



Example of the COAST Approach: Kingston, NY Flooding During Hurricane Irene



Catalysis Adaptation
Partners, LLC

The COAST Approach:

*Community engagement and benefit-cost
analysis
to prepare for sea level rise and storm surge*



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Kingston, NY 100 yr storm, 2100, high SLR

**COAST
ASSET
DATA**

**Flood
Depth=13.9 ft**

**Estimated
Damage =
\$251,900**


**Year
Abandoned
Between
2060 and
2070**

Scenario 10 - Kingston - 100 Year Storm with High SLR in 2100
Lost asset value for scenario: Year 2100, KingstonHISLR06202013, 100 Storm
Total Storm Damage = \$3.2M

■ Abandoned or Adapted in Response to Sea Level Rise
■ Costs from Storm Surge





Legend

 East Strand Adaptation Study Area


11 foot Contour Elevation

 11 ft

 East Strand Street Raised to 11 ft Elevation (NAVD88)

 Bulkhead/Levee/Path Raised to 11 ft Elevation (NAVD88)

 East Strand Study Area Parcels With Buildings Protected by Elevated Road

 Parcels With Buildings Below Elevated Road



1:8,271

BENEFIT COST ANALYSIS OF ADAPTATION STRATEGIES – KINGSTON



	Scenario B: WITH ELEVATION OF EAST STRAND STREET TO 11 FEET (NAVD 88)						Scenario C: WITH ELEVATION OF BULKHEAD/WITH PATH TO 11 FEET (NAVD 88)		Scenario D: PURCHASES OF ROLLING EASEMENTS, WITH TRANSFER OF TITLE TO CITY AT 2060 OR WHEN MHHW REACHES 6.0 FEET (NAVD 88)	
	Low SLR	High SLR	Low SLR	High SLR	Low SLR	High SLR	Low SLR	High SLR		
	Cumulative Damage to East Strand Study Area With No Action ¹	46,400,000	44,100,000	46,400,000	44,100,000	46,400,000	44,100,000	46,400,000	44,100,000	
Cumulative Damage with Adaptation Strategy in Place ¹	4,900,000	4,700,000	241,000	466,900	36,900,000	39,576,000				
Avoided Damage (Row 1 – Row 2) or BENEFIT	41,500,000	39,400,000	46,159,000	43,633,100	9,500,000	4,524,000				
Estimated COST of Adaptation Strategy	9,800,000		6,200,000		2,540,000					
BENEFIT/COST Ratio (The higher the number above 1, the more favorable the ratio.)	4.2	4.0	7.4	7.0	3.7	1.8				

¹Discount Rate of 3.3% applied.

²Does not include purchase of easements at five city-owned properties, and sewage treatment plant remains unprotected.