From Frameworks to Action: How Three Transportation Agencies Are Integrating Climate Resilience into their Operations – LA Metro, BART and Port of Long Beach
LA Metro is Los Angeles County’s...

1. Regional Transit Planner/Funder
2. Regional Transit System Builder
3. Regional Transit Operator
LA Metro Resiliency Indicator Framework Project

Scope

• Develop a framework to evaluate technical and organizational resilience to climate change
• Key climate stressors considered: extreme heat and precipitation

LACMTA definition of resiliency

• Ability to provide core functions in the face of threats and recover quickly from major shocks or changing conditions
• What Metro staff has already done?
  • Design Criteria
  • Project Specifications
  • Project Sustainability Plan
  • Agency-wide Environmental Management System
  • National Engagement
    • Federal/State: FTA/FHWA and Caltrans
    • City and County of Los Angeles
    • USGBC/TRB/APTA
LA Metro Resiliency Indicator Framework Project

- Builds on existing Metro climate work
- Indicators help prioritize and evaluate adaptation implementation priorities
- Criteria for future funding streams
- Developed weighted indicators scoring system
- Incorporating resiliency into Metro processes (e.g., in State of Good Repair Asset Management Database)
- Familiarizing Metro team with concept of Resiliency and Team
  - Internal and External
Current Work

- Completing organizational assessment
- Completing Design Criteria strategies
- Strengthen implementation strategies
  - Asset Management Integration
  - Connections with other Metro efforts
  - Evaluate Metro’s Technical resiliency
- Identify potential cost impacts
- Energy and Water Resiliency
- Metro Risk Management and Resiliency
- City-wide resiliency efforts to disasters and climate change
Research Projects

- TCRP A-41
  - Improving the Resiliency of Transit Systems Threatened by Natural Disasters

- NCHRP SP20-101
  - Framework for Analyzing the Costs and Benefits of Adaptation Measures in Preparation for Extreme Weather Events and Climate Change
Questions/Discussion

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Climate Change and Extreme Weather Adaptation Options
for Transportation Assets in the Bay Area Pilot Project
Technical Report - October 2014
Coliseum Focus Area
Coliseum Focus Area
Coliseum Focus Area
Coliseum Focus Area
Coliseum Focus Area
Coliseum Focus Area
Strategy development process

124 Adaptation Strategies

Screening of strategies

17 Adaptation Strategies

Identified by CT
Refined by TT

Qualitative Assessment

6 Adaptation Strategies

PMT decision

5 Final Adaptation Strategies

Identified by CT
Refined by TT
Adaptation Strategy: Mainstreaming Climate Change into transportation agencies
Mainstreaming Climate Change into transportation agencies

Five sections

• Introduction: Why mainstream?
• Establish climate change policy
• Integrate climate change into agency policies
  • Planning
  • Capital Development
  • Operations & Maintenance
  • Administration
• Funding
• Implementation
Mainstreaming CC into transportation agencies

Establish Climate Change Policy

- Development of a dedicated, standalone adaptation policy which will then influence all other policies.
- Integration into a variety of other policies, such as risk management, asset management, or sustainability.
BART actions…post pilot

- BART is moving towards a formalized program for sustainability supported by the sustainability policy and the strategic plan.
- 1 of 6 priority areas is “extreme weather adaptation and resiliency”.
- Greater emphasis and priority to further advance adaptation planning in support of sustainability goals.
Mainstreaming CC into transportation agencies

• Capital Development
  – Project Prioritization
  – Project Dev./Scoping/Preliminary Engineering
  – Design Guidelines, Standards, and Specifications
  – Project Engineering
  – Permitting
  – Asset Management
BART actions…post pilot

**Train Control Modernization**

- Train control modernization is one of BART’s “Big 3” infrastructure reinvestments.
- Modernization proposes a communication-based automatic train control system, to allow trains to operate closer together.
- Unique opportunity to integrate adaptation planning into large capital improvement projects and ensure protection of new investments over its lifecycle.
Mainstreaming CC into transportation agencies

• Operations & Maintenance
  – Emergency Operations/Evacuation
  – Coordination
  – Maintenance Feedback
  – Purchasing and Funding
BART actions…post pilot

Local Hazard Mitigation Plan (LHMP)

• BART is currently part of ABAG’s multi-jurisdictional hazard mitigation plan due to expire March 2016

• BART to develop its own draft LHMP must be developed by end of December 2015, leveraging support provided by Association of Bay Area Governments and Bay Conservation and Development Commission

• Climate change considerations to be incorporated
POLB – Coastal Resiliency Strategy

• Climate Change Study
  – Climate science review
  – Asset inventory
  – Mapping (SLR & overtopping)
  – Vulnerability profiles

• Development of CRS
  – Long list of strategy
  – Short list selected for further development
  – Currently in DRAFT
POLB – Coastal Resiliency Strategy

Least extreme scenario

Most extreme scenario
POLB – Draft initiatives in review

Develop overarching climate change policy

Incorporate climate change language into the following documents:

• Strategic Plan (major update will be in 2017).
• Risk Assessment Manual (2014)
• Design Standards and Criteria (2014)
• Stormwater Infrastructure Master Plan (2013)
POLB – Draft initiatives in review

Provide climate change study information (inundation maps, vulnerabilities, etc.) to guide current studies:

• Long Range Land Use Planning Study
• Electrical Assessment Study
• San Pedro Bay Port Rail Study 2010 (to be updated)

Incorporate sea level rise analysis into requirement for the Harbor Development Permit process
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