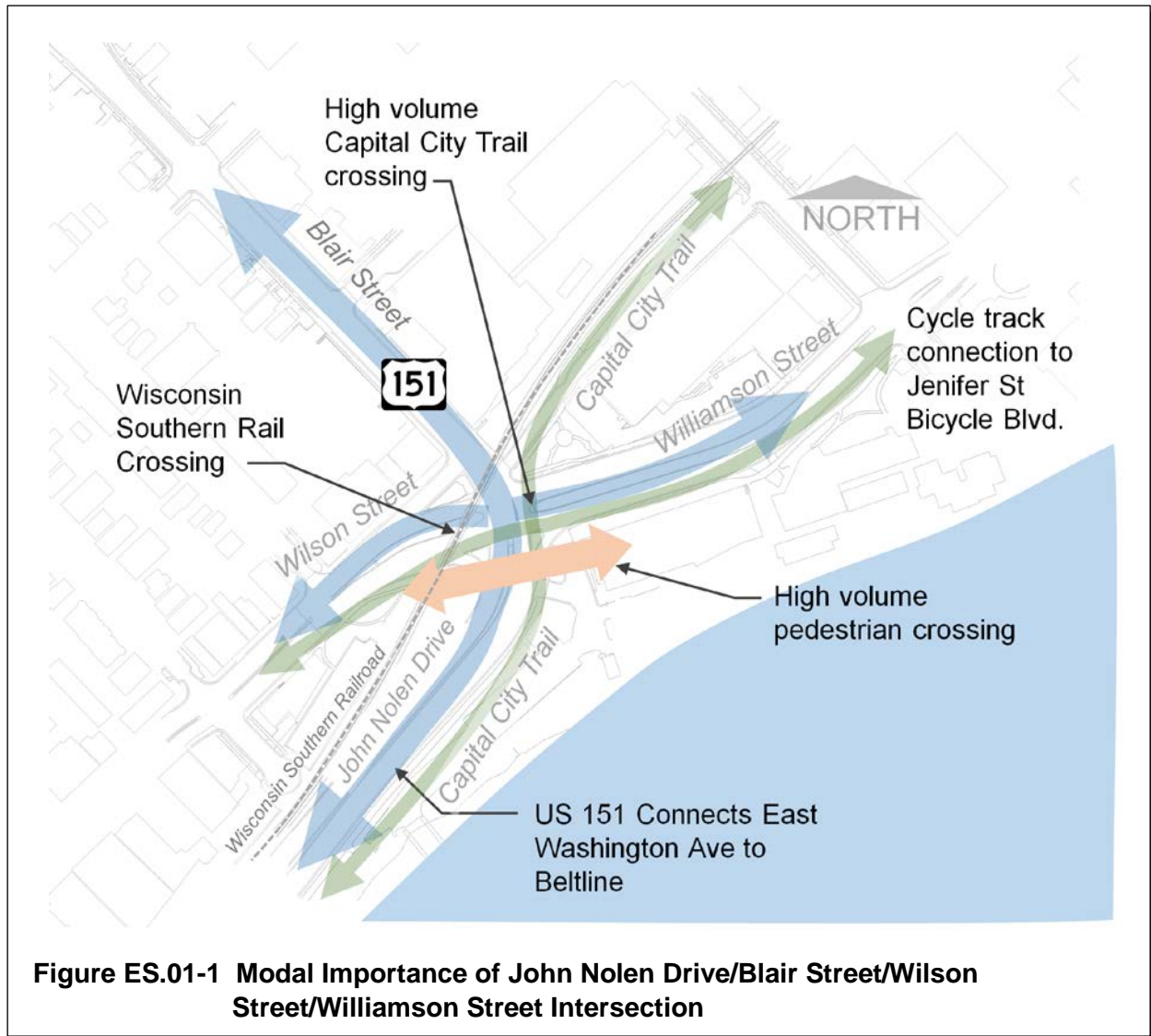


ES.01 INTRODUCTION

A. Background

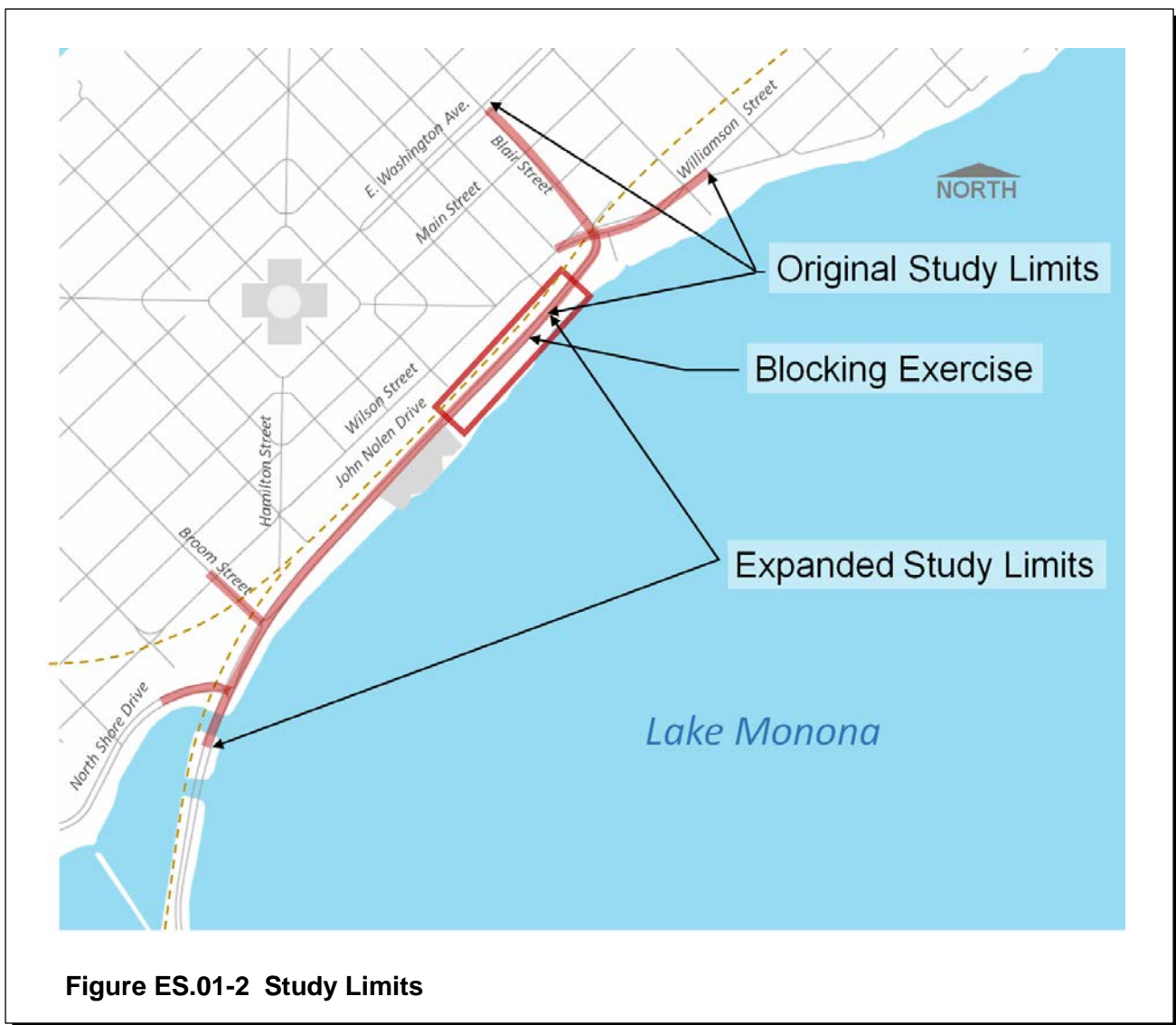
The John Nolen Drive/Blair Street and Wilson Street/Williamson Street intersection is a cross roads for all transportation modes. It is one of the most highly used intersections for pedestrians, bicyclists, motor vehicles, and transit. It serves as both an entrance to the near east isthmus/Capitol area as well as the Williamson Street corridor. Key modal features associated with the intersection are listed following.

The importance of the intersection is augmented by the historic structures, such as Machinery Row and Hotel Ruby Marie, and parks such as Law Park and the Gateway Center pocket park. Figure ES.01-1 illustrates the modal importance of the intersection.



Because of the current pavement conditions, along with inadequate operations for all modes, the City of Madison (City) enlisted Strand Associates, Inc.® (Strand) to study the John Nolen Drive/Blair Street and Wilson Street/Williamson Street intersection. The study was to evaluate existing conditions for pedestrians, bicyclists, motorists, transit, and emergency services. The study was then to develop alternatives that improved mobility for all of these services. Eventually the study was to be used to help program improvements for the intersection to address the deteriorating pavement conditions.

Public and stakeholder interaction soon expanded the scope of the study to include John Nolen Drive at the North Shore Drive and Broom Street intersections. The study was also expanded to include a blocking exercise to determine viewshed effects of constructing a parking garage/elevated park structure over John Nolen Drive east of Monona Terrace. Figure ES.01-2 illustrates the limits of the study.



B. Study Purpose

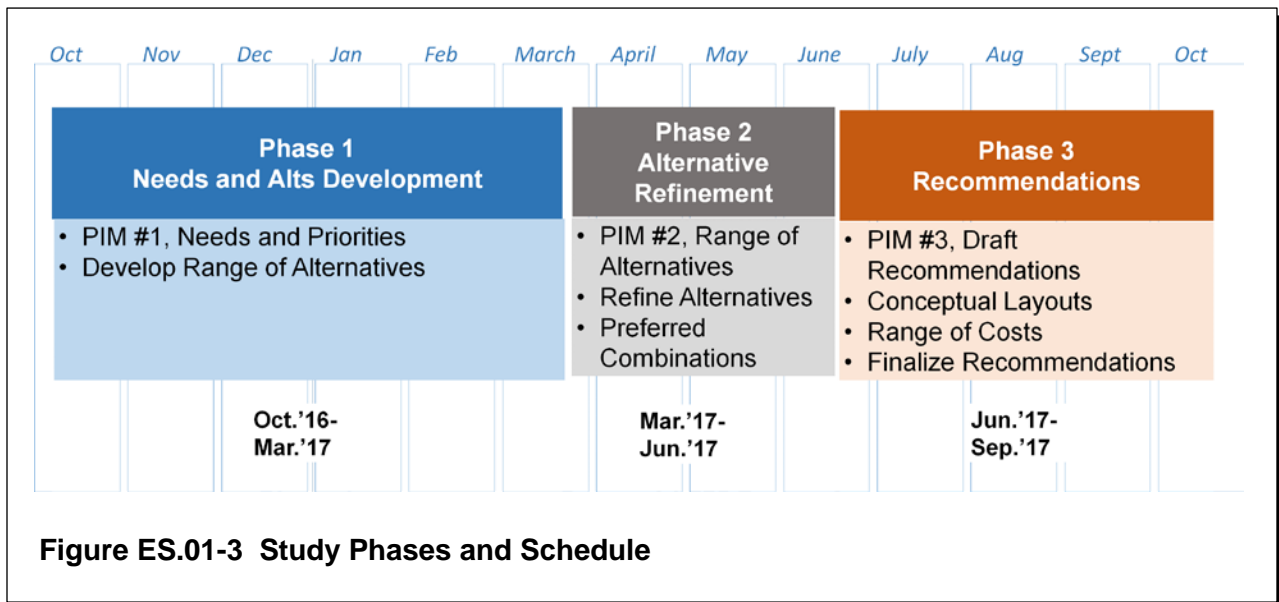
The study's purpose is to develop a near-term solution for the John Nolen Drive/Blair Street and Wilson Street/Williamson Street intersection area that:

1. Can be reasonably funded with federal transportation monies within the next 5 to 10 years.
2. Improves operations, safety, and comfort for:
 - a. Pedestrians
 - b. Cyclists
 - c. Motorists
 - d. Transit
3. Addresses the poor pavement conditions.
4. Evaluates short and long-term options that improve pedestrian and bicycle access to the lakeshore from North Shore Drive to Blair Street.
5. Evaluates the viewshed effects of proposals that include a structure over John Nolen Drive east of Monona Terrace.

The Blair Street and John Nolen Drive corridor is designated as US 151, a connecting highway. Therefore, these legs of the intersection are under the jurisdiction of the Wisconsin Department of Transportation (WisDOT). WisDOT and Federal funding likely would be used (and required) for improvements to these legs of the intersection.

C. Study Schedule

The yearlong study was segmented into three phases. Phase 1 focused on identifying needs and developing alternatives. Phase 2 presented a range of alternatives and then used stakeholder feedback to refine the alternatives. Phase 3 presented both draft and final recommendations. Figure ES.01-3 graphically illustrates both the study phases and the study schedule.



ES.02 RECOMMENDATIONS

A. John Nolen Drive/Blair Street and Wilson Street/Williamson Street Intersection

1. Interim Recommendations

Depending on the availability of funding, reconstruction/reconfiguration of this intersection is likely several years away. Yet, one of the key concerns of stakeholders is the conflicts between motor vehicles and pedestrians and bicyclists at the Machinery Row driveways in the southeast quadrant. The study team recommends that the City investigate the feasibility of installing vehicle detection combined with a warning beacon to alert bicyclists and pedestrians when a vehicle is present. The beacon could be mounted over a sign indicating “Blind Driveway”, “Watch for Exiting Vehicles”, or similar.

2. Near-Term Recommendations

Figure ES.02-1 illustrates the recommended configuration for the John Nolen Drive/Blair Street and Wilson Street/Williamson Street intersection. It is also included in Appendix F. The configuration is the product of considerable public comment and seeks to balance priorities of residents, businesses, and travelers of all modes. The reconstruction of this intersection is listed as a near-term recommendation pending its approval of Highway Safety Improvement Program grant funding. Key features of the intersection include:

- a. Shifting intersection west.
- b. Removing Wilson Street stub in front of Hotel Ruby Marie and the expand the greenspace.

- c. Providing parallel parking and a buffered bike lane in front of Hotel Ruby Marie.
- d. Installing a left turn lane on the Blair Street north approach.
- e. Removing parking on the east Wilson Street stub serving the Gateway Shopping Center. In that space designate an at-grade cycle path. Maintaining existing sidewalk for pedestrians.
- f. Providing green bike box and green route markings through the intersection for eastbound and westbound Williamson Street and Wilson Street cyclists. Providing ramp to cycle track in front of Machinery Row.
- g. Providing green pavement marking for Capital City Trail on east Williamson Street approach. Providing separate ladder marking crossing for pedestrians adjacent to Capital City Trail marking.
- h. Reconfiguring the John Nolen Drive to Williamson Street right-turn island to:
 - (1) Provide more staging area for pedestrians and cyclists.
 - (2) Reduce the speed of right turning vehicles with a tighter curb radius and raised pedestrian and bicycle crossing.
 - (3) Add a narrow, raised lane separator between the northbound through lane and the channelized right-turn lane in the gore area to reduce late lane changes.
- i. Enlarging the staging area for pedestrians and cyclists crossing the John Nolen Drive to Williamson Street right turn movement.
- j. Reducing Williamson Street median and reallocate space from median and narrower travel lanes to enlarge the space in front of Machinery Row. Separating pedestrians and cyclists through:
 - (1) Widening the sidewalk in front of Machinery Row and realigning the existing cycle track
 - (2) Adding on-street parking on eastbound Williamson Street.
- k. Relocating the two Machinery Row driveways to the southwest and reduce into one driveway.
 - (1) Providing a protected left turn into the parking lot. Access and egress options increase from the relocation.
 - (2) Making provisions for future signalization if it becomes necessary.

- l. Relocate Capital City Trail to travel through the city-owned parking lot to reduce the number of decision points from vehicles entering and exiting the parking lots. (Note: Parking lot configuration and Law Park design to be developed by Madison Parks).
- m. Providing left turn lane for John Nolen Drive to Wilson and Blair Street to Williamson Street movements.
- n. Maintaining bike box on west Wilson Street approach.
- o. Adding a buffered bike lane approaching the intersection eastbound on Wilson Street.
- p. Design elements provided to aid in the creation of a railroad Quiet Zone on the east Isthmus including Supplemental Safety Measures (SSM) and/or Alternative Safety Measures (ASM). These primarily consist of active warning devices including flashers and crossbucks and raised curb/separators that would prevent a conflicting motor vehicle from driving around the lowered crossbuck when a train is present. These treatments also led to a change in the westbound Williamson Street lane configuration that eliminates the shared through/left-turn lane and provides two left-turn lanes and one shared through/right-turn lane. There is a negligible change to motor vehicle operations. Appendix G contains a report authored by Mark Morrison, P.E. regarding his review of the preliminary intersection design.

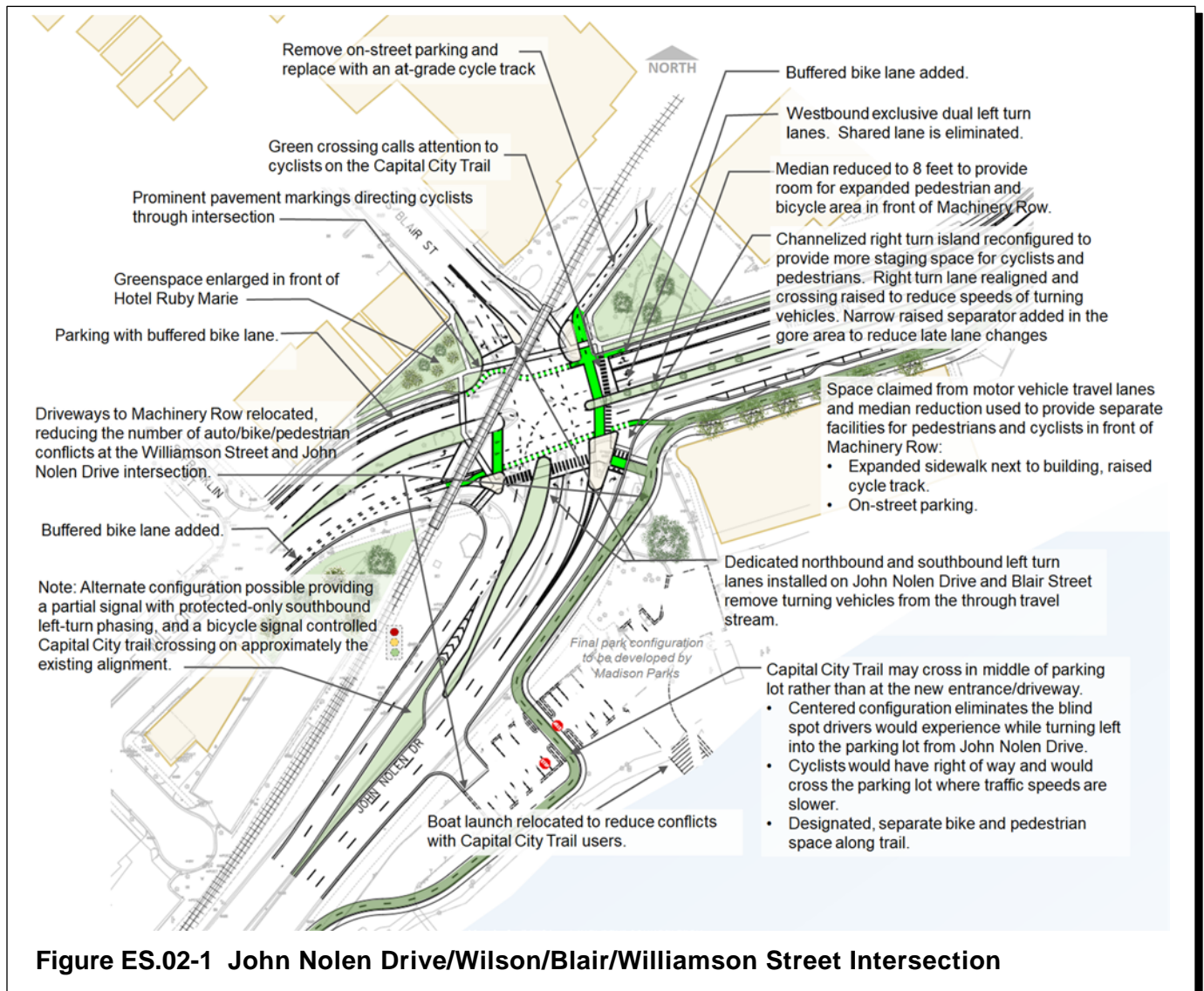
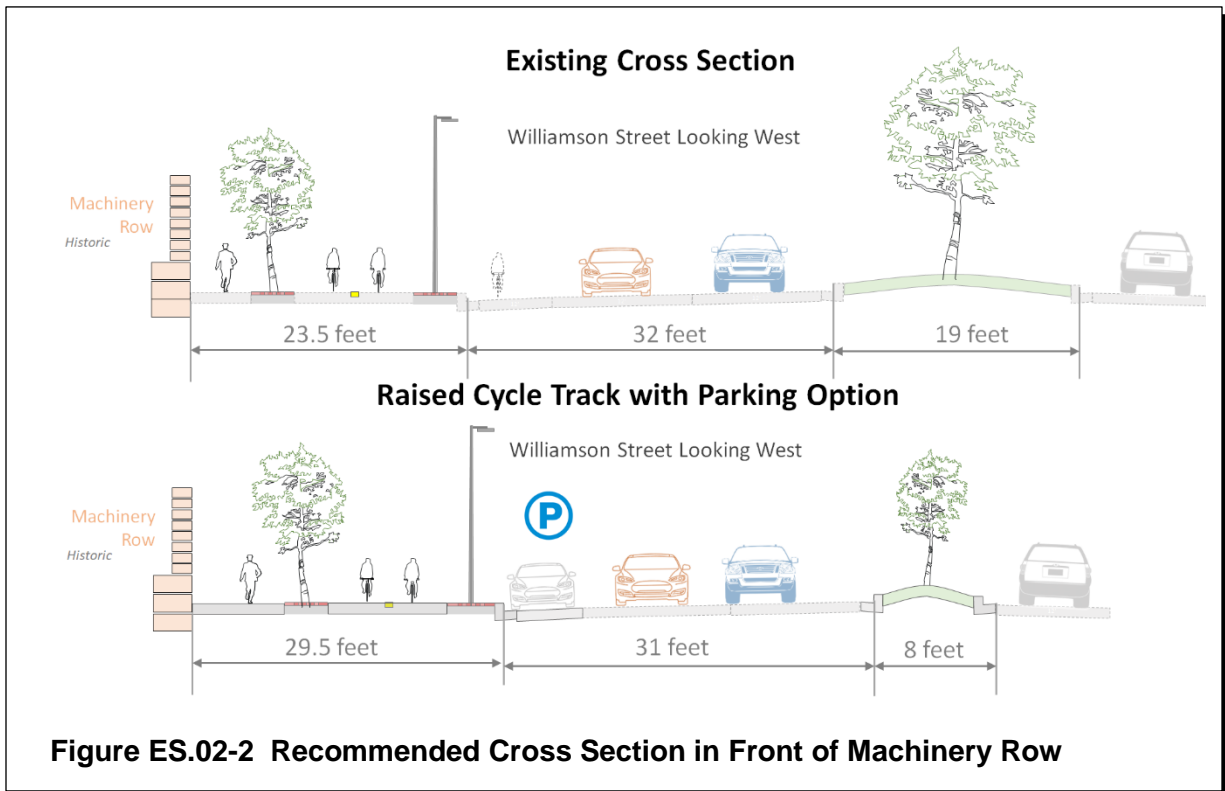


Figure ES.02-1 John Nolen Drive/Wilson/Blair/Williamson Street Intersection

Figure ES.02-2 shows the recommended cross section in front of Machinery Row.



3. Long-Term Recommendations

If the John Nolen Drive/Blair Street and Wilson Street/Williamson Street intersection is to accommodate more motor vehicle traffic volumes, there are relatively few options. They include:

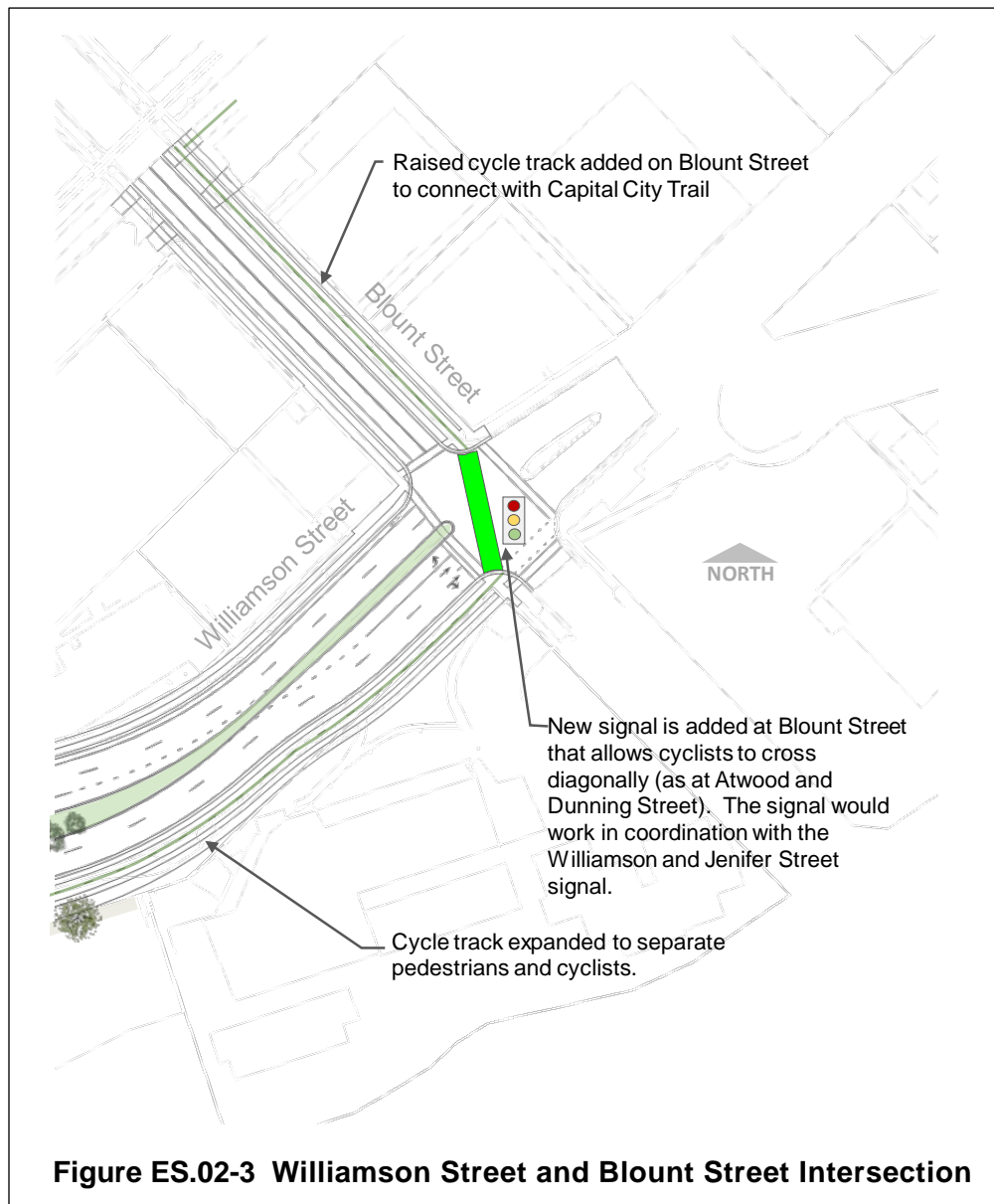
- a. Providing a triple left-turn on the Williamson Street east approach. This would require expanding John Nolen Drive to three lanes in the southbound direction, and possible acquisition of right-of-way from the railroad. If this is a potential option for the future, the City may want to maintain the current width of the Williamson Street median.
- b. Grade separate movements within the intersection. Section 4 describes some of the significant challenges associated with this in the tunnel option.

This study does not currently recommend either of these options. This intersection is “at capacity” for all travel modes and the dynamic mix enriches the corridors that connect to the intersection.

B. Williamson Street and Blount Street Intersection

The near and long-term recommendation at the Blount Street intersection is to provide a diagonal, signalized bicycle crossing connecting to the recommended cycletrack in front of Machinery Row

and a recommended cycletrack along Blount Street connecting to the Capital City Trail. Figure ES.02-3 shows the recommended configuration.



C. Blair Street and Main Street Intersection

The study team recommends a traffic signal at Blair Street and Main Street as a means of providing a controlled bicycle and pedestrian crossing. From a motor vehicles operation standpoint, left turns from Blair Street to Main Street would likely need to be prohibited during peak periods, at a minimum. This is needed to avoid creating a condition similar to what currently exists at the John Nolen Drive/Blair Street and Wilson Street/Williamson Street intersection where left-turning vehicles on John Nolen Drive and Blair Street block one of the through lanes and lead to increased delays, queuing, and crashes.

D. East of Monona Terrace

There are several options being discussed for both Law Park and the air rights over John Nolen Drive. Some proposals include covering John Nolen Drive with a parking garage that has a roof-top park. Many also include constructing Frank Lloyd Wright's Boat House on Lake Monona.

1. Near-Term Recommendations

- a. Obtain an easement to allow a pedestrian and bike connection from Wilson Street to the edge of the railroad property to accommodate a future overpass of John Nolen Drive (completed).
- b. Work with the project team for the McGrath Redevelopment to construct footings that would accommodate a future overpass bridge that spans the rail line and John Nolen Drive to connect with the lake shore.
- c. Begin looking at funding options that could fund a pedestrian-bicycle overpass over the rail line and John Nolen Drive. Transportation Alternatives Program (or Set-Aside) might be one option.

2. Long-Term Options

The study recommends installing a pedestrian-bicycle overpass over the rail line and John Nolen Drive. Many have advocated for the bridge to be wide enough to accommodate landscaping, food carts, and/or activities. Madison Parks may soon be initiating a planning effort for Law Park. We recommend that this planning effort further refine the bridge's role and relationship to Law Park, and what amenities should be included.

As mentioned, there are proposals that include covering John Nolen Drive that could conflict with this bridge, depending on how far east the deck extends. The City can re-evaluate construction of the pedestrian-bicycle overpass in light of future priorities and proposals if and when bridge funding becomes available.

Figure 1.02-4 illustrates one option of a type of landscaped bridge that could be constructed. The actual bridge amenities should be determined in conjunction with Law Park planning.



Figure ES.02-4 Pedestrian Bridge to Law Park—One Possible Configuration

E. Broom Street Intersection

This intersection is particularly challenging. Full bike accommodations cannot be installed on Broom Street until it is reconstructed. And when it is reconstructed, building faces and topography constrain the amount of room for accommodations. The following paragraphs list the study's near and long-term recommendations.

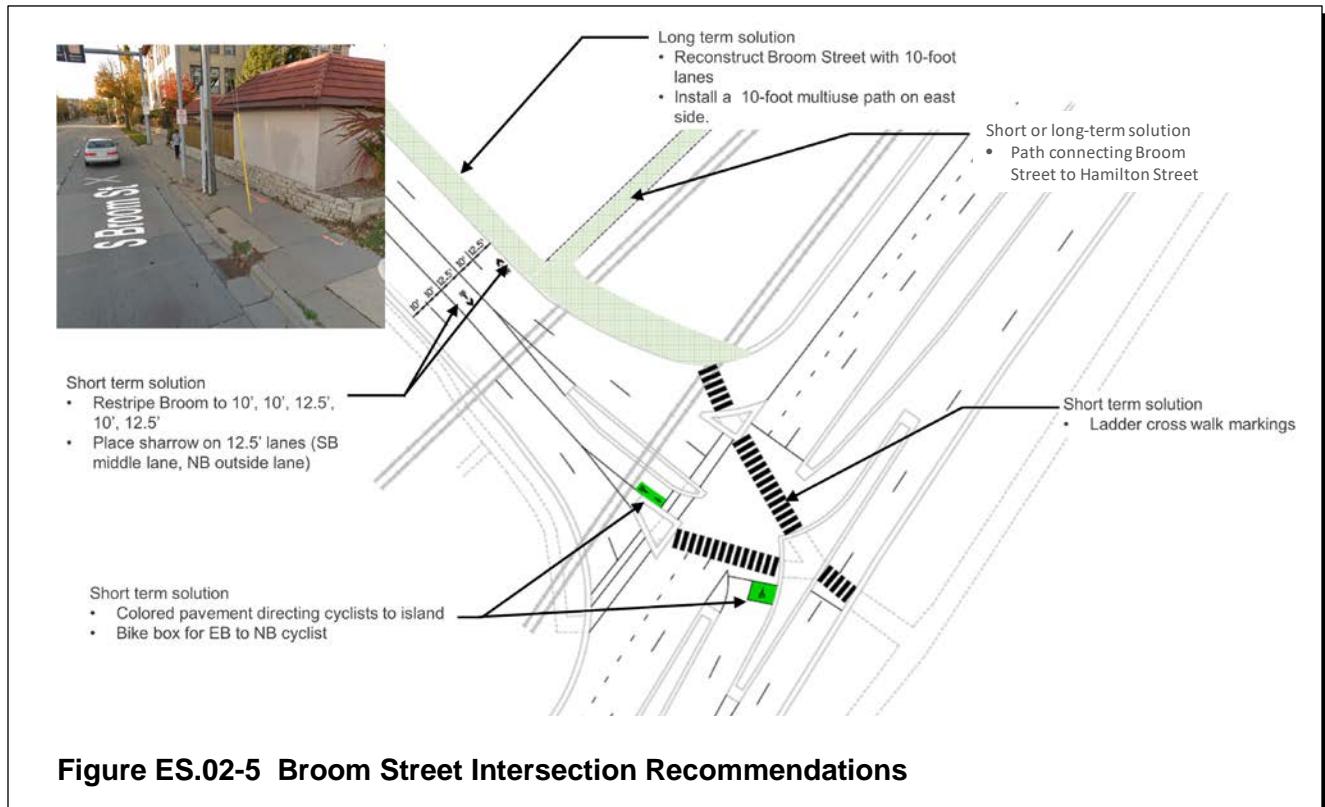
1. Near-Term Solutions (2 to 5 years)

Near-term solutions (shown in Figure 1.02-5) for this intersection include:

- a. Using a sharrow pavement marking to direct eastbound Broom Street cyclists to the left turn island. At the island, create a green colored box that directs cyclists where they should wait and cross, and alert drivers where cyclists will be crossing.
- b. Creating a green bike box on the eastern left turn lane for northbound John Nolen Drive traffic to westbound Broom Street. This allows cyclists crossing John Nolen Drive from the Capital City Trail to westbound Broom Street the option

of positioning themselves in front of left-turning motor vehicle traffic and traveling through the intersection ahead of them during the protected left-turn signal phase.

- c. Install a multi-use trail to connect Broom Street to Hamilton Street. This would provide a more direct route to the Capitol Square for cyclists, and allow them to travel on a roadway with less motor vehicle volume. Note that because this trail would travel on railroad right-of-way, coordination would be needed, which could delay implementation of the path.



2. Long Term Solutions (5 to 15 years)

Long term solutions for this intersection include:

- a. Reconstructing Broom Street with narrower lanes (see Figure 1.02-5). With the additional space, install a raised cycle track (separated bicycle facility) on the east side of the street.
- b. Connecting Broom Street with the pedestrian and bicycle underpass discussed under the North Shore Road improvements.

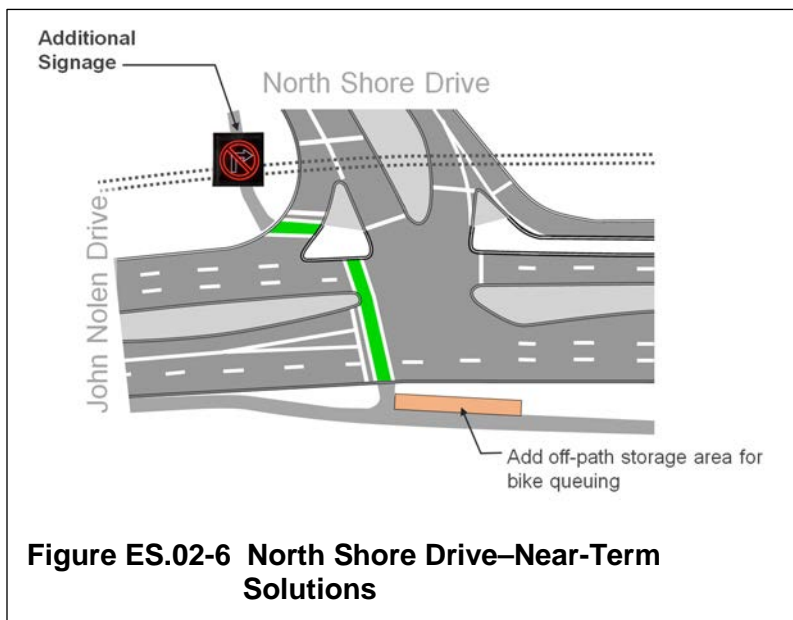
F. North Shore Drive Intersection

In recent years, the City has already made significant improvements to this intersection by enlarging the island on the north approach and providing green epoxy markings across John Nolen Drive. The following paragraphs describe additional measures that could be performed.

1. Near-Term Solutions (2 to 5 years)

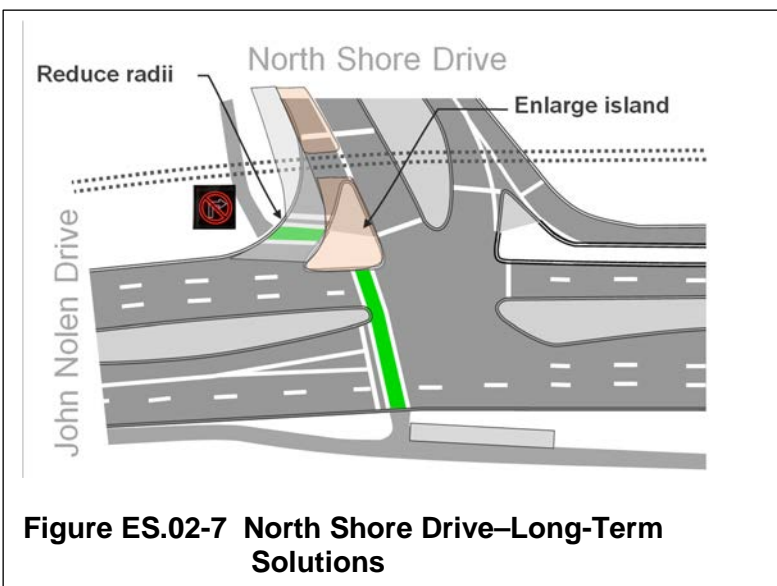
The study recommends adding a no-right-turn blank out sign to the southbound channelized right turn lane. This will reinforce/alert drivers to the pedestrian and bicycle right-of-way during their walk signal phase.

The study team also recommends adding an off-path, paved staging area on the Capital City trail for pedestrians and cyclists. This will allow them to wait for a green signal to cross John Nolen Drive off the main path area.



2. Long-Term Solutions (5 to 15 years)

Figure 1.02-7 illustrates one of the long-term recommendations. When the north approach of the intersection is reconstructed, the island channelizing the right turn could be enlarged to provide more room for cyclists and pedestrians waiting to cross either the right turn movement or John Nolen Drive. This modification would also reduce motor vehicle speeds.



A second long-term solution includes constructing a pedestrian and bike underpass between North Shore Drive and Broom Street. Features to consider in implementing this underpass include:

- a. Raising the profile of John Nolen Drive between North Shore Drive and Broom Street. This will require reconstructing this portion of John Nolen Drive.
- b. Even with this profile change on John Nolen Drive, a storm water lift station will be needed to drain the underpass of storm water that enters the underpass through the ramps.
- c. Reconstructing the westbound right turn lane onto North Shore Drive to reduce its functional width. This space will be needed for a ramp down to the pedestrian and bike underpass.
- d. Constructing a multi-use path on the north side of North Shore Drive that connects to the pedestrian and bike underpass. This same path could continue to connect directly with Broom Street.
- e. Relocating the Capital City Trail to the south to allow the trail room to travel around the ramps down to the pedestrian and bike underpass.

Figures ES.02-8 and ES.02-9 illustrates the connection network being proposed, and a cross section of the pedestrian bicycle underpass.

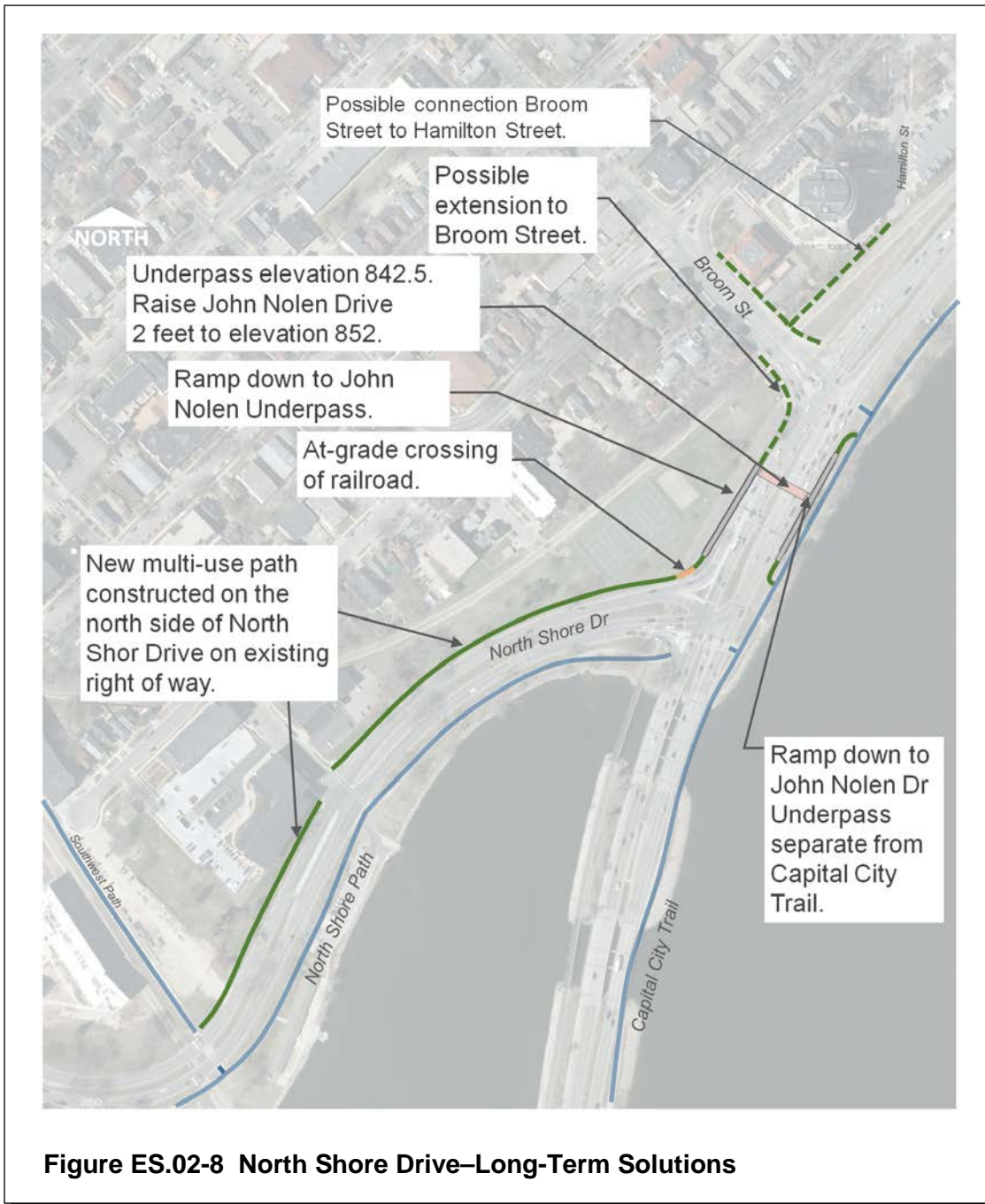
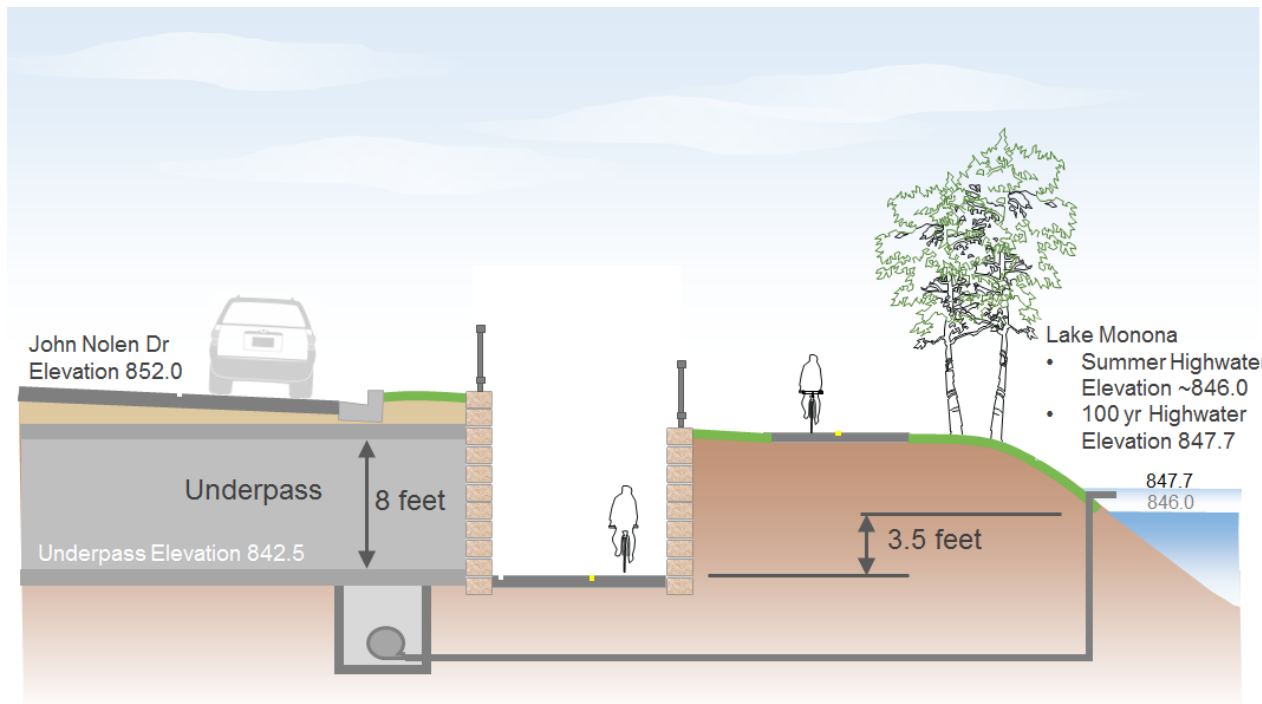


Figure ES.02-8 North Shore Drive—Long-Term Solutions



The underpass option places a pedestrian-bicycle tunnel underneath John Nolen Drive. This underpass would involve:

- Raising John Nolen Drive about 2 feet between North Shore Drive and Broom Street.
- Having the Capital City Trail run parallel to the ramp to the underpass.
- Constructing the underpass with a floor elevation of about 842.5.
- Because the underpass is beneath the normal lake level, the underpass would need to be watertight and would require a stormwater pump station.

Figure ES.02-9 North Shore Drive–Long-Term Solutions–Underpass Cross Section