

FTA

FEDERAL TRANSIT ADMINISTRATION

FTA Climate Change Related Initiatives and Programs

DOT Climate Change Conference
February 2015

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FTA Climate Adaptation Initiative

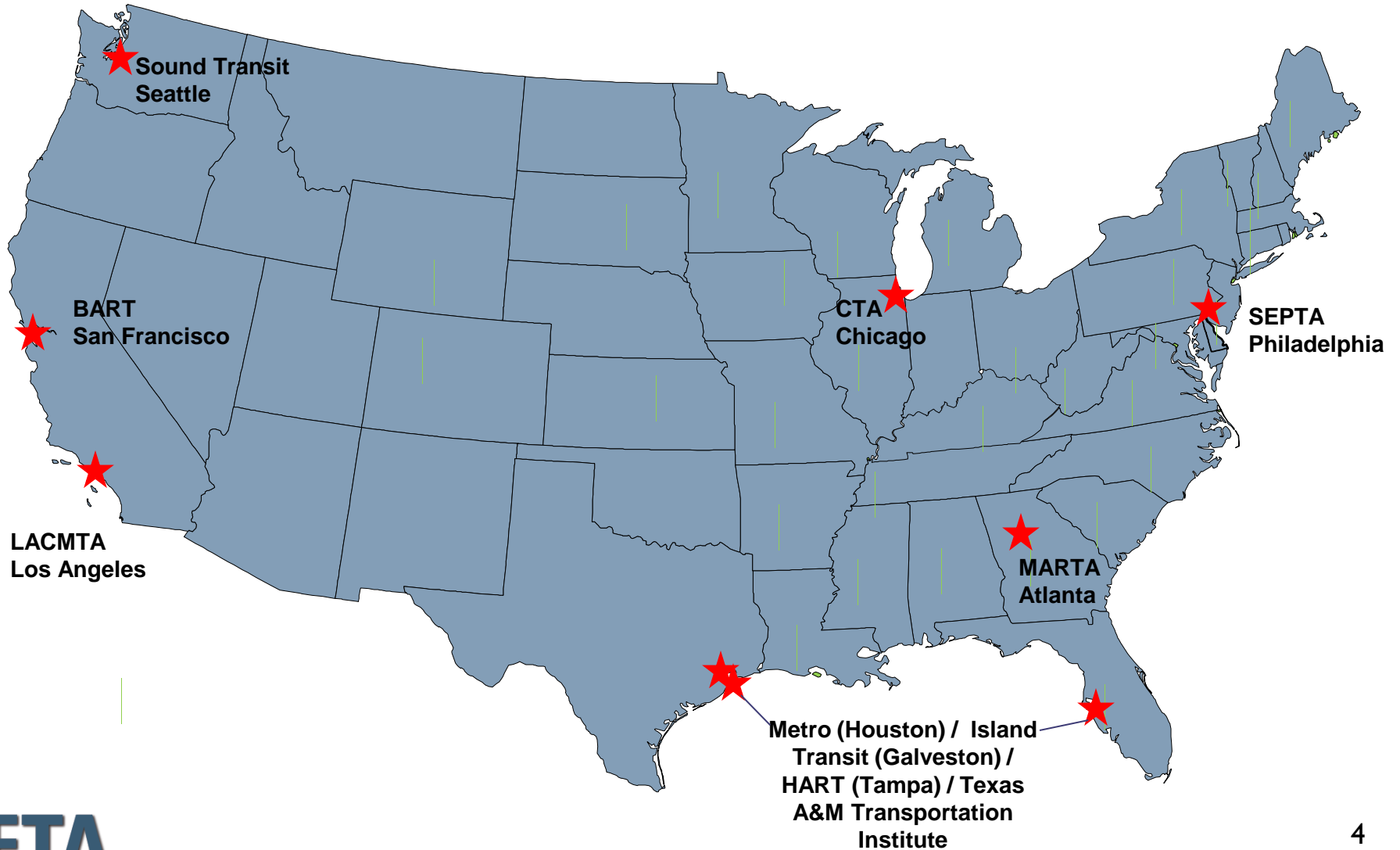
- **Policy Framing:** Dear Colleague Letter and Policy Statement describe climate impacts on FTA goals and commits FTA to action – on FTA Climate Adaptation web site at: www.fta.dot.gov/adaptation
- **Report:** “Flooded Bus Barns and Buckled Rails” study examines climate impacts, strategies, and risk management
- **7 Pilots:** In-depth analysis on climate impacts of specified transit agencies, potential adaptation strategies, and mainstreaming into transit practice



FTA Climate Adaptation Pilots

- Seven FTA sponsored pilot studies totaling approx. \$1 Million
- Purpose:
 - To increase knowledge of how transit agencies can adapt to climate change
 - To advance the state of the practice in adapting transit assets and operations to the impacts of climate change
 - To gather lessons learned for application to other transit providers
- Covering Nine Systems throughout the United States
- Each Study:
 - Conducted Independently
 - Developed their own Research Plans/Statements of Work/Findings
- Studies commenced in early 2012 and Final Drafts submitted in 2014.

FTA Climate Adaptation Pilots



FTA Climate Adaptation Pilots: Matrix Analysis

Focus Area	BART	CTA	MARTA	LACMTA	SEPTA	Sound	Gulf
Climate Risks Analysis	X	X	X	X	X	X	X
Sea Level Rise	X			X		X	X
Flooding	X	X	X	X	X	X	X
Downpours	X	X	X	X	X	X	X
Extreme Heat		X	X	X	X	X	X
Tropical Storms/ Hurricanes					X		X
Snow		X			X		
Lessons/Past Experience	X	X	X	X	X	X	X
System Vulnerabilities	X	X	X	X	X	X	X
Adaptation Strategies	X	X	X	X	X	X	X
CBA/Cost of Response	X	X	X				X
Integration into System		X	X	X			

Results / Outcomes / Lessons Learned

- Adaptation Strategies
 - Each pilot identified different risks and different adaptation strategies specific to their geographic area
 - Four pilot projects identified costs for implementation of adaptation strategies (ranging from low to high cost)
 - Some pilots identified common adaptation strategies
- FTA Climate Change Adaptation Pilot Studies are online:

http://www.fta.dot.gov/12347_14013.html

Sandy Resilience Funding

Summary:

- Of the \$10.4 billion made available to FTA under the Disaster Relief Appropriations Act of 2013, FTA allocated approximately \$3.6 B for projects to improve resilience of transit systems to natural hazards.
- Eligible applicants included public transit agencies and other public entities in the FEMA-recognized Hurricane Sandy disaster area.
- Projects were selected on a competitive basis, consistent with seven resilience-based evaluation criteria outlined in the notice.
- FTA provided technical assistance to applicants in estimating sea level rise over the projected lifespan of vulnerable assets and the potential increase in the frequency and severity of significant flooding events.

Sandy Resilience Funding

Resilience Project Evaluation Criteria:

- Applicants were required to design projects to a standard based on FEMA's best available flood hazard information (maps & elevations), plus one foot
- Applicants were required to submit a hazard mitigation-focused benefit cost analysis, which FTA developed based on current FEMA methodologies

Sandy Resilience Funding

- FTA's evaluation criteria *prioritized* resilience projects that did the following:
 - Protected the transportation system's most essential and vulnerable assets
 - Improved the resilience of the regional transportation system
 - Planned collaboratively with local, and regional stakeholders
 - Considered the impacts of resilience investments on other infrastructure
 - Developed a complete and satisfactory project implementation strategy
 - Demonstrated commitment by the non-Federal share of the project costs and the technical capacity to undertake the project

Sandy Resilience Projects

Overview of funded projects (announced 9/22/14):

- New York MTA: 14 projects, \$1.599 billion
 - Multifaceted flood hazard mitigations for the NYCT subway and bus systems
 - Signal and power system resilience for the Metro-North Railroad
 - Rail tunnel flood hazard mitigations for the Long Island Rail Road
- New Jersey Transit: 6 projects, \$1.276 billion
 - Expanded rail storage capacity outside the flood hazard area
 - Flood hazard mitigations for four commuter rail lines and the Hoboken terminal
 - Replaced commuter rail bridge vulnerable to storm surge damage
 - Construct transit “micro-grid” power generation facility for electrified commuter rail network

Sandy Resilience Projects

Overview of funded projects (announced 9/22/14):

- Port Authority of New York and New Jersey: 6 projects, \$212.5 million
 - Multiple flood protections for PATH rail transit stations, yards, and maintenance facilities
 - Expanded rail storage capacity outside the flood hazard area
 - Perimeter flood barrier at the World Trade Center site, protecting underground transit assets
 - Flood hazard mitigations at the site of the proposed Moynihan Station above Penn Station
- New York City DOT: 1 project, \$191 million
 - Acquisition of two new ferry boats for the Staten Island Ferry and terminal improvements

Sandy Resilience Projects

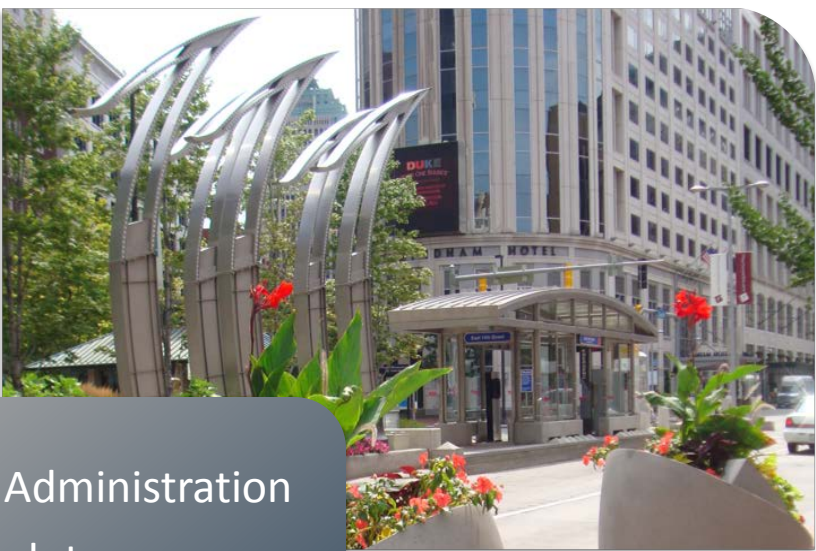
Overview of funded projects (announced 9/22/14):

- Connecticut Department of Transportation: 2 projects, \$170 million
 - Upgrade to rail yard power system to replace vulnerable overhead wires
 - Replacement of rail bridge vulnerable to storm damage and functionally unreliable
- Southeastern Pennsylvania Transportation Authority: 7 projects, \$87 million
 - Multifaceted flood hazard mitigations and right of way stabilization for commuter rail services
 - Installation of backup transit system control center
 - Installation of backup generators in pump rooms for the Philadelphia subway system

Sandy Resilience Projects

Overview of funded projects (announced 9/22/14):

- Massachusetts Bay Transportation Authority: 2 projects, \$35 million
 - Flood hazard mitigations for the MBTA Green Line
 - Flood hazard mitigations for MBTA bus maintenance facility
- Washington Metropolitan Area Transit Authority: 2 projects, \$21 million
 - Raise ventilation shafts in flood hazard areas and improve system drainage
- City of Nashua, New Hampshire: 1 project, \$25,781
 - Improvement to bus facility to connect to backup power from mobile generator



Federal Transit Administration
www.fta.dot.gov
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