

INTERIM FLOOD PROTECTION MEASURES

LOWER MANHATTAN OVERVIEW

MAY 16, 2019



NYC Emergency
Management

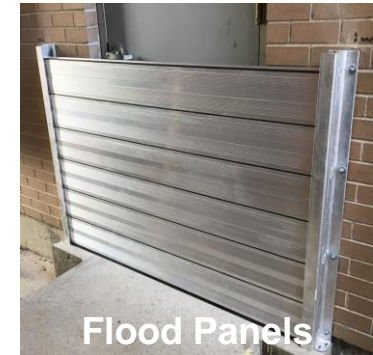
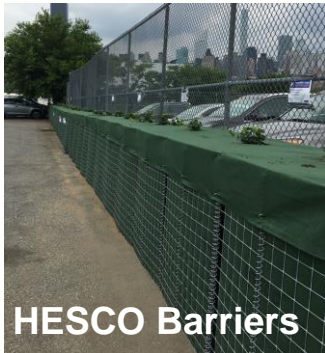
Agenda

- IFPM Overview
 - Background
 - Measures
 - Current Site Status
 - Process
- Installation Video
- Project Example: Red Hook
- Two Bridges
- South Street Seaport



IFPM Overview and History

- In 2016, the IFPM program was established to reduce low-level, high recurrence coastal flood risks while the City continues to advance longer-term coastal protection needs
 - IFPM measures used to date include: (1) HESCO Barriers, (2) Tiger Dams, and (3) Flood Panels
 - Current measures provide up to 4 feet of protection
 - Pre Deployed vs Just in Time (JIT)



- IFPM does **not**:
 - Mitigate rainfall flooding
 - Protect for severe events like Sandy
 - Fully eliminate flood risks
 - Activate for nor'easters due to current limitations in forecasting timelines and confidence

Current Program Status



- To date, IFPM Program has **48 operational sites across two phases:**

- 14 facility sites
- 2 neighborhood sites
- 32 DEP-managed pump stations

- Sites under consideration:

- 4 facility sites pending completion
- 2 neighborhood site pending completion
- 1 facility site in preliminary design
- 1 neighborhood site in preliminary design



Legend	
	DEP-managed pump station
	NYCEM-managed site



Process

IFPM is a multi-step, multi-site construction program, funded by expense dollars

Identify Sites	Step 1	Agencies submitted potential sites
	Step 2	Initial eligibility review of sites
	Step 3	Desktop analysis by engineers looking at flood risk, elevation, drainage leads to prioritized list of sites
Design	Step 4	Site visits with engineers, partner agencies, site owners
	Step 5	Engineers produced conceptual designs for review
	Step 6	Preliminary designs produced, reviewed, revised
Construction	Step 7	Final produced, reviewed-hopefully approved
	Step 8	Permitting/Legal agreements
	Step 9	Install and Procure Measures



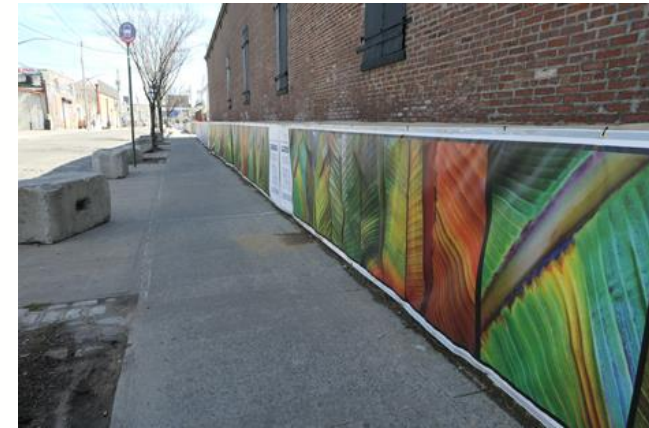
Installation Time-lapse



Project Example: Red Hook Installation



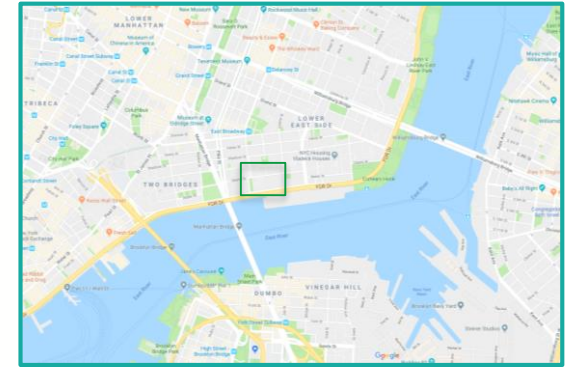
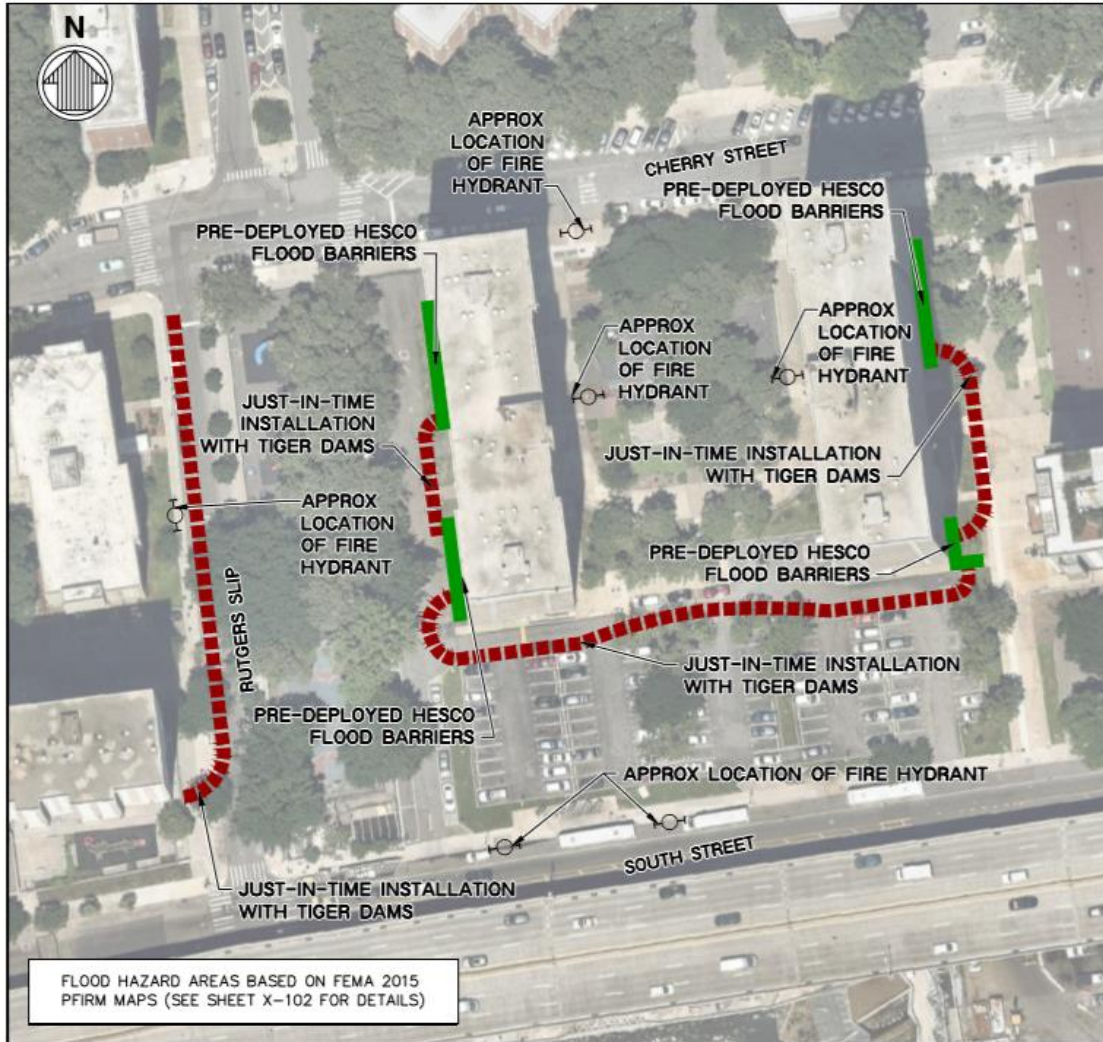
Project Example: Red Hook Beautification



IFPM Deployment Exercise June 12-13, 2018



Two Bridges



MATERIALS LIST		
PRE-DEPLOYED		
QTY	UNIT	DESCRIPTION
204	FT	HESCO – SL4836 UNITS (GREEN) 48IN HIGH
116	CY	SAND
204	LF	GEOTEXTILE HESCO COVER PER NOTE 5
JUST-IN-TIME CLOSURE		
QTY	UNIT	DESCRIPTION
60	UNITS	TIGER DAM (36INCH TIGER DAM – 50FT)
3	EACH	NEW PIG DRAIN BLOCKER TYPE: PLR304 FOR SQUARE DRAINS UP TO 36" (OR EQUAL)
1	EACH	NEW PIG DRAIN BLOCKER TYPE: PLR301 FOR SQUARE DRAINS UP TO 18" (OR EQUAL)

■■■ JIT Tiger Dams

■■■ HESCO Barriers

Status: Permitting

Estimated Completion: 2019 Hurricane Season



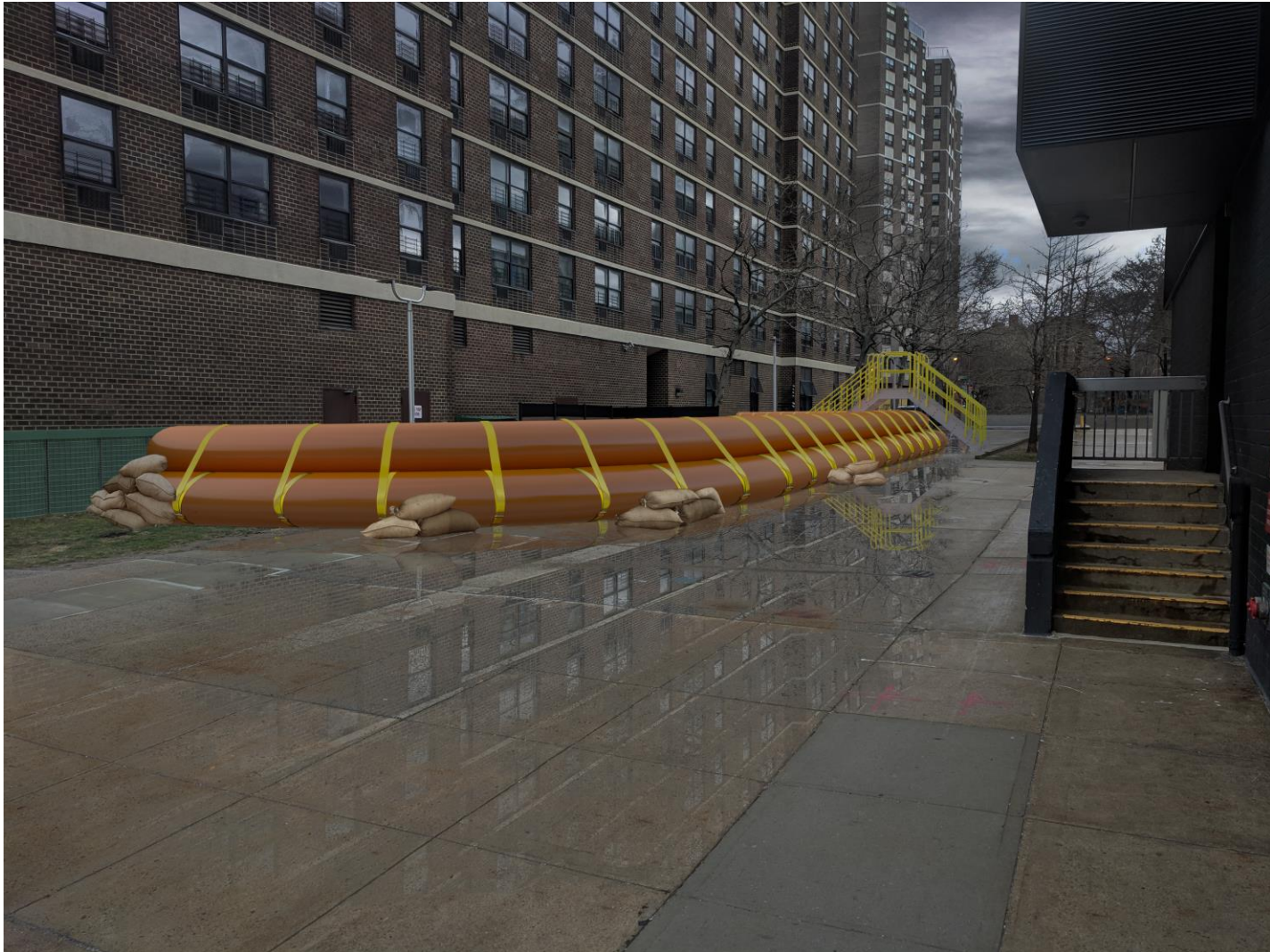
IFPM044 Two Bridges

Existing and Blue Sky Conditions



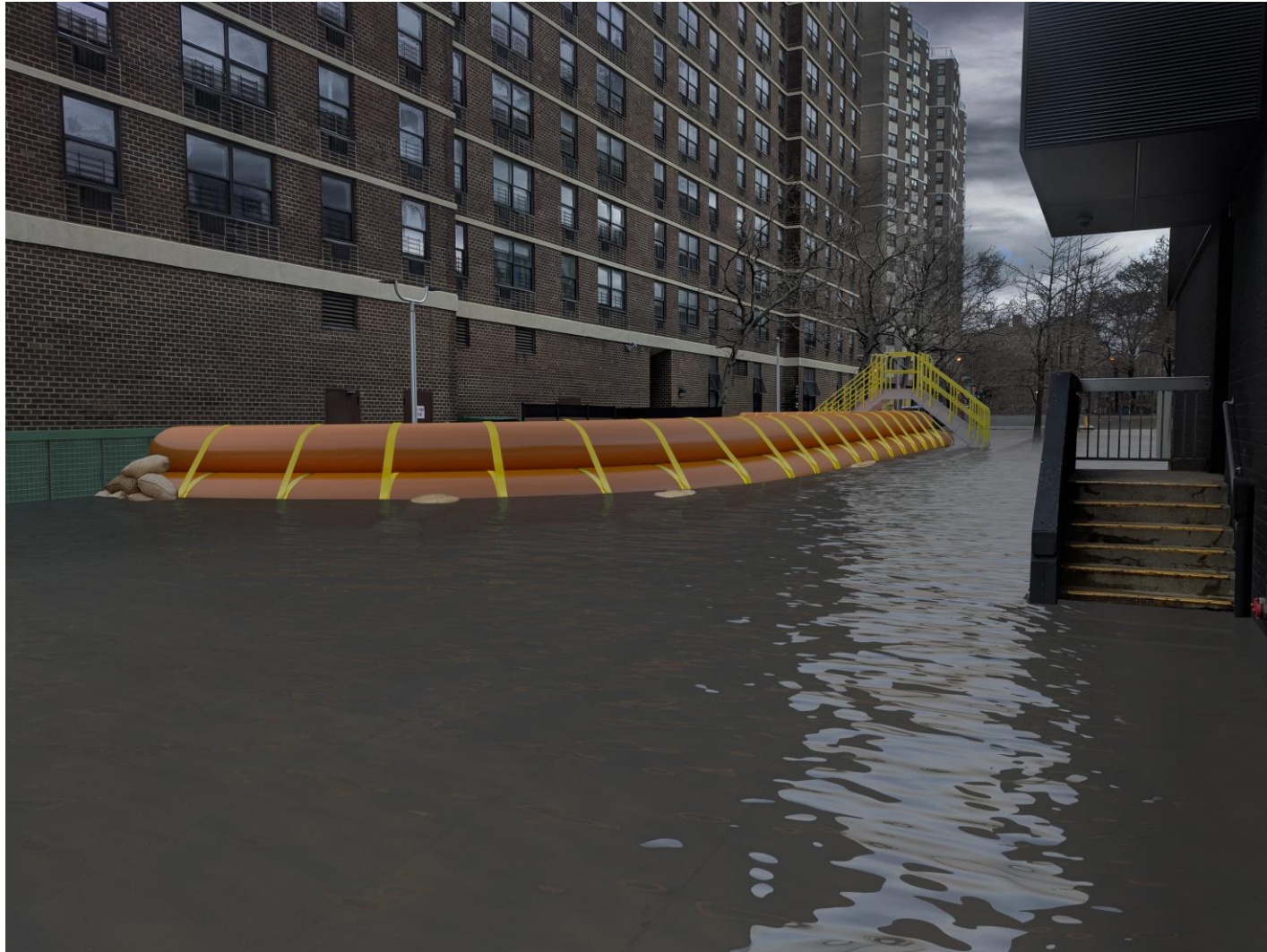
IFPM044 Two Bridges

Storm Conditions

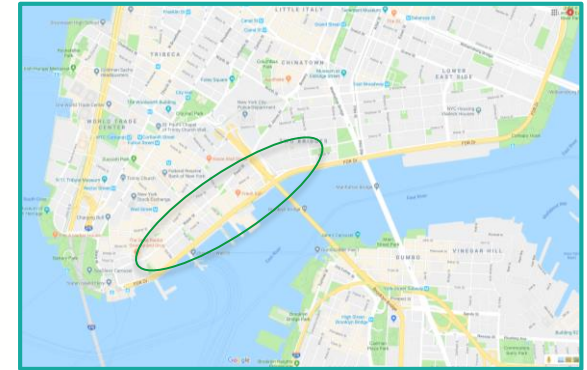
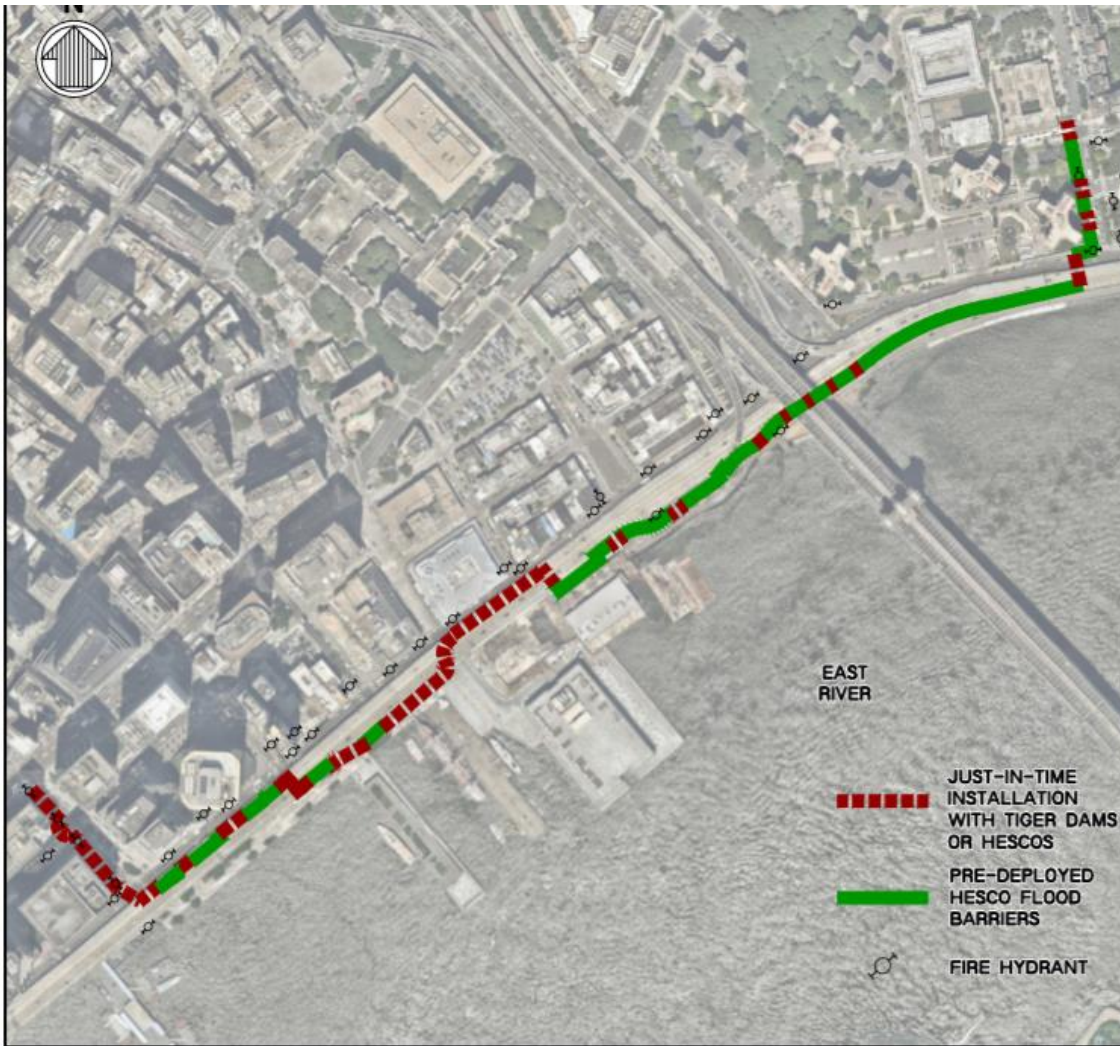


IFPM044 Two Bridges

Storm Conditions



South Street Seaport



MATERIALS LIST		
PRE-DEPLOYED		
QTY	UNIT	DESCRIPTION
2379	FT	HESCO – SL4836 UNITS 48IN HIGH
1367	CY	SAND
2379	LF	GEOTEXTILE HESCO COVER PER NOTE 5
5	UNITS	CUSTOM 30"X 36" HESCO UNITS
2	UNITS	CUSTOM HESCO UNITS
JUST-IN-TIME CLOSURE		
QTY	UNIT	DESCRIPTION
111	FT	HESCO – SL4836 UNITS 48IN HIGH
65	CY	SAND
83	UNITS	TIGER DAM (36INCH TIGER DAM – 50FT)
4	UNITS	TIGER DAM (36INCH TIGER DAM – 25FT)
21	UNITS	TIGER DAM (24INCH TIGER DAM – 50FT)
6	UNITS	TIGER DAM (24INCH TIGER DAM – 25FT)
1	UNITS	TIGER DAM (24INCH TIGER DAM – 15FT)
27	EACH	TIGER DAM TIE-IN TO WALL PER DETAIL 8
7	EACH	TIGER DAM TIE-IN TO WALL PER DETAIL 8
1	EACH	EMERGENCY PERSONNEL ACCESS CROSSOVER

■ ■ ■ **JIT Tiger Dams**

■ ■ ■ **HESCO Barriers**

Status: Permitting Process

Estimated Completion: 2019 Hurricane Season

IFPM110 South Street Seaport

Promenade south of Brooklyn Bridge: Existing Conditions



IFPM110 South Street Seaport

Promenade south of Brooklyn Bridge: Blue Sky Conditions



IFPM110 South Street Seaport

Promenade south of Brooklyn Bridge: Storm Conditions



IFPM110 South Street Seaport

South Street south of Brooklyn Bridge: Existing conditions




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IFPM110 South Street Seaport

South Street south of Brooklyn Bridge: Blue Sky conditions




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IFPM110 South Street Seaport

South Street south of Brooklyn Bridge: Storm conditions

