NJDEP Initiatives for Asset Management For State Water Utilities

New Jersey Clean Water Council

June 14, 2016

Water Resource Management

New Jersey Department of Environmental Protection

DEP discussions with Clean Water Council-NJ on asset management
2008

2000-2010

National promotion of water infrastructure asset management

And CWC Recommendations

Superstorm Sandy
2012

2013

DEP Asset Management and other resiliency guidance

SRF WRRDA requirements: fiscal sustainability plan (asset management)
2014

2020

Where do we want to be?

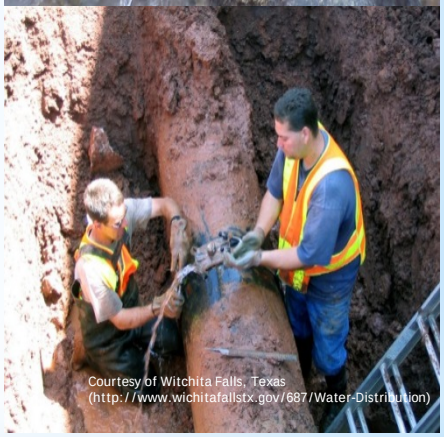
- *Long term investment strategies, asset management plans in place and being implemented*

* Evolution of Asset Management

* Goals

- *Ensure owners/operators of water systems proactively maintain the mechanical and technical components of their system in a cost-effective manner
- *Assist owners and operators by clearly defining metrics for asset management
- *Provide technical assistance to owners/ operators to aid in the development of each system's AM Plan


Courtesy of: City of Orillia, Ontario
(http://orillia.ca/en/livinginorillia/water.asp?ndContent=)


Courtesy of Witchita Falls, Texas
(http://www.wichitafallstx.gov/687/Water-Distribution)

* Current Support

* *Asset Management Guidance and Best Practices* document
* Assessment Guide for review of AM Plans (CSO permittees)
* DEP review of community drinking water systems' AM plans/ Capacity Development Program
* AM planning set-aside (EIFP)
* NJEIFP requirements for AM Plan certification
* Education in public forums
* Cross-program collaboration (WRM, C&E, EIFP)
* Industry workgroup (AWWA-NJ, NJWEA, AEA-NJ, NJWA)

* Draft Technical Guidance

* Covers five components of asset management:
  1. Asset Inventory/ Mapping & Condition Assessment;
  2. Level of Service;
  3. Identification of Critical Assets;
  4. Life-Cycle Costing of Assets; and
  5. Long-Term Funding Strategy

* Consistent with existing guidance
* Gives details & examples of how to perform each step
* Being reviewed by our Industry workgroup

* Asset Inventory/ Mapping & Condition Assessment

* Locate & identify assets
* Determine condition
  * Remaining life (service history, operator knowledge, manufacturer recommendations)
  * Value
  * Energy use
* Create an inventory (database)
* Digitize location data (GIS mapping)

* Level of Service

* Level of Service goals:
  * Inform prioritization of investment
  * System-related:
    * Maintenance scheduling
    * Worker safety
    * Reduction in unaccounted for water losses or line breaks
  * Customer-facing:
    * Rates
    * Response time
    * Consistency in service (water pressure)

* Identify Critical Assets

* EPA defined criticality:
  * Probability of failure
    * age
    * vulnerability
    * operator experience
    * service history
    * deficient capacity
  * Consequence of failure (impacts/ costs)
    * social (reduced level of service, traffic disruption)
    * environmental (contamination, odors, threat to wildlife)
    * economic (lost revenue, unbudgeted maintenance costs)
* Ranking (risk analysis)

* Life-Cycle Costing

* Maintenance and repair schedule
* Associated Capital Improvement Plan (CIP)
* Prioritization:
  * High criticality (probability and consequence of failure)
  * Level of service goals
    * Improving efficiencies
    * Reducing costs
    * Improving customer service
    * Reducing line breaks

* Long-Term Funding Strategy

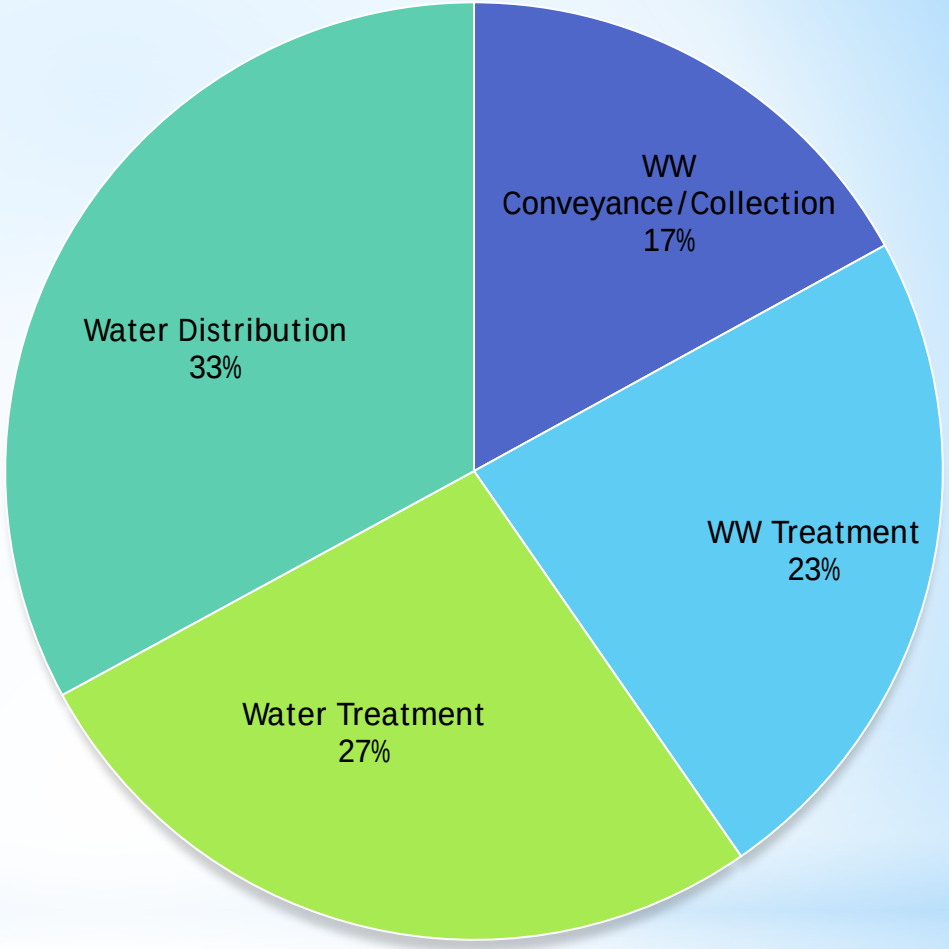
* How it is going to get done
* Source of revenue (internal/ external):
  * Grants/ loans
  * Utility rates
* Should be adequate to cover:
  * O&M
  * Routine repair/ replacement
  * Debt service
  * Capital improvements
  * Emergencies

* **Purpose**: Assess status of asset management planning amongst State water utilities
* Designed with assistance from Industry workgroup

*What was asked:
  - *Assets inventoried? Mapped?
  - *Condition assessment of more than 50%?
  - *Criticality assessment?
  - *Long-term funding strategy?
  - *Intent to complete

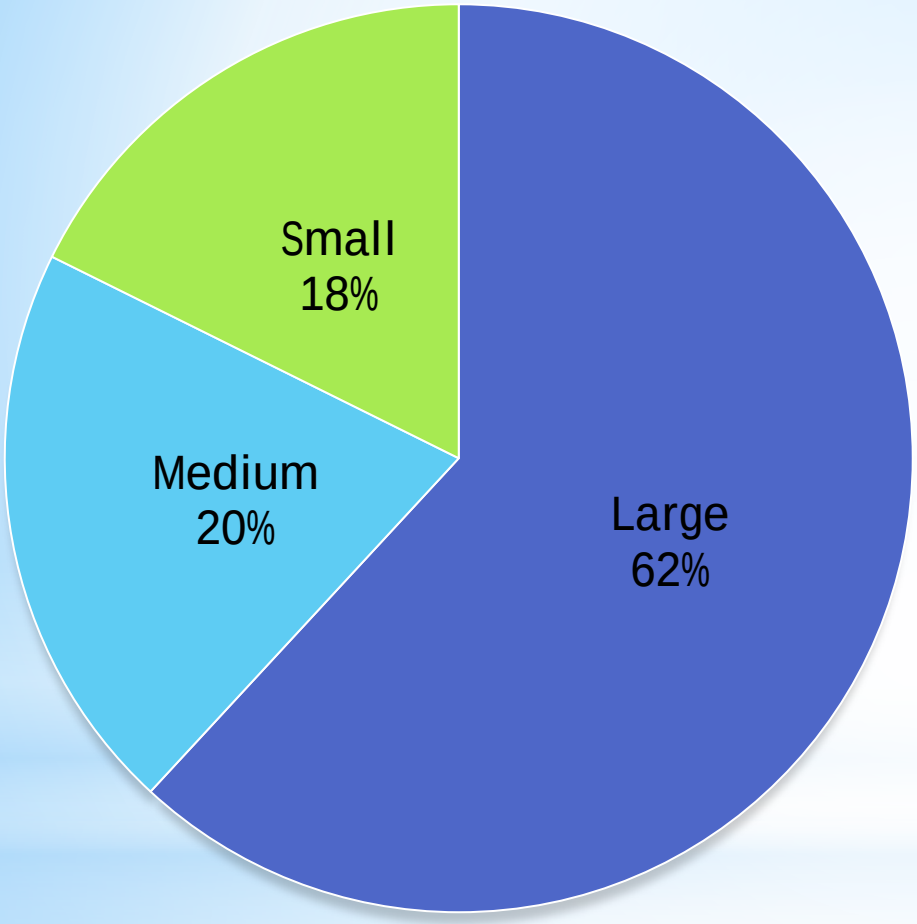
* Baseline Survey

* Response Rate
* Status:
  * Inventory
  * Condition Assessments
  * Criticality Assessments
  * Funding Strategy
  * Intent to Complete

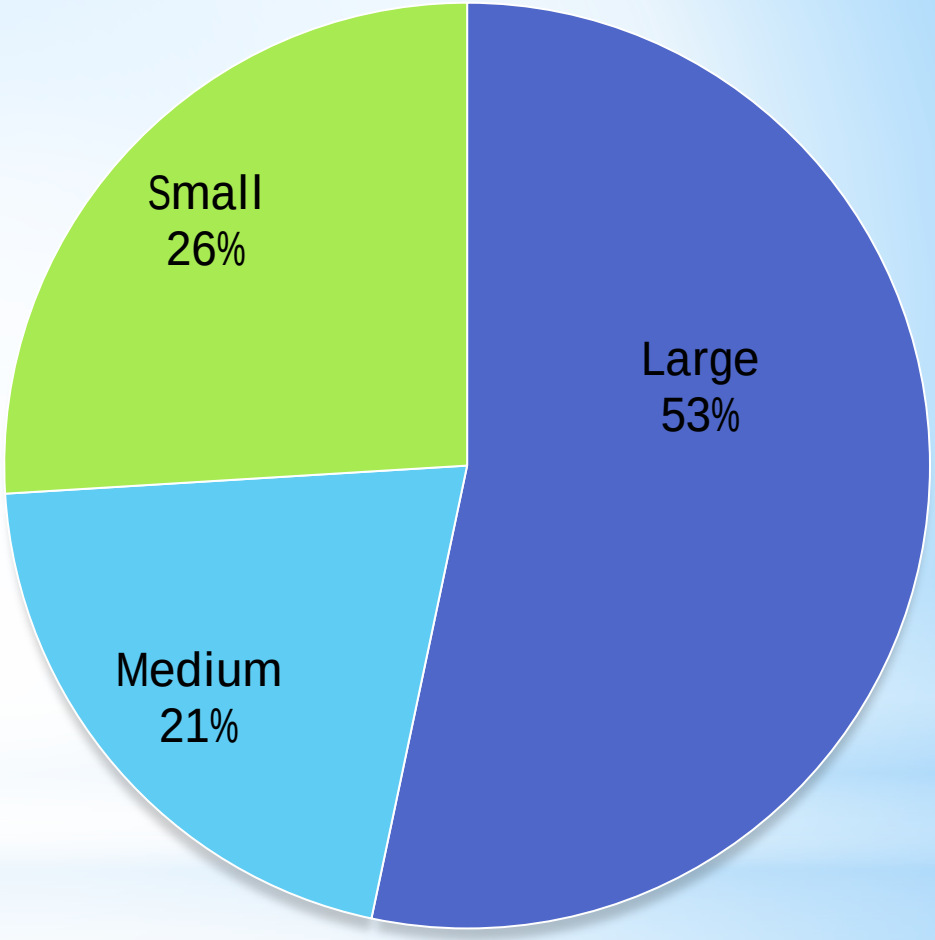


* Results

181 Wastewater Systems



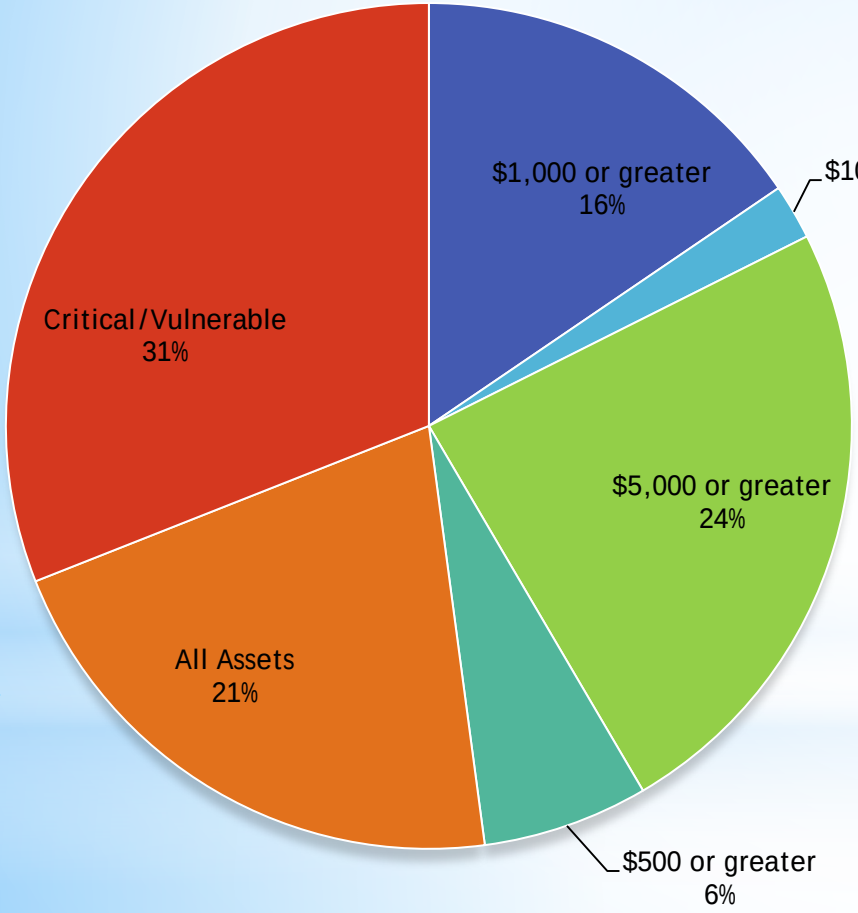
362 Drinking Water Systems



* Who we heard from

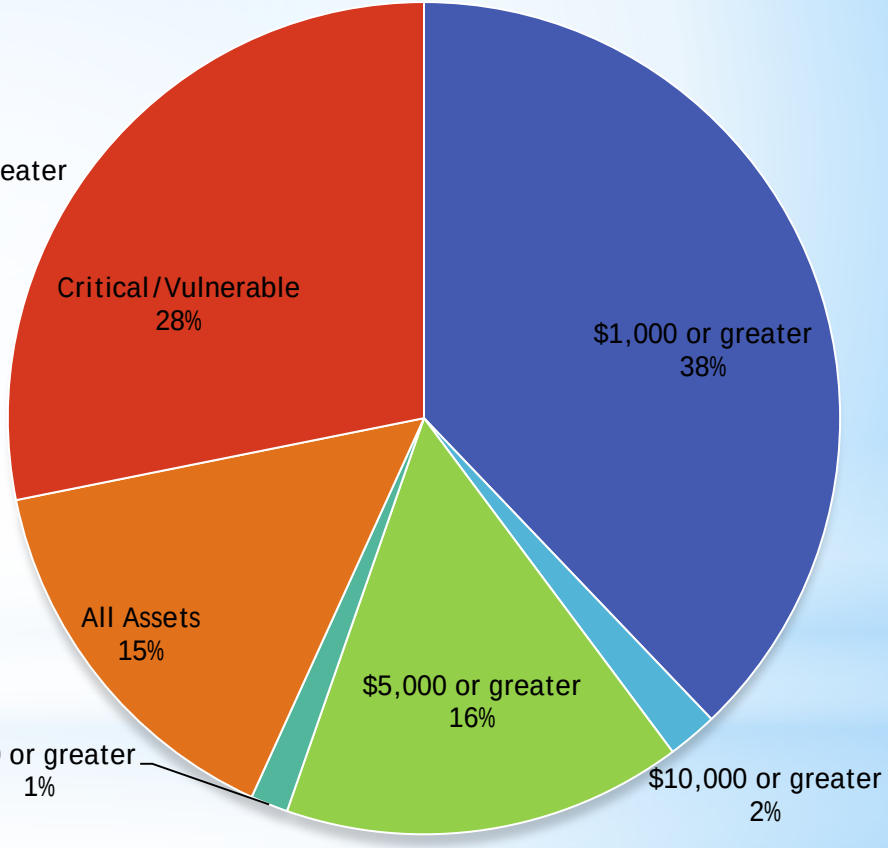
Wastewater Systems (181)

* 83% have done some inventorying
* 76% have inventoried >50% assets



Drinking Water Systems (362)

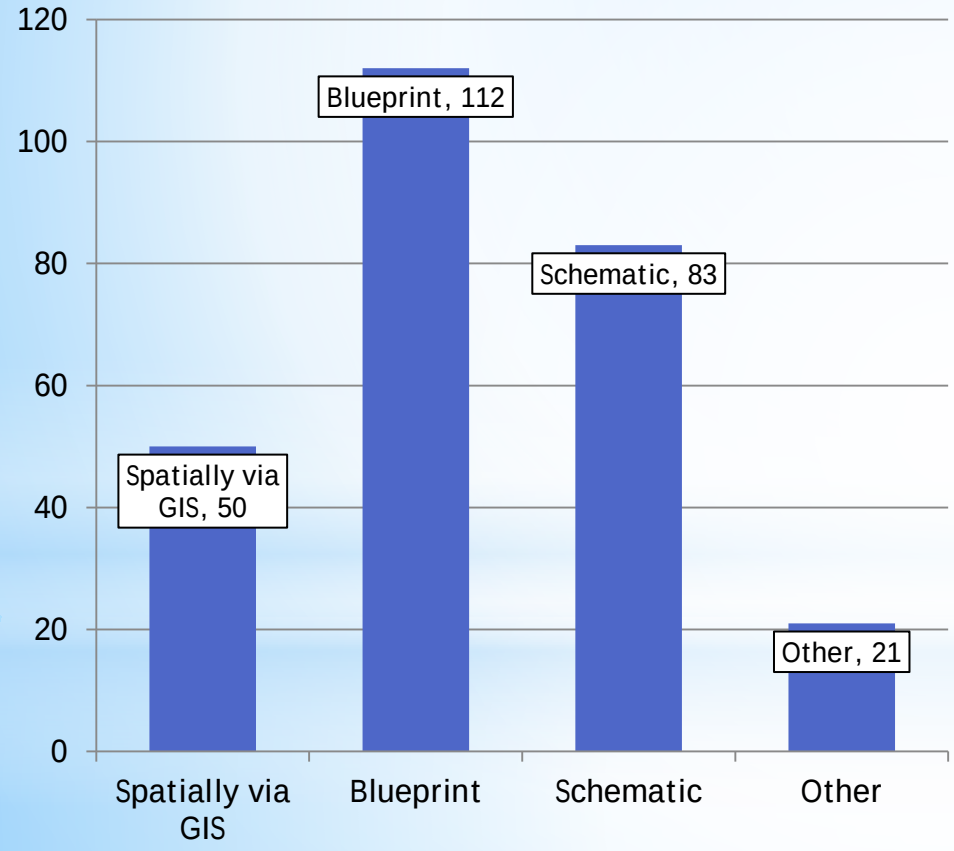
* 69 % have done some inventorying
* 87 % have inventoried >50% assets



* Inventory

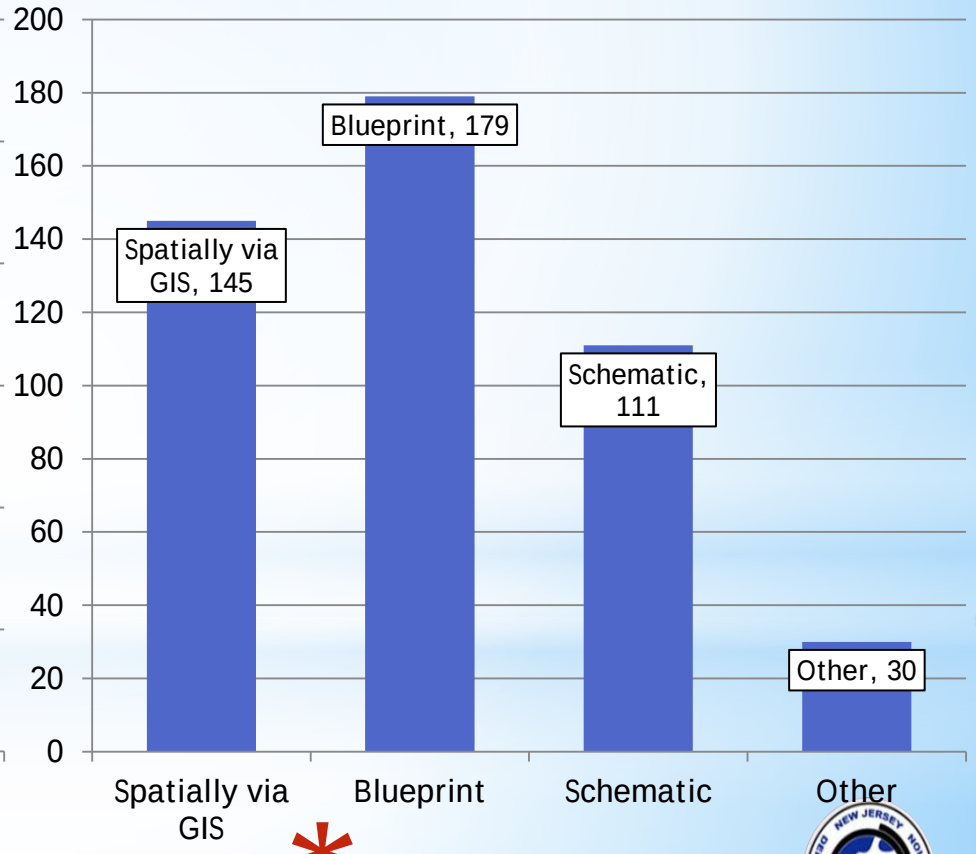
Wastewater Systems (118)

* 67% have mapped >50% assets
  * Collection systems: 84%
  * Treatment systems: 60%



Drinking Water Systems (362)

* 76% have mapped >50% assets
  * Treatment systems: 73%
  * Distribution systems: 78%

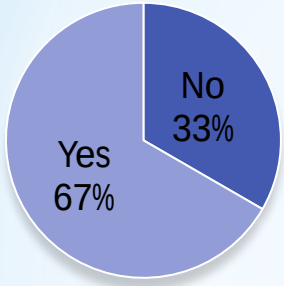


* Mapping

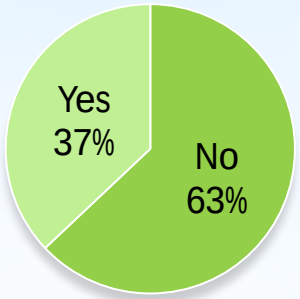
Wastewater Systems (153)

* **46%** have done criticality assessment, **54**% have not

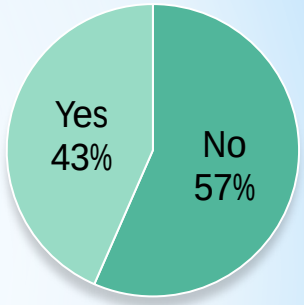
27 SMALL SYSTEMS



27 MEDIUM SYSTEMS



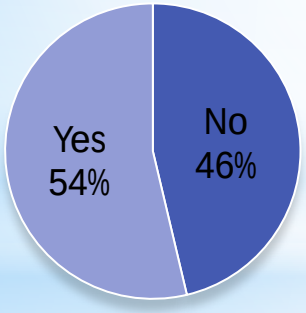
99 LARGE SYSTEMS



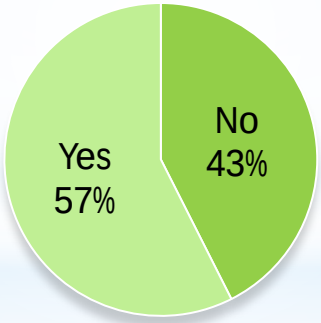
Drinking Water Systems (251)

* **53**% have done criticality assessment, **47**% have not

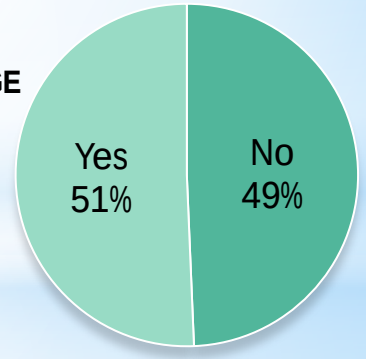
54 SMALL SYSTEMS



47 MEDIUM SYSTEMS



150 LARGE SYSTEMS

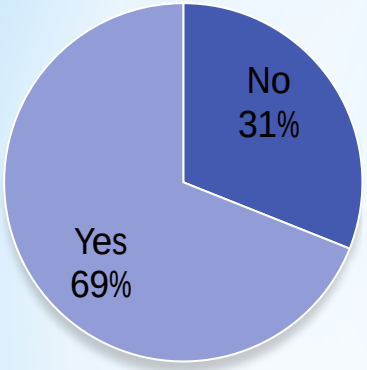


* Criticality Assessments

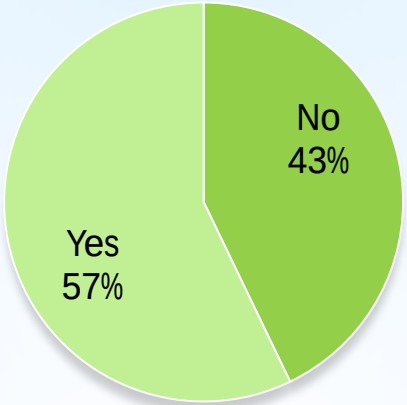
Wastewater Systems (157)

* **60%** have done condition assessment of more than 50% of assets inventoried

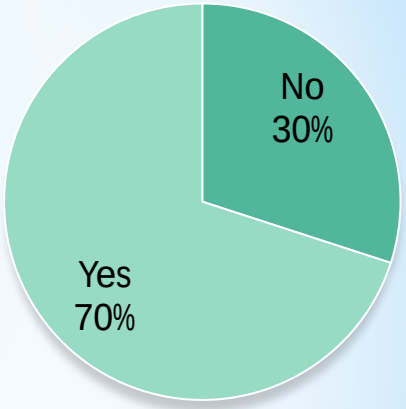
29 SMALL SYSTEMS



28 MEDIUM SYSTEMS



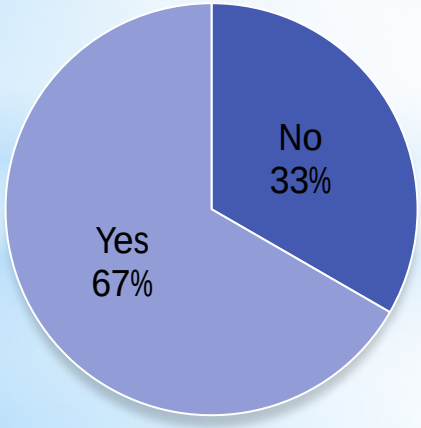
100 LARGE SYSTEMS



Drinking Water **Systems (251)**

* 71% have done condition assessment of more than 50% of assets inventoried

54 SMALL SYSTEMS



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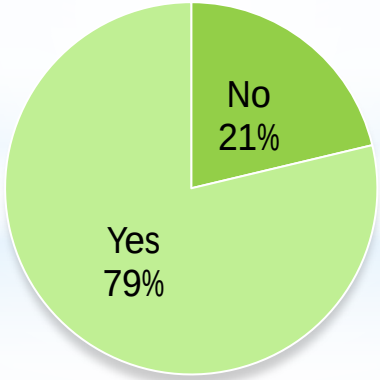
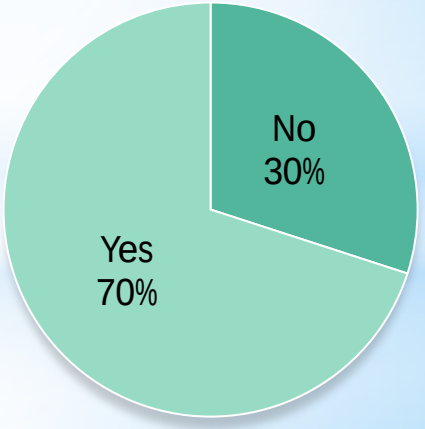


150 LARGE SYSTEMS



* **Condition Assessment**

Wastewater Systems (181)

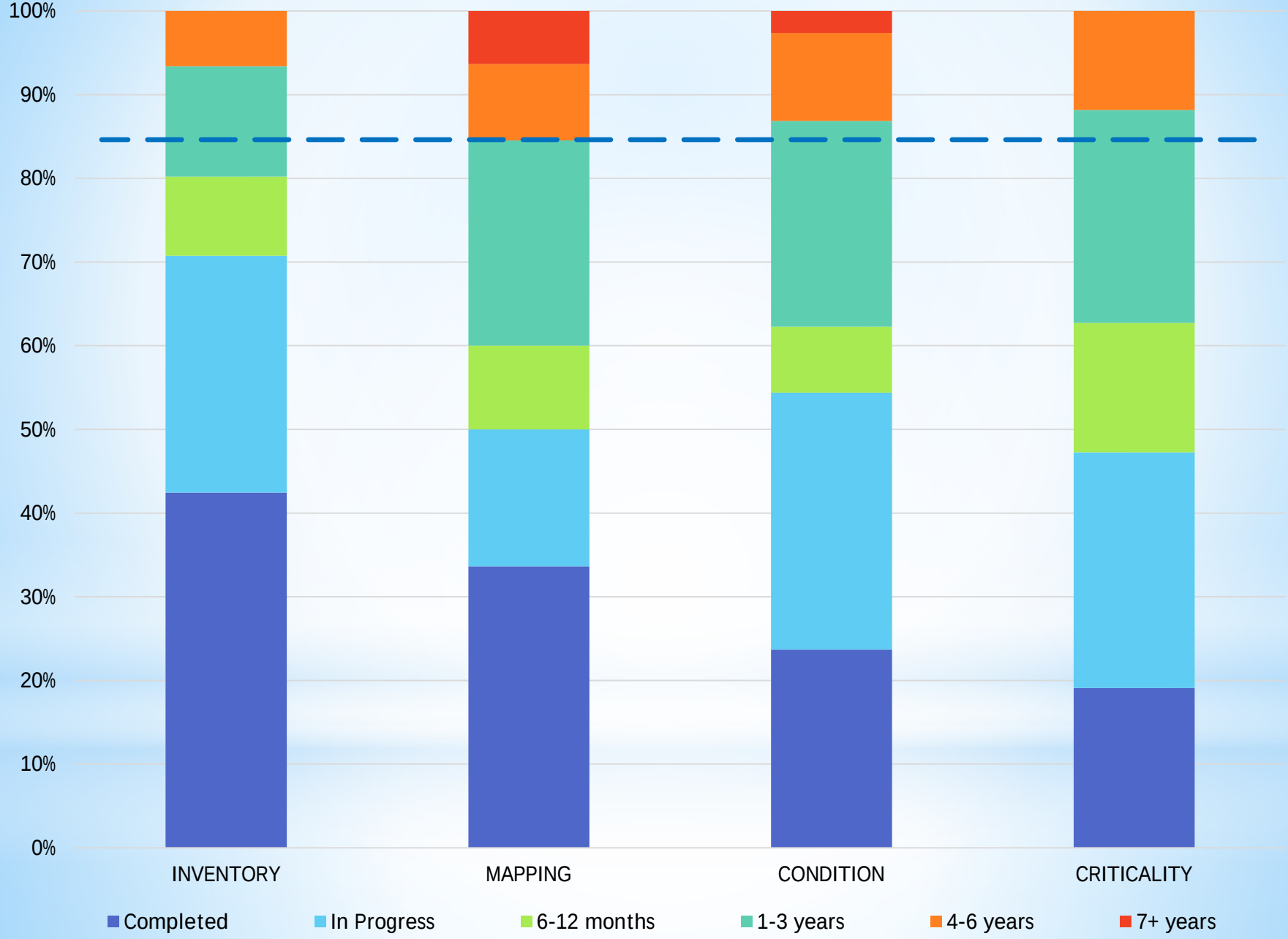
- **72%** intend to complete some aspect of asset management
- Of 110 systems, over **80%** systems intend to have some aspect of AMP done in **next three years**
  - Already completed or in progress:
    - 70%: inventory
    - 50%: mapping
    - 54%: condition assessment
    - 48%: criticality assessment

Drinking Water Systems (362)

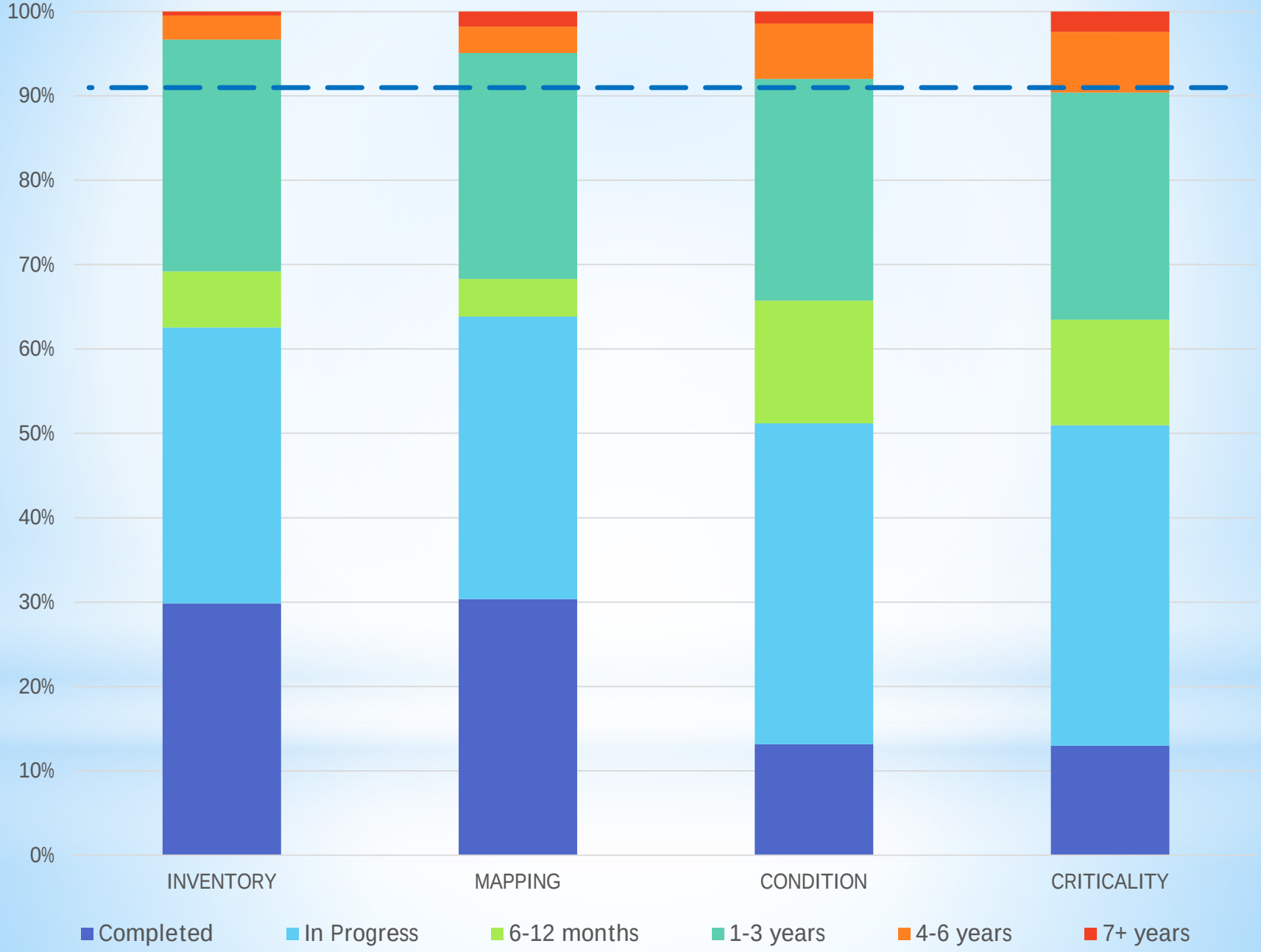
- **78%** intend to complete some aspect of asset management
- Of 211 systems, over **90%** systems intend to have some aspect of AMP done in **next three years**
  - Already completed or in progress:
    - 62%: inventory
    - 62%: mapping
    - 52%: condition assessment
    - 53%: criticality assessment

* Intent to Complete

Intent to Complete (for Wastewater Systems)



Intent to Complete (for Drinking Water Systems)



Wastewater Systems (181)

* 69% all wastewater respondents have a long-term funding strategy
  * 81% large systems
  * 62% medium systems
  * 34% small systems

Drinking Water Systems (362)

* 70% all wastewater respondents have a long-term funding strategy
  * 77% large systems
  * 69% medium systems
  * 55% small systems

(Funding for: O&M, rehabilitation, repair and replacement of prioritized system components, inventory and mapping, condition assessment, etc.)

* Long-term Funding Strategy

*What's next for NJ

- *Determine requirements and reasonable implementation schedule
- *Launch website to provide resources and links, update frequently
  - *Including templates, AM checklist
- *Enhance financial incentives under EIFP for AM planning and implementation
- *Database for retaining information on system's status