

# ***PANYNJ-Aviation Department Climate Resilience Overview***

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The Port Authority of NY and NJ



PANYNJ Facility Map

# The Port Authority and Impacts from Sandy



## Aviation

John F. Kennedy International Airport  
 LaGuardia Airport  
 Newark Liberty International Airport  
 Stewart International Airport  
 Teterboro Airport  
 Atlantic City International Airport

## Bridges

Bayonne Bridge  
 George Washington Bridge  
 Goethals Bridge  
 Outerbridge Crossing

## Bus Terminals

Port Authority Bus Terminal  
 George Washington Bridge Bus Terminal  
 Journal Square Transportation Center

## Port Commerce

Port Jersey-Port Authority Marine Terminal  
 Brooklyn-Port Authority Marine Terminal  
 Elizabeth-Port Authority Marine Terminal  
 Howland Hook Marine Terminal  
 Port Newark

## Tunnels

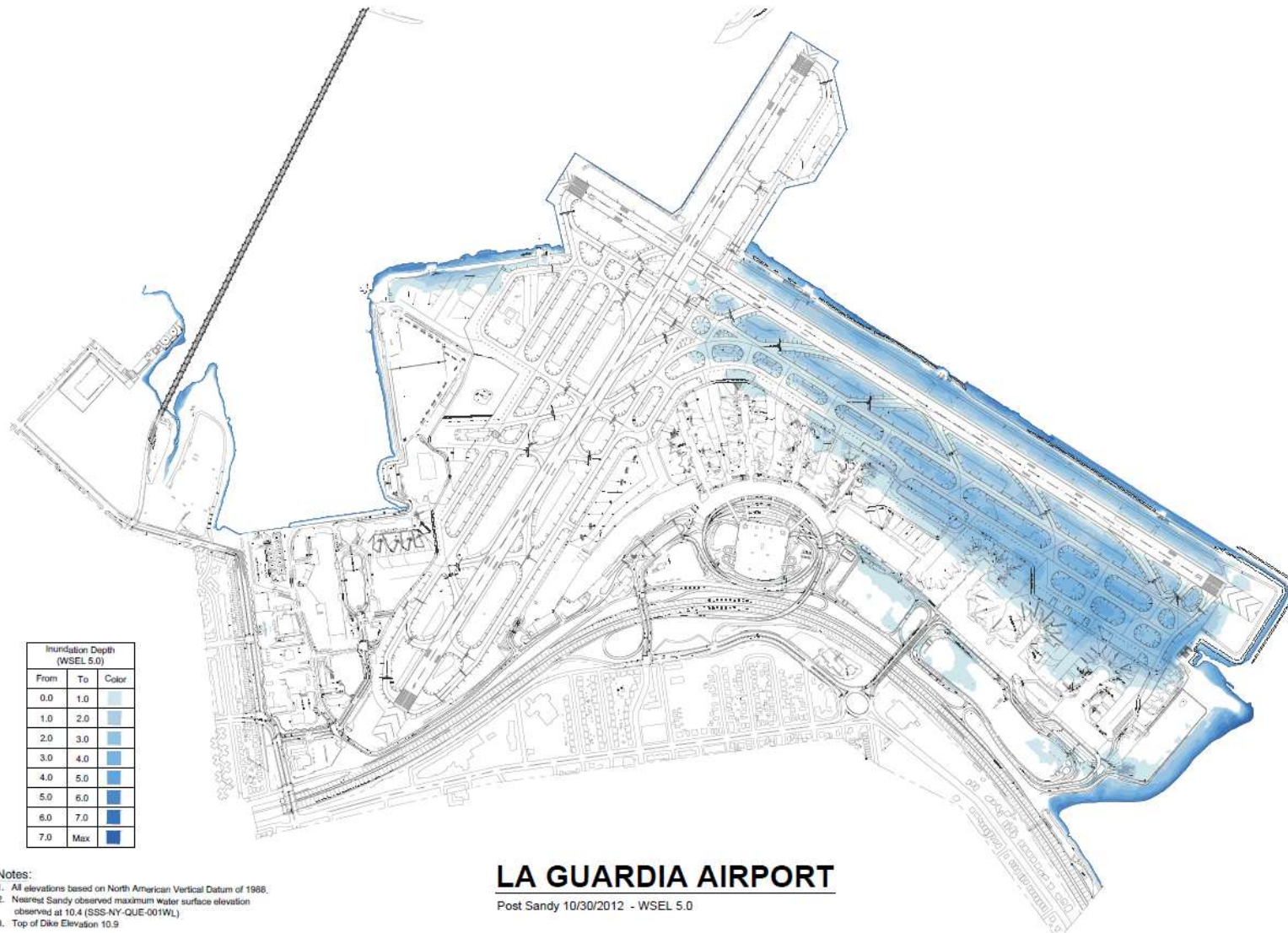
Holland Tunnel  
 Lincoln Tunnel

## Rail

Journal Square Transportation Center  
 PATH Rail Transit System

## World Trade Center

# Example-LaGuardia Airport Sandy Inundation



- Notes:
1. All elevations based on North American Vertical Datum of 1988.
  2. Nearest Sandy observed maximum water surface elevation observed at 10.4 (SSS-NY-QUE-001WL).
  3. Top of Dike Elevation 10.9

# Resilience within PANYNJ Corporate Structure

## STORM MITIGATION & RESILIENCE OFFICE

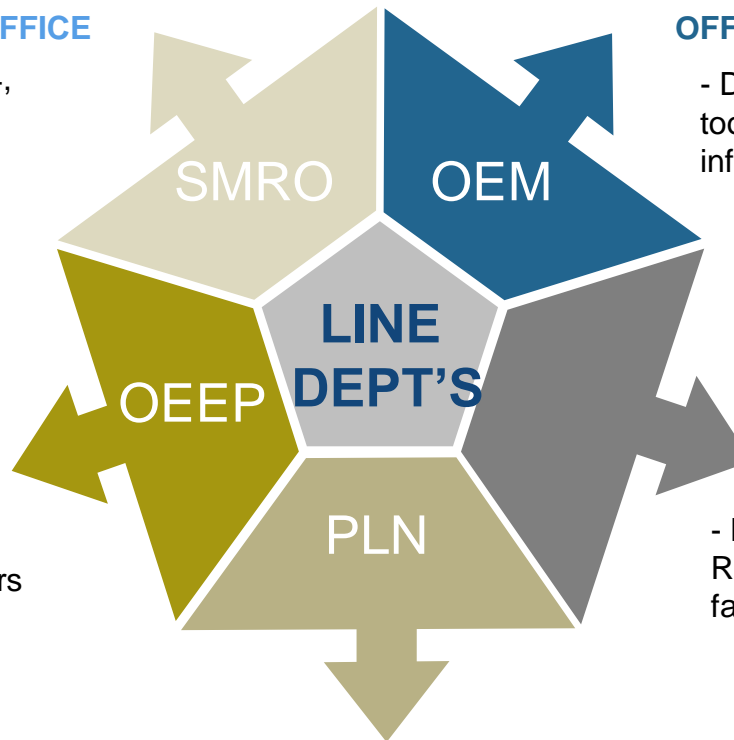
- Seeks grant funding under FEMA 404, 406 programs
- Developing agency-wide resiliency plan with engineering department

## OFFICE OF EMERGENCY MANAGEMENT

- Developing operational readiness tools and real-time forecasting information

## OFFICE OF ENERGY & ENVIRONMENTAL PROGRAMS

- Coordinates with regional stakeholders (NYC Panel on Climate Change, NY Climate Adaptation Task Force)



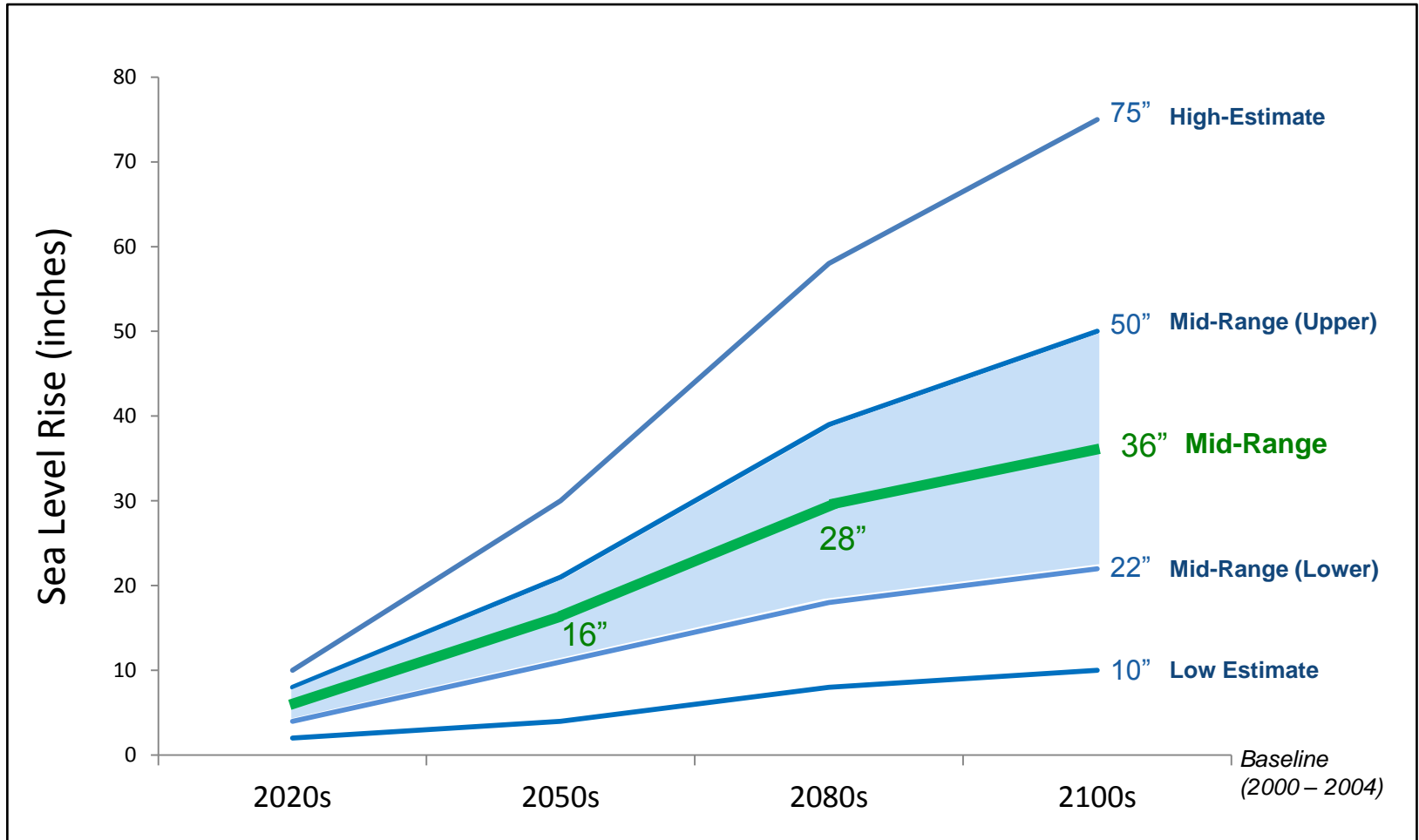
## ENGINEERING DEPARTMENT

- Developed and administers Climate Resilience Design Guidelines- facilitates code compliance

## PLANNING DEPARTMENT

- Performs cost benefit analysis for flood mitigation projects

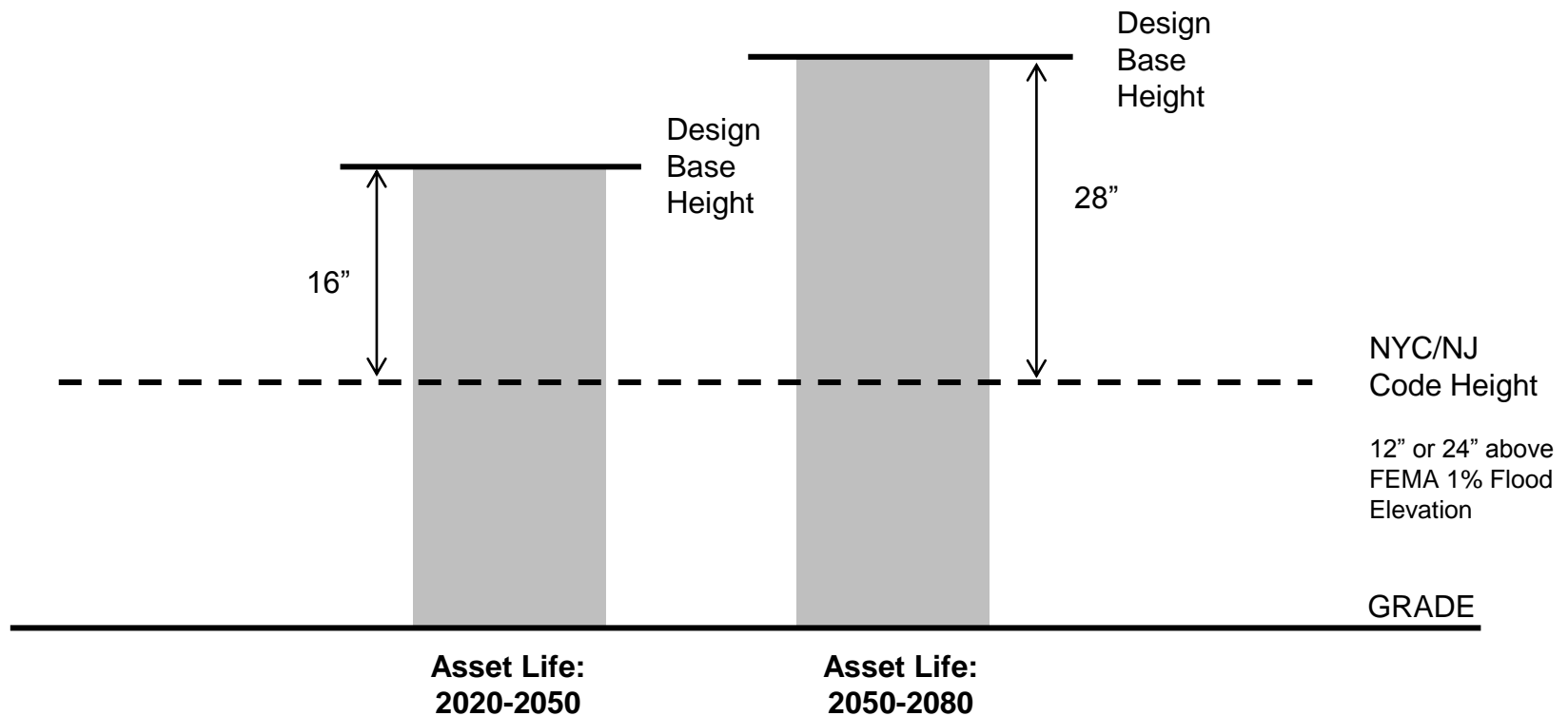
# Regional Mean Sea Level Rise



Source: NASA Goddard Institute, Columbia University (2013)

Applicable to Port District and Recommended for Port Authority adoption by Office of Environmental and Energy Programs

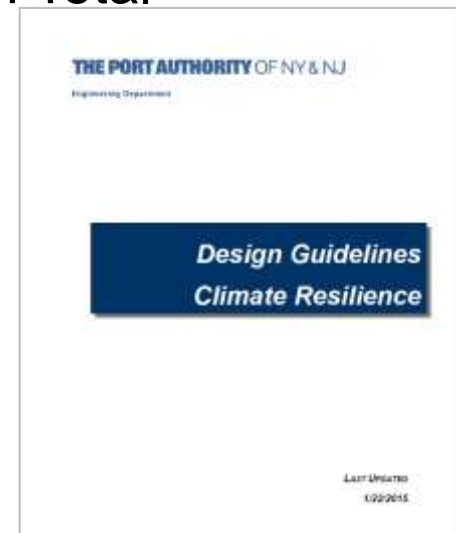
# Sea Level Rise and Severe Storms: Flood Protection Elevation Criteria



# Sea Level Rise and Severe Storms: Updated Flood Protection Design Criteria

## Updated process to establish flood protection criteria:

- Establish flood protection level above code based on:
  - Asset life and criticality
  - Sea level rise
- Recognize any system-wide flood protection already in place
- Coordinate with Agency Stakeholders through Flood Risk Assessment
- Perform Benefit Cost Analysis for projects > \$10M Total Project Cost
- Establish Basis of Design





## *Progress Since Sandy: Aviation Department*

- Completed Sea Level Rise Risk Assessments for JFK, LGA, EWR, TEB
- Initiated projects to improve drainage at LGA and install backflow preventers at JFK
- Built floodwall around TEB lighting vault and fuel storage tank
- Initiated planning efforts evaluating perimeter flood protection for LGA and EWR
- New capital projects incorporate PANYNJ Climate Resilience Guidelines
- **Operational readiness will be enhanced through investment in Stevens Institute Storm Surge Warning System**

## *Partnership with Stevens Institute*

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- Initiated through PANYNJ Office of Emergency Management
- **Creating publicly available tool for real time storm surge forecasting, aiding operational readiness at PANYNJ Airports**



**THE PORT AUTHORITY** OF NY & NJ