Established 1972...an open forum for information exchange and discussion on the State’s Air Quality Programs, proposed regulations and status of efforts to achieve and maintain air quality standards in the State.
Agenda

- Project Overview
- Environmental Review
- Air Quality Analysis
  - Emission Sources
  - Regulatory Context
  - Methodology
  - Analysis Update
- Next Steps
Project Overview
Where is the project?

Approximately from Flatbush Avenue to I-91
Corridor View
Why is it Needed?

- Bridge structural deficiencies
- Operational and safety deficiencies
- Mobility deficiencies
Traffic Congestion

I-84 traffic speeds: 'extent' of congestion

AM = 3 miles
PM = 6-7 miles

AM = 6 miles
PM = 4 miles

Rt 9, city line, Sigourney St., I-91, Main St E. Hfd,

0 20 40 60 mph
Alternative 1: No-Build

Alternative 2: Elevated Highway
Alternative 3: Lowered Roadway

Alternative 4: Tunneled Highway
Alternatives Analysis Process

- **Level 1 Screening Analysis**
  - Recommended eliminating Tunnel Alternative
  - Recommended eliminating Elevated Alternative
  - Recommended further study of No-Build and Lowered Alternative

- **Level 2 Screens** further evaluation of Lowered Alternative
Existing Conditions
Integrating I-84 Into the City

- Capping and TOD
- Flower St. bridge
- Expanded decks/screening walls
- Expanded decks and topography
- New local street
- Multi-use greenway
- Expanded decks, topography, and enhanced local streets

Project Overview
Multi-Use Greenway

Connectivity
Asylum / Broad / Bushnell Park

Existing Conditions

I-84 Viaduct and ramps
Elevated rail viaduct
Asylum / Broad / Bushnell Park

Lowered Highway

New I-84 off/on ramps

New boulevard along Bushnell Park

Building impacts

Elevated viaduct remnant

I-84 Lowered

New I-84 off/on ramps
Asylum / Broad / Bushnell Park

Lowered Highway, Greenway, and Cap

- Multi-Use Greenway
- Parklet on cap west of Broad
- New I-84 off/on ramps
- New boulevard along Bushnell Park
- New I-84 off/on ramps
- Cap/rail annex/parking over highway
- Elevated viaduct remnant
Asylum / Broad / Bushnell Park

Potential Development

- Multi-Use Greenway
- Parklet on cap west of Broad
- New I-84 off/on ramps
- New rail annex
- New I-84 off/on ramps
- New boulevard along Bushnell Park
- Rail viaduct removed
- Potential development
I-84 between Broad and Asylum
Existing view on Asylum Street

I-84 elevated
No dedicated bike lanes
Auto-oriented zone discourages walking/biking
Unattractive pedestrian environment
I-84 between Broad and Asylum
Potential view on Asylum Street

- Dedicated bike lanes both directions
- Wide sidewalks and landscape
- TOD along street with active ground floor uses
- Traffic calming with removal of I-84 on/off ramps to Asylum
- Dedicated bike lanes both directions
I-84 HARTFORD PROJECT

Project Overview

Union Station looking towards Capitol
Existing

Existing rail viaduct  State Capitol  I-84 on/off ramps  ArtSpace Hartford
Union Station looking towards Capitol
Potential (without rail viaduct)

Corning Fountain
State Capitol
Bushnell Park West
ArtSpace Hartford
Soldiers & Sailors Memorial Arch
Potential TOD
Capitol Avenue

Existing view looking east at Sisson Ave. Ramps
Capitol Avenue

Potential view looking east
Environmental Overview
NEPA / CEPA Timeline

- On-going technical analysis
- Draft EIS out for public review, summer 2018
- Public Hearing, end of 2018
- Final EIS, Summer 2019
- Record of Decision, Fall 2019
Draft EIS Format

- Purpose and Need
- Alternatives
- Agency Coordination and Public Outreach
- Existing Conditions, Impacts and Mitigation
- Indirect and Cumulative Impacts
- Construction Impacts
- Appendices
Draft EIS Appendices

- Air Quality
- Noise and Vibration
- Cultural Resources
- Hazardous Materials
- Land Use and Socioeconomic Conditions
- Natural Resources
- Power Plant Impacts
- Alternatives Analysis Screening Report
- Traffic Analysis Report
- Project Correspondence
Air Quality Analysis
Key Terms

- Microscale “hot spot” – local concerns
- Mesoscale – emissions burdens within large scale areas around project corridor affected by the project
- Regional – emission effects over a region that is not in compliance with applicable ambient air standards
Project Related Emission Sources

- Operational Mobile Sources
  - Highway vehicle
  - Locomotive
- Operational Stationary Sources
  - Tunnel exhaust vent, if applicable
- Construction Mobile Sources
  - Non-road vehicle (equipment and trucks)
Hartford County is in marginal nonattainment for ozone ($O_3$).
Hazardous Pollutants

- Priority Mobile Source Air Toxics (MSATs)
  - Acrolein
  - Benzene
  - 1,3-butadien
  - Diesel PM/diesel exhaust organic gases
  - Formaldehyde
  - Naphthalene.
  - Polycyclic organic matter (POM)

Greenhouse Gas

- Carbon Dioxide Equivalent (CO2e)
- Approximately 85% of greenhouse gas from energy consumption activities
Regulatory Requirements

- Criteria Pollutants – Compliance under CAA Conformity Rule and NEPA
  - CAA – 40 CFR Part 51 Subpart T and Part 93 Subpart A
    - SIP emission reduction goals for nonattainment pollutants
    - NAAQS including microscale hot spot analysis for localized nonattainment pollutants
  - NEPA
    - NAAQS including microscale analysis to address local concerns, particularly for a large scale transportation project
    - Mesoscale emissions burdens for disclosure for alternative comparisons

- MSATs under NEPA
  - 2012 FHWA Interim Guidance on MSAT and Further 2015 FHWA’s Guidance on Conducting Quantitative MSAT Analysis for FHWA NEPA Documents
    - Quantitative MSAT analysis (AADT exceeds 140,000)
Agency Specific Guidance

- **CTDEEP**
  - CTDOT: consult with Air Planning & Standards Division
    - Develop air quality model to assess project traffic flow impacts
    - Identify how emissions from increased VMTs will be offset

- **U.S. EPA**
  - Confirm alternative of consistent design concept and scope is in most recent conforming Plan and TIP
Criteria Pollutant Impact Analysis

- Microscale Local Impact nonattainment pollutant hot spot analysis guidelines
  - 40 CFR 93.123(a) on CO Project Level Hot Spot Analysis
  - 40 CFR 93.123(b) on PM Project Level Hot Spot Analysis
  - EPA 2015 methodology guidelines for using MOVES for Project Level CO and PM hot spot analysis
  - EPA 1992 guideline in selecting worst-case intersections for CO analysis

- Mesoscale Emissions within project-affected subarea network
  - Quantify and compare daily emissions based on daily volume and MOVES emission factors for pollutants of concern

- Project-level Transportation Conformity Determination
  - Demonstrate microscale impacts are in compliance with the NAAQS
  - Confirm in DEIS that preferred alternative will be included in the future TIP, provide subarea traffic model and work with MPO to make formal conformity determination from MPO during Final EIS
MSAT Analysis

- Microscale Local Impact
  - Define sensitive land uses
  - Quantify corridor mainline and ramp daily MSAT emissions and compare among alternatives

- Mesoscale Emissions
  - Quantify daily emissions based on daily volume and MOVES emission factors and make alternative comparisons
Greenhouse Gas and Climate Change Analysis

- Methodology development is still evolving
- Mesoscale Emissions within subarea network
  - Quantify annual change in emissions using MOVES-predicted emission factors
- Climate change impact on project
  - Provide discussion of climate trend within the area based on historical data
  - Evaluate potential vulnerability of project area to climate change
Analysis Summary

- **Localized Impact Analysis**
  - Screening/Microscale Analysis for CO
  - Qualitative Analysis for PM
    - PM unlikely required for further microscale modeling analysis
    - Corridor Network MSATs Emissions Burden Analysis
- **Mesoscale Emissions Burden Analysis**
  - Disclosure of all pollutants including greenhouse gas emissions for each alternative
- **Regional Impact**
  - Preferred Alternative to be included in the future conforming TIP
- **Project-level Transportation Conformity Determination**
  - Localized impact analysis results
  - Project TIP inclusion statement for regional impact
- **Construction Impact Analysis**
  - Qualitative analysis based on construction duration that would be less than 5 years at individual site (40 CFR 93.123(c))
Affected Environment

- Good air quality condition other than ozone

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<th>Pollutant</th>
<th>Location</th>
<th>Units</th>
<th>Averaging Period</th>
<th>NAAQS</th>
<th>Years 2013</th>
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Environmental Consequences – Localized CO Modeling

- 6 worst-case intersections have been selected for further dispersion modeling
- Partial geometric models have been developed
Environmental Consequences – Localized MSATs/Mesoscale Emissions Burden

- Work in progress
- Corridor/Subarea link networks have been identified and correlated with MOVES-predicted emission factors for all relevant pollutants
Next Steps

- Complete Air Quality Technical Report
- Complete Draft EIS
- Draft EIS public hearing and public comment period
- Final EIS/Record of Decision (ROD)
Additional Questions and Comments