

## X. Recommended Concepts for Future Study and Implementation

The improvement options described in Section VIII and a preliminary implementation plan created by project staff was presented to the public and stakeholders for review and prioritization. Meetings were held with the Mankato City Council, Blue Earth County Board of Commissioners, MnDOT D7 staff and key stakeholders along the corridor including Mankato School District, Mankato YMCA, Cub Foods, Hy-Vee, the Old Town District and Coughlan Quarry representatives. At the April public open house, attendees were asked to help prioritize improvements into implementation timeframes. Attendees were given the opportunity to identify their top three priorities for each of the following implementation timeframes:

- Short-Term (0-5 years) – These improvements are typically smaller, spot improvements that have a lower cost but yet high benefit in terms of addressing existing issues on Riverfront Drive. Because of their smaller size, these improvements could be implemented within the next five years and serve the corridor well for many years into the future.
- Mid-Term (6-15 years) - Projects in this category tend to be larger in size than the short-term projects and may be more feasible to implement in conjunction with a comprehensive infrastructure improvement project such as a street reconstruction project.
- Opportunity/Development/Safety Driven – Projects in this category were identified for the long-term. These are areas that may not have an immediate need for an improvement today but could become problematic over the longer term if 20-year traffic forecasts are realized or safety problems arise. Not all of these improvements are feasible today with the existing land uses along the corridor. They would only be considered if land uses change or opportunities arise that make these options more feasible.

The results of the public’s input on the prioritization of projects into the implementation timeframes are included in **Appendix J**. In general, the project team’s initial assessment of priorities was very similar to the public’s input.

### **Recommendations**

The following summarizes recommendations identified for each segment of Riverfront Drive based on input from study partners, corridor stakeholders, the public and elected officials.

## Segment 1 Recommendations (Woodland Ave to Sibley Parkway)

### Short-Term:

- Option 1-1A or Option 1-1B
- New Public Street through Cub Foods area



### Opportunity/Development/Safety Driven:

- Continue New Public Street from Linder Ave to Sibley Parkway
- Grade Separated Trail over Riverfront Drive
- Roundabout Corridor OR
- Interchange Modifications

Either Option 1-1A or Option 1-1B is expected to serve traffic operational needs within the Segment 1 area very well for many years into the future. If 2041 traffic volumes are realized, study partners may need to consider a more comprehensive corridor improvement project. Each of the roundabout corridor options and interchange modifications options were recommended to be carried forward for future consideration if needed and as opportunities present themselves from a land use and/or redevelopment standpoint. Study partners agreed to carry a future West Mankato Trail grade separation option near Poplar Street for future consideration as needs dictate.

The extension of a new public street through the Cub Foods area is included with Option 1-1B but should also be considered with any roadway improvement project in this area. Drivers are using this as a cut-thru today and formalizing this as a public street will improve the overall local network. The portion of this extension from Riverfront Drive to Linder Avenue is recommended in the short-term timeframe. The remainder of the new public street extension from Linder Avenue to Sibley Parkway is shown as in the opportunity/development/safety driven timeframe as it will need to be timed in conjunction with the City's redevelopment of their former public works site.

The MAPO 2045 Long Range Transportation Plan identifies a major rehab/reconstruction project on this segment of Riverfront Drive in the 2031-2045 timeframe.

## Segment 2 Recommendations (Sibley Parkway to Veteran's Memorial Bridge)

### Short-Term:

- Cherry St and Warren St Intersections Improvements:
  - Lane alignment modifications
  - Install protected lefts on Warren/Poplar Street
  - Install protected lefts on Southbound Riverfront Dr at Cherry
- Investigate crossing enhancement opportunities at Liberty Street
- Test a 3-Lane

### Mid-Term:

- Add sidewalk with either:
  - 4-lane OR
  - 3-lane



Source: Google Maps

Alexandria Example  
Testing an Improvement prior to construction



Source: City of Alexandria and WSN

Short-term recommendations for Segment 2 include spot improvements to improve lane alignments and signal operations at Cherry Street and Warren Street/Poplar Street intersections with Riverfront Drive. In addition, it is recommended that potential pedestrian crossing enhancements such as a pedestrian refuge and/or pedestrian flasher be considered at the Liberty Street/Riverfront Drive intersection. The concern for pedestrian crossing safety at this location came up late in the study and was not able to be fully evaluated.

Study partners felt it would be best to test a 3-lane roadway section on Riverfront Drive in Segments 2 and 3 before committing to a 3-lane conversion project. The traffic analysis completed as part of this study shows traffic operations on Riverfront Drive as a 3-lane are expected to operate within an acceptable condition both now and with 2041 traffic volumes. However, queues at some of the major intersections will be longer than today with only one thru lane. The concern is the public's tolerance for these types of queues. Testing a 3-lane will allow the City of Mankato to get a feel for public acceptance prior to investing in a major reconstruction project. Other communities have tested projects such as this with paint, delineators, trees, etc. as shown in the Alexandria example above.

It is recommended that traffic calming improvements on 2<sup>nd</sup> Street recommended as part of the Old Town Master Plan be tested at the same time as a Riverfront Drive 3-lane. One of the concerns identified with a 3-lane on Riverfront Drive was that traffic will perceive Riverfront Drive as being a slower option and will divert to 2<sup>nd</sup> Street. Providing traffic calming measures on 2<sup>nd</sup> Street such as bump-outs and crosswalk enhancements may make 2<sup>nd</sup> Street as less attractive corridor for thru traffic. Testing both Riverfront Drive and 2<sup>nd</sup> Street improvements at the same time will give the City the most realistic picture of how traffic could function in the future.

Several attendees at the April 20, 2017 public open house expressed concern with back-ups on Cherry Street that could worsen if a 3-lane begins at Cherry Street. They said it is difficult to merge onto northbound Riverfront Drive at Cherry Street and this will worsen if the 3-lane transition occurs at this same location. They noted this would be extremely difficult during events since the only exit of the parking ramp is onto Cherry Street directly adjacent to this intersection.

Based on this open house feedback, the project team took a closer look at the potential to move the 3-lane transition point on northbound Riverfront Drive. It is believed that moving the northbound

lane drop to north of Main Street will also be an acceptable option. This will keep the 4-lane capacity from Warren Street to Main Street to address the main concern. A sidewalk on the east side of Riverfront Drive could still be added as shown in the 4-lane options described above. A concept drawing should be completed in the future to determine how the lane configuration would work between Main Street and Plum Street. It appears there is sufficient room to drop the northbound lane in this direction but how the lane drop would exactly interact with the right-turn lane formation at Plum Street should be studied further.

Mid-term recommendations for Segment 2 is to implement either the 4-lane option (Option 2-1A) or 3-lane option (Option 2-2) based on the results of the 3-lane test findings. The timing of this option was shown in mid-term (6-15 years) so that it could be timed with a Riverfront Drive infrastructure reconstruction project. The MAPO 2045 Long Range Transportation Plan identifies a major rehab/reconstruction of Riverfront Drive between Sibley Street and Main Street in the 2031-2045 timeframe. The Mankato City Engineer noted that the portion of Riverfront Drive from Warren Street through Old Town would likely need reconstruction sooner in the 2021-2030 timeframe. This is consistent with the Mid-term recommendation to implement either the 4-lane or 3-lane option in Segment 2 within the next 6-15 years.

Option 2-1B, the four-lane shift west was not recommended for further study at this time as it is incompatible with Hy-Vee's foreseeable future. The option will be documented in the Opportunity/Development/Safety timeframe in the event land uses changes and this becomes a more feasible option.

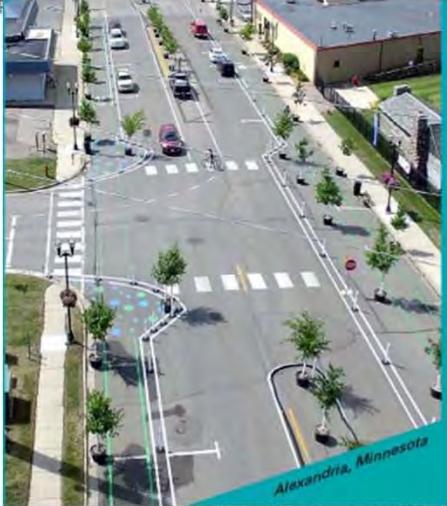
## Segment 3 Recommendations (Old Town)

**Short-Term:**

- Add Wayfinding for Parking and Public Spaces
- Test a 3-Lane



Source: [www.speakupaustin.org](http://www.speakupaustin.org)



Alexandria Example  
Testing an Improvement prior to construction

Alexandria, Minnesota

Source: City of Alexandria and WSN

Short-term recommendations for Segment 3 include testing a 3-lane as noted in the Segment 2 discussion above. Input from freight operators in the Old Town Area will be important as the 3-lane is tested.

Parking in the Old Town area was a topic that came up frequently during the issues identification and concept development phases of study. There seemed to be a general consensus that adequate parking exists in this area but it is hard to find. Old Town businesses that participated in public outreach for this study commented that maintaining parking on the northbound lanes of Riverfront Drive was important. They did not feel strongly that parking should exist on-street on both sides of Riverfront Drive. A short-term recommendation for Segment 3 is to provide better wayfinding

signage to existing parking areas on both sides of the Riverfront Drive corridor in Old Town.

## Segment 3 Recommendations (Old Town)

**Mid-Term:**

- Remove Free Right at Plum St
- Traffic Signal at Rock or Elm St
- Add Pedestrian Flasher
- 3-Lane or 4-Lane



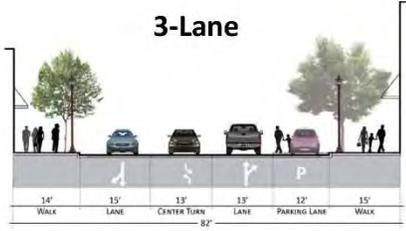
Source: FHWA, Michael Frederick, City of St. Petersburg, FL

### 4-Lane

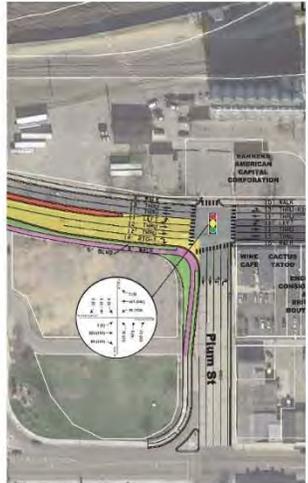


10' WALK 14' LANE 12' LANE 12' LANE 12' LANE 12' PARKING LANE 10' WALK  
82'

### 3-Lane



14' WALK 15' LANE 13' CENTER TURN 13' LANE 12' PARKING LANE 15' WALK  
82'



Mid-term recommendations for Segment 3 include removing the free right at the Riverfront Drive/Plum Street intersection and identifying a primary pedestrian crossing corridor at either Rock Street or Elm Street. A pedestrian flasher system such as a rectangular rapid flashing beacon could be added at either Rock or Elm Street, whichever does not have the traffic signal. This would give pedestrians two options to safely cross Riverfront Drive in Old Town at either a traffic signal location or with a rectangular rapid flashing beacon. An overhead rectangular rapid flashing beacon is recommended with a 4-lane Riverfront Drive option as it makes the pedestrian crossing more visible to all four lanes of traffic. A ground mounted rectangular rapid flashing beacon system (as shown in the picture above) could be implemented with a 3-lane option.

It is also recommended the City implement a 4-lane or 3-lane improvement project based on the findings of the 3-lane test. Implementation of either of these options is shown in the mid-term so that it can be timed with a future infrastructure reconstruction project on Riverfront Drive. The MAPO 2045 Long Range Transportation Plan identifies a major rehab/reconstruction of Riverfront Drive from Main Street to Washington Street in the 2026-2030 timeframe and from Washington Street to TH 14 in the 2031-2045 timeframe. The Mankato City Engineer noted that the portion of Riverfront Drive from Warren Street through Old Town would likely need reconstruction sooner in the 2021-2030 timeframe. This is consistent with the Mid-term recommendation to implement either the 4-lane or 3-lane option in Segment 3 within the next 6-15 years.

## Segment 4 Recommendations (Madison Ave to Good Counsel Drive)

### Opportunity/Development/ Safety Driven:

- Explore 3<sup>rd</sup> Ave realignment options with a redevelopment opportunity
- Median at Adams St with trail extension for SRTS



All of the improvements for Segment 4 are shown in the opportunity/development/safety driven timeframe. The improvements identified for Madison Avenue and 3<sup>rd</sup> Avenue will depend on whether or not the Coughlan Quarry area redevelops. It is recommended the City and County continue to explore opportunities with this redevelopment planning.

A median on Riverfront Drive with a trail extension for Safe Routes to School access to Franklin Elementary is another opportunity that can continue to be explored and implemented when needs dictate and funding becomes available.

## Segment 4 Recommendations (Madison Avenue to Good Counsel Drive)

### Opportunity/Development/Safety Driven:

- When reconstruction occurs or opportunities arise, reevaluate:
  - Width of road and number of lanes – fewer lanes possible
  - Access modifications – realign, share, and/or use side streets
  - Primary intersection locations – consistent spacing for best operations



Source: Google Maps



Source: Google Maps

North of 3<sup>rd</sup> Avenue that are few documented issues today from a traffic operations and safety standpoint. Traffic speeds and overlapping accesses are a concern that the City can look to address in the future when opportunities such as land use or development changes present themselves or a street reconstruction project is needed. At that time, the City is encouraged to reevaluate the width of the road, access to Riverfront Drive and primary intersection locations.

The MAPO 2045 Long Range Transportation Plan identifies a major rehab/reconstruction of Riverfront Drive from Washington Street to TH 14 in the 2031-2045 timeframe. The Mankato City Engineer noted that this portion of Riverfront Drive may need reconstruction sooner in the 2021-2030 timeframe.

## Segment 4 Recommendations (Madison Ave to Good Counsel Drive)

**Opportunity/Development/  
Safety Driven:**

- Explore 3<sup>rd</sup> Ave realignment options with a redevelopment opportunity
- Median at Adams St with trail extension for SRTS

## Segment 5 Recommendation (Highway 14)

**Short-Term:**

- Roundabout at North Ramp
- Trail extension and crossing to Minnesota River Trail

**Operational/Safety Driven:**

- Roundabout at South Ramp

Short-term recommendations for the TH 14 interchange area include constructing a roundabout at the north ramp terminal and extending a trail connection from Good Counsel Drive to the existing trail under the TH 14 Bridge. This improvement will require coordination from the City of Mankato, Blue Earth County and MnDOT D7 due to the jurisdiction of affected roadways. The study recommends the south ramp terminal continue to be monitored until such time that traffic operations and/or safety needs dictate. However, the City, County and MnDOT may decide it makes sense to construct both roundabouts at the same time for consistency in driver expectations.

### **Implementation**

The table on the following page documents the study recommendations into implementation timeframes based on input from study partners, corridor stakeholders, the public and elected officials.

Table 7 - Implementation Plan

Priority*	Segment/ Project #	Project Description	Estimated Cost**	Comments	
Short-Term 0 to 5 Years	1A OR 1B	Triple Lefts at TH 169 South Ramp, Add Right Turn Lane on Riverfront to YMCA/School, Two-Stage Pedestrian Crossing (School to Cub Foods), Add Right Turn Lane on Stoltzman  Double Lefts at TH 169 South Ramp, 3/4 at Poplar Street with Median, Add Right Turn Lane on Stoltzman	\$700,000 - \$1.0M	Could choose Either 1A OR 1B. Need to further investigate the feasibility of adding a 3rd lane under the TH 169 bridge with Option 1A. Requires coordination with MnDOT and Blue Earth County. MnDOT has a TH 169 bridge rehab project programmed for 2024.	
	Cub Foods New Public Street	Establish a public street connection from Riverfront Drive to Linder Ave through the Cub Foods parking lot drive lane	\$175,000	Requires close coordination with property owner.	
	2	Lane alignment modifications to the Riverfront Drive intersections with Warren Street and Cherry Street	\$40,000	Opportunity to study needs at the Warren/Poplar St intersection with Riverfront Drive further during the 2017-2018 Warren Street studies.	
	2	Installation of protected lefts on Warren Street/Popular Street and Southbound Riverfront Drive at Cherry Street	\$35,500	Opportunity to study needs at the Warren/Poplar St intersection with Riverfront Drive further during the 2017-2018 Warren Street studies.	
	2, 3	Test a 3-Lane on Riverfront Drive from Cherry Street to Vine Street Test 2nd Street enhancements (bump-outs, marked crosswalks, etc.) at same time as Riverfront Drive	\$55,000 - \$65,000	Estimated cost is to test a 3-lane. The lower cost represents using paint and the upper range is for using removable tape striping. Testing 2nd St enhancements would be an additional cost of \$900 per bump-out and \$900 per crosswalk.	
	3	Add wayfinding for public parking locations and public spaces.	\$6,000	\$500 per sign	
	5	Construct roundabout at TH 14 North Ramp	\$750,000	Requires coordination with MnDOT and Blue Earth County.	
			<i>Subtotal</i>	<i>\$2.0 - \$2.5M</i>	
	Mid-term 6 to 15 Years	2-1A OR 2-2	4-Lane narrow median to add sidewalk on east side of Riverfront Drive  3-lanes to add sidewalk on east side of Riverfront Drive.	\$1.2M OR \$450,000	3-lane in Segment 2 would need to be paired with 3-lane in Segment 3. Both options maintain full access at Civic Center Plaza/back parking lot to Hy-Vee. A major rehab/reconstruction of Riverfront Drive in this segment is anticipated in the 2021-2030 timeframe.
All Segment 3 Options		Remove free-right at Plum Street	\$60,000	A major rehab/reconstruction of Riverfront Drive in this segment is anticipated in the 2021-2030 timeframe.	
3-1 OR 3-2, 3-2B, 3-3, 3-4		4-Lane with Pedestrian Flasher (RRFB) at Rock St or Elm St (wherever traffic signal is not present)  One of 3-Lane Options (if comfortable after 3-Lane test period)	\$300,000 - \$800,000	These costs include removing the free right at Plum. Consider an overhead RRFB system if a 4-lane is maintained on Riverfront Drive. A ground mounted RRFB system could be considered with a 3-lane. A major rehab/reconstruction of Riverfront Drive in this segment is anticipated in the 2021-2030 timeframe.	
		<i>Subtotal</i>	<i>\$750,000 - \$2.0M</i>		
Opportunity / Development / Safety Driven		All Segment 1 Options	Extend a public street the proposed Cub Food public street extension at Linder Ave to Sibley Parkway	\$300,000	Development driven with former City Public Works site
	All Segment 1 Options	Grade Separated Trail Crossing near Poplar Street	\$1- \$1.5M	Reevaluate need after short-term improvements to Segment 1 of Riverfront Drive are implemented.	
	1-2A	Roundabouts at TH 169 Ramp intersections with Riverfront Drive and Stoltzman Road.	\$5M	Will require right-of-way acquisition and coordination with adjacent property owners. A major rehab/reconstruction project on Riverfront Drive in this segment is anticipated in the 2031-2045 timeframe.	
	1-2B	Roundabout at TH 169 South Ramp and Stoltzman Road. Six-legged roundabout with 169 North Ramp and Poplar Street.	\$6.5M	Not supported by YMCA or School	
	1-3A	Diverging Diamond at TH 169; right-in/right-out at Poplar St/YMCA and School access	\$4.5M	Not supported by YMCA or School	
	1-3B	Add a loop ramp to the TH 169 interchange; raise Riverfront Drive to accommodate.	\$4.5M	Will require additional city street network enhancements. A major rehab/reconstruction project on Riverfront Drive in this segment is anticipated in the 2031-2045 timeframe.	
	2-1B	4-Lane Shift West	\$2.2M	Feasible only if Hy-Vee decides to expand on a new building footprint. Allows wide center median to remain.	
	4	Median on Riverfront Drive at Adams Street with trail extension to 3rd Avenue	TBD	Trail extension addresses need identified in Safe Routes to School Plan.	
	4	3rd Avenue/Madison - 3rd Avenue Realignment to 4th Leg of Madison Ave/Riverfront Dr intersection	TBD	Development driven in conjunction with Coughlan Mine redevelopment	
	4	3rd Avenue/Madison - 3rd Avenue T-intersection at extended Madison Ave	TBD	Development driven in conjunction with Coughlan Mine redevelopment	
	4	3rd Avenue/Madison - 3rd Avenue T-intersection to Adams Street extension	TBD	Development driven in conjunction with Coughlan Mine redevelopment. This option not supported by Blue Earth County.	
	4	3rd Avenue/Madison - Median at 3rd Avenue	TBD	Development driven in conjunction with Coughlan Mine redevelopment. This option not supported by Blue Earth County.	
	4	Madison Ave to Good Counsel Drive: Reevaluate - with of the street, number of lanes, access to Riverfront, and primary intersection locations	TBD	Consider when infrastructure improvements are needed, land use changes or as opportunities arise with individual business/property owners. A major rehab/reconstruction of Riverfront Drive in this segment is anticipated in the 2021-2030 timeframe.	
5	Construct roundabout at TH 14 South Ramp	\$750,000	Consider when operational and/or safety need is present or construct at same time as TH 14 North Ramp roundabout for consistency in driver expectations.		

\*Timing of all projects dependent upon funding availability.

\*\* All estimated costs are for individual improvements only. Costs do not account for any reconstruction needs of Riverfront Drive.

## **XI. Next Steps**

Additional design, studies and public input will be needed for each of the recommended improvement options to move forward. The purpose of the Riverfront Drive Corridor Study was to develop a long-term plan for improvements to Riverfront Drive. The concepts developed as part of this study are high-level and will need additional refinement through preliminary and final design. Environmental review and permitting will also be required with exact requirements based on the scope of the project and the funding source.

The improvement options identified within this study and the projects prioritized as part of the implementation plan will help the City of Mankato continue to maintain a functioning yet safe minor arterial roadway.

Study partners must continue to work together to further plan, obtain funding, design, and implement the recommended improvement projects. All partners have an active role in implementing these improvements. All competitive funding sources should be considered. Agencies should also update their comprehensive and transportation plans to include these findings to better leverage funding sources.