

PROJECT DESCRIPTION

Interchange Improvements to I-91 Southbound, I-691 Eastbound and Route 15 Southbound

LOCATION:

This proposed project is located on a segment of Interstate 91 (I-91) that provides access to Route 15 (Wilbur Cross Parkway), Interstate 691 (I-691), and East Main Street in the City of Meriden. All three highways in the project area consist of a complex system of mainline lanes, weave sections, and ramp connections that form the I-91/I-691/Route 15 Interchange. The improvements proposed as part of this project encompass highway elements in the southbound direction within the limits as described below.

- The proposed project limits on I-91 Southbound (SB) begin approximately 0.5 miles north of Interchange 19 (MP 21.60) and extending southerly to the Meriden/Wallingford town line (MP 17.31) for approximately 4.26 miles.
- The proposed project limits on Route 15 SB begin at the I-691 Eastbound (EB) overpass (MP 65.23) and extend southerly to approximately a quarter mile south of the Miller Avenue overpass (MP 63.18) for approximately 2.25 miles.
- The proposed project also includes improvements to I-691 EB from the Route 5 overpass (MP 1.32, Interchange 8) to approximately 130 feet west of the Bee Street overpass (MP 0.00) for approximately 1.1 miles
- The proposed project limits on Route 66 Westbound (WB) begin just west of the Preston Avenue underpass and extend to I-691 WB Interchange 9 (off-ramp to Route 15 NB) for approximately one mile.



PURPOSE AND NEED:

The purpose of this project is to reduce congestion and improve safety for the southbound movements on Route 15 and I-91 within the I-91, I-691, and Route 15 Interchange in Meriden and Middletown, CT. This project intends to complete the following:

- Reduce traffic congestion to achieve a Level of Service (LOS) of D or better by design year 2051.
- Improve safety associated with crashes caused by congestion and weaving.

It is proposed to widen I-91 SB to provide an additional operational lane between Interchanges 18 and 19, widen the existing off-ramp from I-91 SB to I-691 WB (Interchange 18) to two lanes, and relocate and provide a new two-lane off-ramp from I-91 SB to Route 15 SB. The improvements on Route 15 SB consist of widening the I-691 EB to the Route 15 SB (Interchange 10) on-ramp to two lanes.

EXISTING DESCRIPTION:

I-91 Southbound

North of Interchange 17, I-91 SB provides three travel lanes. A lane drop at Interchange 17 reduces I-91 SB to two travel lanes until the ramp from Route 15 SB to I-91 SB (Interchange 67S), where the on-ramp from Route 15 SB results in three travel lanes.

Vehicles travelling on I-91 SB experience back-ups during the afternoon peak hours due to the limited capacity of the single-lane off-ramp to Route 15 SB/East Main Street at Interchange 17. The resulting queue on the right lane of I-91 SB varies but has been observed to extend approximately 1 mile. The condition is worsened by the tendency of motorists cutting into the right-lane queue from the center lane, slowing down the center lane traffic as a result.

The configuration of the ramps in this area, combined with the complex connections to East Main Street contribute to operational and safety issues. There are significant geometric deficiencies on the ramps in the vicinity of the East Main Street interchange, including the weaving length on I-91 SB between the on-ramp from I-691 WB and Interchange 17 (I-91 SB to Route 15 SB) that is deficient. Vehicles exiting at Interchange 17 must quickly decide between merging to Route 15 SB on the left side or exiting to East Main Street on the right side, since the right lane drops at Interchange 17. Too many decision points within such a short distance may cause driver confusion and increase the potential for crashes. In addition, shoulder widths along I-91 SB within the project limits are observed to be deficient.

Route 15 Southbound

Route 15 SB consists mainly of two travel lanes. There are two segments with an additional third lane. The first segment is an auxiliary lane between the I-691 EB on-ramp and the off-ramp to East Main Street (Interchange 67W). The second segment is south of Interchange 67W where an additional lane from the I-91 SB on-ramp (Interchange 17) results in three lanes and ends at the off-ramp to I-91SB (Interchange 67S).

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A section of Route 15, between the on-ramp from I-91 SB (Interchange 17) and the off-ramp to I-91 SB (Interchange 67S), experiences congestion and weaving concerns due to the traffic merge from I-691 WB, I-91 SB and Route 15 SB destined for either I-91 SB or Route 15 SB. The left-hand exit ramp from Route 15 SB to I-91 SB also contributes adversely to driver expectancy as well as safety and operations. In addition, the weaving section between the I-691 EB on-ramp to Route 15 SB and the off-ramp to East Main Street is deficient in weave length and contributes to a considerable number of crashes.

Crash History

The crash data between May 1, 2014 and April 30, 2017 indicated that there were a total of 549 crashes with 161 injuries and 3 fatalities (I-91 SB recorded 493 crashes with 150 injuries and 2 fatalities, Route 15 SB recorded 56 crashes with 11 injuries, and I-691 EB recorded 80 crashes with 23 injuries and 1 fatality). The two fatal crashes on I-91 SB included one between Interchange 18 (I-691 WB) and the entrance ramp from I-691 WB (MP 19.9 to 19.7) and a second between Interchange 17 (Route 15 SB/East Main Street) and the entrance ramp from Route 15 SB (MP 19.3 to 18.6). The fatal crash on I-691 EB occurred between Interchange 10 off-ramp and Interchange 11 off-ramp.

The predominant types of crashes consist of the following:

| | |
|--------------------|--------------------|
| <u>I-91 SB</u> | <u>Route 15 SB</u> |
| Rear End – 75% | Fixed Object – 50% |
| Sideswipe – 12% | Rear End – 27% |
| Fixed Object – 11% | Sideswipe – 23% |

The crash data show that there are high crash rates in this area that can be attributed to congestion due to limited ramp capacity as well as a deficient weaving length between I-91 Interchange 17 and 18.

Traffic Volumes

Maximum approximate peak hour volumes observed in the year 2017 and projected to the year 2051 for each highway corridor within the project area are as follows:

| Year | I-91 SB | I-691 WB | I-691 EB | Route 15 SB |
|-------------|---------------|--------------|---------------|--------------|
| 2017 | 4,820(5,640)* | 1,930(2,870) | 4,640(4,240) | 4,550(4,180) |
| 2051 | 5,780(6,770) | 2,310(3,450) | 5,620 (5,100) | 5,000(5,460) |

*AM Peak volume (PM Peak volume)

PROPOSED IMPROVEMENTS:

I-91 Southbound

The proposed improvements on I-91 SB include the following:

- **Construct operational lanes** – Provide operational lanes at two highway sections: (1) from approximately 0.5 miles north of Interchange 19 (Baldwin/Preston Avenue) to Interchange 18 (off-ramp to I-691 WB); (2) from the I-691 WB on-ramp to the East Main Street off-ramp (Interchange 17). The operational lane would reduce congestion and rear-end crashes that may be attributed to the existing conditions at both of these highway sections. These improvements will require modifications to Bridge No. 03052 (I-91 SB over Baldwin/Preston Avenue) and Bridge No. 01829 (I-91 SB over Bee Street) to accommodate the widened roadway.
- **Relocate the access to Route 15 SB and realign the exit ramp to East Main Street** – The existing access to Route 15 SB is shared with the East Main Street access (Interchange 17). It is proposed to relocate the access to Route 15 SB by providing a diverge south of East Main Street, consisting of two through lanes for I-91 SB and two off-ramp lanes for Route 15 SB, which will merge with the two lanes of Route 15.

By relocating the traffic bound for Route 15 SB from the existing ramp (Interchange 17), the single-lane ramp to East Main Street would be adequate. This ramp to East Main Street will be realigned to increase the weave distance between this ramp and the I-691 WB on-ramp. A new bridge will be constructed over Route 15 to accommodate the proposed ramp alignment and the proposed widening on Route 15 (Bridge No. 01824). The new two-lane ramp from Route 15 SB is proposed to merge with three I-91 SB mainline lanes in the vicinity of the Murdock Avenue overpass. Beyond this merge, I-91 SB will continue to provide three lanes of travel.

Route 15 Southbound

The proposed improvements on Route 15 SB include the following:

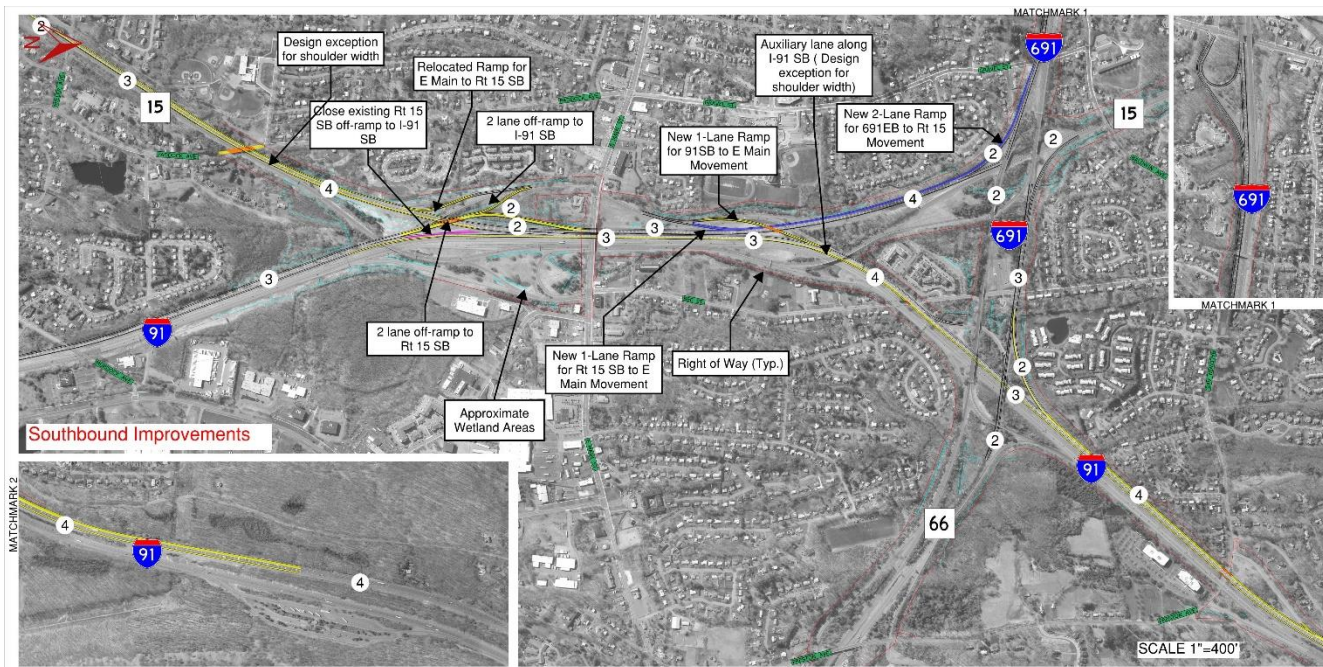
- **Provide a two-lane off-ramp from I-691 EB to Route 15 SB** – Widen the existing single-lane ramp from I-691 EB to Route 15 SB to two lanes. This will improve weaving operations on Route 15 and reduce the potential for crashes.
- **Relocate the ramp to East Main Street** – The ramp to East Main Street will be relocated south of its present location to increase the weave distance from the I-691 EB on-ramp.
- **Relocate the ramp to I-91 SB** – Construct a new two-lane ‘fly-over’ ramp from Route 15 SB to I-91 SB to replace the current undesirable left-hand configuration, improve driver expectancy and reduce confusion. Bridge No. 01819 (East Main Street ramp over Route 15 SB) would be replaced to accommodate the new lane configuration.
- **Widen Route 15 SB** – Widen Route 15 SB to accommodate the new two-lane ramp from I-91 SB. It is also proposed to realign the on-ramp from East Main Street.

Overall, it is anticipated that the proposed improvements will require the construction/rehabilitation of approximately twenty structures (two replacement bridges, two widening/rehabilitation bridges, six

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rehabilitation bridges, three replacement culverts, one widening/rehabilitation culvert, six rehabilitation culverts) and approximately twenty-four retaining walls.

The proposed ramp from Route 15 SB to I-91 SB is anticipated to impact an existing wetland and watercourse. A partial acquisition of the 965 East Main Street property and three other total acquisitions are anticipated for the project.



SCHEDULE:

- Final Design Plans (FDP)06/05/2024
- Design Completion Date (DCD)07/17/2024
- Advertisement (ADV)08/14/2024
- Beginning of construction/Notice to Proceed (NTP).....Fall 2025
- Construction Duration5 years