Stormwater Management: A New Horizon



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New Stormwater Management Regulations

- Most likely to be approved this year

- Current Design Criteria
  - Water Quality
    - Based on 2” rainfall event
    - Try to use “green technology” practices first
      - Filtration and infiltration
    - Extended detention



Current Design Criteria (cont.)

- Water Quantity
  - Peak Based
    - 2, 10 and sometimes 100 year storm events
    - Post-developed flow <= Pre-developed flow
    - Mostly accomplished by ponds



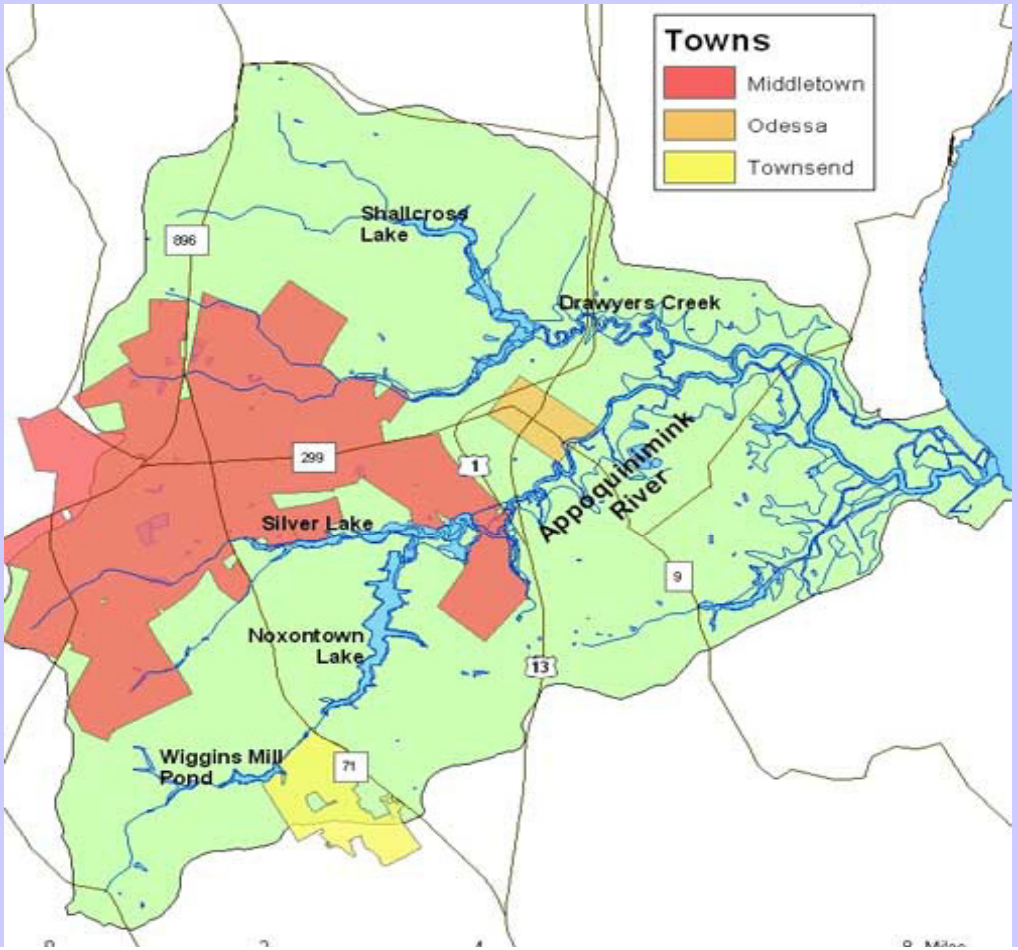
Proposed Design Criteria



- Water Quality
  - Resource Protection Event (1yr storm)
    - Infiltration & filtration w/ extended detention
- Water Quantity
  - Conveyance (10yr storm)
  - Flooding (100yr storm)
  - Release rate determined by a discharge per unit acre as based on pre-developed drainage areas
    - Example
      - 100yr = 0.75 cfs/ac (for woods/meadows) and 1.50 cfs/ac (for all else)
      - 10yr = 0.375 cfs/ac (for woods/meadows) and 0.75 cfs/ac (for all else)
  - Downstream analysis (no increase in 100yr flood elevation)

Watershed Plans

- Potentially have to start submitting/inputting design parameters into an implemented watershed plan to figure out what our design criteria will have to be



Other Water Quality Requirements

- NPDES – National Pollutant Discharge Elimination System
  - As authorized by the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.
  - DelDOT is a co-permitee along with New Castle County and 12 other municipalities. Phase I permit has been in effect since 2001. Renewal of the Phase I permit is projected to be approved later this year.
- TMDL – Total Maximum Daily Load
  - It is the maximum daily amount of a pollutant that a body of water can absorb without violating water quality standards. A non-scientific definition for TMDL could be "pollution limit." The pollution limit was set by the EPA on a per watershed basis.





Other Water Quality Requirements (continued)

- PCS – Pollution Control Strategy (Inland Bays Watershed)
  - The strategy and accompanying regulations are designed to reduce the amounts of nitrogen and phosphorus entering the Indian River, Indian River Bay, Rehoboth Bay, the Little Assawoman Bay and their tributaries to the level required by the Total Maximum Daily Loads for these watersheds.



What does all this mean to DelDOT?

- We are required to design projects that conform to the PCS of the Inland Bays Watershed.
  - Nutrient reductions of nitrogen and phosphorous (different limits between upper and lower watershed)
  - Given data and examples can be seen in Appendix M of the PCS (on DNREC website)
  - Construction?





- When Phase I permit gets renewed, all of New Castle County will have to follow the TMDL reduction limits as set per each watershed




Questions?