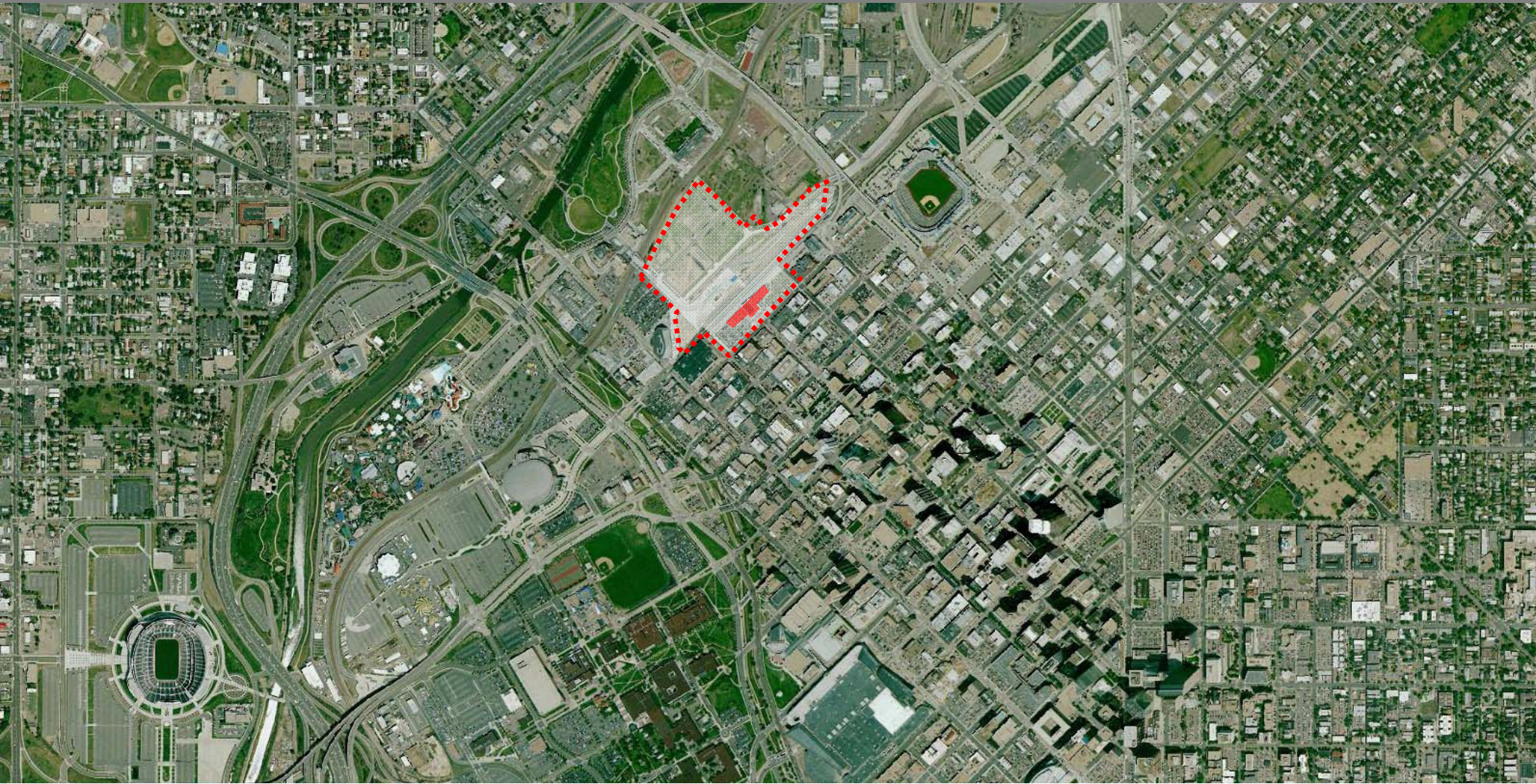


Denver Union Station Redevelopment

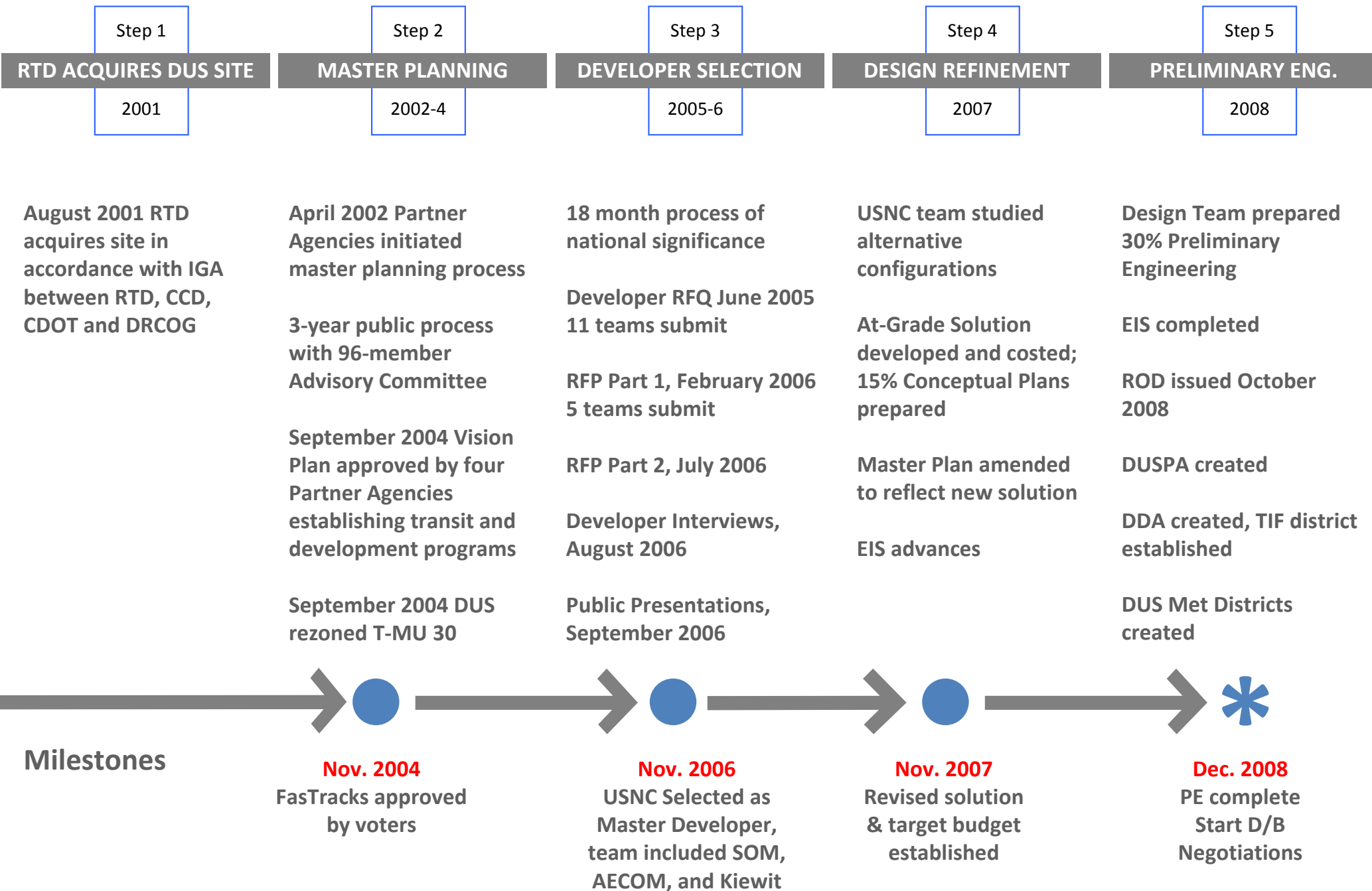
Public Presentation on Transit Architecture | July 16, 2009



AECOM

SOM

HARGREAVES
ASSOCIATES



Step 6

DESIGN / BUILD PROJECT

2009-13

Work Process

Kiewit and Design Team
Contracts Executed

DUS Urban Design
Standards & Guidelines
(DS&G) Approved

DUS General
Development Plan
(GDP) Approved

Final Design + Early Permit Packages

Regulatory Review Process:
– Planning Board Site Plan Review
– Landmarks Preservation Commission

DUSPA Peer Design Panel

Public Meetings

Public Realm Design

Related On-Going Activities:

Continued Stakeholder Outreach

Vertical Development Planning
and Construction by Others



Milestones

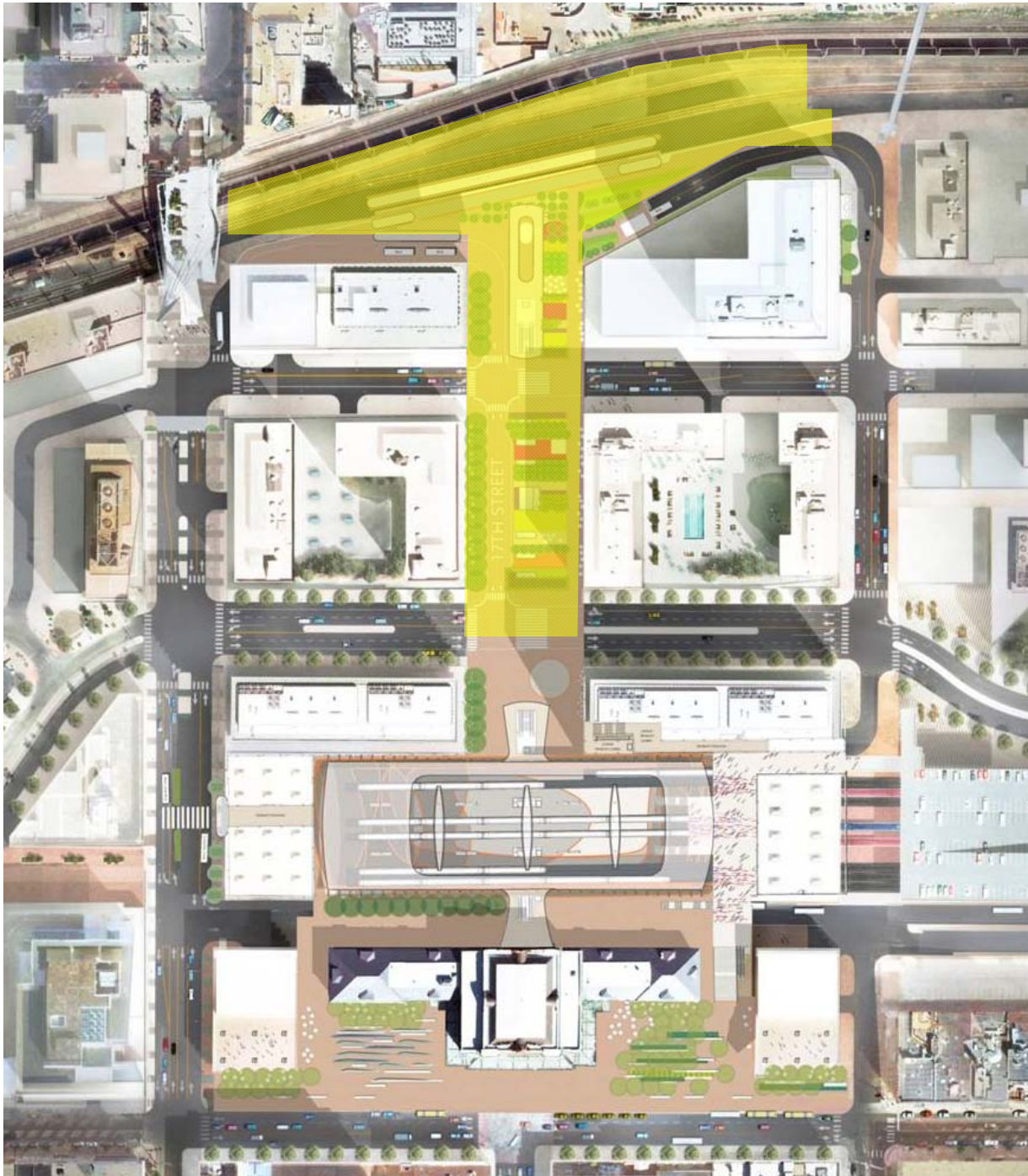
DUS Design Status: Summer 2009

Transit Architecture & Infrastructure



Public Realm; Landscape Architecture





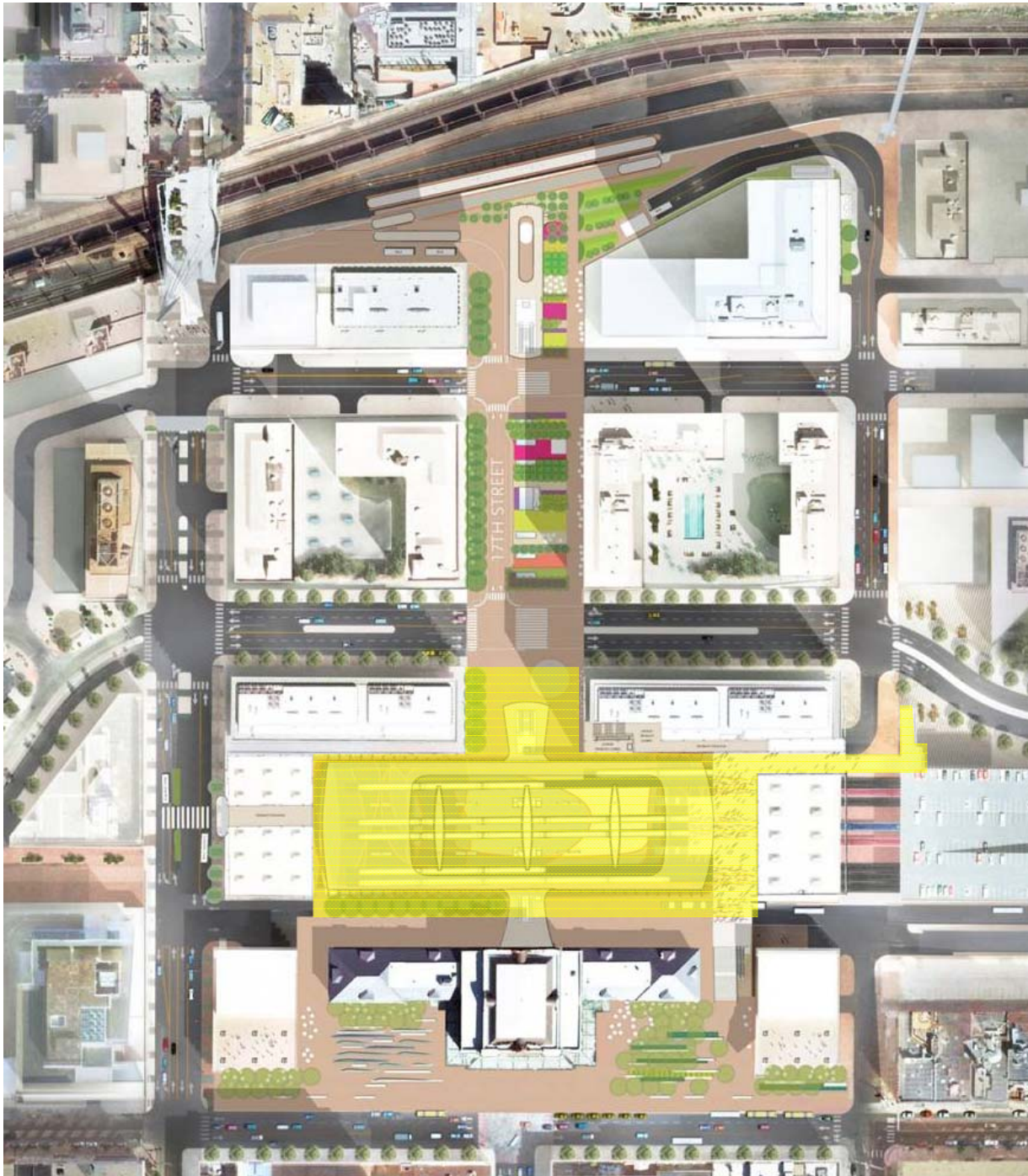
Phased Site Plan Submission

UD Package 1

LRT to Wewatta Street

July 1, 2009

- LRT and Mall Shuttle Canopies
- LRT Highblocks
- Mall Shuttle Starter Booth
- Driver Relief Station
- Emergency Generator Set Enclosure
- Chestnut Pavilion and Ventilation Tower
- 17th Street Skylights
- Mid-block Stair Bulkhead



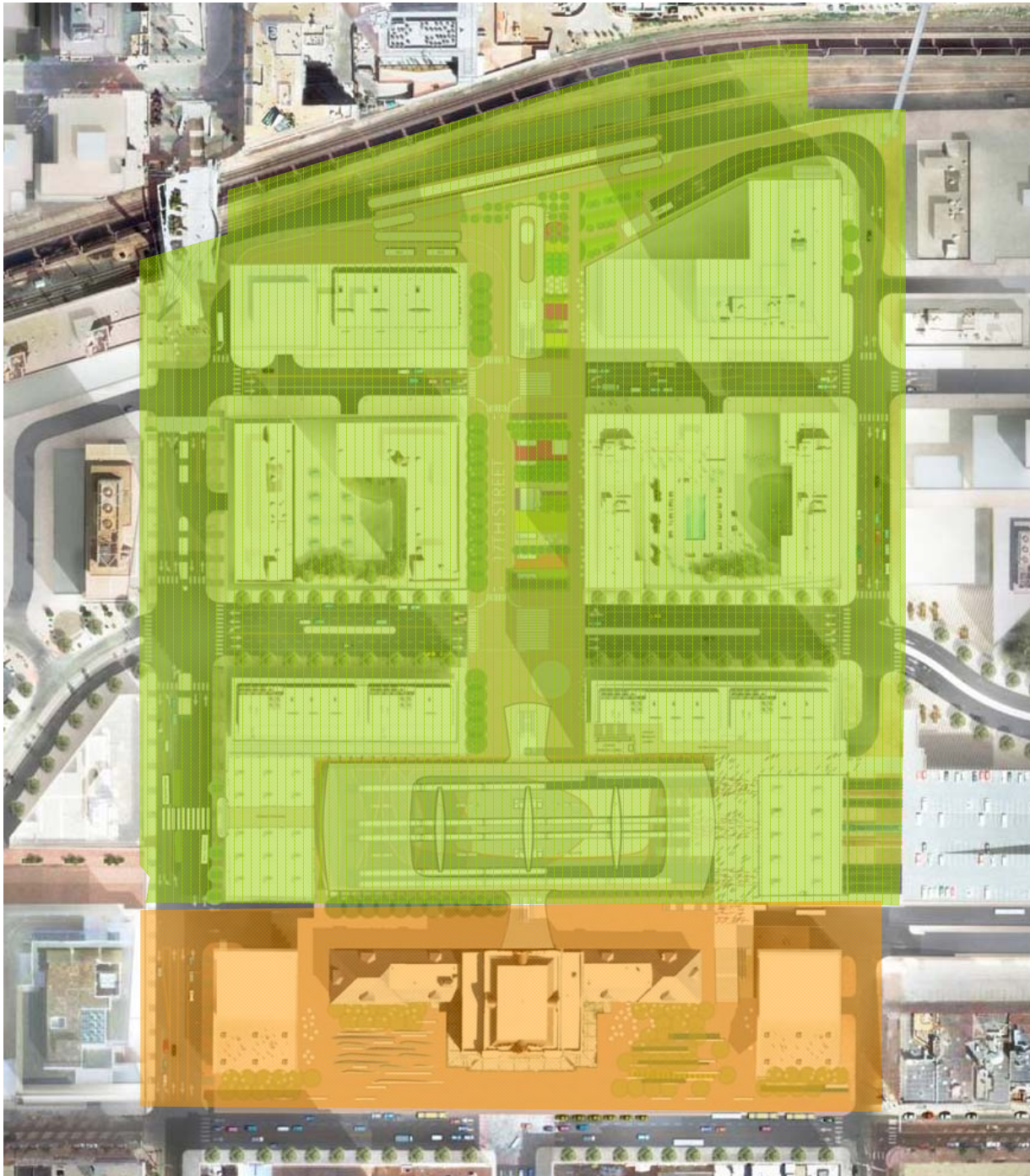
Phased Site Plan Submission

UD Package 2

Wewatta Street to DUS

Sept./Oct. 2009

- CRT Train Hall
- CRT Platforms, Vertical Circulation and Canopies
- Elevated Pedestrian Deck



Phased Site Plan Submission

UD Package 3

Balance of DUS District

Dec. 2009

3A –

- Landmark Preservation Area
- EVA Corridor
- Wynkoop Plaza

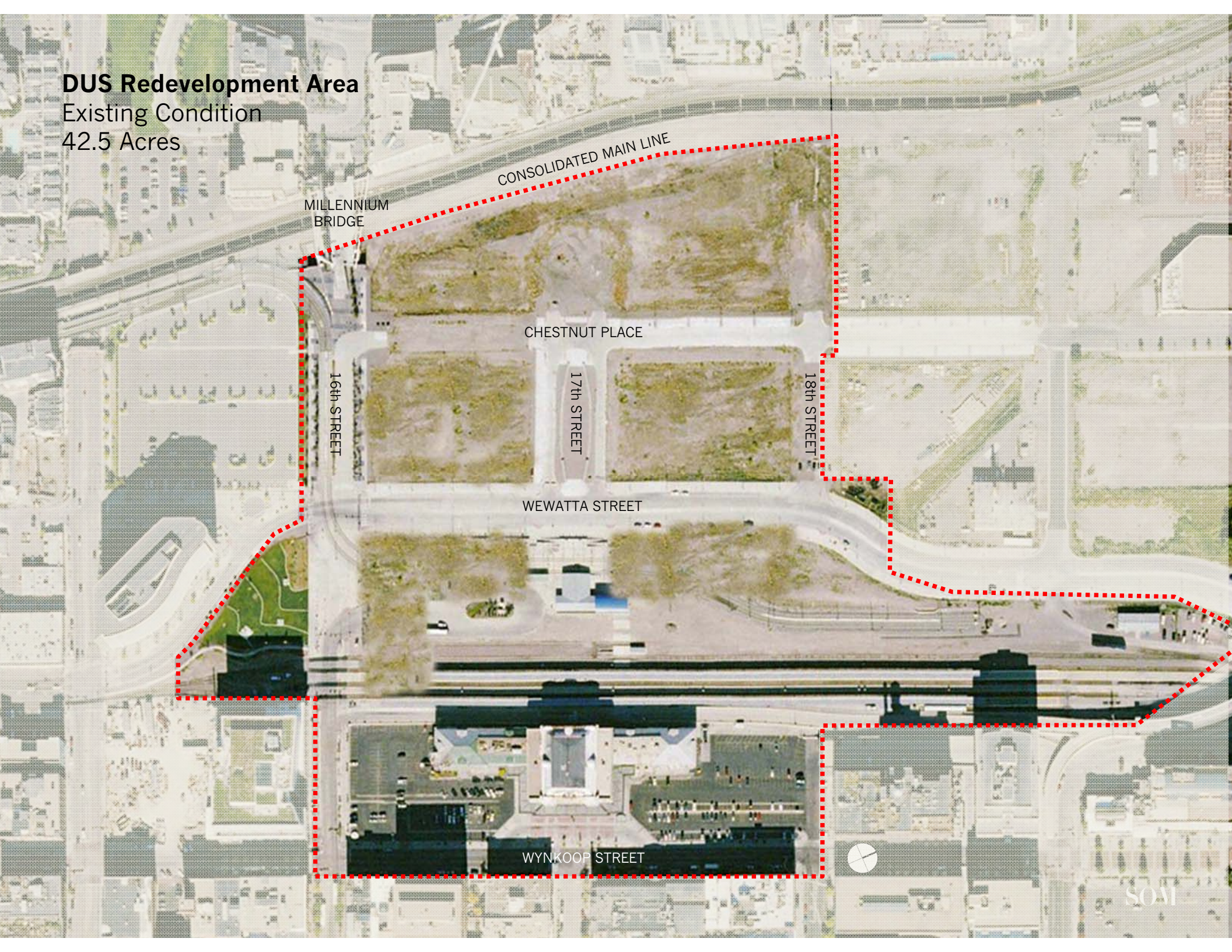
3B –

- All Streets and Sidewalks
- All Public Spaces

DUS Redevelopment Area

Existing Condition

42.5 Acres



MILLENNIUM
BRIDGE

CONSOLIDATED MAIN LINE

CHESTNUT PLACE

16th STREET

17th STREET

18th STREET

WEWATTA STREET

WYNKOOP STREET



DUS Transit District | Major Transit Elements

- **Commuter Rail Terminal**
 - East (DIA)
 - North Metro (I-25 North)
 - Northwest (Boulder)
 - Gold (Arvada/Golden)
 - Amtrak
 - Additional Expansion Capacity
- **Light Rail Transit Station**
 - Existing Southwest & Southeast
 - West (Lakewood/Golden)
- **Regional Bus Facility**
 - 16 Regional
 - 4 Downtown Circulator
 - 2 Commercial Bus (dedicated)
- **16th Street Mall Shuttle**
- **Downtown Circulator**



DUS Transit Improvements
Phased Opening

**Light Rail Transit
+ Mall Shuttle**

**Below-grade
Regional Bus
Terminal**

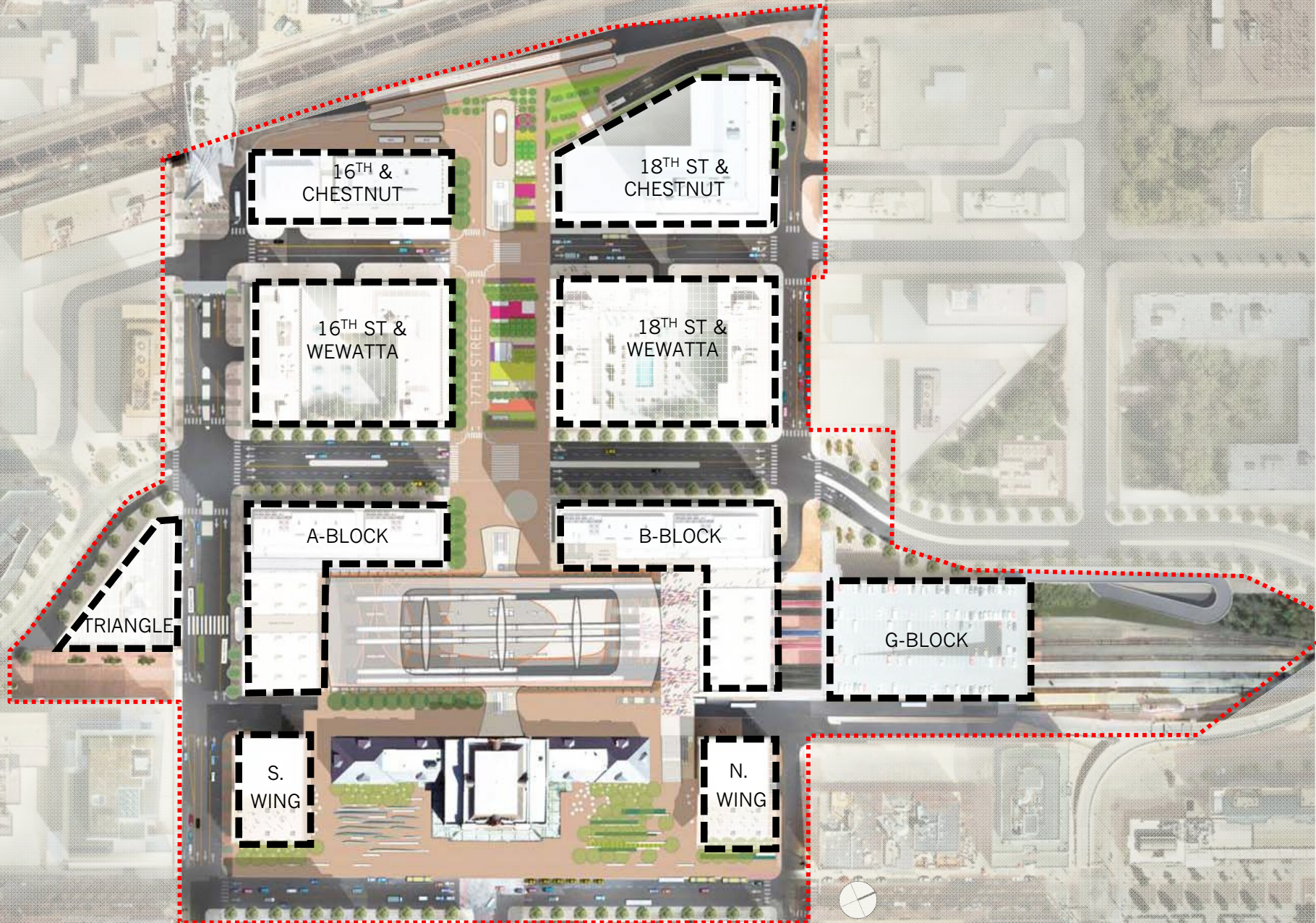
**Commuter Rail
Terminal**

CHESTNUT PLACE

17TH STREET

DUS Neighborhood Build-out

~ 4 MSF Mixed Use Development

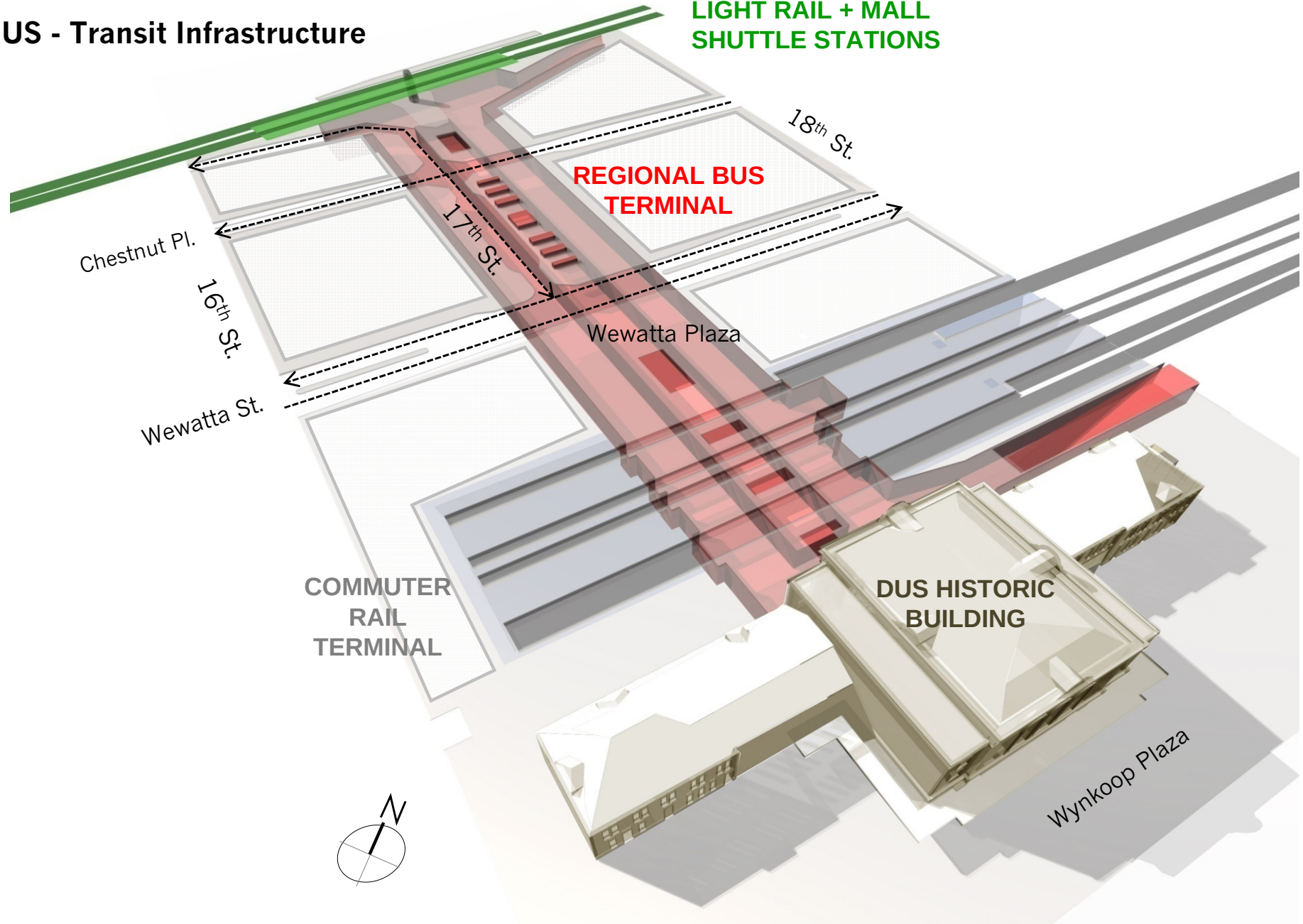


- General Development Plan
- Urban Design Standards & Guidelines
- Transit Infrastructure Design Regulatory Review

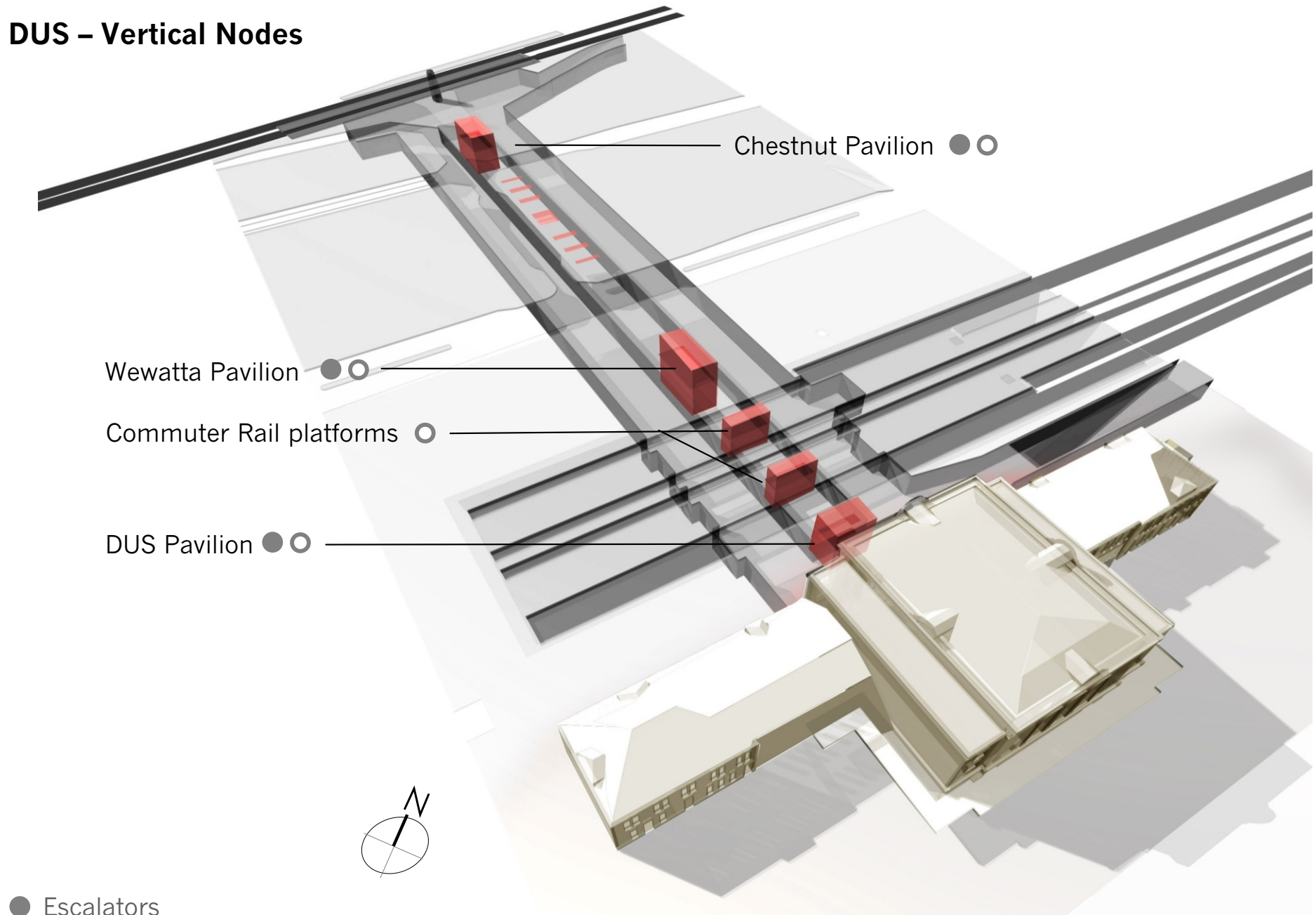


DUS - Transit Infrastructure

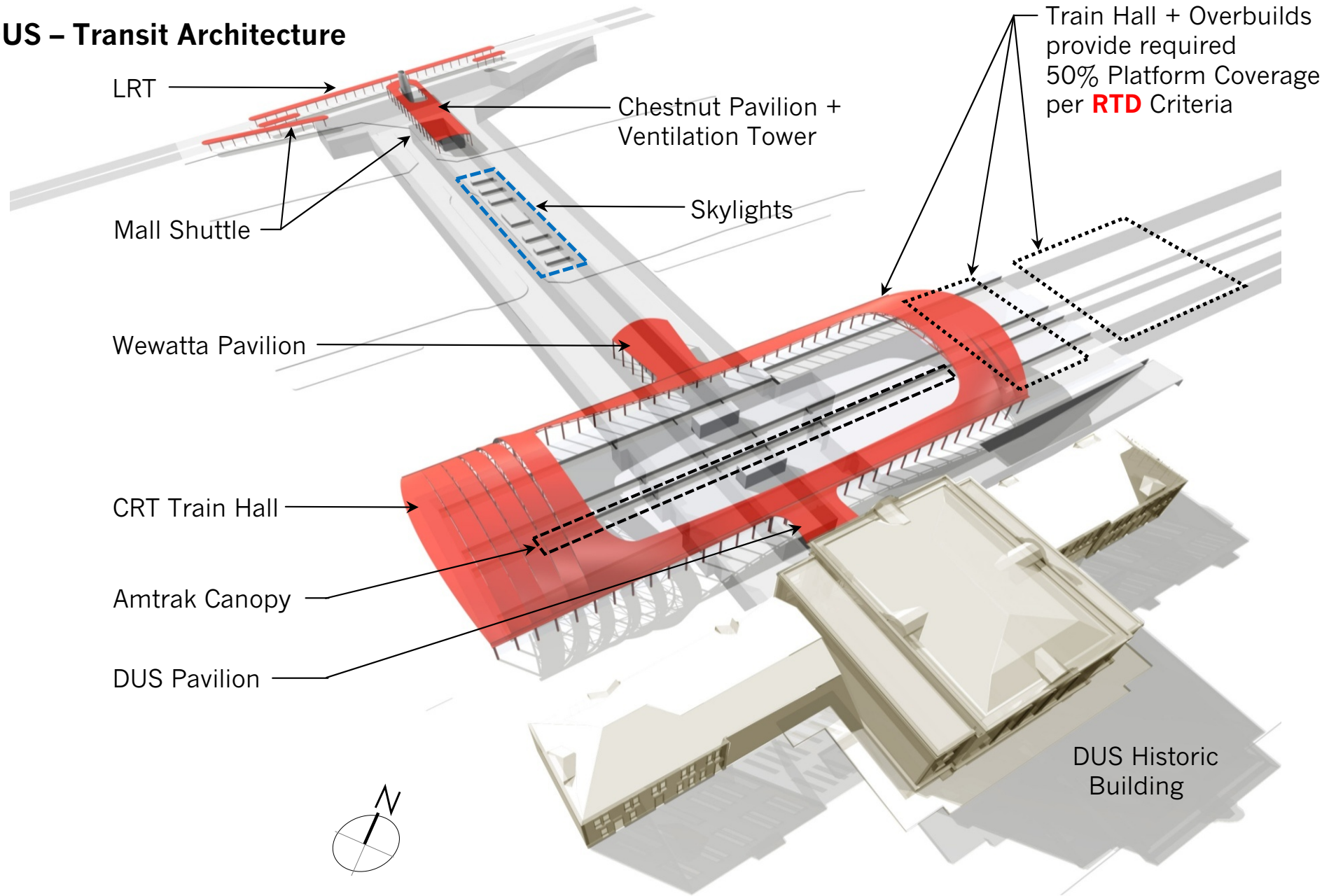
LIGHT RAIL + MALL
SHUTTLE STATIONS



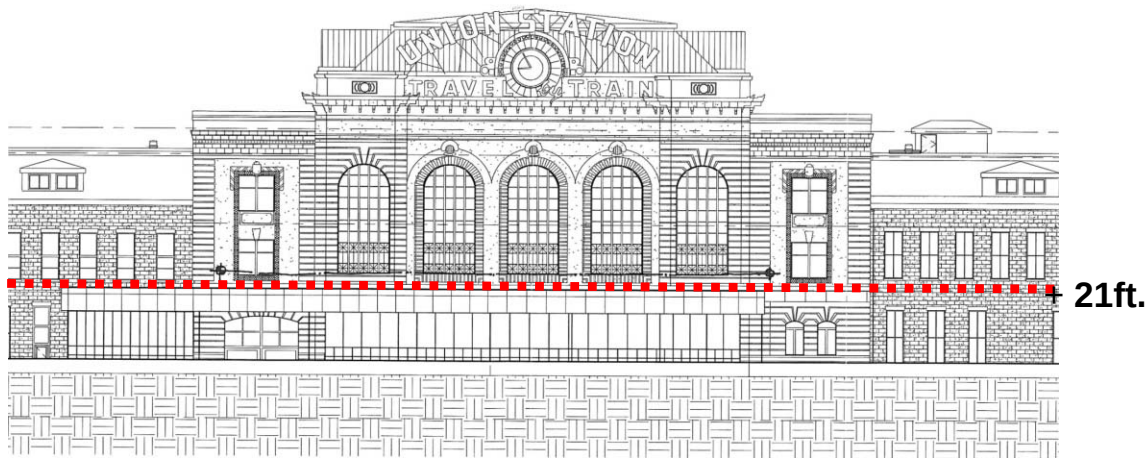
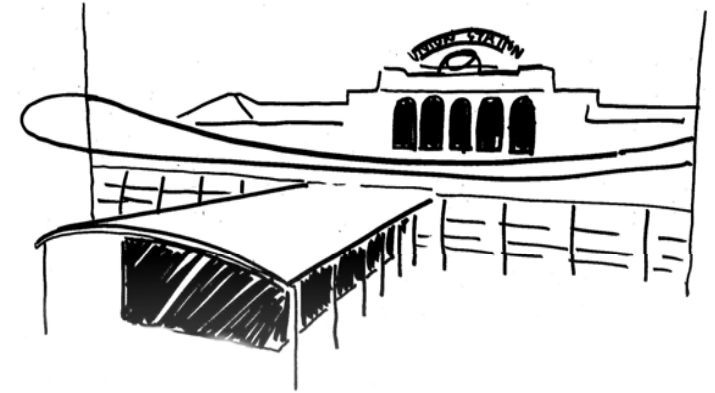
DUS – Vertical Nodes



DUS – Transit Architecture



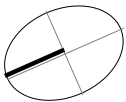
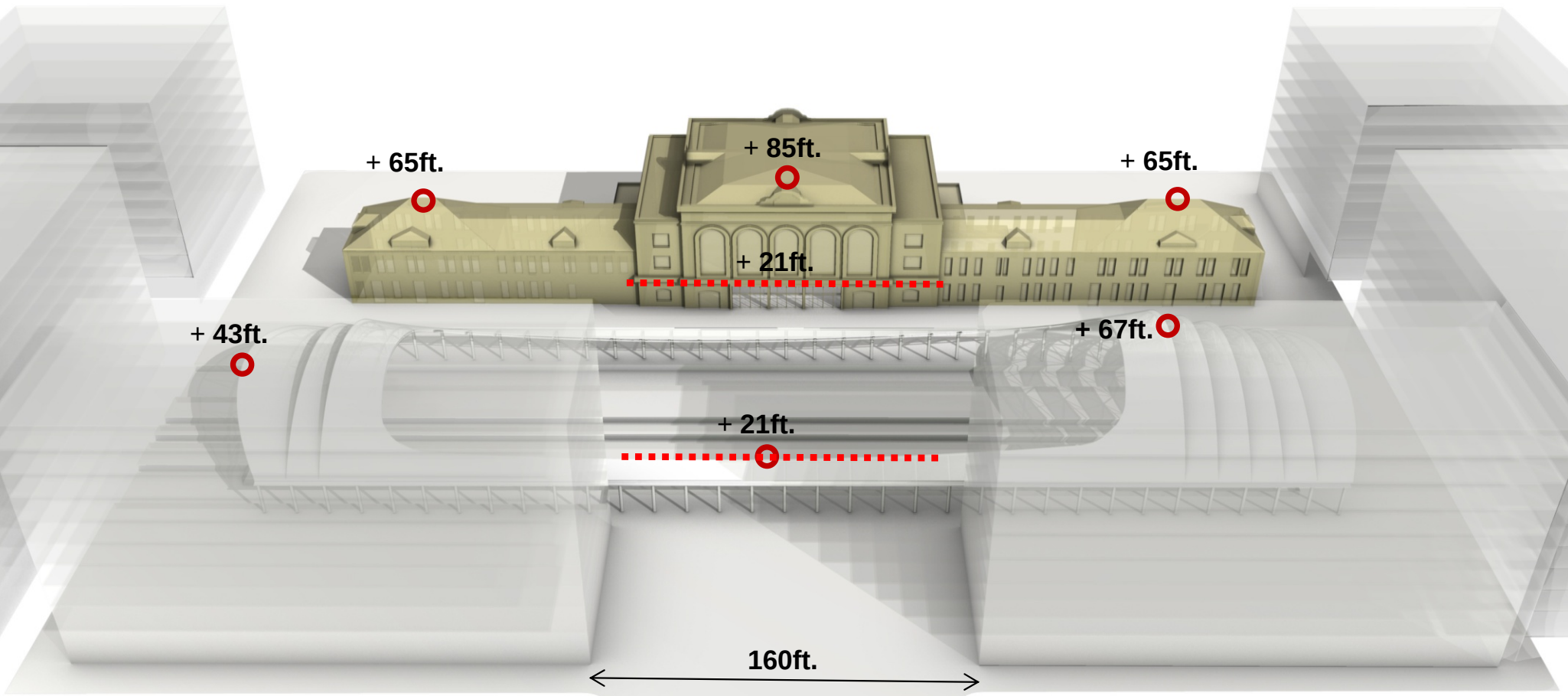
How can we create a distinct civic space ?



Relationship to Station Building

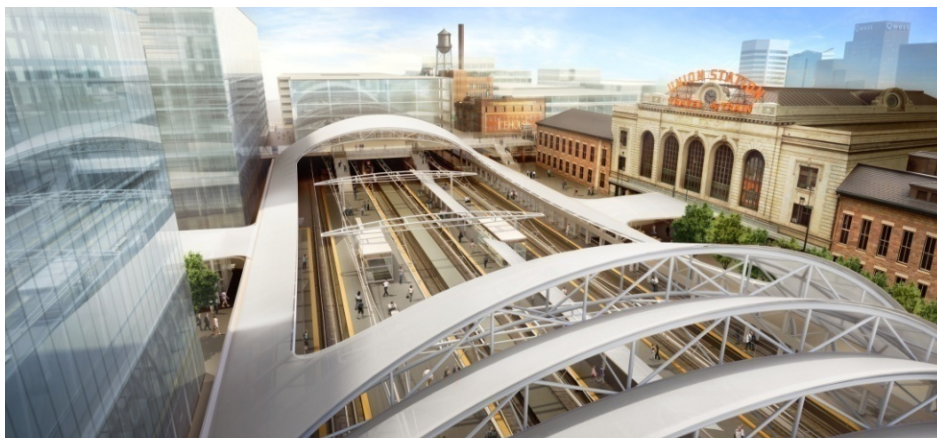
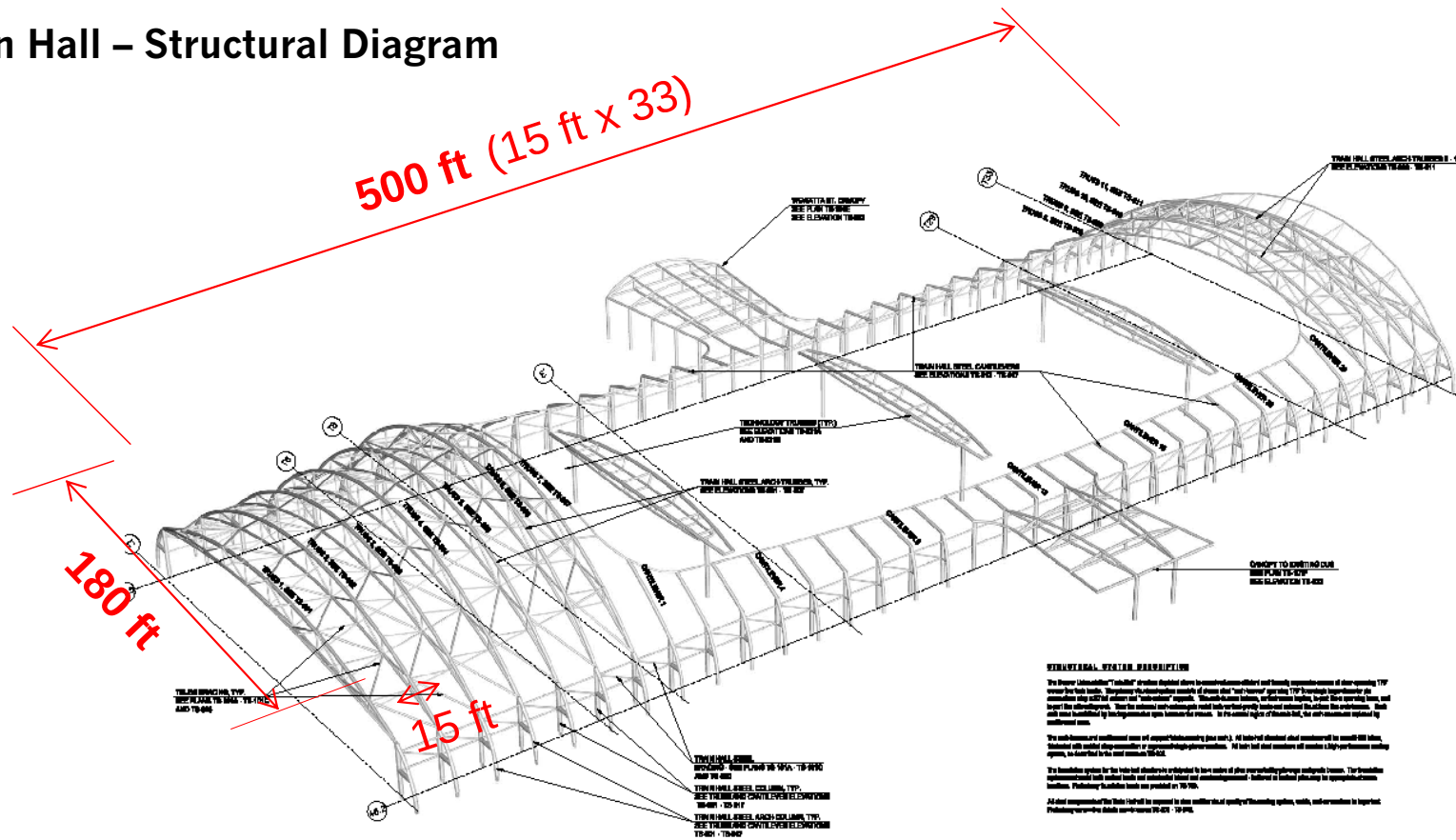
- Functional relationship
- No physical connection
- Continuous canopy protection
- Formal relationship with the historic station building's façade
- Daylight can penetrate, lightening visual appearance
- Unobstructed views from the west, respecting the protected 17th Street view corridor

CRT Train Hall



* All heights measured from platform level

CRT Train Hall – Structural Diagram

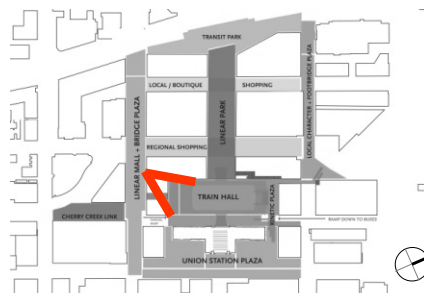


Steel Structure:

20-inch-diameter columns with 18" diameter thrust kickstands (15' on center) painted with 2-part system: zinc-rich epoxy + polysiloxane gloss

Membrane:

- PTFE (Teflon) coated fiberglass fabric, with aluminum fasteners
- Light permeable
 - Fire resistant (non-combustible)
 - Self-cleaning (inert in nature)
 - Long life expectancy (35 years)
 - UV resistant



Train Hall Aerial View – looking NE

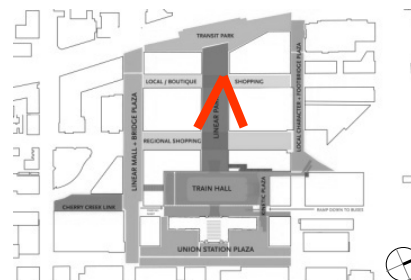


Train Hall – View from Platforms, looking NE

Technology Trusses suspend lighting trays, power, data and electric traction catenary



17th Street View, looking East





Union Station West Entry at CRT Hall, looking South

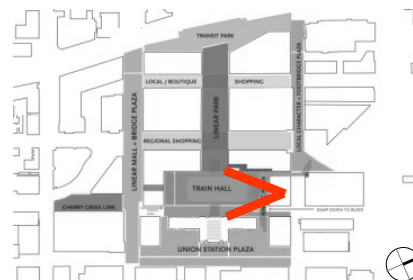


Elevated “Kinetic” Plaza, looking West



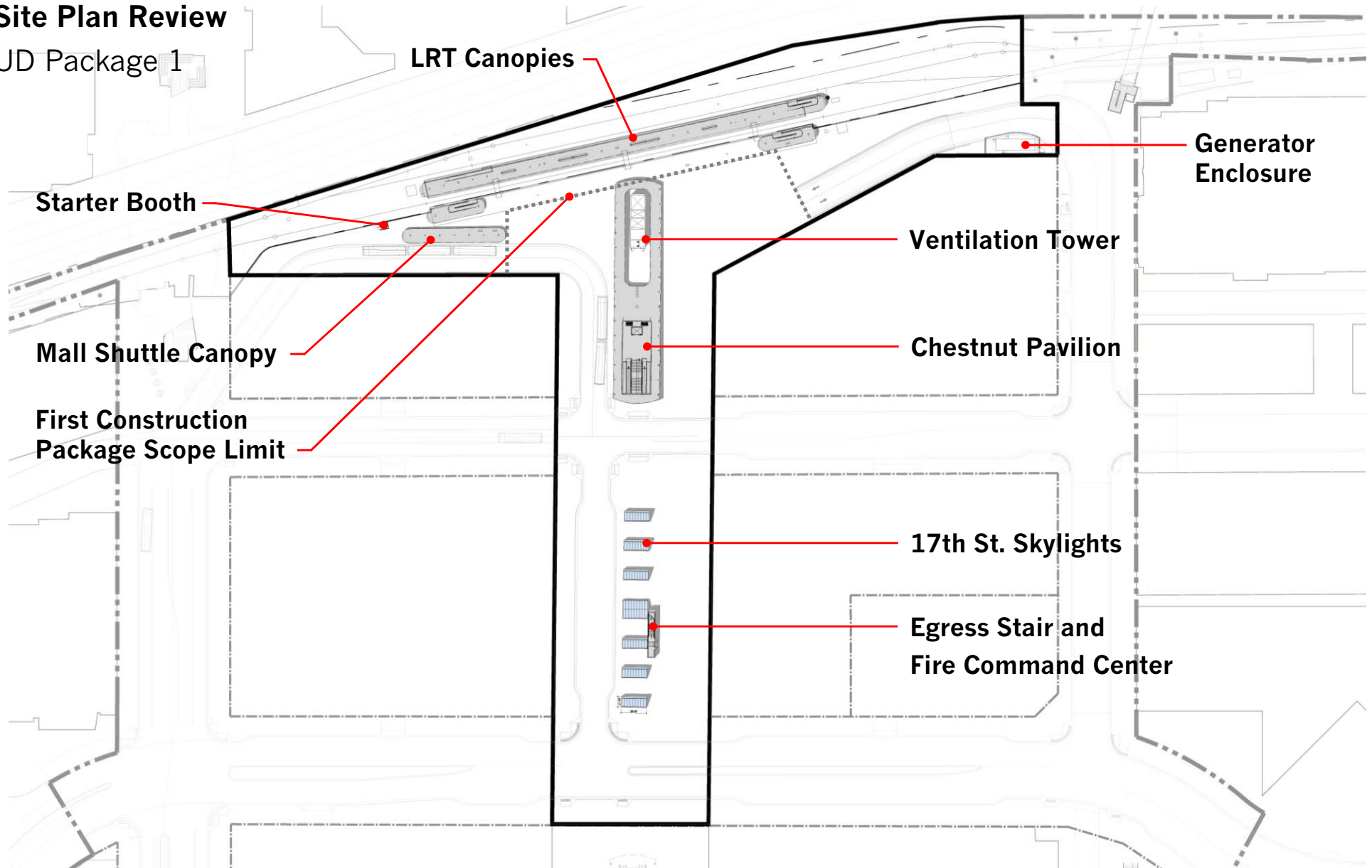


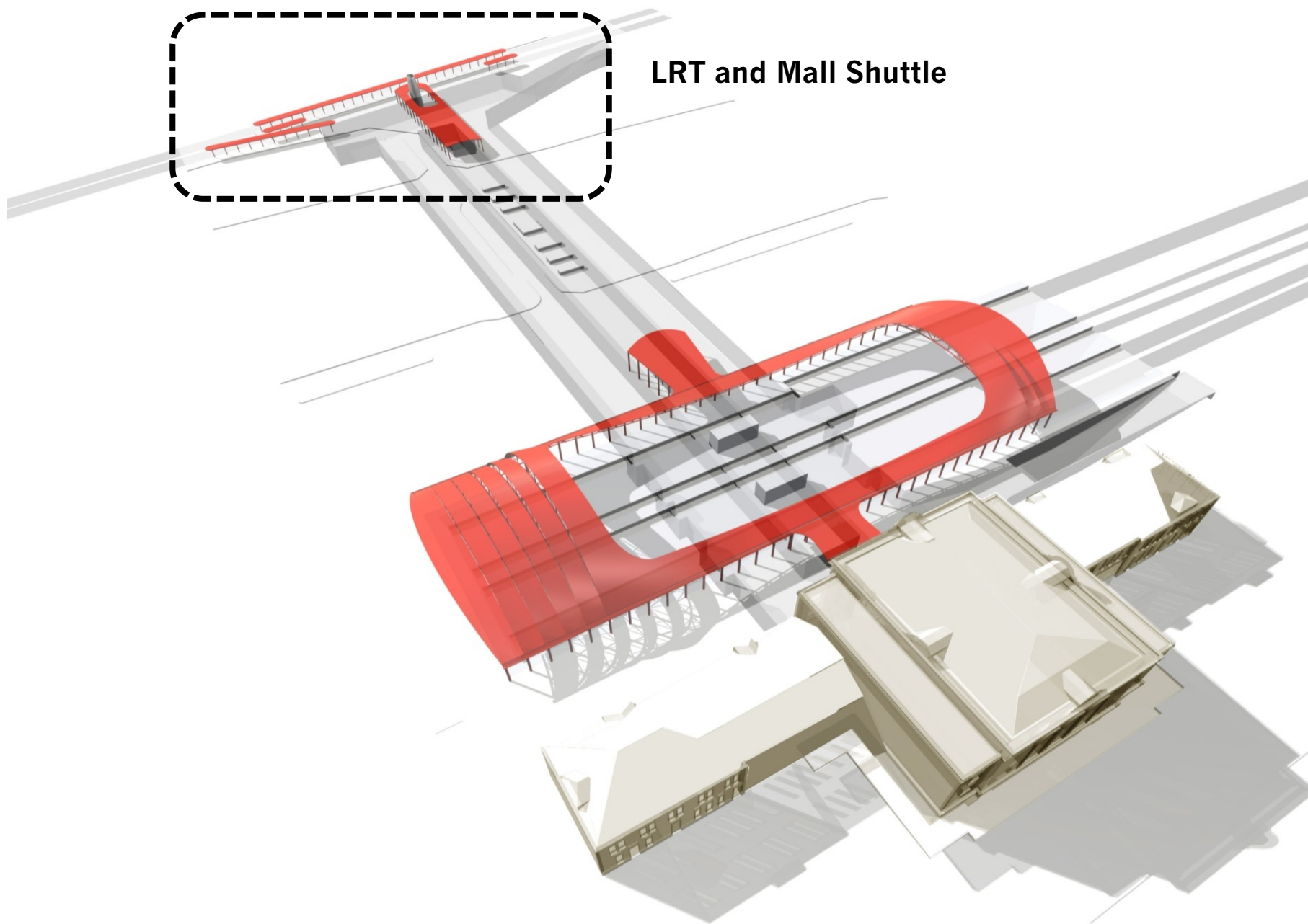
Elevated “Kinetic” Plaza, looking South-Head of Platform



Site Plan Review

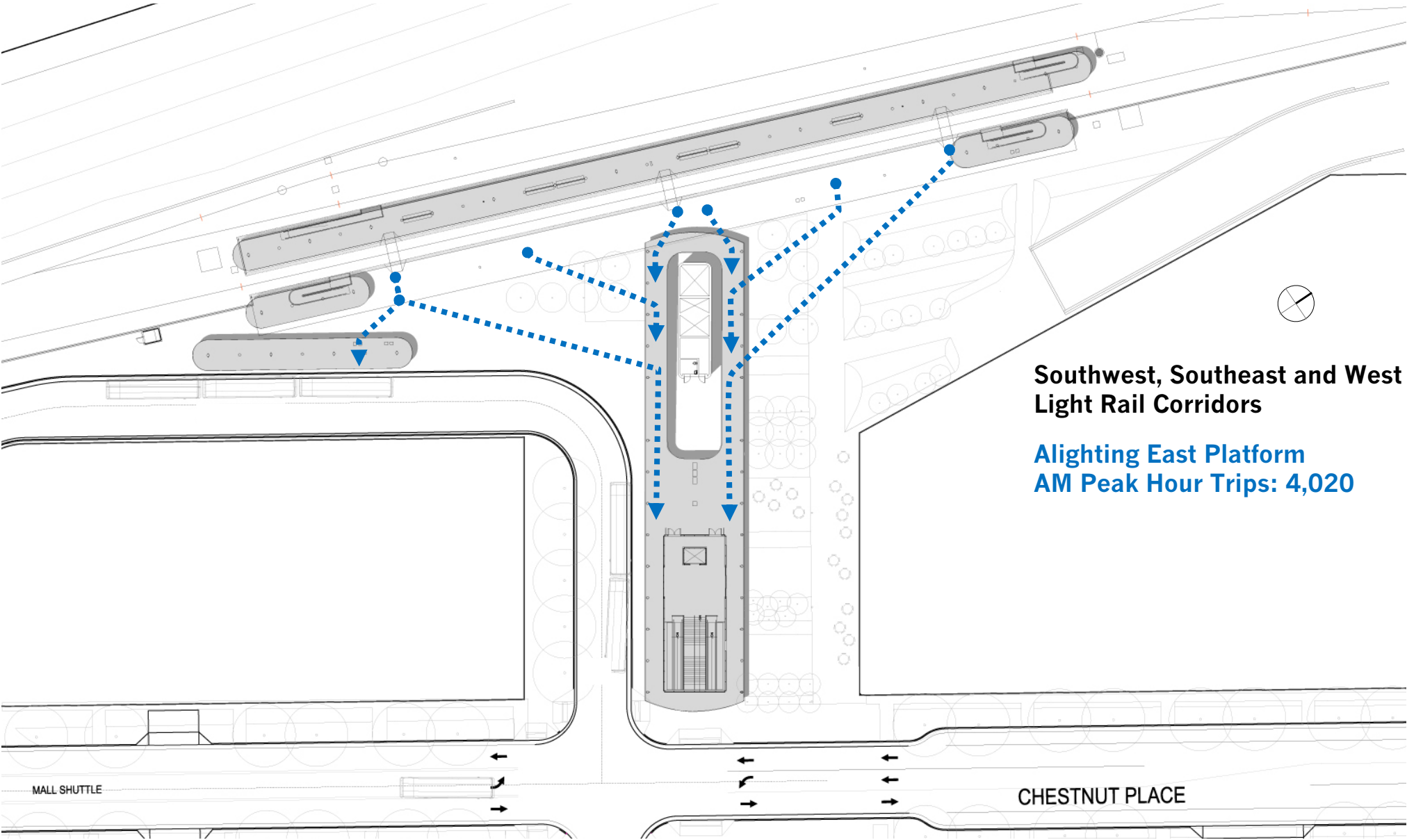
UD Package 1



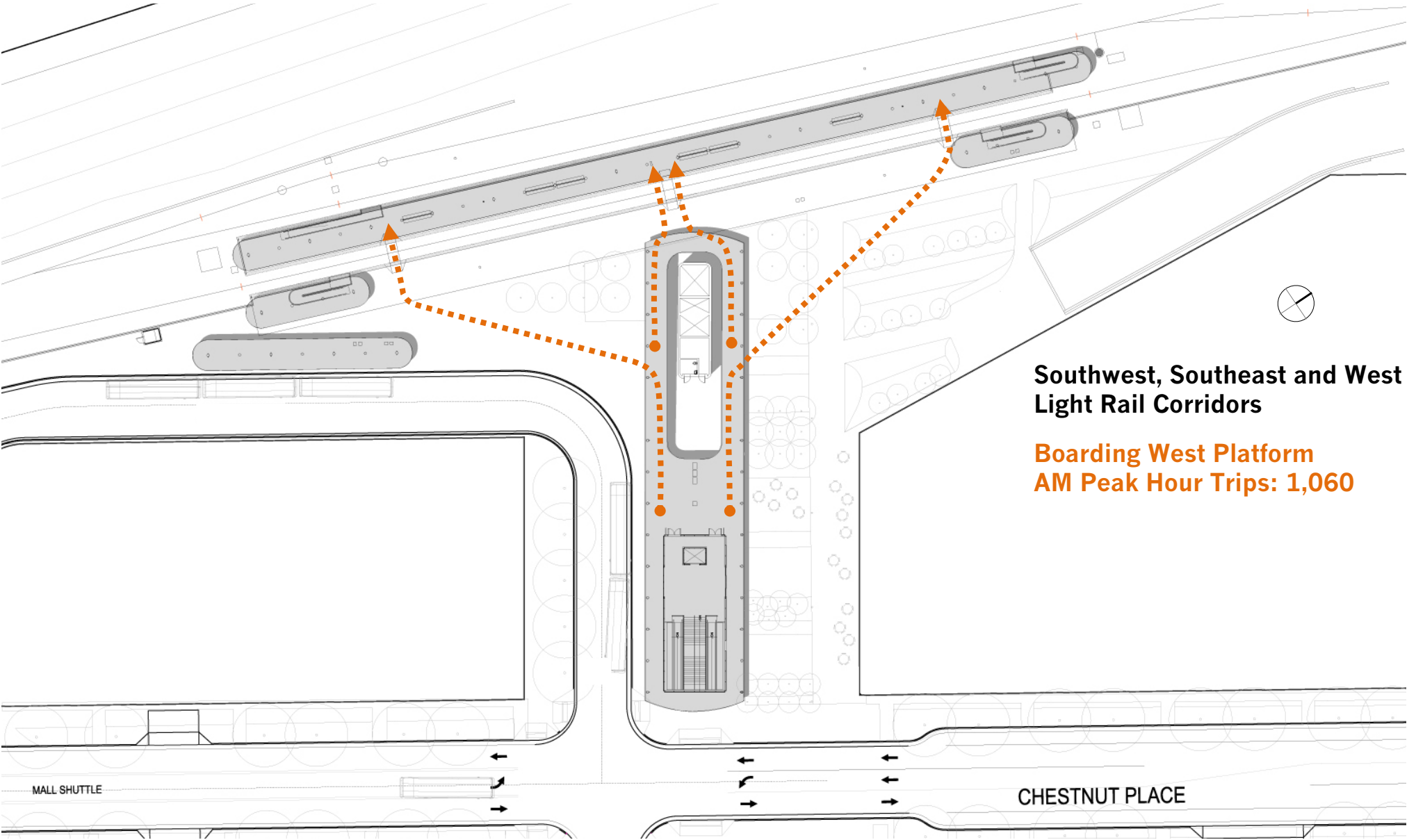


LRT and Mall Shuttle

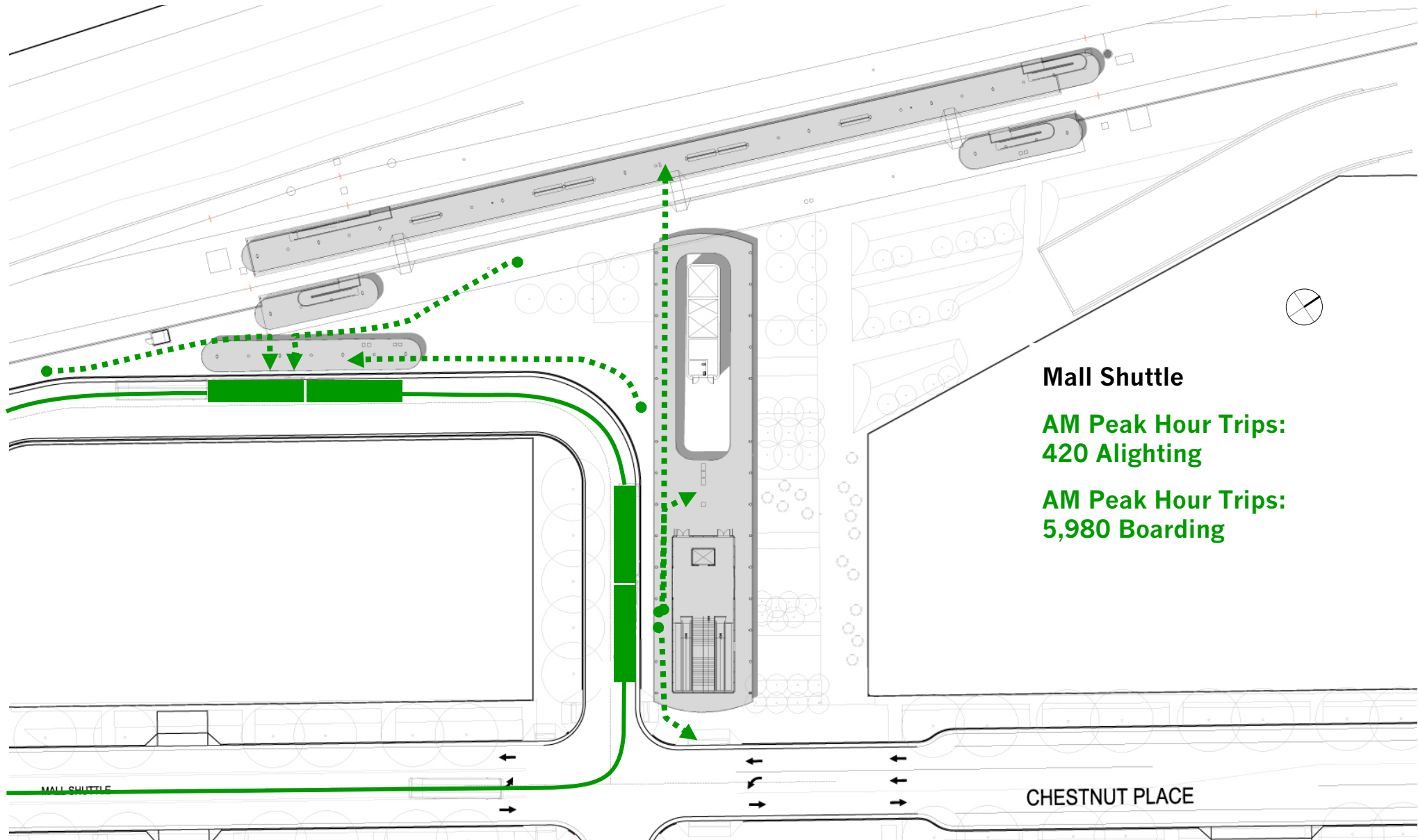
Circulation – LRT



Circulation – LRT



Circulation – Mall Shuttle



Public Comment on Transit Architecture

Comment / Recommendation

Mall Shuttle Route

- Add more stops for the shuttle.
- Move 16th & Wewatta stop to align with CRT public concourse.
- Add a stop for every block in the CPV, similar to Downtown and LoDo in the rest of the system.
- Extend loop to open up access to north side of the Valley/Prospect neighborhood and enhance access to regional buses.

LoDo District Urban Design Committee
Commons Design Review Board

Response / Action

- Per RTD, changes to the planned route and stops are not contemplated at this time.

Public Comment on Transit Architecture

Comment / Recommendation

Mall Shuttle Alignment

- Incursion of Mall Shuttle into Millennium Bridge is a real problem.
- Extremely important to have an inviting walkway between bridge and LRT.
- Equally important to have active retail options on the building frontage where the bridge lands.

LoDo District Urban Design Committee

Response / Action

- Alignment revised to maximize pedestrian sidewalk: increased to 20' wide at foot of bridge.

Public Comment on Transit Architecture

Comment / Recommendation

Mall Shuttle Architectural Design

- Don't agree that it is necessary for the canopy at the 16th Street Mall Shuttle Stop to be similar to the form of the CRT train hall structure.

Community Meeting Participant

Response / Action

- Design Team feels strongly that a common architectural language is critical to establishing the identity of a transit district that is cohesive and greater than the sum of its parts.

Public Comment on Transit Architecture

Comment / Recommendation

LRT Architectural Design

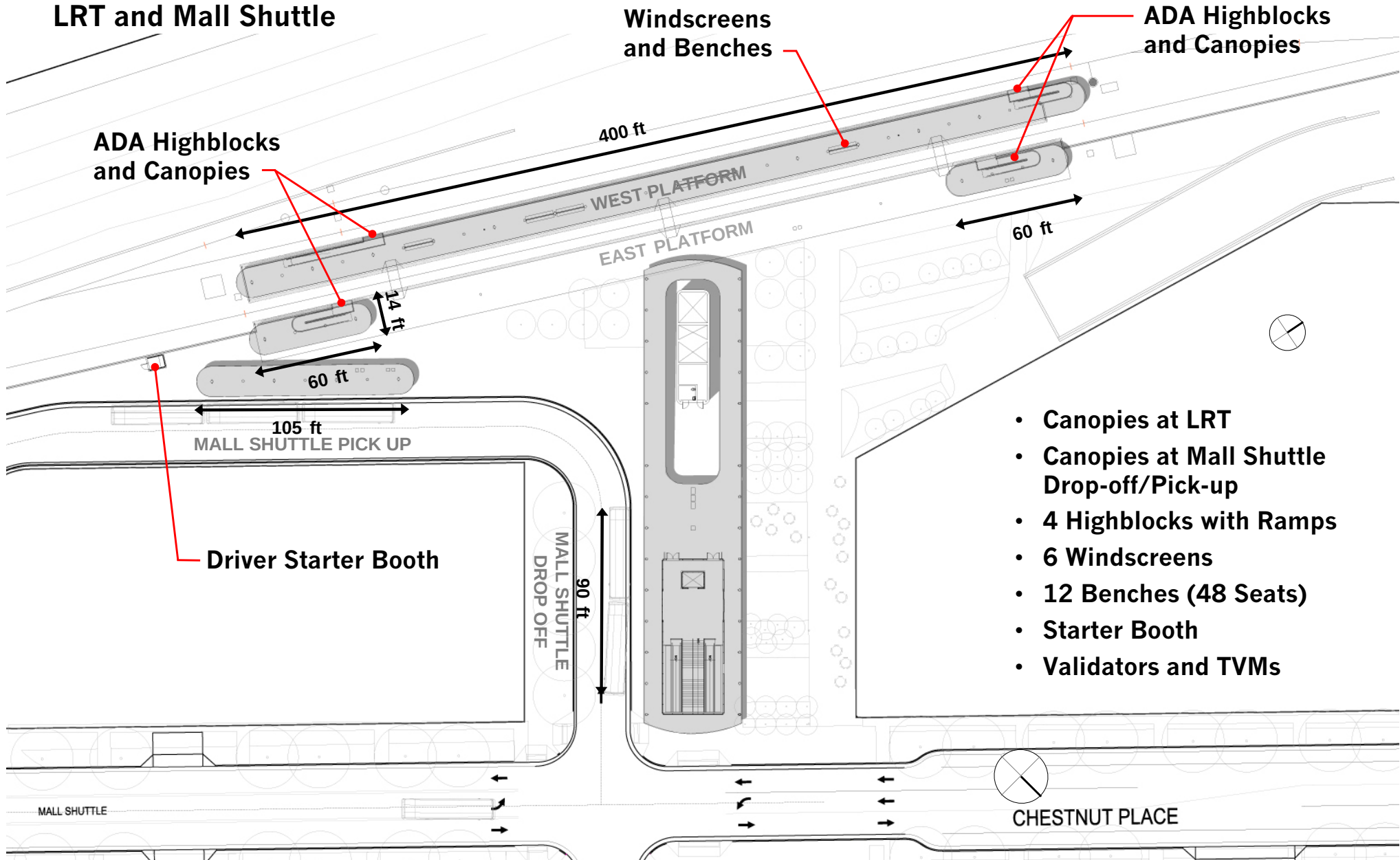
- There has been no public review of any design for the LRT. Is it important that that design be presented to and evaluated by the public.
- To maximize the TOD development opportunities on Blocks 15 & 17, it is important to develop a unique destination place and arrival experience as a transit station.

LoDo District Urban Design Committee
Commons Design Review Board

Response / Action

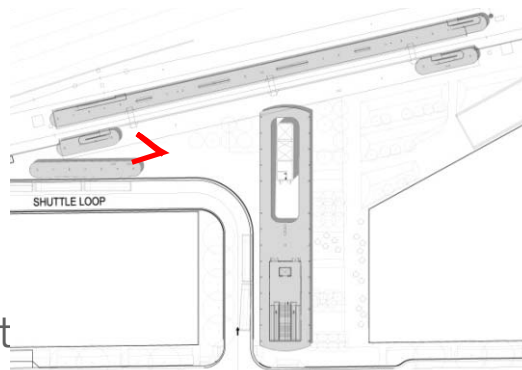
- Agreed. New presentation material is available.

LRT and Mall Shuttle

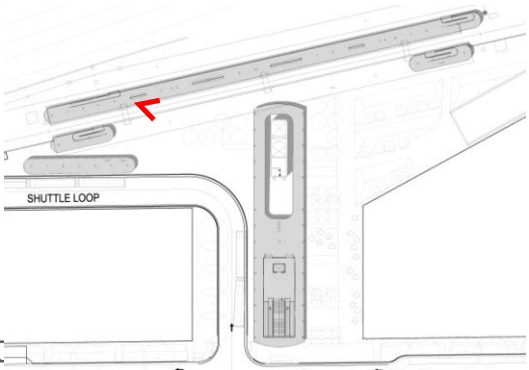


- Canopies at LRT
- Canopies at Mall Shuttle Drop-off/Pick-up
- 4 Highblocks with Ramps
- 6 Windscreens
- 12 Benches (48 Seats)
- Starter Booth
- Validators and TVMs

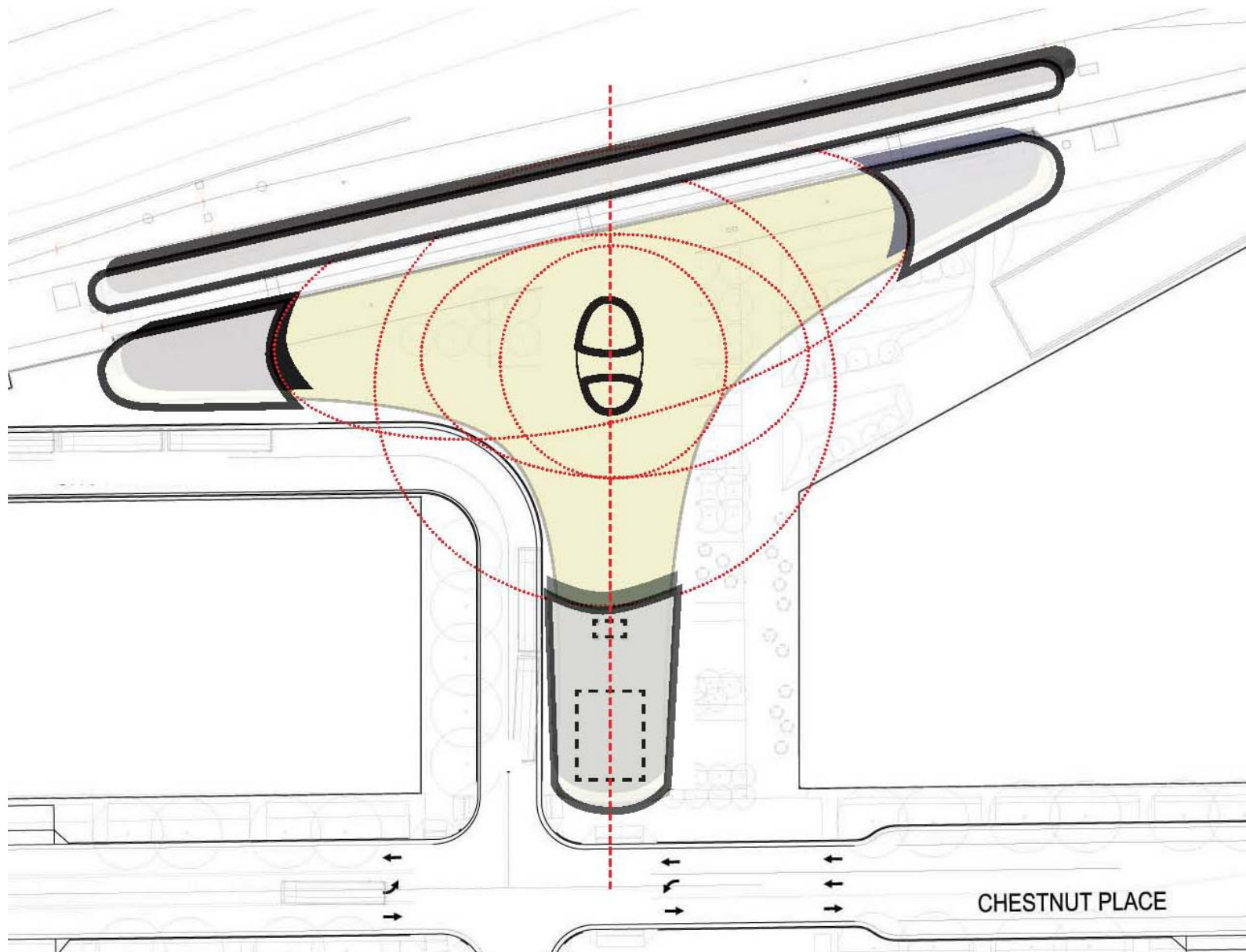
LRT and Mall Shuttle



LRT and Mall Shuttle

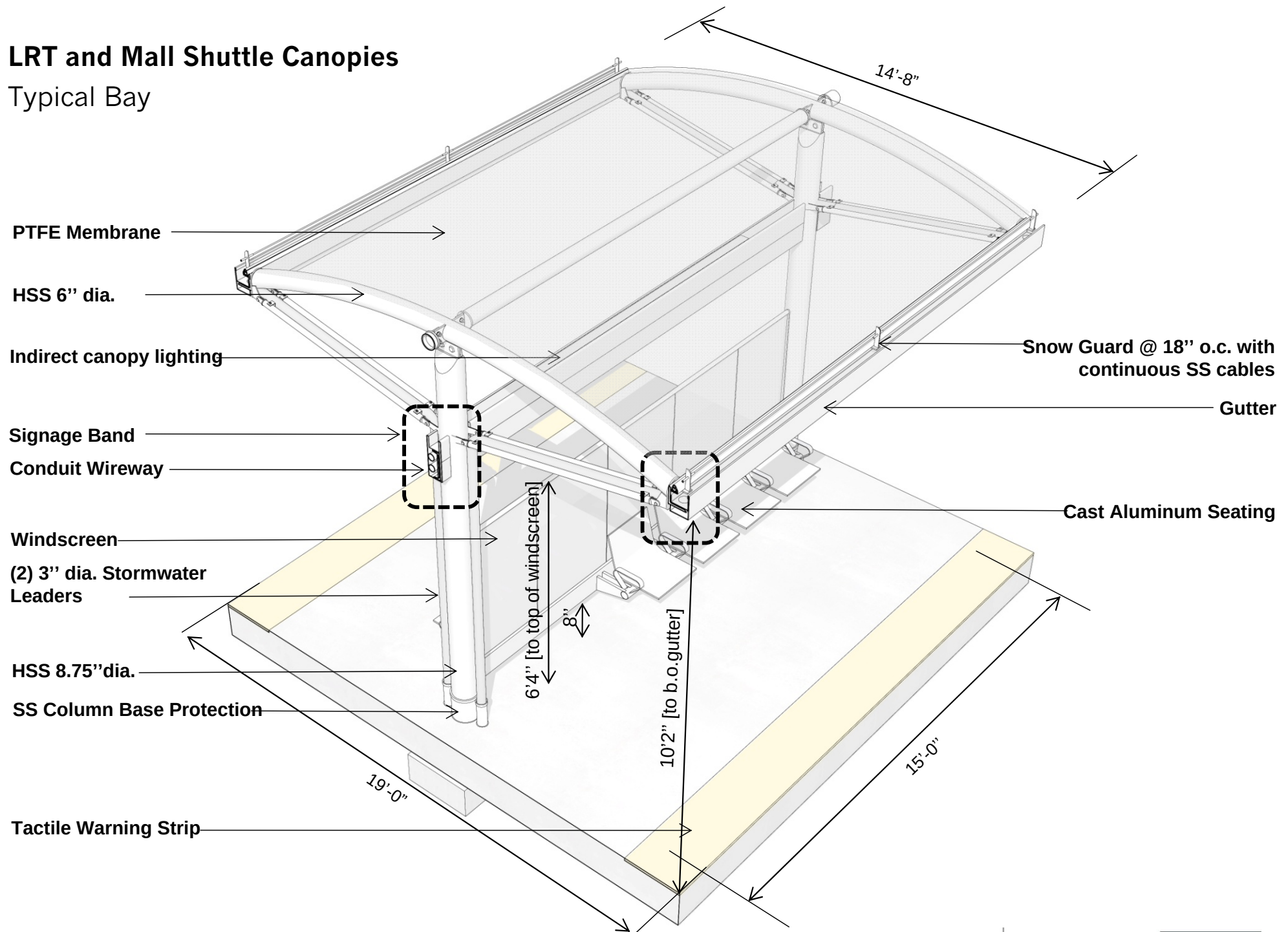


LRT and Mall Shuttle – Alternate Site Plan



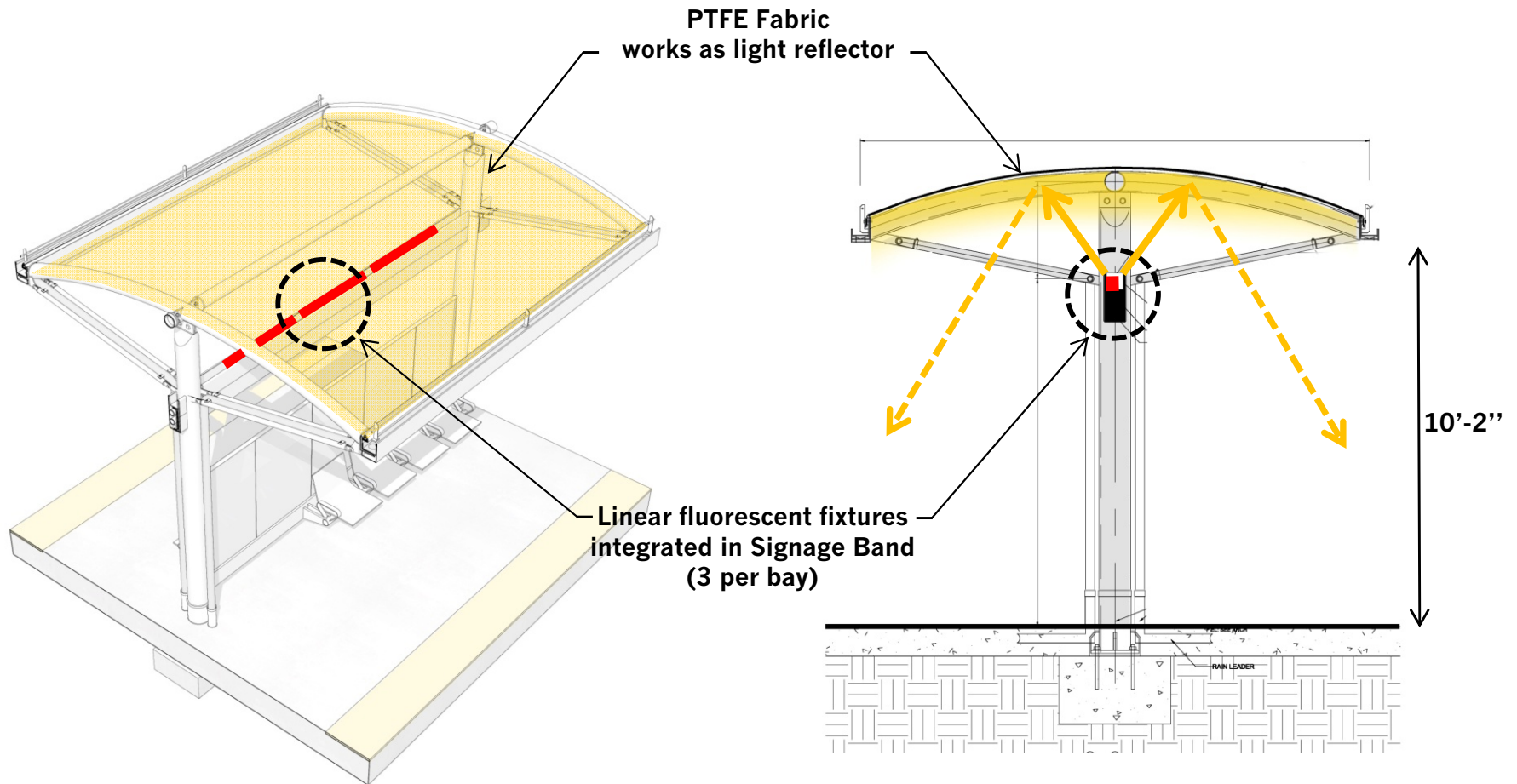
LRT and Mall Shuttle Canopies

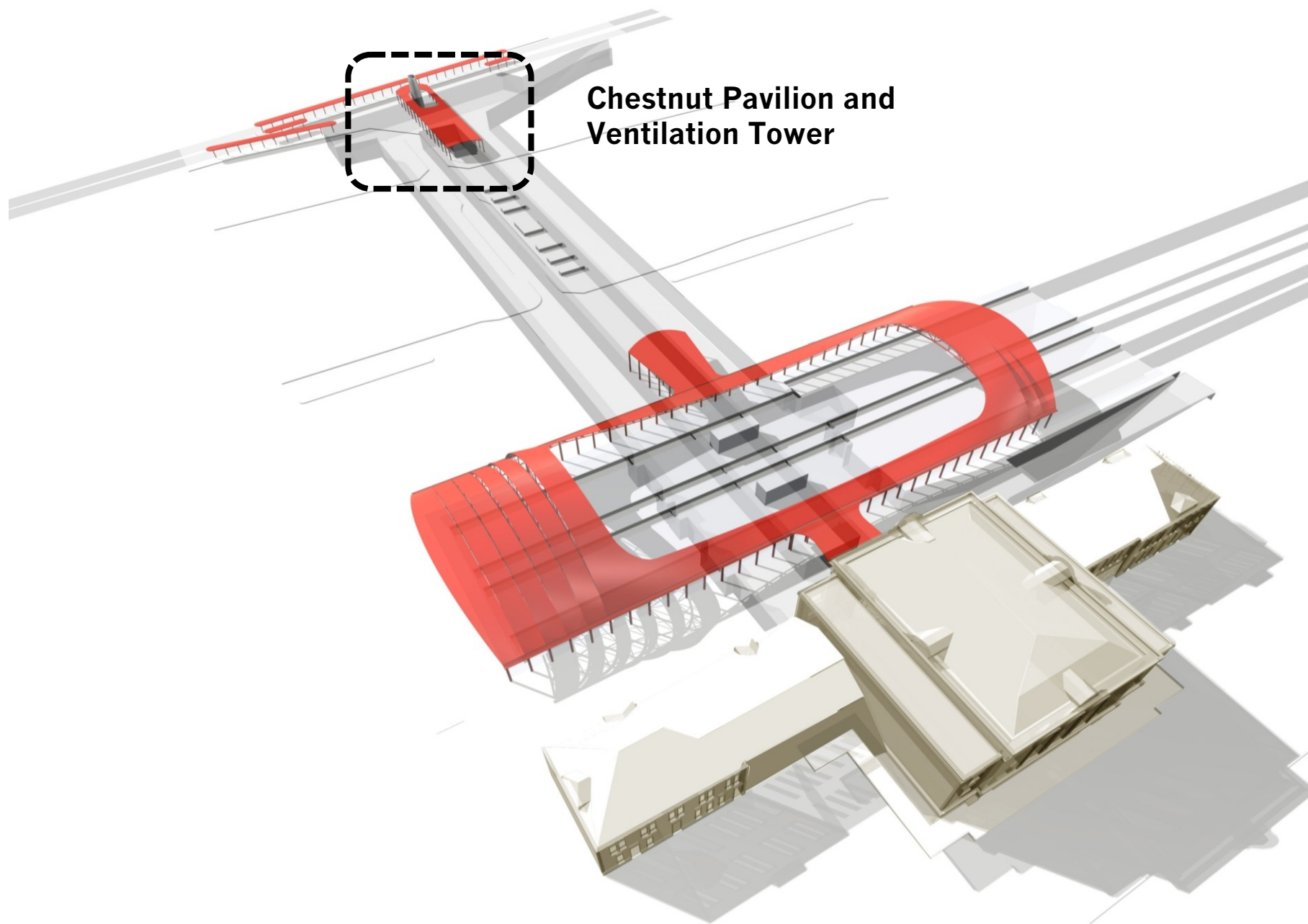
Typical Bay



LRT and Mall Shuttle Canopies

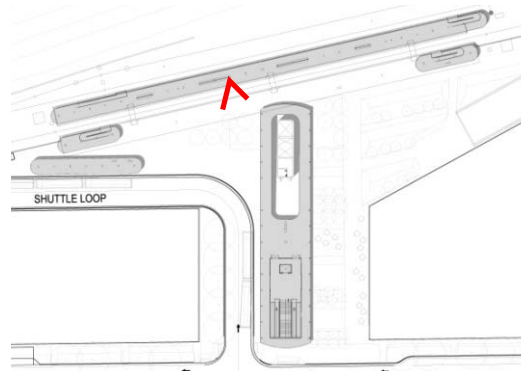
Lighting Strategy



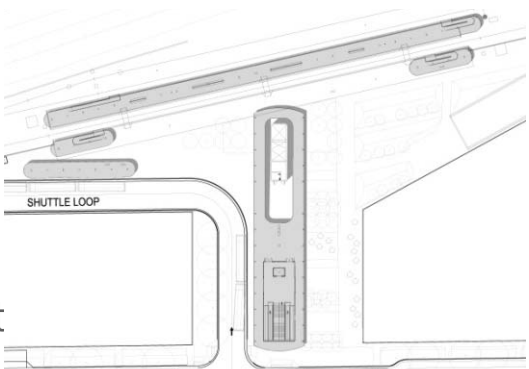
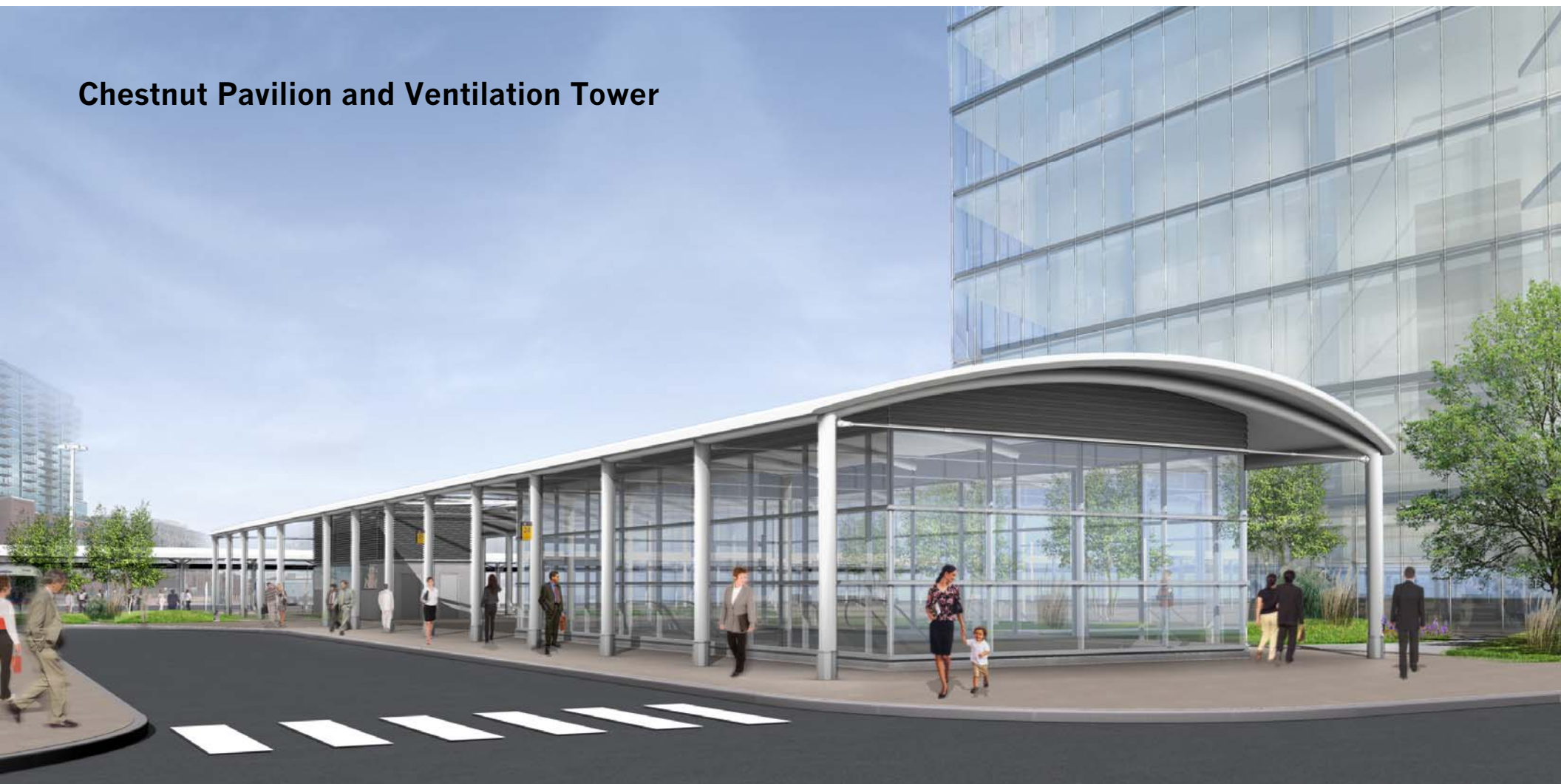


**Chestnut Pavilion and
Ventilation Tower**

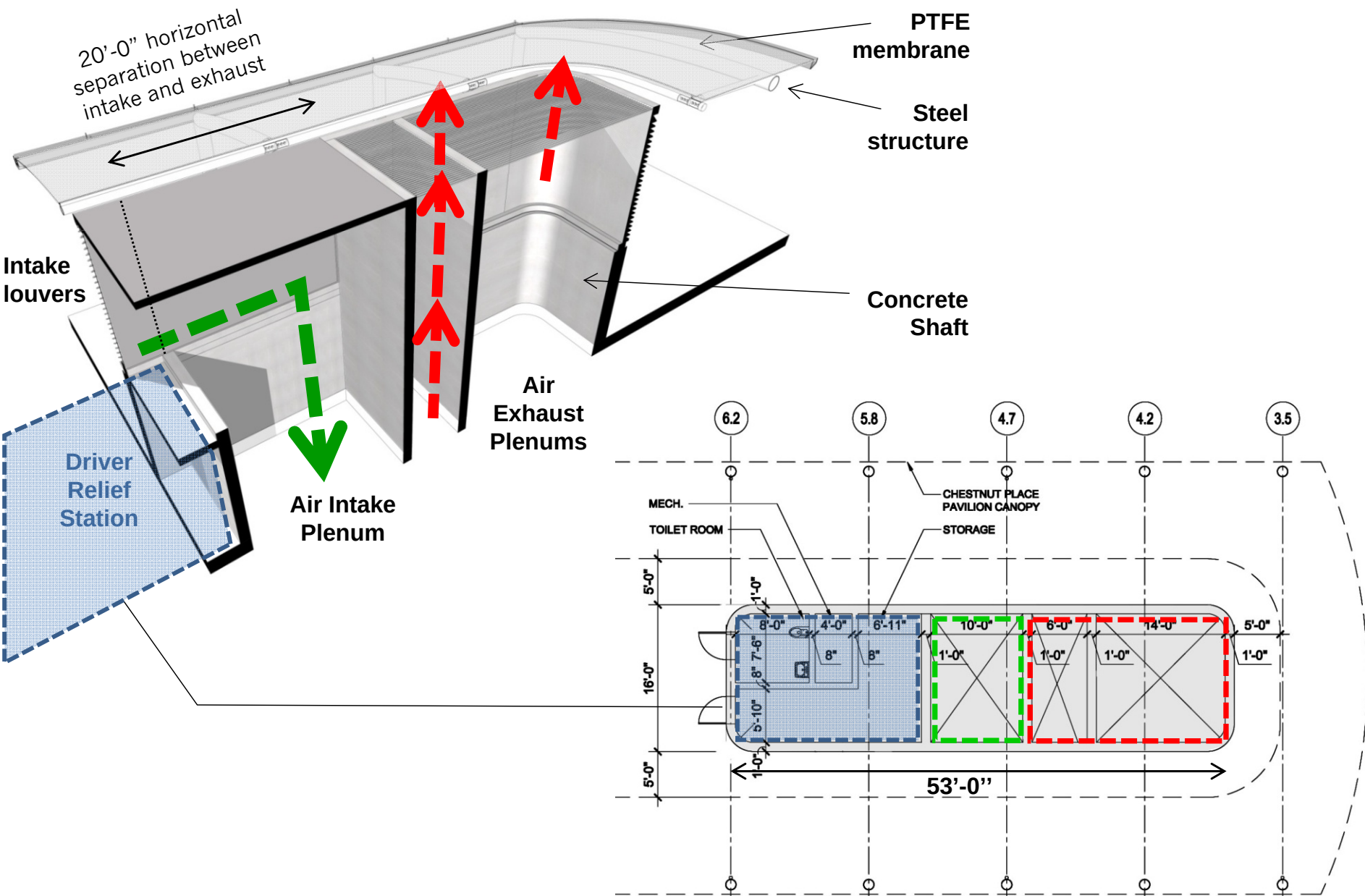
Chestnut Pavilion and Ventilation Tower



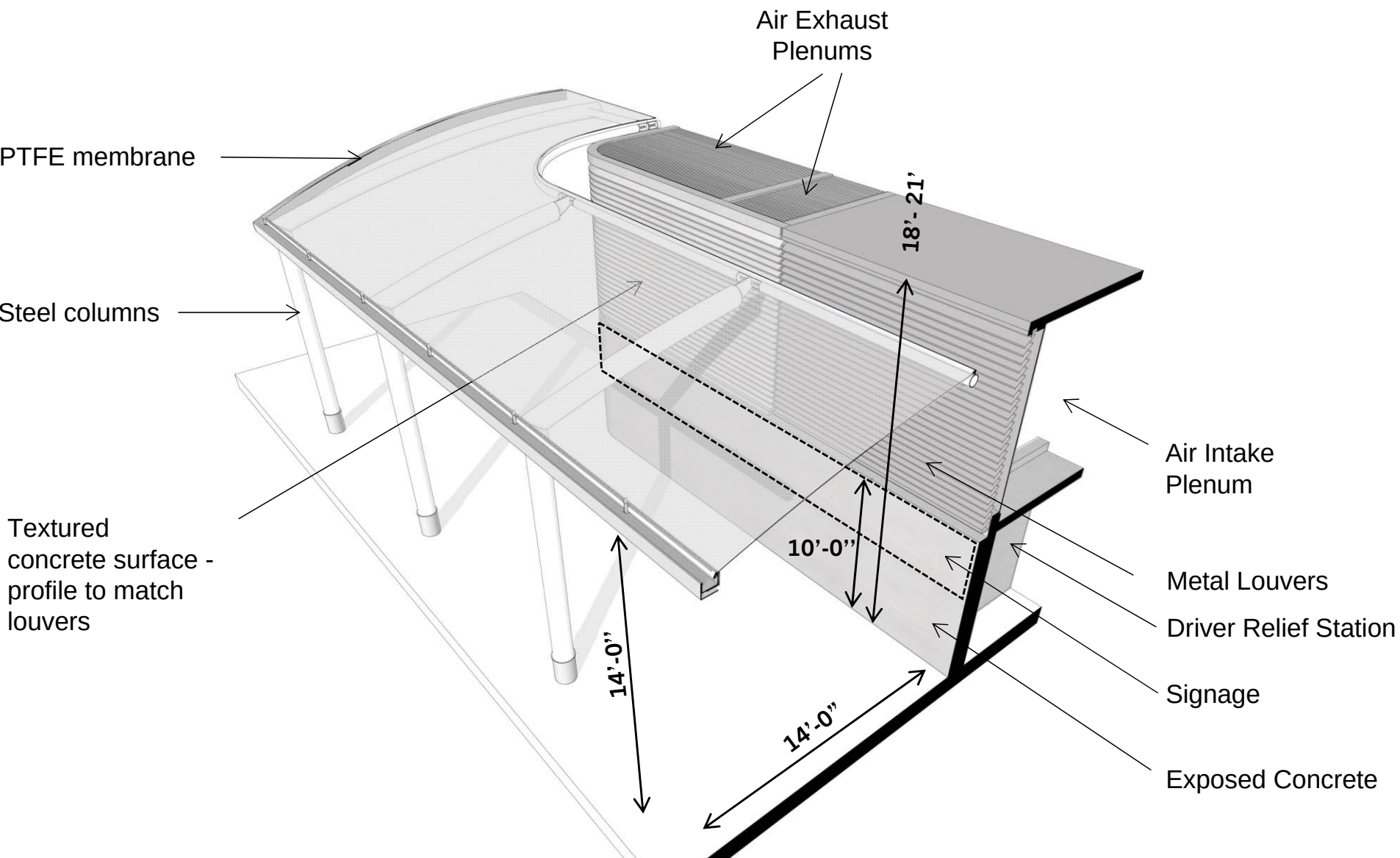
Chestnut Pavilion and Ventilation Tower



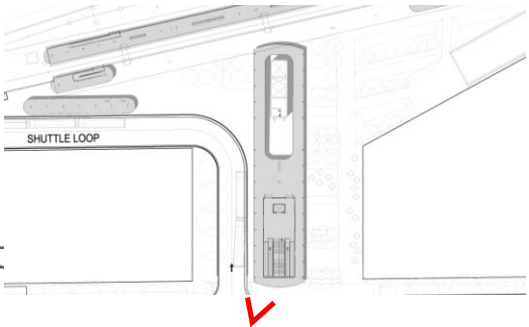
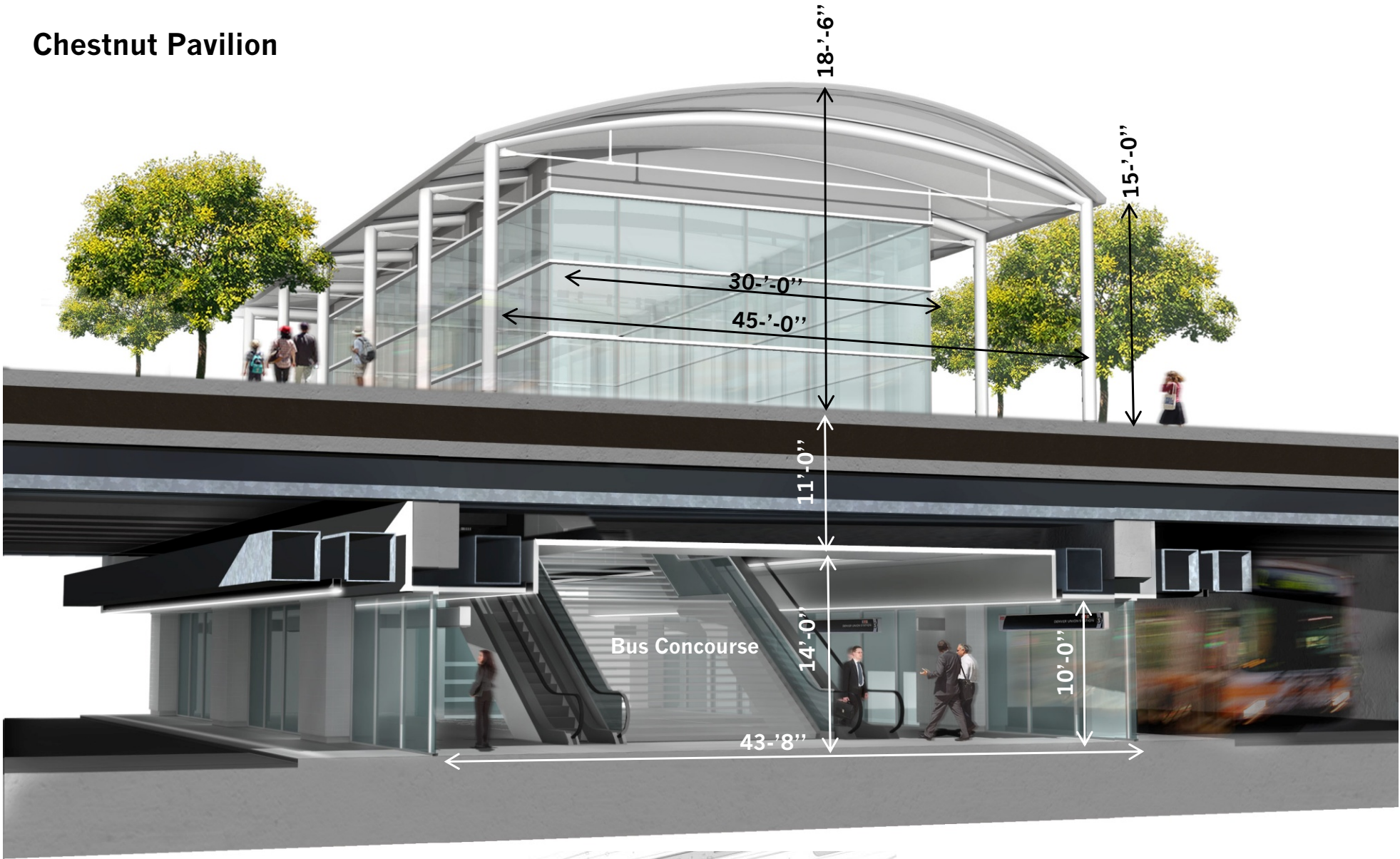
Chestnut Pavilion and Ventilation Tower

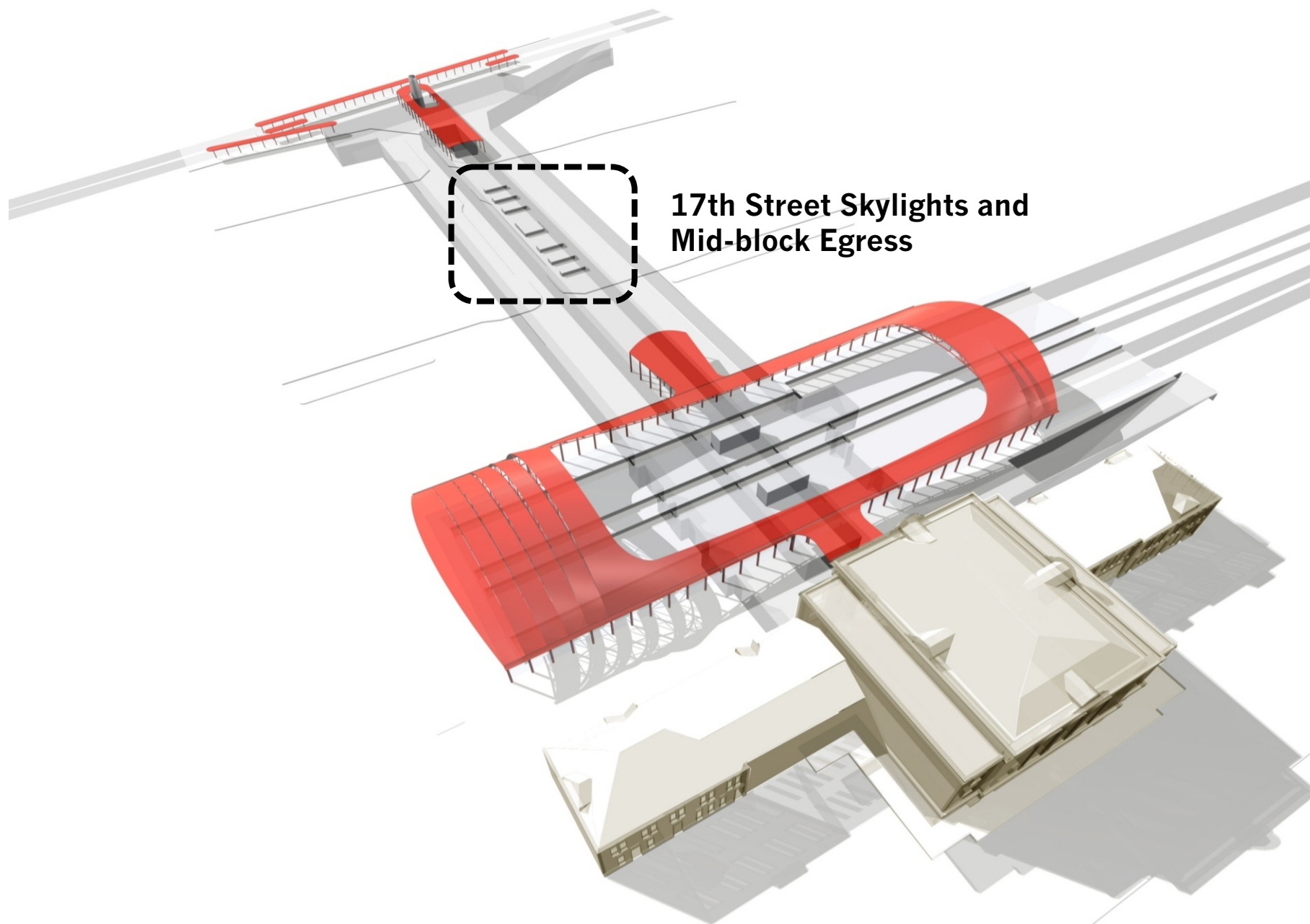


Chestnut Pavilion and Ventilation Tower

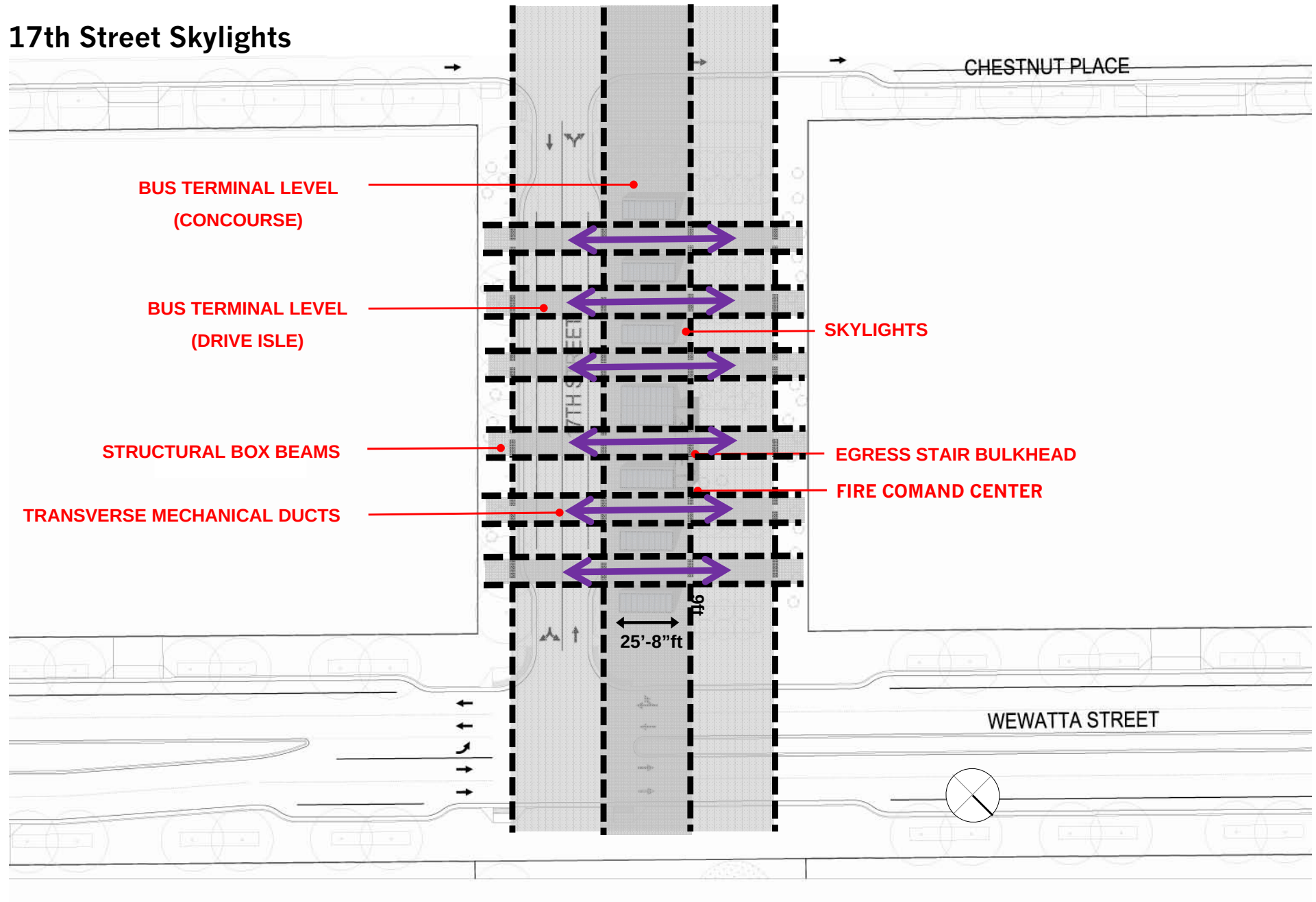


Chestnut Pavilion

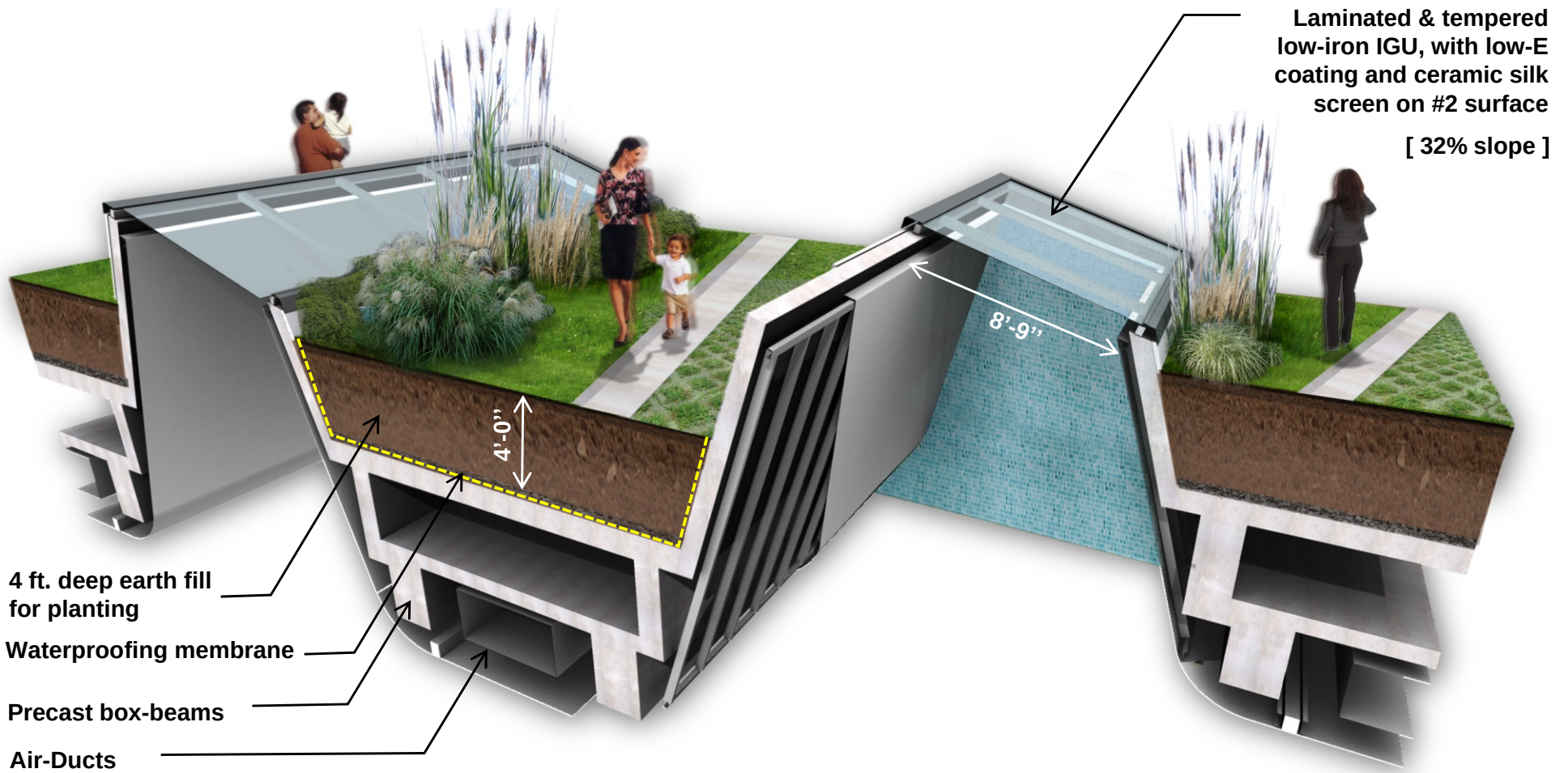




17th Street Skylights



17th Street Skylights



Public Comment on Transit Architecture

Comment / Recommendation

Mid-block Public Access

- Add vertical circulation core to access the underground bus station, midway between Chestnut and Wewatta.
- Increase access from bus station to commercial areas along promenade, and vice versa, to enliven space and provide connectivity.

LoDo District Urban Design Committee
Commons Design Review Board

Response / Action

- Tradeoffs were considered.
- Project leadership is not willing to compromise on the number of bus slips.
- DUSPA has asked the Design Team to consider making the 5' wide egress stair available for public entry as well.
- Impacts to be considered include: increased stair width, additional ADA elevator, deletion of moving sidewalks, etc.

Public Comment on Transit Architecture

Comment / Recommendation

On-street Parking

- Delete the northern row of parking in the 17th Street ROW to improve accessibility to the public “rooms” of the 17th Street linear park and to maintain an axial view and walkway to the station.

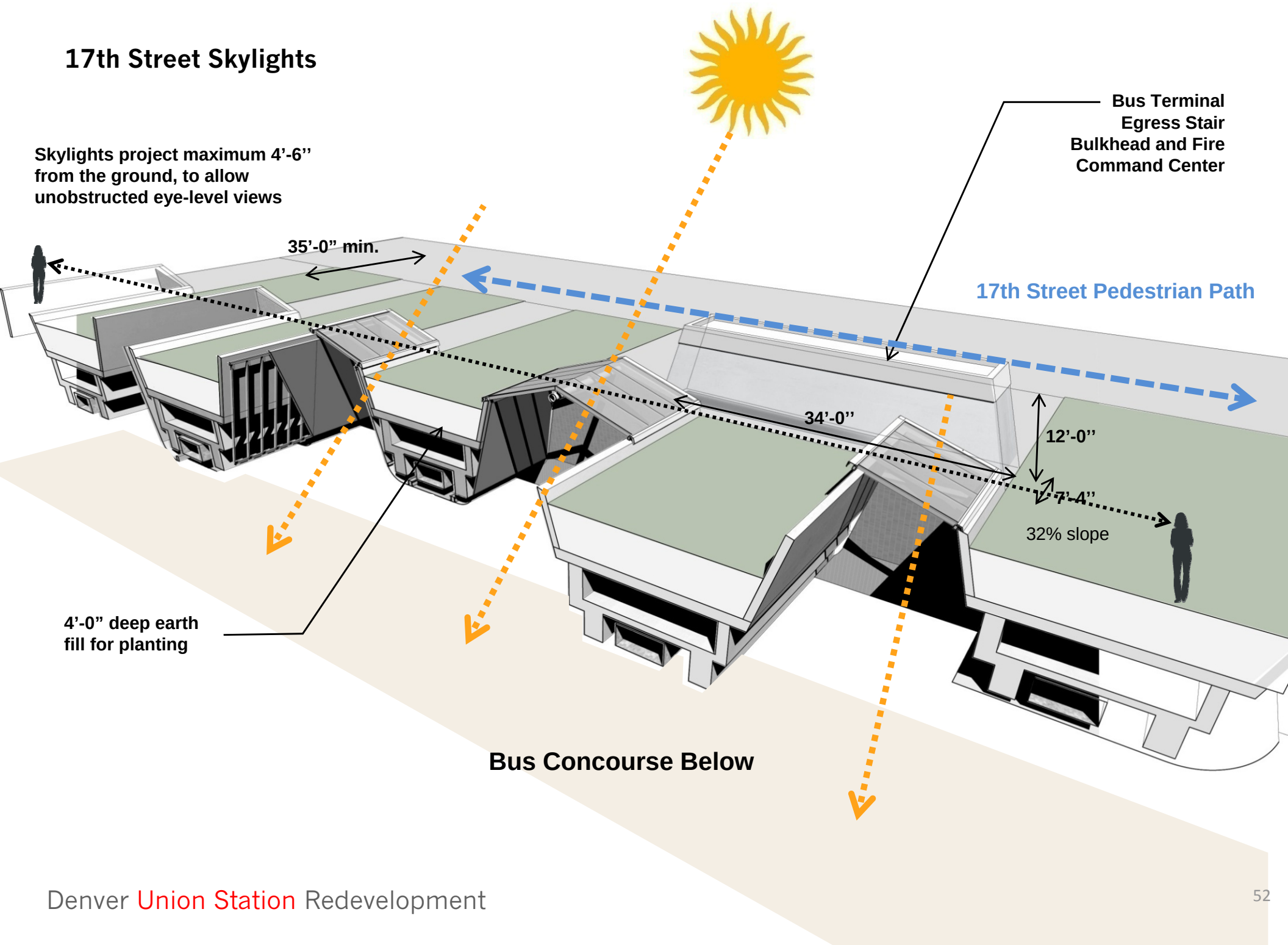
LoDo District Urban Design Committee

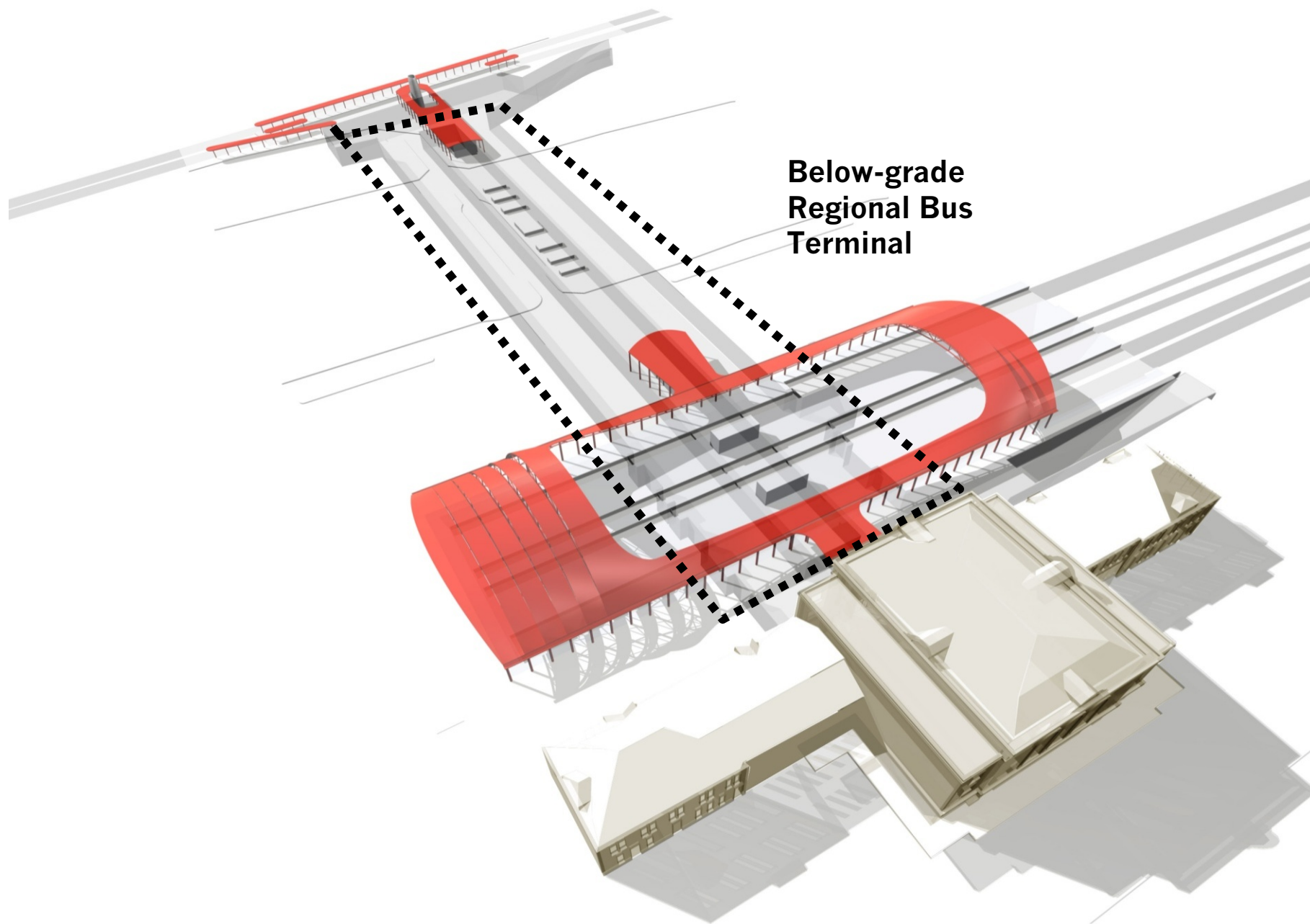
Response / Action

- Project leadership intends to provide as much on-street parking as possible to support retail.
- Design Team will investigate opportunities to refine the cross-section of the street.

17th Street Skylights

Skylights project maximum 4'-6" from the ground, to allow unobstructed eye-level views





**Below-grade
Regional Bus
Terminal**

Public Comment on Transit Architecture

Comment / Recommendation

Bus Station Architectural Design

- The pedestrian environment within the bus box needs further development and presentation.

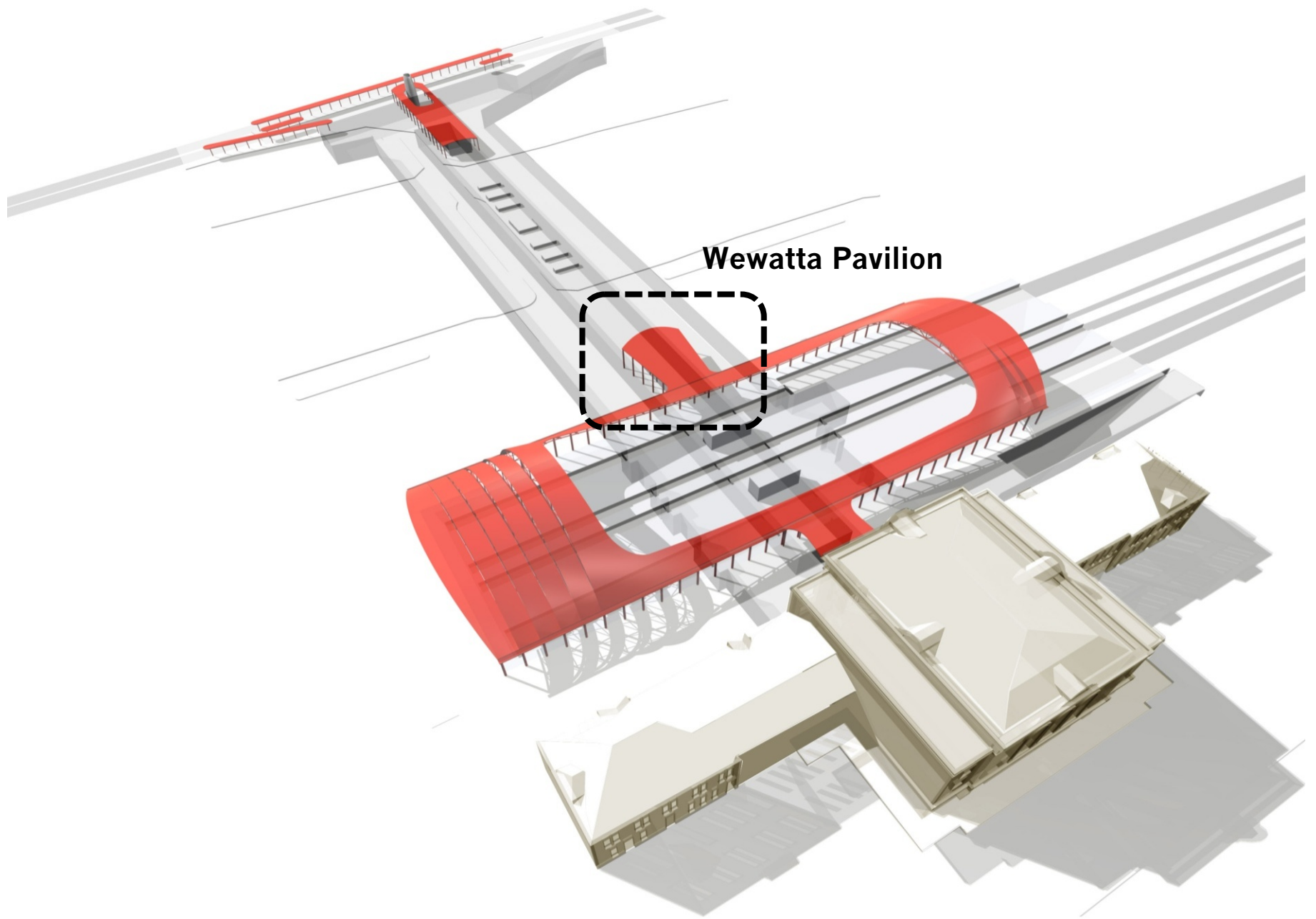
LoDo District Urban Design Committee

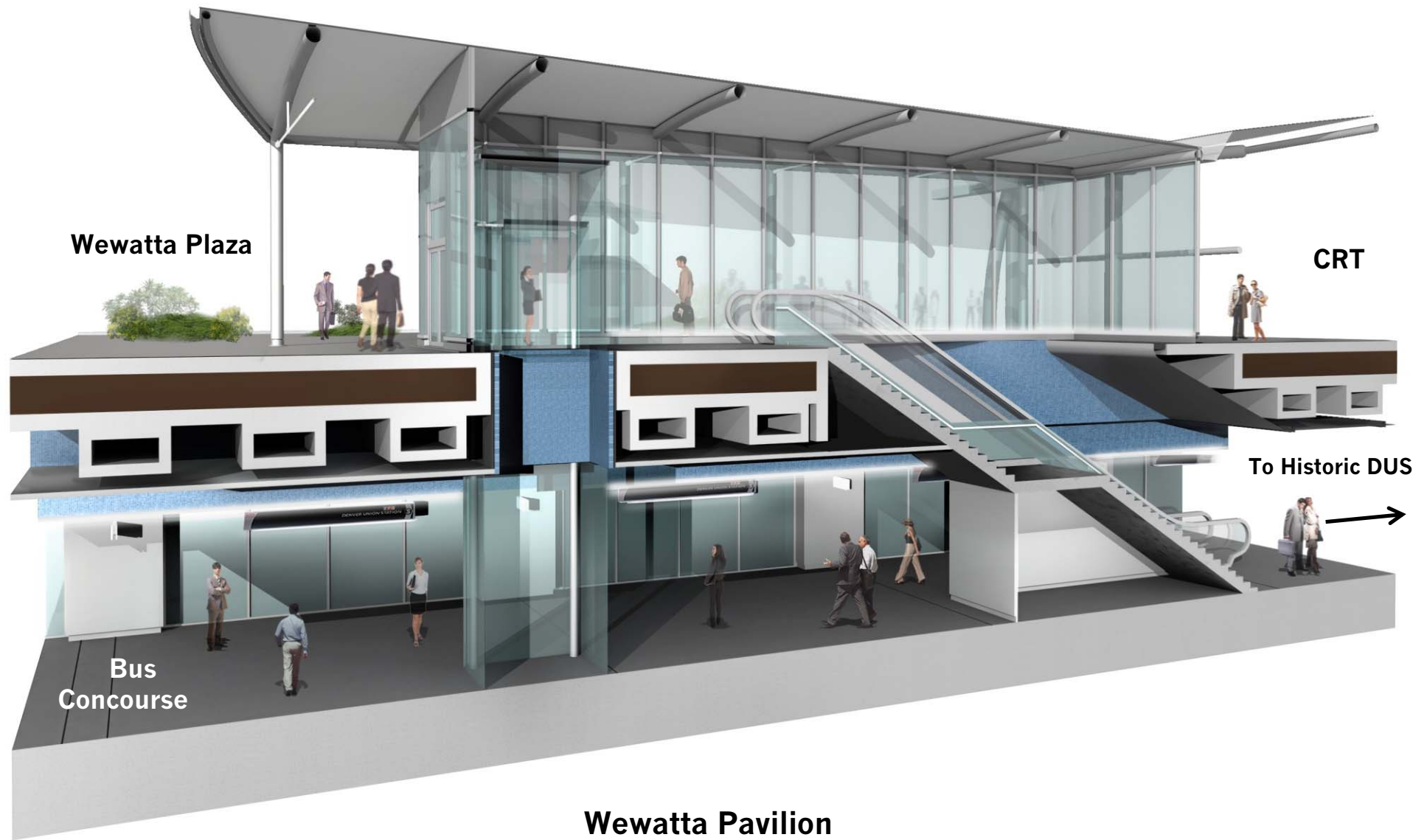
Response / Action

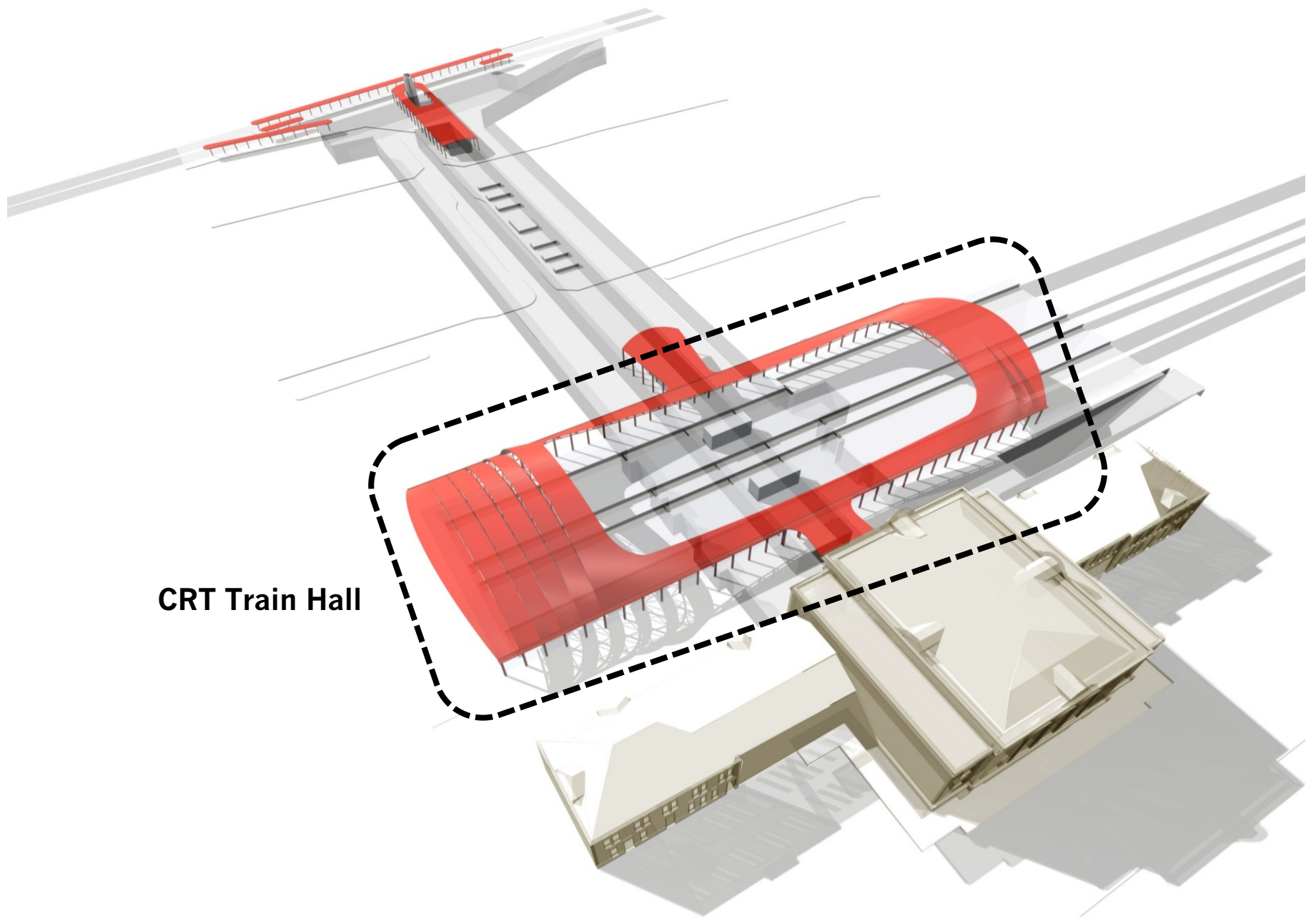
- Agreed.

Regional Bus Terminal









CRT Train Hall

Public Comment on Transit Architecture

Comment / Recommendation

Train Hall Architectural Design

- I understand the "outdoor urban room" concept, but how much protection will areas covered by the canopy offer, especially from rain and melting snow?
- Explore splitting up the single canopy into two canopies, one at either end of the platform. Remove the canopy proximal and distal to the historic structure in the 17th street view plane.

A. Gonzalez

Response / Action

- Project Leadership strongly believes that the unifying gesture of the train hall structure – simple, elegant, transparent and continuous – is critically important to placemaking at DUS.
- Much more has been done with the Community to gain support for this concept.
- Design Team will continue to work on formal enhancements.

Public Comment on Transit Architecture

Comment / Recommendation

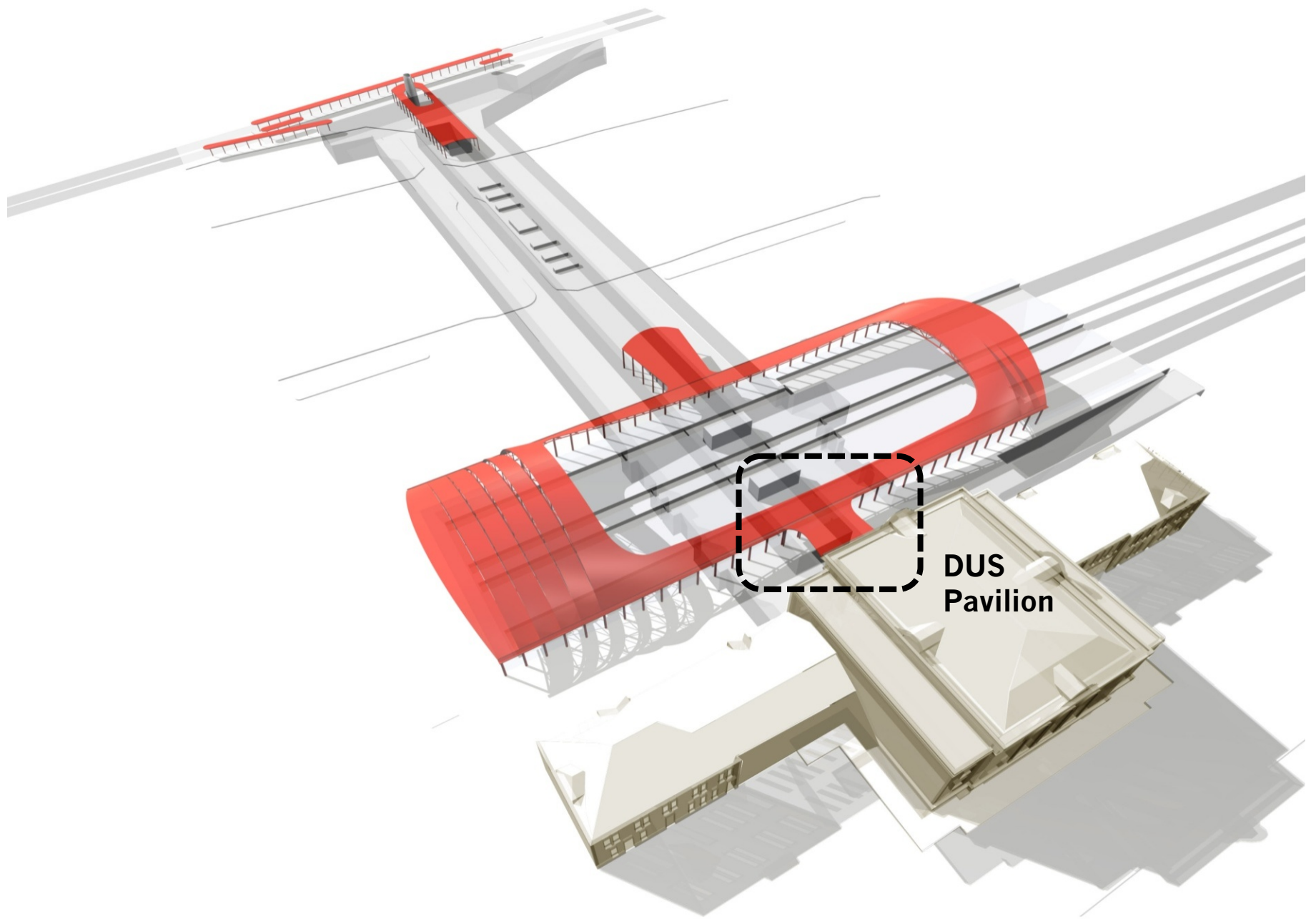
Train Hall Architectural Design

- Most walls (of private development) surrounding train hall are blank walls. This is important problem. How to create pedestrian friendly facades here needs to be looked at carefully.
- It is crucial that the passageway from 16th Street through the A Block building have a real presence on 16th Street. This building functions as a headhouse to the CRT.

LoDo District Urban Design Committee

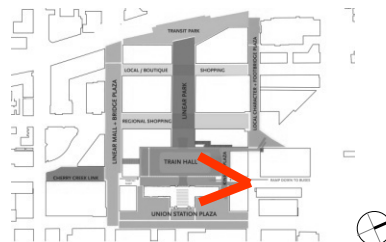
Response / Action

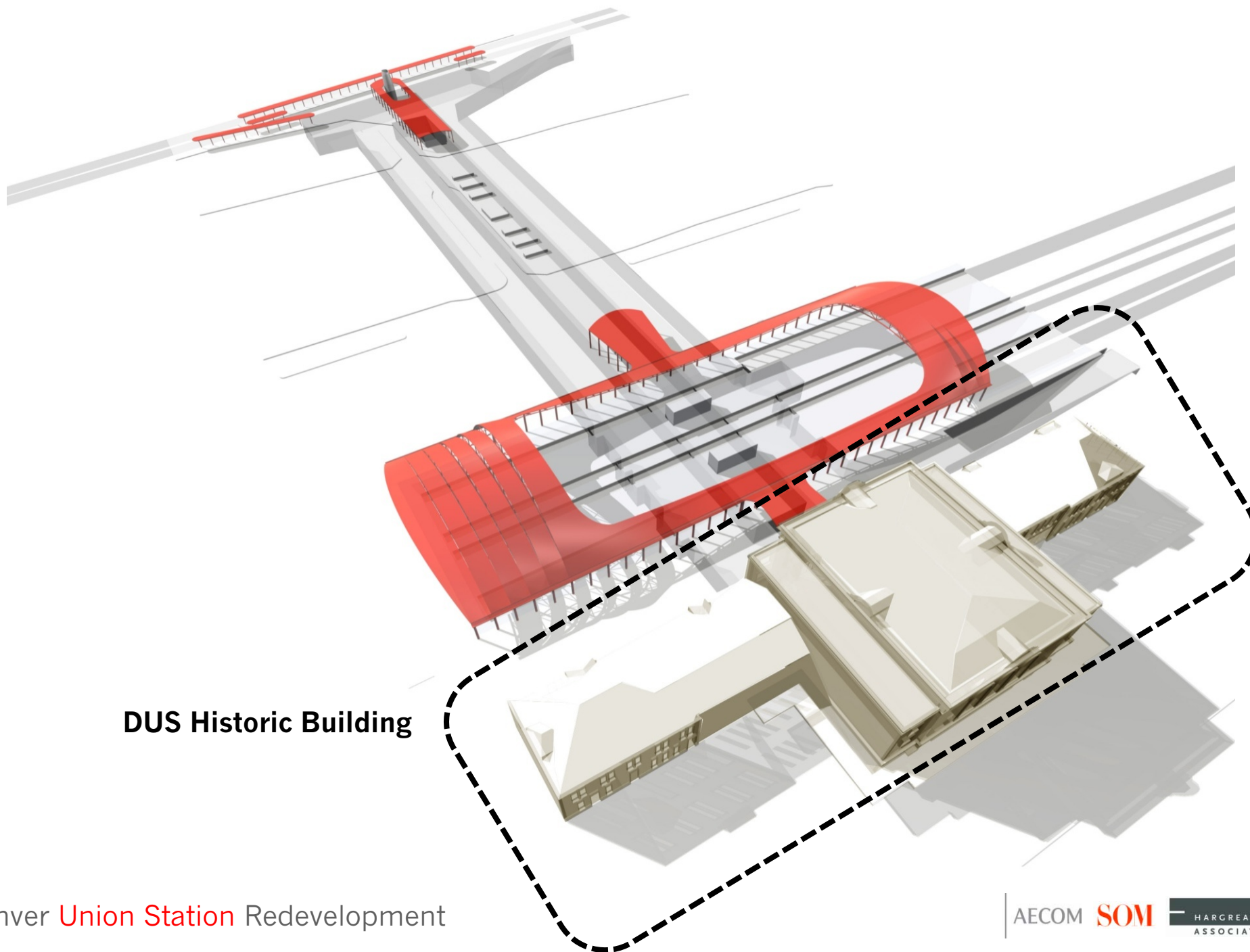
- The DUS Urban Design Standards & Guidelines address considerations for the future adjacent mixed-use development.
- DUS wayfinding design will address the concern about intuitive circulation.





Union Station West Entry at CRT Hall, looking South

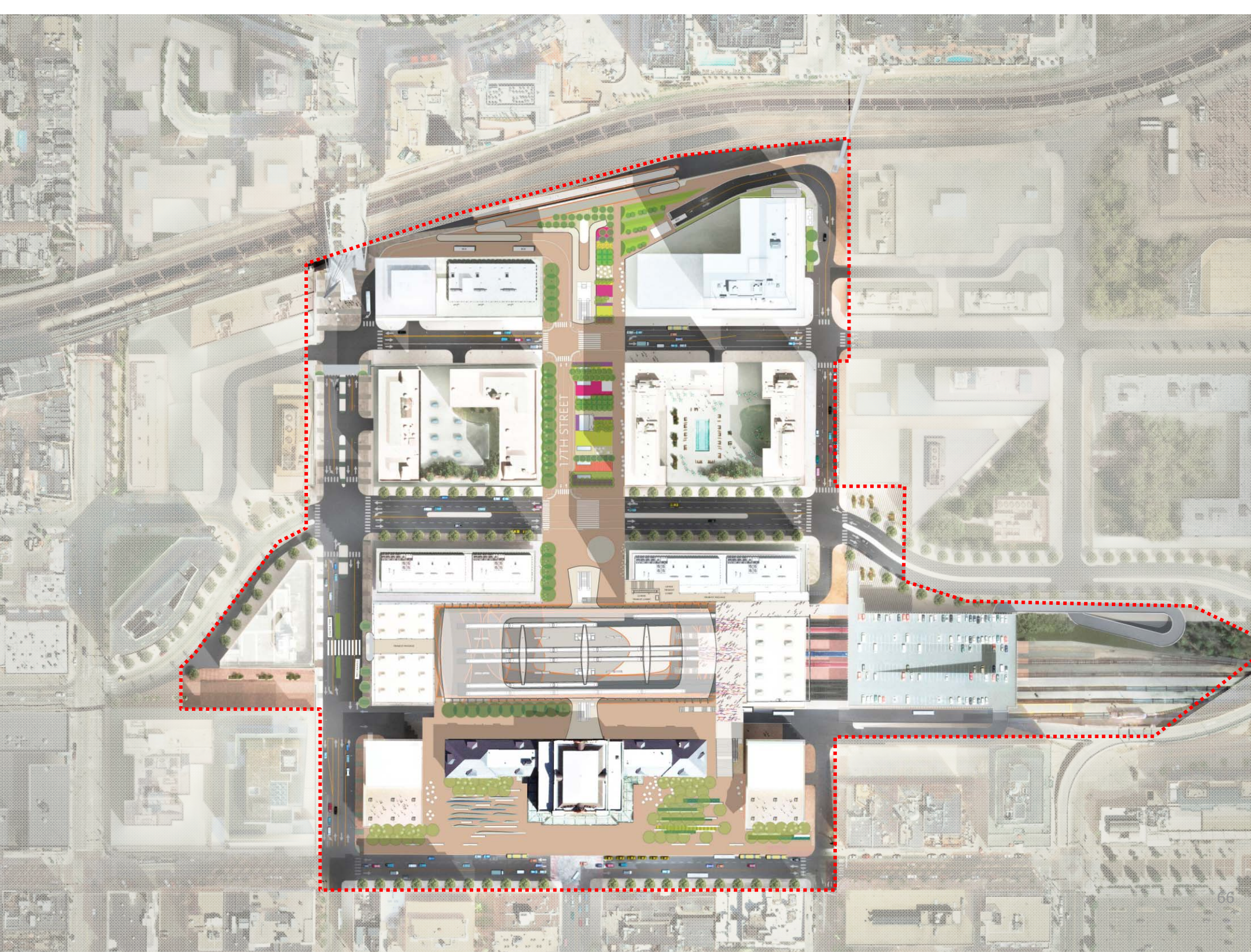


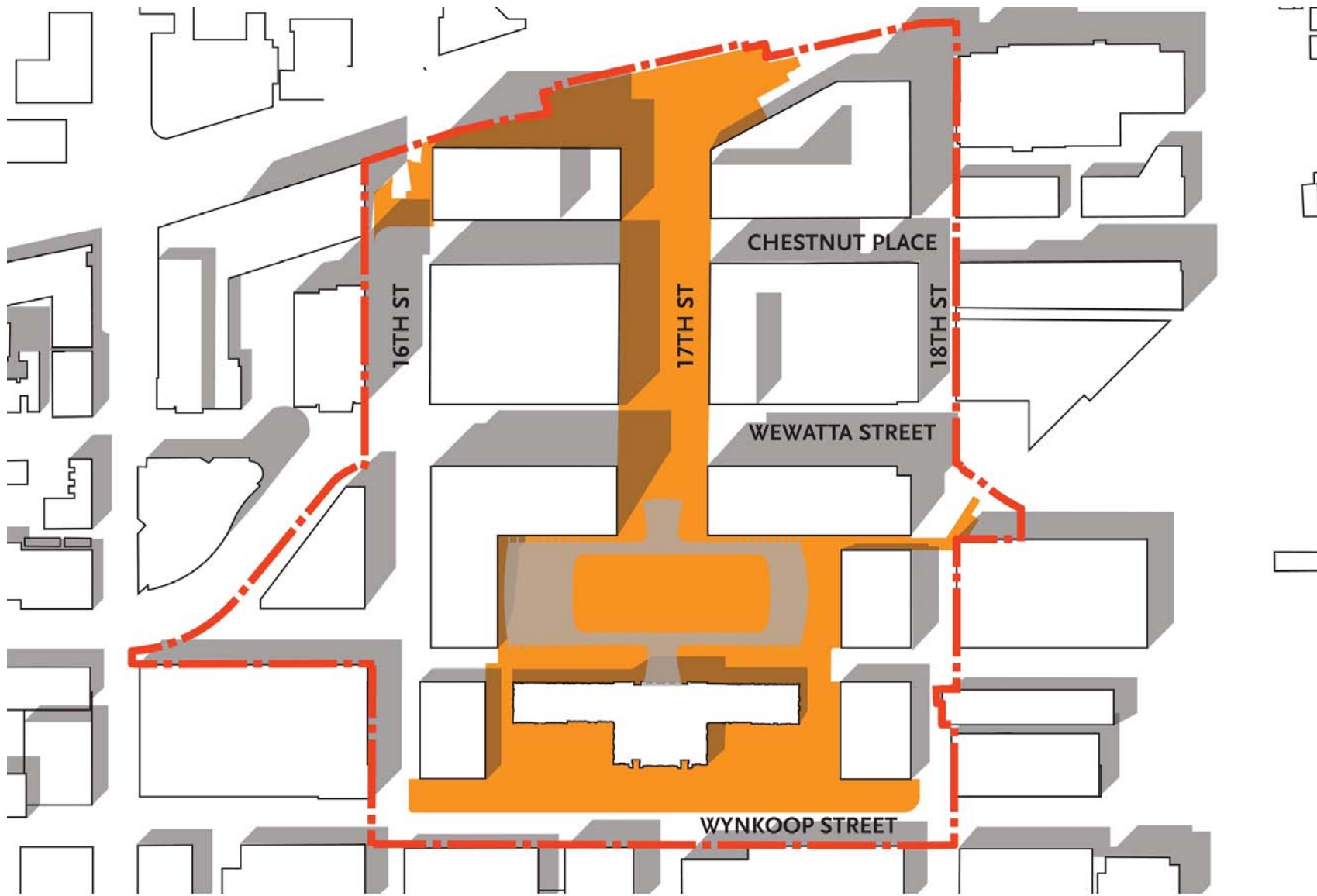


DUS Historic Building

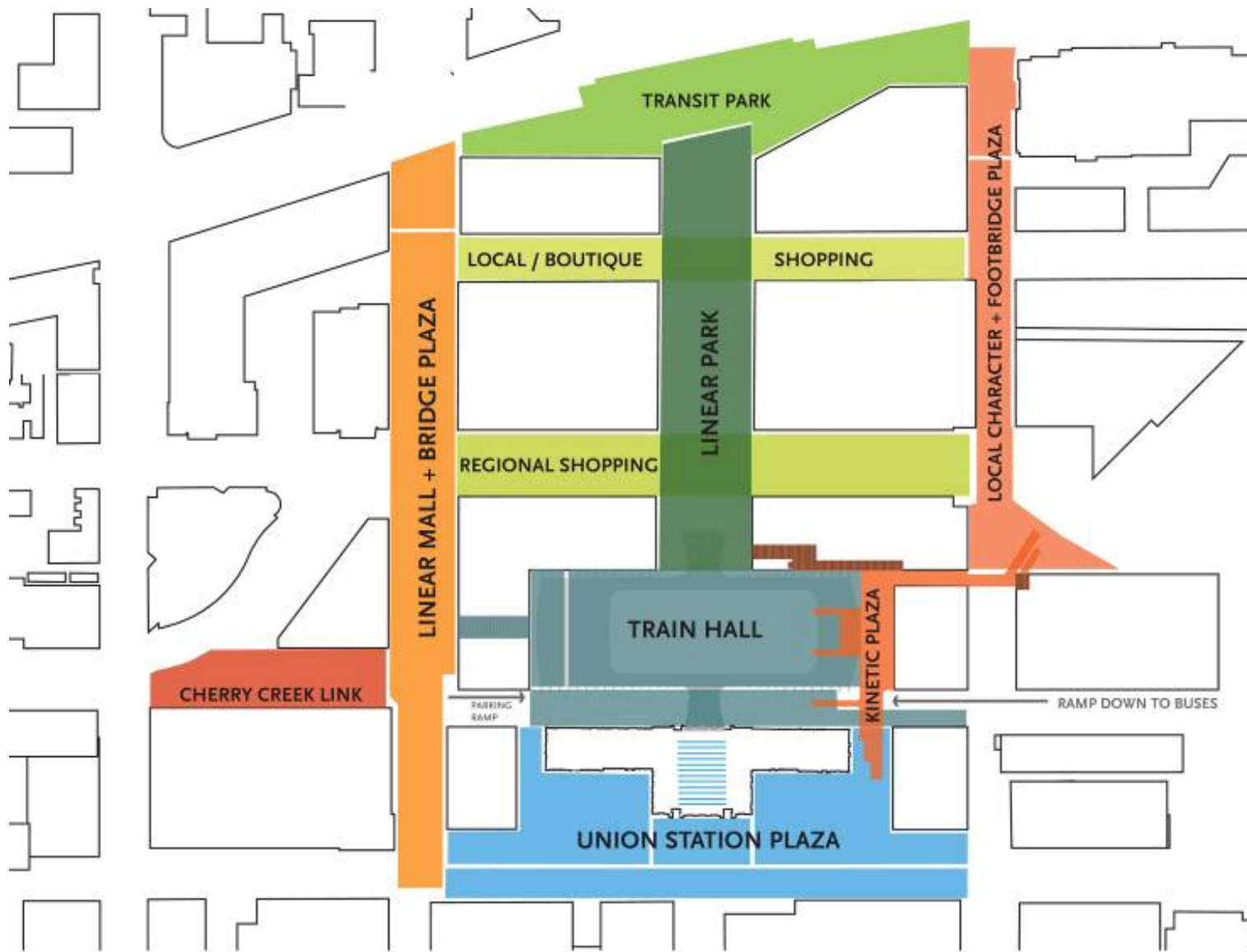


Public Realm





TRANSIT REALM



CHARACTER ZONES





Next Steps

Next Steps: Summer/Fall 2009

- **July 16** **Public Meeting – Transit Architecture Design**
- **Aug. 5** Planning Board Preview – DUS Site Plan UD Package 1
- **Aug. 19** Planning Board Hearing – DUS Site Plan UD Package 1
- **Oct. 1** Public Meeting – Public Realm Concepts
- **October** Planning Board Hearing – DUS Site Plan UD Package 2
- **December** Planning Board Hearing – DUS Site Plan UD Package 3

