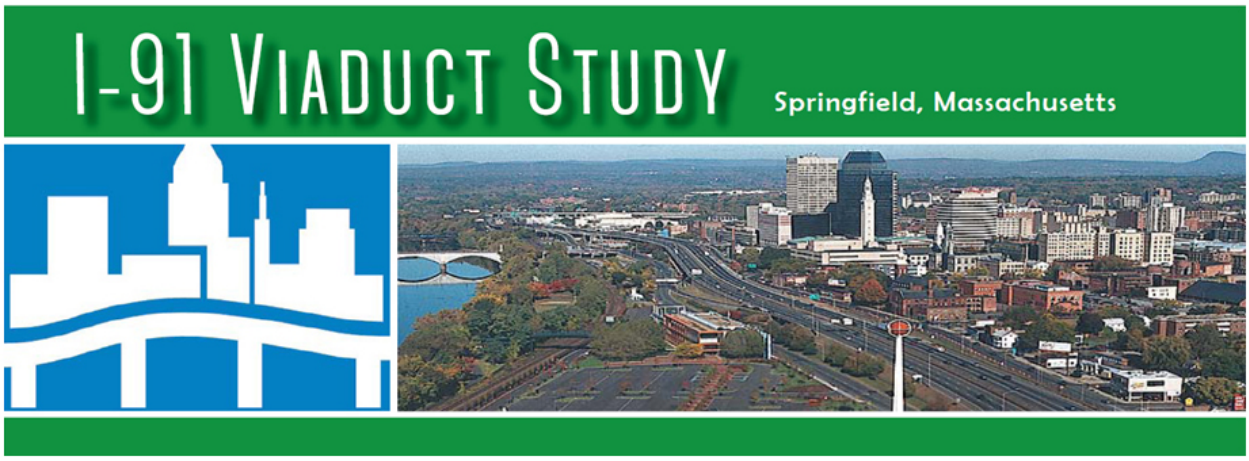



# INTERSTATE 91 VIADUCT STUDY

## CHAPTER III

## ALTERNATIVES DEVELOPMENT

August 2018

MMI #3869-16-6

# CONTENTS



Figures:

## 3.1 INTRODUCTION

Chapter I of the Interstate 91 Viaduct Study presented the Primary and Regional Study Areas, introduced the purpose and need for the study, and outlined its goals and objectives. Chapter II provided a detailed investigation into the existing conditions within the Primary and Regional Study Areas as well as the projected No-Build conditions in the year 2040. Chapter II also identified the relevant issues and constraints facing the Primary and Regional Study Areas under the 2040 No-Build scenario and discussed opportunities that should be considered in the development of any and all future alternatives. Building on that foundation, Chapter III describes the process of developing the initial alternatives that were considered over the course of several strategic Working Group meetings. The alternatives discussed in this chapter attempt to address many of the existing issues identified while responding to the opportunities discussed in previous chapters. Preliminary alternative schematics were developed, discussed, and assessed on their individual merits and ability to achieve the study's goals and objectives. Through the preliminary assessment of the schematic alternatives, several concepts were determined to either have significant adverse impacts or simply fall short of meeting the goals and objectives of the study; these concepts were removed from further consideration in the alternatives development process.

In addition to depicting major alterations to the Interstate 91 (I-91) alignment, many of the schematic alternatives included smaller alterations and improvements, which could be considered as shorter-term or mid-term improvement projects for the Primary and Regional Study Areas. Summaries of these potential stand-alone projects are included within this chapter's discussion.

### PROJECT OPPORTUNITIES

A summary of the opportunities that have been considered in preparation of the alternatives listed in this chapter is listed below:

Link Forest Park to Riverwalk: With Forest Park being one of the premier parks in the region, it would be advantageous to connect it to the Connecticut Riverwalk and Bikeway. The Riverwalk is part of a series of paths that are proposed along the Connecticut River in cities such as Chicopee, West Springfield, and Agawam.

Link Riverwalk in Springfield to Agawam: With the Connecticut Riverwalk and Bikeway ending near the South End Bridge with no public access, it would be advantageous to provide access in this area and provide a shared-use path along the South End Bridge into Agawam, eventually connecting it to the shared-use path along the west side of the river adjacent to River Road.

Longmeadow Curve Improvements: The Longmeadow Curve has been considered a nuisance for years in Western Massachusetts, with lane drops from three to two lanes in both directions, numerous on and off ramps, curve radii that require lower interstate speeds, and weaving areas that do not provide safe distances for vehicular traffic. Improvements to all of these factors in this area could provide benefits under any of the alternatives that will move forward to the analysis stage; improvements to the Longmeadow Curve could also be considered as a separate project.

Link to the New Union Station: Multimodal travel in the Downtown Springfield area would be enhanced by creating linkages and improving connections to the newly renovated Union Station. The role of the station as a new transportation "hub" for Western Massachusetts, with connections to transportation throughout the northeast, can best be complemented through design measures that expedite access to the station for users in and around Downtown Springfield.

Expand Local and Regional Draw to the Connecticut Riverfront: Access from the downtown core area of the City of Springfield within the Primary Study Area to the Connecticut Riverfront is currently impeded by both the I-91 viaduct and the railroad corridor. Undeveloped waterfronts are a great asset for communities and are often used as a civic or recreational focal point within an urban environment. The Connecticut River waterfront should be the focus of future place making strategies to enhance and revitalize the existing community. A better connection can spur economic development and meet the needs of the community, utilizing this natural resource in an opportunistic and environmentally sensitive way.

Improve Multimodal Travel: Under current conditions, residents and visitors to Downtown Springfield do not have a wide variety of convenient mobility options for completing their trips within and beyond the downtown area. The study aims to enhance both vehicular travel options and to improve access to other transportation alternatives, including travel by bike, foot, bus, train or other modes.

Create Opportunities for Transit Oriented Development: With the newly renovated Union Station only a half-mile from the center of the viaduct corridor and within a half-mile of the MGM Casino, consideration should be given to creation of possible new areas of transit-oriented development (TOD). TOD is typically focused around urban transportation hubs and corridors and is a pattern of development that translates well to the Primary Study Area. In both existing and potential new development parcels, opportunities exist to create areas of mixed uses that are walkable and in close proximity to convenient transit service and that provide an array of opportunities where the public can live, work, and play. A TOD could

generate increased ridership on existing and expanded transit services, reduce vehicular traffic and congestion, increase the range of housing and lifestyle options for local and regional residents, increase foot traffic and customers for area businesses, and reduce environmental impacts.

Promote Economic Development: Providing better access to the riverfront as an urban amenity increases the viability of revitalization and redevelopment in the surrounding area. Building on or near the waterfront generally boosts activity and creates more active and vibrant public spaces. Alternatives should consider both indoor and outdoor uses, incorporate green corridor connections throughout Downtown Springfield, enhance connections to existing uses and destinations, and generate new areas for development and open space.

## 3.2 DEVELOPMENT OF PRELIMINARY ALTERNATIVES

Development of the preliminary alternatives was the first step in considering highway and roadway realignments and creation of improved pedestrian linkages. The following goals provided high-level guidance in shaping the design of each alternative.

### MAINTAIN AND IMPROVE THE SAFE AND EFFICIENT FUNCTION OF I-91.

### MAINTAIN AND IMPROVE THE SAFE AND EFFICIENT FUNCTION OF THE LOCAL STREET NETWORK IN THE PRIMARY STUDY AREA.

### IMPROVE THE CONNECTION BETWEEN THE RIVERFRONT AND THE DOWNTOWN SPRINGFIELD URBAN CORE.

### IMPROVE THE QUALITY OF LIFE FOR THE FOLLOWING:

#### CITY RESIDENTS IN SURROUNDING NEIGHBORHOODS

#### EXISTING/FUTURE BUSINESS OWNERS

#### DAILY COMMUTING WORKFORCE

#### VISITORS TO THE CITY OF SPRINGFIELD AND SURROUNDING COMMUNITIES

With the goals and objectives at the forefront, data collection and analysis complete, and a solid understanding of the 2040 No-Build conditions intact, the first schematic concepts for the I-91 Viaduct Study were developed. The schematic concepts are referred to as "line drawings," and each concept depicts a generalized alignment presented at a level of detail sufficient to allow an informative discussion of the potential benefits and impacts on the Primary and Regional Study Areas. The Working Group discussed and weighed the potential of each alternative with regard to highway alignment, highway elevation, and impacts and opportunities at Working Group Meetings 4, 5, and 6. Each of these initial schematic alternatives is presented below, along with their key benefits and impacts noted by the project team and Working Group members.

It should be noted that the current MGM Casino is slated for completion in fall 2018. Therefore, the planned improvements to traffic and infrastructure within the Primary Study Area were researched and included within this study. Based on the Final Environmental Impact Report published by MGM Casino in 2014, numerous changes and mitigation measures within both the Primary and Regional Study Areas were required prior to approval. Many of these improvements fall within the Primary Study Area and would be considered short-term improvements if they were not part of the MGM Casino.

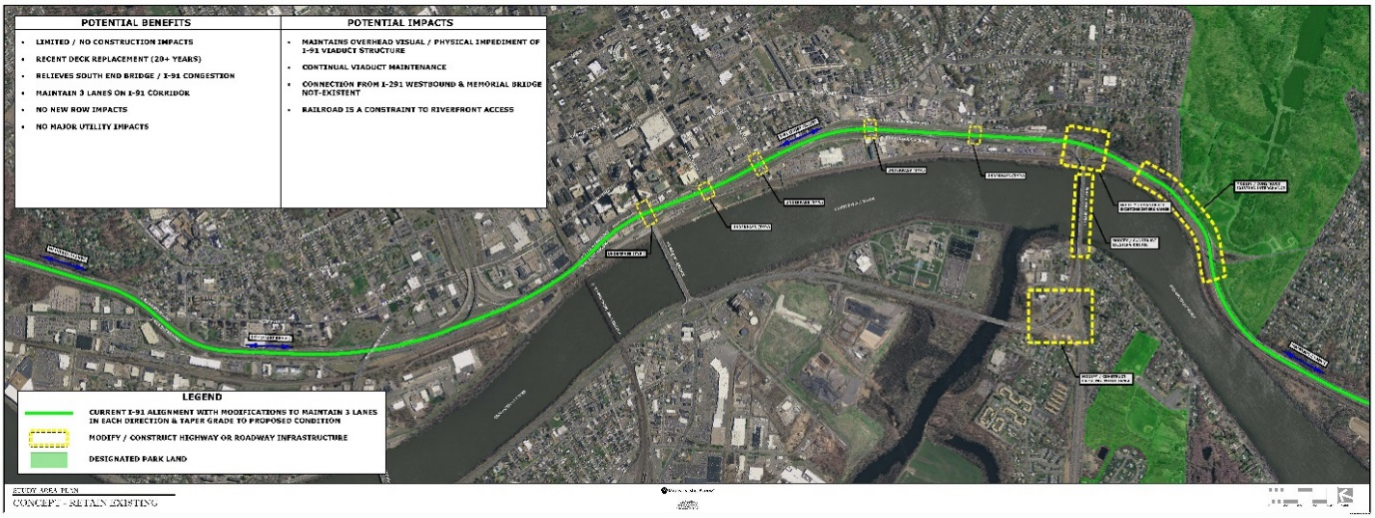



Figure 3-1: Existing Elevated Viaduct Concept

## *RETAIN EXISTING ELEVATED VIADUCT*

**Description:** The "retain existing" option proposed to not alter the current elevation or alignment of the viaduct as it exists from State Street to the interchange with Interstate 291. However, the alternate would consider improvements to the highway system that would alleviate the existing traffic and safety issues within the Longmeadow Curve section. Eventually, the viaduct would require restoration in the form a deck **replacement and potentially pier replacements.**

**Benefits:** This alternative would include very limited impacts on existing utilities within the corridor, limited impacts on the surrounding neighborhoods and businesses, limited impacts on the right-of-way, and no upfront engineering or construction costs other than yearly maintenance costs, prior to a long-term deck and/or pier replacement project(s).

**Impacts:** The visual and physical impediment of the viaduct structure and existing railroad alignment between Downtown Springfield and the waterfront is not modified under this alternative. The cost of continued maintenance, as well as future costs of eventual restoration, remains a consideration.

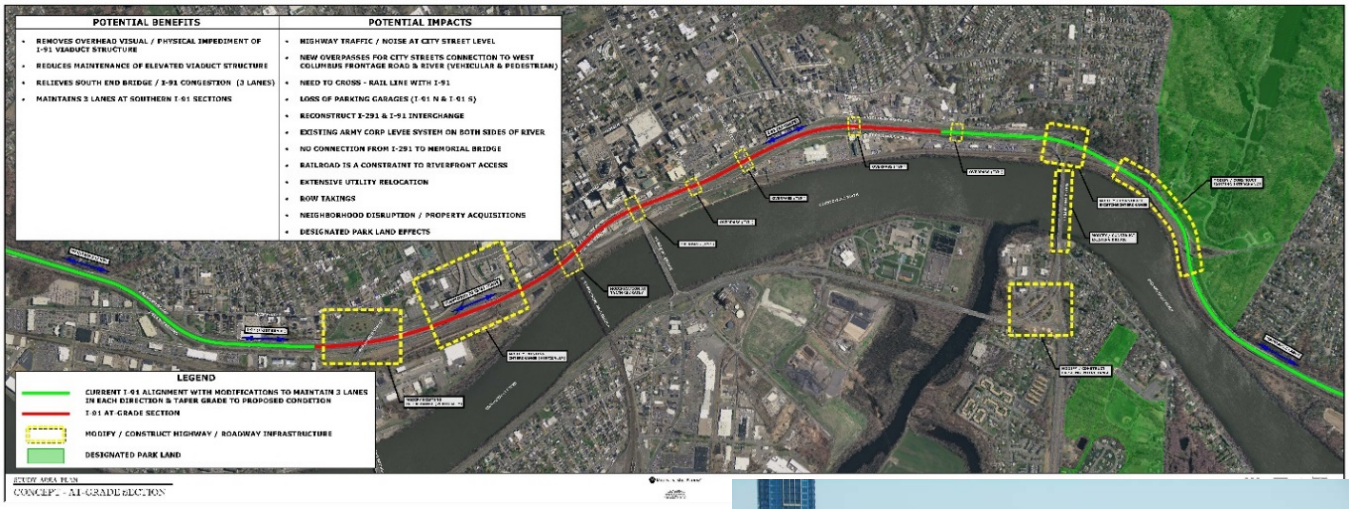



Figure 3-2: At-Grade Alignment Concept

## *AT-GRADE SECTION*

**Description:** In this alternative, I-91 would stay within in its current alignment; however, the elevation would be lowered, bringing the highway down to approximately the existing grade of East and West Columbus Avenues. This alternative would remove the elevated portion of the viaduct within the Downtown Springfield core, thus removing the visual impediment and dark underpass connections to West Columbus Street and the riverfront. Removing the viaduct would bring highway traffic to the city street level, significantly increasing noise and potentially negatively impacting air quality. An at-grade design would also cut off east-west vehicular movements, including on Boland Way, State Street, Union Street, and Broad Street. If these streets were to be reconnected, they would need to go up and over the at-grade, lowered highway. The proposed grading and ramping required to achieve this up-and-over condition would involve significant slopes, making universal accessibility challenging if not impossible. The earthwork and walls required to connect the roadways would also significantly impact the surrounding properties.

Figure 3-3: Example At-Grade Urban Highway

**Benefits:** This alternative would remove the elevated viaduct and its negative aesthetic and environmental impacts as well as reduce maintenance costs of the structure.

**Impacts:** Potential impacts include property impacts and takings, neighborhood disruptions, utility relocation, limitations on accessibility, negative impacts on air quality, no improved connection from I-291 southbound to the Memorial Bridge, increased noise levels, continued railroad impediments to accessing the riverfront, as well as a conflict with the railroad tracks running easterly/westerly north of Boland Way.

## *DEPRESSED SECTION*

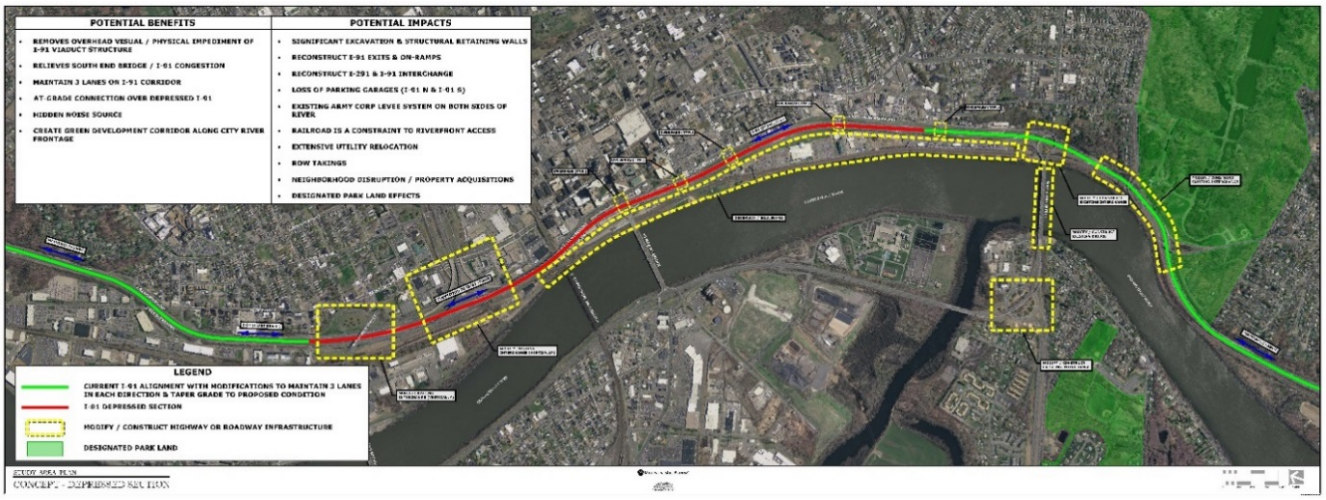



Figure 3-4: Depressed Alignment Concept

**Description:** This alternative considers depressing or sinking a portion of the elevated viaduct below East and West Columbus Avenues, following the same highway alignment that exists today. Several variations of this alternative could feasibly be pursued. For instance, the highway could be sunken and covered, allowing for park space, new cross streets, and/or new development sites. Alternatively, the highway could be sunken, leaving the top open and only allowing for cross streets to be connected over the top. Examples of these scenarios are included below.

**Benefits:** At-grade cross streets connection could be provided over the highway rather than under (e.g., Boland Way, State Street, Union Street, and Broad Street). The viaduct would be removed, no longer creating a visual and physical barrier that inhibits riverfront access. Noise would be reduced by sinking the highway below grade and potentially further muted by physical barriers if capped by a park or developable space. The resulting project would better match the goals of the project, creating a safer, more attractive connection to the riverfront parcels. If sections of the sunken viaduct were to be covered, it would also afford the opportunity to create new

pedestrian linkages, neighborhood connections, and potential redevelopment and/or open space areas.

**Impacts:** Impacts of the removal of the elevated viaduct would include considerable construction impacts and utility relocations, and the cost would be substantial. Both parking garages currently underneath I-91 would be eliminated. The presence of the railroad would continue to pose potential obstacles to accessing the Connecticut River waterfront.

*John Fernandez "I-70 Final Decision…" Via Front Porch 3.1.16*

Figure 3-5: Covered I-70 Concept, Denver, CO

*Alex Ihnen "MoDOT Calls I-70 to BLVD Plan…" Via next STL 5.7.12*

Figure 3-6: Depressed I-70 Corridor, St. Louis, MO

## *DEPRESSED SECTION WITH RELOCATED RAILROAD*

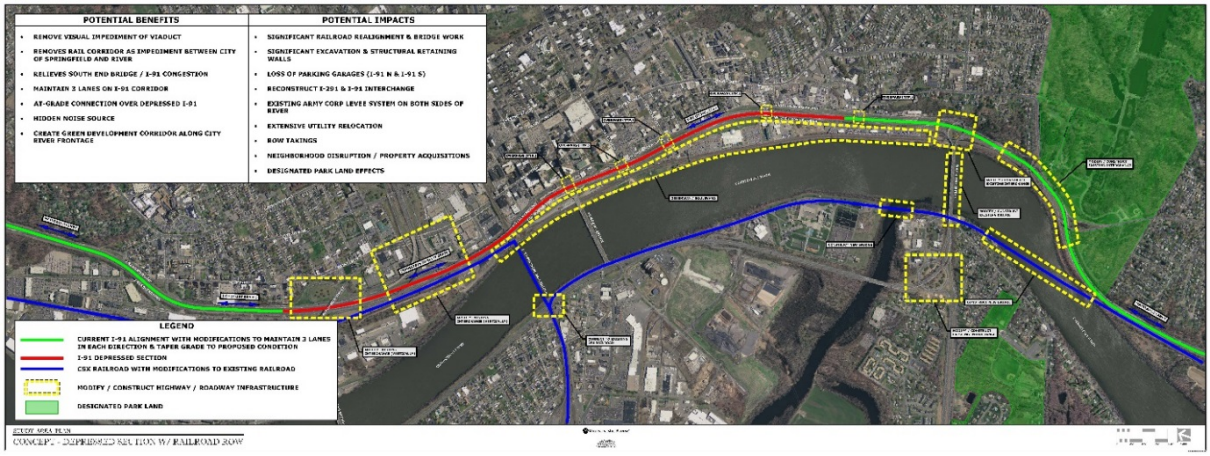



Figure 3-7: Depressed Section with Relocated Railroad

**Description:** This alternative considered the relocation of the railroad from the east side of the Connecticut River to the west side in the corridor adjacent to U.S. Route 5 in the cities of Agawam and West Springfield. I-91 would utilize its existing alignment and be constructed in a way similar to the previously discussed *Depressed Section* alternative.

**Benefits:** The most significant potential benefit of this alternative is that it removes the railroad impediment and depresses the highway, thus creating a significantly improved and open connection to the riverfront from Downtown Springfield. It opens up the largest areas of urban land for both development and green space on the Springfield side of the Connecticut River.

**Impacts:** Although this approach could yield significant benefits for Springfield's downtown core, this alternative would require approval for the railroad realignment, two new railroad bridge crossings of the Connecticut River, one new railroad bridge crossing of the Westfield River, and significant neighborhood disruptions and property acquisitions in the cities of Agawam and West Springfield. The construction of a new bridge would result in extensive environmental impacts.

## *TUNNEL SECTION*

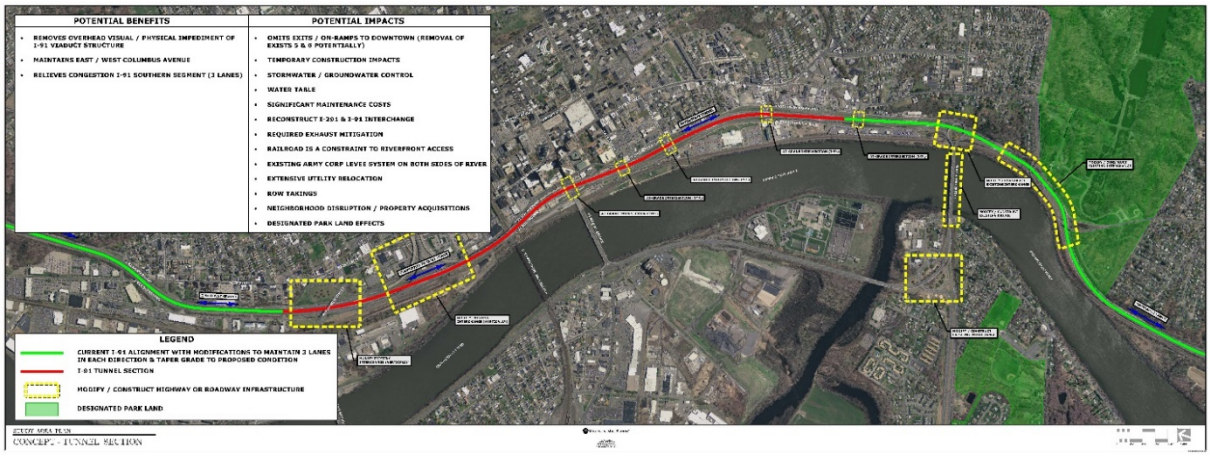



Figure 3-8: Tunnel Section Concept

**Description:** The Tunnel Section alternative would utilize the existing I-91 viaduct alignment, but the interstate would be placed below grade and capped through the Downtown Springfield corridor. In this alternative, East and West Columbus Avenues would be realigned to be located on top of the interstate in a boulevard fashion.

**Benefits:** With the two avenues (East and West Columbus) realigned adjacent to one another, additional space is achieved for redevelopment or additional green space. A major

benefit of this alternative is that the overhead visual and physical impediment of the viaduct is removed, allowing for much improved visual and physical connections to the riverfront.

**Impacts:** There are several impacts that are associated with the Tunnel Section concept including construction impacts, stormwater and groundwater control, mitigation methods to control air quality within the tunnel, and possible limited access to the tunnel by hazardous material truck transportation. Below are two illustrative examples of tunnels within urban areas.

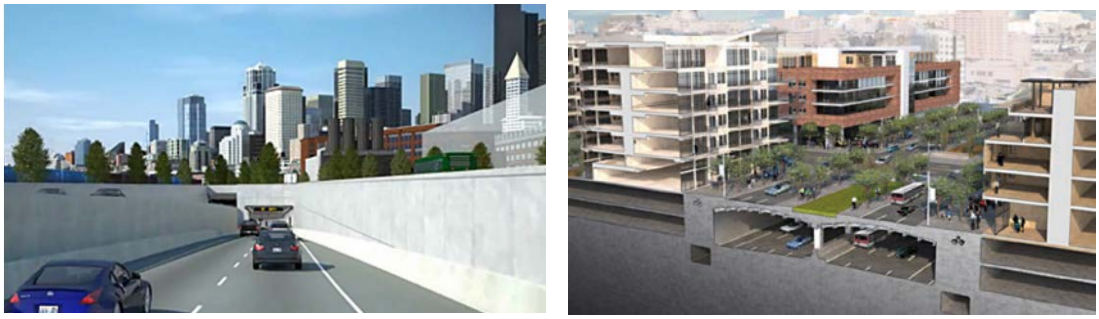


Figure 3-9: Illustrative Examples – Tunneled Interstate Alignments

## *ELEVATED SECTION (ELEVATED VIADUCT)*

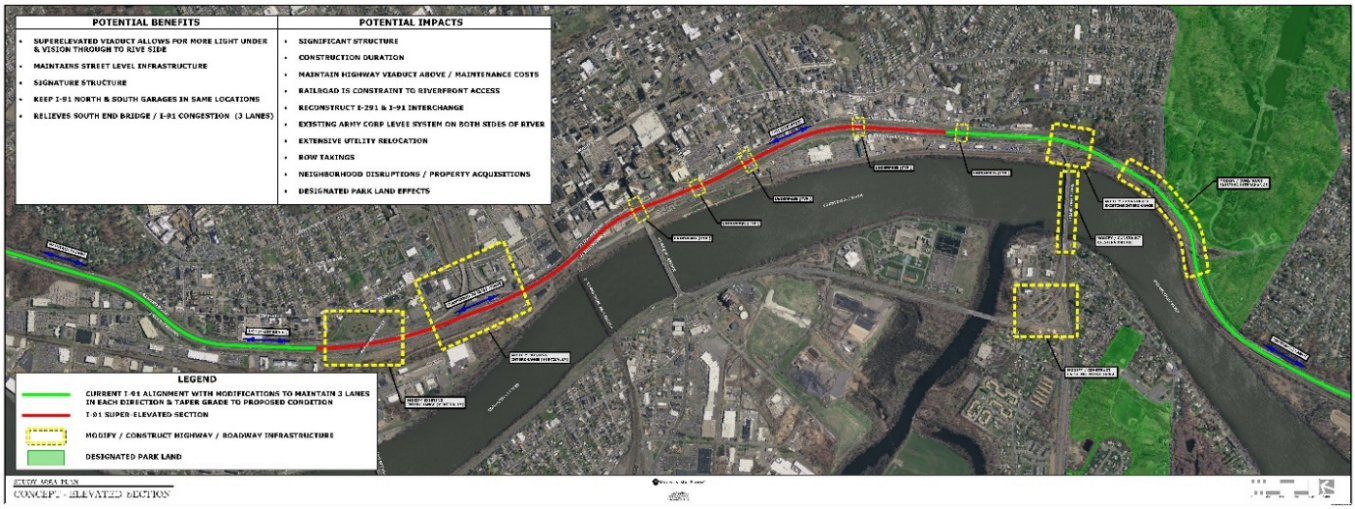



Figure 3-10: Elevated Section Concept

**Description:** The Elevated Section (Elevated Viaduct) alternative would utilize the current I-91 alignment and completely reconstruct the viaduct with modern construction techniques. The interstate would be rebuilt above ground, higher than its original elevation, allowing more light under the highway.

**Benefits:** With a more modern approach to design and construction, the spans between supports could be extended, and a longer life span and lower maintenance costs would be feasible. The image below provides an example of the opportunities that may exist under a viaduct that is constructed higher and with cleaner, more modern design features. This alternative could include extension nighttime lighting to promote more active uses of the corridor outside of daytime hours. With potentially fewer piers and a higher elevation, the viaduct could become less of a visual and physical impediment to the riverfront.

Figure 3-11: Elevated Viaduct Example

**Impacts:** Several potential impacts of this alternative include the long construction duration, significant structural costs, traffic management challenges likely to occur during construction, and the removal and displacement of existing parking garages and parking capacity.

## *U.S. ROUTE 5 REALIGNMENT*

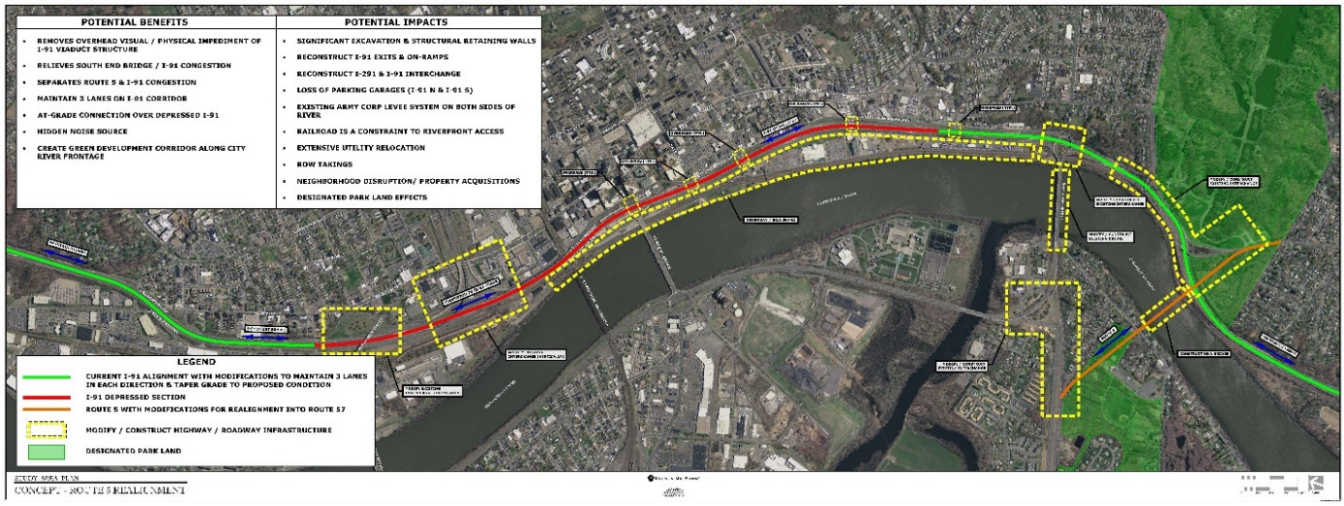



Figure 3-12: U.S. Route 5 Realignment Concept

**Description:** The U.S. Route 5 Realignment alternative would keep I-91 in its current alignment but proposes to place sections of the highway within a depressed or sunken condition. The benefits and impacts of the depressed condition proposed in this concept are substantially the same as those discussed in relation to the *Depressed Section a*lternative (presented above). A new bridge would be constructed connecting U.S. Route 5 in Longmeadow to Agawam, over the Connecticut River.

**Benefits:** The benefits of this plan would provide an alternative to alleviating the congestion and safety issues associated with the current lane drop along I-91 in the southern portion of the corridor, the Longmeadow Curve. This alternative would also reduce congestion and weaving of traffic accessing the South End Bridge as it separates U.S. Route 5 traffic to and from Longmeadow and I-91 mainline traffic. Achieving this separation would improve upon current conditions, in which traffic entering I-91 northbound from U.S. Route 5 toward the South End Bridge creates merging issues with I-91 mainline traffic, which is also bound for the South End Bridge.

**Impacts:** The potential impacts of this alternative include direct impacts on designated parkland—Forest Park in Springfield and School Street Park in Agawam—as well as significant impacts on established neighborhoods in the cities of Agawam and West Springfield. The construction of a new bridge would result in extensive environmental impacts.

## *I-91 RELOCATION TO WEST SIDE*

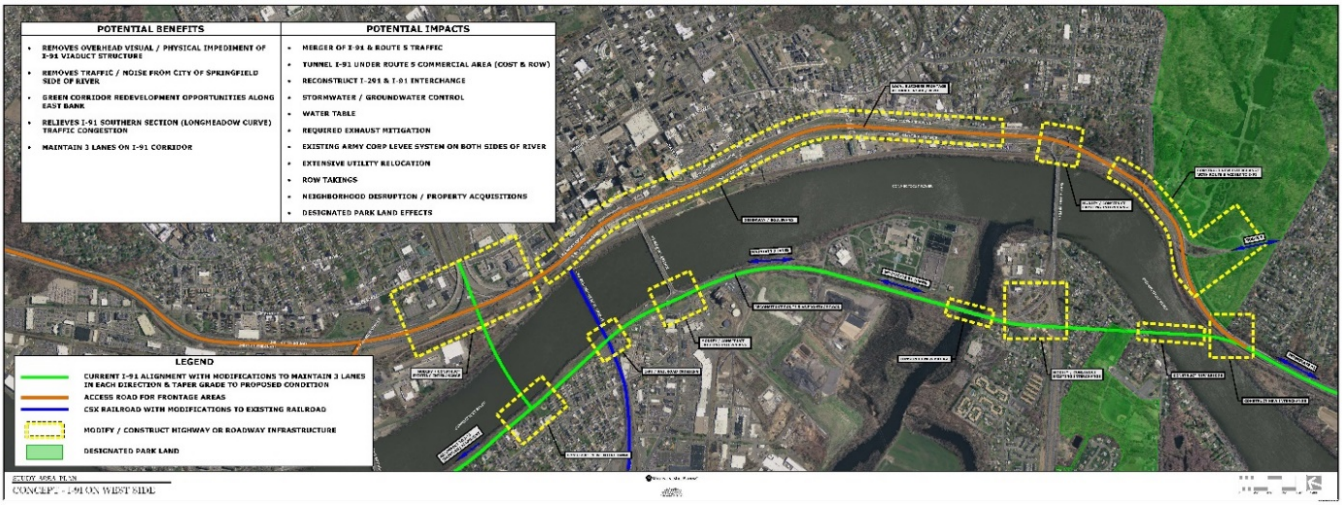



Figure 3-13: I-91 West Side Concept

**Description:** The I-91 Relocation to West Side alternative would relocate I-91 from the east side of the Connecticut River in Springfield to the west side of the river, following the existing U.S. Route 5 corridor through the towns of Agawam and West Springfield. The new I-91 alignment would rejoin the existing alignment to the north of Downtown Springfield by again crossing the Connecticut River at the I-291 interchange. Relocation to the west side of the river would require three new highway bridges: one over the Connecticut River between Agawam and Longmeadow, a second over the Westfield River, and a third over the Connecticut River from West Springfield to Springfield. In addition, a reconstructed rail bridge over U.S. Route 5 would be required as the existing rail bridge would not meet interstate requirements. A business access frontage road would be constructed following the existing I-91 alignment on the east side of the Connecticut River to provide access to the Downtown Springfield businesses, neighborhoods, and riverfront.

**Benefits:** The primary benefit of this plan is that it would remove the impediment of the elevated viaduct from the river frontage of Downtown Springfield and create an opportunity to implement open green spaces, enhanced neighborhood connections, and redevelopment parcels where the viaduct once stood.

**Impacts:** The potential impacts of this alternative include direct impacts on designated parkland, the need to construct several new crossings of both the Connecticut River and the Westfield River, as well as causing significant impacts on established

neighborhoods in the cities of Agawam and West Springfield. The construction of a new bridge would result in extensive environmental impacts.

## *NORTHBOUND & SOUTHBOUND SPLIT*

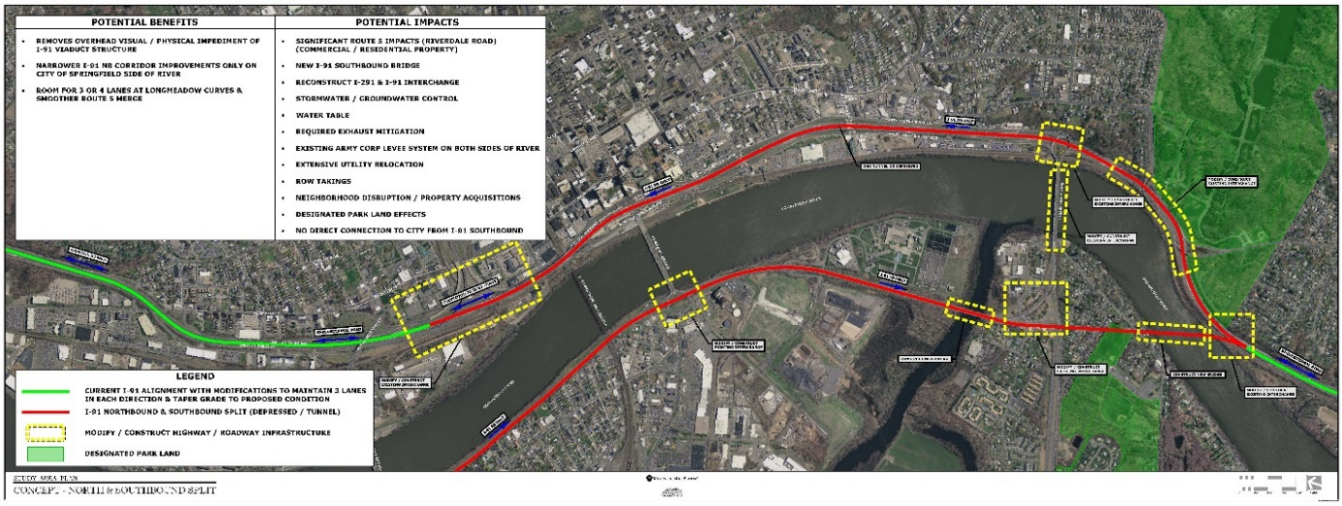



Figure 3-14: Northbound & Southbound Split Concept

**Description:** Similar to the West Side alternative discussed above, this alternative suggests a relocation of I-91's southbound travel lanes to the west side of the Connecticut River. This approach would preserve the alignment of northbound travel lanes of I-91 on the Springfield side but would depress them below grade.

**Benefits:** As with the Relocation to West Side alternative, the Northbound & Southbound Split concept would reduce impediments to access between Downtown Springfield and the Connecticut Riverfront. However, the continued presence of the northbound I-91 travel lanes on the eastern side of the river substantially reduces the benefits of this option relative to an alignment fully relocated to the west side of the Connecticut River.

**Impacts:** Although this option may appear to have less severe impacts on communities on the western side of the river, impacts on properties, neighborhoods, and the environment would be similar to those experienced from relocation of the entirety of I-91 to the west side. This relocation to the west side of the river would require two new highway bridges. A frontage road would be constructed following the existing I-91 mainline right-of-way to carry northbound traffic entering Springfield from points south, providing access to the Downtown businesses, neighborhoods, and riverfront.

## *RELOCATION OF RAILROAD RIGHT-OF-WAY*

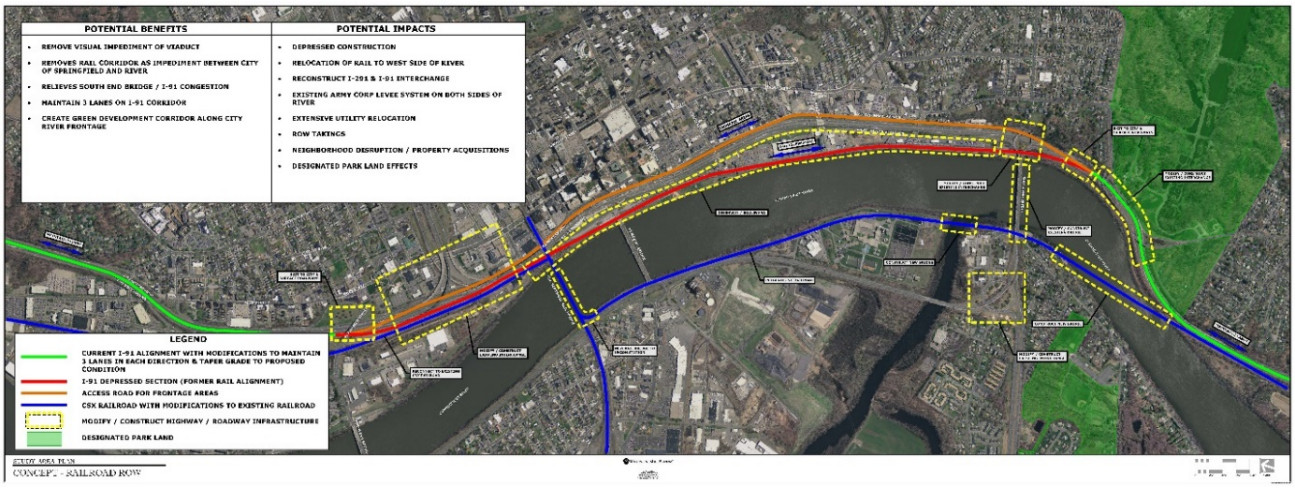



Figure 3-15: Relocation of Railroad Right-of-Way Concept

**Description:** This alternative considers relocation of I-91 into a depressed section in the location where the current railroad corridor exists today. This would in turn require the relocation of the railroad to the west side of the Connecticut River.

**Benefits:** The most significant benefit of relocation of the railroad and sinking of significant sections of I-91 in lieu of the at-grade railroad is that it would eliminate all access impediments with the City of Springfield to the Connecticut River.

**Impacts:** This alternative would have similar significant impacts on both Agawam and West Springfield properties, neighborhoods, and the environment as the relocation of the entirety of I-91 to the west side of the river. Two new railroad bridges to maintain connections to Union Station and points north would be required. The construction of these new bridges would result in extensive environmental impacts.

## 3.3 REFINEMENT OF ALTERNATIVES

All of the previously mentioned preliminary alternatives and their respective benefits and impacts were discussed in detail at a series of Working Group meetings. A summary of the relevant Working Group meeting is included in this chapter. It was the intent of the alternatives refinement process to discuss the alternatives with the Working Group and make determinations that would narrow the alternatives field to three alternatives that would be further evaluated. The following is a summary of Working Group Meetings 4 and 5.

On December 3, 2015, the fourth Working Group meeting was held at the UMASS Springfield Center in Springfield, Massachusetts. The focal point of the meeting was to present the progress of the alternatives development to the Working Group. The concepts presented were schematic in nature and shown as simple line drawings, and the potential impacts and benefits of each were stated. The main themes of the alternatives were elevated viaducts, relocation of the interstate, depressing and/or tunneling the interstate, implementing an at-grade section, and other railroad considerations. Many discussions were had, and questions, comments, and concerns were raised by the Working Group. Discussions ranged from moving the railroad tracks to provide unobstructed riverfront access, to the legality of hazardous materials being carried by trucks in a tunnel section. All comments and concerns raised provided valuable feedback to the project team and led to the elimination of several schematic alternatives and to the refinement of others. Below are a few more of the specific discussion topics:

- Leaving the viaduct in place would inevitably lead to more maintenance, and more work would be required on the deck in the future; this should be considered a disadvantage.
- Concern over the notion of a new pedestrian bridge over any section of the highway due to the fact there was a pedestrian crossing over I-291, which was never used and since has been removed
- Could the railroad be depressed underground or put underground into a tunnel?
- Could development be proposed over sunken or tunneled sections of highway?
- The idea was raised of placing the interstate above the existing rail line.
- The idea was raised of providing a better connection to the Plainfield Street area and neighborhoods to the north of the I-91 and I-291 interchange.

On January 28, 2016, the fifth Working Group meeting was held at One Financial Plaza, 1350 Main Street in Springfield, Massachusetts. The meeting consisted of two main discussion topics, which were the refinement of the evaluation criteria and the refinement of the schematic alternatives. The impacts and benefits of the alternatives were reassessed based on the discussions from the prior Working Group meeting and led to the elimination and regrouping of the alternatives. Discussions developed in particular as to where I-91 could be located, either remaining on the east side of the Connecticut River or shifting to the west side of the Connecticut River Opposition arose on this topic

between Working Group members representing different communities, and many questions, comments, and concerns were raised by the Working Group. Some of the key discussion topics were the following:

- Economic development should be preserved on each side of the river no matter where I-91 is located.
- Several members of the group felt the maximum benefit to Springfield would be for I-91 and the railroad to be moved to the west side.
- The idea was raised of bringing the highway and railroad next to one another in a shared transportation corridor.
- West side alternatives would be beneficial to provide direct access to the Big E from I-91.
- Concerns were brought about the impacts on the operations of the Hall of Fame with some of the alternatives.
- Aesthetics of any viaduct or bridge components are important.
- Interests in splitting local and regional traffic entering the city of Springfield

Other comments provided by the Working Group started to reflect details rather than bigger picture concepts. This more detailed look generated ideas for either mid-term or short-term alternatives such as the following:

- Birds roosting in the elevated "new" viaduct would be a burden; a design that would inhibit birds would need to be chosen.
- Discussion of congestion issues that exist in the North End of Springfield
- Any plaza below a new modern viaduct would need an activity source to bring people in.
- Keys to successful elevated viaducts are to increase lighting and provide "open space" underneath.

Through these two Working Group meetings, several of the preliminary alternatives were determined to have far more and significant detrimental impacts than they had benefits, and hence they were recommended for removal from further analysis. The following alternatives were recommended for removal from further consideration:

- **North and Southbound Split**
- **U.S. Route 5 Realignment**
- **I-91 West Side**
- **Tunnel Section**
- **Relocation of Railroad Right-of-Way**

Discussion Summary of Working Group Meeting No. 6 (March 16, 2016)

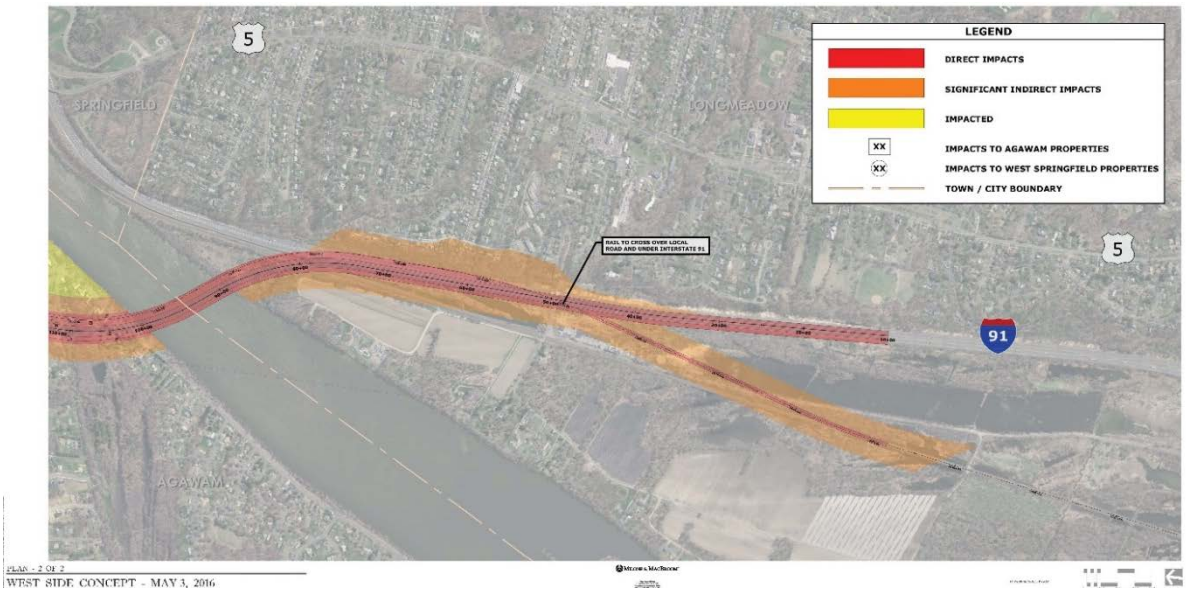
Based upon the feedback received at Working Group meetings 4 and 5, a refined grouping of preliminary alternatives was presented to the Working Group. The refined alternatives presented for further evaluation were as follows:

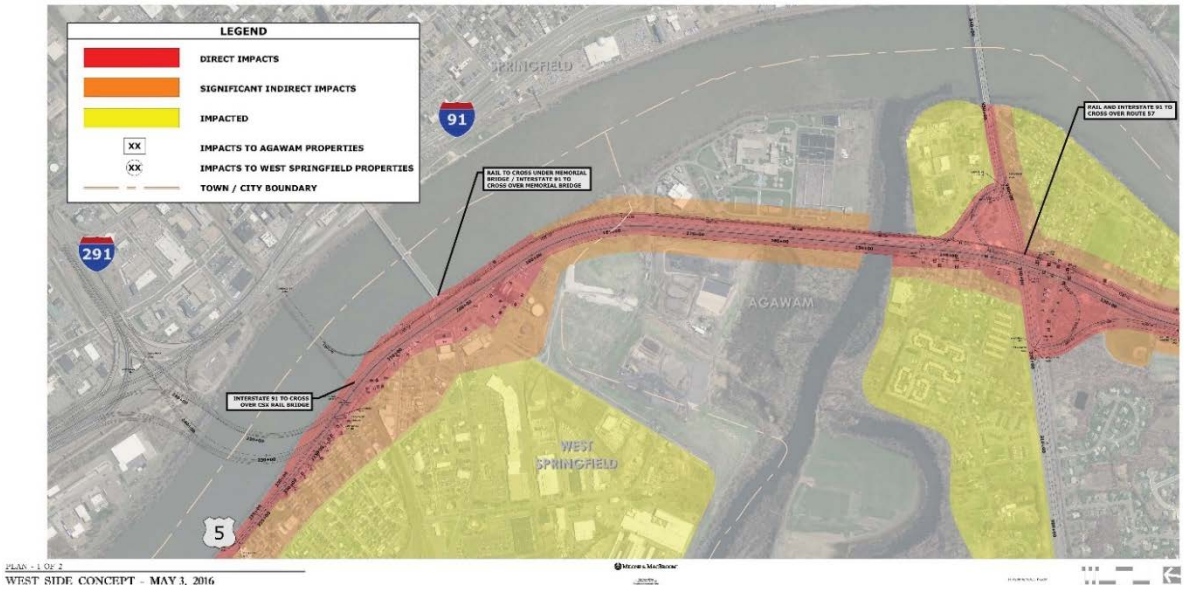
- **Reconstructed Elevated Structure (Modern Viaduct)**
- **Sunken or Tunnel, or Combination Following Various Alignments**
- **Enhanced Existing Viaduct (Short-Term, Mid-term, Long-term)**

Some members of the Working Group felt that removal of the alternatives that called for the interstate and/or railroad to be relocated from the east side of the river to the west side were not fully vetted. To address this concern, a follow-up meeting was held on March 22, 2016, for the Working Group to specifically discuss its concerns regarding the potential to relocate the highway to the west side of the Connecticut River.. Although the benefits of the move to the city of Springfield were understood, it was determined that further analysis of the west side alternatives needed to be completed to fully understand and assess the potential impacts. Thus, a deeper evaluation of the *Relocation to West Side* alternative was advanced in design in order to better understand impacts, operations, permitting, funding, and cost.

With the completion of the additional work for the *Relocation to West Side* alternative, it was deemed unsuitable to be moved forward in the study as one of the final alternatives. The key reasons for removing the alternative were the extensive property and land impacts, lack of community support, access concerns, and cost. These factors are discussed in more detail below.

> ***Property and Land Impacts*** The property impacts associated with the west side alternatives were tabulated on the plans shown below. An analysis of the least impactful alignment would necessitate the taking of 48 structures in West Springfield and 55 structures in Agawam, including businesses, utility structures, and single- and multifamily residences. Additional impacts would be experienced at School Street Park in Agawam, the School Street Barn (a structure listed on the National Register of Historic Places), and wetlands proximate to the Westfield River and the existing U.S. Route 5 alignment; each of these impacts would require additional review, evaluation, permitting, and/or mitigation measures, as mandated by state and federal regulations.




***Lack of Community Support:*** Both the cities of Agawam and West Springfield voiced their opinion of not being in favor of this alternative. The City of West Springfield was concerned with business and development opportunities being affected, the presence of Environmental Justice populations north of the Memorial

Rotary, the ongoing redesign of Memorial Avenue, and impacts on the planned Connecticut Riverwalk and Bikeway connections to existing neighborhoods.

The City of Agawam was concerned that areas of riverfront would be isolated or cut off by a new highway or railroad. These concerns were raised by both the Planning Board and Police Department. Additional impacts raised by city officials consisted of utility impacts, noise issues and air quality impacts, existing Connecticut Riverwalk and Bikeway impacts, and long-term impacts on local businesses.

***Access Concerns:***

On the east side of the river, the new alignment would improve access to the Connecticut River, a locally desirable outcome. However, moving the highway traffic away from businesses that are located in the Downtown Springfield core caused concerns for businesses and regional attractions such as the MGM Casino and the Basketball Hall of Fame.

With a new alignment of I-91, access would not be allowed off of and/or onto the highway for private enterprises. As a result, an interstate in this area would cut off the access to the existing Springfield Water and Sewer Commission property, which includes the sewer treatment plant.

***Cost:***

A cost analysis was not attainable at this juncture in the study without advancing the idea through Alternatives Analysis; however, the cost of this alternative would include a significantly higher number of elements than to confine work to the east side of the river. Some of the elements impacting the cost would include numerous new bridges for both the railroad and interstate, right-of-way impacts and takings, mitigation measures to upgrade surrounding roadways, and utility impacts such as Amtrak requiring significant compensation for disruption of freight services. These impacts would occur on both sides of the Connecticut River.

Selection of Three Preferred Alternatives

After these three Working Group meetings and the subsequent follow-up meeting, the Working Group narrowed the options down to three preferred alternatives. These alternatives would be further developed in design to a level that would allow for the completion of the travel demand modeling, traffic microsimulation modeling, and impact analysis utilizing expanded evaluation criteria. The three alternatives that were selected to move forward were the following:

Depressed Section – Same Alignment

The depressed interstate alternative, which generally follows the existing highway alignment, was chosen for its improved access to the riverfront and the existing Basketball Hall of Fame area. This alternative would be further developed to define connections to local streets, state routes, and US routes; locations of potential green development corridors; access to the city's river frontage; location of new bikeways and walkways; park areas; increased business potential and economic growth for existing parcels; and possible new economic growth opportunities. It also removes the overhead visual and physical impediment of the I-91 Viaduct structure.

Depressed Section – New Alignment

A second depressed interstate alternative would follow a new alignment, shifting a section of the highway toward and adjacent to the railroad corridor. This alternative was also chosen for its improved access to the riverfront and the existing Basketball Hall of Fame area. This alternative would be further developed to define connections to local streets, interstate and state routes; locations of potential green development corridors; access to the city's river frontage; location of new bikeways and walkways; park areas; increased business potential and economic growth for existing parcels; and possible new economic growth opportunities. It also removes the overhead visual and physical impediment of the I-91 Viaduct structure.

Elevated Section (Modern Viaduct)

The Elevated Section (Modern Viaduct) alternative was chosen based on reduced impacts on other areas of the Primary Study Area (including the ability to maintain the existing street-level infrastructure), opportunities to activate spaces underneath the existing Viaduct structure and enhance connectivity to the Connecticut Riverfront, and reduced yearly maintenance costs relative to other alternatives.

The next chapter, which covers the alternatives Analysis process, further defines the design features of these three alternatives, presents the findings of microsimulation modeling on a local and regional level, and introduces the evaluation criteria by which the three alternatives and a No-Build/Rehab option are rated.