

Dear Consultant,

Thank you for participating in our Transportation Demand Professional Services Contract. The purpose of this memorandum is to outline Gwinnett County's requirements for the management of stormwater on capital transportation projects.

All Gwinnett County capital transportation projects require the following submittals to the Gwinnett County Department of Stormwater Management within the Gwinnett County Department of Planning and Development:

- 1) A Stormwater Management Report
- 2) One set of Stormwater Management Plans:
  - a. The plans will include stormwater structures and topography.
  - b. The plans are for reference and are not intended to be used for bidding purposes.
- 3) A GCDOT Stormwater Management Report Checklist
- 4) A GCDOT Stormwater Management Plans Checklist

### **Stormwater Management Report**

A stormwater management report is required for all Gwinnett County capital transportation projects. The purpose of this report shall be to formulate a plan to manage stormwater runoff so that stormwater runoff-related hazards are not created and existing runoff-related problems are not exacerbated, either upstream or downstream from or within the boundaries of the transportation project. The report must follow the guidelines set forth in Chapter 10 of the Gwinnett County Stormwater Systems and Facilities Installation Standards and Specifications (SSFISS). The report shall be certified by an authorized professional registered in the State of Georgia.

The Stormwater Management Report shall identify the locations and quantities of stormwater runoff entering and exiting the project limits for both pre- and post-project conditions. Analysis of the off-site properties shall anticipate future development in addition to addressing existing conditions.

### **Analysis**

The analysis of downstream conditions in the report shall focus on the point at which runoff leaves the project. For each outfall of a project, there will be a check downstream at every tributary junction to ensure there is no increase in peak flows to the point where the project area is ten percent of the total drainage area to that point based on the timing of the hydrographs. The analysis shall be in accordance with the Gwinnett County SSFISS.

The following criteria shall be evaluated by the authorized registered professional preparing the Stormwater Management Report to determine if detention or some other form of mitigation is required for any portion of the project:

- Existing land uses downstream;
- Anticipated future land uses downstream;
- Magnitude of increase in peak flows due to the project;
- Presence of existing drainage problems;
- Capacity of existing and anticipated drainage systems;
- Creation of concentrated flows where none had occurred previously;

- Availability of feasible locations for detention facilities;
- Existing flows generated off-site which pass through the project site; and,
- The nature of the receiving watercourse

### **Stormwater Mitigation Required**

It is the intention of the County that capital transportation projects have the impacts of peak flow increase, volume increase and velocity mitigated through the use of proper design procedures. Detention is not to be required automatically, but rather the mitigation of downstream impacts shall be the objective.

Whenever a Stormwater Management Report indicates that an adverse impact from stormwater runoff is expected to result from an outfall of a transportation improvement project, that outfall shall be provided with stormwater treatment. Adverse impact shall be understood to mean when pre-project flows did not cause difficulties and post-project flows do. Difficulties shall include but not be limited to situations where 25-year velocities exceed the non-erosive velocity of the stream, habitable structures are shown to be subject to increased depth of flooding for any frequency up to and including the regulatory flood, and stormwater facilities cannot carry the design storm in accordance with these regulations.

Stormwater treatment facilities shall be provided, unless the authorized registered professional certifies and provides certified documentation to the Department supporting the conclusion that at least one of the following is true and correct as applicable:

- The non-detained, post-project runoff will leave the project site through a well-defined swale or pipe collection system, and the runoff will not exceed the capacity of the anticipated drainage system. The runoff must be shown to create no adverse impact to downstream facilities or properties. The post-project increase for a 25-year storm should not exceed five (5) percent of the pre-project flow.
- The non-detained, post-project runoff will leave the project site as sheet flow, and will not have an adverse impact upon downstream properties. The increase for a 25-year storm should not exceed 1 cfs over a length perpendicular to the flow of 100 feet.
- The effect of detention would be to concentrate flows where sheet flow had occurred under pre-developed conditions, and any impact of increase sheet flows upon downstream properties would be less adverse than that which would result from the concentrated flows from a detention facility even if energy dissipation devices were employed.
- The undetained flow will pass through downstream properties, in drainage easements obtained by the County, to the point in the downstream analysis which shows that detention is not required.
- Where the site runoff will flow directly into a stream or lake without crossing off-site properties and does not exceed an erosive velocity set forth in the SSFISS.

If the Stormwater Management Report indicates an adverse impact, the Department may choose to acquire a drainage easement and/or improve the conveyance channel to the point where the adverse impact is alleviated.

The post-project peak flows in a receiving channel may not exceed pre-project flows by more than 5% unless a variance is granted by the Department. Peak detention for the 2-year through the 25-year storm is not required if the downstream analysis using timing of the hydrographs shows no adverse

impact from the outfall of the project to the point immediately downstream from the project where the project area is 10 percent of the total drainage basin area.

Should the authorized registered professional conclude that stormwater detention may not be necessary, rigid compliance with all of the following criteria is necessary and mandatory:

- A stormwater management report shall always be required whether or not stormwater detention is required.
- If the applicant proposes to show that the detention or other mitigation requirements may be eliminated for all or a portion of a project, then a pre-submittal conference with the Department's staff is required prior to preparation and submittal of construction plans for the project.
- At the pre-submittal conference with the staff, the consultant shall be prepared to discuss the downstream analysis findings as follows:
  - The affected stream must be analyzed downstream from the project to a point where the project area is 10 percent of the total drainage basin. The analysis must include all culverts, obstructions, existing and potential erosion problems, elevations of existing improvements, and any other existing modifications to natural conditions; and,
  - If the existing downstream conditions are overburdened by the pre-developed flows in the stream, then detention or other mitigation shall be required unless the Department elects to eliminate the downstream overburdened conditions as part of the project; and,
  - If there are any existing drainage complaints downstream, then detention or other mitigation shall be required unless the project minimizes the conditions causing the complaint.

### **Detention Design Criteria**

All stormwater detention pond hydrologic and hydraulic analysis and design calculations shall be certified by an authorized registered professional. The design shall be in accordance with the Gwinnett County SSFISS.

All stormwater detention facilities shall be designed to detain the 1-year storm runoff, for the area draining to the detention facility, for 24 hours. This volume is called the channel protection and shall be equal to or greater than the 1-year storm runoff volume from the project. In addition, these facilities shall control the peak flow rates associated with storms having 2-year, 5-year, 10-year, and 25-year return frequencies so that flows from the post-project site do not exceed pre-project conditions at the point of analysis nor increase the peak flows downstream from the project to the point in the drainage basin where the project area is 10 percent of the total basin. Where adverse impacts, as defined above, occur during the 100-year storm, the 100-year storm shall also be regulated. Water Quality treatment will be provided for new location roadways passing through previously undeveloped areas.

The hydrologic methodology used for any given project shall conform to the Gwinnett County SSFISS.

Runoff coefficients and runoff Curve Numbers shall be consistent with those shown in the Gwinnett County SSFISS. Pre-project curve numbers shall represent actual conditions, and post-project curve numbers shall represent the proposed condition.

Calculations shall be provided showing how all times of concentration or lag times were computed, both for pre- and post-project conditions. Likewise, adequate support must be provided for all composite runoff coefficients or curve numbers used.

**Detention Facility Construction Standards**

Stormwater detention facilities shall be constructed in accordance with plans reviewed and approved by the Department, and shall be in place and inspected prior to the initiation of other improvements. If the detention facility is planned to be a lake, temporary detention facilities shall be provided and shall remain in place until such time as the lake has become effective in providing stormwater management.