I-81 VIADUCT PROJECT

CHAPTER 3
ALTERNATIVES

This chapter presents the development, refinement, and evaluation of the alternatives for this Project, as well as the potential alternatives that were dismissed from further consideration.

3.1 INTRODUCTION

The NEPA regulations promulgated by the Federal Council on Environmental Quality (CEQ) at 40 CFR Parts 1500-1508 and the Federal Highway Administration's (FHWA) regulations, Environmental Impact and Related Procedures (23 CFR Part 771), require consideration of reasonable alternatives for a proposed project. This chapter describes the reasonable alternatives that were evaluated as part of the Interstate 81 (I-81) Viaduct Project Draft Design Report/Draft Environmental Impact Statement (DDR/DEIS) and this Final Design Report/Final Environmental Impact Statement (FDR/FEIS). It also describes potential alternatives that were considered and dismissed from further consideration.

3.2 OVERVIEW OF ALTERNATIVES CONSIDERED

The scoping process, which began with the publication of the Notice of Intent to prepare an Environmental Impact Statement (EIS) in the Federal Register on August 26, 2013, continued until the publication of this DDR/DEIS. As part of the scoping process for the EIS, FHWA and the New York State Department of Transportation (NYSDOT) are providing opportunities for public input and have considered comments from the public on potential alternatives, including several concepts suggested by the public. Based on the evaluation and screening of the potential alternatives during scoping, and in consideration of public input, FHWA and NYSDOT advanced the Viaduct Alternative, the Community Grid Alternative, and the No Build Alternative, which are described below, for further study in the DDR/DEIS. Although the No Build Alternative does not meet the Project's purpose, its evaluation—as a baseline to which the other alternatives can be compared—is required by NEPA.

The following describes each potential alternative considered for the I-81 Viaduct Project since the start of the scoping phase (see **Table 3-1**).

3.2.1 NO BUILD ALTERNATIVE

NEPA requires the evaluation of a No Build Alternative. The No Build Alternative serves as the baseline to which the other alternatives are compared. The No Build Alternative would maintain the highway in its existing configuration. Continual maintenance and repairs would be performed to ensure the safety of the traveling public, and safety measures would be implemented to the extent feasible and practical.

Table 3-1
Potential Alternatives Considered for the I-81 Viaduct Project

Alternatives	Description
NB	No Build
Viaduct (V) Alternatives[1]	
V-1	Rehabilitation
V-2	New Viaduct Fully Improved to Current Standards
V-3	New Viaduct with Substantial Design Improvements
V-4	New Viaduct with Considerable Design Improvements
V-5	New Stacked Viaduct
Community Grid (CG) Alternative (formerly known as the Street-level Alternatives)[2]	
CG-1	Boulevard
CG-2	Almond and Other Local Streets
Tunnel (T) Alternatives[3]	
T-1	Tunnel Under Almond Street from Dr. Martin Luther King, Jr. East (MLK, Jr. East) to Butternut Street
T-2	Almond Street Tunnel from MLK, Jr. East to Genesee Street
T-3	Townsend Street Tunnel
T-4	Tunnel on an Eastern Alignment (81' Below Syracuse)
T-5	Shallow Tunnel under Almond Street
T-6	Deep Tunnel West of Almond Street
T-7	Deep Tunnel West of Almond Street (Non-Interstate)
Orange Tunnel Concept	Deep Tunnel from MLK, Jr. East to James Street
Depressed Highway (DH) Alternatives[4]	
DH-1	Depressed Highway from Adams Street to Butternut Street
DH-2	Depressed Highway from Adams Street to Genesee Street
Other (O) Alternatives	
O-1	Western Bypass
O-2	West Street

Notes:

1. Following the publication of the *Draft Scoping Report* (June 2014), three of the Viaduct Alternatives (V-2, V-3, and V-4) were combined into one Viaduct Alternative with the following three options: Option V-2, New Viaduct Fully Improved to Current Standards; Option V-3, New Viaduct with Substantial Design Improvements; and Option V-4, New Viaduct with Considerable Design Improvements.

2. Following the publication of the *Draft Scoping Report*, the three Street-Level Alternatives (SL-1, SL-2, and SL-3) were combined into one alternative and renamed the Community Grid (CG) Alternative with the following two options: Option CG-1, Boulevard; and Option CG-2, Almond Street and Other Local Streets.

3. T-1, T-2, T-3, and T-4 were developed during the initial phase of the project. Following the publication of the *Scoping Report* (April 2015), in response to public input, T-5, T-6, T-7, and the Orange tunnel concept were developed.

4. The Depressed Highway and Other Alternatives were developed during the initial phase of the Project.

3.2.2 POTENTIAL VIADUCT (V) ALTERNATIVES

Alternative V-1 (Rehabilitation) would involve a long-term program, implemented over multiple years as funding permits, to address the deterioration of I-81. The [dimensions of the viaduct and operation of Almond Street would remain much the same as they are today. Alternative V-1 would reconfigure ramps to improve the existing connections between I-81 and Interstate 690 (I-690), but it would not provide a fully directional I-81/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 to provide a two-lane off-ramp 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 Central Study Area[1] would address the existing structural deficiencies and would correct some nonstandard and nonconforming highway features. Alternative V-1 would repair or replace 42 bridges and correct the structural deficiencies on I-81 and I-690 within the viaduct area. Some nonstandard and nonconforming features would be eliminated, but most would remain. These features would include narrow shoulders, insufficient distance between on- and off-ramps, and sharp curves.

Alternatives V-2, V-3, and V-4 would involve a full reconstruction of I-81 between approximately Colvin Street and Spencer Street, as well as modifications to highway features north of Spencer Street to Hiawatha Boulevard and along I-690. After the publication of the *Draft Scoping Report* (June 2014), these three alternatives were combined into one alternative ("Viaduct Alternative") with three options due to their similarities:

- Option V-2, New Viaduct Fully Improved to Current Standards, would involve the reconstruction of all highway elements to 60 miles per hour (mph) design standards;
- Option V-3, New Viaduct with Substantial Design Improvements, would involve the reconstruction of all highway elements to meet 60 mph design standards except for four curves within the I-81/I-690 interchange that would meet 55 mph design standards and one curve that would meet 50 mph design standards for horizontal stopping sight distance;[2] and
- Option V-4, New Viaduct with Considerable Design Improvements, would involve the reconstruction of all highway elements to meet 60 mph design standards except for three curves within the I-81/I-690 interchange that would meet 55 mph design standards and two curves that would meet 50 mph design standards for horizontal stopping sight distance.

Alternative V-5 (New Stacked Viaduct) would involve removal of the existing viaduct and construction of a new two-level viaduct above Almond Street from Burt Street to East Genesee Street. The top level of the stacked viaduct would carry northbound traffic, and the bottom level would carry southbound traffic. Since northbound and southbound vehicles would travel on stacked decks, the Alternative V-5 viaduct would be approximately 30 feet taller and approximately 11 feet narrower than the existing viaduct. 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. Alternative V-5 also would provide new auxiliary lanes (new lanes between highway interchanges) to improve safety for

[1] The "Central Study Area" refers to the section of I-81 between approximately East Brighton Avenue and approximately 0.7 miles north of Hiawatha Boulevard West and the portions of I-690 approximately between Leavenworth Avenue and Beech Street and between Hiawatha Boulevard West and Bear Street. It also includes several local roads in proximity to I-81 and I-690 in Syracuse (see **Figure 6-1-1**).

[2] 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." "Horizontal stopping sight distance" refers to the distance that a motorist needs to see around horizontal curves at a given speed.

motorists entering and exiting the highway. Alternative V-5 would eliminate east-west access on East Genesee Street beneath the new viaduct.

3.2.3 POTENTIAL COMMUNITY GRID (CG) ALTERNATIVE

The Community Grid (CG) Alternative, previously called the Street-level Alternative and At-grade/Surface Alternative, would remove the I-81 viaduct between the New York, Susquehanna and Western Railway (NYS&W) bridge (at Renwick Avenue) and the I-81/I-690 interchange and replace it with a signalized roadway ("urban arterial") at surface. Under Option CG-1 (Boulevard), Almond Street would become the primary thoroughfare accommodating north-south traffic. Under Option CG-2 (Almond Street and Other Local Streets), traffic would travel along Almond Street as well as other north-south and east-west local streets. The greater use of the local street network would allow the reduction of the number of travel lanes on Almond Street.

Under both Community Grid Alternative options, I-481 would be designated as the new I-81 and improved as needed to accommodate traffic demand. Under Option CG-2, the portion of I-81 that now travels through Syracuse would be reclassified as the 81 Business Loop (BL 81). BL 81 would extend between the existing southern Interstate 481 (I-481) interchange (Exit 16A) and the existing northern I-481 interchange (Exit 29). Under both options, Almond Street would be reconstructed. The alternative also would include the reconstruction of I-690 from Leavenworth Avenue to Beech Street and other highway and local street improvements. Options with and without a fully directional interchange between existing I-81 and I-690 were considered as part of this alternative.

3.2.4 POTENTIAL TUNNEL (T) ALTERNATIVES

Alternative T-1 (Almond Street Tunnel from MLK, Jr. East to Butternut Street) would involve the demolition of the existing I-81 viaduct, which would be replaced by a two-mile-long tunnel providing two travel lanes in each direction. The tunnel would follow Almond Street from MLK, Jr. East to approximately East Fayette Street and would then curve northwesterly to Butternut Street. At Butternut Street, the tunnel would climb to meet the existing I-81 highway. Almond Street, above the tunnel, would be reconstructed to serve local traffic. New ramps would connect the I-81 tunnel and I-690, closing several east-west local streets and severing connectivity. Interchange 18 (Adams Street/Harrison Street) also would be eliminated.

Alternative T-2 (Almond Street Tunnel from MLK, Jr. East to Genesee Street) would involve the demolition of the existing I-81 viaduct, which would be replaced by an approximately one-mile-long tunnel, with two travel lanes in each direction, under Almond Street. The portion of Almond Street above the tunnel would be reconstructed. North of Genesee Street, I-81 would transition from a tunnel to an elevated highway. New ramps would connect I-81 and I-690. Interchange 18 (Adams Street/Harrison Street) would be eliminated.

Alternative T-3 (Townsend Street Tunnel) would involve the removal of the viaduct and its replacement with a surface street along the existing Almond Street right-of-way. A new tunnel providing two travel lanes in each direction would be constructed under Oakwood Avenue and Townsend Street from approximately MLK, Jr. 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 approximately MLK, Jr. East and East Genesee Street.

Alternative T-4 (Tunnel on an Eastern Alignment [called "81 feet below Syracuse" by the member of the public who submitted the concept]) would involve the removal of the viaduct and would carry I-81 in a tunnel to the east of the existing viaduct. From south to north, the tunnel would begin at I-481 and extend northward below Comstock Avenue, east of Morningside Cemetery, Oakwood Cemetery, and Syracuse University. Separate tubes, each providing two or three travel lanes, would accommodate northbound and southbound traffic. Near Genesee Street, vehicles would exit the tunnel and travel on a highway, which would include a new interchange with I-690 approximately one mile east of the existing interchange, then enter a second tunnel just south of Lincoln Park. Vehicles would exit the second tunnel and rejoin the existing I-81 just south of Bear Street near Destiny USA. The section of I-81 between I-690 and Bear Street would be removed and re-designated as a new highway. Almond Street would be reconstructed as a boulevard.

Alternative T-5 (Shallow Tunnel under Almond Street) would involve the removal of the viaduct and its replacement by an approximately two-mile-long tunnel from approximately East Kennedy Street to Butternut Street. The tunnel would provide two travel lanes in each direction, meet interstate standards, and would carry the I-81 designation. It would have full connectivity with I-690. The segment of Almond Street above the tunnel would be reconstructed to serve local northbound and southbound traffic. Alternative T-5 also would reconstruct I-690, from approximately Leavenworth Avenue to Lodi Street, as well as interchanges along I-81 and I-690.

Alternative T-6 (Deep Tunnel West of Almond Street [Interstate]) would involve the removal of the viaduct and its replacement by an approximately two-mile-long tunnel with two travel lanes in each direction. The tunnel would be designed to meet interstate standards and provide full connectivity with I-690. The south tunnel portal would be located approximately 1,000 feet south of MLK, Jr. East, follow South Townsend Street, and make a westward turn near East Genesee Street. The tunnel would then continue in a northwestern direction to the north portal at Hickory Street, where it would join the existing I-81 highway. Alternative T-6 also would reconstruct I-690 from approximately Leavenworth Avenue to Lodi Street, as well as interchanges along I-81 and I-690.

Alternative T-7 (Deep Tunnel West of Almond Street [Non-Interstate]) would involve the removal of the viaduct and the construction of a high speed, non-interstate tunnel, with two lanes in each direction, through Downtown Syracuse from MLK, Jr. East to Hickory Street. This alternative also would include elements of the Community Grid Alternative (Option CG-2), including the conversion of I-481 to I-81 and a new I-690 interchange at Crouse and Irving Avenues. In addition, T-7 would include a new I-81/I-690 interchange that would provide connections in all directions.

3.2.5 POTENTIAL DEPRESSED HIGHWAY (DH) ALTERNATIVES

Alternative DH-1 would remove the viaduct and construct a highway in an open trench approximately 25 feet below the existing street level from Adams Street to Butternut Street. The highway would consist of two northbound and two southbound travel lanes. Traveling north, I-81 would cross the NYS&W Railway on a bridge and then descend until reaching the depressed highway section at Adams Street. The depressed highway would rejoin the existing I-81 highway at Butternut Street. Service roads would be constructed on either side of the depressed highway section.

Alternative DH-2 would remove the viaduct and construct a highway in an open trench approximately 25 feet below the existing street level from Adams Street to Genesee Street. The highway would consist of two northbound and two southbound travel lanes. Traveling north, after I-81 crosses over

the NYS&W Railway on a bridge, it would descend to the depressed highway section and continue along Almond Street. At East Genesee Street, it would curve northwesterly and ascend to meet the elevated I-81 at its interchange with I-690. The segments of I-81 north of the depressed highway section would be reconstructed or rehabilitated. Service roads would be constructed on either side of the depressed highway section.

3.2.6 POTENTIAL OTHER (O) ALTERNATIVES

Alternative O-1 (Western Bypass) would build a new highway from the I-481 south interchange (Exit 16A) to New York State Route 481 (NY 481) or to an intermediate roadway (i.e., I-690 or NY 695). The western bypass, in combination with the existing I-481, would form a partial or full highway loop around the city. Portions of or the entire existing I-81 highway through Syracuse would be removed. The new highway typically would provide two travel lanes in each direction with interchanges constructed at key locations. Alternative O-1 would allow the I-81 right-of-way through Syracuse to be replaced with a surface street that could accommodate pedestrian and bicycle enhancements.

Alternative O-2 (West Street) would demolish the I-81 viaduct and reconstruct Almond Street, from the NYS&W Railway crossing to about Butternut Street, as a boulevard. A new highway would then be constructed between I-81 near MLK, Jr. 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. The new highway typically would provide two travel lanes in each direction with interchanges constructed at key locations. Alternative O-2 would eliminate all existing access between West Street and adjacent property.

3.3 ALTERNATIVES CONSIDERED AND DISMISSED FROM FURTHER STUDY

To identify the reasonable range of alternatives for this Project, the potential alternatives described above were evaluated and screened based on their ability to satisfy the Project's need, meet the Project's purpose and objectives, and meet established screening criteria. Those potential alternatives that were determined to be reasonable were further evaluated and assessed for the DDR/DEIS.

As noted in **Chapter 1, Introduction**, the purpose of the I-81 Viaduct Project is to address the structural deficiencies and non-standard/non-conforming highway features in the I-81 corridor while creating an improved corridor through the City of Syracuse that meets transportation needs and provides the transportation infrastructure to support long-range planning efforts. To meet the Project's purpose, five project objectives were established:

- Address the transportation network structural deficiencies, particularly associated with aging bridge structures and non-standard/non-conforming design features within the project limits along I-81 and I-690.
- Address vehicular, pedestrian, and bicycle geometric and operational deficiencies within the project limits.
- Maintain or enhance vehicle access to the interstate highway network and key destinations (i.e., business districts, hospitals, and institutions) within neighborhoods within and near Downtown Syracuse.

- Maintain or enhance the vehicular, pedestrian, and bicycle connections in the local street network within the project limits in and near Downtown Syracuse to allow for connectivity between neighborhoods, business districts, and other key destinations.
- Maintain access to existing local bus service and enhance transit amenities within the project limits in and near Downtown Syracuse.

3.3.1 INITIAL SCREENING OF POTENTIAL ALTERNATIVES

An initial screening of potential alternatives was conducted and presented in the *Scoping Report* (April 2015). The screening was conducted to reduce the range of alternatives to a smaller set of reasonable alternatives that then would receive more detailed analysis. In this "fatal flaw" screening, potential alternatives that were consistent with the following criteria were advanced for further study, and those that were inconsistent with one or more criteria were dismissed:

- Consistency with the Project's purpose, objectives, and stated needs;
- Property needs as defined by the number of buildings that may need to be acquired;
- Constructability considerations, including difficulty and duration of construction and the ability to maintain adequate traffic flow during construction; and
- The estimated total cost in that an alternative was considered reasonable if the total cost would be less than 2.5 times the estimated cost of Alternative V-1 (Rehabilitation), which was initially estimated at $800 million (2014 dollars). (This cost was updated to $940 million in 2018 to account for inflation.)

Seventeen potential alternatives (NB, V-1, V-2, V-3, V-4, V-5, SL-1, SL-2, SL-3, DH-1, DH-2, T-1, T-2, T-3, T-4, O-1, and O-2), several of which were the result of public input (V-5, T-4, O-1, and O-2), were developed and evaluated during the initial screening. Each potential alternative was developed in sufficient detail to produce order-of-magnitude cost estimates (in 2014 dollars) and assess its ability to meet the above criteria.

Table 3-2 presents the results of the initial screening of potential alternatives. Ten alternatives were considered unreasonable and were dismissed from further study. Seven alternatives (the No Build Alternative and six build alternatives) were identified for further study: V-2, V-3, V-4, SL-1, SL-2, and SL-3. Following the screening, V-2, V-3, and V-4 became options of one Viaduct Alternative and the Street-level Alternative was renamed the Community Grid Alternative with two options, CG-1 and CG-2. The following summarizes the results of the initial screening.

No Build Alternative

The No Build Alternative was advanced for evaluation in the DDR/DEIS and FDR/FEIS to serve as a baseline to which the other alternatives could be compared.

Viaduct (V) Alternatives

Three of the five Viaduct Alternatives (Alternatives V-2, V-3, and V-4) passed the initial screening and were further studied.

Alternatives V-1 and V-5 would not address the Project's needs or meet the Project's purpose and objectives. Alternative V-1 would not correct most nonstandard and nonconforming highway

features, making it inconsistent with the objective to "address the local transportation network structural deficiencies, particularly associated with aging bridge structures and non-standard/non-conforming design features within the project limits along I-81 and I-690." 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 bicycle lanes that are part of the Connective Corridor between University Hill and Downtown, and it is used by Centro Routes 62 and 262. Eliminating east-west access on East Genesee Street would be inconsistent with the objective to "maintain or enhance the vehicular, pedestrian, and bicycle connections in the local street network within and near Downtown Syracuse to allow for connectivity between neighborhoods, business districts, and other key destinations." Therefore, Alternatives V-1 and V-5 failed the screening and were dismissed from further consideration.

Table 3-2
Results of the Initial Alternatives Screening

Alternative	Recommended/Pass (✓) or Not Recommended/Fail (X)				
	Purpose and Need	Property	Construct-ability	Cost	Overall
Alternative NB1: No Build	N/A	N/A	N/A	N/A	✓
Alternative V-1: Rehabilitation	X	✓	✓	✓	X
Alternative V-2: New Viaduct Fully Improved to Current Standards	✓	✓	✓	✓	✓
Alternative V-3: New Viaduct with Substantial Design Improvements	✓	✓	✓	✓	✓
Alternative V-4: New Viaduct with Considerable Design Improvements	✓	✓	✓	✓	✓
Alternative V-5: New Stacked Viaduct	X	✓	✓	✓	X
Alternative SL-1: Boulevard	✓	✓	✓	✓	✓
Alternative SL-2: One-way Traffic on Almond Street and Other Local Street(s)	✓	✓	✓	✓	✓
Alternative SL-3: Two-way Traffic on Almond Street and Other Local Street(s)	✓	✓	✓	✓	✓
Alternative T-1: Almond Street Tunnel from MLK, Jr. East to Butternut Street	X	✓	X	X	X
Alternative T-2: Almond Street Tunnel from MLK, Jr. East to Genesee Street	X	✓	X	✓	X
Alternative T-3: Townsend Street Tunnel	X	X	X	X	X
Alternative T-4: Tunnel on Eastern Alignment (81' Below Syracuse)	✓	X	✓	X	X
Alternative DH-1: Depressed Highway from Adams Street to Butternut Street	X	✓	X	✓	X
Alternative DH-2: Depressed Highway from Adams Street to Genesee Street	X	✓	X	✓	X
Alternative O-1: Western Bypass	✓	X	✓	X	X
Alternative O-2: West Street (Salt City Circuit)	X	X	X	✓	X

Notes:
1. The No Build Alternative does not address the Project's needs or meet the Project's purpose and objectives, but it passes the preliminary screening because NEPA requires an examination of a No Build Alternative in the EIS.
2. After the first screening, Viaduct Alternatives V-2, V-3, and V-4 were combined into one Viaduct Alternative with the following three options: Option V-2, New Viaduct Fully Improved to Current Standards; Option V-3, New Viaduct with Substantial Design Improvements; and Option V-4, New Viaduct with Considerable Design Improvements.
3. After the initial screening, the Street-Level Alternatives SL-1, SL-2, and SL-3 were combined into one alternative and renamed the Community Grid (CG) Alternative with the following two options: Option CG-1, Boulevard; and Option CG-2, Almond Street and Other Local Streets.
4. Refer to **Appendix B-1** for more information about the screening of potential alternatives.

Street-Level Alternatives (now Community Grid [CG] Alternative)

The Street-Level Alternatives passed the screening and, therefore, were advanced for further study.

Tunnel (T) Alternatives

Alternatives T-1 and T-2 failed to address the Project's needs or meet the Project's purpose and objectives and are considered unreasonable. Both alternatives would eliminate several local street connections between Downtown, Northside, and University Hill. Severing 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 or enhance the vehicular, pedestrian, and bicycle connections in the local street network within and near Downtown Syracuse to allow for connectivity between neighborhoods, business districts, and other key destinations."

The subsurface conditions along Almond Street, which include a high water table, saline water, and soft and compressible soil, would require the use of cut-and-cover construction for Alternatives T-1 and T-2, thereby extending the duration of construction. The estimated construction duration of Alternative T-1 is seven to nine years; duration would be five to seven years for Alternative T-2. Therefore, Alternatives T-1 and T-2 pose difficult constructability considerations. Alternative T-2's cost of $1.8 billion would pass the cost criterion, but Alternative T-1's cost of $2.7 billion is considered unreasonable. Alternative T-3 was not recommended for further study because it has many of the same deficiencies as Alternatives T-1 and T-2: Alternative T-3 failed to address the Project's needs or meet the Project's purpose and objectives, poses difficult constructability considerations, and has an unreasonable cost of $2.6 billion. In addition, Alternative T-3 would require acquisition of 55 to 70 buildings, which is considered unreasonable. Therefore, Alternative T-3 was dismissed from further consideration.

Alternative T-4 would address the Project's needs and meet the Project's purpose and objectives and constructability considerations. However, Alternative T-4 would acquire more than 100 buildings, which is considered unreasonable. In addition, Alternative T-4 would cost more than $3 billion, which is also considered unreasonable. Therefore, Alternative T-4 was dismissed from further consideration.

Depressed Highway (DH) Alternatives

Alternatives DH-1 and DH-2 were 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 it would not be reasonable to provide connections across the highway at every east-west street. Alternatives DH-1 (at $1.8 billion) and DH-2 (at $1.5 billion) would pass the cost criterion. Construction of Alternatives DH-1 and DH-2 would involve unfavorable subsurface conditions, including a high water table and soft and compressible soil. The water is saline, which requires special disposal methods, and all utilities would need to be relocated. Alternatives DH-1 and DH-2 failed to address the Project's needs and to meet the Project's purpose and objectives, and would pose difficult constructability considerations; thus, these alternatives were dismissed from further consideration.

Other (O) Alternatives

Alternative O-1 would address the Project's needs and meet the Project's purpose, objectives, and constructability considerations, while Alternative O-2, at 1.3 billion, would meet cost considerations. However, both alternatives would require a substantial amount of property acquisition, which is considered unreasonable. In addition, Alternative O-1's estimated cost of $2.4 billion is not considered

reasonable. Alternative O-2 would substantially diminish local street connections in the West Street corridor, thereby failing to meet the Project's objective to "maintain or enhance the vehicular, pedestrian, and bicycle connections in the local street network within and near Downtown Syracuse to allow for connectivity between neighborhoods, business districts, and other key destinations." For these reasons, Alternatives O-1 and O-2 were dismissed from further consideration.

3.3.2 SCREENING OF POTENTIAL ALTERNATIVES AFTER RELEASE OF SCOPING REPORT

In response to public input after the publication of the *Scoping Report,* and as described in the *Tunnel Feasibility Study* (**Appendix B-2**), FHWA and NYSDOT conducted additional engineering and further analyses to determine whether a tunnel alternative that satisfies the Project's needs, meets the Project's purpose and objectives, and meets the established screening criteria could be developed. Three new potential tunnel alternatives (T-5, T-6, and T-7) were developed, as described in **Section 3.2.4** (for additional detail, refer to the *Tunnel Feasibility Study* in **Appendix B-2**), and dismissed, as described below and in **Appendix B-1**. In addition, NYSDOT developed the Orange tunnel concept based on the recommendation of an independent consultant (see below for additional detail and screening of that concept, as well as **Appendix B-3**, which contains the independent consultant's report, and **Appendix B-4**, which contains the results of the further study).

Additional engineering and further analysis were also undertaken for the three Viaduct Alternative and two Community Grid options advanced during the initial screening. Based on these studies, Options V-2 and V-3 were dismissed, as described below, and Option V-4 was advanced for further study as the Viaduct Alternative; and Option CG-1 was dismissed, as described below, and Option CG-2 was advanced for further study as the Community Grid Alternative.

Potential Alternatives T-5, T-6, and T-7

The following summarizes the screening results for potential alternatives T-5, T-6, and T-7.

Alternative T-5

Alternative T-5 would eliminate the Colvin Street entrance ramp to northbound I-81; introduce an overpass (East Fayette Street from South Townsend Street to approximately Forman Avenue would need to be elevated); and eliminate the northbound I-81 ramp from Harrison Street, a main access point from University Hill to travel north. Alternative T-5 meets the Project's purpose, need, and objectives.

However, Alternative T-5 would involve constructability difficulties. Community disruptions, including impacts to vehicular, pedestrian, and bicycle traffic, are likely as a result of cut-and-cover tunneling. In addition to relocation of substantial utilities, Alternative T-5 would require the underpinning of the viaduct, which is nearly 60 years old. This would be a risky operation with some unknowns (such as the risk of potential lateral movements), adding difficulty to the construction and at least two to three years to the construction duration. In addition, Alternative T-5 would temporarily disrupt 15 major road crossings and a railroad crossing.

Alternative T-5 would require the acquisition of 35 properties (34 buildings and one parking lot). Alternative T-5's property needs are deemed reasonable. Alternative T-5's estimated cost of $3.1 billion (2016 dollars) is considered unreasonable. For these reasons, Alternative T-5 was dismissed from further consideration.

Alternative T-6

Alternative T-6 would eliminate the Colvin Street entrance ramp to northbound I-81 and require the closure of Willow Street. In addition, Alternative T-6 would require the closure of Townsend Street between Genesee Street and Harrison Street to accommodate I-81 ramps to and from the north, and the closure of James Street between Oswego Boulevard and State Street due to insufficient clearance over the interstate-to-interstate ramps. These two closures would substantially sever local street connectivity and are not consistent with the Project's objective to "maintain or enhance the vehicular, pedestrian, and bicycle connections in the local street network within and near Downtown Syracuse to allow for connectivity between neighborhoods, business districts, and other key destinations." Therefore, Alternative T-6 does not meet the Project's purpose, need, and objectives.

The construction of Alternative T-6 largely would be implemented underground using a tunnel-boring machine and sequential excavation method. While there are some risks associated with all underground construction, the use of these conventional and known tunneling methods would allow the alternative to pass on constructability.

Alternative T-6 would require the acquisition of 17 properties (16 buildings and one open space). Therefore, Alternative T-6 would meet the screening criterion related to property acquisition. Alternative T-6's estimated cost of $2.6 billion (2016 dollars) is considered unreasonable.

For these reasons, Alternative T-6 was dismissed from further consideration.

Alternative T-7

Alternative T-7 involves the construction of a high-speed, non-interstate tunnel in addition to all of the improvements associated with the Community Grid Alternative.

Alternative T-7 has many of the same benefits as the Community Grid Alternative, but Alternative T-7 differs from the Community Grid in that it also would include construction of a tunnel. This additional element would involve additional property acquisitions, additional construction (and therefore greater community disruption), and a higher cost than the Community Grid Alternative.

The construction of Alternative T-7 largely would be implemented underground, using a tunnel-boring machine and sequential excavation method. While there are some risks associated with all underground construction, the use of these conventional and known tunneling methods would allow the alternative to pass on constructability.

Alternative T-7 would require the acquisition of 11 properties. Therefore, Alternative T-7 would meet the screening criterion related to property acquisition.

Alternative T-7's cost of $2.5 billion (2016 dollars) is considered unreasonable. Moreover, Alternative T-7 does not provide added value commensurate with this increased cost (approximately $600 million more than the cost of the Community Grid Alternative).

For these reasons, Alternative T-7 was dismissed from further consideration. Thus, Alternatives T-5, T-6, and T-7 are not considered reasonable and were dismissed from further consideration.

Viaduct Alternative, Potential Options V-2 and V-3

Options V-2 and V-3, which had been advanced during the initial screening, were dismissed after further study, as described below.

Design Considerations

The I-81 Viaduct Project must conform to NYSDOT highway design standards, which generally are based on American Association of State Highway and Transportation Officials (AASHTO) standards and have been approved by the FHWA for use on all Federal-aid projects. AASHTO design standards, developed and approved by a committee of Federal and State transportation officials, are based on decades of research and multinational experience and are tailored to the highway functional class, design speed, terrain, traffic volumes, and other characteristics of the highway. All proposed design exceptions to these standards must be analyzed and the potential impacts identified before they can be approved by FHWA. The process to evaluate and justify design exceptions must be based on an evaluation of the context of the facility (e.g., community values), needs of the various project users, safety, mobility (i.e., traffic performance), environmental impacts, project costs, and other impacts.

As defined in the NYSDOT Highway Design Manual, non-standard features are those features that do not meet the applicable design criteria for certain critical design elements. The design criteria are based on the functional classification of the highway, its relation to the National Highway System (NHS), traffic volumes, operating speed, terrain, and other factors. There are 11 critical design elements: design speed, lane width, shoulder width, maximum grade, horizontal curve radius, superelevation (max.), stopping sight distance, vertical clearance, cross-slope (pavement), design loading structural capacity, and compliance with Public Rights-of-Way Accessibility Guidelines (PROWAG). Non-conforming elements are those features that do not follow normally accepted engineering practice and are not critical design elements. Examples of non-conforming features include inadequate acceleration and deceleration lane lengths, short weaving sections, inadequate climbing lane lengths, and insufficient distance between successive ramps.

The existing I-81 viaduct including the I-81/I-690 interchange has 84 non-standard features and eight non-conforming features. The proposed design for the Viaduct Alternative potential options, which is based on a design speed of 60 mph, would correct all non-standard features, except for horizontal stopping sight distance at five curves between East Genesee Street and Butternut Street under Options V-3 and V-4. The Viaduct Alternative options differ in their ability to meet design standards for horizontal stopping sight distance as follows.

- Option V-2, New Viaduct Fully Improved to Current Standards, would involve the reconstruction of all highway elements to meet 60 mph design standards;
- Option V-3, New Viaduct with Substantial Design Improvements, would involve the reconstruction of all highway elements to meet 60 mph design standards except for four curves within the I-81/I-690 interchange that would meet 55 mph design standards and one curve that would meet 50 mph design standards for the horizontal stopping sight distance; and
- Option V-4, New Viaduct with Considerable Design Improvements, would involve the reconstruction of all highway elements to meet 60 mph design standards except for three curves within the I-81/I-690 interchange that would meet 55 mph and two curves that would meet 50 mph design standards for the horizontal stopping sight distance.

The proposed design for the Viaduct Alternative options also would correct most non-conforming features based on a 60 mph design speed. On urban freeways and other facilities that carry high traffic volumes, such as I-81, two or more ramps are often located in close succession. AASHTO provides

minimum ramp spacing dimensions for various ramp pair combinations to provide adequate space for signing, adequate gaps for entering motorists, and sufficient weaving lengths; actual spacing will include engineering considerations (sufficient weaving lengths, sufficient acceleration and deceleration lengths, and ramp and highway design speeds/geometry) and other considerations (ramp connection type, signage, uniformity in spacing among successive interchanges, and driver expectancy).

The Project Area has a total of 15 non-conforming ramp spacing features, five of which are within the I-81/I-690 interchange area. These features would be retained under the No Build Alternative. The Viaduct Alternative options vary in the degree to which they achieve the minimum ramp spacing. Option V-2 has 11 non-conforming ramp spacing features, five of which are in the viaduct, including the I-81/I-690 interchange area; Options V-3 and V-4 each have nine non-conforming ramp spacing features, one of which is in the viaduct, including the I-81/I-690 interchange area.

Based on the current level of engineering, it is anticipated that Option V-2 would correct all non-standard and most non-conforming highway features on the mainline within the Central Study Area. Options V-3 and V-4 would correct all non-standard features on the mainline except for the horizontal stopping sight distance associated with five of the horizontal curves in the Central Study Area, as described above. While horizontal stopping sight distances would not be fully met for these five curves, they would be substantially improved over the existing condition.

The proposed highway would provide two or more travel lanes in each direction, but the horizontal sight distance restriction under Options V-3 and V-4 would apply to only the inside lane of the five curves. Options V-3 and V-4 also would correct most non-conforming features within the Central Study Area.

Two approaches were evaluated to fully meet standards: 1) additional over-widening of the inner side shoulder of all five curves, which would cost an estimated $26 million, and 2) increasing the proposed curve radii, which would require realignment of the entire interchange area, resulting in a design similar to that of Option V-2 and necessitating additional right-of-way acquisitions (12 additional buildings). Thus, in addition to the difference in cost to fully meet standards, approximately $20 million in real estate costs would be saved under Option V-4 that would need to be expended under Option V-2.

Under Federal and State guidelines, an interstate in an urban area should be designed for a speed limit between 50 and 70 mph. All three Viaduct Alternative options have been designed to meet a 60 mph design speed, except as noted. The posted speed limit on the viaduct under each option would be the same (55 mph). Warning signs to encourage motorists to reduce speed would be installed ahead of the five curves.

Environmental Considerations

To meet current design standards, the three Viaduct Alternative options would require the construction of a viaduct and other improvements that would result in a wider footprint than that of the existing viaduct. These improvements, which would include wider shoulders, longer acceleration and deceleration lanes, additional lanes for capacity and weaving, geometric changes to accommodate ramp spacing criteria, and others, would not be implemented under the No Build Alternative. Consequently, Options V-2, V-3, and V-4 would result in the acquisition of properties and the displacement of residents and businesses. **Table 3-3** shows potential building impacts for the No Build Alternative and Options V-2, V-3, and V-4.

Table 3-3
Property Impacts under the Viaduct Alternative

	No Build Alternative	Option V-2	Option V-3	Option V-4
Description		New Viaduct Fully Improved to Current Standards	New Viaduct with Substantial Design Improvements	New Viaduct with Considerable Design Improvements
Building/Property Impacts	0	36 full acquisitions of buildings and one partial impact to a building, involving the removal of a smokestack	29 full acquisitions of buildings and one partial impact to a building, involving the removal of a smokestack	24 full acquisitions of buildings and one partial impact to a building, involving the removal of a smokestack
Residents Displaced (approximate)	0	527	48	48
Employees Displaced (approximate)	0	753	695	683

Note: Based on April 2016 design concepts. Property information is subject to change based on refined design. Manta Small Business Directory (www.manta.com)
Source: Onondaga County Department of Real Property Taxes (www.ongov.net).

As explained earlier, the three options vary in their ability to meet design standards for horizontal stopping sight distance, with Option V-2 fully meeting the standard and occupying a greater footprint than would Options V-3 and V-4. While they would substantially or considerably meet the standard, Options V-3 and V-4 would be designed with slightly sharper curves, which would reduce the horizontal stopping sight distance along the inside lane of five curves in the I-81/I-690 interchange area but would reduce the number of buildings impacted by the options. Under the No Build Alternative, none of the non-standard or non-conforming features would be eliminated or improved.

Option V-2 would expand the footprint of I-81 farther north and east than the current highway's alignment, and therefore, the viaduct structure would be constructed over streets and blocks where it does not exist today. Option V-2 would require the acquisition of 36 buildings and one partial impact to a building involving removal of a smokestack. Option V-3 would result in the acquisition of 29 buildings and one partial impact to a building involving removal of a smokestack, and Option V-4 would result in acquisition of 24 buildings and one partial impact to a building involving removal of a smokestack. Option V-2 would displace approximately 527 residents, including residents of the Snowden Apartments, a 199-unit building; residents of the Syracuse Pavilion, a facility providing temporary shelter; and residents of Nettleton Commons, a residential conversion with 60 apartments.

Options V-3 and V-4 would displace approximately 48 residents, most of whom live in small apartment buildings. Two large apartment buildings (Nettleton Commons and Snowden Apartments) would be avoided. In addition, Options V-3 and V-4 would not displace Syracuse Pavilion.

The No Build Alternative would not result in the displacement of residents or employees. Options V-2, V-3, and V-4 would require the acquisition of multiple businesses, resulting in the displacement of jobs. Option V-2 would displace approximately 753 jobs, Option V-3 would displace approximately 695 jobs, and Option V-4 would displace approximately 683 jobs. Most of these jobs are associated with small businesses with 10 to 15 employees each. However, medium-sized and large businesses (50 or more employees), including offices at VIP Structures, Presidential Towers Medical Office Building,

Onondaga Case Workers, Inc., and Avalon Document Services, also would be displaced. In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), the FHWA and NYSDOT would provide relocation assistance for displaced businesses, with the intent of maintaining as many jobs as possible in the region.

Options V-2 and V-3 would necessitate the acquisition and removal of the former St. John the Evangelist Church, which is now occupied by the Samaritan Center, a community services organization. The Samaritan Center would not be acquired under Option V-4. The three options would result in inconveniences during construction. There would be changes in traffic circulation, increases in noise levels at receivers near construction equipment, removal of parking beneath the viaduct, and periodic restrictions on local vehicular, pedestrian, and bicycle traffic on streets that cross under or over the highway. The specific impacts during construction would vary by option, but the breadth and severity of construction impacts are not expected to be substantially different among the options.

Based on the adverse impacts to properties, which would result in unreasonable socioeconomic impacts, such as substantial displacement of residences and businesses, Options V-2 and V-3 were dismissed from further consideration. Option V-4 would involve the reconstruction of all highway elements to meet 60 mph design standards except for horizontal stopping sight distance along five curves within the I-81/I-690 interchange. The option would eliminate the majority of non-standard and non-conforming features in the Project Area (refer to in **Appendix A-3** for tables listing and justifying the retention of non-standard and non-conforming features under the Viaduct Alternative). Although five non-standard features would be retained (three curves within the I-81/I-690 would meet 55 mph and two curves would meet 50 mph design standards for the horizontal stopping sight distance), the horizontal stopping sight distance would be substantially improved over the existing condition, and the non-standard condition would apply to the inside travel lane only (refer to the non-standard features justification forms in **Appendix A-3**). Therefore, Option V-4 was retained for further consideration in the DDR/DEIS and FDR/FEIS.

Option V-4 is hereafter referred to as the Viaduct Alternative in this document.

Community Grid Alternative, Option CG-1

The *Scoping Report* presented two Community Grid Alternative options: Option CG-1 ("Boulevard"), in which Almond Street would become a boulevard and the primary north-south thoroughfare through the city, and Option CG-2 ("Almond Street and Other Local Streets"), which would disperse traffic onto Almond Street as well as other local streets. The implementation of Option CG-1 would require construction of an overpass along Erie Boulevard from Townsend Street to Forman Avenue, potentially hindering access to businesses in that area, and would impact local street connectivity by severing McBride, Willow, and Water Streets. Moreover, Option CG-1 would necessitate the acquisition of seven buildings, three additional buildings than Option CG-2. These acquisitions, which would displace approximately 116 employees and 46 residents, would result in greater socioeconomic impacts. Finally, because Option CG-1 would concentrate traffic flow along one major thoroughfare, it would require more lanes on Almond Street and not optimize the use of the existing city street network compared with Option CG-2. Thus, it would provide a lesser benefit to pedestrians and would have less potential for urban design treatments. Therefore, Option CG-1 was dismissed from further consideration, and Option CG-2 is hereafter referred to as the Community Grid Alternative.

3.3.3 I-81 INDEPENDENT FEASIBILITY STUDY

As a result of public input, NYSDOT contracted an outside consultant, not part of the I-81 Viaduct Project team, to conduct an independent study "to ensure that a tunnel and depressed highway were sufficiently analyzed to assess their feasibility and cost" and to "[examine] alternatives that would adequately provide for vehicular traffic to replace the existing I-81 viaduct through the center of Syracuse." In December 2017, NYSDOT released the "I-81 Independent Feasibility Study" (November 2017), contained in **Appendix B-3**. This report is a technical engineering report and did not study the social, economic, and environmental considerations required by NEPA and SEQRA. The report is available at https://www.ny.gov/sites/ny.gov/files/atoms/files/I81_Independent_Feasibility_Study_Report_Nov2017.pdf and is included in **Appendix B-3**.

Potential Alternatives and Recommendation

The I-81 Independent Feasibility Study considered a "long list" of alternatives, consisting of two potential depressed highway alternatives along the existing I-81 corridor and seven potential tunnel alternatives with various options. After conducting an initial screening, the two depressed highway alternatives, which would cost between $3 and $4 billion and would require seven to 10 years to construct, were dismissed from further study because they would "further divide neighborhoods" by closing several local streets and present significant construction challenges. The initial screening also dismissed three of the potential tunnel alternatives and advanced four (the Blue, Red, Green, and Orange Alternatives) for further study, ultimately identifying the Orange Alternative as the tunnel concept with "greatest benefit" in comparison to the other alternatives identified in that study. Under its "Key Findings and Conclusions," the I-81 Independent Feasibility Study states, "It would be technically feasible to design and construct a tunnel alternative that meets the study goals and improve [sic] the transportation system in the Syracuse Metropolitan Area. The study team recommends that the Orange Alternative be considered for further study as a viable tunnel alternative."

Orange Tunnel Concept

In accordance with the report's recommendation, NYSDOT conducted an analysis and assessment of the Orange Alternative. NYSDOT developed and refined the Orange Alternative to a level of engineering detail sufficient to evaluate its potential social, economic, and environmental effects. The design was modified, either to meet design standards, reduce its potential impacts, or to add elements that are common to the Viaduct and Community Grid Alternatives. The modified Orange Alternative is hereafter referred to as the "Orange tunnel concept."

The Orange tunnel concept would involve the demolition of the existing viaduct between the NYS&W Railway bridge and the I-81/I-690 interchange and construction of tunnel, carrying two lanes in each direction, from approximately 400 feet south of MLK, Jr. East to approximately James Street. The alignment would be about 1.7 miles long (consisting of a 1.4-mile-long tunnel and .3 miles of depressed roadway segments). The main line of the Orange tunnel would be constructed primarily with a tunnel-boring machine (TBM) in bedrock (generally about 40 to 100 feet from the surface to the top of the tunnel, and from 85 to 145 feet from the surface to the bottom of the tunnel). However, the highway would be depressed as it travels to and from the tunnel portals and connections, and the approaches would involve cut and cover and sequential excavation methods of construction.

I-690, including the I-81/I-690 interchange, would be reconstructed from Leavenworth Avenue to Lodi Street. Both fully directional (with all possible connections) and partial I-81/I-690 interchanges

(with five of the eight possible connections) were considered. Under the full interchange concept, the Orange tunnel would carry I-81; under the partial interchange option, existing I-81 would be de-designated as an interstate, and existing I-481 would be re-designated as the new I-81. The section of I-81 between the southern I-81/I-481 interchange (Interchange 16A) and the I-81/I-481 northern interchange (Interchange 29) in Cicero would be re-designated as a business loop of I-81 (BL 81). Under both concepts, existing I-81 north of the I-690 interchange would be widened to four lanes in each direction, and Almond Street (Catherine Street above I-690) would be reconstructed between Van Buren Street and Burnet Avenue, carrying three lanes and turning lanes as needed in each direction. For the purpose of this analysis, a partial interchange was assumed, but both are feasible.

A tunnel ventilation building would be constructed near both the north and south tunnel portals. The buildings would each include an approximately 30-by-40-foot ventilation structure, atop of which would stand two 12-foot diameter, 60-foot-tall ventilation stacks. The buildings would provide ventilation to the tunnels as well as serve as a hub from which electrical and fire-suppression utilities would be distributed throughout the tunnels and roadway segments.

Construction of the Orange tunnel concept would take approximately 11 years. The estimated total cost would be $4.9 billion (in 2018 dollars, escalated to the midpoint of construction, or 2023); see **Appendix B-4** for more information on the estimated costs). In addition, the Orange tunnel concept would incur a $16.5 million average annual operation and maintenance (O&M) cost over a 50-year horizon, not including costs for major equipment replacement during that period (**Table 11-1 in Appendix B-4** provides a breakdown of O&M costs).

Additional details about the Orange tunnel concept alignment and evaluation, including engineering, transportation, and environmental assessments, are provided in **Appendix B-4**.

Orange Tunnel Concept Screening

To accommodate ramps connecting southern Almond Street to BL 81/I-81 (to and from the south) and ramps connecting northern Almond Street to I-690 (to and from the west), local street and through traffic would be severed at Washington, Jackson, and Burt Streets, as well as at Almond Street between Van Buren Street and Burt Street. Therefore, the Orange tunnel concept would not meet the Project's objective to "maintain or enhance the vehicular, pedestrian, and bicycle connections in the local street network within the project limits in and near Downtown Syracuse to allow for connectivity between neighborhoods, business districts, and other key destinations." The concept would require 17 building acquisitions with the partial I-690 interchange and 22 building acquisitions with the full I-690 interchange, thereby passing the property impacts screening criterion. However, the Orange tunnel's 11-year construction duration and $4.9 billion cost are considered unreasonable. Therefore, the Orange tunnel concept was dismissed from further study.

3.4 DESCRIPTION OF REASONABLE ALTERNATIVES

The I-81 Viaduct Project alternatives development focused on an area (the Central Study Area) that includes the section of I-81 approximately between East Brighton Avenue and 0.7 miles north of Hiawatha Boulevard West and the portions of I-690 approximately between the West Street interchange (Leavenworth Avenue) and Beech Street and between Hiawatha Boulevard West and Bear Street. It also includes several local roads in proximity to I-81 and I-690 in Syracuse. Thus, the project limits have been defined to include an approximately 4.8-mile section of I-81 from approximately East

Brighton Avenue to 0.7 miles north of Hiawatha Boulevard West and the 1.9-mile section of I-690 from approximately the West Street interchange (which extends to Leavenworth Avenue) to Beech Street. The Community Grid Alternative also would result in improvements along I-481, including its interchanges with I-81 (Exits 16A and 29) and the roadway segment from Exit 3 (New York State Routes 5/92) to Exit 6 (New York State Thruway, or I-90). In addition, the Community Grid Alternative would include improvements to the 0.3-mile section of I-690 from approximately Hiawatha Boulevard West to Bear Street and to several local roads in proximity to I-81, I-690, and I-481 in Syracuse. The project limits are shown on **Figure 1-2**.

Alternatives that were advanced for further evaluation and analysis in the DDR/DEIS and FDR/FEIS are described below.

3.4.1 NO BUILD ALTERNATIVE

NEPA requires the evaluation of a No Build Alternative. The No Build Alternative serves as the baseline to which the other alternatives are compared. As described in **Chapter 1, Introduction**, I-81 is in need of repairs, and current traffic safety issues are a key consideration for the I-81 Viaduct Project. The No Build Alternative would maintain the highway in its existing configuration. Continual maintenance and repairs would be performed to ensure the safety of the traveling public, and safety measures would be implemented to the extent feasible and practical.

Structural deficiencies and safety considerations would be addressed as part of NYSDOT's ongoing maintenance program. In addition to routine maintenance efforts (such as filling pavement cracks, patching holes in bridge decks, cleaning drainage systems) and operational considerations (e.g., signage and other low-cost improvements), the facility has required an increasing number of emergency repairs of greater magnitude to keep it serviceable. As the highway continues to deteriorate over time, these repairs would become increasingly costly. At the time when NYSDOT determines that a maintenance and repair program is too costly or that conditions result in an increased safety risk to the public, the facility would be closed to traffic.

Under the No Build Alternative, large-scale replacement and rehabilitation efforts would not be undertaken, nonstandard highway features would not be corrected, and existing interchanges would not be modified.

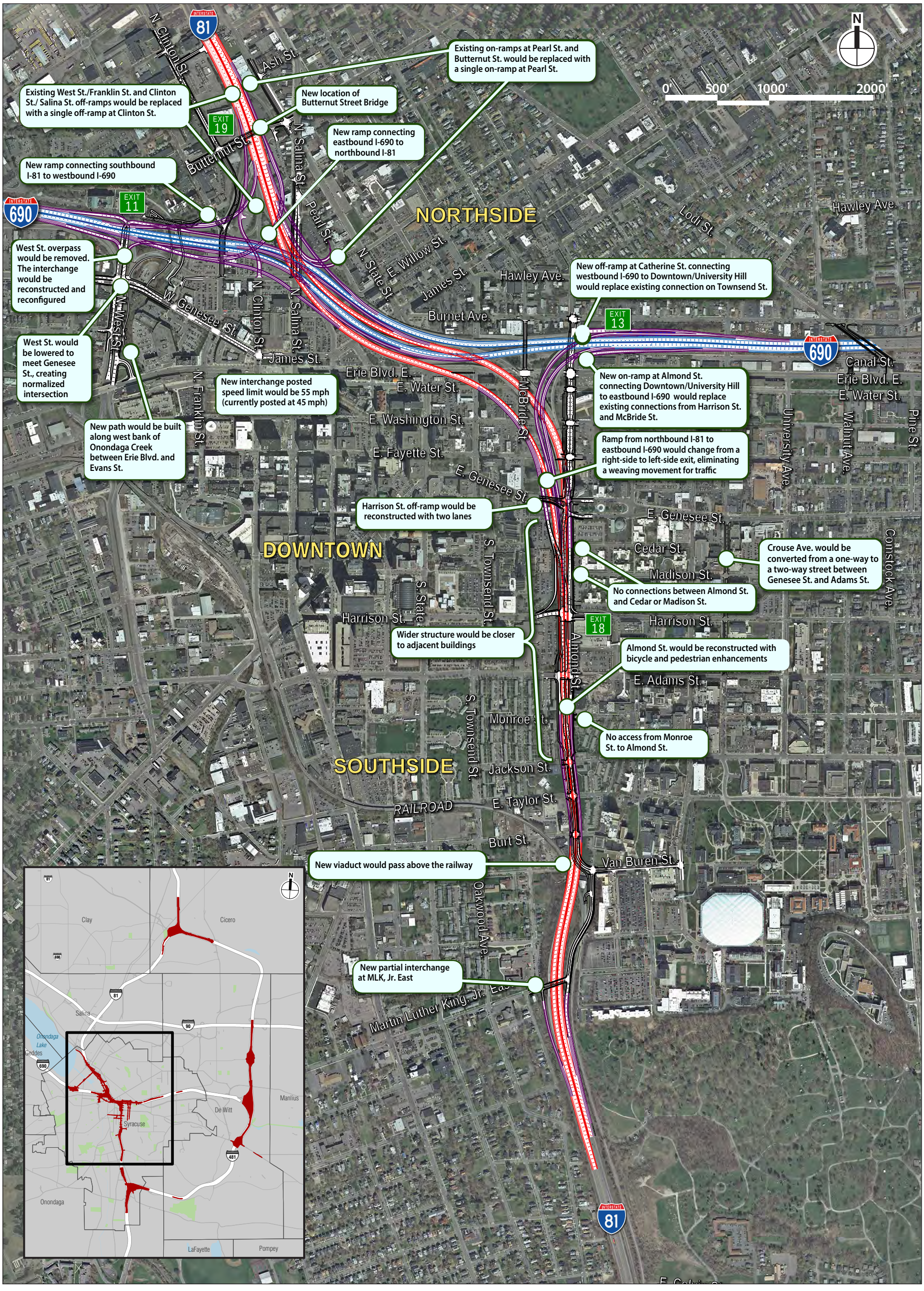
The No Build Alternative would not involve changes in right-of-way (property line). Any maintenance or safety repairs would include upgrades to the existing highway or operational modifications, such as changes in the posted speed limit, safety signage, restrictions on vehicle weights, or adjustments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

There would be costs associated with the No Build Alternative in each year that repairs are undertaken. As the facility continues to deteriorate, the level of effort and associated costs would increase. Over time, the maintenance may be costlier than NYSDOT's budgets can tolerate, making continued operation unreasonable.

3.4.2 VIADUCT ALTERNATIVE

The Viaduct Alternative (formerly known as Option V-4) would involve a full reconstruction of I-81 between approximately Colvin Street and Hiawatha Boulevard and a full reconstruction of I-690 between Leavenworth Avenue and Lodi Street (see **Figures 3-1, 3-2, and 3-3**).

See Figure 3-2 for Butternut to Bear Streets



I-81

I-690

Ramps

Local Streets

I-81 Viaduct Project

Viaduct Alternative Overview:
Colvin Street to Butternut Street

Figure 3-1

See Figure 3-3 for Bear Street to Hiawatha Boulevard

Service road would be realigned opposite N. Clinton St.

New northbound I-81 on- and off-ramps at Bear St.

Existing northbound ramps at Sunset Ave. would be removed

New Court St. bridge with sidewalks on each side

N. Clinton St. between Bear St. and the new southbound I-81 ramps would be widened from one to two lanes in each direction; between the ramps and Court St., N. Clinton would be widened to carry one northbound and two southbound lanes

Section of Genant Dr. south of Bear St. would be removed to make way for new southbound I-81 ramps

New location of southbound I-81 on- and off-ramps connecting to N. Clinton St.

Section of Genant Dr. would become a dead end

Existing southbound I-81 off-ramp at Genant Dr. would be removed

N. Clinton St. would be reconstructed from Bear St. to new Butternut St. bridge with new pavement, sidewalks on each side, curbside parking where possible, street trees, and curb bump-outs to shorten pedestrian crossing distances. Shared lanes for bicycles and vehicles would be provided from Spencer St. south to the N. Franklin St. intersection

Section of Genant Dr. south of Spencer St. would be removed

The existing southbound I-81 on-ramp from Genant Dr. would be removed

Genant Dr. between Spencer St. and the new Butternut St. bridge would be removed to accommodate the widened I-81. Access to properties along Genant Dr. would be maintained from N. Clinton St.

New Spencer St. bridge with sidewalks on each side

New on-road bike lanes on Spencer St. between N. Clinton St. and N. Salina St.

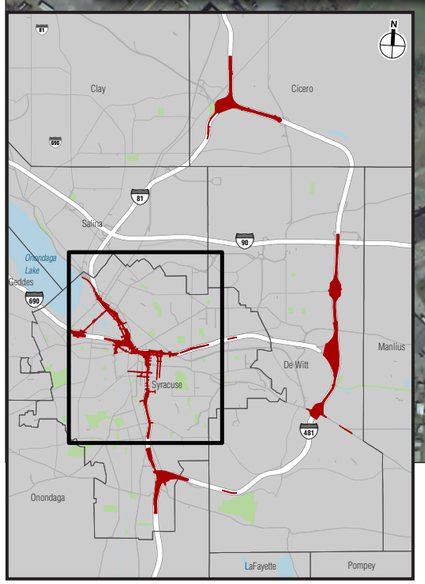
N. State St. from Ash St. to Butternut St. would be reduced from three lanes to two lanes, with new sidewalk along its west side and parking and street trees where possible

Existing State St. ramp to northbound I-81 would be removed

New, narrower Butternut St. bridge, carrying one lane in each direction with sidewalks and on-road bike lanes on each side

Existing Butternut St. bridge would be removed, existing Butternut St. would be removed from N. State St. to N. Franklin St.

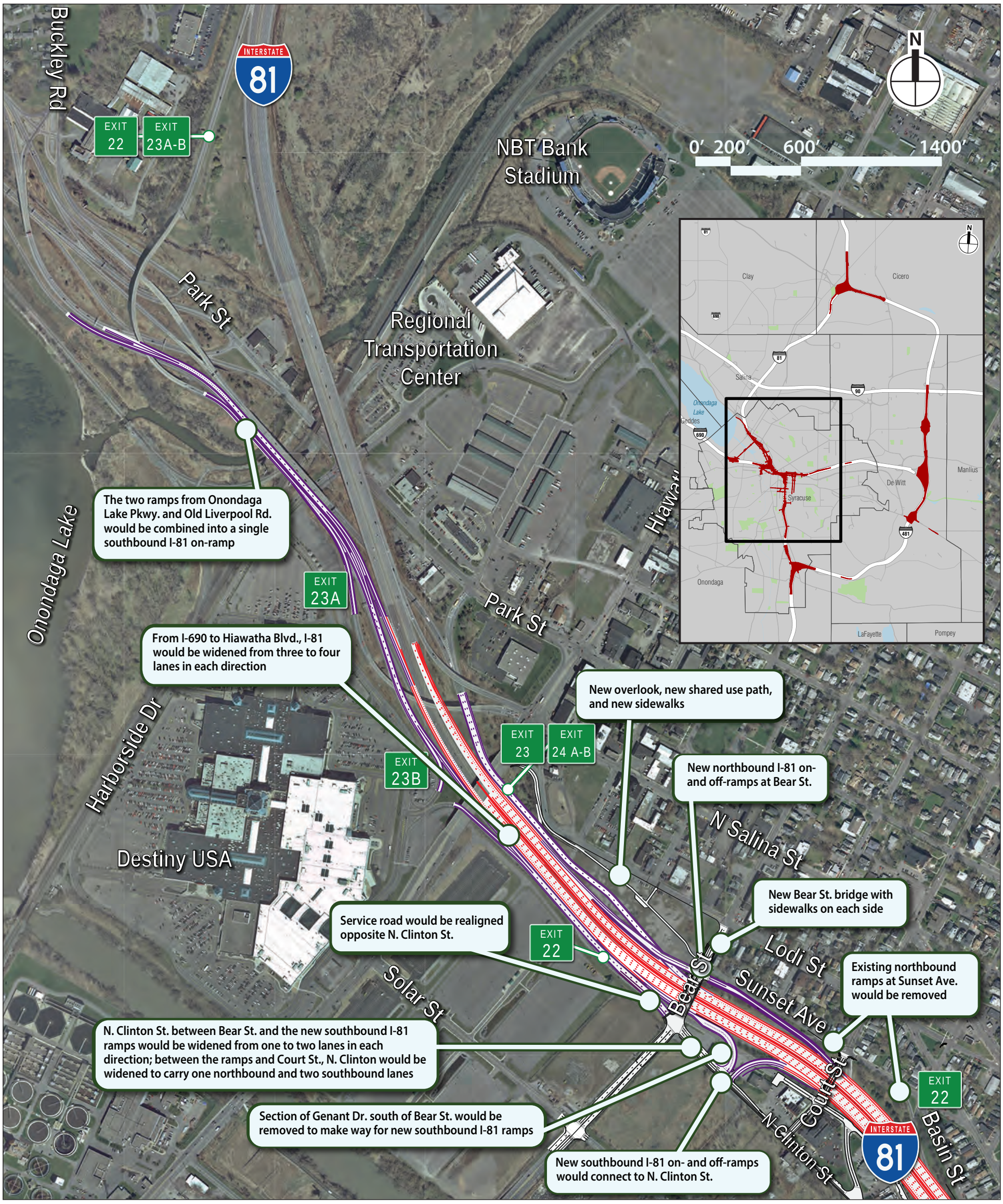
Hiawatha Blvd W
Solar St
Bear St
Sunset Ave
Court St
N Clinton St
Park St
Lodi St
Basin St
N Salina St
Van Rensselaer St
Inner Harbor
W Kirkpatrick St
N State St
Ash St
Butternut St
Spencer St
EXIT 22
EXIT 21
INTERSTATE 81
N
0' 200' 600' 1400'



I-81
I-690
Ramps
Local Streets

See Figure 3-1 for Colvin Street to Butternut Street

Viaduct Alternative Overview:
Butternut Street to Bear Street
Figure 3-2



See Figure 3-2 for Butternut to Bear Streets

I-81

I-690

Ramps

Local Streets

Viaduct Alternative Overview:
Bear Street to Hiawatha Boulevard
Figure 3-3

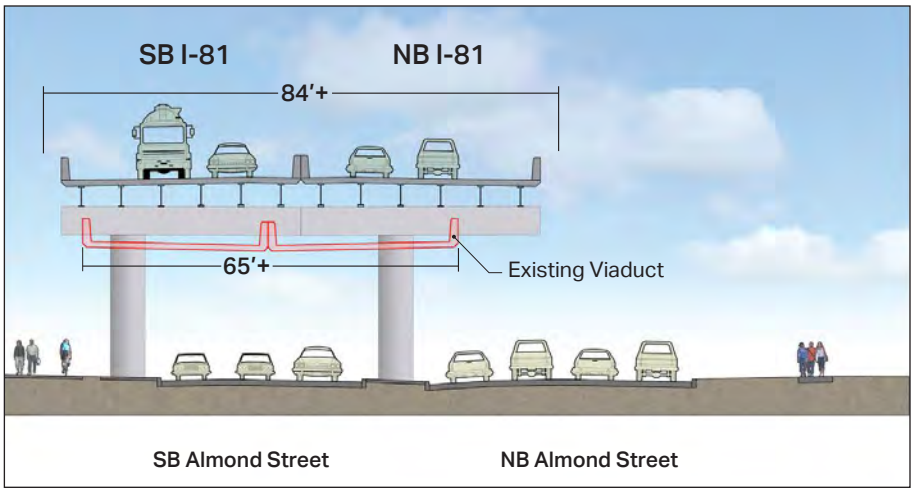
Under the Viaduct Alternative, the existing viaduct would be demolished and replaced by a new viaduct, which would provide four 12-foot travel lanes (a minimum of two in each direction), as well as left shoulders (a minimum of four feet in each direction) and right shoulders (a minimum of 10 feet in each direction).

From the south, the Viaduct Alternative alignment would begin as I-81 approaches the city near Colvin Street. Near Van Buren Street, the interstate would pass over the NYS&W Railway, at approximately the same elevation as the existing I-81 viaduct, and then begin to descend until Adams Street, where it would be approximately 10 to 15 feet higher than the existing viaduct, which is approximately 20 feet tall. This increased height generally would be maintained throughout the length of the new viaduct. The height would be increased to allow more room for construction operations; to meet vertical clearance requirements for several intersecting local streets; and to accommodate a more conventional bridge design that would eliminate a substantial number of joints in the bridge deck, thereby making the structure easier to maintain.

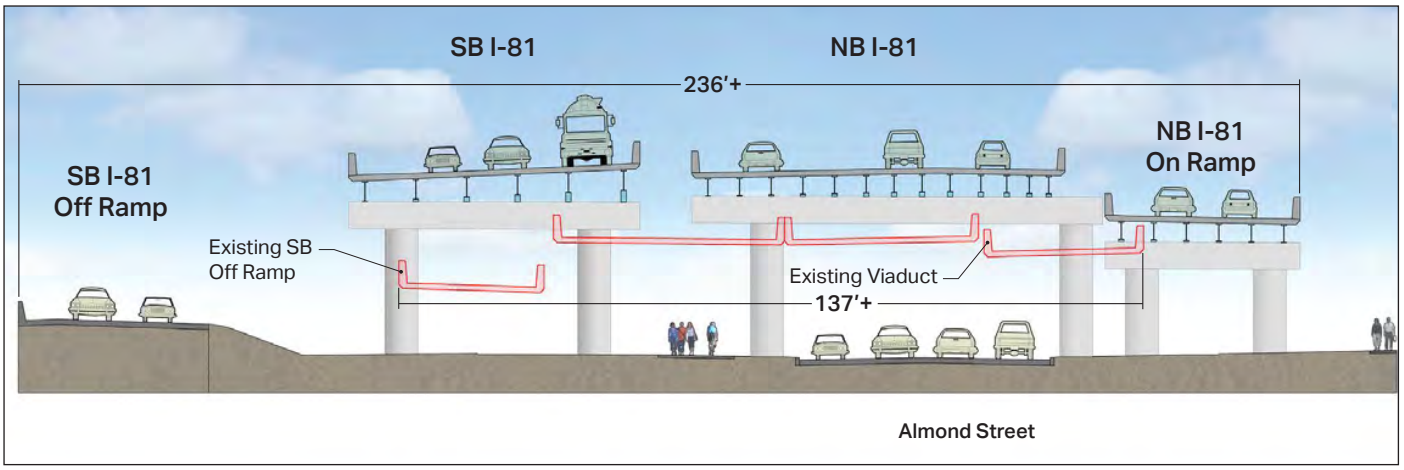
South of Harrison Street, the new viaduct generally would be approximately 10 to 20 feet wider, depending on the section, than the 66-foot-wide existing viaduct. Between Harrison and East Genesee Streets, the viaduct would begin to split into two separate bridges, with the bridge on the west carrying two southbound I-81 through lanes, as well as additional lanes for ramp connections, and the bridge on the east carrying a similar number of lanes for northbound I-81. As a result of these connections, the separate bridges, wider shoulders, and other improvements, the transportation footprint above Almond Street would be substantially wider than the existing transportation footprint, ranging from approximately 84 feet, or 20 feet wider than the existing footprint, south of Harrison Street (see **Figure 3-4**); to 280 feet, or 150 feet wider than the existing footprint, near East Genesee Street (see **Figure 3-5**); and to approximately 305 feet, or 154 feet wider than the existing footprint, near East Fayette Street (see **Figure 3-6**). **Figure 3-7** shows a view of the existing viaduct over Almond Street at East Adams Street and a rendering of the new viaduct in the same location. **Figure 3-8** shows a view of the existing viaduct over Almond Street from Harrison Street and a rendering of the new viaduct in the same location. **Figure 3-9** shows a view of the existing viaduct over Almond Street from East Genesee Street and a rendering of the new viaduct in the same location.

From East Genesee Street to the I-690 interchange, I-81 would continue on separate bridges, which would join and end around Salina Street (for comparison, the existing I-81 viaduct rejoins at approximately State Street). From Salina Street northward, the interstate would be carried on an embankment. Elevations would match those of the existing interstate near existing Butternut Street.

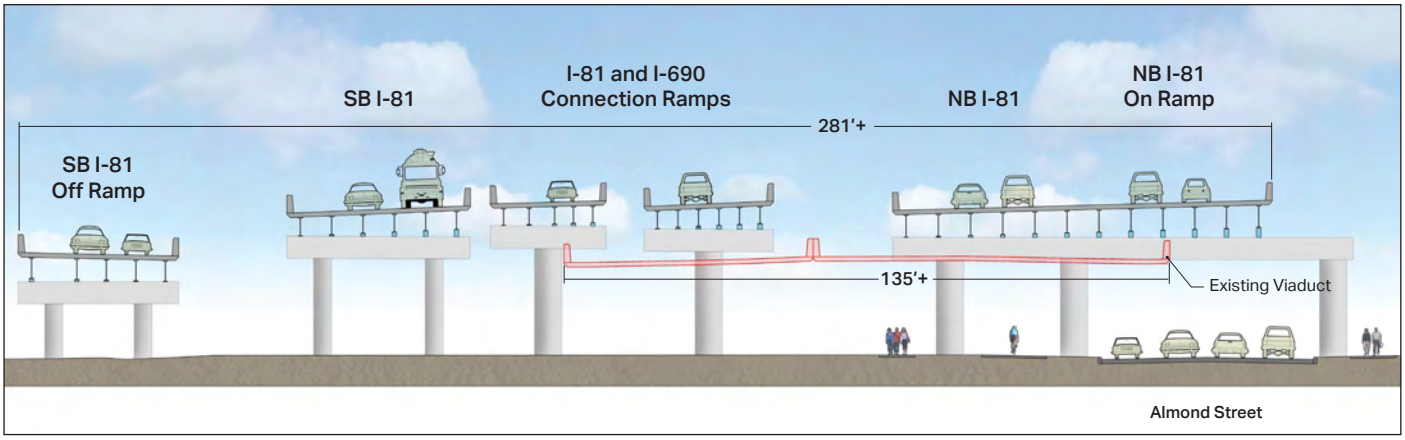
The Viaduct Alternative would correct most non-standard and non-conforming highway features within the Central Study Area. Any exceptions to design standards for highway improvement projects on the Interstate System funded with Federal aid require FHWA approval, and design exceptions must be justified following Federal guidelines. Under Federal and State guidelines, an interstate in an urban area should be designed for a speed limit between 50 and 70 mph. The Viaduct Alternative would meet 60 mph design standards except for horizontal stopping sight distance at five curves. Three curves would meet 55 mph design standards and two curves would meet 50 mph design standards. The sight distance restriction would apply to only the inside lane of the five curves. The posted speed limit on the viaduct would be 55 mph, but warning signs to encourage motorists to reduce speed would be installed at the five curves.



Viaduct Alternative: Cross-section of Almond Street south of Harrison Street
Figure 3-4



Viaduct Alternative: Cross-section of Almond Street between Cedar and Genesee Streets
Figure 3-5



Viaduct Alternative: Cross-section of Almond Street between Genesee and Fayette Streets
Figure 3-6

Almond Street at East Adams Street looking northwest: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Almond Street at East Adams Street: Viaduct Alternative Rendering

Harrison Street at Almond Street looking west: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Harrison Street at Almond Street looking west:
Viaduct Alternative Rendering

Almond Street from East Genesee Street: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Almond Street from East Genesee Street:
Viaduct Alternative Rendering

Based on the current design, it is estimated that 24 buildings would need to be acquired for the construction of the Viaduct Alternative; in addition, there would be a partial impact to a building involving the removal of its smokestack (see **Section 6-3-1, Land Acquisition, Displacement, and Relocation**, for detailed information on potential property impacts).

Major Elements of the Viaduct Alternative

Major elements of the Viaduct Alternative, including interchange modifications, bridge replacements, and other features, are described below.

New Partial Interchange on I-81 at MLK, Jr. East

To improve access to Outer Comstock, Southside, and University Hill from the south, a new partial interchange with a northbound exit ramp and a southbound entrance ramp would be constructed at MLK, Jr. East. The northbound exit ramp would end at the junction of MLK, Jr. East and Renwick Avenue, and traffic could continue on Renwick Avenue and proceed beneath the existing NYS&W Railway bridge, which would remain in place. The new southbound entrance ramp would require closure of a driveway to the adjacent parking lot of Dr. King Elementary School, but the school's other driveway at East Raynor Avenue would remain open. To accommodate the entrance ramp, MLK, Jr. East would be restriped and repaved, and new sidewalks would be installed from Leon Street to Renwick Avenue. A new crosswalk would be provided at MLK, Jr. East and Renwick Avenue. **Figure 3-10** shows the existing view of MLK, Jr. East from Oakwood Avenue and a rendering of the same location under the Viaduct Alternative. **Figure 3-11** is a bird's-eye rendering of the new partial interchange.

The new partial interchange would provide direct access to the Southside and to University Hill via Renwick Avenue; alleviate congestion at the Almond Street intersections with Harrison Street and Adams Streets; reduce the number of lanes needed at those intersections; and improve conditions for pedestrians by reducing crossing distances and allowing for fewer lanes at the Almond Street intersections with Harrison and Adams Streets. FHWA's "Interstate System Access Informational Guide" (August 2010) states, "Not providing for all movements violates driver expectation and may lead to 'wrong-way' movements on ramps. Therefore, alternatives for the construction of partial interchanges should generally be avoided. If partial interchanges are being considered, clear and detailed analysis must be conducted and documented as justification for their construction or retention." Consistent with this guidance, two options to provide a full interchange at MLK, Jr. East were explored, and each was found unreasonable. In one option, the additional ramps (a northbound entrance ramp and a southbound exit ramp) would be too close to the ramps at Adams Street; the second option, which considered a collector-distributor road, would necessitate closure of the Colvin Street entrance ramp. Burt Street also was explored as a potential location for this new interchange but was dismissed from further consideration because it would not be physically possible to provide clearance over the railway and have the ramps meet grade at Burt Street. Moreover, Burt Street does not connect to Renwick Avenue or Van Buren Street, which provide access to University Hill, and initial traffic studies showed higher usage of MLK, Jr. East over Burt Street during the PM peak period.

I-81 Interchange 18 (Harrison/Adams Streets)

To improve traffic flow at Interchange 18, a second exit lane to Harrison Street from southbound I-81 would be added. This exit lane would lead to a signalized intersection at Almond Street. The weaving section between the northbound I-81 entrance ramp from Harrison Street and the I-81 exit

MLK, Jr. East at Dr. King Elementary School: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

MLK, Jr. East from Oakwood Avenue looking east: Viaduct Alternative Rendering

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Viaduct Alternative:
New partial interchange on I-81 at MLK, Jr. East

ramp to eastbound I-690 would be eliminated by relocating the northbound I-81 exit ramp to eastbound I-690. Vehicles that currently use the Harrison Street on-ramp to access eastbound I-690 would instead use the new on-ramp at Catherine Street (see below).

Reconstruction of I-690 and Existing I-81/I-690 Interchange and Provision of Missing I-81/I-690 Connections

I-690 would be reconstructed from Leavenworth Avenue to Lodi Street. The existing ramps between the two interstates would be reconstructed. The existing ramp connecting northbound I-81 to eastbound I-690 includes a non-conforming weave section, which would be eliminated with the new interchange. This ramp would be relocated from the east side of northbound I-81 to the west side of northbound I-81, and it would be changed from a right-side ramp to a left-side ramp.

In addition, new ramps would be built to provide direct connections, which are unavailable today, between eastbound I-690 and northbound I-81 and between southbound I-81 and westbound I-690. These new direct connections to facilitate interstate-to-interstate movement would be consistent with AASHTO's "A Policy on Design Standards Interstate System" (May 2016), which states, "Interchanges shall be provided between all intersecting interstate routes, between other selected access-controlled highways, and at other selected public highways to facilitate the distribution of traffic. Each interchange shall provide for all traffic movements."

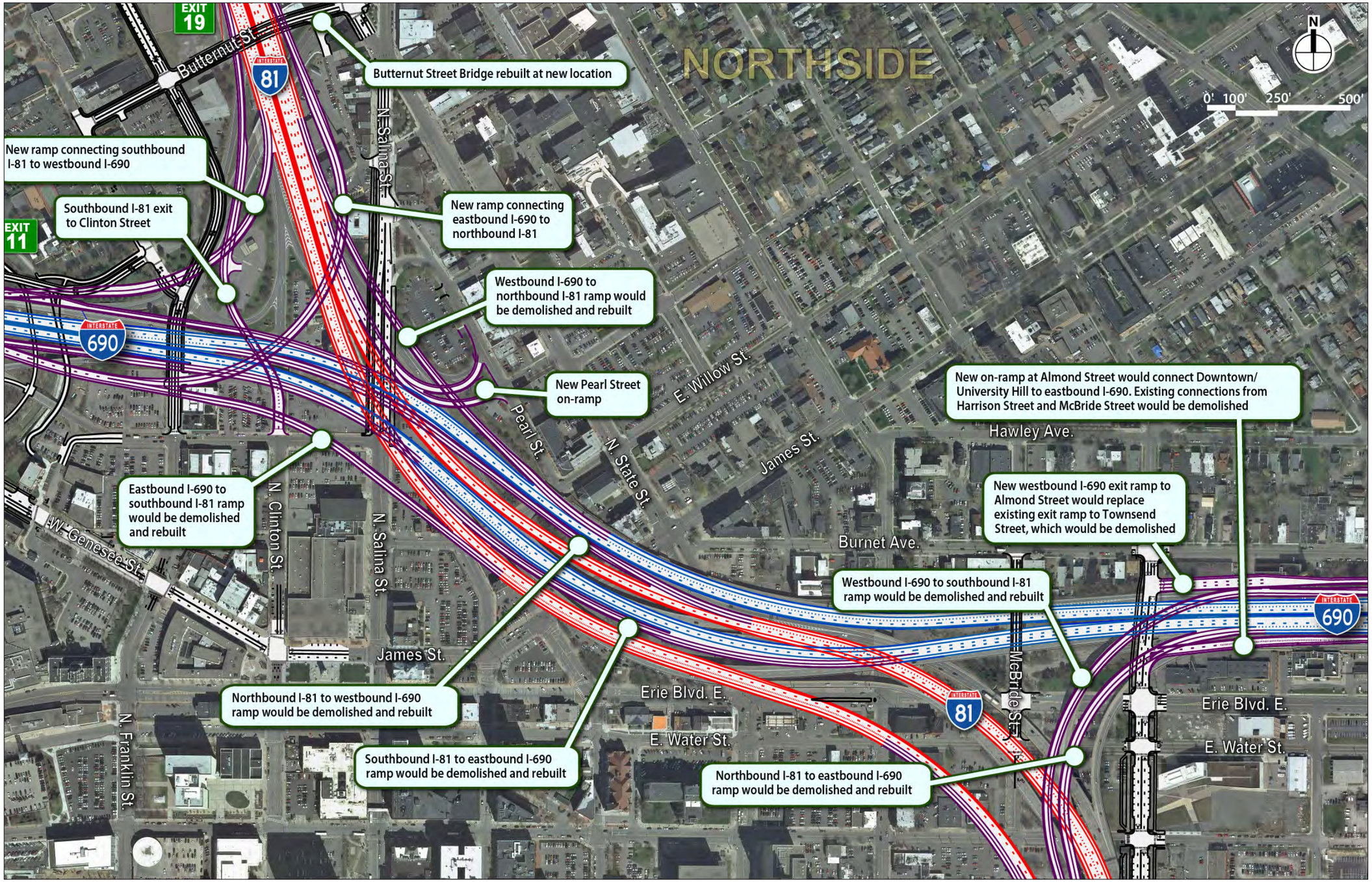
All of the new and reconstructed ramps would include adequate shoulders, longer acceleration and deceleration lanes, and improved stopping sight distance. Overall, the new interchange would be approximately 20 feet higher than the existing interchange to accommodate vertical clearance requirements of the intersecting ramps and mainline. Three buildings (901, 909, and 915 North State Street) would need to be acquired to construct the new I-81/I-690 interchange ramps. Overall, a total of 11 buildings would need to be acquired for the reconstruction of the interchange and the addition of the missing connectors under the Viaduct Alternative (see **Section 6-3-1, Land Acquisition, Displacement, and Relocation**, for further details on property impacts). Efforts to avoid or minimize these property impacts will continue as the Project advances. **Figures 3-12 and 3-13** depict the improvements at the I-81/I-690 interchange, including the new ramps. In addition, several minor improvements would be made to Bear Street and Hiawatha Boulevard to maintain their safety and operational efficiency.

I-81 Interchange 19 (Clinton Street/Salina Street) and Interchange 20 (Franklin Street/West Street)

Interchanges 19 and 20 would be combined into one partial interchange to provide space for the new connections between I-81 and I-690 described above. This interchange consolidation 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 would serve Clinton Street (see **Figure 3-1**). In addition, the existing on-ramps from Pearl Street (Interchange 19) and State Street (Interchange 20) would be replaced with a single, two-lane ramp at Pearl Street (see **Figure 3-1**).

Butternut Street Bridge

The Butternut Street overpass must be rebuilt because of the reconstruction of the I-81/I-690 interchange, which would shift interstate and ramp locations. Placement of the Butternut Street bridge in a new location would allow the ramp carrying traffic from eastbound I-690 to northbound I-81 to be constructed beneath the Butternut Street overpass. The new bridge would be built over existing Genant Drive to connect to North Clinton and North Franklin Streets in the Franklin Square



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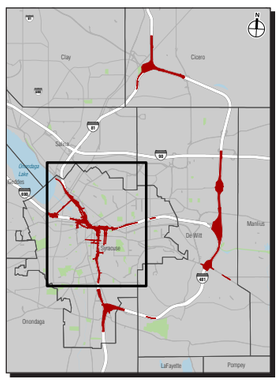
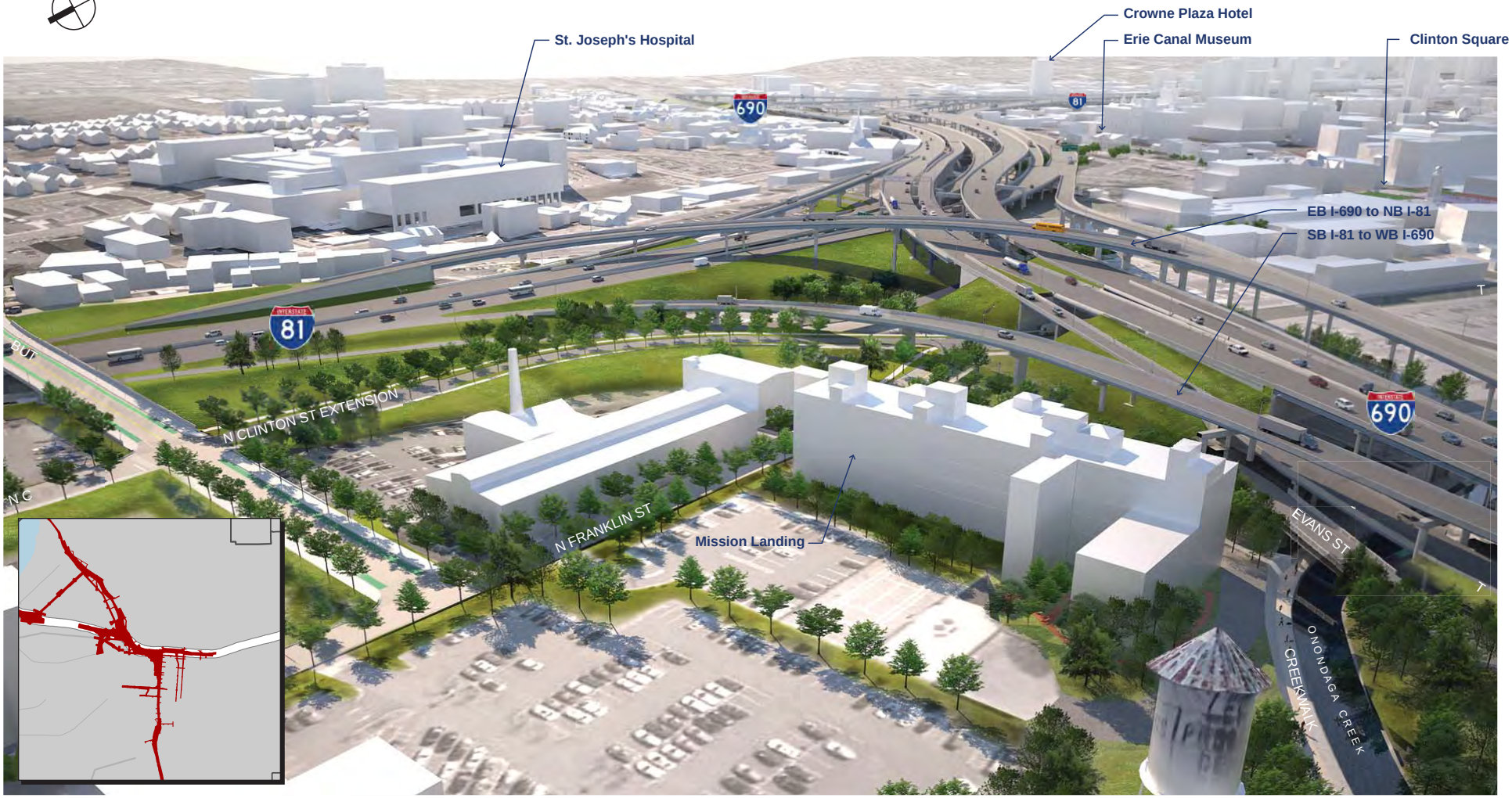


I-81
I-690
Ramps
Local Streets

I-81 Viaduct Project

Viaduct Alternative:
I-81 / I-690 Interchange Improvements
Figure 3-12

10.15.20



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Viaduct Alternative:
New Connecting Ramps between I-81 and I-690

Figure 3-13

neighborhood, and the existing bridge would be demolished. Existing Butternut Street would be removed from Salt to Franklin Streets. **Figure 3-14** depicts the new location of the reconstructed bridge. The new bridge would be narrower than the existing bridge, with one lane (rather than two lanes in the existing) in each direction. The new bridge would include wider sidewalks on both sides as well as an on-road bike lane in each direction.

North Clinton Street Reconstruction and Extension

North Clinton Street and portions of intersecting streets would be reconstructed from Bear Street to existing Genant Drive, where the new Butternut Street bridge would touch down (see **Figure 3-15**). North Clinton Street would continue to provide one lane in each direction, as it does today, until a point north of existing Court Street, where it would widen into a three-lane roadway (with one southbound lane, one northbound lane, and a turn lane in the middle) and then into a four-lane roadway as it approaches Bear Street. In addition, North Clinton would be realigned to connect to the southbound I-81 off-ramp at Bear Street, creating an intersection with the existing I-81 service road.

To provide a direct connection and alternate north-south route to Downtown, North Clinton Street would be extended to the existing five-leg intersection at Webster's Landing, North Franklin Street, Butternut Street, and the ramp to West Street. This intersection would be reconfigured as a simplified, three-leg intersection connecting North Clinton to North Franklin Street (see **Figure 3-14**).

I-81 from Interchange 20 to Interchange 24

From I-690 to Hiawatha Boulevard, I-81 has three lanes in each direction. To improve capacity and traffic operations, this segment of the highway would be widened to provide four through lanes in each direction (see **Figure 3-16**). Several non-standard highway features, such as narrow shoulders, tight curves, and reduced sight distance, would be corrected to improve safety.

To accommodate the wider interstate and correct the non-standard and non-conforming features, Genant Drive would be closed from Spencer Street to North Clinton Street. The portion of Genant Drive between Bear Street and just north of Court Street also would be closed because of the relocation of the southbound I-81 ramps at Court Street, described below. In addition, a portion of Genant Drive north of Spencer Street would be reconstructed.

Existing I-81 Interchange 21 (Spencer Street/Catawba Street) and Interchange 22 (Route 298, Court Street/Bear Street) would be consolidated into a single interchange at Bear Street. The Court Street bridge, which is now on a skewed angle over I-81, would be replaced with a new, two-lane bridge that would pass straight over the highway, at a 90-degree angle, and connect to North Clinton Street. The old bed of Court Street between Genant Drive and North Clinton Street would be reconstructed with new sidewalks (see **Figure 3-2** and **Figure 3-15**).

The northbound I-81 entrance and exit ramps, which are now located at Sunset Avenue, would be removed and replaced by new ramps connecting to Bear Street. The southbound I-81 entrance and exit ramps, located between Bear Street and Spencer Street, would be relocated to connect to North Clinton Street, just south of Bear Street (see **Figure 3-2**). The existing Bear Street and Spencer Street bridges would be replaced with new structures to accommodate the improvements in this section of I-81.

The Route 370 (Onondaga Lake Parkway) on-ramp (Interchange 24A) and Old Liverpool Road on-ramp (Interchange 24B) to southbound I-81 would be consolidated into a single ramp.

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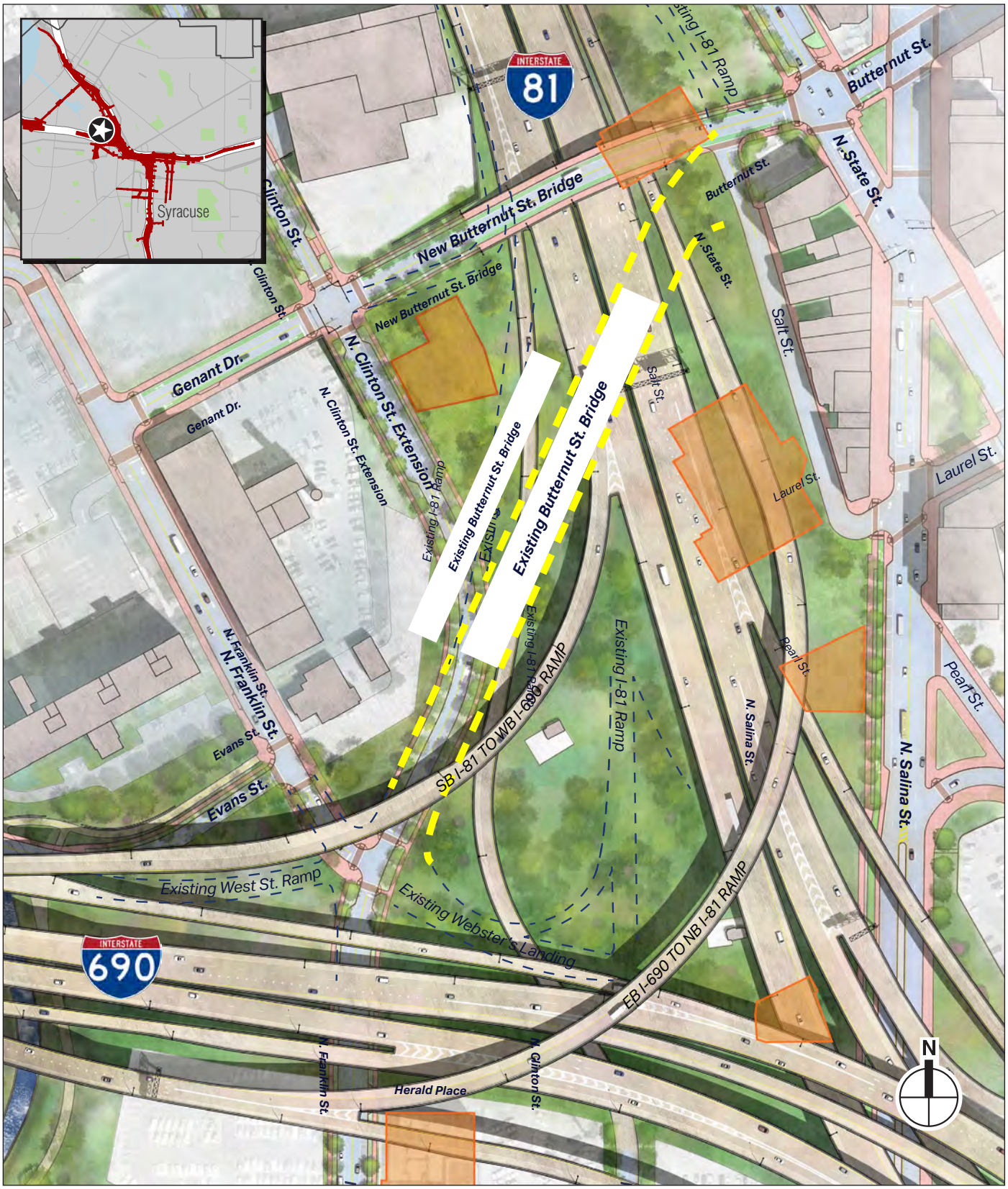
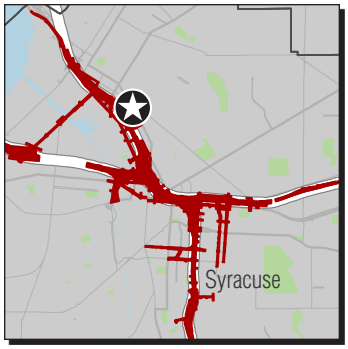


Viaduct Alternative:
Butternut Street Bridge Relocation

I-81 Viaduct Project

Figure 3-14



Existing infrastructure to be removed

Existing bridge to be relocated

Building to be acquired

Viaduct Alternative:
North Clinton Street Reconstruction

Figure 3-15

Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Widening of I-81 from I-690 to Hiawatha Boulevard:
Viaduct Alternative Rendering

I-690 Interchange 11/12 (West Street/West Genesee Street) and Removal of the West Street Overpass

NYSDOT would replace the existing, free-flow Interchange 11/12 with a new interchange, controlled by a traffic signal on West Street. Just south of the new interchange, West Street would be lowered to meet West Genesee Street, creating an at-surface intersection. The intersection would have traffic signals and pedestrian crossings, thereby calming traffic and improving vehicular, pedestrian, and bicycle connectivity. West Genesee Street in this area would be reconstructed, with continuous sidewalks on both sides. In addition, the ramp from West Street to Herald Place and the ramp from North Franklin Street to West Street would be removed.

The new West Street-West Genesee Street intersection would improve interstate access to and from West Genesee Street. Additionally, the removal of the West Street overpass would create a new gateway to Downtown and open views of the City from the Westside that are now obstructed. Connections between the Park Avenue and Leavenworth Park neighborhoods and Armory Square and Downtown would be enhanced.

Parking spaces along the southern side of Genesee Street between Franklin and Clinton Streets would need to be removed to provide a vehicular travel lane. Similarly, parking along the eastern side of Clinton Street between Genesee and Willow Streets would need to be removed to provide a vehicular travel lane.

An option to maintain the existing ramp configuration and slightly raise the elevation of West Street was considered but dismissed from further consideration because bringing the existing interchange to current design standards would enlarge its footprint, potentially requiring acquisition of property.

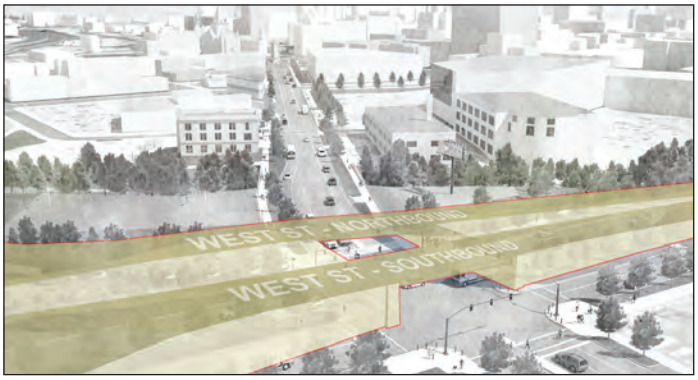
Figure 3-17 depicts the improvements at the West Street interchange under the Viaduct Alternative. (These improvements also are proposed under the Community Grid Alternative; see below.)

I-690 Interchange 13 (Townsend Street/Downtown Syracuse)

To allow for the reconstruction of the I-81/I-690 interchange, and improve way-finding, the westbound exit ramp from I-690 to Townsend Street would be relocated to Catherine Street. The existing on-ramp to eastbound I-690 from McBride Street would be relocated to Catherine Street. This ramp also would serve motorists currently using the existing on-ramp from Harrison Street to access eastbound I-690, a movement that would not be possible as a result of the ramp from northbound I-81 to eastbound I-690 becoming a left-side ramp. These improvements are shown on **Figure 3-1**.

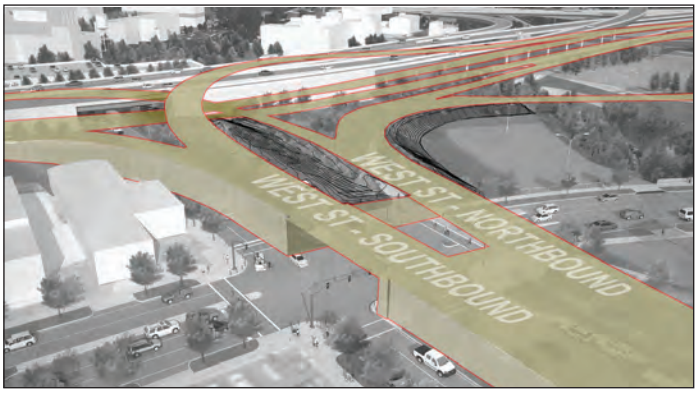
Bicycle, Pedestrian, and Other Improvements to Local Streets

The Viaduct Alternative would include new bicycle and pedestrian facilities to improve connectivity between existing and proposed facilities within the project limits. (**Figure 3-18** depicts existing and proposed City bicycle facilities, as well as bicycle facilities proposed under the Viaduct Alternative.) Bicycle facilities would be designed to be consistent with the AASHTO *Guide for the Development of Bicycle Facilities, 2012*. Streets would be designed to meet PROWAG and to be in compliance with New York State complete streets requirements. Efforts would be made to create a distinctive identity through the use of an aesthetically unified design and measures to improve safety. Special pavements, planting areas, medians, pedestrian refuge areas, site furnishings, and green infrastructure would be incorporated. As illustrated in **Figure 3-19**, local street improvements would include pedestrian and bicycle safety and connectivity enhancements in the Central Study Area, such as:



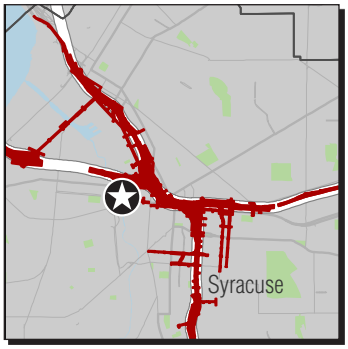
Existing West Street infrastructure shown overlaid in olive.

West Street would be lowered to meet Genesee Street, south of the new I-690 interchange.



Existing Conditions at West and Genesee Streets

Proposed improvements at West and Genesee Streets



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Improvements at Interchange 11 (West Street): Viaduct and Community Grid Alternatives

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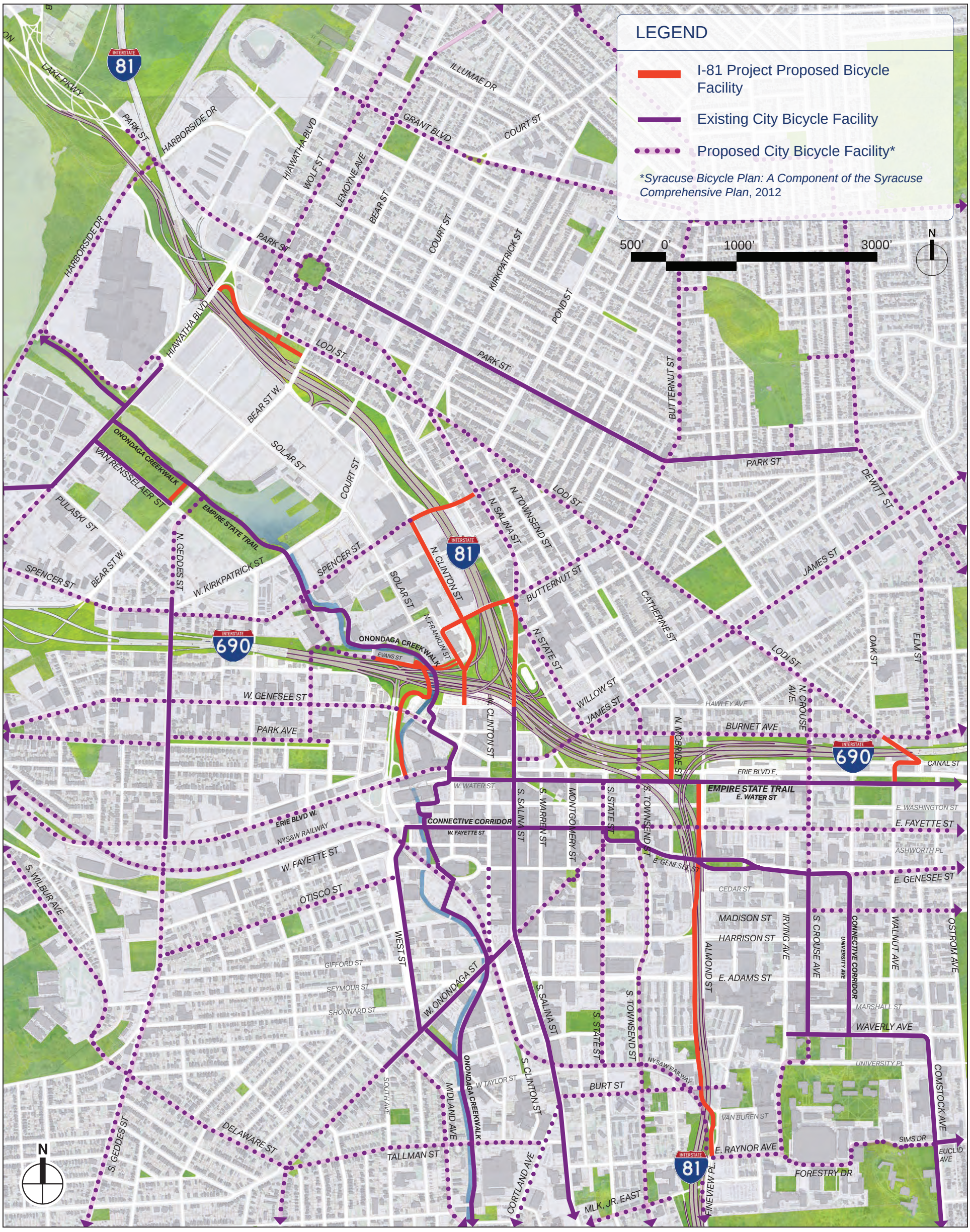
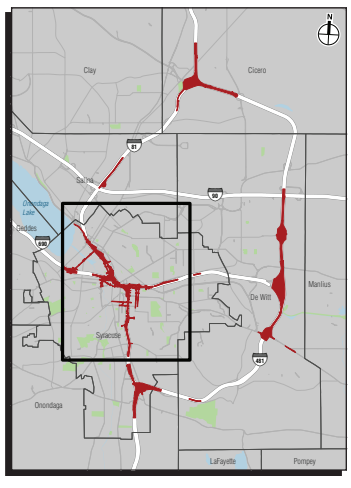




I-81 Viaduct Project

Viaduct Alternative:
Existing and Proposed
Bicycle Facilities
Figure 3-18

10.15.20

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Viaduct Alternative:
Proposed Pedestrian/Bicycle Enhancements

- Distinctive pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Signals to facilitate pedestrian crossings while encouraging bicycle use;
- Bollards and pedestrian refuge islands to provide safe refuge for pedestrians; and
- "Bump-outs," or extensions, of the sidewalk corners, to narrow roadway crossing distance for pedestrians (as shown on the plans in **Appendix A-1**, bump-outs would be provided on all intersections along Almond Street with the exception of Catherine Street at Burnet Avenue, Almond Street at Erie Boulevard, Harrison Street, Adams Street, Burt Street, Van Buren Street, and Renwick Avenue at Fineview Place and MLK, Jr. East).

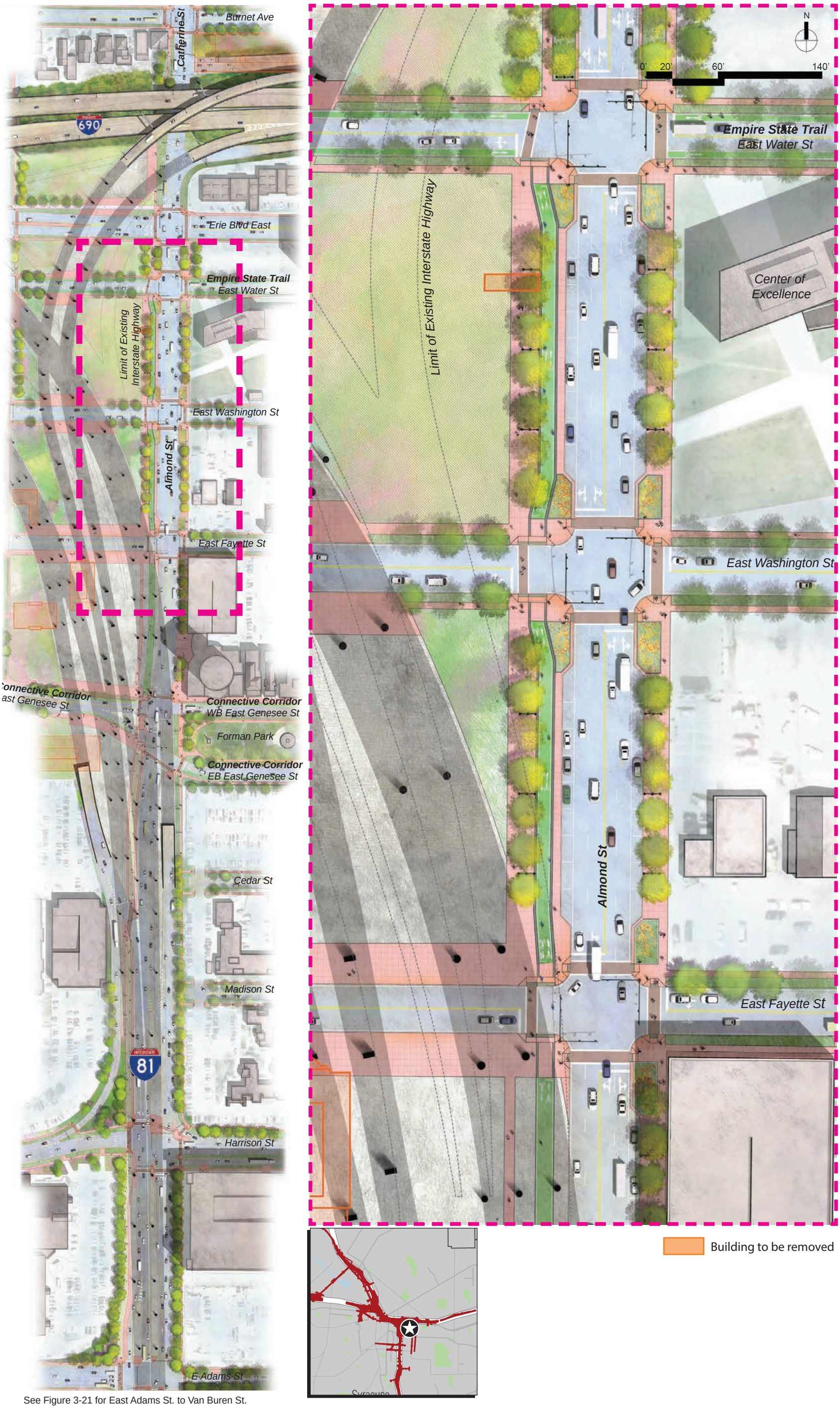
Newly created bicycle facilities along Almond Street would connect to existing bicycle facilities at Water Street (Empire State Trail) and East Genesee Street (Connective Corridor) and allow future connections to bicycle facilities identified in the *Syracuse Bicycle Plan: A Component of the Syracuse Comprehensive Plan* at Burnet Avenue, Fayette Street, Burt Street, Fineview Place, and Raynor Avenue. A connection to the City-proposed bicycle facility on MLK, Jr. East is not possible because of the constrained space beneath the existing railroad bridge at Renwick Avenue. With the exception of a four-foot widening of the existing section of Genant Drive between North Franklin and North Clinton, the new bicycle amenities fit in the roadway footprint and would not require roadway widening.

Specific local streets improvements would include the following.

Almond Street: Almond Street would be reconstructed, continuing to serve as a primary north-south corridor with ramps connecting it to and from the interstate (see **Figures 3-20 and 3-21**). Between Burnet Avenue and MLK, Jr. East, Almond Street would essentially follow its existing alignment, though some portions would shift to accommodate the new viaduct's support columns and the modifications to interstate ramp configurations. From Van Buren to Adams Street, Almond Street would have one 16-foot vehicular lane in each direction.

A shared use (bicycle/pedestrian) path would extend along the west side of Almond Street from Fineview Place to Genesee Street. Generally the shared use (bicycle/pedestrian) path would be 14 feet wide, but between Jackson Street and Adams Street it would narrow to 12 feet. Between Genesee Street and Water Street, a raised cycle track and adjacent sidewalk would be located on the west side of Almond Street. Between Water Street and Burnet Avenue, a sidewalk would be located on the west side of Almond Street. On the east side of Almond Street, a sidewalk would be provided from MLK, Jr. East to the north side of Erie Boulevard. Between Erie Boulevard and Burnet Avenue, a sidewalk would be provided on the west side only because of the need to accommodate the intersections with the new eastbound I-690 entrance ramp and the new westbound I-690 exit ramp. The bicycle facilities on Almond Street would connect to existing bicycle facilities at the statewide Empire State Trail on Water Street, as well as to the Connective Corridor on Genesee Street.

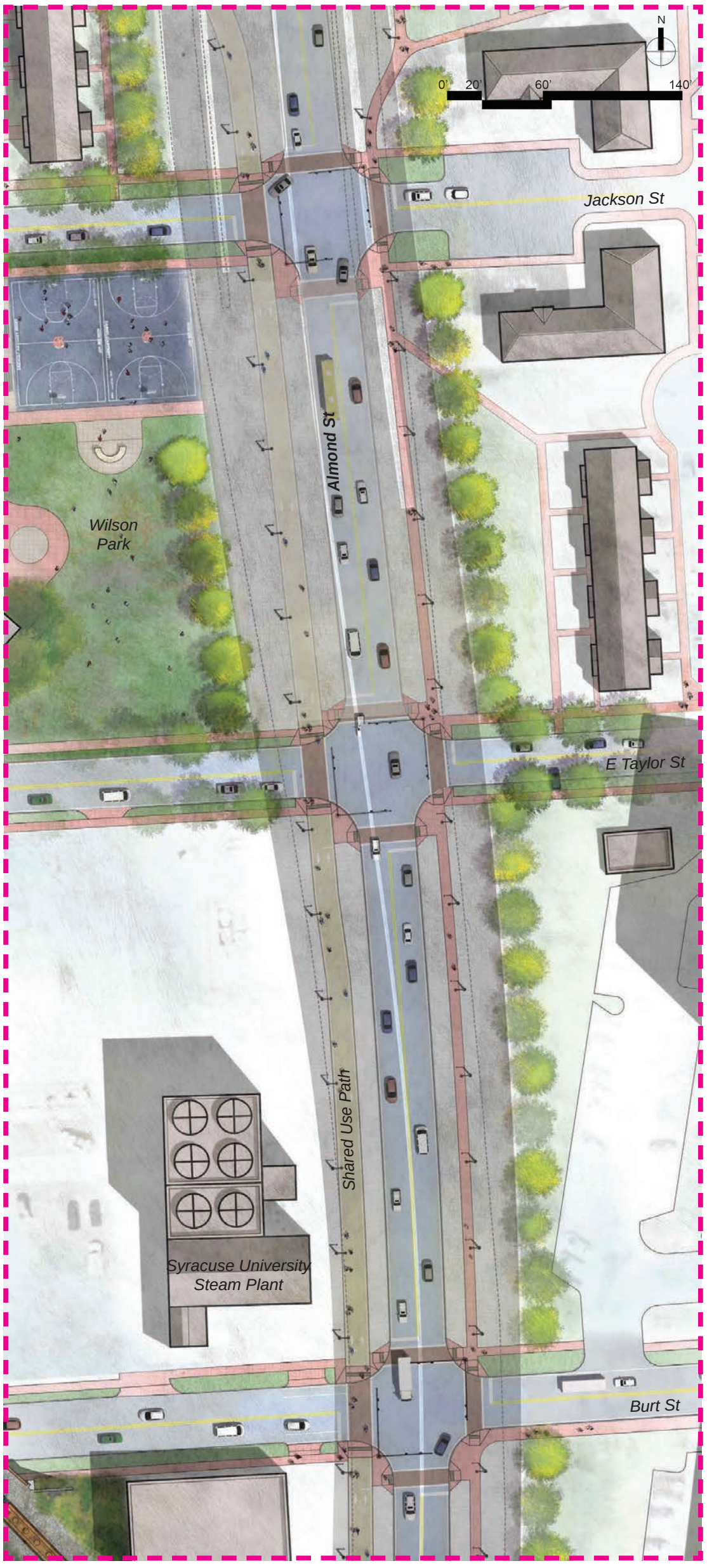
Intersections would be designed to incorporate pedestrian and bicycle best practices, including "bump-outs," or extensions of sidewalk corners, where feasible to narrow roadway crossing distances for pedestrians. Raised center medians, which would serve as protected areas for pedestrians, would be provided along Almond Street from south of Adams Street to north of Harrison Street. At the west



See Figure 3-21 for East Adams St. to Van Buren St.

Viaduct Alternative:
Almond Street Reconstruction from
I-690 to East Adams Street
Figure 3-20

See Figure 3-20 for I-690 to East Adams St



Building to be removed

'iaduct Project

Viaduct Alternative:
Almond Street Reconstruction from
East Adams Street to Martin Luther King, Jr. East
Figure 3-21

end of Forman Park on East Genesee Street, a segment of roadway that allows U-turn movements would be eliminated and reclaimed as open space and sidewalk to improve pedestrian connectivity and access to Forman Park (this segment is a public roadway and is not part of the park itself).

To improve traffic flow, traffic signals would be added or modified along Almond Street and cross streets (from Van Buren Street to Erie Boulevard) with the exception of Almond and Taylor, Jackson, Madison, and Cedar Streets; the latter two streets would be severed and their intersection with Almond Street removed under the Viaduct Alternative. All signals would be retimed or optimized as needed (for more information, refer to **Chapter 5, Transportation and Engineering Considerations**).

Between Adams and Harrison Streets, northbound Almond Street would provide two travel lanes, with two additional left turn bays at the intersection with Harrison Street. Southbound Almond Street would provide one through lane and two left-turn lanes. North of Harrison Street, northbound motorists heading to northbound I-81 would continue straight, onto the two-lane Interchange 18 (northbound I-81) on-ramp; others would veer to the left, prior to the ramp entrance, continuing on Almond Street on one lane. The single lane on Almond Street would become two lanes approaching Genesee Street, and this two-lane configuration would continue until Burnet Avenue. South of Genesee Street, southbound Almond Street would provide two travel lanes, then become a three-lane street at the intersection with the southbound I-81 ramp to Almond Street near Cedar Street. The existing southbound ramp would be rebuilt as a two-lane ramp. To accommodate the reconstruction of the exit ramp from northbound I-81 to Adams Street and the entrance ramp from Harrison Street to I-81, Monroe Street (depicted on Drawing GP-V-S75-06 in **Appendix A-1**), as well as Madison and Cedar Streets (depicted on Drawing GP-V-S75-09 in **Appendix A-1**), would become dead-end streets; there would no longer be vehicular access between these streets and Almond Street. Access to Almond Street would be maintained at all other existing intersections.

Fineview Place: "Shared lanes,"[3] used by both bicycles and vehicles, would be provided on Fineview Place between the terminus of the shared use (bicycle/pedestrian) path on Almond Street and Raynor Avenue.

Erie Boulevard: Erie Boulevard would be rehabilitated between Almond Street on the east and Oswego Boulevard on the west. The rehabilitated street would include sidewalks on both sides, and driveway curb cuts would be consolidated wherever possible to manage access and improve pedestrian, bicycle, and vehicular safety. The north side of Erie Boulevard would include an interpretive towpath recalling the former route of the Erie Canal and connecting to the existing mule driver's monument, located across the street from the Erie Canal Museum in the Weighlock Building at 318 Erie Boulevard.

Lodi Street under I-690: A minor rehabilitation of Lodi Street where it passes beneath I-690 would include pavement resurfacing, as well as sidewalk and curb repair/replacement. Bicycle lanes would be installed on Lodi Street between Burnet Avenue and Canal Street. Shared lanes (for vehicles and bicycles) would be installed on Canal Street between Lodi Street and Walnut Street, and new curbs,

[3] Shared lanes would be a minimum of 13 feet wide in accordance with the design standards discussed in **Chapter 5, Transportation and Engineering Considerations**.

sidewalks, and shared lanes would be provided on Walnut Street between Canal Street and Water Street (the shared lanes would connect the Lodi Street bicycle facility with the Empire State Trail).

McBride Street: New curbs, sidewalks, and bicycle lanes would be constructed on McBride Street between the Empire State Trail on Water Street and Burnet Avenue. This bicycle facility would avoid the new eastbound I-690 entrance ramp and the new westbound I-690 exit ramp on Catherine Street.

State Street: Shared lanes (for vehicles and bicycles) would be provided on State Street between Butternut Street and Salina Street.

Onondaga Creekwalk Improvements: The removal of infrastructure in the West Street area described above would allow the creation of a new path along the west bank of Onondaga Creek between Erie Boulevard and Evans Street (see **Figure 3-22**), providing access to natural and historic resources and to views, which are now obstructed, of a historic Erie Canal aqueduct and stone bridge over the Creek (**Figure 3-23** shows two of the four proposed overlooks). Two ramps between northbound West Street and an elevated portion of Erie Boulevard would be replaced with a single connector roadway. The additional space would be used to accommodate a shared use (bicycle/pedestrian) path and sidewalk along the east side of West Street from Erie Boulevard to West Genesee Street. Connectivity would be enhanced in this area because of the links (via West Genesee Street) between the new shared use (bicycle/pedestrian) path on the west bank of the creek, the existing Creekwalk on the east bank, and the sidewalks along both West Street and West Genesee Street. (These improvements also are proposed under the Community Grid Alternative; see below.)

North Franklin Street: Between Evans Street and Herald Place, North Franklin Street would narrow to one vehicular lane in each direction. Sidewalks, street trees, and parallel parking lanes would be provided where feasible. Shared lanes (for vehicles and bicycles) would be provided on North Franklin Street between Genant Drive and the extension of North Clinton Street.

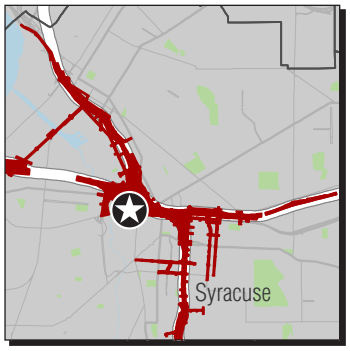
Evans Street: Evans Street would be reconstructed and realigned, from just west of Onondaga Creek to its intersection with North Franklin Street. The bridge crossing Onondaga Creek would be replaced. A new sidewalk would be constructed along the north side of Evans Street, and a new shared use (bicycle/pedestrian) path would be constructed that would connect the new sidewalk on Evans Street to the new shared use (bicycle/pedestrian) path on the west side of Onondaga Creek. In addition, shared lanes (for vehicles and bicycles) would be provided on Evans Street between Franklin Street and Plum Street, which would provide bicycle access from the Franklin Square area to the new shared use (bicycle/pedestrian) path on the west side of Onondaga Creek.

Salina Street: Salina Street would be rehabilitated where it passes beneath I-81 and I-690. The work would include pavement resurfacing, as well as sidewalk and curb repair and/or replacement. Between Herald Place and East Laurel Street, a two-way raised cycle track and an adjacent sidewalk would be provided on the west side of Salina Street, and a sidewalk would be provided on the east side. Shared lanes (for vehicles and bicycles) would extend from East Laurel Street to State Street.

Butternut Street Bridge: The new Butternut Street bridge would include sidewalks on both sides, as well as bicycle lanes that would extend east on Butternut Street to Salina Street and west on Genant Drive to Franklin Street.

Butternut Street/State Street Streetscape: With the removal of the ramp from State Street to northbound I-81, the number of vehicular lanes on the portion of State Street from Butternut Street

Proposed Creekwalk Improvements
(shown with Viaduct Alternative)



Viaduct and Community Grid Alternatives:
Onondaga Creekwalk, Existing and Proposed Shared-use Paths

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Viaduct and Community Grid Alternatives:
Onondaga Creekwalk Overlooks

to Ash Street would be reduced from three lanes to two lanes. Pedestrian connectivity would be improved with the addition of new sidewalk along the west side of State Street from Butternut Street to north of Ash Street. Parking and street trees would be added where possible. On State Street between Butternut and Salina Streets, shared lanes (for vehicles and bicycles) would be provided.

North Clinton Street and Extension: North Clinton Street would be reconstructed from Bear Street to existing Genant Drive, and portions of intersecting streets (i.e., Spencer, West Division, West Kirkpatrick, and Court Streets) also would be reconstructed. North Clinton Street would be reconstructed with new pavement; continuous sidewalks on each side except for the block between Bear and Court Streets where sidewalks would be only on the west side to avoid conflict with the new southbound I-81 ramps connecting to North Clinton Street; curbside parking where possible; shared lanes (for bicycles and vehicles) between Spencer Street and North Franklin Street; street trees; and curb bump-outs, or extensions, to shorten pedestrian crossing distances.

Spencer Street Bridge: The new Spencer Street bridge would include sidewalks on both sides as well as bicycle lanes that would extend east on Catawba Street to Salina Street, and west to North Clinton Street.

Court Street: The new Court Street alignment would include sidewalks on both sides that would extend east to Sunset Avenue and west to North Clinton Street.

Bear Street/Lodi Street: A portion of the parcels bounded by I-81, Bear Street, and Lodi Street would be improved with the addition of a shared use (bicycle/pedestrian) path that would lead to an overlook with a view of the surrounding region. New sidewalks would be added around the site, providing new pedestrian connections to Hiawatha Boulevard. The path and overlook would have interpretive signage and would be accessible from Lodi Street, Bear Street, and Hiawatha Boulevard. In addition, sidewalks would be added on both sides of Bear Street between Solar and Lodi Streets. **Figure 3-24** shows a map and rendering of the proposed Lodi Street shared use (bicycle/pedestrian) path and overlook.

Transit Amenities

As part of the development of the Viaduct Alternative, NYSDOT has and will continue to coordinate with Centro on potential street improvements (transit amenities such as bus stops and shelters, bus turnouts, and layover and turnaround places) in the project limits to enhance and support access to Centro's transit initiatives.

Freight Accommodations

To facilitate truck movements, I-81 would be designed with the physical characteristics to accommodate large, heavy vehicles along its length. These vehicles would include buses, recreational vehicles, and trucks, including vehicles with a width limit of 102 inches. Design accommodations for large, heavy vehicles would include appropriate horizontal and vertical alignments, lane widths (12 feet wide), turning radii, sight distance, and auxiliary lanes with acceleration/deceleration lanes of sufficient length and storage (see the Design Criteria Tables in **Appendix C-6** for more information about design characteristics). In addition, city street intersections along truck routes would be designed to

k
d

Looking north from the I-81/BL 81 Bear Street on-ramp toward the overlook and Lodi Path

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Viaduct and Community Grid Alternatives: Lodi Street Shared Use Path Map and Concept Sketch of Overlook

allow buses and SU-30 (single unit with three axles) trucks to turn at them. Qualifying highways[4] including interstate system roadways, and designated truck routes, including local roadways, would remain as they are under the existing condition and are listed in **Table 5-1**. The analysis of the alternative's potential impacts on freight movements is included in **Chapter 5, Transportation and Engineering Considerations**.

Construction Duration and Cost

Construction of the Viaduct Alternative would be anticipated to take seven years and is described in **Chapter 4, Construction Means and Methods**. As shown in **Table 3-4** below, the estimated total cost of the Viaduct Alternative is $2.42 billion (in 2021 dollars, escalated to the midpoint of construction; refer to **Appendix A-5** for more information on the alternative cost estimates). The cost estimates will continue to be refined as design progresses.

Table 3-4
Viaduct Alternative Total Project Cost

Construction Cost	**$1,916,000,000**
To include Force Account, CI, Final Design, QC, Site Mobilization (19 to 24%)	$449,000,000
Award Cost	**$2,365,000,000**
Right-of-Way (ROW)	$55,000,000
Total Project Cost Rounded to Nearest $10M	**$2,420,000,000**

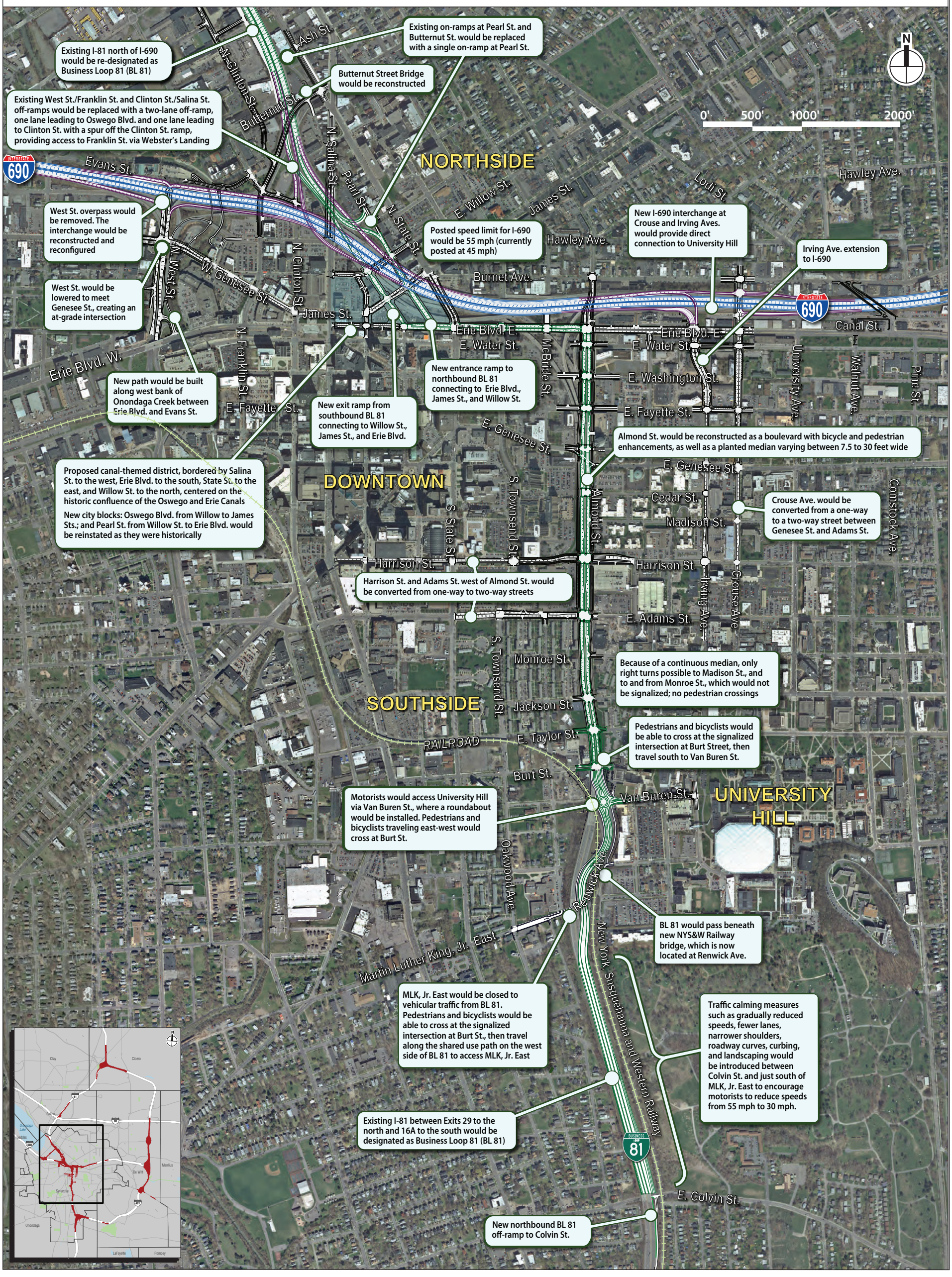
3.4.3 COMMUNITY GRID ALTERNATIVE

The Community Grid Alternative would involve demolition of the existing viaduct between the NYS&W Railway bridge and the I-81/I-690 interchange. The section of I-81 between the southern I-81/I-481 interchange (Interchange 16A) and the I-81/I-481 northern interchange (Interchange 29) in Cicero would be de-designated as an interstate, and existing I-481 would be re-designated as the new I-81 (see **Figures 3-25 through 3-29**). As shown in **Figure 3-30**, the portion of existing I-81 between its northern and southern intersections with I-481 would be re-designated as a business loop of I-81 (BL 81). According to AASHTO, a business route is "a route principally within the corporate limits of a city which provides the traveling public an opportunity to travel through that city, passing through the business part of the city, while the regular number is used to obviate passing through the congested part of the city." A "business loop" is a route that leads into a downtown business district and returns to the freeway at the other end. The designation of BL 81 would be subject to review and approval by AASHTO. In addition, interstate changes are subject to approval by FHWA.

BL 81 would be designated as a Qualifying Highway and designed to handle buses, recreational vehicles, and trucks, including large, heavy vehicles with a width limit of 102 inches.

[4] A Qualifying Highway is a highway designated as part of the Surface Transportation Assistance Act (STAA) of 1982, which allows STAA vehicles (tractor trailers combinations greater than 65 feet, tractor with 28-foot tandem trailers, maxi-cubes, triple saddle mounts, stinger-steered auto carriers and boat transporters) and 53-foot trailers to use that highway and any other highway within one linear mile of the Qualifying Highway.

See Figure 3-26 for Butternut to Bear Streets

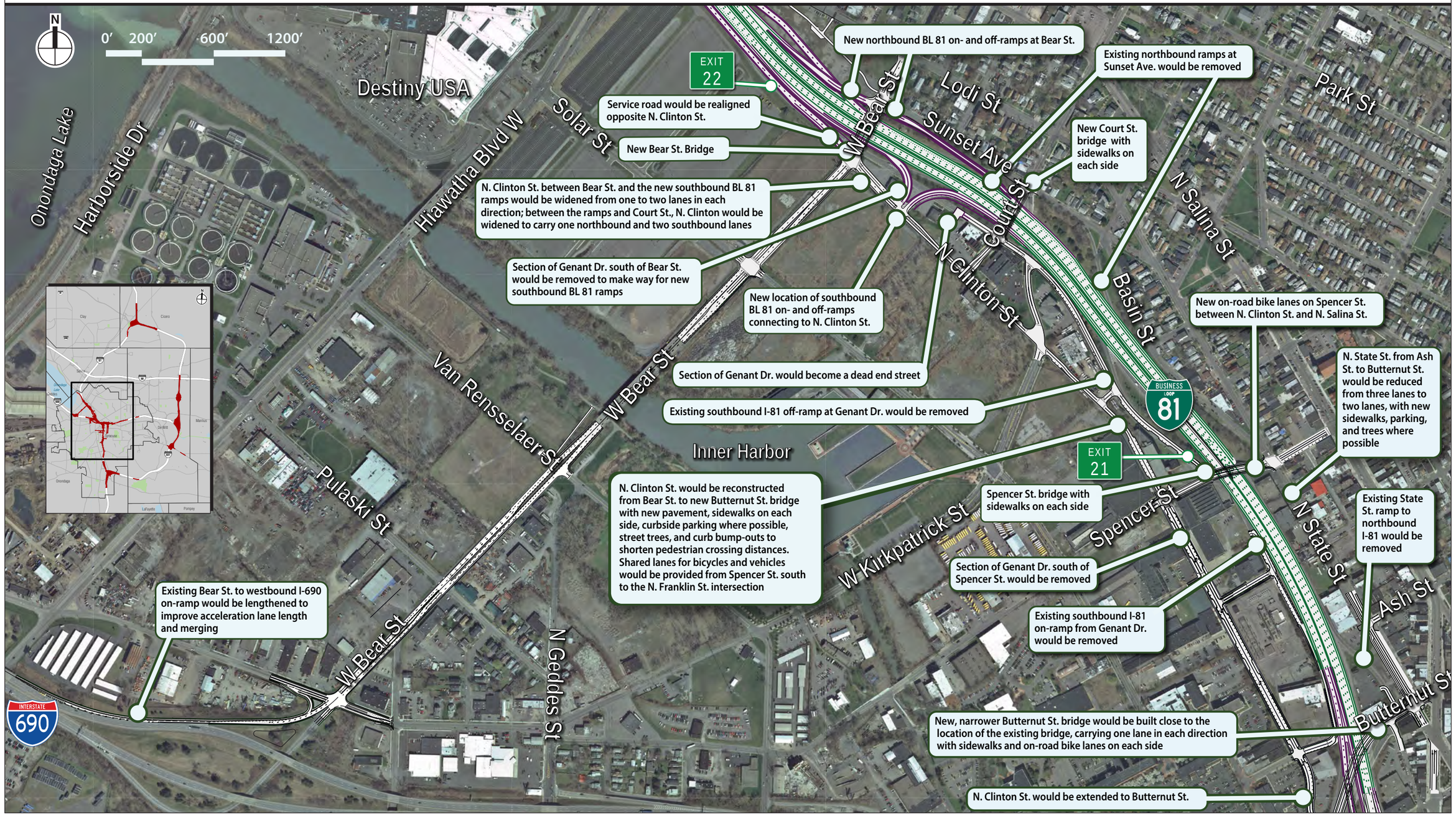


I-81 Viaduct Project

Community Grid Alternative:
Colvin Street to Butternut Street

Figure 3-25

See Figure 3-27 for Bear Street to Hiawatha Boulevard



Buiness Loop 81

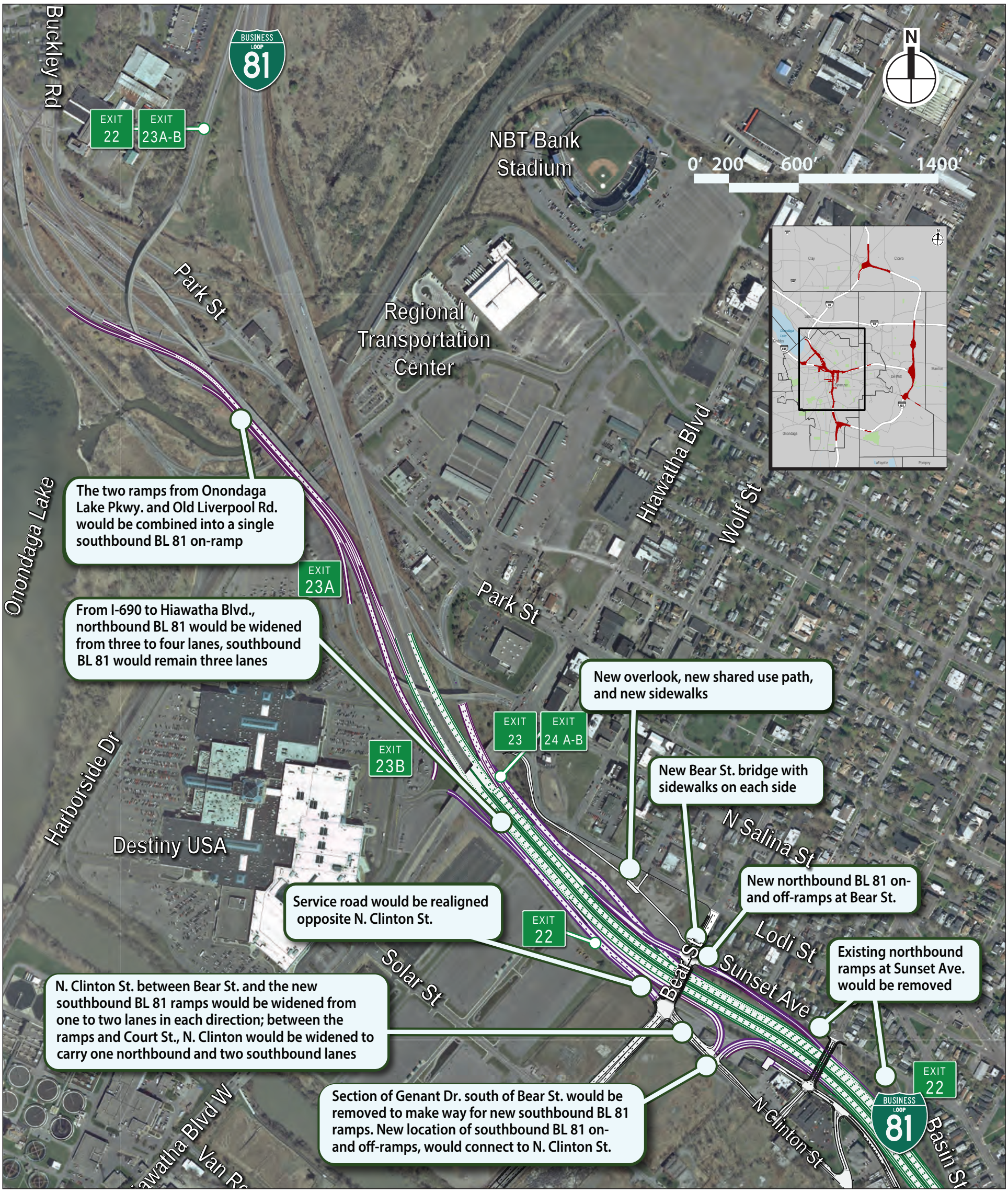
New Ramps

Local Road

I-81 Viaduct Project

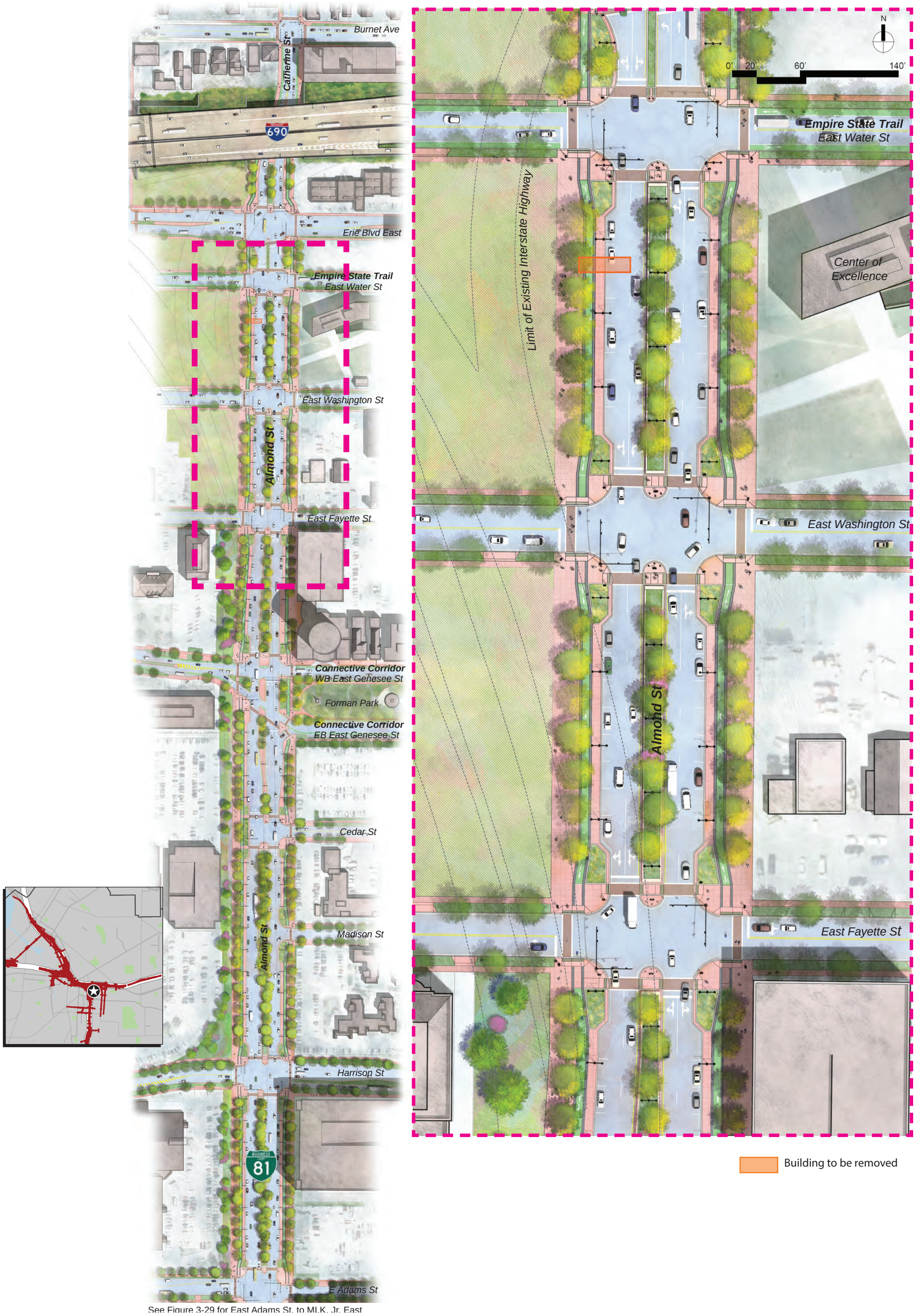
Community Grid Alternative:
Butternut Street to Bear Street

Figure 3-26



Community Grid Alternative Overview:
Bear Street to Hiawatha Boulevard

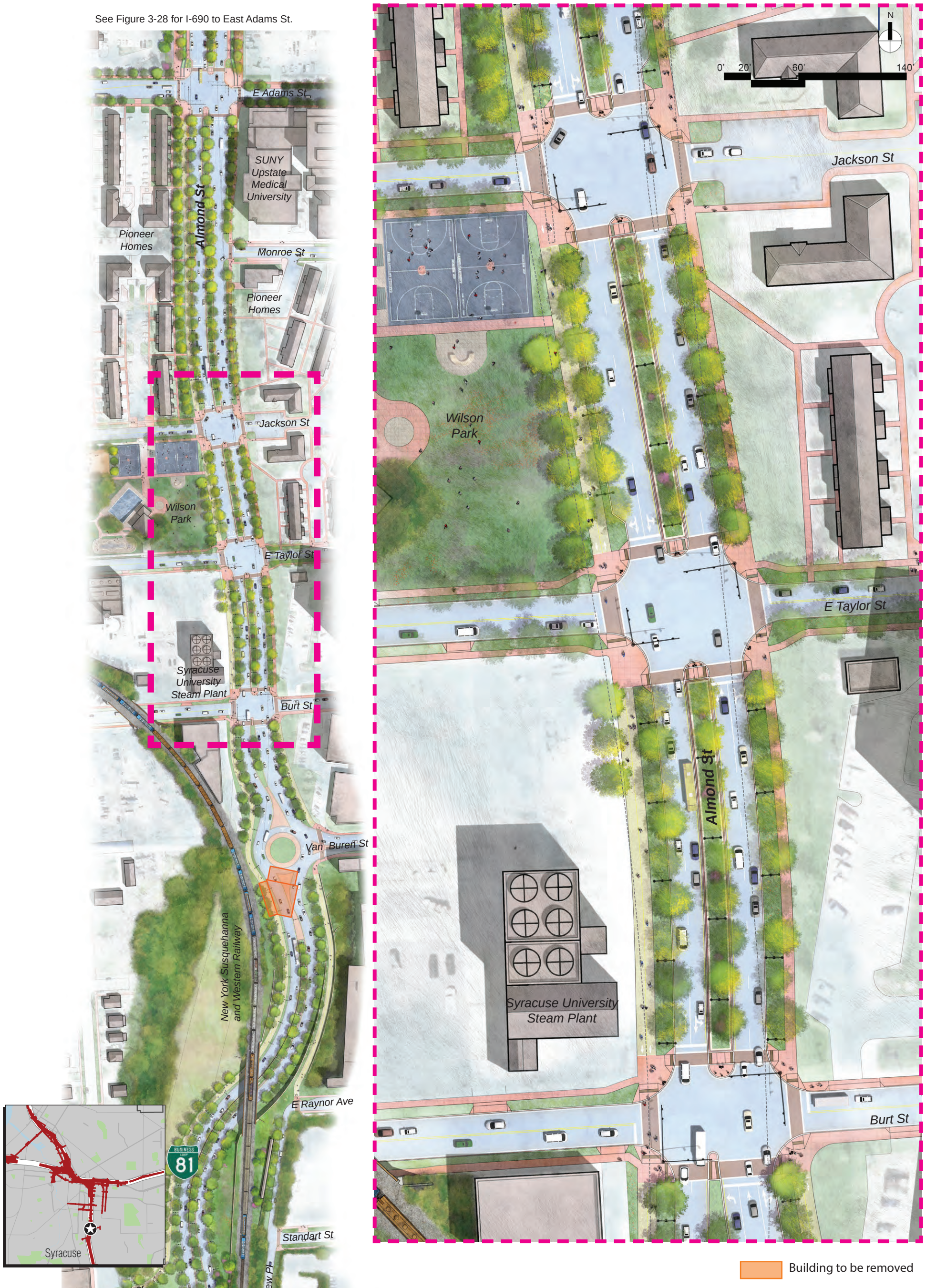
Figure 3-27



Community Grid Alternative:
Almond Street Reconstruction
from I-690 to East Adams Street

Figure 3-28

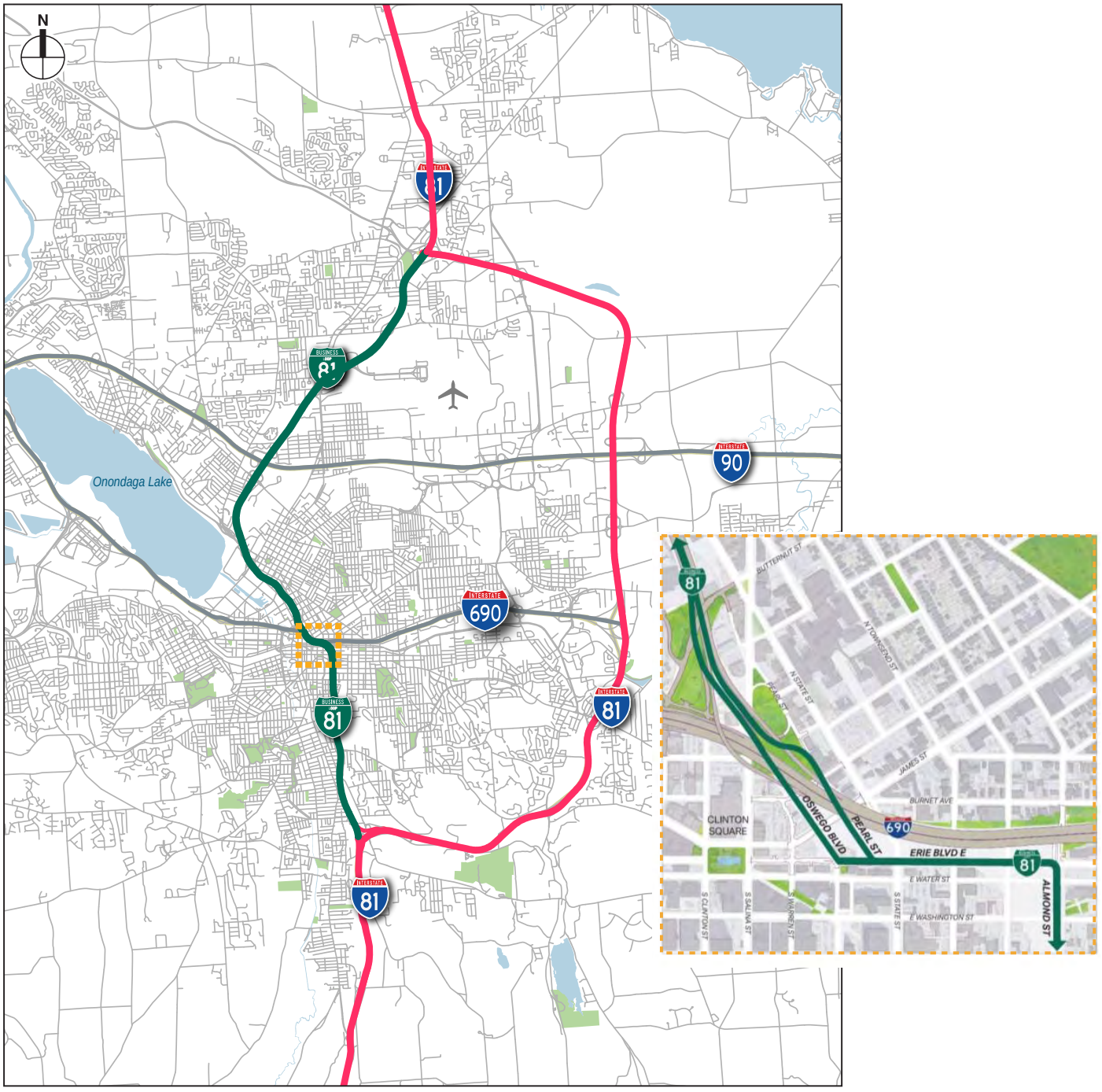
See Figure 3-28 for I-690 to East Adams St.



Community Grid Alternative:
Almond Street Reconstruction from East Adams Street to Martin Luther King, Jr. East

Figure 3-29

10.15.20



BL 81

I-81

Enlarged Area

Community Grid Alternative:
Business Loop 81

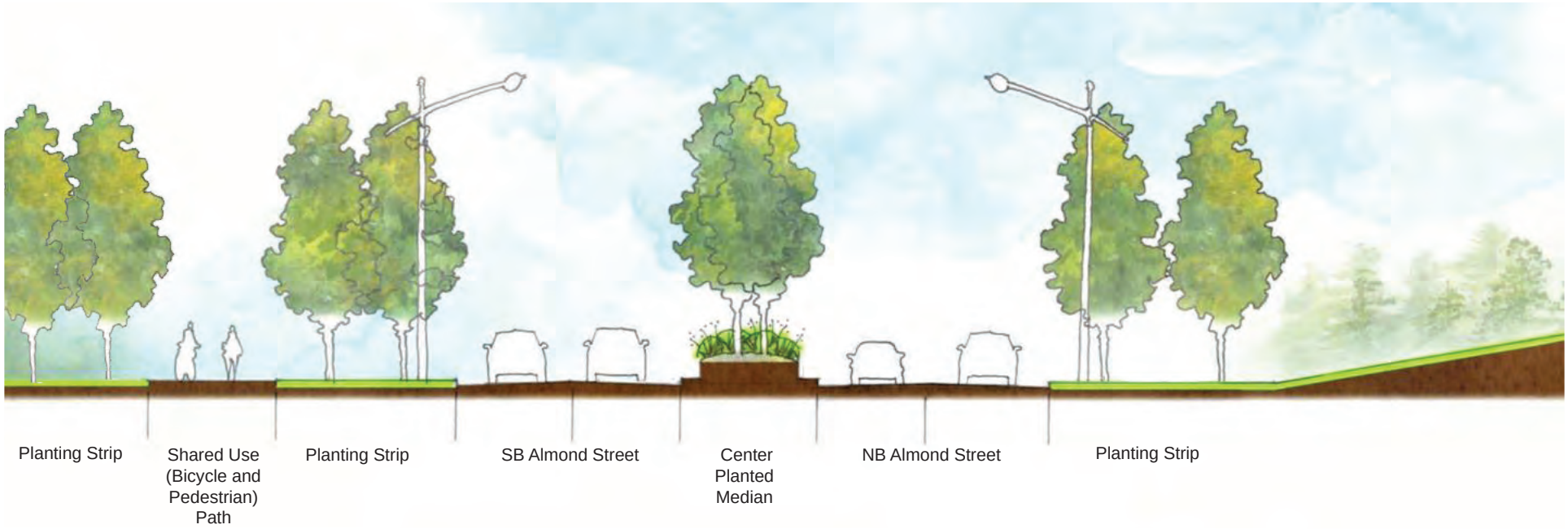
I-81 Viaduct Project

Figure 3-30

The Community Grid Alternative would entail the removal and withdrawal of a segment of I-81 from the National Network, as well as the addition of BL 81 to the National Network. Pursuant to 23 CFR 658.11, a Notice of Proposed Rulemaking (NPRM) is required for the proposed deletion of a Federal-aid interstate from the National Network and for the proposed addition of BL 81 to the National Network (**Appendix B-5** contains the Designation/De-Designation Package prepared for the Project). The character of BL 81 would vary from a high-speed facility to a signalized city street. For example, the section of BL 81 between the BL 81/I-690 interchange and the northern BL 81/I-481 interchange would be a controlled access freeway and continue to function much like an interstate. Likewise, the remaining portion of BL 81 from Colvin Street to the BL 81/I-481 southern interchange would remain a controlled access freeway and function much like an interstate. The area between Colvin Street and approximately 400 feet south of MLK, Jr. East would be a transitional segment, where motorists would gradually slow down as they travel from the freeway to a city street. North of Van Buren Street, beginning at Burt Street, BL 81 would be a two-way surface street with signalized intersections ("urban arterial") that is integrated with the city street system. The BL 81 designation would continue along Almond Street north to Erie Boulevard and along Erie Boulevard from Almond Street to Oswego Boulevard. A portion of Pearl Street, between Erie Boulevard and the northbound Pearl Street on-ramp, and a portion of Oswego Boulevard, between Erie Boulevard and East Willow Street, also would be part of BL 81.

The Community Grid Alternative would disperse traffic throughout the city grid by promoting broader use of the existing street network. Access points to and from I-690 and BL 81 would be available at West Street, and Crouse and Irving Avenues (to and from I-690), as well as at Clinton Street, Oswego Boulevard, and Pearl Street (to and from northern BL 81), and numerous at grade intersections along Almond Street between Van Buren Street and Erie Boulevard (to and from southern BL 81). North-south vehicular traffic would be channeled through Almond Street and along parallel corridors, such as Crouse Avenue, Irving Avenue, State Street, and Townsend Street. North of I-690, North Clinton Street would be reconstructed and extended to serve as an alternative north-south route to Downtown, with new on- and off-ramps connecting to southbound BL 81 located just south of Bear Street. East-west traffic routes would include Erie Boulevard, Harrison Street, and Adams Street. The potential impacts on both north-south and east-west movements and on local and highway traffic operations are discussed in **Chapter 5, Transportation and Engineering Considerations**. By dispersing traffic to these other streets, the reconstructed Almond Street would maintain a narrow vehicular transportation footprint (typically two lanes, as well as turn bays when needed, in each direction). Streets incorporated into the Community Grid Alternative would be designed to meet FHWA, NYSDOT, and local design standards consistent with their anticipated function.

From just north of Colvin Street to just south of MLK, Jr. East, BL 81 would transition from a 55 mph elevated limited-access highway to a 30 mph city street (see **Figure 3-31**, Cross-section of Almond Street from just south of MLK, Jr. East to just south of Van Buren Street). North of MLK, Jr. East, BL 81 would pass beneath a new bridge carrying the NYS&W Railway and return to street level at Van Buren Street, where a roundabout serving vehicular traffic only would be installed. Almond Street would provide two 12-foot travel lanes in each direction, turning lanes at intersections (where needed), widened sidewalks, a landscaped median, and bicycle facilities. Bicycle lanes would be provided on both sides of Almond Street from Burnet Avenue to just north of Erie Boulevard.



Community Grid Alternative: Cross-section of Almond Street from just south of MLK, Jr. East to just south of Van Buren Street

Between Erie Boulevard and Adams Street, a one-way raised cycle track would be provided on both sides of the street. Between Adams Street and MLK, Jr. East, a shared use (bicycle and pedestrian) path would be provided on the west side of Almond Street. There would be a continuous sidewalk on the east side of Almond Street between Burnet Avenue and Van Buren Street and on the west side of Almond Street between Burnet Avenue and Adams Street. Between Van Buren Street and Raynor Avenue, a shared use (bicycle and pedestrian) path would be provided. Curbside parking lanes would be provided, except in the segments between Adams Street and Monroe Street on the east side, between Jackson Street and Taylor Street on the east side, and between Taylor Street and MLK, Jr. East on both sides.

The new Almond Street would provide vehicular access to all existing intersections. However, only right turns would be possible to Madison Street and to and from Monroe Street for safety and operational reasons (these intersections are too close to their adjacent intersections). Vehicles on these streets would be directed to the next available fully controlled intersection, which would be either at Adams Street (375 feet to the north) or Jackson Street (430 feet to the south).

Highway segments and interchanges that are reconstructed would meet AASHTO and NYSDOT highway design standards, and thus it is anticipated that most non-standard and non-conforming features of the existing highway within the Central Study Area would be addressed. By removing the viaduct and reconstructing or rehabilitating remaining highway segments within the Central Study Area, the Community Grid Alternative also would eliminate the existing structural deficiencies identified in **Chapter 1, Introduction**.

Four buildings would be acquired under the Community Grid Alternative (see **Section 6-3-1, Land Acquisition, Displacement, and Relocation**, for more information about property impacts).

Parking lots now beneath the I-81 viaduct would be removed under the Community Grid Alternative, but the new Almond Street would include on-street parking where feasible; parking data and potential impacts to parking are presented in **Chapter 5, Transportation and Engineering Considerations**. The new Almond Street also would include left- and right-turn lanes at certain intersections, including new left turns at Adams and Harrison Streets. Portions of Adams and Harrison Streets would be converted from one- to two-way streets. All these elements would be accommodated within the existing Almond Street right-of-way.

Figure 3-32 includes a view of existing Almond Street at East Adams Street and a rendering of the reconstructed Almond Street in the same location under the Community Grid Alternative. **Figure 3-33** consists of a view of existing Harrison Street at Almond Street and a rendering of the same location under the Community Grid Alternative.

Conversion of I-481 to I-81

I-481 would be designated as the new I-81 and would carry a minimum of four travel lanes (two in each direction) of through traffic.

The change in highway designation and associated changes in traffic volumes would require modifications to the new I-81. These modifications, summarized in **Figures 3-34 through 3-37**, would include:

I-81/I-481 South Interchange (Interchange 16A)

As shown in **Figure 3-35**, reconstruction of this interchange would involve re-routing existing I-81 to connect with existing I-481, which would serve as the new I-81. The new I-81 (existing I-481) would meet 70 mph design standards. The existing ramps that connect northbound I-81 to northbound I-481 and southbound I-481 to southbound I-81 would be demolished, and these movements would be made on the main line of the new I-81. The East Brighton Avenue bridge over the interchange and East Glen Avenue would be reconstructed, providing bicycle and pedestrian accommodations, and the intersection of East Brighton Avenue and Rock Cut Road would be maintained.

Motorists traveling north on I-81 south of Interchange 16A who are headed to Downtown Syracuse would exit the interstate and enter BL 81, while through travelers would continue onto the re-designated I-81. Northbound motorists exiting to BL 81 also would have the option to access Brighton Avenue from a new ramp connecting to East Glen Avenue. Southbound travelers on BL 81 would access southbound I-81 or exit to a new ramp leading to East Glen Avenue; this ramp would connect to Brighton Avenue and Rock Cut Road. Travelers on the new southbound I-81 would access BL 81 via the existing exit ramp to Brighton Avenue, continuing straight onto East Glen Avenue, which would lead to the on-ramp to northbound BL 81 or to the on-ramp to southbound I-81. Motorists traveling between southbound BL 81 and northbound I-81 would use a new ramp to make this connection. Finally, motorists heading from Brighton Avenue to northbound I-81 would use the Rock Cut Road on-ramp, which would remain in the same place it is today, or use East Glen Avenue to take the new on-ramp to southbound I-81. Similarly, motorists on Brighton Avenue, heading to Downtown, would use East Glen Avenue and the new northbound BL 81 on-ramp.

I-81/I-481 North Interchange (Interchange 29)

As shown in **Figure 3-36**, this interchange would be reconstructed to connect the re-designated I-81, which would meet 70 mph design standards, with the existing I-81. The existing ramps that connect northbound I-481 to northbound I-81 and southbound I-81 to southbound I-481 would be demolished, and these movements would be made on the main line of re-designated I-81.

Motorists traveling north on I-81 south of Interchange 29 who are headed to Downtown Syracuse would exit to northbound SR 481 and take the ramp to southbound BL 81. Motorists traveling south on I-81, north of Interchange 29, who are headed to Downtown Syracuse would exit to southbound BL 81. Southbound motorists also would have the option of using the existing off-ramp to access northbound SR 481. Northbound BL 81 motorists traveling to northbound I-81 would simply merge with northbound I-81. They also would be able to exit to southbound I-81 or northbound SR 481. Finally, motorists heading south on SR 481 would have the options of merging onto southbound I-81, using the existing off-ramp to access southbound BL 81, or using the existing off-ramp to access northbound I-81 via northbound BL 81.

Improvements to Exiting I-481 Exit 3 (New York State Route 5/92)

Existing I-481 would be reconfigured at Exit 3 (New York State Route 5/92). The existing I-481 southbound to westbound Route 5/92 exit ramp would be widened and improved to accommodate turns onto both westbound and eastbound Route 5/92. The existing southbound I-481 to eastbound Route 5 exit ramp would be removed. The improved southbound exit ramp would initially widen from one to two lanes and then transition to four lanes as it approaches Route 5/92, where a new traffic

signal would allow both left and right turns. The existing crosswalks across Lyndon Road and the east leg of Route 5 would remain, the existing crosswalks on the west leg of Route 5 and on Bridlepath Road would be replaced with new ones, and a new crosswalk across Highbridge Road (Route 92) would be installed. In addition, the existing I-481 northbound entrance ramp from westbound Route 5/92 would be lengthened substantially to improve vehicular merges. The Route 5 intersection with New York State Route 92 (Lyndon Corners) also would be improved with the addition of a new eastbound right turn lane (see **Figure 3-37**). Other modifications to the re-designated I-81 include:

- A third southbound (auxiliary) lane would be provided
- between Kirkville Road (Interchange 5 southbound on-ramp) and I-690 (Interchange 4 southbound off-ramp) (see **Figure 3-37**).
- A third northbound (auxiliary) lane would be provided between I-690 (Interchange 4 northbound on-ramp) and Kirkville Road (Interchange 5 northbound off-ramp), requiring a widening of the bridge over the CSX railroad tracks.
- A third northbound (auxiliary) lane would be added between Kirkville Road (Interchange 5 northbound on-ramp) and I-90 (Interchange 6 northbound off-ramp).
- A third southbound (auxiliary) lane would be added between Interchange 9 (I-81/I-481 north interchange) and Northern Boulevard (Interchange 8 southbound off-ramp).
- I-481 signage would be replaced with I-81 signage, and interchanges would be renumbered to correspond to the sequencing of I-81 interchanges south and north of Syracuse.

In addition, foundation work would be done adjacent to the CSX rail tracks, and work on widening and rehabilitation of the existing structures would occur over the rail yard (for more information about the potential impacts to railroad operations, see **Section 5.5.3** in **Chapter 5, Transportation and Engineering Considerations**).

FHWA and NYSDOT considered other options for the re-designation of the other interstate segments within the project area. These included re-designation of the eastern section of I-690 (between approximately I-81 and I-481) and the I-81 north segment (between I-690 and the northern I-81/I-481 interchange) as I-481. These options were dismissed because they would have caused additional building acquisitions. Detailed engineering and traffic analyses were undertaken to support the potential de-designation, re-designations, and access modifications of the affected interstates. Interstate designation modifications and associated numbering must meet AASHTO protocols and receive approval from FHWA.

Major Elements of the Community Grid Alternative

Major elements of the Community Grid Alternative, including interchange modifications, bridge replacements, and other features, are described below. All existing interchanges would receive new numbers with the BL 81 designation.

New northbound BL 81 exit to East Colvin Street

A new northbound BL 81 exit ramp to East Colvin Street would be constructed between the highway and the NYS&W Railway bridge. This new connection to East Colvin Street would improve highway access to the southern Southside/Brighton and Outer Comstock neighborhoods and lessen traffic on

Almond Street at East Adams Street looking northwest: Existing Conditions

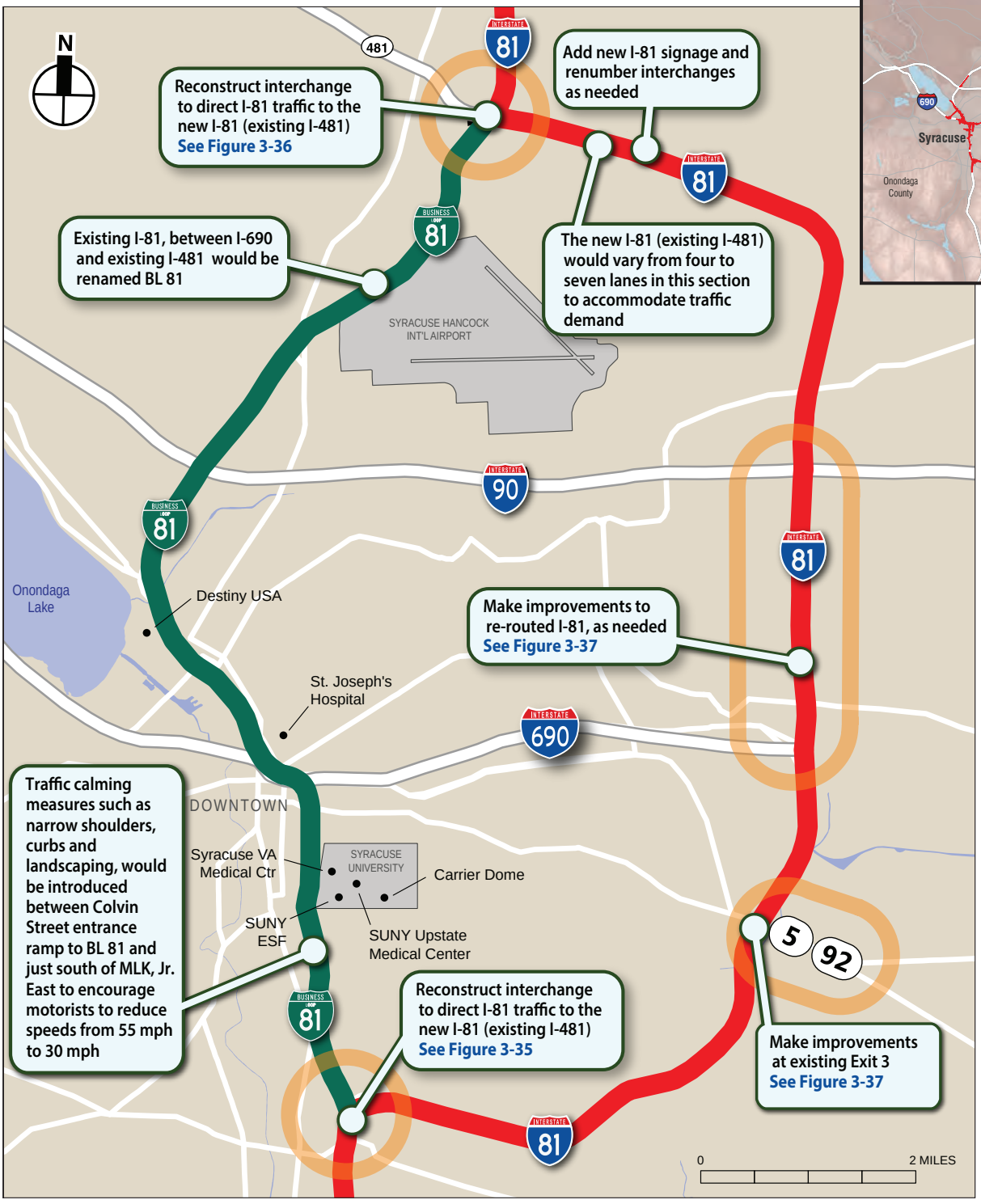
Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Almond Street at East Adams Street:
Community Grid Alternative Visual Rendering

Harrison Street at Almond Street looking west: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Harrison Street at Almond Street: Community Grid Alternative Visual Rendering



BL 81

I-81

Detail enlarged on subsequent figures

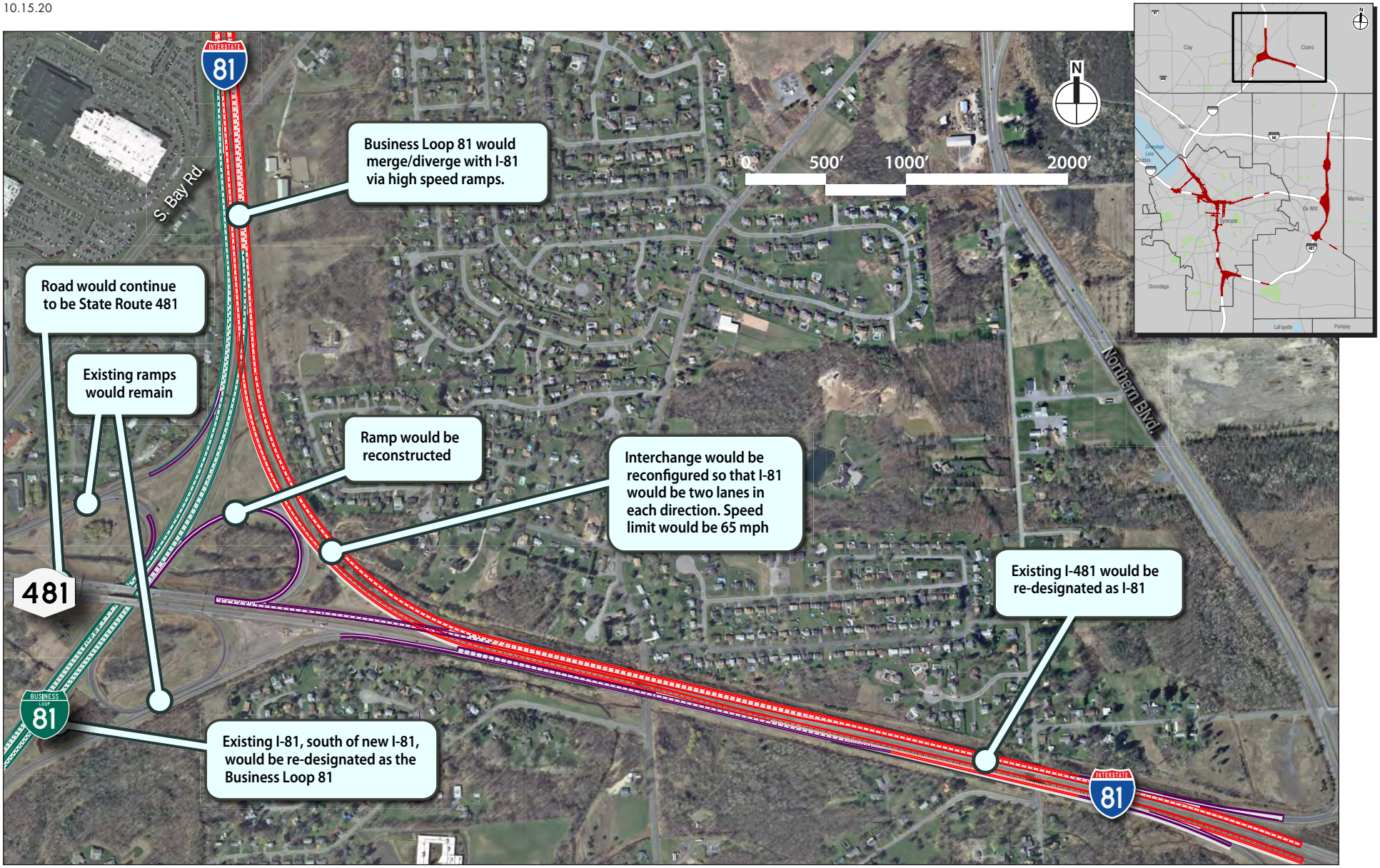
Community Grid Alternative:
Re-designation of I-481 to I-81

6.29.21

Community Grid Alternative:
South Interchange of the New I-81 (formerly I-481)

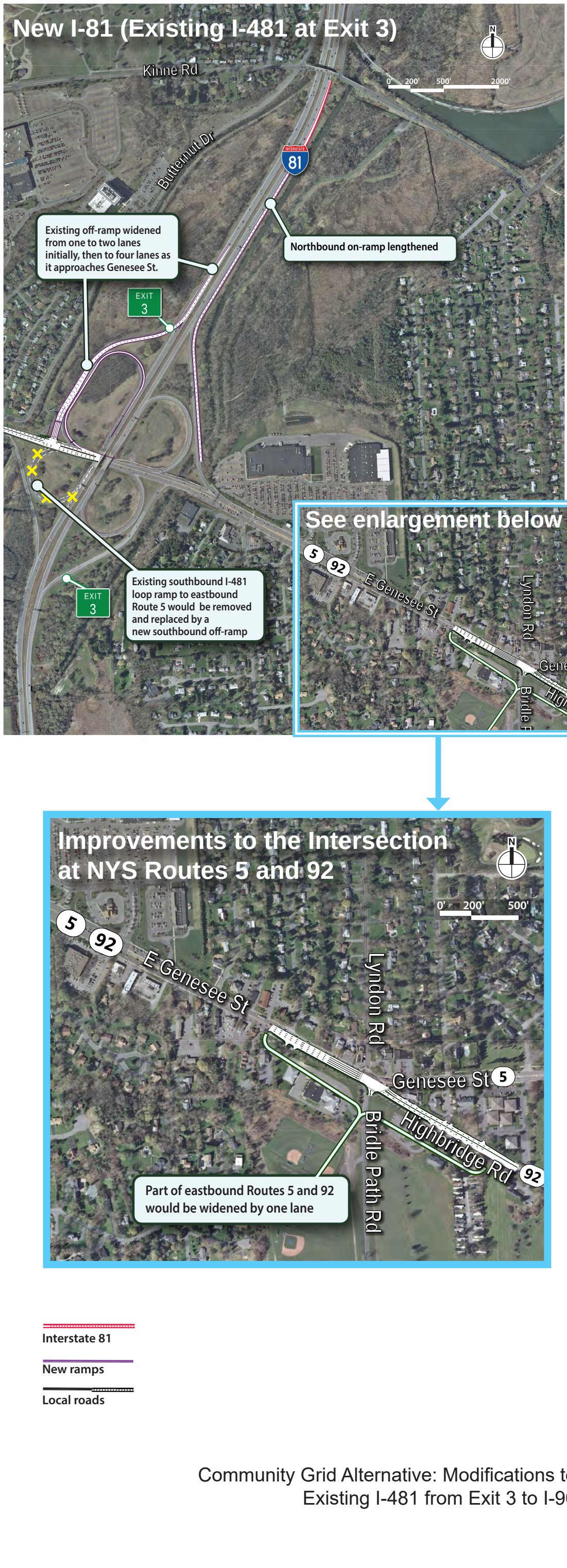
I-81 Viaduct Project

Figure 3-35



Community Grid Alternative:
North Interchange of the New I-81 (formerly I-481)

Figure 3-36



Interstate 81

New ramps

Local roads

Community Grid Alternative: Modifications to Existing I-481 from Exit 3 to I-90

Almond Street (see **Chapter 5, Engineering and Transportation Considerations**, for more information). The existing northbound on-ramp from Colvin Street would remain.

Traffic Calming Measures Between Colvin Street and MLK, Jr. East

Traffic calming measures would be implemented on BL 81 between Colvin Street and just south of MLK, Jr. East to encourage motorists to reduce speeds from 55 mph to 30 mph. These measures include gradually reduced posted speed limits and physical alterations to BL 81, such as fewer lanes, narrowed shoulders, roadway curves, and curbing. Both northbound and southbound BL 81 would transition from three lanes to two lanes north of Colvin Street. By not including a median-side lane in each direction, there would be ample space to introduce urban landscaping treatments and other visual cues to further convey to motorists that they are transitioning from a freeway to a city street and vice versa.

Disconnection of MLK, Jr. East from Almond Street (BL 81)

Based on public input, FHWA and NYSDOT are no longer proposing a roundabout at MLK, Jr. East (depicted in the DDR/DEIS).

MLK, Jr. East would terminate at the driveway of the Dr. King Elementary School (instead of at Renwick Street as it does today). BL 81 would not be signalized at MLK, Jr. East, and there would be no vehicular connection between BL 81 and MLK, Jr. East (see **Figure 3-38**). Pedestrians and bicyclists also would be unable to cross BL 81 at MLK, Jr. East; instead, they would use a new shared use (bicycle and pedestrian) path along the west side of BL 81 to travel between MLK, Jr. East and Burt Street, where a signalized intersection would allow them to cross east-west.

As shown in **Figures 3-38 and 3-39a**, BL 81 would come to grade just south of MLK, Jr. East and would shift eastward from its current alignment to pass beneath, rather than above, the NYS&W Railway. The existing railway bridge would be reconstructed (for more information about the reconstruction of this bridge, see **Section 5.6.3**). BL 81 would follow a similar path to Renwick Avenue, which would be replaced with an urban arterial. Fineview Place would be closed to vehicular traffic between Raynor Avenue and Van Buren Street. The shift of BL 81 eastward to enable it to pass beneath the railway would create two new parcels of land, 3 to 3.5 acres of land north of MLK, Jr. East and 1 to 1.3 acres of land south of MLK, Jr. East and east of Leon Street, depending on how much land would be needed to accommodate the highway, sidewalk, shared use (bicycle and pedestrian) path, and other transportation features (refer to **Section 6-3-2, Neighborhood Character**, which depicts land parcels created by the Project's removal of infrastructure). The amount of available surplus non-transportation land is likely to be greater than presented in the DDR/DEIS as a result of the removal of the proposed MLK, Jr. East roundabout from the design of the Community Grid Alternative. NYSDOT would identify the specific boundaries of the surplus parcels and their acreages after the construction phases, and NYSDOT's Property Evaluation Review Group would determine the next steps to dispose of the right-of-way once it concludes that the land is no longer needed for transportation purposes.

Roundabout at Van Buren Street

Traffic from the south destined for University Hill would travel along BL 81 and then turn right at Van Buren Street, where a roundabout serving vehicular traffic (pedestrians and bicyclists would not be allowed on it) would be installed (see **Figure 3-39b**). The roundabout would serve as the main

10.26.21

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
BL 81 under the New York, Susquehanna and Western Railway bridge at MLK, Jr. East

MLK, Jr. East at Dr. King Elementary School: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

MLK, Jr. East at Dr. King Elementary School: Community Grid Alternative Rendering

Van Buren Street: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Van Buren Street:
Community Grid Alternative Rendering

vehicular entrance from the south to University Hill; pedestrians and bicyclists would not be allowed on the roundabout. Pedestrians and bicyclists wishing to access Van Buren Street from the east would cross at Burt Street, then travel south to Van Buren on the western side of BL 81. As shown in the plans in **Appendix A-1**, Burt, Taylor, and Jackson Streets would be signalized. Monroe Street would not be signalized, and pedestrian crossings would not be provided at this location because of the presence of a continuous median in this portion of Almond Street.

Reconstruction of I-690 and Existing I-81/I-690 Interchange

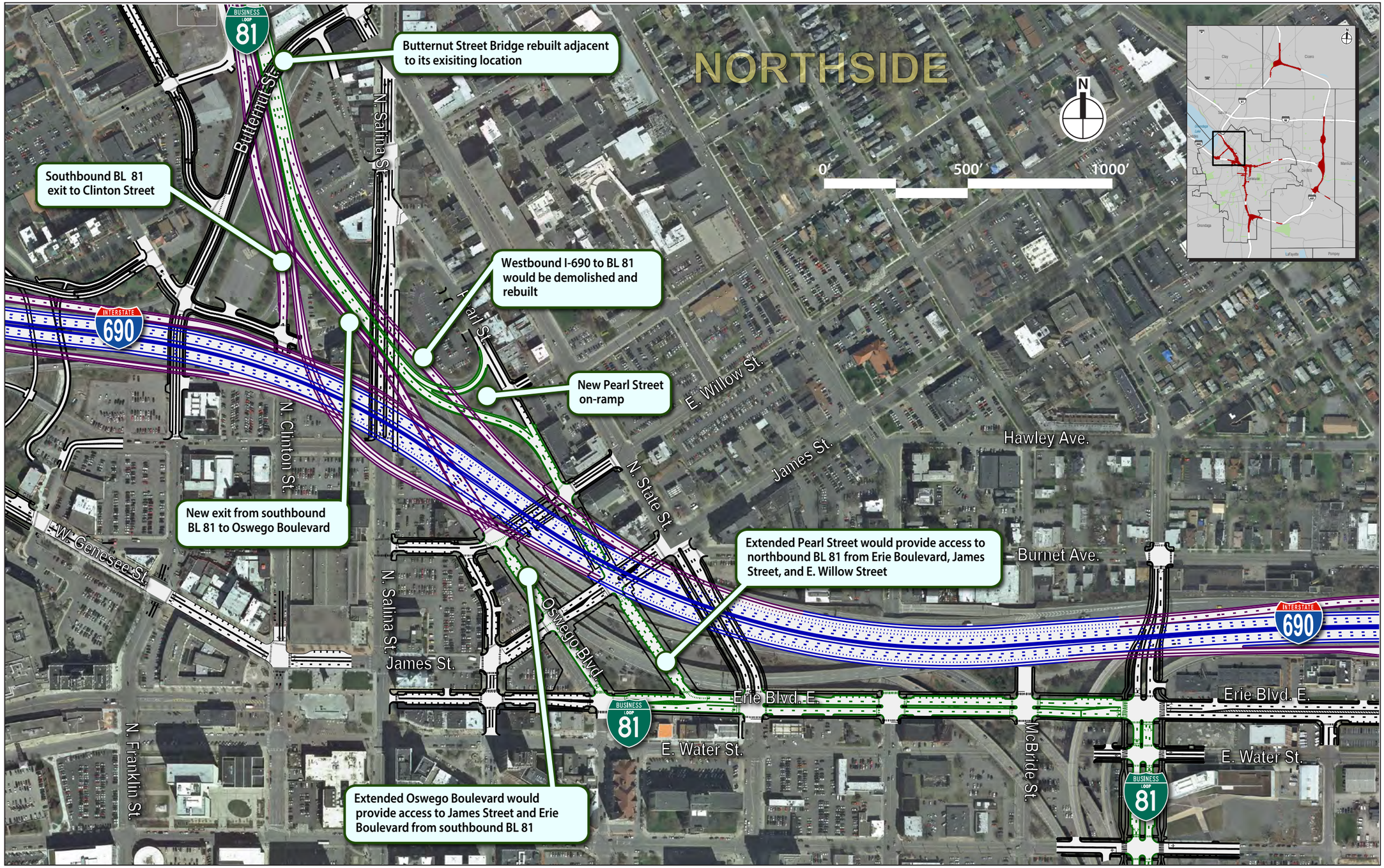
I-690 would be reconstructed from Leavenworth Avenue to Beech Street, including the existing I-81/I-690 interchange.

Currently, motorists use Bear Street and Hiawatha Boulevard to travel between eastbound I-690 and northbound I-81 and between southbound I-81 and westbound I-690. NYSDOT analyzed both full and partial BL 81/I-690 interchange options under the Community Grid Alternative to identify their advantages and disadvantages. The full BL 81 interchange option would introduce additional non-conforming features (ramp spacing) and conflict points (merge/diverge areas) on the freeway system. These features, in conjunction with the additional interchange traffic attracted by the ramps, would result in lower freeway levels of service. Moreover, NYSDOT analyzed the operations and capacity of Bear Street and Hiawatha Boulevard and found that these roadways would operate safely and efficiently with minor improvements. These improvements, such as signing, striping, and signal upgrades, would address issues at high crash locations and ensure that these routes would continue to function safely and efficiently in the future without providing additional direct connections between BL 81 and I-690 (see below for discussion of operational improvements to Bear Street). While the full interchange option would provide some minor travel time benefits, these are not warranted by its additional cost of $90 million. In addition, the full interchange option would require the full acquisition and demolition of up to seven more buildings than the partial interchange option, resulting in greater employee displacement, and introduce visual impacts. Two of these buildings (the Learbury Centre and Veterans' Fastener Supply Corp.) are historic buildings and Section 4(f) properties. Finally, future provision of a full interchange would not be precluded by the proposed partial interchange design.

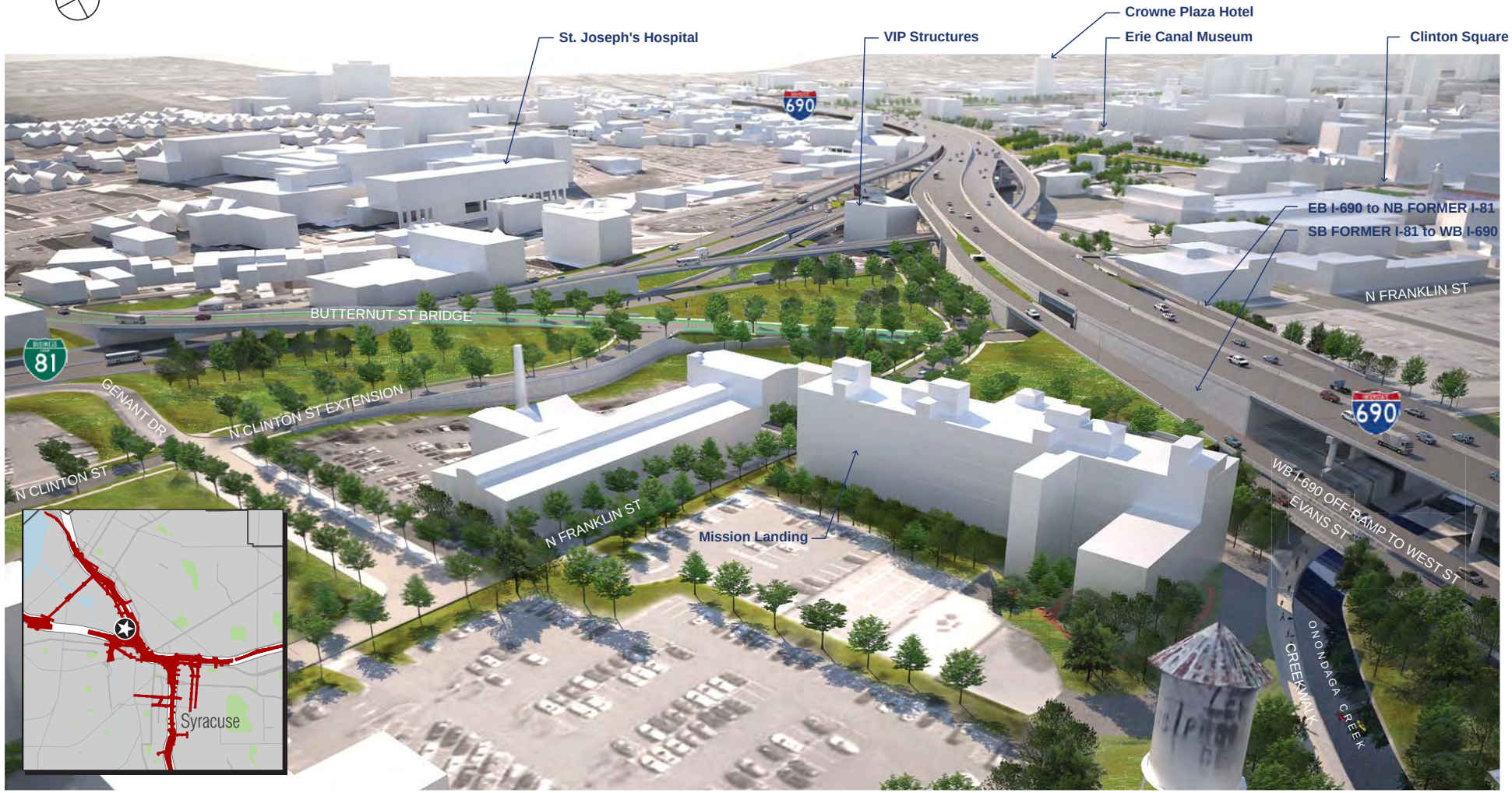
For these reasons and others cited in the Access Modification Report (refer to **Appendix A-6**), and in consideration of public input, the full interchange option was dismissed. Thus the Community Grid Alternative includes a partial BL 81/I-690 interchange. Motorists would continue to use Bear Street and Hiawatha Boulevard to travel between eastbound I-690 and northbound I-81 and between southbound I-81 and westbound I-690. Two of the existing six ramps between existing I-81 and I-690 (southbound existing I-81 to eastbound I-690 and westbound I-690 to northbound existing I-81) would be reconstructed to include standard shoulders, longer acceleration and deceleration lanes, and improved stopping sight distance. The other four existing ramps connecting to and from the southern segment of existing I-81 would be removed and no longer needed as a result of the removal of the viaduct (see **Figures 3-40 and 3-41**).

New I-690 Interchange at North Crouse and Irving Avenues

To provide a more direct connection to University Hill from I-690 and optimize the use of the city street grid, a full interchange would be constructed at Crouse and Irving Avenues. Westbound I-690 traffic destined to University Hill would exit at North Crouse Avenue, then proceed southbound; eastbound I-690 traffic to University Hill would exit at Irving Avenue, then proceed southbound.



Community Grid Alternative:
BL 81/I-690 Interchange Improvements
Figure 3-40



Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
BL 81/I-690 Interchange Improvements

Traffic from University Hill to eastbound I-690 would travel northbound on South Crouse Avenue, and motorists heading to westbound I-690 and northbound BL 81 would use either South Crouse or Irving Avenue to access the interstate.

South Crouse Avenue from East Genesee Street to East Adams Street would be converted from a one-way northbound street to a two-way street. Irving Avenue would remain a two-way street and would be extended from East Fayette Street to I-690. With the exception of some minor widening on South Crouse Avenue between East Fayette and East Genesee Street, which would involve a small reduction of the buffer between the sidewalk and street, no widening would be needed on South Crouse or Irving Avenue. Where needed, traffic signals would be replaced, sidewalk ramps would be reconstructed to meet accessibility standards, and spot repairs would be made to curbs and sidewalks. A new shared use (bicycle/pedestrian) path on the west side of Crouse Avenue from Water Street to Burnet Avenue would improve bicycle connectivity between neighborhoods on either side of I-690. Parking on Irving Avenue from East Genesee Street to East Fayette Street and South Crouse Avenue between East Adams Street and East Fayette Street would be removed, and the existing parking lanes would be repurposed as vehicular travel lanes. Interchange 13, which consists of an eastbound I-690 entrance ramp from McBride Street and the existing westbound I-690 exit ramp to Townsend Street, would be removed.

The new interchange at Crouse and Irving Avenues would largely serve University Hill, one of the two major destinations for traffic in the area (the other major destination, Downtown, also would be served by direct connections to and from I-690 and BL 81, as described below). It would provide a new access point to I-690 and to BL 81 (via I-690) to and from the north, east, and west; reduce reliance on Almond Street; and restore the missing street grid on Irving Avenue. In addition, the relocation of the I-690 interchange eastward, from Almond Street to Crouse and Irving Avenues, would allow for the removal of substantial ramp infrastructure in the Almond Street area and consequent reclamation of land.

Access to and from Northern Segment of BL 81

The section of BL 81 between Butternut Street and the BL 81/I-81 interchange in Cicero (now known as Exit 29) is referred to as the "northern segment of BL 81." Motorists traveling on the local streets near Downtown who want to head north would use a ramp from Pearl Street to connect to the BL 81 northern segment. Pearl Street would be extended from Willow Street to Erie Boulevard East, as it was prior to the construction of I-81 in the 1960s, to optimize this connection. Motorists traveling southbound on the BL 81 northern segment would have the option to connect to eastbound I-690; connect to Clinton Street, much as they do today, and access the Downtown street grid; or exit at Oswego Boulevard, which would have a traffic signal, and continue to James Street or Erie Boulevard. Around Butternut Street, BL 81 would transition from a high-speed facility to a signalized urban street. Oswego Boulevard would be reconstructed, realigned, and extended to Willow Street, restoring its original, circa 1923-1958 alignment. The intersections with James Street and Erie Boulevard would be signalized, and Warren Street would be converted to two-way operation between Erie Boulevard and Willow Street.

BL 81 from Existing Interchange 19 (Clinton Street/Salina Street) and Existing Interchange 20 (Franklin Street/West Street)

Existing Interchanges 19 and 20 would be combined into one interchange to simplify operations. This would involve replacing the existing off-ramps from the highway to West Street/Franklin Street (Interchange 20) and to Clinton Street/Salina Street (Interchange 19) with a single ramp that serves Clinton Street and Oswego Boulevard. The new interchange would receive a new exit number. Access to North Franklin Street would continue to be accommodated via Webster's Landing. In addition, the existing on-ramps from Pearl Street (Interchange 19) and State Street (Interchange 20) would be replaced by a single, two-lane ramp at Pearl Street.

Butternut Street Bridge

The Butternut Street overpass must be rebuilt as part of the reconstruction of the I-81/I-690 interchange, which would shift highway and ramp locations. The new bridge would be built just north of the existing bridge, which would be demolished, and connect at the same points it does today (see **Figure 3-42**). The new bridge would be narrower than the existing bridge, with one lane (rather than the two existing lanes) in each direction. It would include wider sidewalks on both sides and a bike lane on each side, one in each direction.

North Clinton Street Reconstruction and Extension

North Clinton Street and portions of intersecting streets would be reconstructed from Bear Street to existing Genant Drive (see **Figure 3-43**). North Clinton Street would continue to provide one lane in each direction, as it does today, until a point north of existing Court Street, where it would widen into a three-lane roadway (with one southbound lane, one northbound lane, and a turn lane in the middle) and then into a four-lane roadway as it approaches Bear Street. In addition, North Clinton would be realigned to connect to the southbound BL 81 off-ramp at Bear Street, creating an intersection with the existing I-81 service road (see **Figure 3-26**).

To provide a direct connection and alternate north-south route to Downtown, North Clinton Street would be extended to create a new intersection with Butternut Street (see **Figure 3-42**).

Bear Street Improvements

The westbound I-690 on-ramp from Bear Street would be lengthened, and operational improvements would be made on Bear Street. These improvements include widening of select portions of Bear Street and its intersections, addition of raised medians to prevent turns at some locations (e.g., at Van Rensselaer Street and Liberty Street), addition of left and right turn lanes at specific locations (e.g., Spencer Street and Clinton Street), sidewalk improvements, and relocation of a portion of the planned Empire State Trail connection between Van Rensselaer Street and the Onondaga Creekwalk.

BL 81 from Existing Interchange 20 to Existing Interchange 24

From I-690 to Hiawatha Boulevard, I-81 has three lanes in each direction. To improve capacity and traffic operations, this segment of the highway would be widened to provide four through lanes in the northbound direction; the southbound section would be maintained with three lanes (see **Figure 3-44**). Several non-standard highway features, such as narrow shoulders, tight curves, and reduced sight distance, also would be corrected.

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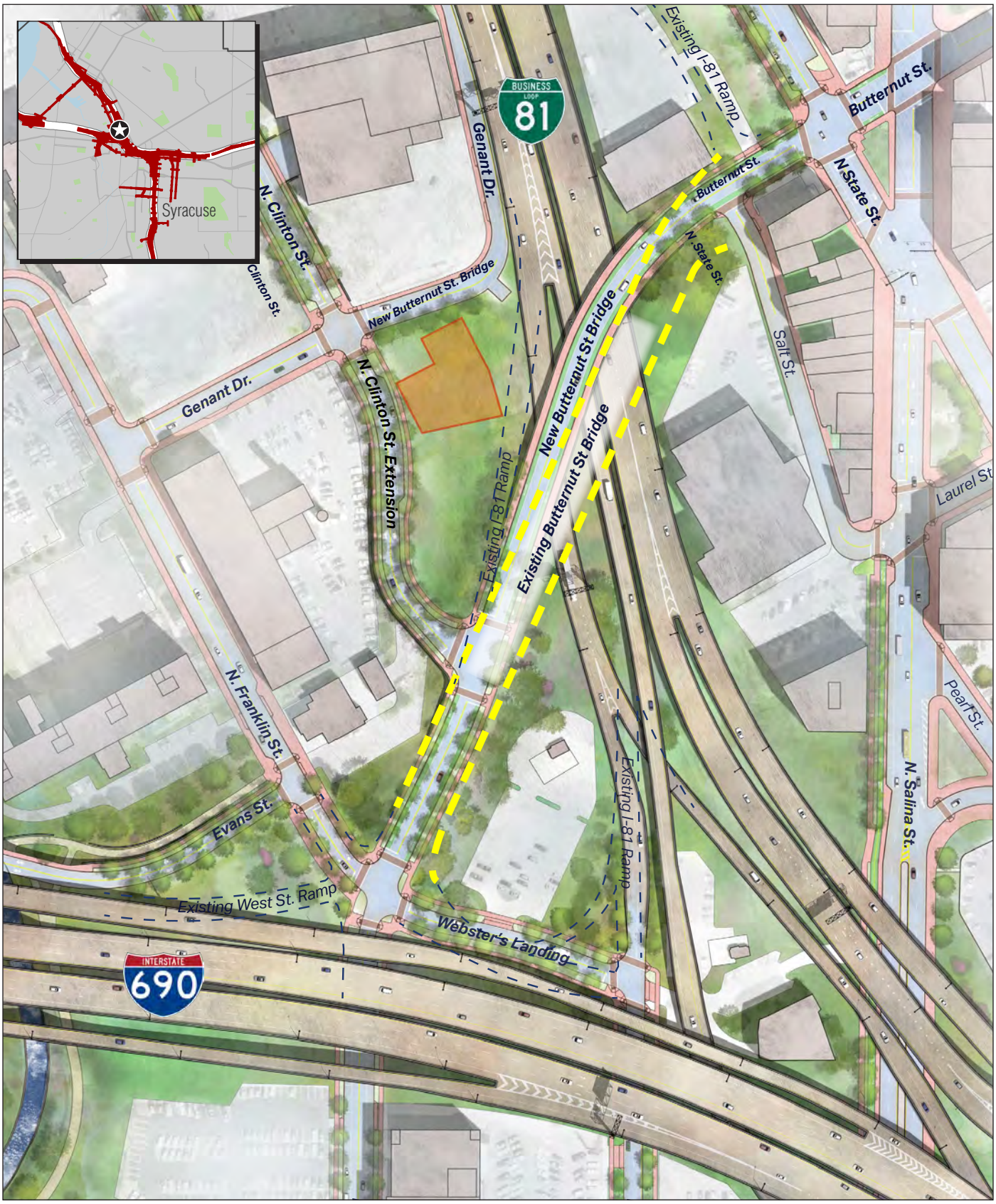


Existing infrastructure to be removed

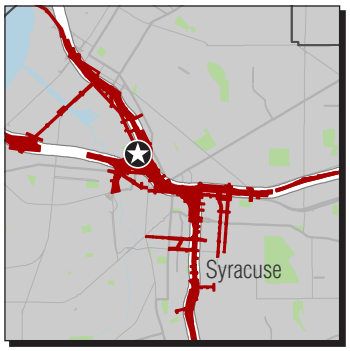
Existing bridge to be relocated

Building to be acquired

Community Grid Alternative:
Butternut Street Bridge Relocation

I-81 Viaduct Project

Figure 3-42



Existing infrastructure to be removed

Existing bridge to be relocated

Building to be acquired

Community Grid Alternative:
North Clinton Street Reconstruction

I-81 Viaduct Project

Figure 3-43

Spencer Street from Genant Drive looking southeast: Existing Conditions

Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Spencer Street from Genant Drive looking southeast:
Community Grid Alternative Rendering

To accommodate this wider highway and correct the non-standard and non-conforming features, Genant Drive would be closed from Spencer Street to just north of West Division Street. Genant Drive from Spencer Street to the realigned Court Street would be converted to two-way operations.

Existing I-81 Interchange 21 (Spencer Street/Catawba Street) and Interchange 22 (Route 298, Court Street, Bear Street) would be consolidated into a single interchange at Bear Street. The Court Street bridge, which is now on an angle over I-81, would be replaced with a new, two-lane bridge that would pass straight over BL 81 and connect to North Clinton Street; and the old bed of Court Street between Genant Drive and North Clinton Street would be reconstructed with new sidewalks (see **Figure 3-43**).

The northbound BL 81 entrance and exit ramps on I-81, which are now located on Sunset Avenue, would be removed and replaced by new ramps connecting to Bear Street. The southbound BL 81 entrance and exit ramps, located between Bear Street and Spencer Street, would be relocated to connect to North Clinton Street just south of Bear Street (see **Figure 3-26**). Additionally, the existing Bear Street and Spencer Street bridges would be replaced with new structures to accommodate the improvements in this section of BL 81.

The Route 370 (Onondaga Lake Parkway) on-ramp (Interchange 24A) and Old Liverpool Road on-ramp (Interchange 24B) to southbound BL 81 would be consolidated into a single ramp (see **Figure 3-27**).

I-690 Interchange 11/12 (West Street/West Genesee Street) and Removal of the West Street Overpass

NYSDOT would replace the existing, free-flow Interchange 11 with a new interchange, controlled by a traffic signal on West Street. Just south of the new interchange, West Street would be lowered to meet West Genesee Street, creating a signalized intersection. The intersection would have traffic signals and pedestrian crossings, thereby calming traffic and improving vehicular, pedestrian, and bicycle connectivity. West Genesee Street in this area also would be reconstructed, with continuous sidewalks on both sides. The ramp from West Street to Herald Place, and the ramp from North Franklin Street to West Street, also would be removed.

The new West Street-West Genesee Street intersection would improve interstate access to and from West Genesee Street. Additionally, the removal of the West Street overpass would create a new gateway to Downtown and open views of the City from the Westside that are now obstructed. Connections between the Park Avenue and Leavenworth Park neighborhoods and Armory Square and Downtown would be enhanced.

Parking spaces along the southern side of Genesee Street between Franklin and Clinton Streets would need to be removed to provide a vehicular travel lane. Likewise, parking along the eastern side of Clinton Street between Genesee and Willow Streets would need to be removed to provide a vehicular travel lane.

An option to maintain the existing ramp configuration and slightly raise the elevation of West Street was considered but dismissed from further consideration because bringing the existing interchange to current design standards would enlarge its footprint, potentially requiring acquisition of property.

Figure 3-17 depicts the improvements at the West Street interchange under the Community Grid Alternative. (These improvements also are proposed under the Viaduct Alternative; see above.)

Bicycle, Pedestrian, and Other Improvements to Local Streets

The Community Grid Alternative would include bicycle and pedestrian facilities to improve connectivity between existing and proposed shared use (bicycle and pedestrian) paths and pedestrian facilities within the project limits. **Figure 3-45** depicts existing and proposed City bicycle facilities, as well as bicycle facilities proposed under the Community Grid Alternative. Streets would be designed in compliance with New York State complete streets requirements with an aesthetically unified design and measures to improve safety. Special pavements, planting areas, medians, pedestrian refuge areas, site furnishings, and green infrastructure would be incorporated. As illustrated in **Figure 3-46**, local street improvements would include pedestrian and bicycle safety and connectivity enhancements in the Central Study Area, such as:

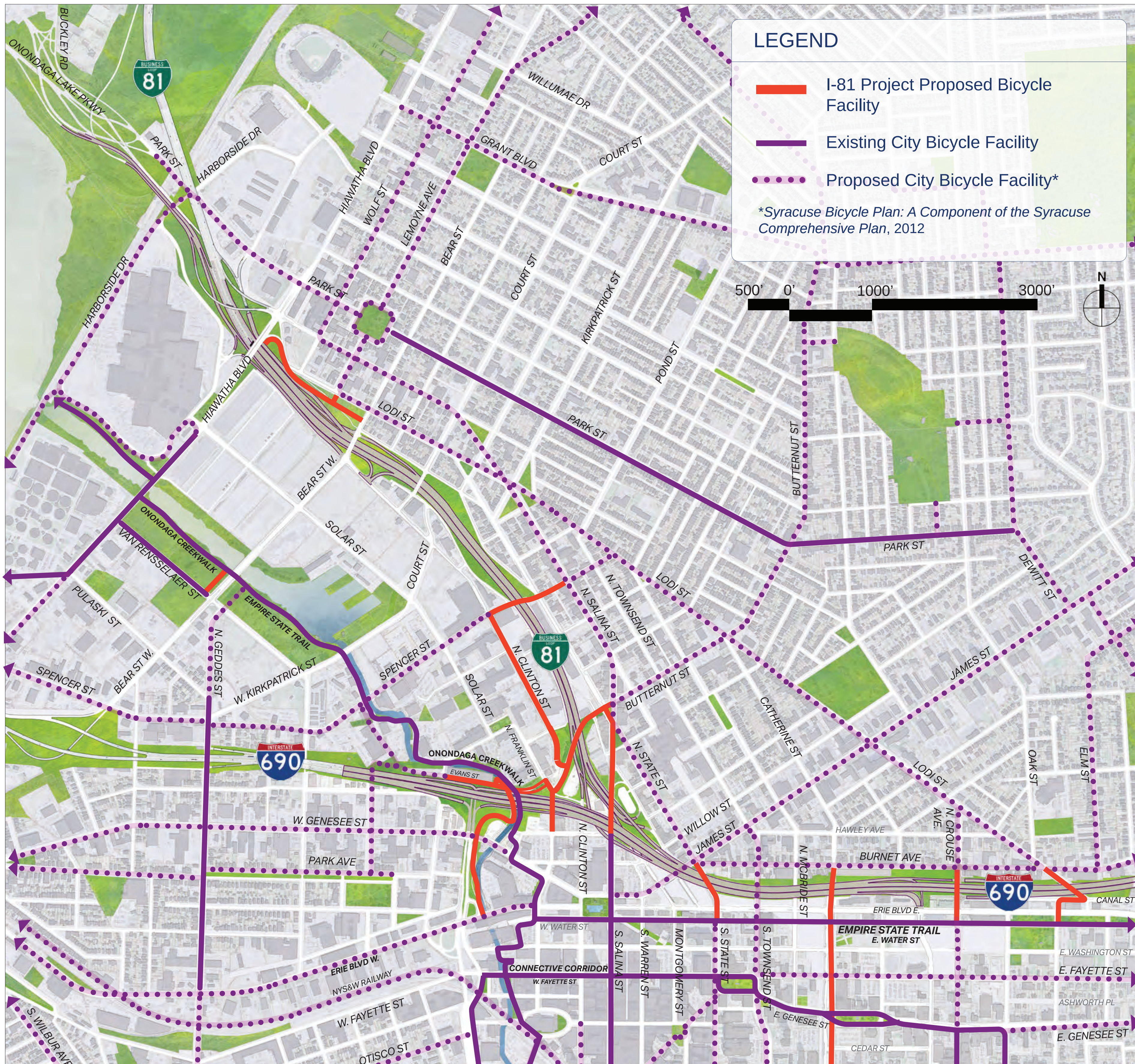
- Providing new sidewalks where there are gaps in the existing network;
- Providing PROWAG compliant curb ramps and crosswalks where they do not exist;
- Distinctive pavement markings, materials, and/or color to define space for bicyclists and pedestrians and promote driver awareness;
- Signals to facilitate pedestrian crossings while encouraging bicycle use;
- Bollards and pedestrian refuge islands to provide safe refuge for pedestrians; and
- "Bump-outs," or extensions, of the sidewalk corners, to narrow roadway crossing distance for pedestrians (as shown on the plans in **Appendix A-1**, bump-outs would be provided on all intersections along Almond Street with the exception of Catherine Street at Burnet Avenue, as well as Almond Street at Burt Street, Van Buren Street, and MLK, Jr. East.).

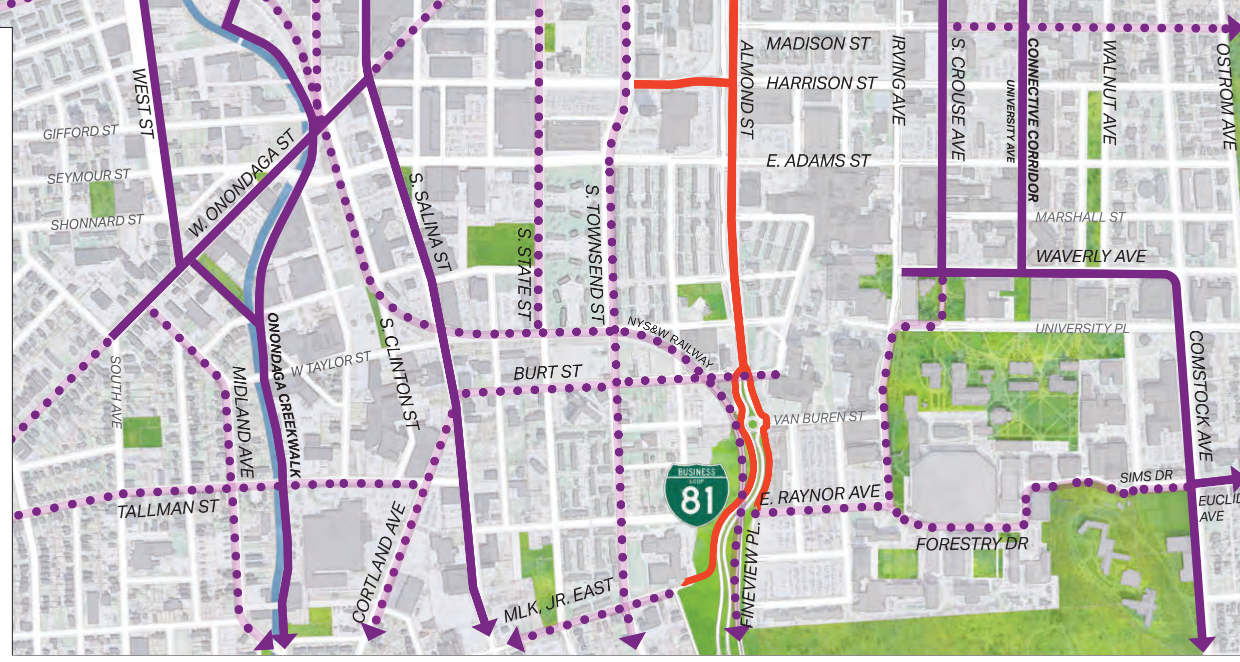
Newly created bicycle facilities along Almond Street would connect to existing bicycle facilities at Water Street (Empire State Trail) and East Genesee Street (Connective Corridor) and allow for future connections to bicycle facilities identified in the *Syracuse Bicycle Plan: A Component of the Syracuse Comprehensive Plan* at Burnet Avenue, Fayette Street, Burt Street, and MLK, Jr. East. The Fineview Place bridge, which would be removed as described above to allow for the eastward realignment of southern Almond Street, is currently used for bicycle access to University Hill due to its low grade relative to other nearby routes; in its place, a new shared use (bicycle/pedestrian) path would connect the Almond Street/Burt Street and Van Buren Street intersections with the Fineview Place/East Raynor Avenue intersection.

The new bicycle amenities would fit into the roadway footprint and not require roadway widening. Specific local streets would be improved as follows.

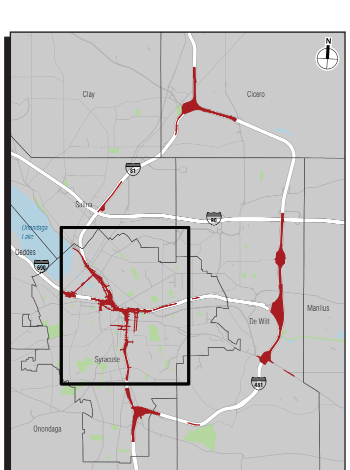
Almond Street: The entire reconstructed length of Almond Street would include a center planted median (with breaks at most intersections) varying between 7.5 to 30 feet in width. Between Erie Boulevard and Adams Street, Almond Street would be shifted west of its existing alignment within the available right-of-way as shown in **Figure 3-28**. The east side of Almond Street would accommodate a six-foot-wide utility and buffer strip, a 10-foot-wide northbound cycle track, a 14-foot-wide planting and/or green infrastructure zone, and an eight-foot-wide sidewalk. The west side of the road above the street curb would have the same amenities, but the raised cycle track would be southbound.

Where reasonable, eight-foot-wide protected parallel parking would be provided. Intersections would be designed to incorporate pedestrian and bicycle best practices, including "bump-outs," or extensions





Map of proposed city bicycle facilities near the southern interchange of I-81 and BL 81



Community Grid Alternative:
Existing and Proposed Bicycle Facilities

Figure 3-45

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Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
Proposed Pedestrian/Bicycle Enhancements

of sidewalk corners, where feasible to narrow roadway crossing distances for pedestrians. Raised center medians that would provide protected areas for pedestrians would be installed from Burt Street to Erie Boulevard. At the west end of Forman Park, in front of the Crowne Plaza Hotel on East Genesee Street, a segment of roadway that now allows U-turn movements would be eliminated and reclaimed as open space, sidewalk, and raised cycle track to improve pedestrian and cyclist circulation and connectivity through this area and improve access to Forman Park (this segment is a public roadway and is not part of the park itself).

To improve traffic flow, traffic signals would be added or modified along Almond Street and cross streets (from Burt Street to Erie Boulevard) with the exception of Almond and Monroe and Madison Streets, where access would be provided only to and from northbound Almond Street. All signals would be retimed or optimized as needed (for more information, refer to **Chapter 5, Transportation and Engineering Considerations**).

South of Adams Street to MLK, Jr. East, Almond Street would have a 14-foot-wide two-way shared use (bicycle and pedestrian) path on its west side (see **Figure 3-29**). The path would be separated from the vehicular lane by a planting strip typically ranging from 14 to 16 feet wide but as narrow as six feet beneath the NYS&W Railway bridge. Where reasonable, eight-foot-wide parking lanes would be provided. The east side of the road, between Adams Street and Burt Street, would have a 14-foot-wide planting strip and an eight-foot-wide sidewalk. At the intersection of Almond and Burt Streets, an eastern spur of the shared use (bicycle and pedestrian) path would continue south of the intersection, along the existing alignment of Fineview Place, and connect to East Raynor Avenue on University Hill.

MLK, Jr. East would be reconfigured with a shared use (bicycle/pedestrian) path on its north side, from Leon Street to the west side of BL 81. This path would become a shared vehicle and bicycle lane between Leon Street and Oakwood Avenue. In addition, the existing sidewalks on both sides of MLK, Jr. East between Oakwood Avenue and Leon Street would be reconstructed.

Harrison Street, which would be reconstructed from Almond Street to Townsend Street, would be converted from a one-way to a two-way street between Almond Street and Salina Street. One-way cycle tracks and sidewalks would be provided on both sides of Harrison Street between Almond Street and Townsend Street.

Erie Boulevard would be rehabilitated from Crouse Avenue to Salina Street. Sidewalks would be provided on both sides of the roadway. Driveway curb cuts would be consolidated wherever possible to improve pedestrian, bicyclist, and vehicular safety.

Between Oswego Boulevard and Salina Street, back-in angled parking would be eliminated and replaced with parallel parking. Street curb alignments would be altered, narrowing the roadway and creating a wider southern sidewalk planted with trees.

An interpretive design component acknowledging the historic alignment of the Erie Canal towpath would be incorporated into the north side of Erie Boulevard from Salina Street to Almond Street. The northern Erie Boulevard sidewalk would be a minimum of eight feet wide and would include sculptural interpretive signage acknowledging the original Erie Canal location, as well as street trees. The interpretive towpath would connect Clinton Square, the existing mule driver's monument located

across the street from the Erie Canal Museum, the proposed "Canal District" described below, and Almond Street.

Lodi Street under I-690: A minor rehabilitation of Lodi Street where it passes beneath I-690 would include pavement resurfacing, as well as sidewalk and curb repair/replacement. Bicycle lanes would be installed on Lodi Street between Burnet Avenue and Canal Street. Shared lanes (for vehicles and bicycles) would be installed on Canal Street between Lodi Street and Walnut Street, and new curbs, sidewalks, and shared lanes (for vehicles and bicycles) would be provided on Walnut Street between Canal Street and Water Street (the shared lanes would connect the Lodi Street bicycle facility with the Empire State Trail).

Crouse and Irving Avenues: As previously discussed, Irving Avenue would be extended four blocks north (beyond its current terminus at East Fayette Street) to connect to the new I-690 access ramps to the north of Erie Boulevard. New sidewalks would extend along both sides of Irving Avenue between East Fayette Street and Erie Boulevard and between East Fayette Street and East Genesee Street, and existing sidewalks would be repaired where necessary. A new shared use (bicycle and pedestrian) path would be constructed on the west side of Crouse Avenue between Burnet Avenue and the existing bicycle facility on Water Street. New sidewalks would be provided along the west side of Crouse Avenue between Water Street and East Genesee Street and on the east side of Crouse Avenue between Erie Boulevard and East Genesee Street. The portions of Irving and Crouse Avenues between East Genesee and Adams Streets would be improved with the installation of accessible curb ramps and crosswalk markings. Deteriorated sidewalk segments would be replaced. These improvements would be designed in compliance with PROWAG and other applicable accessibility and safety requirements.

State Street: A two-way raised cycle track would be provided on the west side of State Street between James Street and Erie Boulevard. A shared use (bicycle and pedestrian) path would be installed between Erie Boulevard and the Empire State Trail on Water Street, and the sidewalks in this area would be reconstructed.

Onondaga Creekwalk Improvements: The removal of infrastructure in the West Street area described above would allow the creation of a new path along the west bank of Onondaga Creek between Erie Boulevard and Evans Street (see **Figure 3-22**), providing access to natural and historic resources and to views, which are now obstructed, of a historic Erie Canal aqueduct and stone bridge over the Creek (**Figure 3-23** shows two of the four proposed overlooks). Two ramps between northbound West Street and an elevated portion of Erie Boulevard would be replaced with a single connector roadway. The remaining space would be used to accommodate a shared use (bicycle and pedestrian) path along the creek. A new sidewalk would be built along the east side of West Street from Erie Boulevard to West Genesee Street. Connectivity would be enhanced in this area because of links (via West Genesee Street) between the new shared use (bicycle and pedestrian) path on the west bank of the creek, the existing Creekwalk on the east bank, and the sidewalks along both sides of West Genesee Street.

James Street: Pedestrian improvements would include sidewalks on both sides of James Street between Warren Street and State Street.

Oswego Boulevard and the Extension of Pearl Street/Proposed "Canal District": The Community Grid Alternative's provision of new connections to and from BL 81 and Downtown

Syracuse would re-establish a portion of the historic street grid. A new exit from BL 81 would connect to the northern end of Oswego Boulevard, creating an entrance to Downtown that coincides with the historic alignment of the Oswego Canal. One block to the east, Pearl Street would be extended south, re-establishing its historic alignment, and would provide access to a northbound on-ramp from Erie Boulevard. The reconstructed on-ramp and new off-ramp, combined with a reinstated street grid and a substantially reduced highway footprint, would provide an opportunity to create a gateway district centered on the historic confluence of the Oswego and Erie Canals (for more information about proposed gateways, see **Chapter 5, Transportation and Engineering Considerations**).

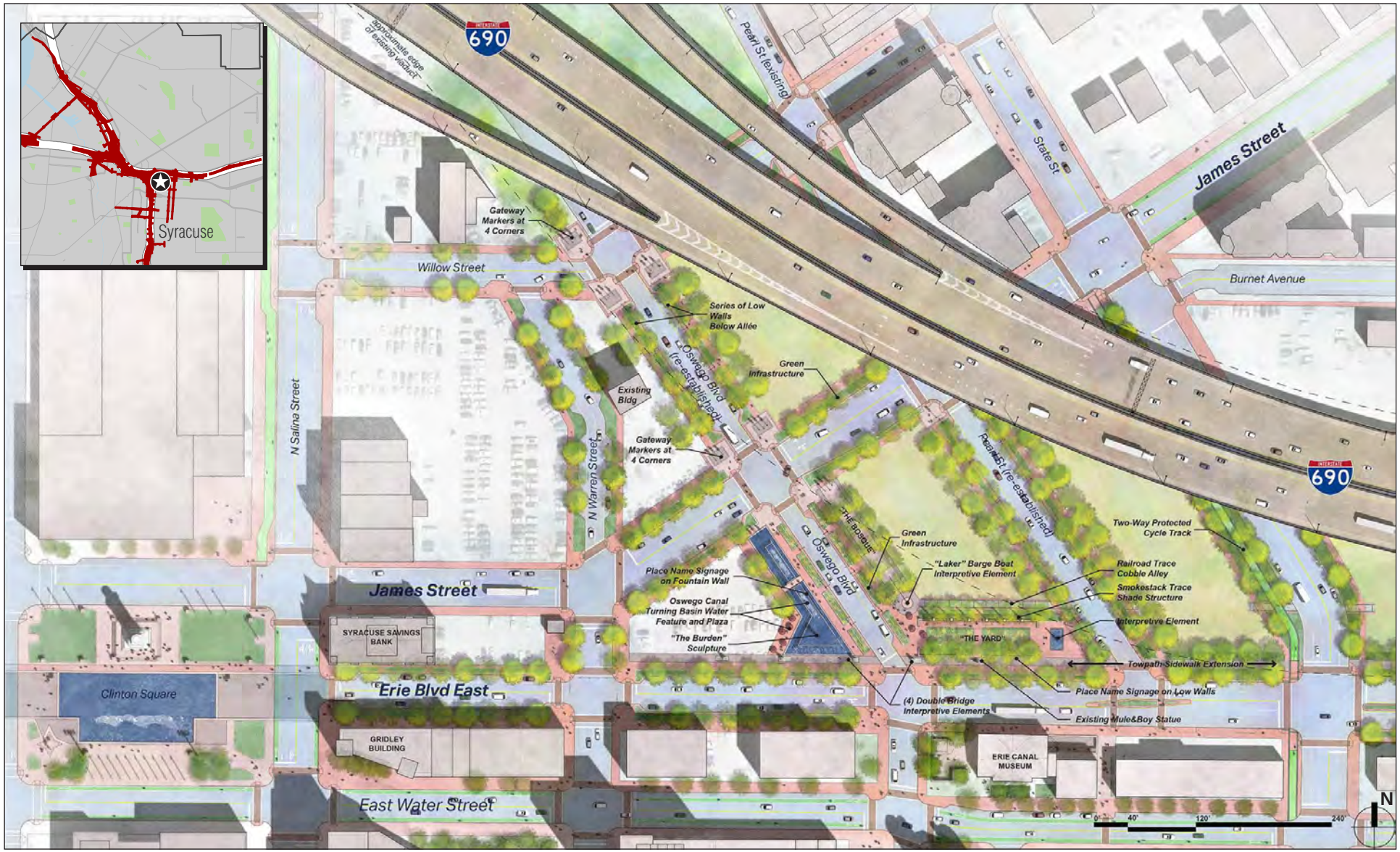
Figure 3-47, a concept plan view rendering, shows one possible configuration of the proposed canal-themed district, which would be bordered by Salina Street to the west, Water Street to the south, State Street to the east, and Willow Street to the north. The Erie Canal Museum and mule driver's monument on the historic location of the towpath would be located at the heart of the district. Streetscape improvements are proposed to underscore a sense of arrival, civic vitality, and recognition of the central role of both the Erie and Oswego Canals in the development of the city. As illustrated in **Figure 3-48**, streetscape improvements along Erie Boulevard, such as the interpretive towpath, would connect historic Clinton Square to the museum and to the mule driver's monument across the street.

New city blocks (Oswego Boulevard from Willow to James Streets; Pearl Street from Willow Street to Erie Boulevard) would be created by the new alignments and could include additional public access and interpretive space. **Figure 3-49** shows potential streetscape treatments, publicly accessible interpretive open space, and residual land within the newly created gateway area. Potential entry features could include elements such as stone walls and gateway markers, a fountain that recalls the historic presence of water on site, a promenade, shade pavilion, public art, sculpture, plazas, and plantings. **Figure 3-50** is a rendering that illustrates a potential water feature, which could serve as a gateway signage element that recalls the canals.

North Franklin Street: Shared lanes (for vehicles and bicycles) would be provided on North Franklin Street between Butternut Street and Evans Street. Between Butternut Street and Herald Place, North Franklin Street would narrow to one lane in each direction. Sidewalks on both sides of the street, shared lanes (for vehicles and bicycles), street trees, and parallel parking would be provided where feasible.

Evans Street: Evans Street would be reconstructed and realigned from just west of Onondaga Creek to its intersection with North Franklin Street. The bridge crossing Onondaga Creek would be replaced. A new sidewalk would be constructed along the north side of Evans Street, and a new shared use (bicycle/pedestrian) path would be constructed that would connect the new sidewalk on Evans Street to the new shared use (bicycle/pedestrian) path on the west side of Onondaga Creek. In addition, shared lanes (for vehicles and bicycles) would be provided on Evans Street between Franklin Street and Plum Street, which would provide bicycle access from the Franklin Square area to the new shared use (bicycle/pedestrian) path on the west side of Onondaga Creek.

Salina Street: Salina Street would be rehabilitated where it passes beneath I-690 and BL 81. The work would include pavement resurfacing, as well as sidewalk and curb repair/replacement. Between Herald Place and East Laurel Street, Salina Street would include a two-way raised cycle track, with an adjacent

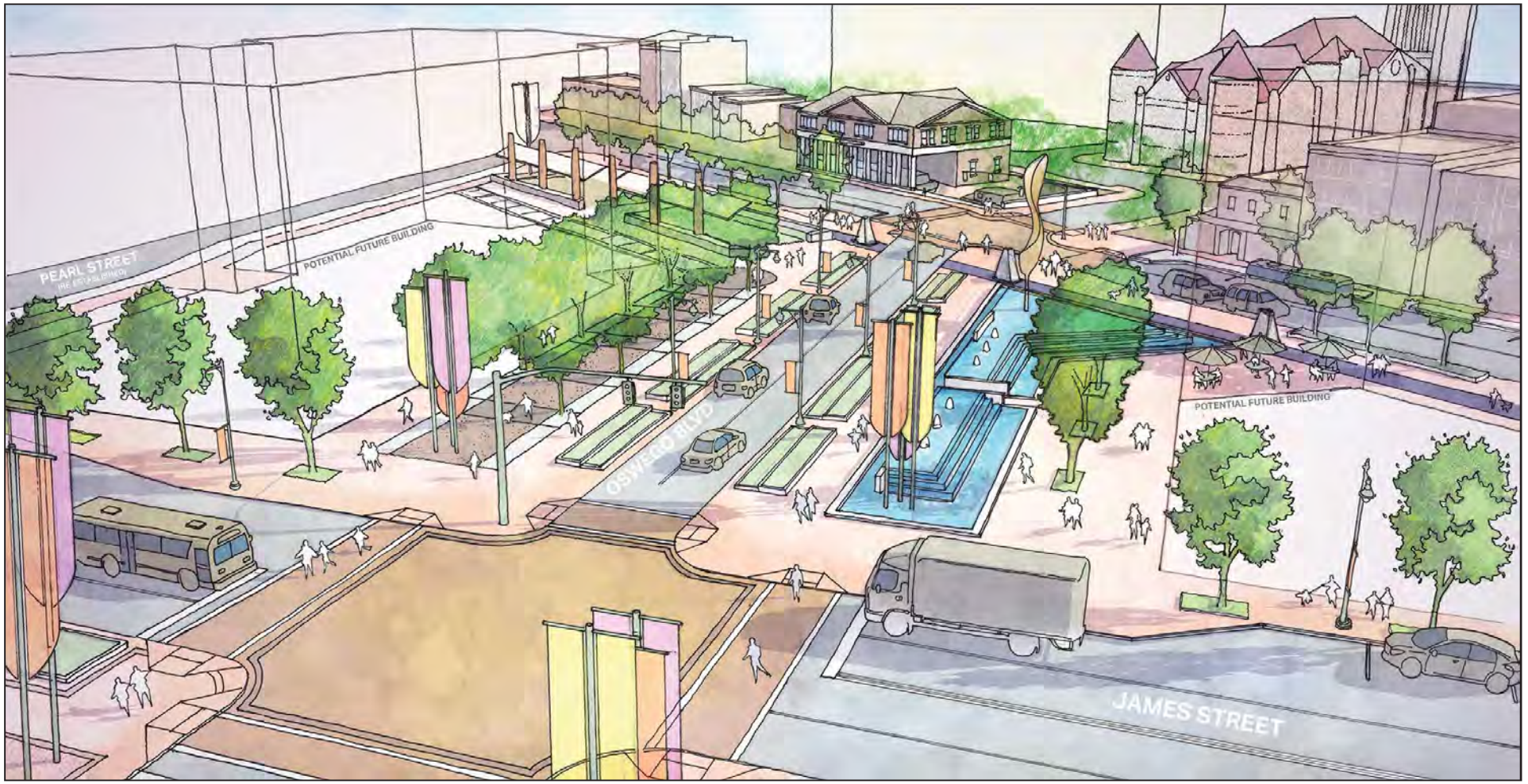


Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
Proposed "Canal District" Plan View

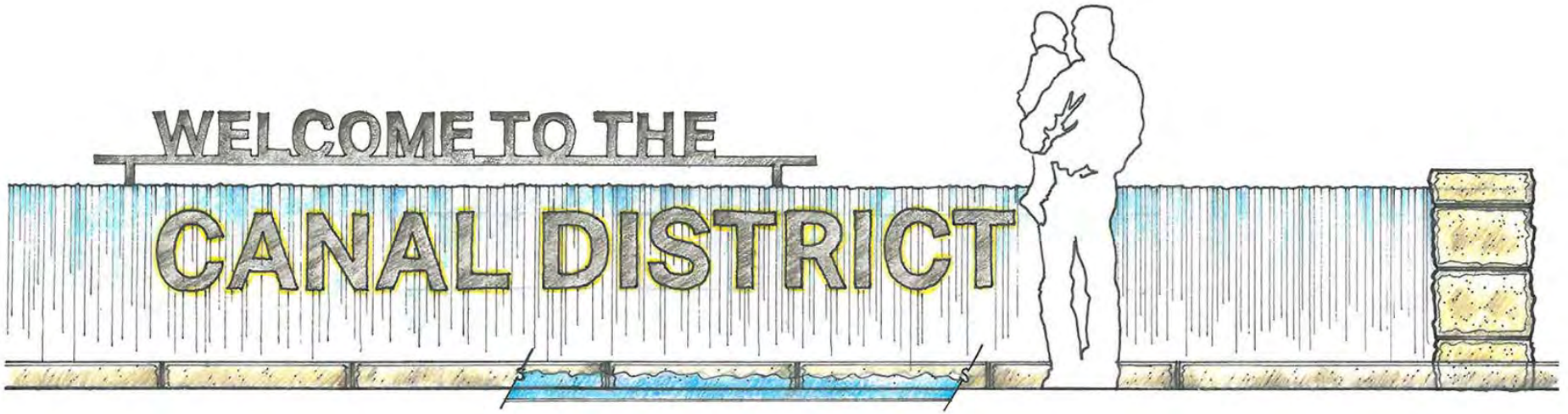
Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
Proposed "Canal District" at
Erie Boulevard and Pearl Street



Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
Proposed "Canal District"
Oswego Boulevard and James Street



Note: These visualizations are representative of design intent and the preliminary layout of site elements. These elements will be further refined as the design progresses. The final selection of site elements such as lighting, planting, and paving, as well as materials, colors and finishes, will be determined during final design. Trees and plantings are shown in an established and mature state.

Community Grid Alternative:
Proposed “Canal District” Water Feature

sidewalk, on its east side, and the west side would include a new sidewalk. Shared lanes (for vehicles and bicycles) would extend from East Laurel Street to State Street.

Butternut Street Bridge: The new Butternut Street bridge would include sidewalks on both sides as well as bicycle lanes that would extend east on Butternut Street to Salina Street and west to Franklin Street.

Butternut Street/State Street Streetscape: With the removal of the ramp from State Street to existing northbound I-81, the number of vehicular lanes on the portion of State Street from Butternut Street to Ash Street would be reduced from three lanes to two lanes. Pedestrian connectivity would be improved with the addition of a new sidewalk along the west side of State Street from Butternut Street to north of Ash Street. Parking and street trees would be added where possible. On State Street, between Butternut and Salina Streets, shared lanes (for vehicles and bicycles) would be provided.

North Clinton Street and Extension: North Clinton Street would be reconstructed from Bear Street to existing Genant Drive, and portions of intersecting streets (i.e., Spencer, West Division, West Kirkpatrick, and Court Streets) also would be reconstructed. North Clinton would be reconstructed with new pavement, curbside parking where possible, shared lanes (for bicycles and vehicles), street trees, and bump-outs to shorten pedestrian crossing distances. Continuous sidewalks would be put in on both sides of North Clinton except on the block between Bear and Court Streets where they would be only on the west side to avoid conflict with the proposed southbound BL 81 ramps connecting to North Clinton Street.

Spencer Street Bridge: The new Spencer Street bridge would include sidewalks on both sides as well as bicycle lanes that would extend east on Catawba Street to Salina Street, and west to North Clinton Street.

Court Street: The new Court Street alignment would include sidewalks on both sides that would extend east to Sunset Avenue and west to North Clinton Street.

Bear Street/Lodi Street: A portion of the parcels bounded by BL 81, Bear Street, and Lodi Street would be improved with the addition of a shared use (bicycle/pedestrian) path that would lead to an overlook with a view of the surrounding region. New sidewalks would be added around the site, providing new pedestrian connections to Hiawatha Boulevard. The path and overlook would have interpretive signage and would be accessible from Lodi Street, Bear Street, and Hiawatha Boulevard. **Figure 3-24** shows a map and rendering of the proposed Lodi Street shared use (bicycle/pedestrian) path and overlook. In addition, sidewalks would be added on both sides of Bear Street between Van Rensselaer Street and Lodi Streets. A new shared use (bicycle/pedestrian) path would be constructed on the north side of Bear Street between Van Rensselaer Street and the Onondaga Creekwalk; therefore, the planned Empire State Trail connection would be relocated from the south to the north side of Bear Street.

East Brighton Avenue: New sidewalks would be provided on the west side of reconstructed East Brighton Avenue, between East Glen Avenue and Rock Cut Road, and on both sides of East Brighton Avenue, between Rock Cut Road and the Brighton Hill Office Park driveway (on the west side) and the Brighton Towers driveway (on the east side). Additionally, a northbound bicycle lane would be included on the east side of East Brighton Avenue, between the Brighton Towers driveway and East Glen Avenue, and a southbound cycle track would be included on the west side of East Brighton

Avenue, between the Brighton Hill Office Park driveway and East Glen Avenue. Both bicycle facilities would transition to shared lanes (for vehicles and bicycles) north of East Glen Avenue and south of Rock Cut Road. Additionally, the reconstructed intersection of East Brighton Avenue and Rock Cut Road would include a pedestrian crosswalk on the south side of the intersection that would connect the two sidewalk segments.

East Glen Avenue: The south side of the realigned and reconstructed East Glen Avenue would include a shared use (bicycle/pedestrian) path between East Brighton Avenue and the existing bus shelter located near the entrance to the Loretto Health and Rehabilitation Center on the west side of BL 81.

Transit Amenities

As part of the development of the Community Grid Alternative, NYSDOT has and will continue to coordinate with Centro on potential street improvements (transit amenities such as bus stops and shelters, bus turnouts, and layover and turnaround places) in the project limits to enhance and support access to Centro's transit initiatives.

Freight Accommodations

In addition to accommodating passenger vehicles, BL 81 would be designated as a Qualifying Highway and designed to handle buses, recreational vehicles, and trucks, including large, heavy vehicles with a width limit of 102 inches. The Qualifying Highway designation is used in New York State to depict a National Network Highway, or a highway designated as part of the federal Surface Transportation Assistance Act (STAA) of 1982 (P.L. 97-424) as one that allows STAA vehicles[5] and 53-foot trailers to use it as well as any other highway within one linear mile. As a Qualifying Highway, BL 81 would be designed with the physical characteristics to accommodate large, heavy vehicles along its length. These characteristics include appropriate horizontal and vertical alignments, lane widths (12 feet wide), turning radii, sight distance, and auxiliary lanes with acceleration/deceleration lanes of sufficient length and storage (see Design Criteria Tables in **Appendix C-6** for more information about design characteristics). For example, all city street intersections would be designed to allow buses and SU-30 (single unit with three axles) trucks to turn at them, and highway ramps would be designed to accommodate WB-67 (53-foot tractor trailer) trucks. Under the Community Grid Alternative, Qualifying Highways, including BL 81 and interstate system roadways, and designated truck access routes, including local roadways, are subject to change from the existing condition. These changes are identified in the Designation/De-Designation Package (contained in **Appendix B-5**). The analysis of the alternative's potential impacts on truck traffic is included in **Chapter 5, Transportation and Engineering Considerations**.

Construction Duration and Cost

Construction of the Community Grid Alternative would take an estimated six years, including work on the new route (i.e., I-481) to carry I-81, as described in **Chapter 4, Construction Means and Methods**. As shown in **Table 3-5** below, the estimated total cost of the Community Grid Alternative is $2.25 billion (in 2021 dollars, escalated to the mid-point of construction; refer to **Appendix A-5** for

[5] STAA vehicles are tractor trailer combinations greater than 65 feet, tractors with 28-foot tandem trainers, maxi-cubes, triple saddle mounts, stinger-steered auto carriers, and boat transporters.

more information on the alternative cost estimates). The cost estimates will continue to be refined as design progresses.

Table 3-5
Community Grid Alternative Total Project Cost

Alternative	Community Grid
Construction Cost	**$1,834,000,000**
To include Force Account, CI, Final Design, QC, Site Mobilization (19 to 24%)	$401,000,000
Award Cost	**$2,235,000,000**
Right-of-Way (ROW)	$15,000,000
Total Cost Rounded to Nearest $10M	**$2,250,000,000**