



## Living Above the Street

Stewarding New York City's Historic Built Environment Towards Flood Resilience

DIGITAL REPORT 04

# Adaptation Design Study: South Street Seaport

## Livingabovestreet.nyc

### About

This report is part of the independent research project “Living Above the Street: Stewarding New York City’s Historic Built Environment Towards Flood Resilience,” which is supported by [Onera Foundation](#) under [2022 Onera Prize for Historic Preservation](#).

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Columbia GSAPP M.S. Historic Preservation '22

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### Further Readings

To view and download the whole series of policy & design reports, please visit:

<https://www.livingabovestreet.nyc/reports>.

This Onera Prize research project is developed upon the author’s M.S. Historic Preservation thesis:

Wang, Ziming. 2022. “Living Above the Street: Flood Retrofitting and Adaptive Streetscape of New York City’s Historic Districts.” M.S. Historic Preservation Thesis, Columbia University.

<https://doi.org/10.7916/fn43-vb19>.

Cover Image:

Flood Retrofitted Streetscape of Front Street in South Street Seaport During a Flood Event.

Rendering by the Author.



As one of the first commercial blocks in New York City, South Street Seaport developed from a small cluster of wharves into an important part of the leading port in 19th-Century United States. In the late 20th Century, it transformed into today’s mixed-use urban space with vibrant commercial atmosphere.

See Designation Report of South Street Seaport Historic District, NYCLPC, 1977.

Photograph Taken by Walter Smalling for HABS Survey NY-6368.

Source: Library of Congress.

# Contents

<b>01 Executive Summary</b>	5
<b>02 Adaptation Design Study: South Street Seaport</b>	7
Designation, Streetscape Significance, and Street Corridor Selection	8
Site Map	9
Existing Condition Documentation	10
Current Streetscape & Evaluation	13
Retrofitting Strategy Mapping	14
Key Retrofitting Treatments	16
Retrofitted Streetscape & Evaluation	18
Case Study   224 Front Street	21
Case Study   232-234 Front Street	22
Discussion	23
Appendix: Streetscape Evaluation Sheets	24
<b>03 References</b>	26

# 01

## Executive Summary

## Executive Summary

Following discussions made on flood risk, adaptive streetscape framework and streetscape-sensitive design strategies in the previous reports, Digital Reports 04 and 05 feature two real-world, street-scaled flood adaptation design studies within New York City's historic districts, exploring the prospect of adaptive historic urban form transformation towards flood resilience. Acknowledging building use as a key deciding factor of appropriate retrofitting strategies and applicable flood regulations (see Chapter 3.1, Digital Report 01), Digital Report 04 will investigate a **mixed-use street corridor** of vibrant retail atmosphere in **South Street Seaport**, while Digital Report 05 will investigate a brownstone **residential street corridor** in **East Harlem**. These two neighborhoods also represent different historic designation statuses (South Street Seaport as a LPC+National Register historic district; East Harlem as a National Register historic district only).

Both design studies start with a historic context study that facilitates the selection of a street corridor as focus area, of which a value-based assessment is carried out evaluating key streetscape characters. Utilizing findings established in this project, current conditions of the selected street corridor are then documented, and assessed under the **adaptive streetscape framework** (see Digital Report 02). Based on the profile (age, type, and use) of structures along the street corridor, the author groups them into several categories, and assigns an overall retrofitting strategy for each category. Key flood retrofitting treatments that balance multiple streetscape goals and respond to local streetscape characters are then developed based on the **streetscape-sensitive design toolbox** explored in Digital Report 03. Such street-scaled adaptation design leads to the rendering and evaluation of permanent streetscape changes after flood retrofitting, accompanied by an illustration of the retrofitted streetscape during flood events. To supplement the street-scaled design discourse and closely examine the impact of key retrofitting strategies and treatments on building scale, retrofitting case studies are carried out on real-world buildings along the street corridor. Finally, a discussion is made to evaluate the effectiveness of design strategies developed throughout the design study, as well as to analyze the needs for policy reform and design strategy development as revealed in the research process.

Overall, the South Street Seaport design study demonstrates that **although historic commercial corridors can be flood retrofitted while considerably retaining their streetscape quality, such retrofitting intervention will inevitably compromise other preservation and economic goals, and can only be achieved upon necessary regulation reforms and procedural establishments.**

## 02

### Adaptation Design Study:

### South Street Seaport

## Designation, Streetscape Significance, and Street Corridor Selection

As one of the first commercial blocks in New York City, South Street Seaport developed from a “small cluster of wharves” into an important part of the leading port in 19th-Century United States, and in the late 20th Century transformed into today’s mixed-use urban space with a vibrant commercial atmosphere. South Street Seaport has been designated both as a LPC Historic District (1977; 1989 extension) and a National Register Historic District (1972; 1978 extension). These two designations share similar boundaries, as they both incorporate an area of around 10 blocks from Fletcher Street to Dover Street, along with two piers at the East River waterfront (NYCLPC 1977; 1989; NPS 1978). According to FEMA’s PFIRM map, almost the whole district is situated in New York City’s 1% floodplain (see Site Map on the next page).

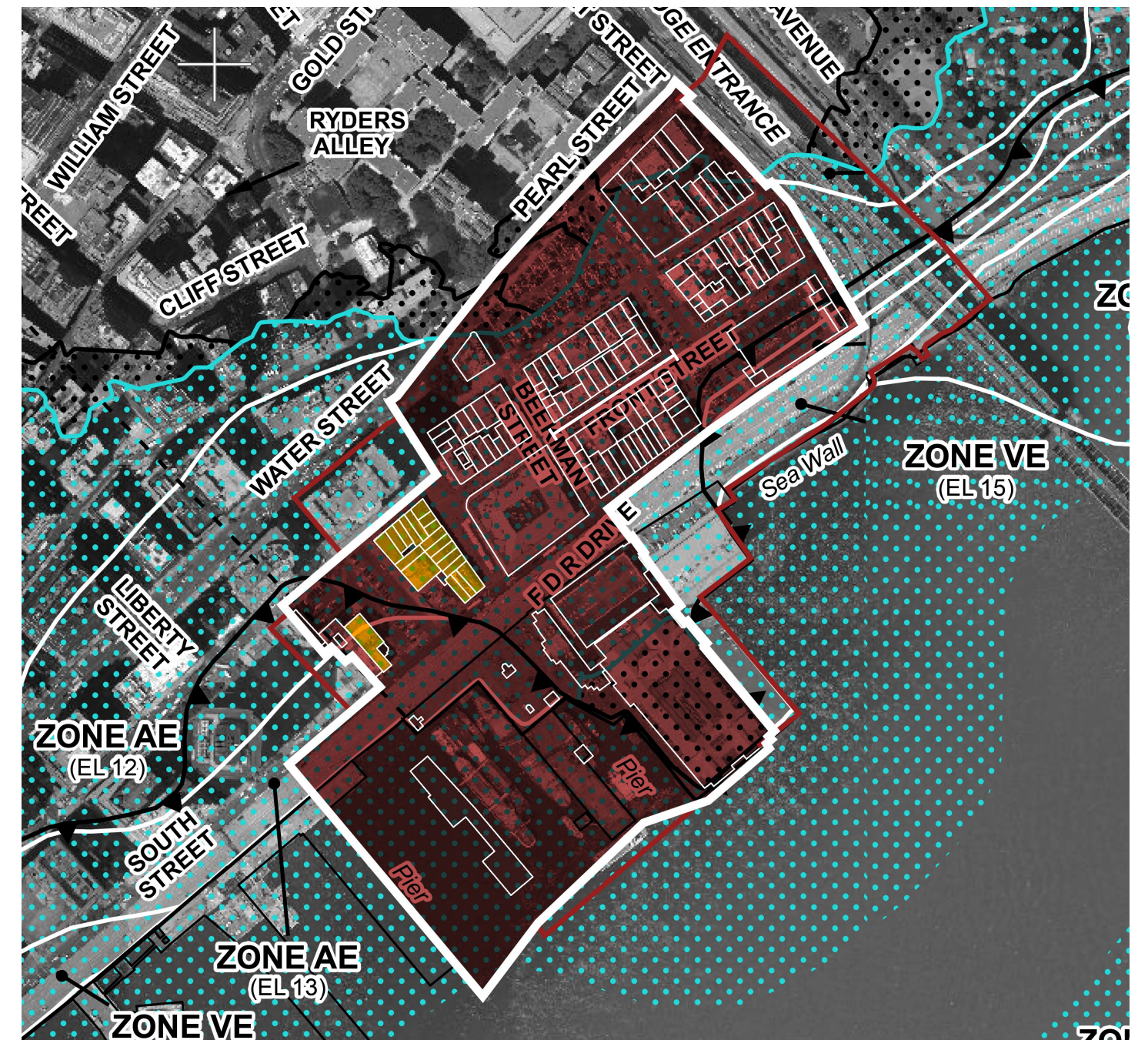
Structures standing in the neighborhood today are predominantly three-to-six story mercantile buildings built in the first half of the 19th Century. Cladded in red or yellow bricks, many of these commercial buildings have witnessed substantial alterations after construction. The most significant landmark in today’s South Street Seaport is probably the Schermerhorn Row — a group of twelve red brick warehouses erected in 1811-1812 that currently houses South Street Seaport Museum and a number of retail businesses (NYCLPC 1968; 1977).

For the purpose of streetscape adaptation design study, a section of Front Street between Beekman Street and Peck Slip is selected. With an East-West layout and a closely knit streetscape, this street section primarily comprises 18-19th Century mid-rise brick buildings that once served for commercial or stable use, with sporadic recent constructions filling in between them. Currently, almost all structures within the street section fall under the “Mid-Rise Mixed-Use” typology (see Digital Report 03) — in other words, 4-6 story buildings with retail storefronts on street floor and residential units on upper floors.

The streetscape of Front Street is worth investigating both as an intact example of New York City’s historic built environment, and as a typical mixed-use street corridor threatened by flood risk. From the historic preservation standpoint, this street section still retains its historic scale, function and vigor of a prosperous commercial district, featuring a very intact street wall. From the flood adaptation perspective, it echoes issues and solutions discussed in NYCDP’s 2014 *Retrofitting Buildings for Flood Risk* and 2016 *Resilient Retail* reports, while asking for additional policy and design strategy innovations given its formal, material, and experiential significance.

Also noteworthy is the fact that the whole South Street Seaport neighborhood is developed upon successive landfills executed since the 17th century; the original shoreline lies near today’s Pearl Street (NPS 1978). According to New York City Open Data, Front Street has an elevation of around 4.5 ft above sea level, compared to a BFE of 11-12 ft prevalent in the area.

## Site Map



- LPC Historic District
- National Register Historic District
- 1% Annual Chance Floodplain
- 0.2% Annual Chance Floodplain
- LPC Individual Landmarks
- Street Section for Design Study

0 500 ft

Historic Designation and Flood Risk.

Base Map: FEMA PFIRM 2013, Panel 3604970184G;  
Data Sources: CRIS/Map PLUTO/LPC Landmarks Map.

# Existing Condition Documentation



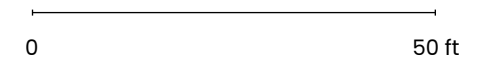
Front Street Between Beekman Street and Peck Slip, North Side.

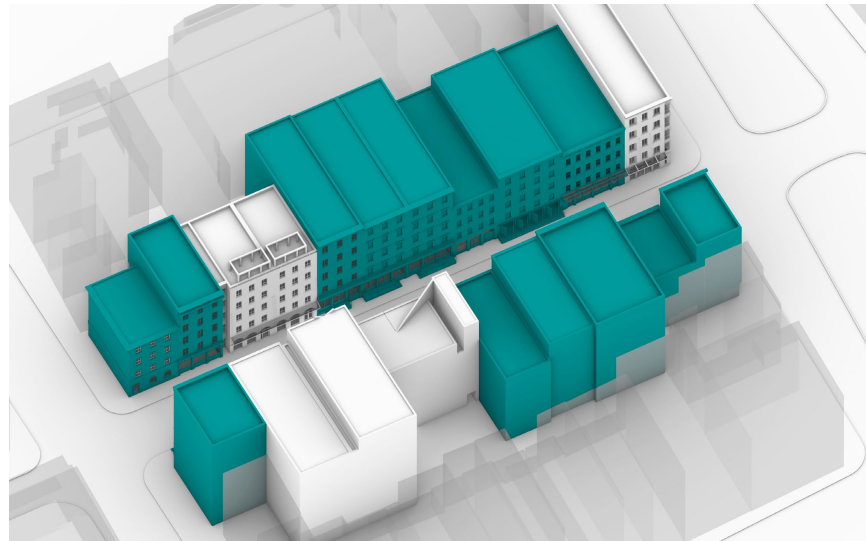


Front Street Between Beekman Street and Peck Slip, South Side.

Current Street Elevation with DFE & Building Lobby Elevations.

Street Elevation Data Source: NYC Open Data.

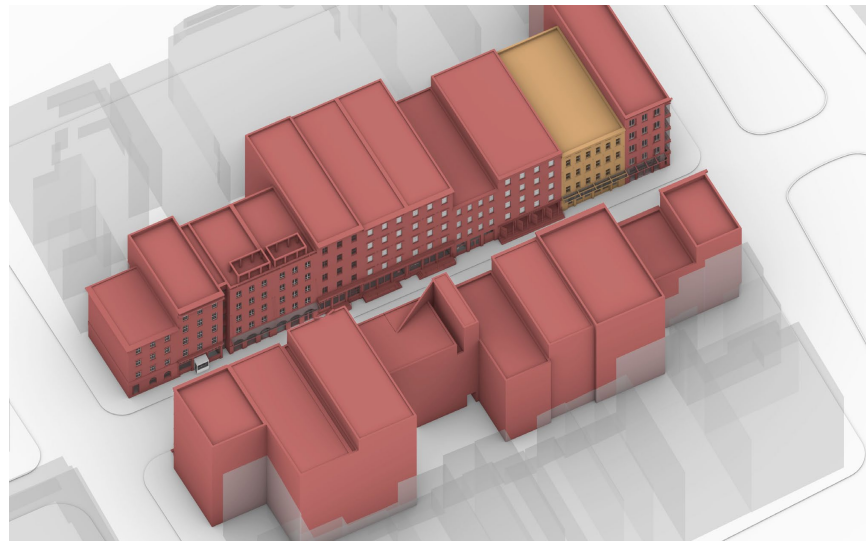




### Building Age

- Pre-1900 Buildings
- Contemporary Developments

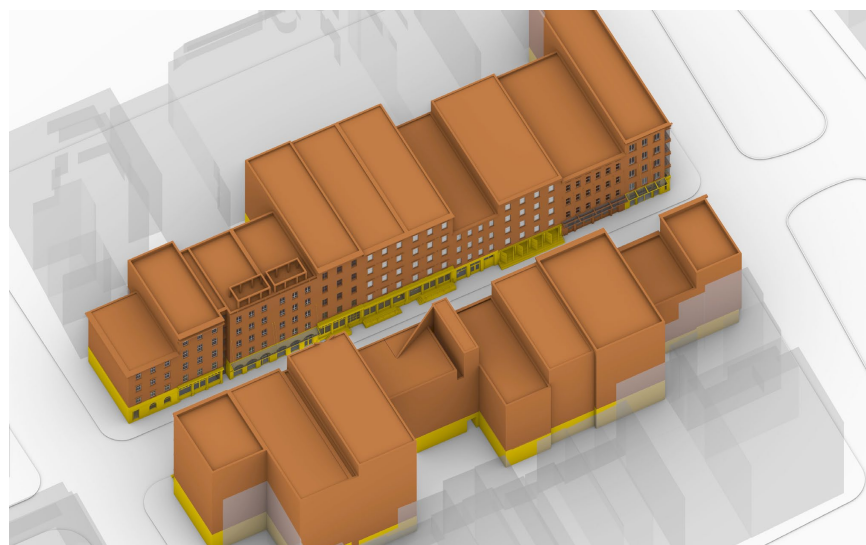
The majority of the building stock along the street corridor are Pre-1900 buildings of brick construction. Several contemporary developments also exist along the street, with scale and elevation expression compatible with the historic streetscape.



### Building Type

- Mid-Rise Mixed-Use (Up to 7 Floors)
- Mid-Rise Residential

The Front Street corridor features a continuous street wall made up of mid-rise structures; almost all of them are Mid-Rise Mixed-Use, with the exception of one Mid-Rise Residential structure near the east end.



### Building Use by Floor

- Retail
- Residential

The function break-up by floor shows a clear division between street-level retail storefronts and upper-floor residential units. The street-level retail storefronts have to a great extent created the vigor of the street corridor, and defined its commercial characteristic.

Building Profile: Age, Type, and Use.

## Existing Streetscape & Evaluation



### Flood Resilience

**2.00**

### Streetscape Experience & Social-Spatial Relationship

**4.38**

### Building Integrity & Visual Consistency

**4.00**

### Floor Area Transfer

Estimated Overall FAR: **4.35** ;

Estimated Total Usable Floor Area: **180,000** sqft.

## Retrofitting Strategy Mapping

### Streetscape Evaluation & Overall Intention

The key significance of the Front Street corridor lies in its human-scaled, intact retail interface that creates a vibrant commercial atmosphere and accommodates a variety of street activities (e.g. dining, rest, meandering, and window shopping). Although the physical fabrics of streetfront structures have gone through various alterations, the street's vigorous commercial scene has remained as a symbol of the neighborhood's spirit and history. Therefore, **the experiential and social-spatial values of the historic streetscape should be prioritized in its adaptation design** – specifically, some alterations to the historic mercantile buildings should be allowed in exchange for a more accessible and friendly street interface.

Given such assessment, the overall intentions of the street corridor's adaptation design are established as follows:

- **To keep the retail function, human scale, transparency and accessibility of the street interface as much as possible; while**
- **Retrofit buildings on both sides of the street corridor towards New York City flood regulation compliance.**

### Building Retrofitting Strategies

In accordance with the intentions listed above, four overall flood retrofitting strategies are selected for buildings flanking the Front Street corridor, each targeted at a group of structures with similar characters:

#### A | Mid-Rise Mixed-Use Structure with Small Footprint/Retail Area

**Strategy A1:** Dry-floodproof the whole structure under DFE without elevation; or

**Strategy A2:** “Mix-and-Match” – Dry-floodproof retail space, and wet-floodproof residential lobby (see Mid-Rise Mixed-Use Section of Digital Report 03).

#### B | Mid-Rise Mixed-Use Structure with Larger Footprint/Retail Area

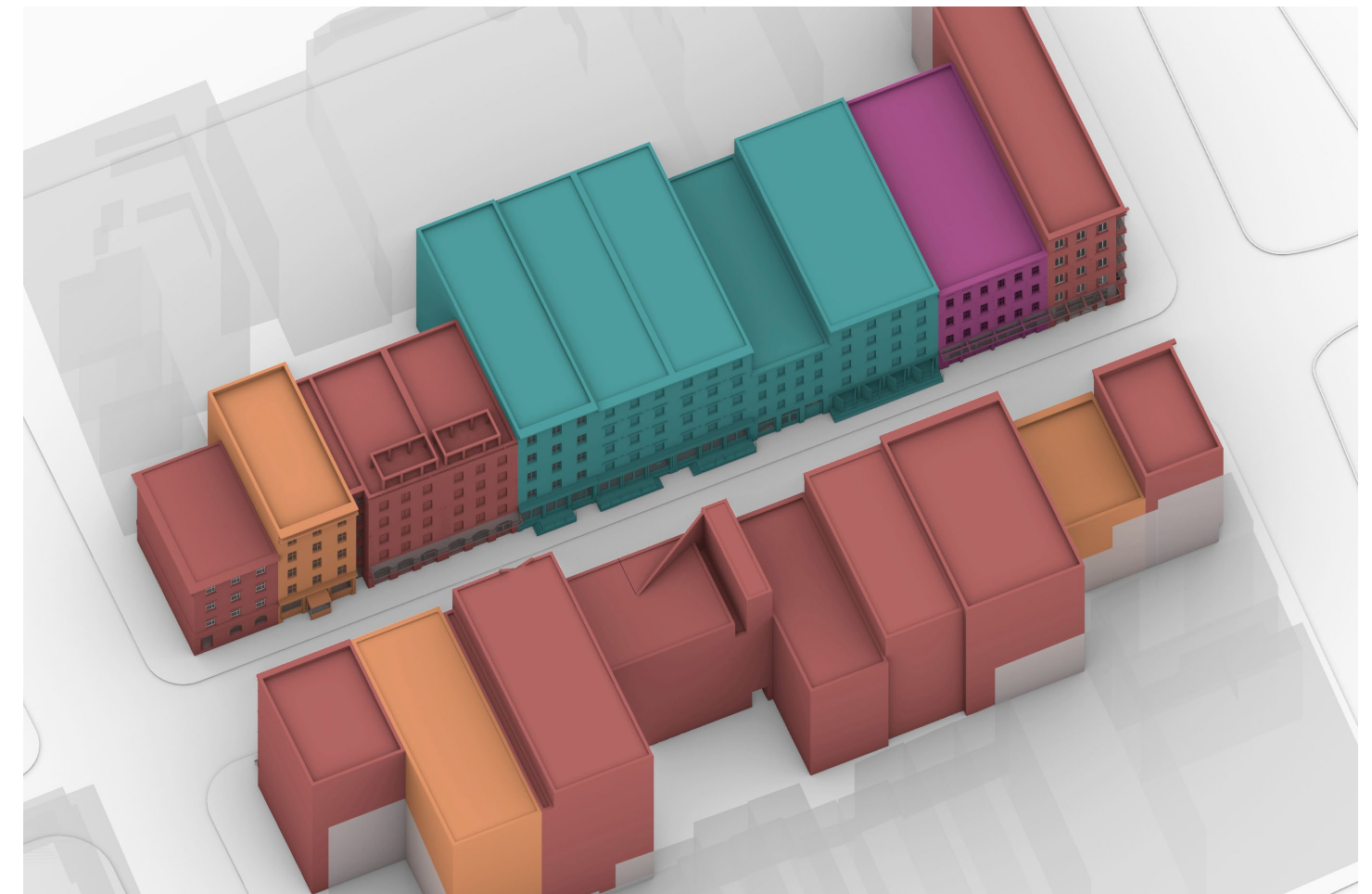
**Strategy:** Non-structural elevation with raised interior plate and double-height retail space (see Section 4.5 of Digital Report 03). This strategy is highly streetscape-friendly, but can only be applied when storefronts are large enough to accommodate interior ramps and stairs leading to the raised floor.

#### C | Mid-Rise Residential Structure

**Strategy:** Convert first-floor residential units to community use for enhanced streetscape, and execute the “Mix-and-Match” strategy (see Mid-Rise Residential Section of Digital Report 03).

## Tradeoffs & Mitigation

As streetscape experience and social-spatial relationship become the priorities of the adaptation design, multiple tradeoffs may occur in other streetscape goals, such as impacts on building integrity (as a result of physical intervention and layout change) and floor area loss (brought by the creation of double-height spaces, the introduction of interior stairs and ramps, etc.). To mitigate potential floor area loss, rooftop additions will be allowed on buildings with significant retail or residential floor area loss, provided that these additions are either non-visible from street level or executed with compatible architectural style.



- A1** Mid-Rise Mixed-Use, Small Footprint | Dry-floodproof Whole Structure
- A2** Mid-Rise Mixed-Use, Small Footprint | “Mix-and-Match”
- B** Mid-Rise Mixed-Use, Larger Footprint | Non-Structural Elevation
- C** Mid-Rise Residential | Function Conversion + “Mix-and-Match”

Diagram of Overall Retrofitting Strategies.



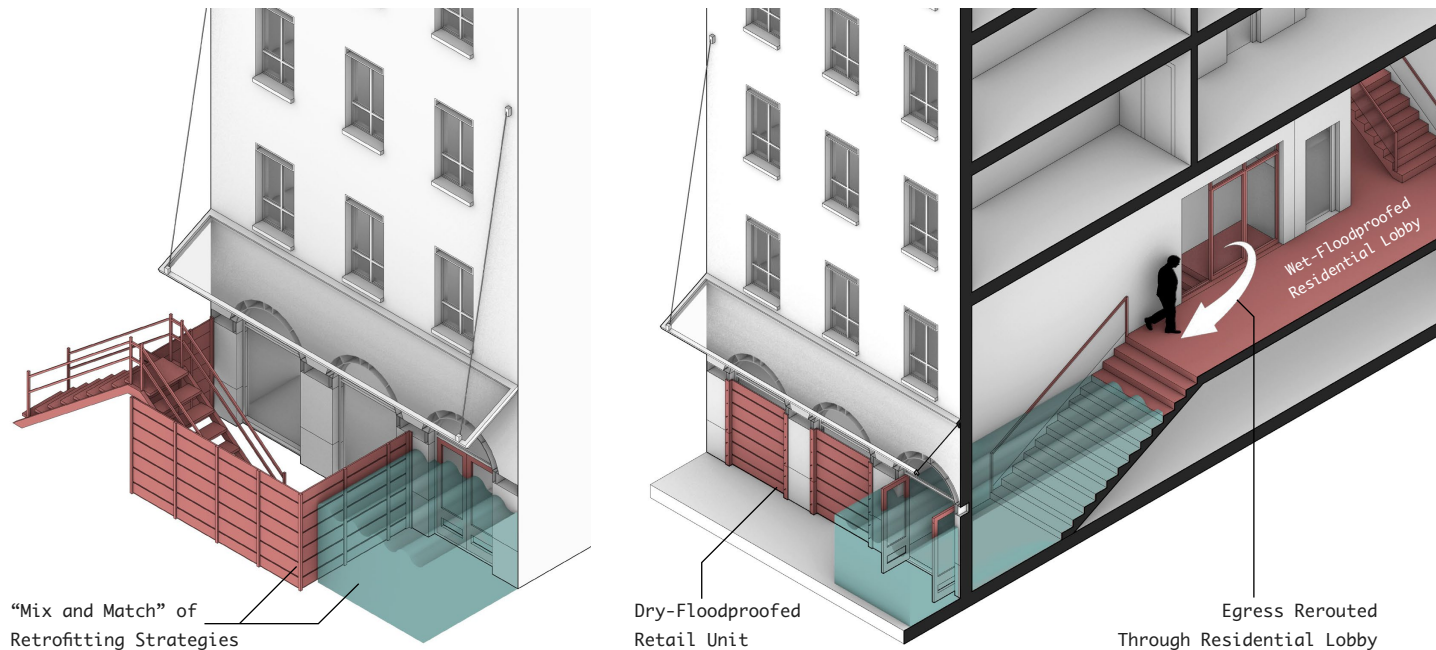
## Key Retrofitting Treatments

Under the retrofitting priorities set in the previous section, this section explores building-level flood retrofitting design treatments that help provide an interactive, transparent, and accessible street interface. Utilizing successful strategies developed in Digital Report 03, the key treatments identified in this section will be applied to Front Street’s streetfront structures wherever possible; nevertheless, these streetscape-friendly strategies are more than often beyond the permission of New York City’s current flood regulation framework.

### • “Mix-and-Match” of Dry Floodproofing and Wet Floodproofing.

For mixed-use structures, allowing dry-floodproofed and wet-floodproofed spaces to co-exist on street level may bring about more flexibility in flood retrofitting: on the one hand, this combination enables spaces of higher risk to be elevated or dry-floodproofed, and spaces of lower risk to be just wet-floodproofed (NYCDCP 2016, 66-71); on the other hand, when the egress of dry-floodproofed retail unit is able to be rerouted into the wet-floodproofed residential lobby next to it, the emergency egress and dry-floodproofing enclosure on sidewalk will no longer be necessary – which significantly reduces the physical impact on sidewalk space brought by flood retrofitting (NYCDCP 2014, 78-79; 2016, 87; see also Section 4.5 of Digital Report 03).

Acknowledging these advantages, all buildings under Retrofitting Strategy A2 will adopt the “mix-and-match” model. Nevertheless, although dry-floodproofing commercial areas and wet-floodproofing residential areas comply with the general principles of New York City’s flood regulations, mixing these two strategies in a single structure is currently not recognized by the city’s Building Code.



“Mix and Match” of Retrofitting Strategies

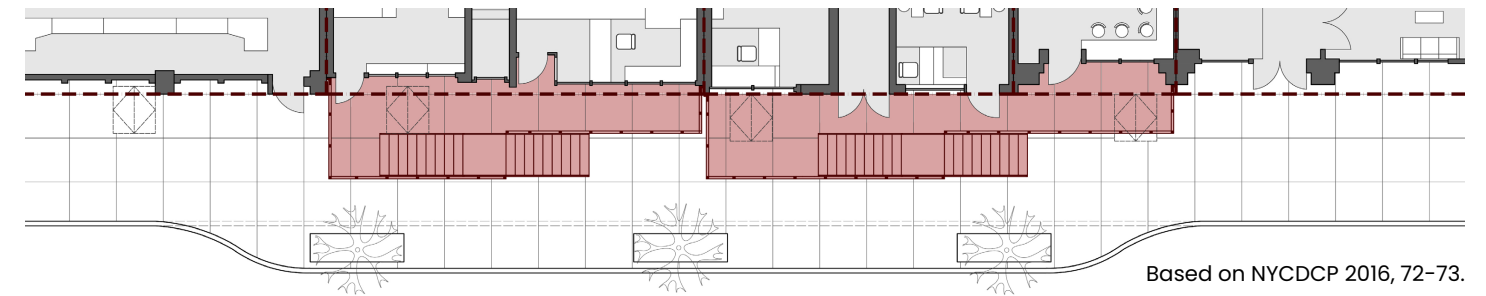
Dry-Floodproofed Retail Unit

Egress Rerouted Through Residential Lobby

### • Sidewalk Redesign & Shared Dry-Floodproofing Enclosure.

A key concern regarding dry-floodproofing commercial storefronts is that dry-floodproofing enclosures with egress exit stairs would often obscure the pedestrian right-of-way, and are difficult to deploy on narrow lots. To address this issue, this study proposes that two neighboring commercial storefronts share a dry-floodproofing enclosure when necessary, and that the sidewalk be locally widened to accommodate the minimum required width for pedestrian passage when floodproofing enclosures are deployed.

This strategy is developed based on findings in Digital Report 03 (see Mid-Rise Mixed-Use section), and will be applied to structures under Retrofitting Strategy A1. Currently, no regulation has been made regarding the application of shared dry-floodproofing enclosure; further policy and technical research are needed to prove the feasibility of such treatment.

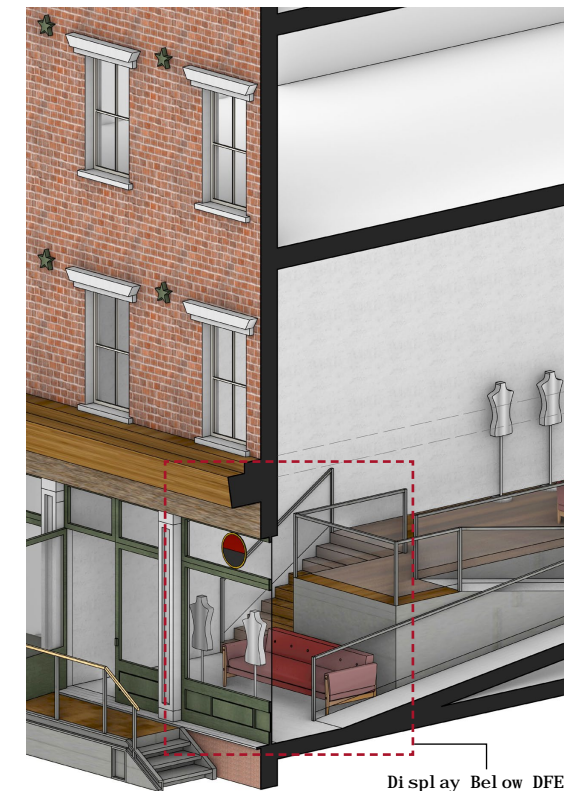


Based on NYCDCP 2016, 72-73.

### • Wet-Floodproofed Commercial Lobby with Display & Limited Seating.

For mixed-use structures, New York City’s 2014 *Retrofitting* report has promoted a highly streetscape-friendly solution, where retail units are non-structurally elevated and converted into double-height spaces with raised interior floor plates. This strategy retains the commercial lobby and entrance on street level, and thus preserves human scale, street transparency and accessibility; nevertheless, the wet-floodproofed commercial lobby can be only used for access (see Section 4.5 of Digital Report 03).

In this study, to provide better interactivity for the storefront interface, all buildings using the above-mentioned retrofitting strategy (Strategy B) will have their commercial lobbies equipped with showpit areas or limited seating function (see NYCDCP 2014, 86). The loosening of use regulation will bring about an even more human-scaled and interactive streetscape relationship.



Display Below DFE

## Retrofitted Streetscape | Permanent



### Flood Resilience

3.75 (▲ 2.50)

### Streetscape Experience & Social-Spatial Relationship

4.30 (▼ 0.08)

### Building Integrity & Visual Consistency

3.50 (▼ 0.50)

### Floor Area Transfer

Est. Overall FAR: 4.92 (▲ 0.57) ;

Est. Total Usable Floor Area: 175,000 (▼ 5,000) sqft.



Rooftop additions shall be executed when double-height retail units with raised interior floorplate result in the loss of residential floor area. In this study, the facade cladding of additional floors are designed to match the red-brick texture of the street wall; local material changes and restrained details add to the identifiability of rooftop addition (see Grimmer & Weeks 2010).



With floor plates raised inside the storefronts and transitional lobbies with display and seating functions created on street level, the social-spatial relationship of the Front Street interface is retained as much as possible; the elevated, wet-floodproofed retail floor also provides reliable flood resistance. Tradeoffs in floor area, economic feasibility, and building integrity, etc. will be further analyzed in the Discussion section.

## Retrofitted Streetscape | During Flood Event



Before an anticipated flood event, deployable flood shields and dry-floodproofing enclosures are set up and fixed to the anchors embedded on the exterior of historic structures. Many retail storefronts – except for those able to be elevated from the inside – adopt the dry-floodproofing solution as it doesn’t involve significant spatial reconfiguration. Whenever applicable, the residential lobbies of mixed-use structures are wet-floodproofed, and will serve as the egress of retail units in the same building. When dry-floodproofing enclosure and temporary egress on the sidewalk are inevitable, the redesigned sidewalk ensures minimum width for pedestrian passage.

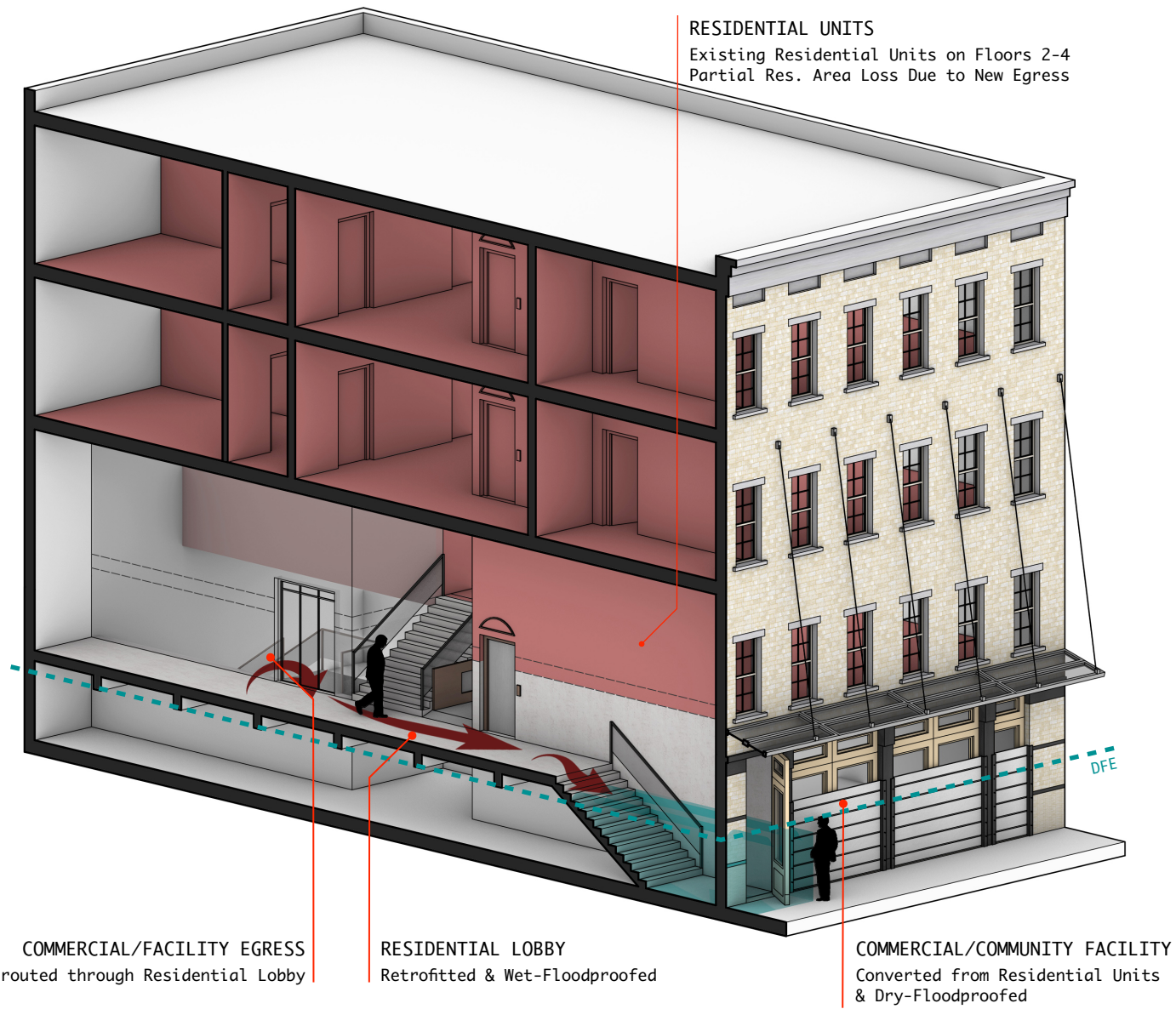
## Case Study | 224 Front Street



**Built Year:** 1910 (ZoLa Data); substantial subsequent changes. **Type:** Mid-Rise Mixed-Use.

**Retrofitting Strategy:** Non-Structural Elevation with Double Height Retail Space (“Strategy B”).

This case represents a group of larger mixed-use structures along the street that have the ability to accommodate interior ramps and stairs necessary for the creation of internally raised retail space. Accompanying the transformed, double-height retail unit are a street-level commercial lobby and an added floor to make up for the lost residential floor area.



**Built Year:** 1816; major alterations in 1897 (LPC Data). **Type:** Mid-Rise Residential.

**Retrofitting Strategy:** Function Conversion and “Mix-and-Match” of Floodproofing (“Strategy C”).

Originally a residential structure, the street level of this building will be converted into commercial or community use so it may be dry-floodproofed and wouldn’t need to be abandoned. To further reduce the streetscape impact and feasibility concern caused by dry-floodproofing enclosure on sidewalk, the egress of the commercial/community facility is rerouted through the elevated and wet-floodproofed residential lobby. The “Mix-and-Match” of floodproofing with reconfigured egress is also commonly used in this study on other structures along Front Street (Strategy A2); nevertheless, it should be noted that the reconfigured egress and the elevated residential lobby may result in some loss of residential floor area and involve major spatial redesign.

## Discussion

The South Street Seaport design study has demonstrated that historic retail corridors can be flood retrofitted while considerably retaining their streetscape quality and experience. Nevertheless, such retrofitting intervention will inevitably compromise other Adaptive Streetscape goals, and can only be achieved upon necessary regulation reforms and procedural establishments.

### Tradeoffs

The streetscape-sensitive design strategies adopted in this study require extensive physical interventions to historic structures, including (but not confined to) the reworking of masonry walls for water tightness, the removal of floor plates and creation of double-height retail units, the rerouting of interior egress, and rooftop additions. These treatments will potentially compromise the following Adaptive Streetscape goals.

- **Building Integrity:** the extensive reworking of historic fabrics may bring about significant material and spatial changes beyond what’s typically allowed by local preservation regulation.
- **Floor Area:** some losses in active floor area may still be inevitable despite rooftop additions on selected structures, which may raise further issues from an economic perspective.

Moreover, the extensive work required by the design scheme may also raise feasibility questions in terms of stakeholder and tenant consensus.

### Regulatory Standard Reform

This study has once again highlighted some key regulatory reforms necessary for the streetscape-sensitive flood retrofitting of urban historic structures, including allowing active function in wet-floodproofed commercial lobbies, allowing basements/cellars of mixed-use structures to exist or partially exist, and recognizing the “mix-and-match” of dry and wet-floodproofing treatments, etc. Furthermore, local zoning policy regarding parcel and height calculation should continue to be revised, and the local preservation design review guideline should also be updated to allow necessary material and spatial impacts brought by flood retrofitting.

### Street/Neighborhood-Level Planning Procedure

Several street-level strategies proposed in this study – including shared dry-floodproofing enclosures and partial enlargement of sidewalks – will require an urban planning process and coordination between multiple agencies. A street/neighborhood-scaled retrofitting master plan will be helpful as it may not only address these issues, but also identify suitable retrofitting strategies for individual structures, and envision how a consistent streetscape may be coordinated across individual buildings and the street space.

## Appendix: Current Streetscape Evaluation Sheet

### Flood Resilience | 2.00

	1 < BFE – 4ft	2 ≥ BFE – 4ft	3 ≥ BFE	4 ≥ DFE	5 ≥ DFE+1ft
Average lowest residential floor elevation as compared to BFE & DFE					
Percentage of areas with active use on street level	1 ≥ 80%	2 80 – 60%	3 60 – 40%	4 40 – 20%	5 < 20%
Percentage of flood-proofed area on street level	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of basement area as compared to street-floor building floor area	1 ≥ 80%	2 80 – 60%	3 60 – 40%	4 40 – 20%	5 < 20%

### Building Integrity & Visual Consistency | 4.00

	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of identifiable historic structures along both sides of the corridor					
Current condition of historic structures	1 Poor	2 Fair	3 Average	4 Good	5 Excellent
Extent of existing modification to historic facades	1 Extensive	2 High	3 Medium	4 Low	5 Very Low
Number of identifiable historic architectural elements and ornaments on street level	1 Scarce	2 Few	3 Moderate	4 Frequent	5 Abundant
Permanent material impact brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Low	5 Very Low
Permanent visual impact on street level brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Low	5 Very Low
Permanent visual impact on rooftops brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Compatible	5 Invisible
Permanent physical impact on street space brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Compatible	5 Invisible

### Streetscape Experience & Social-Spatial Relationship | 4.38

	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of continuous street wall along both sides of the street corridor					
Percentage of street-level transparency (for mixed-use/commercial corridor only)	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of active use along both sides of the street	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of storefronts with outdoor dining/seating (for mixed-use/commercial corridor only)	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Average main entrance elevation of structures on both sides of the street as compared to street level	1 ≥ 4ft	2 3–4ft	3 2–3ft	4 1–2ft	5 < 1ft
Identifiable architectural patterns (fenestration, pilasters, etc.) on street level	1 Scarce	2 Few	3 Moderate	4 Frequent	5 Abundant
Number of storefronts, awnings, canopies and signage (for mixed-use/commercial corridor only)	1 Scarce	2 Few	3 Moderate	4 Frequent	5 Abundant
Liminal space for pedestrian passage / Ability to walk along the sidewalk	1 Very Low	2 Low	3 Acceptable	4 Good	5 High
Permanent visual impact on rooftops brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Compatible	5 Invisible
Estimated pedestrian behavioral/mind map change brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Low	5 Very Low

## Appendix: Retrofitted Streetscape Evaluation Sheet

### Flood Resilience | 3.75

	1 < BFE – 4ft	2 ≥ BFE – 4ft	3 ≥ BFE	4 ≥ DFE	5 ≥ DFE+1ft
Average lowest residential floor elevation as compared to BFE & DFE					
Percentage of areas with active use on street level	1 ≥ 80%	2 80 – 60%	3 60 – 40%	4 40 – 20%	5 < 20%
Percentage of flood-proofed area on street level	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of basement area as compared to street-floor building floor area	1 ≥ 80%	2 80 – 60%	3 60 – 40%	4 40 – 20%	5 < 20%

### Building Integrity & Visual Consistency | 3.50

	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of identifiable historic structures along both sides of the corridor					
Current condition of historic structures	1 Poor	2 Fair	3 Average	4 Good	5 Excellent
Extent of existing modification to historic facades	1 Extensive	2 High	3 Medium	4 Low	5 Very Low
Number of identifiable historic architectural elements and ornaments on street level	1 Scarce	2 Few	3 Moderate	4 Frequent	5 Abundant
Permanent material impact brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Low	5 Very Low
Permanent visual impact on street level brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Low	5 Very Low
Permanent visual impact on rooftops brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Compatible	5 Invisible
Permanent physical impact on street space brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Compatible	5 Invisible

### Streetscape Experience & Social-Spatial Relationship | 4.30

	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of continuous street wall along both sides of the street corridor					
Percentage of street-level transparency (for mixed-use/commercial corridor only)	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
Percentage of active use along both sides of the street	1 < 20%	2 20 – 40%	3 40 – 60%	4 60 – 80%	5 ≥ 80%
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Average main entrance elevation of structures on both sides of the street as compared to street level	1 ≥ 4ft	2 3–4ft	3 2–3ft	4 1–2ft	5 < 1ft
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Number of storefronts, awnings, canopies and signage (for mixed-use/commercial corridor only)	1 Scarce	2 Few	3 Moderate	4 Frequent	5 Abundant
Liminal space for pedestrian passage / Ability to walk along the sidewalk	1 Very Low	2 Low	3 Acceptable	4 Good	5 High
Permanent visual impact on rooftops brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Compatible	5 Invisible
Estimated pedestrian behavioral/mind map change brought by flood retrofitting (for retrofitted streetscape only)	1 Extensive	2 High	3 Medium	4 Low	5 Very Low

# 03

## References

### Designation Reports

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### Adaptation Guidelines

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## Living Above the Street

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