	38,025	
876	Great Falls	MT	F		\$7.26	1989	56,690	\$1,735,000
877	Helena	MT	E	10,000	\$1.84	1988	25,780	\$1,421,000
878	Missoula	MT	D		\$0.75	2016	69,122	\$250,000
879	Polson	MT	F		\$8.00	2009	4,041	
880	Whitefish	MT	E	2,400	\$16.67	2006	5,032	
881	Archdale	NC	E	3,163	\$5.00		11,415	\$468,372
882	Asheville	NC	E	2,442	\$4.00	2004	84,458	\$3,131,235
883	Atlantic	NC	F		\$4.00		1,495	\$161,890
884	Belmont	NC	E	2,500	\$3.00		10,076	\$384,138
885	Bessemer City	NC	F		\$2.07		5,398	\$63,467
886	Burlington	NC	F		\$3.00	2005	44,917	\$452,431
887	Butner	NC	F		\$2.50		7,598	
888	Camden County	NC	E	4,500		2014	10,187	
889	Carolina Beach	NC	E	2,000	\$9.00	2002	4,701	\$770,636
890	Carrboro	NC	E	2,800	\$6.25	2017	21,265	
891	Chapel Hill	NC	T			2004	48,715	\$1,841,152
892	Charlotte	NC	T			1994	695,454	\$48,589,000
893	Clemmons	NC	E	3,952	\$5.00	1993	13,827	\$658,193
894	Concord	NC	E	3,120	\$4.30	2005	79,066	\$3,730,742
895	Cornelius	NC	T	43,560	\$56.19		11,969	\$370,000
896	Cramerton	NC	T				4,165	\$71,246

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
897	Creedmoor	NC	T			2012	4,129	
898	Cumberland County	NC	E	2,266	\$1.00	1995	302,963	
899	Dallas	NC	E	2,500	\$1.85		3,402	
900	Davidson	NC	T	43,560	\$10.73		7,139	\$294,619
901	Durham	NC	T	2,400	\$6.75	1997	228,330	\$10,892,409
902	Elizabeth City	NC	D		\$3.00	2006	18,683	\$383,324
903	Elon	NC	F		\$2.00		9,419	
904	Fayetteville	NC	E	2,266	\$3.50	2004	200,564	\$5,113,112
905	Forsythe County	NC	T	43,560	\$69.25	2006	306,067	
906	Gastonia	NC	E	2,650	\$2.75	2001	71,741	\$2,042,697
907	Graham	NC	F		\$1.00		14,153	\$59,510
908	Granville County	NC	T			2012	59,976	\$235,000
909	Greensboro	NC	E	2,543	\$2.70	1994	269,666	\$9,941,103
910	Greenville	NC	E	2,000	\$3.85		84,554	\$3,058,151
911	Hendersonville	NC	F		\$3.00	2018	13,840	
912	High Point	NC	E	2,588	\$2.00		104,371	\$2,446,993
913	Hillsborough	NC	T	2,800		2016	6,087	
914	Hope Mills	NC	D	2,266	\$4.00	2007	15,176	\$421,656
915	Huntersville	NC	T	43,560	\$56.19		24,960	
916	Indian Trail	NC	T	1,984	\$2.70	2007	11,905	\$1,062,316
917	Jacksonville	NC	E	2,850	\$5.00	2006	66,715	\$2,068,443
918	Kannapolis	NC	T	3,250	\$5.20		36,910	\$1,471,588
919	Kernersville	NC	E	2,980	\$3.29	2006	23,123	\$955,981
920	Kinston	NC	E	3,059	\$4.00	2008	22,346	
921	Kure Beach	NC	F		\$8.71		2,012	\$171,901
922	Lake Park	NC	T				3,422	\$40,110
923	Landis	NC	D		\$5.00		3,121	\$91,448
924	Lowell	NC	V				2,662	
925	Lumberton	NC	T		\$4.25	1997	21,542	\$852,594

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
926	Matthews	NC	T	43,560	\$56.19		22,127	
927	Mecklenburg County	NC	T	43,560	\$49.85		695,454	
928	Mint Hill	NC	T	43,560	\$56.19		14,922	
929	Monroe	NC	T	2,618	\$4.00	2008	32,797	\$1,793,744
930	Mooresville	NC	E	2,700	\$3.40	2014	34,887	\$1,222,784
931	Morrisville	NC	E	2,800	\$1.92	2012	19,184	\$550,000
932	Mount Holly	NC	E		\$2.50		13,656	\$231,925
933	Nags Head	NC	F		\$2.00		2,757	\$113,252
934	New Bern	NC	E	3,100	\$2.10	2012	29,524	\$800,000
935	Oak Island	NC	D		\$1.75		6,783	\$257,310
936	Oxford	NC	E	2,500	\$2.00		8,338	\$135,000
937	Person County	NC	V			2013		
938	Pineville	NC	T	43,560	\$56.19		3,449	
939	Plymouth	NC	F		\$3.00		3,878	\$55,449
940	Raleigh	NC	T			2004	416,468	\$15,333,385
941	Ranlo	NC	E	2,650	\$2.75		3,434	\$57,903
942	Rocky Mount	NC	E	2,519	\$4.25	2003	57,477	\$3,352,106
943	Shelby	NC	ET	2,600	\$2.50	2014	20,325	
944	Spring Lake	NC	D	2,266	\$2.75		11,964	\$262,517
945	Stallings	NC	E	2,060	\$2.12	2007	13,831	\$227,489
946	Stem	NC	T				463	
947	Swansboro	NC	T		\$2.50	2016	2,993	
948	Thomasville	NC	F		\$1.00		26,729	\$131,845
949	Wallace	NC	E	2,400	\$2.25		3,880	\$97,281
950	Washington	NC	T			2002	9,744	\$511,353
951	Whitakers	NC	F		\$3.25		744	
952	Wilmington	NC	E	2,500	\$6.83	2004	106,476	\$7,040,417
953	Wilson	NC	E	2,585	\$2.94	2002	49,167	\$2,412,522
954	Winston-Salem	NC	T	43,560	\$69.25		185,776	\$10,108,165

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
955	Winterville	NC	E	2,000	\$2.00	2007	9,269	\$2,154
956	Wrightsville Beach	NC	T				2,593	
957	Zebulon	NC	T				4,433	\$97,489
958	Bismarck	ND	F		\$2.60		55,532	\$638,000
959	Dickinson	ND	V					
960	Grand Forks	ND	F		\$2.90	1988	49,321	
961	Minot	ND	F		\$2.60	1998	36,567	
962	Sante Fe	NM	T		\$3.00	2003	62,203	
963	Carson City	NV	F		\$4.38	2003	52,457	\$1,190,514
964	Sparks	NV	D		\$8.32		66,346	
965	Washoe County	NV	E		\$9.31	2015	446,903	
966	Ithaca	NY	E			2014	30,014	
967	Ada	OH	T			2004	5,952	
968	Amberley	OH	R			2003	3,585	
969	Ashland	OH	E	3,052	\$3.50	2006	20,367	
970	Ashville	OH	E	2530	\$3.00	2006	4,120	
971	Avon	OH	E	4300	\$2.00	2018	21,193	
972	Barberton	OH	E	8,668	\$5.00	2006	26,455	
973	Bellefontaine	OH	E	2,400	\$3.75	2001	13,322	
974	Broadview Heights	OH	E	4,000	\$4.00	2007	19,247	
975	Brunswick	OH	E	3,500	\$4.95	2011	34,441	
976	Buckeye Lake	OH	E	2,700		2013	2,703	
977	Bucyrus	OH	E	2,506	\$4.00	2000	12,253	
978	Butler County	OH	E	4,000	\$1.08	2004	369,999	
979	Campbell	OH	T		\$3.00	2007	8,235	
980	Canal Winchester	OH	E	3,001	\$3.30	2010	7,191	
981	Canfield	OH	E	3,050	\$3.00	1992	7,464	
982	Celina	OH	E	3,083	\$2.00	2008	10,406	
983	Chillicothe	OH	F		\$1.00	1997	21,955	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
984	Cincinnati	OH	T			1984	296,223	
985	Columbus	OH	E	2,000	\$4.60	1994	797,434	
986	Cortland	OH	F		\$1.50	2007	7,069	
987	Coshocton	OH	D		\$0.25	2010	11,231	
988	Cuyahoga Falls	OH	E	3,000	\$3.00	1992	49,473	\$600,000
989	Dayton	OH	F		\$5.03	1997	142,148	
990	Deerfield Regional Stormwater District	OH	E	3,407	\$1.92	2006		
991	Delaware	OH	E	2,773	\$2.50	1998	35,541	
992	Elyria	OH	E	2,700	\$4.33			
993	Findlay	OH	T		\$3.00	1999	41,202	
994	Forest Park	OH	F		\$3.00	1988	19,463	
995	Fostoria	OH	R			2006	13,411	
996	Franklin	OH	E	2,611	\$3.50		11,771	\$469,218
997	Gahanna	OH	E	3,064	\$4.33	2004	32,636	
998	Galion	OH	E	2,650	\$3.00	2001	10,416	
999	Gambier	OH	T	3,000	\$4.00		2,396	
1000	Greenville	OH	E	2,800	\$2.95	2007	13,189	
1001	Groveport	OH	E	2,760	\$2.00	2008	5,363	
1002	Hamilton	OH	E	2,536	\$3.60	2002	62,795	
1003	Hamilton County	OH	V				800,362	
1004	Harrison	OH	R			2007	9,871	
1005	Hilliard	OH	E	2,000	\$2.35	2009	28,435	\$647,915
1006	Hubbard	OH	T		\$3.00	2007	8,284	
1007	Huber Heights	OH	E	3,431	\$2.00	2002	38,278	
1008	Hudson	OH	-				22,182	
1009	Ironton	OH	W		\$2.50	2005	11,211	
1010	Kent	OH	E	1,963	\$2.30	2001	28,935	
1011	Lake County	OH	E	3,050	\$3.50	2003	229,885	
1012	Lancaster	OH	E	2,600	\$2.64	2004	39,026	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1013	Lebanon	OH	E	2,615	\$3.50	2003	20,242	
1014	Lexington	OH	E	5,000	\$1.50	2004	4,784	
1015	Lima	OH	E	2,600			38,693	
1016	London	OH	E	2,766	\$4.00		9,896	
1017	Lorain County (unincorporated areas)	OH	E	6,000	\$1.50			
1018	Louisville	OH	T			2005	9,186	
1019	Loveland	OH	E	2,500	\$4.50	2003	12,082	
1020	Lowellville	OH	F		\$2.00	2007	1,148	
1021	Lucas County	OH	E	5,500	\$4.06	2011	440,005	
1022	Marion	OH	E	2,778	\$4.16	1997	36,689	
1023	Marysville	OH	E	2,700	\$2.75	2004	22,288	
1024	Mason	OH	F		\$3.71	2001	31,039	
1025	Massillon	OH	T			2010	32,106	
1026	Medina	OH	E	2,716	\$2.25	2003	26,822	
1027	Middletown	OH	E	2,814	\$3.25	2005	48,962	
1028	Milford	OH	E	2,400	\$5.50	2004	6,768	
1029	Monroe	OH	D		\$3.00	2003	12,509	
1030	Monroeville	OH	E	4,200		2009	1,400	
1031	Montpelier	OH	T			1986	4,067	
1032	Muskingum Watershed Conservancy District	OH	E	3,300	\$1.00		2,000,000	\$12,600,000
1033	New Lexington	OH	F		\$2.25	2005	4,689	
1034	New London	OH	T		\$4.00	2005	2,455	
1035	Newark	OH	E	2,600	\$6.50	2005	47,790	\$2,728,438
1036	Northeast Ohio Regional Sewer District	OH	-			2010		
1037	Northwood	OH	E	2,500	\$3.16	2001	5,265	
1038	Norwalk	OH	E	3,800	\$1.35	2011	16,977	
1039	Oak Harbor	OH	E	4,200	\$13.00	2007	2,758	
1040	Oakwood	OH	E		\$6.00	2013		\$260,000
1041	Painesville	OH	E	2,500	\$2.75	2002	19,549	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1042	Pickerington	OH	E	2,530	\$4.50	2001	18,408	
1043	Piqua	OH	E	5,400	\$5.70	2009	20,592	\$70,000
1044	Poland	OH	E	2,500	\$3.50	2010	2,537	
1045	Ravenna	OH	E	2,750	\$3.00	2007	11,739	
1046	Reynoldsburg	OH	E	2,530	\$2.00	1996	36,293	
1047	Rittman	OH				2015	6,593	
1048	Sebring	OH	D		\$3.00		4,391	
1049	Sheffield	OH	E	2,500	\$3.50	2004	3,986	
1050	Sheffield Lake	OH	E	2,275	\$4.85	1999	9,145	
1051	Sidney	OH	E	2,752	\$1.00	1994	21,178	
1052	Silver Lake	OH	F		\$3.00	2003	2,510	
1053	Spencerville	OH	V			2008	2,218	
1054	Springboro	OH	D		\$3.00	2003	17,588	
1055	Springfield	OH	T		\$1.30	2011	60,333	
1056	Stow	OH	E	3,060	\$3.00		34,711	
1057	Struthers	OH	E	3,500	\$3.50	2007	10,640	
1058	Tallmadge	OH	E	3,000	\$2.00		17,473	
1059	Toledo	OH	E	2,500	\$3.80	1999	286,038	
1060	Trenton	OH	E	3,000	\$0.30	2003	11,931	
1061	Trotwood	OH	E	4,020	\$4.00		2,455	
1062	Troy	OH	E	3,000	\$4.65	2007	25,143	\$72,000
1063	Trumbull County	OH	-			2016	206,443	
1064	Union	OH	T		\$4.00	1987	6,448	
1065	Upper Arlington	OH	F		\$3.75	1991	34,223	
1066	Urbana	OH	W		\$5.00	2017	14,239	
1067	Vandalia	OH	E	4,431	\$2.00	2004	15,317	
1068	Wadsworth	OH	F		\$4.50	2005	21,683	
1069	Wapakoneta	OH	T			1994	9,843	
1070	Warren	OH	E	648	\$2.92		41,358	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1071	Wellington	OH	E	2,900	\$3.50	2010	4,806	
1072	Wooster	OH	E	3,050	\$5.75	1985	26,139	
1073	Wyoming	OH	V		general fund	2011	8,398	
1074	Xenia	OH	T		\$2.50		25,925	\$340,317
1075	Zanesville	OH	D		\$1.36	1987	25,531	
1076	Bixby	OK	E	2,650	\$4.00		21,137	
1077	Broken Arrow	OK	E	2,650	\$4.77	2002	100,073	
1078	Catoosa	OK	D		\$2.50		7,226	
1079	Chickasha	OK			\$7.00	2016	16,374	
1080	Choctaw	OK	F		\$3.00	2005	11,364	
1081	Edmond	OK	E	4,860	\$3.00	1994	82,963	
1082	Enid	OK	E	5,000	\$4.13	2009	49,451	
1083	Jenks	OK	F		\$2.00	2002	17,130	
1084	Lawton	OK	F		\$0.75		98,177	
1085	McAlester	OK	E	2,650	\$2.00	2016	18,301	
1086	Miami	OK	E	43,560	\$2.00		13,577	
1087	Midwest City	OK	T				55,427	
1088	Muskogee	OK	D	2,650	\$2.00	2005	39,231	
1089	Oklahoma City	OK	M		\$5.53	1995	591,967	
1090	Owasso	OK	E	3,000	\$3.00		29,854	
1091	Ponca City	OK	D		\$2.25		25,168	
1092	Sand Springs	OK	E	2,650	\$5.00		19,140	
1093	Sapulpa	OK	D	2,650	\$4.15		20,691	
1094	Stillwater	OK	E	5,000	\$1.00	1997	46,048	
1095	Tahlequah	OK	D		\$2.00		16,021	\$10,000,000
1096	Tulsa	OK	E	2,650	\$5.43	1986	396,466	
1097	Woodward	OK			\$3.00	2016	12,758	
1098	Adair Village	OR	F		\$2.50		843	
1099	Albany	OR	E	3,200	\$4.79	2017	53,211	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1100	Ashland	OR	T	1,000	\$4.40	1994	20,232	
1101	Beaverton	OR	E	2,640	\$8.75	1989	91,625	\$1,500,000
1102	Bend	OR	E	3,800	\$5.30	2007	77,905	
1103	Cannon Beach	OR	F		\$4.49	1996	1,695	
1104	Central Point	OR	E	3,000	\$6.50	2005	17,308	\$1,015,800
1105	Clackamas County	OR	E	2,500	\$4.00		380,207	
1106	Clatskanie	OR	D		\$2.50	1999	1,738	\$1,725,000
1107	Corvallis	OR	E	2,750	\$6.27	1977	54,674	
1108	Cottage Grove	OR	E	2,650	\$5.15	1998	9,734	\$274,040
1109	Dundee	OR	D	1,000	\$1.67	1997	3,188	\$125,000
1110	Estacada	OR	F		\$5.95	1998	2,725	\$8,975,914
1111	Eugene	OR	T	1,000	\$12.27	1994	156,929	
1112	Fairview	OR	F		\$8.78	1994	8,920	
1113	Florence	OR	T			2005	8,466	
1114	Forest Grove	OR	E	2,640	\$7.75	1990	21,083	
1115	Gladstone	OR			\$5.00	2017	11,491	
1116	Gresham	OR	E	2,500	\$11.32	1994	105,594	
1117	Hillsboro	OR	E	2,640	\$6.25		70,186	
1118	Hood River	OR	M			2006	7,167	
1119	Hubbard	OR	F				3,173	
1120	Independence	OR	E	3,250	\$7.41	2011	8,650	
1121	Jackson County	OR	E	3,000		2004	181,269	
1122	Keizer	OR	E	3,000	\$5.37	2007	32,203	
1123	Lake Oswego	OR	E	3,030	\$11.76	1992	35,278	\$370,000
1124	Lebanon	OR	T		\$3.09	2010	12,950	
1125	Marion County	OR	E	3,000	\$4.55		330,700	
1126	Medford	OR	E	3,730	\$7.71	1994	63,154	
1127	Milwaukie	OR	T			1994	20,490	
1128	Newberg	OR	E	2,877	\$7.30	2003	18,064	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1129	Newport	OR	F		\$6.80		9,968	
1130	Ontario	OR	F		\$1.16		10,985	
1131	Oregon City	OR	R			1993	25,754	
1132	Philomath	OR	T		\$1.50	1999	3,838	
1133	Portland	OR	T			1977	593,820	
1134	Redmond	OR	F		\$5.81	2013	27,873	
1135	Reedsport	OR	E	3,000			4,378	
1136	Roseburg	OR	E	3,000	\$5.50		21,790	\$900,979
1137	Saint Helens	OR	E	2,500	\$10.95	2003	12,905	
1138	Salem	OR	T	3,000	\$4.89	2010	156,244	
1139	Sandy	OR	E	2,750	\$3.00	2001	9,677	
1140	Scappoose	OR	E	2,750			6,599	
1141	Sheridan	OR	E	3,000	\$3.50		6,165	
1142	Springfield	OR	T				59,695	\$5,669,775
1143	Sweet Home	OR	E	3,200	\$1.00	2007	9,035	
1144	Talent	OR	F		\$1.41	2000	6,115	
1145	Tigard	OR	E	2,640	\$6.75		49,011	\$2,408,916
1146	Troutdale	OR	E	2,700	\$4.27		16,244	\$231,038
1147	Tualatin	OR	E	2,640	\$6.75		26,558	
1148	Washington County	OR	E	2,640	\$6.75		540,410	
1149	West Linn	OR	E	2,914	\$5.58		25,392	
1150	Wilsonville	OR	E	2,750	\$5.25		19,715	
1151	Allentown	PA	E	500	\$10.00	2018	120,207	
1152	Borough of Dormont	PA				2015	8,593	
1153	Borough of Greenville	PA	E	3,122.83		2016	5,860	
1154	Chambersburg	PA	V		\$3.00	2015	20,508	
1155	Chester	PA	E	1,139	\$8.25	2017	33,972	
1156	Ebensburg	PA			\$8.00	2014	3,269	
1157	Hampden Township	PA	E	3,534	\$4.42	2015	28,044	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1158	Highspire Borough	PA	D		\$7.00	2016	2,399	
1159	Jonestown	PA	E	3,100	\$6.67	2012	1,931	
1160	Lancaster	PA	E	1,000	\$7.74	2014	59,325	
1161	Meadville	PA	E	2,660	\$7.50	2012	13,616	\$2,218,395
1162	Mount Lebanon	PA	E	2,400	\$8.00	2011	33,137	
1163	New Castle	PA					22,142	
1164	North Fayette Township	PA	E		\$3.50	2018	13,934	\$346,000
1165	North Lebanon Township	PA	E	3,755	\$3.35	2018	11,429	\$400,000
1166	Philadelphia	PA	F		\$13.48		1,536,471	\$655,000
1167	Radnor Township	PA	T	1,500	\$2.42		31,531	
1168	West Chester	PA	T		\$11.73	2016	18,461	
1169	White Township	PA	E	3,700	\$2.00	2015	15,821	
1170	Aiken County	SC	F		\$2.00		160,682	
1171	Anderson	SC	F		\$4.00	2007	26,871	
1172	Beaufort	SC	E	4,906	\$8.75		12,534	\$4,700,000
1173	Beaufort County	SC	E	4,906	\$4.17	2005	164,684	
1174	Berkeley County	SC	D		\$3.50	2014	194,020	
1175	Bluffton	SC	E	4,906	\$8.17	2001	12,734	\$6,336,000
1176	Charleston	SC	E	2,200	\$6.00	1994	122,689	
1177	Charleston County	SC	F		\$3.00	2006	235,015	\$3,500,000
1178	Clemson	SC	D		\$4.00	2015	14,276	
1179	Columbia	SC	E	2,454	\$6.80	2002	130,591	\$888,000
1180	Conway	SC	E	2,700	\$5.25	2003	17,513	
1181	Dorchester County	SC	E	3,735	\$3.73	2002	140,892	\$300,000
1182	Easley	SC	E	5,000	\$2.00	2003	20,058	
1183	Florence	SC	E	2,500	\$3.50	1981	37,326	
1184	Folly Beach	SC	F		\$3.00	2007	2,675	
1185	Fort Mill	SC	E	3,473	\$6.00			
1186	Georgetown	SC	M		\$2.00	1993	8,950	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1187	Georgetown County	SC	E	3,770	\$4.33	2007	55,797	\$2,806,221
1188	Greenville	SC	E	2,389	\$5.77	1995	56,002	
1189	Greenville County	SC	D	2,466	\$1.85		402,000	
1190	Greer	SC	E	2,500	\$1.80	2002	16,843	
1191	Hartsville	SC	F		\$4.00	2008	7,556	
1192	Hilton Head Island	SC	E	4,906	\$9.06	2001	33,862	
1193	Horry County	SC	E	5,000	\$3.70	2000	196,629	
1194	Isle of Palms	SC	R			2007	4,133	
1195	Lancaster County	SC	F		\$6.25	2017		
1196	Mount Pleasant	SC	D		\$2.50		47,609	
1197	Myrtle Beach	SC	E	5,000	\$3.50	1999	22,759	\$511,500
1198	North Augusta	SC	F		\$4.00	2002	17,574	\$317,687
1199	North Charleston	SC	E	2,900	\$3.00	2003	79,641	\$1,985,000
1200	North Myrtle Beach	SC	E	3,500	\$6.00	2005	14,118	
1201	Port Royal	SC	E	4,906	\$4.17		10,790	
1202	Rock Hill	SC	F		\$3.08		67,423	
1203	Spartanburg	SC	E	2,000	\$2.50	2010	37,334	
1204	Sullivan's Island	SC	R			2007	1,911	
1205	Summerville	SC	F		\$4.00		44,783	
1206	Sumter	SC	D		\$2.50	2011	40,526	
1207	Sumter County	SC	T		\$1.25	2010	107,460	\$365,680
1208	Tega Cay	SC	E	3,500	\$8.00		7,773	
1209	Aberdeen	SD	V			2005	26,297	
1210	Brookings	SD	V			1996	22,228	\$5,000,000
1211	Rapid City	SD	R		\$0.00			
1212	Sioux Falls	SD	V			1982	156,592	
1213	Alcoa	TN	D		\$4.00	2008	8,570	\$5,000,000
1214	Bristol	TN	T			2014	26,626	\$562,000
1215	Chattanooga	TN	E		\$9.60	1993	171,279	\$445,126,902

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1216	Cleveland	TN	E	3,830	\$3.25	2015	41,285	
1217	Collierville	TN	F		\$2.25		44,324	
1218	Dyersburg	TN	E	1,500	\$1.00	2012	17,043	\$1,400,000
1219	Franklin	TN	E	3,350	\$3.65	2004	66,280	\$55,100,000
1220	Germantown	TN	T			2010	39,161	
1221	Goodlettsville	TN	D	2,900	\$3.67	2012	16,176	\$320,000
1222	Hamilton County	TN	D	3,500	\$3.00		11,530	
1223	Hendersonville	TN	F		\$6.00	2018	57,050	
1224	Johnson City	TN	T	3,315	\$3.00	2007	63,815	
1225	Kingsport	TN	E	3,794	\$3.50	2011	49,232	\$1,550,900
1226	La Vergne	TN	E	3,181	\$3.50	2005	33,389	
1227	Lebanon	TN	T		\$2.50	2017	31,317	
1228	Lenoir City	TN	T		\$3.00	2017	9,106	
1229	Maryville	TN	E	2,400	\$3.97	2003	27,646	
1230	Memphis	TN	E	3,147	\$4.02	2006	652,050	
1231	Millington	TN	E	3,000	\$2.50	2006	10,257	\$241,893
1232	Morristown	TN	E	2,400	\$2.50	2008	29,374	\$2,422,368
1233	Murfreesboro	TN	E	3,470	\$3.25	2007	100,575	\$2,501,900
1234	Nashville/Davidson County	TN	T			2009	635,475	\$700,000
1235	Shelby County	TN	D		\$1.50	2009	282,141	
1236	Signal Mountain	TN	E	3,960	\$3.30	2002	7,655	\$1,350,000
1237	Smyrna	TN	E	3,543	\$3.65	2008	25,569	
1238	Spring Hill	TN	E	3,412	\$3.50	2009	29,735	
1239	Springfield	TN	E	3,465	\$2.00			
1240	Tulahoma	TN	V		\$0.00		17,994	\$1,465,540
1241	Abilene	TX	T		\$2.45	2003	118,117	\$920,700
1242	Addison	TX	T	1,000	\$2.75	2012	13,056	
1243	Allen	TX	F		\$3.00	1993	76,600	
1244	Amarillo	TX	E	2,800	\$2.51	2011	193,675	\$4,565,500

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1245	Arlington	TX	E	2,800	\$4.25	1994	373,698	\$51,283,000
1246	Austin	TX	E	1,763	\$9.20	2003	820,611	\$40,000,000
1247	Azle	TX	E	1,500	\$3.00	2000	11,170	\$514,000
1248	Baytown	TX	E	1,979	\$1.50	2004	73,322	\$1,346,200
1249	Bedford	TX	E	2,727	\$3.50	2002	48,043	\$300,000
1250	Belton	TX	T			2007	18,486	\$932,536
1251	Benbrook	TX	E	3,186	\$6.50	2007	21,715	
1252	Bexar County	TX	T			2008	145,336	\$840,000
1253	Bryan	TX	F		\$2.80	1997	77,321	\$95,000
1254	Burkburnett	TX	E	3,500	\$1.50	2007	10,740	
1255	Celina	TX	E	5,000	\$7.75	2016	6,744	
1256	Cibolo	TX	E	2,889	\$4.00		15,853	
1257	Cleburne	TX	T				29,681	\$1,236,800
1258	College Station	TX	F		\$3.50		95,142	\$846,000
1259	Colleyville	TX	T			1993	23,328	
1260	Converse	TX	T		\$2.43	2010	18,643	\$225,000
1261	Coppell	TX	T			2004	39,462	\$445,000
1262	Corinth	TX	E	3,900	\$6.00		20,662	
1263	Corpus Christi	TX	V			2009	307,953	
1264	Crowley	TX	A		\$2.00	2011	13,131	\$208,000
1265	Dallas	TX	IA		\$7.77	1991	1,223,229	\$49,838,421
1266	De Soto	TX	T			2001	50,045	\$1,922,509
1267	Deer Park	TX	E	4,250	\$1.32	2012	32,706	
1268	Denton	TX	T			2002	117,187	\$3,500,000
1269	Dickinson	TX	F		\$4.00	2001	18,967	
1270	Eagle Pass	TX	D		\$3.00	2003	26,807	\$17,355,799
1271	El Paso	TX	T	2,000	\$3.03	2007	665,568	\$650,000
1272	Eules	TX	T			1990	52,443	
1273	Fairview	TX	F		\$5.75		8,000	\$1,002,115

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1274	Flower Mound	TX	F		\$4.14	2003	65,851	\$28,065,024
1275	Forest Hill	TX	T			2013	12,355	
1276	Fort Worth	TX	T	2,600	\$5.40	2006	686,850	
1277	Fredericksburg	TX	F		\$1.00	1996	8,911	
1278	Frisco	TX	F		\$2.00	2009	33,714	
1279	Gainesville	TX	E	1,895	\$3.68	1993	16,569	\$3,081,945
1280	Galveston	TX	D	43,560	\$7.00		47,743	\$546,380
1281	Garland	TX	F		\$2.88	1991	224,750	\$1,848,558
1282	Georgetown	TX	E	2,808	\$5.25		45,342	\$2,982,699
1283	Glenn Heights	TX	T			2009	11,511	
1284	Grand Prairie	TX	A		\$3.76	1993	161,550	\$1,321,898
1285	Grapevine	TX	F		\$4.00		48,583	\$1,264,000
1286	Haltom City	TX	D	43,560	\$6.19	2004	40,811	
1287	Harker Heights	TX	T		\$6.00	2002	26,026	
1288	Hewitt	TX	T			2009	13,588	\$384,000
1289	Highland Village	TX	E	1,000	\$1.20	2006	15,738	
1290	Houston	TX	E	1,875	\$5.00	2010	1,953,631	
1291	Hudson Oaks	TX	E	6,477	\$8.50	2016	1,865	
1292	Hurst	TX	E	3,342	\$4.00	2009	36,273	\$4,176,000
1293	Irving	TX	F		\$3.00	2003	205,600	
1294	Jacinto City	TX	V			2002	9,870	\$874,500
1295	Keller	TX	E	3,731	\$8.00		37,700	
1296	Kennedale	TX	E	2,800	\$6.00	2010	7,284	\$2,653,013
1297	Killeen	TX	T	43,560	\$6.00	2001	102,003	
1298	Kingsville	TX	E	2,425	\$1.25	2012	26,322	
1299	Kyle	TX	IA		\$6.30	2016	39,060	
1300	La Marque	TX	V			2002	14,194	
1301	Lancaster	TX	F		\$7.97		36,236	\$4,663,200
1302	Laredo	TX	T		\$6.50		215,484	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1303	Leon Valley	TX	T			2009	11,020	
1304	Lewisville	TX	E	1,000	\$4.00	2017	77,737	
1305	Little Elm	TX	E	3,687	\$3.35	2011	25,797	
1306	Live Oak	TX	E	3,007	\$5.50	2009	12,471	
1307	Lockhart	TX	D		\$2.00	2001	14,238	\$7,414,982
1308	Lubbock	TX	T			1993	212,365	
1309	Mansfield	TX	F		\$3.50		56,368	\$1,590,000
1310	Marshall	TX	M		\$3.50	2016	23,561	
1311	McAllen	TX	E	2,700	\$1.50	2018	142,212	
1312	McKinney	TX	E	2,343	\$2.75		112,000	\$2,130,000
1313	Mesquite	TX	D	100	\$3.50		136,750	
1314	Midland	TX				2018	132,950	\$2,470,000
1315	Mineral Wells	TX	M		\$2.50	2017	14,826	
1316	Mission	TX	F		\$2.50		77,058	
1317	Mount Vernon	TX	F		\$3.00	2010	2,286	
1318	New Braunfels	TX	E	2,690	\$4.59	2000	36,494	\$806,450
1319	North Richland Hills	TX	T	43,560	\$15.41		64,050	\$4,723,698
1320	Plano	TX	T				255,700	\$5,184,230
1321	Portland	TX	F		\$3.00		18,500	
1322	Princeton	TX	E	3,950	\$4.85	2016	9,405	
1323	Prosper	TX	E	10,000	\$3.00	2008	9,613	
1324	Red Oak	TX	T		\$4.85	2015	10,769	
1325	Richardson	TX	E	3,571	\$3.75	2011	99,223	\$156,652
1326	Richland Hills	TX	D	43,560	\$10.50	1993	8,300	
1327	River Oaks	TX	A		\$4.00	2012	7,597	
1328	Round Rock	TX	E	2,900	\$4.75	2010	105,000	\$975,788
1329	Rowlett	TX	D		\$5.50	2002	54,869	\$400,000
1330	Sachse	TX			\$1.66	2017	20,329	
1331	Saginaw	TX	F		\$3.00	2005	18,950	\$2,900,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1332	San Angelo	TX	T		\$4.00	2009	91,880	\$34,807,822
1333	San Antonio	TX	T		\$4.55	1997	1,306,900	\$1,222,680
1334	San Marcos	TX	T	2,250	\$7.08	1999	53,205	\$360,359
1335	Schertz	TX	E		\$5.20		32,160	\$115,000
1336	Sealy	TX	F		\$2.00	2004	6,374	
1337	Selma	TX	E	3433	\$4.12	2010	5,046	\$1,032,097
1338	Sherman	TX	E	3400	\$1.00	2017	41,567	
1339	Southlake	TX	E	1,000	\$8.00	2006	26,224	\$550,000
1340	Stephenville	TX	T	6,000	\$3.00	2002	17,050	
1341	Sunset Valley	TX	E	3,350	\$4.00		919	
1342	Taylor	TX	E	2,500	\$1.00	2010	16,106	\$645,100
1343	Temple	TX	T				54,514	\$496,000
1344	Terrell	TX	F		\$1.00	2011	16,112	
1345	The Colony	TX	F	3,406	\$2.50		40,206	\$112,300
1346	Trophy Club	TX	F		\$6.00		7,832	\$1,267,954
1347	Tyler	TX	R				101,106	
1348	Universal City	TX	T			2004	16,569	\$500,200
1349	University Park	TX	T				24,182	\$693,994
1350	Watagua	TX	F		\$12.00		24,150	
1351	Weatherford	TX	E	3300	\$4.50		25,557	\$800,000
1352	Webster	TX	D	43,560	\$0.81	2009	10,613	
1353	White Settlement	TX	F		\$4.62	2005	16,116	\$524,400
1354	Wichita Falls	TX	E	3,500	\$3.55	2000	104,197	
1355	Alpine City	UT	F		\$5.00		9,821	\$150,000
1356	Bountiful City	UT	E	3,828			41,301	
1357	Cedar Hills	UT	E	2,900	\$8.71	1998	10,066	\$230,500
1358	Centerville	UT	E	3,600	\$4.00	2007	14,585	
1359	Draper City	UT	E	3,000	\$4.00	2001	25,220	\$3,530,625
1360	Eagle Mountain	UT	E	2,500	\$4.00	2010	2,157	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1361	Elk Ridge	UT	F		\$3.00		1,838	
1362	Farmington	UT	E	4,083	\$7.00	2003	12,081	
1363	Layton	UT	T		\$4.60	1997	58,474	
1364	Lindon	UT	F		\$5.47		8,363	
1365	Logan	UT	E	3,000	\$5.50	2005	42,670	
1366	Midvale	UT	E	3,000	\$7.62	2004	27,029	\$430,000
1367	Moab	UT	E	3,000	\$2.00		4,779	
1368	Murray	UT	E	3,400	\$4.05	2006	46,558	
1369	Nibley City	UT	F		\$6.25		2,045	\$123,600
1370	North Logan	UT	E	4,700	\$4.00	2007	6,163	
1371	North Ogden	UT	V			1987	15,026	
1372	Ogden	UT	E	1,500	\$7.38		77,226	
1373	Orem	UT	E	2,700	\$4.75	1996	84,324	
1374	Park City	UT				2016	7,873	
1375	Payson	UT	E	2,700	\$5.43		16,748	
1376	Provo	UT	E	3,200	\$4.63		105,166	
1377	Riverdale	UT	E	2,600	\$2.20	2005	7,656	\$1,400,000
1378	Riverton	UT	E	2,744	\$7.00	2010	25,011	\$1,400,000
1379	Salt Lake City	UT	E	2,500	\$4.49	1991	181,743	
1380	Sandy	UT	E	2,816	\$6.00		88,418	
1381	Santa Clara	UT	E	3,500	\$9.25	2004	4,630	
1382	South Jordan	UT	E	4,752	\$8.50	2011	55,934	\$2,043,148
1383	Spanish Fork	UT	E	3,956	\$6.42		20,246	
1384	Springville	UT	E	3,800	\$3.96	2007	25,998	
1385	Sunset City	UT	E	9,000	\$2.00	2012	5,213	\$46,500
1386	Taylorsville	UT	E	3,800	\$4.00	2007	58,620	
1387	West Jordan	UT	E	10,890	\$4.02	2011	68,336	
1388	West Point	UT	E	2,500	\$4.00	2010	6,033	\$2,091,636
1389	West Valley City	UT	E	2,830	\$4.00	2001	108,869	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1390	Woods Cross	UT	E	3,000	\$3.00	2004	6,419	
1391	Alexandria	VA	T		\$11.67		153,511	
1392	Arlington County	VA	E	2,762	\$2.17		189,453	\$6,200,000
1393	Blacksburg	VA	T			2014	42,620	
1394	Charlottesville	VA	E	500	\$1.20	2013	43,511	
1395	Chesapeake	VA	E	2,112	\$7.35	1992	222,209	\$14,906,000
1396	Chesterfield County	VA			\$2.08	2016	327,745	
1397	Christiansburg	VA	E	3,030	\$6.00	2016	21,533	
1398	Colonial Heights	VA	E	2,656	\$2.00		16,897	\$375,000
1399	Falls Church	VA	E	200	\$1.50	2013	12,332	
1400	Galax	VA				2016	7,042	
1401	Hampton	VA	E	2,429	\$6.99	1994	146,437	\$8,191,972
1402	Harrisonburg	VA	E	500	\$6.00	2015	51,395	\$1,788,100
1403	Hopewell	VA	E	2,106	\$4.00	2015	22,163	\$731,000
1404	Isle of Wight County	VA	E	2,050	\$6.00	2014	35,656	\$1,638,173
1405	James City County	VA	E	3,235	\$4.90	2007	48,102	\$2,600,000
1406	Lynchburg	VA	T	2,672	\$4.00	2012	76,504	
1407	Manassas Park	VA	E	2,500	\$2.97	2010	6,734	\$8,500,000
1408	Newport News	VA	E	1,777	\$9.75	1993	180,150	\$10,600,000
1409	Norfolk	VA	E	2,000	\$10.24	1996	234,403	
1410	Petersburg	VA	E	2,116	\$3.75	2013	32,420	\$1,400,000
1411	Portsmouth	VA	E	1,877	\$9.25	1995	100,565	\$4,600,000
1412	Prince George County	VA	T		\$3.00	2014	37,253	
1413	Prince William County	VA	T	1,000	\$1.55	1994	280,813	
1414	Richmond	VA	T	1,425	\$3.75	2009	197,790	
1415	Roanoke	VA	E	500	\$0.90	2013	97,032	
1416	Stafford County	VA	V					
1417	Staunton	VA	T				23,853	\$3,500,000
1418	Suffolk	VA	E	3,200	\$3.95	2006	63,677	\$15,000,000

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1419	Virginia Beach	VA	E	2,269	\$12.99	1993	425,257	
1420	Waynesboro	VA	E	1,600	\$3.42	2015	21,263	
1421	Burlington	VT	T	1,000	\$1.69	2009	38,889	\$1,500,000
1422	Colchester	VT	E	4,400	\$4.37	2017	17,067	\$875,000
1423	South Burlington	VT	T	2,700	\$5.94	2005	15,814	
1424	Williston	VT	E	4,000	\$4.25	2014	8,698	
1425	Aberdeen	WA	F		\$6.69	1999	16,835	
1426	Algona	WA	F		\$5.50	2004	2,460	
1427	Anacortes	WA	E	2,000	\$5.00	1999	15,941	
1428	Arlington	WA	E	6,000	\$6.89	2006	18,154	
1429	Asotin County	WA	E	3,700	\$6.00	2010	21,933	
1430	Auburn	WA	T	2,600		1991	71,517	
1431	Bainbridge Island	WA	E	3,000	\$12.23		23,262	
1432	Battle Ground	WA	F		\$10.96	1982	17,893	\$22,164,456
1433	Bellevue	WA	F		\$5.10	1974	124,798	
1434	Bellingham	WA	T			2001	81,862	\$9,000,908
1435	Black Diamond	WA	E	3,000	\$16.00	2008	4,273	
1436	Blaine	WA	E	2,000	\$4.37	1999	4,684	
1437	Bonney Lake	WA	E	2,600	\$14.00	1997	17,579	\$1,659,913
1438	Bothell	WA	T		\$12.42	1994	34,055	\$2,800,000
1439	Bremerton	WA	E	2,500	\$9.83	1994	39,051	
1440	Brier	WA	E	2,000	\$6.50	1999	6,165	\$221,991
1441	Buckley	WA	E	8,000	\$19.10	1992	4,354	
1442	Burien	WA	T		\$11.42	2008	33,977	
1443	Burlington	WA	E	2,400	\$6.07	1994	8,474	
1444	Camas	WA	E	3,218	\$9.71	1989	19,712	
1445	Castle Rock	WA	T				1,982	
1446	Centralia	WA	E	3,000	\$6.00	2004	16,432	
1447	Chehalis	WA	E	3,000	\$7.95	1992	7,299	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1448	Chelan County	WA	E	4,600	\$5.50	2008	73,477	
1449	Clark County	WA	E	3,500	\$4.33	1980	433,418	
1450	Des Moines	WA	T	3,450	\$14.24	1990	30,258	
1451	Douglas County	WA	E	2,750	\$3.75	1998	38,971	
1452	DuPont	WA	F	1,900	\$15.30			
1453	Duvall	WA	F		\$18.18	1981	6,828	
1454	East Wenatchee	WA	E	2,750	\$2.92	1999	13,375	
1455	Edgewood	WA	T			1996	9,499	
1456	Edmonds	WA	E	3,000	\$12.35	1998	40,215	
1457	Ellensburg	WA	E	3,900	\$6.06	2009	18,468	
1458	Everett	WA	E	900	\$13.06	2004	104,295	
1459	Federal Way	WA	T		\$6.59	1990	91,085	
1460	Ferndale	WA	E	10,000	\$11.00	2006	11,564	
1461	Fife	WA	F		\$2.88	2004	9,281	
1462	Friday Harbor	WA	E	2,000	\$12.70	1993	1,989	
1463	Gig Harbor	WA	E	2,200	\$12.14	1984	7,208	\$234,575
1464	Hoquiam	WA	E	2,500	\$9.83	2005	8,696	
1465	Ilwaco	WA	T			2011	936	
1466	Issaquah	WA	E	2,000	\$14.08	1988	31,037	
1467	Jefferson County	WA	E	3,000			29,924	
1468	Kelso	WA	T		\$7.12	1993	11,934	
1469	Kennewick	WA	V		\$5.46		76,224	
1470	Kent	WA	E	2,500	\$12.22	1992	120,916	
1471	King County	WA	T		\$20.00	1986	1,969,722	
1472	Kirkland	WA	E	2,600	\$15.60		45,054	\$4,000,000
1473	Kitsap County	WA	E	4,200	\$5.82	1994	231,969	\$2,857,800
1474	La Conner	WA	E	2,100	\$15.08	2002	785	
1475	Lacey	WA	T		\$8.03	1986	31,226	\$135,955
1476	Lake Forest Park	WA	T			1990	13,142	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1477	Lake Stevens	WA	T			1997	6,361	\$1,358,984
1478	Lake Whatcom	WA				2017		
1479	Liberty Lake	WA	E	3,160	\$10.00	2003	4,660	
1480	Longview	WA	F		\$7.97	1999	34,660	\$523,000
1481	Lynden	WA	D		\$6.73		9,020	
1482	Lynnwood	WA	E	2,900	\$20.20	1991	33,847	\$1,700,000
1483	Marysville	WA	E	3,200	\$10.82	1999	25,315	
1484	Mason County	WA	V		\$0.00	2008	49,405	
1485	Mercer Island	WA	E	3,471	\$30.64	1995	22,036	
1486	Mill Creek	WA	E	3,000		2001	11,525	
1487	Milton	WA	E	2,800	\$12.75		5,795	\$1,121,833
1488	Monroe	WA	E	2,500	\$10.50	1996	17,304	
1489	Montesano	WA	E	3,000	\$2.49	1999	3,312	
1490	Moses Lake	WA	T		\$5.30		14,953	\$1,334,000
1491	Mountlake Terrace	WA	E	2,282	\$10.69	1999	20,362	
1492	Mukilteo	WA	E	2,500	\$7.85	1988	18,019	
1493	Normandy Park	WA	E	3,100	\$16.00	2003	6,392	
1494	North Bend	WA	E	2,920	\$12.36	2001	4,746	
1495	Oak Harbor	WA	E	3,300	\$7.70	1997	22,075	
1496	Ocean Shores	WA	F		\$3.54	1980	5,569	\$2,500,000
1497	Olympia	WA	T			1986	46,478	
1498	Omak	WA	T			1984	4,845	
1499	Orting	WA	T			1997	6,746	
1500	Pacific	WA	E	2,500	\$13.00	1999	6,737	
1501	Pierce County	WA	T		\$10.33	1991	807,904	
1502	Port Angeles	WA	E	4,000	\$12.00	2003	19,154	
1503	Port Orchard	WA	E	3,000	\$7.00	2008	11,144	
1504	Port Townsend	WA	E	3,000	\$6.59	1987	9,113	
1505	Poulsbo	WA	E	3,000	\$10.57	1999	9,200	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1506	Pullman	WA	E	3,500	\$7.00	2009	29,799	
1507	Puyallup	WA	E	2,800	\$22.01		37,022	
1508	Redmond	WA	R			1988	54,144	\$2,915,881
1509	Renton	WA	T			1987	92,812	
1510	Richland	WA	E	3,000	\$3.85	1998	48,058	\$1,721,356
1511	Sammamish	WA	E		\$18.75	2012	63,773	
1512	San Juan County	WA	T			2006	15,844	
1513	Seatac	WA	V		\$11.05	1992	26,909	
1514	Seattle	WA	T		\$36.00	1987	602,778	\$54,000,000
1515	Sedro-Woolley	WA	E	10,000	\$5.40	2007	10,540	
1516	Shelton	WA	T			1995	8,442	
1517	Shoreline	WA	T		\$17.87	2009	53,007	
1518	Skagit County	WA	T			1994	102,979	
1519	Snohomish	WA	E	2,500	\$10.17	2004	9,098	
1520	Snoqualmie	WA	E	2,600	\$4.00	1997	1,631	
1521	Spokane	WA	D	43,560	\$3.84	2005	195,629	
1522	Spokane County	WA	E	3,160	\$1.75	1993	417,939	
1523	Spokane Valley	WA	E	3,160	\$1.75			
1524	Stanwood	WA	T		\$12.25	2015	6,231	
1525	Steilacoom	WA	E	2,500	\$14.58	1994	6,049	
1526	Sultan	WA	E	4,519	\$9.53		4,183	
1527	Sumas	WA	T		\$1.50	2005	1,265	
1528	Sumner	WA	E	2,400	\$2.50		8,504	
1529	Sunnyside	WA	A	43,560	\$34.39		13,905	
1530	Tacoma	WA	T	500	\$23.25	1984	193,556	\$21,000,000
1531	Thurston County	WA	T			2002	207,355	
1532	Toppenish	WA	E	2,000	\$1.00	1991	8,946	
1533	Tukwilla	WA	T		\$9.83	1989	17,181	
1534	Tumwater	WA	E	3,250	\$7.15	1987	12,698	\$5,322,346

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1535	University Place	WA	T			1995	29,933	
1536	Vancouver	WA	E	2,500	\$7.10	1994	157,493	
1537	Walla Walla	WA	E	5,000	\$6.90	1999	30,945	\$777,500
1538	Walla Walla County	WA	E	5,000	\$3.00	2010	59,844	
1539	Washougal	WA	D		\$15.74	2010	15,466	
1540	Wenatchee	WA	E	3,000	\$7.05	1995	27,856	
1541	West Richland	WA	T			2006	8,358	
1542	Woodinville	WA	T		\$7.26	1993	9,194	
1543	Woodway	WA	T				1,307	
1544	Yakima	WA	E	3,600	\$3.58	2004	71,845	
1545	Yelm	WA	T		\$2.50	1999	3,289	
1546	Allouez	WI	E	3,663	\$7.00	2006	14,126	
1547	Altoona	WI	T	43,560	\$3.00	2007	6,789	
1548	Antigo	WI	E	3,069	\$3.52	2010	8,004	\$410,968
1549	Appleton	WI	E	2,368	\$12.92	1995	73,243	
1550	Ashwaubenon	WI	F		\$4.17	2012	16,973	
1551	Baraboo	WI	E	2,379	\$4.10	2005	1,828	\$635,126
1552	Barron	WI	E	10,850	\$2.00	2005	3,425	
1553	Bayside	WI	E	5,269	\$8.33	2009	4,411	
1554	Beaver Dam	WI	E	2,637	\$4.05	2009	16,243	\$779,000
1555	Bellevue	WI	E	3,221	\$4.00	2002	14,742	
1556	Beloit	WI	E	3,347	\$3.00	2006	36,913	
1557	Brookfield (Town of, not City of)	WI	V				6,390	
1558	Brown Deer	WI	E	3,257	\$7.66	2004	12,061	
1559	Butler	WI	E	3,032	\$5.50	1999	1,846	
1560	Caledonia	WI	E	5,230	\$5.44		24,737	\$1,009,750
1561	Cambridge	WI	D	43,560	\$2.33	2005	1,101	
1562	Chetek	WI	F		\$2.25	2005	2,222	
1563	Chippewa Falls	WI	F		\$3.00	2005	13,738	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1564	Cudahy	WI	E	2,700	\$5.00	2001	18,359	\$1,037,435
1565	De Forest	WI	E	2,900	\$5.00	2005	9,085	
1566	De Pere	WI	E	3,861	\$5.17	2003	20,560	
1567	Delafield	WI	E	1,000	\$2.42	2004	7,100	
1568	Denmark	WI	F		\$4.00	2007	2,148	
1569	Durand	WI	E	3,300	\$3.00	2010	1,968	
1570	Eau Claire	WI	E	3,000	\$6.92	1997	66,623	\$495,558
1571	Elm Grove	WI	E	4,660	\$5.46	2004	5,947	
1572	Fitchburg (city)	WI	E	3,700	\$6.50	2002	25,665	
1573	Fitchburg (rural)	WI	E	3,700	\$3.24	2002	4,000	
1574	Fort Atkinson	WI	E	3,096	\$2.82	2009	12,407	
1575	Fox Point	WI	T	2,988	\$10.56	2009	6,734	
1576	Franklin	WI	E	2,964	\$3.00		35,620	
1577	Garner's Creek Watershed	WI	E	3,623	\$8.00	1998		
1578	Glendale	WI	E	3,200	\$3.50	1996	12,935	
1579	Grand Chute	WI	E	3,283	\$8.32	1997	18,392	
1580	Grantsburg	WI	F		\$1.50	2004	1,397	\$4,000,000
1581	Green Bay	WI	E	3,000	\$5.31	2004	105,809	
1582	Greendale	WI	E	3,941	\$6.50	2004	14,117	
1583	Greenfield	WI	E	3,630	\$4.15	2009	36,903	
1584	Greenville	WI	E	4,510	\$5.42	1999	6,844	
1585	Hales Corners	WI	E	3952	\$0.75	2008	7,730	
1586	Harrison	WI	F		\$8.00	1998	5,800	\$126,214
1587	Hobart	WI	E	4,000	\$6.00	2007	6,254	
1588	Holmen	WI	E	3,550	\$4.08	2007	9,081	
1589	Howard	WI	E	3,301	\$3.67	2005	17,602	
1590	Hudson	WI	E	2,890	\$2.50	2012	12,719	
1591	Janesville	WI	E	3,200	\$3.31	2003	63,479	\$300,700
1592	Jefferson	WI	E	3,220	\$3.33		7,997	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1593	Kaukauna	WI	E	2,944	\$5.50		12,983	
1594	Kenosha	WI	R	2,477	\$1.19	2007	99,738	
1595	Kimberly	WI	E	3,350	\$9.17	2006	6,508	
1596	La Crosse	WI	E	2,841	\$4.49	2011	51,719	
1597	Lake Delton	WI	E	1,685	\$1.50	1993	1,982	
1598	Lancaster	WI	E	2,400	\$2.00	2008	3,868	
1599	Lawrence	WI	V			2012	3,075	
1600	Ledgeview	WI	E	5,800	\$3.33	2010	3,363	\$126,207
1601	Lisbon	WI	E	6,642	\$3.33	2007	1,020	\$201,773
1602	Little Chute	WI	E	2,752	\$8.00	1998	10,514	
1603	Madison	WI	R			2001	236,901	
1604	Manitowoc	WI	E	3,167	\$6.00	2007	34,053	
1605	Marinette	WI	E	3,105		2009	10,943	\$1,400,000
1606	Marshfield	WI	F		\$5.50	2004	19,220	
1607	Mazomanie	WI	E	3,639		2013	1,652	
1608	McFarland	WI	E	3,456	\$7.06	2007	7,937	\$1,500,000
1609	Menasha	WI	E	2,980	\$6.25	2009	17,442	
1610	Menomonee Falls	WI	V				35,704	
1611	Menomonie	WI	E	3,000	\$3.00	2008	14,937	
1612	Middleton	WI	V					
1613	Milton	WI	E	4,081	\$5.24	2009	5,538	
1614	Milwaukee	WI	E	1,610	\$5.38	2006	597,867	\$25,720,339
1615	Monona	WI	F		\$5.00	2004	7,658	
1616	Monroe	WI	E	2,728	\$5.00	2006	10,843	\$688,367
1617	Mount Pleasant	WI	E	3,000		1998	26,601	\$1,115,634
1618	Mukwonago	WI	E	3,000	\$4.17	2006	8,519	
1619	Neenah	WI	E	3,138	\$7.00	2003	25,501	
1620	New Berlin	WI	E	4,000	\$5.00	2001	39,584	
1621	New Glarus	WI	E	3,000	\$4.85	2009	2,111	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1622	New Richmond	WI	E	12,632	\$2.39	2004	8,375	
1623	North Fond du Lac	WI	E	3,123	\$4.67	2007	5,014	
1624	Oak Creek	WI	E	2,964	\$4.67		34,451	
1625	Onalaska (City)	WI	E	3,888	\$4.97	2009	17,736	
1626	Onalaska (Town)	WI	E	3,709	\$2.00	2005	5,600	
1627	Oshkosh	WI	E	2,817	\$8.97	2003	66,083	\$4,189,200
1628	Outagamie County	WI	E	8,000			177,913	
1629	Palmyra	WI	F		\$9.39		2,911	
1630	Pewaukee	WI	E	2010	\$10.00	2010	13,195	
1631	Pleasant Prairie	WI	E	2,000	\$1.25	2006	19,719	
1632	Poynette	WI	E	3,550	\$4.17	2006	2,266	
1633	Prairie du Sac	WI	E	43,560	\$3.62		3,231	
1634	Pulaski	WI	E	4,100			3,682	
1635	Racine	WI	E	2,844	\$6.00	2004	78,860	
1636	Raymond	WI	A		\$0.00	2007	3,516	
1637	Reedsburg	WI	E	3,024	\$3.83	2008	8,594	
1638	Rhineland	WI	E	3,305	\$1.08	2012	7,756	
1639	Rice Lake	WI	F		\$4.89	2011	8,438	
1640	River Falls	WI	F		\$3.14	1998	14,889	
1641	Rochester	WI	E	4000				
1642	Saint Francis	WI	E	2,500	\$4.00	2001	9,365	
1643	Salem	WI	E	3,000	\$5.00	2010	9,871	\$135,000
1644	Scott	WI	E	4,250	\$3.75		3,712	
1645	Sheboygan	WI	E	2,215	\$3.00	2001	50,792	
1646	Shorewood Hills	WI	E	2,941		2007	1,732	
1647	Silver Lake	WI	E	3,870		2008	2,497	
1648	Slinger	WI	E	4,300	\$3.33	2007	5,068	
1649	Somers	WI	E	5,000	\$3.58	2018	9,597	\$250,000
1650	South Milwaukee	WI	E	2,964	\$3.00		21,256	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1651	Stevens Point	WI	E	3,364	\$4.90		26,748	
1652	Stoughton	WI	E	3,105	\$3.75	2012	12,817	
1653	Sturtevant	WI	V			2008	6,941	
1654	Sun Prairie	WI	E	3,468	\$7.50	2003	29,364	
1655	Superior	WI	E	1,907	\$5.90	2004	27,368	
1656	Sussex	WI	E	3,897	\$5.00	2005	10,518	
1657	Two Rivers	WI	E	3,015		2014	11,716	
1658	Union Grove	WI	E	4,000	\$7.24	2009	4,884	
1659	Vernon	WI	E	6,904	\$2.67	2006	7,227	
1660	Verona	WI	E	2,842	\$4.42	2009	10,619	
1661	Washburn	WI	F		\$4.00	2005	2,280	
1662	Watertown	WI	E	2,900	\$6.33	2005	22,824	
1663	Waupun	WI	E	3,204	\$8.00	2005	11,340	
1664	Wauwatosa	WI	E	2,174	\$6.56	1999	47,271	
1665	West Allis	WI	E	1,827	\$6.43	1997	61,254	
1666	West Milwaukee	WI	E	1,956	\$3.00	2003	4,142	
1667	West Salem	WI	E	2,400	\$1.33	2007	4,837	
1668	Weston	WI	E	3,338	\$3.98	2004	14,904	
1669	Whitefish Bay	WI	E	3,045	\$8.33			
1670	Whitewater	WI	E	3,850	\$4.08	2007	14,769	\$335,075
1671	Wind Point	WI	E	3,857	\$8.80	2008	1,717	
1672	Wisconsin Rapids	WI	E	2,620	\$2.33	2008	18,217	
1673	Beckley	WV	D	1,000	\$3.75	2007	17,606	
1674	Fairmont	WV	D	1,000	\$5.50	2006	18,737	
1675	Hurricane	WV	D	1,000	\$1.50	2005	6,359	
1676	Milton	WV	D	1,000	\$4.00		2,498	
1677	Morgantown	WV	D	1,000	\$5.88	2011	31,000	\$23,007,683
1678	Moundsville	WV	D		\$5.00	2010	8,887	
1679	Oak Hill	WV	D		\$5.00	2003	7,713	

No.	Community	State	Type	ERU (ft ²)	Monthly Fee	Year	Pop.	Ann. Rev.
1680	Saint Albans	WV	V			2011	10,973	
1681	Vienna	WV	F		\$4.00	2010	10,686	\$6,063,636

Table A2. Canadian Stormwater Utilities (Data in this table provided by Mike Gregory, M.Sc., P.Eng., P.E.)

No.	Community	Province	Fee Type	ERU (m ²)	Monthly Fee	Year Created	Pop.
1	Calgary	Alberta	F		\$15.05	1994	1,239,200
2	Edmonton	Alberta	E		\$16.26	2003	932,500
3	St. Albert	Alberta	D		\$16.11	2003	65,600
4	Strathcona County	Alberta	F		\$8.50	2007	98,000
5	Lloydminster	Alberta/Saskatchewan	T		\$13.00	2017	31,400
6	Langley Township	British Columbia	AV		\$8.34	2003	117,300
7	Pitt Meadows	British Columbia	AV		\$8.57	2009	18,600
8	Richmond	British Columbia	T		\$13.12	2006	198,300
9	Surrey	British Columbia	T		\$18.58	2002	517,900
10	Victoria	British Columbia	E		\$20.25	2016	85,800
11	West Vancouver	British Columbia	F		\$27.12	2007	42,500
12	White Rock	British Columbia	E		\$38.83	2004	20,000
13	Halifax	Nova Scotia	E		\$5.30	2013	403,100
14	Aurora	Ontario	D		\$5.28	1998	55,400
15	Guelph	Ontario	E	188	\$4.60	2017	131,800
16	Kitchener	Ontario	T		\$13.73	2011	233,200
17	London	Ontario	T		\$15.83	1996	383,800
18	Markham	Ontario	D		\$3.92	2015	329,000
19	Middlesex Centre	Ontario	T		\$14.88	2017	17,300
20	Mississauga	Ontario	E	267	\$8.67	2016	721,600
21	Newmarket	Ontario	S		\$3.33	2017	84,200
22	Orillia	Ontario	T		\$0.88	2017	31,200
23	Ottawa	Ontario	T		\$4.44	2017	934,200
24	Richmond Hill	Ontario	D		\$5.19	2013	195,000
25	St. Thomas	Ontario	D		\$9.28	2000	38,900
26	Vaughan	Ontario	T		\$4.17	2017	306,200

No.	Community	Province	Fee Type	ERU (m ²)	Monthly Fee	Year Created	Pop.
27	Waterloo	Ontario	T		\$11.19	2011	105,000
28	Regina	Saskatchewan	T		\$16.12	2001	215,100
29	Saskatoon	Saskatchewan	E	264	\$4.40	2002	246,400



UNC
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Stormwater Fees and Fee Structures in Georgia as of July 2016

updated June 2017

TABLES OF FEE STRUCTURES AND COMPUTED BILLS

Please click on the following hyperlinks to one of 6 tables in this document.

List of Participating Utilities and Fee Structures

[Table of Participating Utilities](#)

	Fee Structure Details	Computed Monthly-Equivalent Bills
Residential Stormwater	Fee Table 1	Fee Table 2
Nonresidential Stormwater	Fee Table 3	Fee Table 4
Multi-family Stormwater	Fee Table 5	Fee Table 6

These tables compliment a report written at the conclusion of a survey of 2016 stormwater fees and fee structures. Fees and Fee structures are analyzed for 48 local utilities throughout the state. To download the *report* or use the interactive *Fee Dashboard* designed to allow you to compare fees using multiple selection criteria, please visit:

<http://www.efc.sog.unc.edu/project/georgia-stormwater-utility-management>

<http://gefa.georgia.gov/>



Table of Participating Utilities and Fee Structures - FY15-16

#	Utility / Fee Structure	Year of Fees First Collected	County	MS4 Permit	Fee Collection Method	Fee Collection Rate	Credit Program?	Asset Management Program?	Year of Last Fee Change	Median Household Income in 2015	Estimated Service Population	Total Number of Dwelling Units	Single Family Dwelling Units	Multi-family Dwelling Units	Notes and Assumptions About Fees and Calculated Bills
1	Albany	2014	Dougherty	Phase II	Utility Bill	91%	Y	Y	2016	\$28,303	76,946	33,722			
2	Athens-Clarke County	2005	Athens-Clarke	Phase II	Stand-alone Bill	94%	Y	N		\$33,293	116,313	50,963	26,491	22,031	Residential standard case is assumed to be medium single family, medium density residential.
3	Auburn	2011	Barrow	Phase II	Property Tax Bill	95%	N	Y		\$53,466	3,235	2,853	2,439	140	
4	Augusta	2016	Augusta-Richmond	Phase I	Utility Bill	89%	Y	Y		\$37,337	197,182	85,103	56,608	22,379	
5	Austell	2011	Cobb	Phase I	Property Tax Bill	90%	Y	Y	2011	\$45,931	6,944	2,615	2,153	417	
6	Barrow County	2008	Barrow	Phase II	Property Tax Bill	95%	Y	N		\$53,256	35,600	26,700	22,612	1,739	
7	Brookhaven	2014	DeKalb		Property Tax Bill	95%	Y	Y		\$67,916	50,181	23,502	11,861	11,570	
8	Camilla	2010	Mitchell		Utility Bill		Y	N		\$26,841	5,078	2,250	1,688	474	
9	Canton	2006	Cherokee	Phase II	Utility Bill		Y	Y	2014	\$50,071	23,841	9,568	6,226	3,267	
10	Cartersville	2007	Bartow	Phase II	Utility Bill	98%	Y	Y		\$46,909	19,858	8,053	6,074	1,935	
11	Centerville	2016	Houston	Phase II	Utility Bill	95%	Y	Y		\$58,333	9,500	3,206	2,206	663	
12	Chamblee	2006	DeKalb	Phase I	Property Tax Bill		Y	Y		\$50,209	29,000	12,097	4,884	7,124	
13	Chickamauga	2009	Walker		Utility Bill		N	N	2014	\$45,481	3,115	1,431	1,088	263	
14	Clarkston	2009	DeKalb	Phase I	Property Tax Bill	90%	N	N		\$33,151	23,500	4,353	847	3,506	
15	Clayton County	2007	Clayton	Phase I	Utility Bill		Y	N		\$40,314	274,000	104,656	72,217	29,448	Also charges fee via separate stormwater-only bills for some customers.
16	College Park	2007	Fulton	Phase I	Utility Bill	92%	Y	Y	2009	\$26,150	14,019	7,317	2,224	5,093	
17	Columbia County	2000	Columbia	Phase II	Utility Bill	89%	Y	Y	2016	\$68,516	46,344	52,267	44,615	3,912	
18	Conyers	2002	Rockdale	Phase II	Property Tax Bill	99%	Y	N		\$39,423	15,456	6,294	2,755	3,505	
19	Covington	2005	Newton	Phase II	Stand-alone Bill	85%	Y	N		\$32,171	13,342	5,758	3,737	1,904	
20	Decatur	2000	DeKalb	Phase I	Property Tax Bill	98%	Y	Y	2016	\$77,202	19,888	8,586	5,331	3,184	
21	DeKalb County	2004	DeKalb	Phase I	Property Tax Bill	97%	Y	Y		\$50,799	460,639	306,218	192,789	111,635	
22	Doraville	2005	DeKalb	Phase I	Property Tax Bill		Y	Y		\$42,407	10,513	3,568	2,158	1,392	
23	Douglasville-Douglas County	2005	Douglas	Phase II	Utility Bill	99%	Y	Y	2005	\$52,997	96,362	51,775	40,440	8,959	



Table of Participating Utilities and Fee Structures - FY15-16

#	Utility / Fee Structure	Year of Fees First Collected	County	MS4 Permit	Fee Collection Method	Fee Collection Rate	Credit Program?	Asset Management Program?	Year of Last Fee Change	Median Household Income in 2015	Estimated Service Population	Total Number of Dwelling Units	Single Family Dwelling Units	Multi-family Dwelling Units	Notes and Assumptions About Fees and Calculated Bills
24	Duluth	2011	Gwinnett	Phase I	Property Tax Bill	90%	Y	Y		\$56,849	27,821	11,595	7,438	4,075	
25	Dunwoody	2009	DeKalb	Phase II	Property Tax Bill	99%	Y	Y	2016	\$78,063	47,182	21,498	10,378	11,111	Fee increases or decreases with municipal index every year.
26	East Point	2013	Fulton	Phase I	Property Tax Bill	95%	N	N	2016	\$37,646	34,000	17,440	10,006	7,275	
27	Fayette County	2012	Fayette	Phase II	Stand-alone Bill	85%	Y	N		\$79,993	48,656	41,132	36,184	3,838	
28	Fayetteville	2004	Fayette	Phase II	Utility Bill		N	Y		\$63,750	16,323	6,575	5,390	1,161	
29	Garden City	2009	Chatham	Phase I	Utility Bill	95%	Y	Y		\$28,583	8,924	3,924	1,773	1,101	
30	Griffin	1998	Spalding	Phase II	Utility Bill	100%	Y	Y	2015	\$29,119	23,425	10,640	7,412	3,164	
31	Gwinnett County	2006	Gwinnett	Phase I	Property Tax Bill	98%	Y	Y	2009	\$60,329	650,000	296,368	232,169	58,923	
32	Henry County	2006	Henry	Phase II	Property Tax Bill	95%	Y	Y		\$60,269	142,518	77,281	65,952	9,003	
33	Hinesville	2007	Liberty	Phase II	Utility Bill	99%	Y	N	2014	\$44,896	10,300	15,344	10,121	4,005	
34	Holly Springs	2009	Cherokee	Phase II	Property Tax Bill	97%	Y	Y		\$65,189	9,678	3,535	3,167	304	
35	Lawrenceville	2008	Gwinnett	Phase I	Utility Bill	83%	Y	Y		\$42,459	29,364	11,225	7,333	3,500	
36	Peachtree City	2007	Henry	Phase II	Property Tax Bill	94%	N	Y		\$45,263	4,800	9,573	6,043	3,530	
37	Perry	2006	Fayette	Phase II	Stand-alone Bill	92%	Y	Y		\$86,352	34,701	13,477	10,996	2,434	
38	McDonough	2012	Houston	Phase II	Utility Bill	95%	N	N	2016	\$49,140	14,714	5,836	4,066	1,441	
39	Richmond Hill	2016	Bryan	Phase II	Utility Bill		Y	Y		\$64,381	10,334	3,890	2,982		Gravel and compacted soil charged at 90% of the fee for impervious surface.
40	Rockdale County	2006	Rockdale	Phase II	Stand-alone Bill	83%	Y	N		\$52,341	71,301	33,319	26,121	6,189	Separate fee structure for Unincorporated Areas and areas within the Big Haynes Watershed. Unincorporated Areas modeled here.
41	Senoia	2016	Coweta	Phase II	Utility Bill	95%	Y	Y		\$62,443	3,000	1,503	1,347	129	
42	Snellville	2009	Gwinnett	Phase I	Property Tax Bill		Y	N	2016	\$56,654	18,939	6,783	6,204	515	
43	Statesboro	2015	Bulloch		Utility Bill	95%	Y	N		\$22,196	29,000	12,120	4,914	6,939	
44	Sugar Hill	2009	Gwinnett	Phase I	Property Tax Bill	99%	Y	Y		\$67,426	19,688	7,010	6,395	281	
45	Union City	2012	Fulton	Phase I	Utility Bill	90%	Y	N		\$32,324	20,200	9,264	4,823	4,287	
46	Valdosta	2006	Lowndes	Phase II	Utility Bill		Y	Y		\$29,828	56,324	24,359	15,927	8,211	



Table of Participating Utilities and Fee Structures - FY15-16

#	Utility / Fee Structure	Year of Fees First Collected	County	MS4 Permit	Fee Collection Method	Fee Collection Rate	Credit Program?	Asset Management Program?	Year of Last Fee Change	Median Household Income in 2015	Estimated Service Population	Total Number of Dwelling Units	Single Family Dwelling Units	Multi-family Dwelling Units	Notes and Assumptions About Fees and Calculated Bills
47	Warner Robins	2007	Houston	Phase II	Utility Bill		Y	N	2010	\$44,661	71,359	30,835	21,898	7,632	Unique monthly fees for residential customers of different housing class: Attached Residential = \$3.06/month; Manufactured Home = \$1.57/month
48	Woodstock	2006	Cherokee	Phase II	Property Tax Bill	98%	Y	Y		\$68,499	27,823	10,556	8,420	2,128	

Fee Table 1: FY 15-16 Residential Stormwater Fee Structure

Fee Structure Label	Service Population	Billing Period	Size of ERU (Thousands of Square Feet)	Fee Structure Type	Number of Blocks	First Block Maximum (Thousands of Square Feet)
Albany	76,946 ²	Monthly	2.7	Per ERU		
Athens-Clarke County	116,313 ²	Monthly	2.628	Per ERU		
Auburn	3,235 ¹	Annually	2.6	Tiered Flat Fees	9	4.2
Augusta	197,182 ²	Monthly	2.2	Tiered Flat Fees	2	4.4
Austell	6,944 ²	Annually	3.1	None (Flat Fee)		
Barrow County	35,600 ²	Annually	3.478	None (Flat Fee)		
Brookhaven	50,181 ²	Annually	3	None (Flat Fee)		
Camilla	5,078 ²	Monthly	3.36	Per ERU		
Canton	23,841 ²	Monthly	2	Per ERU with a Cap		
Cartersville	19,858 ²	Monthly		Tiered Flat Fees	2	3
Centerville	9,500 ¹	Monthly		None (Flat Fee)		
Chamblee	29,000 ¹	Annually	3	None (Flat Fee)		
Chickamauga	3,115 ²	Monthly		None (Flat Fee)		
Clarkston	23,500 ¹	Annually	1.5	None (Flat Fee)		
Clayton County	274,000 ¹	Monthly	2.95	None (Flat Fee)		
College Park	14,019 ²	Monthly		Tiered Flat Fees	3	1.85
Columbia County	46,344 ²	Semi-annually	0.1	Per ERU		
Conyers	15,456 ²	Annually		None (Flat Fee)		
Covington	13,342 ¹	Monthly	2.6	Per ERU		
Decatur	19,888 ²	Semi-annually	2.9	None (Flat Fee)		
DeKalb County	460,639 ²	Annually	3	None (Flat Fee)		
Doraville	10,513 ²	Annually	3	None (Flat Fee)		
Douglasville-Douglas County	96,362 ²	Monthly	2.543	Per ERU		
Duluth	27,821 ²	Annually	2.654	None (Flat Fee)		
Dunwoody	47,182 ²	Annually		None (Flat Fee)		
East Point	34,000 ¹	Monthly	3.2	Per ERU		
Fayette County	48,656 ²	Monthly	1	Per ERU		
Fayetteville	16,323 ²	Monthly	3.8	None (Flat Fee)		
Garden City	8,924 ²	Monthly	3	None (Flat Fee)		
Griffin	23,425 ²	Monthly		Tiered Flat Fees	2	1.6

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Fee Table 1: FY 15-16 Residential Stormwater Fee Structure

Fee Structure Label	Service Population	Billing Period	Size of ERU (Thousands of Square Feet)	Fee Structure Type	Number of Blocks	First Block Maximum (Thousands of Square Feet)
Gwinnett County	650,000 ¹	Annually	0.1	Per ERU		
Henry County	142,518 ²	Annually	4.78	None (Flat Fee)		
Hinesville	10,300 ¹	Monthly	2.635	Tiered Flat Fees	3	1.884
Holly Springs	9,678 ²	Annually	2.7	None (Flat Fee)		
Lawrenceville	29,364 ²	Monthly		None (Flat Fee)		
McDonough	4,800 ¹	Annually	3	None (Flat Fee)		
Peachtree City	34,701 ²	Semi-annually	4.6	Tiered Flat Fees	3	3.81
Perry	14,714 ²	Monthly	3.3	None (Flat Fee)		
Richmond Hill	10,334 ²	Monthly	3.3	None (Flat Fee)		
Rockdale County	71,301 ¹	Monthly	3.42	None (Flat Fee)		
Senoia	3,000 ¹	Monthly	4.4	Per ERU		
Snellville	18,939 ²	Annually		Tiered Flat Fees	3	2.85
Statesboro	29,000 ¹	Monthly	3.2	None (Flat Fee)		
Sugar Hill	19,688 ²	Annually		Per ERU		
Union City	20,200 ²	Monthly	Varies Per Tier	None (Flat Fee)		
Valdosta	56,324 ²	Monthly	3	Tiered Flat Fees	3	1.849
Warner Robins	71,359 ²	Monthly		None (Flat Fee)		
Woodstock	27,823 ¹	Annually		None (Flat Fee)		

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Compare rates with caution. Level of service varies by utility.

Fee Table 2: FY 15-16 Monthly-Equivalent Residential Stormwater Bills at Various Impervious Surface Areas

Utility / Fee Structure	Service Population	Total Area (sq. mi)	Zero sq ft	3,000 sq ft	4,000 sq ft	5,000 sq ft	7,000 sq ft	10,000 sq ft	15,000 sq ft
Albany	76,946 ²	55.83	\$0.00	\$5.28	\$7.04	\$8.80	\$12.31	\$17.59	\$26.39
Athens-Clarke County	116,313 ²	121.04	\$0.00	\$4.00	\$5.33	\$6.66	\$9.32	\$13.32	\$19.98
Auburn	3,235 ¹	6.64	\$2.50	\$2.50	\$2.50	\$4.17	\$5.83	\$5.83	\$8.33
Augusta	197,182 ²	328.59	\$6.40	\$6.40	\$6.40	\$19.20	\$19.20	\$19.20	\$19.20
Austell	6,944 ²	6.02	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Barrow County	35,600 ²	132.80	\$1.50	\$1.50	\$1.50	\$1.50	\$1.50	\$1.50	\$1.50
Brookhaven	50,181 ²	11.60	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Camilla	5,078 ²	6.61	\$0.00	\$3.57	\$4.76	\$5.95	\$8.33	\$11.90	\$17.86
Canton	23,841 ²	18.79	\$0.00	\$3.98	\$5.30	\$5.30	\$5.30	\$5.30	\$5.30
Cartersville	19,858 ²	29.34	\$3.75	\$3.75	\$5.25	\$5.25	\$5.25	\$5.25	\$5.25
Centerville	9,500 ¹	3.99	\$4.25	\$4.25	\$4.25	\$4.25	\$4.25	\$4.25	\$4.25
Chamblee	29,000 ¹	4.79	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Chickamauga	3,115 ²	2.58	\$3.16	\$3.16	\$3.16	\$3.16	\$3.16	\$3.16	\$3.16
Clarkston	23,500 ¹	1.09	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Clayton County	274,000 ¹	110.97	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75
College Park	14,019 ²	10.09	\$1.50	\$3.00	\$3.00	\$3.00	\$4.50	\$4.50	\$4.50
Columbia County	46,344 ²	257.05	\$0.00	\$4.43	\$5.90	\$7.38	\$10.33	\$14.75	\$22.13
Conyers	15,456 ²	11.79	\$3.33	\$3.33	\$3.33	\$3.33	\$3.33	\$3.33	\$3.33
Covington	13,342 ¹	16.02	\$0.00	\$3.46	\$4.62	\$5.77	\$8.08	\$11.54	\$17.31
Decatur	19,888 ²	4.32	\$8.33	\$8.33	\$8.33	\$8.33	\$8.33	\$8.33	\$8.33
DeKalb County	460,639 ²	169.03	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Doraville	10,513 ²	4.02	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Douglasville-Douglas County	96,362 ²	182.46	\$0.00	\$4.72	\$6.29	\$7.86	\$11.01	\$15.73	\$23.59
Duluth	27,821 ²	10.29	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Dunwoody	47,182 ²	13.20	\$5.93	\$5.93	\$5.93	\$5.93	\$5.93	\$5.93	\$5.93
East Point	34,000 ¹	14.69	\$0.00	\$8.58	\$11.44	\$14.30	\$20.02	\$28.59	\$42.89
Fayette County	48,656 ²	144.77	\$0.00	\$1.05	\$1.40	\$1.75	\$2.45	\$3.50	\$5.25
Fayetteville	16,323 ²	10.98	\$4.37	\$4.37	\$4.37	\$4.37	\$4.37	\$4.37	\$4.37
Garden City	8,924 ²	14.49	\$4.75	\$4.75	\$4.75	\$4.75	\$4.75	\$4.75	\$4.75
Griffin	23,425 ²	14.07	\$3.22	\$4.85	\$4.85	\$4.85	\$4.85	\$4.85	\$4.85
Gwinnett County	650,000 ¹	336.45	\$0.00	\$6.15	\$8.20	\$10.25	\$14.35	\$20.50	\$30.75

Service Population is approximated and may not be actual.
Source: 1=Utility Reported 2=Census Population in 2015

Georgia Environmental Finance Authority
and Environmental Finance Center

Compare rates with caution. Level of service varies by utility.

Fee Table 2: FY 15-16 Monthly-Equivalent Residential Stormwater Bills at Various Impervious Surface Areas

Utility / Fee Structure	Service Population	Total Area (sq. mi)	Zero sq ft	3,000 sq ft	4,000 sq ft	5,000 sq ft	7,000 sq ft	10,000 sq ft	15,000 sq ft
Henry County	142,518 ²	280.40	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32
Hinesville	10,300 ¹	21.16	\$3.52	\$5.86	\$9.96	\$9.96	\$9.96	\$9.96	\$9.96
Holly Springs	9,678 ²	6.73	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Lawrenceville	29,364 ²	13.51	\$4.20	\$4.20	\$4.20	\$4.20	\$4.20	\$4.20	\$4.20
McDonough	4,800 ¹	26.43	\$3.30	\$3.30	\$3.30	\$3.30	\$3.30	\$3.30	\$3.30
Peachtree City	34,701 ²	12.80	\$0.45	\$0.45	\$0.66	\$0.66	\$1.00	\$1.00	\$1.00
Perry	14,714 ²	25.45	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Richmond Hill	10,334 ²	14.65	\$4.75	\$4.75	\$4.75	\$4.75	\$4.75	\$4.75	\$4.75
Rockdale County	71,301 ¹	119.74	\$3.39	\$3.39	\$3.39	\$3.39	\$3.39	\$3.39	\$3.39
Senoia	3,000 ¹	5.87	\$0.00	\$3.41	\$4.55	\$5.68	\$7.95	\$11.36	\$17.05
Snellville	18,939 ²	10.59	\$3.58	\$4.78	\$4.78	\$7.17	\$7.17	\$7.17	\$7.17
Statesboro	29,000 ¹	14.38	\$3.95	\$3.95	\$3.95	\$3.95	\$3.95	\$3.95	\$3.95
Sugar Hill	19,688 ²	10.64	\$0.00	\$3.00	\$4.50	\$6.00	\$9.00	\$13.50	\$21.00
Union City	20,200 ²	19.78	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Valdosta	56,324 ²	36.38	\$1.25	\$2.50	\$2.50	\$2.50	\$4.25	\$4.25	\$4.25
Warner Robins	71,359 ²	36.42	\$4.25	\$4.25	\$4.25	\$4.25	\$4.25	\$4.25	\$4.25
Woodstock	27,823 ¹	11.82	\$4.20	\$4.20	\$4.20	\$4.20	\$4.20	\$4.20	\$4.20

Service Population is approximated and may not be actual.
Source: 1=Utility Reported 2=Census Population in 2015

Fee Table 3: FY 15-16 Nonresidential Stormwater Fee Structure

Fee Structure Label	Service Population	Billing Period	Size of ERU (Thousands of Square Feet)	Base Charge	Thousands of Square Feet Included in Base Charge	Nonresidential Fee Structure	Number of Blocks	First Block Max (Thousands of Square Feet)
Albany	76,946 ²	Monthly	2.7			Per ERU		
Athens-Clarke County	116,313 ²	Monthly	2.628			Per ERU		
Auburn	3,235 ¹	Annually	2.6			Tiered Flat Fees	9	4.2
Augusta	197,182 ²	Monthly	2.2			Per ERU		
Austell	6,944 ²	Annually	3.1			Per ERU		
Barrow County	35,600 ²	Annually	3.478			Per ERU		
Brookhaven	50,181 ²	Annually	3			Per ERU		
Camilla	5,078 ²	Monthly	3.36			Per ERU		
Canton	23,841 ²	Monthly	2			Per ERU		
Cartersville	19,858 ²	Monthly	3			Per ERU		
Centerville	9,500 ¹	Monthly	3.9			Per ERU		
Chamblee	29,000 ¹	Annually	3			Per ERU		
Chickamauga	3,115 ²	Monthly	0			None (Flat Fee)		
Clarkston	23,500 ¹	Annually	1.5			Per ERU		
Clayton County	274,000 ¹	Monthly	2.95			Per ERU		
College Park	14,019 ²	Monthly	3.523			Per ERU		
Columbia County	46,344 ²	Semi-annually	0.1			Per ERU		
Conyers	15,456 ²	Annually	43.56			Per ERU		
Covington	13,342 ¹	Monthly	2.6			Per ERU		
Decatur	19,888 ²	Semi-annually	2.9			Per ERU		
DeKalb County	460,639 ²	Annually	3			Per ERU		
Doraville	10,513 ²	Annually	3			Per ERU		
Douglasville-Douglas County	96,362 ²	Monthly	2.543			Per ERU		
Duluth	27,821 ²	Annually	2.654			Per ERU		
Dunwoody	47,182 ²	Annually	3			Per ERU		
East Point	34,000 ¹	Monthly	3.2			Per ERU		
Fayette County	48,656 ²	Monthly	1			Per ERU		
Fayetteville	16,323 ²	Monthly	3.8			Per ERU		
Garden City	8,924 ²	Monthly	3			Per ERU		
Griffin	23,425 ²	Monthly	2.2			Per ERU		

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Fee Table 3: FY 15-16 Nonresidential Stormwater Fee Structure

Fee Structure Label	Service Population	Billing Period	Size of ERU (Thousands of Square Feet)	Base Charge	Thousands of Square Feet Included in Base Charge	Nonresidential Fee Structure	Number of Blocks	First Block Max (Thousands of Square Feet)
Gwinnett County	650,000 ¹	Annually	0.1			Per ERU		
Henry County	142,518 ²	Annually	4.78			Per ERU		
Hinesville	10,300 ¹	Monthly	2.635			Per ERU		
Holly Springs	9,678 ²	Annually	2.7			Per ERU		
Lawrenceville	29,364 ²	Monthly	0			None (Flat Fee)		
McDonough	4,800 ¹	Annually	3		1.00	Per ERU		
Peachtree City	34,701 ²	Monthly	4.6	\$3.95	0.50	Per ERU		
Perry	14,714 ²	Monthly	3.3		0.50	Per ERU		
Richmond Hill	10,334 ²	Monthly	3.3			Per ERU		
Rockdale County	71,301 ¹	Monthly	3.42			Per ERU		
Senoia	3,000 ¹	Monthly	4.4			Per ERU		
Snellville	18,939 ²	Annually	3.8			Per ERU		
Statesboro	29,000 ¹	Monthly	3.2			Per ERU		
Sugar Hill	19,688 ²	Annually	1		1.00	Per ERU		
Union City	20,200 ²	Monthly	2.8			Per ERU		
Valdosta	56,324 ²	Monthly	3.704			Per ERU		
Warner Robins	71,359 ²	Monthly	3			Per ERU		
Woodstock	27,823 ¹	Annually	2.7			Per ERU		

Service Population is approximated and may not be actual.
 Source: 1=Utility Reported, 2=Census Population in 2015

Compare rates with caution. Level of service varies by utility.

Fee Table 4: FY 15-16 Monthly-Equivalent Nonresidential Stormwater Fees Bills at Various Impervious Service Areas

Utility / Fee Structure	Service Population	Total Area (sq. mi)	3,000 sq ft	5,000 sq ft	7,000 sq ft	10,000 sq ft	20,000 sq ft	30,000 sq ft	40,000 sq ft	50,000 sq ft	75,000 sq ft	100,000 sq ft	250,000 sq ft	500,000 sq ft	1,000,000 sq ft	2,000,000 sq ft	3,000,000 sq ft
Albany	76,946 ²	55.83	\$5.28	\$8.80	\$12.31	\$17.59	\$35.19	\$52.78	\$70.37	\$87.96	\$131.94	\$175.93	\$439.81	\$879.63	\$1,759.26	\$3,518.52	\$5,277.78
Athens-Clarke County	116,313 ²	121.04	\$4.58	\$7.64	\$10.69	\$15.27	\$30.54	\$45.81	\$61.08	\$76.35	\$114.53	\$152.70	\$381.75	\$763.51	\$1,527.02	\$3,054.03	\$4,581.05
Auburn	3,235 ¹	6.64	\$2.50	\$4.17	\$5.83	\$5.83	\$16.67	\$25.00	\$33.33	\$33.33	\$58.33	\$58.33	\$83.33	\$83.33	\$83.33	\$83.33	\$83.33
Augusta	197,182 ²	328.59	\$8.73	\$14.55	\$20.36	\$29.09	\$58.18	\$87.27	\$116.36	\$145.45	\$218.18	\$290.91	\$727.27	\$1,454.55	\$2,909.09	\$5,818.18	\$8,727.27
Austell	6,944 ²	6.02	\$4.84	\$8.06	\$11.29	\$16.13	\$32.26	\$48.39	\$64.52	\$80.65	\$120.97	\$161.29	\$403.23	\$806.45	\$1,612.90	\$3,225.81	\$4,838.71
Barrow County	35,600 ²	132.80	\$1.29	\$2.16	\$3.02	\$4.31	\$8.63	\$12.94	\$17.25	\$21.56	\$32.35	\$43.13	\$107.82	\$215.64	\$431.28	\$862.56	\$1,293.85
Brookhaven	50,181 ²	11.60	\$5.00	\$8.33	\$11.67	\$16.67	\$33.33	\$50.00	\$66.67	\$83.33	\$125.00	\$166.67	\$416.67	\$833.33	\$1,666.67	\$3,333.33	\$5,000.00
Camilla	5,078 ²	6.61	\$3.57	\$5.95	\$8.33	\$11.90	\$23.81	\$35.71	\$47.62	\$59.52	\$89.29	\$119.05	\$297.62	\$595.24	\$1,190.48	\$2,380.95	\$3,571.43
Canton	23,841 ²	18.79	\$3.98	\$6.63	\$9.28	\$13.25	\$26.50	\$39.75	\$53.00	\$66.25	\$99.38	\$132.50	\$331.25	\$662.50	\$1,325.00	\$2,650.00	\$3,975.00
Cartersville	19,858 ²	29.34	\$3.75	\$6.25	\$8.75	\$12.50	\$25.00	\$37.50	\$50.00	\$62.50	\$93.75	\$125.00	\$312.50	\$625.00	\$1,250.00	\$2,500.00	\$3,750.00
Centerville	9,500 ¹	3.99	\$3.27	\$5.45	\$7.63	\$10.90	\$21.79	\$32.69	\$43.59	\$54.49	\$81.73	\$108.97	\$272.44	\$544.87	\$1,089.74	\$2,179.49	\$3,269.23
Chamblee	29,000 ¹	4.79	\$4.00	\$6.67	\$9.33	\$13.33	\$26.67	\$40.00	\$53.33	\$66.67	\$100.00	\$133.33	\$333.33	\$666.67	\$1,333.33	\$2,666.67	\$4,000.00
Chickamauga	3,115 ²	2.58	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74	\$4.74
Clarkston	23,500 ¹	1.09	\$8.00	\$13.33	\$18.67	\$26.67	\$53.33	\$80.00	\$106.67	\$133.33	\$200.00	\$266.67	\$666.67	\$1,333.33	\$2,666.67	\$5,333.33	\$8,000.00
Clayton County	274,000 ¹	110.97	\$3.81	\$6.36	\$8.90	\$12.71	\$25.42	\$38.14	\$50.85	\$63.56	\$95.34	\$127.12	\$317.80	\$635.59	\$1,271.19	\$2,542.37	\$3,813.56
College Park	14,019 ²	10.09	\$2.55	\$4.26	\$5.96	\$8.52	\$17.03	\$25.55	\$34.06	\$42.58	\$63.87	\$85.15	\$212.89	\$425.77	\$851.55	\$1,703.09	\$2,554.64
Columbia County	46,344 ²	257.05	\$4.43	\$7.38	\$10.33	\$14.75	\$29.50	\$44.25	\$59.00	\$73.75	\$110.63	\$147.50	\$368.75	\$737.50	\$1,475.00	\$2,950.00	\$4,425.00
Conyers	15,456 ²	11.79	\$1.15	\$1.92	\$2.68	\$3.83	\$7.66	\$11.50	\$15.33	\$19.16	\$28.74	\$38.32	\$95.80	\$191.60	\$383.21	\$766.41	\$1,149.62
Covington	13,342 ¹	16.02	\$3.46	\$5.77	\$8.08	\$11.54	\$23.08	\$34.62	\$46.15	\$57.69	\$86.54	\$115.38	\$288.46	\$576.92	\$1,153.85	\$2,307.69	\$3,461.54
Decatur	19,888 ²	4.32	\$8.62	\$14.37	\$20.11	\$28.74	\$57.47	\$86.21	\$114.94	\$143.68	\$215.52	\$287.36	\$718.39	\$1,436.78	\$2,873.56	\$5,747.13	\$8,620.69
DeKalb County	460,639 ²	169.03	\$4.00	\$6.67	\$9.33	\$13.33	\$26.67	\$40.00	\$53.33	\$66.67	\$100.00	\$133.33	\$333.33	\$666.67	\$1,333.33	\$2,666.67	\$4,000.00
Doraville	10,513 ²	4.02	\$4.00	\$6.67	\$9.33	\$13.33	\$26.67	\$40.00	\$53.33	\$66.67	\$100.00	\$133.33	\$333.33	\$666.67	\$1,333.33	\$2,666.67	\$4,000.00
Douglasville-Douglas County	96,362 ²	182.46	\$4.72	\$7.86	\$11.01	\$15.73	\$31.46	\$47.19	\$62.92	\$78.65	\$117.97	\$157.29	\$393.24	\$786.47	\$1,572.95	\$3,145.89	\$4,718.84
Duluth	27,821 ²	10.29	\$3.39	\$5.65	\$7.91	\$11.30	\$22.61	\$33.91	\$45.21	\$56.52	\$84.78	\$113.04	\$282.59	\$565.18	\$1,130.37	\$2,260.74	\$3,391.11
Dunwoody	47,182 ²	13.20	\$5.93	\$9.88	\$13.84	\$19.77	\$39.53	\$59.30	\$79.07	\$98.83	\$148.25	\$197.67	\$494.17	\$988.33	\$1,976.67	\$3,953.33	\$5,930.00
East Point	34,000 ¹	14.69	\$8.58	\$14.30	\$20.02	\$28.59	\$57.19	\$85.78	\$114.38	\$142.97	\$214.45	\$285.94	\$714.84	\$1,429.69	\$2,859.38	\$5,718.75	\$8,578.13
Fayette County	48,656 ²	144.77	\$1.05	\$1.75	\$2.45	\$3.50	\$7.00	\$10.50	\$14.00	\$17.50	\$26.25	\$35.00	\$87.50	\$175.00	\$350.00	\$700.00	\$1,050.00
Fayetteville	16,323 ²	10.98	\$3.45	\$5.75	\$8.05	\$11.50	\$23.00	\$34.50	\$46.00	\$57.50	\$86.25	\$115.00	\$287.50	\$575.00	\$1,150.00	\$2,300.00	\$3,450.00
Garden City	8,924 ²	14.49	\$4.75	\$7.92	\$11.08	\$15.83	\$31.67	\$47.50	\$63.33	\$79.17	\$118.75	\$158.33	\$395.83	\$791.67	\$1,583.33	\$3,166.67	\$4,750.00
Griffin	23,425 ²	14.07	\$6.61	\$11.02	\$15.43	\$22.05	\$44.09	\$66.14	\$88.18	\$110.23	\$165.34	\$220.45	\$551.14	\$1,102.27	\$2,204.55	\$4,409.09	\$6,613.64
Gwinnett County	650,000 ¹	336.45	\$6.15	\$10.25	\$14.35	\$20.50	\$41.00	\$61.50	\$82.00	\$102.50	\$153.75	\$205.00	\$512.50	\$1,025.00	\$2,050.00	\$4,100.00	\$6,150.00
Henry County	142,518 ²	280.40	\$2.08	\$3.47	\$4.86	\$6.94	\$13.89	\$20.83	\$27.78	\$34.72	\$52.08	\$69.44	\$173.60	\$347.19	\$694.39	\$1,388.77	\$2,083.16
Hinesville	10,300 ¹	21.16	\$6.67	\$11.12	\$15.57	\$22.24	\$44.48	\$66.72	\$88.96	\$111.20	\$166.79	\$222.39	\$555.98	\$1,111.95	\$2,223.91	\$4,447.82	\$6,671.73
Holly Springs	9,678 ²	6.73	\$4.44	\$7.41	\$10.37	\$14.81	\$29.63	\$44.44	\$59.26	\$74.07	\$111.11	\$148.15	\$370.37	\$740.74	\$1,481.48	\$2,962.96	\$4,444.44

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Compare rates with caution. Level of service varies by utility.

Fee Table 4: FY 15-16 Monthly-Equivalent Nonresidential Stormwater Fees Bills at Various Impervious Service Areas

Utility / Fee Structure	Service Population	Total Area (sq. mi)	3,000 sq ft	5,000 sq ft	7,000 sq ft	10,000 sq ft	20,000 sq ft	30,000 sq ft	40,000 sq ft	50,000 sq ft	75,000 sq ft	100,000 sq ft	250,000 sq ft	500,000 sq ft	1,000,000 sq ft	2,000,000 sq ft	3,000,000 sq ft
Lawrenceville	29,364 ²	13.51	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70
McDonough	4,800 ¹	26.43	\$3.30	\$5.50	\$7.70	\$11.00	\$22.00	\$33.00	\$44.00	\$55.00	\$82.50	\$110.00	\$275.00	\$550.00	\$1,100.00	\$2,200.00	\$3,300.00
Peachtree City	34,701 ²	12.80	\$5.67	\$7.38	\$9.10	\$11.68	\$20.27	\$28.85	\$37.44	\$46.03	\$67.49	\$88.96	\$217.77	\$432.44	\$861.79	\$1,720.48	\$2,579.18
Perry	14,714 ²	25.45	\$2.27	\$4.09	\$5.91	\$8.64	\$17.73	\$26.82	\$35.91	\$45.00	\$67.73	\$90.45	\$226.82	\$454.09	\$908.64	\$1,817.73	\$2,726.82
Richmond Hill	10,334 ²	14.65	\$4.32	\$7.20	\$10.08	\$14.39	\$28.79	\$43.18	\$57.58	\$71.97	\$107.95	\$143.94	\$359.85	\$719.70	\$1,439.39	\$2,878.79	\$4,318.18
Rockdale County	71,301 ¹	119.74	\$2.97	\$4.96	\$6.94	\$9.91	\$19.82	\$29.74	\$39.65	\$49.56	\$74.34	\$99.12	\$247.81	\$495.61	\$991.23	\$1,982.46	\$2,973.68
Senoia	3,000 ¹	5.87	\$3.41	\$5.68	\$7.95	\$11.36	\$22.73	\$34.09	\$45.45	\$56.82	\$85.23	\$113.64	\$284.09	\$568.18	\$1,136.36	\$2,272.73	\$3,409.09
Snellville	18,939 ²	10.59	\$3.67	\$6.12	\$8.57	\$12.24	\$24.47	\$36.71	\$48.95	\$61.18	\$91.78	\$122.37	\$305.92	\$611.84	\$1,223.68	\$2,447.37	\$3,671.05
Statesboro	29,000 ¹	14.38	\$3.70	\$6.17	\$8.64	\$12.34	\$24.69	\$37.03	\$49.38	\$61.72	\$92.58	\$123.44	\$308.59	\$617.19	\$1,234.38	\$2,468.75	\$3,703.13
Sugar Hill	19,688 ²	10.64	\$3.00	\$6.00	\$9.00	\$13.50	\$28.50	\$43.50	\$58.50	\$73.50	\$111.00	\$148.50	\$373.50	\$748.50	\$1,498.50	\$2,998.50	\$4,498.50
Union City	20,200 ²	19.78	\$4.29	\$7.14	\$10.00	\$14.29	\$28.57	\$42.86	\$57.14	\$71.43	\$107.14	\$142.86	\$357.14	\$714.29	\$1,428.57	\$2,857.14	\$4,285.71
Valdosta	56,324 ²	36.38	\$2.02	\$3.37	\$4.72	\$6.75	\$13.50	\$20.25	\$27.00	\$33.75	\$50.62	\$67.49	\$168.74	\$337.47	\$674.95	\$1,349.89	\$2,024.84
Warner Robins	71,359 ²	36.42	\$4.25	\$7.08	\$9.92	\$14.17	\$28.33	\$42.50	\$56.67	\$70.83	\$106.25	\$141.67	\$354.17	\$708.33	\$1,416.67	\$2,833.33	\$4,250.00
Woodstock	27,823 ¹	11.82	\$4.67	\$7.78	\$10.89	\$15.56	\$31.11	\$46.67	\$62.22	\$77.78	\$116.67	\$155.56	\$388.89	\$777.78	\$1,555.56	\$3,111.11	\$4,666.67

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Fee Table 5: Multi-family Stormwater Fee Structure

Fee Structure Label	Service Population (Approx.)	Unique Multi-Family Fee Structure	Billing Period	Stormwater Fee Structure	Number of Blocks	First Block Maximum (Monthly Gallons)	Notes
Albany	76,946 ²		Monthly	Per ERU			
Athens-Clarke County	116,313 ²	Y	Monthly	Per ERU			
Auburn	3,235 ¹		Annually	Tiered Flat Fees	9	4.2	
Augusta	197,182 ²		Monthly	Tiered Flat Fees	2	4.4	
Austell	6,944 ²		Annually	None (Flat Fee)			
Barrow County	35,600 ²		Annually	None (Flat Fee)			
Brookhaven	50,181 ²	Y	Annually	Per Unit			Each unit is 0.5 ERU.
Camilla	5,078 ²		Monthly	Per ERU			
Canton	23,841 ²		Monthly	Per ERU with a Cap			
Cartersville	19,858 ²		Monthly	Tiered Flat Fees	2	3	
Centerville	9,500 ¹		Monthly	None (Flat Fee)			
Chamblee	29,000 ¹	Y	Annually	Per Unit			Each unit is 0.5 ERU.
Chickamauga	3,115 ²		Monthly	None (Flat Fee)			
Clarkston	23,500 ¹		Annually	None (Flat Fee)			
Clayton County	274,000 ¹		Monthly	None (Flat Fee)			
College Park	14,019 ²	Y	Monthly	Decreasing Block			Up to 4 units per building charged \$1.50 per unit, 5 or more charged \$1.20 per unit.
Columbia County	46,344 ²		Semi-annually	Per ERU			
Conyers	15,456 ²	Y	Annually	Per ERU			
Covington	13,342 ¹		Monthly	Per ERU			
Decatur	19,888 ²		Semi-annually	None (Flat Fee)			
DeKalb County	460,639 ²	Y	Annually	Per Unit			Each unit is 0.5 ERU.
Doraville	10,513 ²	Y	Annually	Per Unit			
Douglasville-Douglas County	96,362 ²		Monthly	Per ERU			
Duluth	27,821 ²	Y	Annually	Per Unit			Each unit is 0.4 ERU.
Dunwoody	47,182 ²	Y	Annually	Per Unit			Each unit is 0.7 ERU.
East Point	34,000 ¹		Monthly	Per ERU			
Fayette County	48,656 ²		Monthly	Per ERU			
Fayetteville	16,323 ²		Monthly	None (Flat Fee)			
Garden City	8,924 ²	Y	Monthly	Per ERU			
Griffin	23,425 ²		Monthly	Tiered Flat Fees	2	1.6	
Gwinnett County	650,000 ¹		Annually	Per ERU			
Henry County	142,518 ²		Annually	None (Flat Fee)			

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Fee Table 5: Multi-family Stormwater Fee Structure

Fee Structure Label	Service Population (Approx.)	Unique Multi-Family Fee Structure	Billing Period	Stormwater Fee Structure	Number of Blocks	First Block Maximum (Monthly Gallons)	Notes
Hinesville	10,300 ¹		Monthly	Tiered Flat Fees	3	1,884	
Holly Springs	9,678 ²		Annually	None (Flat Fee)			
Lawrenceville	29,364 ²		Monthly	None (Flat Fee)			
McDonough	4,800 ¹		Annually	None (Flat Fee)			
Peachtree City	34,701 ²	Y	Monthly	Per Unit			Each unit is 0.47 ERU.
Perry	14,714 ²	Y	Monthly	Per Unit			Each unit is 0.72 ERU.
Richmond Hill	10,334 ²		Monthly	None (Flat Fee)			
Rockdale County	71,301 ¹	Y	Monthly	Per ERU			
Senoia	3,000 ¹		Monthly	Per ERU			
Snellville	18,939 ²		Annually	Tiered Flat Fees	3	2,85	
Statesboro	29,000 ¹		Monthly	None (Flat Fee)			
Sugar Hill	19,688 ²		Annually	Per ERU			
Union City	20,200 ²		Monthly	None (Flat Fee)			
Valdosta	56,324 ²	Y	Monthly	Decreasing Block			4 or less dwellings is \$1.25 per unit, 5 or more is \$1.00
Warner Robins	71,359 ²	Y	Monthly	Per Unit			Each unit is 0.72 ERU.
Woodstock	27,823 ¹		Annually	None (Flat Fee)			

Service Population is approximated and may not be actual.
 Source: 1=Utility Reported, 2=Census Population in 2015

Compare rates with caution. Level of service varies by utility.

Fee Table 6: FY 15-16 Monthly-Equivalent Multi-family Residential Stormwater Fees at Number of Units Per Building or Various Impervious Surface Areas

Utility / Fee Structure	Service Population	Total Area (sq. mi)	2 Units	4 Units	6 Units	8 Units	10 Units	15 Units	20 Units	25 Units	50 Units	100 Units
			3,000 sq ft	6,000 sq ft	9,000 sq ft	12,000 sq ft	15,000 sq ft	22,500 sq ft	30,000 sq ft	37,500 sq ft	75,000 sq ft	150,000 sq ft
Albany	76,946 ²	55.83										
Athens-Clarke County	116,313 ²	121.04	\$4.20	\$8.40	\$12.60	\$16.80	\$21.00	\$31.50	\$42.00	\$52.50	\$105.00	\$210.00
Auburn	3,235 ¹	6.64										
Augusta	197,182 ²	328.59										
Austell	6,944 ²	6.02										
Barrow County	35,600 ²	132.80										
Brookhaven	50,181 ²	11.60	\$5.00	\$10.00	\$15.00	\$20.00	\$25.00	\$37.50	\$50.00	\$62.50	\$125.00	\$250.00
Camilla	5,078 ²	6.61										
Canton	23,841 ²	18.79										
Cartersville	19,858 ²	29.34										
Centerville	9,500 ¹	3.99										
Chamblee	29,000 ¹	4.79	\$4.00	\$8.00	\$12.00	\$16.00	\$20.00	\$30.00	\$40.00	\$50.00	\$100.00	\$200.00
Chickamauga	3,115 ²	2.58										
Clarkston	23,500 ¹	1.09										
Clayton County	274,000 ¹	110.97										
College Park	14,019 ²	10.09	\$3.00	\$6.00	\$8.40	\$10.80	\$13.20	\$19.20	\$25.20	\$31.20	\$61.20	\$121.20
Columbia County	46,344 ²	257.05										
Conyers	15,456 ²	11.79	\$0.77	\$1.54	\$2.32	\$3.09	\$3.86	\$5.79	\$7.72	\$9.65	\$19.29	\$38.58
Covington	13,342 ¹	16.02										
Decatur	19,888 ²	4.32										
DeKalb County	460,639 ²	169.03	\$4.00	\$8.00	\$12.00	\$16.00	\$20.00	\$30.00	\$40.00	\$50.00	\$100.00	\$200.00
Doraville	10,513 ²	4.02	\$4.00	\$8.00	\$12.00	\$16.00	\$20.00	\$30.00	\$40.00	\$50.00	\$100.00	\$200.00
Douglasville-Douglas County	96,362 ²	182.46										
Duluth	27,821 ²	10.29	\$2.40	\$4.80	\$7.20	\$9.60	\$12.00	\$18.00	\$24.00	\$30.00	\$60.00	\$120.00
Dunwoody	47,182 ²	13.20	\$8.30	\$16.60	\$24.91	\$33.21	\$41.51	\$62.27	\$83.02	\$103.78	\$207.55	\$415.10
East Point	34,000 ¹	14.69										
Fayette County	48,656 ²	144.77										
Fayetteville	16,323 ²	10.98										
Garden City	8,924 ²	14.49	\$4.75	\$9.50	\$14.25	\$19.00	\$23.75	\$35.63	\$47.50	\$59.38	\$118.75	\$237.50

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

Compare rates with caution. Level of service varies by utility.

Fee Table 6: FY 15-16 Monthly-Equivalent Multi-family Residential Stormwater Fees at Number of Units Per Building or Various Impervious Surface Areas

Utility / Fee Structure	Service Population	Total Area (sq. mi)	2 Units	4 Units	6 Units	8 Units	10 Units	15 Units	20 Units	25 Units	50 Units	100 Units
			3,000 sq ft	6,000 sq ft	9,000 sq ft	12,000 sq ft	15,000 sq ft	22,500 sq ft	30,000 sq ft	37,500 sq ft	75,000 sq ft	150,000 sq ft
Griffin	23,425 ²	14.07										
Gwinnett County	650,000 ¹	336.45										
Henry County	142,518 ²	280.40										
Hinesville	10,300 ¹	21.16										
Holly Springs	9,678 ²	6.73										
Lawrenceville	29,364 ²	13.51										
McDonough	4,800 ¹	26.43										
Peachtree City	34,701 ²	12.80	\$3.72	\$7.44	\$11.16	\$14.88	\$18.60	\$27.90	\$37.20	\$46.50	\$93.00	\$186.00
Perry	14,714 ²	25.45	\$4.32	\$8.64	\$12.96	\$17.28	\$21.60	\$32.40	\$43.20	\$54.00	\$108.00	\$216.00
Richmond Hill	10,334 ²	14.65										
Rockdale County	71,301 ¹	119.74	\$2.97	\$5.95	\$8.92	\$11.90	\$14.87	\$22.31	\$29.74	\$37.18	\$74.35	\$148.70
Senoia	3,000 ¹	5.87										
Snellville	18,939 ²	10.59										
Statesboro	29,000 ¹	14.38										
Sugar Hill	19,688 ²	10.64										
Union City	20,200 ²	19.78										
Valdosta	56,324 ²	36.38	\$2.50	\$5.00	\$7.00	\$9.00	\$11.00	\$16.00	\$21.00	\$26.00	\$51.00	\$101.00
Warner Robins	71,359 ²	36.42	\$6.12	\$12.24	\$18.36	\$24.48	\$30.60	\$45.90	\$61.20	\$76.50	\$153.00	\$306.00
Woodstock	27,823 ¹	11.82										

Service Population is approximated and may not be actual.
Source: 1=Utility Reported, 2=Census Population in 2015

The background of the entire page is a close-up, high-speed photograph of water splashing, with numerous droplets and ripples in shades of light blue and white.

2016 Georgia Stormwater Utilities Report



UNC
ENVIRONMENTAL
FINANCE CENTER



March 2017

Stacey Isaac Berahzer,
Annalee Harkins, David Tucker,
Evan Kirk, Caitlin Seyfried

About this Report

The Environmental Finance Center and the Georgia Environmental Finance Authority conducted a survey of stormwater utilities in Georgia between August 2016 and February 2017. Sixty-two stormwater utilities across the state were contacted over the course of the survey. Utilities were asked for their stormwater fees structures, and to complete an online questionnaire of supplementary questions. Forty-eight stormwater utilities (77.4 percent) from twenty-seven counties completed the survey. Thirty-seven (77.1 percent) of the participating utilities are municipalities, while eleven (22.9 percent) of the participating utilities are counties.

The following pages contain the results and analyses of the 2016 Georgia Stormwater Fees Survey. More information on Stormwater Utility Management in Georgia can be found [here](#). In addition to this report, there is an accompanying set of [tables](#) and an online, interactive [Fees Dashboard](#) where users can compare utilities against various attributes such as geographic location, system characteristics, and customer demographics.

The Environmental Finance Center would like to extend a thank you to GEFA and the stormwater utilities that participated in this year's survey.

Contributors to the 2016 Georgia Stormwater Fees Survey:

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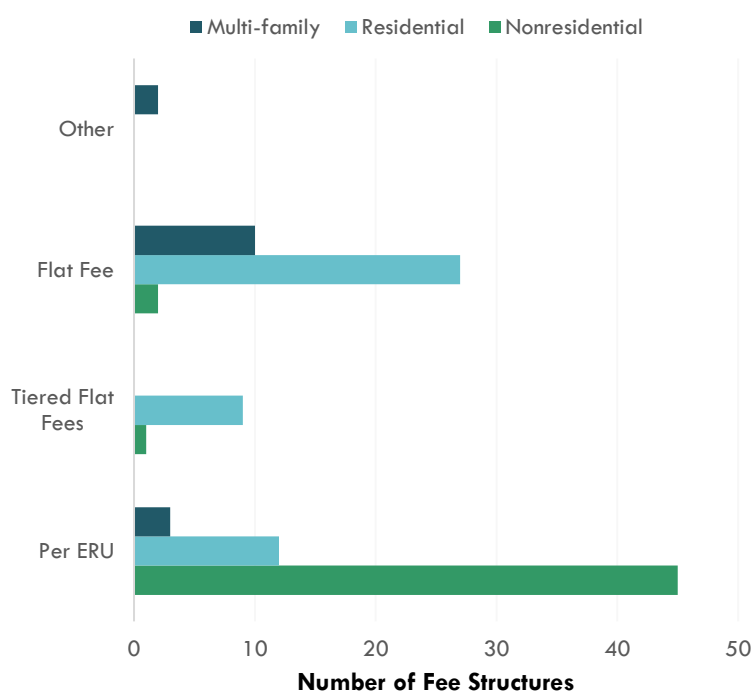
Stormwater Fee Structures

Stormwater utilities in Georgia employ a variety of fee structures to determine what their customers pay. There is notable variation among utilities in how each customer type is charged for stormwater services.

How Are Stormwater Fees Structured in Georgia?

Figure 1 displays the single-family residential, nonresidential, and multi-family residential fee structures, by structure type, for participating stormwater utilities in Georgia. Only utilities with unique multi-family residential fee structures are included in this chart. 15 of the 48 participating utilities (31.2%) have unique multi-family residential fee structures. In Georgia, flat fee structures are more commonly used to assess fees for single-family residential and multi-family residential properties.

Figure 1: Stormwater Fee Structures by Structure Type (n = 48)



27 of the 48 single-family residential

fee structures (56.3%) and 10 of the 15 multi-family residential fee structures (66.7%) are flat fee structures. Only two of the 48 nonresidential fee structures (4.2%) are flat fee.

Fees charged per Equivalent Residential Unit (ERU), described below, are more commonly used to assess fees for nonresidential properties. 45 of the 48 nonresidential fee structures (93.8%) charge customers a fee per ERU, while 12 of the 48 single-family residential fee structures (25%) charge per ERU. This difference may exist because residential parcel sizes tend to have a similar amount of impervious surface, at least compared to nonresidential parcels. Since nonresidential parcels may be as large as a shopping mall, or as small as a restaurant, charging per ERU ensures that each

establishment pays a fee proportional to the amount of impervious surface within its parcel. Additionally, tiered flat fees are more common for single-family residential properties than nonresidential and multi-family residential properties. Nine of the 48 utilities (18.8%) charge single-family residential customers using a tiered flat fee, while just one of the 48 utilities (2.1%) charge nonresidential customers using a tiered flat fee. No multi-family residential customers in this survey are charged by tiered flat fees; however, two utilities charge multi-family residential customers using a decreasing block fee, which is labeled as “other” in Figure 1.

Flat Fees

Utilities that use fees charge all properties the same fee regardless of the estimated amount of impervious surface on the property. Communities might implement a flat fee for residential customers because residential parcels within the city’s jurisdiction do not vary significantly in size. This eliminates the city or county’s need to estimate the size of each parcel individually, cutting down on data collection and administration costs. Prior to the establishment of a stormwater utility, many communities

Table 1: Residential Flat Fee Example Fee Structure

Residential Flat Fee Per Month
\$4.00

Equation 1: Example Calculation for 3,000 ft² of impervious Surface

All Properties Pay the Same Fee

$$\text{Monthly Fee} = \$4.00$$

conduct studies to determine the average size of a residential parcel. Many communities that implement a residential flat fee structure charge nonresidential customers using a different structure, such as “per ERU” or tiered flat fees. In the example provided above in Table 1 and Equation 1, all residential customers are charged \$4.00 per month.

Tiered Flat Fees

Properties that are charged based on tiered flat fees are assessed a fee based on the estimated amount of impervious surface on the parcel. However, unlike per ERU fee structures, the amount of impervious surface on a parcel is not multiplied by the size of an ERU. Instead, each property is categorized into a single tier based on the amount of impervious surface estimated to be within

that parcel. Thus, within the fees structure illustrated in Table 2, a property with 1,900 square feet of impervious surface will pay the same fee as a property with 5,000 square feet of impervious surface. Typically tiered flat fee structures will create small, medium, and large categories for properties, but some utilities may have more than three tiers. In the example provided in Table 2 and Equation 2, a property with 3,000 square feet of impervious surface will fall in the “medium” category and pay a fee of \$2.50 per month. This is an example of a tiered flat fees free structure with three tiers. Figure 2 provides a visual representation of how tiered flat fees are charged. The horizontal axis displays the impervious service on a fee payer’s property, while the vertical axis displays the monthly fee owed. As impervious surface increases along the horizontal axis, the fee only changes when passing 1,500 ft² and 5,000 ft².

Table 2: Tiered Flat Fees Example Fee Structure

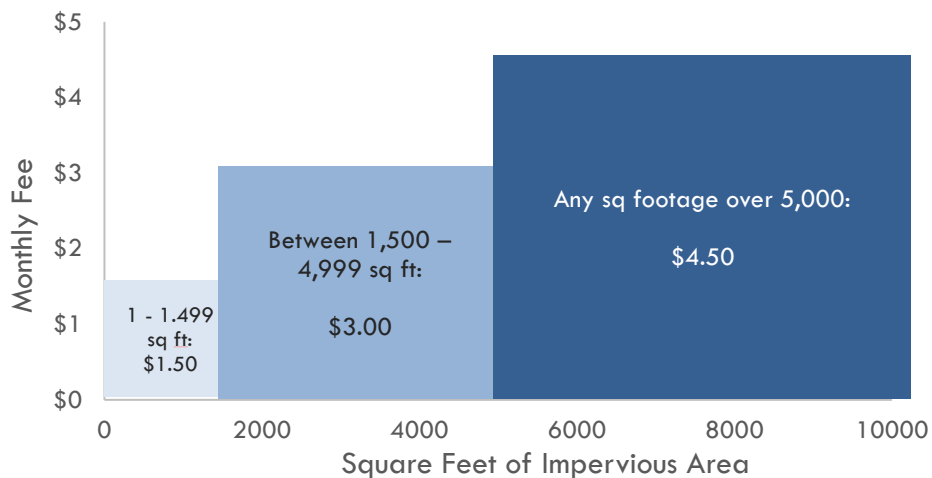
Single Family	Monthly Fee
Less than 1,500 ft ²	\$1.50
1,500 ft ² – 4,999 ft ²	\$3.00
5,000 ft ² or more	\$4.50

Equation 2: Example Calculation at 3,000 ft² of Impervious Surface

$$1,500ft^2 < 3,000 ft^2 < 4,999ft^2$$

$$Monthly Fee = \$3.00$$

Figure 2: Tiered Flat Fees Example Fee Structure Visualized



Per Equivalent Residential Unit

Properties that are charged per Equivalent Residential Unit (ERU) are assessed a fee based on the estimated amount of impervious surface on the property. A “per ERU” stormwater fee structure may include a base charge, which may or may not include a certain number of square feet of impervious surface included in this charge. Additionally, a utility may have a “per ERU” with a cap fee structure. This stipulates that any parcel with more impervious surface than the cap will pay the fee at which the structure is capped. A cap of 4,000 square feet means any residential property with more than 4,000 square feet of impervious surface will be charged for 4,000 square feet. Stormwater utilities with “per ERU” fees structures estimate the amount of impervious surface on individual properties, using GIS or other methods. The area of impervious surface on a property is divided by the size of the ERU, to get the number of ERUs on that property. A utility may also round up or down to the nearest ERU. The number of ERUs, rounded or not, is then multiplied by the price per ERU to get the stormwater fee owed for the individual property. In the example calculation provide above in Table 3 and Equation 3, a property with 3,000 square feet of impervious surface will pay a fee of \$4.44 per month because it is 1.11 ERUs.

Table 3: Example Fee Per Residential Unit

ERU Size	Monthly Fee Per ERU
2,700 square ft.	\$4.00

Equation 3: Example Calculation at 3,000 ft² of impervious surface

$$\frac{3,000 \text{ ft}^2}{2,700 \text{ ft}^2 \text{ per ERU}} = 1.11 \text{ ERU}$$

$$1.11 \text{ ERU} * \$4.00 \text{ per ERU} = \$4.44 \text{ fee per month}$$

Stormwater Billing

Residential Fees

Table 4 shows that at 3,000 square feet of impervious surface, the median monthly residential stormwater bill is \$4.00, while the largest is \$8.58 and the smallest is \$0.45. The median bill at 6,000 square feet of impervious surface is \$4.31, just a \$0.31 increase from the median bill at 3,000 square feet. The minimum and maximum bills at 6,000 square feet are \$1.00 and \$19.20, respectively.

Table 4: Residential Minimum, Median, and Maximum Bills at 3,000 and 6,000 ft² of Impervious Surface

	3,000 ft ²	6,000 ft ²
Minimum	\$0.45	\$1.00
Median	\$4.00	\$4.31
Maximum	\$8.58	\$19.20

Figure 3: Monthly Residential Stormwater Fees at 3,000 ft² of Impervious Surface (n = 48)

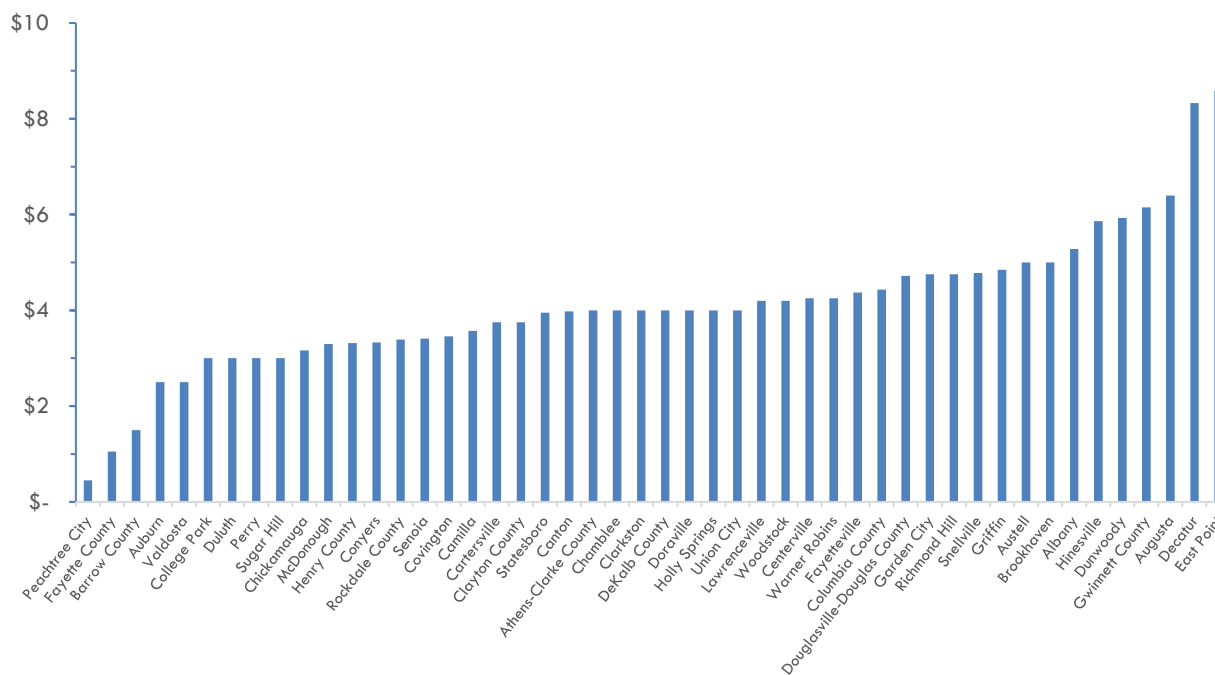


Figure 3 displays the variation in single-family residential stormwater billing at 3,000 square feet of impervious surface. Note that these comparisons do not include level of service provided, which can vary widely based on the stormwater utility’s goals, regulatory mandates, service area, and

population. For example, the level of service provided by a utility may be high in municipalities and counties where stakeholders demand greater infrastructure investment, usually to address issues such as flooding. In areas where the water quality is impaired, the federal government’s requirements may involve higher levels of stormwater management at the local level. Please see the [2016 Georgia Stormwater Fees Dashboard](#) and the [Georgia Stormwater Fees and Fee Structures Tables](#) for more complete billing information.

Multi-family Fees

Table 5 at right displays 15 of the 48 participating utilities that have separate, distinct multi-family rates. For four living units, or 6,000 square feet for utilities that charge multi-family rates “per ERU,” the minimum monthly stormwater bill is \$1.34, while the maximum is \$16.60, and the median bill is \$7.50. The median bill at 10 units or 15,000 square feet of impervious surface is \$18.75, the minimum is \$3.35, and the maximum is \$41.51.

Table 5: Multi-family Minimum, Median, and Maximum Bills at 4 and 10 Units

	4 Units (6,000 ft ²)	10 Units (15,000 ft ²)
Minimum	\$1.34	\$3.35
Median	\$7.50	\$18.75
Maximum	\$16.60	\$41.51

Figure 4: Monthly Multi-family Stormwater Fees at 4 Units (Estimated 6,000 sq ft of Impervious Surface) (n = 15)

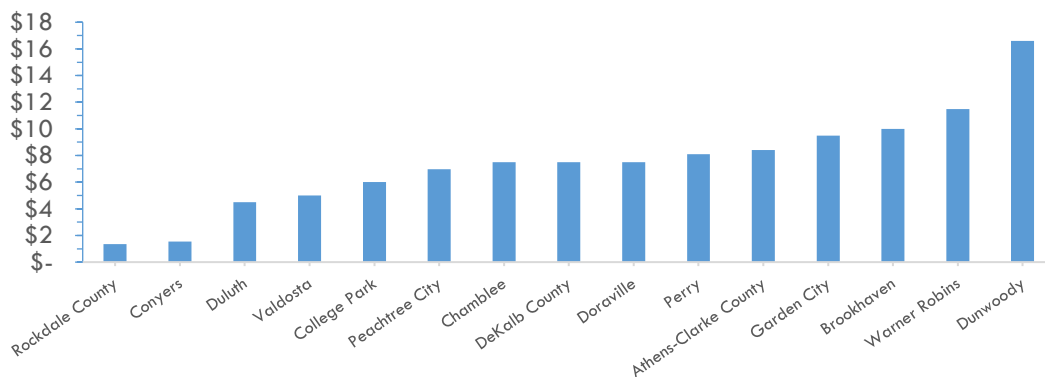


Figure 4 above displays the variation in multi-family residential stormwater billing at four living units or 6,000 square feet of impervious surface. Note that these comparisons do not include level of service provided, which can vary widely based on the stormwater utility’s goals, regulatory mandates, service area, and population. For example, the level of service provided by a utility may be high in municipalities and counties where stakeholders demand greater infrastructure investment, usually to address issues such as flooding. In areas where the water quality is impaired, the federal government’s requirements may involve higher levels of stormwater management at the local level. Please see the [2016 Georgia stormwater dashboard](#) and the [Georgia stormwater fees and fee structures tables](#) for more complete billing information.

Nonresidential Fees

Table 6 shows that at 10,000 square feet of impervious surface for nonresidential properties the largest monthly bill is \$20.36 and the smallest is \$2.68. The median bill is \$9.33 per month. At 50,000 square feet of impervious surface the median bill is \$66.46, the minimum is \$4.74, and the maximum is \$145.45.

Table 6: Nonresidential Minimum, Median, and Maximum Bills at 10,000 and 50,000 ft² of Impervious Surface

	10,000 ft ²	50,000 ft ²
Minimum	\$2.68	\$4.74
Median	\$9.31	\$66.46
Maximum	\$20.36	\$145.45

Figure 5: Monthly Nonresidential Stormwater Fees at 10,000 Square Feet of Impervious Surface (n = 48)

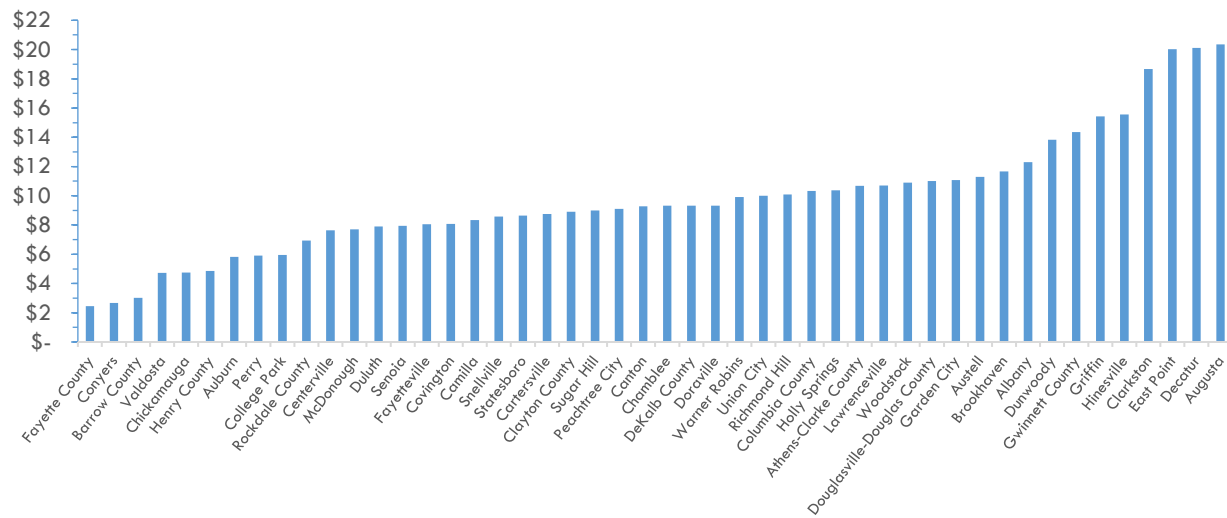


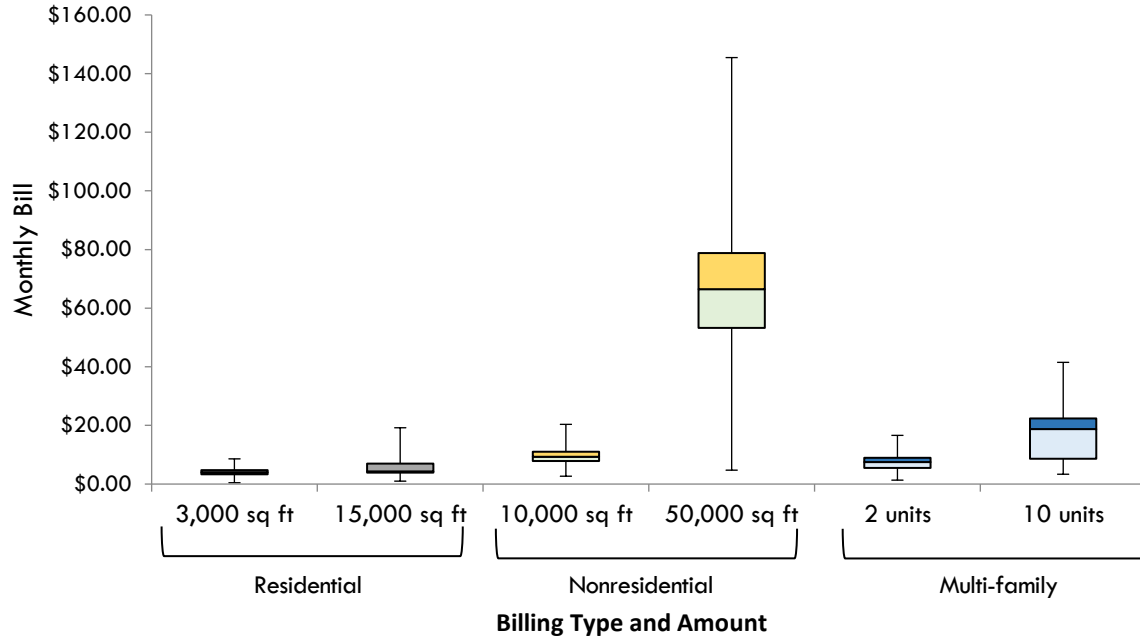
Figure 5: Monthly Nonresidential Stormwater Fees at 10,000 Square Feet of Impervious Surface (n = 48) above displays the variation in nonresidential stormwater billing at 10,000 square feet of impervious surface. Again, note that these comparisons do not include level of service provided, which can vary widely based on the stormwater utility’s goals, regulatory mandates, service area, and population. For example, the level of service provided by a utility may be high in municipalities and counties where stakeholders demand greater infrastructure investment, usually to address issues such as flooding. In areas where the water quality is impaired, the federal government’s requirements may involve higher levels of stormwater management at the local level. Please see the [2016 Georgia stormwater dashboard](#) and the [Georgia stormwater fees and fee structures tables](#) for more complete billing information.

Visualizing the Increase in Bills as Impervious Surface Increases

Figure 6 displays the effect of an increase in the amount of impervious surface by a magnitude of five within all three billing types. The difference between the maximum and minimum bills increases very rapidly for nonresidential properties between 10,000 and 50,000 square feet of impervious surface. This is because the most common fee structure for nonresidential billing is “per ERU.” Residential and multi-family structures are far more likely to be either a flat fee or a per unit charge (as is the case for multi-family billing). Utilities may opt for a “per ERU” charge for nonresidential properties for many reasons. One reason is the diversity in the amount of impervious surface area is much

greater among nonresidential properties than among residential and multi-family properties. Another reason may be a municipality or county may want to incentivize development that limits the introduction of new impervious surfaces and incentivizes nonresidential property owners to install best management practices in exchange for stormwater credits.

Figure 6: Increase in Monthly Bills Across Bill Type due to Increased Impervious Surface or Units (n = 48)

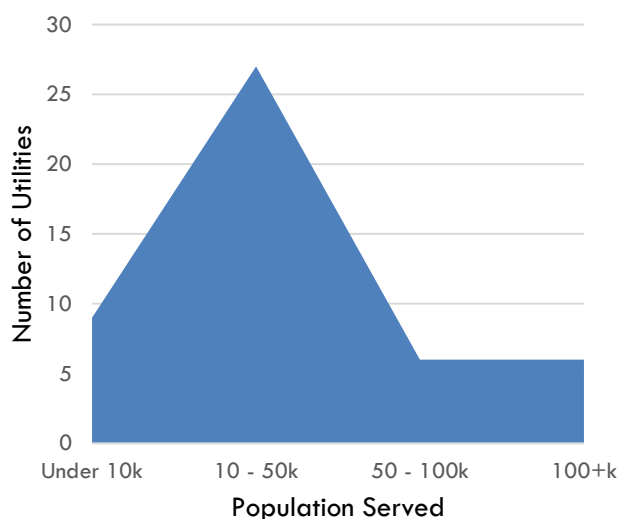


Supplementary Utility Information

Population Served

Most of the stormwater utilities in Georgia have service populations between 10,000 and 50,000 people. As of the 2015 census, the largest stormwater service population was 650,000, served by Gwinnett County. The smallest service population was 3,000 in Senoia. Overall, 6 utilities service more than 100,000 people, 6 service between 50,000 and 100,000 people, 27 service between 10,000 and 50,000, and 9 service fewer than 10,000 people. In total, the 48 participating utilities service 2.98 million of the 10 million Georgians, representing 30% of the population of Georgia.

Figure 7: Service Populations of Stormwater Utilities in Georgia (n = 48)



Service Area

Figure 8 shows that 11 utilities (22.9%) have service areas less than 10 square miles, 19 utilities (39.5 percent) have service areas between 10 and 25 square miles, and 5 utilities (10.4%) have service areas between 25 and 50 square miles. There is just one utility with a service area between 50 and 100 square miles, yet there are 11 (22.9 percent) with service areas above 100 square miles. This is because 11 of the 48 utilities are counties, which serve all of the unincorporated area in addition to, for some of the counties, selected municipalities.

Figure 8: Service Area in Square Miles of Stormwater Utilities (n = 48)

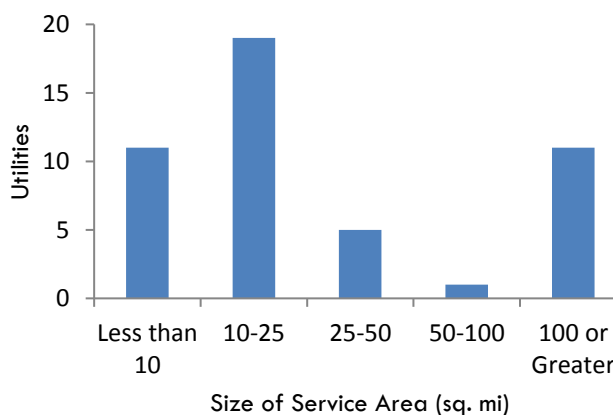


Figure 9: Utility Service Area vs. Annual Expenses (n = 48)

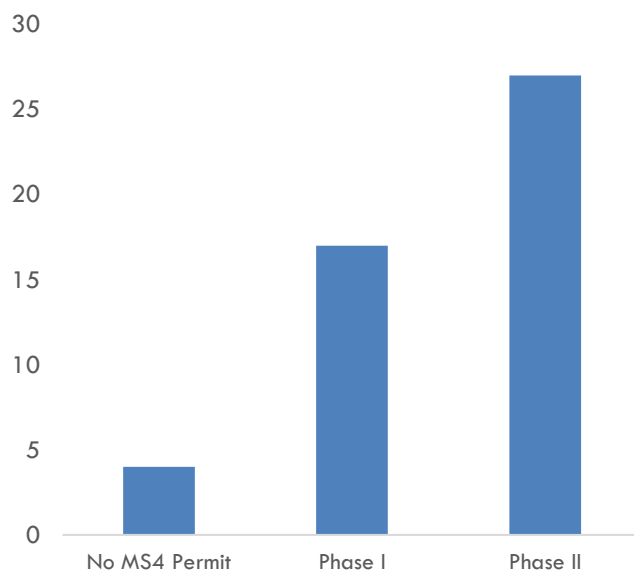


Figure 9 at left shows the relationship between utility service area and annual expenses for stormwater utilities in Georgia. This graph also shows that the level of service varies by utility, as mentioned above in the stormwater billing section. Utilities above the regression line have more expenses per square mile than the average, which may be an indication of a higher level of service. However, utilities below the regression line do not necessarily provide a lower level of service. There are many variables that play into a utility’s expenses, such as a longer history of neglected infrastructure, higher levels of flooding etc.

NPDES Permitting

An MS4 permit (Municipal Separate Storm Sewer System) is issued to a municipality under the National Pollutant Discharge Elimination System (NPDES). Based on EPA polices, Phase I communities are larger municipal separate stormwater systems that generally serve populations over 100,000, have a greater number of acres disturbed by development, or have certain types of industrial activities. These entities have been required to have stormwater permits and maintain stormwater management programs (SWMPs) since 1990. Smaller municipalities may be issued Phase II MS4

Figure 10: NPDES Permit Categories (n = 48)

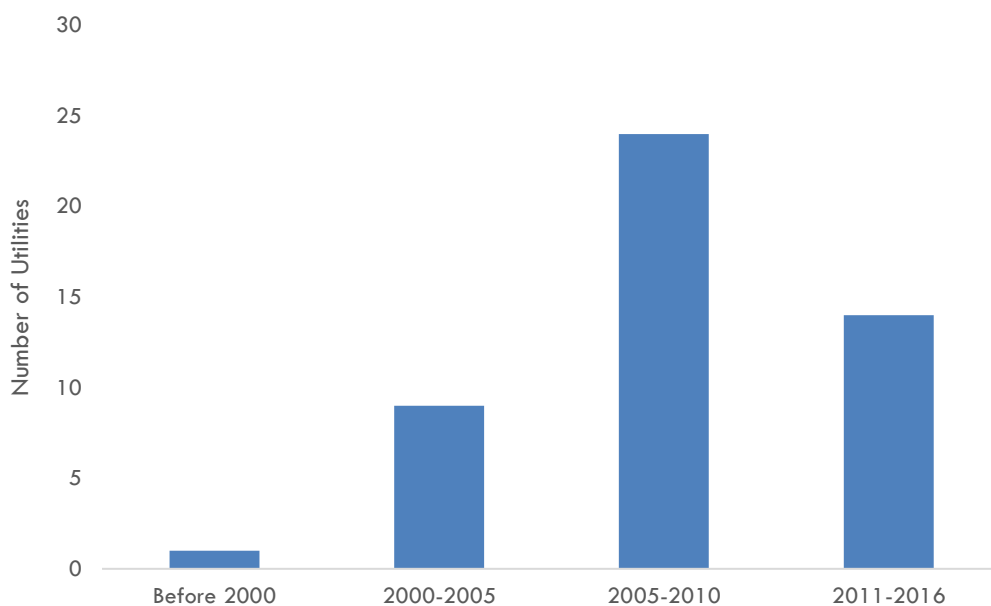


permits and be required to maintain similar SWMPs. Within this survey, 27 of the stormwater utilities (56.2 percent) have Phase I MS4 permits, while 17 (35.4 percent) have Phase II. Municipalities and counties with MS4 permits make up 44 of the 48 (91.7 percent) stormwater utilities that participated in this survey. The remaining four stormwater utilities exist in counties or municipalities that do not have MS4 permits. These communities have elected to create a stormwater utility to manage their stormwater challenges in the absence of the regulatory pressures associated with the NPDES program.

Year of Utility Creation

The first stormwater utility in Georgia was created in 1998 in the city of Griffin. Figure 11 shows that, of the 48 utilities in the survey, the majority (50 percent) were created during the period between 2005 and 2010, while only 9 (18.8%) were created between 2000 and 2005. Fourteen stormwater utilities (29.1 percent) were created in the last five years, including four that were created in 2016.

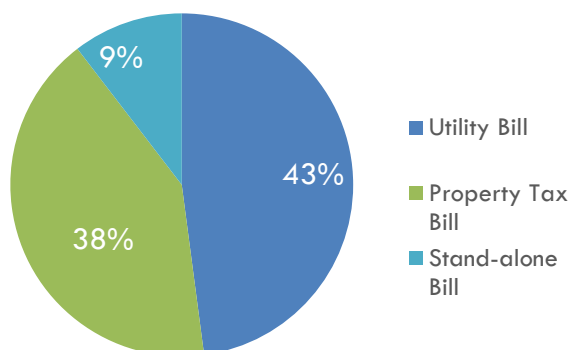
Figure 11: Year of Stormwater Utility Creation (n = 48)



Billing Methods

Stormwater utilities can charge for their services through a variety of methods, including through stand-alone, utility, and property tax bills. Figure 11 displays that, in Georgia, 43% of stormwater utilities charge their customers through a combined utility bill as their primary method of fee collection, however, not every stormwater utility operates in a county or municipality that offers water, sewer, or electric service.

Figure 11: Stormwater Fee Collection Methods (n = 48)

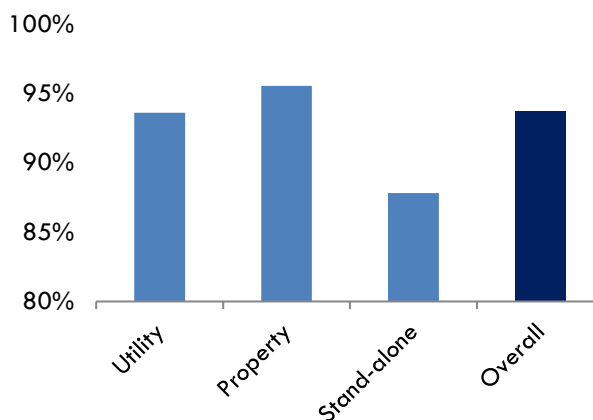


Therefore, some utilities rely on other methods of fee collection. Additionally, stormwater utilities that bill for their services on the county or municipality’s utility bill may still have to send separate stand-alone bills to fee payers that are not connected to the other utility systems. 9% of utilities charge their customers on a stand-alone bill. Stand-alone billing may increase administrative costs for a utility because of the need to send out separate bills to each customer. An additional 38% of stormwater utilities charge for their services on the customer’s property tax bill.

Average fee collection rate by method

On average, 93.7% of the customers that are billed for stormwater service pay the stormwater fee. However, Figure 12 displays that, in Georgia, not all bill collection methods result in the same collection percentages. Among the 37 utilities that provided a collection rate, customers billed on their property tax and utility bills were 7.7% and 5.8% more likely to pay stormwater fees than customers billed on stand-alone bills. Please see the for a complete list of questions and the specific question dictions provided in the EFC’s 2016 Georgia

Figure 12: Fee Collection Rate by Collection Method (n = 37)



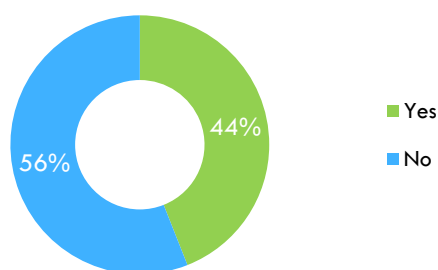
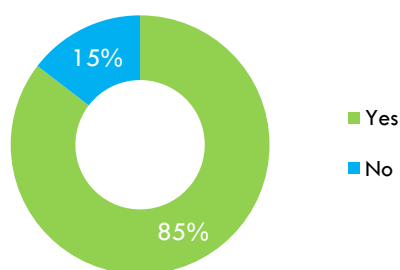
stormwater survey questionnaire.

Credit Programs

A credit program is a legal framework to provide a reduction in a stormwater fee for property owners who install certain best management practices (BMPs) on their land. Credit programs allow land owners to control and reduce their service fee, while encouraging private and non-profit participation in water quality and flood relief efforts. Additionally, the installation of BMPs reduces the magnitude of expenditure needed to finance stormwater infrastructure on public land by decreasing the runoff and nutrient pollution from private and non-profit owned lands. Compared to data available in a national stormwater survey conducted by Black and Veatch in 2014, percentage-wise, Georgia stormwater utilities are far more likely to have credit programs than the national average. Figure 13 and Figure 14 show that, while just 44% the 78 national utilities that participated in Black and Veatch’s 2014 survey had credit programs, 85% of the 48 utilities in Georgia that participated in this survey reported having credit programs. Please see the for a complete list of questions and the specific question wordings provided in the EFC’s 2016 Georgia stormwater survey questionnaire.

Figure 13: EFC at UNC 2016 Georgia Stormwater Survey Credit Program Data (n = 48)

Figure 14: Black and Veatch 2014 National Stormwater Survey Credit Program Data (n = 78)



Additional Resources for Georgia Stormwater Utilities

This report is one of a series of stormwater fees and stormwater fee structures surveys in Georgia, compiled by the Georgia Environmental Finance Authority (GEFA) and the Environmental Finance Center (EFC). Visit <http://www.efc.sog.unc.edu/project/georgia-stormwater-utility-management>, where, in addition to survey results, you will also be able to access the free, interactive fee [dashboard](#) which facilitates fee comparisons among utilities and gives benchmarks for every fee structure in this survey.

For more information on making appropriate fee comparisons, please contact Stacey Isaac Berahzer (berahzer@unc.edu) in the Georgia office of the Environmental Finance Center at the UNC School of Government.

Acknowledgments



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Appendix

2016 Georgia Stormwater Survey

1. How is your stormwater fee collected?

How are customers billed for stormwater service?

- A. Stormwater stand-alone bill
- B. Other combined utility bill
- C. Property tax bill
- D. Other (write in) _____

2. How many people are served by your stormwater utility?

Please provide the approximate service population of your stormwater utility (e.g. "15,500").

3. In what year were stormwater fees first collected?

Please provide the year in which stormwater fees were first collected for your stormwater utility.

4. In what year were stormwater fees last increased?

Please provide the year in which stormwater fees (for any customer class) were increased for your stormwater utility customer (e.g. "2013"). If the fee has never been increased, please write "NA."

5. What percentage of all customers who are billed for a stormwater fee pay the stormwater fee?

As a reference point, collection rates received in the past survey range from 80 to 99%. Please report the Collection Rate as a percentage (e.g. "93" for a 93% Collection Rate).

6. Does your utility have a formalized Asset Management Program?

An Asset Management Program is a formally constructed framework used to manage assets in order to deliver a certain service or set of goals. If you are unsure of whether your stormwater utility has an Asset Management Program, please

choose "Other" below and elaborate.

- A. Yes
- B. No
- C. Other (write in) _____

6a. (Optional) Please describe your Asset Management Program, or provide a link to information about it.

7. Does your stormwater utility have a credit program?

The term "credit program" is typically used to describe a system in which stormwater utility customers can apply to have their stormwater fee reduced if the customer shows that they are meeting certain criteria, such as implementing stormwater Best Management Practices on their property. If your utility has a program in which customers can apply to reduce their fee, but it is not called a "credit program" or somehow differs from the description above, please choose "Other" below and elaborate.

- A. Yes
- B. No
- C. Other (write in) _____

7a. (Optional) Please describe your credit program, or provide a link to information about it.

8. (Optional) If you have additional information on any related topics, please feel free to provide those below.