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EXECUTIVE SUMMARY
INTRODUCTION

The objective of this feasibility study is to identify a route that closes the 1.5 mile gap between the existing Albany County Rail Trail and the Mohawk-Hudson Bike-Hike Trail. The connection proposed in this report will build upon existing efforts by the City of Albany to enhance bicycle and pedestrian networks, promote healthy and sustainable modes of transportation, and spur reinvestment in the South End Neighborhood and Downtown.

ENGAGEMENT PROCESS

The development of route alternatives and the selection of an alignment included extensive outreach to stakeholders, state agencies, active transportation advocates, expected trail users, and residents of the surrounding neighborhood - the South End.

Public outreach was used to solicit feedback and ideas from potential users on their concerns and preferences for the location and design of the Connector. Stakeholder meetings and two public meetings were held as part of the engagement process.

ALTERNATIVES

The Waterfront Connector was broken up into three sections as shown in Map i. Alternative routes were identified within each section and evaluated.

ROUTE EVALUATION

Proposed routes were evaluated based on:

- Existing bicycle and pedestrian connections
- Accessibility to residents and visitors
- Directness of the path and connections to destinations
- Consistency in design and scale
- Attractiveness of the trail to potential users
- Ease of implementation of the proposed alignments
- Safety and security of the trail
- Public support of the alternative
- Engineering aspects and constraints
- Cost to implement the alternative
- Ease of obtaining funding

Additional considerations included benefits to the community and adjacent businesses, environmental impacts, aesthetics, and potential funding sources. The potential alternatives in each section were evaluated against each other based on these criteria.
Map i - Selected Route
Map i illustrates the selected route for the Albany Waterfront Connector.

SECTION 3
ALTERNATIVE A

SECTION 2
ALTERNATIVE A

SECTION 1
ALTERNATIVE C

ALBANY COUNTY RAIL TRAIL

MOHAWK-HUDSON BIKE-HIKE TRAIL
SELECTED ROUTE
The selected route within each section are listed below and shown in Map i.

Section 1 - Cycle Track & Sidewalk on South Pearl Street.
Section 2 - I-787 Northbound Access Road Shared-Use Path.
Section 3 - I-787 Underline Shared-Use Path, adjacent to Church Street.

The cost estimate to construct the Waterfront Connector is $1.5 million. A detailed cost estimate can be found on page A-29 of the Appendix.

SECTION 1
Cycle Track and Sidewalk
The Sidewalk and Two-Way Cycle Track was selected within Section 1 for multiple reasons, including:

- A separated bike facility improves safety and accessibility to all users.
- Removable flexible delineators allow for low-cost maintenance.
- Reduced travel lane widths have a traffic calming effect, improving attractiveness of the street to bicyclists and pedestrians.
- This alternative is highly visible to the community and creates a direct, consistent, connection from the Albany Rail Trail through this section of the South End.
- The direct link to the future Bus Rapid Transit station represents an opportunity to create a more robust intermodal station and extends the potential trip distance and mode options for trail users.

SECTION 2
I-787 North Bound Access Road Shared-Use Path
This route proposes a 10-foot wide shared-use path on the east side of the exit ramp, separated from motor vehicles by a jersey barrier. The shared-use path would replace the existing outside travel lane. The I-787 North Bound (I-787 NB) Access Road Shared-Use Path is the selected route for multiple reasons, including:

Figure i - Cross-section of the Section 1 - Cycle Track & Sidewalk

*EC= Existing Conditions
• Space between the railroad and pavement will allow for the introduction of trees and other plantings along the east fence to provide shade and an attractive buffer from the railroad. This area can also be used for stormwater mitigation.

• The I-787 NB Access Road Path is more intuitive for trail users, is a direct line between destinations, and is generally the preferred route for cyclists and pedestrians traveling between the waterfront north of the Port and South Pearl Street.

• This alignment has strong public support as evidenced during public meetings and survey analysis.

• Despite challenges outlined in Chapter 2, the eastern ramp path is a more consistent route between the Albany County Rail Trail trailhead to the south and the waterfront amenities and Mohawk-Hudson Bike Hike trail to the north. By choosing this option, four conflict areas in the I-787 South Bound (I-787 SB) option are avoided. By avoiding these conflict areas, costs are also reduced.

• A well-designed wayfinding program will connect trail users to the central part of the South End.

• There is little to no change to average delay at the intersection and vehicle queues will not impact I-787 operations.

SECTION 3

I-787 Underline Shared-Use Path

The Underline Alternative proposes a shared-use path under the elevated portion of I-787 SB. Lighting, fencing, artwork, and other amenities are recommended to create a linear park beneath I-787. This route was selected for multiple reasons, including:

• The existing site conditions result in a relatively low-cost and continuous separated facility.

• A majority of the path will be protected from precipitation and heat by I-787.
• The alignment provides access to the neighborhoods to the west of Church Street and high visibility for residents and visitors.

• The alignment would transform the currently unused, vacant, and uninviting space into a destination.

• There is clear public support for a shared-use path below I-787 as evidenced during public meetings and survey analysis.

• Redeveloping the underutilized space would activate the area, assisting in removing a barrier between the community and the waterfront.
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PUBLIC INVOLVEMENT
ENGAGEMENT PROCESS

The development and selection of the Waterfront Connector included extensive outreach to partnering stakeholders, state agencies, active transportation advocates, expected trail users, and residents of the South End - the City neighborhood through which the Connector would be located.

The objective of the engagement efforts was to solicit feedback on the preferences, concerns and ideas of those who would be interested in using the Waterfront Connector. The process of engaging stakeholders and key findings from these efforts are detailed in this section.

PROJECT COORDINATION

The project team looked to use the knowledge of city, county, and agency staff to advise the direction and feasibility of design alternatives.

Technical Advisory Committee

The Technical Advisory Committee (TAC) consisted of ten individuals representing the City of Albany, Albany County, Capital District Transportation Committee (CDTC), Capital District Regional Planning Commission (CDRPC), Capital District Transportation Authority (CDTA), and New York State Department of Transportation (NYSDOT).

The TAC met six times to guide the project process and provide technical feedback. The group generated a list of goals that they hoped would guide the process to:

- Create a simple and achievable project
- Include consensus-based planning
- Improve safety
- Foster positive public reception
- Increase access to the waterfront
- Connect to existing amenities and projects

The trail connector lies in vicinity of Albany’s South End neighborhood, a key community focused on for engagement.

The TAC desired that the project seek to connect people to other community assets, such as the historic Schuyler Mansion.
Additional Technical Feedback

The project team held additional meetings with agencies to receive technical feedback. In June 2016, the team met with staff from the Albany Housing Authority to receive feedback on project alternatives. The meeting focused on proposed routes that directly impacted the Ezra Prentice Homes, specifically the proximity of a trail to the homes and potential parking issues.

Stakeholder Involvement

Stakeholder meetings sought input from groups that have distinct mobility needs and preferences related to the feasibility study. These stakeholders included South End residents, bicycle and pedestrian advocates, faith based organizations, and planning and development organizations.

Stakeholder Workshops

In March 2016, the project team conducted two stakeholder workshops for transportation and community development advocates working in the area, engaging over 20 people.

These conversations highlighted the needs and concerns of those who live and work in the area.

Ezra Prentice Homes is one of the larger planned communities along the proposed route. It was valuable to receive input from both Albany Housing Authority staff and Ezra Prentice residents.

The project team held additional meetings with the Albany Bicycle Coalition and South End Improvement Corporation for continued community input and guidance.

Information Session

During initial engagement activities, participants emphasized the importance of engaging residents of Ezra Prentice Homes. Ezra Prentice Homes is a family development located near the proposed alternative area. Currently, the Ezra Prentice Homes has restricted access to the existing trails due to limited sidewalks and non-motorized infrastructure. The project team conducted the information session in May 2017.

Ezra Prentice Homes

The quality of engagement benefited from the continued involvement of several community based organizations, including the Albany Bicycle Coalition.
Public Involvement

**Public Meetings**

To engage with a wider audience, the project team conducted a public workshop and a public meeting in June 2016 and May 2017. The project team advertised the public meetings at local neighborhood meetings and by distributing flyers, which reached over 80 participants.

The objective of the public workshop was to present and get feedback on several route alternatives for the connector. The workshop was highly interactive, allowing participants to use stickers to “vote” for their preferred route and provide written comments on the challenges and assets provided by different scenarios.

At the public meeting, the project team presented the final selected route to neighborhood and stakeholder groups to continue to engage project advocates.

As a result of the public meetings the project received media coverage, including local blog All Over Albany. This coverage helped bring further attention to the project.
Community Survey

To help reach more people in the community, Alta partnered with Capital Roots, a nonprofit focusing on public health and food access in Albany and the Capital District.

A community survey was conducted, asking people in Albany about their interest in and preferences for a connector route. The survey collected 72 responses.

Ninety percent of respondents reported that they live in Albany, and nearly half of respondents indicated they live in the South End.

Most people were interested in the trail project and nearly 90% of respondents indicated that they would use the route if completed.

A majority of respondents indicated that having protection from motorists was very important (over 60%). Other features that were selected as important include continuous routes, wide and clear paths, and separated uses.

Source: Community Survey, 2016
KEY FINDINGS

As a result of the public outreach process, five themes were identified as significant to the planning process.

Ease and Comfort
One of the top comments expressed by participants was that the Connector should provide a comfortable experience for those walking and cycling. Participants were interested in exploring how additional features, such as lighting, can make a trail feel safer and more comfortable for users.

Protection from Automobiles
Participants frequently commented about the protection of users from cars and trucks. Similarly, the majority of community survey respondents indicated that “protection from motorists” was a very important feature of the Connector.

Family Friendly
Engagement efforts highlighted that people wanted the project design to promote use by young children and families.

Connecting to Nearby Amenities
Participants requested that the design of the route provide linkages to other neighborhoods, parks, and community amenities. Stakeholders would specifically like to see connections to Lincoln Park, Island Creek Park, Krank Park, and Cherry Hill Park.

Creativity
This is an opportunity for Albany to be on the cutting edge for trail planning and design. Participants proposed creative ideas such as having a cyclist-powered mono-rail system and using Google routing for planning travel routes.
Comments were compiled on the route alternatives and are further described in Chapter 2 of this report. At the public meeting, participants were asked to vote for their preferred route and provide comments and feedback on all routes. Those responses are discussed below.

Section 1 - Southern Trail Head to I-787

Cycle Track & Sidewalk - Most participants were in favor of a cycle track along South Pearl Street. Participants noted that this area has heavy truck and automobile traffic and a protected facility would make more users feel comfortable.

Railside Path - Some thought this shared-use path would provide consistency in treatment between existing paths. However, others were concerned with the adjacent rail yard and certain “pinch points” where the trail would be within feet of the front doors of Ezra Prentice Homes.

Sidepath – The treatment and accessibility of this path was not considered as appealing as
other options. Participants were concerned that this option required users to cross South Pearl Street twice.

**Section 2 - Green Street / I-787**

**I-787 NB Access Road Shared-Use Path** – Many participants thought this route, positioned along the I-787 Access Road, would allow for more space for cyclist and pedestrian amenities and would reduce the number of potentially unsafe street crossings.

**Green Street Shared-Use Path** – Participants also liked this route because it would provide greater distance from the nearby trains, which people thought would lead to a more pleasant recreation experience. In addition, people thought that having a facility on the west side could create greater connections to local businesses and schools.

**Section 3 - Broadway / I-787**

**Underline Shared-Use Path** – Most participants were excited about the idea of a shared-use path that went under the I-787 overpass. They saw this alternative leading to the reactivation of this infrequently used space. In addition, participants noted that this design would provide protection in sunny or rainy weather.

**Green Street Bike Boulevard** – The bike boulevard also received support from stakeholders. People enjoyed the connection the boulevard would provide to the surrounding neighborhoods.

**Church Street Cycle Track** – Participants did not believe that this alternative provided adequate protection from automobiles and trucks.

**Broadway Shared-Use Path** – This route received support from local bike advocates but many other stakeholders felt that this option did not connect to nearby amenities, especially the shops and businesses on Broadway.
PROPOSED ROUTES
ROUTE EVALUATION

The proposed route alternatives for the three sections of the 1.5-mile gap were evaluated based on:

- Existing bicycle and pedestrian connections
- Accessibility to residents and visitors
- Directness of the route
- Consistency in design and scale
- Attractiveness of the route to potential users
- Ease of implementation
- Safety and security
- Public support
- Engineering aspects and constraints
- Cost of implementation
- Ease of obtaining funding

Other considerations in the evaluation process included secondary benefits, like economic and community development, aesthetics, potential environmental impacts, and construction impacts.

The proposed route alternatives in each section were evaluated against each other based on these criteria:

**Evaluation Criteria**

**Bicycle and Pedestrian Connections**

This criterion evaluates the ability of each alternative to accommodate both cyclists and pedestrians within the same route. It also evaluates connections to existing facilities and destinations for both types of users.

**Accessibility**

Accessibility is important to accommodate users of all abilities and skill levels. Each route alternative is evaluated for compliance with ADA guidelines, such as grade and surface type. This criterion also evaluates how easily the alternative can be accessed at either end and along the trail by adjacent residential areas.

**Directness**

Pedestrians and cyclists often prefer the quickest and shortest route to reach their destination. Each alternative is evaluated for directness that will encourage users to utilize the new facility. The optimal alignment will be one that is clear and consistent with few turns.

**Consistency**

This criterion considers the consistency of the facility types proposed. Switching between facility types, such as a shared-use path and bicycle lanes, can cause confusion for trail users and increases conflicts between modes. Each alternative is evaluated based on the number of transitions, as well as ease of transition between sections to create a full connection.
Attractiveness

Each alternative accommodates all types of users. However, some routes provide a greater level of comfort for pedestrians or cyclists. This comfort is based on a number of factors, including: separation between modes of transportation, traffic volumes and proximity to traffic, connections to adjacent uses, conflict points and transitions, and aesthetics. This criterion evaluates the attractiveness of each route to a user and the potential to enhance the aesthetics of the surrounding area.

Implementation

This criterion evaluates how easily an alternative can be implemented. The implementation criteria includes constructibility, which involves access to the site for construction crews, work zone traffic control, and utility coordination. This also considers potential construction impacts like changes to drainage patterns, proximity to residential and commercial uses, impacts on vegetation and roadside.

Safety and Security

Safety for users can be both an actual and perceived concern. Each alternative is evaluated for potential conflicts with motor vehicles and conflicts between pedestrians and cyclists, as well as the perceived safety of trail users by providing greater visibility and access.

Public Support

The proposed routes were presented to the public at a meeting on June 2nd, 2016 for feedback. Participants were given the opportunity to select their preferred route. This criterion considers the stated preference of the public between each section of the route.

Engineering

Each alternative is evaluated based on engineering constraints. This criterion considers the complexity of each alternative and challenges that may be encountered. Engineering challenges may include topography, traffic volumes or conflicts, or railroad crossings. Potential environmental impacts are considered such as wetland & water resources, endangered species habitat, cultural & historic resources, and protected and recreational open space. Potential impacts to rights-of-way are also considered, such as the availability of space within an existing right-of-way or the need and difficulty of acquiring additional right-of-way. Required permits to construct each alignment are also considered as a factor in this evaluation.

Costs

The potential cost of each alternative is an important consideration. Some alternatives may be fiscally prohibitive. Planning level cost estimates are considered when evaluating each alternative.

Potential Funding Sources

This criterion considers available funding sources. Certain funding programs may require that emphasis be placed on transportation versus recreation. Other funding sources may be more readily available for the construction of on-road bicycle facilities versus off-road trails. Additionally, the likelihood of obtaining grant funding for each alternative is considered.
**Evaluation Table**

A table was developed using the aforementioned criteria to evaluate each facility option in comparison to the other facilities. For instance, the Implementation criterion was used to understand any obstacles that may arise in successful construction of that facility. Barriers such as tight pinch points, drainage issues, the requirement to install a retaining wall, and potential ROW infringement issues were all assessed under this criterion. A numeric score between 1 and 5 was assigned to each category, and the information is displayed graphically on the following pages in the Desirability Ranking graphics.

**Evaluation Criteria**

| BIKE/PED CONNECTION | Connections to existing bicycle and pedestrian facilities. |
| ACCESSIBILITY       | Accessibility for users of all abilities and skill levels. |
| DIRECTNESS          | Directness of each route between destinations. |
| CONSISTENCY         | Consistency of facility types along and between sections of the trail. |
| ATTRACTIVENESS      | Attractiveness of the trail for users and surrounding residents |
| IMPLEMENTATION      | Constructability and ease of implementation |
| SAFETY              | Real and perceived safety concerns. |
| PUBLIC SUPPORT      | Public preference for each alternative. |
| ENGINEERING         | Engineering, environmental, and rights-of-way constraints. |
| COSTS               | Planning level costs for each alternative. |
| FUNDING             | Potential availability of grant funding |
ROUTE ALTERNATIVES

Alternatives were explored by dividing the Study Area into three sections. These sections are:

SECTION 1

Three potential routes would connect users from the south beginning at the Albany County Rail Trail to the intersection of the on ramp to I-787/Broadway and South Pearl Street.

- **Alternative A - Railside Path:** a shared-use path between the railyard and Ezra Prentice Homes.
- **Alternative B - Sidepath:** create a sidepath on the west side of South Pearl Street.
- **Alternative C - Cycle Track & Sidewalk:** extend the sidewalk and create a two-way cycle track on the east side of the street.

SECTION 2

There are two route alternatives between the South Pearl Street intersection with the on-ramp to I-787/Broadway and Church Street to the north.

- **Alternative A - I-787 North Bound Access Road Shared-Use Path:** reduce the number of lanes on the Access Road as it approaches I-787 to make room for a shared-use path.
- **Alternative B - Green Street Shared-Use Path:** reduce the number of lanes on Green Street as it approaches I-787 to make room for a shared-use path.

SECTION 3

There are four options which between Church Street to the Mohawk-Hudson Bike Hike Trail.

- **Alternative A - I-787 Underline Shared-Use Path:** take advantage of underutilized space beneath I-787 with a shared-use path.
- **Alternative B - Broadway Shared-Use Path:** create a shared-use path along the east side of Broadway.
- **Alternative C - Church Street Cycle Track:** construct a two-way cycle track on the east side of Church Street.
- **Alternative D - Green Street Bike Boulevard:** traffic calming measures can be implemented on Green Street to improve cycling conditions.
Map 1 - Proposed Routes

Map 1 identifies the routes considered throughout the study corridor.
SECTION 1

Section 1 begins at the Albany County Rail Trail trailhead on South Pearl Street and continues north to the intersection with I-787. A strong preference for a separated path was expressed through public and stakeholder outreach. Participants indicated that the high level of truck and transit traffic on South Pearl Street as the reason for the separated path. Three concepts were developed that incorporate a separated path, with varying levels of separation.

**Alternative A: Railside Path**

Alternative A provides a shared-use path, parallel to, but separate from, South Pearl Street following along the existing rail line. The shared-use path is proposed to be 10 feet wide and paved with asphalt. A chain link fence already exists adjacent to the railroad line and should be maintained. Trail lighting is recommended for this alternative.
ALTERNATIVE B: SIDE PATH

Alternative B creates a sidepath on the west side of South Pearl Street by expanding the existing sidewalk to accommodate both cyclists and pedestrians. The Sidepath provides additional comfort to trail users and separation from the street by using the existing curbs and a 3-foot buffer zone.

ALTERNATIVE C: CYCLE TRACK AND SIDEWALK

Alternative C proposes the development of an on-road, two-way cycle track, while utilizing the existing sidewalk for pedestrians. Alternative C includes an 8-foot wide cycle track on the east side of South Pearl Street with a 3-foot buffer zone between the cycle track and adjacent vehicle traffic. This buffer zone can be created using striping and flexible bollards.

Figure 2-2: Cross-section of Sidewalk

Figure 2-3: Cross-section of Cycle Track and Sidewalk
**SECTION 1 EVALUATION**

**Alternative A: Railside Path**

Alternative A is the most comfortable route alternative for pedestrians and cyclists, given its separation from vehicle traffic. However, the proposed alignment provides minimal visibility to and from the roadway, requires property acquisition, and includes several ‘pinch-points’ that would bring the trail facility directly up to Albany Housing Authority buildings. While Alternative A provides a more seamless transition from the Albany County Rail Trail, a concern over residents’ privacy was voiced during public input sessions, noting some trail users and residents may feel uncomfortable with the location of a trail in such close proximity to Ezra Prentice Homes.

**Alternative B: Sidepath**

Alternative B provides improved access to the Connector and a more comfortable user experience. However, Alternative B requires: the installation of a retaining wall, property acquisition, replacement of the existing sidewalk, and two street crossings along South Pearl Street. These factors decrease the directness of the trail, introduce additional conflict areas between users and motor vehicles, and increase the cost of implementation.

**Alternative C: Cycle Track and Sidewalk**

The ease of implementation and flexible design makes Alternative C a desirable option. The road treatment utilizes delineators to establish the dedicated bicycle lane, which can be removed during the winter in order to plow the corridor. Alternative C also helps to alleviate public perceptions and concerns that high speeds create dangerous road conditions on South Pearl Street. By reducing the width of the travel lanes and providing a separated facility from traffic for cyclists, crossing distance for pedestrians is shortened and the location becomes more appealing to both cyclists and pedestrians of all ages and confidence levels. Establishing a cycle track and enhancing sidewalk conditions increases the visibility of the trail, further promoting both its use and perceived safety. Integration with the future Bus Rapid Transit (BRT) station presents a good opportunity to introduce a one-of-a-kind intermodal station to Albany residents. The connection to transit and expansion of the parking facilities extends the potential trip distance and mode options for residents and visitors.

**SECTION 1 ALTERNATIVES COMPARISON**

After a side-by-side evaluation, Alternative B does not have the same level of public support as Alternative C. Furthermore, it requires at least two road crossings which both increases the complexity of the trail and conflicts with other users of the roadway.

While Alternative A provides a level of continuity and aesthetic consistency to the existing Albany County Rail Trail, Alternative C showed greater public support. The ease and accessibility to the Albany County Rail Trail, connectivity with multiple modes of transportation, and lower cost of implementation makes Alternative C the most desirable option.
PREFERRED: CYCLE TRACK AND SIDEWALK

- Visible to public and community
- Reduces roadway crossings and conflicts
- Enhances connection between alternate modes of transportation, such as cycling to transit.
SECTION 2

Section 2 is defined by the boundaries of the intersection of South Pearl Street at Mount Hope Drive and the corridor of Church Street. The most notable feature of Section 2 is the presence of Exit 1 of I-787. This exit has two ramps, one on either side of the flush section. The ramps are serviced by an access road, linking both sides to South Pearl Street and Church Street. Section 2 has two alternatives for consideration: a shared-use path on the North Bound (NB) Access Road and a shared-use path on Green Street.

ALTERNATIVE A: I-787 NB ACCESS ROAD SHARED-USE PATH

Alternative A follows the I-787 NB Access Road by replacing the existing outside travel lane with a shared-use path. The proposed 10-foot wide shared-use path would include a jersey barrier for protection from motor vehicles.
Lighting and fencing on the east side of the exit ramp are recommended to provide a buffer between the trail and the adjacent rail line.

**ALTERNATIVE B: GREEN STREET SHARED-USE PATH**

Alternative B provides a 10-foot shared-use path along the I-787 Access Road. The inclusion of a 3-foot buffer zone separates the Path from the road’s shoulder with a jersey barrier to provide vertical physical protection. Implementation of Alternative B requires the removal of the existing outside travel lane, removing the right-turn slip lane at Green Street, Church Street, and closing the Vine Street approach to simplify movements and

**SECTION 2 EVALUATION**

**Alternative A: I-787 NB Access Road Shared-Use Path**

Alternative A parallels an active rail line 30 feet to the east of the proposed path. Some may perceive the experience negatively due to the proximity to freight trains. The lack of shade and significant amount of pavement may also make this connection uncomfortable during warm summer days. Planting trees along the eastern fence to provide shade and an attractive mask or screening to the industrial rail line has the potential to reduces challenges to Alternative A. Despite the challenges, the majority of cyclists and pedestrians stated that Alternative A is a more intuitive route to destinations between the waterfront north of the Port of Albany and South Pearl Street.

**Alternative B: Green Street Shared-Use Path**

The Green Street Shared-Use Path is an accessible alternative that would provide connections to community resources. However, there are significant engineering constraints, including three additional crossings that would increase the complexity of design and cost of construction. A challenge to Alternative B is the need to bring the Path through multiple intersections. This raises the cost, complicates implementation, and increase the complexity for users.
Section 2 Alternatives Comparison

Alternative A and B require reconfigurations to the travel lanes to accommodate a path. While Alternative B is a more accessible option, constructing three additional crossings increases the complexity of design and cost of construction.

Implementation of Alternative A has the potential to be easier than Alternative B. Alternative A also has stronger public support largely as a result of being perceived as a more direct, consistent, and safe route.

Significant drawbacks to Alternative A include aesthetic concerns as well as distance from central South End destinations, such as museums, schools, and commercial centers. Incorporating plantings along the corridor would enhance the visual quality of the trail and screen the rail yard and provide additional environmental benefits such as stormwater mitigation and improvements to air quality. To account for the lack of connection to destinations in the South End with this alignment, wayfinding enhancements should be incorporated into the bike network.
### Section 2 Desirability Rating

<table>
<thead>
<tr>
<th>Category</th>
<th>I-787 NB Access Road Shared-Use Path</th>
<th>Green Street Shared-Use Path</th>
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**Preferred: I-787 NB Access Road Shared-Use Path**

- Most direct route for cyclists and pedestrians
- Utilizes existing pavement
SECTION 3

Section 3 begins at Vine Street as it crosses under I-787. It continues north with four potential alternatives to connect to the Mohawk-Hudson Bike-Hike Trail at the U.S.S. Slater along the Hudson River.

**Alternative A: I-787 Underline Shared-Use Path**

Alternative A utilizes the empty space under I-787 through the installation of a shared-use path. On Church Street, between Bassett Street and Cherry Street, the path transitions to an on-road two-way cycle track, as illustrated in Figure 3-10. Alternative A includes the installation of lighting and fencing, and may involve the installation of a linear, urban park under I-787 as a long-term improvement. The linear park could include murals on the support pillars and community amenities including: playgrounds, ample bicycle parking, and benches.
**Alternative B: Broadway Shared-Use Path**

Alternative B provides a shared facility for pedestrians and bicyclists by reducing the width of both existing travel lanes. The Broadway Shared-Use Path includes a buffer zone with a fence in order to increase the trail users’ comfort and safety.

**Alternative C: Church Street Cycle Track**

Alternative C involves the development of a two-way cycle track along Church Street. The Church Street Cycle Track provides a two-way, separated facility for cyclists that is protected by a striped buffer with flexible bollards. Implementation of Alternative C requires reducing the existing travel lane widths along Church Street and removing on-street parking. Pedestrians using the trail can utilize the existing sidewalks on Church Street.

**Alternative D: Green St. Bike Blvd.**

Development of the Green Street Bike Boulevard involves the introduction of traffic calming and traffic diversion, such as speed humps, curb extensions, and street closures. Alternative D encourages pedestrians to use existing sidewalks, while cyclists and motorists share the street.

*EC = Existing Conditions*
**Section 3 Evaluation**

**Alternative A: I-787 Underline Shared-Use Path**

Alternative A provides a comfortable, separated facility, and can be installed at a relatively low cost due to the existing site disturbance, grading, and materials. The Underline Shared-Use Path offers protection from inclement weather by being located under I-787, improves access between the neighborhoods on the west and the waterfront on the east, and reduces potential conflicts with vehicles. The Path also provides better sight lines compared to the other alternatives, which improves perceived safety. The unused and vacant appearance of the space is currently uninviting. Re-imagining the space with creative features in addition to the shared-use path and related facilities will draw users to the area.

**Alternative B: Broadway Shared-Use Path**

Alternative B brings the trail alignment closer to the waterfront. Additionally, commercial development along Broadway is increasing and would benefit from linking the Connector through its corridor to further promote redevelopment of this corridor. The Broadway Shared-Use Path also offers views of the Hudson River which increases the desirability of the Path. However, Alternative B is further away from residential neighborhoods, which decreases accessibility. Necessary infrastructure upgrades to safely cross the railroad, reconstruct the roadway, and relocate utilities along the corridor presents greater engineering challenges compared to other alternatives. Excluding the sidewalks near Island Creek Park and in front of the U-Haul building, the Broadway alternative does not connect to existing bicycle or pedestrian facilities.

**Alternative C: Church Street Cycle Track**

The low traffic volumes on Church Street make Alternative C an attractive roadway for the installation of a cycle track. The Church Street Cycle Track requires more upfront expenditures compared to the other alternatives. As illustrated in Study Reports conducted by Creighton Manning located on page A-41 of the Appendix, a portion of the roadway could be closed to vehicle traffic with little impact on existing traffic patterns.

**Alternative D: Green St. Bike Blvd.**

Green Street is an attractive corridor and has the potential to provide a strong connection between the trail and the South End. While Alternative D does not present a separated facility for cyclists, the Bike Boulevard lowers traffic volumes so that all users can be comfortable in sharing the street. Some sections of Green Street already have traffic calming and streetscaping features, while other sections require greater improvements. Wayfinding and branding is also needed to ensure cyclists and pedestrians are aware of the facility.

**Section 3 Alternatives Comparison**

All of the Section 3 alternatives have the potential to be implemented and enhance the existing network. There is clear public support for a shared-use path below I-787. Re-imagining and developing the underutilized space is an important priority for the South End and would soften, if not eliminate, a barrier between the South End and the waterfront. The two-way cycle track is another feasible alternative that could be easily implemented. As redevelopment occurs along Broadway, easements should be obtained and a shared-use path along the riverfront or along Broadway should be considered for future construction.
PREFERRED: I-787 UNDERLINE SHARED-USE PATH

- Activates an unused space
- Creates a connection closer to the community
FINDINGS

Based on the preceding evaluation, it is recommended that the City of Albany strongly consider constructing the following facilities to connect users safely between the Albany County Rail Trail and the Mohawk-Hudson Bike-Hike Trail:

1. A continuation of the shared-use path from the trailhead of the Albany County Rail Trail adjacent to the existing parking area through the proposed Bus Rapid Transit station and terminus at the southern end of South Pearl Street.

2. As the shared-use path approaches South Pearl Street, the facility would transition to a cycle-track along the eastern edge of the roadway. Cyclists would use the on-road, two-way separated facility while pedestrians utilize the sidewalk adjacent to South Pearl Street.

3. The pedestrian and bicycle facilities (sidewalk and cycle track) would merge at the intersection of the South Pearl Street and the I-787 North Bound Access Road into a protected shared-use path along the roadway.

4. At the northern intersection of the I-787 off-ramp and Church Street, the path would continue across the roadway to the trail below the I-787 superstructure. The path would continue below I-787 running north/south parallel to Church Street.

5. At the intersection with Broadway, the shared-use path would turn east towards the waterfront to connect with the southern most terminus of the Mohawk-Hudson Bike-Hike Trail at Quay Street.
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SELECTED ROUTE
INTRODUCTION

The Route Analysis chapter identified several route alternatives in the Study Area. All alternatives were evaluated based on eleven criteria to determine the preferred alternative in each of the three sections. The evaluation criteria, also outlined in detail in Chapter 2, were:

- Existing bicycle and pedestrian connections
- Accessibility to residents and visitors
- Directness of the route
- Consistency in design and scale
- Attractiveness of the route to potential users
- Ease of implementation
- Safety and security
- Public support
- Engineering aspects and constraints
- Cost of implementation
- Ease of obtaining funding

The alignments selected based on the evaluation criteria are listed below and shown in the adjacent map.

SECTION 1
- Alternative C: Cycle Track and Sidewalk

SECTION 2
- Alternative A: I-787 NB Access Road
  Shared-Use Path

SECTION 3
- Alternative A: I-787 Underline Shared-Use Path

The cost estimate to construct the proposed Waterfront Connector is $1.5 million. A detailed cost estimate can be found on page A-29 of the Appendix.
Map 5 - Selected Route
Map 5 displays the selected route for the Albany Waterfront Connector.
SECTION 1

Cyc]le Track and Sidewalk

Three potential routes to connect users from the south beginning at the Albany County Rail Trail to the intersection of the on ramp to I-787/Broadway and South Pearl Street were evaluated. The Cycle Track and Sidewalk route was chosen as the preferred option.

Implementing the Cycle Track and Sidewalk route requires the removal on-street parking on the east side of South Pearl Street. A parking count was conducted in November of 2016 to determine any potential impacts to implementing the Cycle Track. Table 4-1 summarizes the results of the parking count. During the parking count, less than 20 vehicles were parked on South Pearl Street. The west curb along this portion of South Pearl Street accommodates more than 40 on-street parking spaces, which provides adequate on-street parking.

It is important to accommodate pedestrians in this section since the reduced amount of parking will require motorists to cross the street. Additionally, if implemented, Albany County would likely need to acquire more of the adjacent property or an easement in order to expand their parking and accommodate the trail connection.

Figure 3-1: Proposed Bus Rapid Transit Blue Line Station

The proposed station would serve as a gateway between the Albany County Rail Trail and the Waterfront Connector, as well as a transfer station between modes of transit for both residents and visitors. The new station would incorporate new Bus Rapid Transit (BRT) boarding facilities, a multi-use path, new plantings and stormwater management infrastructure, and improved access to parking.
Table 1: South Pearl Parking Count

<table>
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<tr>
<th>Segment</th>
<th>Mid-Day</th>
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<td>West</td>
<td>East</td>
<td>West</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Trailhead driveway to Center for Disabilities North Driveway</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center for Disabilities North Driveway to Mount Hope Drive</td>
<td>15</td>
<td>3</td>
<td>15</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*EC= Existing Conditions

Figure 3-2: Cross-section of Cycle Track & Sidewalk

8' | 3' | 7' | 11' | 11' | 3' | 8' | 8' |

Sidewalk | Shared Lane & Parking | Shared Lane & Parking | Sidewalk

10' WIDE TWO-WAY CYCLE TRACK
5' WIDE SIDEWALK
5' WIDE STORMWATER PLANTER
20' WIDE STORMWATER PLANTER
BICYCLE CROSSING
10' WIDE TWO-WAY CYCLE TRACK ON ROAD
PEDESTRIAN CROSSING

Yellow line
Metal hand rail
C.I.L.
C.I.L.
Gate
20' Wide C.I.L.
Cars

SIDEWALK CONNECTION TO EDWS TO BE DETERMINED
Map 6 - South Pearl Street to I-787

Map 6 illustrates the proposed improvements to existing street and sidewalks to install a shared-use path.
Summary Analysis

The Cycle Track and Sidewalk route was selected for multiple reasons, including:

- A separated bike facility which improves safety and accessibility to all users.
- Removable flexible delineators which allow for low-cost maintenance.
- Reduced travel lane widths which have a traffic calming effect and improve the attractiveness of the street to cyclists and pedestrians.
- High visibility in the South End which creates a direct, consistent connection from the Albany Rail Trail through this section of the South End.
- A direct link to the future Bus Rapid Transit station represents an opportunity to create a more robust intermodal station.
**SECTION 2**

**I-787 NB ACCESS ROAD SHARED-USE PATH**

The selected Section 2 route includes a 10-foot wide shared-use path featuring a jersey barrier buffer, lighting, and fencing on the east side of the I-787 exit ramp. The shared-use path would replace the existing outside travel lane.

A Level of Service (LOS) assessment was conducted by Creighton Manning Engineering to analyze changes to the traffic service to the weave pattern of both Exit 2 off-ramps (see page A-30 of the Appendix for the complete memo).

Level of Service is a qualitative measure used to illustrate the quality of traffic service based on measures such as speed and density. LOS standards use letters to measure traffic flow, with A being the best, and F being the worst:

- **A**: Free flow
- **B**: Reasonable free flow
- **C**: Stable flow, at or near free flow
- **D**: Approaching unstable flow
- **E**: Unstable flow, operating at capacity
- **F**: Forced or breakdown flow

The analysis shows that a reduction from three lanes to two to accommodate the protected cycle track would result in a slight reduction in Level of Service from ‘A’ to ‘B’. This LOS reduction would occur in the Northbound direction during the AM peak hour as well as in the Southbound direction during the PM peak hour. Table 2 summarizes the weave LOS analysis.

In addition to the Level of Service study, a turning movement count (TMC) was conducted at the intersection of Church Street and the I-787 NB Access Road intersection on December 7, 2016 from 7:00am to 8:00am. The result of the TMC and LOS analysis showed that under typical conditions, without delays from a train, that the northbound left and right turning lanes will operate at the current LOS. The Connector will result in an increase in the average vehicle delay by less than one second.

The LOS assessment also indicates that the maximum northbound queue under this option would be approximately 950 feet (38 vehicles) which would not impact operations of the weaving area associated with the northbound Exit 2 ramps for I-787 located approximately 1,200 feet south of Church Street.

<table>
<thead>
<tr>
<th>Table 2: I-787 Exit 2 Interchange Weave LOS Analysis</th>
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<tr>
<td><strong>I-787 Exit 2 Interchange Weave Level of Service Analysis</strong></td>
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<tr>
<td><strong>Location</strong></td>
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<tr>
<td></td>
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<tr>
<td>NB Access Road Weave (NY32)</td>
</tr>
<tr>
<td>SB Access Road Weave (NY32)</td>
</tr>
</tbody>
</table>
Summary Analysis

The I-787 NB Access Road Shared-Use Path is the selected route for multiple reasons, including:

- The space between the railroad and pavement will allow for the introduction of trees and other plantings along the east fence to provide shade and an attractive buffer from the railroad. This area can also be used for stormwater mitigation.

- The I-787 NB Access Road Shared-Use Path is more intuitive for trail users, is a direct line between destinations, and is generally the preferred route for current cyclists and pedestrians traveling between the waterfront north of the Port of Albany and South Pearl Street.

- This route has strong public support as evidenced during public meetings and survey analysis.

- Four conflict areas in the I-787 SB option are avoided. By avoiding these conflict areas, costs are also reduced.

- A well-designed wayfinding program will connect trail users to amenities in the South End.

- There is little to no change to average delay at the intersection of Church Street and the I-787 Access Road.

- Vehicle queues will not impact I-787 operations.
Map 7 - Green Street & I-787
Map 7 illustrates the proposed shared-use path as it crosses Church Street.
Railroad Crossing Considerations

Green Street is an essential crossing between the South End and Island Creek Park, the only recreational access to the Hudson River in the South End.

A signal update at the at-grade railroad crossing on Green Street was included in the CDTC 2016-2021 Transportation Improvement Program (TIP) prior to the beginning of this Study. An amendment to the TIP may be required to include additional cyclist and pedestrian improvements. These safety improvements should be included in the long-term operations and maintenance plans.

Refer to page A-39 of the Appendix for a conceptual cost estimate produced by Creighton Manning Engineering (CME).
SECTION 3

I-787 **Underline Shared-Use Path**

The selected Section 3 route utilizes the empty space under I-787 through the installation of a shared-use path beneath the elevated Interstate superstructure. The Shared-Use Path is proposed to utilize the existing width of Church Street with a sidepath separated using flexible delineators. There is a pinch point underneath I-787 between the railroad and Church Street. This segment is shown in the plan view on page 3-12.

The I-787 Underline Shared-Use Path should include the installation of a linear park beneath I-787, along with lighting and fencing. The linear park could include murals on the supporting pillars as well as community activities and amenities, including: playgrounds, bike parking, and benches.

The photo-simulation below shows the potential transformation after implementation of this route. This rendering includes a 10-foot shared-use path, eco-friendly playground flooring, a rock climbing wall, lighting, bicycle racks, and other amenities.

Figure 3-3: Photo-simulation of the I-787 Underline Shared-Used Path
Summary Analysis

The I-787 Underline Shared-Use Path is the selected route for multiple reasons, including:

- The existing site conditions result in a relatively low-cost, separated facility.
- A majority of the route will be protected from precipitation and hot sun by I-787.
- This route provides access to the neighborhoods to the west of Church Street and high visibility for residents and visitors.
- This route would transform the currently unused, vacant, and uninviting space into a destination.
- There is clear public support for a shared-use path below I-787 as evidenced during public meetings and survey analysis.
- Redeveloping the underutilized space would activate the area, assisting in removing a barrier between the community and the waterfront.

Figure 3-4: Church Street Cycle Track at the I-787 Pinch Point
Map 8 - Broadway & I-787

Map 7 illustrates the proposed improvements to the intersection of Broadway & Quay.
APPENDIX
SECTION A
EXISTING CONDITIONS
INTRODUCTION

The primary objective of this feasibility study is to identify the best connection that will close the gap between the approximately 1.5 mile gap between the Albany County Rail Trail and the Mohawk-Hudson Bike-Hike Trail. The proposed connection will build on existing efforts by the City of Albany to enhance bicycle and pedestrian networks, promote healthy and sustainable modes of transportation, address residential blight, and spur reinvestment in the South End neighborhood. The following summary and analysis is based on a review of existing data, plans, and policies in concert with input from the Waterfront Feasibility Study Technical Advisory Committee and other key stakeholders.

South End

The South End is one of Albany’s oldest neighborhoods. The neighborhood functions primarily as a residential area interspersed with commercial activity.

South of U.S. Route 20 and west of I-787 are two residential neighborhoods, the Pastures and Steamboat Square, where many historic homes were rehabilitated by homeowners and some were converted to condominiums and apartments. Steamboat Square is an affordable housing complex owned and operated by the Albany Housing Authority. In addition, new homes were constructed along South Pearl Street.

The City of Albany and the South End Action Committee (SEAC) have completed major development and redevelopment projects including the John A. Howe Library expansion, community gardens, and many affordable housing units through the South End Revitalization Project and in conjunction with the Albany Housing Authority and Habitat for Humanity.

Port of Albany

The Port of Albany is the only Upstate port with year-round access to ocean-going vessels. The City’s emergence as an intermodal highway and rail center was fostered, in part, by the attraction of the Port and its facilities.

The area around the Port features a landscaped facility providing docking for the USS Slater Historical Museum and Dutch Apple Cruises. Directly south is the Albany U-Haul warehouse and van yard. Further south are several other industrial/warehouse buildings currently occupied by small-scale wholesale and storage companies. Recent renovations of these buildings have promoted commercial stability around the Port.

Figure A-1 - Existing Trails and Connector Gap
Figure A-1 shows the existing regional trails and the 1.5 mile gap between them that defines the southern and northern boundaries of the Study Area.
Map A-1 shows the existing terminus of the two trails that define the northern and southern boundaries of the Study Area.
EXISTING CONDITIONS INVENTORY

Existing conditions were assessed and an inventory of relevant facilities in the Study Area were collected for the purposes of identifying potential routes, barriers, and opportunities.

The Study Area is defined to the north by the trailhead to the Mohawk-Hudson Bike-Hike Trail, to the east by the Hudson River waterfront, to the south by the trailhead to the Albany County Rail Trail, and to the west by the properties along the west side of South Pearl Street.

DEMOGRAPHIC CHARACTERISTICS OF AREA

The Study Area has a total population just under 10,000 people, with nearly a third living in poverty. The average median income is under $30,000, and currently just over 6% of people bike or walk to work. Map A-2 shows the boundaries of the South End census tracts.

Population

The total population of the Study Area is 9,975, with 62.3% estimated to be Black or African American. The City of Albany and Albany County, on the other hand, are majority white. The Hispanic population of the Study Area is comparable to the City of Albany, and only slightly higher than Albany County.

Age

The largest demographic proportion (23.1%) of the population belongs to those between 20 and 34. The smallest groups are those under the age of 5 (7.6%) and those 65 and older (9.4%).

Overall, the Study Area trends younger than both the City of Albany and Albany County. 29.5% of the Study Area is under the age of 20, compared to 24.5% and 23.7% for the City of Albany and Albany County respectively.

Figure A-2: Demographic Summary

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<tr>
<td><strong>Total Population</strong></td>
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<tr>
<td><strong>People Who Walk or Bike to Work</strong></td>
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<td><strong>Unemployment Rate</strong></td>
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Demographic analysis is based on information provided by the Capital District Regional Planning Commission (CDRPC) for census tracts 23, 25, and 26.
Map A-2 - Census Tracts
Map A-2 displays the Census Tracts in the Study Area.
Commute to Work

The primary method for traveling to work within the Study Area is to drive alone, with 56.2% of commuters choosing this method. Nearly a quarter (24.1%) of those commuting to work are doing so via public transportation, while 13.1% are carpooling. Less than 10% commute to work in another manner (biking, walking, etc.) Outside of the Study Area, driving is the dominant method for commuting to work. More than 3 out of 4 commuters in Albany County reported driving alone. Residents of the Study Area have higher usage rates of transit and carpool than the City of Albany and Albany County, but lower rates of other methods, such as biking or walking.

Economic Indicators

The Study Area has a higher unemployment rate than both the City of Albany and Albany County. The unemployment rate in the Study Area (12.0%) is 34.8% higher than the City of Albany and 76.4% higher than the unemployment rate for Albany County.

The Study Area has a significantly lower median household income than the City or the County. The median household income ($28,493) of the Study Area is 30.7% lower than the City, and less than half that of Albany County (52.5%).
Roughly one third of the residents in the Study Area are living in poverty. One quarter of Albany residents are living below the poverty line. The County as a whole has 13.6% percent of the population living in poverty, nearly half the rate of the City of Albany, and 59% of that of the Study Area.

26.9% of homeowners are spending 30% or more of their income on their housing. 54.1 % of all renters in the Study Area spending 30% or more on their housing.

90% of the population within the Study Area reported having access to health insurance, while 9.8% reported having no access to health insurance.

**Public Health Data**

**Obesity**

In New York State, obesity rates are “significantly higher in school districts in which a higher proportion of students are eligible for free or reduced price lunch.” As reported in the Community Health Needs Assessment (2013) for Albany, Rensselaer and Schenectady Counties, obesity rates are higher among the Capital Region’s school children than the rest of the State. In response to increasing concerns about the effects of obesity among the population, especially in children, New York’s Obesity Prevention Program funded “Creating Healthy Places” to increase physical activity and access to healthy foods. According to the Healthy Capital District Initiative, the obesity rate for children enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) has decreased over the past decade. The presence of a publicly accessible fitness trail has the potential to improve health outcomes for residents.

**Land Use**

The South End is generally characterized as a

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1 NYSDOH - Information for Action #2013-06 report, July 2013
2 CDC - NY State Nutrition, Physical Activity and Obesity Profile
moderately dense urbanized area with a mix of residential, commercial, and industrial properties.

**Redevelopment Opportunities**

Parcels designated as vacant, brownfields, or parks and other recreational activities offer opportunities for redevelopment or enhancement.

**Vacant Properties and Lands**

Over 900 properties are classified as vacant within the South End, equaling approximately 120

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**2016 COMMUNITY HEALTH NEEDS ASSESSMENT**

*Select South End Health Statistics*

**DIABETES**

The South End neighborhood had a hospitalization rate* of 450 and an emergency room visit rate* of 640, both of which are over 150% higher than the state hospitalization rate**

**CHRONIC LOWER RESPIRATORY DISEASE**

The South End neighborhood had 4 times the emergency room visit rate and 2.7 times the state hospitalization rate

**CONGESTIVE HEART FAILURE**

The South End neighborhood had a hospitalization rate* of 42, over 150% higher than the state hospitalization rate**

**CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

The South End neighborhood had a hospitalization rate* of 79 and an emergency room visit rate* of 311, both of which are over 150% higher than the state hospitalization rate**

**ASTHMA**

The South End neighborhood had 5 times the emergency room visit rate and 4 times the state hospitalization rate

The South End neighborhood had a hospitalization rate* of 48 and an emergency room visit rate* of 252, both of which are over 150% higher than the state hospitalization rate**

*Age-Adjusted Rate per 10,000

**Excludes New York City Rates

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Map A-3 shows the distribution of land use in the Study Area.
acres. The vast majority of these properties are categorized as vacant residential land. Large tracts of undeveloped property along the I-787 corridor provide good potential sites for the Connector. Nearly a quarter of the vacant property is currently in the possession of public entities such as the City of Albany, Albany Housing Authority, and the State of New York. The Albany County Land Bank, created in 2014 to acquire, improve, and redistribute vacant properties, includes the South End as one of their focus areas.

Overall, 50 vacant parcels are along important corridors in the Study Area including South Pearl Street, Green Street, and Church Street.

Brownfields
The waterfront in the South End Study Area has been identified as a priority site (The South Waterfront District Brownfields Opportunity Area) based on a Brownfield Opportunity Area Step One Pre-Nomination Study. In addition to the South Waterfront District Brownfields Opportunity Area, there are two additional remediation sites listed in the New York State Department of Environmental Conservation’s Division of Environmental Remediation Database that are located in the Study Area.

The first site is located at the corner of Gansevoort and Franklin Streets and the second site is located to the north of Third Avenue, east of Clinton Street, south of Fourth Avenue, and west of Broad Street.

Together the two sites comprise over an acre of land where groundwater use is prohibited and a protective cap was constructed to prevent exposure to sub-surface contaminants.
These sites represent potential locations for creating enhanced public spaces.

**Parks and Landmarks**

Scattered throughout the South End Study Area are large green spaces, community gardens, waterfront parks, and small recreation lots such as those found in the courtyards of the Pastures neighborhood. In addition, there are a number of nearby historic and cultural landmarks.

The proposed trail aims to provide connections to the following areas:

- The Corning Preserve
- Island Creek Park
- Krank Park
- Cherry Hill
- Lincoln Park
- The Schuyler Mansion State Historic Site
- Howe Library
- U.S.S. Slater and Dutch Apple Cruises

**ZONING**

The City of Albany recently underwent an initiative to update its zoning. As part of the rezoning effort, key areas - including the northern portion of the South End - were selected for a form-based code approach.

According to the plan, “the purpose of the MU-FS [Mixed-Use Form-Based] District is to encourage redevelopment in the South End area by recreating a more fine-grained street system that encourages internal pedestrian and bicycle circulation encouraging a vibrant mix of residential and non-residential uses, and creating new investment opportunities along the waterfront.”

**TRANSPORTATION**

The data used to assess existing conditions related to transportation was obtained from the New York State Department of Transportation (NYSDOT) Roadway Inventory System (RIS), the Capital District Transportation Committee (CDTC), and the City of Albany.

**Highway/Roadway Data**

Information pertaining to the designation and use of roadways in the Study Area can help establish important baseline criteria for determining safe and accessible routes.

**Number of Lanes**

With the exception of I-787, the roadways are generally two-way, with one travel lane in
each direction. Other than the roads and ramps onto and exiting I-787, the following roadways within the Study Area are one-way: Westerlo Street, John Street, and an alley between Dongan Avenue and Green Street.

Lane Width

In addition to the data found in the NYS Roadway Inventory System Geodatabase available from NYSDOT, roadway widths were sampled in the field, specifically South Pearl Street adjacent to the Ezra Prentice Homes, Church Street beneath I-787, Church Street near the intersection with Ferry Street, and Broadway near the intersection with 4th Avenue.

South Pearl Street in front of the Ezra Prentice homes is 40 feet wide from curb to curb with 7 feet for parking, 8 feet of sidewalk on either side, and an 8.5 foot wide crosswalk.

Church Street between Bassett Street and Cherry Street below I-787 has two 11.5 foot wide travel lanes, 3.5 feet wide striped shoulders, and a crosswalk on the western side.

Broadway near the intersection with 4th Ave. is 24 feet wide with a 4 feet wide paved shoulder to the east and a 5.5 foot shoulder on the west side of the road. There is a 12 foot wide unpaved area between the shoulder and fence that bounds the property owned by Adirondack Transit Lines.

Church Street near South Ferry Street has 17 foot wide travel lanes, no shoulders, and a 10 foot wide sidewalk on the western side of the road.

On-street Parking

On-street parking is widely available on roadways within the South End Study Area, limited on some streets to one side, and metered in only a few locations.

Parking is permitted on either side of South Pearl Street. Field observations found vehicles on the western side, adjacent to the Ezra Prentice Homes, generally park on the sidewalk even though there is sufficient room on the roadway for traffic and parking. Reduced curb heights allow vehicles to park over the curb.

A parking count was taken on November 17, 2016 on South Pearl Street. The number of vehicles parked on the east and west side of the road were tallied once in the afternoon and again in the evening.

Traffic Volumes

Map A-4 shows annual average daily traffic (AADT) volume in the South End. The section of South Pearl Street, south of I-787 and the service road on and off the highway in this area sees the greatest traffic volume, on average over 15,000 vehicles daily. Otherwise all other significant corridors off the Interstate have AADT counts under 10,000 vehicles. Green Street, Church Street, and Broadway all have daily traffic volumes under 5,000 vehicles per day.

Speed Limit

Most of the roadways within the Study Area are posted at 30 miles per hour. Motorists are
## Table A-1: Study Corridor Roadway Characteristics

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Pavement Width</th>
<th>Ownership</th>
<th>Lanes</th>
<th>Speed Limit (MPH)</th>
<th>On-Street Parking</th>
<th>Sidewalk</th>
<th>Bike Infra.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>South Pearl St (north of I-787)</strong></td>
<td>Varies from 26’ to 32’</td>
<td>City</td>
<td>2 lanes</td>
<td>30</td>
<td>Both sides</td>
<td>Both sides</td>
<td>Shared lane markings</td>
</tr>
<tr>
<td><em><em>South Pearl St</em> (south of I-787)</em>*</td>
<td>Varies from 38’ to 40’</td>
<td>City</td>
<td>2 lanes</td>
<td>30</td>
<td>Intermittent one side</td>
<td>Both sides*</td>
<td>None</td>
</tr>
<tr>
<td><strong>South Ferry St</strong></td>
<td>Varies from 22’ to 30’</td>
<td>City</td>
<td>2 lanes</td>
<td>30 (unverified)</td>
<td>Both sides</td>
<td>Both sides</td>
<td>None</td>
</tr>
<tr>
<td><strong>Church St (from S. Ferry to Bassett)</strong></td>
<td>Varies from 26’ to 30’</td>
<td>City</td>
<td>2 lanes</td>
<td>30</td>
<td>None</td>
<td>One side</td>
<td>None</td>
</tr>
<tr>
<td><strong>Rensselaer St</strong></td>
<td>Varies from 32’ to 56’</td>
<td>City</td>
<td>2 - 3 lanes</td>
<td>30 (20 in School Zone)</td>
<td>One side</td>
<td>Both sides</td>
<td>Shared lane markings</td>
</tr>
<tr>
<td><strong>Schuyler St</strong></td>
<td>32’</td>
<td>City</td>
<td>2 lanes</td>
<td>25</td>
<td>One side</td>
<td>Both sides</td>
<td>None</td>
</tr>
<tr>
<td><strong>Green St</strong>** (south of Vine / Highway off-ramp)**</td>
<td>48’</td>
<td>City</td>
<td>2 - 3 lanes</td>
<td>30</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Green St</strong> <strong>(north of Vine)</strong></td>
<td>44’</td>
<td>City</td>
<td>2 lanes</td>
<td>30</td>
<td>Intermittent both sides</td>
<td>Both sides</td>
<td>None</td>
</tr>
<tr>
<td><strong>Broadway St</strong></td>
<td>42’</td>
<td>City</td>
<td>4 lanes</td>
<td>30</td>
<td>Both Sides</td>
<td>None***</td>
<td>None</td>
</tr>
<tr>
<td><strong>Bassett St</strong></td>
<td>32’</td>
<td>City</td>
<td>2 lanes</td>
<td>30</td>
<td>Intermittent both sides</td>
<td>Both sides</td>
<td>None</td>
</tr>
<tr>
<td><strong>Dongan Ave</strong> <strong>(from S. Ferry to Green)</strong></td>
<td>28’</td>
<td>City</td>
<td>2 lanes</td>
<td>25</td>
<td>One side</td>
<td>Consistent one side, intermittent one side</td>
<td>None</td>
</tr>
<tr>
<td><strong>Dongan Ave</strong> <strong>(from 4th to Cherry)</strong></td>
<td>28’</td>
<td>City</td>
<td>2 lanes</td>
<td>30</td>
<td>One side</td>
<td>One side</td>
<td>None</td>
</tr>
<tr>
<td><strong>Fourth Ave</strong></td>
<td>32’</td>
<td>City</td>
<td>2 lanes</td>
<td>25</td>
<td>Both sides</td>
<td>Both sides</td>
<td>None</td>
</tr>
<tr>
<td><strong>Vine St</strong></td>
<td>22”</td>
<td>City</td>
<td>2 lanes</td>
<td>n/a</td>
<td>Industrial CC/commercial</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Ganesvoort St</strong></td>
<td>Varies from 20’ to 26’</td>
<td>City</td>
<td>2 lanes</td>
<td>n/a</td>
<td>Industrial / commercial</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

*South Pearl Street, South of I-787, heading south: Sidewalks end at Center for Disability Services.
**Green Street, South of Vine Street, heading south: Green Street is a one-way street between Vine and South Pearl, and incorporates a weave area with highway on and off ramps.
***Broadway Street: sidewalks exist on one side for the first 400’ heading north from Church Street. On the north end of Church Street, a sidewalk begins at the Quay Street / Broadway Street intersection (at the start of the Mohawk Bike Path) and continue south for 425’ to the southern edge of the U-Haul building. NOTE: U-Haul vans parked at the edge of a private lot impede sidewalk access.
more likely to exceed speed limits on stretches of roadway with longer sight-lines and fewer traffic calming measures, such as Broadway. Slower speeds are generally expected to be found on streets that have narrow travel lanes, dense land use, and high on-street parking turn over.

Pavement Condition
The City took an inventory of pavement condition in 2015. Each road segment was given a score between 0 and 10. A score of 0 represents the poorest pavement condition while a score of 10 represents high quality pavement conditions. The highest-quality segments are Seymore Avenue, part of Church Street, Green Street, and I-787 NB Access Road which lead to the on-off ramps for the portion of I-787 adjacent to the rail yard.

Freight Facilities
Freight infrastructure in the South End is primarily directed towards the Port of Albany including maritime, railway, and trucking. The intermodal shipping center at the Port of Albany, railways, and I-787 are central features in the landscape of the South End as well as the larger Albany community.

The CDTC Freight Priority Network provides a logical system of routes that facilitate efficient and safe freight mobility in the region. The routes in the Study Area are from I-787 to the Main Port entrance, portions of South Pearl Street, I-787, and I-787 access ramps.

Transit Facilities
The Capital District Transportation Authority (CDTA) services the South End through a network of bus routes, stops, and other facilities including shelters and bike racks. CDTA is in the process of implementing their BusPlus Blue Line. The Blue Line is a Bus Rapid Transit (BRT) line which will connect the South End with Cohoes, Menands, Troy, Waterford, and Watervliet along a 15-mile corridor along the Hudson River. One of the goals of the Blue Line BusPlus is to reduce traffic congestion and stimulate economic development.

Bus Routes
There are 10 different bus routes through the South End presently: 6, 7, 18, 22, 100, 114,
Map A-4 shows the Annual Average Daily Traffic of roadways in the Study Area.
116, 530, 531, and 719. Within the Study Area, CDTA Bus Routes 6, 7, 18, 22, 100, 114, and 116 together cover South Pearl Street, Green Street, Madison Avenue, Rensselaer Street, and 4th Avenue.

**Bus Stops**

There are 125 bus stops in the South End. The largest concentration of bus facilities within the Study Area are located along South Pearl Street and Green Street, all of which are west of I-787. There are no bus facilities along Broadway.

**Bus Shelters**

There are eight bus shelters in the South End of which only a handful are located along South Pearl Street and Green Street.

**Ridership**

Ridership data shows that there are a significant number of people who bring their bicycles onto bus routes 6, 7, and 116. A lack of bicycle facilities in the Study Area could be the reason people are bringing bicycles on the buses rather than biking through the Study Area.

**Bicycle and Pedestrian Facilities**

**Sidewalks**

Most streets within the South End have sidewalks, including those sections along or adjacent to arterials within the study.

A significant section, over 550 feet, north of the Albany County Rail Trail parking lot on South Pearl Street does not provide a sidewalk for pedestrians.

**Crosswalks**

In the Study Area, streets with significant residential or commercial properties provide

### Table A-3: Bus Transit Frequency

As of December 2017

<table>
<thead>
<tr>
<th>Bus Route</th>
<th>Weekday Frequency</th>
<th>Weekday</th>
<th>Weekend</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Every 20 min</td>
<td>Mon - Fri</td>
<td>Sat-Sun</td>
</tr>
<tr>
<td>7</td>
<td>Every 25-40 min</td>
<td>Mon - Fri</td>
<td>Sat-Sun</td>
</tr>
<tr>
<td>18</td>
<td>Every 15-60 min</td>
<td>Mon - Fri</td>
<td>Sat-Sun</td>
</tr>
<tr>
<td>22</td>
<td>Every 10-30 min</td>
<td>Mon - Fri</td>
<td>Sat-Sun</td>
</tr>
<tr>
<td>100</td>
<td>Every 20-30 min</td>
<td>Mon - Fri</td>
<td>Sat-Sun</td>
</tr>
<tr>
<td>114</td>
<td>Every 30-60 min</td>
<td>Mon - Fri</td>
<td>Sat</td>
</tr>
<tr>
<td>116</td>
<td>Every 45-120 min</td>
<td>Mon - Fri</td>
<td>--</td>
</tr>
</tbody>
</table>

Good pavement condition on the I-787 NB Access Road
Map A-5 - Bus Facilities

Map A-5 indicates the locations of bus facilities including bus routes, bus shelters, and bus stops in the Study Area.
crosswalks. Along some corridors, especially within the core of the South End, a variety of designs can be found from commonly-used high-visibility striping to brick treatments. Supplemental treatments to the South Pearl Street streetscape, such as bump-outs to decrease crossing times, are designed to alert motorists and promote pedestrian safety. Though crosswalks between Ezra Prentice Homes on either side of South Pearl Street are present, there are no pedestrian actuated (activated) signals.

Multi-Use Trails

In addition to the more prominent Mohawk-Hudson Bike-Hike Trail and the Albany County Rail Trail, Lincoln Park also hosts a network of bike and pedestrian paths. The Albany Waterfront Connector is designed to close the gap in this network.

Mohawk-Hudson Bike-Hike Trail

“Mohawk-Hudson Bike-Hike Trail is a 35-mile multi-use trail that follows the shores of the Mohawk and Hudson Rivers through Schenectady and Albany Counties and is considered the easternmost portion of the (Erie) Canalway Trail. The trail begins in Albany near the Dunn Memorial Bridge, passes the Hudson Riverway Pedestrian Bridge and continues north through the Corning Preserve along the Hudson River.”3 The section of the Mohawk-Hudson Bike-Hike Trail passing by the USS Slater was created by turning excess lane space into a two-way protected path by NYSDOT in the 1990s. This type of road treatment illustrates the potential for establishing the Albany Waterfront Connector in similar areas.

Albany County Rail Trail

The nine mile pedestrian and bicycle trail connects the Port of Albany and Voorheesville. Currently 5 miles are paved between South Pearl Street and the Slingerlands Fire House. The rest of the trail is scheduled to be paved in 2018.

On-street Bicycle Facilities

With funding support from the CDTA Bike Rack Program, at least 12 bike racks have been installed in the South End Study Area to date, all of which are located along designated bike routes.

South Pearl Street Bike Route

South Pearl Street is a designated shared-use

Map A-6 illustrates the network of sidewalks in the Study Area.
bike route in the South End. Spanning over a mile, the route connects the neighborhoods of the South End to the Albany County Rail Trail as well as areas south of Albany.

**NYS Bike Route (BR) 5**

NYS Bike Route (BR) 5 is a 365-mile signed bikeway route linking Niagara Falls to the Massachusetts state line. Designated in 1994, BR 5 is located primarily on State Route 5, 31, and U.S. Route 20. The Route generally follows the east-west route of the Erie Canal. In the City of Albany, BR 5 is located on Madison and Western Avenues (U.S. Route 20) and crosses the Hudson River on the Dunn Memorial Bridge.⁴

**NYS Bike Route (BR) 9**

NYS Bike Route (BR) 9 is 345-mile signed bikeway route, designated in 1995, that follows the Hudson River and Lake Champlain corridor and links Clinton County in the Adirondacks to New York City. In the City of Albany, BR 9 is located on Broadway and crosses the Hudson River on the Dunn Memorial Bridge.”⁵

**Crashes**

Of the 62 crashes with non-motorists reported in the South End between November 2010 and September 2015, 23 were along the South Pearl Street corridor, one of which resulted in the death of a young boy near the Ezra Prentice housing complex. East of South Pearl Street, there were 6 incidents. There were twice as many pedestrian crashes as bicyclist crashes. This is expected because more people walk than ride in this area.

Crashes were most frequent near the intersections of South Pearl Street and Alexander Street, South Pearl Street and Arch Street, South Pearl Street and Madison Avenue, and First Avenue and Cherry Hill Street. All but three incidents involving cyclists occurred near one of these four intersections. Crashes between cyclists or pedestrians and motorists are more frequent along the South Pearl Street corridor, with the concentration and frequency of crashes decreasing on streets to the west and east.

Please see Table B-1 on pages A-51 and A-52 for a summary of crashes within the Study Area.

**PAST PLANNING**

The recommendations included in this document

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⁵ Albany Bike Master Plan, 2009: 17.
Map A-7 - Bicycle Facilities

Map A-7 shows the location of existing bicycle facilities including bike routes and bike racks in the Study Area.
were informed by an analysis of past plans. Developing a connection between the Mohawk-Hudson Bike-Hike Trail and the Albany County Rail Trail is consistent with many of the goals and strategies put forth by Albany 2030 and the City of Albany Bicycle Master Plan. Both recommend that the City continue to create or improve connections with established bicycle networks, as well as continue collaboration and participation in CDTC planning efforts.

Relevant Plans and Documents

Over the last ten years, planning efforts have called attention the need or the value of a well-designed intermodal travel corridor, particularly along the waterfront.

**Albany 2030: The City of Albany Comprehensive Plan (2012)**

“The Albany 2030 Plan envisions Albany with a vibrant urban center and safe, livable neighborhoods, connected by an extensive network of complete streets and bikeways. Key issues identified in the plan are to address vacant and abandoned properties, connect downtown to the Hudson River, attract spending in downtown, and revitalize the waterfront.”

It emphasizes developing a multi-modal transportation “network of complete streets, mass transit, bikeways, trails, and sidewalks.”

**Brownfield Opportunity Areas Pre-Nomination Study (2012)**

The City of Albany’s Brownfield Opportunity Areas Pre-Nomination Study centers on identifying blighted areas of the City and exploring opportunities for restoration and redevelopment. Included in the areas identified, the South Waterfront District is “in close proximity to Downtown Albany and the historic South End neighborhood with good pedestrian and bicycle access to the Corning Preserve and the proposed Albany County Rail Trail.”

Existing industrial uses, CSX rail line, and I-787 are cited as barriers to full redevelopment. The report recommends complete redesign and reconstruction of I-787 as a multi-modal boulevard.

**Climate Action Plan (2012)**

The City of Albany’s Climate Action Plan was designed to identify and organize climate protection and mitigation strategies. One of the key strategies documented in the plan is to reduce reliance on automobiles and fossil fuels by expanding pedestrian and bicycle infrastructure.

**CDTC New Visions 2040 (2015)**

CDTC New Visions 2040 is the primary guiding policy document of the Capital District Transportation Committee (CDTC), the designated metropolitan planning organization for the Albany area. It outlines a set of principles to guide transportation planning and recommendations for immediate and future transportation investments within the four county Capital Region (Albany, Rensselaer, Saratoga and Schenectady).

**Albany Bicycle Signage and Wayfinding**

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6 Albany 2030: The City of Albany Comprehensive Plan 2012:14
7 Albany 2030: The City of Albany Comprehensive Plan 2012:26
8 Albany 2030: The City of Albany Comprehensive Plan 2012:69
of the Mohawk-Hudson Bike-Hike Trail. New Visions 2040 also “encourages development that incorporates bicycle and pedestrian accommodations into highway and bridge construction and city, village and town plans. It also provides for recreational opportunities through the creation of bike/hike trails.”

**Capital South Plan: SEGway to the Future (2007)**

The Capital South Plan is the neighborhood plan for the South End of Albany. The plan looks at several ways to improve connectivity within the neighborhood, especially to the Hudson River. One proposal within the plan is that of converting Morton Avenue to a pedestrian and bicycle-friendly boulevard from Lincoln Park to the Hudson River with continuous bike lanes and sidewalks.

**City of Albany Bicycle Master Plan (2009)**

In 2009, the City of Albany completed a city-wide Bicycle Master Plan. The plan recognizes that increasing bicycle infrastructure helps to improve the perception of community safety and can help more people feel comfortable riding bicycles in Albany. The plan established major bikeways, neighborhood routes, and multi-use trails.

The Bicycle Master Plan places a high value on the existing Mohawk-Hudson Bike-Hike Trail, calling it the centerpiece of an expanding bicycle network. “As the waterfront re-develops, opportunities for extending the Mohawk-Hudson Bike-Hike Trail southerly to Island Creek Park should be investigated. The recommended 20-year bikeway network includes the potential extension of the trail southerly, plus major bikeway connections including Green Street, Broadway, Hamilton Street (Hudson Riverfront underpass), and Colonie Street.”

In addition, the Bicycle Master Plan observes that “the proximity of the [Albany County Rail Trail] eastern terminus to the Port of Albany, Hudson River waterfront and the nearby South End make it an important facility for active transportation if tied into the City’s proposed bikeway network.

One of the New Visions recommendations is to complete a connection between the Albany County Rail Trail and the Corning Preserve trail southerly to Island Creek Park should be investigated. The recommended bikeway network includes the potential extension of the trail southerly, plus major bikeway connections including Green Street, Broadway, Hamilton Street (Hudson Riverfront underpass), and Colonie Street.”

In addition, the Bicycle Master Plan observes that “the proximity of the [Albany County Rail Trail] eastern terminus to the Port of Albany, Hudson River waterfront and the nearby South End make it an important facility for active transportation if tied into the City’s proposed bikeway network. Access is recommended to be provided via the major bikeway South Pearl Street. Fourth Avenue and Green Street would then tie Pearl Street to Albany’s downtown and the waterfront with a potential southerly extension of the Mohawk-Hudson Bike-Hike Trail.”

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1 Albany Bike Master Plan, 2009: 50
2 Albany Bike Master Plan, 2009: 50
3 Albany Bike Master Plan, 2009: 52
Strategy (2013)

The Albany Bicycle Signage and Wayfinding Strategy proposed wayfinding signage along key bicycle routes within the City of Albany. Two of the proposed routes travel through the South End.

Albany Bike Share Feasibility Study (2013)

The Albany Bike Share Feasibility Study examined the capacity of the City of Albany to support a successful bike share system and proposed the key components of what such a system might look like. Improvements to bike infrastructure could advance a bike share program in the South End as well as the waterfront.

Capital Region Sustainability Plan (2012)

Among the stated goals of the Plan is to “create walkable and bikeable communities interconnected by regional transit and trail networks.”

Patroon Creek Greenway Project

The Patroon Creek Greenway Project describes a proposed trailway that would connect the Pine Bush nature preserve area to the west of Albany to the Corning Preserve and Mohawk-Hudson Bike-Hike Trail to the City’s eastern waterfront. Such a trailway would further regional connections and would link the Albany Pine Bush to the Mohawk-Hudson Bike-Hike Trail and the Albany County Rail Trail.

Challenges

I-787 and the CSX rail line which parallel the waterfront along the river are substantial barriers. As a result, vehicular and pedestrian access to the waterfront from the developed areas to the west prevents city residents from accessing and enjoying the waterfront. The visual quality and aesthetic along sections of the waterfront need improvement, particularly the condition of sidewalks, pedestrian and vehicular access points, the boathouse, and parking areas. These conditions and barriers to the waterfront also impede opportunities for existing and new waterfront businesses.

Pedestrian access to the waterfront from Downtown Albany has improved with the completion of the Hudson River Way Pedestrian Bridge. However, access is impeded by at-grade railroad tracks.

Vehicular access to the waterfront is limited and possible improvements would involve expensive overpass construction and/or an underpass connection requiring an at-grade rail crossing. Parking in the Waterfront Revitalization Area (WRA), particularly in the South End and Downtown, is disorganized and inefficient and does not adequately serve destinations on the waterfront, such as the USS Slater Museum, the Corning Preserve, the Albany Rowing Center, and the Riverfront Bar and Grill. The majority of the WRA (77%) is in the 100-year floodplain, and the City’s Climate Adaptation Plan shows an increased probability of major flood events as a result of climate change and sea level rise.

9 Capital District Regional Sustainability Plan, 2012: i)
Past planning timeline

2004 Patroon Greenway Project

2007 Capital South Plan

2009 City of Albany Bicycle Master Plan

2012 Capital Region Sustainability Plan

2012 Albany Waterfront Revitalization Plan

2012 Albany 2030: Comprehensive Plan

2013 City of Albany Bike Share Feasibility and Bicycle Signage and Wayfinding Study

2015 CDTC New Visions 2040
CONCURRENT EFFORTS

Any trail proposed to connect the Mohawk-Hudson Bike-Hike Trail to the Albany County Rail Trail would seek to build on concurrent planning and construction projects to make strong connections to existing efforts and potentially leverage resources. There are several projects underway that seek to improve existing conditions within the Study Area. For example, the signal at the intersection of South Pearl Street and Mount Hope Drive will be upgraded including new equipment, new detection, and new signal timing.

ALBANY CORNING RIVERFRONT PARK TRANSPORTATION IMPROVEMENTS

In cooperation with the New York State Department of Transportation and the Federal Highway Administration, the City of Albany implemented transportation enhancements within the Corning Riverfront Park in 2016. Improvements to pedestrian and bicycle facilities include sidewalks, crosswalks, ramps, and wayfinding.

I-787 HUDSON WATERFRONT CORRIDOR STUDY

An explicit aim of the study is to support multi-modal transportation objectives along the waterfront corridor from the Port of Albany to the Collar City Bridge.

ALBANY COMPLETE STREETS DESIGN MANUAL LINKAGE STUDY

The City of Albany recently developed a Complete Streets Policy and Design Manual. The document provides design standards and guidance when implementing City street improvement projects, as well as for public and private developments as part of the City’s development review process. The guidebook was completed in January 2017.

HUDSON RIVER COMPREHENSIVE RESTORATION PLAN

A multi-stakeholder process is underway to develop an estuary-wide plan to protect and improve habitat conditions and community resilience. “Suggested Project Opportunities” highlight creating a connection between the Albany County Rail Trail and the Mohawk-Hudson Bike-Hike Trail.
SECTION B
STUDY REPORTS & MAPS

ALBANY WATERFRONT CONNECTOR
## Project Cost Estimate

### Project Title
July 25, 2016

Description of Major Improvements:
Albany South End Trail Connection - Improvements Conceptual Estimate

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>UNITS</th>
<th>PRICE</th>
<th>QUANTITY</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany Rail Trail Parking to Northbound Frontage Road Intersection</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Signal Modifications at Renwood Rd</td>
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<td>Northbound Frontage Road Protected Path to Church Street</td>
<td></td>
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<tr>
<td>Concrete Barrier</td>
<td>LF</td>
<td>$73.00</td>
<td>2800</td>
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<tr>
<td>Striping Linear - Frontage Road</td>
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<td>$1.50</td>
<td>2800</td>
<td>$4,200</td>
</tr>
<tr>
<td>Striping Linear - Bicycle Lanes on Frontage Road</td>
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<td>$1.50</td>
<td>2800</td>
<td>$4,200</td>
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<td>Multi-Use Path Under I-787</td>
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<tr>
<td>Integrated Crosswalk at Northbound Frontage Road / Church Street</td>
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<td>$2,097</td>
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<td>Striping Symbols - Bicycle Lanes on Church Street</td>
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<tr>
<td>Broadway: Church Street to Mohawk Hudson Bicycle Trail</td>
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<td></td>
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<td>$73.00</td>
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<td>270</td>
<td>$4,050</td>
</tr>
<tr>
<td>Striping Linear - Bicycle Lanes on Church Street</td>
<td>LF</td>
<td>$1.50</td>
<td>270</td>
<td>$4,050</td>
</tr>
<tr>
<td>Striping Symbols - Bicycle Lanes on Church Street</td>
<td>EA</td>
<td>$250.00</td>
<td>6</td>
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</tr>
<tr>
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<td>LF</td>
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<td>2700</td>
<td>$5,400</td>
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<tr>
<td>Broadway/Quay St - New Jailer</td>
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<td>$175,000</td>
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<td>Miscellaneous</td>
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<td></td>
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<tr>
<td>Striping / Level</td>
<td>LS</td>
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<td>$30,000</td>
</tr>
<tr>
<td>Barrier Attenuator</td>
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</tr>
<tr>
<td>Utility Conflicts</td>
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<td>$30,000</td>
</tr>
<tr>
<td>WORK ZONE TRAFFIC CONTROL</td>
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<td>8%</td>
<td>1</td>
<td>$66,000</td>
</tr>
<tr>
<td>SURVEY AND STAKEOUT</td>
<td>LS</td>
<td>4%</td>
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<td>$13,300</td>
</tr>
<tr>
<td>Mobilization</td>
<td>LS</td>
<td>4%</td>
<td>1</td>
<td>$13,300</td>
</tr>
<tr>
<td>CONTINGENCY</td>
<td>LS</td>
<td>2%</td>
<td>1</td>
<td>$208,100</td>
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<tr>
<td><strong>CONSTRUCTION SUBTOTAL:</strong></td>
<td></td>
<td></td>
<td></td>
<td>$1,374,000</td>
</tr>
<tr>
<td><strong>DESIGN ENGINEERING (12%)</strong></td>
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<td></td>
<td></td>
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<tr>
<td><strong>CONSTRUCTION INSPECTION (15%)</strong></td>
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<td></td>
<td></td>
<td>$176,100</td>
</tr>
<tr>
<td><strong>ANTICIPATED ROW COST</strong></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>PROJECT TOTAL:</strong></td>
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</tr>
<tr>
<td>SAY:</td>
<td></td>
<td></td>
<td></td>
<td>$1,500,000</td>
</tr>
</tbody>
</table>

7/25/2016  Conceptual Estimate Temporary  Page 1 of 1
LEVEL OF SERVICE ASSESSMENT

MEMORANDUM

Date: July 8, 2016

To: Daniel Berheide - Alta

From: Mark Sargent, P.E., and Dan Karkotsky, I.E.

CC: 

Re: Level of Service Assessment for Road Diet on Frontage Roads

The purpose of this memo is to follow-up on the NYSDOT comment about needing to maintain good levels of service on the Frontage Roads at the I-787 Exit 2 interchange, if a lane is taken to make room for the South Albany Path. The current configuration provides two through lanes on each Frontage Road, along with the weaving lane for a total of three lanes in the weaving sections. The proposed alternative would eliminate the outer through lane on one of the Frontage Roads to make room for the wide multi-use path. Both Frontage Roads were tested for this lane reduction since the preferred path alignment has not been determined yet.

The following table summarizes the Levels of Service (LOS) for both the existing and road diet condition. Weaving analysis was completed using HCS 2010 Software, which showed that the weaving areas will operate at very good levels of service LOS A/B during both peak hours. Existing volumes were collected from past Creighton Manning Engineering (CM) and NYSDOT studies.

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing (3 Lanes)</td>
<td>Build (2 Lanes)</td>
</tr>
<tr>
<td>NB Frontage Road Weave (NY 32)</td>
<td>A (5.5)</td>
<td>B (14.3)</td>
</tr>
<tr>
<td>SB Frontage Road Weave (NY 32)</td>
<td>A (5.2)</td>
<td>A (7.6)</td>
</tr>
</tbody>
</table>

X (Y.Z) = Level of service (Weaving segment density in vehicles per mile per lane)

It should be noted that the proposed road diet condition is the same as the recent long-term work zone lane configuration that was in place on the northbound Frontage Road during the I-787 reconstruction in the area.

N:\Projects\2015\115-218 South Albany Path\documents\115218_LOS Memo 20160708.docx
## FREEWAY WEAVING WORKSHEET

### General Information
- **Analyst:** DJK
- **Agency/Company:** CME_NFR787AM
- **Date Performed:** 7/8/2016
- **Analysis Time Period:** AM Peak Hour
- **Project Description:** 115-218 South Albany Path

### Site Information
- **Freeway/Dir of Travel:** NB Frontage Rd
- **Weaving Segment Location:** I-787 Ramp
- **Analysis Year:** 2016

### Inputs
- **Weaving configuration:** One-Sided
- **Weaving number of lanes, N:** 3
- **Weaving segment length, Ls:** 300ft
- **Freeway free-flow speed, FFS:** 40 mph
- **Segment type:** Multilane Highways
- **Freeway minimum speed, SM:** 15
- **Freeway maximum capacity, CF:** 2250
- **Terrain type:** Level

### Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHP</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>ET</th>
<th>ER</th>
<th>lwv</th>
<th>fp</th>
<th>V (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_{RF}</td>
<td>55</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_{RF}</td>
<td>201</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_{RF}</td>
<td>536</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_{RF}</td>
<td>0</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_{RF}</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>902</td>
</tr>
<tr>
<td>V_{RF}</td>
<td>839</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Configuration Characteristics
- **Minimum maneuver lanes, N_wL:** 2 l
- **Interchange density, ID:** 0.0 int/mi
- **Minimum RF lane changes, L_{RF}:** 1 lopc
- **Minimum FR lane changes, L_{RF}:** 1 lopc
- **Minimum RR lane changes, L_{RR}:** 1 lopc
- **Minimum weaving lane changes, L_{wM}:** 839 lch

### Weaving Segment Speed, Density, Level of Service, and Capacity
- **Weaving segment flow rate, v:** 880 veh/h
- **Weaving segment capacity, c_w:** 2517 veh/h
- **Weaving segment v/c ratio:** 0.350
- **Weaving segment density, D:** 9.5 pc/mi
- **Minimum weaving lane changes, L_{wM}:** 839 lch
- **Weaving intensity factor, W:** 0.500
- **Weaving segment speed, S:** 31.6 mph
- **Average weaving speed, S_{w}:** 31.6 mph
- **Average non-weaving speed, S_{wN}:** 32.5 mph
- **Maximum weaving length, L_{wM}:** 13272 ft
- **Level of Service, LOS:** A

### Notes
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, “Freeway Merge and Diverge Segments.”
b. For volumes that exceed the weaving segment capacity, the level of service is "F".
### FREEWAY WEAVING WORKSHEET

#### General Information
- **Analyst:** DJK
- **Agency/Company:** CME, NFR787AM
- **Date Performed:** 7/6/2016
- **Analysis Time Period:** AM Peak Hour

#### Site Information
- **Freeway/DiR of Travel:** NB Frontage Rd
- **Weaving Segment Location:** I-787 Ramp
- **Analysis Year:** 2017

#### Project Description
115-218 South Albany Path

#### Inputs
- **Weaving configuration:** One-Sided
- **Weaving number of lanes, N:** 2
- **Weaving segment length, L_w:** 300 ft
- **Freeway free-flow speed, FFS:** 40 mph
- **Freeway minimum speed, S_{min}:** 15 mph
- **Freeway maximum capacity, C_{fl}:** 2250 vph
- **Terrain type:** Level
- **C-D Roadway:** Multilane Highways

#### Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_T</th>
<th>E_R</th>
<th>f_m</th>
<th>f_p</th>
<th>f</th>
<th>V (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_{EF}</td>
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<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.0</td>
<td>63</td>
</tr>
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<td>V_{AS}</td>
<td>201</td>
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<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.0</td>
<td>229</td>
</tr>
<tr>
<td>V_{FR}</td>
<td>536</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.0</td>
<td>610</td>
</tr>
<tr>
<td>V_{AR}</td>
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<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.0</td>
<td>0</td>
</tr>
<tr>
<td>V_{NW}</td>
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<td></td>
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<td></td>
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<td></td>
<td>V = 902</td>
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<tr>
<td>V_{AV}</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>V_{VR}</td>
<td>0.930</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Configuration Characteristics
- **Minimum maneuver lanes, N_{MA}:** 2 l
- **Interchange density, ID:** 0.0 int/mi
- **Minimum RF lane changes, L_{RF}:** 1 l/pc
- **Minimum FR lane changes, L_{FR}:** 1 l/pc
- **Minimum RR lane changes, L_{RR}:** 1 l/pc

| Minimum weaving lane changes, L_{W}:| 839 l/pc |
| Weaving lane changes, L_{W}:| 839 l/pc |
| Non-weaving lane changes, L_{NW}:| 0 l/pc |
| Total lane changes, L_{T}:| 839 l/pc |
| Non-weaving vehicle index, I_{NW}:| 0 |

#### Weaving Segment Speed, Density, Level of Service, and Capacity
- **Weaving segment flow rate, v:** 880 veh/h
- **Weaving segment capacity, c_w:** 2455 veh/h
- **Weaving segment v/c ratio:** 0.358
- **Weaving segment density, D:** 14.3 pc/min

| Weaving intensity factor, W:| 0.509 |
| Weaving segment speed, S:| 31.6 mph |
| Average weaving speed, S_{av}:| 31.6 mph |
| Average non-weaving speed, S_{av}:| 31.8 mph |
| Maximum weaving length, L_{MAX}:| 13272 ft |

#### Notes
1. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
2. For volumes that exceed the weaving segment capacity, the level of service is "F."

---

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## Appendix

**FREEWAY WEAVING WORKSHEET**

### General Information
- **Analyst:** DJK
- **Agency/Company:** CME_NFR787PM
- **Date Performed:** 7/8/2016
- **Analysis Time Period:** PM Peak Hour
- **Freeway/Dir of Travel:** NB Frontage Rd
- **Weaving Segment Location:** I-787 Ramp
- **Analysis Year:** 2016
- **Project Description:** 115-218 South Albany Path

### Inputs
- **Weaving configuration:** One-Sided
- **Weaving number of lanes, N:** 3
- **Segment type:** Multilane
- **Weaving segment length, Lw:** 300ft
- **Freeway minimum speed, S_{Wmin}:** 15
- **Freeway maximum capacity, C_{FL}:** 2250
- **Terrain type:** Level

### Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_T</th>
<th>E_R</th>
<th>f_M</th>
<th>f_p</th>
<th>V (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_{FF}</td>
<td>0</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td></td>
<td></td>
<td>0.976</td>
</tr>
<tr>
<td>V_{FF}</td>
<td>0</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>V_{FF}</td>
<td>0</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
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<td>5</td>
<td>0</td>
<td>1.5</td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>V_{W}</td>
<td>0.5</td>
<td>555</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>555</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

### Configuration Characteristics
- **Minimum maneuver lanes, N_{ML}:** 2
- **Interchange density, ID:** 0.0 int/mi
- **Minimum RF lane changes, L_{RF}:** 1 lcp
- **Minimum FR lane changes, L_{FR}:** 1 lcp
- **Minimum RR lane changes, L_{RR}:** lcp
- **Minimum weaving lane changes, L_{W}:** 565 lcp
- **Minimum weaving lane changes, L_{W}:** 565 lcp
- **Non-weaving lane changes, L_{NW}:** 0 lcp
- **Total lane changes, L_{T}:** 565 lcp
- **Non-weaving vehicle index, i_{NW}:** 0

### Weaving Segment Speed, Density, Level of Service, and Capacity
- **Weaving segment flow rate, v:** 552 veh/h
- **Weaving intensity factor, W:** 0.372
- **Weaving segment capacity, C_{W}:** 2341 veh/h
- **Average weaving speed, S_{W}:** 33.2 mph
- **Average non-weaving speed, S_{NW}:** 33.2 mph
- **Average non-weaving speed, S_{NW}:** 35.0 mph
- **Average non-weaving speed, S_{NW}:** 35.0 mph
- **Level of Service, LOS:** A
- **Maximum weaving length, L_{MAX}:** 14232 ft

### Notes
- a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- b. For volumes that exceed the weaving segment capacity, the level of service is "F."

---

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## Freeway Weaving Worksheet

### General Information
- **Analyst:** DJK
- **Agency/Company:** CME, NFR787PM
- **Date Performed:** 7/16/2016
- **Analysis Time Period:** PM Peak Hour

### Site Information
- **Freeway/Dir of Travel:** NB Frontage Rd
- **Weaving Segment Location:** I-787 Ramp
- **Analysis Year:** 2017

### Project Description
115-218 South Albany Path

### Inputs
- **Weaving Configuration:** One-Sided
- **Segment Type:** C-D Roadway
- **Weaving Number of Lanes, N:** 2
- **Weaving Segment Length, L:** 300 ft
- **Freeway Free-Flow Speed, FFS:** 40 mph

### Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_T</th>
<th>E_R</th>
<th>f WTO</th>
<th>f p</th>
<th>V (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_FF</td>
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<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td></td>
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<tr>
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<td>V_DAV</td>
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<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
</tbody>
</table>

### Configuration Characteristics
- **Minimum Maneuver Lanes, N_{w}**: 2
- **Interchange Density, ID**: 0.0 int/mi
- **Minimum RF Lane Changes, L_{RF}**: 1 lane
- **Minimum FR Lane Changes, L_{FR}**: 1 lane
- **Minimum RR Lane Changes, L_{RR}**: 1 lane

### Minimum Weaving Lane Changes, L_{MN}

<table>
<thead>
<tr>
<th>Minimum Weaving Lane Changes</th>
<th>Lane Changes, L_{MN}</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>555 lch</td>
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### Weaving Lane Changes, L_{W}

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<th>Weaving Lane Changes, L_{W}</th>
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</thead>
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<td>2</td>
<td>555 lch</td>
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### Non-Weaving Lane Changes, L_{NN}

<table>
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<tr>
<th>Non-Weaving Lane Changes, L_{NN}</th>
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</tr>
</thead>
<tbody>
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### Total Lane Changes, L_{ALL}

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<thead>
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<th>Total Lane Changes, L_{ALL}</th>
<th>Lane Changes, L_{ALL}</th>
</tr>
</thead>
<tbody>
<tr>
<td>555</td>
<td>555 lch</td>
</tr>
</tbody>
</table>

### Non-Weaving Vehicle Index, I_{WV}

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<tr>
<th>Non-Weaving Vehicle Index, I_{WV}</th>
<th>Lane Changes, I_{WV}</th>
</tr>
</thead>
<tbody>
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<td>0</td>
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</tr>
</tbody>
</table>

### Weaving Segment Speed, Density, Level of Service, and Capacity

<table>
<thead>
<tr>
<th>Weaving Segment Flow Rate, v</th>
<th>Weaving Segment Speed, S</th>
</tr>
</thead>
<tbody>
<tr>
<td>552 veh/h</td>
<td>33.2 mph</td>
</tr>
</tbody>
</table>

### Level of Service, LOS

<table>
<thead>
<tr>
<th>Level of Service, LOS</th>
<th>Maximum Weaving Length, L_{MAX}</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14232 ft</td>
</tr>
</tbody>
</table>

### Notes
- a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- b. For volumes that exceed the weaving segment capacity, the level of service is "E."
## Freeway Weaving Worksheet

### General Information
- **Analyst**: DJK
- **Agency/Company**: CME_SFR787AM
- **Date Performed**: 7/6/2016
- **Analysis Time Period**: AM Peak Hour

### Site Information
- **Freeway/Dir of Travel**: SB Frontage Rd
- **Weaving Segment Location**: I-787 Ramp
- **Analysis Year**: 2016

### Project Description
- **115-218 South Albany Path**

### Inputs
- **Weaving configuration**: One-Sided
- **Weaving number of lanes, N**: 3
- **Weaving segment length, L**: 335 ft
- **Freeway free-flow speed, FFS**: 40 mph
- **Segment type**: Multilane
- **Highways**: 15
- **Freeway minimum speed, S_{MN}**: 15
- **Freeway maximum capacity, C_{FL}**: 2250
- **Terrain type**: Level

### Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_y</th>
<th>E_R</th>
<th>f_{MV}</th>
<th>f_p</th>
<th>V (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_{FF}</td>
<td>51</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
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<tr>
<td>V_{FR}</td>
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<td>5</td>
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<td>0.976</td>
<td>1.00</td>
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<tr>
<td>V_{HR}</td>
<td>0</td>
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<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
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<tr>
<td>V_{MV}</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V_{H}</td>
<td>476</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>VR</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Configuration Characteristics
- **Minimum maneuver lanes, N_{MVL}**: 2
- **Interchange density, ID**: 0.0 int/mi
- **Minimum RF lane changes, L_{CMF}**: 1 lopc
- **Minimum FR lane changes, L_{CIR}**: 1 lopc
- **Minimum RR lane changes, L_{CIR}**: 1 lopc
- **Minimum weaving lane changes, L_{C_{MVW}}**: 476 lch
- **Weaving lane changes, L_{C_{MVW}}**: 497 lch
- **Non-weaving lane changes, L_{C_{MVW}}**: 0 lch
- **Total lane changes, L_{C_{AL}}**: 497 lch
- **Non-weaving vehicle index, I_{MVW}**: 0

### Weaving Segment Speed, Density, Level of Service, and Capacity
- **Weaving segment flow rate, v**: 522 veh/h
- **Weaving intensity factor, W**: 0.309
- **Weaving segment capacity, c_{w}**: 2627 veh/h
- **Average weaving speed, S_{w}**: 34.1 mph
- **Weaving segment v/c ratio**: 0.198
- **Weaving segment density, D**: 5.2 pc/mi/ln
- **Average non-weaving speed, S_{MVW}**: 35.7 mph
- **Maximum weaving length, L_{MVW}**: 12748 ft

### Notes
1. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments.
2. For volumes that exceed the weaving segment capacity, the level of service is "F".
### FREEWAY WEAVING WORKSHEET

**General Information**
- Analyst: DJK
- Agency/Company: CME_SFR787AM
- Date Performed: 7/8/2016
- Analysis Time Period: AM Peak Hour
- Project Description: 115-216 South Albany Path

**Site Information**
- Freeway/Dir of Travel: SB Frontage Rd
- Weaving Segment Location: I-787 Ramp
- Analysis Year: 2017

**Inputs**
- Weaving configuration: One-Sided
- Weaving number of lanes, N(L): 2
- Weaving segment length, Ls: 335 feet
- Freeway free-flow speed, FFS: 40 mph
- Segment type: Multilane Highways
- Freeway minimum speed, Smin: 15
- Freeway maximum capacity, Cmax: 2550
- Terrain type: Level

**Conversions to pc/h Under Base Conditions**

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_T</th>
<th>E_R</th>
<th>f_0</th>
<th>f_0</th>
<th>V (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_FF</td>
<td>51</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
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<tr>
<td>V_FR</td>
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<td>0</td>
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<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
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<td>V_FB</td>
<td>53</td>
<td>0.90</td>
<td>5</td>
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<td>1.5</td>
<td>1.2</td>
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</tr>
<tr>
<td>V_RW</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V =</td>
</tr>
<tr>
<td>V_W</td>
<td>476</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>V_R</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Configuration Characteristics**
- Minimum maneuver lanes, NML: 2
- Interchange density, ID: 0.0 ft/mi
- Minimum RF lane changes, LC_RF: 1 lcp/c

**Total lane changes, LC_TL:**
- Total lane changes, LC_TL: 465 lcp/c
- Non-weaving vehicle index, I_WV: 0

**Weaving Segment Speed, Density, Level of Service, and Capacity**
- Weaving segment flow rate, ν: 522 veh/h
- Weaving segment capacity, c_w: 2533 veh/h
- Average weaving speed, S_W: 34.3 mph
- Average non-weaving speed, S_n: 35.3 mph
- Maximum weaving length, l_max: 12748 ft

**Notes**
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".
- For volumes that exceed the weaving segment capacity, the level of service is "E".
# Appendix

## Freeway Weaving Worksheet

<table>
<thead>
<tr>
<th>FREEWAY WEAVING WORKSHEET</th>
<th>Site Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td>Analyst</td>
<td>DJK</td>
</tr>
<tr>
<td>Agency/Company</td>
<td>CME_SFR787PM</td>
</tr>
<tr>
<td>Date Performed</td>
<td>7/9/2016</td>
</tr>
<tr>
<td>Analysis Time Period</td>
<td>PM Peak Hour</td>
</tr>
<tr>
<td>Freeway/Dir of Travel</td>
<td>SB Frontage Rd</td>
</tr>
<tr>
<td>Weaving Segment Location</td>
<td>I-787 Ramp</td>
</tr>
<tr>
<td>Analysis Year</td>
<td>2016</td>
</tr>
</tbody>
</table>

**Project Description:** 115-218 South Albany Path

### Inputs

- Weaving configuration: One-Sided
- Weaving number of lanes, N: 3
- Weaving segment length, L_w: 335 ft
- Freeway free-flow speed, FFS: 40 mph
- Freeway minimum speed, S_min: 15 mph
- Freeway maximum capacity, C_FL: 2250 veh/h
- Terrain type: Level
- C-D Roadway: Multilane Highways

### Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_r</th>
<th>E_r</th>
<th>f_uw</th>
<th>f_p</th>
<th>V (pc/h)</th>
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</thead>
<tbody>
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<td>5</td>
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<td>0.976</td>
<td>1.00</td>
</tr>
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<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_RW</td>
<td>0</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
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<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### Configuration Characteristics

- Minimum maneuver lanes, N_yw: 2 lc
- Minimum weaving lane changes, L_w_min: 838 lch
- Weaving lane changes, L_w: 859 lch
- Non-weaving lane changes, L_w_nw: 0 lch
- Total lane changes, L_All: 859 lch
- Non-weaving vehicle index, I_w: 0

### Weaving Segment Speed, Density, Level of Service, and Capacity

- Weaving segment flow rate, v: 903 veh/h
- Weaving intensity factor, W: 0.475
- Weaving segment speed, S: 32.0 mph
- Average weaving speed, S_w: 31.9 mph
- Average non-weaving speed, S_nw: 32.5 mph
- Maximum weaving length, L_max: 123.44 ft

### Notes

1. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
2. For volumes that exceed the weaving segment capacity, the level of service is "F."
# Freeway Weaving Worksheet

## General Information

<table>
<thead>
<tr>
<th>Analyst</th>
<th>DJK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency/Company</td>
<td>CME_SFR787PM</td>
</tr>
<tr>
<td>Date Performed</td>
<td>7/6/2016</td>
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<tr>
<td>Analysis Time Period</td>
<td>PM Peak Hour</td>
</tr>
</tbody>
</table>

## Site Information

<table>
<thead>
<tr>
<th>Freeway/Dir of Travel</th>
<th>S8 Frontage Rd</th>
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</thead>
<tbody>
<tr>
<td>Weaving Segment Location</td>
<td>I-787 Ramp</td>
</tr>
<tr>
<td>Analysis Year</td>
<td>2017</td>
</tr>
</tbody>
</table>

## Project Description

115-218 South Albany Path

## Inputs

- Weaving configuration: One-Sided
- Weaving lane length, L_w: 335 ft
- Freeway free-flow speed, FFS: 40 mph
- Freeway minimum speed, S_min: 15 mph
- Freeway maximum capacity, C_F: 2250 pc/h
- Terrain type: Level

## Conversions to pc/h Under Base Conditions

<table>
<thead>
<tr>
<th>V (veh/h)</th>
<th>PHF</th>
<th>Truck (%)</th>
<th>RV (%)</th>
<th>E_T</th>
<th>E_R</th>
<th>f_M</th>
<th>f_P</th>
<th>v (pc/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_ff</td>
<td>76</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_ff</td>
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<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_ff</td>
<td>137</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
</tr>
<tr>
<td>V_ff</td>
<td>0</td>
<td>0.90</td>
<td>5</td>
<td>0</td>
<td>1.5</td>
<td>1.2</td>
<td>0.976</td>
<td>1.00</td>
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<td>V_ff</td>
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<td>V_FF</td>
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</tr>
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</table>

## Configuration Characteristics

- Minimum maneuver lanes, N_M: 2 lane
- Lane change density, D: 0.0 in/mi
- Minimum RF lane changes, L_CRF: 1 lane/pc
- Minimum RR lane changes, L_CRC: 1 lane/pc
- Total lane changes, L_TC: 847 lane/pc

## Freeway Segment Speed, Density, Level of Service, and Capacity

- Weaving intensity factor, W: 0.470
- Weaving segment capacity, c_w: 2507 veh/h
- Average weaving speed, S_w: 32.0 mph
- Average non-weaving speed, S_N: 31.7 mph
- Maximum weaving length, L_max: 1294 ft

## Notes

1. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
2. For volumes that exceed the weaving segment capacity, the level of service is "E".

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Appendix

I-787 Northbound Frontage Road Traffic Operations and Evaluation

MEMORANDUM

Date: December 16, 2016
To: Daniel Berheide - Alta
From: Mark Nadolny
CC: Mark Sargent, PE

Project: South Albany, City of Albany, New York; CM Project No. 115-218
Re: I-787 Northbound Frontage Road Traffic Operations and Evaluation

This memo summarizes a traffic assessment completed to address a New York State Department of Transportation (NYSDOT) comment for the proposed modification of the Frontage Road that currently provides access to the I-787 Northbound Exit 2 On and Off Ramps (Port of Albany Exit). The proposed pedestrian/bicycle path associated with the South Albany Path project will run parallel to the Frontage Road which connects NY Route 32 (South Pearl Street) and Church Street. In order to accommodate the path, the existing outside northbound travel lane on the Frontage Road would be eliminated. The proposed modification will reduce capacity on the Frontage Road and may affect operations of the unsignalized Church Street/Frontage Road intersection where the stop controlled approach is proposed to be reduced from two lanes to one. This memo summarizes existing conditions at this intersection and evaluates the impacts of removing the outer northbound lane. In addition, an existing CP Railroad line runs parallel to the Frontage Road and intersects Church Street approximately 35 feet to the east. This memo addresses delay and queuing on the Frontage Road associated with trains crossing Church Street. The study area intersection for this traffic assessment is shown on Figure 1.

Existing Volume Conditions and Traffic Modeling
The morning peak hour represents worst case traffic conditions with regard to traffic entering the port and potential queuing on the Frontage Road; therefore, a turning movement count (TMC) was conducted by a representative of the Capital District Transportation Committee (CDTC) at the Church Street/Frontage Road intersection on December 7, 2016 from 7:00 to 8:00 a.m. The Existing 2016 traffic volumes for the AM peak hour are shown on Figure 2 and the detailed TMC is included under Attachment A. It is noted that a train was not observed during the TMC. The following summary of train operations was provided by a CP Rail operations supervisor:
- The track speed in this area is 10 mph.
- There is one scheduled inbound train and one scheduled outbound train each day.
- There is typically one unscheduled train every other day.
- An outbound train will typically block traffic on Church Street for approximately two to three minutes.
MEMORANDUM
I-787 Northbound Frontage Road Traffic Operations and Evaluation
December 16, 2016

- By comparison, an inbound train may need to operate the switch in order to shift to an alternate track causing the train to stop. In these instances, the gates can be down for up to ten minutes on Church Street.
- Trains can arrive or leave at any time over a typical day; therefore, it is possible that the gates on Church Street could be down for 10 minutes during peak traffic periods.

The Church Street/Frontage Road intersection is a three-way intersection controlled by a flashing traffic signal that stops the northbound Frontage Road approach during normal traffic operations. A flashing red light is provided on all three approaches when the railroad crossing gates are down for a train crossing Church Street. A single lane is provided on the eastbound and westbound Church Street approaches while the northbound Frontage Road approach provides separate left and right turn lanes.

Traffic Evaluation
A traffic simulation model was developed to replicate existing conditions and to document the operational impacts of the proposed modification to the Frontage Road. The model was developed using the Synchro (Version 8) software which automates the procedures contained in the Highway Capacity Manual. In order to model impacts with and without a train, vehicle delay and queuing has been summarized from the results provided by the SimTraffic Simulation. The detailed delay and queuing reports are included under Attachment B. Table 1 summarizes the results of the level of service analysis for existing conditions and for the geometric alternative discussed below for Option 1. Table 2 summarizes the queuing evaluation for both options.

- Existing Geometric Conditions – Separate northbound left and right turn lanes
  - Option 1 – With no train impacts
  - Option 2 – With train impacts (gates down for ten minutes)
- South Albany Path Conditions – A single northbound lane for shared left and right turn movements
  - Option 1 – With no train impacts
  - Option 2 – With train impacts (gates down for ten minutes)

**Table 1 – Level of Service and Delay Summary**

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control</th>
<th>AM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Existing Geometry</td>
</tr>
<tr>
<td>Church Street/Frontage Road</td>
<td>TW</td>
<td>Option 1</td>
</tr>
<tr>
<td>Frontage Road NB</td>
<td>L</td>
<td>A (5.7)</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>A (2.7)</td>
</tr>
<tr>
<td></td>
<td>[LR]</td>
<td>--</td>
</tr>
</tbody>
</table>

TW = Unsignalized Control
NB = Northbound intersection approach
L, T, R = Left-turn, Through, Right-turn intersection movements, LTR/TR = Existing Geometry [Proposed Geometry]
X (Y.Z) = Level of Service (Average delay in seconds per vehicle)
--=Not Applicable
The level of service summary indicates that under typical operating conditions (without a train), the northbound left and right turn lanes currently operate at LOS A conditions during the AM peak hour and will continue to operate at the same levels of service with an increase in average vehicle delay less than one second after the removal of a northbound lane associated with construction of the South Albany Path. In addition, the maximum queue on any lane for existing and proposed conditions will be less than 100 feet under typical operating conditions.

The queuing evaluation indicates that if a train blocks Church Street for ten minutes during the morning peak hour, the maximum queue observed on the northbound right turn lane is approximately 275 feet (11 vehicles) while the maximum queue on the northbound left turn lane is only approximately 125 feet (five vehicles). This indicates that motorists destined to the west on Church Street can use the northbound left turn lane to bypass traffic stopped in the right turn lane by a train crossing Church Street. The proposed geometric modification to the Frontage Road will remove this bypass option and channelize all traffic destined to the east and west into a single lane. The queuing evaluation indicates that the maximum northbound queue under this option will be approximately 950 feet (38 vehicles) which would not impact operations of the weaving area associated with the northbound Exit 2 ramps for I-787 located approximately 1,200 feet south of Church Street.

Conclusions
The analysis indicates that adequate traffic operations will be maintained after modification of the Frontage Road to accommodate the proposed pedestrian/bicycle path associated with the South Albany Path project. It is noted that normal delay and queuing will not significantly change as a result of the proposed modification; however, the maximum queue will increase approximately 675 feet when a train blocks Church Street for ten minutes. The maximum queue will not reach the weave area associated with the northbound Exit 2 ramps for I-787 located approximately 1,200 feet south of Church Street. While it is acknowledged that the northbound queue will not affect weaving operations, it is noted that motorists destined into the City (northbound left turns from the Frontage Road) can experience an unnecessary inconvenience during worst case conditions; therefore, it is recommended that available right-of-way along the Frontage Road be reviewed to determine if the addition of a separate northbound left turn lane can be progressed as part of the South Albany Path project at the Church Street intersection to minimize vehicular impacts during pre-emption. The left turn lane would need to be approximately 275 feet long in order for left turning vehicles to bypass right turning vehicles blocked by a train crossing Church Street.
## Attachment A

### Turning Movement Count

1 Hour Traffic Count

**I - 787 NB Access Rd Church St**

**Date:** 12/07/2016  
**Start Time:** 7:00:00 AM  
**End Time:** 8:00:00 AM  
**Interval:** 15 minutes

<table>
<thead>
<tr>
<th>Start Time</th>
<th>Vine St</th>
<th>Church St</th>
<th>From East</th>
<th>From West</th>
<th>I - 787 Access Rd</th>
<th>Church St</th>
<th>From South</th>
<th>From North</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 AM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7:15 AM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7:30 AM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7:45 AM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Note:** The train did not pass while I was standing there for 1 hr.
Attachment B
Level of Service and Queuing Reports

SimTraffic Performance Report
Existing 2016
115-218, South Albany Path AM Peak

1: Church Street/Vine Street & NB Frontage Road Performance by lane

<table>
<thead>
<tr>
<th>Lane</th>
<th>EB</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movements Served</td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Denied Del/Veh (a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.1</td>
</tr>
<tr>
<td>Total Del/Veh (a)</td>
<td>5.7</td>
<td>2.7</td>
<td>0.0</td>
<td>0.1</td>
<td>3.9</td>
</tr>
</tbody>
</table>
## Queuing and Blocking Report

### Existing 2016

**Intersection: 1: Church Street/Vine Street & NB Frontage Road**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>EB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Directions Served</strong></td>
<td>L</td>
<td>R</td>
</tr>
<tr>
<td><strong>Maximum Queue (ft)</strong></td>
<td>85</td>
<td>73</td>
</tr>
<tr>
<td><strong>Average Queue (ft)</strong></td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td><strong>32nd Queue (ft)</strong></td>
<td>68</td>
<td>59</td>
</tr>
<tr>
<td><strong>Link Distance (ft)</strong></td>
<td>2469</td>
<td>2469</td>
</tr>
<tr>
<td><strong>Upstream Blk Time (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Queuing Penalty (veh)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage Bay Dist (ft)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage Blk Time (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Queuing Penalty (veh)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SimTraffic Performance Report

**Existing 2016 (with a Train)**  
115-218, South Albany Path AM Peak

#### 1: Church Street/Vine Street & NB Frontage Road Performance by lane

<table>
<thead>
<tr>
<th>Lane</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movements Served</td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Denied Del/Veh (s)</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Del/Veh (s)</td>
<td>8.1</td>
<td>70.5</td>
<td>0.3</td>
<td>61.5</td>
</tr>
</tbody>
</table>

#### 5: Church Street & Railroad Performance by lane

<table>
<thead>
<tr>
<th>Lane</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movements Served</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Denied Del/Veh (s)</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Del/Veh (s)</td>
<td>4.5</td>
<td>63.6</td>
<td>9.1</td>
<td>25.3</td>
</tr>
</tbody>
</table>

#### Total Network Performance

| Denied Del/Veh (s) | 0.1 |  
| Total Del/Veh (s) | 36.5 |
### Queuing and Blocking Report

**Existing 2016 (with a Train)**

115-218, South Albany Path, AM Peak

#### Intersection: 1: Church Street/Vine Street & NB Frontage Road

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>EB</th>
<th>SB</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>L</td>
<td>R</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>124</td>
<td>273</td>
<td>154</td>
<td>4</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>43</td>
<td>65</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>109</td>
<td>186</td>
<td>104</td>
<td>4</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>2469</td>
<td>2469</td>
<td>181</td>
<td>255</td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Blk Time (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Intersection: 5: Church Street & Railroad

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>30</td>
<td>182</td>
<td>92</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>1</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>12</td>
<td>134</td>
<td>92</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>433</td>
<td>274</td>
<td>1</td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>0</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>0</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Blk Time (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Network Summary

Network wide Queuing Penalty: 20
## Appendix

### SimTraffic Performance Report

**Build 2016**  
115-218, South Albany Path_AM Peak

#### 1: Church Street/Vine Street & NB Frontage Road Performance by lane

<table>
<thead>
<tr>
<th>Lane</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movements Served</td>
<td>LR</td>
<td>T</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Denied DelVeh (s)</td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
</tr>
<tr>
<td>Total DelVeh (s)</td>
<td>6.0</td>
<td>0.0</td>
<td>0.1</td>
<td>4.6</td>
</tr>
</tbody>
</table>
### Queuing and Blocking Report
#### Build 2016

**Intersection: 1: Church Street/Vine Street & NB Frontage Road**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>LR</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>99</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>53</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>84</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>2471</td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
<td></td>
</tr>
<tr>
<td>Storage Blk Time (%)</td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td></td>
</tr>
</tbody>
</table>
### SimTraffic Performance Report

**Build 2016 (with a Train)**  
115-218, South Albany Path, AM Peak

#### 1: Church Street/Vine Street & NB Frontage Road Performance by lane

<table>
<thead>
<tr>
<th>Lane</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
<th>AI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denied Del/Veh (s)</td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
</tr>
<tr>
<td>Total Del/Veh (s)</td>
<td>79.9</td>
<td>0.3</td>
<td>54.1</td>
<td>67.3</td>
</tr>
</tbody>
</table>

#### 5: Church Street & Railroad Performance by lane

<table>
<thead>
<tr>
<th>Lane</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
<th>AI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denied Del/Veh (s)</td>
<td></td>
<td></td>
<td></td>
<td>0.0</td>
</tr>
<tr>
<td>Total Del/Veh (s)</td>
<td>4.2</td>
<td>58.4</td>
<td>8.6</td>
<td>23.4</td>
</tr>
</tbody>
</table>

#### Total Network Performance

| Denied Del/Veh (s) | 0.2 |
| Total Del/Veh (s) | 78.0 |
### Queuing and Blocking Report

#### Build 2016 (with a Train)

**Intersection: 1: Church Street/Vine Street & NB Frontage Road**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>SB</th>
<th>BS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>LR</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>939</td>
<td>149</td>
<td>4</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>198</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>643</td>
<td>97</td>
<td>4</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>2471</td>
<td>181</td>
<td>255</td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
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<tr>
<td>Storage Blk Time (%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Intersection: 5: Church Street & Railroad**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EB</th>
<th>NB</th>
<th>SB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions Served</td>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Maximum Queue (ft)</td>
<td>30</td>
<td>169</td>
<td>82</td>
</tr>
<tr>
<td>Average Queue (ft)</td>
<td>1</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>95th Queue (ft)</td>
<td>11</td>
<td>115</td>
<td>50</td>
</tr>
<tr>
<td>Link Distance (ft)</td>
<td>433</td>
<td>274</td>
<td>13</td>
</tr>
<tr>
<td>Upstream Blk Time (%)</td>
<td>0</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td>0</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Storage Bay Dist (ft)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Blk Time (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queuing Penalty (veh)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Network Summary**

Network wide Queuing Penalty: 18
### Table B-1: Bicycle and Pedestrian Crashes

<table>
<thead>
<tr>
<th>Year</th>
<th>Road</th>
<th>Location</th>
<th>Control Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>MORTON AV</td>
<td>INTERSECTION</td>
<td>STOP SIGN</td>
</tr>
<tr>
<td>2011</td>
<td>MORTON AVE</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2011</td>
<td>MORTON AVE</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2011</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2011</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
<td>NONE</td>
</tr>
<tr>
<td>2012</td>
<td>CHERRY HILL ST</td>
<td>INTERSECTION</td>
<td>NONE</td>
</tr>
<tr>
<td>2012</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2012</td>
<td>ELIZABETH ST</td>
<td>INTERSECTION</td>
<td>STOP SIGN</td>
</tr>
<tr>
<td>2012</td>
<td>GRAND ST</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2012</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2013</td>
<td>MADISON AVE</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2014</td>
<td>ARCH ST</td>
<td>INTERSECTION</td>
<td>NONE</td>
</tr>
<tr>
<td>2014</td>
<td>WARREN ST</td>
<td>MID-BLOCK</td>
<td>STOP SIGN</td>
</tr>
<tr>
<td>2014</td>
<td>1ST AVE</td>
<td>MID-BLOCK</td>
<td>NONE</td>
</tr>
<tr>
<td>2014</td>
<td>MADISON AVE</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2015</td>
<td>S PEARL ST</td>
<td>MID-BLOCK</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2015</td>
<td>S PEARL ST</td>
<td>MID-BLOCK</td>
<td>NONE</td>
</tr>
<tr>
<td>2015</td>
<td>ARCH ST</td>
<td>INTERSECTION</td>
<td>NONE</td>
</tr>
<tr>
<td>2015</td>
<td>FRANKLIN ST</td>
<td>INTERSECTION</td>
<td>STOP SIGN</td>
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<tr>
<td>2015</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>2015</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
<td>TRAFFIC SIGNAL</td>
</tr>
<tr>
<td>Bicycle or Pedestrian Crash</td>
<td>Year</td>
<td>Street</td>
<td>Intersection or Mid-Block</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------</td>
<td>--------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Bicycle Crash</td>
<td>2010</td>
<td>MORTON AVE</td>
<td>MID-BLOCK</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>S PEARL ST</td>
<td>INTERSECTION</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>S PEARL ST</td>
<td>MID-BLOCK</td>
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<td>CLINTON ST</td>
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</table>
Map B-1 - Brownfields
Map B-1 displays the division of land ownership and sensitive areas, such as brownfields, within the Study Area.
Map B-2 - Zoning
Map B-2 displays the zoning within the Study Area.
Map B-3 - Functional Classification

Map B-3 illustrates the relative size and location of roadways within the Study Area.

Local streets serve as Minor Arterials for traffic in the South End neighborhood and as Major Collectors which provide access between I-787 and local arterials.

Minor Arterials include South Pearl Street (Route 32), 2nd Avenue, Rensselaer Street, and part of Green Street.

Major collectors include Church Street to the south of I-787 and Green Street to the south of Rensselaer Street. Broadway, Vine Street, and South Pearl Street all cross beneath I-787.

I-787 is a Principal Arterial Interstate and, along with associated arterial and collector frontage roads, visually dominates the Study Area.

FUNCTIONAL CLASSIFICATION

- PRINCIPAL ARTERIAL-INTERSTATE
- PRINCIPAL ARTERIAL-EXPRESSWAY
- PRINCIPAL ARTERIAL-OTHER
- MINOR ARTERIAL
- MAJOR COLLECTOR

0 250 500 1,000 Ft
Map B-4 - Pavement Condition
Map B-4 illustrates the average pavement condition of roadways in the Study Area.
Map B-5 - Truck Routes

Map B-5 highlights the officially designated truck routes in the Study Area.
ENVIRONMENTAL JUSTICE

INTRODUCTION

Per federal requirements, the Capital District Transportation Committee (CDTC) undertakes an analysis of Environmental Justice in all Community and Transportation Planning Program (Linkage Program) initiatives to evaluate if transportation concepts and recommendations impact Environmental Justice populations. Impacts may be defined as those that are positive, negative, and neutral as described in CDTC’s Environmental Justice Analysis document, published March 2014 (available at http://www.cdtcmpo.org/ej/ej.htm). The goal of this analysis is to ensure that both the positive and negative impacts of transportation planning conducted by CDTC and its member agencies are fairly distributed and that defined Environmental Justice populations do not bear disproportionately high and adverse effects.

This goal has been set to:

• Ensure CDTC’s compliance with Title VI of the Civil Rights Act of 1964, which states that “no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance,”

• Assist the United States Department of Transportation’s agencies in complying with Executive Order 12898 stating, “Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

• Address FTA C 4702.18 TITLE VI REQUIREMENTS AND GUIDELINES FOR FEDERAL TRANSIT ADMINISTRATION RECIPIENTS, which includes requirements for MPOs that are some form of a recipient of FTA, which CDTC is not.

Data and Analysis

In developing a methodology for analysis, CDTC staff created demographic parameters using Summary File 1 data from the 2010 United States Census as well as data from the 2007-2011 American Community Survey (ACS). Threshold values were assigned at the census tract level to identify geographic areas with significant populations of minority or low-income persons. Tracts with higher than the regional average percentage of low-income or minority residents included in Map C-1 as Environmental Justice populations. Minority residents are defined as those who identify themselves as anything but white only, not Hispanic or Latino. Low-income residents are defined as those whose household income falls below the poverty line.
Map C-1
The transportation patterns of low-income and minority population in CDTC’s planning area are depicted in Table C-1, using the commute to work as a proxy for all travel. The greatest absolute difference between the defined minority and non-minority population is in the Drive Alone and Transit categories: The non-minority population is 17.5% more likely to drive alone, slightly more likely to work at home, 10.1% less likely to take transit, and is also less likely to carpool, walk, or use some other method to commute. The greatest absolute difference between the defined low-income population and the non-low-income population follows the same trend, with the non-low-income population being 20.9% more likely to drive alone and 11.7% less likely to commute via transit.

<table>
<thead>
<tr>
<th>Table C-1. Commute Mode 4-County NY Capital Region</th>
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<tbody>
<tr>
<td><strong>By Race</strong></td>
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<tr>
<td>All Workers (16+)</td>
</tr>
<tr>
<td>Drive Alone</td>
</tr>
<tr>
<td>80.0%</td>
</tr>
<tr>
<td>White Alone Not Hispanic or Latino</td>
</tr>
<tr>
<td>82.5%</td>
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<tr>
<td>Minority</td>
</tr>
<tr>
<td>65.0%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>By Income</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>All Workers (16+) for whom poverty status is determined</td>
</tr>
<tr>
<td>Drive Alone</td>
</tr>
<tr>
<td>80.7%</td>
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<tr>
<td>At/Above 100% Poverty Level</td>
</tr>
<tr>
<td>81.7%</td>
</tr>
<tr>
<td>Below 100% Poverty Level</td>
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<tr>
<td>60.8%</td>
</tr>
</tbody>
</table>

Data: American Community Survey 5-year estimates, Tables B08105H + B08122. Other incl. taxi, motorcycle, bicycle.

The Albany Waterfront Connector Feasibility Study Area is included in the Environmental Justice Area based on the Study Area census tracts having a higher than regional average percentage of minority residents. Consideration for including these populations in the planning process was given in the following ways:

- The project team attended South End neighborhood events to provide information about the project and survey residents for their viewpoints.
- The internet and social media was used to display and advertise information about the Study, and gather input.
- Two formal public participation opportunities were provided, with meetings held in the evening in transit-accessible locations to neighborhood residents.
- Information about public input opportunities was distributed and displayed in residential areas bordering the alignment of the proposed project.
- The project team met with local resident groups and other key stakeholder groups to share information about the project.
- Public comment was accepted throughout the study process.
- Final products will be posted to CDTC’s website, the City of Albany’s website, and on social media.
Conclusion

CDTC defines plans and projects with a primary or significant focus on transit, bicycling, walking, or carpool as being “positive”. As the primary purpose of the Waterfront Connector Feasibility Study project was to examine alternatives and methods for connecting to the Mohawk-Hudson Bike-Hike Trail and the Albany County Rail Trail, which includes neighborhoods with Environmental Justice populations, it has been determined that the Waterfront Connector Feasibility Study will have a positive impact on the affected populations. The Study makes recommendations for how the Connector can best accommodate all users which, if implemented, will provide positive benefits for Environmental Justice populations in the Study Area.

Environmental Features Scan

CDTC’s New Visions 2040 Regional Transportation Plan encourages smart growth as well as investment and development in urban areas as a method to protect natural resources. Smart growth policies also help to protect rural character, open space, and protect quality of life in the Capital Region. CDTC has undertaken review of natural and cultural resource mapping, and for the development of the Regional Transportation Plan, consulted with federal, state, and local agencies on environmental issues as an important part of the environmental mitigation process. Along with evaluating the impacts to environmental systems of candidate transportation project for federal funds, CDTC documents the environmental systems present in the Study Area for Linkage Program planning initiatives.

Map C-2 provides an overview of the environmental systems present in the Albany Waterfront Connector Feasibility Study Area. CDTC uses GIS mapping of the below environmental systems to screen for potential project impacts. Features within 0.25 miles of the Study Area are included in Map C-2. The Albany Waterfront Connector Feasibility Study recommendation are not expected to impact any identified features since the Study Area was previously developed. Environmental Features include:

- Sole source aquifers
- Aquifers
- Reservoirs
- Water Features (streams, lakes, rivers)
- Wetlands
- Watersheds
- 100-year floodplains
- Rare animal populations
- Rare plant populations
- Significant ecological sites
- Significant ecological communities
- State historic sites
- National historic sites
- National historic register districts
- Federal parks and lands
- State parks and forests
- State unique areas
- State wildlife management areas
- County forests and preserves
- Municipal parks and lands
- Land trust sites
- NYS DEC lands
- Adirondack Park
- Agricultural districts
- Agricultural parcels taxed as farmland
- Agriculture parcels in farm use
- Class I & II soils
SECTION D
COMMUNITY SURVEY
SURVEY QUESTIONS

1. Did you know that the City is planning on creating a biking and walking trail that will go through the South End and connect to regional trails? Yes/No. (Surveyor will provide more information if no.)

Responses to the questions below are: Daily, Between 3 to 5 times a week, 1 or 2 times a week, A couple times a month, Once a month, A few times a year, or Never

2. How often, on average, do you walk in the neighborhood?

3. How often, on average, do you ride a bicycle in the neighborhood?

4. How often, on average, do you use public transit in the neighborhood?

5. How frequently do you visit the Albany County Helderberg Hudson Rail Trail?

6. How frequently do you visit the Mohawk-Hudson Bike-Hike Trail?

7. How frequently do you visit Island Creek Park?

8. Based on the proposed options (please see related graphics), are there any that you prefer?

9. Do you think you would use this trail?

10. Are you more likely to use the trail if it:

   A. goes through neighborhood streets (west of 787)?

   B. is close to the waterfront (east of I-787)?

11. Rank order the following features in creating a new trail according to the level of importance to you? (Rank in order of importance 1 High to 5 Low)

   A. Continuous route with little or no stopping or street crossings

   B. Wide, clear paths

   C. Separated uses (motorists, cyclists, pedestrians)

   D. Protection from motorists

   E. Reducing vehicle speeds

   F. Requires little maintenance and low cost to construct

12. What is your Zip Code?

13. What is your gender? (or surveyor can just fill this out)

14. What is your age? (or surveyor can just approximate)
SURVEY RESULTS

Figure D-1: Results of Community Survey Question 1

Question 1: Did you know that the City is planning on creating a biking and walking trail that will go through the South End and connect to regional trails?

Yes 35%
No 65%
Figure D-2: Results of Community Survey Questions 2-7
Figure D-3: Results of Community Survey Question 8

**Question 8: Based on the proposed options, are there any that you prefer?**

<table>
<thead>
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<th>Preferred Proposal</th>
<th>Number of Respondents</th>
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<tr>
<td>Blue</td>
<td>15</td>
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<tr>
<td>Red</td>
<td>20</td>
</tr>
<tr>
<td>Orange</td>
<td>10</td>
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<tr>
<td>Brown</td>
<td>5</td>
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<tr>
<td>Green</td>
<td>8</td>
</tr>
<tr>
<td>Purple</td>
<td>7</td>
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Legend:
- Blue: Must have protection from vehicular traffic
- Red: Multi use path
- Orange: Extended sidewalk and on street facilities
- Brown: Side path facility
- Green: Protected bike lanes/Bike Boulevard
- Purple: Challenge Area: Must have protection from vehicular traffic

Map showing alignment options and challenge areas.
Questions and Results:

**Figure D-4: Results of Community Survey Question 9**

**Question 9: Do you think you would use this trail?**

- Yes: 89%
- No: 7%
- N/A: 4%

**Figure D-5: Results of Community Survey Question 10**

**Question 10: Are you more likely to use the trail if it goes through neighborhood streets, or is close to the Waterfront?**

- Neighborhood: 61%
- Waterfront: 39%
Figure D-6: Results of Community Survey Question 11

**Question 11: Rank in order the following features in creating a new trail according to level of importance to you.**

- Continuous route with little or no street crossings or stoppings
- Wide, clear paths
- Separated uses (motorist, cyclists, pedestrians)
- Protection from motorists
- Reducing vehicle speeds
- Requires little maintenance and low cost to construct

![Bar chart showing responses](chart1.png)

Figure D-7: Results of Community Survey Question 12

**Question 12: Where are respondents from?**

- Albany 42%
- South End 48%
- Other 10%
- Unknown 0%

![Pie chart showing responses](chart2.png)
Figure D-8: Results of Community Survey Question 13

**Question 13: Gender of Respondents**

- Male: 49%
- Female: 51%

Figure D-9: Results of Community Survey Question 14

**Question 14: Age of Respondents**

- Age of Respondents: 0-16, 17-24, 25-34, 35-44, 45-54, 55-69, 70+
- Number of Responses: Bar chart showing the distribution of responses across different age groups.
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