HNTB

PEL study for Interstate 84/Route 8 Reconstruction, Waterbury, CT

→ Blending Planning and Engineering to enhance project delivery

Your Presenters

April 16, 2026

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CONNECTICUT DEPARTMENT OF TRANSPORTATION

84new mix

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Agenda

- **Planning and Environment Linkages**
  - PEL Benefits
  - PEL vs NEPA
  - Possible Outcomes
  - Integration
- **Waterbury New Mix**
  - Program Overview
  - New Mix PEL
  - Take-Aways

Planning and Environmental Linkages

What is a PEL?

- PEL is a **study process** used to identify transportation issues, priorities, and environmental concerns. It can be applied to make planning decisions and be used for planning analysis

- The primary objective of the PEL process is to assess transportation needs and priorities

- In all types of PELs, **the goal is to gather enough detail so that the information developed can be utilized in future planning or NEPA**

- Recognized by FHWA as an initiative to accelerate project delivery

23 CFR §450.212 & §450.318 and Appendix A of Part 450

Planning and Environment Linkages (PEL) is a valuable approach for creating efficiency in transportation project development and supporting agencies to accelerate project delivery.

Why Use PEL?

» Minimize duplication of efforts

A PEL approach improves information sharing and early consultation among State DOTs, Federal agencies, and resource agencies, resulting in reduced or eliminated duplication of work in planning and NEPA processes.

» Documentation

Taking a PEL approach can help document planning information and decisions for environmental review and NEPA.

» Decisions & analysis to inform NEPA

PEL uses transportation planning decisions and analysis, including purpose and need, identification of preliminary alternatives, and elimination of unreasonable alternatives, to inform NEPA.

» Flexible approaches

PEL can be implemented using a number of approaches, making it a flexible and adaptable tool across States. States can employ PEL to supplement and enhance their existing processes while still realizing PEL's benefits.

» Enhanced community involvement

PEL can give the public an early opportunity to assess project components and provide meaningful input on future projects in a way that is more accountable and responsive to the community.

» Improved relationships & coordination

Taking a PEL approach often improves relationships and coordination with partner agencies, including stronger information sharing and better communication.

FLEXIBILITY IN FUNDING

Planning funds (Metropolitan Planning [PL]/State Planning and Research [SPR] and Surface Transportation Program Block Grant [STPBG]) can be used for aspects of PEL studies, including corridor and feasibility studies, which can be used to accelerate project delivery

Why CTDOT started to consider PELs

- Improve quality of information needed to make sound planning decisions

- Better identify statewide needs

- Avoid taking unrealistic alternatives into NEPA
  - Logical Termini identified
  - Improved, efficient scopes

- Projects that can be advanced

- Aid in meeting NEPA page limit and timeline requirements
  - Permitting within 90 days of ROD

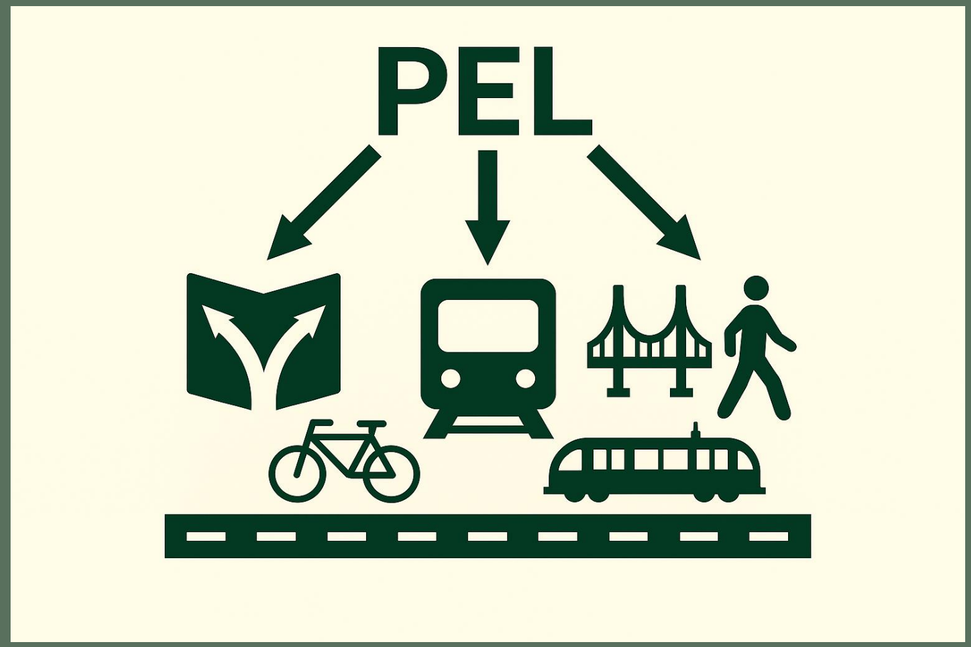
Let's Compare

PEL

NEPA

Possible Outcomes

- Modal Choice
- Draft Purpose & Need
- Preliminary Screening of Alternatives
- Methodologies for analysis
- ID critical issues
- ID logical termini
- Preliminary Class of Action determination
- Preliminary impacts, potential permits & mitigation assessment
- Engaged, educated public & stakeholders
- Early regulatory agency coordination
- Mitigation Strategies / Programmatic Plan
- Implementation
  - Phasing or Prioritization of projects
- ID independent projects
- ID funding sources



Integration with NEPA

- Follow the Transportation Planning Process
- Use reliable and reasonably current data and reasonable, scientifically acceptable methodologies (“NEPA Quality”)
- Must notify the public of intention to adopt or incorporate by reference
- Involve FHWA and FTA offices as appropriate
- Solicit participation by Federal and state resource agencies and Native Tribes
- Provide opportunity for public review and comments
- Prepare appropriate documentation
- Material must be utilized within reasonable timeframe

Integration of planning and Environmental review - 23 U.S.C. § 168

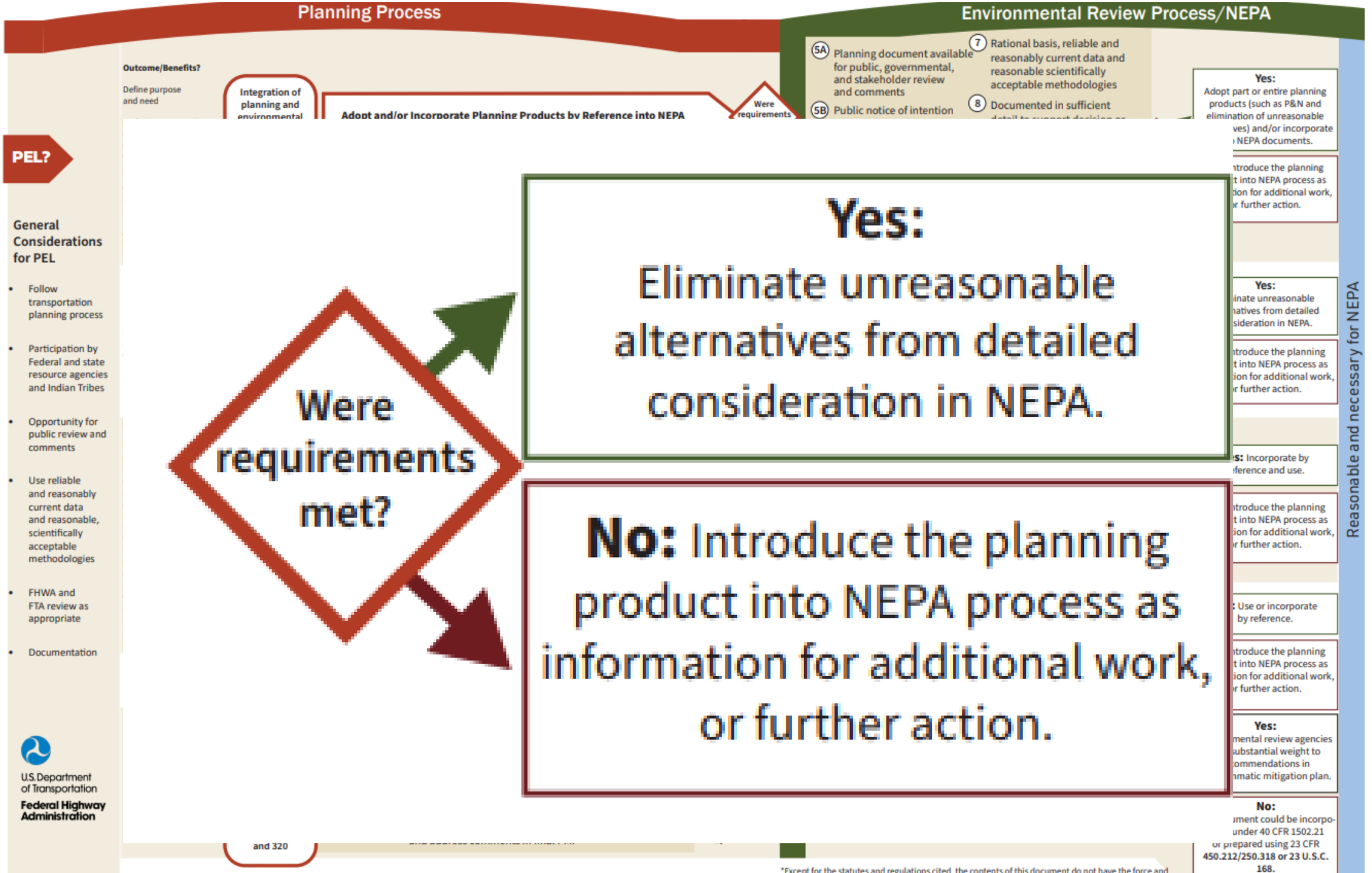
CEQ NEPA Regulations 40 CFR 1500.4(l) and 1501.12

Efficient environmental reviews 23 U.S.C. § 139(f)(4)E(ii)

Planning Regulations 23 CFR § 450.212 (a) – (c) & § 450.318 (a) – (d)

Programmatic Mitigation Planning (PMP) 23 U.S.C. § 169

Planning Regulations 23 CFR 450.214 and 320

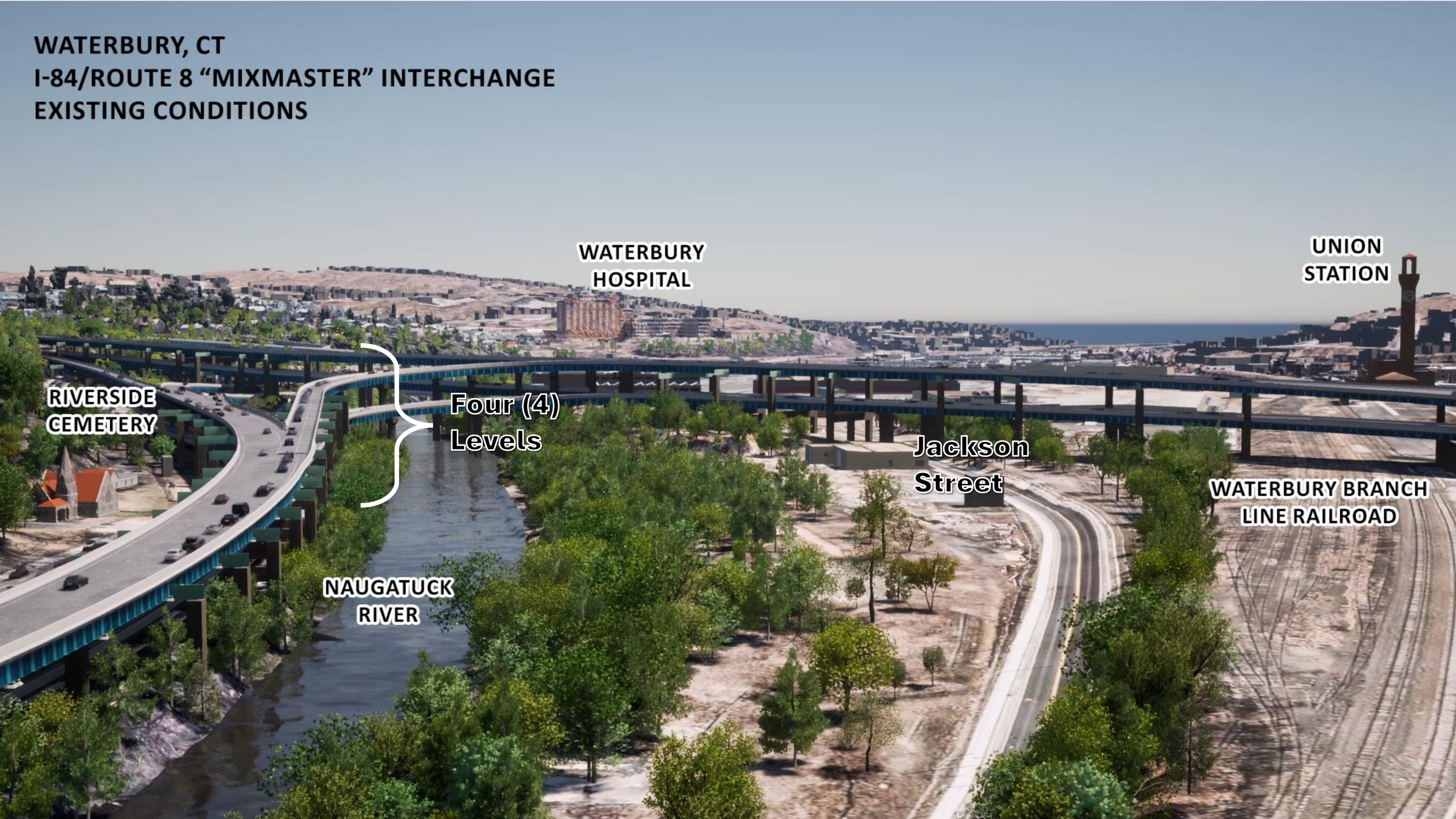

Planning Process
Environmental Review Process/NEPA
PEL?
General Considerations for PEL
Follow transportation planning process
Participation by Federal and state resource agencies and Indian Tribes
Opportunity for public review and comments
Use reliable and reasonably current data and reasonable, scientifically acceptable methodologies
FHWA and FTA review as appropriate
Documentation
U.S. Department of Transportation
Federal Highway Administration
Outcome/Benefits?
Define purpose and need
Integration of planning and
Adopt and/or Incorporate Planning Products by Reference into NEPA
Were requirements
5A Planning document available for public, governmental, and stakeholder review and comments
5B Public notice of intention
7 Rational basis, reliable and reasonably current data and reasonable scientifically acceptable methodologies
8 Documented in sufficient
Yes:
Adopt part or entire planning products (such as P&N and elimination of unreasonable ves) and/or incorporate NEPA documents.
Were requirements met?
Yes:
Eliminate unreasonable alternatives from detailed consideration in NEPA.
No: Introduce the planning product into NEPA process as information for additional work, or further action.
Reasonable and necessary for NEPA
No:
ument could be incorpo-
under 40 CFR 1502.21
or prepared using 23 CFR
450.212/250.318 or 23 U.S.C.
168.
and 320

New Mix Program

Study Area


N
Massachusetts
New York
Rhode Island
Connecticut
Hartford
Waterbury
Mixmaster Interchange Project Location


Legend
00 Exit/ Entry Number
XX Old Exit/ Entry Number
Northern Study Area Limit (Route 8)
Study Area
Western Study Area Limit (I-84)
Eastern Study Area Limit (I-84)
Southern Study Area Limit (Route 8)
8
84
17
18
19
20
21
22
23
29
30A
30B
30C
30D
31

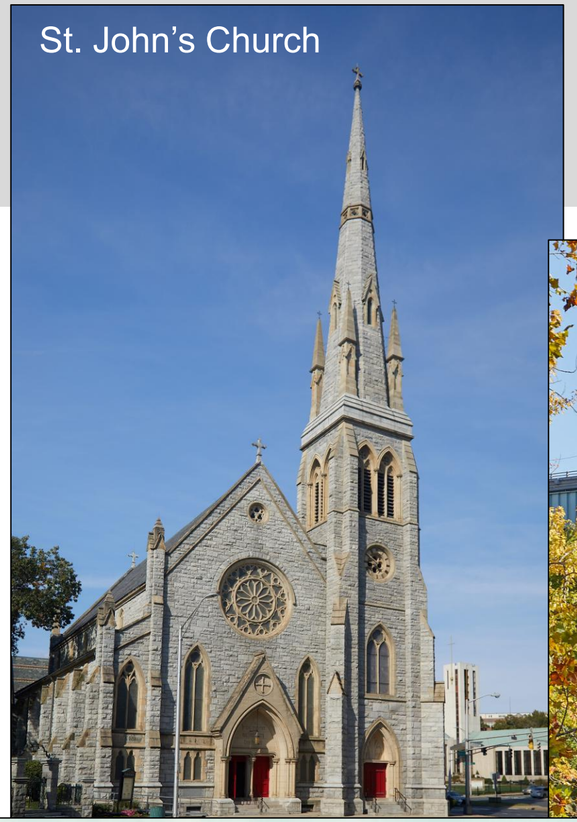

WATERBURY, CT
I-84/ROUTE 8 "MIXMASTER" INTERCHANGE
EXISTING CONDITIONS
WATERBURY HOSPITAL
UNION STATION
RIVERSIDE CEMETERY
Four (4) Levels
Jackson Street
WATERBURY BRANCH LINE RAILROAD
NAUGATUCK RIVER

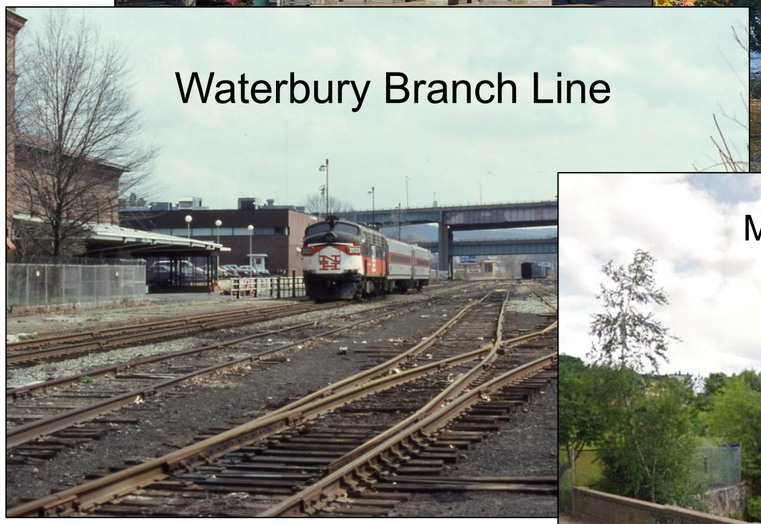
Existing Interchange Deficiencies

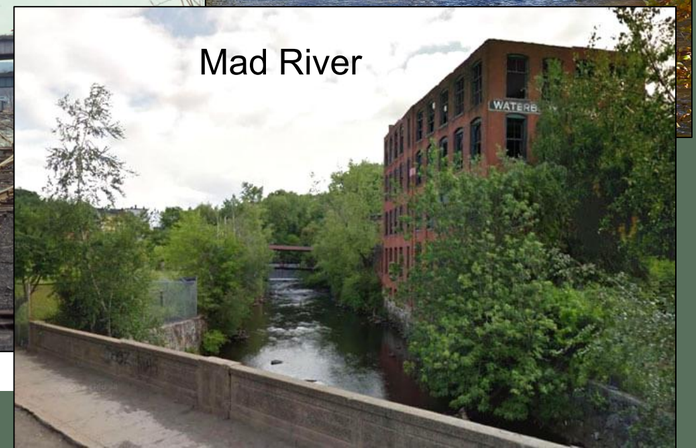
- Aging – Opened in 1967
- Not designed to current safety & operational standards
  - Left hand exits and entrances
  - Inadequate Shoulders
  - Close spacing of ramps – Traffic Conflict Points
    - Inadequate Accel/Decel lengths
    - Inadequate signing
- Stacked structures
- Originally designed to handle 100,000 trips per day - currently at 190,000
- 35% of Traffic on Interchange is Local traffic
- Lifespan has been extended through multiple rehabilitations

Resources Considered

- Right of Way
- Noise
- Historic Resources
- Archaeology
- Geologic Resources and Soils
- Hazardous Materials
- Visual and Aesthetics / Community Context
- Social and Economic Conditions
- Environmental Justice and Limited English Proficiency
- Parks and Recreation Section 4(f)/Section 6(f)
- Floodplains
- Wetlands and other Waters of the U.S.
- Wildlife and Fisheries
- Threatened and Endangered Species







New Mix Program Draft Purpose & Need

Needs

Structural, Geometric & Operational Deficiencies

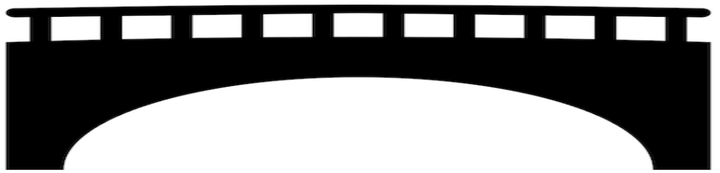
- I-84/Route 8 Bridge & Roadway Conditions
- LOS of I-84/Route 8 and associated local road network

Purpose

To improve the existing structural, geometric and operational deficiencies of the I-84 and Route 8 interchange to meet current and future traffic needs and enhance mobility for all transportation users within the associated transportation system

Of the project's 62 studied bridges:

- 60% are structurally deficient
- Over 40% are functionally obsolete
- 19% are fracture critical



Goals and Objectives

- Improve system performance;
- Reduce congestion;
- Reduce crash rates;
- Maintain critical system linkages in Connecticut and the Northeast;
- Facilitate connectivity with Waterbury through the local road network including multimodal travel;
- Provide connections to the Naugatuck River and Greenway;
- Improve the local roadway network;
- Reduce interchange complexity;

- Enhance mobility and safety for bicyclists and pedestrians;
- Integrate the Project with ongoing City projects;
- Improve access to Downtown and key destinations;
- Strengthen surrounding neighborhoods as gateways to the City's Central Business District (CBD);
- Support City revitalizing goals of the CBD;
- Support opportunities to improve equitable access to multimodal facilities;
- Avoid, minimize or mitigate potential consequences to the environment;

Public input shaped the planning decisions made during the ***New Mix*** PEL Study

Input gathered to

- Define the ***New Mix*** Program's vision, and Preliminary Purpose and Need Statement.
- Identify focus areas for the PEL Study and inform solutions that could work towards building a better functioning and more equitable transportation system within Waterbury.

Public Input – Mobility Equity Study

31% indicated someone in their household has a disability

53% indicated that they feel it is unsafe to walk or bike in Waterbury

30% indicated no one in their household owns a vehicle

33% of respondents were unaware of transit frequency near their homes with 1/3 responding "I'm not sure"

23% feel there are destinations that are currently unreachable

Top Three Safety Challenges:

1 Cars Speeding

2 Aggressive Driving

3 Heavy Traffic

Top Three Environment/ Quality of Life Challenges:

1 Heavy Traffic

2 Lack of Street Furniture

3 Traffic Noise

Overall Transportation Experience Rating:

11% Excellent

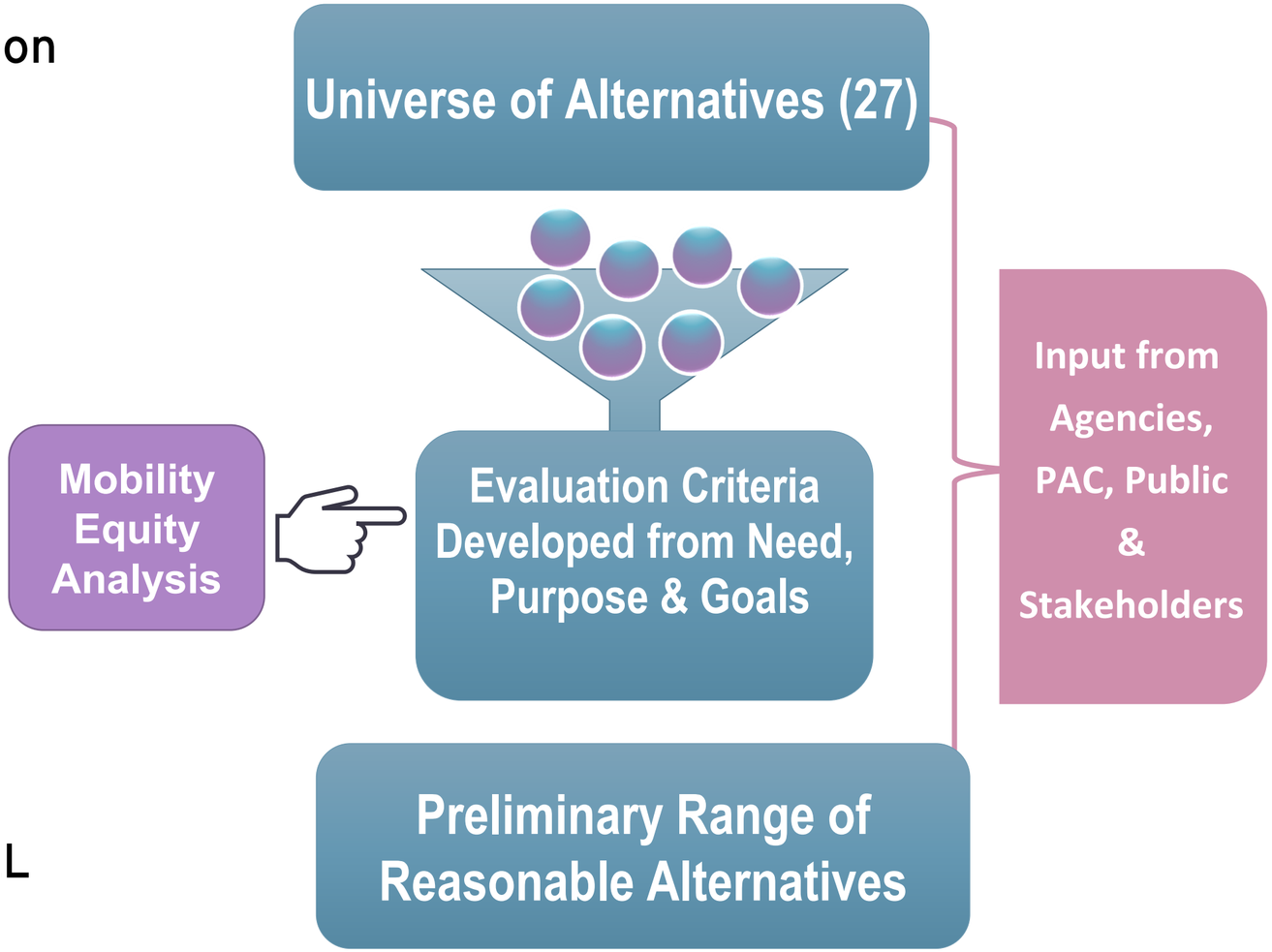
37% Adequate

28% Poor

24% Don't Know or No Comment

Evaluated & Screened Alternatives

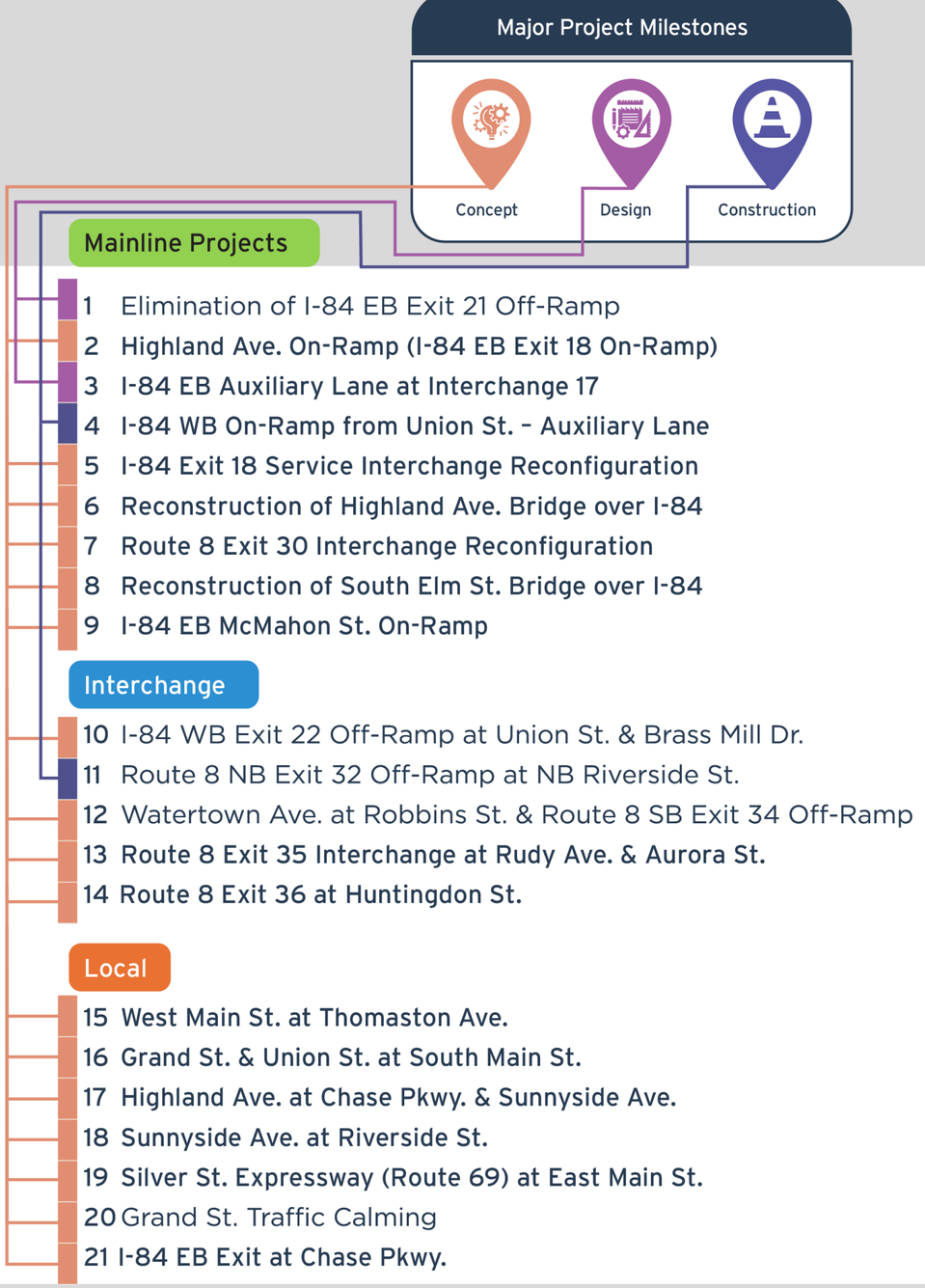
- Level 1: Evaluation of Fatal Flaws; engineering based on Purpose and Need
- Level 2 : Evaluation of the Goals of the project: informed through public outreach
- Level 3: Evaluation of the Impacts and mitigation opportunities are identified
- Included Mobility Equity Analysis
- Concluded with the identification of the Range of Reasonable Alternatives
- Public outreach occurred during all phases of the PEL

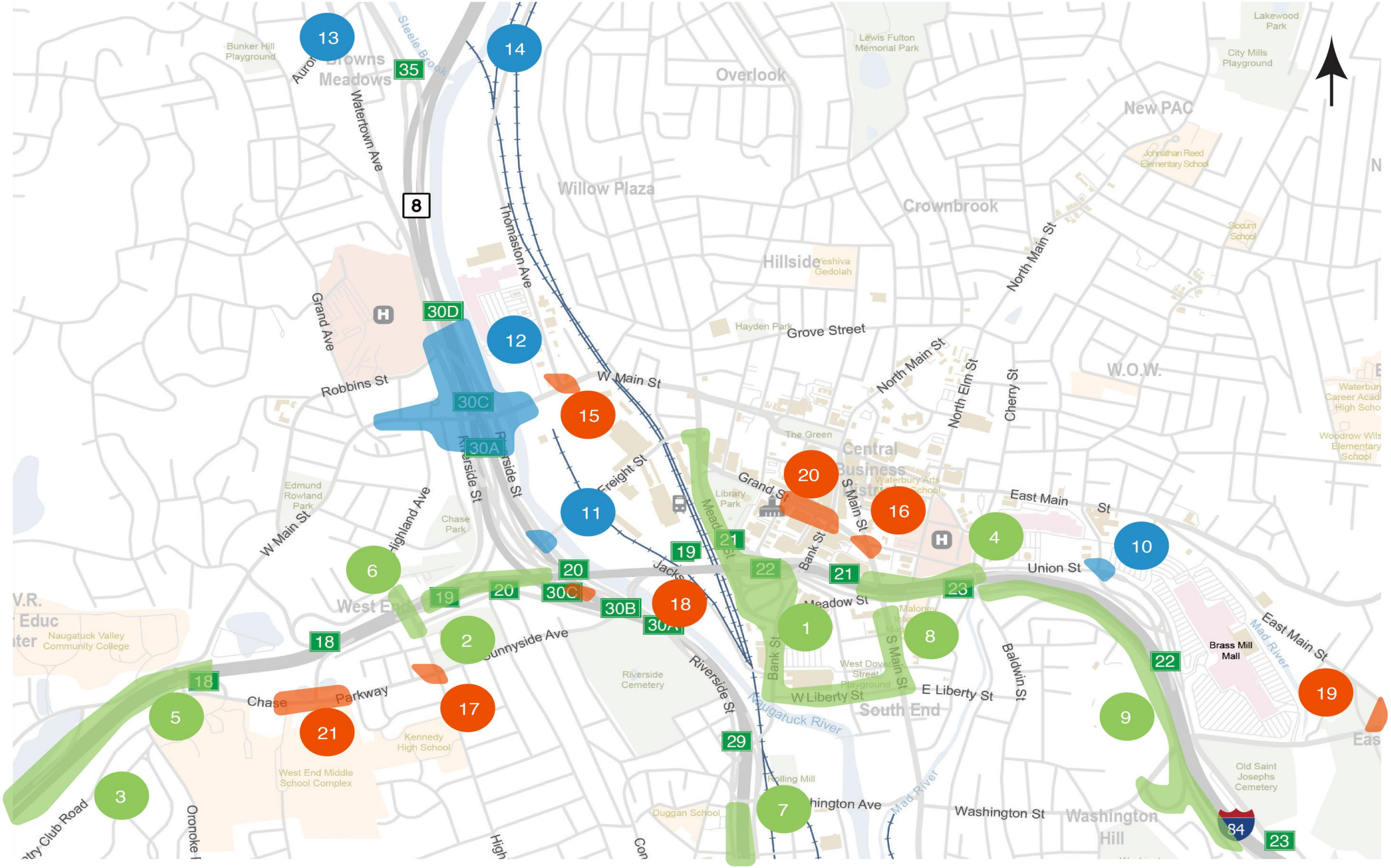


Independent Projects

Independent – Early Action or Near-Term projects were defined as those that had independent utility, logical termini, and lacked connected actions to the larger future project

- 21 Identified
- 2 Constructed & 1 under construction
- 1 in Design with 1 pending
- 16 in Concept





Overlook
Willow Plaza
Crownbrook
Hillside
New PAC
W.O.W.
Central Business District
South End
Washington Hill
West End
Browns Meadows
Grove Street
W Main St
East Main St
Union St
Meadow St
Riverside St
Thomaston Ave
Watertown Ave
North Main St
North Elm St
Cherry St
Robbins St
Grand Ave
Grand St
S Main St
Bank St
Baldwin St
E Liberty St
W Liberty St
Washington St
Sunnyside Ave
Chase Parkway
Highland Ave
Freight St
Naugatuck River
Mad River
Steele Brook
Brass Mill Mall
Naugatuck Valley Community College
Kennedy High School
West End Middle School Complex
Riverside Cemetery
Old Saint Josephs Cemetery
Library Park
The Green
Edmund Rowland Park
Chase Park
Lewis Fulton Memorial Park
Lakewood Park
City Mills Playground
Bunker Hill Playground
Hayden Park
Yeshiva Gedolah
Duggan School
Rolling Mill
West Dover Street Playground
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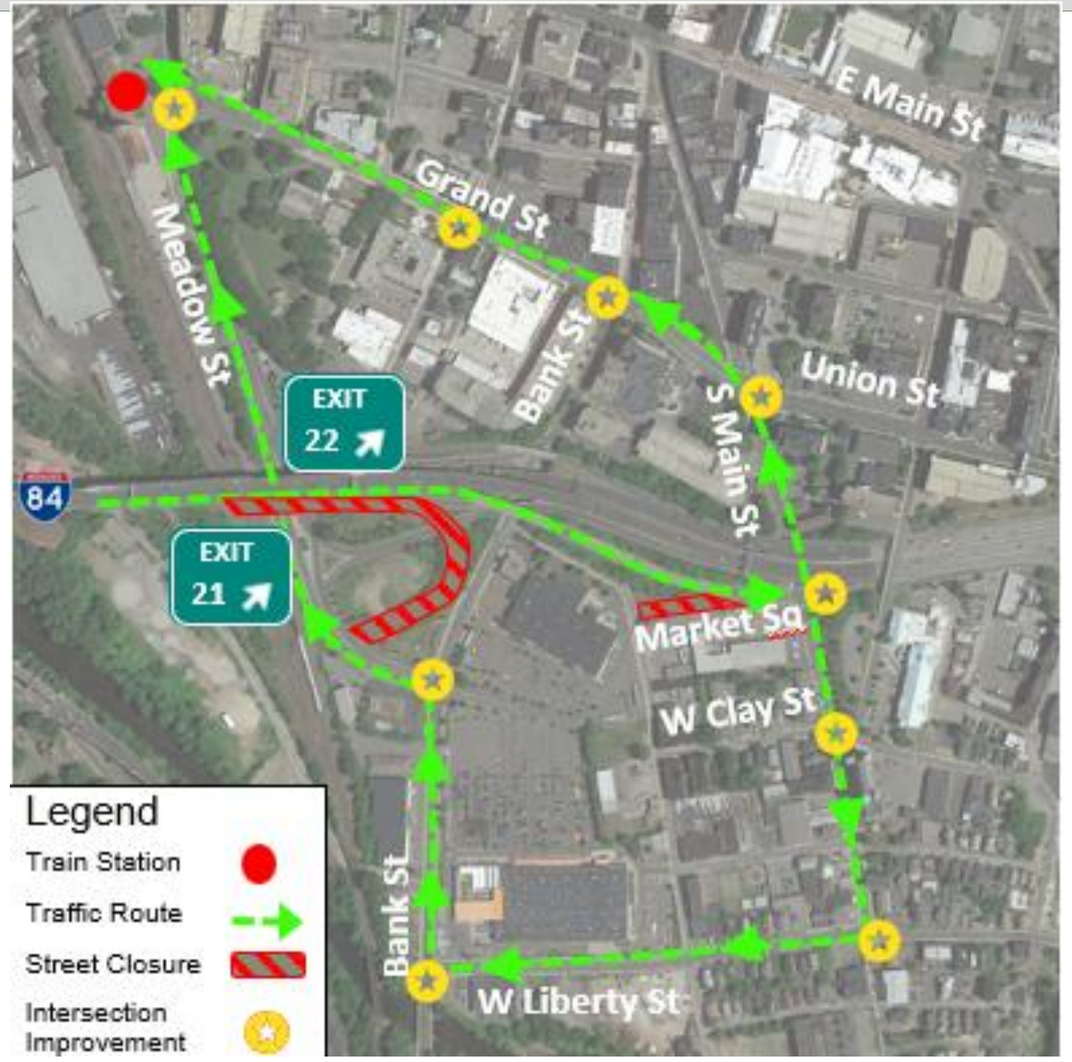
Independent Project – I-84 EB Exit 21 Removal

- Substandard distances for Ramp Merges/ Weaves/ Diverges
- High Crash Location
- Recurring Congestion
- Deficient Traffic Operations
- Bridge in Poor Condition

New Local System Circulation



Deficiencies	Solutions
•Bridge in poor condition •Substandard distances for Ramp Merges/ Weaves/ Diverges •Deficient Traffic Operations •High Crash Location •Recurring congestion	•Demolition of deficient bridge •Permanent closure of Exit 21 •New traffic signal controls •Signal phasing and timing improvements •Local road improvements

Intended Outcomes	
•Improve traffic operations •Reduce congestion (improves air quality) •Reduce crash rate (improves safety)	•Improve connectivity/ non motorized mobility •Urban Design opportunities

Modern Crossover Interchange

The Range of Reasonable Alternatives

Modern Crossover Interchange

- The Route 8 structures would be reconstructed east of the Naugatuck River resulting in opportunities to provide access to the Naugatuck River on the west riverbank.

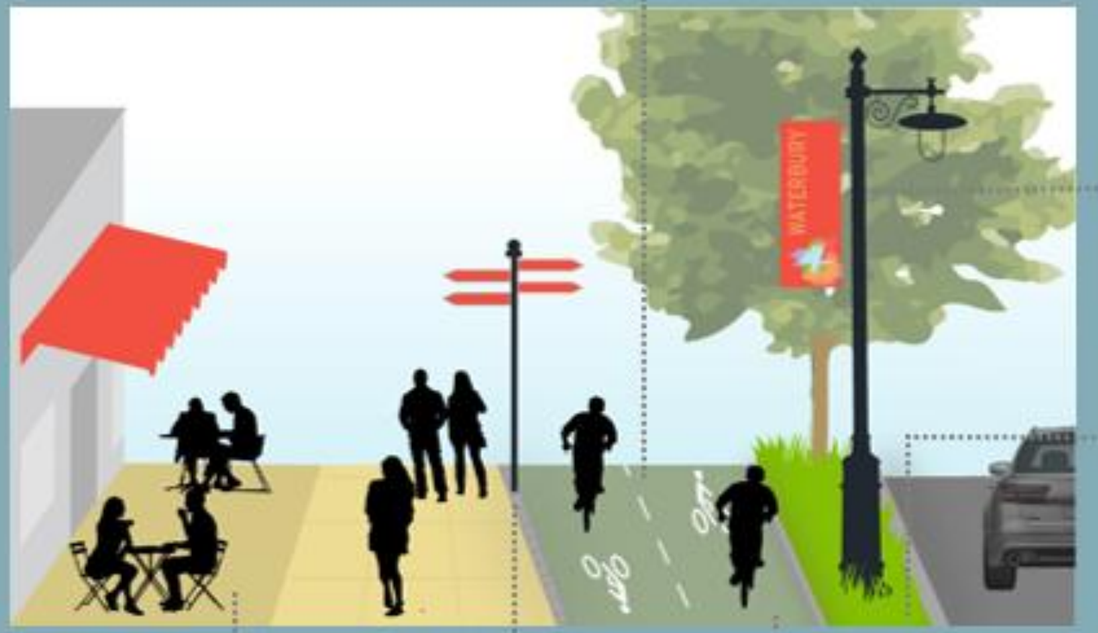
Naugatuck River Shift

- The Route 8 structures would remain on the west side of the river resulting in opportunities to provide access to the Naugatuck River on the east riverbank. Excavation activities would need to occur to provide floodplain capacity due to unstacking of Route 8.

Future Outcomes

Safe and Activated Corridors
Connected Corridors

- **Special Paving –** visual cue for pedestrians and drivers
- **Mid-Block Crossing** – formalizes pedestrian desire lines, calms traffic
- **Pedestrian Refuge Islands –** shorter crossings on busy streets

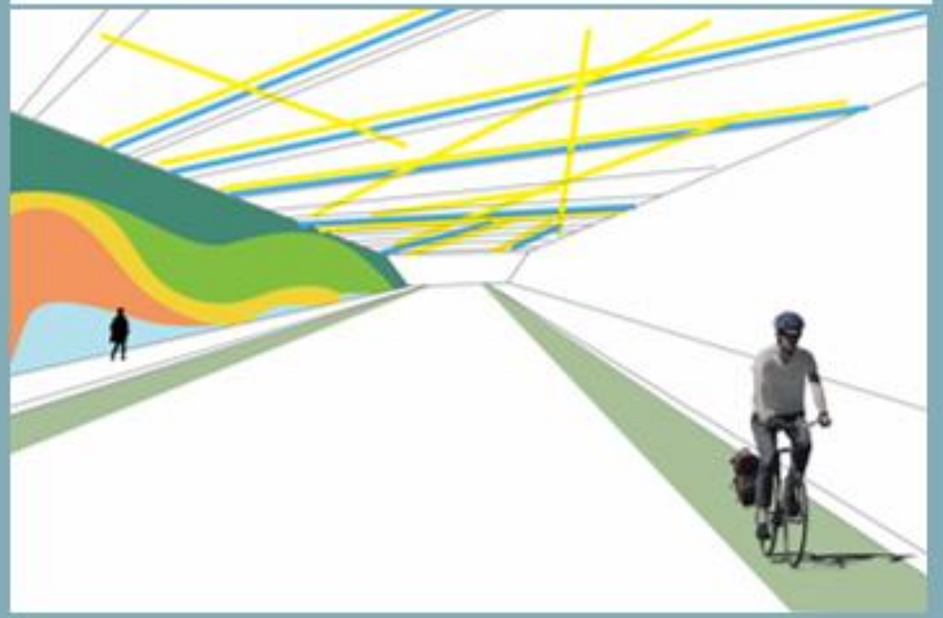


- **Raised Cycle Track** protect cyclists, pedestrians, and motorists
- **Enhanced Lighting** improved safety, unique lighting creates a sense of place
- **Green Infrastructure and Planting Strips** buffer between cars and pedestrians while providing stormwater benefits

Enlivened Underpasses Connected Corridors

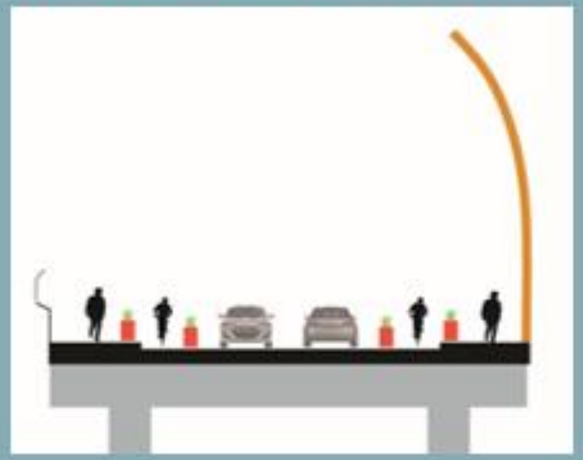
Existing Underpass Experience

Enlivened Underpass Opportunities



- Murals and lighting welcome pedestrians, create visual presence
- Combine with Safe Routes tactics

Overpasses as Gateways
Connected Corridors



Highland Ave Overpass Opportunity

S. Elm St Overpass Opportunity

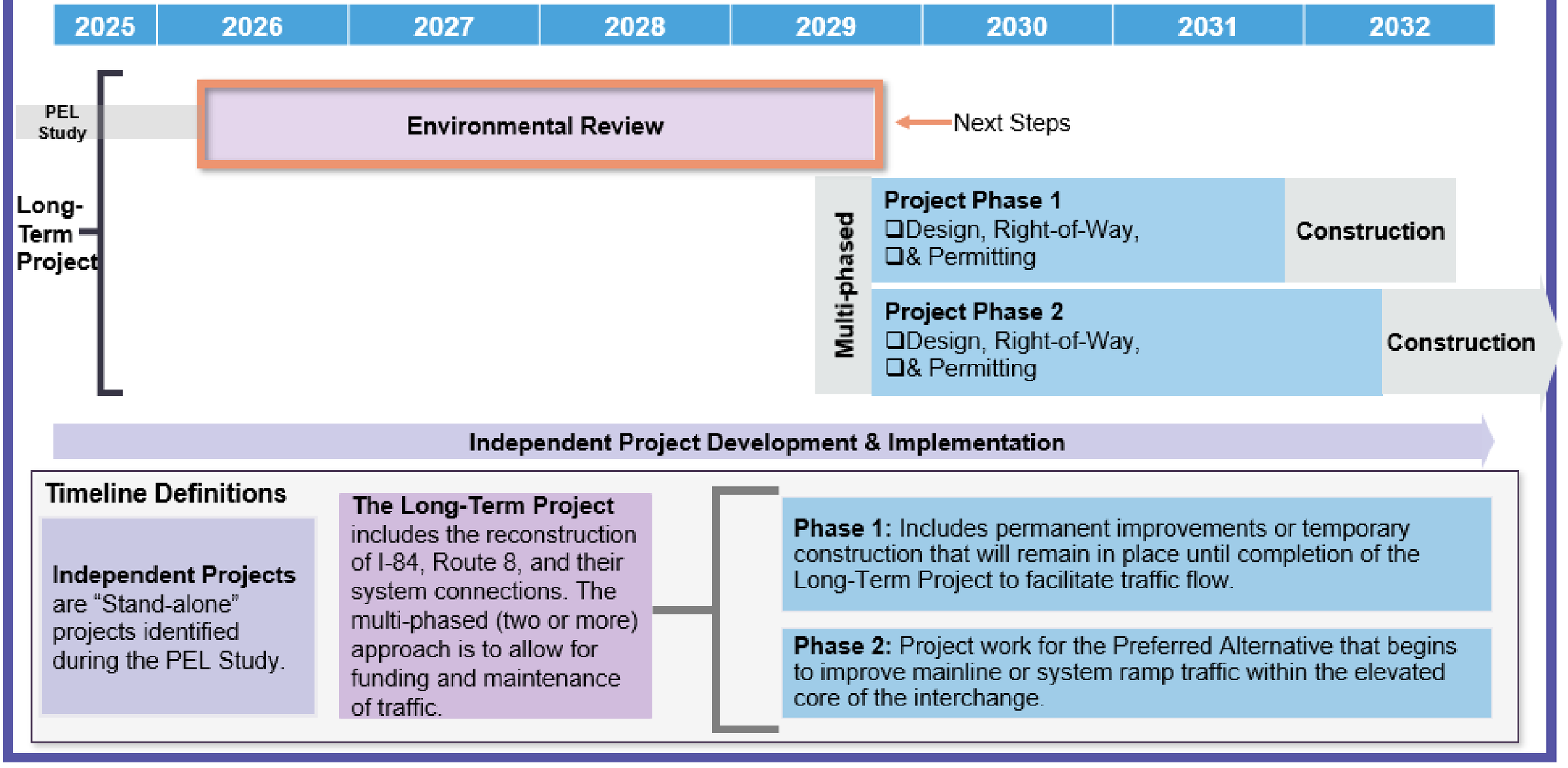
- Unique installations create a sense of arrival specific to Waterbury
- Incorporate “Safe Route” tactics
- Opportunity to engage local artists

Gateway Experienced from the Highway

Gateway Experienced from the Overpass

New Britain, CT

New Mix Program Process and Timeline



Timeline Definitions

Independent Projects are "Stand-alone" projects identified during the PEL Study.

The Long-Term Project includes the reconstruction of I-84, Route 8, and their system connections. The multi-phased (two or more) approach is to allow for funding and maintenance of traffic.

Phase 1: Includes permanent improvements or temporary construction that will remain in place until completion of the Long-Term Project to facilitate traffic flow.

Phase 2: Project work for the Preferred Alternative that begins to improve mainline or system ramp traffic within the elevated core of the interchange.

Positive PEL Outcomes

- Engineering & Planning teams working together
- Avoiding escalation of cost for independent projects
- Projects identified and delivered that will benefit the community

Opportunities to Connect

Project website:

www.NewMixWaterbury.com

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Helpful References

- Planning and Environment Linkages | Environmental Initiatives | Environmental Review Toolkit | FHWA
- Updated_PEL_Fact_Sheet_2021-09-29.pdf
- PEL Flow Chart Authorities
- PEL Purpose and Need Flow Chart
- PEL Flow Alternatives
- PEL Questionnaire | Planning and Environment Linkages | Environmental Review Toolkit | FHWA
- eCFR :: Appendix A to Part 450, Title 23 -- Linking the Transportation Planning and NEPA Processes



Thank you.

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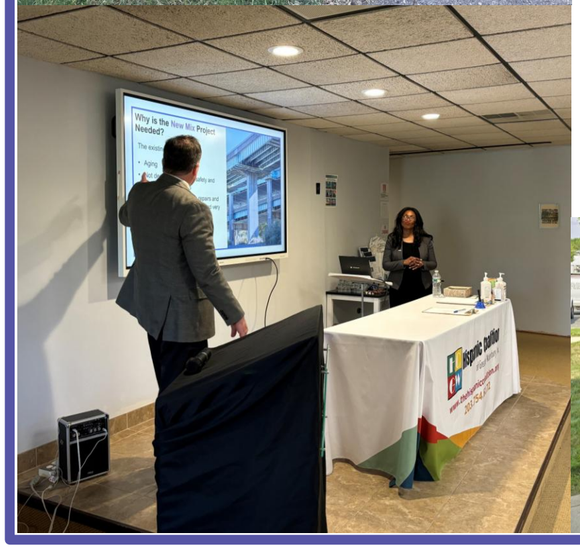




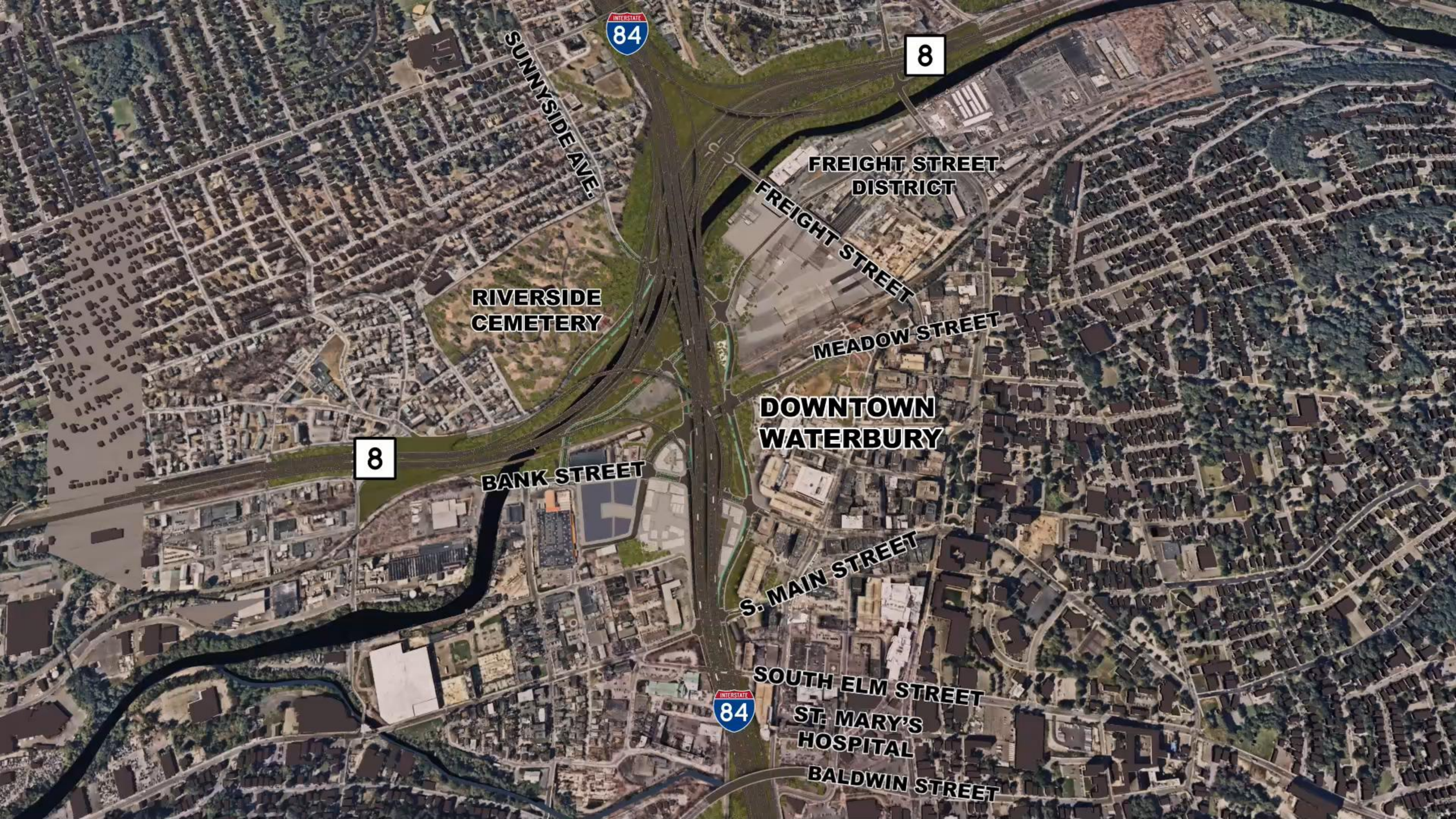
INTERSTATE 84
8
SUNNYSIDE AVE.
FREIGHT STREET DISTRICT
FREIGHT STREET
RIVERSIDE CEMETERY
MEADOW STREET
DOWNTOWN WATERBURY
8
BANK STREET
S. MAIN STREET
INTERSTATE 84
SOUTH ELM STREET
ST. MARY'S HOSPITAL
BALDWIN STREET