NJ Clean Water Council Public Hearing:
“A Resilient New Jersey: Adapting Water Infrastructure to the “New Normal”

New Jersey’s Water Infrastructure
Enhancing Resiliency:
A Call for Asset Management
So where were we...
October 28, 2012

• Comprehensive Water Resource Management
• Barnegat Bay
• CSOs
• Water Supply Plan
• Asset Management
• Integrated Report and C1 Streams
• To TMDL or not?
• ...and so much more.....
And then..... a little thing called Sandy....

Sandy exposed our infrastructures’ vulnerability
Although Sandy exposed our infrastructures’ vulnerability:

**Sandy Re-affirmed WRMs priorities:**

- CSOs & reducing Infiltration & Inflow (I/I)
- Asset Management: Operation & Maintenance required
- Emergency Response Planning
- Stormwater
Damage Assessment

• Developed a Survey and Questionnaire - completed through a call center

• Damage Assessment for Water, Wastewater and Stormwater - TOTAL ~$2.6B (representing approximately 370 separate projects):
  • Recovery: $342,085,881;
  • Repair- $553,785,232;
  • Resiliency- $1,701,035,044
Lessons Learned

• Resources and data
• Role definition
• Communication between and among....
Lessons Learned...Vulnerabilities

Primary Threats from Sandy

• Power loss
• Flooding
• Infrastructure damage from natural or human initiated failures such as storm events, terrorism
• Business as usual mentality
• Fiscal challenges
Moving Forward...Rebuilding New Jersey

The Federal Framework...
National Disaster Recovery Framework
NJ Recovery Support: Environmental Infrastructure (EI-RSF)

- Six Recovery Support Function (RSF) work teams
- Commissioner Martin leads the EI-RSF for Governor
- Sub-workgroups focused on guidance, data, back-up power, fuel distribution, cross-agency issues, etc.
- Subwork includes developing Enhanced Standards:
  1. Resiliency Standards;
  2. Auxiliary Power;
  3. Asset Management;
  4. Emergency Response Plans
NJ Recovery Support: Environmental Infrastructure

• Conducted 8 roundtables (Conducted mid-December through the end of February)
  • Discussion centered on:
    • damage assessments;
    • status of rebuilding;
    • mitigation measures;
    • funding;
    • Sludge Management Planning Obligations
• Great recommendations and lessons learned
Moving Forward...Rebuilding New Jersey

Addressing Primary Threats from Sandy

Phase 1: Recovery
**Power Loss – Near Term Actions**

- Both water supply and water quality have existing regulations requiring back-up power.
- NJDEP developing technical guidance to clarify minimum requirements, including:
  - presence of sufficient on-site generators,
  - extended fuel storage capabilities (3-5 days),
  - storage of back up sources in flood proofed buildings and alternative fuel supplies.
  - Also includes storage of fuel for work trucks, fleet and worker vehicles to ensure their ability to maintain operation beyond the facility and into the community or in between facility sites.
  - Evaluate the merit of pre-staging bulk fuel (gasoline/#2 Fuel/Diesel/Propane) at strategic locations throughout the state as a means of fuel requirements for critical infrastructure. Locations such as DOT yards, state refueling stations, etc. Such provisions may better promote Sector resiliency due to fuel needs.
Flood Impacts – Near Term Actions

• Construction Standards:
  • In general, in-kind replacement of infrastructure does not require NJDEP (water supply, water quality, flood hazard) approval.
  • Therefore, if the NJDEP wants to implement either more stringent requirements or clarify existing requirements, we will need rule revisions.
  • Improved construction standards under consideration include:
    • elevation of pump stations and/or electrical systems associated with wastewater collection, treatment or water supply wells,
    • flood proofing treatment systems and pump stations,
    • use of water tight manhole covers for collection systems within flood prone areas
    • expansion of existing capacity of water, sewer or stormwater lines upon replacement.
  • Any emergency rule must be simultaneously proposed under the APA and would thus be in place over the long term.
Moving Forward...Rebuilding New Jersey

Addressing Threats from Sandy and Future Events

Phase 2: RESILIENCY
Opportunities

- Asset Management
- Infiltration/Inflow (I/I)
- Stormwater Management
- Combined Sewer Overflow (CSO) Strategy:
  - Reducing Industrial Discharges During an Emergency
- Comprehensive, Integrated Planning
- Financing
Asset Management...THE KEY!!!

Sustainable Systems = Sustainable Communities

• Investments in water infrastructure and water industry systems can have a profound impact on the overall character and sustainability of our communities.

• Investments result in long-term benefits when decisions are “strategically aligned” with a plan for how and where a community wants to grow—or perhaps toll growth due to declining population or strategies for preservation.
Asset Management

New Jersey’s Water Resources

- 31 investor owned utilities serving 40% of the state
- 620 public community water systems for drinking water
  - 300 are municipally owned
  - Three quarters serve <3000 customer accounts
- 260 Community Wastewater Systems
  - 60% are publicly owned
  - Stormwater is managed municipally
Asset Management

- DEP regulates quality and quantity
- BPU sets rates for private utilities
- DCA Division of Local Government Services (DLGS) oversees finances for public systems
  - Local Authority Bureau provides general financial oversight of Water, Sewer, Utility, Solid Waste, Parking, Improvement, and Housing authorities
  - Bureau of Financial Regulation and Assistance oversees municipal utilities that come under the direct control of the municipality or county (includes sewer, water, solid waste collection, recreation, and other non-environmental functions).
- All budgets are required to include a capital budget component as a planning document. However, DCA does not review the Capital Plan for accuracy or whether the rate structure is appropriate. In addition, DCA does not track implementation of the Capital Plan. DCA rules require the utility budget to be self-liquidating.
Asset Management

Current State of New Jersey’s Water/Wastewater Infrastructure

• NJ Section of the American Society of Civil Engineers gave grades of “C” and “D” to New Jersey’s drinking water and wastewater infrastructure, respectively

• Recognized by both the NJ Clean Water Council and Water Supply Advisory Council as critical to ensuring the State’s sustainable future

• Estimated $45 Billion Dollars of Need over next 20 years (2007/2008 USEPA Needs Surveys and Assessment)

• $8 billion for drinking water projects

• $37 billion for wastewater/storm water/non-point source/decentralized
Asset Management

Major Challenges Confronting New Jersey’s Utility Managers

• Antiquated and failing infrastructure
• Unknown or unmapped buried infrastructure = “hidden assets”
• Lack of unified funding sources and regulatory requirements to ensure sufficient reinvestment reserves for annual maintenance
• Declining Federal assistance program funding place greater strain on the State, municipalities, systems, and ultimately, residents
• Showing utilities that proactive rehabilitation is Considerably less expensive and disruptive than reactive repair and piece-meal replacement
Asset Management

- Asset Management provides an effective mechanism to assess the status of current infrastructure and identify vulnerabilities.

- Authority exists for the development of asset management plans under existing water infrastructure rules; some programs have clear existing regulatory authority (e.g. NJPDES, licensed operator, safe drinking water, water allocation) while others have statutory authority, but regulatory authority is less clear (collection systems and storm water).

- Rulemaking is necessary to mandate upgrades of existing infrastructure upon repair, rehabilitation or replacement.
  - Upgrades would include those identified under near term response above (e.g. elevation, flood proofing, etc.) beyond immediate repairs and redundancy.

- The initial phase of asset management should focus on Inventory and Condition Assessment, and Criticality Analysis and Risk Assessment with a goal of developing GIS mapping. (e.g. NJAW Ortley Beach)
Asset Management

Inter Agency Approach

• Marrying DEP’s regulatory oversight (i.e. discharge and drinking water standards) with other governmental roles affecting rate-setting, funding reserves, and financial assistance
  • Key players: DEP, BPU, DCA
  • Also bringing together other sister agencies, including:
    • Office of Planning Advocacy
    • Economic Development Authority
    • NJ Environmental Infrastructure Trust
    • NJ Dept. of Transportation (Open Streets)
    • U.S. Environmental Protection Agency
    • U.S. Housing & Urban Development
Asset Management

• This strategy will include:
  • Policy
  • Planning
  • Recommended necessary legislative/regulatory changes

Goal: Design Effective and Useful Asset Management Plans
• Recognize individual system characteristics/ problems/ needs – “one size doesn’t fit all”
• Work with affected stakeholders to devise a smart asset planning framework
• Select Pilot Utility Systems (3-5) as Trial Platform from which to subsequently launch comprehensive statewide initiatives
Asset Management

Making the right investment at the right time!

Elements of Asset Management:

• Infrastructure Inventory and Condition Assessment
• Level of Service Goals
• Criticality Analysis & Risk Assessment
• Funding Plan
• Implementation Plan
Other Actions

- Asset Management
- Infiltration/Inflow (I/I)
- Stormwater Management
- Combined Sewer Overflow (CSO) Strategy
- Reducing Industrial Discharges During an Emergency
- Comprehensive, Integrated Planning
- Financing
Infiltration and Inflow (I/I)

• High I/I rates result in an increased incidence of combined sewer overflows and exacerbate issues during periods of infrastructure failures or reduced delivery or treatment capacity.

• Past practices allow for cost-effectiveness considerations; additional requirements to safeguard infrastructure by reducing flows routinely during emergency situations.

• Rulemaking is expected to be necessary (funding provisions may provide authority) to require the assessment and reduction of I/I.

• Upgrades to address excessive I/I could become part of an effective asset management plan.
Stormwater/Green Infrastructure

- The Department is considering several rule changes to reduce and improve stormwater management especially as it relates to redevelopment and green technologies:
  - Mandate enhanced use of green technologies through revised nonstructural standards
  - Mandate stormwater quantity control for redevelopment; revised standards
  - Eliminate need for Department Certification of MTDs
  - Require maintenance plans to provide specific preventative maintenance tasked and schedules for flood prone areas
Combined Sewer Overflows (CSOs)

• The Department's CSO strategy/initiative continues and was 'right on track':
  • All CSO permittees will be required to develop/finalize and submit Long Term Control Plans with a goal of reducing or eliminating CSOs
  • Solutions to reduce or eliminate CSOs must include an evaluation of green infrastructure
  • Permit requirements will include asset management planning, financing
  • Improve operation and maintenance and emergency planning requirements/guidance
  • Improve public notification when there is a discharge/overflow
  • CSOs may provide an 'emergency only' role
Industrial Discharge

• Reduced discharge during emergency.

• Significant industrial discharges (industries, hospitals, airports) are subject to pre-treatment requirements.

• Delegated treatment plants can refuse discharges if pre-treatment requirements are not met.

• However, it is less clear if authority exists to require reduction or elimination of flows by the NJDEP or permittee experiencing treatment or delivery issues (e.g. PVSC or MCUA); evaluation ongoing.
New paradigm using lessons learned: Managing our Water Resources

• Strategy for Comprehensive/Integrated Water Resource Management with a focus back on watershed management
  – Validated through our Sandy work as it immediately became apparent that the best way to manage is at a regional basis; and in water that means by watershed and subwatershed.
  – Recognizing vulnerabilities for a ‘region’ is the most practical way to ensure that we are not creating cookie cutter approaches or mandating particular upgrades in areas where it is not appropriate.
  – This will also make data collection, GIS mapping and other tools for sustainable rebuilding and redevelopment more effective, user friendly, easily accessible and efficient.
  – Further, this approach best leverages external partnerships that are needed for data collection, strategic planning, implementation and emergency response.
Integrated Planning and Path Forward

• Water Resource Management moving forward with integrated planning process that looks at drinking water, water supply, wastewater and stormwater on a comprehensive watershed basis.

• Efforts to improve the resiliency, protection and maintenance of critical water infrastructure will be the Department's highest priority in 2013
Financing The Future

• Maximizing use of available funding resources (NJEIT, CDBG), Prioritizing projects
  • Wastewater and Drinking Water Combined – OVER $3 Billion
  • Wastewater is the VAST majority
  • Funding will come from multiple sources in diverse forms: FEMA, SRF, HUD, USDA, USACE
• We are seeking all resources and working with FEMA, HUD and EPA to identify potential funding sources and how to maximize funding.
• Final details of the NDEFP will require FEMA approval.
Next Steps

• Vetting approaches with both industry experts and the regulated communities.

• We have been, and will continue to be, conducting ‘roundtable’ discussions to review these concepts, potential costs and hurdles to implementation. Meetings anticipated include industry, trades, barrier island municipalities and experts in infrastructure engineering.

• We also continue to work closely within DEP with LUM and NHR as well as interagency with GORR, DCA, BPU, DOT and OPA; and our federal partners at FEMA, HUD and EPA.