

Storm water Issues Related to TxDOT Projects and Plans

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The drainage issues challenging the Texas Department of Transportation are separated into two phyla, quantity and quality. These two disciplines share more similarities than just their spelling and their number of syllables. They are not unrelated, and stormwater quantity and quality should be planned and designed for iteratively, if not simultaneously. We can no longer simply design for quantity, but must strive for an integrated approach that includes design elements that are conducive to inspection, monitoring, and in some cases retrofitting. TxDOT has transformed from a stormwater system owner to a stormwater system operator.

First and foremost, TxDOT has a responsibility to protect the safety and enhance the comfort of the traveling public, while providing the public with the best value for the taxes that they pay. To this end, we must plan and design for stormwater quantity in a way that minimizes hazardous conditions such as hydroplaning, ponded lanes and dangerously flooded sections. We recognize the impracticality and exorbitance of building systems with the capacity for all possible storm events, rather we plan and design systems that function adequately within economic and practical limits. Our guidelines are sound engineering principals practiced within economic reality.

At some level of storm intensity the traveling public becomes or remains the parked public. This publicly perceived demarcation may not coincide with our own demarcation, which is set largely by economics. Moreover, as tires and brakes become better, the public feels more comfortable driving in heavier storms and at faster speeds, but our economics have not similarly changed.

After the traveling public reaches their destination, we still have another responsibility, that of protecting the waters that receive our stormwater that the traveling public may have been or may be now recreating in. We have guidelines prepared for this by the EPA in the form of the National Pollution Discharge Elimination System, or NPDES. We are mandated to monitor several water quality parameters.

To keep track of the numerous outfalls and the monitoring data, we have developed our Outfall Tracking System, a GIS based database that eventually will be populated with all of our cross drainage structures, our outfalls, and will contain extensive information regarding our drainage areas, flows, and water chemistry data. This system will help realize an integrated approach to planning and design.