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Financing Resilient Infrastructure

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James Metz

Coordinator, Research and Technical Assistance
Council of Development Finance Agencies
Columbus, OH

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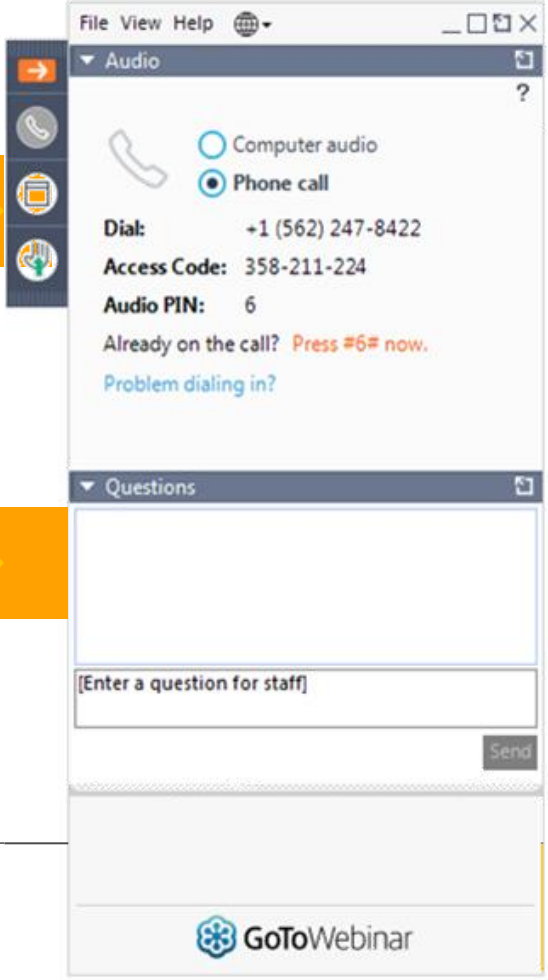
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Panelists

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Jennifer Fredericks

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Financing Resilient Infrastructure

Council of Development Finance Agencies

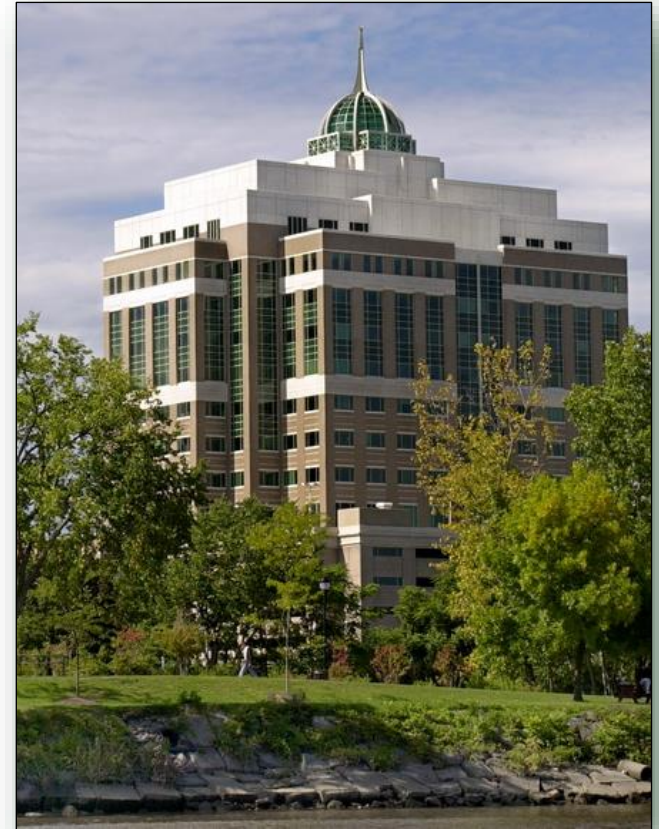
November 17, 2020



**Environmental
Facilities Corporation**

EFC Overview

- New York's Water Infrastructure Bank
- Public benefit corporation that provides financial and technical assistance primarily to municipalities by providing low-cost financing for their water quality infrastructure projects.
- EFC administers several funding programs, including the most active and successful State Revolving Funds in the nation, and state grants under the Clean Water Infrastructure Act of 2017



National Leader in Water Infrastructure Investment

- NYS leads the nation with the largest annual investment in water-quality infrastructure
- EFC's programs have provided over \$22 billion in financial assistance to local governments for approximately 3,300 projects





STATE REVOLVING FUND (SRF) PROGRAMS

Clean Water State Revolving Fund Overview

- Low-cost financing and grants for wastewater and water quality infrastructure
- Administered by EFC and NYS Department of Environmental Conservation (DEC)
- A variety of water quality improvement projects are eligible for financing:
 - ✓ Point Source Projects
 - ✓ Nonpoint Source Projects
 - ✓ National Estuary Projects



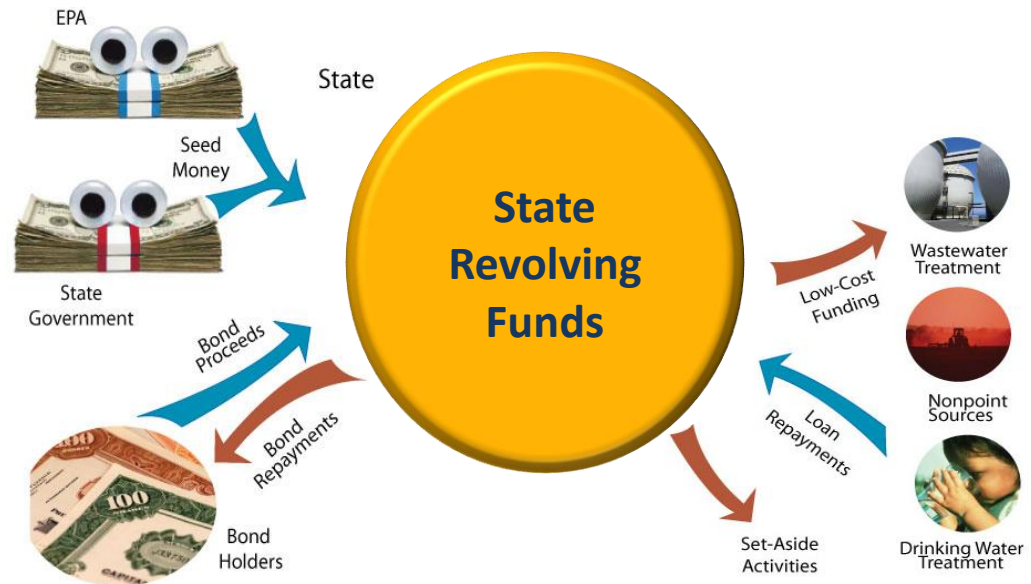
Drinking Water State Revolving Fund Overview

- Low-cost financing and grants for public drinking water infrastructure
- Administered by EFC and NYS Department of Health (DOH)
- A variety of public water system projects are eligible for financing:
 - ✓ Treatment Plants
 - ✓ Distribution Mains
 - ✓ Storage Facilities



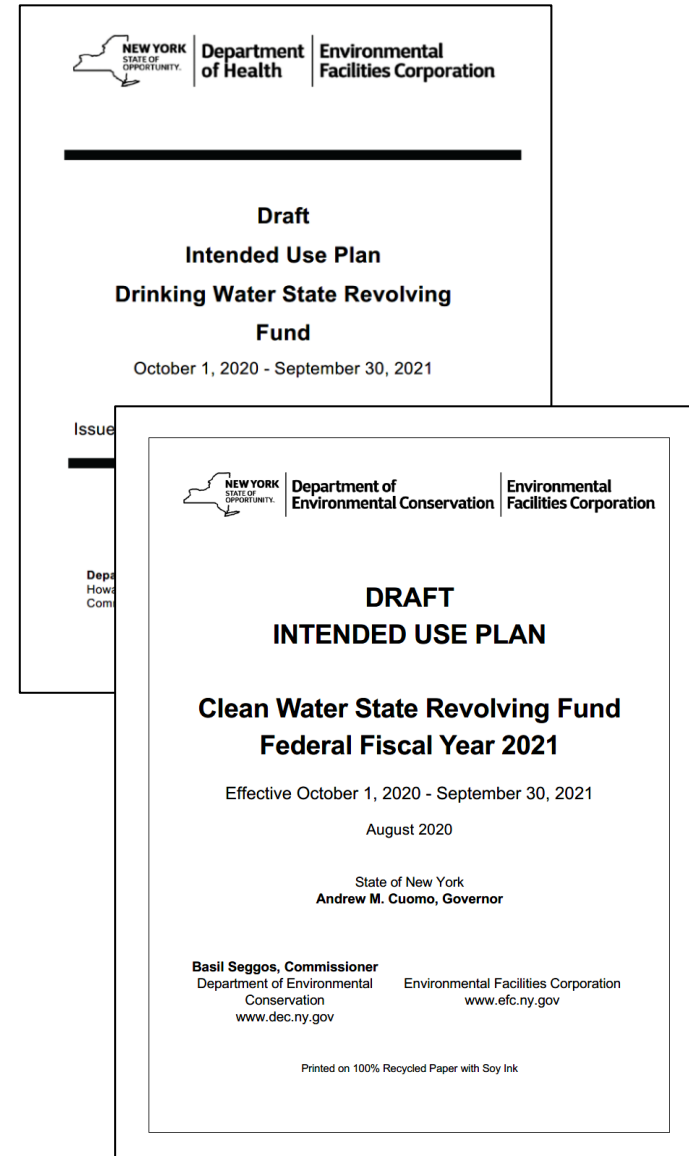
How an SRF Works

- Annual EPA grants are used to capitalize SRF, along with state matching funds (20%)
- SRF loans “revolve” - as funds are loaned to communities each year, the principal is repaid annually and recycles back into the SRF program to fund new water quality protection projects



Intended Use Plan (IUP)

- The Annual IUP for each SRF lists available funds and identifies the use of those funds for the Federal Fiscal Year (FFY) - Oct. 1 through Sep. 30
- Using information provided by the applicant, EFC and DOH:
 - ✓ Assign project priority score
 - ✓ Rank project based on water quality and public health impacts
 - ✓ Determine eligible project costs
- Projects are categorized by population size and are placed on the Annual list or Multi-Year List



Project Listing

A municipality must submit a project description and project funding needs via project listing:

DWSRF

- PDF listing form is available on www.efc.ny.gov
- An **engineering report** and smart growth form must be submitted for the project to be placed on the Annual List

CWSRF

- List and update your project using PLUS:
<https://plus.efc.ny.gov/plus>
- An **engineering report** and smart growth form must be submitted for the project to be placed on the Annual List

SRF Financing Application Requirements

Projects must be on the IUP's Annual List to apply:

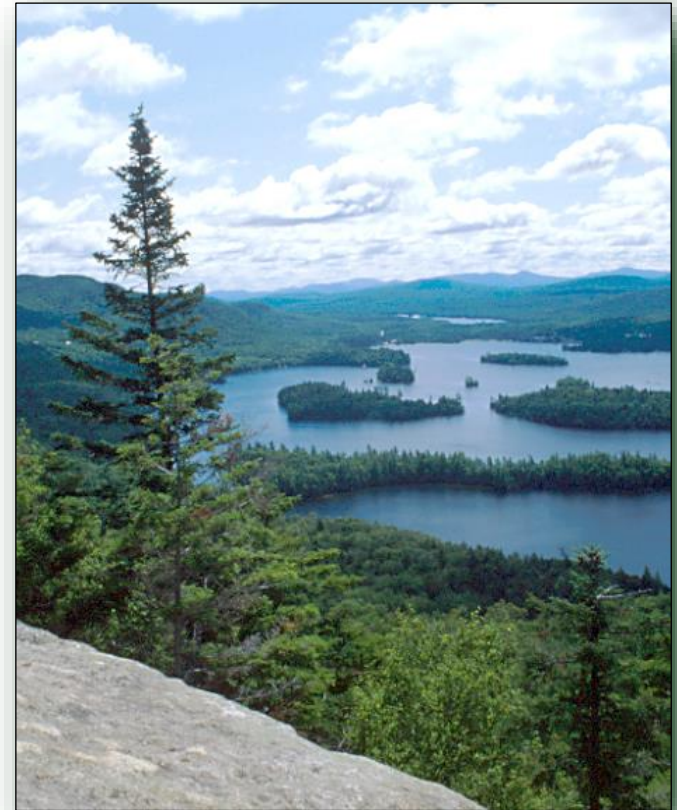
1. Submit a CWSRF/DWSRF Financing Application Form
2. Complete a State Environmental Quality Review (SEQR)
3. Obtain signoff of by NYS Office of Parks, Recreation and Historic Preservation (SHPO)
4. Form a Water/Sewer District (if necessary)
5. Adopt a Bond Resolution

**Applications are
due to EFC by:
June 25, 2021**

Visit www.efc.ny.gov
for more information

Additional Items to Complete an Application

- An engineering agreement or construction contract
- Permits/Approvals
- Contracts/agreements and related amendments
- Existing debt information for credit review
- Third party funding sources
- Inter-municipal agreements



SRF Program Requirements

Engineering Report Outline

Davis-Bacon [Federal Prevailing Wage]

- Applies to entire project, even if project is only partially funded by SRF

American Iron & Steel

- Treatment works projects only

MWBE Goals (20-30%)

- Goals depend on type of financing, but apply to:
 - ✓ Non-construction contracts/service agreements exceeding \$25,000
 - ✓ Construction contracts exceeding \$100,000
 - ✓ Any Change Order exceeding \$25,000

Engineering Report Outline

- Engineering Reports must be developed consistent with the engineering report outline for SRF financial assistance. DEC has also adopted this format.
- Requires alternatives evaluation and must consider cost and effectiveness of recommended solution (*PE-certified*)
- Approvable engineering report must also assess:
 - ✓ Life cycle cost analysis
 - ✓ Flooding and resiliency
 - ✓ Green Stormwater infrastructure
 - ✓ Energy Efficiency
 - ✓ Potential impacts to Environmental Justice communities

Flooding Considerations

- Requires a review and evaluation of existing and projected flood conditions
- Asks municipality to:
 - ✓ Evaluate presence of floodplain
 - ✓ Discuss the controlling elevations
 - ✓ Consider impacts on flood-water elevations
 - ✓ Recommend protection measures



2006 Binghamton/Johnson City WWTTP

Flood Elevation Standards

- Ten State Standards:
 - ✓ Fully operational at 25-yr flood with protection against structural, process and electrical equipment damage in a 100-yr flood
- TR-16 (Guides for the Design of Wastewater Treatment Works; revised 2016):
 - ✓ Critical equipment protected against 100-yr elevation + 3 ft
 - ✓ Non-critical equipment protected against 100-yr elevation + 2 ft
- Existing facilities should be improved to “the maximum extent possible” to meet this flood protection criteria
 - ✓ Evaluations may show significant challenges to implement increased levels of protection that are cost prohibitive
 - ✓ The possible vulnerability and the differential cost should be weighed against replacement cost in selecting an alternative

Storm Mitigation Loan Program (SMLP)

- Hurricane Sandy - October 29, 2012
- Disaster Relief Appropriations Act (DRAA) of 2013 - **\$600M** to NY and NJ for resiliency projects
- NY received **\$340M**
- With 20% match, total amount of financial assistance provided was **\$407.6M**
 - ✓ CWSRF: \$339.7 million
 - ✓ DWSRF: \$67.9 million
- Limited to mitigation projects:
 - ✓ “Reduce flood damage risk and vulnerability or to enhance resilience to rapid hydrologic change or a natural disaster at treatment works...”





FINANCE OVERVIEW

Loan Programs

- Short-term

- ✓ Typically for a period of 3 to 5 years
- ✓ Finance the estimated costs of the planning, design and construction of project
- ✓ The municipality provides EFC with a bond anticipation note and draws funds as it incurs costs for the project
- ✓ Designed to help identify all project costs prior to long-term financing in order to properly size the long-term borrowing

- Long-term

- ✓ Maturity generally up to 30 years

Loan Programs - Interest Rates

- 0%
- Subsidized
- Market-rate
- In general, the rate for the financing will depend on where the project is ranked on the IUP (score) as well as the income of the community



Hardship Program

- Interest-free loans and grants for disadvantaged communities
- Must meet “Hardship” eligibility criteria:
 - ✓ environmentally significant or public health priority
 - ✓ Economic need – based on Median Household Income (2017 MHI)
- Project must be ranked above the Hardship eligibility line on the Annual List
- Privately-owned drinking water projects must be regulated by the Public Service Commission
- New for FFY 2021 :
 - ✓ Environmental Justice: projects will be considered if at least 50% of the project cost or scope serves, protects or benefits an EJ community
 - ✓ Extended Term Financing: maturities offered up to 40 years, on a very limited basis, to assist communities where EFC determines a significant benefit



GRANT PROGRAMS

Clean Water Infrastructure Act of 2017 (CWIA)

Water Infrastructure
Improvement Act (WIIA)
at least
\$1.0 Billion

Intermunicipal Water
Infrastructure Grants
Program (IMG) at least
\$150 Million

\$417 Million awarded in 2019

184 CW and DW projects

Supporting \$1.59 Billion in construction

WIIA/IMG Project Evaluation Criteria

- EFC and DOH considers factors such as:
 - ✓ Water quality improvement or reduction in risk to public health
 - ✓ Financial needs of the community
 - ✓ Readiness to advance to construction
 - ✓ Level of demonstrated community support

Engineering Planning Grant Award

- DEC and EFC offer grants to help municipalities pay for the initial planning of eligible CWSRF projects (up to 80%)
- \$30,000, \$50,000 and \$100,000 Grants
- MHI of the municipality must be:
 - ✓ Equal to or less than \$70,000 in REDC regions of Capital District, Southern Tier, North County, Mohawk Valley, Central NY, Finger Lakes, or Western NY.
 - ✓ Equal to or less than \$90,000 in REDC regions of Long Island, New York City, and Mid-Hudson. EPG grant amount limited to \$100,000 per award
- A 20% match from local sources required

**To Date
\$18.7M
Awarded to
463
projects**

Green Innovation Grant Program (GIGP)

- **Water Efficiency:** Reuse, Conserve or Improve Water Efficiency
- **Energy Efficiency:** Reduce Energy Consumption or Produce Clean Energy
- **Green Stormwater Infrastructure:** Maintain and restore natural hydrology by infiltration, evapotranspiration, and harvesting stormwater

**To Date
\$185M
Awarded to
233 projects**

GIGP Program Priorities

Natural Restoration: Projects that demonstrate the effectiveness of green stormwater infrastructure in a natural environment, such as flood plains, riparian buffers, streams, and wetlands.

Climate Mitigation: Project that implement one of the three eligible GIGP practices to reduce the effects of greenhouse gases and/or expand clean energy initiatives.

Environmental Justice: Projects that use GIGP practices to advance the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Transformation: Larger transformative projects with a main focus on water quality that provide multiple environmental, economic, and social benefits.



Co-Funding and Program Assistance

EFC Client Services



EFC staff available:

- Application Assistance
- Legal, Engineering, and Financial Expertise
- Individual Project Consultations
- On-Site Visits
- Field Offices
- Public Outreach and Education
- Co-Funding

Co-Funding Partnerships

NYS EFC and NYS Department of Environmental Conservation

- ✓ Clean Water State Revolving Fund

NYS EFC and NYS Department of Health

- ✓ Drinking Water State Revolving Fund

USDA Rural Development

- ✓ Water Environment Program

NYS Office of Community Renewal

- ✓ Community Development Block Grant Program

NYS Department of Environmental Conservation

- ✓ Water Quality Improvement Project Grant Program

NYS Department of State

- ✓ Local Government Efficiency Grant Program
- ✓ Appalachian Regional Commission Area Development Grant Program



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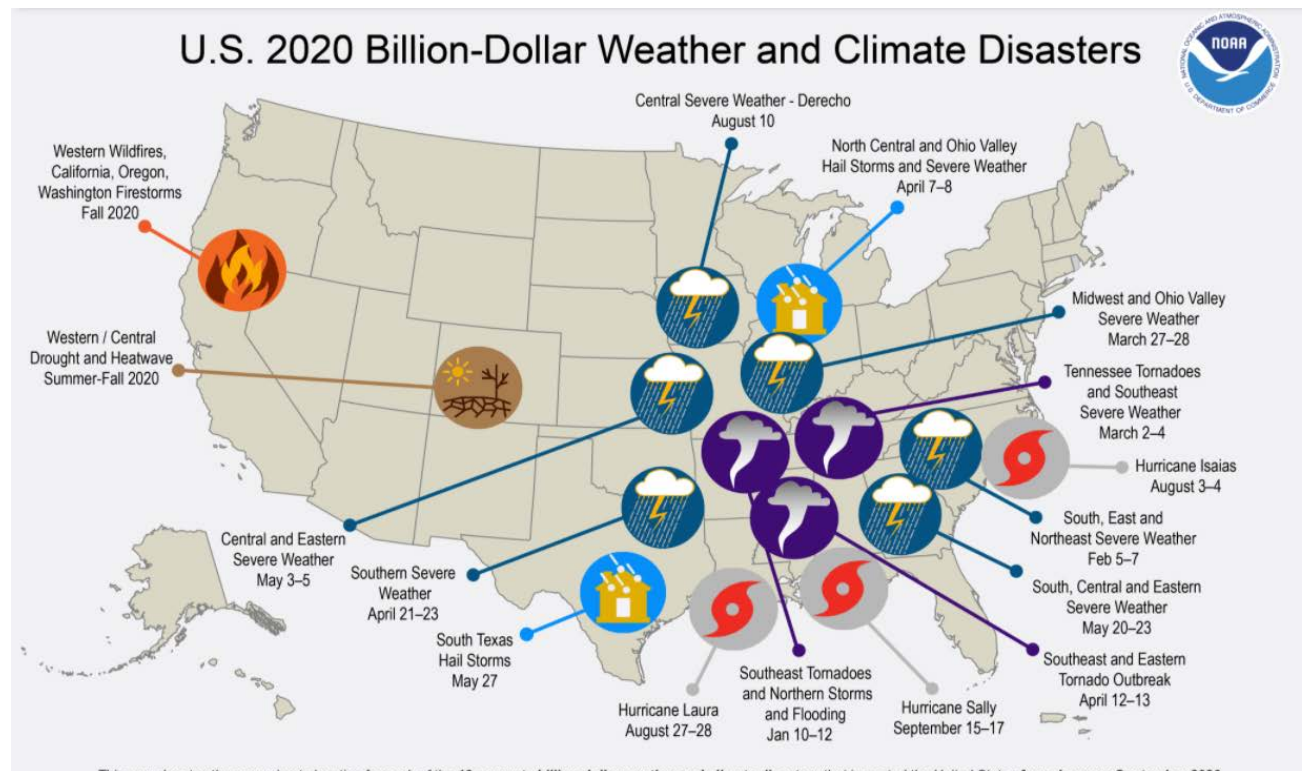
FINANCING RESILIENT INFRASTRUCTURE

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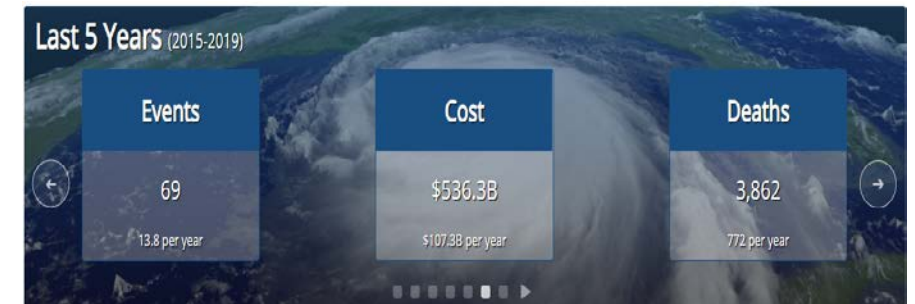


November 17, 2020

United States Weather and Climate Disasters



- The first 9 months of 2020 tied annual record of 16 events that occurred in 2011 and 2017.
- 2020 is the sixth consecutive year (2015-2020) in which 10 or more billion-dollar weather and climate disaster events have impacted the United States.



Need for Resilient Infrastructure

- Disaster events disrupt power, transportation, communications, and supply chains, leading to lengthy recovery times and long-term economic impacts for residents and businesses.
- FEMA data indicate that about 40% of small businesses never open their doors after a disaster, and another 25% fail within a year.
- Proactive investments at a range of scales are needed to mitigate these economic losses, reduce loss of life, and enhance the resilience of vulnerable communities
- Needed investments range from measures to protect individual homes and commercial buildings, to neighborhood or “district-scale” disaster protection measures projects, to multi-billion dollar schemes for regional protection.
- Systematic approach to fund or incentivize pre-disaster resilience at these various scales does not exist
- A 2018 study by the National Institute of Building Sciences found that every \$1 spent on hazard mitigation by federal agencies yields \$6 in total benefits, including property damage, loss of business, and health impacts.

Billion-dollar disasters to affect USA since 2008:

DISASTER TYPE	EVENTS	EVENTS/YEAR	PERCENT FREQUENCY	TOTAL COSTS	PERCENT OF TOTAL COSTS	COST/EVENT	COST/YEAR	DEATHS	DEATHS/YEAR
Drought	28	0.7	10.0%	\$254.3B [†] CI	13.9% [†]	\$9.4B [†]	\$6.2B [†]	3,865 [†]	94 [†]
Flooding	33	0.8	11.8%	\$151.0B [†] CI	8.3%	\$4.6B	\$3.7B	617	15
Freeze	9	0.2	3.2%	\$30.7B [†] CI	1.7%	\$3.4B	\$0.7B	162	4
Severe Storm	126	3.1	45.2%	\$280.3B [†] CI	15.3%	\$2.2B	\$6.8B	1,761	43
Tropical Cyclone	48	1.2	17.2%	\$974.9B [†] CI	53.4% [†]	\$20.7B [†]	\$23.8B [†]	6,570	160
Wildfire	18	0.4	6.5%	\$85.7B [†] CI	4.7% [†]	\$5.0B [†]	\$2.1B [†]	388	9
Winter Storm	17	0.4	6.1%	\$50.0B [†] CI	2.7%	\$2.9B	\$1.2B	1,048	26
All Disasters	279	6.8	100.0	\$1,826.9B [†] CI	100.0% [†]	\$6.6B [†]	\$44.6B [†]	14,411	351

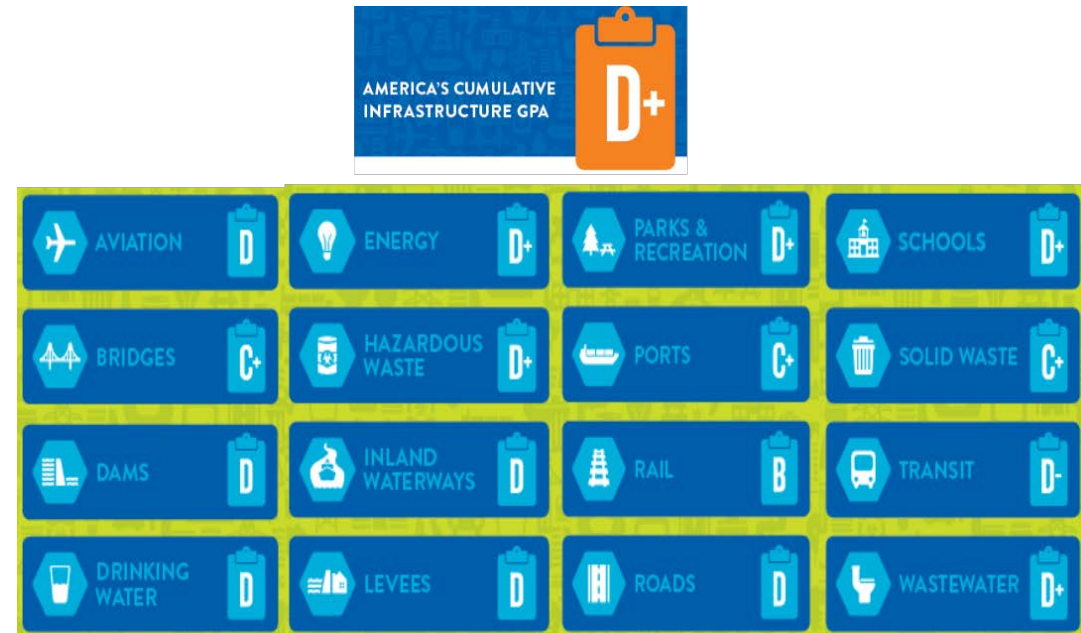
In general, large-scale federal funding in the United States is mostly available post-disaster, even though in many cases it makes sense in economic, social and environmental terms to invest in resilience before disasters strike.

Unique Challenges of Resilience Infrastructure Funding and Finance

- Resilience projects face various kinds of market failures that distort incentives, preventing property owners, government decision makers and potential investors from seeing the full range of costs and benefits.
- Investments face several major hurdles that can weaken the business case and make financing difficult:
 1. Resilience projects reduce future damage, but do not necessarily generate cash flows that could service new bonds;
 2. Resilience projects will frequently entail investments by public agencies, but often benefits accrue to private property owners;
 3. Estimates of the extent and probability of future damage are very uncertain;
 4. Market signals in insurance and property markets are not yet fully reflecting climate risks;
 5. Many governmental authorities do not hold insurance on public assets, thereby distorting cost-benefit analyses’
 6. Resilience projects are multi-sector and multi-jurisdictional, thereby complicating planning, funding, financing and delivery.
- As a result, win-win opportunities (like those associated with energy efficiency and clean energy projects) are more elusive for climate adaptation and resilience.
- Enhancing climate resilience therefore requires creative public policy interventions in collaboration with private sector initiatives to overcome these hurdles.

Funding and Financing Considerations

- Funding vs. Financing
- In an era of constrained public budgets, there is a need to develop funding sources at multiple levels. This should include private capital, leveraging market incentives, monetization initiatives, resilience metrics and disclosure, innovative design and planning and collaborative governance.
- Key Issues:
 - *Fairness and Equity in Resilience Finance* - Climate change is likely to have disproportionate impacts on vulnerable communities and to exacerbate existing inequalities.
 - *Cost sharing – Narrow or Broad?* costs of resilience investments can be borne by a single property owner at the parcel level, shared by those directly affected in a designated district, or spread more broadly at the city or state level.
 - *Types of Funding* - taxes, fees, and private investment.
- Attracting private capital to large-scale climate resilience projects is challenging because they do not generate significant cash flows. Moreover, states and municipalities can issue very low-cost debt, often tax exempt, while private capital demands rates of return around three or four times higher than the rates available to public agencies.



US infrastructure needs are estimated at over **\$7.7 Trillion** by 2030 (**\$4.7T by 2025**) just to keep pace with GDP (OECD/WEF). These figures do NOT account for additional needs triggered by climate change and resilience initiatives.

Resilience Funding & Financing

Major Region-Wide and City-Level Projects

- **Municipal bonds**
 - Majority of resilience investments funded through general tax receipts and financed through GO bonds.
Example: Miami successfully issued a \$400 million general obligation bond in 2017, with about half of the funding targeted for resilience projects.
- **Green bonds**
 - In 2014, the DC Water Authority issued a \$350 million 100-year “green century” bond to improve water quality, climate resilience, and stormwater management.
- **Climate Resilience Fees and Carbon Taxes for Major Projects**
 - Water Service Companies (WASCs) in UK aggregate fees, grants from governmental agencies, and private financing to provide fresh water and flood control infrastructure.
 - Little precedent in US for large-scale resilience initiatives with new funding sources. Northampton, Mass. established a Stormwater and Flood Control Utility in 2014, supported by a controversial new fee.
- **Insurance Surcharge**
 - State mandated surcharge on all property and casualty insurance policies has been proposed to generate funding for an Adaptation Trust Fund for the New York metropolitan region. A surcharge of 0.5–1.5% would generate \$900 million to \$2.7 billion in proceeds over 10 years.
- **Utility Surcharges**
 - Water, sewer, and storm water utilities are one of the most readily available sources of funding for resilience infrastructure
- **Catastrophe Bonds**
 - A form of contingent bond, representing a hybrid bond/insurance instrument. Investors who buy cat bonds receive interest payments, but risk losing a portion of their principal if a natural disaster exceeds a specified level (e.g., eight-foot storm surge, or losses exceeding \$1 billion).
 - After Hurricane Sandy, the Metropolitan Transportation Authority (MTA) sold Cat bond in July 2013 to raise funds to manage flood risk to the system and offset any costs of future storm damage.
- **Resiliency Bonds**
 - Relatively untested to date, Resilience Bonds are a form of Catastrophe Bond that link insurance premiums to resilience projects in order to **monetize avoided losses** through a rebate structure.
- **Other**

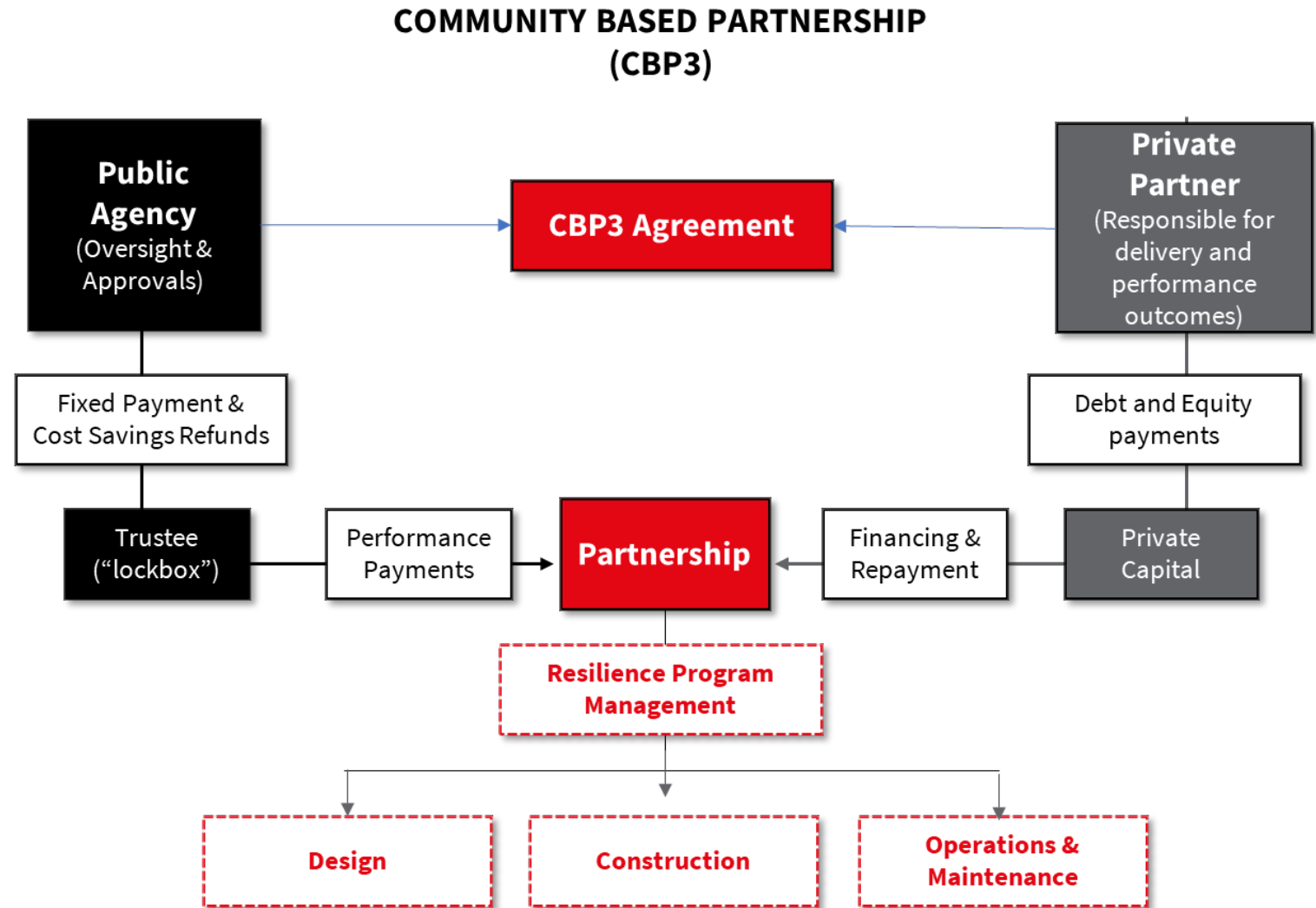
Resilience Funding & Financing

- **District-Level:**
 - Improvement Districts / TIF
 - Special Tax Assessments and Resilience Fees for District-Level Financing
 - Stormwater Fees
 - Performance-based contracting
- **Building- or Parcel-Level:**
 - Developer incentives
 - Building-Level Resilience Loan and Subsidy Programs
 - Property Assessed Resilience (PAR)
 - Similar to PACE. A quasi-public intermediary agency (e.g. a green bank) is needed to market, administer, and underwrite loan performance criteria and attract private financing for PACE/PAR loans. S
 - States and municipalities need to enact a model ordinance developed by the intermediary agency, and administrative fees are involved in underwriting the PACE/PAR loan



Bundling for Finance and Delivery Efficiencies

- Community Based P3 Model
- Bundling the finance and delivery of multiple resilience projects in single contract
- Repayment through performance-based contracting or similar
- Examples in stormwater management



Discussion



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