8.0 IMPLEMENTING THE PLAN

This chapter outlines a set of actions to turn the project alternatives into physical improvements on the ground. These actions represent the preferred alternatives selected by [the Project Advisory Committee and endorsed by City Council] after considering public input and alignment with the vision and goals for the corridor.

Three corridor segments emerged as having distinctly different opportunities to advance toward implementation:

- Northern Segment: Riverside Avenue to Pearl Street
- Downtown Segment: Pearl Street to Main Street
- Southern Segment: Main Street to St. Paul/Howard

Implementing any project is a complex and lengthy process that requires a plan, actions, and a process to evaluate and respond to challenges and changing conditions. Each of these segments are explored in further detail below and have recommendations for interim actions before shorter-term and longer-term implementation of the preferred alternatives.

8.1 PREFERRED ALTERNATIVES SELECTION

[

This section will be completed after the final PAC meeting, TEUC meeting, and City Council meeting.

]

8.2 PREFERRED ALTERNATIVES SUMMARY

Interim improvements

1. A comprehensive Parking Management Plan (PMP) is recommended to identify strategies for managing parking in the Pearl Street to Riverside Avenue study area. No changes to on-street parking will be made until agreement on the outcomes of the PMP.
2. Improve bicycle wayfinding between the southbound Winooski Avenue bike lane and the northbound Union Street bike lane.
3. Advance pilot projects or demonstrations to test mini-roundabouts on North Winooski Avenue.
4. Address commercial loading and driveway queueing on Winooski Avenue in the downtown.
5. Evaluate public safety impacts, traffic operations, driveway access, Marketplace garage circulation, roadway dimensions, and Vermont Agency of Transportation approvals for a potential median in the downtown.

Shorter-term improvements

Northern Segment: retain current vehicle pattern (two-way north of Union Street/Decatur Street and one-way southbound to Pearl Street). Stripe on-street bike lanes in both directions between Pearl Street and Riverside Avenue. On-street vehicle parking on the east side would be removed between Pearl Street and North Street and between Union Street/Decatur Street and Riverside Avenue.

Downtown Segment: re-stripe the roadway for one-southbound vehicle lane, one-northbound vehicle lane, a center turning lane, and northbound and southbound bike lanes.

Southern Segment: incorporate continuous bike lanes in both directions and remove east side parking between King Street and Main Street.

Corridor-wide: improve high-priority transit stops and pedestrian crossings.

Longer-term improvements

Widen roadway for two-way traffic for all modes north of Pearl Street, protected bike lanes where feasible, underground utilities, incorporate stormwater management, improve transit stops, add street trees, benches and other pedestrian amenities, and incorporate additional on-street parking wherever possible.

PARKING MANAGEMENT PLAN (PMP)

A PMP identifies the current supply of parking in the study area (public lots, private lots, and on-street), evaluates the current demand for vehicle parking, and identifies ways to utilize the existing supply more efficiently.

This PMP will cover the linear study area from Riverside Avenue to Pearl Street, with the potential to address North Street to Pearl Street and Riverside Avenue to North Street as two study areas. The PMP will extend one block either side of Winooski Avenue and will include interviews and intercept surveys with people visiting, living, and working in the study area.

The PMP will identify what type of parking management strategies are needed in the study area. It will also identify whether management alone (e.g. time-restricted parking to encourage turnover for neighborhood businesses, new loading zones, shared parking arrangements off-street, etc.) may be sufficient to offset the loss of on-street parking suggested by the alternatives.

A goal of the PMP is to preserve as much existing vehicle parking as possible through proactive corridor management.

8.3 NORTHERN SEGMENT: RIVERSIDE AVENUE TO PEARL STREET

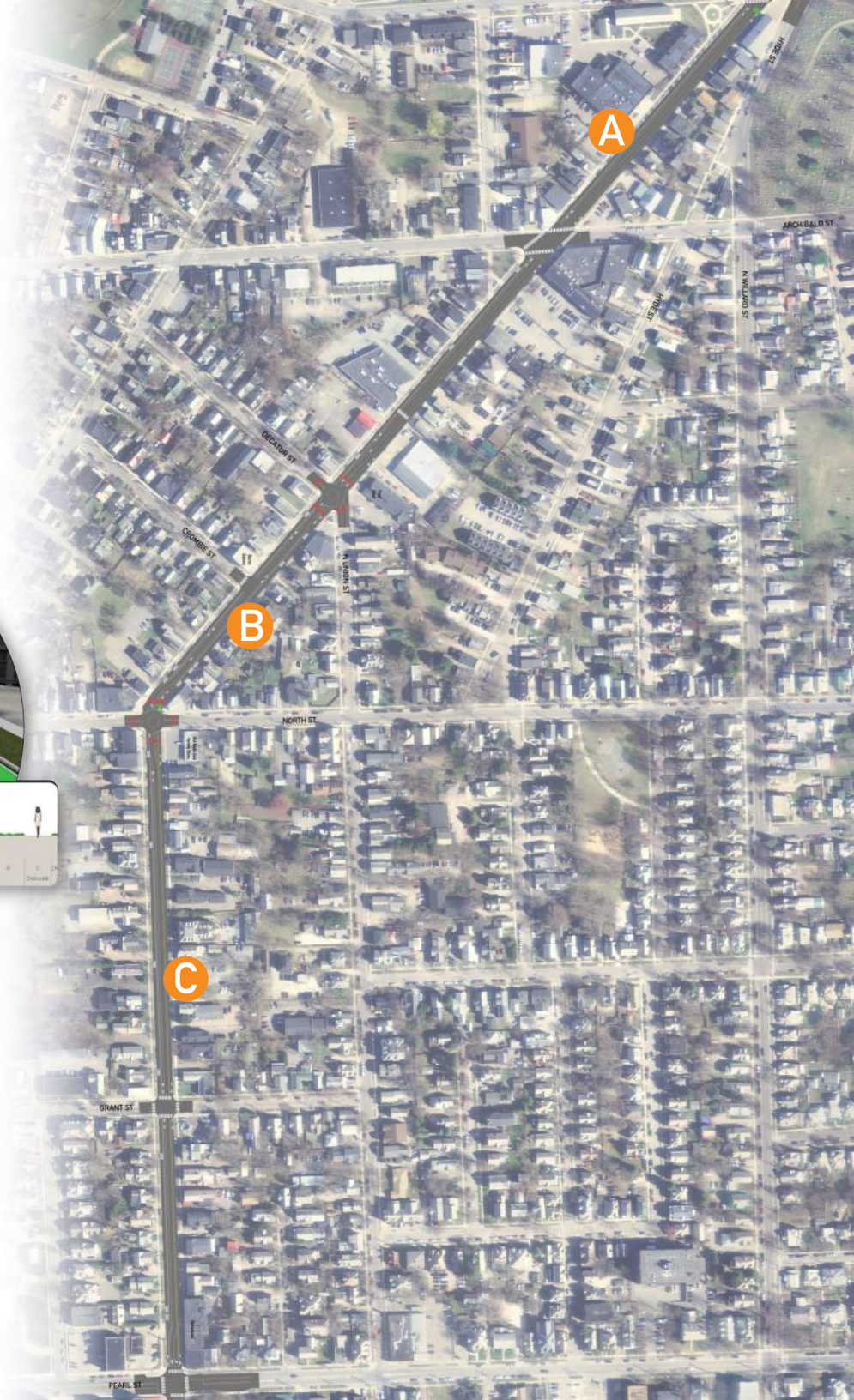
The northernmost segment of the corridor extends from Riverside Avenue to Pearl Street and includes key intersections at North Street, Union / Decatur Street, Archibald Street, and Riverside Avenue.

Preferred alternative: two-way traffic for all modes between Union Street and North Street.

A Riverside Avenue to Union St / Decatur St

Shorter-term

- Use the PMP to identify and create new loading zones, accessible spaces, time-restricted parking, opportunities for parking in place of greenbelts, and other parking strategies to mitigate impacts of on-street parking loss.
- Remove the east side on-street parking, providing space to shift the centerline and accommodate on-road bike lanes on both sides.
- Bus stop improvements for Riverside Avenue bus stop (Green Line) outside the community health center. This stop has high ridership demand and minimal amenities.



Other northbound stops for the Gold Line should be evaluated based on amenity guidelines set by GMT.

- The mid-block crossing north of Union Street should be revaluated given pedestrian demands, lighting, visibility, and other considerations.
- Signal improvements to improve bicycle detection should be considered at Riverside Avenue to improve bicycle mobility between Winooski Avenue and the shared use path along Riverside Avenue.

Longer-term

- Widen the roadway to accommodate protected bike lanes and/or additional on-street parking, underground utilities, and additional street trees.
- Widening the road will increase stormwater loading but can be partially mitigated by also doing 'bulb-outs' with stormwater treatment and detention.
- In the longer-term, two-way vehicle travel will be possible from Riverside Avenue to Main Street. GMT could initiate new southbound service which would require identifying and improving bus stops.

B Pearl Street to Union St / Decatur Street

Shorter-term

- Before any changes to parking, wayfinding can be improved from Winooski Avenue onto Union Street to improve the user experience for northbound bicycle travel via Union Street.
- Use the PMP to preserve parking and mitigate the loss of parking, create new loading zones, accessible spaces, time-restricted parking, and other management solutions.
- Maintain southbound-only motor vehicle travel and remove east side on-street parking (45 spaces) between North Street and Pearl Street to accommodate the additional on-road bicycle capacity.

C *Longer-term*

- Widen the roadway to accommodate two-way travel for all modes, including transit, and/or protected bicycle lanes, underground utilities, and additional street trees.
- Remove the east side parking (26 spaces) between Union Street/ Decatur Street to North Street to accommodate

two-way travel for all modes, including transit, and buffered bicycle lanes.

- In the longer-term, two-way vehicle travel will be possible from Riverside Avenue to Main Street. GMT could initiate new northbound service which would require identifying and improving bus stops.

North Street Intersection

Preferred alternative: replace the signalized intersection with a mini-roundabout to reinforce slow speeds on North Street and Winooski Avenue and reduce delay for vehicles and pedestrians.

Shorter-term

- Pilot the mini-roundabout with southbound-only vehicle and bike lanes to monitor the physical geometry, Fire Department access, and the interaction between the pedestrians, bicyclists, and vehicles. See Figure 33.

Longer-term

- Upgrade the southern leg to reflect the two-way vehicle lanes. See Figure 34.

FIGURE 33: NORTH STREET INT - SHORTER TERM

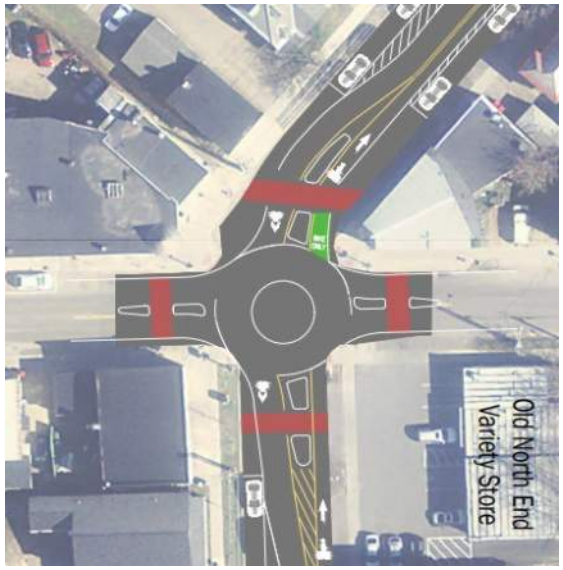
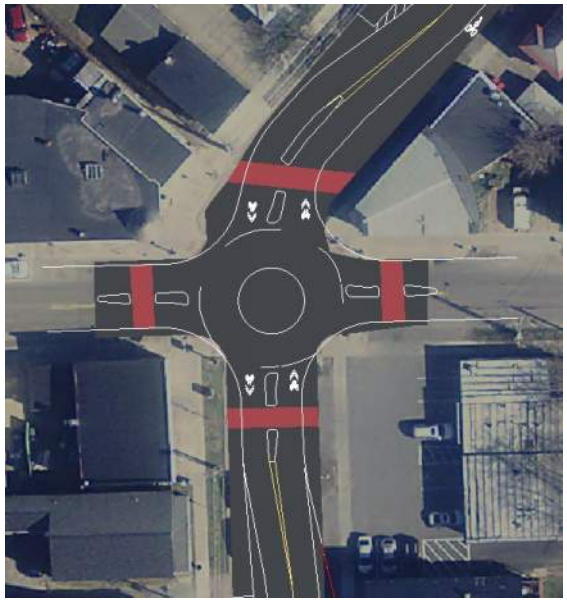


FIGURE 34: NORTH STREET INT - LONGER TERM



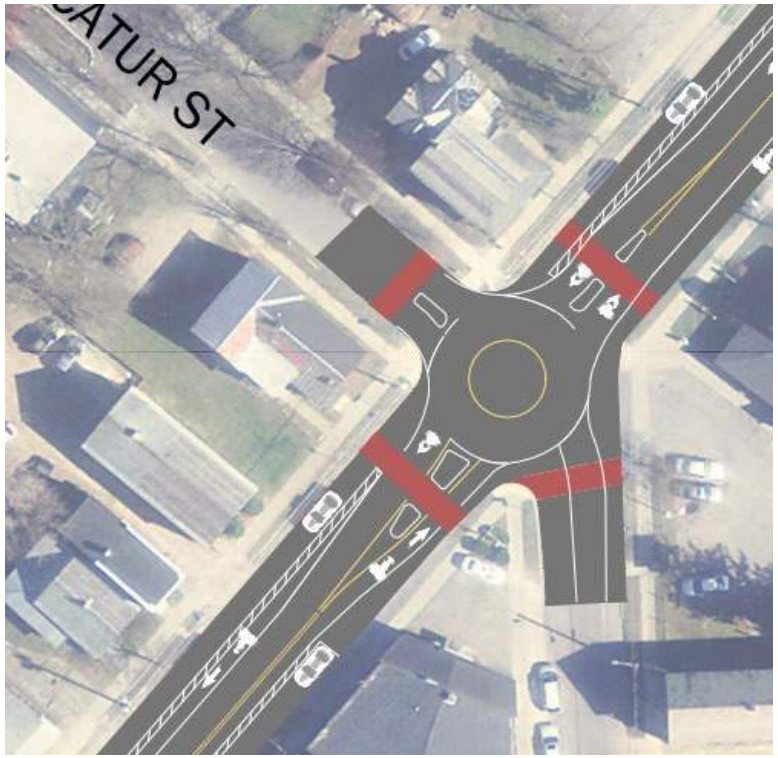
Union Street intersection

Preferred alternative: replace the all-way stop controlled intersection with a mini-roundabout to reduce vehicular and bicycle delay, create a more logical control for Winooski Avenue, and maintain pedestrian right-of-way at the crossings.

Shorter-term

- Pilot the mini-roundabout to evaluate how the intersection change performs and accommodates the needs of all users.
- Implement the mini-roundabout upon a successful pilot. See Figure 35.

FIGURE 35: UNION STREET INT – SHORTER TERM



Longer-term

- Upgrade the southern leg to reflect the two-way vehicle lanes. See Figure 36.

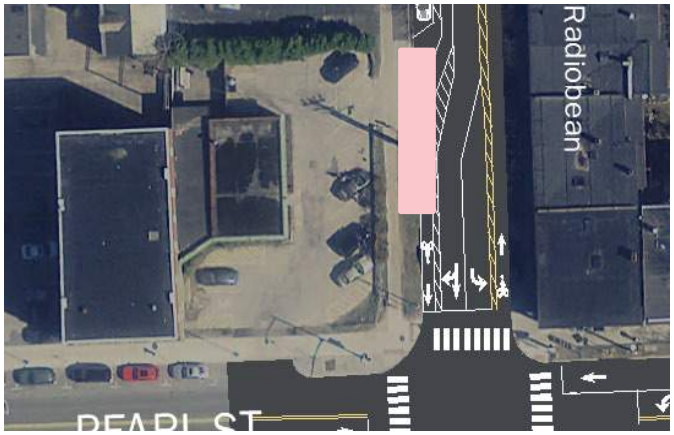
FIGURE 36: UNION STREET INT – LONGER TERM

Pearl Street Intersection

Shorter-term

- Relocate the east side loading zones to the west side in the area near in the red box in Figure 37.

FIGURE 37: PEARL STREET LOADING ZONE POSSIBILITY



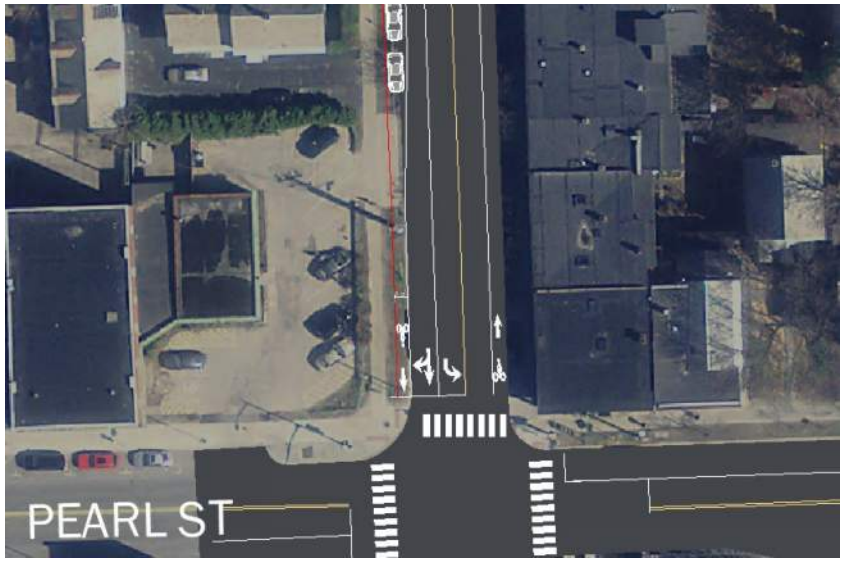
- As part of the Northern Segment improvements, remove east side on-street parking to accommodate the additional on-road bicycle capacity. The southbound approach would consolidate the lanes to a dedicated left and a shared right-through lane (see Figure 38).

FIGURE 38: PEARL STREET INT. - SHORTER TERM

Longer-term

- Widen the roadway to accommodate two-way travel for all modes, including transit, and/or protected bicycle lanes (see Figure 39).

FIGURE 39: PEARL STREET INT. - LONGER TERM



8.4 DOWNTOWN SEGMENT: PEARL STREET TO MAIN STREET

Preferred alternative: re-stripe the road to create one-southbound vehicle lane, one-northbound vehicle lane, a center turning lane, and northbound and southbound bike lanes (5-lane cross-section).

Shorter-term

- Re-stripe the roadway to remove the 4-lane configuration and create the 5-lane cross-section.
- Enhance the significant southbound transit stop near Bank Street with a shelter and other amenities as appropriate.
- Evaluate the operations and safety of a median and other streetscape enhancements.
- Adding street trees where possible and improve the pedestrian experience with benches, trees, and other amenities within the right of way.

Longer-term

- Widen the roadway to accommodate underground utilities, additional street trees, stormwater detention and treatment, and/or protected bicycle lanes
- Implement and/or pilot a center median if the evaluation warrants further consideration.
- GMT may route northbound buses along the corridor in the long-term given two-way vehicle travel north of Pearl Street. Bus stops will be identified at that point for improvement.

Bank Street Intersection / City Market Driveway

The Marketplace Garage entrance on Bank Street periodically queues from Bank Street back into Winooski Avenue, affecting safety and operations for all modes. The reasons vary, but queues often occur when the garage is full and drivers are not sure where to go. With fewer vehicle lanes on Winooski Avenue, that blockage may cause additional queueing. However, it should be safer because people won't have the space or additional lanes to weave around queued vehicles.

The queueing from the garage can compound an already busy driveway at the City Market entrance just south of Bank Street. The two-way driveway has a high demand of turning vehicles in and out, as well as walkers/bikers across and into the driveway. These turning vehicles can use the future center turning lane, but the queuing space is limited.

Shorter-term

- Investigate ways to reduce queueing associated with the Marketplace Garage Bank Street entrance. Improved signage and wayfinding can provide warnings in advance when the garage is full and can direct patrons to the Cherry Street entrance or to other parking options.
- Collaborate with City Market to improve the operations and safety at their driveway onto Winooski Avenue.
- Collaborate with City Market and SSTA/Paratransit curbside pickup at Howard Center (102 South Winooski Ave) to replace on-curb pickup and loading in front of Howard Center with a parking space in City Market for SSTA operations when possible.

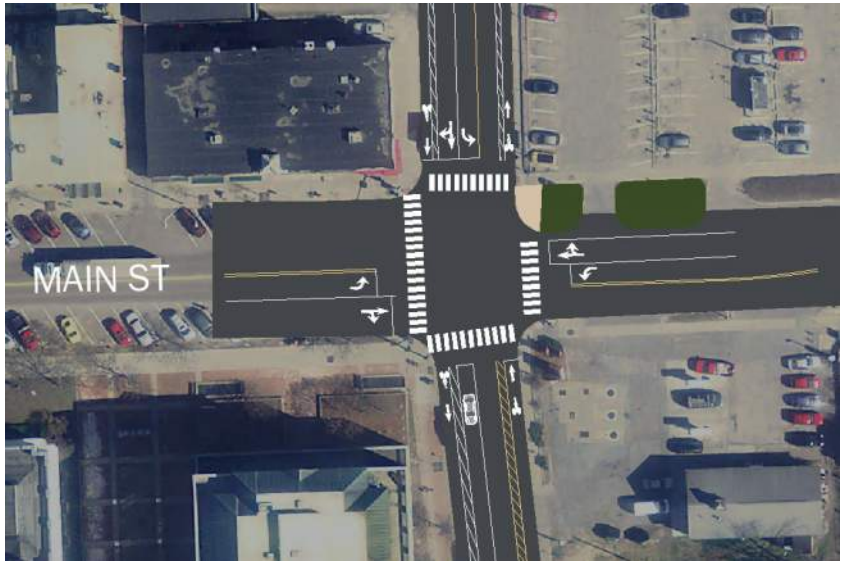
Main Street Intersection

The Main Street intersection is the focus of a Great Street project along Main Street. Modest changes can be implemented until more substantial changes are undertaken.

Shorter-term

- As part of the Downtown Segment re-striping, reduce the pedestrian crossing widths by removing the dedicated right turn lanes for southbound right and westbound right turns (Figure 40).
- Restricted commercial loading on the western curb on Winooski Avenue and relocate to occur on Main Street.

FIGURE 40: MAIN STREET INT - SHORTER TERM



8.5 SOUTHERN SEGMENT: MAIN STREET TO SAINT PAUL/HOWARD

The corridor south of Maple Street is planned to remain in its current configuration.

Preferred alternative: incorporate continuous bike lanes in both directions.

Main Street to King Street

A *Shorter-term*

- Shift the center line of the street and incorporate northbound and southbound bike lanes.
- Maintain both southbound and northbound travel lanes.
- Remove the 12 metered curb side parking spaces on the east side.

B *Longer-term*

- Remove the northbound travel lane and add protected bike lanes which will improve the operational efficiency at the Main Street – Winooski Avenue signalized intersection (by removing an approach lane to the signal).

C King Street to Maple Street

Shorter-term

- Remove the northbound vehicle travel lane and create southbound and northbound bike lanes. In essence, the cross-section just south of Maple Street will be extended north through this segment of the corridor.

Longer-term

- Explore widening between Main Street and King Street by removing the green belt to create on-street parking spaces.

8.6 PROJECT COSTS

The preferred alternative construction costs are divided into the three project implementation segments for the shorter-term and longer-term time periods.

Basic costs include just those physical works needed to remove the existing strips and replace new strips in the new configuration. Reconstruction costs assume the roadway surface is replaced, which the Vermont Agency of Transportation is scheduled to do in 2022 along the entire corridor.

Shorter-term

Northern Segment (Riverside Avenue to Pearl Street)

- Union Street mini-roundabout: $115,000
- North Street mini-roundabout: $150,000
- Striping Only (remove & restripe): $45,000

Downtown Segment (Pearl Street to Main Street)

- Striping Only (remove & restripe): $53,000

Southern Segment (Main Street to Maple Street)

- Striping Only (remove & restripe): $10,500

Longer-term

The longer-term cost estimates in the northern segment include the widening of the roadway and possibly including undergrounding the existing overhead utilities. The southern segment is only revising the lane configuration between King Street and Main Street.

Northern Segment (Riverside Avenue to Pearl Street)

- Without Utility Undergrounding: $2.38 million
- With Utility Undergrounding: $10+ million[6]

Southern Segment (Main Street to King Street)

- Striping Only (remove & restripe): $10,000

[6] The cost could increase dramatically with contaminated soil, electrical components affecting right of way, and replacing and upgrading stormwater systems.

8.7 IMPLEMENTATION TIMELINE

Although there are efficiencies of scale for planning, designing, and constructing, each of the three segments can be implemented concurrently or independently of each other.

Northern Segment

2020

- Conduct the Parking Management Plan for the two study areas: Pearl Street to North Street and North Street to Riverside Avenue. Identify management and/or solutions to mitigate the loss of on-street vehicle parking.
- Conduct pilots for the two mini-roundabouts at North Street and Union Street.
- Initiate preliminary design and engineering. Develop plans for revising signage, striping, stormwater drains, and other infrastructure in the corridor. Identify where minor curb movement might accommodate some indented on-street vehicle parking spaces.
- Develop wayfinding signs for parking and bicycle travel to increase the use of the Union Street bike lanes in the near-term prior to any changes in on-street parking.

2020-2021

- Initiate permanent installs of the mini-roundabouts upon successful trials.

2021

- Complete physical work upon agreement on Parking Management Plan outcomes.

Beyond 2021

- Identify funding for roadway widening and longer-term improvements.

Downtown Segment

2020

- Initiate preliminary design and engineering. Evaluate and develop revised signal designs and signal timings for the corridor. Develop plans for revising signage, striping, stormwater drains, and other infrastructure in the corridor.
- Develop wayfinding signs for city parking and bicycle travel.
- Assess Marketplace Garage entrance options.
- Engage with City Market and other property owners along the corridor.
- Finalize design for the corridor changes.

2020-2021

- Complete physical works.
- Evaluate the operations and safety of a raised median and other streetscape enhancements.
- Make final adjustments to shorter-term improvements in advance of roadway paving in 2022.

Beyond 2021

- Identify funding for roadway widening and longer-term improvements such as protected bike lanes, underground utilities, stormwater management, and a raised median.
- Implement and/or pilot a raised center median if the evaluation warrants further consideration. Timing to be coordinated with the St. Paul and Pine Street grid connections.

Southern Segment

2020-2021

- Initiate preliminary design and engineering
- Engage with property owners and neighborhoods affected by change in parking and change in vehicle lanes.
- Complete the shorter-term projects and restriping of lanes
- Make final adjustments to shorter-term improvements in advance of roadway paving in 2022.

Beyond 2021

- Identify funding for roadway widening and longer-term improvements