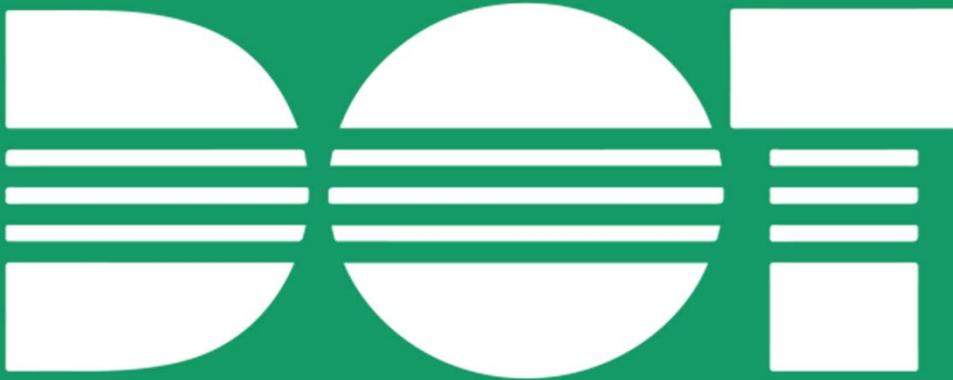


NEW YORK CITY



ARUP

**WILLOUGHBY STREET
PEDESTRIAN-PRIORITY PROJECT**

STAKEHOLDERS MEETING #2

October 9, 2014

AGENDA

01 About the Project

02 Existing Conditions

03 Goals and Objectives

04 What is a pedestrian-priority street?

05 Design Alternatives

Feedback + Discussion

06 Design Context: Streetscape Elements

07 Design Considerations: Paving, Accessibility

08 Next Steps

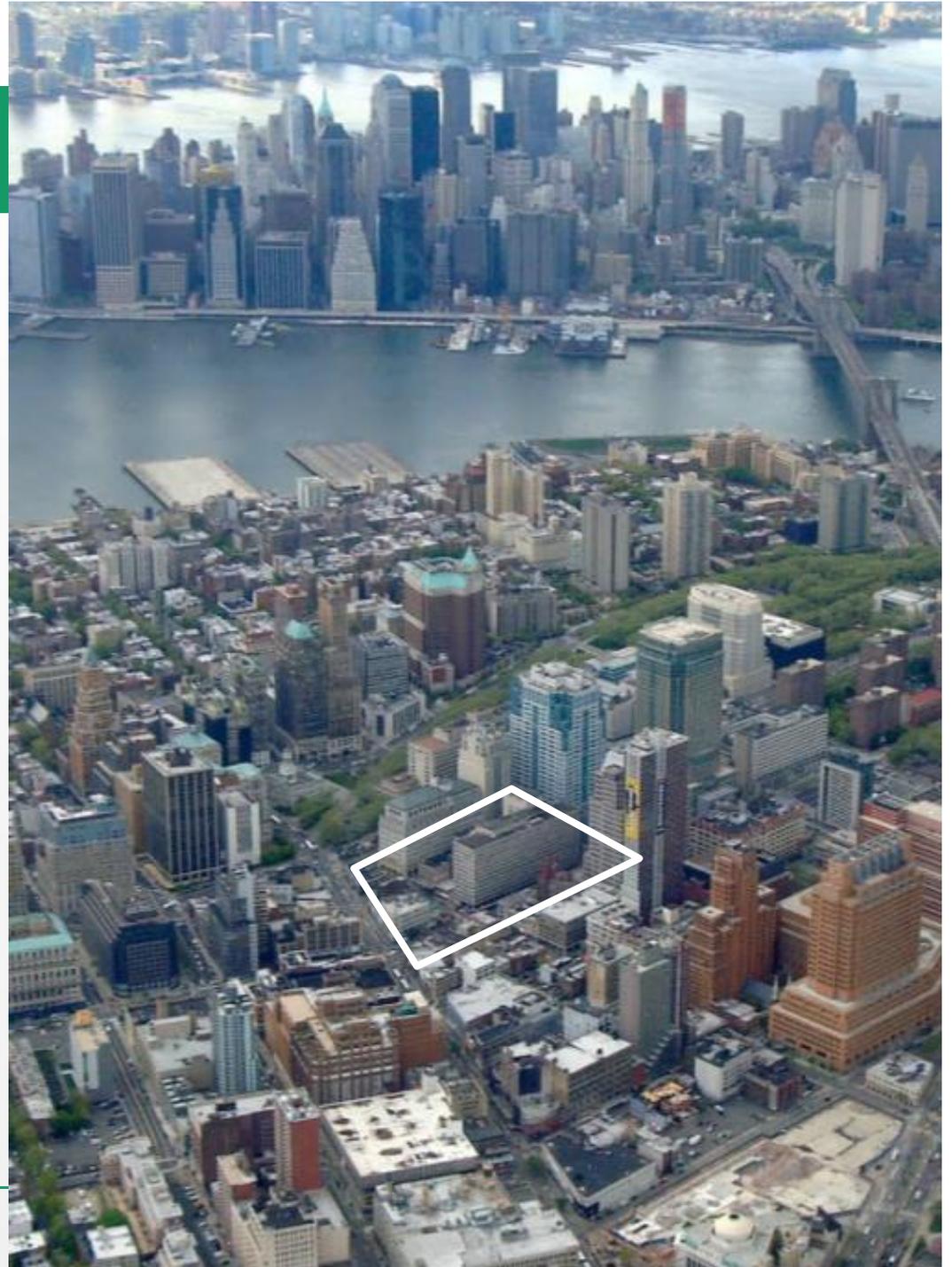
Feedback + Discussion

ABOUT THE PROJECT

ABOUT THE PROJECT

BACKGROUND

- Study and conceptual design for Willoughby and Pearl Streets
- Led by NYC DOT in collaboration with consultant team
- Opportunities for stakeholder and public collaboration
- 2008 study findings:
 - Active pedestrian area
 - Pedestrian-priority or Shared Street concept recommended
- Leverages success of Willoughby Plaza



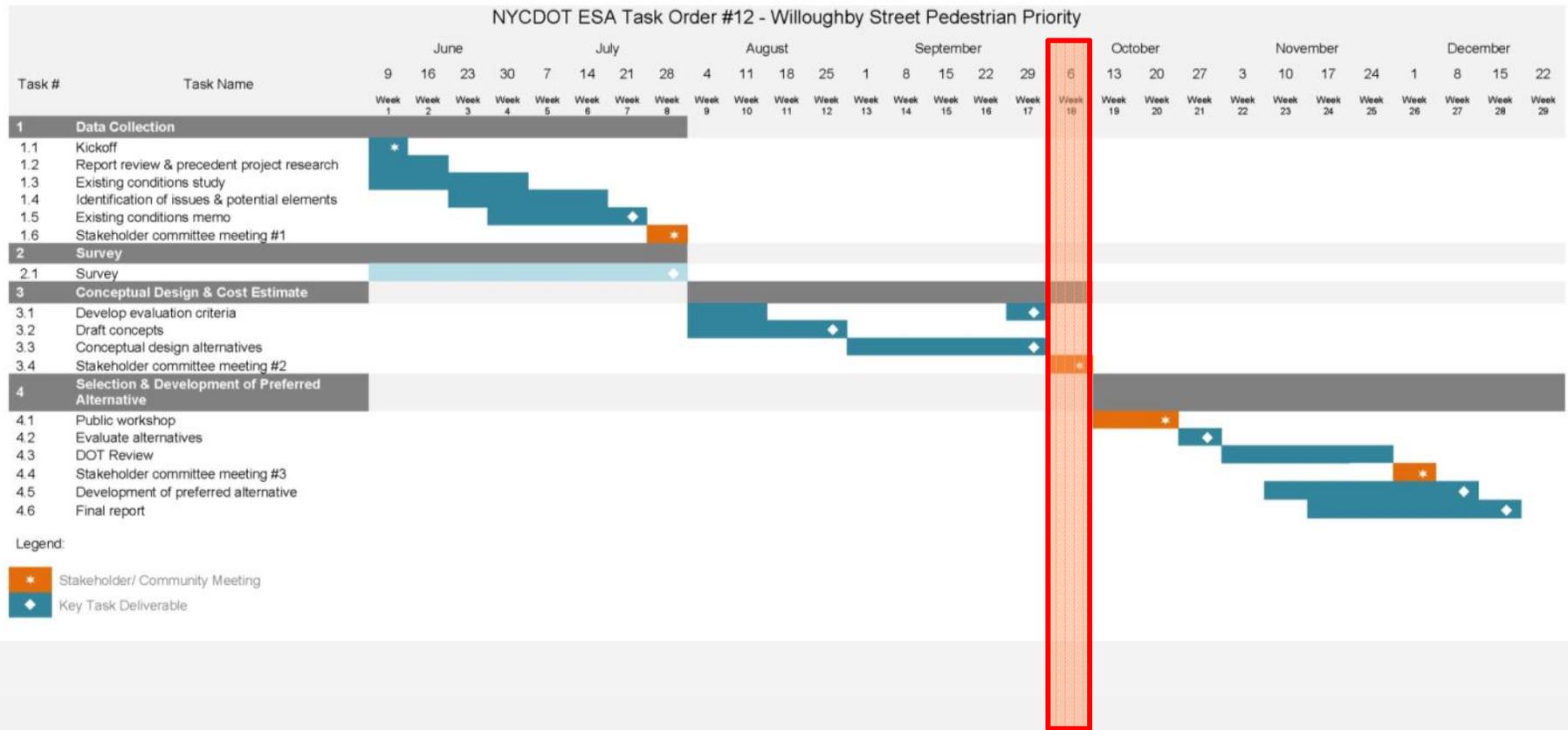
ABOUT THE PROJECT

PROJECT SITE



ABOUT THE PROJECT

PROJECT TIMELINE



EXISTING CONDITIONS

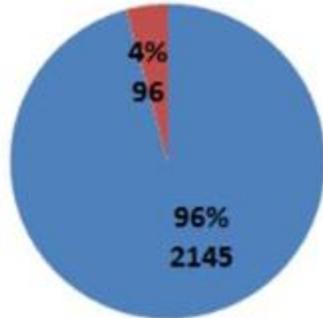
CHARACTER AND ENVIRONMENT



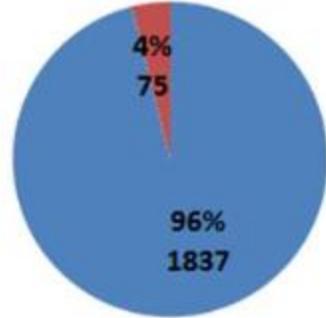
- Physical character somewhat degraded, particularly relative to Willoughby Plaza
- Sidewalk and visual clutter
- Few trees and street lights
- Architectural assets

PEDESTRIAN AND VEHICLE COUNTS

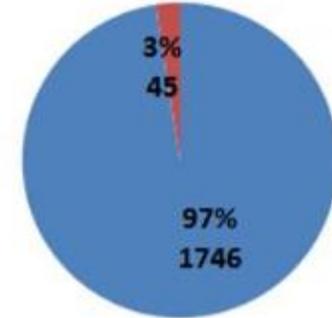
Willoughby St and Pearl St



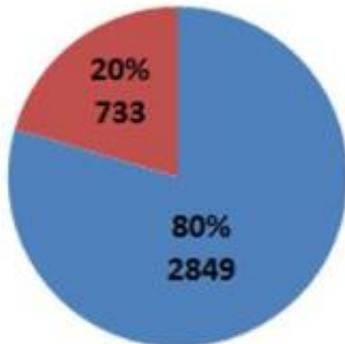
Willoughby St and Pearl St



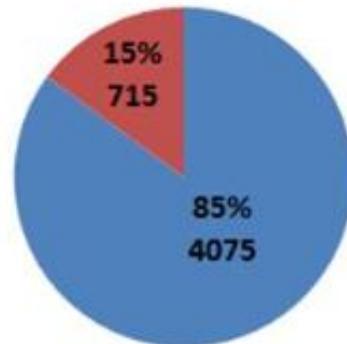
Willoughby St and Pearl St



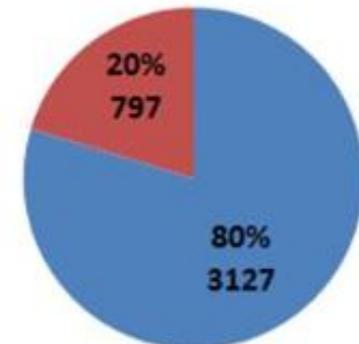
Willoughby St and Jay St



Willoughby St and Jay St



Willoughby St and Jay St



AM PEAK HOUR

MIDDAY PEAK HOUR

PM PEAK HOUR

- High pedestrian volumes relative vehicles at all times

PEDESTRIAN AND CYCLISTS



- Significant pedestrian desire lines: *West on Willoughby Street in morning*
- Pedestrians walk in street *East on Willoughby Street in evening*
- Crash data indicates pedestrian safety not a major issue
- Demand for seating
- Little cycling through-traffic, local access only

VEHICLE MOVEMENT



- Low traffic volumes
- Level of Service (LOS) – C or better
- Road network reduces vehicle connections
- Few crashes

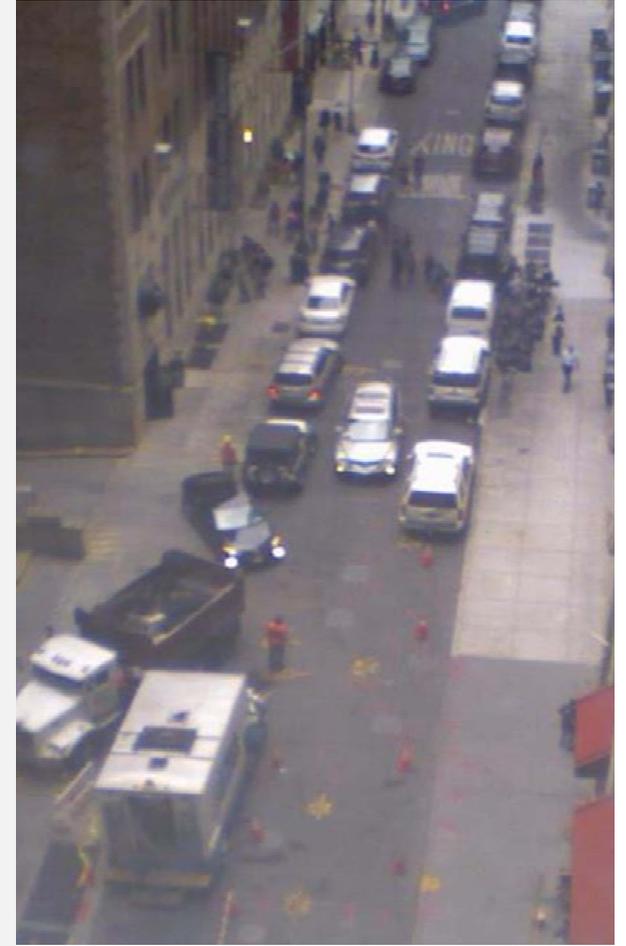
PARKING AND LOADING



PERMIT PARKING



RETAIL LOADING



SCHOOL LOADING

SCHOOL DROP-OFF /PICK-UP OBSERVATIONS

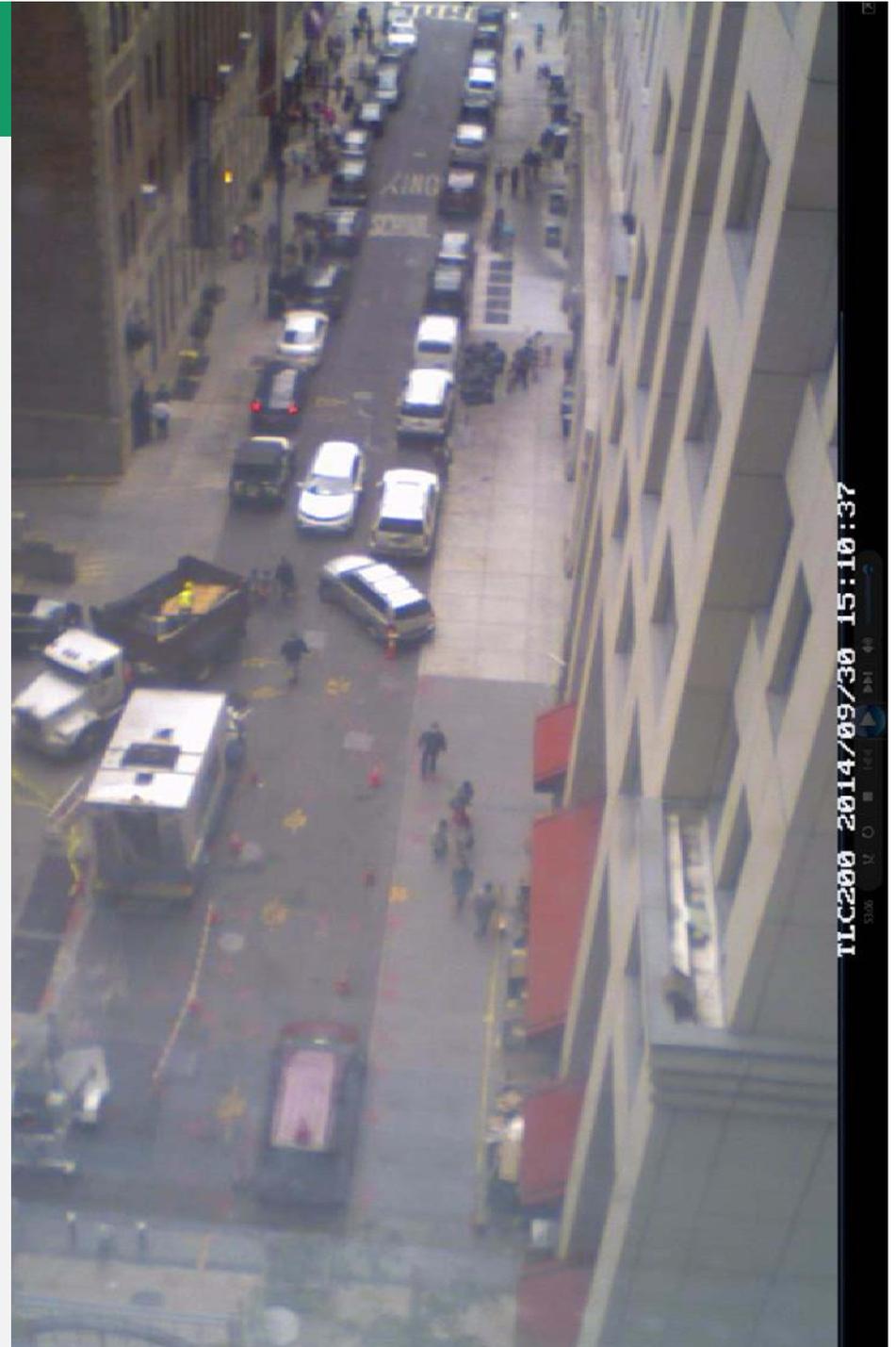
Time lapse video used to assess pedestrian and vehicle movement

AM Peak – 7:45-8:15

- ~85% of vehicles do 3-pt turn at north end of Pearl St.
- Some park in wrong direction

PM Peak – 2:40-3:30

- Similar movement to AM peak
- Parents waiting in cars



GOALS AND OBJECTIVES

PROJECT OBJECTIVES

1



Create a safe, comfortable, and convenient walking environment for all users.

2



Support and enhance economic and retail vitality.

PROJECT OBJECTIVES

3



Improve street aesthetics and visual quality.

4



Accommodate all legitimate mobility and access needs, including goods deliveries and passenger drop offs, but place a priority on pedestrian needs.

PROJECT OBJECTIVES

5



Design for sustainability, maintainability, and resiliency.

6



Integrate project area into existing streetscape and facilitate connections with surrounding activity centers, such as Willoughby Plaza, Fulton Street Mall, MetroTech, and Columbus Park.

**WHAT IS A PEDESTRIAN
PRIORITY STREET?**

WHAT IS A PEDESTRIAN PRIORITY STREET?



- Street design reflects pedestrian volumes
- Common space shared by pedestrians, cyclists, low-speed vehicles
- Street as public plaza

WHAT IS A PEDESTRIAN PRIORITY STREET?



- Common features:
 - Flush surfaces, special pavers, reduced markings
 - Amenities such as seating, pedestrian-scale lighting, bike parking
 - Flexibility for special events

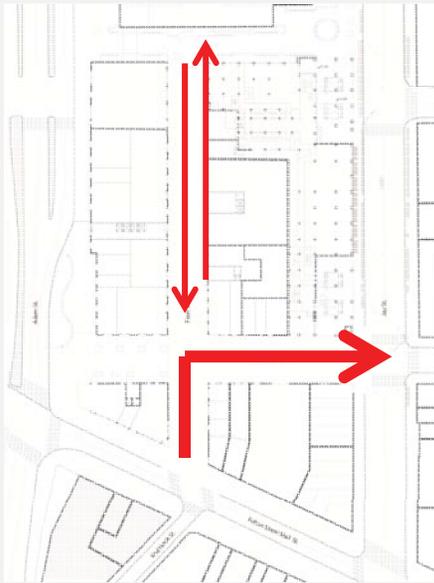
DESIGN ALTERNATIVES

THREE CONCEPTUAL DESIGN ALTERNATIVES

- **Explore three options for:**
 - Traffic circulation
 - Mode segregation
 - Passenger and commercial loading
 - Lighting
 - Landscaping
 - Street furniture
 - Concessions
 - Street operations
 - Accessibility
- **Preferred Alternative can be a mix of elements from three conceptual alternatives**

CIRCULATION

ALTERNATIVE 1



Circulation same as existing

ALTERNATIVE 2



Circulation same as existing

ALTERNATIVE 3

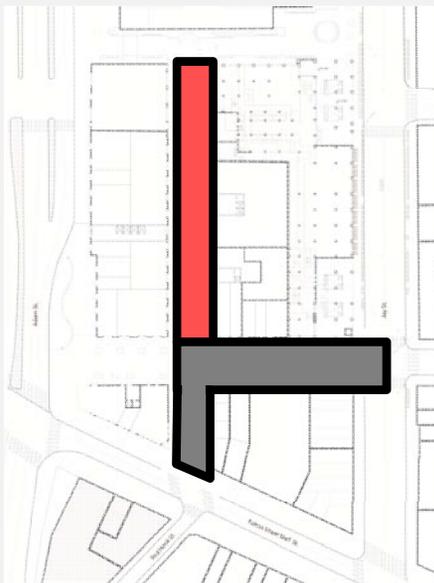


Assumes demapping of Pearl Street or Red Hook Lane

Willoughby becomes two-way street

GENERAL CONCEPTS

ALTERNATIVE 1



Willoughby and Pearl Street (south) - curbed

Pearl Street (north) – limited vehicular access

ALTERNATIVE 2



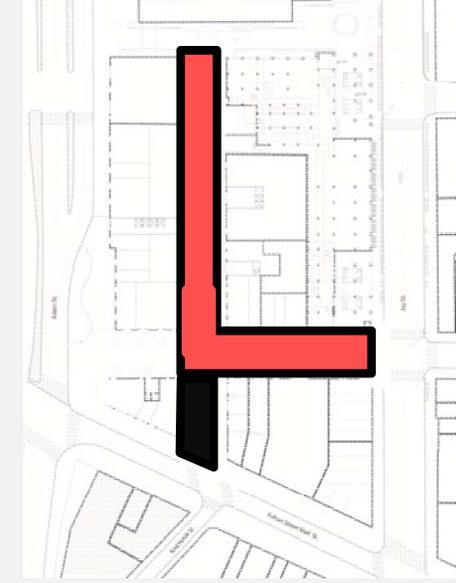
Willoughby and Pearl Street a contiguous, raised space

Flush surface

24-hr vehicle access

Shared space

ALTERNATIVE 3



Pearl Street Plaza established

Willoughby and Pearl Street a contiguous space

Peds only 10am-2pm

greatest



Mode segregation

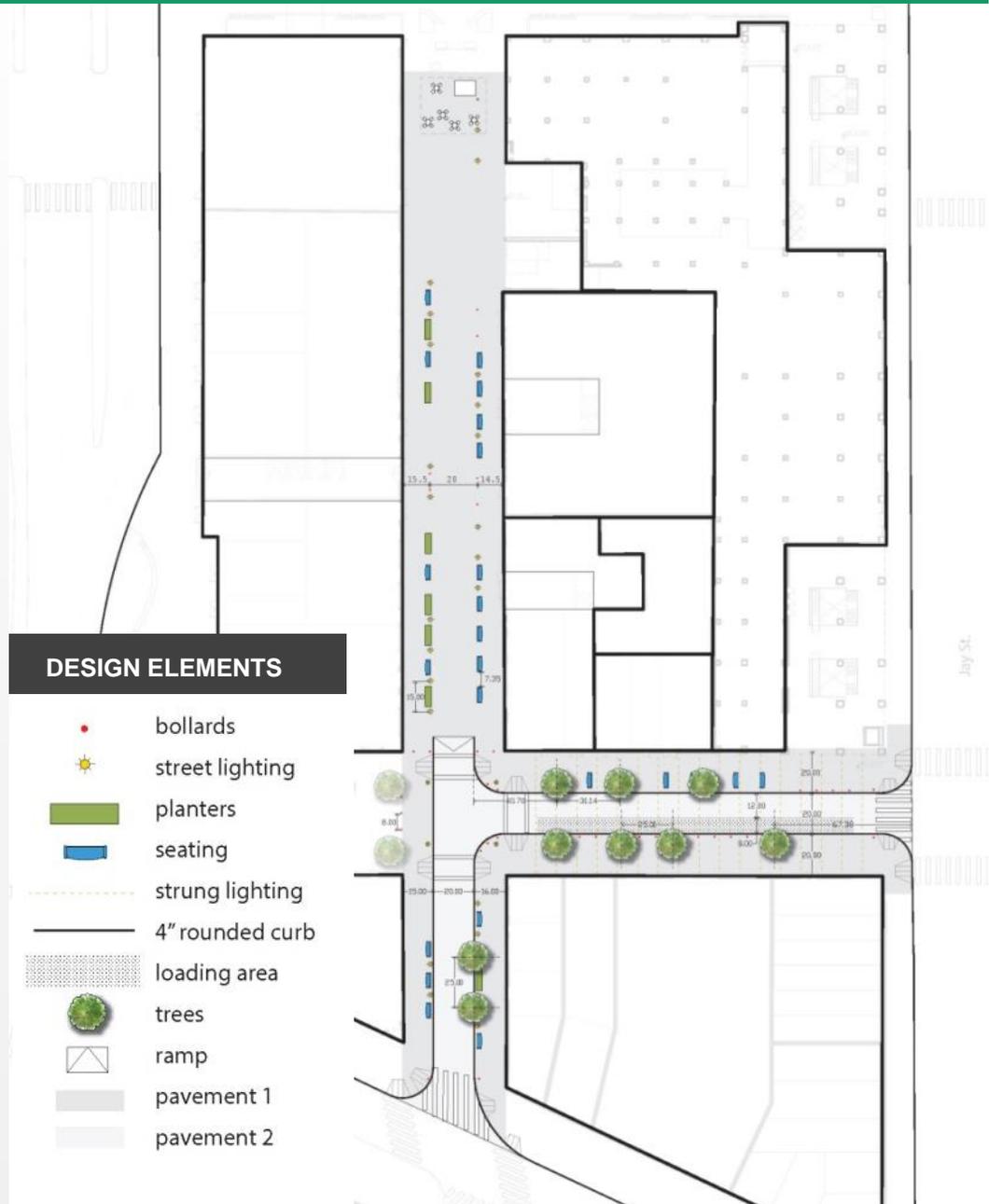


least

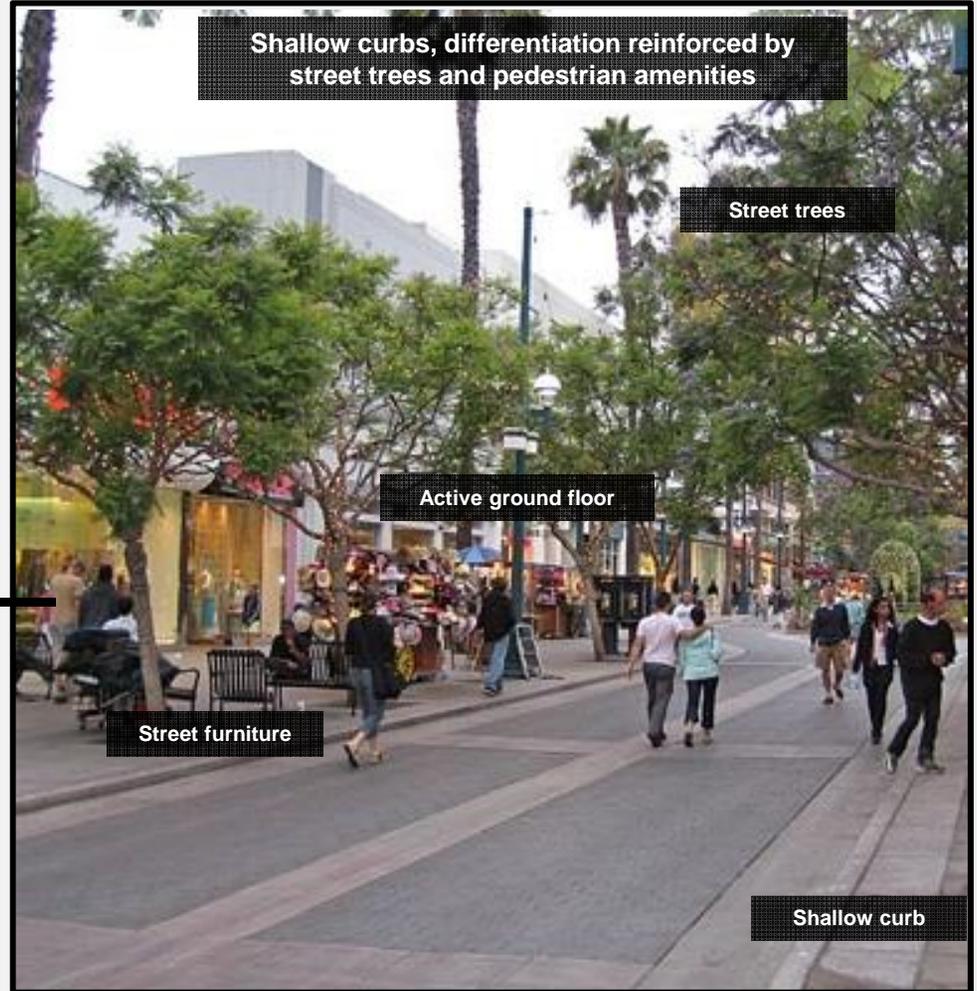
ALTERNATIVE 1

ALTERNATIVE 1

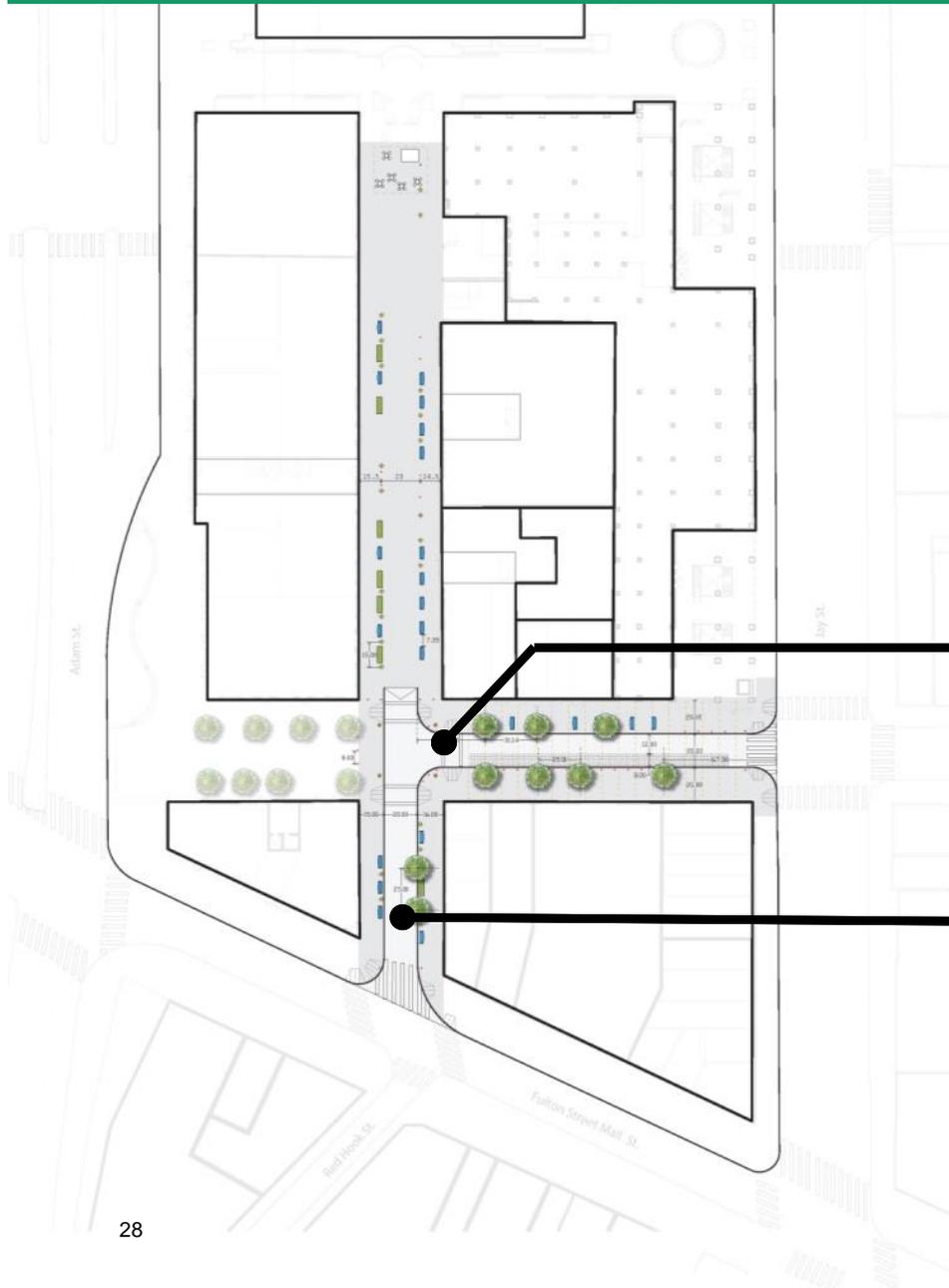
- Willoughby Street
 - More traditional streetscape
 - Continues view corridor
 - 3-4 inch rounded curbs
 - Reinforces vehicular circulation pattern
- Pearl Street (north)
 - Public plaza feel
 - Flush surface
 - Vertical segregating elements



ALTERNATIVE 1



ALTERNATIVE 1



Shallow curbs, differentiation reinforced by street trees and pedestrian amenities



Street trees

Active ground floor

Street furniture

Shallow curb

Shallow curbs, with slightly distinguished paving

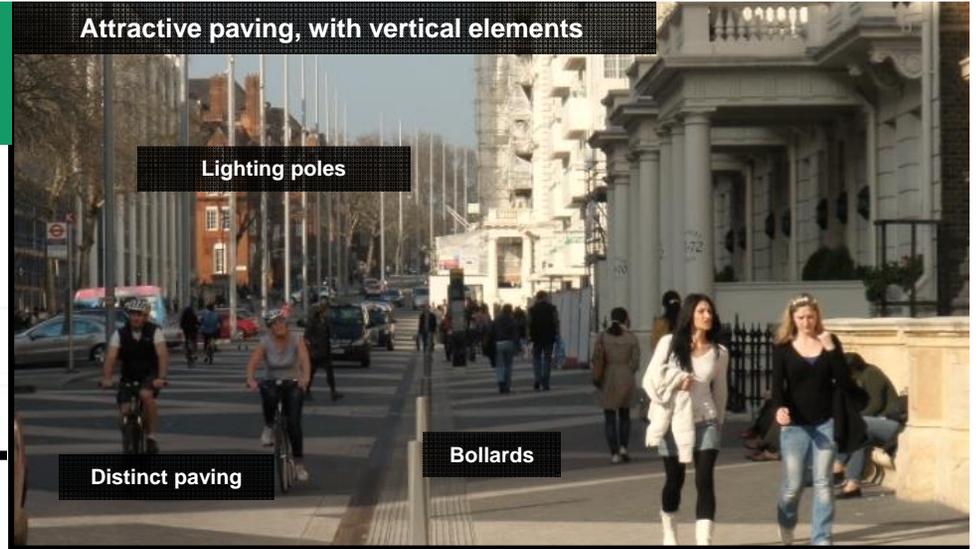


Café Spilling out on street

ALTERNATIVE 1



Attractive paving, with vertical elements

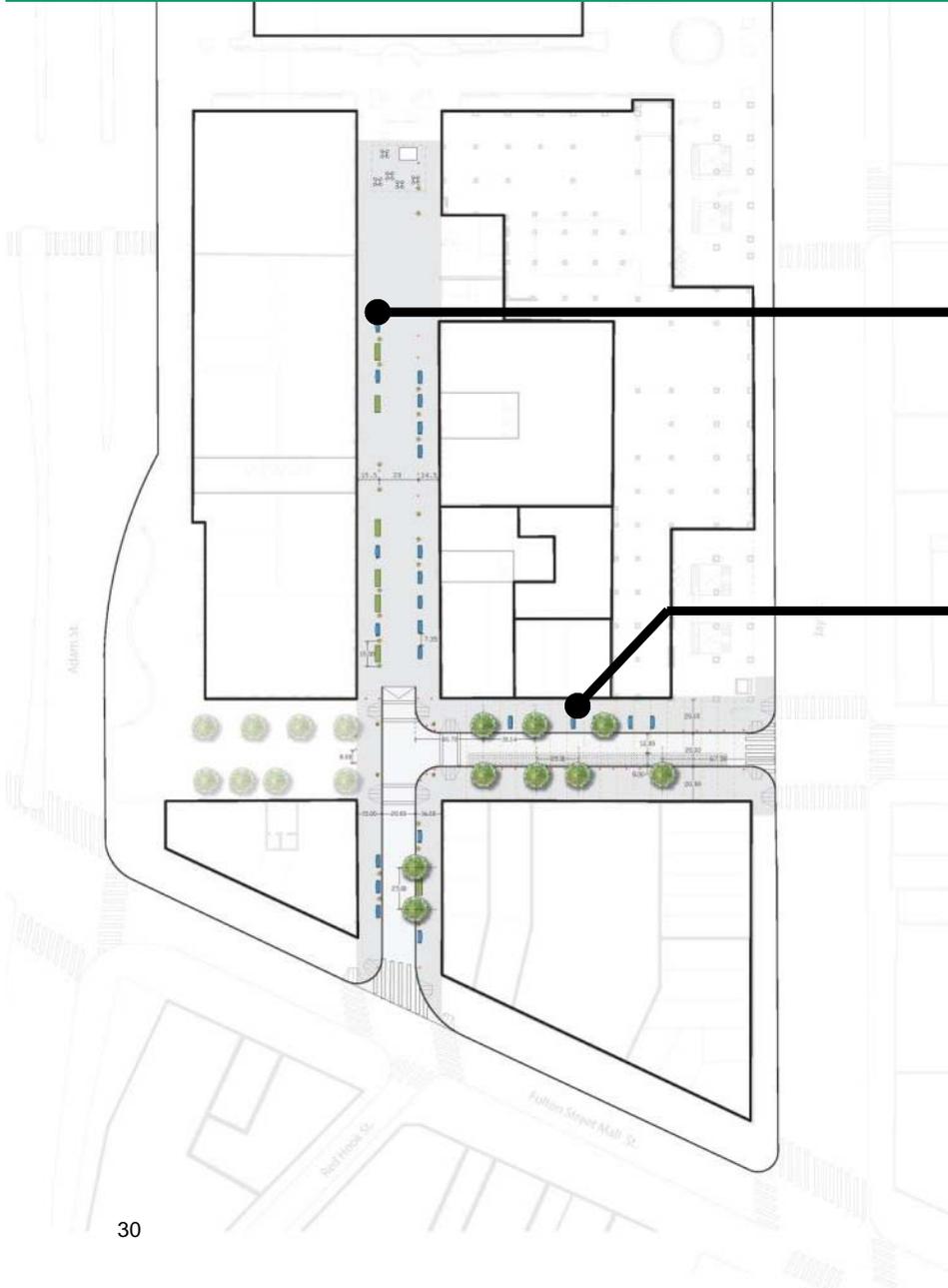


Lighting poles

Distinct paving

Bollards

ALTERNATIVE 1



Attractive paving, with vertical elements

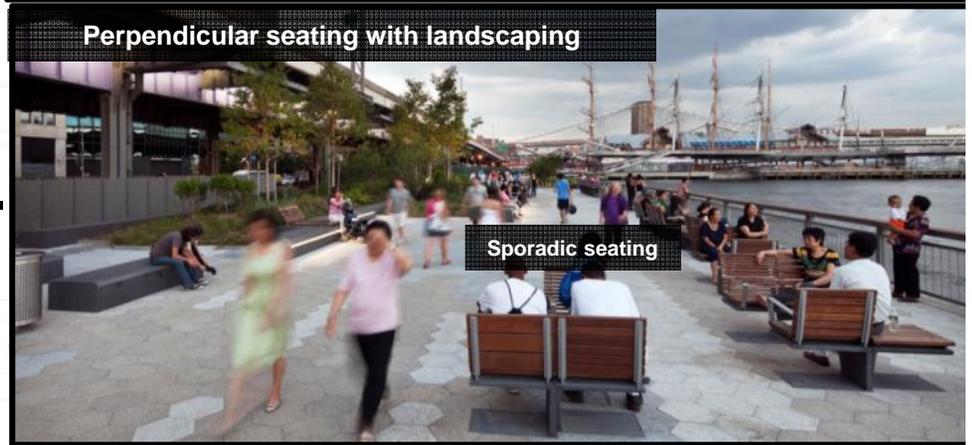


Lighting poles

Distinct paving

Bollards

Perpendicular seating with landscaping



Sporadic seating

LOADING PATTERNS



COMMERCIAL LOADING



SCHOOL DROP-OFF/PICK-UP

LOADING PATTERNS



COMMERCIAL LOADING

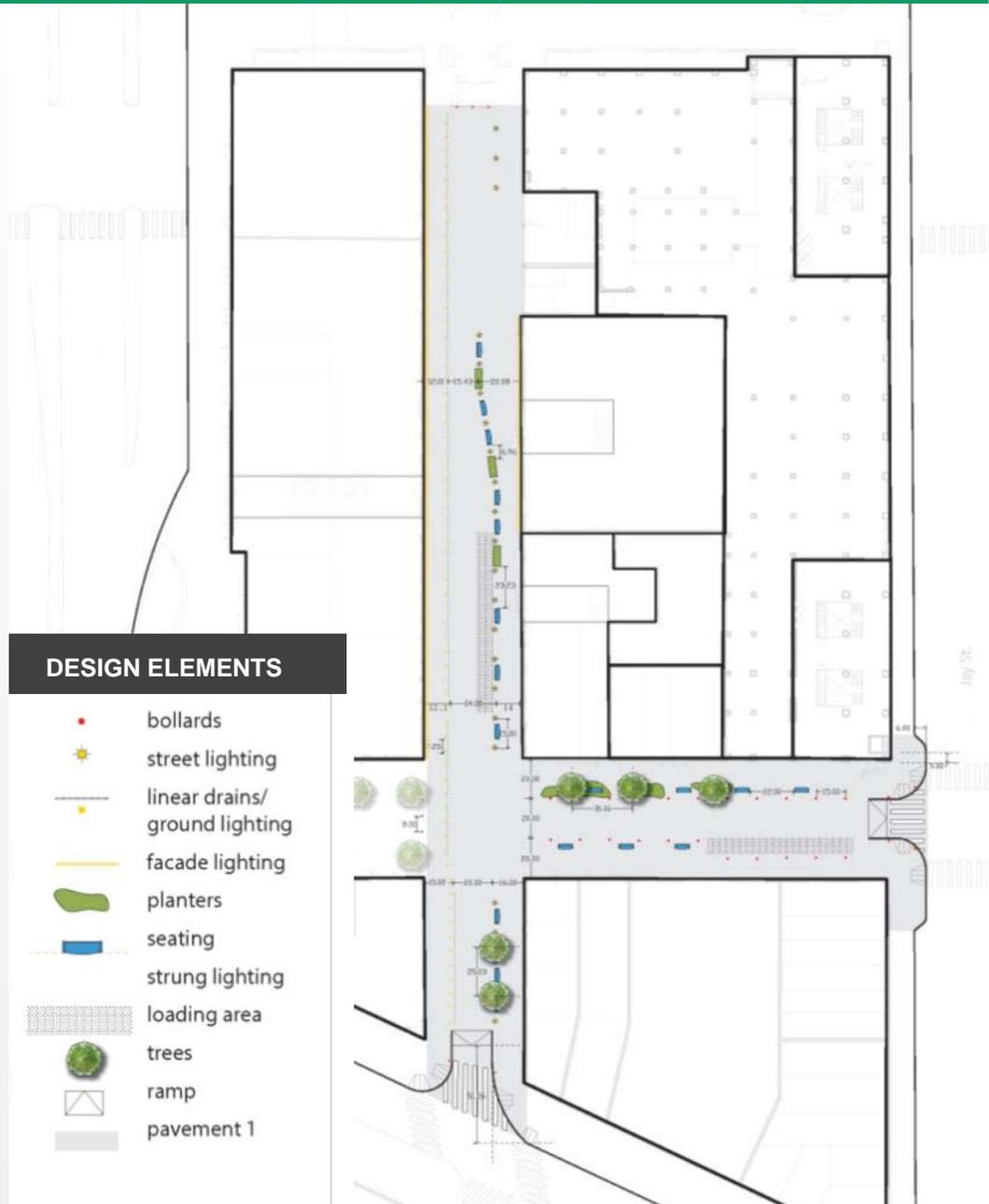


SCHOOL DROP-OFF/PICK-UP

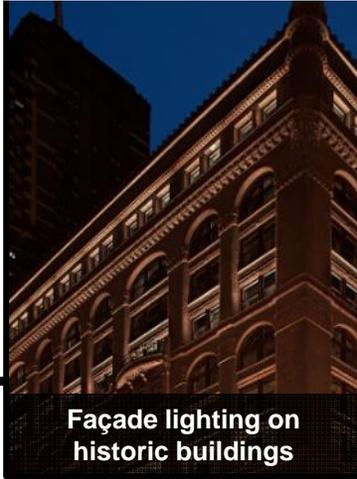
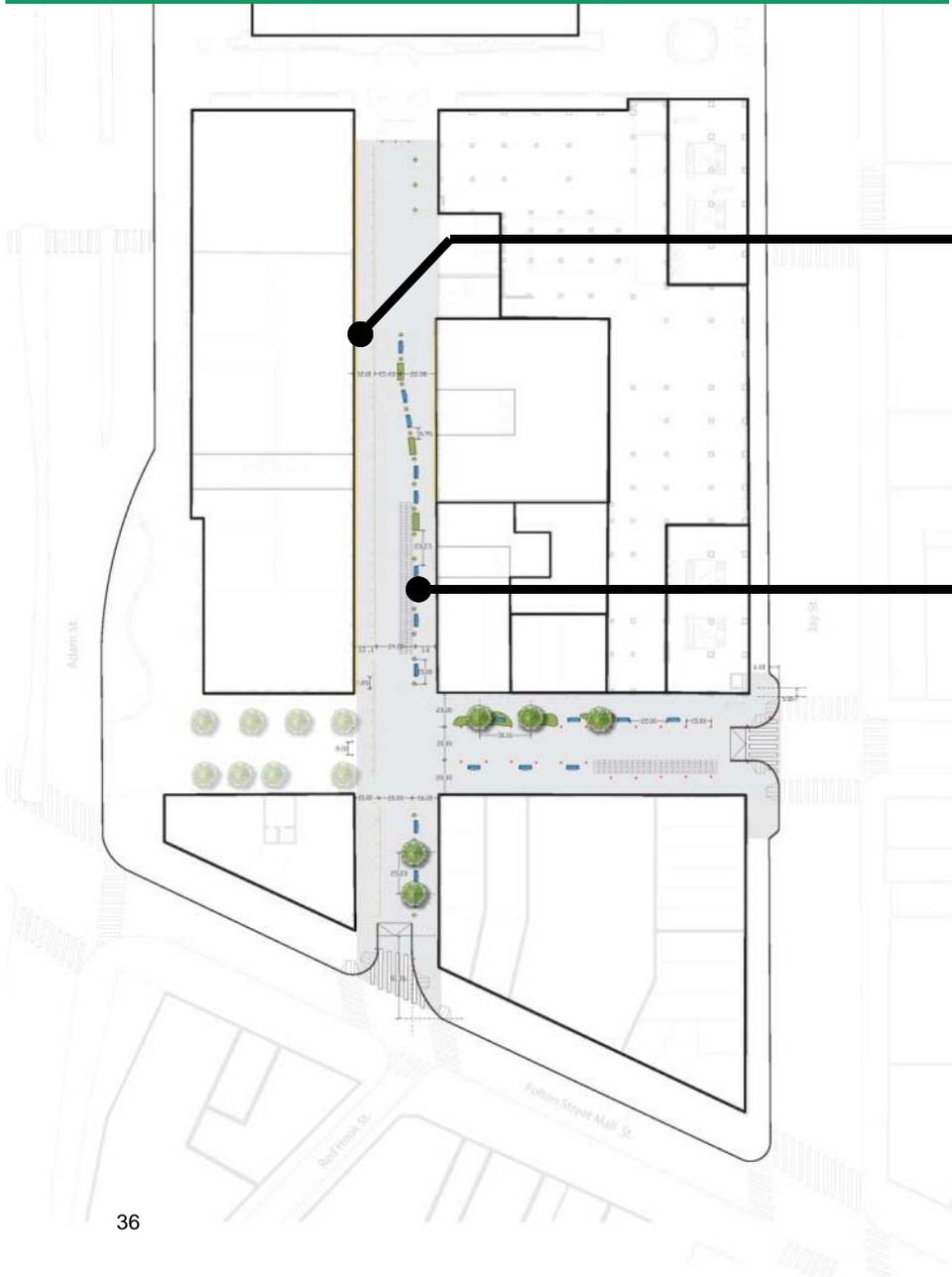
ALTERNATIVE 2

ALTERNATIVE 2

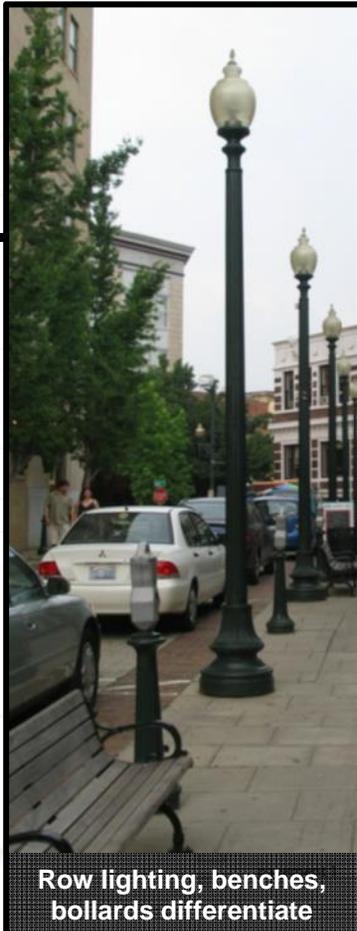
- Less traditional streetscape in look and feel
- Flush surface across entire site
- Increase in grade at site gateways
- One predominant paver
- Asymmetrical amenities
- Physical segregation still pronounced but fewer elements



ALTERNATIVE 2

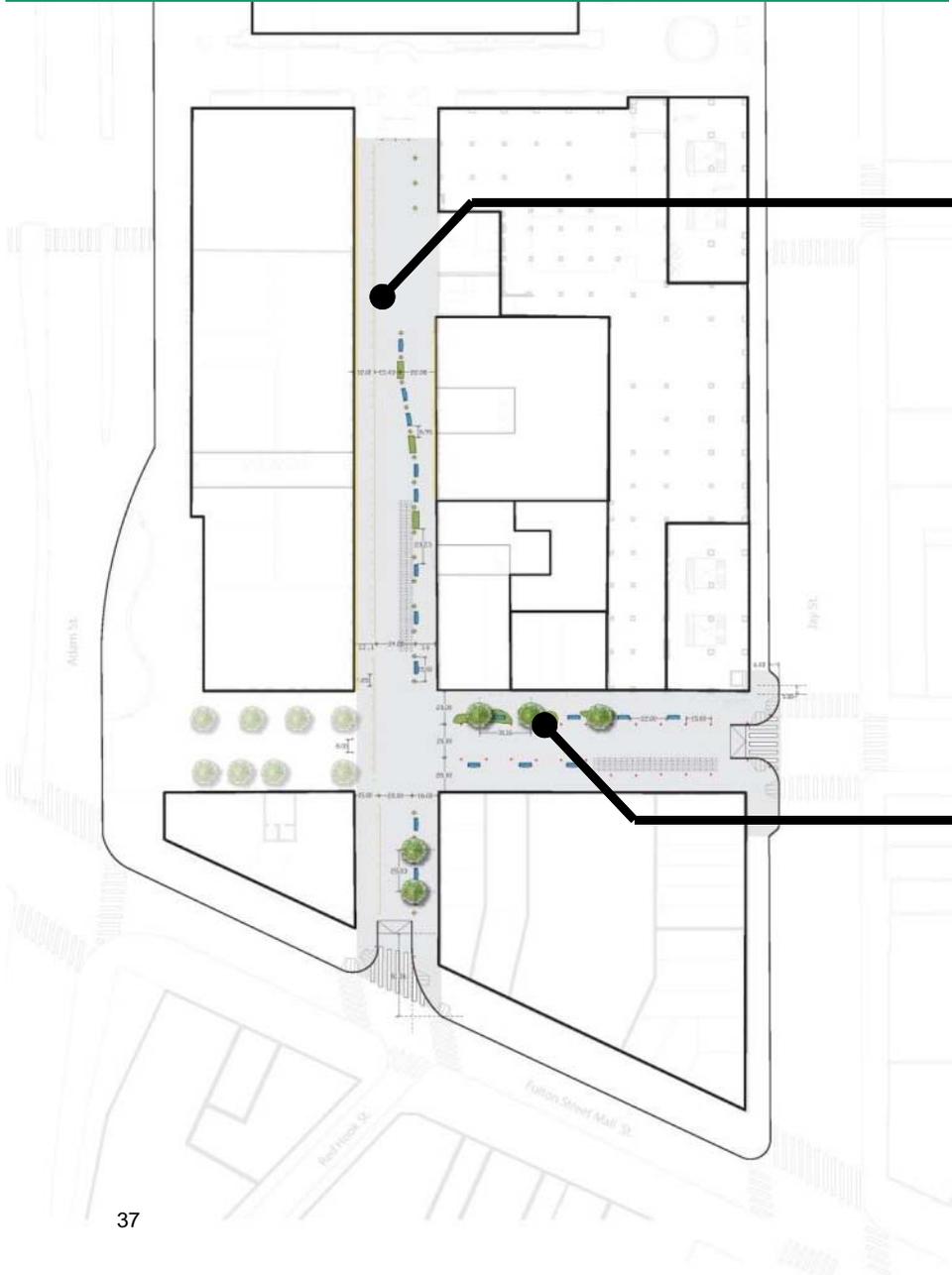


Façade lighting on historic buildings



Row lighting, benches, bollards differentiate

ALTERNATIVE 2



Façade lighting on historic buildings



Lighting on ground to differentiate spaces



Row lighting, benches, bollards differentiate

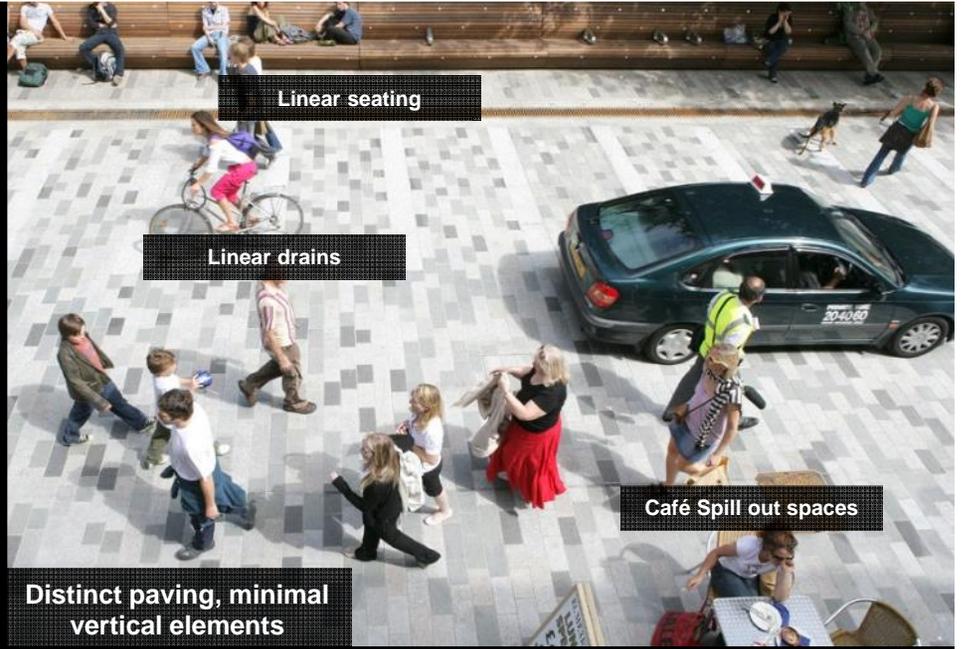


Organic, landscaping throughout space

ALTERNATIVE 2



ALTERNATIVE 2



LOADING PATTERNS



COMMERCIAL LOADING



SCHOOL DROP-OFF / PICK-UP

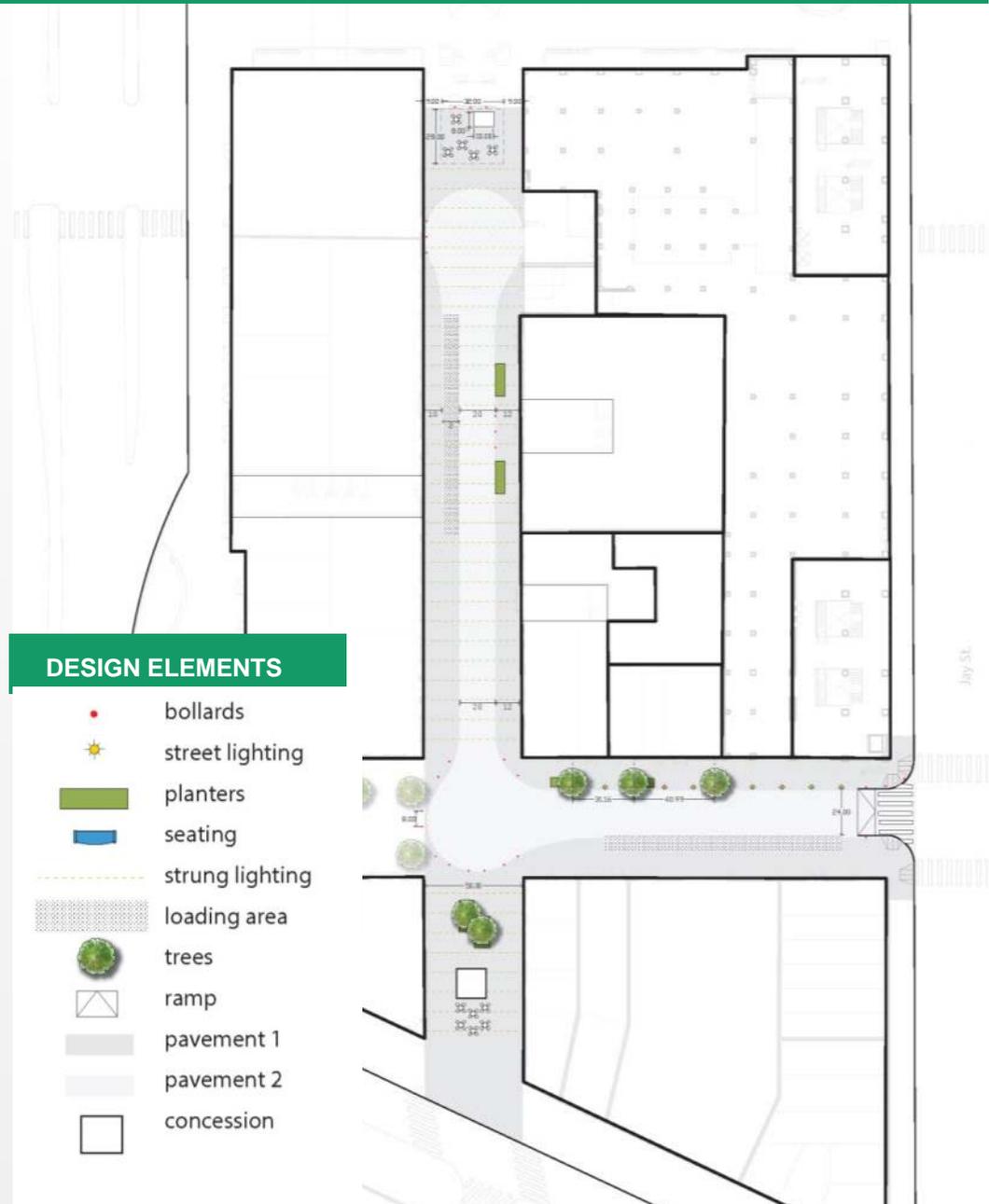
LOADING PATTERNS



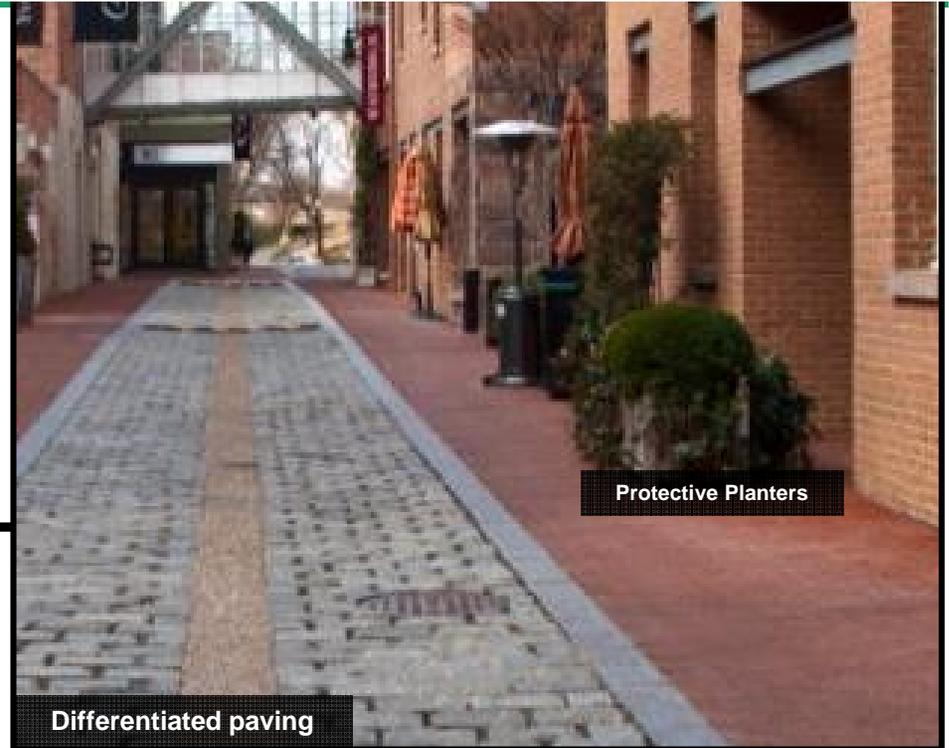
ALTERNATIVE 3

ALTERNATIVE 3

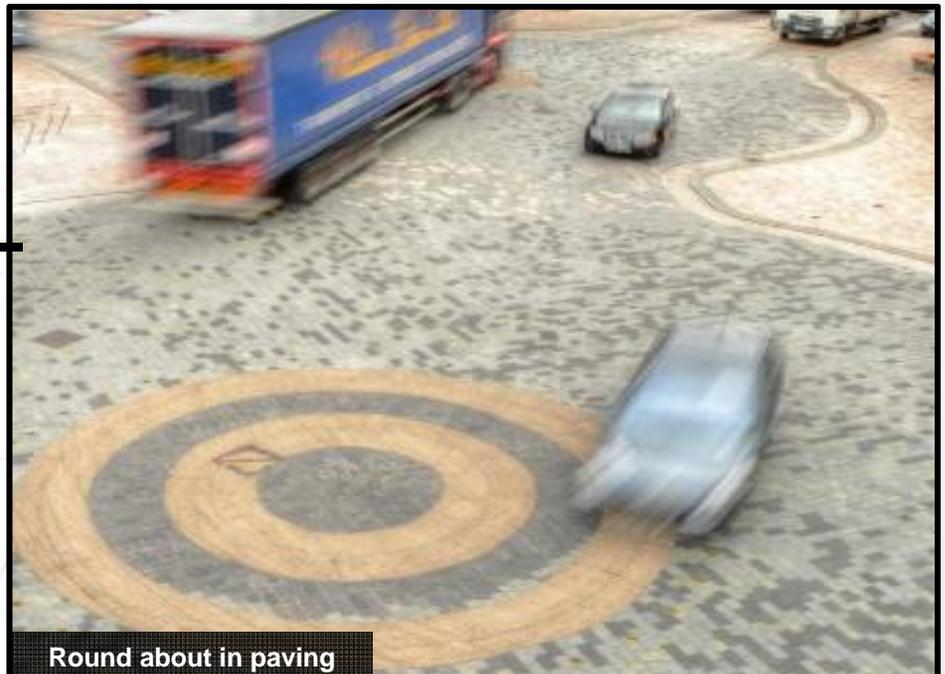
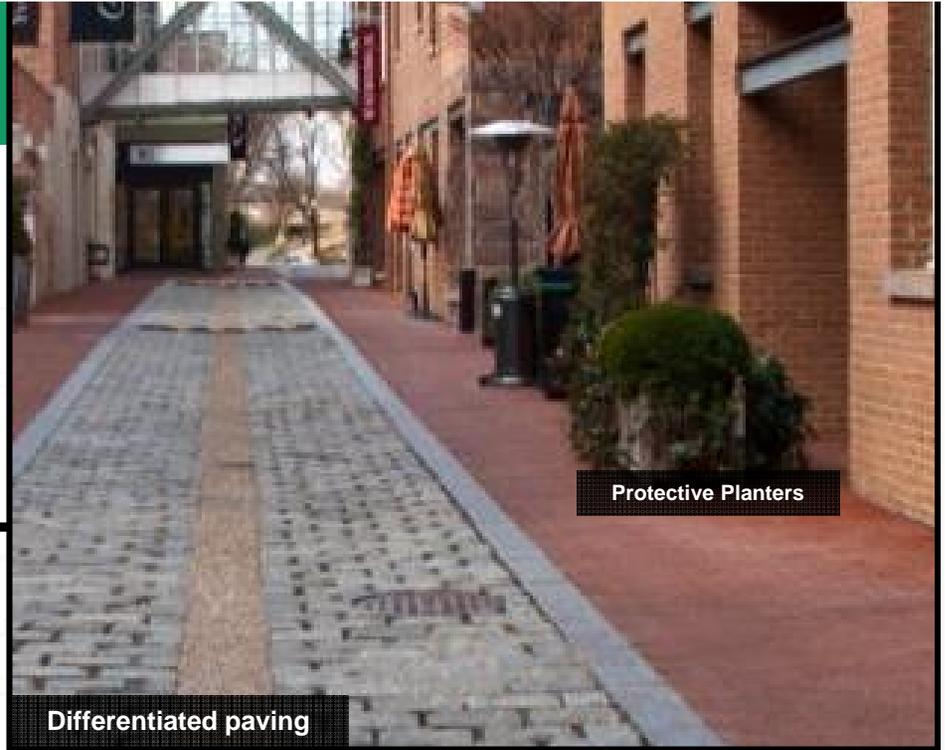
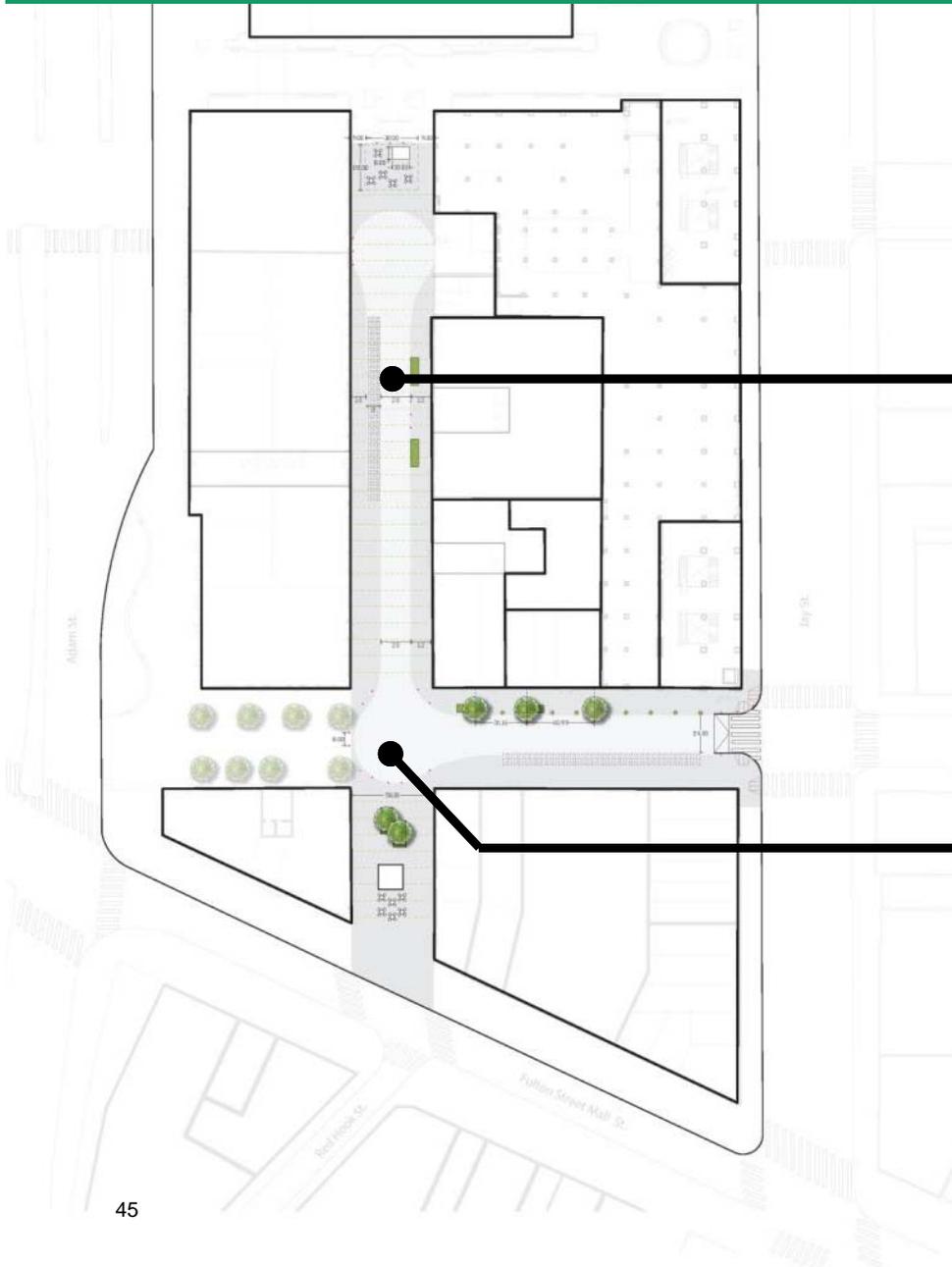
- Willoughby Street – 2-way traffic
- Pearl Street (south) becomes pedestrian plaza
- Least amount of segregation using vertical elements
- Maximum amount of flexibility for special events
- Space delineation is largely provided by contrasting pavement types



ALTERNATIVE 3



ALTERNATIVE 3



ALTERNATIVE 3



ALTERNATIVE 3



ALTERNATIVE 3



ALTERNATIVE 3



Linear markets



Food trucks

Festival Programming

ALTERNATIVE 3



Linear markets



Food trucks

Festival Programming



Concession Stands

LOADING PATTERNS

to 2pm



COMMERCIAL LOADING



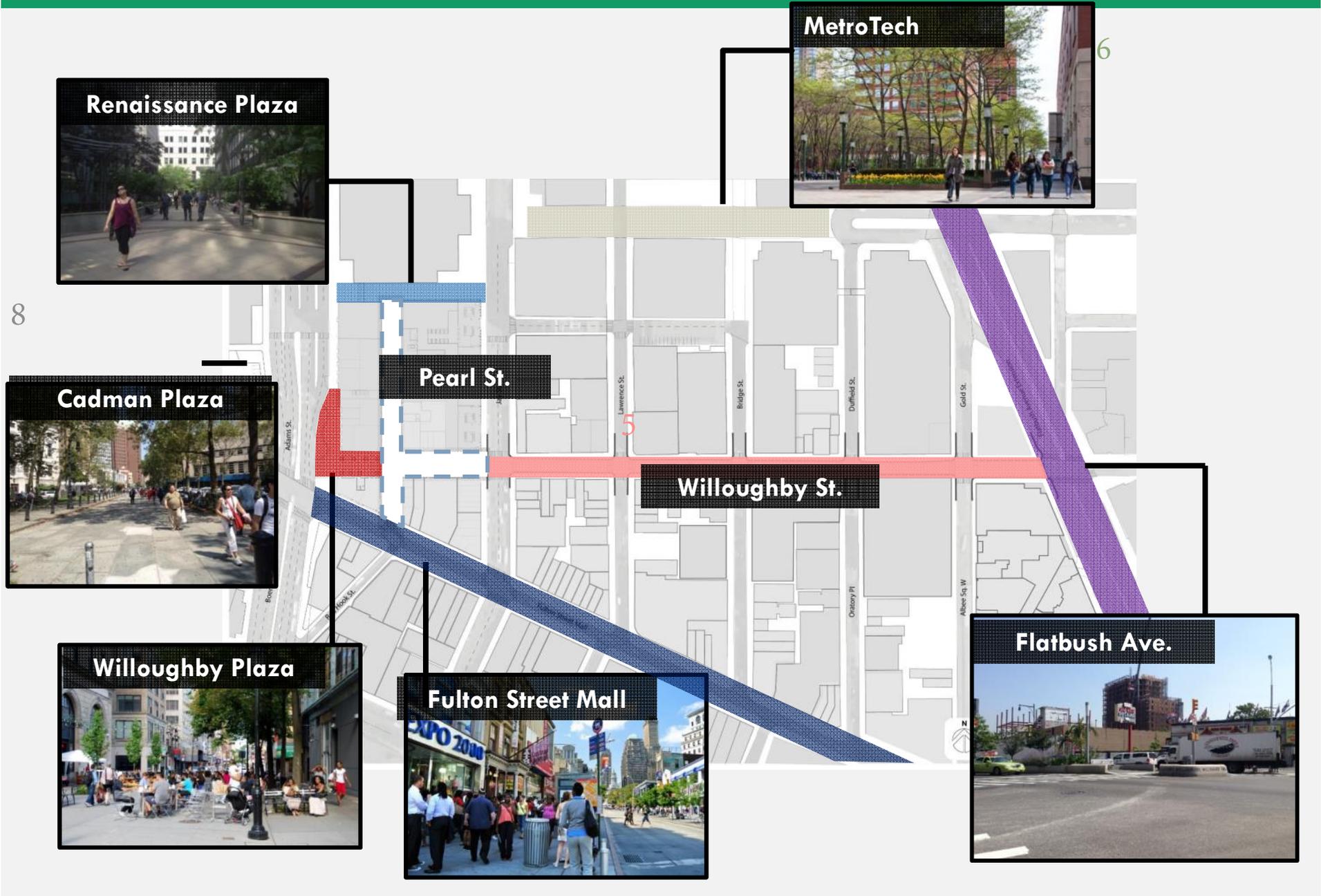
SCHOOL DROP-OFF / PICK-UP

QUESTIONS, FEEDBACK + DISCUSSION

DESIGN CONTEXT

SURROUNDING AREA

STREETSCAPE CONDITIONS OF DOWNTOWN BROOKLYN



Renaissance Plaza



MetroTech



Cadman Plaza



Pearl St.

Willoughby St.

Willoughby Plaza



Fulton Street Mall



Flatbush Ave.



LIGHTS

Renaissance Plaza

Custom pedestrian fixture



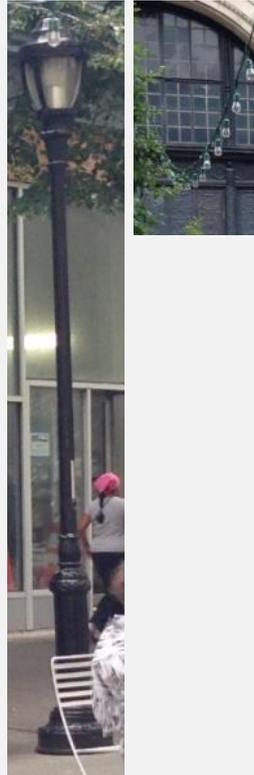
Pearl St.

Flatbush Avenue Pole and Type B-SDM



Willoughby Plaza

Type B Fixture & Pole (SDM) and hanging light bulbs



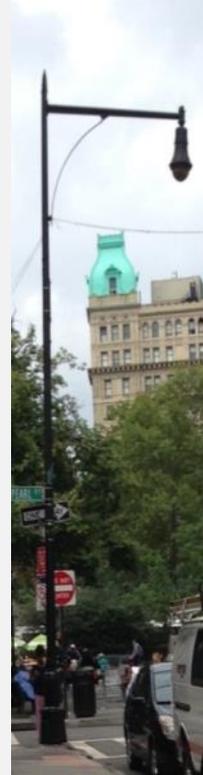
Fulton Street Mall

Custom Poles with integrated pedestrian lighting



Willoughby St.

Flatbush Avenue Pole and Type B-SDM



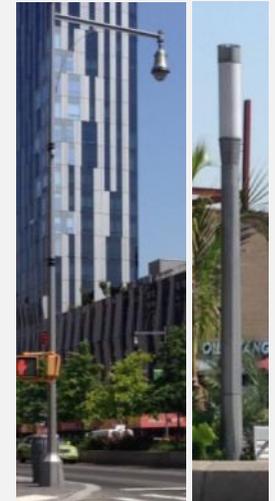
MetroTech

Custom pedestrian fixture



Flatbush Ave.

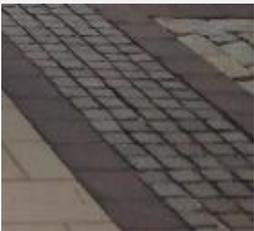
Flatbush Ave. Pole, Standard Integrated Pole (SDM) and custom pedestrian pole



PAVEMENT

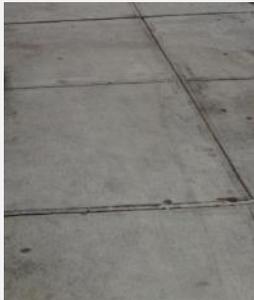
Renaissance Plaza

Colored Concrete Pavers with granite block accent banding



Pearl St.

Scored Concrete



Willoughby Plaza

Scored Pigmented Concrete and granite blocks



Fulton Street Mall

Scored Concrete Pigmented Blocks with silica additive



Willoughby St.

Exposed aggregate concrete, unpigmented concrete and concrete pavers



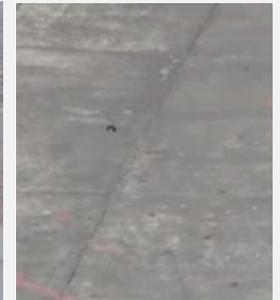
MetroTech

Asphalt Hex Pavers with pigmented concrete banding



Flatbush Ave.

Scored Pigmented Concrete



SEATING

Renaissance Plaza



Pearl St.



Willoughby Plaza



Fulton Street Mall



Willoughby St.



MetroTech



Flatbush Ave.



CityBench (SDM)

FUTURE PROPOSED

Renaissance Plaza

Concrete raised planters



Pearl St.

Sidewalk Planter



Willoughby Plaza

Street Trees/flowers on individual tree bed and pedestrian mall



Fulton Street Mall

Street Trees/flowers Planted tree bed



Willoughby St.

Street Trees on connected tree bed



MetroTech

Concrete raised planters



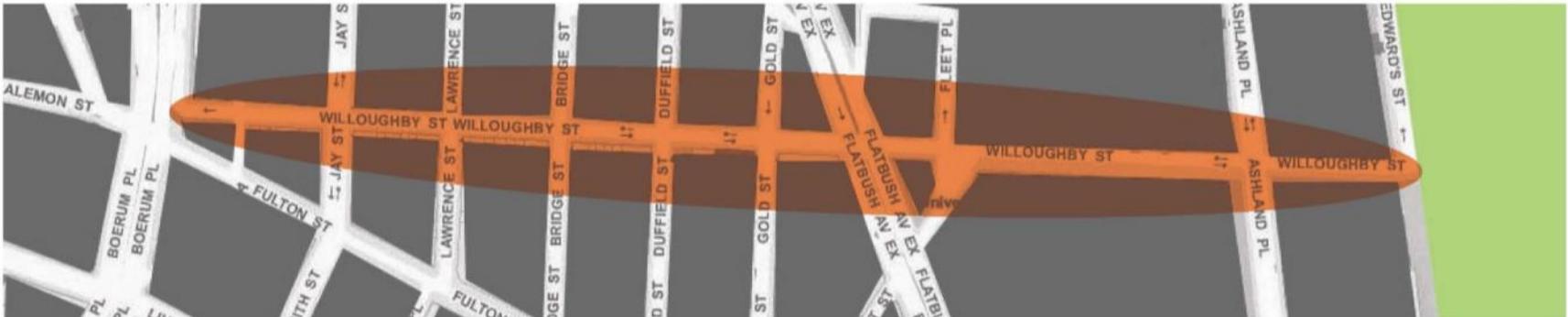
Flatbush Ave.

Street Trees along sidewalk with flowers



WILLOUGHBY STREETSCAPE GUIDELINES

2014 Streetscape Furnishing Guidelines



DESIGN CONSIDERATIONS

PAVING MATERIAL OPTIONS

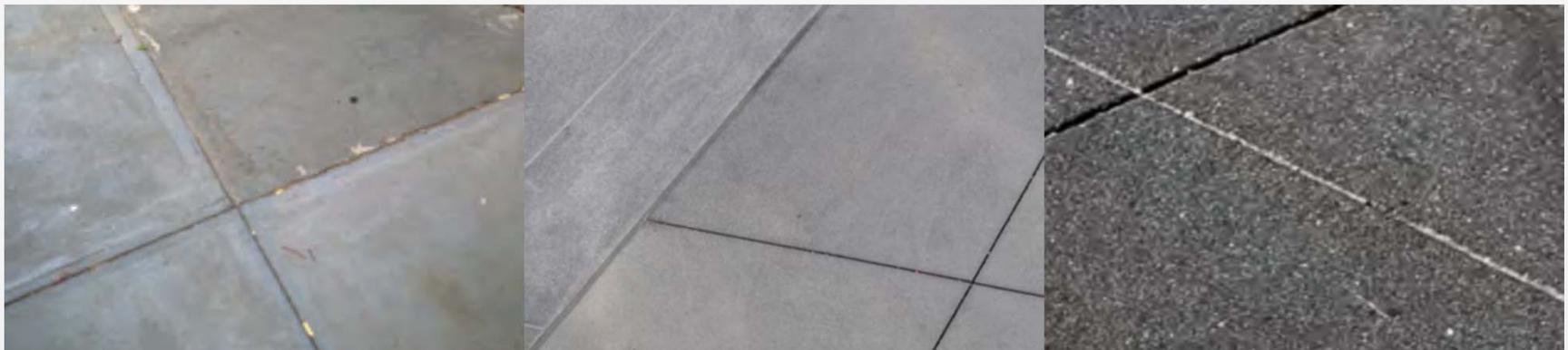
PIGMENTED CONCRETE

Positives

- Low cost
- Minimal maintenance
- Variety of colors and scoring patterns available

Negatives

- More difficult to access utilities and repair or patch without impact on appearance



CONCRETE PAVERS

Positives

- Variety of colors and textures
- Minimal maintenance
- Pavers are relatively easy to reset or replace for utility access.
- Range of costs

Negatives

- Over time some paver types may become loose



CONCRETE WITH EXPOSED AGREGATE

Positives

- Variety of colors and textures
- Minimal maintenance

Negatives

- Can be more prone to spalling
- Cast-in-place pavers can be harder to access utilities and repair or patch



GRANITE PAVERS

Positives

- Variety of colors and finishes
- Minimal maintenance
- Pavers are relatively easy to reset or replace for utility access

Negatives

- Can be expensive



GRANITE BLOCKS

Positives

- Variety of colors and finishes
- Minimal maintenance
- Pavers are relatively easy to reset or replace for utility access

Negatives

- Can be expensive
- Must maintain/accessibility issues



PERMEABLE INTERLOCKING CONCRETE PAVER

Positives

- Variety of colors and finishes
- Pavers are relatively easy to reset or replace for utility access
- Improved site drainage, environmental benefits

Negatives

- Over time or with wheel turning moments, pavers may become loose
- Not recommended for loading dock area



DESIGN CONSIDERATIONS

ACCESSIBILITY

POLICY REFERENCES

2010 ADA Standards for Accessible Design

§406 Curb Ramps

Curb ramps are required at pedestrian crossings

§705 Detectable Warnings

Detectable warnings are required to indicate location of curb ramps and hazardous vehicle ways



CURB RAMPS AND TACTILE PAVING

Location:

- At street crossings, usually in combination with curb ramps

Intention:

- Indicates safe crossings on traditional streets, and
- Designated safe crossing across the roadway of shared streets



LINEAR TACTILE PAVING

Location:

- Linear element, marking the boundaries of the shared space.

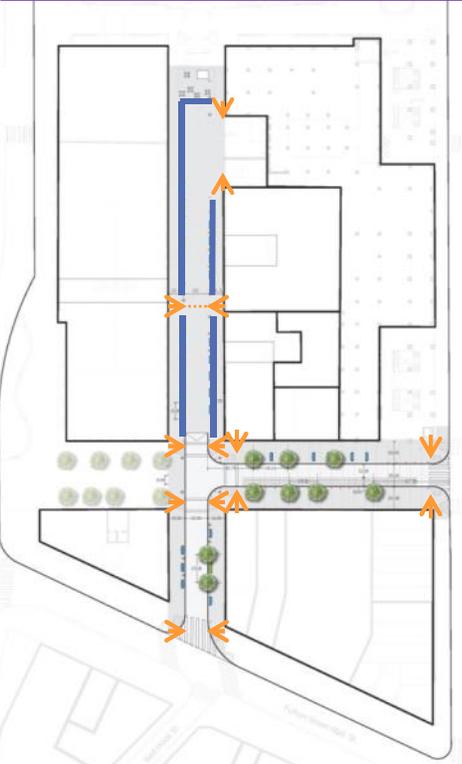
Intention

- Informing of potentially hazard areas
- Tactile ribs direct safe travel routes of travel along Pearl and Willoughby Street

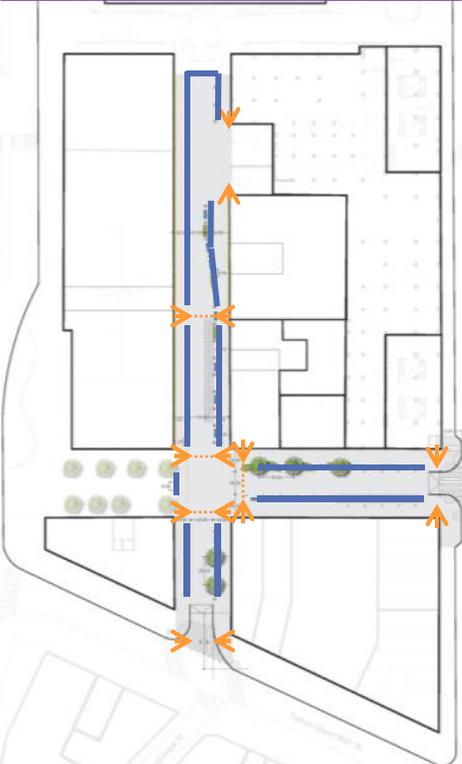


DESIGNING FOR THE VISUALLY IMPAIRED

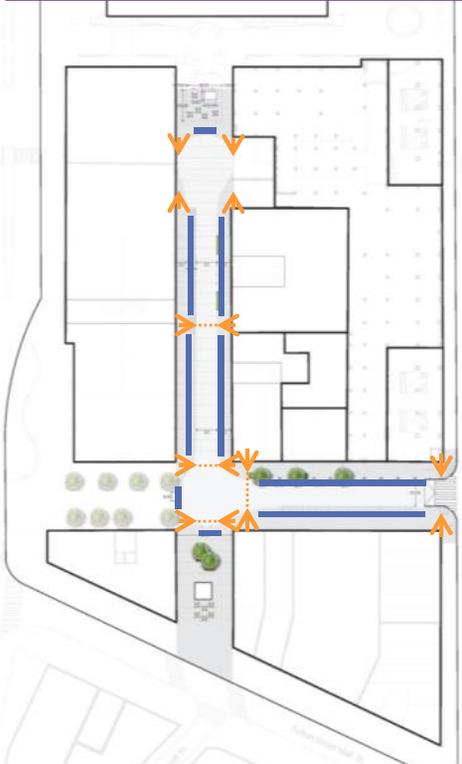
ALTERNATIVE 1



ALTERNATIVE 2



ALTERNATIVE 3



 Tactile Paving at Crossings

 Linear Tactile Paving

NEXT STEPS

NEXT STEPS

Public Meeting

- Late October- Open House format with short presentation
- Incorporate stakeholder and public feedback into alternatives

Further Analysis

- Traffic impacts
- Cost estimation
- Maintenance implications

Alternatives Evaluation

- Evaluate against criteria that supports goals and objectives
- Assess stakeholder and public input
- Propose Preferred Alternative
- Review and finalize with stakeholders
 - Stakeholder Meeting #3