



# I-84 HARTFORD PROJECT

## I-84 Hartford Project **Transit Technical Committee Meeting #1**

March 1, 2017



# Transit Technical Committee Meeting Agenda

1. Welcome / introductions
2. Purpose / responsibilities of TTC
3. I-84 Hartford Project background
4. Multimodal station planning and design
5. Programming discussion
6. Lessons learned
7. Functional values
8. Analogy images
9. Character of Hartford
10. Next steps





# Mission Statement

*“The purpose of the Transit Technical Committee (TTC) is to serve as technical advisors to the I-84 Hartford Project Team in planning and developing concepts for a Hartford Multimodal Station, should the railroad be relocated as part of the project. The TTC members are expected to represent the potential users of the future Station, and present consensus based recommendations for the planning and conceptual design of the Station.”*



# TTC Responsibilities

- Attend each TTC meeting
- Participate openly and honestly in group discussion and activities
- Represent your organization
- Adhere to TTC “ground rules”
- Respect opinions of all TTC members



LET'S WORK TOGETHER  
TEAMWORK



# Project Area





## Project Area

- Flatbush Ave interchange to I-84 / I-91 interchange
- Includes several interchanges
  - Sisson Ave
  - Sigourney St
  - Capitol Ave / Asylum St / Broad St
  - High St
  - Trumbull St





# I-84 Highway Crosses Rail Twice





# I-84 HARTFORD PROJECT





# Project Background

- Rail line built in 1830s
- Proposed East - West Expressway in 1940s
- I-84 constructed in 1960s
  - Designed to avoid rail
  - Built prior to NEPA
  - Planned to carry 55,000 vehicles per day by 1975





## I-84 HARTFORD PROJECT

***“The impact of the I-84 freeway upon the physical environments into which it was introduced has been both dramatic and overwhelming.”***

- CTDOT & FHWA, 1970



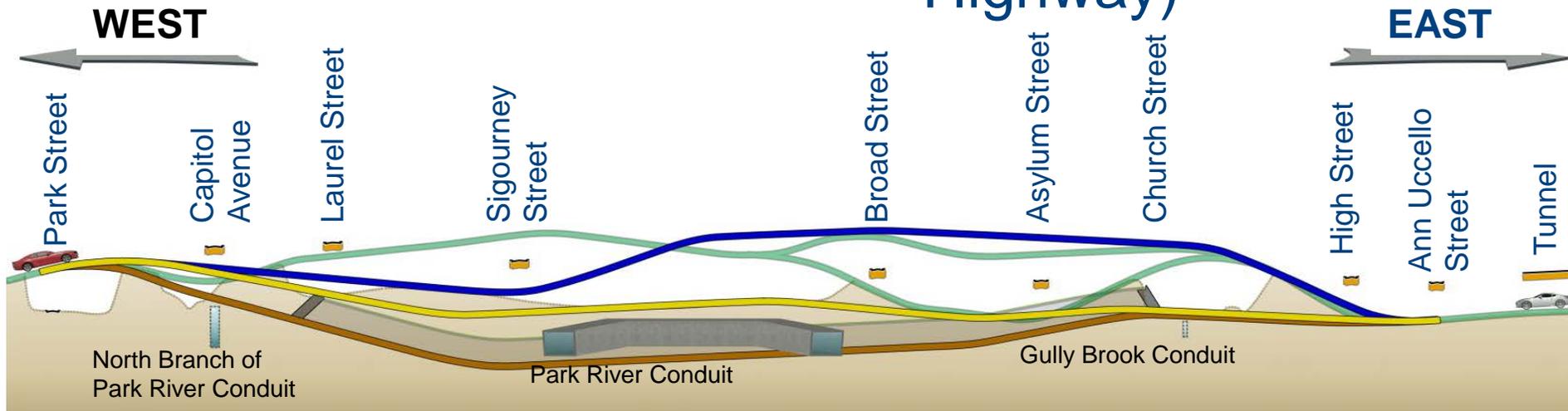
## Why is the Project Needed?

1. Bridge structural deficiencies
2. Operational and safety deficiencies
3. Mobility deficiencies



## Mainline Alternatives

- Alternative 1 (No-Build)
- Alternative 2 (Elevated Highway)
- Alternative 3 (Lowered Highway)
- Alternative 4 (Tunneled Highway)

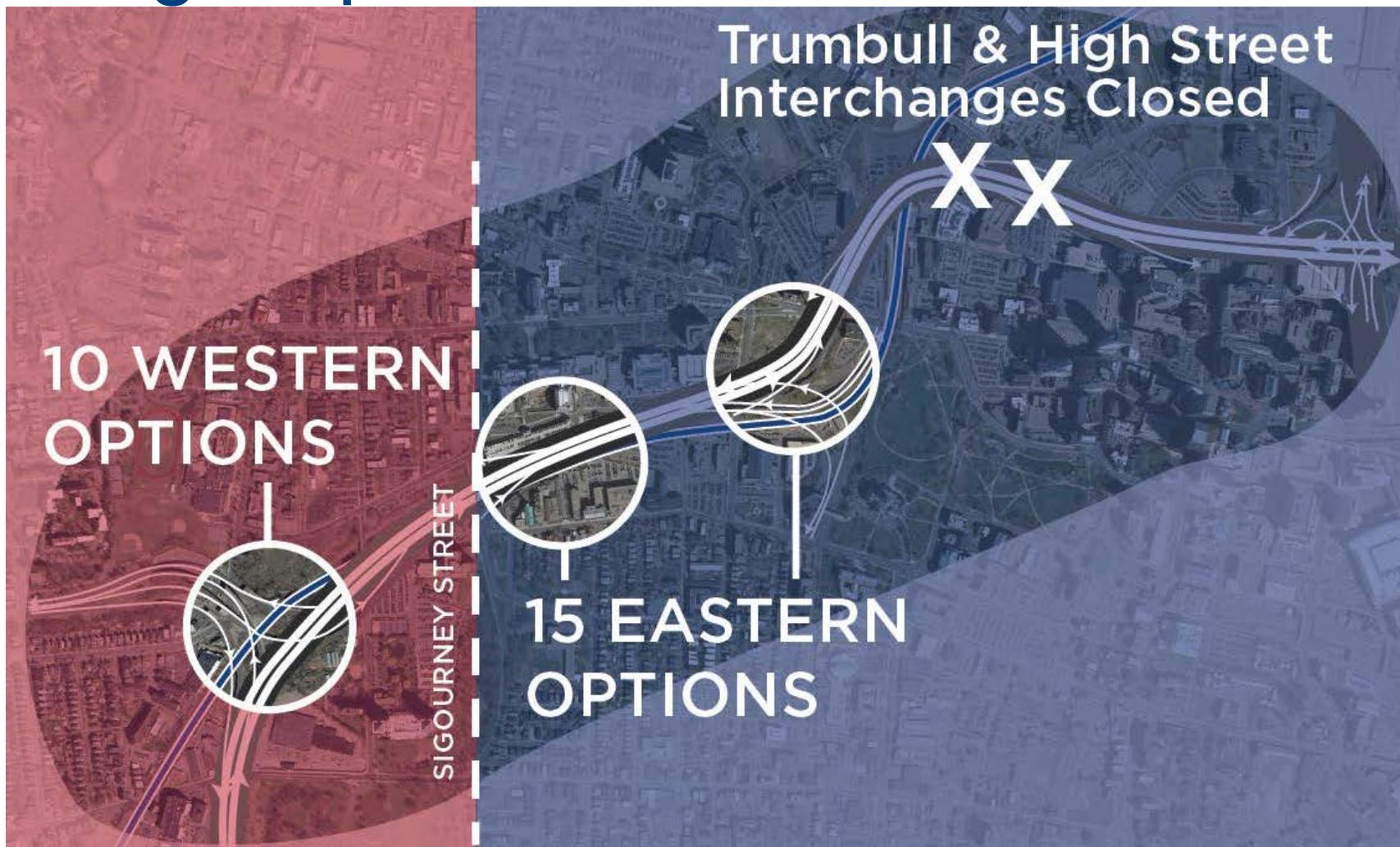


**Legend**

-  Existing Ground
-  Alternative 1 (No-Build)
-  Alternative 2 (Elevated Highway)
-  Alternative 3 (Lowered Highway)
-  Alternative 4 (Tunneled Highway)

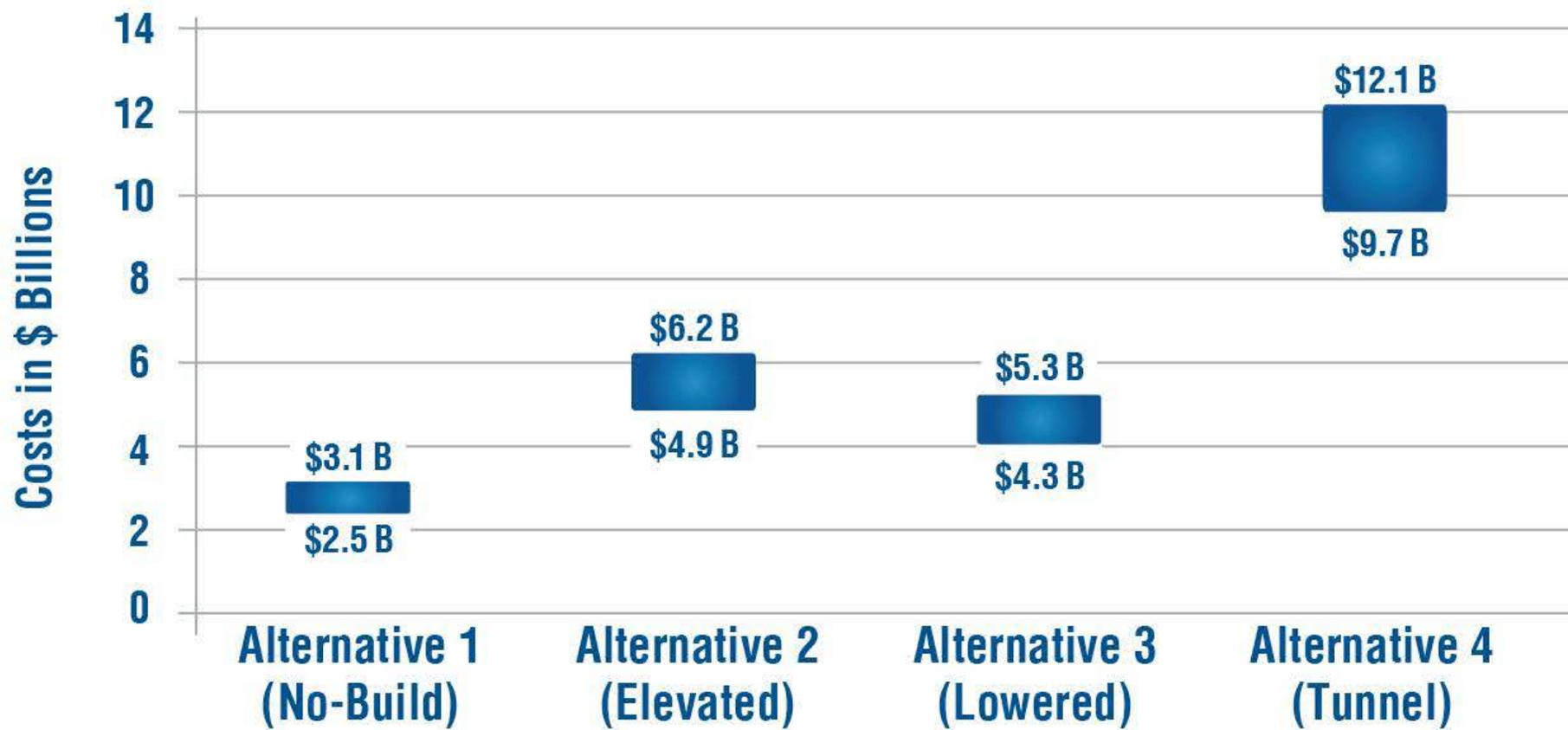


# Interchange Options





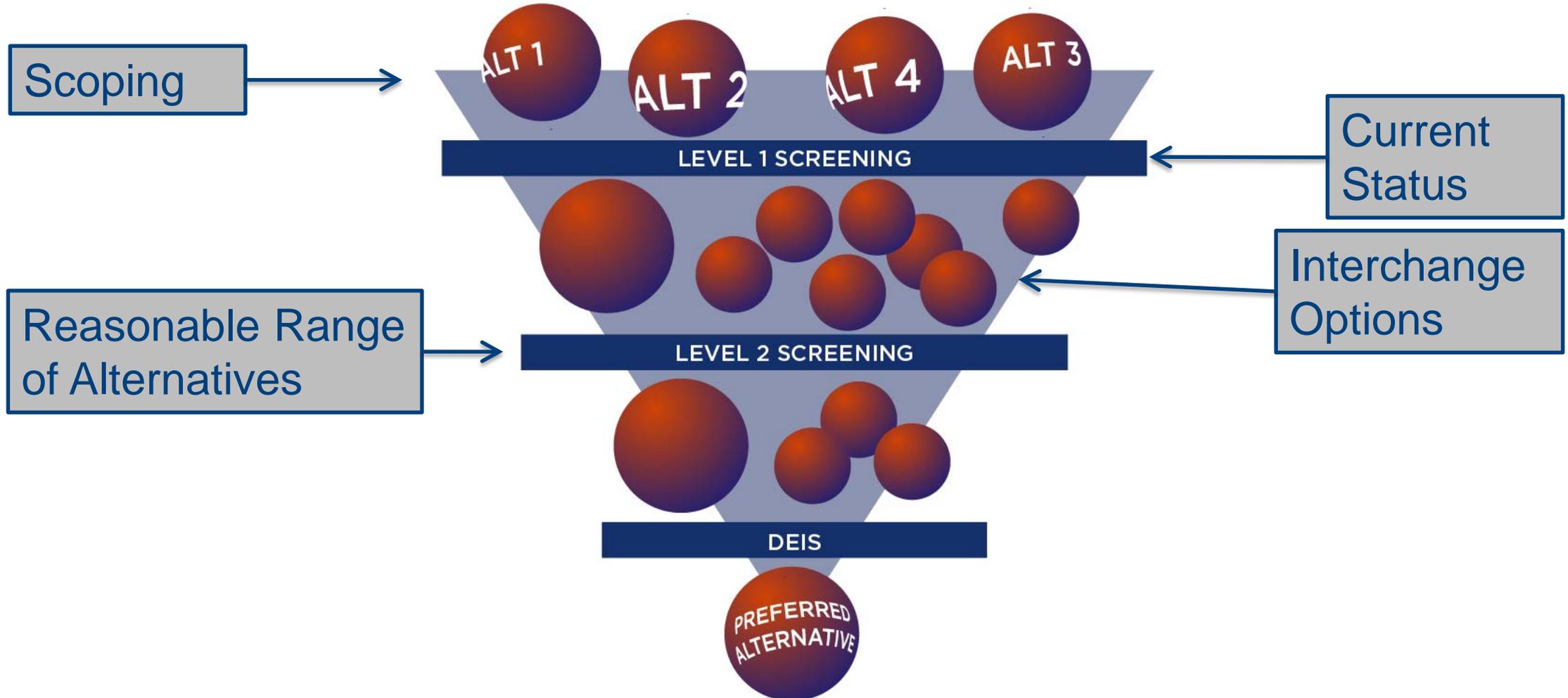
## Cost Estimates



Estimates represented in future dollars to the mid-point of construction.

Generated August 2015

# Alternatives Screening





## Level 1 Screening Categories

- Three Purpose and Need objectives
  - 1) Bridge structure deficiencies
  - 2) Traffic operational and safety deficiencies
  - 3) Mobility deficiencies
- Technical feasibility
- Economic feasibility

# Level 1 Screening Recommendations

Level 1 Screening Category	Alternative 1 (No-Build)	Alternative 2 (Elevated Highway)	Alternative 3 (Lowered Highway)	Alternative 4 (Tunneled Highway)
Bridge Structure Deficiencies				
Traffic Operational and Safety Deficiencies				
Mobility Deficiencies				
Technical Feasibility				
Economic Feasibility				
<b>Advanced to Level 2 Screening</b>				



Satisfies screening category



Partially satisfies screening category



Does not satisfy screening category



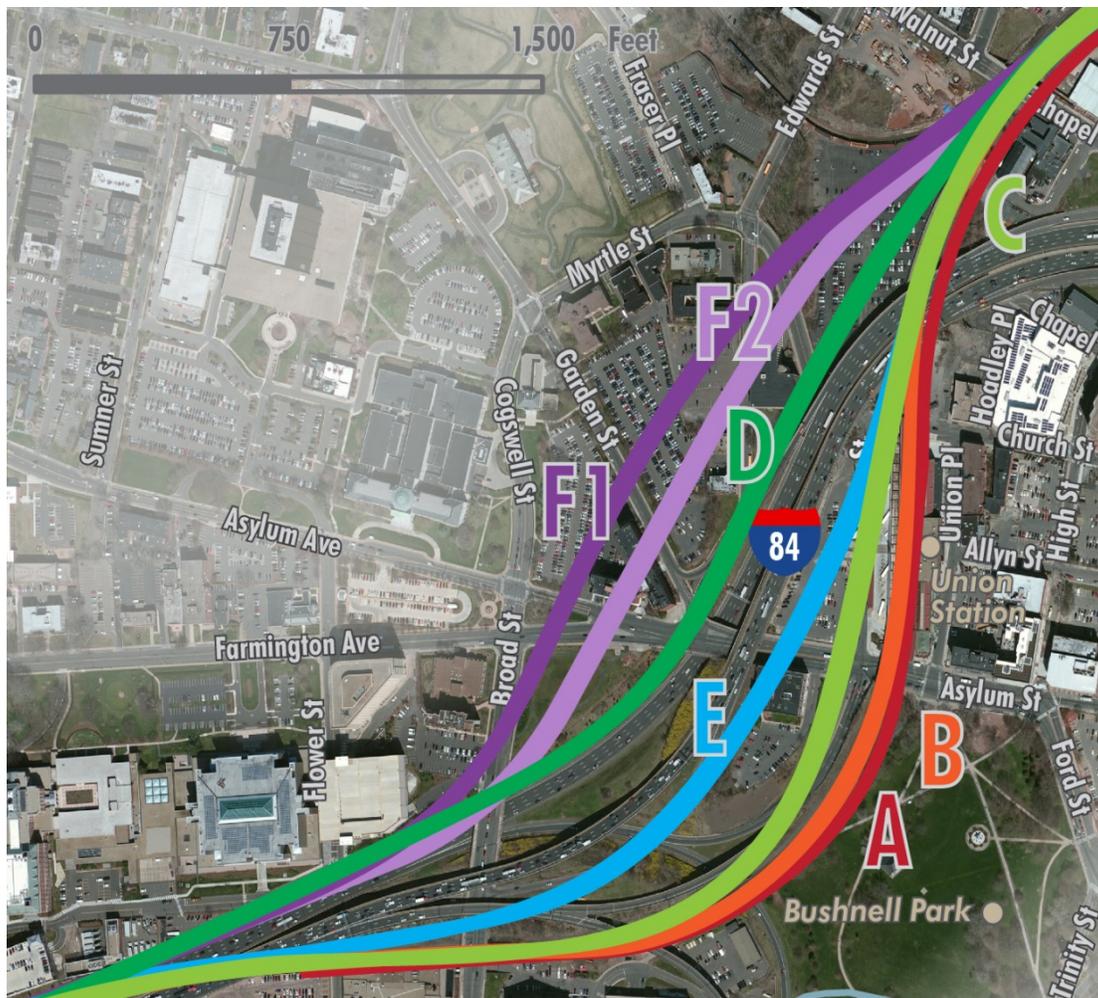
## Hartford Railroad Alternatives Study

- Assessed rail viaduct
- Examined a range of alignments to upgrade the line
- Evaluated options from a broad-based perspective
- Coordinated alternatives with I-84 options





## Alternatives Studied



Alternative	Benefits (Opportunities)			Costs (Impacts)		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
<b>A</b>	█	█	█	█	█	█
<b>B</b>	█	█	█	█	█	█
<b>C</b>	█	█	█	█	█	█
<b>D</b>	█	█	█	█	█	█
<b>E</b>	█	█	█	█	█	█
<b>F1</b>	█	█	█	█	█	█
<b>F2</b>	█	█	█	█	█	█

Source of Concepts:

### Hartford Rail Alternatives Analysis

State Project No. 170-3196



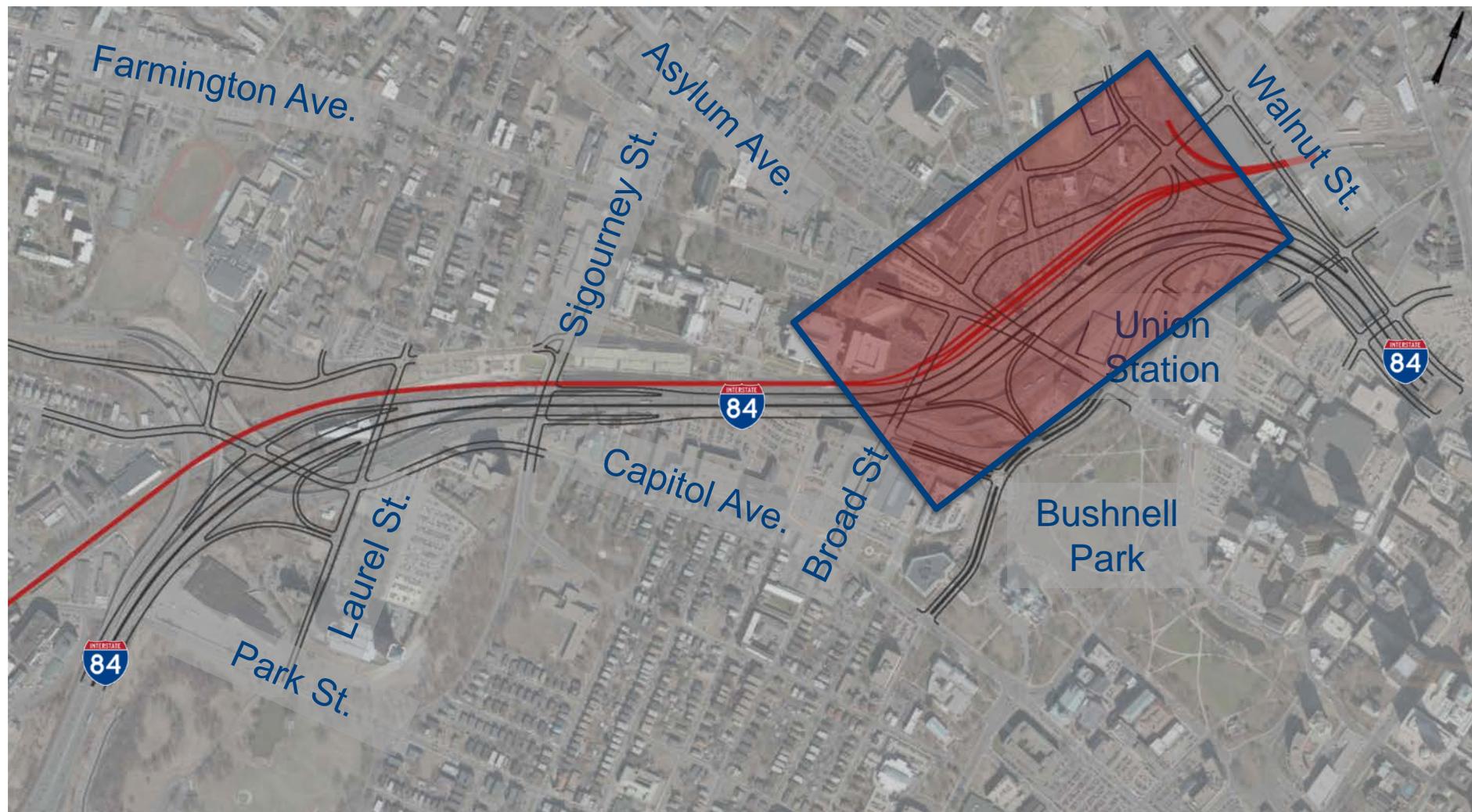
## Recent Progress - Rail

- Recent publication of NEC FUTURE Final EIS
  - Two tracks along rail corridor
  - Four intercity, two commuter trains per hour (Amtrak)
  - Upgrade to “hub” or “major hub”
- CTDOT requested evaluation of four track station



## Proposed Rail Relocation

- Necessary for Lowered and Tunneled alternatives
- Two-track corridor
- Approximate limits: Park St to Walnut St

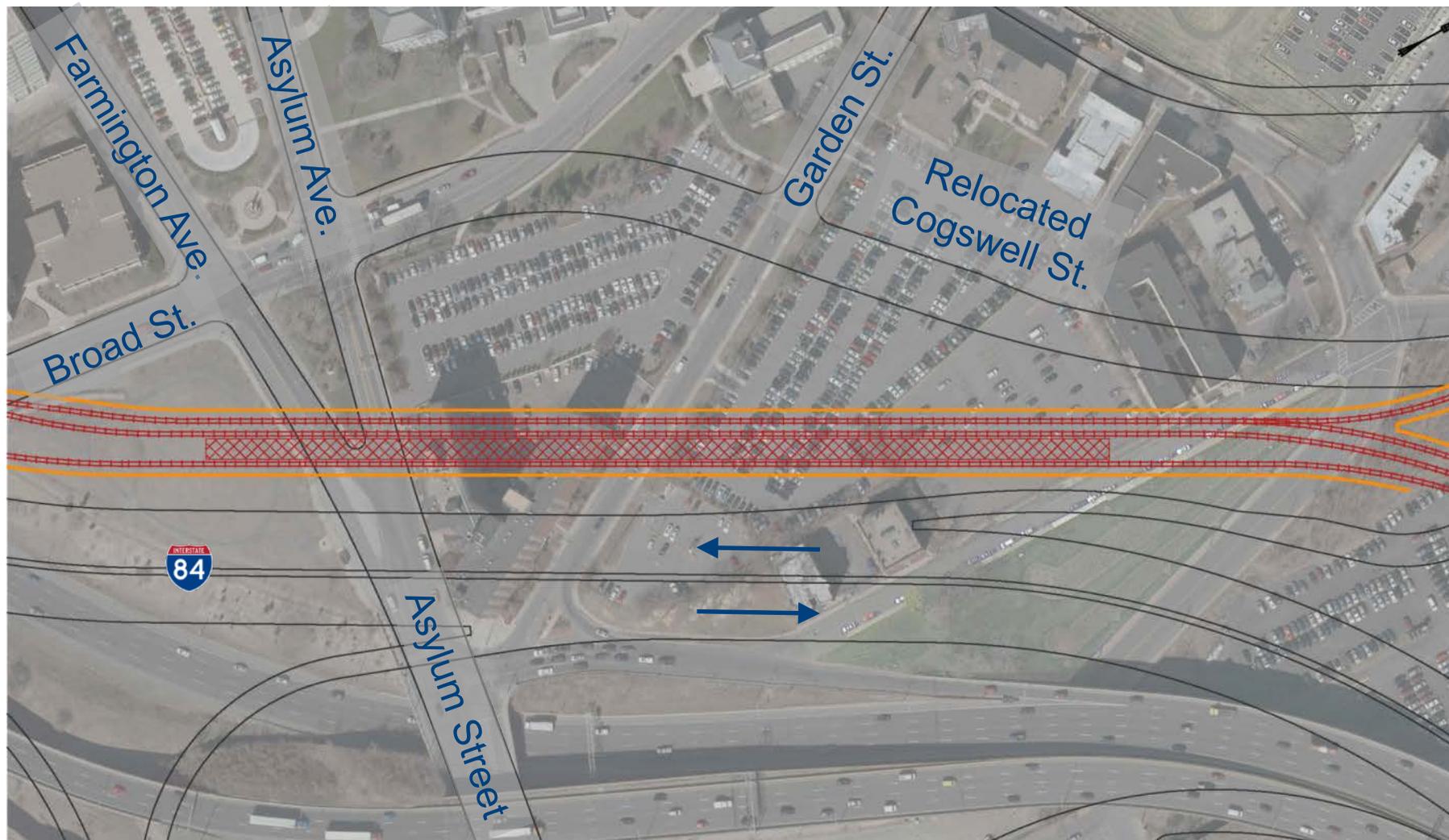




## Proposed Station

### *Three Tracks*

- Two passenger tracks
- Island platform
- Freight bypass track
- Potential Griffin Line connection

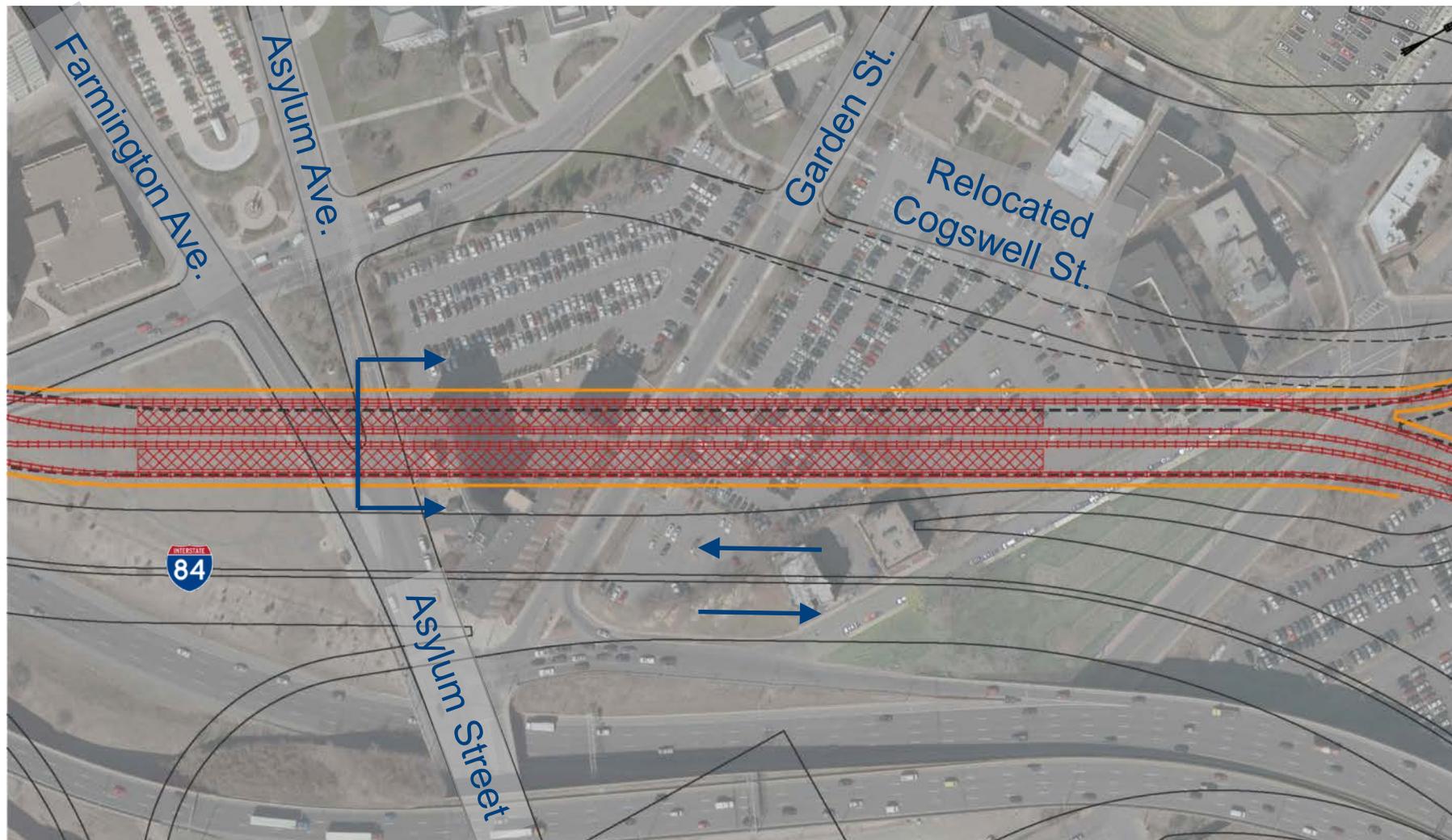




## Proposed Station

### *Four Tracks*

- All tracks could serve passenger trains
- Two island platforms
- Gauntlet track for oversized freight
- Potential Griffin Line connection





# Proposed Station

*Four Tracks*

ASYLUM AVENUE

MEZZANINE

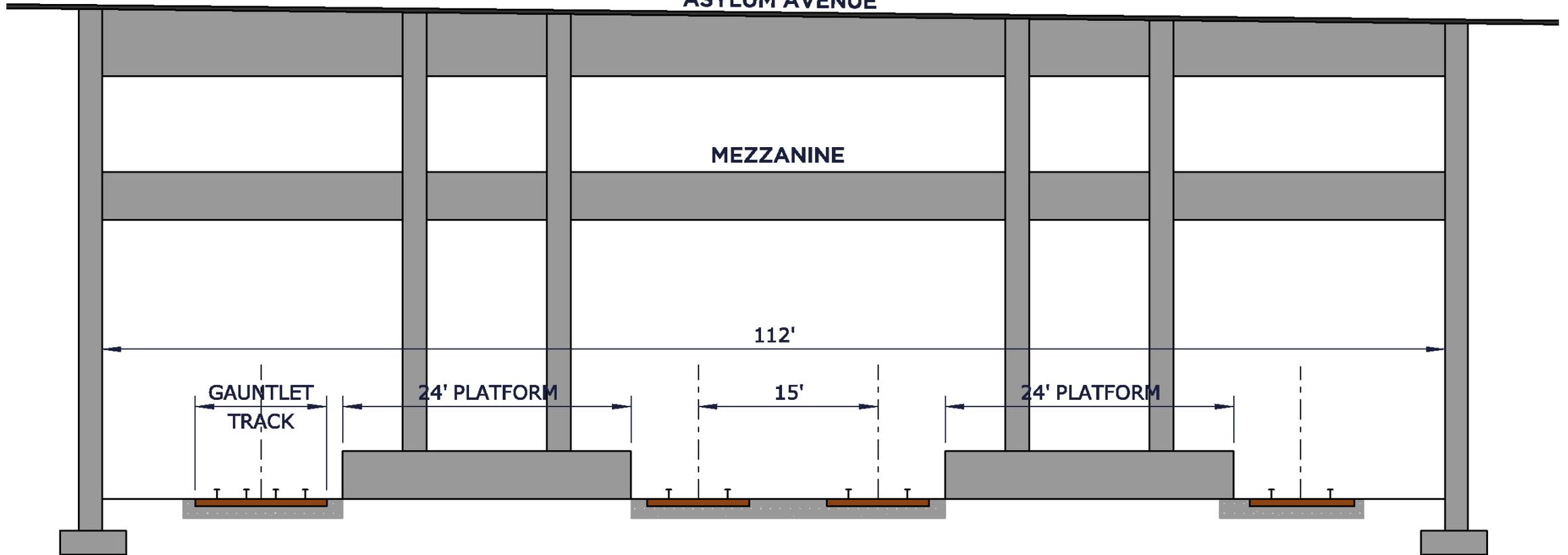
112'

GAUNTLET  
TRACK

24' PLATFORM

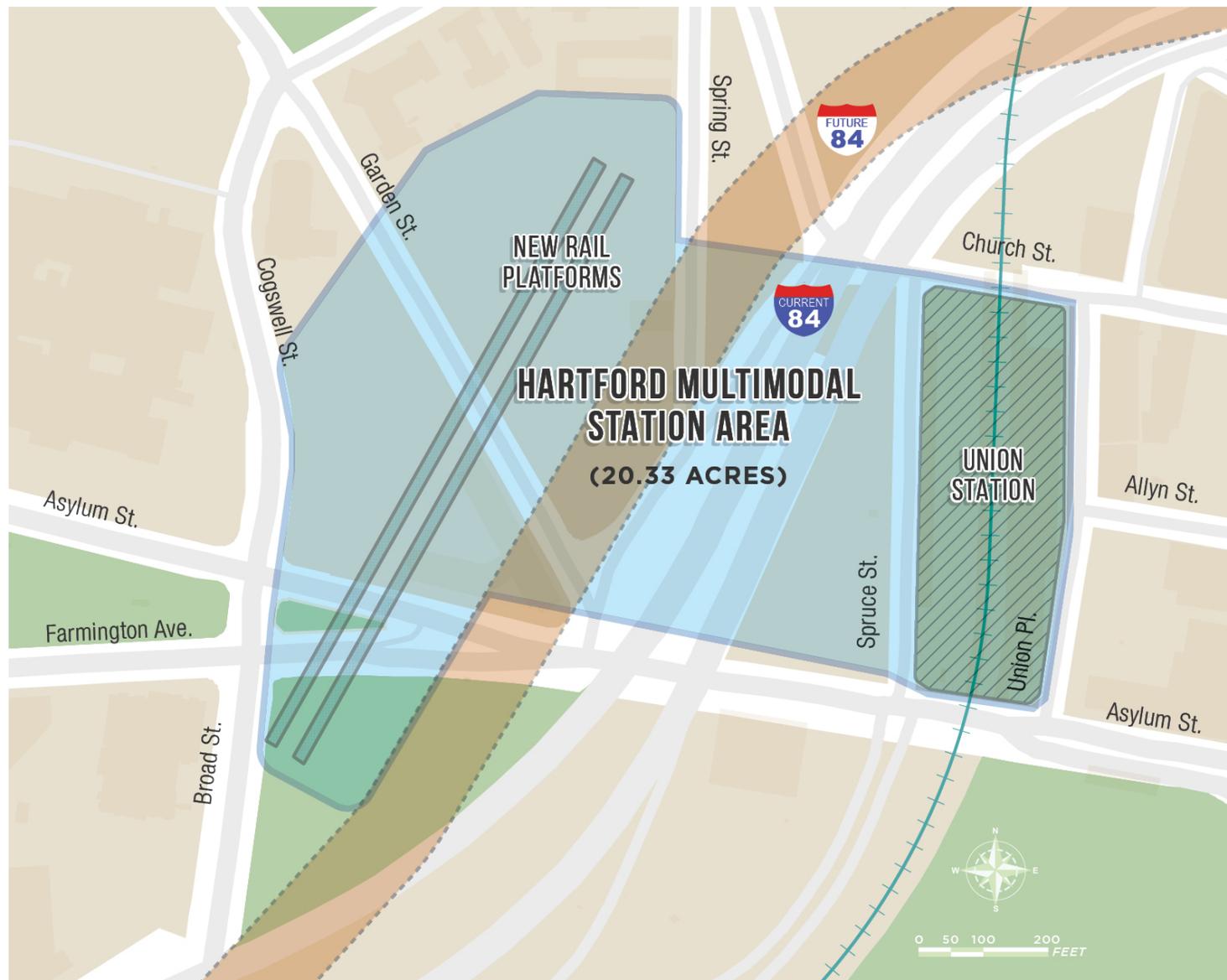
15'

24' PLATFORM





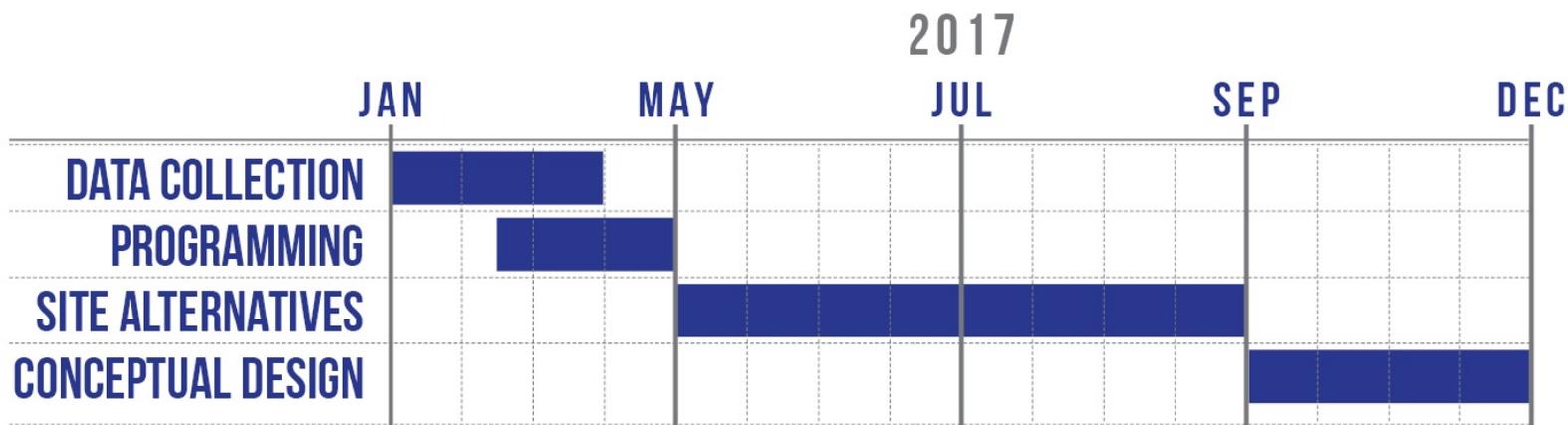
## Multimodal Station Study Area





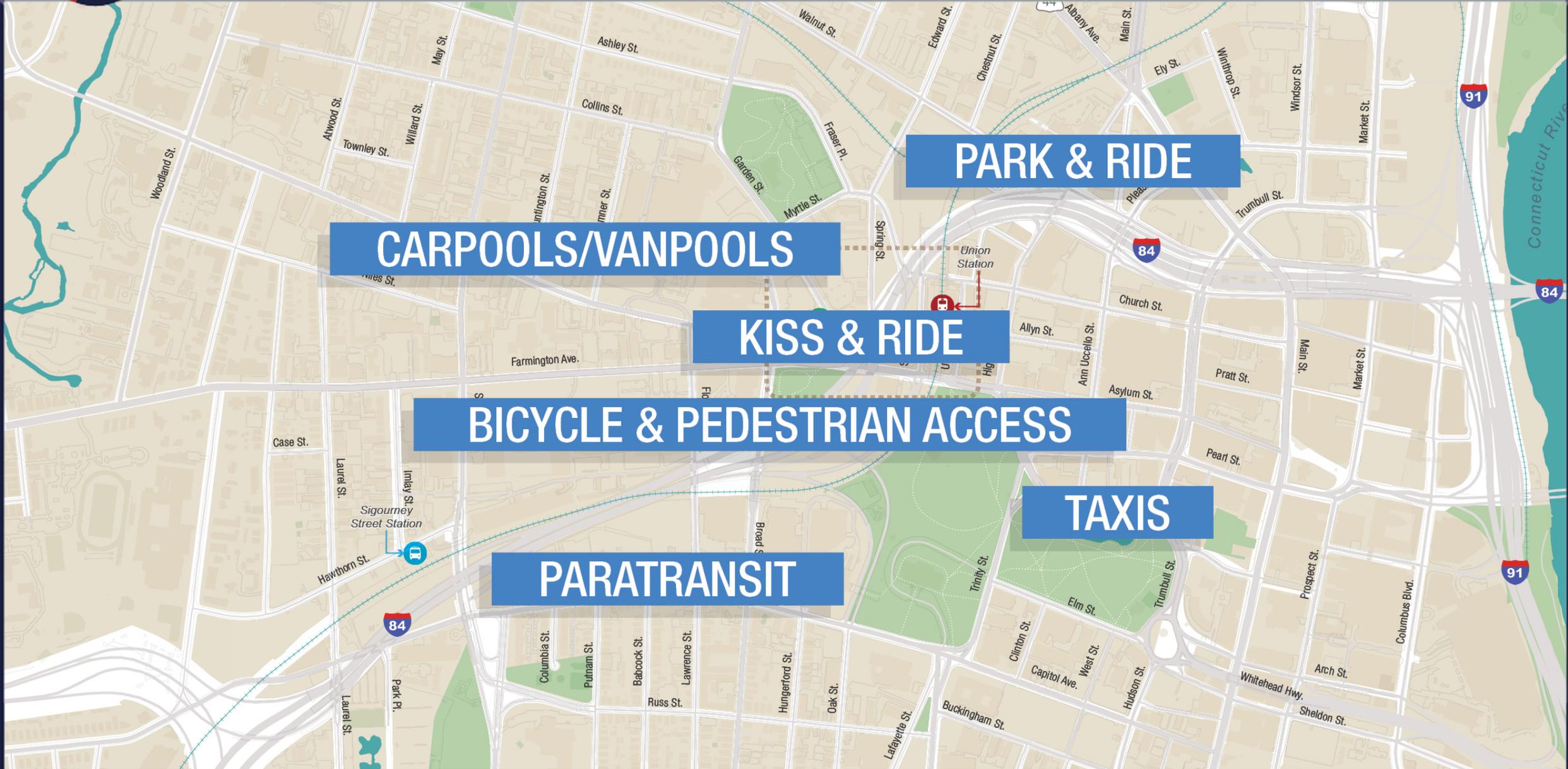
## Hartford Multimodal Station Planning and Design

- Kicked off in January 2017
- 12 month effort
  - Define program
  - Develop site layout alternatives
  - Identify preferred site layout
  - Prepare conceptual design plans (15%)
- Status
  - Data collection is ongoing
  - Visioning / programming exercise is starting





# I-84 HARTFORD PROJECT





# Programming Discussion





# Programming the Hartford Multimodal Station

- Six-step process

1. Establish goals and objectives
2. Research station design requirements
3. Gather / verify relevant information
4. Identify strategies, constraints, and opportunities
5. Determine quantitative requirements
6. Summarize the program



# Establish Goals and Objectives

*What is regional planning vision for the station?*

- Functional values
  - Quantitative measures to judge the quality of concepts
- Form and image goals
  - Aesthetic criteria and community / urban impacts
- Economic goals
  - Budget target
- Time goals
  - Schedule target





# Research Station Requirements

- Identify criteria for Amtrak Category 1 station
- Identify criteria for NHHS High Speed Rail Program
- Establish relationships / connections to other transit modes
- Develop strategy for parking accommodations



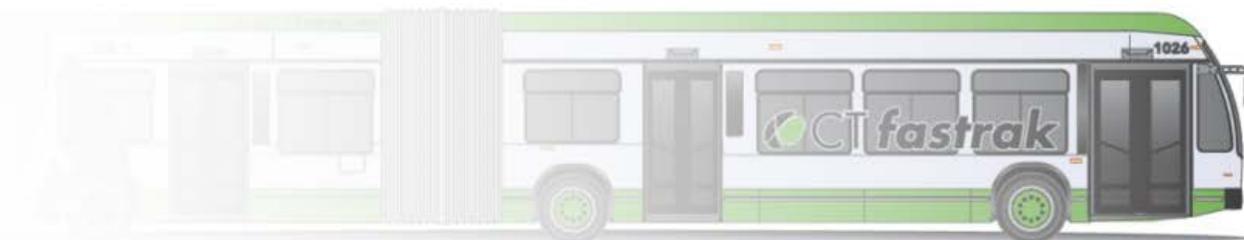


## Relevant Questions

- What is the passenger load for each mode?
- What is transit equipment load / need?
- What are the customer service requirements?
- What are “back-of-house” needs?
- What amenities will be provided?
- What codes will drive programming decisions?

## Identify Strategies

- Understand site constraints / opportunities
  - What are impacts on program?
- Optimize circulation / connections between modes
- Learn what reasonable growth is to be expected / accommodated
- Determine levels of flexibility / adaptability





# Determine Quantitative Requirements

- Develop final spatial requirements
- Develop final spatial relationship diagrams
- Reconcile budget with program





# Summarize the Program

- Develop a summary of the conclusions of each step
- Include key results of the programming effort
- Distribute to identified stakeholders
- Obtain approval from decision makers





## Known Program Elements

- Different modes and users
  - Train
    - Intercity
    - Commuter
    - High speed rail (HSR)
  - Bus
    - Local bus
    - Express bus
    - Shuttle bus
    - Intercity bus
  - Pedestrian and bicycle
  - Rideshare / taxi / carpools / vanpools
  - Vehicles





## Known Program Elements

- Amtrak Category 1 station
  - Major hub stations serving the center of large urban areas
  - Served by a combination of high speed / corridor / long distance rail
  - Serve over 400,000 passengers annually
  - Staffed to provide ticketing and support services
  - Often include significant retail space or TOD
- NHHS design guidelines



# Known Program Elements

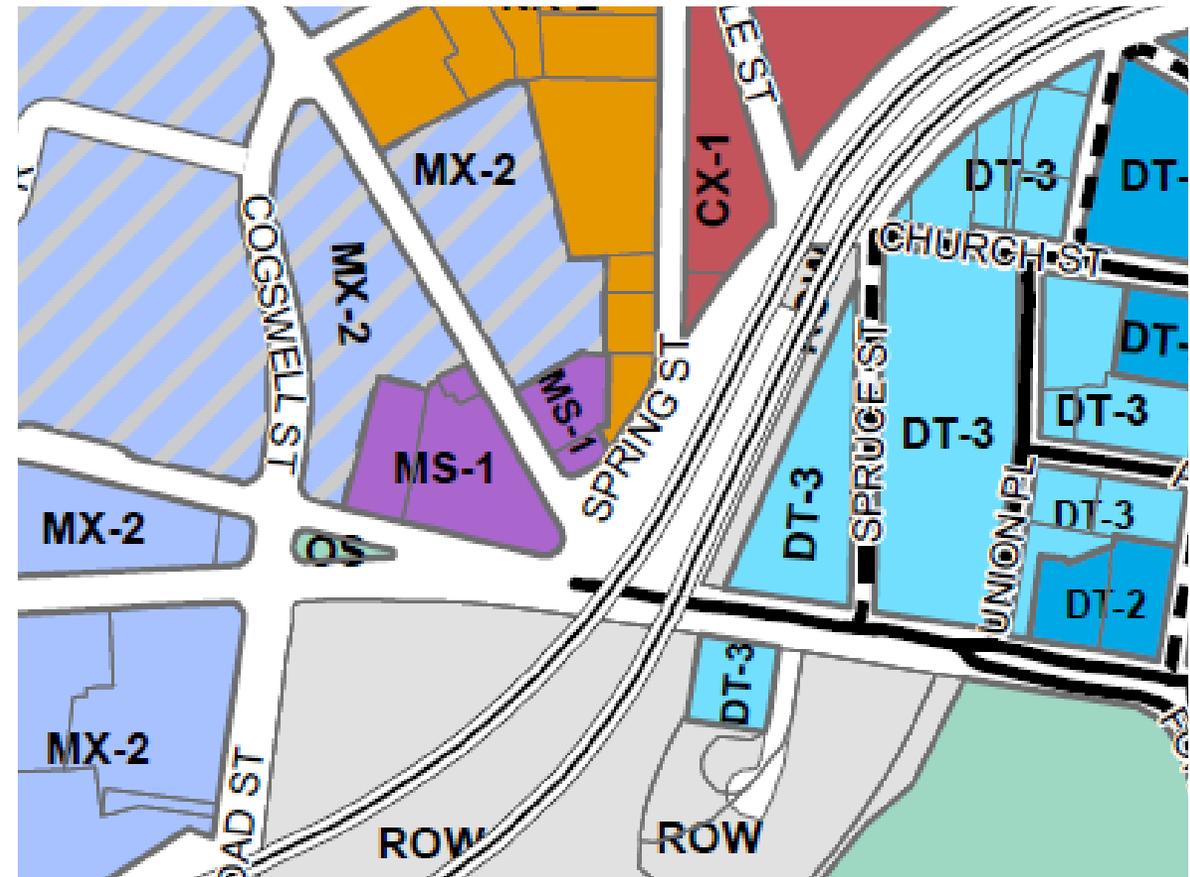
- Projected ridership\*
  - Express rail (297,200 annual riders)
  - Corridor rail (1,032,600 annual riders)
  - Commuter rail (46,800 annual riders)
- Platform size
  - Two platforms planned
  - 1,000' long, 24' wide, 4' above top of rail
- Parking displacement
  - 197 spaces in Union Station Spruce Street lot
  - Other parking impacts from I-84 Hartford Project (3,675 - 4,390 spaces)



\*Source= NEC FEIS

# Known Program Elements

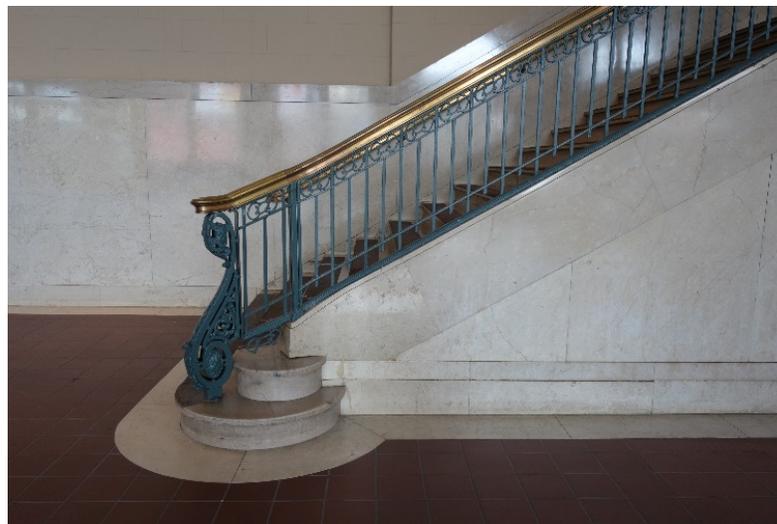
- Project's TOD objective
  - Enhance linkages between neighborhoods
  - Help support potential development
- Zoning
  - New form based code allows for mixed use development
    - Downtown districts - DT-2 / DT-3
    - Main street districts - MS-1 / MS-2
    - Commercial industrial mix districts - CX-1





# Known Program Elements

- Union Station
  - National Register of Historic Places



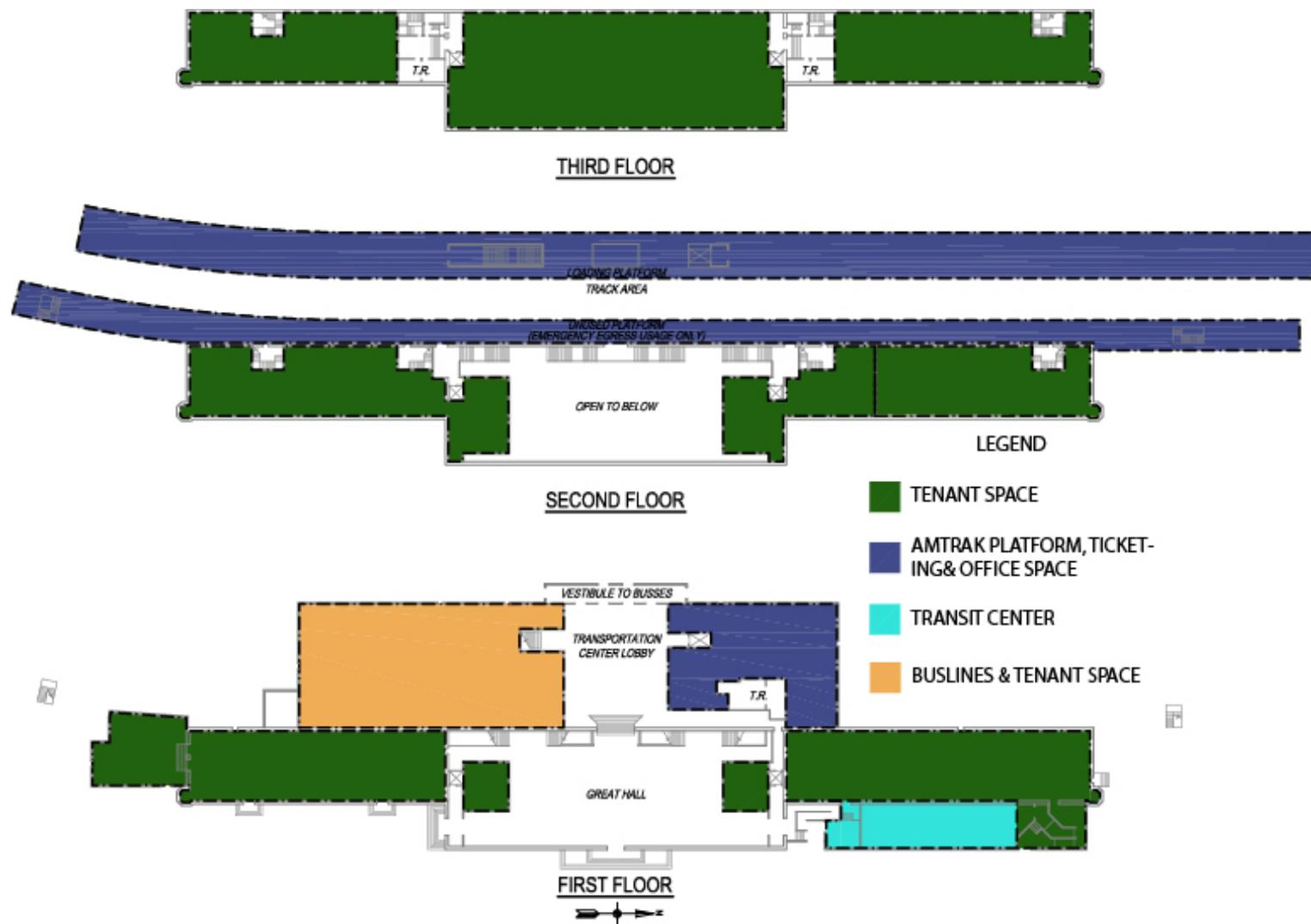


# Lessons Learned





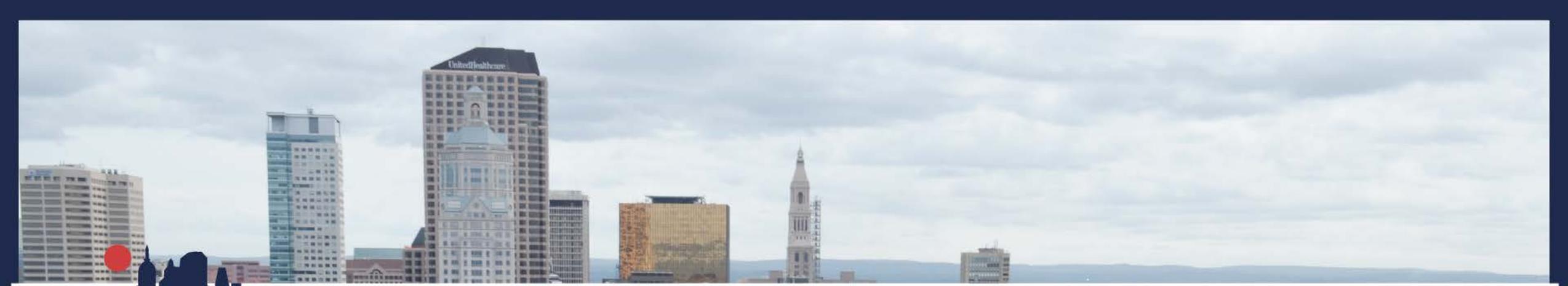
## Lessons Learned



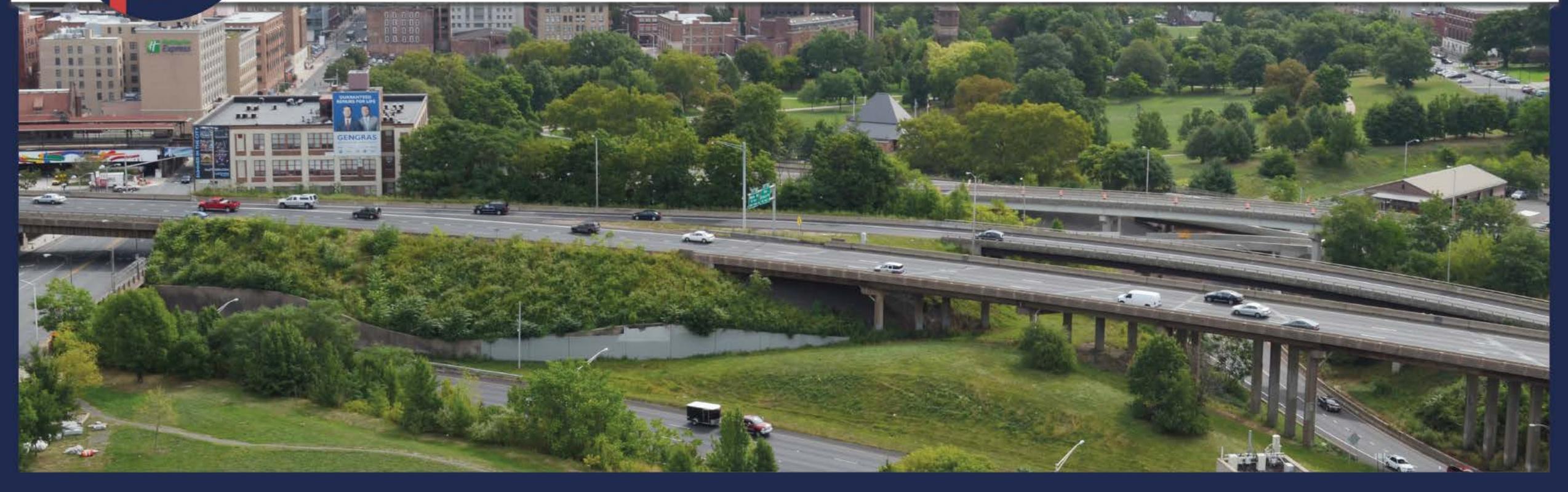


## Lessons Learned





# Functional Values





## Functional Values

- Customer service
- Operational efficiency
- Efficient use of money – both first cost and life cycle cost
- Mitigation of negative impacts on adjacent land use
- Ease of maintenance
- Site fit (topography, scale, form)
- Sustainability / resilience
- Support economic development





## Customer Service

- Way finding
- Walking distance
- Vertical transitions
- Safety
- Security
- Accessibility
- Amenities
- Physical comfort





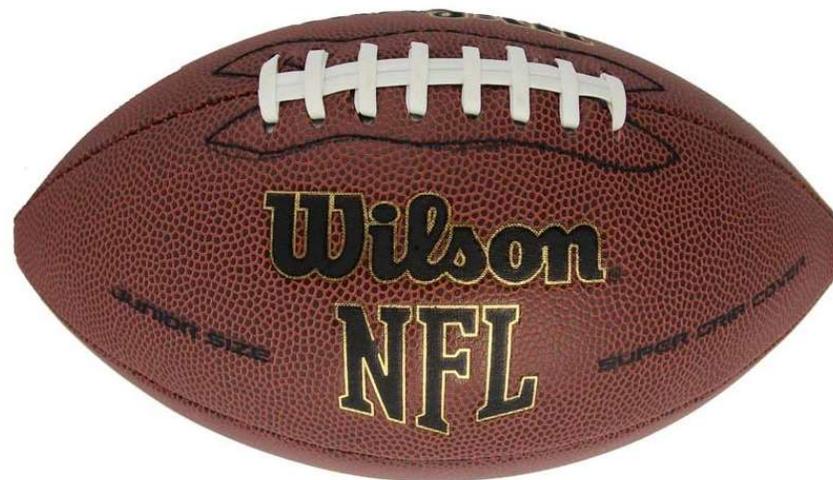
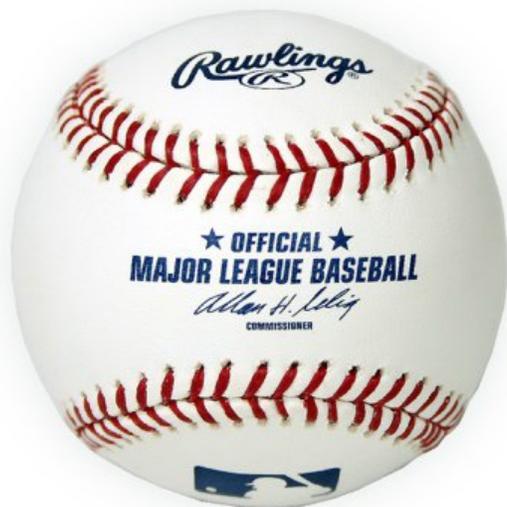
## Operational Efficiency

- Speed
- Labor
- Inclement weather conditions
- Productivity measurements
- Other



## Analogy Images

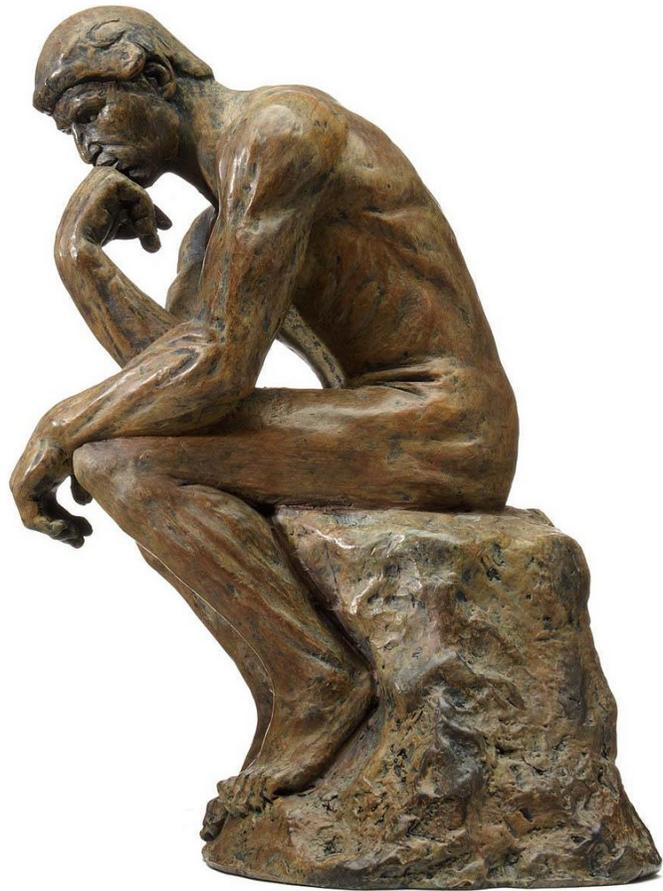


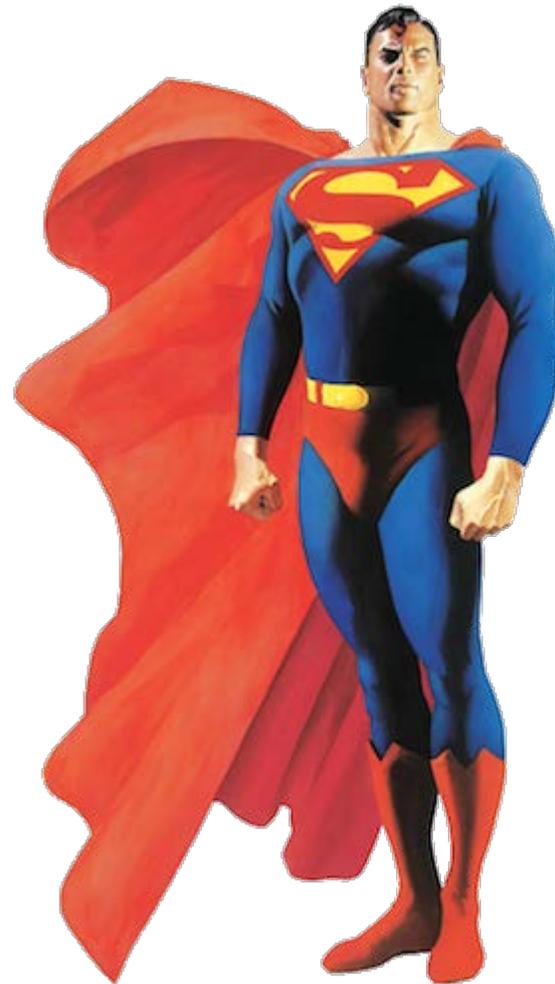




# I-84 HARTFORD PROJECT









# I-84 HARTFORD PROJECT







# The Character of Hartford



Conditions between  
atbush Ave and the  
I-91 interchange



Advancing a program  
of improvements within  
the corridor



Attend  
a public meeting  
or request a small  
group meeting



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# I-84 HARTFORD PROJECT

## Hartford, Connecticut





## Insurance



Aetna



Travelers



The Hartford

## Parks

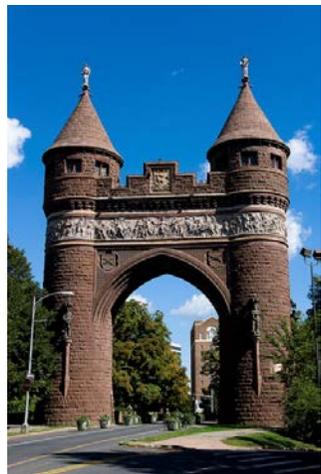


Colt Park



Elizabeth Park

Bushnell Park



Keney Park



## Historic Resources



The Goodwin Hotel



Founders Statue for  
American School for the  
Deaf



State Capitol Building



Old State House

## Cultural Attractions



Wadsworth Atheneum

Mark Twain House

## Contemporary Architecture



Hartford Hospital Bone & Joint Institute



CT Science Center



## Entertainment



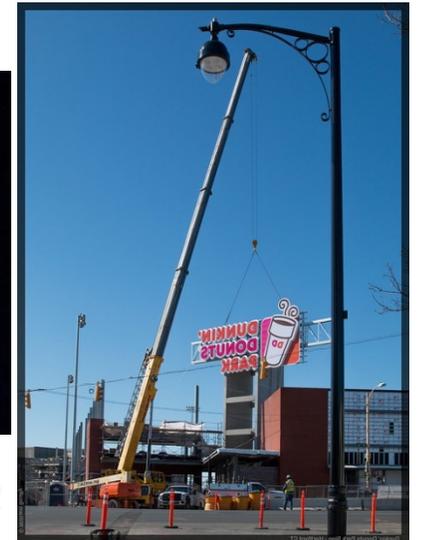
Bushnell Center for Performing Arts



XL Center



Infinity Music Hall



Coming soon!

## Restaurants and Bars



The Russian Lady Nightclub



Rocking Horse Saloon



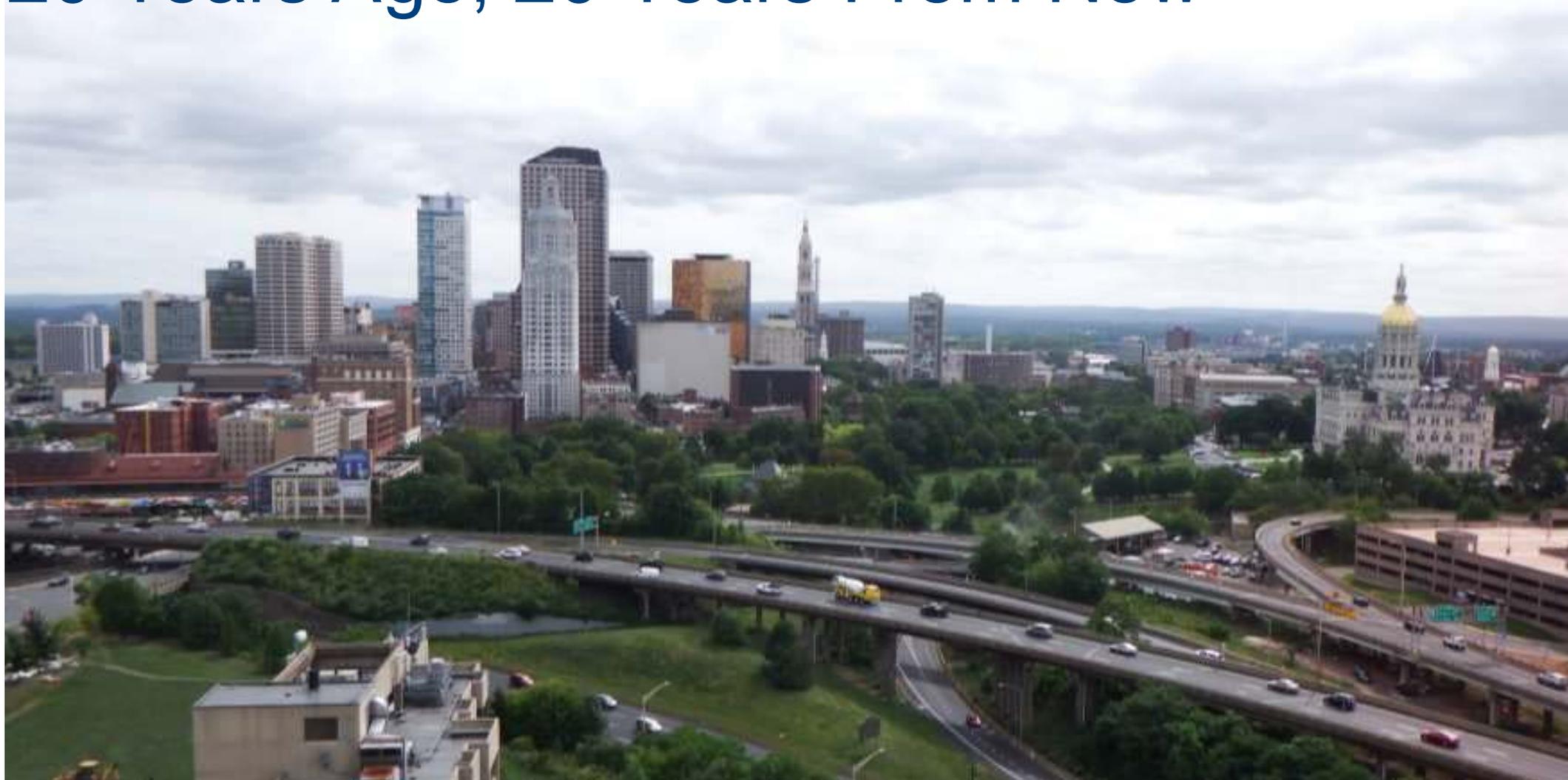
Firebox



City Steam



# 20 Years Ago, 20 Years From Now





## Next Steps

- Complete programming data gathering
- Review programming assumptions at next TTC Meeting

### *TTC meeting content and schedule:*

- 1. Programming meeting (April)*
- 2. Conceptual site alternatives (June)*
- 3. Preferred site concept (September)*
- 4. Transit operations discussion (October)*
- 5. 15% architectural drawings (December)*





# Thank You!

Thank you for your time. We appreciate your commitment to helping us reach the best possible solution for the State of Connecticut, the Capitol Region, and the City of Hartford.

*-Your I-84 Hartford Project Team*