



I-84 HARTFORD PROJECT

STATION 1



I-84 HARTFORD


101



I-84 HARTFORD PROJECT FAST FACTS

Facts & Figures

 occupies **270** acres
30 Acres of Bridge Deck

Constructed in **1960-69**
(prior to NEPA) 

8 Full or partial interchanges 

Elevated viaduct over **2** locations 

Project Location



Projected Costs



\$2 Billion ▶ No-Build
\$4-6 Billion ▶ Replace viaduct
Eliminate viaduct & lower I-84 (relocate railroad)
\$10-12 Billion ▶ Construct tunnel

Objectives



Improve conditions for bicyclists and pedestrians

Seek opportunities for economic development 



Redesign local streets as needed

Redesign I-84 mainline & interchanges to improve



Traffic Operations



Safety

Repair freeway's damage to community 

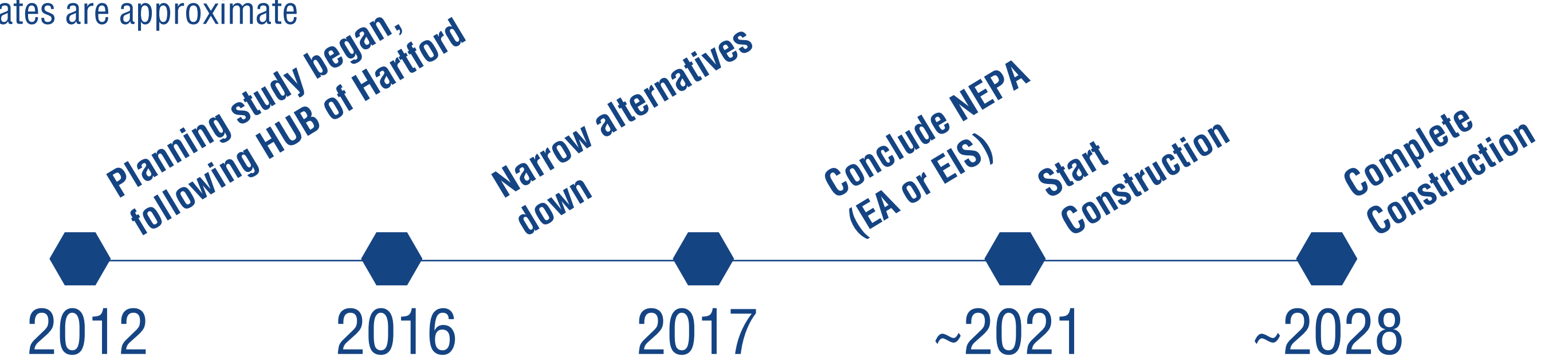
Purpose & Need



Bridge and Structural Deficiencies
Operational and Safety Deficiencies
Mobility Deficiencies

Schedule

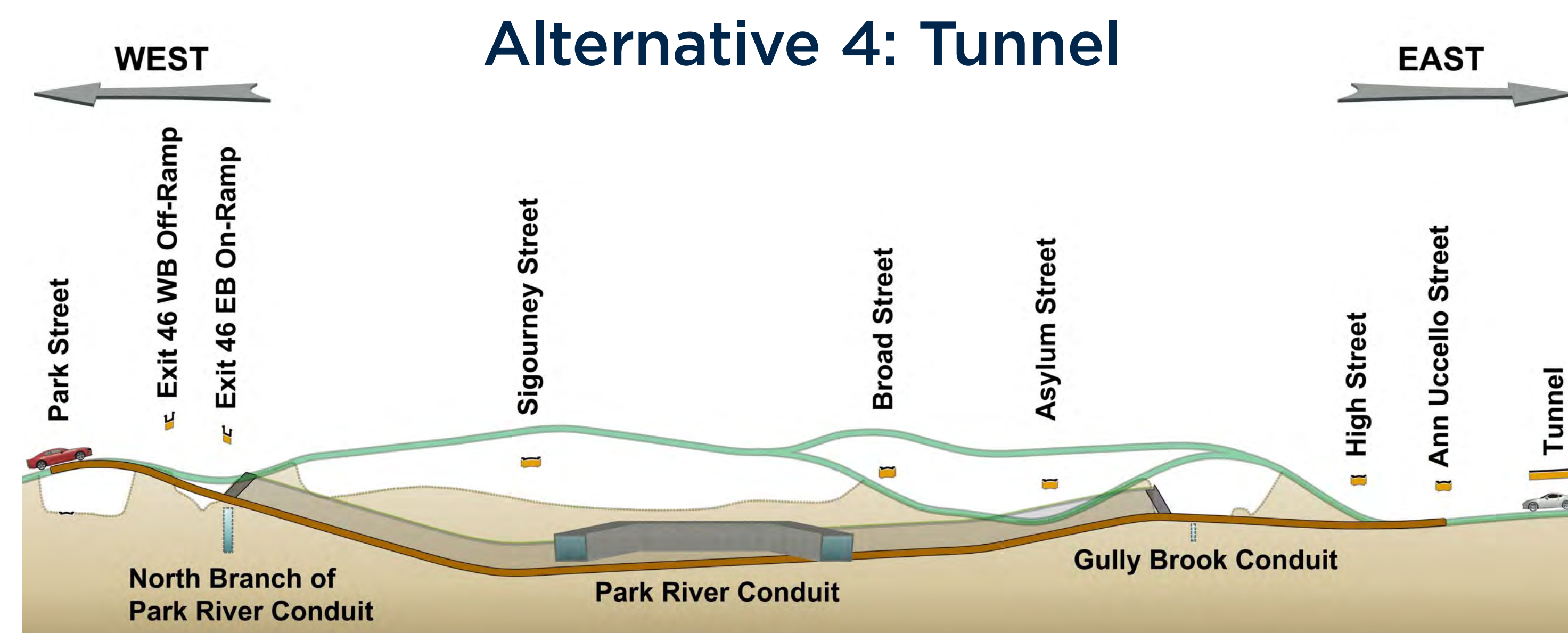
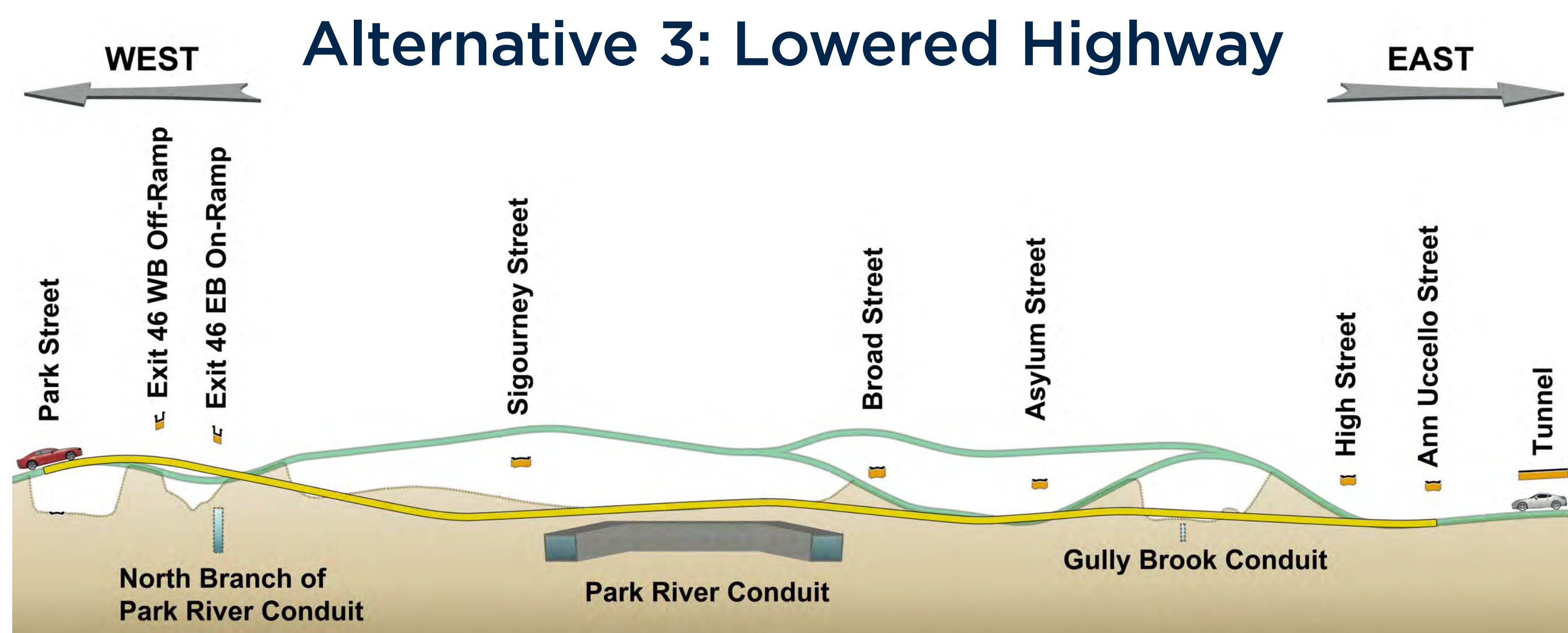
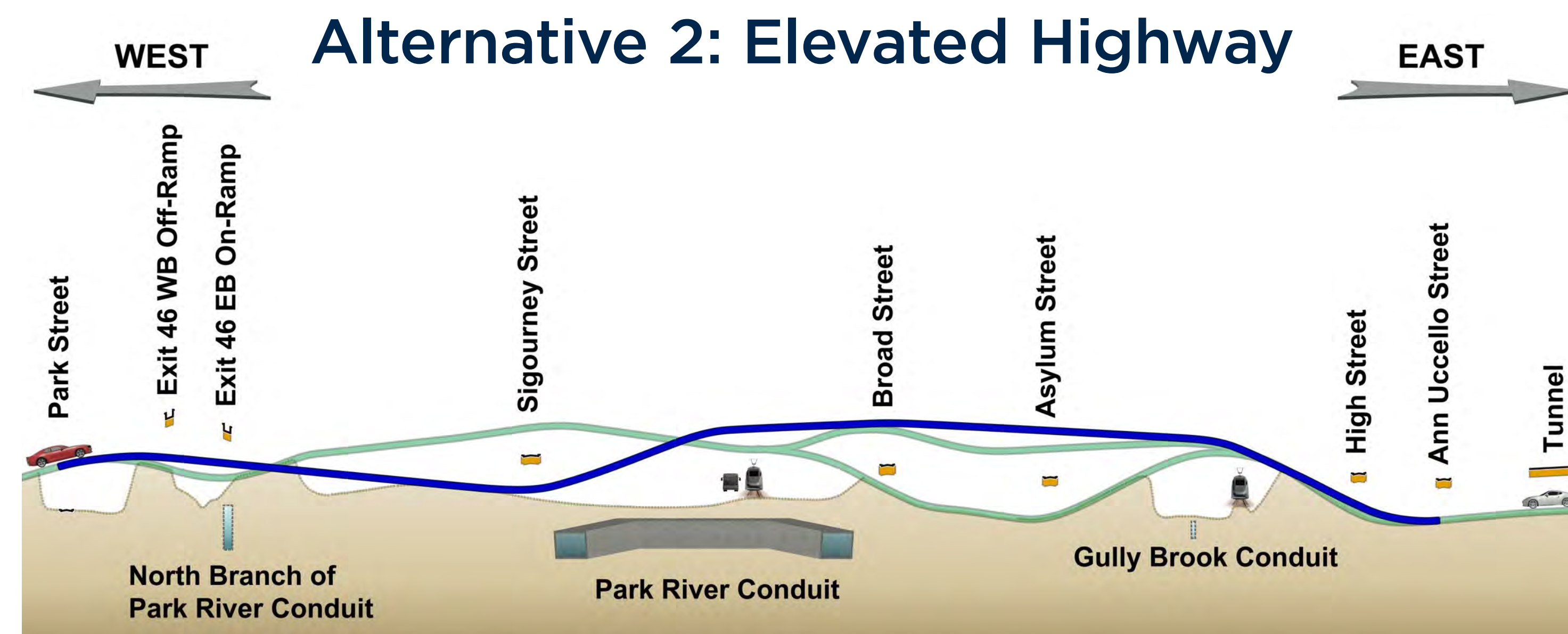
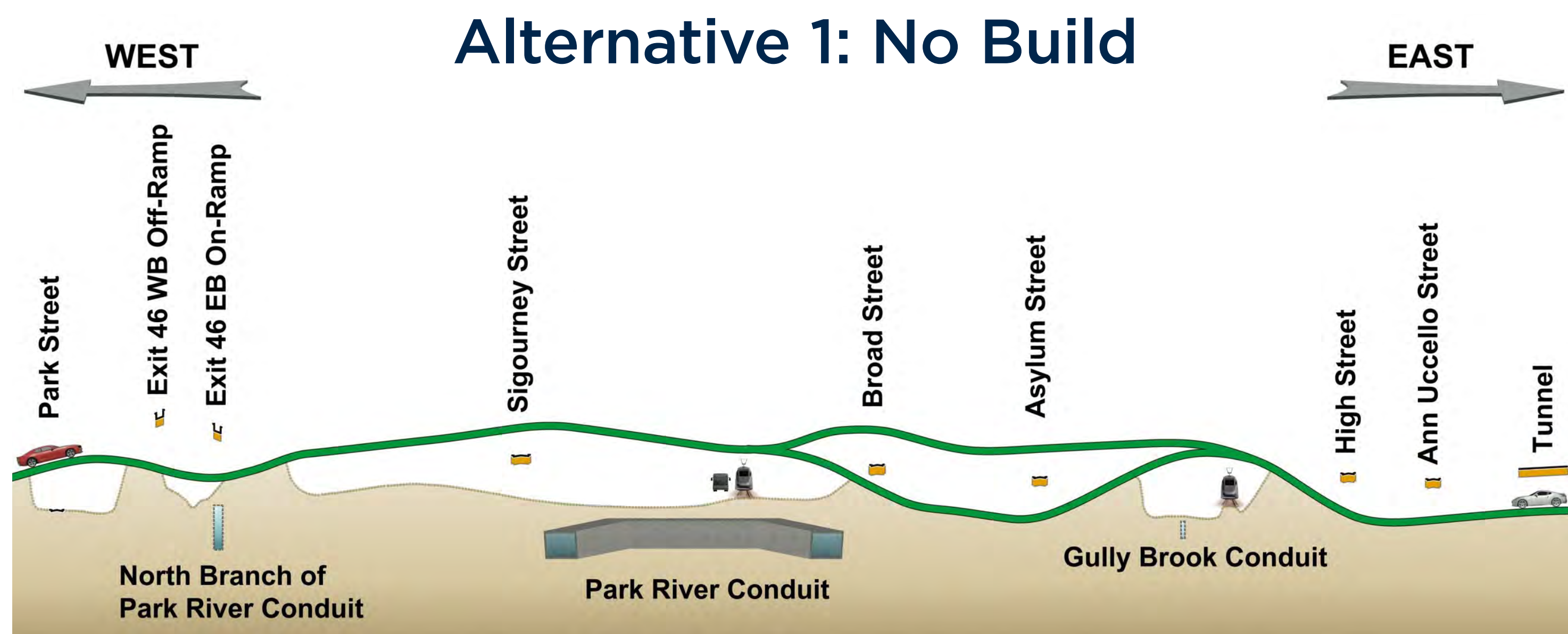
Dates are approximate





I-84 HARTFORD PROJECT

MAINLINE ALTERNATIVES: VERTICAL ALIGNMENT





I-84 HARTFORD PROJECT STATION 1 DISCUSSION

WELCOME!

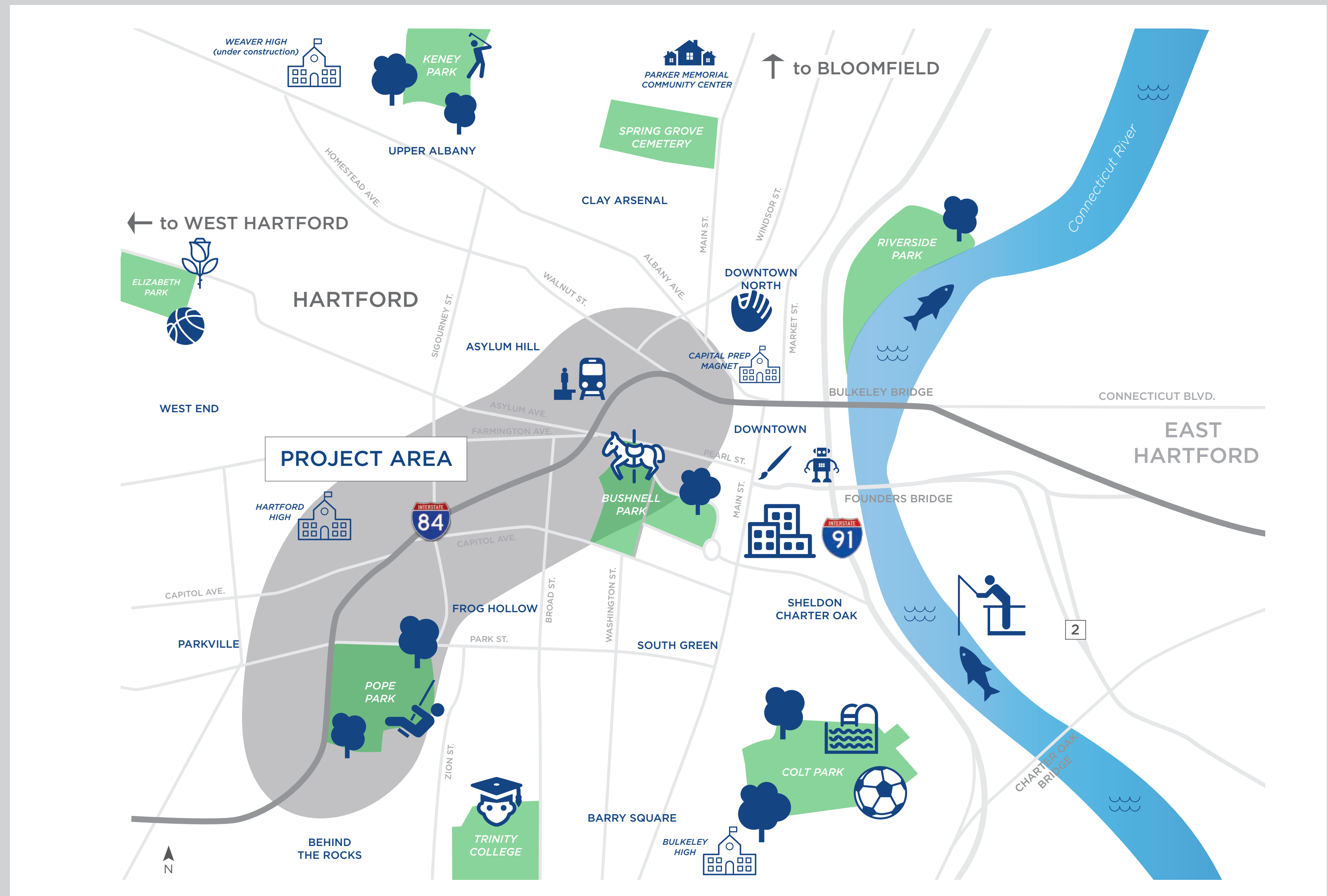
Is this your first I-84 Hartford Project meeting or event?

How did you hear about this event?

Please mark where you live, work, and/or travel in the project area.

- » Blue - live
- » Green - work
- » Red - other frequent travel destination

Yes				No			
Project Website	Project Newsletter/ E-bulletin (email)	Social Media	Newspaper/ Media (print or digital)	Friend/ Neighbor/ Colleague	Flyer	Neighborhood News Bulletin	Other





I-84 HARTFORD PROJECT PRELIMINARY SCREENING MATRIX LEVEL ONE

Level 1 Screening				
Criteria	No-Build (Alt. 1)	Elevated (Alt. 2)	Lowered (Alt. 3)	Tunneled (Alt. 4)
Purpose and Need				
Bridge Structure Deficiencies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mainline Traffic Performance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local Road Traffic Performance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Safety Considerations	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bike / Pedestrian Accommodations	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Other Considerations				
Total Impacted Buildings*	0	9	18	22
Impacted Historic Buildings**	0	3-5	3-9	4-10
Construction Costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* Number of Total Impacted Buildings is preliminary and subject to continued refinement

** Number of Impacted Historic Buildings includes both National Register listed buildings as well as those Recommended Eligible which are subject to approval by the State Historic Preservation Office (SHPO)

Level 1 Screening Report

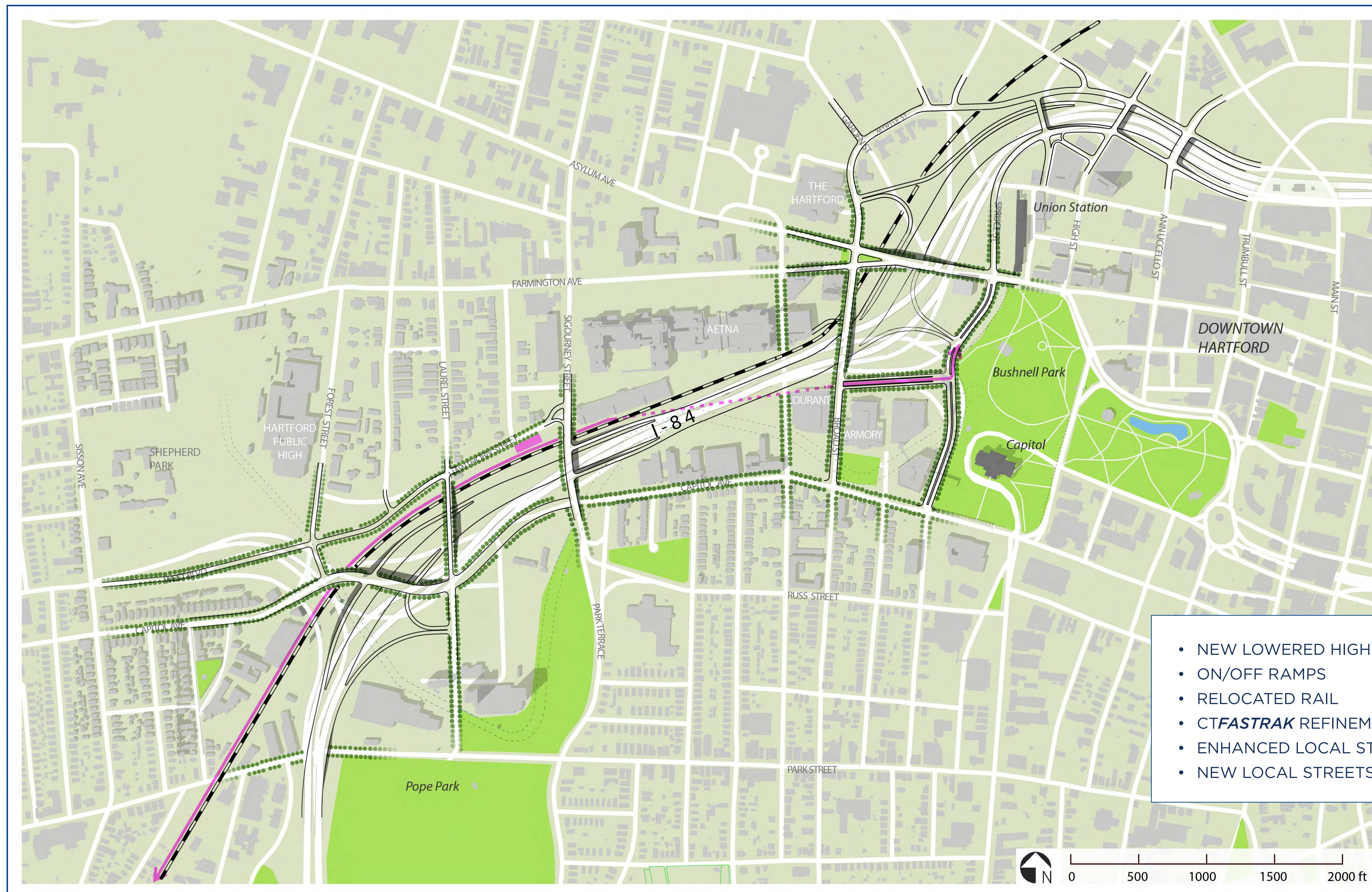
- Currently under revision per comments from FHWA
- Recommends elimination of Elevated (Alt. 2) and Tunneled (Alt. 4) Alternatives
- Recommends further study of No-Build (Alt. 1 and Lowered (Alt. 3)
- Next step: Level 2 Screening in early 2017

Ability to meet Purpose and Need

- Meets Purpose and Need
- Moderately meets Purpose and Need
- Does not meet Purpose and Need



I-84 HARTFORD PROJECT BASE LOWERED HIGHWAY



- NEW LOWERED HIGHWAY
- ON/OFF RAMPS
- RELOCATED RAIL
- CT**FASTRAK** REFINEMENTS
- ENHANCED LOCAL STREETS
- NEW LOCAL STREETS



STATION 2 IMPACTS





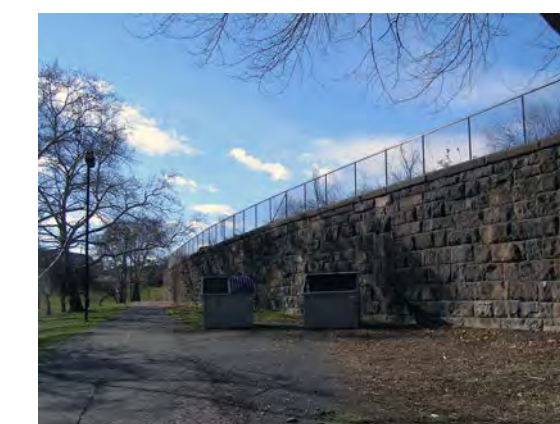
I-84 HARTFORD PROJECT POTENTIAL IMPACTS

	No Build	Elevated	Lowered	Tunnel
 Building impacts	0	3-8	12-19	15-22
 Housing unit impacts	0	0-6	466	359-514
 Business impacts	0	1-3	7-14	11-17
 Historic properties	n/a	low	moderate	high
 Parking space impacts	2,900 Temporary impacts	2,300-2,900	3,100-3,900	4,000-6,700
 New acres for development	0	25 acres (5 east/20 west)	45 acres (25 east/20 west)	45 acres (25 east/20 west)

HISTORIC RESOURCES



Rail corridor assets (sample)



The lowered highway and tunnel alternatives may potentially impact elements of the Amtrak-owned railroad corridor. The corridor is historic, and select bridges, viaducts, and other resources may be impacted.



I-84 HARTFORD PROJECT STATION 2 DISCUSSION

	Yes	No	Don't know/ no opinion
Cost aside, are the property impacts associated with the Tunnel Alternative acceptable?			
Cost aside, are the property impacts associated with the Lowered Alternative acceptable?			
Do you believe that the Elevated Alternative should continue to be analyzed because it has the fewest property impacts, or for other reasons?			

Which potential property impact(s) concern(s) you the most, or are the most significant in your opinion?

Place a dot on the larger Property Impacts board.





I-84 HARTFORD PROJECT CONCEPTUAL NOISE STUDY



SAMPLE LOCATIONS WHERE CONCEPTUAL NOISE CONTROL MEASURES WERE EVALUATED:

1. CAPITOL AVE BETWEEN LAUREL ST & SIGOURNEY ST
2. SIGOURNEY ST OVERPASS
3. BROAD ST OVERPASS
4. CORNER OF BROAD ST & CAPITOL AVE
5. ASYLUM AVE & FARMINGTON AVE TRIANGLE
6. LAUREL ST & HAWTHORN ST
7. BUSHNELL PARK
8. BETWEEN HIGH ST & ANN UCCELLO ST

CONCEPTUAL NOISE REDUCTION TREATMENTS & BENEFITS AT SELECT SITES

No.	Location	Existing (dBA)	Design Option	Treatment	Benefit (dBA) ¹	Lowered w/ Treat (dBA)
1	Capitol Ave between Laurel St & Sigourney St	75	1, 2	Vegetative screens or curved barrier	3-8	67-72
2	Sigourney St Overpass	75	2, 4	Curved barrier or widened overpass	3-8	67-72
3	Broad St Overpass	75	2	Curved barrier	3-8	67-72
			3	Freeway caps	8-12	63-67
			4	Widened overpass	3-5	70-72
4	Corner of Broad St & Capitol Ave	75	2, 3	Curved barrier or freeway caps	0-1	74-75
5	Asylum Ave & Farmington Ave Triangle	72	3	Freeway caps	8-12	60-64
			7	Landscape berms	3-8	64-69
6	Laurel St & Hawthorn St	75	1, 3	Vegetative screens or freeway caps	3-8	67-72
7	Bushnell Park	55	1, 3	Vegetative screens or freeway caps	0-1	54-55
8	Between High St & Ann Uccello St	71	1, 4	Vegetative screens or widened overpass	3-5	66-68



I-84 HARTFORD PROJECT CONCEPTUAL NOISE STUDY

Outdoor Sound Levels	Sound Level (dBA)	Indoor Sound Levels
	110	Rock band at 5 m (16 ft)
Jet over flight at 300 m (1,000 ft)	105	
	100	Inside New York subway train
Gas lawn mower at 1 m (3 ft)	95	
	90	Food blender at 1 m (3 ft)
Diesel truck at 15 m (50 ft)	85	
Noisy urban area - daytime	80	Garbage disposal at 1 m (3 ft)
	75	Shouting at 1 m (3 ft)
Gas lawn mower at 30 m (100 ft)	70	Vacuum cleaner at 3 m (10 ft)
Suburban commercial area	65	Normal speech at 1 m (3 ft)
	60	
Quiet urban area - daytime	55	Quiet conversation at 1 m (3 ft)
	50	Dishwasher in next room
Quiet urban area - nighttime	45	
	40	Empty theater or library
Quiet suburb - nighttime	35	
	30	Quiet bedroom at night
Quiet Rural Area - nighttime	25	Empty concert hall
Rustling leaves	20	
	15	Broadcast and recording studios
	10	
	5	
Reference pressure level	0	Threshold of hearing

NOISE CONTROL DESIGN OPTIONS

REFER TO COMPANION BOARD

1	Vegetative Screening Walls	Provide the same benefits as standard barriers but include aesthetic elements fitting with surrounding environment.
2	Curved Transparent Barriers	Include the same or better noise reduction benefits as standard barriers. Aesthetically pleasing without restricting sight lines.
3	Freeway Cap Parks	Provide maximum noise reduction by enclosing the roadway from above. Create additional public space.
4	Widened Overpasses	Less expensive than freeway cap parks. Extends roadway width to accommodate small parks.
5	Pedestrian Walkway Enclosures	Shield the sound of short-term noise exposure for pedestrians directly above the highway
6	Roadway Canopies	Perforated or partial caps over the highway enclose roadway noise and provide significant noise reduction.
7	Landscaping Berms	Provide the same benefits as standard barriers but include aesthetic elements fitting with surrounding environment. Require more space than walls.



I-84 HARTFORD PROJECT PROPERTY IMPACTS: LOWERED ALTERNATIVE





I-84 HARTFORD PROJECT PROPERTY IMPACTS: TUNNEL ALTERNATIVE





I-84 HARTFORD PROJECT PROPERTY IMPACTS: ALL ALTERNATIVES





I-84 HARTFORD PROJECT

STATION 3

EAST SIDE

OPTIONS





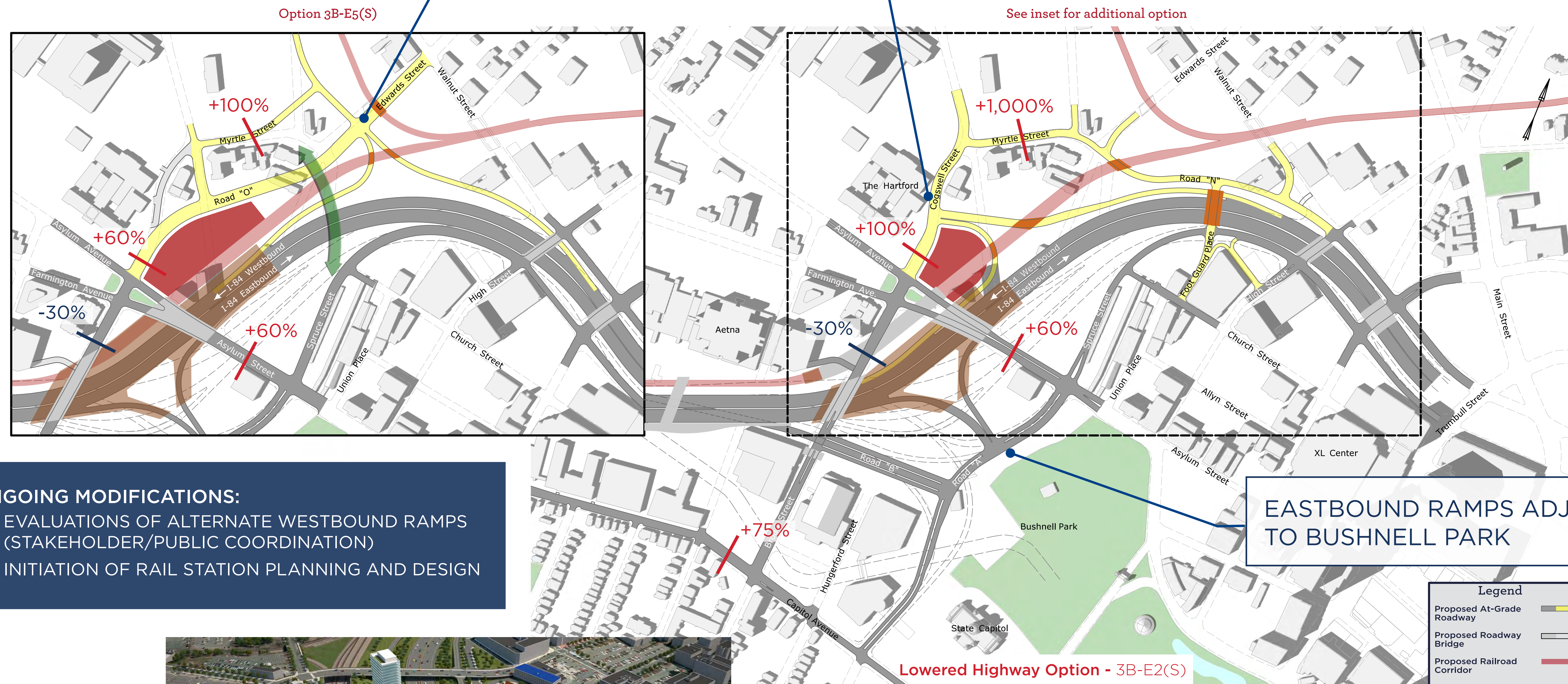
I-84 HARTFORD PROJECT
STATION 3 DISCUSSION

<p>Which design consideration at the east side of the project concerns you the most?</p>	<p>Union Station and public transit</p>	<p>Traffic on local roads</p>	<p>Private development opportunities</p>	<p>Other</p>
	<p>Open space</p>	<p>Neighborhood connections</p>	<p>Property impacts</p>	
<p>Do you support replacing the High Street and Trumbull Street ramps with a frontage road system?</p>	<p>Yes</p>	<p>No</p>	<p>Don't know/ need more information</p>	



I-84 HARTFORD PROJECT EAST SIDE OPTIONS

CONTINUING REFINEMENTS
TO WESTBOUND RAMPS



ONGOING MODIFICATIONS:

- EVALUATIONS OF ALTERNATE WESTBOUND RAMPS (STAKEHOLDER/PUBLIC COORDINATION)
- INITIATION OF RAIL STATION PLANNING AND DESIGN

EASTBOUND RAMPS ADJACENT TO BUSHNELL PARK



Legend	
Proposed At-Grade Roadway	
Proposed Roadway Bridge	
Proposed Railroad Corridor	
Potential Rail Station Location	
Potential Cap	
Potential Bicyclist/Pedestrian Connection	
Approx. Percent Change in Traffic Volume (ADT)	+ XX% / - XX%

Option 3B-E2(S)
Plan
100' 0" 100'



I-84 HARTFORD PROJECT

STATION 4

WEST SIDE OPTIONS





I-84 HARTFORD PROJECT STATION 4 DISCUSSION

	Very Comfortable	Comfortable	Not Very Comfortable	Very Uncomfortable
How comfortable are you in the reconfiguration of the Sisson Avenue ramps to Capitol Avenue and Laurel Street?				

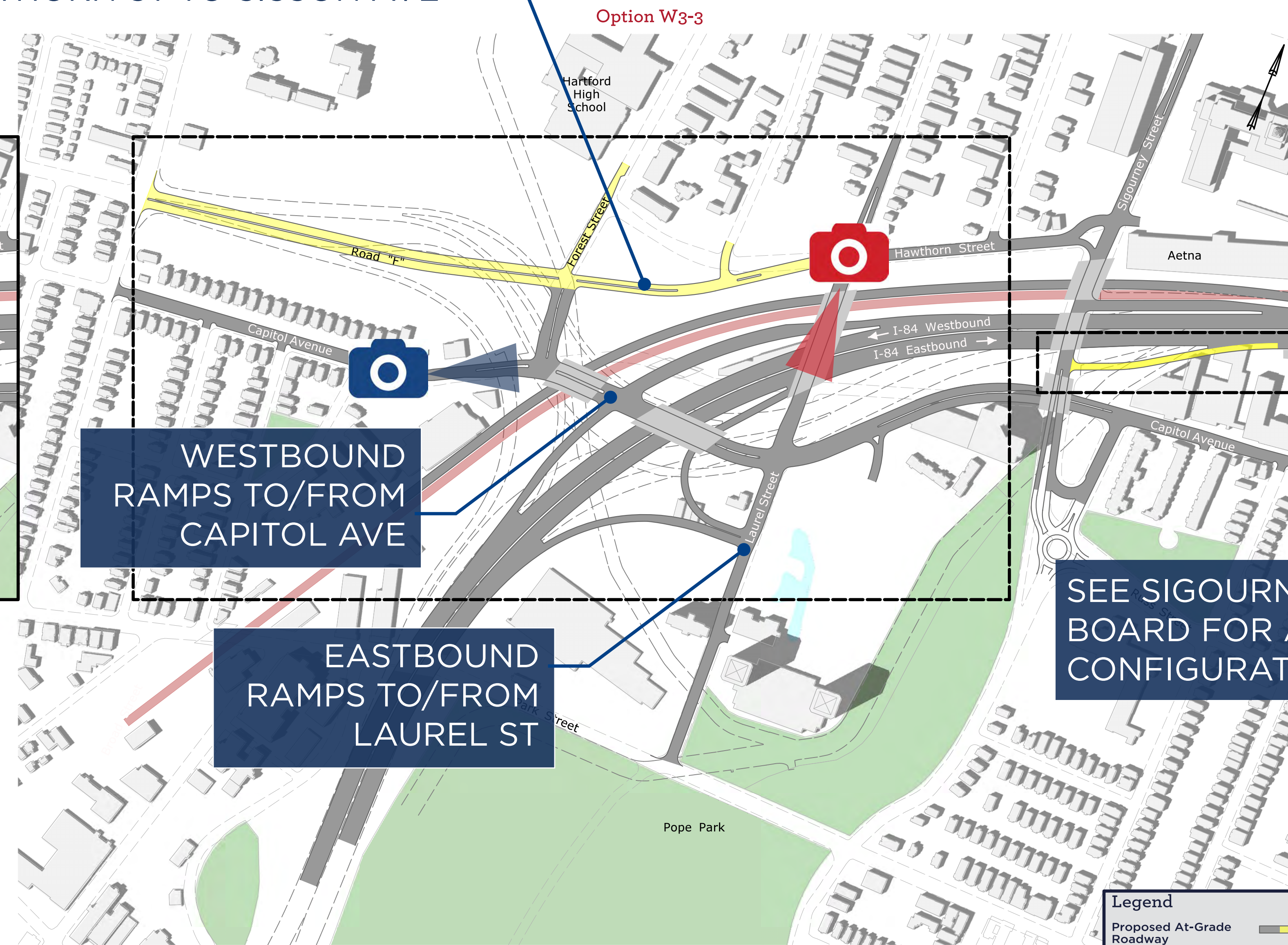
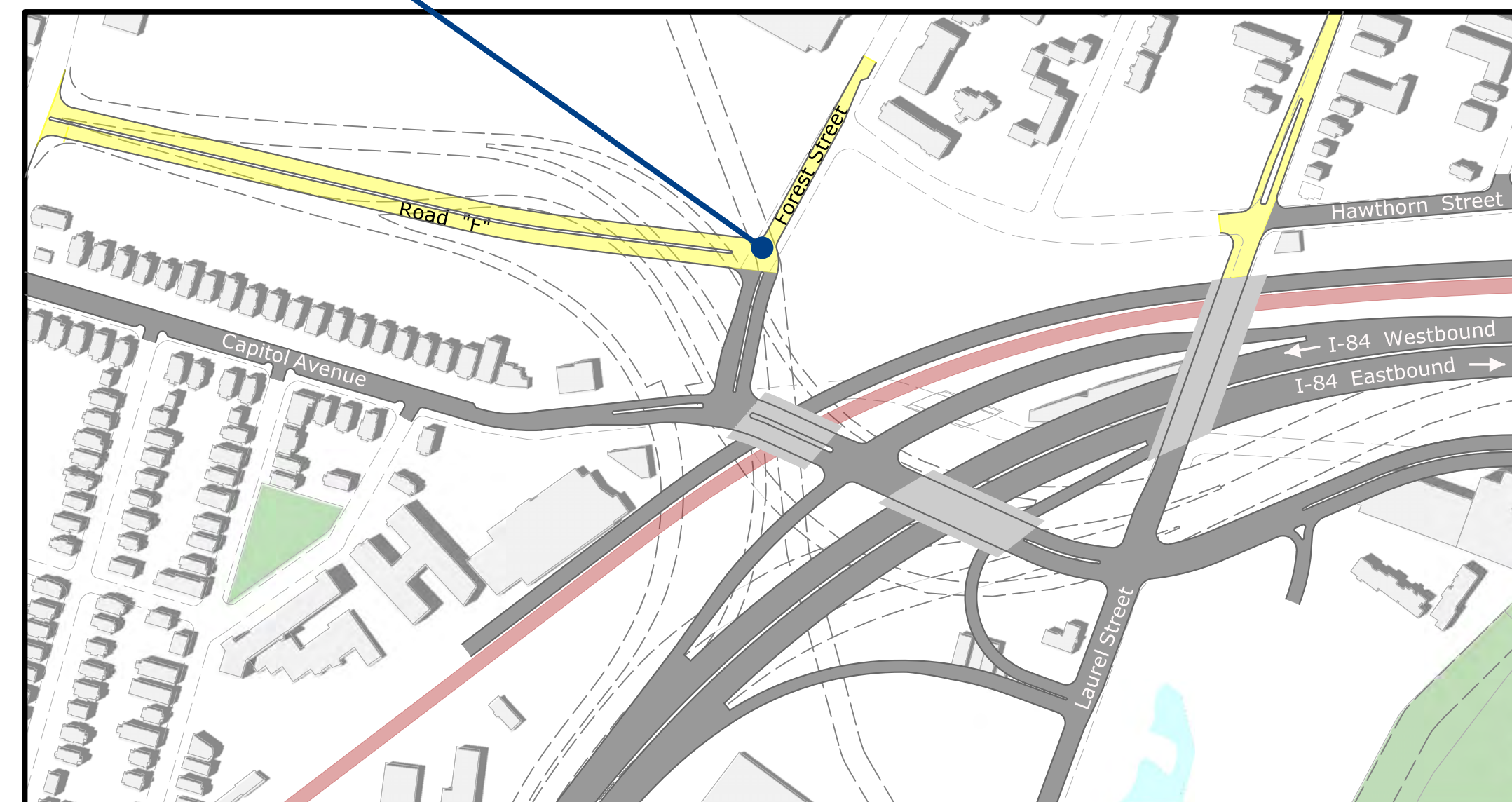


I-84 HARTFORD PROJECT WEST SIDE OPTIONS

POTENTIAL THROUGH CONNECTION FROM HAWTHORN ST TO SISSON AVE

NEW E-W ROAD TERMINATES AT FOREST ST

Alternate Configuration for Hawthorn Street



WESTBOUND RAMP TO/FROM CAPITOL AVE

EASTBOUND RAMP TO/FROM LAUREL ST

SEE SIGOURNEY ST RAMP BOARD FOR ALTERNATE CONFIGURATION



POTENTIAL VIEW ON CAPITOL AVE OVER I-84



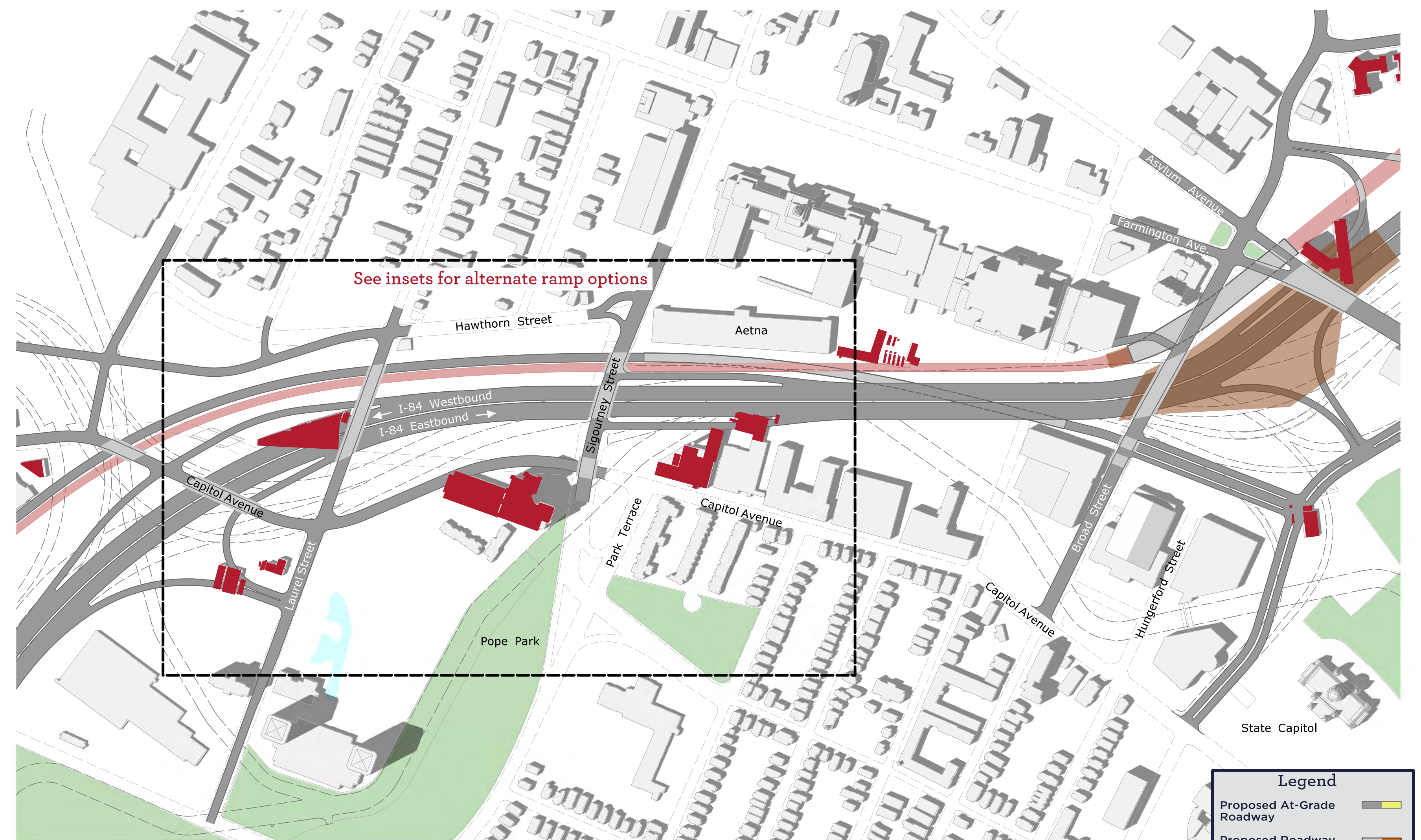
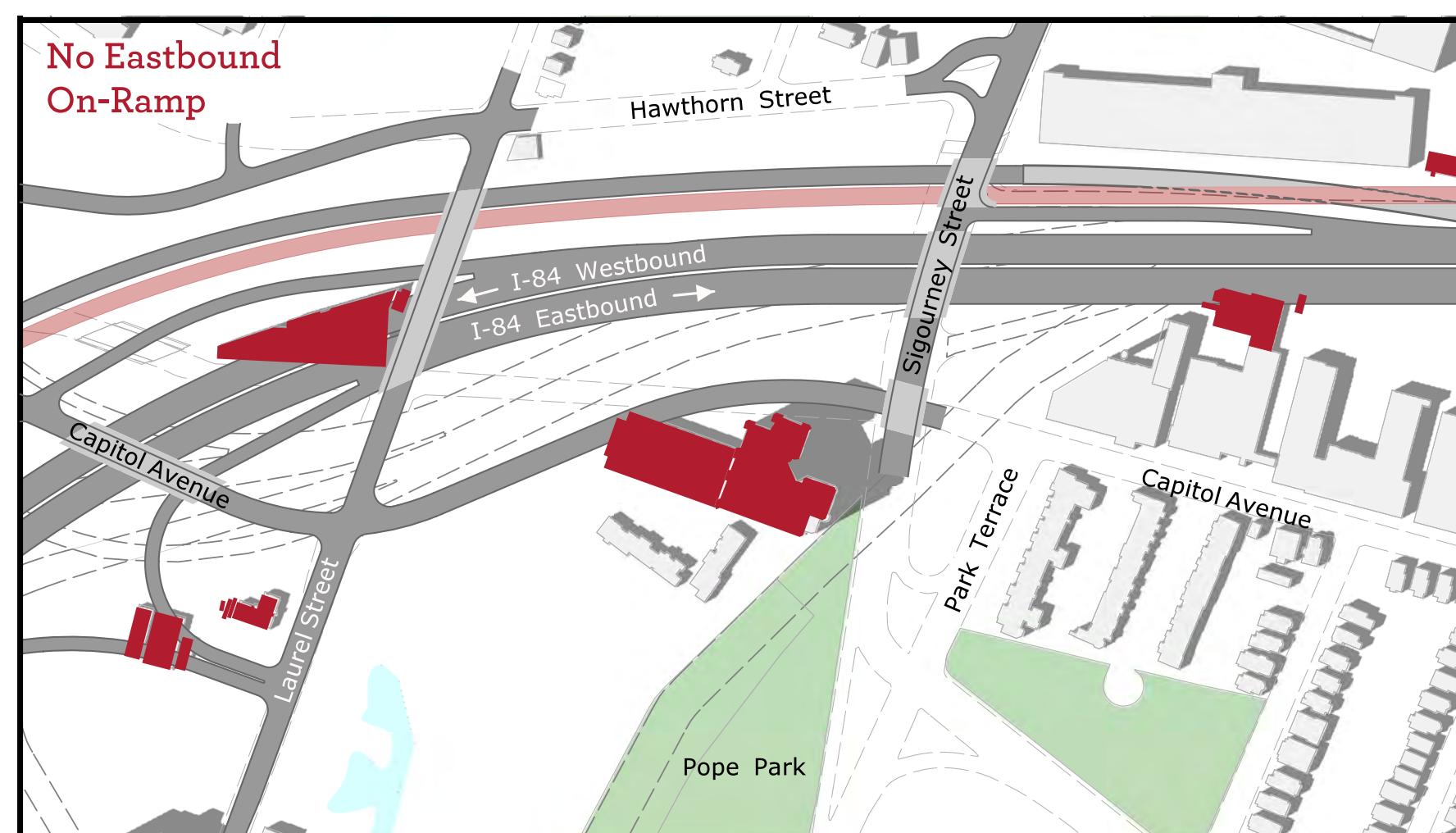
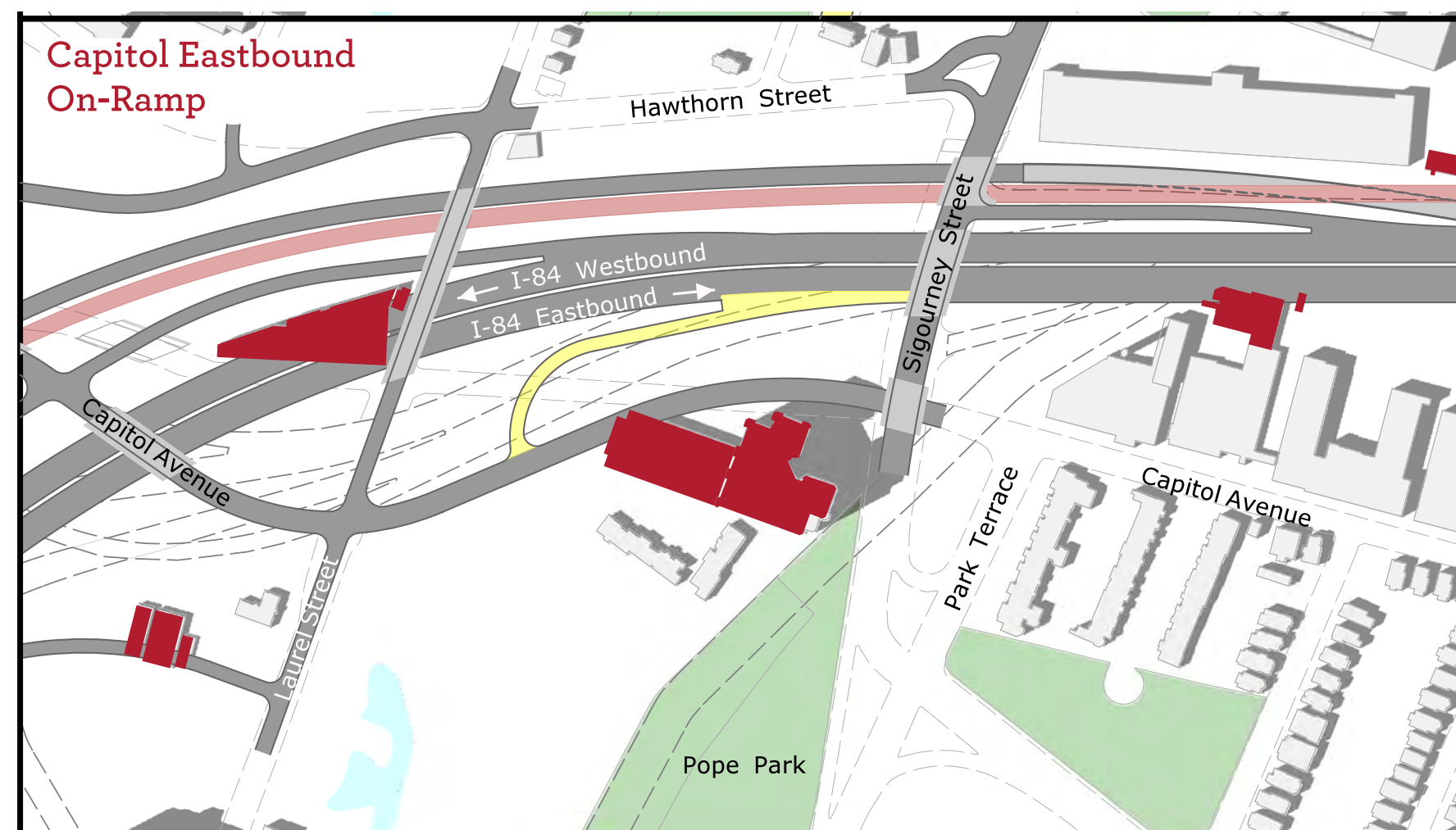
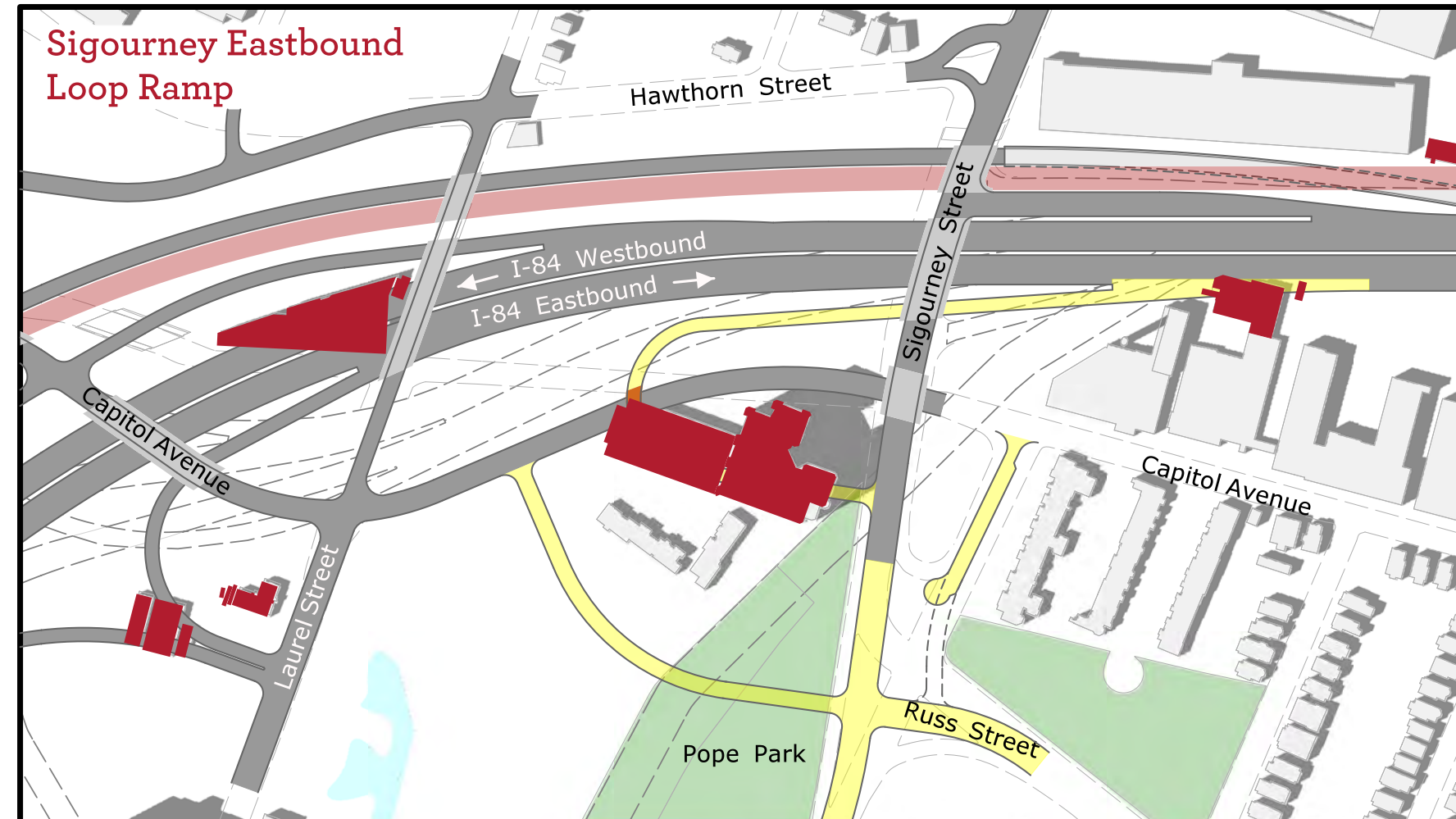
POTENTIAL VIEW ON LAUREL ST

West End Option W3-3
Plan
100' 0 100'

Legend	
Proposed At-Grade Roadway	
Proposed Roadway Bridge	
Proposed Railroad Corridor	



I-84 HARTFORD PROJECT SIGOURNEY ST RAMP OPTIONS



Option 3B W3-3 - E2(S)

Plan
100' 0 100'

Legend	
Proposed At-Grade Roadway	
Proposed Roadway Bridge	
Proposed Railroad Corridor	
Potential Building Impacts	
Potential Cap	



STATION 5

URBAN DESIGN OPPORTUNITIES



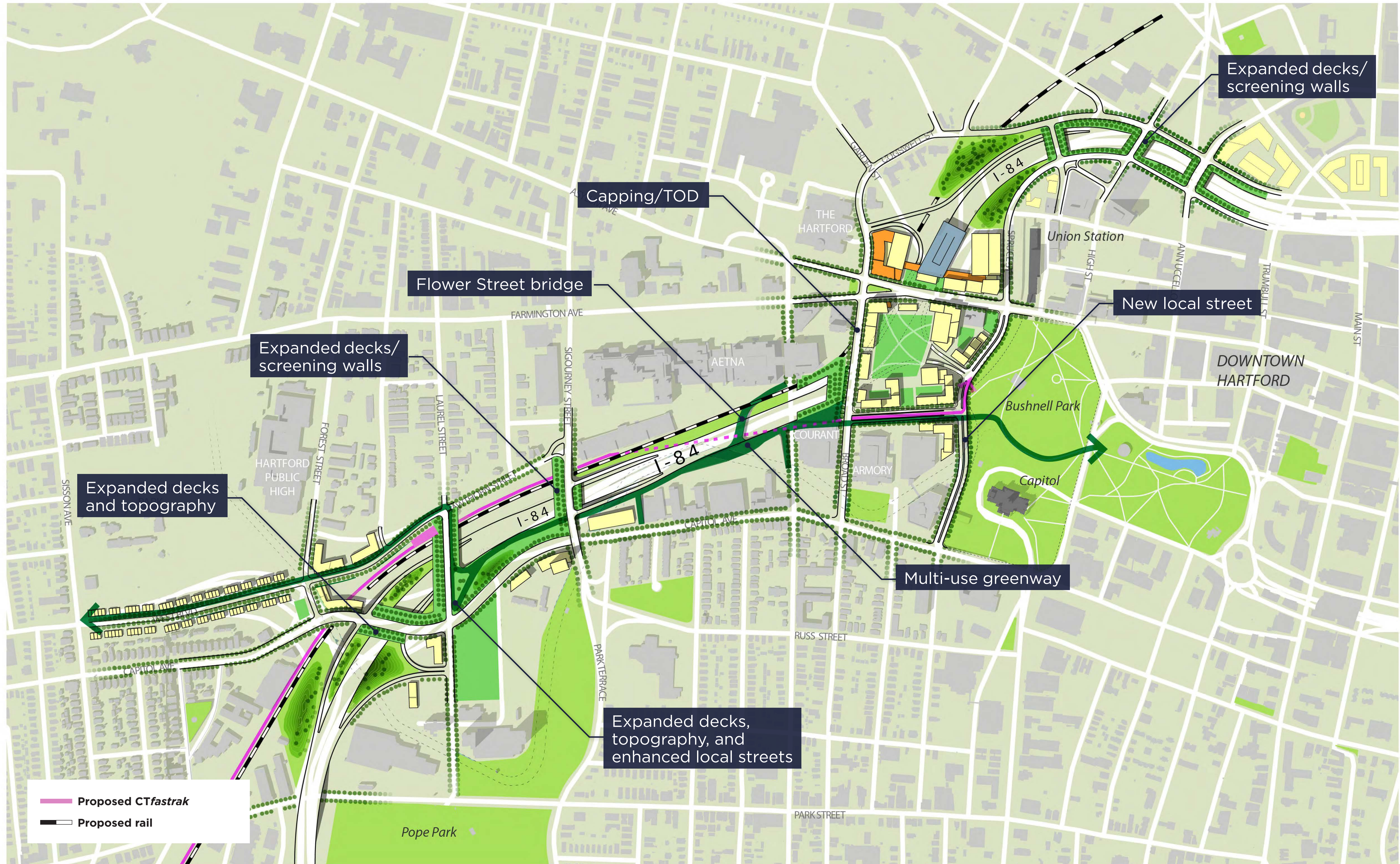


I-84 HARTFORD PROJECT
STATION 5 DISCUSSION

	Yes If yes, how?				No
	Would you use an elevated greenway?	Commuting		Recreation	
Non-work related travel		Other			
Place three dots below the most important reasons for better integrating the highway into the urban environment.	Reconnecting neighborhoods	Hiding the highway from sight	Hiding the sound of the highway	Improving air quality	I don't care about hiding the highway



I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY





I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY

Challenges of integrating I-84 into the city

- Overcoming neighborhood discontinuity
- Mitigating the visual impact
- Mitigating the noise impact
- Creating quality local streets for pedestrians/bicyclists
- Creating attractive places

Strategies and tools to overcome challenges

- Capping
- Buildings/streets over lowered highway
- Expanded decking for bridges
- Landscape/raised planters
- Topography
- Screening walls

PRECEDENTS

HARTFORD, CT

Capping and park



Capping and buildings



COLUMBUS, OH

Capping and buildings



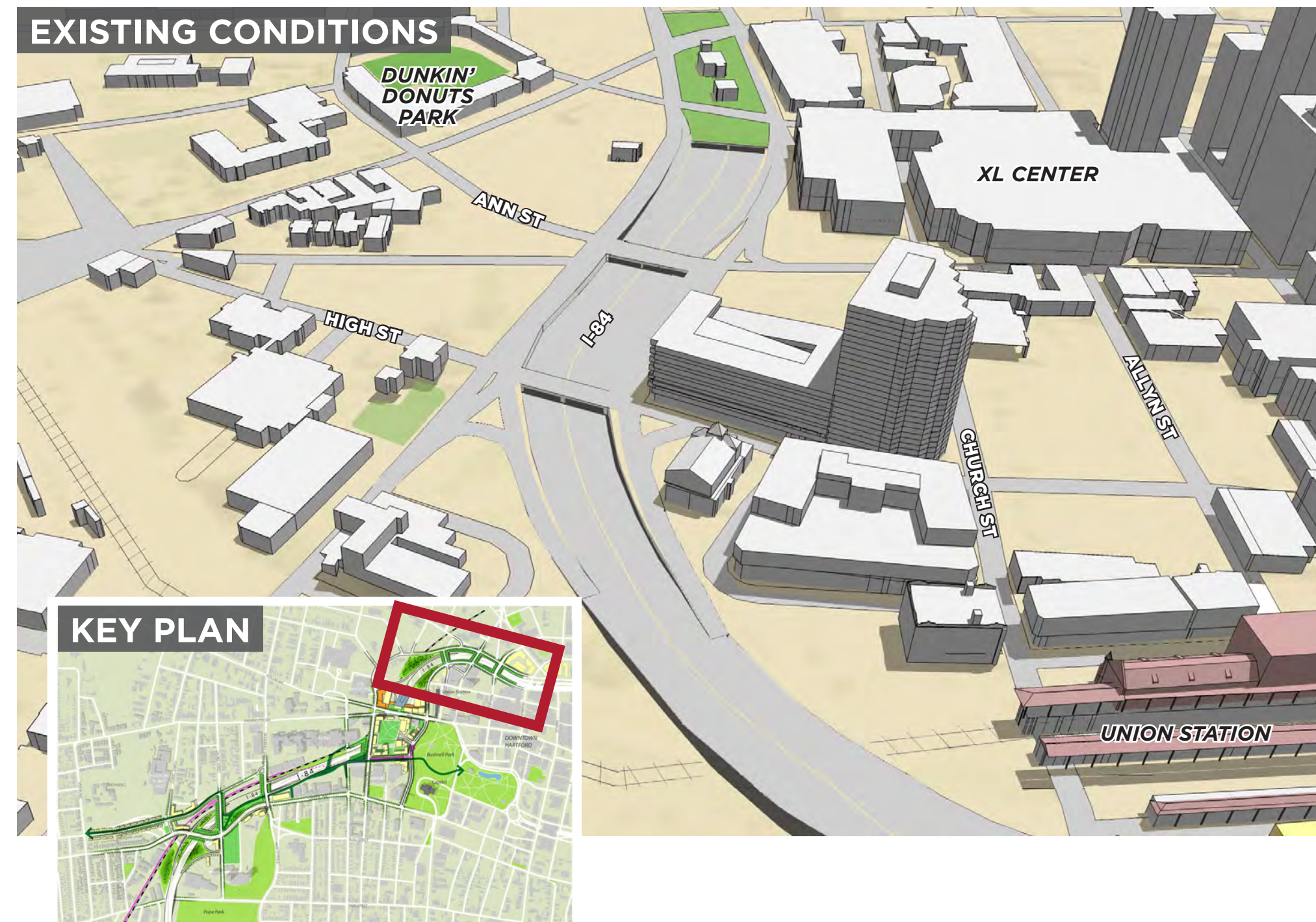
Expanded deck



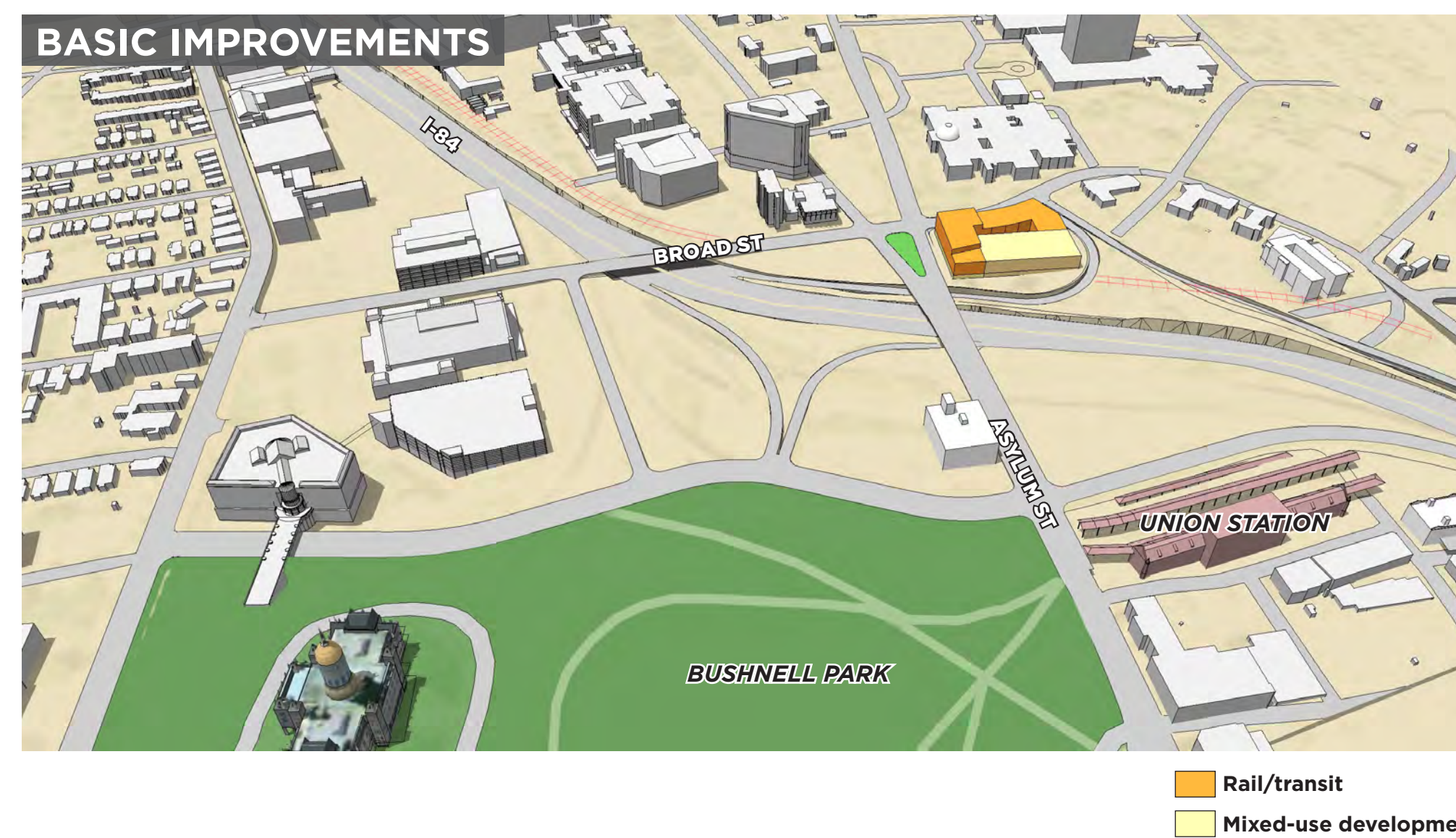
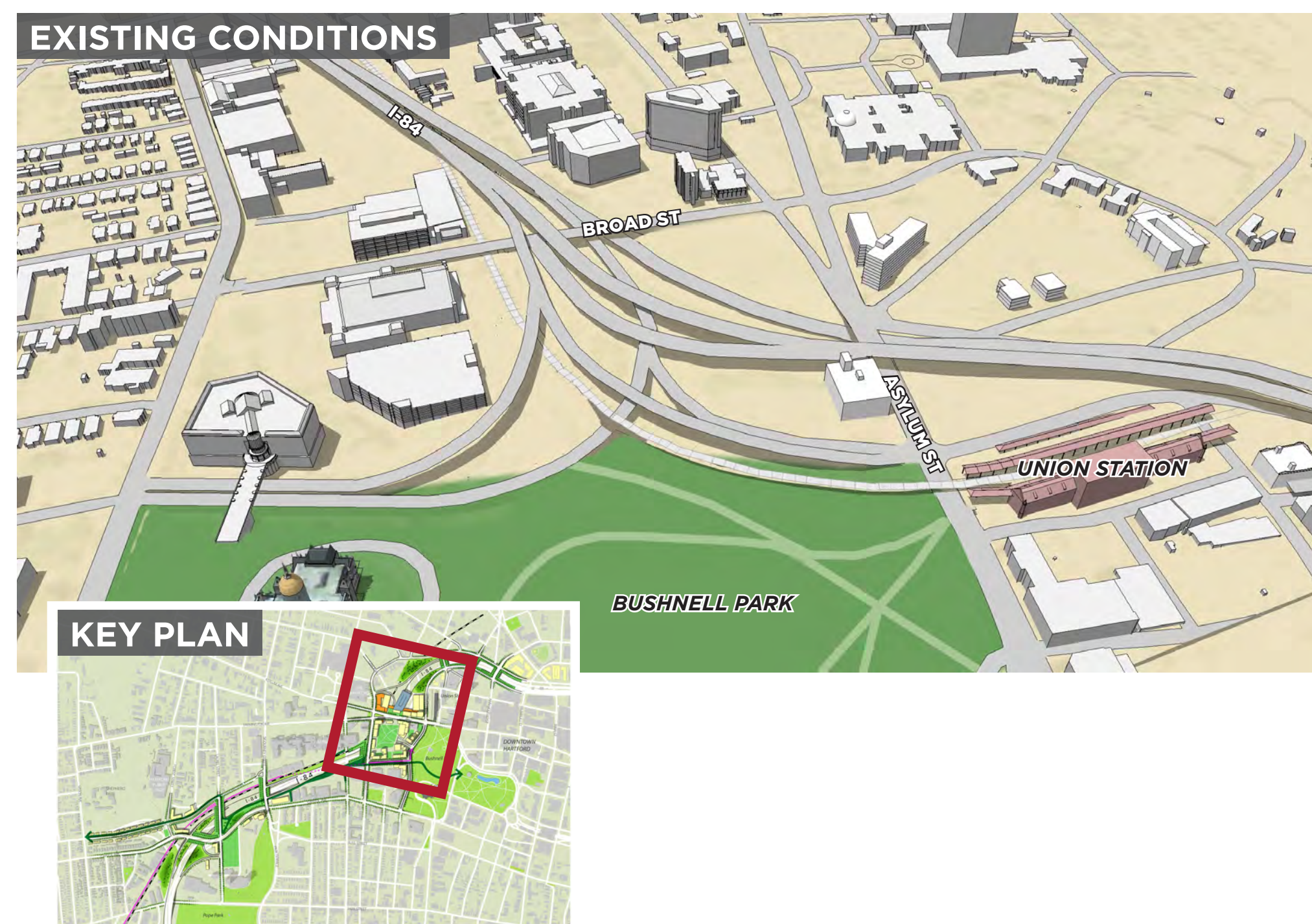


I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY

I-84 between High Street and Ann Street



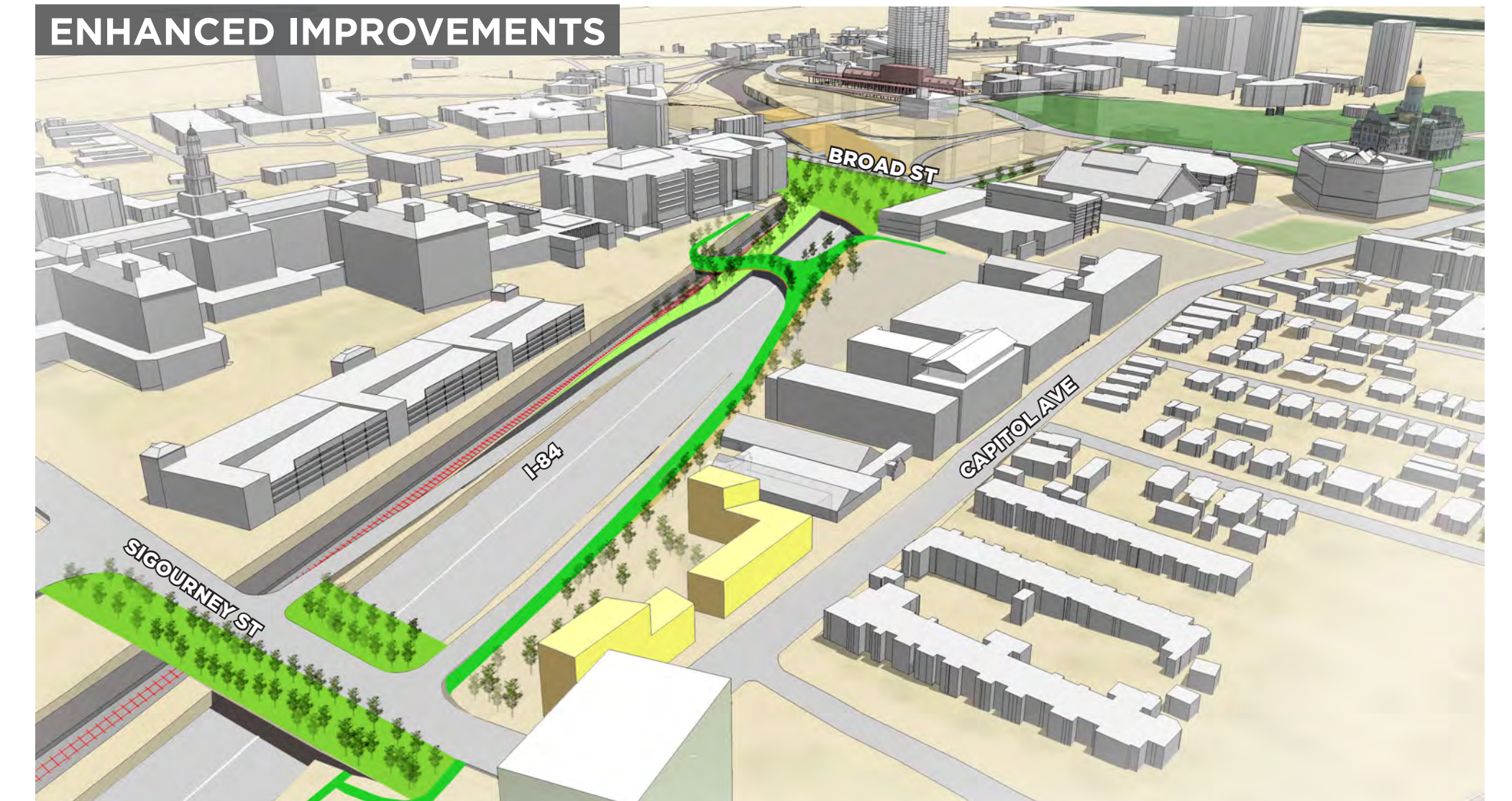
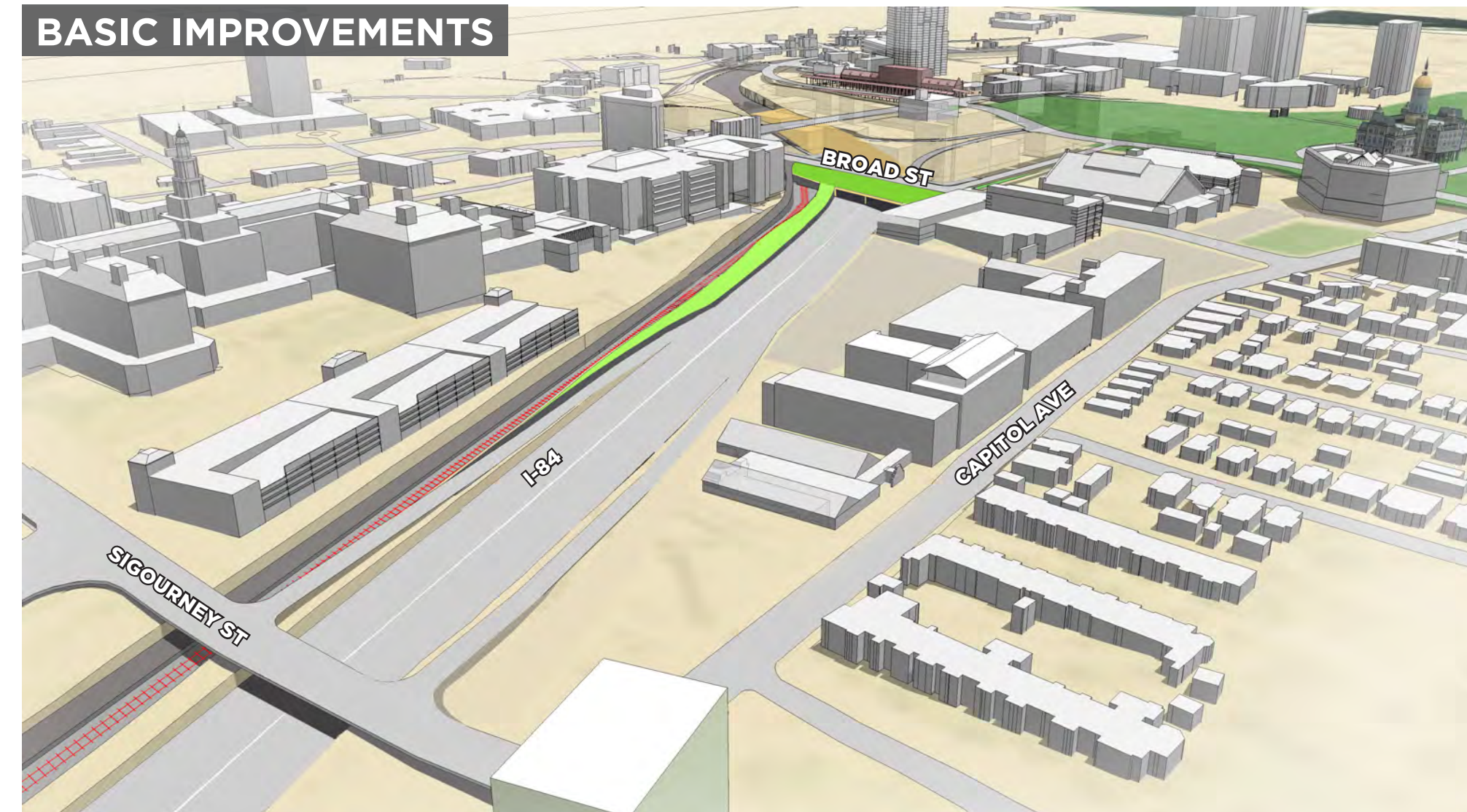
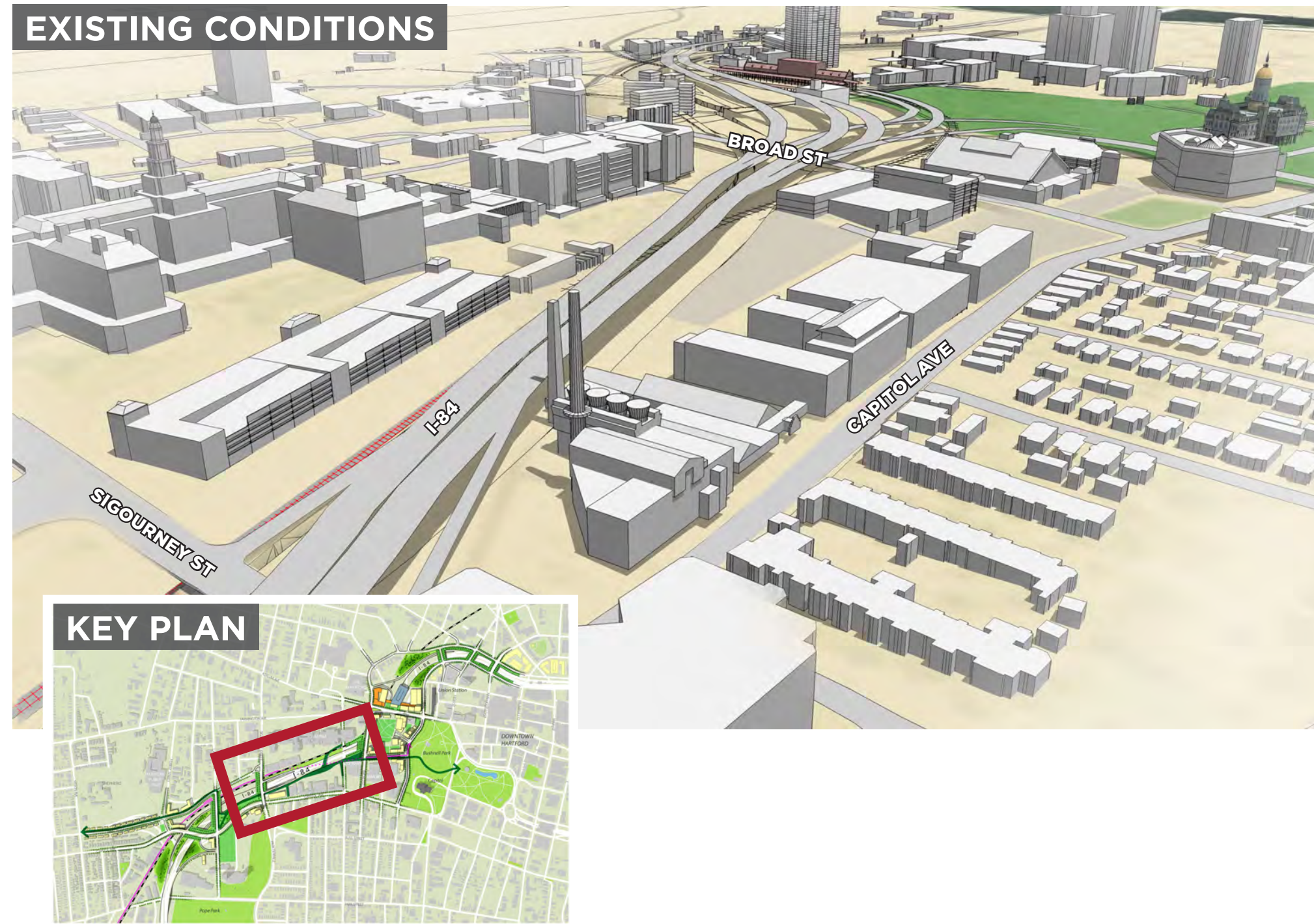
I-84 between Broad Street and Asylum Street





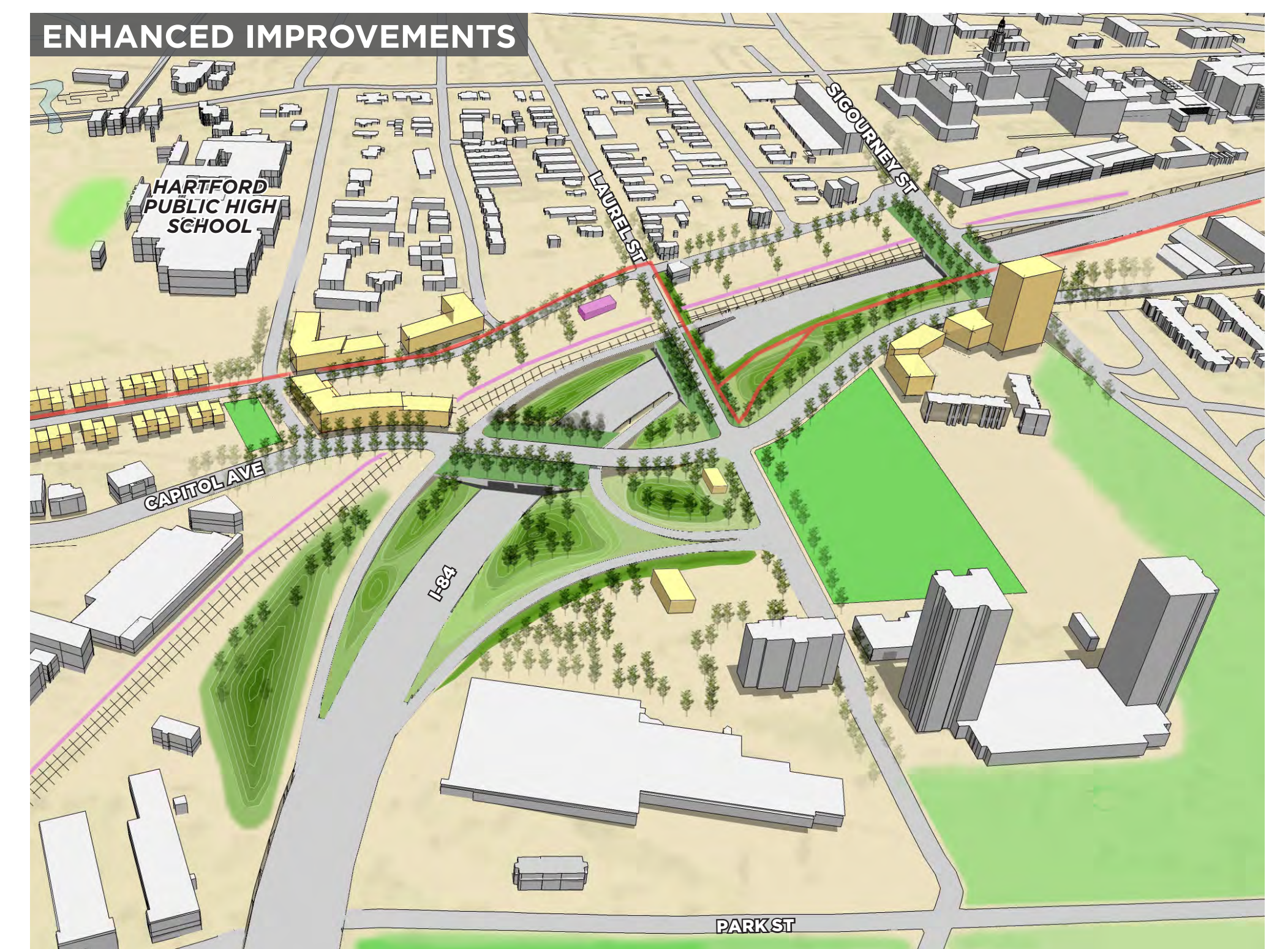
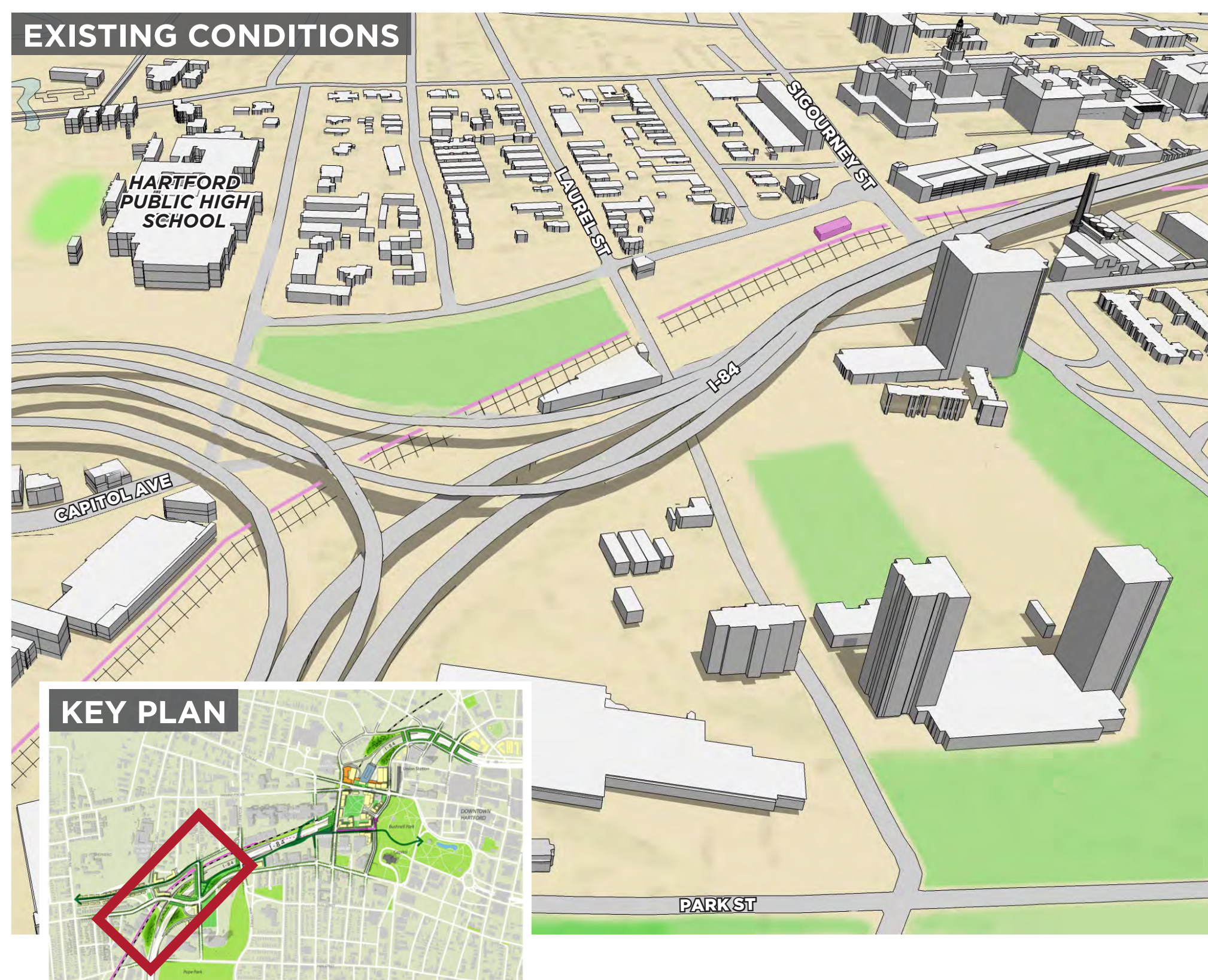
I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY

I-84 between Sigourney Street and Broad Street



Mixed-use development

I-84 between Park Street and Sigourney Street



Mixed-use development



I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY

Laurel Street looking south





I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY

Sigourney Street looking south

EXISTING CONDITIONS



POTENTIAL





I-84 HARTFORD PROJECT INTEGRATING I-84 INTO THE CITY

Ann Street Bridge

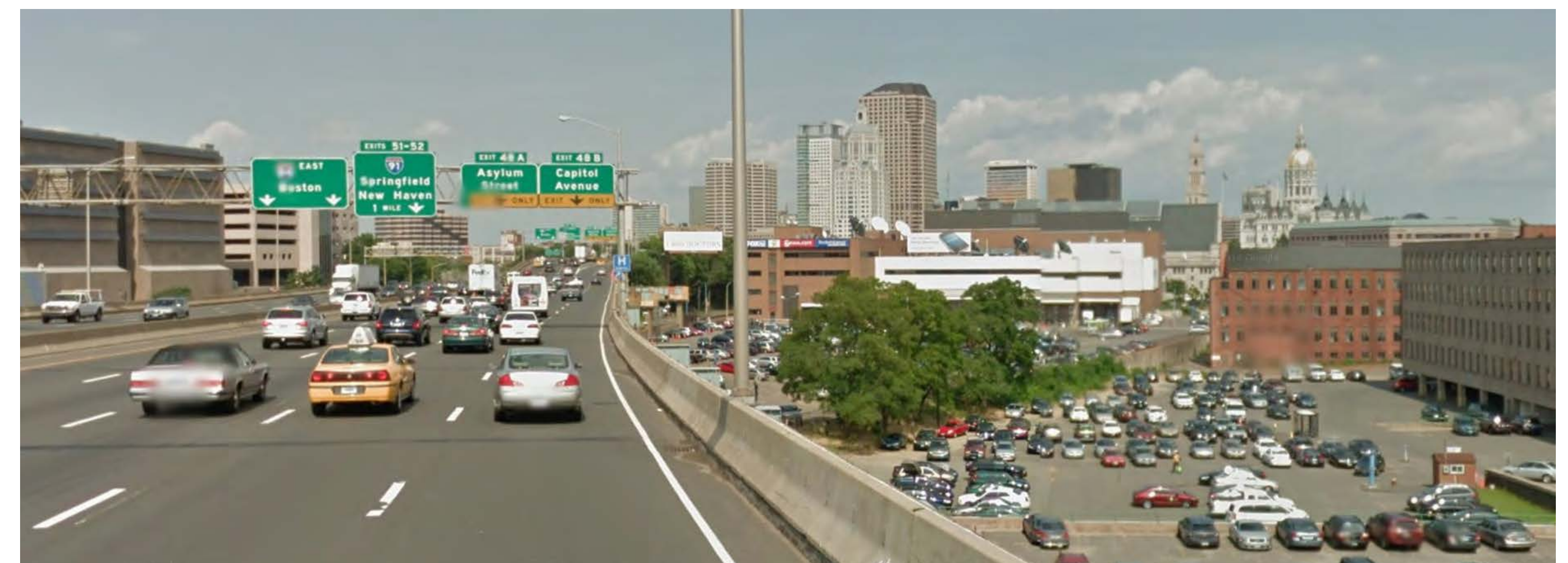




I-84 HARTFORD PROJECT MULTI-USE GREENWAY



KEY PLAN



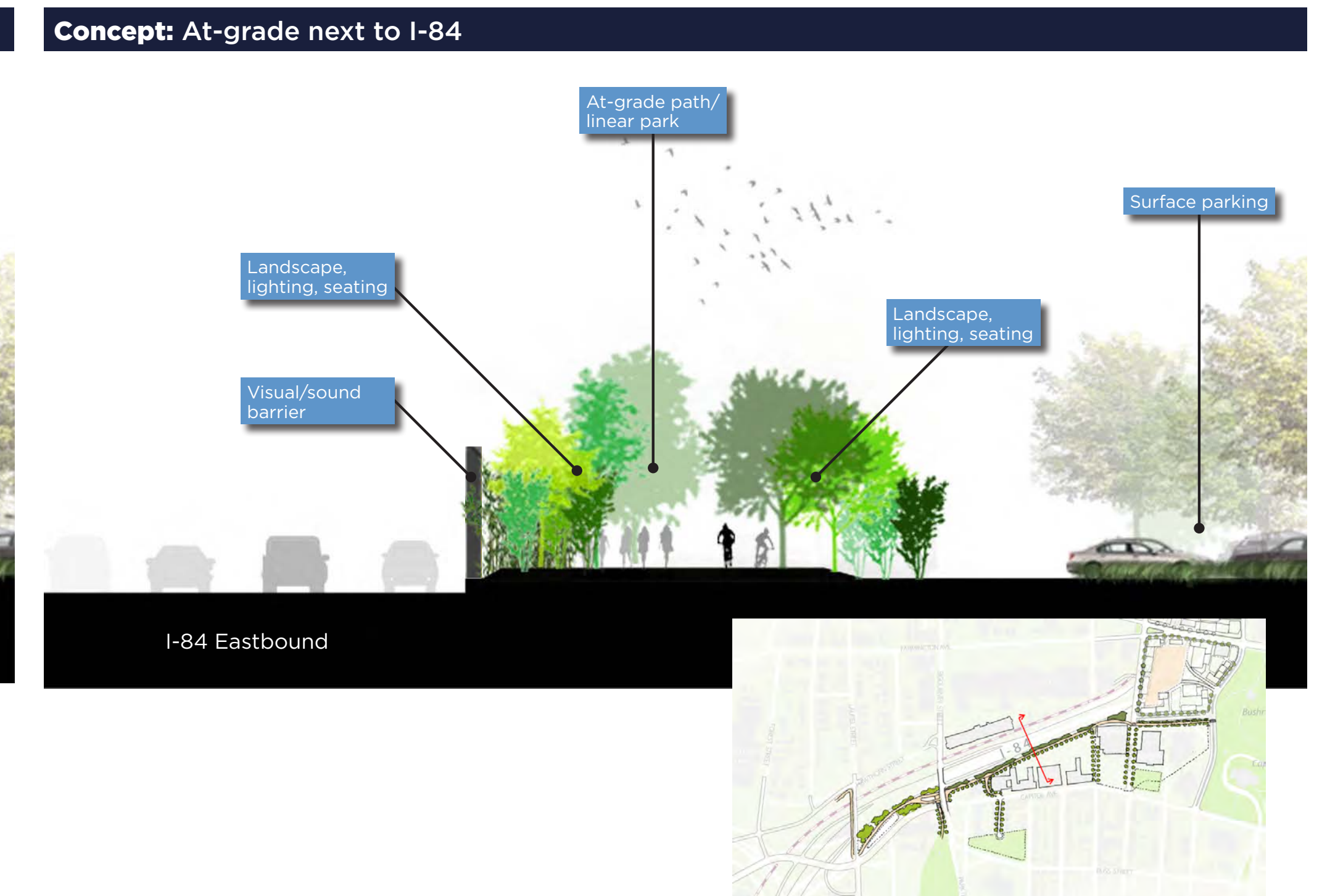
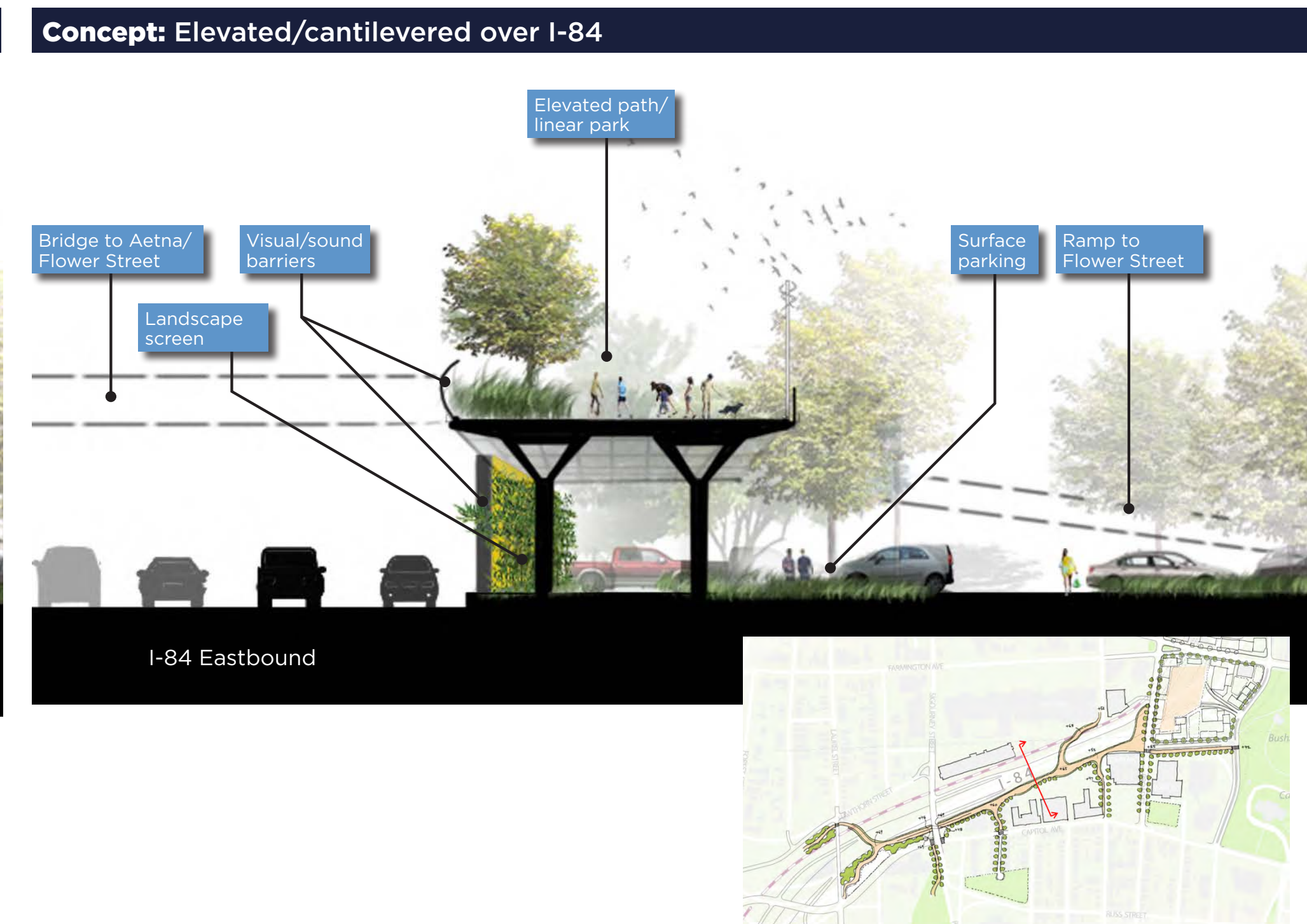
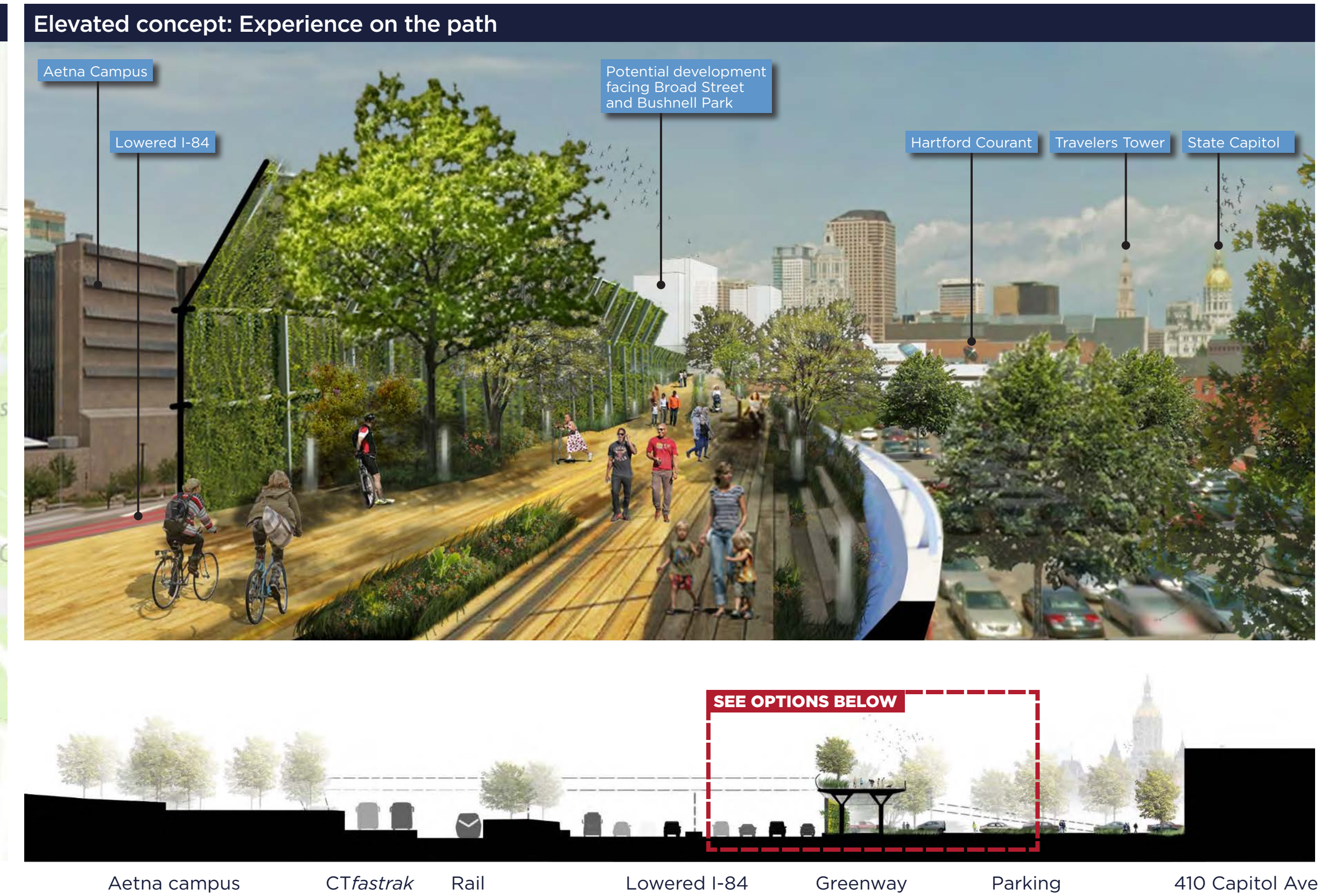
EXISTING



I-84 HARTFORD PROJECT MULTI-USE GREENWAY: CONCEPT FOR I-84

Multi-Use Greenway

- New linear park for Hartford
- Could carry the East Coast Greenway through the corridor
- Connects to potential TOD development and new open spaces
- Connects neighborhoods, Bushnell Park, Union Station, Downtown
- Accessible to bikes and pedestrians
- Commuting and recreation
- Total cost of \$200-240 million
- World-class design: Hartford's "High Line" park





I-84 HARTFORD PROJECT ASYLUM STREET

TWO POTENTIAL VIEWS



ASYLUM STREET
LOOKING WEST TOWARDS
RAIL VIADUCT



EXISTING

SPRUCE/ASYLUM INTERSECTION
LOOKING TOWARDS THE CAPITOL



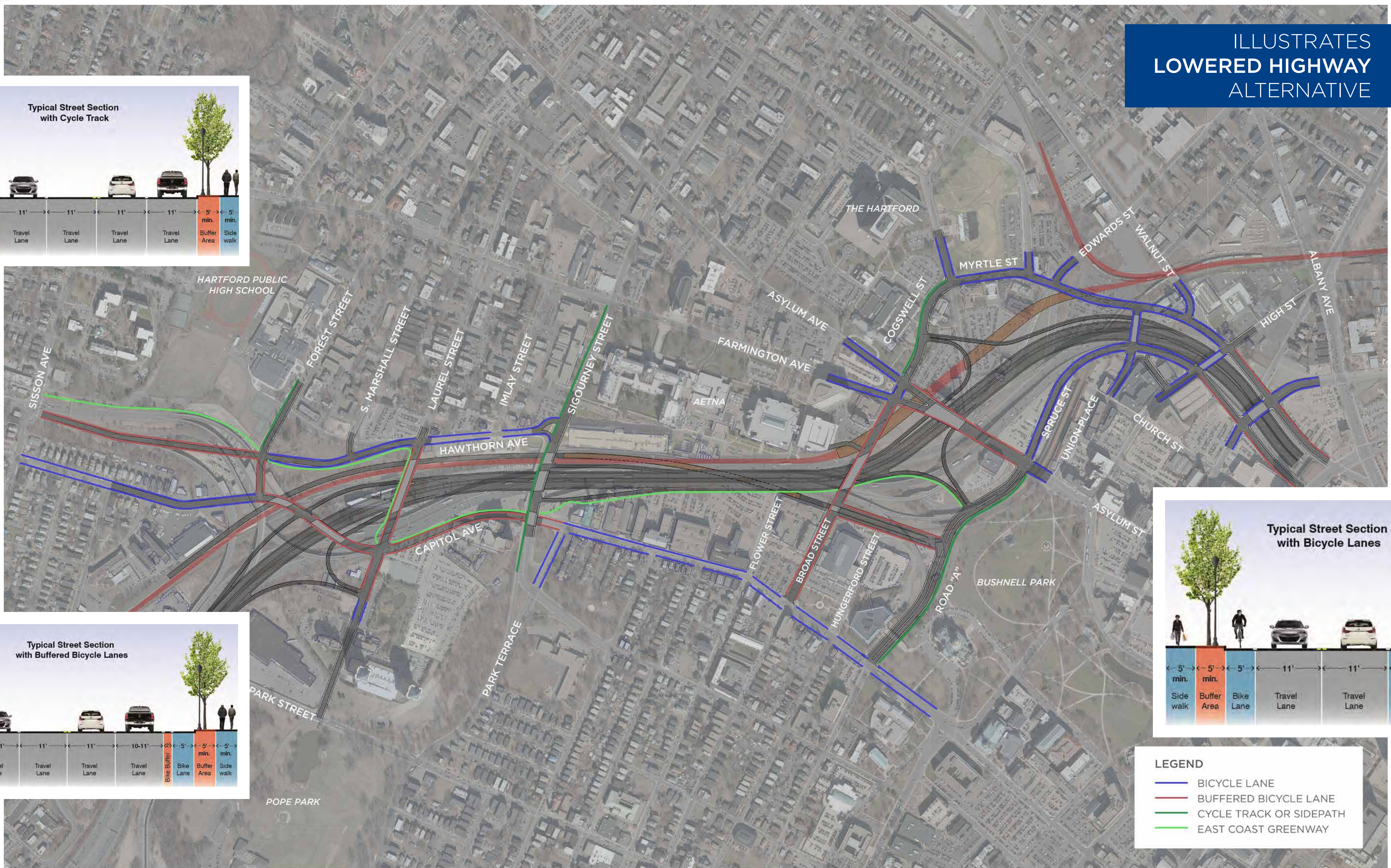
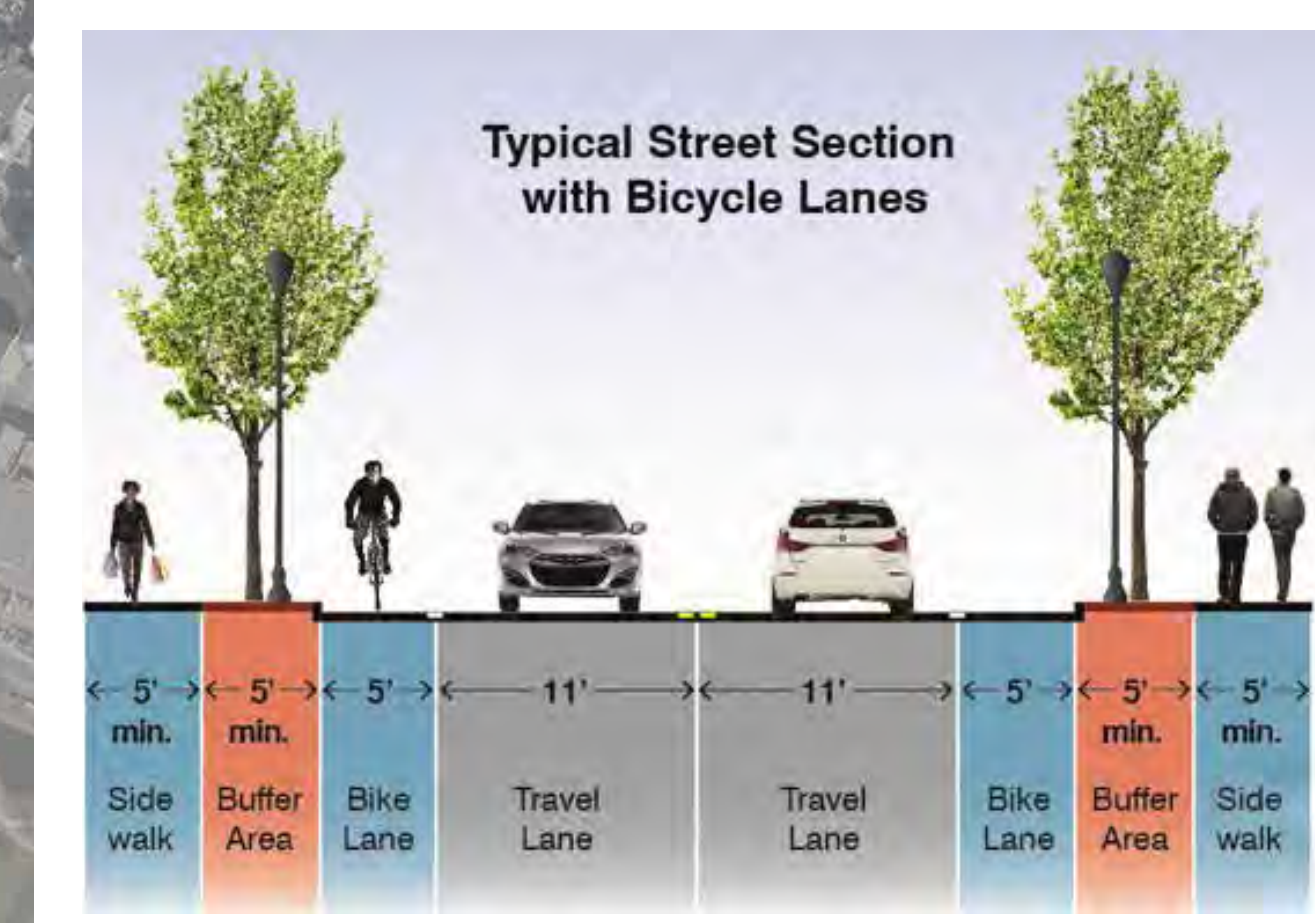
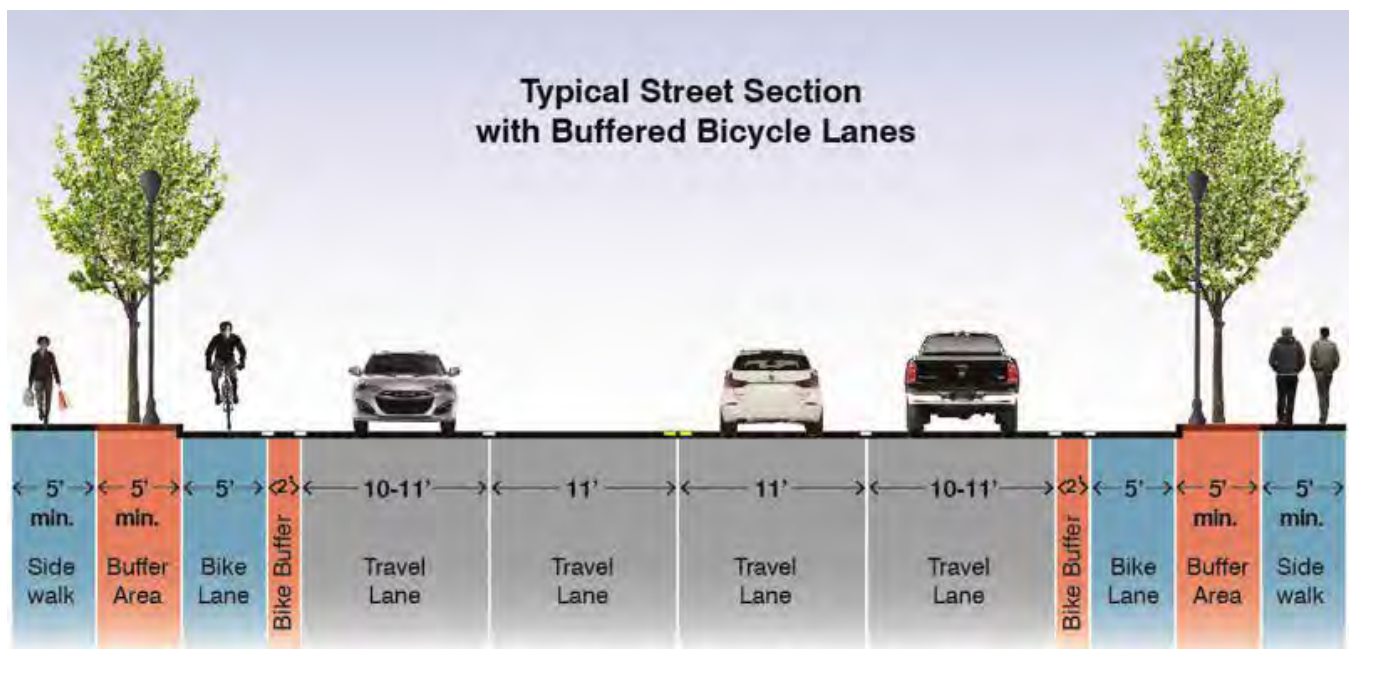
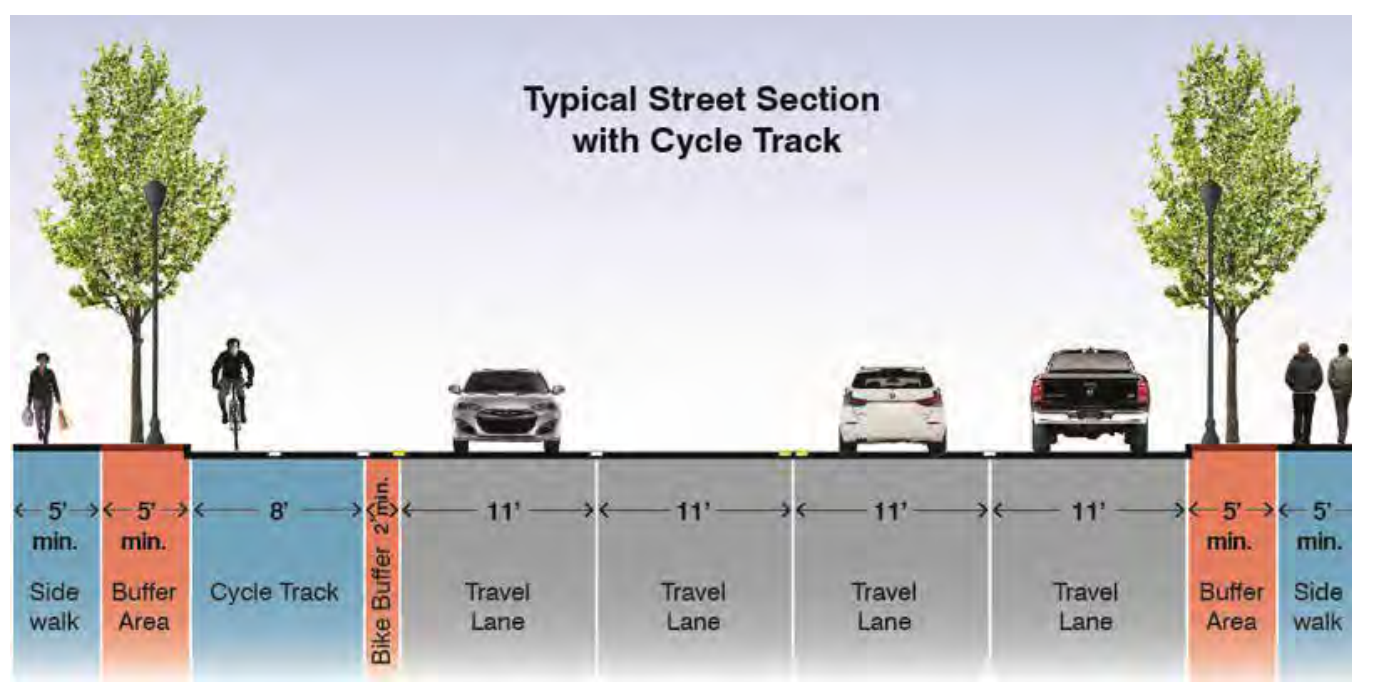
EXISTING





I-84 HARTFORD PROJECT BICYCLE NETWORK OPPORTUNITIES

ILLUSTRATES
LOWERED HIGHWAY
ALTERNATIVE



LEGEND

- BICYCLE LANE
- BUFFERED BICYCLE LANE
- CYCLE TRACK OR SIDEPATH
- EAST COAST GREENWAY



STATION 6

RDV MODEL

