

Delaware Statewide Wastewater Facilities Assessment 2006-2011

May 2006



URS

Project Details

- Comprehensive survey of the status of Delaware's wastewater facilities.
- Survey developed and sent to all municipalities providing sewer service.
- Meetings held to review survey results with all participants.
- Survey results were reviewed and assessed to determine existing conditions, trends and needs.

Project Objectives

- To assess the state's existing wastewater facilities.
- To identify the wastewater needs of Delaware's municipalities through the planning period.
- To determine funding requirements for needed infrastructure improvements.

Development of Findings

- Data developed from information provided by the municipalities through surveys and meetings.
- Data and costs were provided by the municipal engineer, or consulting engineers.
- Reviewed compatibility of service areas expansions with the land use plans.
- Reviewed anticipated costs associated with reported infrastructure upgrades or expansions.
- Developed Needs Assessment for each municipality and aggregated to the County level.

Research Limitations

- The validity of the assessment is dependent on the accuracy of the survey responses.
 - Range from full-scale wastewater facilities plans to no responses by two communities.
- Some municipalities are in the preliminary stages of investigating alternatives for their wastewater infrastructure needs.
- These unknowns may have a significant impact on the overall cost of the anticipated needs.

Statewide Assessment Summary

- As of 2005, 23 municipalities provide wastewater services to approximately 84% of the total state population.
- Communities without service include:
 - Bethel, Hartly, Houston, Slaughter Beach, Viola and Woodside.
- The reported capacity of treatment facilities is 207 mgd.
 - 57% percent increase from 132 mgd in 1995.

Statewide Assessment

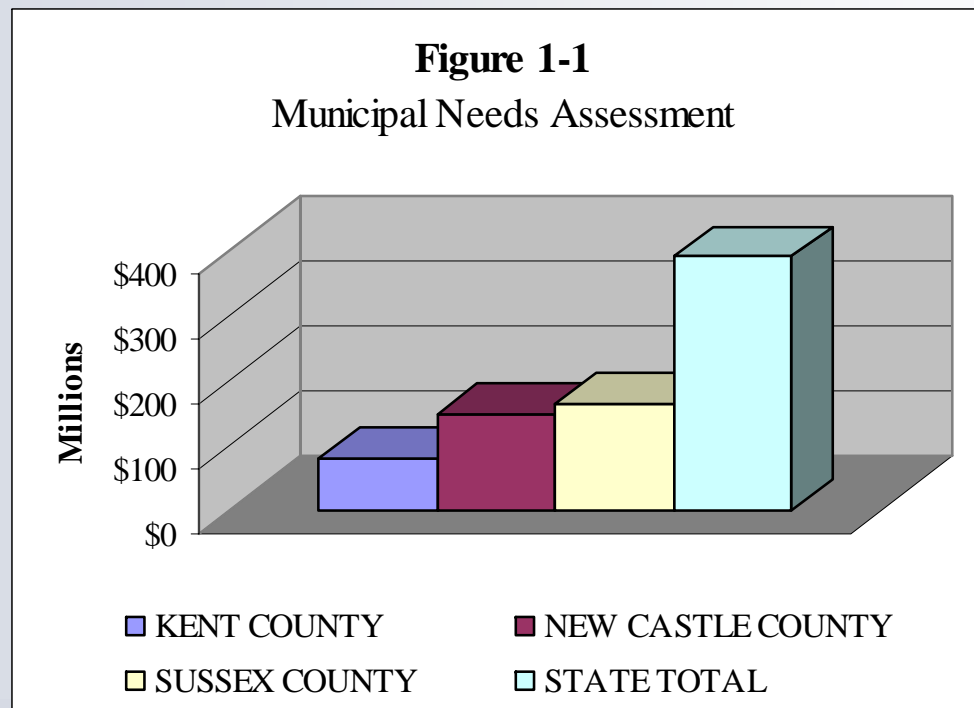
County	Pop ⁿ Served	Total Pop ⁿ Served (%)	Average Annual Flow (mgd)	Design Capacity (mgd)	Maximum Flow (mgd)
New Castle County	499,500	95%	90.2	173.2	275.4
Kent County	102,548	73%	12.7	15.6	18.9
Sussex County	107,987	61%	11.3	18.2	19.9
State Total	710,035	84%	114.4	206.9	295.3

Statewide Needs & Costs

- Majority of needs are:
 - For new and/or expanded and improved treatment facilities.
 - To eliminate CSOs in the City of Wilmington.
 - I&I is common major problem statewide.

Statewide Needs & Costs

- Statewide cost of necessary unfunded improvements is approximately **\$390 million**.
- Sussex County identified the greatest need at \$164 million.



Statewide Observations

- In southern New Castle County, Kent and Sussex Counties:
 - Majority of the improvements and expansions are related to the significant increase in residential and commercial development, and septic elimination.

- In northern New Castle County:
 - Population growth is expected to grow slowly or be stable.
 - Replacement of aging collection and conveyance systems.
 - Reduction of combined sewer overflows (CSOs).

- Majority of municipal facilities:
 - TMDL requirements have had very significant impacts
 - Many major capital improvement projects are associated with meeting TMDL requirements.
 - Some of the proposed treatment methods and facilities are extremely expensive which will greatly increase the cost of providing wastewater service.

Statewide Recommendations

- The majority of municipal utilities are assessing impact fees and requiring developers to financially assist with:
 - Upgrade the collection/ conveyance infrastructure.
 - Upgrade treatment capacity to serve new development.
 - Provide sewer service to non-served areas through development process.

- Investigate the true impact of development on the entire wastewater system:
 - Including the collection and conveyance system, not just treatment plant capacity.

- Complete investigations to determine the condition of existing collection and conveyance systems:
 - For aging municipal utilities.

New Castle County Observations

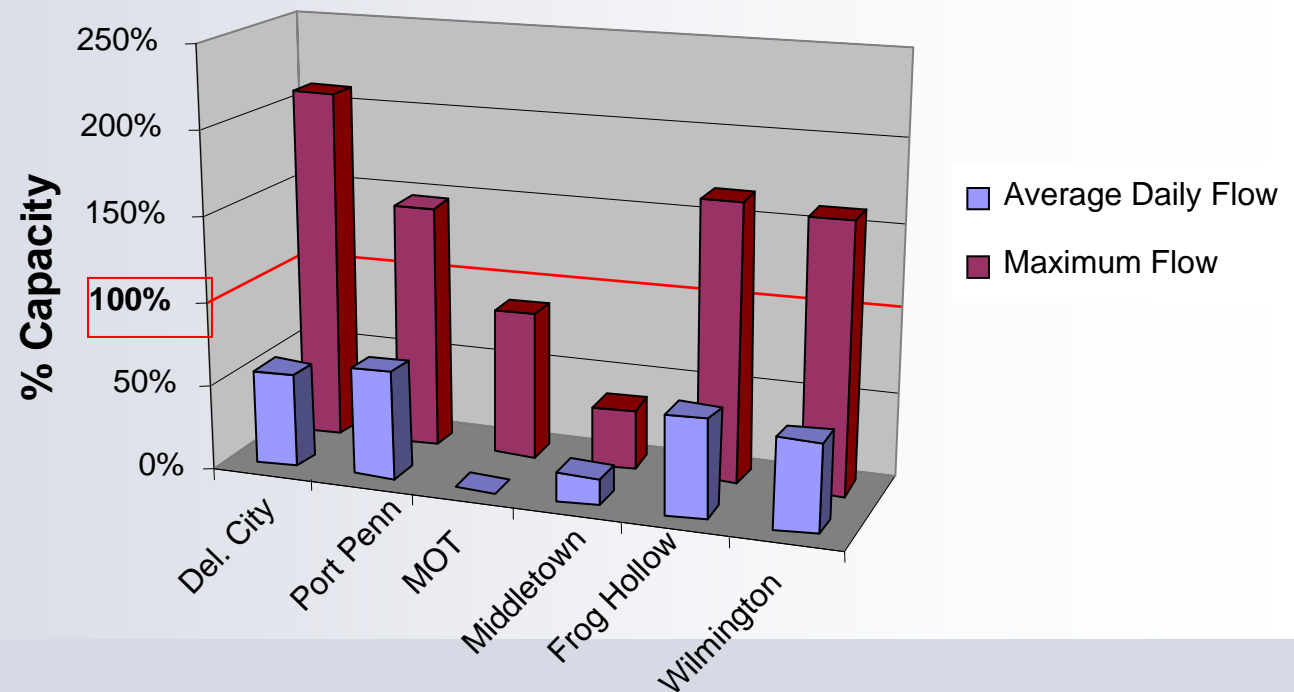
Driving Factors:

- Northern area is well established and has little room for growth.
- The needs are centered on repair, rehabilitation and replacement of failing and overloaded infrastructure.

New Castle County Observations

Flow vs. Capacity

- Treatment facilities are adequately sized to meet the average daily flow rates.
- Design flow rates are significantly exceeded during peak flow periods.



New Castle County Observations

■ Inflow & Infiltration:

- Significant I&I at pumping stations and treatment plants.

■ Combined Sanitary & Storm Sewers

- Wilmington and New Castle County facilities
- Wilmington most extensive:
 - 170 miles combined.
 - No plans to separate.
 - Enhanced long-term control plan to achieve high-level of CSO control.

New Castle County Needs & Costs

- The total cost of needed improvements is approximately \$147 million.
 - For new and/or expanded and improved wastewater treatment facilities in southern New Castle County.
 - To control CSO in the City of Wilmington.

Kent County Observations

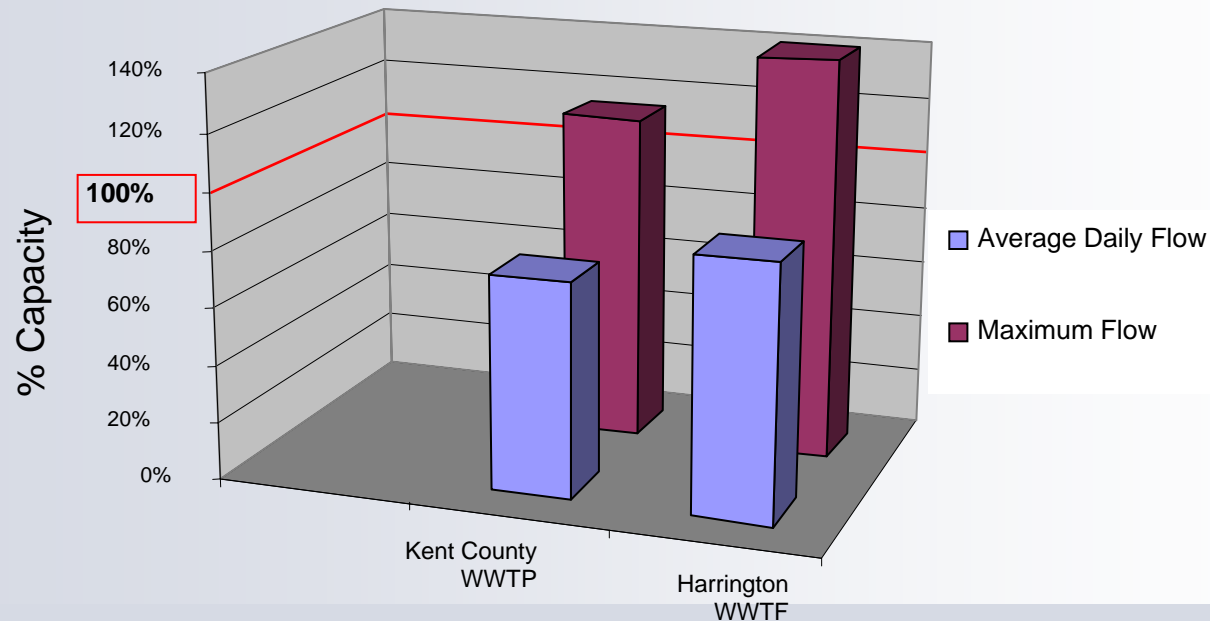
Driving Factors:

- Steady growth in population and new households.
 - Need for new collection and conveyance systems
- Septic elimination plan
 - Provide service to 13 un-sewered communities
- I&I remediation
- TDML compliance
- Improve water quality
- Rehabilitate existing problem areas

Kent County Observations

Flow vs. Capacity:

- Kent Co. Treatment Plant provides all of the public treatment capacity in the county. (except for Harrington)
- Kent County and Harrington treatment facilities are experiencing average daily flow rates that are approaching their capacity.



Kent County Observations

Inflow & Infiltration:

- Each municipality surveyed experiences problems with I&I except the Town of Clayton.
- Clayton indicated that they previously identified and corrected their problems.
- Each municipality has studied its I&I problems and identified potential corrective measures, except for Town of Smyrna and the City of Milford

Kent County Needs & Costs

- The total cost of needed improvements is approximately \$79 million.
- The majority of need is associated with:
 - Improvements to the conveyance system,
 - Improvements to the treatment facility at Frederica
 - Providing public sewer to communities not presently sewerred.

Sussex County Observations

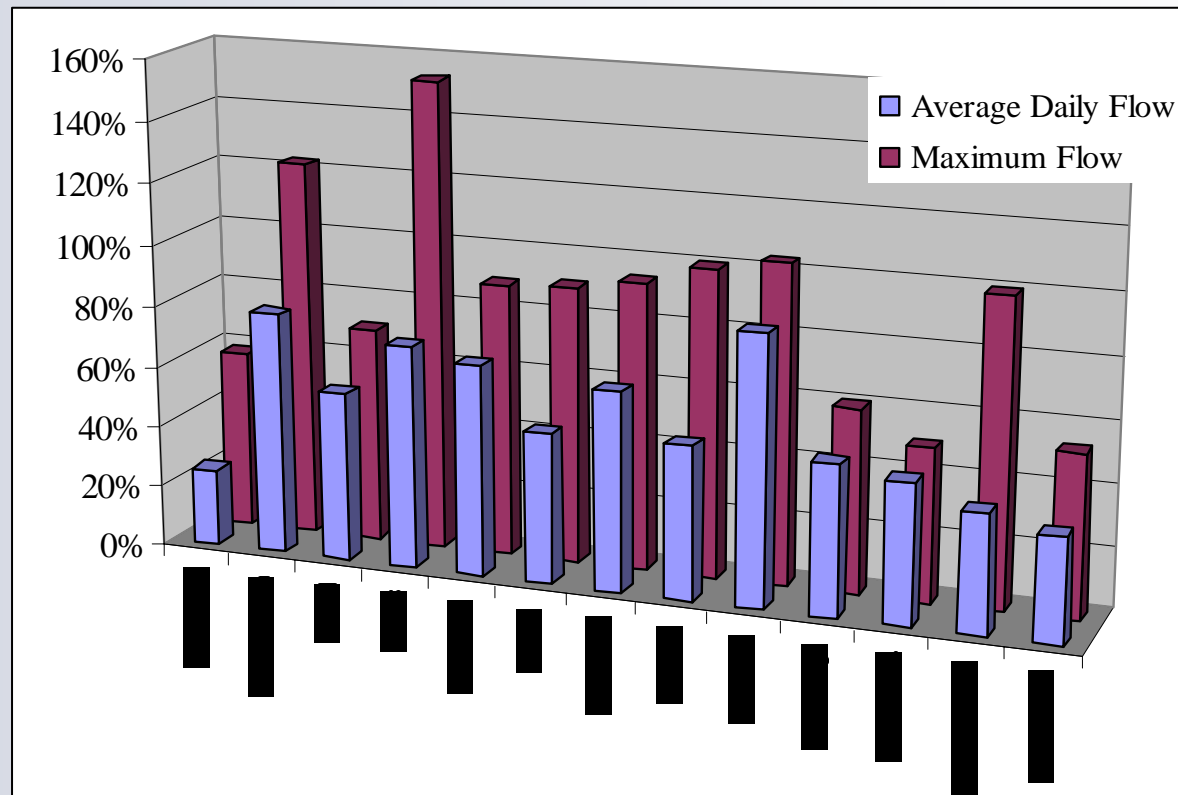
Driving Factors:

- Population growth in Sussex County has increased significantly in past years and is projected to continue into the future.
- This steady growth has resulted in the need for facility expansions and upgrades for the majority of County municipalities.
- Development of vacant parcels within incorporated areas and annexations areas has expanded the service areas.

Sussex County Observations

Flow vs. Capacity:

- Due to the dramatic increase in development within the County, all municipal utilities are planning for substantial increases in wastewater capacity and infrastructure improvements.



Sussex County Observations

Inflow & Infiltration:

- I&I is a problem with most municipal facilities
- Rain events cause peak flow rates at many treatment plants
 - Bridgeville, Georgetown, Laurel, Milton, Rehoboth, Lewes, Seaford, South Coastal
- The extent of I&I has not been quantified.
- Sussex Co. municipalities were the most impacted by the new TMDL requirements.
 - have to upgrade their existing treatment and disposal facilities.

Sussex County Needs & Costs

- The total cost of needed improvements in Sussex County is approximately \$163.7 million.
 - Identified the greatest need in the State
- The majority of need is associated with:
 - New and/or expanded and improved treatment facilities.
 - Studies to determine the extent of the problem and the cost to correct I&I problems.
 - Improvements to meet TDML standards,

Summary of Findings

- Municipalities need to make major investments to upgrade treatment wastewater facilities in order to comply with Total Maximum Daily Load (TMDL) water quality standards.
- Expansion of wastewater systems is primarily due to the rapid pace of development in the state south of the C&D Canal in all 3 counties.

Summary of Findings

- Funding should be allocated to municipal utilities for I&I studies.
 - The minimum cost to investigate and develop rehabilitation costs begin at \$100,000 to \$150,000 for small sized systems.
- The unknown costs of correcting I&I could be substantial.
- Many municipal utilities are using or planning to use impact fees and developer contribution to fund infrastructure improvements.

Summary of Anticipated Costs

- Projected costs of meeting reported unfunded wastewater needs are as follows:

- New Castle County \$147 million
- Kent County \$ 79 million
- Sussex County \$164 million

Statewide total \$390 million