Managing Utility Risk:

AWIA Analysis, Compliance, and Options for Project Funding

NJ Water Association – 2021 Annual Management & Technical Conference

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"The quickest way to double your money is to fold it over and put it back in your pocket."

- Will Rogers

"A bank is a place that will lend you money, if you can prove that you don't need it."

- Bob Hope

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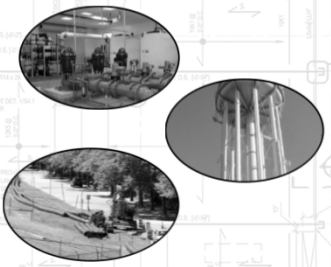
Sustainable Infrastructure

- Infrastructure
  - Water Source
  - Treatment Plants
  - Storage
  - Distribution
- Sustainability
  - Long-Term Plan to gradually and continually replace all infrastructure assets.
  - Plan for changes (regulations, climate change)
- Benefits
  - Quality
  - Economics
  - Environmental



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AWIA – October 23, 2018

- AWIA – America's Water infrastructure Act – October 23, 2018.
- Goal – "improves drinking water and water quality, deepens infrastructure investments, enhances public health and quality of life, increases jobs, and bolsters the economy."
- One component – Develop or update Risk and Resilience Assessment (RRA) and Emergency Response Plans (ERP)
  - Ability withstand or adapt to natural hazards or malevolent acts without interruption or a rapid return to a normal operating condition
  - System component resilience
  - Appropriate monitoring practices
  - Use, storage, handling of chemicals
  - Operation and maintenance
  - Evaluate financial needs of RRA management
- RRA and ERP Certification
  - Initial Deadlines – 2020 and 2021
  - Review and Update – every five years

AWIA Deadlines for Compliance

Community Water System Size (pop. served)*	Certify Risk & Resilience Assessment (RRA) prior to:	Certify ERP within 6 months of RRA, but not later than:
>100K	March 31, 2020	September 30, 2020
50K to 100K	December 31, 2020	June 30, 2021
3,300 to <50K	June 30, 2021	December 31, 2021

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Why Evaluate Risks and Plan Responses?

U.S. Water Supply System Being Targeted By Cybercriminals

Hacker tries to poison water supply of Florida city

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Risk and Resilience Assessment

- Resources
  - EPA Guidance for Small Community Water Systems
  - EPA Vulnerability Self-Assessment Tool (VSAT)
  - AWWA J100 Risk and Resilience Management of Water and Wastewater Systems
  - Professionals (NJWA, Engineers, Consultants)
- Summary of RRA
  - Evaluate risks from malevolent acts and natural hazards
  - Evaluate resilience of pipes, physical barriers, source water, water collection intake, pretreatment, treatment, storage and distribution facilities, electronic/computer automated systems.
  - System monitoring / operation and maintenance

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You Identified Risks – Now What?

- J100 Risk Equation
  - R = C * V * T
    - R = Risk (dollars per year)
    - C = Consequences ($)
    - V = Vulnerability
    - T = Threat Likelihood (per year)
  - For each critical asset, evaluate the threat and hazard for each – "threat-asset pair".
  - Then calculate the "consequence" "vulnerability" and "threat likelihood" for each "threat-asset pair"
  - Use the equation to rank the risk
  - Considered steps to mitigate risks and improve resilience, then re-calculate

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You Ranked Risks – Now What?

- Mitigate Risks and Improve Resilience
  - Benefit / Cost Ratio
  - Prioritize into Phases
  - Possible Mitigation Measures
    - Fences, barriers, cameras, monitoring, backup sources and systems, ongoing infrastructure replacement plans, etc.
  - Finding the funding for mitigation and necessary emergency response actions.

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Premise: Why Discuss Money?

- Resilience – Water infrastructure security is part of a greater theme that over-arches utility management: resilience.
- Criteria – Because you manage an essential function, a core part of your planning must be planning for system failure, and building that into your prioritization framework for projects
  - Disaster Mitigation – Storm hardening, etc.
  - Redundancy – Constructing firm capacity, N+1, etc.
- Funding Planning – If you have a vision for hardening your utility against risk, you have to prepare to narrate it to decision-makers. That means planning to get it done, and the primary criteria is often funding.

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Structure: How to Discuss Money

- Decision-makers will want information on costs
- Project Cost Structure
  - Capital Cost – What will it cost to build?
  - Operating Cost – Labor, electricity, chemicals… annual cost to run it
- Bonds – In the absence of cash, projects are typically financed using municipal bonds
  - Term is typ. 20 years
  - Interest rates set by the market
- Consequences in Rates – Big / simple picture:
  - Capital Costs – Drive base rates
  - Operating Costs – Drive consumptive piece of rates

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Project Funding: Other Options

- Money is limited…
  - Bonding capacity is limited
  - Rate increases are not welcomed by consumers
- …But, water/wastewater infrastructure MUST work!
  - Firm capacity rules are non-negotiable
  - Water, line power, and control must flow 24/7/365
- What other options exist? There are quite a few:
  - NJ Infrastructure Bank
  - USDA – Rural Development Water and Environmental Program (WEP)
  - HUD – Community Development Block Grants (CDBG)
  - FEMA – Various grant programs

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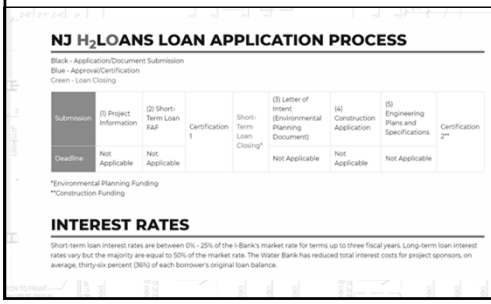
NJ I-Bank: Program Details



NJ H_2LOANS LOAN APPLICATION PROCESS

Black - Application/Document Submission
Blue - Approval/Certification
Green - Loan Closing

Submission	(1) Project Information	(2) Short-Term Loan FAF	Certification 1	Short-Term Loan Closing*	(3) Letter of Intent (Environmental Planning Document)	(4) Construction Application	(5) Engineering Plans and Specifications	Certification 2**
Deadline	Not Applicable	Not Applicable			Not Applicable	Not Applicable	Not Applicable	

*Environmental Planning Funding
**Construction Funding

INTEREST RATES

Short-term loan interest rates are between 0% - 25% of the I-Bank's market rate for terms up to three fiscal years. Long-term loan interest rates vary but the majority are equal to 50% of the market rate. The Water Bank has reduced total interest costs for project sponsors, on average, thirty-six percent (36%) of each borrower's original loan balance.

- NJ Water Bank Financing Program – Big Takeaway: They write low-interest loans for water and wastewater projects
  - 34 years in existence
  - Partnership between I-Bank and NJDEP
  - Uses "H2Loans" application portal

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USDA: Water & Environmental Program (WEP)

- USDA Rural Development "focuses on helping improve the economy and quality of life in rural communities in America". Basically, their programs underwrite the infrastructure of rural/farming communities.
- Water and Environmental Programs (WEP) provide financing for water and wastewater systems
- Key criteria: Populations of 10,000 or less
- Applications via "RD Apply" web portal
- Grant and Loan Programs:
  - Emergency Community Water Assistance Grants – To "*recover from, an emergency that threatens the availability of safe, reliable drinking water.*"
  - Grants up to $150K for distribution repairs, up to $1M for source construction
  - Applications accepted year-round
- Water & Waste Disposal Loan & Grant Program
  - Variety of water and wastewater improvements

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Housing & Urban Development

- U.S. Department of Housing & Urban Development (HUD) supports a major funding program called the "Community Development Block Grants" (CDBG)
- CDBG program *"…expands economic opportunities, principally for low and moderate income areas. The program can fund drinking water and wastewater projects."* Program areas include:
  - Focuses on smaller communities… cities with a population under 50,000 and counties with a population under 200,000.
  - The Section 108 Loan Guarantee Program enables these states and entitlements communities to leverage up to five times their CDBG allocation for federally guaranteed loans to undertake water and sanitation projects.

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FEMA

- Federal Emergency Management Agency – "*Helping people before, during, and after disasters*"
- FEMA Grant Programs are intended to support the FEMA mission
  - "Grant funds are available for pre and post emergency or disaster related projects. These funds support critical recovery initiatives, innovative research and many other programs. Grants are the principal funding mechanism FEMA uses to commit and award federal funding to eligible state, local, tribal, territorial, certain private non-profits, individuals and institutions of higher learning."
  - Usually administered local to each state. In NJ, it's NJOEM
- Grant Programs:
  - Hazard Mitigation Assistance
  - Preparedness Grants
  - Resilience Grants

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Questions

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H2M architects + engineers

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Thank you!

Please reach out for help structuring your utility security and funding planning

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ABOUT H2M

470+ **Staff Members**
57 **Registered Architects**
81 **Professional Engineers**
36 **LEED APs**

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