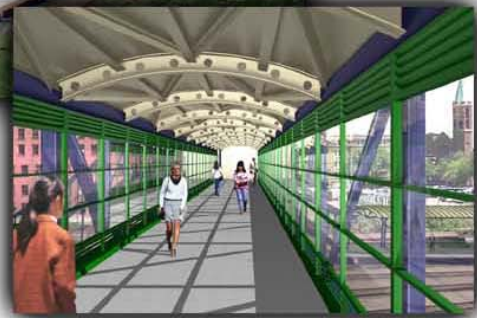
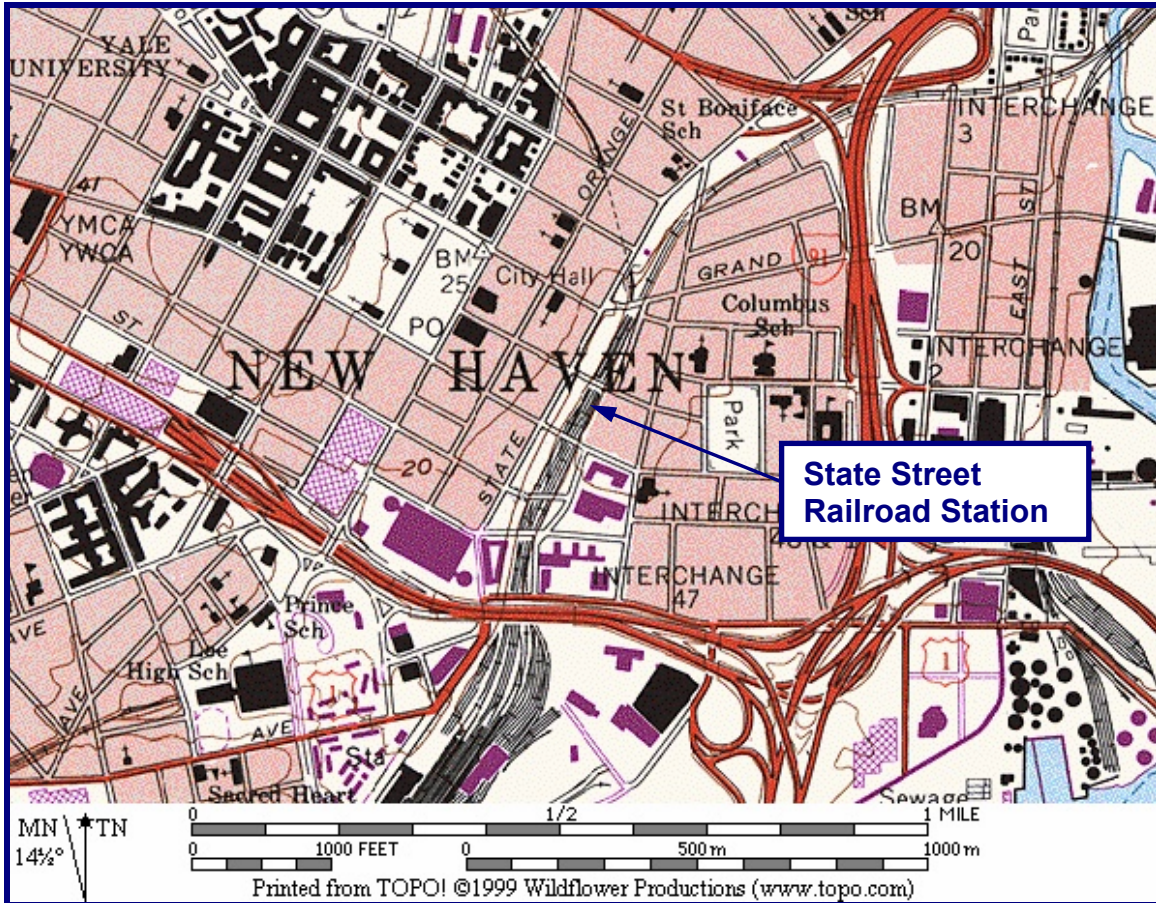


# CONTEXT SENSITIVE DESIGN IN CONNECTICUT



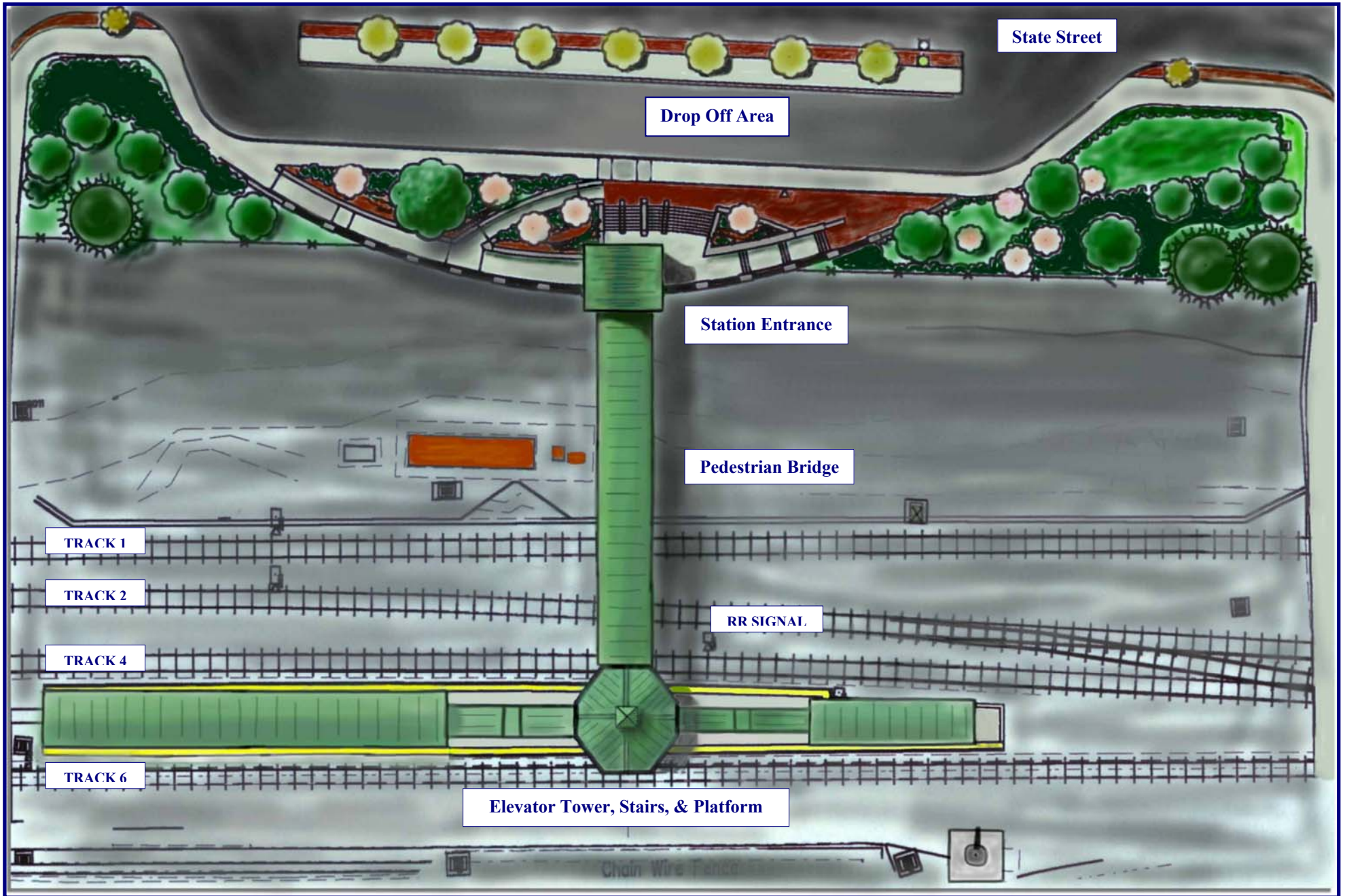
Northeast Regional Workshop  
November 27-28, 2001  
Waters Edge Resort and Conference Center  
Westbrook, CT

**State Street Railroad Station in New Haven, Connecticut**  
INFORMATION/BACKGROUND BOOKLET



## PROJECT LOCATION

The project is located on State Street between Chapel Street and Court Street in downtown New Haven. The project is in close proximity to the town green, the New Haven Coliseum, and other local attractions.



**SITE PLAN**  
NOT TO SCALE

## **BACKGROUND**

***Project Need:*** The Connecticut Department of Transportation (ConnDOT) designed the State Street Railroad Station as part of the I-95/I-91 New Haven Harbor Crossing project. The New Haven Harbor Crossing project will reconstruct the I-95 Bridge which crosses the Quinnipiac River, the I-95/I-91/Route 34 interchange, and portions of I-95 on both sides of the river.

This intersection of I-95 and I-91, in the City of New Haven, is highly traveled. More than 10,000 vehicles per hour travel through the interchange during the morning and afternoon peak periods. Existing traffic demands in this area exceed the capacity of the roadway system. Once construction of the bridge and the interchange begins, the capacity of the roadway system will be further constrained.

***Project Purpose:*** The purpose of this project is to alleviate congestion during the construction of the I-95/I-91 New Haven Harbor Crossing Project. ConnDOT will encourage commuters to utilize trains as their primary mode of transportation to New Haven versus driving individually to and from work. The State Street Railroad Station will provide direct access to the downtown New Haven area. This includes the Town Green, Yale University, City Hall, and other local attractions. Connecticut Transit will provide bus service from the station to various locations throughout the City of New Haven.

## DESIGN CONSTRAINTS

- Existing live railroad tracks, catenary structures (these structures carry the electrical lines that provide power to the locomotives), and other facilities occupy the site.
- Platform and elevator foundations are at sea level, with the ground water level just below the existing grade.
- High voltage electrical lines span just above where the proposed elevator tower will be located. Relocation of these lines will be required.
- Site is divided into two parts, the upper part for the entrance which does not require railroad flagmen (flagmen are responsible for protecting workers on the railroad tracks), and the lower part for the platform which requires flagmen and track outages. (Any time work is required adjacent to railroad tracks, the tracks are required to be shut down temporarily in order for the work to be performed.)
- The existing railroad signal is located directly below the proposed platform and will have to be relocated.
- A 22'-6" vertical clearance between the top of the rail and the pedestrian bridge is required. The height of the pedestrian bridge over the railroad tracks is governed by the Connecticut General Statutes. Although the bridge met the clearance requirements, the City questioned if it had to be as high as it was, given the clearances of the two adjacent bridges (Chapel and Court Street bridges). The height was subsequently lowered after Legislative approval.
- Proposed site is very small, not much room for the Contractor to maneuver equipment.
- Existing access road to track de-icing facility and switch control house for Metro-North railroad must be maintained.
- Design schedule extremely tight due to the required construction completion date for the project. Any delay in this project will delay the schedule for the I-95/I-91 New Haven Harbour Crossing Project.
- Electrical wires which provide power to the trains interfere with the proposed location of the platform.
- Since the two adjacent tracks to the platform are not parallel to each other, the alignment and location of the platform needed to be carefully planned in order to avoid conflicts with train operations.
- Due to the minimal clearance between track 6 and the adjacent retaining wall, constructibility of the platform became a design constraint.
- Soil has to be stockpiled for reuse on site with the dewatering also to occur within limits of site.

## **KEY PROJECT ISSUES:**

### *Design Issues:*

- The preliminary design provided an access road that enabled Metro-North railroad forces access to the tracks. City officials questioned the requirement of such access road. Railroad officials stated that this road is the only access point to the north side of the tracks. This access road was undesirable by the City at this location and they agreed to come up with an alternate location.
- Soil conditions were not ideal for the station. Designers had to use piles for the elevator tower foundation.
- Adjacent catenary structures limited the location of the pedestrian bridge and elevator tower. Designers had to ensure that the stairs would not interfere with catenary towers.
- Pedestrian bridge had to be a single span structure without splices. Transportation of a bridge this size was of concern.
- Site is a very visible in New Haven with large traffic volumes on State Street. Site location is across from News Channel 8, SNET, new FBI building, and down the street from New Haven Coliseum.
- Coordinating the structural and architectural elements three dimensionally was critical in order to make sure the structure could be built.
- Relief from Building Code Modifications was needed for the elevator to remove a requirement to have a sump pump in the elevator pit.
- Relocation of signal from under the platform so that train engineers can see signal easily.
- A 20-foot difference in elevation between the entrance to the pedestrian bridge leading from State Street to the train platform had to be addressed in order to provide access between the two elements while providing an aesthetic design.
- City officials were concerned about the diesel fumes and the flow of air through the pedestrian bridge. They requested that a fan or some other means of positive airflow be provided to properly ventilate it.
- Intricate roof design for elevator tower.
- First time DOT Bridge Design and Facilities Design Units have worked on same project.
- Design an architecturally pleasing structure, which blends with the surrounding area, while staying within the proposed construction budget.
- Balancing the architectural elements with a safe, structural design was challenging due to the accelerated design schedule.
- The proposed future extension of the pedestrian bridge to the Strause Adler property to the south of the station had to be taken into account during the design.

### Environmental Issues:

- Although the material to be excavated for the platform was not technically “contaminated”, this material had to be handled carefully due to public perception.
- Drying of wet soils excavated from platform foundations on site. The material is not permitted to leave the site until it is dried. Very restricted site to perform this operation.

### Sociological/Architectural Issues:

- The facility had to be a safe, user friendly station.
- The facility is required to be ADA accessible.
- An architecturally acceptable design concept was considered of utmost importance to the City given the proximity of the project to the New Haven Green and to other buildings in the downtown area.
- The City requested that their streetscape plans be incorporated into the design along State Street. These plans included brick pavers, ornamental lighting, trees, and tree grates.
- The internal lighting of the bridge was a concern for City officials. The use of direct and indirect lighting was suggested to positively affect the aesthetics of the bridge. It was determined that once a formal lighting plan was developed, the City would be notified to review the lighting plan.
- The City felt that the retaining wall for the entrance would look better if it followed the profile of the ground instead of what was previously proposed.
- The City expressed their desire to be involved in the color selection process for the station. This coordination was done during the construction phase.

### Right of Way Issues:

- The area for the proposed site consists of two properties. One is owned by the State, and the other by the City of New Haven. Right of Way agreements were required in order to construct the proposed structures on the city property. City officials mentioned selling part of the property to the state. ConnDOT preferred easements instead. City officials had to discuss this option with the Mayor prior to making any commitments.
- Easements for structures and construction had to be obtained by the City.
- A maintenance agreement was required between the State and the City for maintaining the new sidewalks and drop-off road.
- ConnDOT agreed to be responsible for the station proper, but expressed its desire for the City to maintain the drop-off area and sidewalks adjacent to State Street. This was finalized in an agreement between the State and the City.

## **EVOLUTION OF DESIGN**

### **Pre-Design Meetings**

On March 25, 1999, ConnDOT met with the City of New Haven Planning Department, Vision Waterfront Commission, Town Green District, New Haven Parking Authority, Vision for Greater New Haven, South Central Regional Council of Governments, CT Transit, Ride Works Community Services, and Yale University Planning to initiate coordination for the design of the station. The primary purpose of this meeting was to bring all parties on board prior to the start of design so that ConnDOT designers would be aware of any issues. This early communication proved to be valuable prior to the design process because some of the key issues were identified.

At the conclusion of the meeting, Ms. Karen Gilvarg, Planning Director for City of New Haven, was designated the person through which ConnDOT would coordinate all future meetings.

On June 30, 1999, ConnDOT met again with the City of New Haven to discuss the following issues in more detail:

- Future extension of pedestrian bridge to the Strause Adler property to the south of the station.
- Bus routing by Connecticut Transit.
- New Haven Vision Trail.
- Maintenance of the facility.

At this meeting, the Public Hearing and Public Information process were also discussed.

### **Preliminary Design**

After the June 30, 1999 meeting, ConnDOT commenced with the design. On October 6, 1999 ConnDOT presented the preliminary design to the City. Representatives from the City, Metro-North Railroad, and ConnDOT attended the meeting.

Many key project issues were identified at this meeting, with the following action items established:

### **ConnDOT items:**

1. Redesign the profile of the entrance retaining wall and submit to the City prior to the public information meeting.
2. Review the height of the pedestrian bridge and lower, if feasible.
3. Incorporate City streetscape into the design.
4. Provide appropriate lighting plan for pedestrian bridge and review with City.
5. Review ventilation of pedestrian bridge.
6. Advertise for a November 3, 1999 public information meeting.

### **City of New Haven items:**

1. Discuss property easements with the Mayor.
2. Provide alternative location for railroad access road.
3. Provide city streetscape details for incorporation into project.

On November 3, 1999, the public information meeting was held at the Town Library. Attendees included local residents, members from the Council of Governments, and City officials. The project included a Powerpoint presentation that contained computer generated renderings of the site. The renderings showed what the site would look like after construction. Enlarged photos were also prepared for attendees to review prior to the presentation. Public and local officials expressed support for the project at this meeting.

### **Final Design**

At the October 6, 1999 presentation to the City, most of the major issues were identified. All of the comments in that meeting were incorporated into the project during the final design phase. Informal discussion and coordination between all the stakeholders also occurred during this phase. The following issues were addressed during the final design phase.

1. ConnDOT coordinated with city engineers to obtain the streetscape details and incorporated the details into the design.
2. ConnDOT coordinated with the city lighting officials to provide decorative site lighting acceptable to the City and to reuse city street lights currently on site.
3. ConnDOT drafted the agreements for permanent and temporary easements with the City.
4. The access road was relocated a few blocks north of the site. The road was constructed by ConnDOT and was not part of this project.
5. ConnDOT revised the entrance retaining wall profiles.

6. The height of the pedestrian bridge was lowered consistent with the clearances provided at the two adjacent bridge structures. This involved a modification to the Connecticut General Statutes (CGS). The ConnDOT Project Manager prepared and submitted the proposed change to the CGS to the State Legislature. The change was adopted during the 2000 Session.
7. The final location of the high voltage electrical tower was established.

On December 9, 1999 a final review/constructibility meeting was held between ConnDOT construction personnel, ConnDOT designers, Metro-North railroad personnel, and environmental consultants. Prior to the meeting, 90% plans, specifications, and a construction schedule were distributed to all proposed attendees for review. The objective of the meeting was to identify key construction elements that may not be constructible or that may require long lead time coordination given the compressed duration of the construction schedule.

## **POST-DESIGN ACTIVITIES**

### ***Approval of agreement by city planning commission:***

In order to obtain the permanent easement for structures and the temporary easement for construction, the City Planning Commission had to approve of the agreement. ConnDOT presented the project to the Planning Commission on February 16, 2000. The Powerpoint presentation from the Public Information Meeting, containing computer renderings and photographs to illustrate how the proposed station would appear at the existing site, was utilized during the presentation. These visualization techniques provided realistic images that the Commission could use to better evaluate the project. They illustrated proposed colors for the station, contrasted the proposed station with the existing area, and allowed the Commission to visualize how the station would look relative to the existing area surrounding the proposed site. This presentation proved to be invaluable.

The Commission approved the agreement, with certain conditions. The conditions of the agreement are listed below:

1. Light fixtures: On-site light fixtures should match the street lighting on State Street.
2. Signage: Provide signs which prohibit parking in the drop-off area.
3. Retaining wall along State Street: Suggest using rustication joints or textured forming to give wall a textured look. (Station identification lettering provided on wall).
4. Roof color: Green color of roof is preferable as shown on renderings.

As a result of continuous coordination between ConnDOT and the City, all of these conditions were incorporated into the project prior to the agreements being approved. The agreements were then signed by the City and State.

*Need latest timeline to go here.*



Existing view from State Street facing east



Proposed view from State street facing east



View from inside of proposed Pedestrian Bridge



# State Street Railroad Station



Existing view from Chapel Street facing north



Proposed view from Chapel Street facing north



# State Street Railroad Station