



MEMORANDUM

TO: Designers, Engineers, and Project Managers **DATE:** June 21, 2012
FROM: Clay Smith, PE
Director of Transportation Planning and Development
SUBJECT: Detention Best Management Practices Guidelines for TxDOT Projects

The purpose of this memorandum is to provide guidance and clarification for addressing increase runoff originating from TxDOT right-of-way due to our roadway projects. With the growth of many of Texas urban areas, many municipal outfalls are at capacity or the receiving creek's base flood elevation can not be increased. Therefore, increasing the storm water runoff may have impacts to downstream or upstream properties.

Detention mitigation should be considered for proposed projects in the San Antonio District urban areas which increase the storm water runoff **originating** from TxDOT right of way **and** may have an **adverse impact** to the adjacent properties or the receiving outfall. The designer should consult with the District Hydraulic Engineer to develop strategies to mitigate the negative impacts to the 1% Annual Exceedance Probability (AEP).

The designer should analyze the 1% AEP for the existing and proposed **peak discharges** and **time of concentration** for the work proposed to determine the volume of storage for mitigation by detention. Note that decreasing the time of concentration

may have a negative impact downstream. The amount of runoff to detain or mitigate is the difference between the proposed and the existing peaks of the hydrographs. Reference FHWA's Urban Drainage Design Manual, HEC No. 22, Chapter 8, "Detention and Retention Facilities, for calculation recommendations.

Due to typical right of way constraints, the method of detention requires careful consideration and the designer must find the most cost effective method for detention, including future maintenance costs. It is preferred that no additional right of way is required. If the project has storm sewer throughout the majority of the project, the designer should investigate inline detention by increasing the size of the storm sewer system, decreasing the slope of the outfall lines, and placing a restrictor at the outfall. In projects with drainage ditches, the design can use vegetated ponds for detention which can include water quality features.

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