SECTION 3: PROJECT ALTERNATIVES

- What alternatives are being considered for the I-81 Viaduct Project?
- What are the proposed designs of each alternative?
- What criteria have been used to evaluate the project alternatives?
- What alternatives are not considered reasonable?
- What alternatives are recommended for further review and potentially detailed study in the Draft Environmental Impact Statement (DEIS)?

3-1 INTRODUCTION

The identification and evaluation of reasonable alternatives are central to project development under the National Environmental Policy Act (NEPA). This section of the Draft Scoping Report presents the various alternatives that have been considered for the Interstate 81 (I-81) Viaduct Project and recommends alternatives to study in further detail.

As part of the scoping process, the Federal Highway Administration (FHWA) and the New York State Department of Transportation (NYSDOT) have invited the public to comment on the proposed alternatives or to suggest additional alternatives that may satisfy the project’s purpose and need. NYSDOT and FHWA will carefully consider the public input and comments on the alternatives presented herein. NYSDOT and FHWA have also evaluated alternatives proposed by members of the public during NEPA scoping. Section 3-3, Overview of the Alternatives, identifies alternatives considered, including those that were proposed by members of the public during scoping, and the preliminary screening of these alternatives is presented in Section 3-4, Preliminary Screening of the Alternatives, and Section 3-5, Preliminary Screening Results and Recommendations.

3-2 DEVELOPING AND EVALUATING ALTERNATIVES

The I-81 Viaduct Project is following a six-step approach to alternatives development and screening. This approach facilitates development of the broader concepts for alignment alternatives early in the NEPA process and an evaluation to determine if these alternatives are reasonable. As defined by NEPA, reasonable alternatives are generally understood to
mean those technically and economically feasible project alternatives that would satisfy the primary objectives of the project defined in its statement of purpose and need.¹

The six steps are:

- **Step 1—Development of Alternatives:** Building on the previous I-81 corridor planning study and the alternatives presented to the public at the Initial Scoping Meeting in November 2013, NYSDOT has identified a preliminary list of alternatives to be developed to a conceptual level and screened. These alternatives are presented in Section 3-3, Overview of the Alternatives.

- **Step 2—Preliminary Screening of the Alternatives:** Alternatives have been screened based on preliminary design information. The reasonableness of an alternative is determined based on its potential to meet four categories using a “pass” or “fail” scoring system. The four broad categories are:
  - **Consistency with the project’s purpose and need and its objectives:**
    - Will the alternative address identified geometric and operational deficiencies in the I-81 Viaduct priority area?
    - Will the alternative maintain or enhance vehicle access to the interstate highway network and key destinations (i.e., central business district, hospitals, and institutions) within the I-81 Viaduct priority area?
    - Will the alternative address structural deficiencies and improve bridge ratings in the I-81 Viaduct priority area?
    - Will the alternative maintain the local street connections within or adjacent to the I-81 Viaduct priority area?
    - Will the alternative provide enhanced bicycle and pedestrian surface connections on streets across and along the I-81 viaduct?
  - **Property** needs as defined by the number of buildings or acres of land that may need to be acquired;
    - Can the alternative be built without substantial property acquisitions?
  - **Constructability** considerations including difficulty and duration of construction, and the ability to maintain adequate traffic flow during construction;
    - Can the alternative be constructed without difficult means and methods, a long duration, or an inability to maintain adequate traffic flow?
  - The estimated construction cost:
    - Is the projected construction cost reasonable?

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An alternative is considered reasonable if it satisfies all four categories under consideration (purpose and need, property, constructability, and cost). Alternatives that satisfy the four categories are recommended to advance (“pass”). If an alternative is unlikely to meet one or more of the categories, it is not considered reasonable and is recommended to “fail” the preliminary screening.

The purpose and need and project objectives are identified in Section 2, Purpose and Need of this Draft Scoping Report and are based on the existing needs identified therein. Alternatives that cannot satisfy all five project objectives would not meet the purpose and need and are not considered reasonable.

Most alternatives would require the acquisition of property. However, the individual alternatives vary widely in the amount of property they would acquire. NYSDOT has determined that some alternatives are not reasonable because of their potential property impacts. The specific property needs of the remaining alternatives will be further reviewed in Step 3, “Final Screening of the Alternatives,” to determine the extent of potential property impacts on residents, businesses, historic structures, and other aspects of the built and natural environment. This review may determine that some alternatives that pass the preliminary screening at this time are not reasonable.

Constructability defines the ease and efficiency with which a structure can be built. At this stage of project planning, the reasonableness of an alternative in terms of constructability is based on the length or duration of construction, the ability to maintain traffic flow during construction, and engineering and technical considerations such as undesirable or unreasonable soil conditions or utility relocations.

The reasonableness of an alternative’s cost was based on the assumption that NYSDOT would, at a minimum, undertake rehabilitation of the I-81 viaduct. However, to address more project objectives, flexibility is needed to determine whether additional costs could be considered. Based on current information, the cost of a rehabilitation alternative (please refer to the discussion of “Alternative V-1” in Section 3-3-2, Viaduct Alternatives) is estimated at $800 million. At this time, NYSDOT considers an alternative to have a reasonable cost if it would be no more than 2.5 times the cost of the rehabilitation alternative.

- Step 3—Final Screening of the Alternatives: The preliminary screening of the alternatives is presented in this Draft Scoping Report. Agencies and the public have an opportunity to comment on this preliminary screening during the scoping comment period. Following the public comment period, NYSDOT and FHWA will consider the comments received, which will inform the decision to eliminate certain alternatives.

NYSDOT and FHWA will prepare a final screening of the remaining alternatives (i.e., those that are recommended to pass the preliminary screening). The final screening will assess the benefits and potential impacts of alternatives based on property requirements, environmental considerations, and traffic circulation. Environmental
considerations will include factors such as residential and business displacement, effects on historic resources, parklands, and community facilities, effects on natural features (i.e., wetlands), and potential effects on air quality and noise. NYSDOT and FHWA will also continue to coordinate with the City of Syracuse and Onondaga County regarding the potential use of local streets under the street-level alternatives (see the discussion of Alternatives SL-1, SL-2, and SL-3 in Section 3-3-3, Street-level Alternatives) to determine if an alternative is reasonable.

The final recommendation of alternatives to study in the DEIS will be presented in the Final Scoping Report, which is expected to be available in fall 2014.

- **Step 4—Refinement of the DEIS Alternatives:** The recommended alternatives as presented in the Final Scoping Report will be further studied and refined as necessary to provide a greater amount of information for a detailed evaluation in the DEIS. The DEIS alternatives will be refined in fall 2014. Any such refinements will be presented in the DEIS, which is anticipated to be published in late 2015. Agency and stakeholder meetings will continue to be held during preparation of the DEIS, and alternative refinements will be presented and discussed at these meetings.

- **Step 5—Detailed Evaluation of the DEIS Alternatives:** By Step 5, alternatives that do not meet the purpose and need will be eliminated. Therefore, the evaluation of alternatives in the DEIS will focus on the relative benefits and impacts of each alternative. The analysis conducted during the DEIS phase will allow for a comparison of the alternatives based on social, economic, and environmental considerations. The DEIS analysis is anticipated to occur in the fall of 2014 through the summer of 2015, and the assessment will be presented in the DEIS, which is anticipated to be published in late 2015. Agencies and the public will be able to consider the analysis as part of their review of the DEIS.

- **Step 6---Identification of a Preferred Alternative:** A Preferred Alternative, the alternative that is recommended for construction, will be identified in the FEIS (Final Environmental Impact Statement). In identifying the Preferred Alternative, NYSDOT and FHWA will consider the social, economic, and environmental benefits and impacts identified in the DEIS as well as public input received on the DEIS.

### 3-3 OVERVIEW OF THE ALTERNATIVES

Initial concepts for project alternatives were presented in the Initial Scoping Packet and at the Initial Scoping Meeting held in November 2013. NYSDOT and FHWA presented four alternative concepts as follows:

- Above Grade Alternatives;
- At-Grade Alternatives;
- Below Grade-Tunnel Alternatives; and
- Below Grade-Depressed Highway Alternatives.
Since November the alternatives have been more rigorously defined. While these concepts remain as the basis for the project alternatives presented in this document, the names have been changed for clarification. Furthermore, multiple variations of the broader alternatives have been developed since November.

Members of the public suggested alternatives at the Initial Scoping Meeting and in written comments received after the Initial Scoping Meeting. Two of these concepts are presented herein. Other concepts presented by the public have been reviewed and are considered analogous to other alternative designs under consideration.

### 3-3-1 NO BUILD ALTERNATIVE

**ALTERNATIVE NB – NO BUILD ALTERNATIVE**

NEPA requires examination of a No Build Alternative. The No Build Alternative serves as the benchmark to evaluate the benefits and impacts of build alternatives. As described in **Section 2, Purpose and Need**, I-81 is in need of repair, and current traffic safety issues are a key consideration for the I-81 Viaduct Project. The No Build Alternative would maintain the existing highway and implement safety measures to the extent feasible and financially practicable. Structural deficiencies and safety considerations would be addressed as part of NYSDOT’s ongoing maintenance program. Over time, however, these repairs would become very costly as the highway continues to deteriorate. At the time when NYSDOT determines that a maintenance program is too costly or that conditions result in an increased safety risk to the public or disruptions to the public, the facility may be closed to traffic.

The No Build Alternative would involve maintaining the existing highway in its current configuration with ongoing maintenance efforts. Routine maintenance efforts would include filling paving cracks, patching holes in bridge decks, cleaning drainage systems, and operational considerations (e.g., signage and other low-cost improvements). The No Build Alternative would not modify existing interchanges or correct nonstandard highway features. While NYSDOT would continue routine maintenance of the existing highway, large-scale replacement and rehabilitation efforts would not be undertaken.

The No Build Alternative would not involve changes in right-of-way (property line) or interchange improvements. Any maintenance or safety repairs would include upgrades to the existing highway or operational modifications such as changes in the posted speed limit, safety signage, restrictions on vehicle weights, or adjustments to traffic signals at intersections leading to and from the highway.

### 3-3-2 VIADUCT ALTERNATIVES

The viaduct alternatives are derived from the Above Grade Alternative presented at the November 2013 Scoping Meeting. The viaduct alternatives would rehabilitate or reconstruct the I-81 viaduct and implement other improvements within the project limits.
The typical height and width of the viaduct are provided for each viaduct alternative. For comparative purposes, the typical section of the existing viaduct has two travel lanes in each direction (northbound and southbound) with two- to three-foot inside and outside shoulders. The viaduct is about 66 feet wide and 20 feet tall. The viaduct is wider as it approaches I-690. Including Almond Street, the existing highway and street right-of-way (“Almond Street right-of-way”) is about 198 feet wide.

**ALTERNATIVE V-1: REHABILITATION**

Alternative V-1 (Rehabilitation) would involve a long-term program to address the deterioration of I-81. It would be implemented over a multi-year period as funding permits. The dimensions of the viaduct and operation of Almond Street would be the same as today with the exception of a wider ramp at Harrison Street. Thus, Alternative V-1 would not change the Almond Street right-of-way, and the viaduct would continue to be about 66 feet wide and 20 feet tall.

Alternative V-1 would reconfigure ramps to improve the existing connections between I-81 and I-690, but it would not provide a full directional interchange (i.e., no access between southbound I-81 and westbound I-690 or between eastbound I-690 and northbound I-81). It would also not address the insufficient distance between ramps north of the I-690 interchange. South of the I-690 interchange, Exit 18 (Harrison Street/Adams Street) would be modified with the addition of a southbound exit lane and a new left-turn lane from East Adams Street to the southbound I-81 on-ramp.

The rehabilitation of I-81 and I-690 in the I-81 Viaduct priority area would address the existing structural deficiencies and may correct some nonstandard and nonconforming highway features. NYSDOT would not seek additional right-of-way for Alternative V-1, and therefore, it would not be possible to correct many of the 102 nonstandard and nonconforming features identified in Section 2, Purpose and Need.

In Alternative V-1, a total of 42 bridges would be repaired or replaced. Alternative V-1 should correct the structural deficiencies on the I-81 viaduct and I-690 segments. Alternative V-1 would eliminate some nonstandard and nonconforming features, but many would remain. Remaining nonstandard and nonconforming features would include narrow shoulders, insufficient distance between on- and off-ramps, and sharp curves.

Under Alternative V-1, improvements to bicycle and pedestrian facilities and aesthetic treatments would be explored. Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. In addition, NYSDOT
would coordinate with the Central New York Regional Transportation Authority (CNY Centro) on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative V-1 advances to the DEIS.

At this time, it is anticipated that Alternative V-1 would not require acquisition of any buildings. The estimated cost of Alternative V-1 is $800 million.

**ALTERNATIVE V-2: NEW VIADUCT FULLY IMPROVED TO CURRENT STANDARDS**

Alternative V-2 (New Viaduct Fully Improved to Current Standards) would involve a full reconstruction of I-81 between MLK East (formerly Castle Street) and Spencer Street as well as modifications to highway features north of Spencer Street to Hiawatha Boulevard and along I-690 (see Figure 3-1).

The new viaduct would be 82 feet wide; approximately 16 feet wider than the existing viaduct (see Figure 3-2). It could also be the same height or about 5 to 10 feet taller than the existing viaduct, which is about 20 feet tall. The new highway would have four 12-foot lanes (two in each direction), inside shoulders (4 feet in each direction) and outside shoulders (minimum 10 feet in each direction). Almond Street would be reconstructed, and bridges within the I-81/I-690 interchange would be replaced.

In addition to reconstruction of the highway, Alternative V-2 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation and safety. At this time, the following interchange modifications are proposed.

- **I-81 New interchange on I-81 at MLK East or Burt Street:** To improve access to Southside and University Hill from the south, a new interchange could be constructed at MLK East or Burt Street. It would be a partial interchange with a northbound exit ramp and a southbound entrance ramp.

- **I-81 Interchange 18 (Harrison/Adams Streets):** To improve traffic circulation at Interchange 18, a second exit lane from southbound I-81 would be added.

- **I-81 / I-690 Interchange:** To improve traffic safety, the ramp from northbound I-81 to eastbound I-690 would be changed from a right-side ramp to a left-side ramp. To complete the missing connections between I-81 and I-690, a new ramp would be built between eastbound I-690 and northbound I-81, and a new ramp would be built between southbound I-81 and westbound I-690.

- **I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street):** Interchanges 19 and 20 would be combined to accommodate the new connections between I-81 and I-690. This would involve replacing the existing off-ramps from southbound I-81 to West Street/Franklin Street (Interchange 20) and to Clinton Street/Salina Street (Interchange 19) with a single ramp that serves Clinton Street.
Alternative V-2 (New Viaduct Fully Improved to Current Standards) – Overview

Alternative V-2 (New Viaduct Fully Improved to Current Standards) would have the same features as Alternative V-2 except that some curves would be designed to different standards (see Figure 3-3).
Alternative V-2
(New Viaduct Fully Improved to Current Standards)
View and Section

Figure 3-2
and Franklin Street and reconfiguring the existing on-ramps from Pearl Street (Interchange 19) and State Street (Interchange 20) with a single ramp that has access from Willow Street or a nearby street.

- **I-690 Interchange 11 (West Street):** NYSDOT is exploring options to improve Interchange 11 on I-690. The first option would maintain the existing ramp configuration but would slightly raise the elevation of West Street to improve safety on I-690 and the West Street ramps. The second option would remove the existing, free-flow interchange and replace it with a new interchange, controlled by a traffic signal on West Street.

- **I-690 Interchange 13 (Townsend Street / Downtown Syracuse):** To allow for the reconstruction of the I-81 / I-690 interchange, the westbound exit ramp from I-690 would be relocated from Townsend Street to Almond Street. A new on-ramp to eastbound I-690 from Townsend Street would be constructed, replacing the existing on-ramp from Harrison Street.

- **I-690 Interchange 14 (Teall Avenue):** To reduce congestion at the I-81 and I-690 interchange and improve access to University Hill, NYSDOT is exploring ramp and local street changes at the Teall Avenue interchange. The modifications may include reconstruction of the on- and off-ramps on I-690 and roadway and traffic signal changes on Teall Avenue.

North of Spencer Street, the Court Street interchange would be reconstructed with longer entrance ramps and better merges, and the Route 370 (Onondaga Lake Parkway) on-ramp and Old Liverpool Road on-ramp would be consolidated into a single ramp. Several non-standard highway features, such as narrow shoulders and tight curves, may need to be corrected, pending an investigation of the accident history along this stretch of I-81.

Based on the current level of engineering, it is anticipated that Alternative V-2 would correct all nonstandard and most nonconforming highway features within the I-81 Viaduct priority area (see Table 2-1). All highway elements would meet 60 MPH design standards, and the posted speed limit would be 55 MPH. The new viaduct, bridges, and highway would be wider to provide a median and shoulders that comply with the FHWA and NYSDOT standards. Structural elements would be replaced, thereby correcting the structural deficiencies within the I-81 Viaduct priority area.

Almond Street would be reconstructed, and turn bays or traffic signal modifications may be implemented on Almond Street and cross streets to improve traffic flow. To accommodate the wider viaduct, Monroe Street and Madison Street would become dead-end streets and would no longer have access to Almond Street. However, access to Almond Street would be maintained at all of the other existing intersections.

Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative V-2 advances to the DEIS.

Elevating the viaduct by 5 to 10 feet would create a more visible space under the viaduct with more available light, which may contribute to a greater sense of security for motorists, pedestrians, and cyclists. The increased height also offers more opportunities for aesthetic treatments to the viaduct itself.

NYSDOT would acquire right-of-way to achieve the necessary width of Alternative V-2. At this time, it is estimated that approximately 30 to 40 buildings would be acquired for the new right-of-way. The estimated cost of Alternative V-2 is $1.438 billion. The cost estimate includes preliminary property acquisition costs.

**ALTERNATIVE V-3: NEW VIADUCT WITH SUBSTANTIAL DESIGN IMPROVEMENTS**

Alternative V-3 (New Viaduct with Substantial Design Improvements) would be the same as Alternative V-2 (New Viaduct Fully Improved to Current Standards) south of East Genesee Street and north of Butternut Street. The new viaduct would be 82 feet wide, either the same height or 5 to 10 feet taller than the existing viaduct, and would include two 12-foot travel lanes, a 4-foot inside shoulder, and a 10-foot outside shoulder in each direction (i.e., northbound and southbound).

It is anticipated that of the 78 identified nonstandard features in the I-81 Viaduct priority area, Alternative V-3 would correct 71 features to meet 60 MPH design standards. The remaining seven nonstandard features, which are seven of the curves between East Genesee Street and Butternut Street, would be improved to meet 55 MPH design standards for the horizontal sight stopping distance. These curves would meet a lower design speed such that less property would be needed to construct the highway (see Figure 3-3); however, the posted speed limit would be 55 MPH. As defined by FHWA, “stopping sight distance is the distance needed for drivers to see an object on the roadway ahead and bring their vehicles to a safe stop before colliding with the object.” In this case, horizontal stopping sight distance would refer to the distance that a motorist needs to see around horizontal curves. In general, the sight distance restriction would only apply to the inside lane of the seven curves. Even though the highway may have 4 lanes, only the inside lane on the inside of the curve would have the non-standard horizontal stopping sight distance. Alternative V-3 would also correct most nonconforming features within the I-81 Viaduct priority area.

In addition to reconstruction of the highway, Alternative V-3 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve
Figure 3-3

Alternative V-3: New Viaduct with Substantial Design Improvements

Alternative V-4: New Viaduct with Considerable Design Improvements

NOTE: For Alternative V-2 (New Viaduct Fully Improved to Current Standards), the horizontal stopping sight distance design standard would be 60 mph for all curves.

Alternative V-3 (New Viaduct with Substantial Design Improvements) and Alternative V-4 (New Viaduct with Considerable Design Improvements) - Variations in Horizontal Stopping Sight Distance Design Speeds
traffic circulation and safety. The proposed interchange modifications would be the same as those described for Alternative V-2 (New Viaduct that Fully Meets Design Standards). Alternative V-3 would also provide new auxiliary lanes to improve safety for motorists entering and exiting the highway.

Because Alternative V-3 would fully reconstruct I-81 and I-690 within the I-81 Viaduct priority area, it should address the structural deficiencies described in Section 2, Purpose and Need.

Almond Street would be reconstructed, and turn bays or traffic signal modifications may be implemented on Almond Street and cross streets to improve traffic flow. To accommodate the wider viaduct, Monroe Street and Madison Street would become dead-end streets and would no longer have access to Almond Street. However, access to Almond Street should be maintained at all of the other existing intersections.

Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative V-3 advances to the DEIS.

At this time, it is estimated that Alternative V-3 would require the acquisition about 25 percent fewer buildings than Alternative V-2. The estimated cost of Alternative V-3 is $1.423 billion, which includes preliminary property acquisition costs.

**ALTERNATIVE V-4: NEW VIADUCT WITH CONSIDERABLE DESIGN IMPROVEMENTS**

Alternative V-4 (New Viaduct with Considerable Design Improvements) would be the same as Alternative V-2 (New Viaduct Fully Improved to Current Standards) south of East Genesee Street and north of Butternut Street. The new viaduct would be 82 feet wide, the same height of about 5 to 10 feet taller than the existing viaduct, and would include two 12-foot travel lanes, a 4-foot inside shoulder, and a 10-foot outside shoulder in each direction (i.e., northbound and southbound).

It is anticipated that of the 78 identified nonstandard features in the I-81 Viaduct priority area, Alternative V-4 would correct 71 features to meet 60 MPH design standards. The remaining seven nonstandard features, which are seven of the curves between East Genesee Street and Butternut Street, would be improved to meet 50 MPH or 55 MPH design standards for the horizontal sight stopping distance (see Figure 3-3). Two curves would meet the 55 MPH design standard and five curves would meet the 50 MPH design standard.
As with Alternative V-3, the sight distance restriction for Alternative V-4 would apply only to the inside lane of the seven curves. Even though the highway may have 4 lanes, only the inside lane on the inside of the curve would have the non-standard horizontal stopping sight distance. The posted speed limit would be 55 MPH as compared to the 45 MPH posted speed limit on the existing viaduct. Warning signs would be installed at the five 50 MPH curves to encourage motorists to reduce speed.

Alternative V-4 would also correct most nonconforming features within the I-81 Viaduct priority area, and Alternative V-4 would fully reconstruct I-81 and I-690 within the I-81 Viaduct priority area, which should address the structural deficiencies described in Section 2, Purpose and Need. Alternative V-4 would also include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation and safety. The proposed interchange modifications would be the same as those described for Alternative V-2 (New Viaduct that Fully Meets Design Standards). Alternative V-4 would also provide new auxiliary lanes to improve safety for motorists entering and exiting the highway.

Almond Street would be reconstructed, and turn bays or traffic signal modifications may be implemented on Almond Street and cross streets to improve traffic flow. To accommodate the wider viaduct, Monroe Street and Madison Street would become dead-end streets and would no longer have access to Almond Street. However, access to Almond Street would be maintained at all of the other existing intersections.

Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative V-4 advances to the DEIS.

Based on current design plans, Alternative V-4 would require the acquisition of 40 percent fewer buildings than Alternative V-2. The estimated cost of Alternative V-4 is $1.419 billion, which includes preliminary property acquisition costs.

**ALTERNATIVE V-5: NEW STACKED VIADUCT**

Alternative V-5 (New Stacked Viaduct) was suggested by a member of the public (see Figure 3-4). It would involve removal of the existing viaduct and construction of a new two-level viaduct above Almond Street to East Genesee Street. The top level of the stacked viaduct would carry northbound traffic, and the bottom level would carry southbound traffic. It is
Alternative V-5 (New Stacked Viaduct)

Figure 3-4

Typical Section
anticipated that Alternative V-5 would correct all or most nonstandard and nonconforming features within the I-81 Viaduct priority area. Because Alternative V-5 would fully reconstruct I-81 and I-690 within the I-81 Viaduct priority area, it should also address the structural deficiencies described in Section 2, Purpose and Need.

Because northbound and southbound vehicles would travel on stacked decks, the Alternative V-5 viaduct would be narrower than it is today, but it would be taller. The current viaduct is 66 feet wide and 20 feet tall. Under Alternative V-5, the road deck would be 41 feet wide, which includes two, 12-foot traffic lanes, shoulders, and safety barriers. In addition, support columns would be constructed next to the road deck, and these columns would be 7 feet wide. The total width of the viaduct structure would be 55 feet. Thus, Alternative V-5 would be about 30 feet taller and about 11 feet narrower than the existing viaduct (see Figure 3-4).

Alternative V-5 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation and safety. The proposed interchange modifications would be the same as those described for Alternative V-2 (New Viaduct that Fully Meets Design Standards). Alternative V-5 would also provide new auxiliary lanes (new lanes between highway interchanges) to improve safety for motorists entering and exiting the highway.

The upper deck of the viaduct would be 50 feet above Almond Street. Ramps to and from Interchange 18 (Harrison/Adams Streets) would be very long, and therefore, the ramp from Harrison Street to northbound I-81 would eliminate east-west access on East Genesee Street beneath the new viaduct. Alternative V-5 would maintain all other existing local street access to Almond Street, including Madison and Monroe Streets, and Almond Street would be reconstructed. Turn bays or traffic signal modifications may be implemented on Almond Street and cross streets to improve traffic flow.

Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative V-5 advances to the DEIS.

Based on current design plans, Alternative V-5 would require acquisition of between 20 and 40 buildings depending on the horizontal sight stopping distance design standard (60 MPH, 55 MPH, or 50 MPH) for the curves between East Genesee Street and Butternut Street. The
estimated cost of Alternative V-5 is $1.588 billion, which includes preliminary property acquisition costs. This cost could increase or decrease by about $10 million, depending on the selected horizontal sight stopping distance design standard.

3-3-3 STREET-LEVEL ALTERNATIVES

The street-level alternatives were derived from the At-grade/Surface Alternative presented at the November 2013 Initial Scoping Meeting. The street-level alternatives would remove the section of I-81 between Van Buren Street and the I-81/I-690 interchange. I-481, which bypasses Syracuse to its east, would be designated as I-81. The section of highway between the existing southern I-481 interchange (Exit 16A) and Monroe Street would be maintained as a freeway, but would likely be designated as a New York State Route. The section of the existing I-81 north of Butternut Street would also be retained as a freeway, but it would be assigned a new interstate designation (i.e., I-581) or would be designated as a New York State Route. The north and south sections of the former I-81 would connect to one or multiple surface streets that would carry traffic through Downtown, Northside, Southside, and University Hill.

For purposes of the discussion that follows, the section of the existing I-81 between its southern interchange with I-481 (Exit 16A) and Monroe Street is referred to as the “former I-81 south segment.” The section of I-81 between Butternut Street and its northern interchange with I-481 (Exit 29) is referred to as the “former I-81 north segment.”

I-481 would be designated I-81 and would carry through traffic around the eastern side of Syracuse. The change in the highway’s designation and associated changes in traffic volumes would require some modifications to I-481. These modifications, shown in Figure 3-5, would be the same for all street-level alternatives, and they would include:

- **I-81/I-481 South Interchange (Interchange 16A):** The existing ramps that connect northbound I-81 to northbound I-481 and southbound I-481 to southbound I-81 would be reconstructed to be two lanes each and to meet 70 MPH design standards. The East Brighton Avenue bridge over the interchange would be reconstructed. The intersection of East Brighton Avenue and Rock Cut Road would be maintained but may be reconfigured or shifted slightly.
- A third southbound lane would be provided between Kirkville Road (Interchange 5 southbound on-ramp) and I-690 (Interchange 4 southbound off-ramp)
- A third northbound lane would be provided between I-690 (Interchange 4 northbound on-ramp) and Kirkville Road (Interchange 5 northbound off-ramp)
- A third northbound lane would be added between Kirkville Road and I-90 (Interchange 5 northbound on-ramp) and I-90 (Interchange 6 northbound off-ramp)
- A third northbound lane would be added between Northern Boulevard (Interchange 8 northbound on-ramp) and Interchange 9 (I-81/I-481 North Interchange).
Reconstruct interchange to direct I-81 traffic to I-481

Add northbound auxiliary lane from Northern Blvd. to I-81/I-481 interchange

Add northbound auxiliary lane from I-690 to I-90

Add southbound auxiliary lane from Kirksville Road to I-690

Add new I-81 signage and renumber interchanges as needed

Highway with Interstate or NYS Route number

Surface street

Highway with NYS Route number

Reconstruct interchange to direct I-81 traffic to I-481

Existing I-481 Interchange

Street-level Alternatives – Improvements to Designate I-481 as I-81

Figure 3-5
Section 3: Project Alternatives

- **I-81/I-481 North Interchange (Interchange 29):** The existing ramps that connect northbound I-481 to northbound I-81 and southbound I-81 to southbound I-481 would be reconstructed as two-lane ramps with a 70 MPH design speed.

- **I-481 signage would be replaced with I-81 signage,** and interchanges may be renumbered to correspond to the sequencing of I-81 interchanges south and north of Syracuse.

- **As necessary, new or rehabilitated noise walls would be provided along I-481 and at other locations within the project limits based on further analysis of the potential changes in interstate traffic.**

As with the viaduct alternatives, all of the street-level alternatives have options to improve interchanges on the former I-81 south segment, the former I-81 north segment, and I-690. At this time, the following interchange modifications are proposed.

- **I-81 New interchange on I-81 at MLK East or Burt Street:** To improve access to Southside and University Hill from the south, a new interchange could be constructed at MLK East or Burt Street. It would be a partial interchange with a northbound exit ramp and a southbound entrance ramp.

- **I-81 / I-690 Interchange:** To complete the missing connections between I-81 and I-690, a new ramp would be built between eastbound I-690 and northbound I-81, and a new ramp would be built between southbound I-81 and westbound I-690.

- **I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street):** Interchanges 19 and 20 would be combined to accommodate the new connections between I-81 and I-690. This would involve replacing the existing exit ramps from southbound I-81 to West Street/Franklin Street (Interchange 20) and to Clinton Street/Salina Street (Interchange 19) with a single ramp that serves Clinton Street and Franklin Street and reconfiguring the existing on-ramps from Pearl Street (Interchange 19) and State Street (Interchange 20) with a single ramp that has access from Willow Street.

- **I-690 Interchange 11 (West Street):** NYSDOT is exploring options to improve Interchange 11 on I-690. The first option would maintain the existing ramp configuration but would slightly raise the elevation of West Street to improve safety on I-690 and the West Street ramps. The second option would remove the existing, free-flow interchange and replace it with a new interchange, controlled by a traffic signal on West Street.

- **I-690 Interchange 13 (Townsend Street / Downtown Syracuse):** To allow for the reconstruction of the I-81 / I-690 interchange, the westbound exit ramp from I-690 would be relocated from Townsend Street to Almond Street. A new on-ramp to eastbound I-690 from Townsend Street would be constructed, replacing the existing on-ramp from Harrison Street.
I-690 Interchange 14 (Teall Avenue): To reduce congestion at the I-81 and I-690 interchange and improve access to University Hill, NYSDOT is exploring ramp and local street changes at Teall Avenue. The modifications may include reconstruction of the on- and off-ramps on I-690 and roadway and traffic signal changes on Teall Avenue.

North of Spencer Street, the Court Street interchange would be reconstructed with longer entrance ramps and better merges, and the Route 370 (Onondaga Lake Parkway) on-ramp and Old Liverpool Road on-ramp would be consolidated into a single ramp. Several non-standard highway features, such as narrow shoulders and tight curves, may need to be corrected, pending an investigation of the accident history along this stretch of I-81.

ALTERNATIVE SL-1: BOULEVARD

Alternative SL-1 (Boulevard) would replace the existing viaduct with a two-way street that would carry traffic between Monroe Street and the I-81/I-690 interchange (see Figure 3-6). Between MLK East and Monroe Street, the former I-81 south segment would transition from the highway bridge over the New York Susquehanna and Western Railroad to street level. North of Monroe Street, a boulevard would be constructed within the existing I-81 and Almond Street right-of-way. Based on the initial traffic studies, the boulevard would consist of three northbound traffic lanes (12 feet each), three southbound traffic lanes (12 feet each), and could include curbside parking lanes, bicycle lanes, widened sidewalks, and a landscaped median (see Figure 3-7).

North of Washington Street, the boulevard would transition to a highway section. Two options are under consideration for this segment of Alternative SL-1.

- **Option 1—Single Point Urban Interchange:** Under this option, the boulevard would end at about Erie Boulevard. The boulevard would connect to the elevated I-690 and the former I-81 via a new interchange, called a Single Point Urban Interchange. To maintain adequate traffic flow within the interchange, it would not be possible to allow traffic to continue north of I-690 onto Catherine Street. However, access between Catherine Street and the I-690 and the I-81 former north segment would be provided.

- **Option 2—Highway Ramp:** This option would provide a ramp that would lead upward from McBride Street and ascend to the former I-81 north segment near Townsend Street. Ramp connections to I-690 also would be provided.

The boulevard would be designed to meet FHWA, NYSDOT, and local design standards for an urban arterial roadway. The highway segments and interchanges of the former I-81 and I-481 would meet FHWA and NYSDOT highway design standards, and thus, all or most of the existing nonstandard and nonconforming design features as well as structural deficiencies within the I-81 Viaduct priority area should be addressed.

The boulevard would replace the existing Almond Street, providing access to existing intersections with four exceptions.
Roadway remains on a bridge over railroad, then descends to surface near Westmore St.

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

New connecting ramp from eastbound I-690 to northbound I-81

No through traffic on McBride St. between Burnet Ave. and Water St. Motorists would need to detour to Townsend St.

New overpass to carry Erie Boulevard over Almond Street

Reconstruct Almond Street as a Boulevard with bicycle and pedestrian enhancements

Reconstruct Almond Street at Almond Street

Dead-end Jackson Street at Almond Street

Dead-end Jackson Street at Almond Street

Two options: highway ramp or highway ramp or "Single Point Urban Interchange" (SPUI)

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.

Example of an existing SPUI

The boulevard transitions to the former I-81 north segment and ends. Two options: highway ramp or "Single Point Urban Interchange" (SPUI)

Reconfigure West Street interchange

Existing West St./Franklin St. and Clinton St./Salina St. off-ramps would be replaced with a single off-ramp at Clinton St. Access to Franklin St. still provided.

Existing I-81 north of I-690 would be designated a new interstate number or a NYS route still provided.
Figure 3-7

Alternative SL-1 (Boulevard) View and Section

Typical Section
Jackson Street: To avoid a steep grade between the elevated section and the street level, it would be necessary to close Jackson Street where it crosses Almond Street.

Erie Boulevard: Based on a preliminary traffic analysis, it may not be possible to provide an intersection between Erie Boulevard and the new boulevard. To avoid a long traffic backup from I-690 to the boulevard, construction of a new overpass to carry Erie Boulevard would be required. The new overpass would maintain east-west traffic flow on Erie Boulevard and would provide enough unimpeded queuing space on the new boulevard to prevent traffic from backing up onto I-690.

Water Street: A median barrier would prevent east-west traffic along Water Street from crossing the new boulevard, but vehicles could make a right turn onto or off Water Street.

McBride Street would be closed from Water Street to Burnet Avenue.

Parking lots beneath the viaduct may be removed for Alternative SL-1, but the new boulevard may include on-street parking. The new boulevard would also include left- and right-turn lanes at certain intersections. All of these elements would be accommodated within the Almond Street right-of-way.

Alternative SL-1 would include bicycle and pedestrian facilities to improve connectivity between existing local, regional, and state multi-use paths within the project limits. At Water Street, it may be possible to provide a new bicycle and pedestrian bridge over the boulevard. New intersections along the boulevard would incorporate measures to enhance bicycle and pedestrian safety such as:

- Clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use;
- Bollards and traffic islands to provide safe refuge for pedestrians; and
- “Bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians.

NYSDOT would also coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. These local street improvements, context-sensitive design features, and aesthetic treatments would be examined if Alternative SL-1 advances to the DEIS.

Based on current design plans, it would be necessary to acquire 5 to 10 buildings for construction of Alternative SL-1. The estimated cost of Alternative SL-1 is $1.047 billion, including demolition of the viaduct and preliminary property acquisition costs.
ALTERNATIVE SL-2: ONE-WAY TRAFFIC ON ALMOND STREET AND OTHER LOCAL STREET(S)

As with Alternative SL-1 (Boulevard), Alternative SL-2 (One-way Traffic on Almond Street and Other Local Street(s)) would demolish the viaduct section of I-81, and a new surface street would be constructed along the Almond Street corridor to connect the former I-81 south segment to I-690. The new surface street would serve northbound traffic and would include accommodations for pedestrians and bicycles (see Figure 3-8). The new surface street would be entirely constructed within the Almond Street right-of-way. Another local street (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue) or a combination of streets would serve southbound traffic (see Figure 3-9). Like the northbound street, the southbound street would be located within the public right-of-way and could include accommodations for pedestrians and bicycles.

Preliminary traffic analysis will be undertaken to determine the potential effects of Alternative SL-2 on local and interstate traffic operations. It is possible that some options for the southbound local street or streets (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue) would be dismissed because they fail to result in reasonable traffic operations. The Final Scoping Report will describe the traffic analysis and make further recommendations based on its findings.

North of Harrison Street, the new Almond Street would be one-way northbound and one or more of the streets identified above would serve one-way, southbound traffic. At Adams Street, the southbound traffic would travel eastward to Almond Street and would turn to rejoin the former I-81 south segment at Monroe Street.

Southbound traffic exiting from I-690 would travel on either Townsend Street or State Street, and could head east on Adams Street to Almond Street and the former I-81 south segment. Alternatively, southbound traffic could continue on State Street or Townsend Street toward a newly constructed on-ramp either on Burt Street or MLK East.

Streets that would be incorporated into Alternative SL-2 would be designed to meet FHWA, NYSDOT, and local design standards for an urban arterial roadway. The highway segments and interchanges of the former I-81 and I-481 would meet FHWA and NYSDOT highway design standards, and thus, it is anticipated that all nonstandard features and most nonconforming features of the existing highway within the I-81 Viaduct priority area would be addressed. By removing the viaduct and reconstructing or rehabilitating remaining highway segments within the I-81 Viaduct priority area, Alternative V-2 should also eliminate the existing structural deficiencies identified in Section 2, Purpose and Need.

Almond Street would be reconstructed with access to existing east-west streets except for Jackson Street. Existing parking lots beneath the viaduct may be removed for Alternative SL-2, but the reconstructed Almond Street may include on-street parking. The new street would also include left- and right-turn lanes at certain intersections. All of these elements would be accommodated within the existing Almond Street right-of-way. Similar provisions would also
Alternative SL-2 (One-way Traffic on Almond Street and Other Local Street(s))

Figure 3-8
Alternative SL-2 (One-way Traffic on Almond Street and Other Local Street(s)) and Alternative SL-3 (Two-way Traffic on Almond Street and Other Local Street(s))
be provided on the parallel southbound street(s) (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue).

Alternative SL-2 would include bicycle and pedestrian facilities to improve connectivity between existing local, regional and state multi-use paths within the project limits. Intersections along the reconstructed Almond Street and parallel southbound street(s) (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue) would incorporate measures to enhance bicycle and pedestrian safety such as:

- Clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use;
- Bollards and traffic islands to provide safe refuge for pedestrians; and
- “Bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians.

NYSDOT would also coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. These local street improvements, context-sensitive design features, and aesthetic treatments would be examined if Alternative SL-2 advances to the DEIS.

Based on current design information, it would be necessary to acquire 5 to 10 buildings for construction of Alternative SL-2. The estimated cost of Alternative SL-2 is $1.067 billion, including demolition of the viaduct and preliminary property acquisition costs.

**ALTERNATIVE SL-3: TWO-WAY TRAFFIC ON ALMOND STREET AND OTHER LOCAL STREET(S)**

Alternative SL-3 (Two-way Traffic on Almond Street and Other Local Street(s)) would be the same as Alternative SL-2 (One-way Traffic on Almond Street and Other Local Street(s)) except that former interstate traffic would use two or more two-way streets between the former I-81 south segment and I-690 (see Figure 3-9). The viaduct would be removed and Almond Street would be reconstructed to serve two-way traffic. The new street would be located entirely within the Almond Street right-of-way. A second street (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue) would be designated to serve as an alternative two-way, north-south Street for former interstate traffic. The north-south traffic on the alternative street would be directed to the former I-81 south segment via Adams Street or Burt Street. Almond Street, the alternative two-way street, or other streets would provide access to I-690 and the former I-81 north segment.

Preliminary traffic analysis will be undertaken to determine the potential effects of Alternative SL-3 on local street and interstate traffic operations. It is possible that some options for the local street or streets (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue) would be dismissed because they fail to result in reasonable
traffic operations. The Final Scoping Report will describe the traffic analysis and make further recommendations based on its findings.

Streets that would be incorporated into Alternative SL-3 would be designed to meet FHWA, NYSDOT, and local design standards for an urban arterial roadway. The highway segments and interchanges of the former I-81 and I-481 would meet FHWA and NYSDOT highway design standards. Thus, it is anticipated that all nonstandard features and most nonconforming features of the existing highway within the I-81 Viaduct priority area would be addressed. By removing the viaduct and reconstructing or rehabilitating remaining highway segments within the I-81 Viaduct priority area, Alternative V-2 should also eliminate the existing structural deficiencies identified in Section 2, Purpose and Need.

Almond Street would be reconstructed with access to existing east-west streets except for Jackson Street. Existing parking lots beneath the viaduct may be removed for Alternative SL-3, but the reconstructed Almond Street may include on-street parking. The new street would also include left- and right-turn lanes at certain intersections. All of these elements would be accommodated within the existing Almond Street right-of-way. Similar provisions would also be provided on the other two-way street(s).

Alternative SL-3 would include bicycle and pedestrian facilities to improve connectivity between existing local, regional and state multi-use paths within the project limits. Intersections along the reconstructed Almond Street and parallel southbound street (e.g., Townsend Street, State Street, Clinton Street, West Street, or University Avenue) would incorporate measures to enhance bicycle and pedestrian safety such as:

- Clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use;
- Bollards and traffic islands to provide safe refuge for pedestrians; and
- “Bump-outs” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians.

NYSDOT would also coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. These local street improvements, context-sensitive design features, and aesthetic treatments would be examined if Alternative SL-3 advances to the DEIS.

It is currently anticipated that Alternative SL-3 would require acquisition of 5 to 10 buildings. The estimated cost of Alternative SL-3 is $1.067 billion, including preliminary property acquisition costs.
TUNNEL ALTERNATIVES

The tunnel alternatives are derived from the Below Grade/Tunnel Alternative presented at the November 2013 Initial Scoping Meeting. In addition to the three tunnel alternatives developed by NYSDOT and FHWA, a tunnel alternative was proposed by a member of the public and has been considered. The four tunnel alternatives are shown in Figure 3-10.

ALTERNATIVE T-1: ALMOND STREET TUNNEL FROM MLK EAST TO BUTTERNUT STREET

Alternative T-1 (Almond Street Tunnel from MLK East to Butternut Street) would result in a two-mile-long tunnel that would carry I-81 traffic beneath Almond Street (see Figure 3-11). The new tunnel and highway connections would be two lanes in each direction, and would be approximately 80 feet wide, with its roof about 15 to 20 feet below the street. The tunnel would begin at MLK East and follow the existing I-81 property line under Almond Street to about East Fayette Street. The tunnel would curve and follow the existing I-81 property line to Butternut Street where it would end and join the existing I-81 highway. Almond Street would be reconstructed atop the tunnel to serve local, north-south traffic. The new surface street would also provide accommodations for bicycles and pedestrians.

It is anticipated that Alternative T-1 would correct all of the nonstandard and most nonconforming highway features within the I-81 Viaduct priority area (see Table 2-1). Alternative T-1 would meet 60 MPH design standards, and the posted speed limit would be 55 MPH. All structural elements would also meet current standards.

Alternative T-1 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation and safety on the highway segments that remain within the I-81 Viaduct priority area. At this time, the following interchange modifications are proposed.

- **I-81 / I-690 Interchange:** To complete the missing connections between I-81 and I-690, a new ramp would be built between eastbound I-690 and northbound I-81, and a new ramp would be built between southbound I-81 and westbound I-690.

- **I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street):** Interchanges 19 and 20 would be combined to accommodate the new connections between I-81 and I-690. This would involve replacing the existing exit ramps from southbound I-81 to West Street/Franklin Street (Interchange 20) and to Clinton Street/Salina Street (Interchange 19) with a single ramp that serves Clinton Street and Franklin Street and reconfiguring the existing entrance from Pearl Street (Interchange 19) and State Street (Interchange 20) with a single ramp that has access from Willow Street or a nearby street.

- **I-690 Interchange 11 (West Street):** NYSDOT is exploring options to simplify Interchange 11 on I-690. The first option would maintain the existing ramp configuration but would slightly raise the elevation of West Street to improve safety on I-690 and the West Street
**Alternative T-1: Almond Street Tunnel from Martin Luther King East to Butternut St.**

This map shows the tunnel from Martin Luther King East to Butternut St. along the current I-81 route.

**Potential Disadvantages of this Alternative**
- Would disconnect six local streets:
  - Many underground utilities would need to be relocated
  - New ramps would provide access between I-81 and I-690 in all directions
- Would allow the existing viaduct to remain open during construction of the tunnel

**Potential Advantages of this Alternative**
- Because of unfavorable underground conditions, tunnel would need to be built using cut-and-cover construction method, which would be disruptive to surrounding neighborhoods
- New interchange with I-690 west of Teall Ave.
- Would acquire and demolish a substantial number (over 100) of buildings

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**Alternative T-2: Almond Street Tunnel from Martin Luther King East to Genesee St.**

This map shows the tunnel from Martin Luther King East to Genesee St. — west of the existing I-81 Viaduct.

**Potential Disadvantages of this Alternative**
- Would disconnect six local streets:
- Many underground utilities would need to be relocated
- New ramps would provide access between I-81 and I-690 in all directions

**Potential Advantages of this Alternative**
- Would maintain north-south, interstate highway access to/from Downtown Syracuse
- New interchange with I-690 west of Teall Ave.
- Would acquire and demolish a substantial number (over 100) of buildings

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**Alternative T-3: Townsend Street Tunnel**

This map shows the tunnel below Townsend St.

**Potential Disadvantages of this Alternative**
- Jackson St. would be dead-ended at Almond St., with no connection to the surface roadway
- Might impact the buildings along Townsend St.
- Might require a maintenance tunnel or maintenance shaft inside the tunnel

**Potential Advantages of this Alternative**
- Eliminates the need for the viaduct to be replaced as part of the project
- Easy access to downtown
- Fewer encroachments
- Easier emergency access

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**Alternative T-4: Tunnel on Eastern Alignment (81’ Below Syracuse)**

This map shows the tunnel 81’ below Syracuse.

**Potential Disadvantages of this Alternative**
- Because of unfavorable underground conditions, tunnel would need to be built using cut-and-cover construction method, which would be disruptive to surrounding neighborhoods
- New interchange with I-690 west of Teall Ave.
- Would acquire and demolish a substantial number (over 100) of buildings

**Potential Advantages of this Alternative**
- Interchange at the junction of I-81 and I-690
- Boulevard that connects two tunnels
- Southern I-81/I-481 interchange

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Tunnel Alternatives

Figure 3-10
Figure 3-11

Alternative T-1 (Almond Street Tunnel from MLK East to Butternut Street) and Alternative T-2 (Almond Street Tunnel from MLK East to Genesee Street)
ramps. The second option would remove the existing, free-flow interchange and replace it with a new interchange, controlled by a traffic signal on West Street.

- **I-690 Interchange 13 (Townsend Street / Downtown Syracuse):** To reconstruction of the I-81 / I-690 interchange, the westbound exit ramp from I-690 would be relocated from Townsend Street to Almond Street. A new on-ramp to eastbound I-690 from Townsend Street would be constructed, replacing the existing on-ramp from Harrison Street.

- **I-690 Interchange 14 (Teall Avenue):** To reduce congestion at the I-81 and I-690 interchange and improve access to University Hill, NYSDOT is exploring ramp and local street changes at the Teall Avenue interchange. The modifications may include reconstruction of the on- and off-ramps to improve access to I-690 to and from northbound and southbound Teall Avenue.

North of Spencer Street, the Court Street interchange would be reconstructed with longer entrance ramps and better merges, and the Route 370 (Onondaga Lake Parkway) on-ramp and Old Liverpool Road on-ramp would be consolidated into a single ramp. Several non-standard highway features, such as narrow shoulders and tight curves, may need to be corrected, pending an investigation of the accident history along this stretch of I-81.

To provide ramps between the new I-81 tunnel and I-690, it would be necessary to close several east-west local streets. Because of inadequate clearance, construction of the new ramps would require that East Fayette Street, Water Street, and Washington Street be closed to traffic. State Street and Almond Street and that McBride Street and Townsend Street be closed to traffic between East Genesee Street and Burnet Avenue. Similarly, to provide a new connection between the surface street and the existing highway section south of MLK East, Jackson Street would dead-end at Almond Street and not connect to the new surface street.

Interchange 18 (Adams Street/Harrison Street) would be eliminated. Access from northbound I-81 and access to southbound I-81 from Harrison and Adams Streets would be provided by the ramp connections between the new surface street and the highway section south of MLK East. Access to Adams Street and Harrison Street from southbound I-81 would be from a new off-ramp at Townsend Street, where traffic could travel south to Adams Street. Access to northbound I-81 would be from a new northbound on-ramp at the intersection of Almond Street and Erie Boulevard.

One or more ventilation structures as well as maintenance structures may be constructed along the tunnel alignment to support its operation. The specific locations and sizes of these structures would be identified if Alternative T-1 advances to DEIS.

Alternative T-1 would also include improvements to local streets to facilitate better traffic movement onto and off I-81. The new surface street atop the tunnel would serve northbound and southbound traffic with two lanes in each direction. Local street improvements would include considerations for pedestrian and bicycle safety and
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connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians, and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs,” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. Water Street, which includes the Erie Canalway Trail, would be impacted by Alternative T-1, but one possible solution to explore may be to reroute the Erie Canalway Trail around Water Street. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments and context-sensitive design features for Alternative T-1 will be further investigated if Alternative T-1 advances to the DEIS.

Based on preliminary designs, the construction of the Alternative T-1 would require acquisition of 35 to 40 buildings. The estimated cost of Alternative T-1 is $2.651 billion, including preliminary property acquisition costs.

ALTERNATIVE T-2: ALMOND STREET TUNNEL FROM MLK EAST TO GENESEE STREET

Alternative T-2 (Almond Street Tunnel from MLK East to East Genesee Street) would result in a one-mile-long tunnel that would carry I-81 traffic through University Hill and Southside to East Genesee Street. The tunnel would begin at MLK East and follow the existing I-81 property line under Almond Street to just north of East Genesee Street. The new tunnel would be two lanes in each direction, and would be approximately 80 feet wide; with its roof would be about 15 to 20 feet below the street. Almond Street, which would include accommodations for pedestrians and bicycles, would be reconstructed atop the tunnel.

Alternative T-2 would correct all or most of the nonstandard and nonconforming highway features within the I-81 Viaduct priority area. Alternative T-2 would meet 60 MPH design standards, and the posted speed limit would be 55 MPH. All structural elements would also meet current standards.

Alternative T-2 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation. The interchange modifications would be the same as described for Alternative T-1 (Tunnel from Adams Street to Butternut Street). North of Spencer Street, Alternative T-2 would provide new auxiliary lanes to improve safety for motorists entering and exiting the highway.

North of Genesee Street, I-81 would transition from a tunnel to an elevated highway. New ramps would connect I-81 and I-690. To provide adequate clearance for I-81 and these new ramps, State Street and Erie Boulevard would be reconstructed at a lower elevation. Because of inadequate clearance, construction of the new highway and ramps would require that East Fayette Street, Water Street, and Washington Street be closed to traffic between State Street
and Almond Street and that McBride Street and Townsend Street be closed to traffic between East Genesee Street and Burnet Avenue.

Interchange 18 (Adams Street/Harrison Street) would be eliminated. Access from northbound I-81 and access to southbound I-81 from Harrison and Adams Streets would be provided by the ramp connections between the new surface street and the highway section south of MLK East. Access to Adams Street and Harrison Street from southbound I-81 would be from a new off-ramp at Townsend Street, where traffic could travel south to Adams Street. Access to northbound I-81 would be from a new northbound on-ramp at the intersection of Almond Street and Erie Boulevard.

One or more ventilation structures as well as maintenance structures may be constructed along the tunnel alignment to support its operation. The specific locations and sizes of these structures would be identified if Alternative T-2 advances to DEIS.

Alternative T-2 would also include improvements to local streets to facilitate better traffic movement onto and off I-81. The new surface street atop the tunnel would serve northbound and southbound traffic with two lanes in each direction. Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians, and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and bump-outs at sidewalk corners to narrow roadway crossing distance for pedestrians. Water Street, which includes the Erie Canalway Trail, would be impacted by the Alternative T-2, but one possible solution to explore may be to reroute the Erie Canalway Trail around Water Street. In addition, NYSDOT would coordinate with the Central New York Regional Transportation Authority on potential street improvements in the project limits to enhance and support their transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further explored if Alternative T-2 advances to the DEIS.

Construction of the Alternative T-2 is anticipated to require acquisition of 35 to 40 buildings. The estimated cost of Alternative T-2 is $1.761 billion, including property acquisition.

**ALTERNATIVE T-3: TOWNSEND STREET TUNNEL**

Alternative T-3 (Townsend Street Tunnel) would remove the viaduct and replace it with a surface street along the existing Almond Street right-of-way. A new tunnel would be constructed under Oakwood Avenue and Townsend Street from about MLK East to Butternut Street. At Butternut Street, the tunnel section would rejoin the existing I-81 alignment. Townsend Street would be reconstructed atop the tunnel between about MLK East and East Genesee Street. The existing viaduct could remain in operation until traffic is rerouted to the new tunnel.
The new tunnel would be two lanes in each direction with shoulders and medians that meet design standards. The tunnel would be approximately 80 feet wide, and its roof would be about 15 to 20 feet below the street. One or more ventilation structures as well as maintenance structures would be constructed along the tunnel alignment to support its operation. The specific locations and sizes of these structures will be identified if Alternative T-3 advances to the DEIS.

Alternative T-3 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation. At this time, the following interchange modifications are proposed:

- **I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street):** Interchanges 19 and 20 would be combined to accommodate the new connections between I-81 and I-690. This would involve replacing the existing exit ramps from southbound I-81 to West Street/Franklin Street (Interchange 20) and to Clinton Street/Salina Street (Interchange 19) with a single ramp that serves Clinton Street and Franklin Street and reconfiguring the existing entrance ramps from Pearl Street (Interchange 19) and State Street (Interchange 20) with a single ramp that has access from Willow Street or another nearby street.

- **I-690 Interchange 11 (West Street):** NYSDOT is exploring options to simplify Interchange 11 on I-690. The first option would maintain the existing ramp configuration but would slightly raise the elevation of West Street to improve safety on I-690 and the West Street ramps. The second option would remove the existing, free-flow interchange and replace it with a new interchange, controlled by a traffic signal on West Street.

- **I-690 Interchange 13 (Townsend Street / Downtown Syracuse):** To reconstruction of the I-81 / I-690 interchange, the westbound exit ramp from I-690 would be relocated from Townsend Street to Almond Street. A new on-ramp to eastbound I-690 from Townsend Street would be constructed, replacing the existing on-ramp from Harrison Street.

- **I-690 Interchange 14 (Teall Avenue):** To reduce congestion at the I-81 and I-690 interchange and improve access to University Hill, NYSDOT is exploring ramp and local street changes at the Teall Avenue interchange. The modifications may include reconstruction of the on- and off-ramps to improve access to I-690 to and from northbound and southbound Teall Avenue.

North of Spencer Street, the Court Street interchange would be reconstructed with longer entrance ramps and better merges, and the Route 370 (Onondaga Lake Parkway) on-ramp and Old Liverpool Road on-ramp would be consolidated into a single ramp. Several nonstandard highway features, such as narrow shoulders and tight curves, may need to be corrected, pending an investigation of the accident history along this stretch of I-81.

Alternative T-3 would correct all or most nonstandard and nonconforming highway features within the I-81 Viaduct priority area. Alternative T-3 would meet 60 MPH design standards,
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and the posted speed limit would be 55 MPH. Structural elements would also meet current standards.

To accommodate the transition from the tunnel section to the existing I-81 section at Butternut Street as well as ramps between the tunnel and I-690, it would be necessary to close several east-west streets. Water, Washington, and East Fayette Streets would not be able to cross the new I-81 property line. Erie Boulevard would travel under the new ramps, but it may need to be lowered to provide adequate clearance for traffic to pass beneath the new I-81.

Alternative T-3 would include improvements to local streets to facilitate better traffic movement onto and off I-81. A new surface street would be constructed atop the tunnel along Townsend Street, and an enhanced surface street would be constructed along Almond Street in place of the removed viaduct. Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs,” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. Water Street, which includes the Erie Canalway Trail, would be impacted by Alternative T-3, but one possible solution to explore may be to reroute the Erie Canalway Trail around Water Street. In addition, NYSDOT would coordinate with Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further explored if Alternative T-3 advances to the DEIS.

Townsend Street is a wide street between Taylor Street and East Genesee Street, but the existing roadway property line is much narrower south of Taylor Street and north of East Genesee Street. Alternative T-3 would require about 80 feet of right-of-way for the full length of the tunnel, meaning that private and public property would be acquired on both sides of Townsend Street. It is estimated that Alternative T-3 would require that 55 to 75 buildings be acquired for the new right-of-way.

The estimated cost of Alternative T-3 is $2.643 billion, including preliminary property acquisition costs.

ALTERNATIVE T-4: TUNNEL ON AN EASTERN ALIGNMENT (81’ BELOW SYRACUSE)

Alternative T-4 (Tunnel on an Eastern Alignment) was proposed by a member of the public during scoping. Alternative T-4 would reroute I-81 to its east via a combination of tunnel and highway sections, which would meet NYSDOT and FHWA highway design standards. From south to north, Alternative T-4 would begin at I-481. A tunnel section would carry I-81 northward from its interchange with I-481. The tunnel would be located deep below
Comstock Avenue, traveling east of Morningside Cemetery, Oakwood Cemetery, and Syracuse University. The tunnel would consist of separate tubes for northbound and southbound traffic. Each tube would carry two or three traffic lanes. The tunnel roof would be located about 81 feet below the surface.

Near Genesee Street, vehicles would exit the tunnel and travel on a highway section. The highway section would include a new interchange with I-690 about one mile east of the existing interchange. Vehicles would enter a second tunnel just south of Lincoln Park. Vehicles would exit the second tunnel and rejoin the existing I-81 right-of-way just south of Bear Street near Destiny USA.

One or more ventilation structures as well as maintenance structures would be constructed along the tunnel alignment to support its operation. The specific locations and sizes of these structures will be identified if Alternative T-4 advances to the DEIS. It is also possible that additional interchanges could be provided along the tunnel segment, but feasible locations for these interchanges have not yet been identified.

It is anticipated that Alternative T-4 would correct all of the nonstandard and most nonconforming highway features within the I-81 Viaduct priority area. The existing viaduct would be removed and the section of I-81 between I-690 and Bear Street would be removed and redesignated as a new highway. Alternative T-4 would meet 60 MPH design standards, and the posted speed limit would be 55 MPH. All structural elements would also meet current standards. The existing ramp connections between I-81 and I-690 would also be removed, but a full directional interchange would be provided where Alternative T-4 would cross I-690.

Where the existing viaduct would be removed, it would be replaced with a surface street similar to the boulevard proposed for Alternative SL-1 (Boulevard). The surface street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians, and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs,” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further explored if Alternative T-4 advances to the DEIS. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives.

The new alignment of I-81 under Alternative T-4 would require acquisition of more than 100 buildings. The estimated cost of Alternative T-4 is $3.298 billion, including preliminary property acquisition costs.
3-3-5 DEPRESSED HIGHWAY ALTERNATIVE

The depressed highway alternatives are derived from the Below Grade/Depressed Highway Alternative presented at the November 2013 Initial Scoping Meeting. Figure 3-12 shows an overview of the depressed highway alternatives.

ALTERNATIVE DH-1: DEPRESSED HIGHWAY FROM ADAMS STREET TO BUTTERNUT STREET

Alternative DH-1 (Depressed Highway from Adams Street to Butternut Street) would remove the viaduct and construct a highway in an open-cut trench (depressed highway) from Adams Street to Butternut Street. Alternative DH-1 would meet 60 MPH design standards and would remove or correct all or most nonconforming or nonstandard features within the I-81 Viaduct priority area. It would consist of two, 12-foot northbound lanes, two, 12-foot southbound lanes, 4-foot inside shoulders, and 10-foot outside shoulders. The highway would be about 25 feet below the existing street level.

After I-81 crosses the New York Susquehanna and Western Railroad on a bridge, it would descend and would reach the depressed highway section at Adams Street. The depressed highway would continue along the Almond Street corridor. North of East Genesee Street, it would curve northwesterly along the existing I-81 right-of-way and would rejoin the existing I-81 highway at Butternut Street. The interchange at Harrison/Adams Street (Interchange 18) and at I-690 would be reconstructed. Two, two- to three-lane service roads would be constructed on either side of the depressed highway section. The depressed highway would occupy the Almond Street right-of-way.

Alternative DH-1 would include interchange modifications to provide the missing connections between I-81 and I-690 and to improve traffic circulation and safety. At this time, the following interchange modifications are proposed:

- I-81 New interchange at MLK East or Burt Street: To improve access to Southside and University Hill from the south, a new interchange could be constructed at MLK East or Burt Street. It would be a partial interchange with a northbound exit ramp and a southbound entrance ramp.
- I-81 Interchange 18 (Harrison / Adams Streets): To improve traffic circulation at Interchange 18, a second exit lane from southbound I-81 would be added.
- I-81 / I-690 Interchange: To improve traffic safety, the ramp from northbound I-81 to eastbound I-690 would be changed from a right-side ramp to a left-side ramp. To complete the missing connections between I-81 and I-690, a new ramp would be built between eastbound I-690 and northbound I-81, and a new ramp would be built between southbound I-81 and westbound I-690.
- I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street): Interchanges 19 and 20 would be combined to accommodate the new connections between I-81 and I-690. This would involve replacing the existing exit...
Alternative DH-1 (Depressed Highway from Adams Street to Butternut Street) and Alternative DH-2 (Depressed Highway from Adams Street to Genesee Street)
ramps from southbound I-81 to West Street/Franklin Street (Interchange 20) and to Clinton Street/Salina Street (Interchange 19) with a single ramp that serves Clinton Street and Franklin Street and reconfiguring the existing entrance ramps from Pearl Street (Interchange 19) and State Street (Interchange 20) with a single ramp that has access from Willow Street or a nearby street.

- **I-690 Interchange 11 (West Street):** NYSDOT is exploring options to improve Interchange 11 on I-690. The first option would maintain the existing ramp configuration but would slightly raise the elevation of West Street to improve safety on I-690 and the West Street ramps. The second option would remove the existing, free-flow interchange and replace it with a new interchange, controlled by a traffic signal on West Street.

- **I-690 Interchange 13 (Townsend Street / Downtown Syracuse):** To allow for the reconstruction of the I-81 / I-690 interchange, the westbound exit ramp from I-690 would be relocated from Townsend Street to Almond Street. A new on-ramp to eastbound I-690 from Townsend Street would be constructed, replacing the existing on-ramp from Harrison Street.

- **I-690 Interchange 14 (Teall Avenue):** To reduce congestion at the I-81 and I-690 interchange and improve access to University Hill, NYSDOT is exploring ramp and local street changes at the Teall Avenue interchange. The modifications may include reconstruction of the on- and off-ramps on I-690 and roadway and traffic signal changes on Teall Avenue.

North of Spencer Street, the Court Street interchange would be reconstructed with longer entrance ramps and better merges, and the Route 370 (Onondaga Lake Parkway) on-ramp and Old Liverpool Road on-ramp would be consolidated into a single ramp. Several non-standard highway features, such as narrow shoulders and tight curves, may need to be corrected, pending an investigation of the accident history along this stretch of I-81.

Alternative DH-1 would remove the viaduct and remaining highway segments within the I-81 Viaduct priority area would be rehabilitated or reconstructed. Thus, Alternative DH-1 should eliminate the existing structural deficiencies.

A new I-81 service road would be located on either side of the depressed highway. East-west traffic would cross the depressed highway on new bridges; however, it would not be possible or reasonable to allow all east-west streets to cross the highway. Overpasses would be provided at Adams Street, Harrison Street, East Genesee Street, Townsend Street, Erie Boulevard, State Street, James Street, and Salina Street.

To provide ramps between the depressed highway and I-690, it would be necessary to close several east-west local streets. Because of inadequate clearance, construction of the new ramps would require that East Fayette Street, Water Street, and Washington Street be closed to traffic between State Street and Almond Street and that McBride Street and Townsend Street be closed to traffic between East Genesee Street and Burnet Avenue. Similarly, to
provide a new connection between the depressed highway and the existing highway section south of the New York Susquehanna and Western Railroad, Jackson Street would be cut off at I-81 and Monroe Street would become a dead-end street. Because a portion of Water Street, which carries the Erie Canalway Trail, would be removed, the Erie Canalway would be rerouted.

Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs,” or extensions, of the sidewalk corners to narrow roadway crossing distance for pedestrians. The new overpasses at local streets would also provide an opportunity for enhanced east-west access and aesthetic treatments to the overpasses themselves. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative DH-1 advances to the DEIS.

Based on the preliminary design, NYSDOT would acquire 30 to 40 buildings to construct Alternative DH-1. The estimated cost of Alternative DH-1 is $1.751 billion, which includes preliminary property acquisition costs.

**ALTERNATIVE DH-2: DEPRESSED HIGHWAY FROM ADAMS STREET TO GENESEE STREET**

Alternative DH-2 (Depressed Highway from Adams Street to East Genesee Street) would remove the viaduct and construct a highway in an open-cut trench (depressed highway) from Adams Street to East Genesee Street. After I-81 crosses the New York Susquehanna and Western Railroad on a bridge, it would descend and would reach the depressed highway section at Adams Street. The depressed highway would continue along the Almond Street corridor. At East Genesee Street, it would curve northwesterly and ascend to meet the elevated I-81 at its interchange with I-690. The depressed highway would consist of two, 12-foot northbound lanes, two, 12-foot southbound lanes, 4-foot inside shoulders, and 10-foot outside shoulders. The highway would be about 25 feet below the existing street level.

NYSDOT would reconstruct or rehabilitate the segments of I-81 north of the depressed highway section. NYSDOT would also implement interchanges improvements on I-81 and I-690 (please refer to the discussion of interchange improvements for Alternative DH-1).

Alternative DH-2 would meet NYSDOT and FHWA highway design standards. It would meet all 60 MPH design standards and would remove or correct most nonstandard and nonconforming features within the I-81 viaduct priority area. Alternative DH-2 should also eliminate the existing structural deficiencies in the I-81 Viaduct priority area.
As with Alternative DH-1, Alternative DH-2 would retain all of the existing highway interchanges. A new I-81 service road would be located on either side of the depressed highway. East-west traffic would cross the depressed highway on new bridges. Bridges would be provided at Adams, Harrison, and East Genesee Streets.

To provide the transition between the depressed highway section and the elevated section at about East Fayette Street, it would be necessary to close several east-west local streets. Because of inadequate clearance, construction of the new highway ramps would require that East Fayette Street, Water Street, and Washington Street be closed to traffic between State Street and Almond Street and that McBride Street and Townsend Street be closed to traffic between East Genesee Street and Burnet Avenue. Because a portion of Water Street, which carries the Erie Canalway Trail, would be removed, the trail would be rerouted. To provide a new connection between the depressed highway and the existing highway section south of the New York Susquehanna and Western Railroad, Jackson Street would be cut-off at I-81 and Monroe Street would be dead-ended at I-81.

Local street improvements would include considerations for pedestrian and bicycle safety and connectivity. These enhancements may include clear pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness; space provided for bicycle crossings and signal heads synchronized with pedestrian crossing phases to encourage bicycle use; bollards and traffic islands to provide safe refuge for pedestrians; and “bump-outs,” or extensions of the sidewalk corners to narrow roadway crossing distance for pedestrians. The new overpasses at local streets would also provide an opportunity for enhanced east-west access and aesthetic treatments to the overpasses themselves. In addition, NYSDOT would coordinate with the Centro on potential street improvements in the project limits to enhance and support Centro’s transit initiatives. The specific local street improvements, aesthetic treatments, and context-sensitive design features will be further investigated if Alternative DH-2 advances to the DEIS.

NYSDOT would acquire about 30 to 40 buildings to construct Alternative DH-2, and the estimated cost of Alternative DH-2 is $1.503 billion. The cost estimate includes preliminary property acquisition costs.

### OTHER ALTERNATIVES

The other alternatives consider new right-of-way to carry I-81 west of its current alignment (see Figure 3-13). A Western Bypass was proposed in the *I-81 Corridor Study* (NYSDOT, July 2013). A new highway along West Street was also proposed in the *I-81 Corridor Study* and by a member of the public.

**ALTERNATIVE O-1: WESTERN BYPASS**

Alternative O-1 would reroute I-81 on a new highway that would bypass Syracuse to its west from the I-481 south interchange (Exit 16A) to NY 481 or to an intermediate roadway (i.e., I-690 or Route 695). The western bypass, in combination with the existing I-481, would form a
Figure 3-13

Alternative O-2: West Street

Alternative O-1: Western Bypass

Other Alternatives

SOURCE: Letter from Tim Louer (November 2013)
partial or full highway loop around the city. Portions of or the entire existing I-81 highway through Syracuse would be removed. Alternative O-1 would meet 60 MPH design standards and would remove or correct all or most nonconforming or nonstandard features within the I-81 viaduct priority area.

The new “Western Bypass” would typically be two, 12-foot lanes in each direction with inside and outside shoulders that meet NYSDOT and FHWA design standards. New interchanges would be constructed at key locations along the new highway alignment. Other existing roads would cross over or under the new highway.

Alternative O-1 would allow NYSDOT to abandon the I-81 right-of-way through Syracuse. The right-of-way could be replaced with a surface street that could accommodate pedestrian and bicycle enhancements much like those described for Alternative SL-1. Portions of the former right-of-way could also be made available for development.

A number of alignment options were proposed in the I-81 Corridor Study. The shortest version of Alternative O-1 that was explored would be 6 miles long from the southerly I-81/I-481 interchange to Route 695 and Fairmont Avenue. The longest option that was explored would be 18 miles from I-81/I-481 southerly interchange to NY 481. The highway width would typically be about 100 feet, but to provide a sufficient buffer between the highway and adjacent uses, a 300-foot right-of-way was assumed. Thus, Alternative O-1 would require acquisition of about 220 acres of new right-of-way or could require upwards of about 655 acres of new right-of-way, not including the land needed for new interchanges. The right-of-way would cut through developed and undeveloped land, which is likely to include residences, businesses, and natural landscapes.

The estimated cost of Alternative O-1 is $2.446 billion. The cost estimate assumes the longer option for a western bypass and includes preliminary property acquisition costs.

**ALTERNATIVE O-2: WEST STREET**

Alternative O-2 would replace the I-81 viaduct with a boulevard from the New York Susquehanna and Western Railroad crossing to about Butternut Street. Alternative O-2 would meet 60 MPH design standards and should remove or correct all nonconforming or nonstandard features within the I-81 Viaduct Priority area. A new highway would then be constructed between I-81 near MLK East and I-690 at West Street. New ramps would connect the highway to I-690 and to I-81 just north of Butternut Street. This alternative was described in the I-81 Corridor study and was also proposed during scoping as the “Salt City Circuit” Alternative.

The new highway would typically be two, 12-foot lanes in each direction with inside and outside shoulders that meet NYSDOT and FHWA design standards. New interchanges would be constructed at key locations along the new highway alignment. Highway interchanges with local streets could be provided at some locations, but it would not be possible to
maintain all of the existing intersections. Other existing roads would cross over or under the new highway.

The viaduct would be removed and Almond Street would be reconstructed. The new Almond Street could include accommodations for improved pedestrian and bicycle circulation. These accommodations would be much like those described for Alternative SL-1.

NYSDOT would acquire new right-of-way for Alternative O-2, comprising approximately 70 to 90 buildings. NYSDOT would procure all or portions of the properties that front West Street. It would also be necessary to eliminate all existing access between West Street and adjacent property. As feasible, driveways would be provided from an alternative street. Where a driveway cannot be feasibly relocated, NYSDOT would need to acquire that property. Alternative O-2 would also require the NYSDOT abandon its current traffic calming project on West Street.

The estimated cost of Alternative O-2 is $1.326 billion. The cost estimate includes preliminary property acquisition costs.

3-4 PRELIMINARY SCREENING OF THE ALTERNATIVES

Tables A-1 through A-16 in Appendix A present the preliminary screening of the alternatives. For each of the considerations identified in Section 3-2, Developing and Evaluating Alternatives, a “✓” or an “X” was assigned. A “✓” indicates that the alternative could meet the consideration, and an “X” indicates that it would not meet the consideration. An explanation is provided for each consideration.

A symbol (√ or X) was then assigned for each of the broader categories—purpose and need, property, constructability, and cost. If an alternative received an “X” for one or more of the considerations within the category, it was not considered reasonable with respect to that category.

An overall rating (√ or X) was assigned for each alternative. If an alternative was not considered reasonable for one or more categories, it was not considered reasonable overall and was assigned an X, meaning it is recommended to “fail” the preliminary screening. Alternatives that are considered reasonable were assigned an overall rating of ✓ and are recommended to “pass” the preliminary screening.

Although the No Build Alternative would not meet the project’s purpose and need, it passes the preliminary screening because NEPA requires examination of a No Build Alternative in the EIS. Therefore, a screening matrix was not prepared for the No Build Alternative.

3-5 PRELIMINARY SCREENING RESULTS AND RECOMMENDATIONS

Table 3-1 summarizes preliminary alternatives screening results based on the individual tables presented in Appendix A. A total of seventeen alternatives have been considered (one No Build Alternative and 16 build alternatives) in the preliminary screening. Seven (7)
alternatives are recommended for further study. Ten (10) alternatives are not considered reasonable and are not recommended for further study.

### Table 3-1
Preliminary Screening Recommendations

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</tr>
<tr>
<td>New Viaduct with Substantial</td>
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<td>Design Improvements</td>
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<tr>
<td>Alternative V-4</td>
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<tr>
<td>New Viaduct with Considerable</td>
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<td>Design Improvements</td>
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<tr>
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<td>New Stacked Viaduct</td>
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<tr>
<td>Boulevard</td>
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<td>Alternative SL-2</td>
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<td>One-way Traffic on Almond</td>
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<td>Street and Other Local Street(s)</td>
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<td>Alternative SL-3</td>
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<td>Two-way Traffic on Almond</td>
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<td>Street and Other Local Street(s)</td>
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<tr>
<td>Alternative T-1</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Almond Street Tunnel from MLK</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>East to Butternut Street</td>
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<tr>
<td>Alternative T-2</td>
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<tr>
<td>Almond Street Tunnel from MLK</td>
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<td></td>
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<tr>
<td>East to Genesee Street</td>
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<tr>
<td>Alternative T-3</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Townsend Street Tunnel</td>
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<tr>
<td>Alternative T-4</td>
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<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tunnel on Eastern Alignment</td>
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<td>(81' Below Syracuse)</td>
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Table 3-1 (Continued)
Preliminary Screening Recommendations

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Recommended/Pass (✓) or Not Recommend/Fail (X)</th>
<th>Purpose and Need</th>
<th>Property</th>
<th>Construct-ability</th>
<th>Cost</th>
<th>Overall</th>
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<tbody>
<tr>
<td>Alternative DH-1&lt;br&gt;Depressed Highway from Adams Street to Butternut Street</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>X</td>
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<tr>
<td>Alternative DH-2&lt;br&gt;Depressed Highway from Adams Street to Genesee Street</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Alternative O-1&lt;br&gt;Western Bypass</td>
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<td>✓</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Alternative O-2&lt;br&gt;West Street (Salt City Circuit)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
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</tr>
</tbody>
</table>

Note:
* The No Build Alternative does not meet the project's purpose and need, but it passes the preliminary screening because NEPA requires an examination of a No Build Alternative in the EIS.

As previously noted, NEPA requires examination of a No Build Alternative, and therefore, the No Build Alternative will carry forward. The following summarizes the screening results for the build alternatives.

- **Viaduct Alternatives:** Three of the five viaduct alternatives (Alternatives V-2, V-3, and V-4) pass the preliminary screening and are recommended for further study. Alternatives V-1 and V-5 would not meet the project’s purpose and need. Therefore, they fail the preliminary screening and are not recommended to carry forward.

  Alternative V-1 would not correct a number of nonstandard and nonconforming highway features, making it inconsistent with the objective to “address identified geometric and operational deficiencies in the I-81 Viaduct priority area.”

  Alternative V-5 would eliminate east-west travel on East Genesee Street where it crosses Almond Street. East Genesee Street is an important east-west street between Downtown and University Hill. It is an arterial roadway and a designated New York State Route. East Genesee Street carries bike lanes that are part of the Connective Corridor between University Hill and Downtown, and it used by Centro Routes 62 and 262. Eliminating east-west access on East Genesee Street would be inconsistent with the objective to “maintain the connections within the local street network within or adjacent to the I-81 Viaduct priority area.”

- **Street-level Alternatives:** The street-level alternatives pass the preliminary screening, and therefore, all of them are recommended for further study. However, as noted above,
preliminary traffic analysis will be undertaken to determine the potential effects of these alternatives on local and interstate traffic operations. It is possible that some options would be dismissed because they fail to result in reasonable traffic operations. The Final Scoping Report will describe the traffic analysis and make further recommendations based on its findings.

- **Tunnel Alternatives:** Alternatives T-1 and T-2 fail to meet the project’s purpose and need. Both alternatives would eliminate several local street connections between Downtown, Northside, and University Hill. Cutting off these streets would create about a three block gap in north-south and east-west vehicular access, which is inconsistent with the objective to “maintain the connections within the local street network within or adjacent to the I-81 Viaduct priority area.” The subsurface conditions along Almond Street, which include a high water table and difficult soil, are not favorable for construction of Alternatives T-1 and T-2. The water is saline, which requires special disposal methods, and all utilities would need to be relocated. Because of these subsurface conditions, cut-and-cover construction would be needed, extending the duration of construction. Therefore, Alternatives T-1 and T-2 pose difficult constructability considerations. The cost of Alternative T-1 is also not reasonable. For these reasons, Alternatives T-1 and T-2 are not recommended for further study.

Alternative T-3 is not recommended for further study because it has many of the same deficiencies as Alternatives T-1 and T-2. In addition, Alternative T-3 would require acquisition of 55 to 70 buildings, which is not considered reasonable.

Alternative T-4 would meet the project’s purpose and need, but it is not recommended for further study. Alternative T-4 would acquire more than 100 buildings, which is not considered reasonable. Alternative T-4 would also cost more than $3 billion, which is not reasonable.

- **Depressed Highway Alternatives:** Alternatives DH-1 and DH-2 are not recommended for further study. Like Alternatives T-1 and T-2, Alternatives DH-1 and DH-2 would remove local street connections between Downtown and Northside, and furthermore, it may not be reasonable to provide connections across the highway at every east-west street. Construction of Alternatives DH-1 and DH-2 would face unfavorable subsurface conditions, including a high water table and difficult soil. The water is saline, which requires special disposal methods, and all utilities would need to be relocated. Thus, Alternative DH-1 and DH-2 fail to meet purpose and need and constructability considerations.

- **Other Alternatives:** Alternatives O-1 and O-2 would remove the existing viaduct and improve Almond Street. These alternatives would require a substantial amount of property acquisition, which is not reasonable. In addition, the cost of Alternative O-1 is not reasonable, and Alternative O-2 would substantially diminish local street connections.
in the West Street corridor. For these reasons, Alternatives O-1 and O-2 are not recommended for further study.

The recommendations of the preliminary screening are being presented in this *Draft Scoping Report* so that agencies and the public can consider the alternatives to be further studied and alternatives that can be dismissed. NYSDOT and FHWA will undertake a final screening of the recommended alternatives, and then make a final determination of alternatives that should be studied in the DEIS. This determination will consider public input on the recommendations of preliminary screening and will be presented in the *Final Scoping Report*. 