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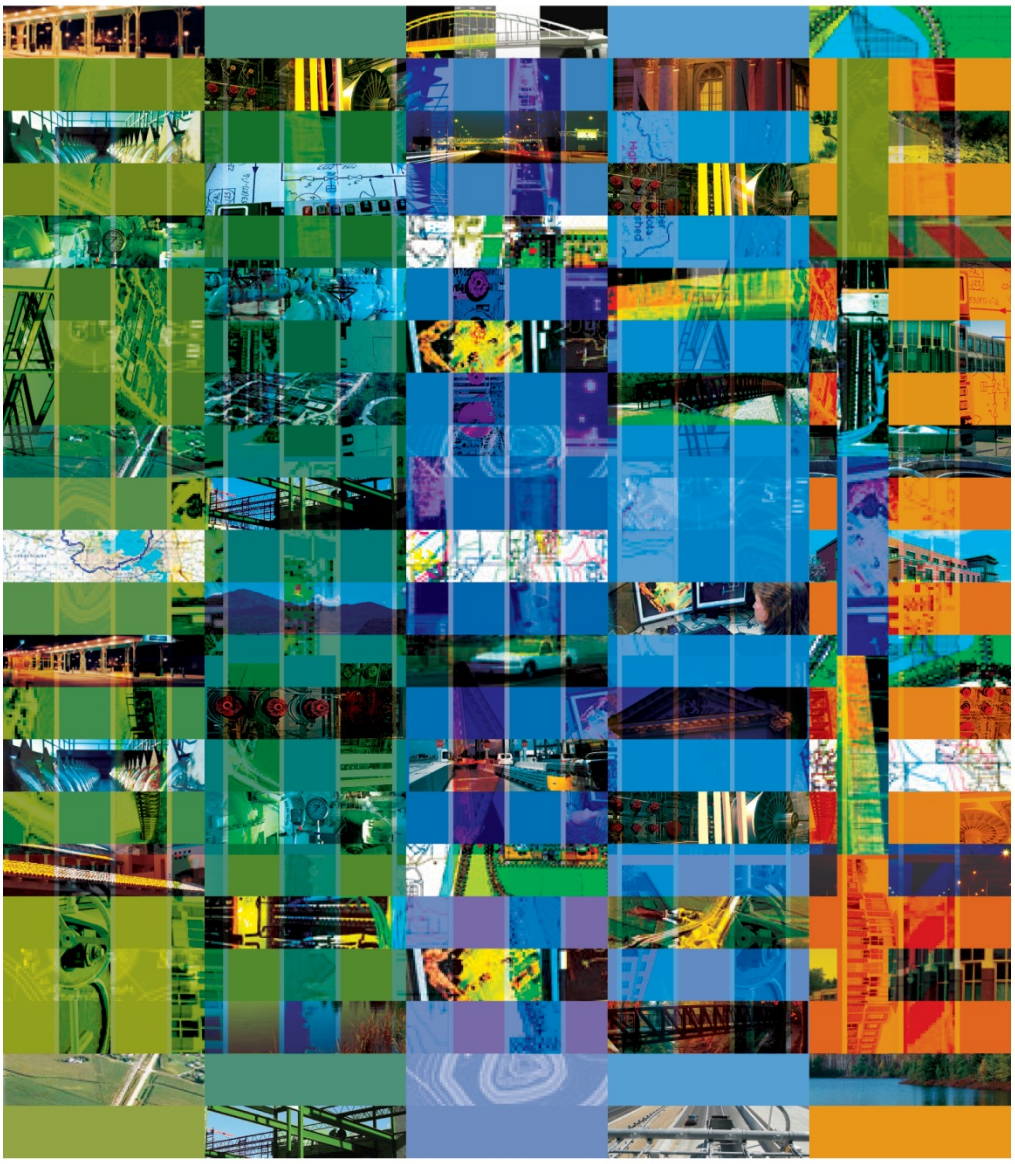
Wisconsin Highway (WIS) 32 Reroute Preliminary Investigation



Report

City of

Racine, WI

April 2020

STRAND ASSOCIATES®

RACINE ON THE LAKE
City of Racine, Wisconsin

Report for
City of Racine, Wisconsin

Wisconsin Highway (WIS) 32 Reroute Preliminary Investigation

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April 2020

STRAND ASSOCIATES®

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

It is Strand Associates, Inc.®'s (Strand) understanding that the City of Racine (City) has recently adopted Downtown Public Realm and Parking Plan (DPRP Plan) developed by Toole Design Group. Several changes are recommended in the DPRP Plan in the downtown area including along Main Street. One of the recommendations is relocating Wisconsin Highway (WIS) 32 from Main Street to either Wisconsin Avenue or Lake Avenue. WIS 32 relocation was recommended to reconfigure Main Street to provide room for better pedestrian and bicycle accommodation along the corridor to support the area's vitality by encouraging pedestrian and cycling activity while maintaining vehicle access. Based on the recommendation in the DPRP Plan, the City is seeking an alternative route for WIS 32 around the downtown area. The alternative routes chosen by the City to investigate are Wisconsin Avenue, Lake Avenue, and Marquette Street. Strand was hired by the city to perform preliminary reroute investigation for WIS 32 along the potential alternate routes desired by the City.

The purpose of the WIS 32 Rerouting Preliminary Investigation is to evaluate the existing conditions along Wisconsin Avenue from 7th Street to 2nd Street, Lake Avenue from 7th Street to State Street, and Marquette Street from WIS 20 to WIS 38 to identify required improvements to the facilities to accommodate the design vehicle (WB-65) for state trunk highways. From this evaluation, probable construction costs for the improvements along the potential alternate routes for WIS 32 were determined. This study was funded by the City.

The analysis of the three WIS 32 reroute alternative corridors included the following tasks:

1. Identified existing roadway geometric deficiencies.
2. Developed conceptual improvement alternatives to address deficiencies.
3. Used a conceptual alternative to determine an opinion of probable construction cost (OPCC).

The existing conditions analysis indicated that Wisconsin Avenue from 2nd Street to 3rd Street, the Wisconsin Avenue and State Street intersection, the Wisconsin Avenue and 7th Street intersection, the Lake Avenue and 7th Street intersection, the Lake Avenue and State Street intersection, the 2nd Street and Main Street intersection, the Marquette Street and WIS 38 intersection, and the Marquette Street and WIS 20 intersection would likely require geometric improvements to accommodate the design vehicle (WB-65) for state trunk highways. The major deficiencies identified were design vehicle related; mainly that existing pavement widths at the locations previously listed were not sufficient to allow for the required WB-65 turning movements to be made. Additionally, Wisconsin Avenue from 2nd Street to 3rd Street does not meet the minimum traveled way width standards for a two-lane state truck highway functionally classified as an arterial.

Conceptual alternatives were developed for the Wisconsin Avenue, Lake Avenue, and Marquette Street corridors to address the existing deficiencies. Pavement layouts were developed using an existing aerial image and the required WB-65 truck turning templates. The primary purpose of these alternatives was to establish conceptual probable construction costs of improving the roadway to accommodate a WB-65 design vehicle.

Only the major roadway construction items were quantified in the areas of required improvement to develop an OPCC for each alternative. Real estate impacts, parking impacts, and structural impacts were also identified. Table ES-1 and ES-2 summarizes the alternatives and the estimated costs and impacts associated with each.

Alternative and Corridor	Estimated Cost
Alternative 1A–Wisconsin Avenue and 2nd Street two-way from 7th Street to Main Street	$1,624,000
Alternative 1B–Wisconsin Avenue and 2nd Street one-way from 3rd Street to Main Street	$1,860,000
Alternative 1C–Wisconsin Avenue two-way from 7th Street to State Street	$1,878,000
Alternative 2–Lake Avenue two-way from 7th Street to State Street	$547,000
Alternative 3A–WIS 32 rerouted to Marquette Street	$462,000
Alternative 3B–WIS 32 rerouted to Marquette Street	$25,000

Table ES-1 OPCC for WIS 32 Corridors

Alternative and Impacts	Relocations	R/W Impacts	Parking Stalls[1]	Alley Impacts	Garbage Access Impacts	Driveways
Alternative 1A	-	5	25	1	1	6
Alternative 1B	-	2	10	1	1	1
Alternative 1C	-	3	18	1	1	3
Alternative 2	-	2	11	-	-	-
Alternative 3A	-	1	-	-	-	3
Alternative 3B	-	-	-	-	-	-

R/W=right-of-way
[1]Parking stalls impacted along the potential WIS 32 Alternate routes, does not account for any parking changes recommended in the DPRP Plan developed by Toole Design Group.

Table ES-2 Impacts Summary

Based on this analysis, an alternate WIS 32 route along either Lake Avenue or Marquette Street appears to be the lowest cost and least impact alternative for further consideration to address the goals and objectives set forth by the City. Alternative Evaluation Matrix can be seen in Appendix A.

Please note that Alternatives 1A, 1B, and 1C were laid out in order to accommodate the WB-65 truck turning movements without impacting buildings or bridge. There are likely several substandard geometric elements to these alternatives, such as sight distance, superelevation, horizontal curve radius, pedestrian accommodation, vertical clearance under the bridge, and lateral clearance that needs to be evaluated and addressed during the design phase of the alternative chosen for rerouting WIS 32.

SECTION 1
INTRODUCTION AND PURPOSE

1.01 INTRODUCTION

The City of Racine (City) has recently adopted Downtown Public Realm and Parking Plan (DPRP Plan) developed by Toole Design Group in October 2019. There are several changes recommended in the DPRP Plan for the downtown area. One of the changes recommended is to convert Wisconsin Avenue, Lake Avenue, 6th Street, and 7th Street to two-way operations and relocate Wisconsin Highway (WIS) 32 from Main Street to either Wisconsin Avenue or Lake Avenue. Strand Associates, Inc.® was hired by the City to investigate existing deficiencies and improvements necessary to accommodate turning movements, for the design vehicle (WB-65) for State Trunk Highways (STH), along the potential alternate WIS 32 routes chosen by the City. The alternative routes chosen by the City to investigate are Wisconsin Avenue, Lake Avenue, and Marquette Street.

The three corridors being evaluated in this investigation as potential WIS 32 reroute options are Wisconsin Avenue and 2nd Street from 7th Street to Main Street, Lake Avenue from 7th Street to State Street, and Marquette Street from WIS 20 to WIS 38. These corridors were evaluated to identify the existing deficiencies and improvements necessary to accommodate WB-65 trucks. From this evaluation, opinion of probable construction costs (OPCC) for the improvements along the potential alternative route for WIS 32 were determined. In total, six alternatives were evaluated. Figure 1.01-1 displays the three potential corridors being investigated for WIS 32 reroute options.

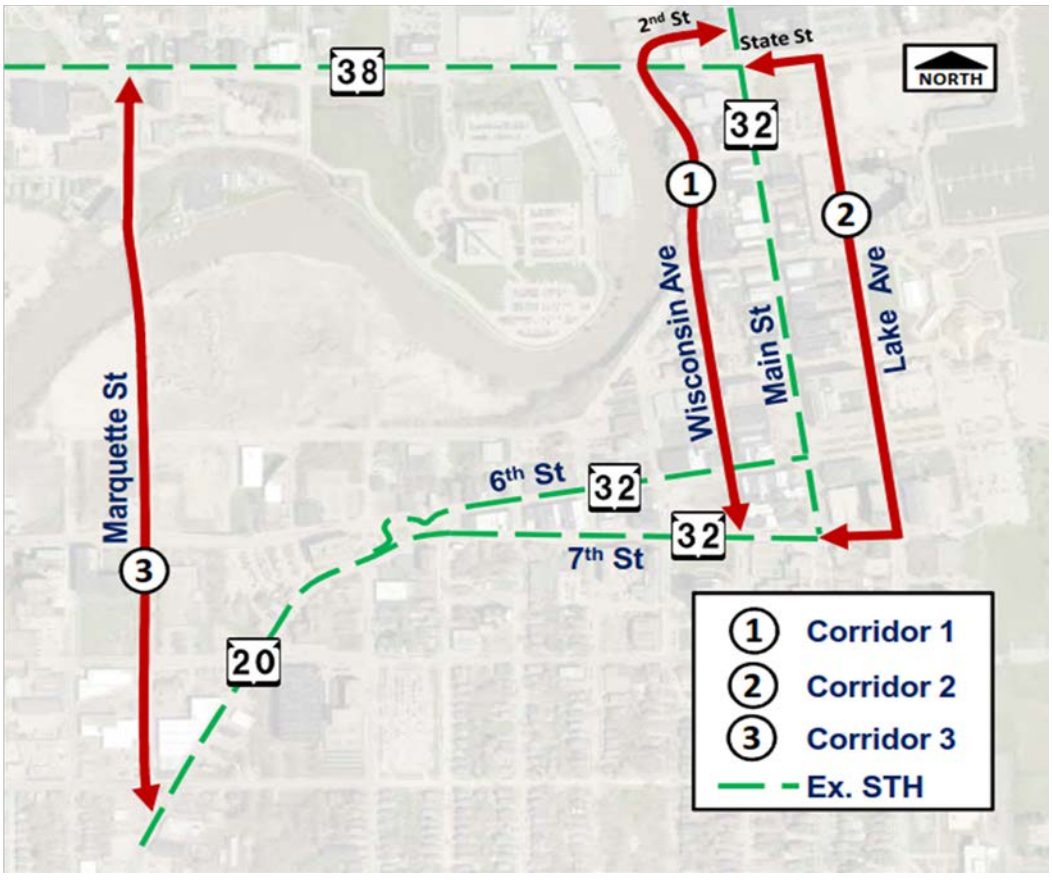


Figure 1.01-1 WIS 32 Alternative Route Investigation Area

Alternatives 1A, 1B, and 1C evaluated the conversion of Wisconsin Avenue to two-way operation, as well as the various ways to configure the connection between Wisconsin Avenue, 2nd Street, Main Street, and State Street (WIS 38). Alternative 2 evaluated the conversion of Lake Avenue to a two-way operation, and Alternatives 3A and 3B evaluated the rerouting of WIS 32 to Marquette Street.

This report identifies the impacts and costs associated with each potential reroute. The roadways within this study area are separated into three corridors:

- Corridor 1–Wisconsin Avenue and 2nd Street from 7th Street to Main Street.
- Corridor 2–Lake Avenue from 7th Street to State Street.
- Corridor 3–Marquette Street from WIS 20 (Washington Avenue) to State Street (WIS 38).

The goal of rerouting WIS 32 is to reduce traffic on Main Street by diverting commuter traffic to one of the potential reroutes. This, in turn, provides an opportunity to make the Main Street corridor more pedestrian and bicycle friendly, and potentially enable creative treatments to enhance the overall environment and experience for employees, residents, and visitors in downtown Racine. Rerouting may also offer the opportunity to eliminate some traffic signals in downtown Racine.

Based on daily traffic volumes and the well-connected grid street system, it is anticipated the alternative routes chosen for investigation will operate acceptably for motor vehicles. While this will need to be confirmed before advancing rerouting of WIS 32, at this time it is reasonable to investigate the geometric deficiencies along the potential reroutes.

1.02 ALTERNATIVES CHOSEN FOR INVESTIGATION

A. Alternatives 1A, 1B, and 1C (Corridor 1)

Currently, Wisconsin Avenue is one-way southbound, so accommodating WIS 32 would require conversion to a two-way operation. These alternatives would also convert the one-way pair of 6th Street and 7th Street to two-way operation.

The connection between Wisconsin Avenue, 2nd Street, and Main Street is the most challenging location along these alternatives. Strand Associates, Inc.® (Strand) has investigated the existing geometrics and prepared conceptual layout for the three Wisconsin Avenue alternatives that would potentially enable WIS 32 to be relocated from Main Street to Wisconsin Avenue.

Alternative 1A would convert Wisconsin Avenue to two-way operation from 7th Street to 2nd Street and convert 2nd Street to a two-way operation from Wisconsin Avenue to Main Street. This alternative includes routing two-way traffic under the existing State Street (WIS 38) lift bridge over the Root River. The existing roadway width under the bridge appears to be not wide enough to allow two WB-65 vehicles to pass one another, and therefore, would require roadway realignment and some reconstruction. The existing pavement at the intersection of 2nd Street and Main Street appears to be not wide enough to allow concurrent WB-65 turning movements and, therefore, will require geometric improvements. Considering the increased turning movements to and from 2nd Street and Main Street, it appears that this alternative will require a traffic signal at the intersection of 2nd Street and Main Street. A detailed traffic analysis will be necessary to determine the appropriate control for this intersection.

Alternative 1B would convert Wisconsin Avenue to a two-way operation from 7th Street to 3rd street, at which point northbound traffic would continue up the existing southbound ramp to State Street (WIS 38) while Wisconsin Avenue from 3rd Street to 2nd Street and 2nd Street from Wisconsin Avenue to Main Street would remain as a one-way southbound operation. The existing southbound ramp connection to State Street, which would carry northbound traffic, will require geometric improvements in order to accommodate WB-65 turning movements onto State Street (WIS 38). Considering the increased turning movements to and from 2nd Street and Main Street and potentially insufficient intersection sight distance for left turn from Wisconsin Avenue to WIS 38, it appears that this alternative will require traffic signals at the intersection of 2nd Street and Main Street and the intersection of Wisconsin Avenue and WIS 38 (State Street). Figure 1.02-1 displays the Alternative 1A and 1B Conceptual Improvements.

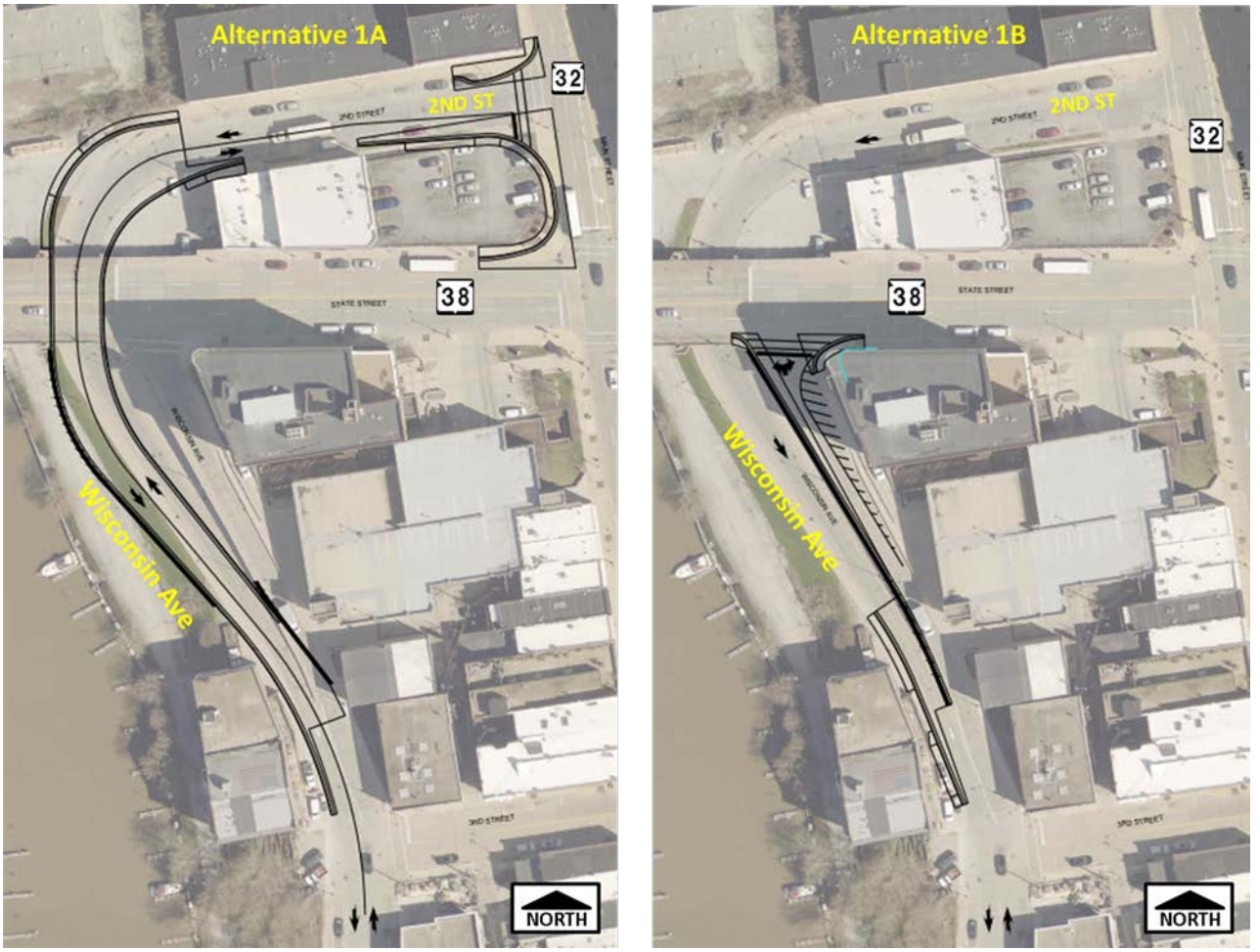


Figure 1.02-1 Alternatives 1A and 1B Conceptual Improvements

Alternative 1C would convert Wisconsin Avenue to a two-way operation from 7th Street to State Street (WIS 38). This would involve the termination of 2nd Street north of the State Street (WIS 38) lift bridge, as Wisconsin Avenue would no longer need to travel under the bridge. Access to frontage road along the Root River will be maintained. The existing Wisconsin Avenue southbound ramp would require widening in order to accommodate two-way traffic and WB-65 turning movements at the intersection of

Wisconsin Avenue and State Street (WIS 38). Considering the increased turning movements and potentially insufficient intersection sight distance for left turn from Wisconsin Avenue to WIS 38, it appears that this alternative would require a traffic signal at the intersection of Wisconsin Avenue and WIS 38.

Alternatives 1A, 1B, and 1C would require geometric improvements to the intersection of Wisconsin Avenue and 7th Street in order to accommodate WB-65 turning movements. Considering the increased turning movements at the intersection of Wisconsin Avenue and 7th Street, it appears that existing signal needs to be reconstructed. Four-way stop control is recommended in the DPRP Plan for this location. A detailed traffic analysis will be necessary to determine the appropriate control for this intersection. Figure 1.02-2 displays the Alternative 1C and Wisconsin Avenue and 7th Street Conceptual Improvements.

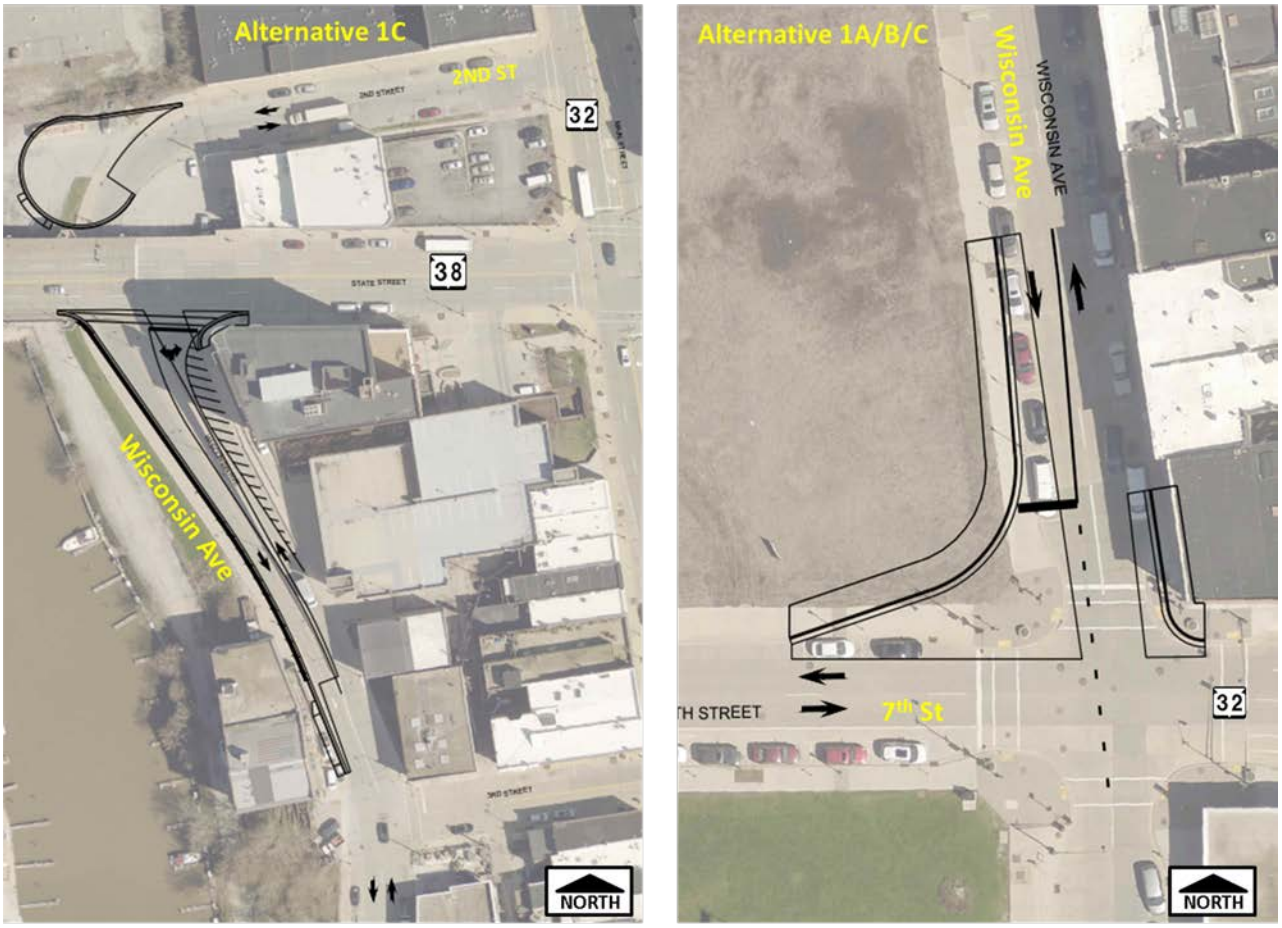


Figure 1.02-2 Alternative 1C and Wisconsin Avenue and 7th Street Conceptual Improvements

B. Alternative 2 (Corridor 2)

Currently, Lake Avenue is one-way northbound, therefore, accommodating WIS 32 would require conversion to a two-way operation. The concept would also convert the one-way pair of 6th Street and 7th Street to a two-way operation. Strand has investigated the existing geometrics and prepared a

conceptual layout for the Lake Avenue alternative that would potentially enable WIS 32 to be relocated from Main Street to Lake Avenue.

Alternative 2 would convert Lake Avenue to a two-way operation from 7th Street to State Street. The existing pavement at the intersection of Lake Avenue and 7th Street and the intersection of Lake Avenue and State Street appear to be not wide enough to accommodate WB-65 turning movements and, therefore, these intersections would require geometric improvements. Four-way stop control is recommended in the DPRP Plan at Lake Avenue and 7th Street and Lake Avenue and State Street intersections. Considering the increased turning movements, it appears that this alternative would require a traffic signal at these intersections. Detailed traffic analysis will be necessary to determine an appropriate control at the Lake Avenue and 7th Street and Lake Avenue and State Street intersections. Figure 1.02-3 displays the Alternative 2 Conceptual Improvements.

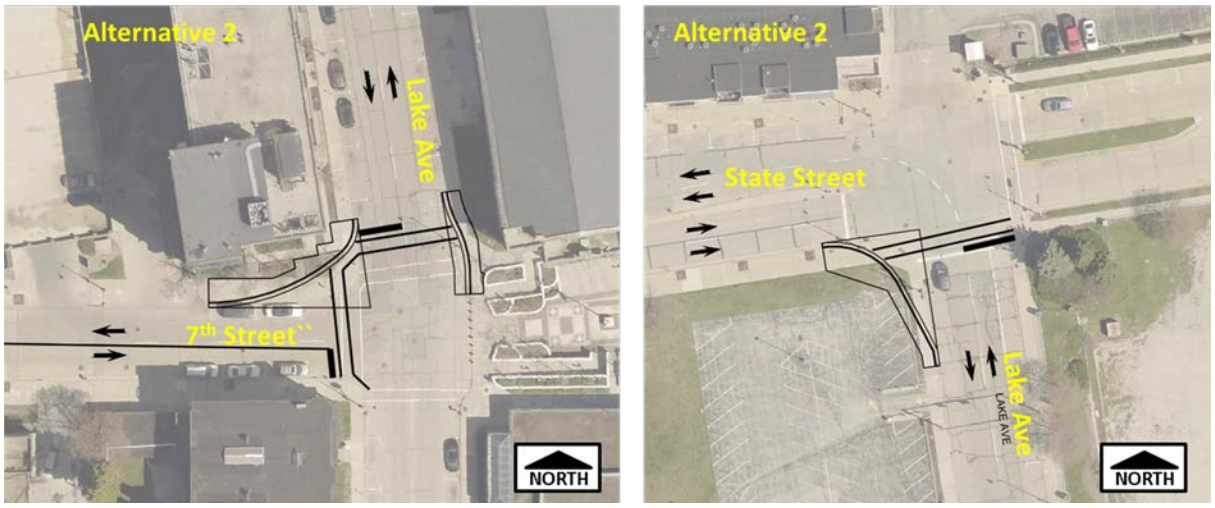


Figure 1.02-3 Alternative 2 Conceptual Improvements

C. Alternatives 3A and 3B (Corridor 3)

Currently, Marquette Street is a two-way operation, so a conversion would not be necessary to accommodate WIS 32. Strand has investigated the existing geometrics and prepared a conceptual layout for the Marquette Street alternatives that would potentially enable WIS 32 to be relocated from Main Street to Marquette Street.

Alternative 3A would reroute WIS 32 to Marquette Street from WIS 20 to WIS 38. If the existing lane configuration is maintained, the existing pavement at the intersection of Marquette Street and WIS 38 and the intersection of Marquette Street and WIS 20 appear to be not wide enough to accommodate WB-65 turning movements and, therefore, these intersections would require geometric improvements. Figure 1.02-4 displays the Alternative 3A Conceptual Improvements.

Alternative 3B would reroute WIS 32 to Marquette Street from WIS 20 to WIS 38. If the existing lane configuration is changed at the Marquette Street and WIS 38 and Marquette Street and WIS 20 intersections, it appears that the existing pavement can accommodate WB-65 turning movement, and

therefore, these intersections may not require geometric improvements. Figure 1.02-5 displays the Alternative 3B conceptual improvements.

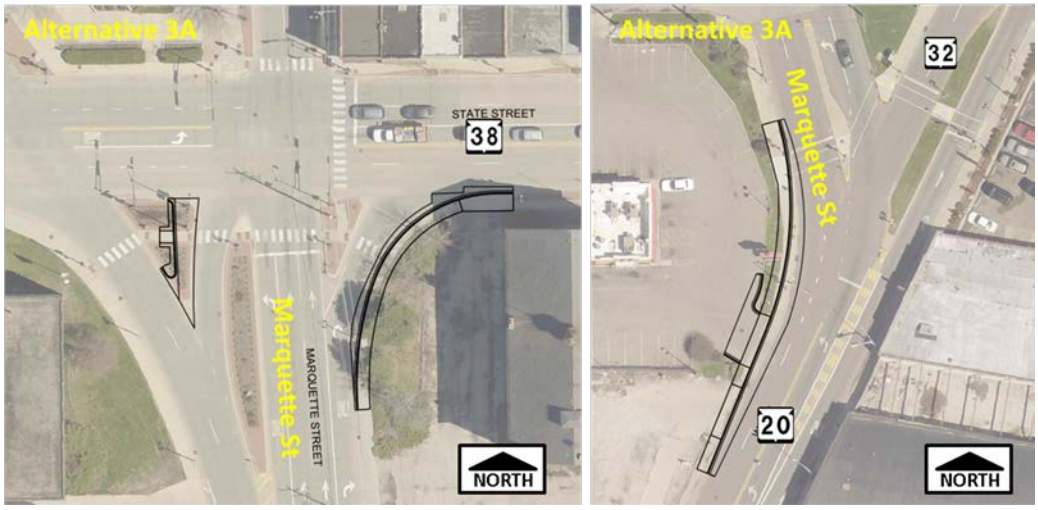


Figure 1.02-4 Alternative 3A Conceptual Improvements

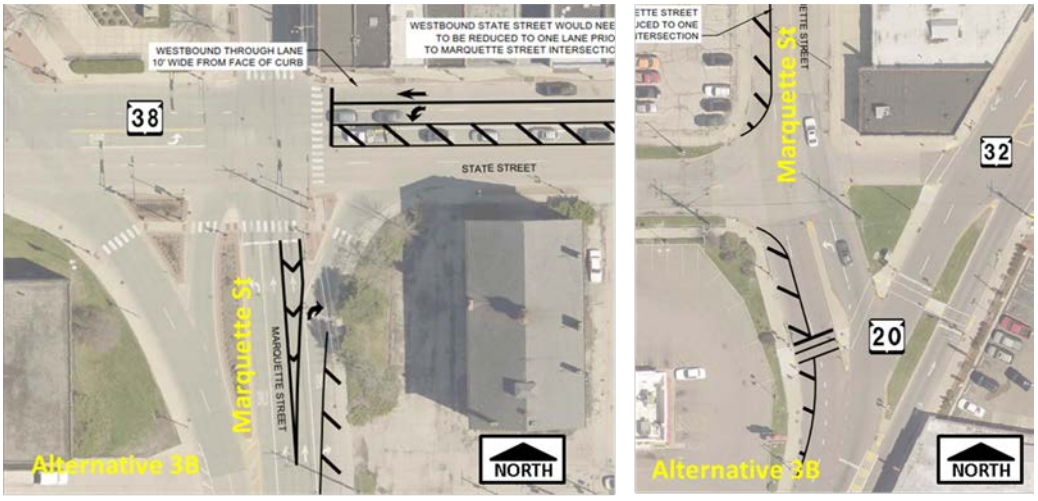


Figure 1.02-5 Alternative 3B Conceptual Improvements

1.03 PURPOSE OF THE INVESTIGATION

The purpose of this investigation is to:

1. Evaluate the existing conditions along Wisconsin Ave and 2nd Street, Lake Avenue, and Marquette Street to identify required improvements to accommodate the design vehicle (WB-65) for state trunk highways.

2. Develop conceptual geometric layouts to address the required improvements.

3. Develop an OPCC for each alternative.

SECTION 2
EVALUATION OF EXISTING CONDITION

2.01 EVALUATION OF EXISTING CONDITION

The WIS 32 Reroute Preliminary Investigation team evaluated the existing conditions along Wisconsin Avenue and 2nd Street, Lake Avenue, Marquette Street and at the Main Street and 2nd Street, Wisconsin Avenue and State Street, Wisconsin Avenue and 7th Street, Main Street and State Street, Lake Avenue and State Street, Lake Avenue and 7th Street, Marquette Street and WIS 38, and Marquette Street and WIS 20 intersections to determine the level of improvements required to accommodate design vehicle (WB-65) for state trunk highway. An aerial image was used to evaluate the existing corridor and to evaluate WB-65 truck turning templates on existing pavement. A field visit was conducted to measure various critical dimensions at various locations. The following roadway characteristics were evaluated:

1. Roadway Typical Section
2. Turning Movements
3. On-Street Parking
4. Existing Driveways
5. Loading Zones
6. Pedestrian Facilities
7. Bridge Structure
8. Retaining Wall

No geographical survey data was obtained or used during the existing conditions evaluation; therefore, all existing conditions investigation and horizontal roadway alternative layouts are approximate based on the aerial image used. Additionally, vertical alignments of existing and proposed roadways were not evaluated. Existing utility information was not obtained or used either. It should be noted that WB-65 turning movements were evaluated using an encroachment degree of both A2 and B2 (Wisconsin Department of Transportation's [WisDOT] Facility Development Manual [FDM] Chapter 11-25, 2.1.2 Figure 2.3) when practical to avoid significant impacts to existing buildings or structures. This was advised by the City of Racine (City) based on the existing traffic conditions and observed WB-65 turning movements.

2.02 ALTERNATIVE 1A, 1B, AND 1C

Currently, Wisconsin Avenue and 2nd Street is a one-way southbound, so rerouting WIS 32 would require conversion to a two-way operation from Main Street to 7th Street. The existing pavement width from 7th Street to 3rd Street is approximately 40 to 46 feet from face-of-curb to face-of-curb, which is enough to accommodate two-way traffic without widening and would likely not require any reconstruction for Alternatives 1A, 1B, and 1C. The existing sidewalk behind back-of-curb on Wisconsin Avenue appears to be 6 feet wide for most of the corridor. There are some areas where the existing sidewalk appears to only be 5 feet wide with no terrace, mainly from 3rd Street to State Street. A geographical site survey is recommended to confirm existing sidewalk widths would meet WisDOT FDM standards. Wisconsin Avenue from 3rd Street to 2nd Street is not wide enough to accommodate two-way traffic and would require realignment and reconstruction if Alternative 1A, 1B, or 1C is chosen to reroute WIS 32.

The narrowest location is at the south end of the concrete barrier wall for the ramp from WIS 38 to Wisconsin Avenue where the total pavement width is approximately 32 feet from face-of-curb to face-of-curb. Because of the existing building proximity to the roadway, this area would likely not be able to satisfy desirable curb-to-curb width for two-lane connecting highway but is wide enough to accommodate two-way traffic. According to WisDOT FDM desirable curb-to-curb width for two-lane

connecting highway is 36 feet. The existing intersections at 2nd Street and Main Street and State Street and Main Street are not large enough to accommodate the necessary concurrent WB-65 movements caused by the WIS 32 reroute onto Wisconsin Avenue. Additionally, the existing Wisconsin Avenue and 7th Street intersection is not wide enough to accommodate WB-65 turns. WB-65 turning templates on existing pavement can be seen in Appendix B.

The DPRP Plan recommends converting 6th Street and 7th Street conversion to a two-way operation and eliminating WIS 32 and 6th Street and 7th Street roundabout. In accordance with the recommendation in the DPRP Plan, the one-way pair of 6th Street and 7th Street would need to be converted to a two-way operation. The existing pavement width on 6th Street and 7th Street from Grand Avenue to Lake Avenue varies because of on-street parking. However, it appears that two 12-foot travel lanes are maintained throughout this section on both 6th Street and 7th Street, which is enough to accommodate two-way traffic without widening and would likely not require any reconstruction for the reroute of WIS 32 onto Wisconsin Avenue. The conceptual reconfiguration provided in DPRP Plan was not evaluated as a part of this study.

2.03 ALTERNATIVE 2

Currently, Lake Avenue is one-way northbound from 7th Street to State Street. Lake Avenue needs to be converted to a two-way operation to reroute WIS 32. The existing pavement width from 7th Street to State Street is approximately 46 feet from face-of-curb to face-of-curb for most of the corridor, which is enough to accommodate two-way traffic without widening and would likely not require any reconstruction. In the area of 5th Street, Lake Avenue reduces to 32 feet from face-to-face. This section would likely not meet desirable curb to curb width for two-lane connecting highways but is wide enough to accommodate two-way traffic. Additionally, it appears the sidewalk along Lake Avenue from 7th Street to State Street is 6 feet wide behind the back of curb. A geographical site survey is recommended to confirm existing sidewalk widths would meet WisDOT FDM standards. The existing intersection at 7th Street and Lake Avenue is not large enough to accommodate the necessary concurrent WB-65 movements caused by the WIS 32 reroute onto Lake Avenue. The existing intersection at State Street and Lake Ave may be large enough to accommodate the necessary WB-65 movements; however, this would require undesirable levels of same direction encroachment. WB-65 turning templates on existing pavement can be seen in Appendix B.

The DPRP Plan recommends converting 6th Street and 7th Street to a two-way operation and eliminating WIS 32 and 6th Street and 7th Street roundabout. In accordance with the recommendation in the DPRP Plan, one-way pair of 6th Street and 7th Street would need to be converted to a two-way operation. The existing pavement width on 6th Street and 7th Street from Grand Avenue to Lake Avenue varies because of on-street parking. However, it appears that two 12-foot travel lanes are maintained throughout this section on both 6th Street and 7th street, which is enough to accommodate two-way traffic without widening and would likely not require any reconstruction for the reroute of WIS 32 onto Lake Avenue. The conceptual reconfiguration provided in DPRP Plan was not evaluated as a part of this study.

2.04 ALTERNATIVES 3A and 3B

The existing pavement on Marquette Street from WIS 20 to WIS 38 is approximately 46 feet from face-of-curb to face-of-curb, which is enough to accommodate two-way traffic without widening and would likely not require any reconstruction for the reroute of WIS 32 onto Marquette Street. The existing sidewalk behind back-of-curb on Marquette Street appears to be 6 feet wide for most of the corridor.

There are some areas where the existing sidewalk appears to only be 5 feet wide with no terrace, mainly over the Root Rive bridge and between the Root River bridge and WIS 38. A geographical site survey is recommended to confirm existing sidewalk widths would meet WisDOT FDM standards. The existing intersection at Marquette Street and WIS 38 is not large enough to accommodate all necessary WB-65 movements caused by the WIS 32 reroute onto Marquette Street. The existing intersection at Marquette Street and WIS 20 may be large enough to accommodate the necessary WB-65 movements caused by the WIS 32 reroute onto Marquette Street; however, this would require undesirable levels of same-direction encroachment. WB-65 turning templates on existing pavement can be seen in Appendix B.

SECTION 3
DEVELOPMENT OF CONCEPTUAL ALTERNATIVES

3.01 ALTERNATIVE DEVELOPMENT

Conceptual improvement alternatives were developed based on the required WB-65 turning movements for each WIS 32 reroute alternative. Desirable standards for Connecting Highways and State Trunk Highways functionally classified as arterials were followed when practical. However, accommodating the necessary WB-65 turning movements and avoiding impacts to existing buildings and major structures was the main priority of the investigation team, as advised by the City. These alternatives are approximate based on an aerial image, and any alternative that would be selected as the preferred alternative as the result of this study would require further detailed investigation based on a geographical survey. The following are descriptions of the conceptual improvements for each WIS 32 reroute alternative. Overviews of each alternative can be seen in Appendix C, potential impacts of each alternative can be seen in Appendix D, and WB-65 turning templates for each conceptual alternative can be seen in Appendix E.

A. Alternative 1A–Wisconsin Avenue and 2nd Street Two-Way from 7th Street to Main Street

1. Wisconsin Avenue will need to be realigned and widened under the existing State Street (WIS 38) bridge to allow for two-way traffic. A desirable roadway width of 39 feet under the bridge was used in order to fit the concurrent WB-65 turning movements between the existing bridge piers and existing bridge abutment. However, bringing the east edge of the roadway closer to the existing abutment wall may create substandard sight distance for vehicles. Sidewalk cannot be provided under the bridge.

2. Improvements will need to be made to Wisconsin Avenue between 3rd Street and State Street (WIS 38) to allow two-way traffic. This will result in the existing southbound ramp from State Street (WIS 38) to be reconfigured and no longer provide access to southbound Wisconsin Avenue. A desirable curb-to-curb roadway width of 36 feet may not be practical in this area because of potential building impacts.

3. Intersection corners at 2nd Street and Main Street and State Street and Main Street will need to be widened to accommodate WB-65 truck turning movements.

4. The northwest and northeast corners of the Wisconsin Avenue and 7th Street intersection will need to be widened in order to accommodate the required concurrent WB-65 turning movements.

5. A traffic signal will need to be installed at the 2nd Street and Main Street intersection, and traffic signal improvements will be required at the State Street and Main Street and Wisconsin Avenue and 7th Street intersections due to intersection geometric updates.

6. Right of way (R/W) will need to be acquired for this alternative. On-street and off-street parking as well as several driveways will be impacted.

Overall, this alternative appears to be possible but may not be practical because of the large amount of impacts and substandard geometric elements.

B. Alternative 1B–Wisconsin Avenue and 2nd Street One-Way from 3rd Street to Main Street

1. The existing southbound Wisconsin Avenue ramp from State Street (WIS 38) will need to be widened to the west in order to accommodate a WB-65 northbound right-turn and left-turn onto State Street (WIS 38). This will require the removal of the existing ramp retaining wall and the construction of a new retaining wall, as well as structure-related work to the existing State Street (WIS 38) bridge over the Root River. A desirable curb-to-curb roadway width of 36 feet may not be practical in this area because of potential building impacts and to minimize the impact to the existing bridge. Minimum one-way width of 16 feet from face-to-face was used on this alternative to avoid building impacts.

2. The northwest and northeast corners of the Wisconsin Avenue and 7th Street intersection will need to be widened in order to accommodate the required concurrent WB-65 turning movements.

3. A traffic signal will need to be installed at the Wisconsin Avenue and WIS 38 and 2nd Street and Main Street intersections, and traffic signal improvements will be required at the Wisconsin Avenue and 7th Street intersections due to intersection geometric updates.

4. R/W will likely need to be acquired for this alternative, and one driveway will be impacted.

Overall, this alternative appears to be possible but may not be practical because of the large amount of structure work to the existing State Street (WIS 38) bridge that may be required.

C. Alternative 1C–Wisconsin Avenue Two-Way from 7th Street to State Street (WIS 38)

1. The existing southbound Wisconsin Avenue ramp from State Street (WIS 38) will need to be widened to the west in order to accommodate two-way traffic and the required WB-65 turning movements at the Wisconsin Avenue and WIS 38 intersection. This will require the removal of the existing ramp retaining wall and the construction of a new retaining wall, as well as structure-related work to the existing State Street (WIS 38) bridge over the Root River. A desirable roadway width of 36 feet was used in this area.

2. Second Street will need to be terminated north of the existing State Street (WIS 38) bridge with a cul-de sac. Access to the roadway along Root River will be maintained.

3. The northwest and northeast corners of the Wisconsin Avenue and 7th Street intersection will need to be widened in order to accommodate the required concurrent WB-65 turning movements.

4. A traffic signal will need to be installed at the Wisconsin Avenue and WIS 38 intersection, and traffic signal improvements will be required at the Wisconsin Avenue and 7th Street intersections because of intersection geometric updates.

5. R/W will need to be acquired for this alternative. On-street and off-street parking as well as several driveways will be impacted.

Overall, this alternative appears to be possible but may not be practical because of the large amount of structure work to the existing State Street (WIS 38) bridge that may be required.

Please note that alternatives 1A, 1B, and 1C were laid out in order to accommodate the WB-65 truck movements without impacting buildings or bridge. There are likely several substandard geometric elements to these alternatives, such as, sight distance, superelevation, horizontal curve radius, pedestrian accommodation, vertical clearance under the bridge, and lateral clearance. The access to the alley and access for garbage pick-up from Doctor Shoop building and surrounding area needs to be further evaluated for Wisconsin Avenue alternatives.

D. Alternative 2–Lake Avenue Two-Way from 7th Street to State Street

1. The southwest corner of the State Street and Lake Avenue intersection will need to be widened in order to accommodate the required WB-65 turning movements. An encroachment degree of A2 (FDM 11-25 2.1.2 Figure 2.3) was used for this alternative.

2. The northwest and northeast corners of the 7th Street and Lake Avenue intersection will need to be widened in order to accommodate the required WB-65 turning movements.

3. A traffic signal will need to be installed at the 7th Street and Lake Avenue intersection, and traffic signal improvements will be required at the State Street and Lake Avenue intersection because of intersection geometric updates.

4. R/W will need to be acquired for this alternative. On-street parking as well a driveway will be impacted.

Overall, this alternative may be practical because of the limited number of impacts and lower cost in comparison to the other alternatives

E. Alternative 3A–WIS 32 Rerouted to Marquette Street

1. The southwest porkchop island of the Marquette Street and WIS 38 intersection will need to be made smaller in order to accommodate the required westbound-left WB-65 turning movement.

2. The southeast corner of the Marquette Street and WIS 38 intersection will need to be widened in order to accommodate the required northbound-right WB-65 turning movement.

3. The southwest corner of the Marquette Street and WIS 20 intersection will need to be widened in order to accommodate the required southbound right turning movement while not encroaching into the inside lane. A single-unit truck in the inner lane and WB-65 in outer lane were used to check the right turn from Marquette Street to WIS 20. Additional widening will be necessary to accommodate WB-65 on both lanes.

4. Traffic signal improvements will be required at the Marquette Street and WIS 38 and Marquette Street and WIS 20 intersections because of intersection geometric updates.

5. R/W will need to be acquired for this alternative, and driveways will be impacted.

F. Alternative 3B–WIS 32 Rerouted to Marquette Street

1. Lane configuration at west approach of the Marquette Street and WIS 38 intersection will need to be reconfigured in order to accommodate the required westbound-left WB-65 turning movement. WB travel lane needed to be reduced to 10 feet from face of curb to accommodate WB-65 left turn.

2. Lane configuration at the south approach of the Marquette Street and WIS 38 intersection will need to be reconfigured in order to accommodate the required northbound-right WB-65 turning movement.

3. Southbound lane configuration along Marquette Street from north of 9th Street WIS 20 will need to be reconfigured in order to accommodate the required southbound right turning movement.

4. Traffic signal timing changes will be required at the Marquette Street and WIS 38 intersection.

Overall, Marquette Street alternatives may be practical because of the limited number of impacts and lower cost in comparison to the other alternatives.

These conceptual layouts were used to develop an OPCC for each alternative.

SECTION 4
OPCC

4.01 OPCC

To determine an OPCC for each WIS 32 reroute alternative, the major quantities for the roadway items were estimated from the conceptual improvement layouts. Quantities for only the improvement areas were used to calculate the OPCC for these alternatives. Unit prices were based on WisDOT's estimator software and similar projects. It should be noted that utility impacts were not considered in the development of OPCCs. Detailed cost sheets for each alternative can be seen in Appendix F.

A. Alternative 1A–Wisconsin Avenue and 2nd Street Two-Way from 7th Street to Main Street

The OPCC for Alternative 1A is $1,624,000.

The following items were included in the OPCC:

- Removing Old Structure
- Removing Pavement
- Removing Curb and Gutter
- Removing Concrete Sidewalk
- Removing Concrete Barrier
- Base Aggregate Dense
- Concrete Pavement
- Mechanically Stabilized Earth (MSE) Retaining Wall
- Excavation Common
- Borrow
- Concrete Curb and Gutter
- Concrete Driveway
- Concrete Sidewalk
- Concrete Barrier
- Traffic Signal

The quantities of removing old structure, removing pavement, removing curb and gutter, removing concrete sidewalk, and removing concrete barrier were measured and estimated from an aerial image. All other quantities were estimated based on the area of pavement to be replaced from the conceptual improvement layout.

It was assumed that 12 inches of material under the existing pavement and curb and gutter need to be removed so that an entirely new base and pavement layers can be constructed. The pavement structure that will be installed was assumed to be 8 inches of concrete pavement over 6 inches of base course.

In addition to the quantified items, an additional items allowance for items such as erosion control, restoration, mobilization, traffic control and staging, storm sewer, lighting, and unidentified roadway items were added to the total project cost.

B. Alternative 1B–Wisconsin Avenue/2nd Street one-way from 3rd Street to 2nd Street

The OPCC for alternative 1B is $1,860,000.

The following items were included in the OPCC:

- Removing Old Structure
- Removing Pavement
- Removing Curb and Gutter
- Removing Concrete Sidewalk
- Removing Concrete Barrier
- Base Aggregate Dense
- Concrete Pavement
- MSE Retaining Wall
- Excavation Common
- Borrow
- Concrete Curb and Gutter
- Concrete Driveway
- Concrete Sidewalk
- Concrete Barrier
- Traffic Signal
- Existing Bridge Structure Work

The quantities of removing old structure, removing pavement, removing curb and gutter, removing concrete sidewalk, removing concrete barrier, and existing bridge structure work were measured and estimated from an aerial image. All other quantities were estimated based on the area of pavement to be replaced from the conceptual improvement layout.

It was assumed that 12 inches of material under the existing pavement and curb and gutter need to be removed so that an entirely new base and pavement layers can be constructed. The pavement structure that will be installed was assumed to be 8 inches of concrete pavement over 6 inches of base course.

In addition to the quantified items, an additional items allowance for items such as erosion control, restoration, mobilization, traffic control and staging, storm sewer, lighting, and unidentified roadway items were added to the total project cost.

C. Alternative 1C–Wisconsin Avenue Two-Way from 7th Street to State Street (WIS 38)

The OPCC for Alternative 1C is $1,878,000.

The following items were included in the OPCC:

- Removing Old Structure
- Removing Pavement
- Removing Curb and Gutter
- Removing Concrete Sidewalk
- Removing Concrete Barrier
- Base Aggregate Dense
- Concrete Pavement
- MSE Retaining Wall
- Excavation Common
- Borrow
- Concrete Curb and Gutter
- Concrete Driveway
- Concrete Sidewalk
- Concrete Barrier
- Traffic Signal
- Existing Bridge Structure Work

the quantities of removing old structure, removing pavement, removing curb and gutter, removing concrete sidewalk, removing concrete barrier, and existing bridge structure work were measured and

estimated from an aerial image. All other quantities were estimated based on the area of pavement to be replaced from the conceptual improvement layout.

It was assumed that 12 inches of material under the existing pavement and curb and gutter need to be removed so that an entirely new base and pavement layers can be constructed. The pavement structure that will be installed was assumed to be 8 inches of concrete pavement over 6 inches of base course.

In addition to the quantified items, an additional items allowance for items such as erosion control, restoration, mobilization, traffic control and staging, storm sewer, lighting, and unidentified roadway items were added to the total project cost.

D. Alternative 2–Lake Avenue two-way from 7th Street to State Street

The OPCC for Alternative 2 is $547,000.

The following items were included in the OPCC:

- Removing Pavement
- Removing Curb and Gutter
- Removing Concrete Sidewalk
- Removing Concrete Planter
- Base Aggregate Dense
- Concrete Pavement
- Excavation Common
- Borrow
- Concrete Curb and Gutter
- Concrete Driveway
- Concrete Sidewalk
- Traffic Signal

The quantities of removing pavement, removing curb and gutter, removing concrete sidewalk, and removing concrete planter were measured and estimated from an aerial image. All other quantities were estimated based on the area of pavement to be replaced from the conceptual improvement layout.

It was assumed that 12 inches of material under the existing pavement and curb and gutter need to be removed so that an entirely new base and pavement layers can be constructed. The pavement structure that will be installed was assumed to be 8 inches of concrete pavement over 6 inches of base course.

In addition to the quantified items, an additional items allowance for items such as erosion control, restoration, mobilization, traffic control and staging, storm sewer, lighting, and unidentified roadway items were added to the total project cost.

E. Alternative 3A–WIS 32 rerouted to Marquette Street from WIS 20 to WIS 38

The OPCC for Alternative 3 is $462,000.

The following items were included in the OPCC:

- Removing Pavement
- Removing Curb and Gutter
- Removing Concrete Sidewalk
- Base Aggregate Dense
- Concrete Pavement
- Traffic Signal
- Excavation Common
- Borrow
- Concrete Curb and Gutter
- Concrete Driveway
- Concrete Sidewalk
- Asphaltic Surface Driveways and Field Entrances

The quantities of removing pavement, removing curb and gutter, removing concrete sidewalk, and removing concrete planter were measured and estimated from an aerial image. All other quantities were estimated based on the area of pavement to be replaced from the conceptual improvement layout.

It was assumed that 12 inches of material under the existing pavement and curb and gutter need to be removed so that an entirely new base and pavement layers can be constructed. The pavement structure that will be installed was assumed to be 8 inches of concrete pavement over 6 inches of base course.

In addition to the quantified items, an additional items allowance for items such as erosion control, restoration, mobilization, traffic control and staging, storm sewer, lighting, and unidentified roadway items were added to the total project cost.

F. Alternative 3B–WIS 32 rerouted to Marquette Street from WIS 20 to WIS 38

The OPCC for Alternative 3B is $25,000.

This alternative requires turn lane and driving lane reconfiguration at Marquette Street and WIS 38 and Marquette Street and 9th Street (WIS 20) intersections. OPCC calculation sheet was not prepared for this alternative. OPCC was estimated based on the anticipated pavement marking changes.

4.02 OPCC SUMMARY

An overall comparison of the costs for the five alternatives is shown in Table 4.02-1. The OPCCs presented in this document are conceptual estimates of construction costs and should not be viewed as a fully detailed engineering cost estimate.

Alternative and Corridor	Estimated Cost
Alternative 1A–Wisconsin Avenue and 2nd Street Two-way from 7th Street to Main Street	$1,624,000
Alternative 1B–Wisconsin Avenue and 2nd Street One-way from 3rd Street to Main Street	$1,860,000
Alternative 1C–Wisconsin Avenue Two-way from 7th Street to State Street (WIS 38)	$1,878,000
Alternative 2–Lake Avenue Two-way from 7th Street to State Street	$547,000
Alternative 3A–WIS 32 Rerouted to Marquette Street	$462,000
Alternative 3B–WIS 32 Rerouted to Marquette Street	$25,000

Table 4.02-1 OPCC for WIS 32 Corridors

Based on this analysis, an alternate WIS 32 route along either Lake Avenue or Marquette Street appears to be the lowest cost and least impact for further consideration to address the goals and objectives set forth by the City.

SECTION 5
SUMMARY OF FINDINGS

The major findings and conclusions of this report are summarized in this section. They are grouped into three main categories:

1. Existing roadway geometric findings.
2. Conceptual improvement alternative findings.
3. Opinion of possible construction cost findings.

5.01 EXISTING ROADWAY GEOMETRIC FINDINGS

The existing roadway geometric findings are summarized as follows:

1. Wisconsin Avenue from 7th Street to 3rd Street is wide enough for two-way traffic operation and would likely not require any geometric improvement if WIS 32 were rerouted to Wisconsin Avenue.

2. Wisconsin Avenue from 3rd Street to 2nd Street is wide enough for one-way southbound traffic but not wide enough for two-way traffic operation. This roadway would likely require geometric improvement if WIS 32 were rerouted to Wisconsin Avenue and two-way operation was desired from 3rd Street to 2nd Street.

3. The southbound Wisconsin Avenue ramp from State Street (WIS 38) is not wide enough to accommodate a WB-65 northbound right-turn onto State Street (WIS 38). The existing southbound ramp would likely require widening to the west if WIS 32 were rerouted to Wisconsin Avenue and northbound traffic was to use the ramp.

4. Access to the alley, exit from Shoop Building Parking structure, and garbage pick-up route located at northeast quadrant of Wisconsin Avenue and 3rd Street intersection will need to be altered.

5. The Wisconsin Avenue and 7th Street intersection is not large enough to accommodate the necessary WB-65 turning movements and would likely require geometric improvement if WIS 32 were rerouted to Wisconsin Avenue.

6. The 2nd Street and Main Street intersection is not large enough to accommodate the necessary WB-65 turning movements and would likely require geometric improvement if WIS 32 were rerouted to Wisconsin Avenue and two-way operation was desired on 2nd Street.

7. The WIS 38 and Main Street intersection is not large enough to accommodate the necessary WB-65 turning movements and would likely require geometric improvements if WIS 32 were rerouted to Wisconsin Avenue and two-way operation was desired on 2nd Street.

8. Lake Avenue from 7th Street to State Street is wide enough for two-way traffic operation and would likely not require any geometric improvement if WIS 32 were rerouted to Lake Avenue.

9. The Lake Avenue and 7th Street intersection is not large enough to accommodate the necessary WB-65 turning movements and would likely require geometric improvement if WIS 32 were rerouted to Lake Avenue.

10. The Lake Avenue and State Street intersection is not large enough to accommodate the necessary WB-65 turning movements without an undesirable level of same-direction encroachment and would likely require geometric improvement if WIS 32 were rerouted to Lake Avenue.

11. Marquette Street from WIS 20 to WIS 38 is wide enough for two-way traffic operation and would likely not require any geometric improvement if WIS 32 were rerouted to Marquette Street.

12. If the existing lane configurations are maintained, the Marquette Street and WIS 20 intersection is not large enough to accommodate the necessary WB-65 turning movements and would likely require geometric improvement if WIS 32 were rerouted to Marquette Street.

13. If the existing lane configurations are maintained, the Marquette Street and WIS 38 intersection is not large enough to accommodate the necessary WB-65 turning movements and would likely require geometric improvement if WIS 32 were rerouted to Marquette Street.

5.02 CONCEPTUAL IMPROVEMENT ALTERNATIVES FINDINGS

The conceptual improvement alternatives findings are summarized as follows:

A. Alternative 1A–Wisconsin Avenue/2nd Street Two-Way from 7th Street to Main Street

In order to accommodate two-way traffic on Wisconsin Avenue and 2nd Street connecting to Main Street, it was determined that a realignment of the roadway was required. This realignment allowed the two-way traffic to fit under the existing State Street (WIS 38) bridge but introduced some substandard design elements in order to avoid building and structure impacts. This also involved the adjustment and rerouting of the existing Wisconsin Avenue southbound ramp from State Street. Additionally, the Wisconsin Avenue and 7th Street intersection required geometric improvements to accommodate WB-65 turning movements. This alternative would also convert the one-way pair of 6th Street and 7th Street to a two-way operation. While this alternative appears to be possible, it may not be practical because of the large amount of impacts and substandard geometric elements.

B. Alternative 1B–Wisconsin Avenue/2nd Street One-Way from 3rd Street to 2nd Street

In order to accommodate two-way traffic on Wisconsin Avenue from 7th Street to 3rd Street, and one-way traffic on Wisconsin Avenue from 3rd Street to 2nd Street and on 2nd Street from Wisconsin Avenue to Main Street, it was determined that the existing Wisconsin Avenue southbound ramp from State Street (WIS 38) would need to be converted to northbound, and widened to accommodate the necessary WB-65 turning movements. Additionally, the Wisconsin Avenue and 7th Street intersection required geometric improvements to accommodate WB-65 turning movements. This alternative would also convert the one-way pair of 6th Street and 7th Street to a

two-way operation. While this alternative appears to be possible, it may not be practical due to the large amount of structure work to the existing State Street (WIS 38) bridge that may be required.

C. Alternative 1C–Wisconsin Avenue Two-Way from 7th Street to State Street (WIS 38)

In order to accommodate two-way traffic on Wisconsin Avenue from 7th Street to State Street, it was determined that the existing Wisconsin Avenue southbound ramp would need to be widened to accommodate two-way traffic as well as the necessary WB-65 turning movements. Second Street would then need to be terminated with a cul-de-sac north of State Street as it will no longer need to connect to Wisconsin Avenue and head south. Additionally, the Wisconsin Avenue and 7th Street intersection required geometric improvements to accommodate WB-65 turning movements. This alternative would also convert the one-way pair of 6th Street and 7th Street to a two-way operation. While this alternative appears to be possible, it may not be practical because of the large amount of structure work to the existing State Street (WIS 38) bridge that may be required.

D. Alternative 2–Lake Avenue Two-Way from 7th Street to State Street

In order to accommodate two-way traffic on Lake Avenue from 7th Street to State Street, it was determined that the Lake Avenue and 7th Street intersection and the Lake Avenue and State Street intersection would require geometric improvements in order to accommodate the necessary WB-65 turning movements. This alternative would also convert the one-way pair of 6th Street and 7th Street to two-way operation. This alternative may be practical because of the limited number of impacts and lower cost in comparison to the other alternatives

E. Alternative 3A–WIS 32 Rerouted to Marquette Street from WIS 20 to WIS 38

In order to accommodate two-way WB-65 traffic on Marquette Street from WIS 20 to WIS 38, it was determined that the Marquette Street and WIS 20 intersection and the Marquette Street and WIS 38 intersection would require geometric improvements in order to accommodate the necessary WB-65 turning movements. This alternative may be practical because of the limited number of impacts and lower cost in comparison to the other alternatives.

F. Alternative 3B–WIS 32 Rerouted to Marquette Street from WIS 20 to WIS 38

In order to accommodate two-way WB-65 traffic within existing pavement on Marquette Street from WIS 20 to WIS 38, it was determined that the Marquette Street and WIS 20 intersection and the Marquette Street and WIS 38 intersection would require turn lane and driving lane reconfiguration in order to accommodate the necessary WB-65 turning movements. The westbound travel lane needed to be reduced to 10 feet from face of curb to accommodate WB-65 left turn. This alternative may be practical because of no impacts to parking stall, driveways, and R/W and lowest cost in comparison to the other alternatives.

5.03 IMPACTS FINDINGS

	Alternative 1A	Alternative 1B	Alternative 1C	Alternative 2	Alternative 3A	Alternative 3B
Relocations	-	-	-	-	-	-
R/W Impacts	6	2	3	2	2	-
Parking Stalls[1]	25	10	18	11	-	-
Driveways	6	1	3	-	3	-
Alley Impacts	1	1	1	-	-	-
Garbage Access Impacts	1	1	1	-	-	-

[1]Parking stalls impacted along the potential WIS 32 Alternate routes, does not account for any parking changes recommended in the DPRP Plan developed by Toole Design Group.

Table 5.03-1 Impact Findings for Alternatives 1A through 3B

5.04 OPCC FINDINGS

The OPCC findings are summarized as follows:

1. The OPCC for Alternative 1A is $1,624,000.
2. The OPCC for Alternative 1B is $1,860,000.
3. The OPCC for Alternative 1C is $1,878,000.
4. The OPCC for Alternative 2 is $547,000.
5. The OPCC for Alternative 3A is $462,000.
6. The OPCC for Alternative 3B is $25,000.

APPENDIX A
ALTERNATIVES EVALUATION MATRIX

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine
Alternatives Evaluation Matrix

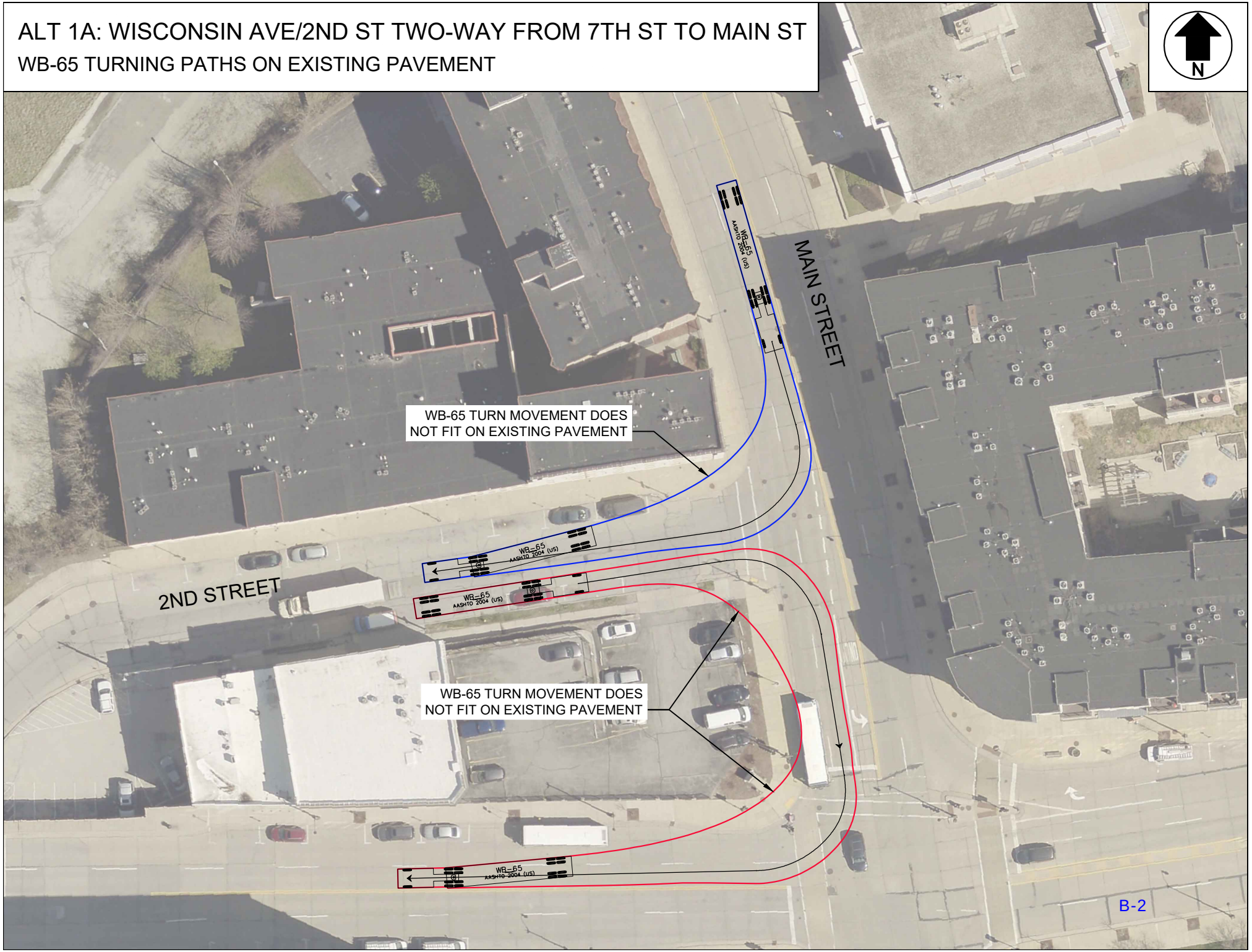
Alternatives	Impacts								Evaluation Status (Study Team Recommendation)	Reasons for Rejection
	Number of R/W Parcels		# of Parking Stalls		# of Driveways Impacted (1)	# of Alleys Impacted	# of Garbage Acess Impacted	OPCC		
	Residential	Commercial	Existing	Impacted						
Alt 1A: Wisconsin Avenue/2nd Street Two-Way from 7th Street to Main Street	-	6	44	25	5	1	1	$1,624,000	Rejected	High impact and cost
Alt 1B: Wisconsin Avenue/2nd Street One-Way from 3rd Street to Main Street	-	2	44	10	1	1	1	$1,860,000	Rejected	High impact and cost
Alt 1C: Wisconsin Avenue Two-Way from 7th Street to State Street	-	3	44	18	3	1	1	$1,878,000	Rejected	High impact and cost
Alt 2: Lake Avenue Two-Way from 7th Street to State Street	-	2	95	11	-	-	-	$547,000	Recommended	Low cost and impact
Alt 3A: Marquette Street Two-Way from WIS 20 to WIS 38	-	2	-	-	3	-	-	$462,000	Recommended	Low cost and impact
Alt 3B: Marquette Street Two-Way from WIS 20 to WIS 38	-	-	-	-	-	-	-	$25,000	Recommended	Lowest cost and no impacts

(1) = Parking stalls impacted along the potential WIS 32 Alternate routes, does not account for any parking changes recommended in the Downtown Public Realm and Parking Plan developed by Toole Design Group

APPENDIX B
TRUCK TURNING PATHS ON EXISTING PAVEMENT

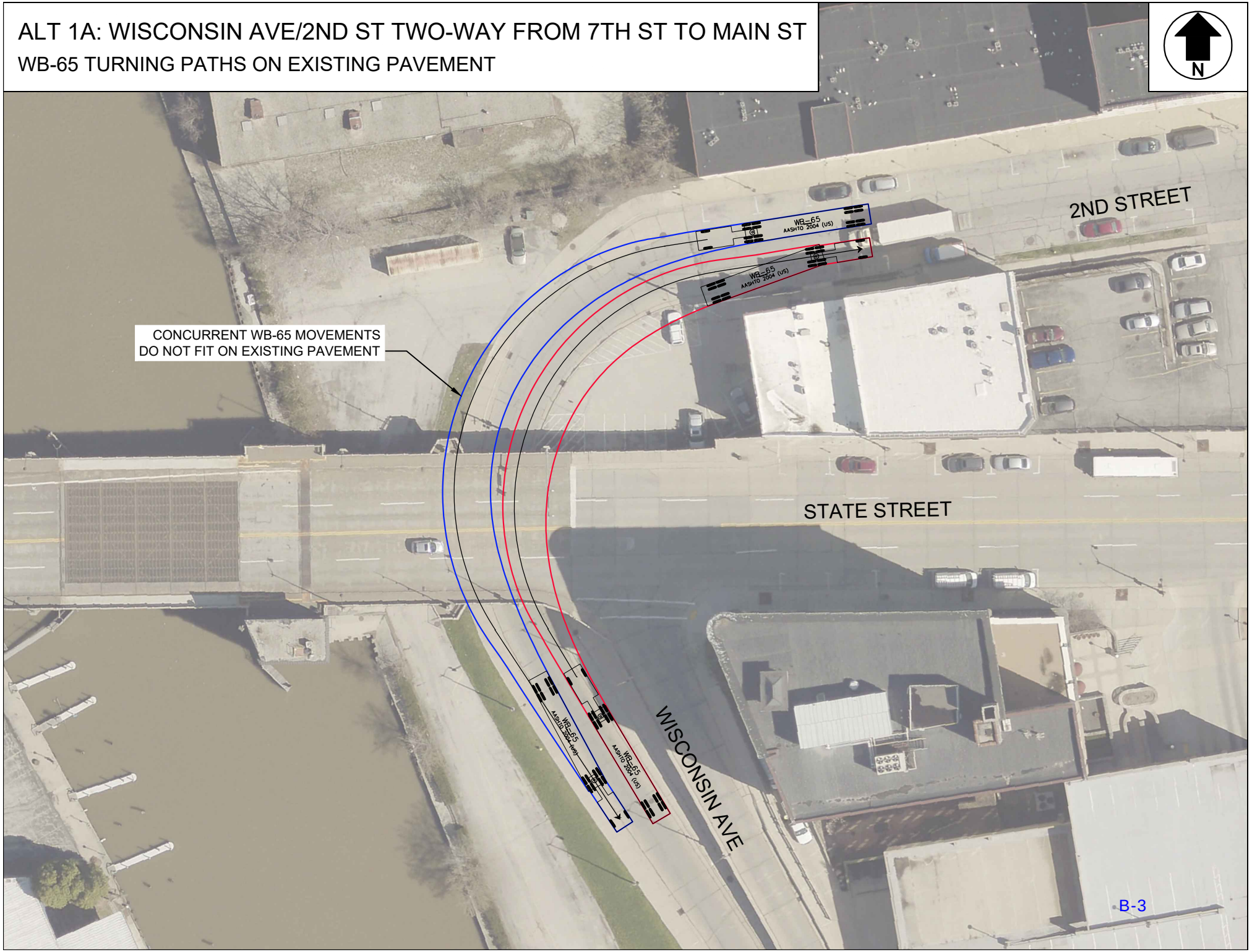
ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



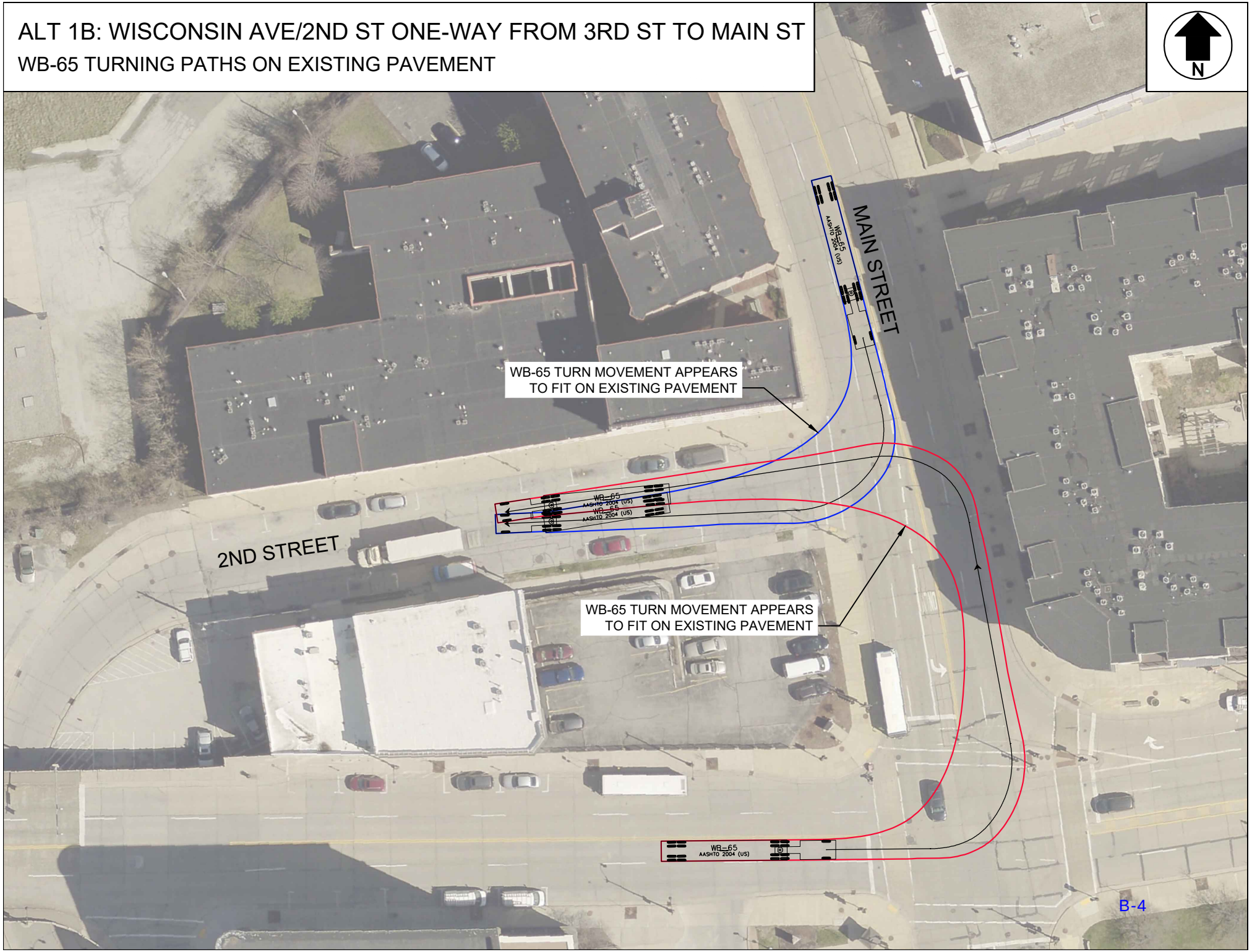
ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



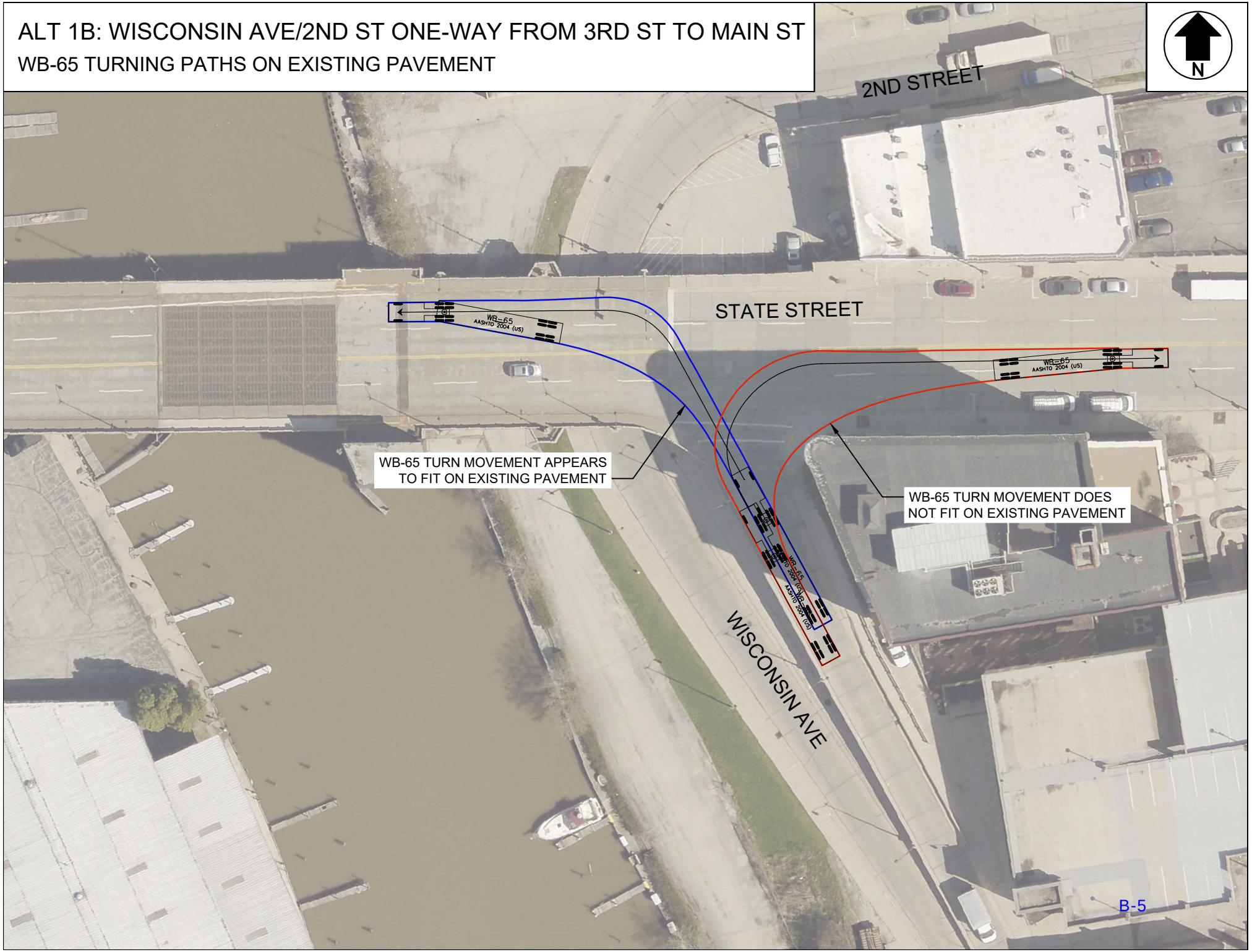
ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



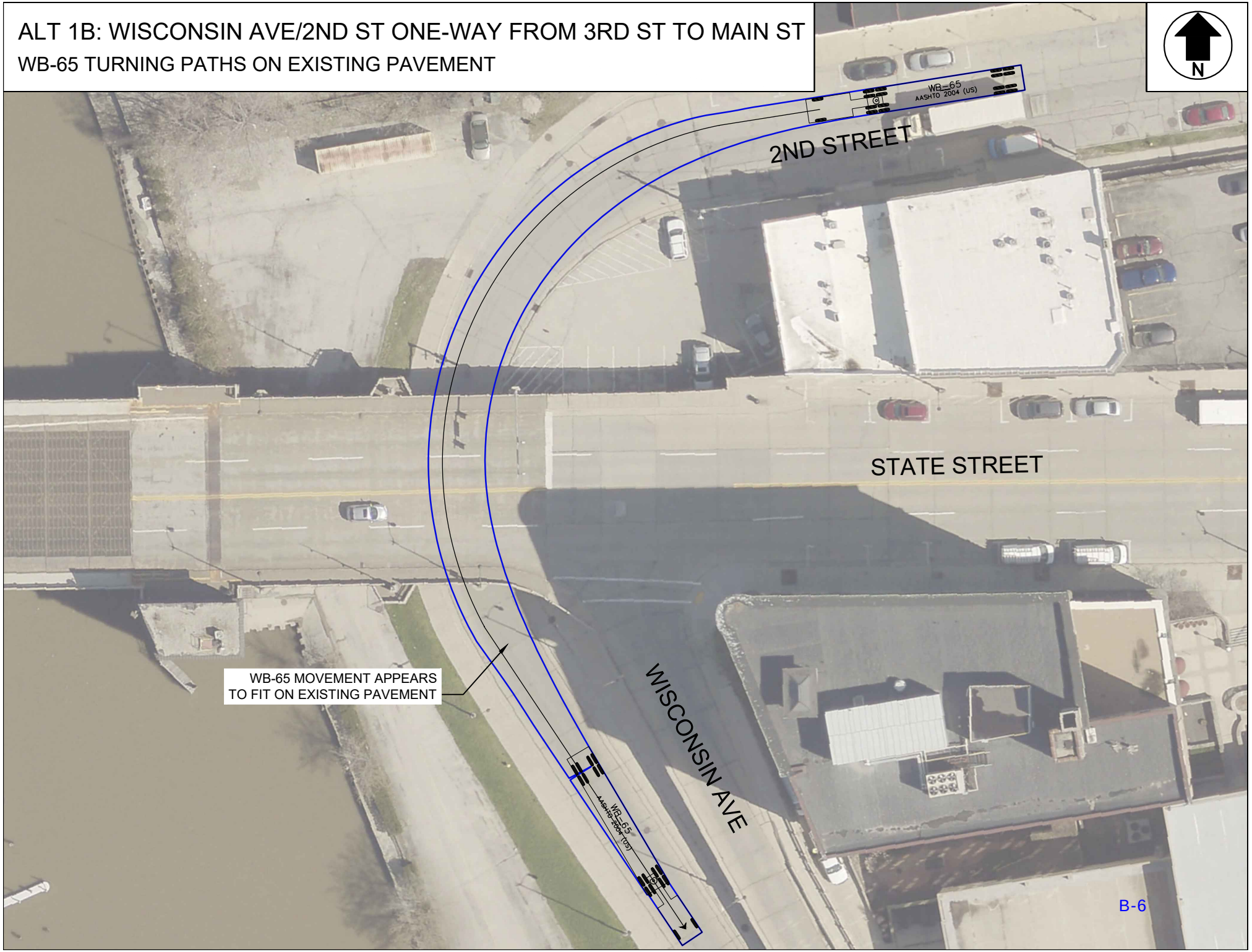
ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



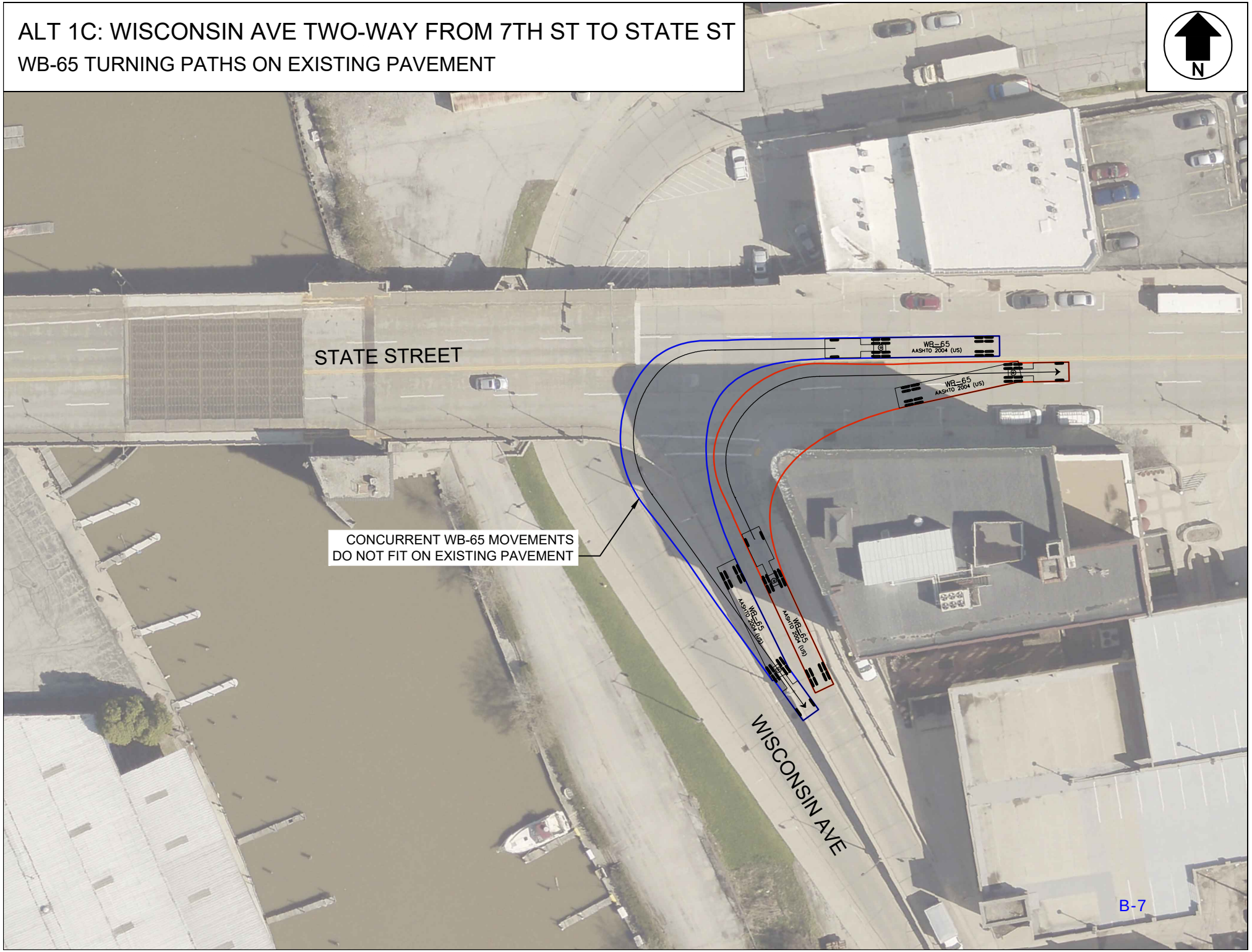
ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



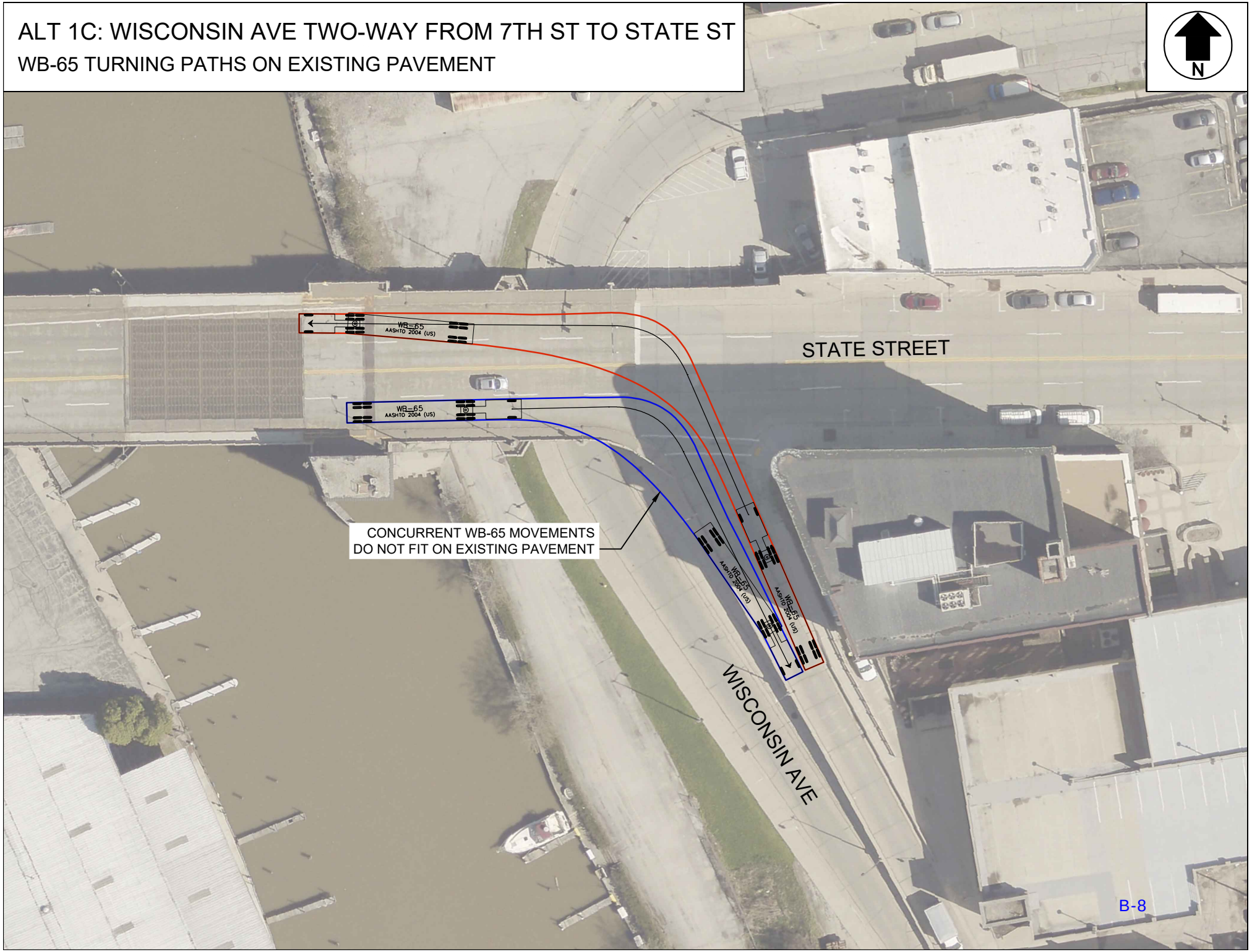
ALT 1C: WISCONSIN AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



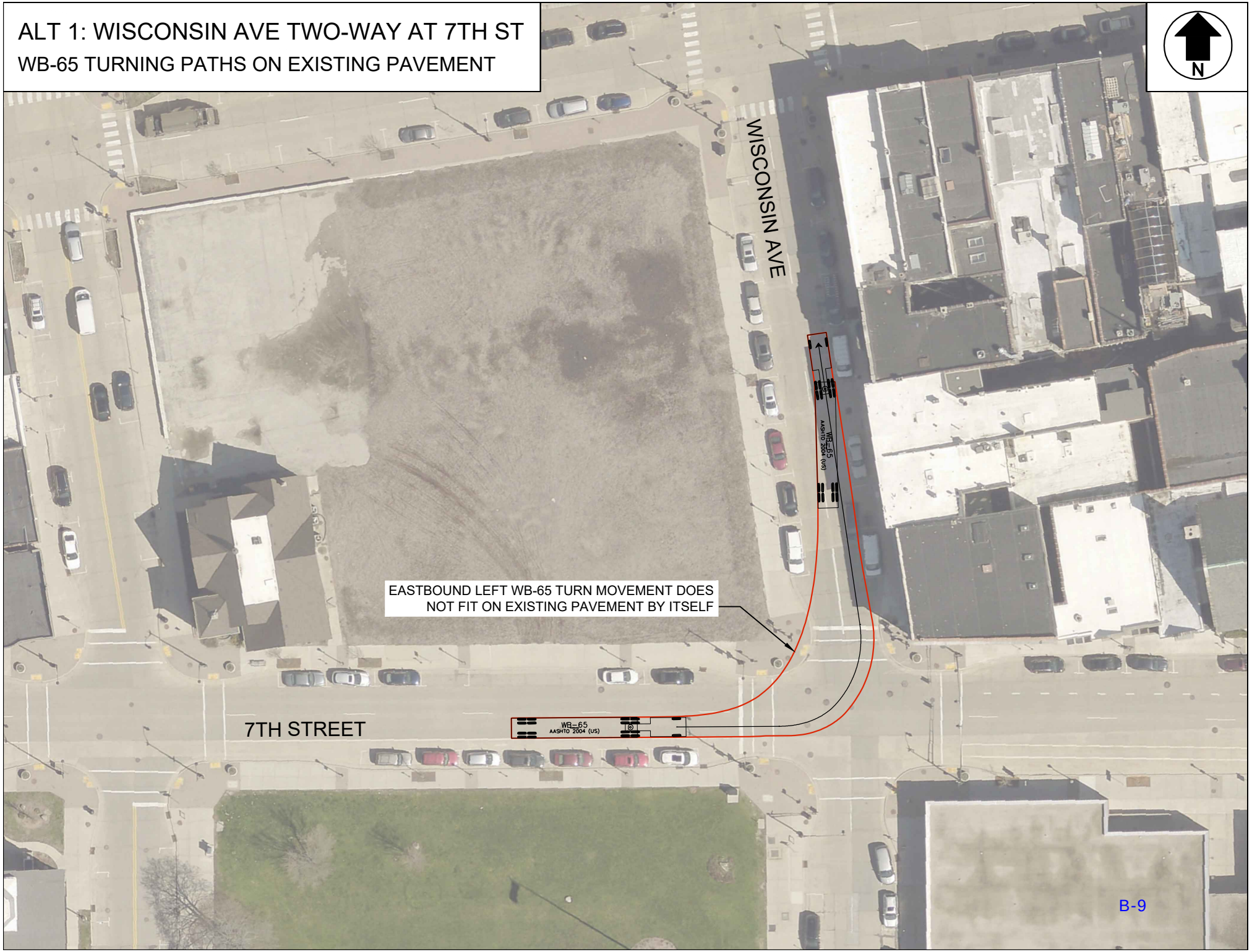
ALT 1C: WISCONSIN AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



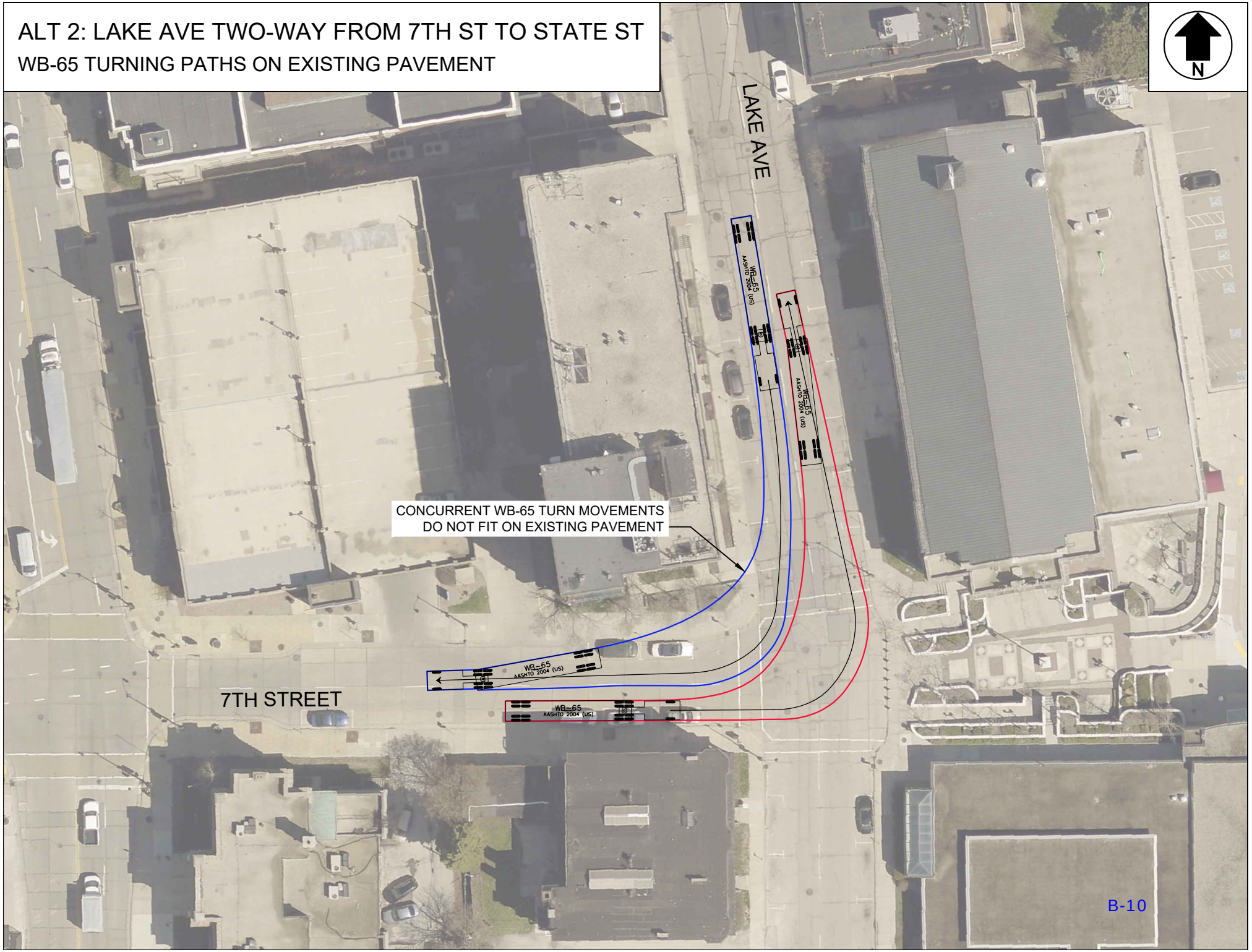
ALT 1: WISCONSIN AVE TWO-WAY AT 7TH ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



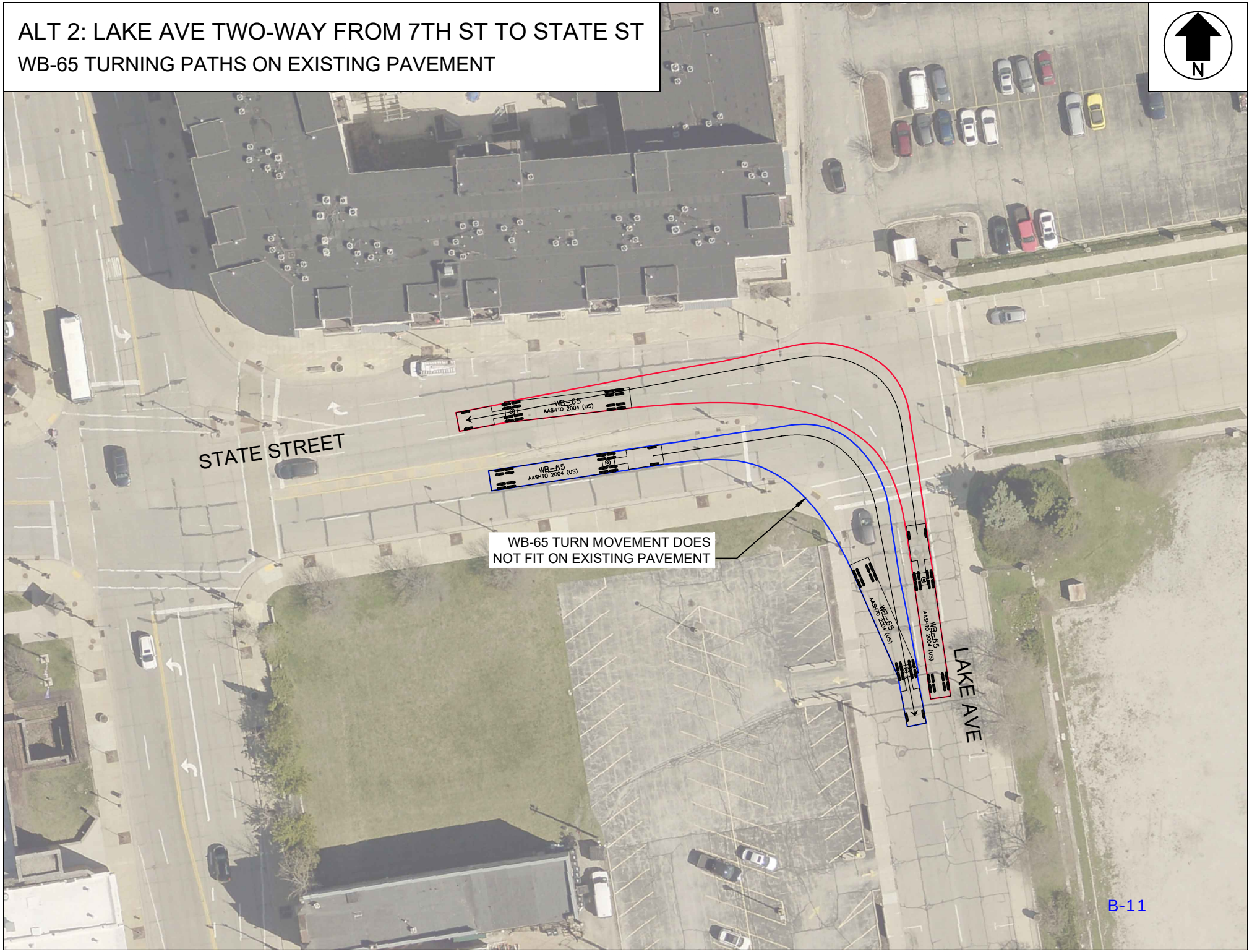
ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



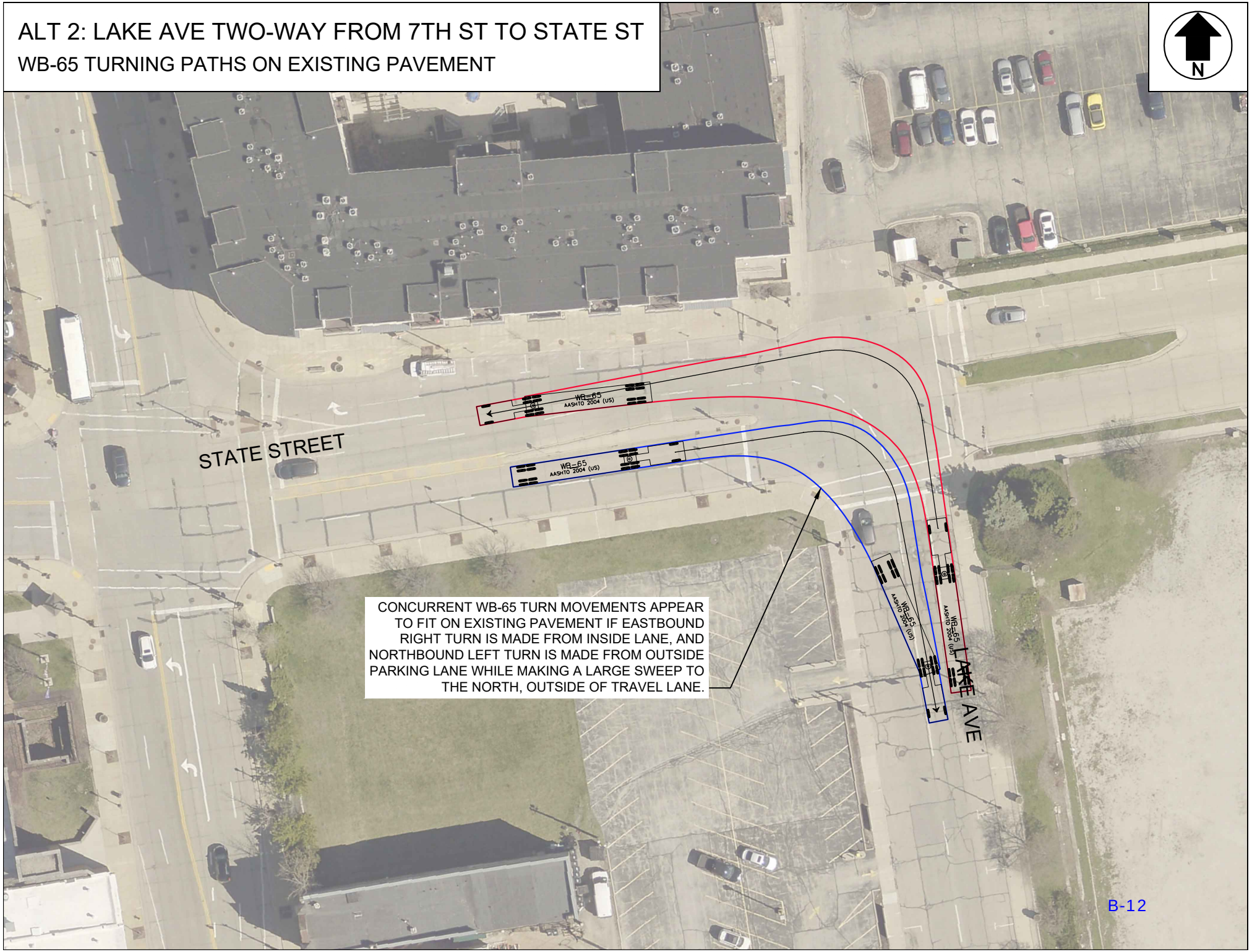
ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



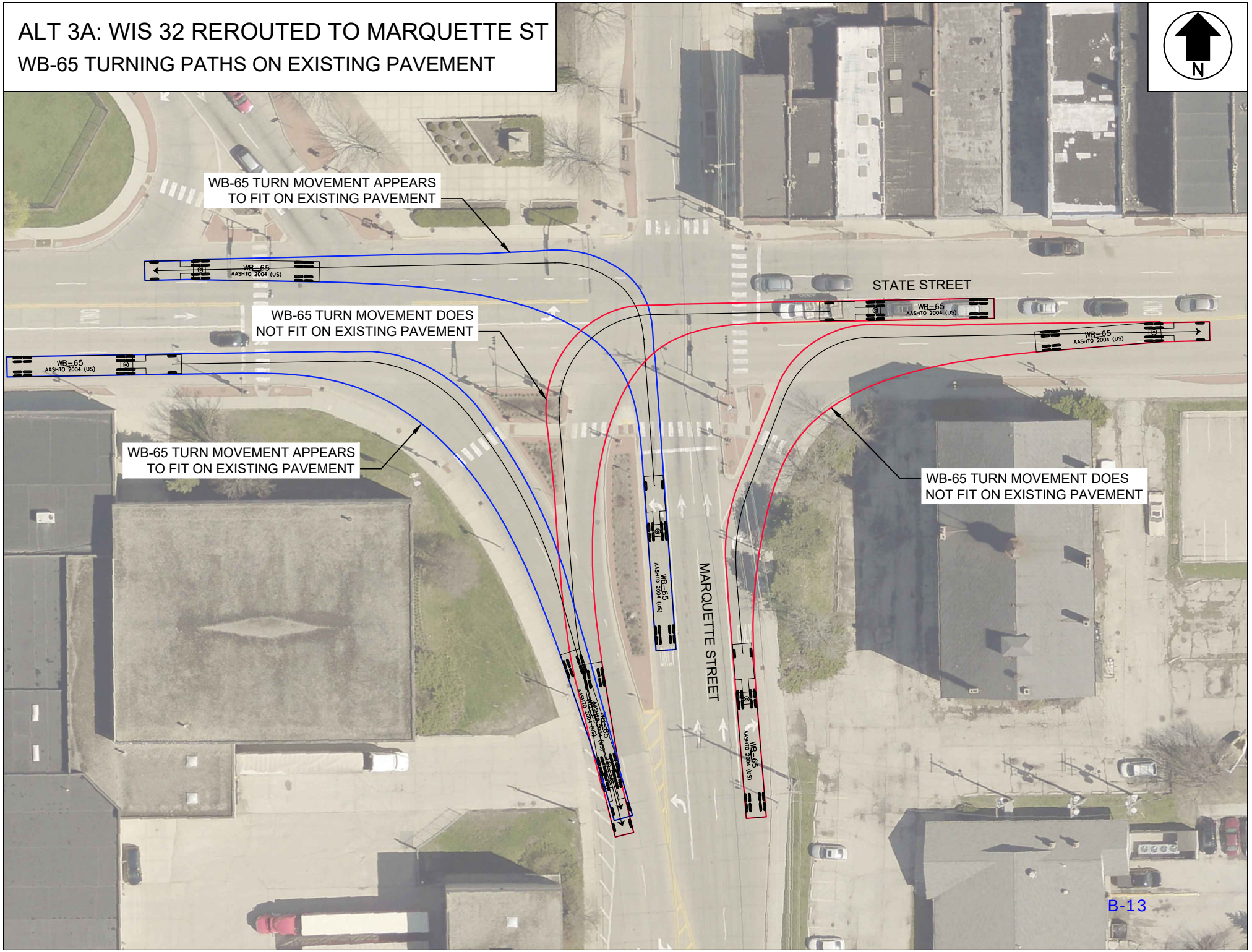
ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



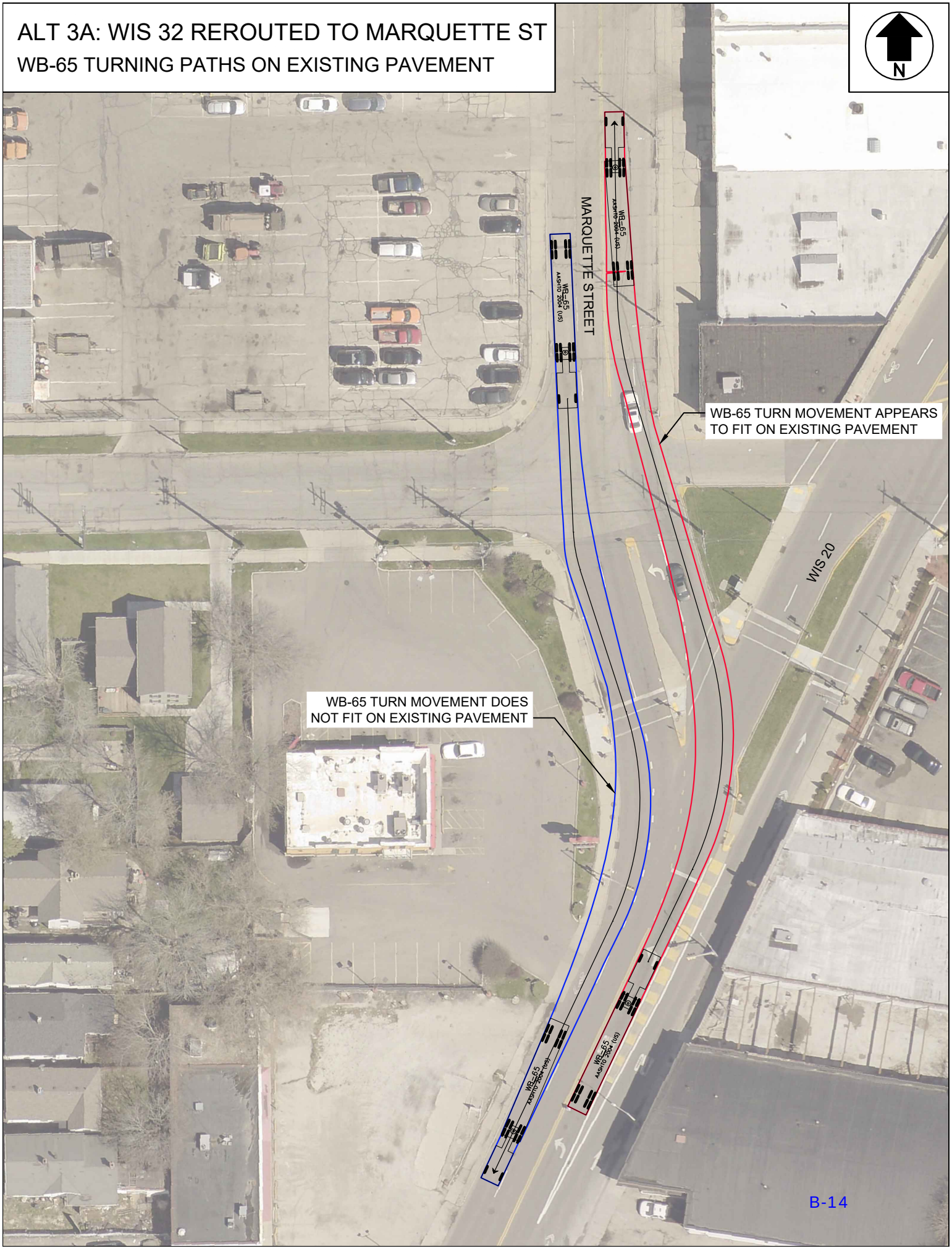
ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



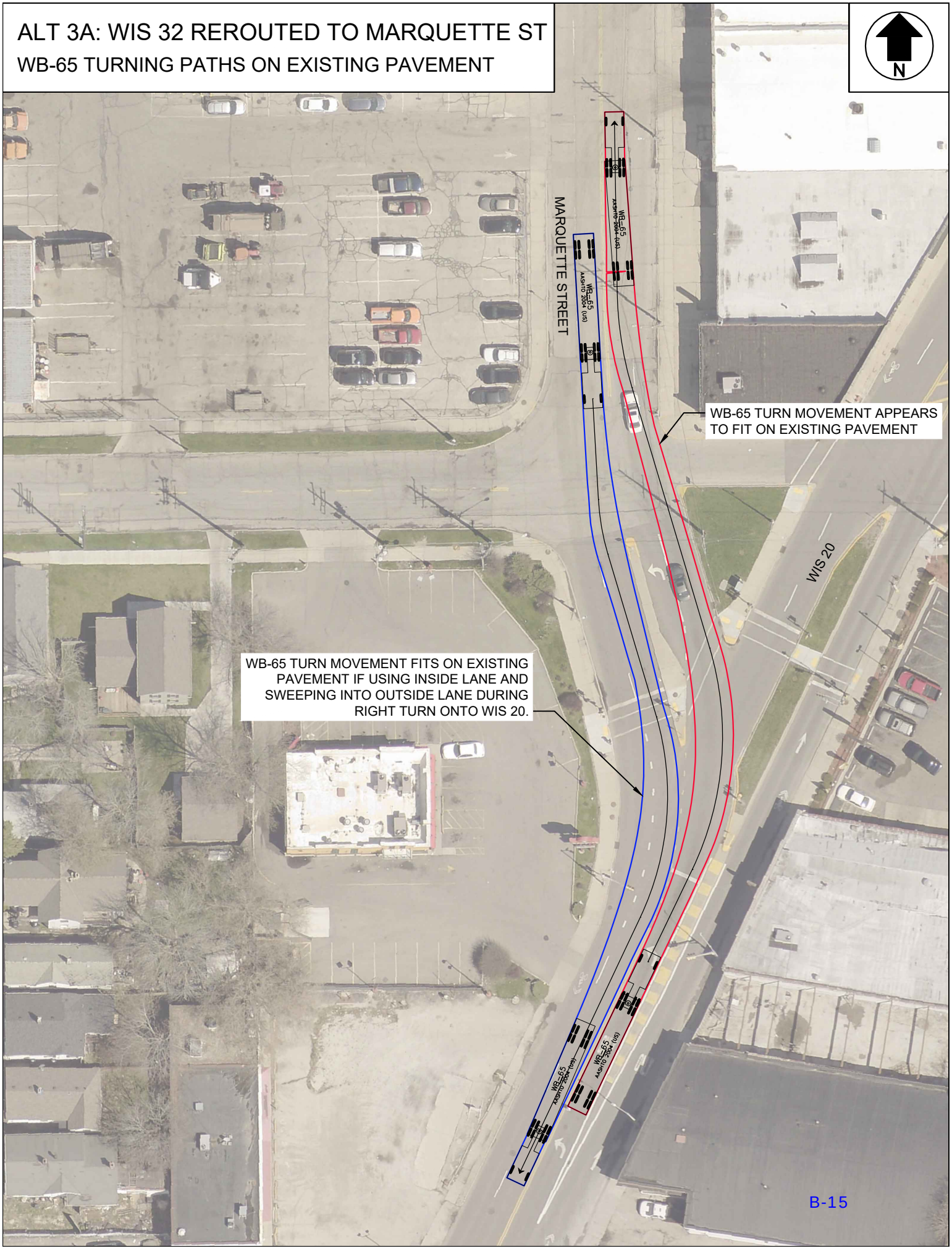
ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON EXISTING PAVEMENT



APPENDIX C
OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVES

ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

ALT 1C: WISCONSIN AVE TWO-WAY FROM 7TH ST TO STATE ST

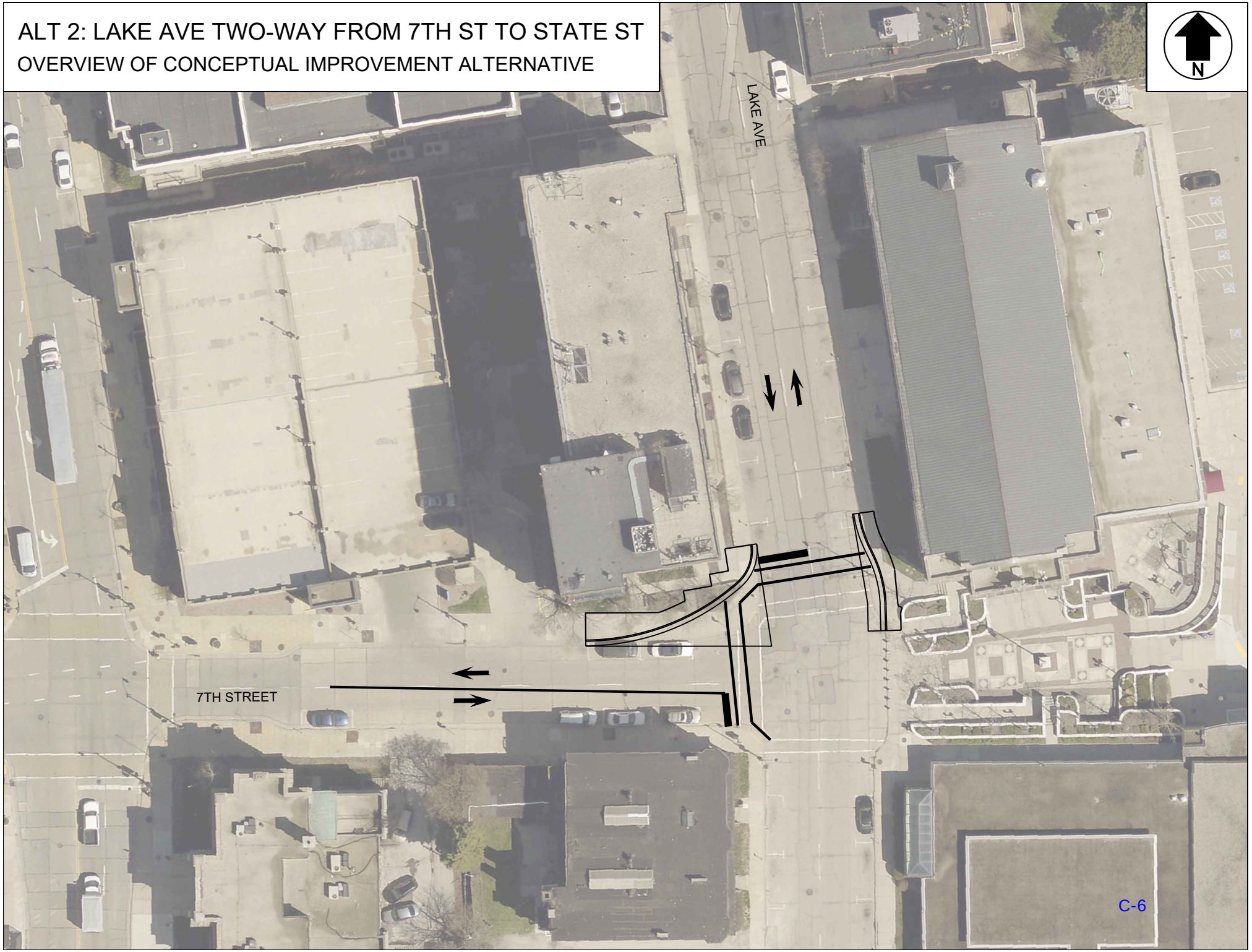
OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

ALT 1: WISCONSIN AVE TWO-WAY AT 7TH ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

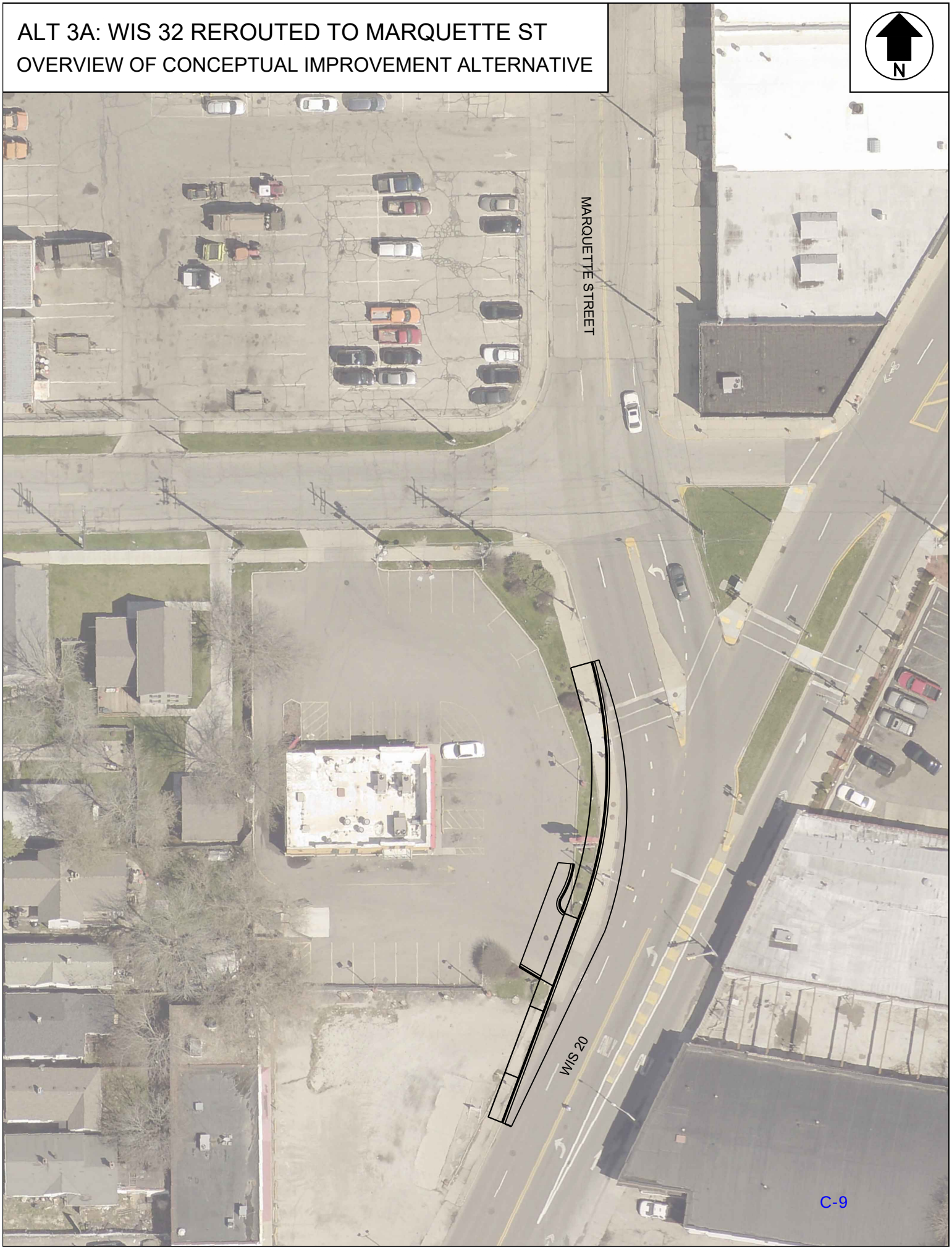
OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

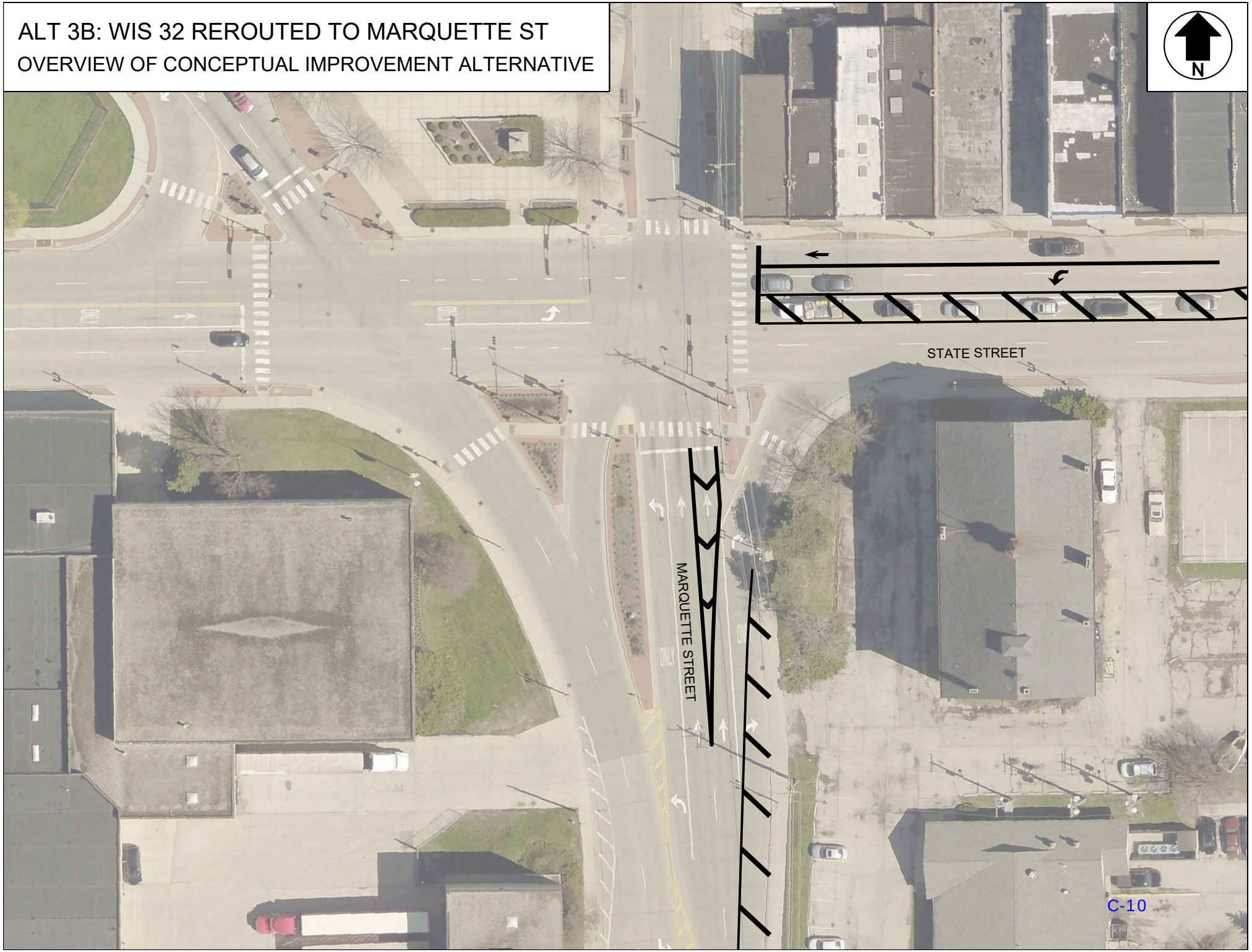
ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



ALT 3B: WIS 32 REROUTED TO MARQUETTE ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



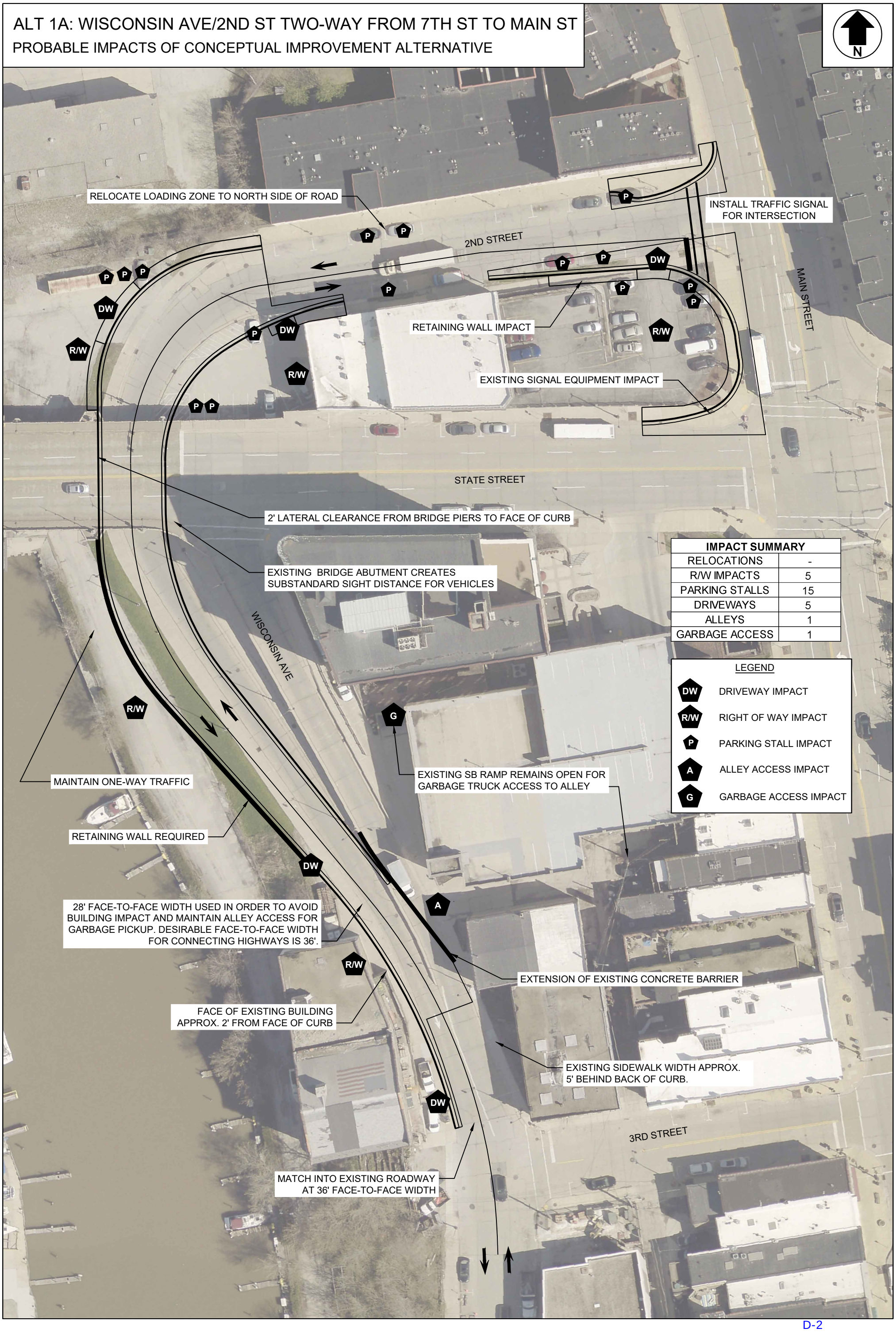
ALT 3B: WIS 32 REROUTED TO MARQUETTE ST

OVERVIEW OF CONCEPTUAL IMPROVEMENT ALTERNATIVE

APPENDIX D
PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVES

ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



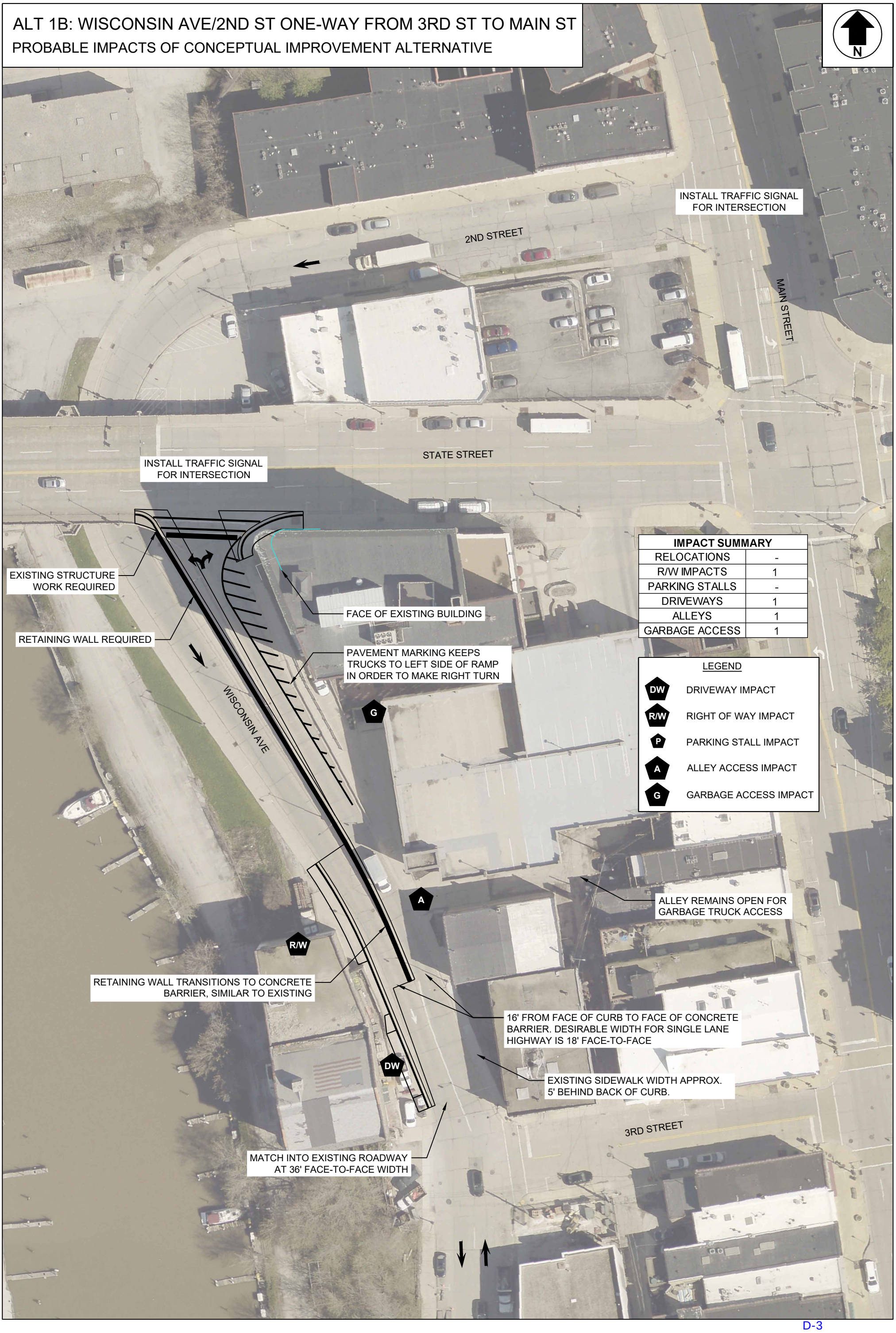
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	5
PARKING STALLS	15
DRIVEWAYS	5
ALLEYS	1
GARBAGE ACCESS	1

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT
- A — ALLEY ACCESS IMPACT
- G — GARBAGE ACCESS IMPACT

ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



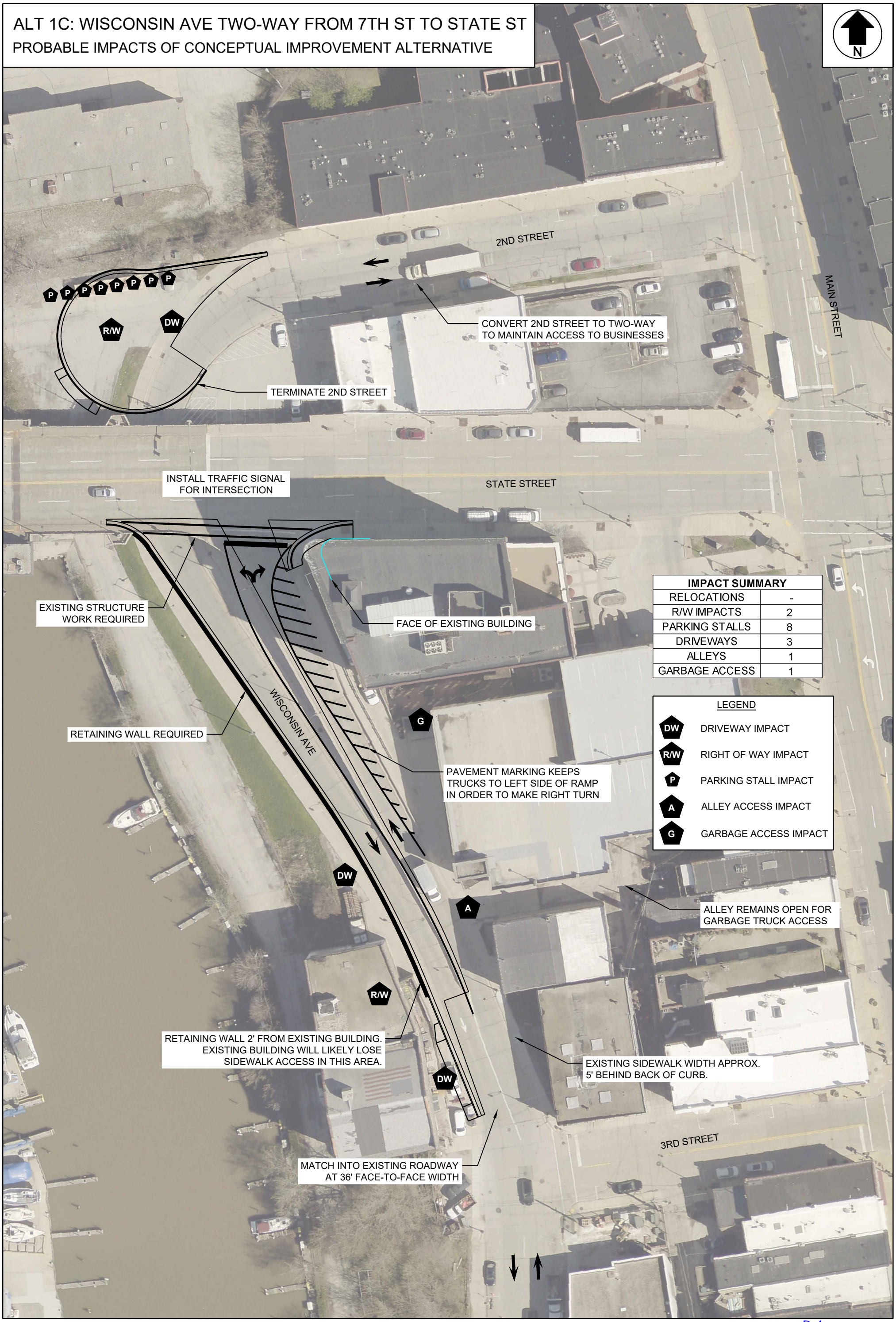
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	1
PARKING STALLS	-
DRIVEWAYS	1
ALLEYS	1
GARBAGE ACCESS	1

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT
- A — ALLEY ACCESS IMPACT
- G — GARBAGE ACCESS IMPACT

ALT 1C: WISCONSIN AVE TWO-WAY FROM 7TH ST TO STATE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



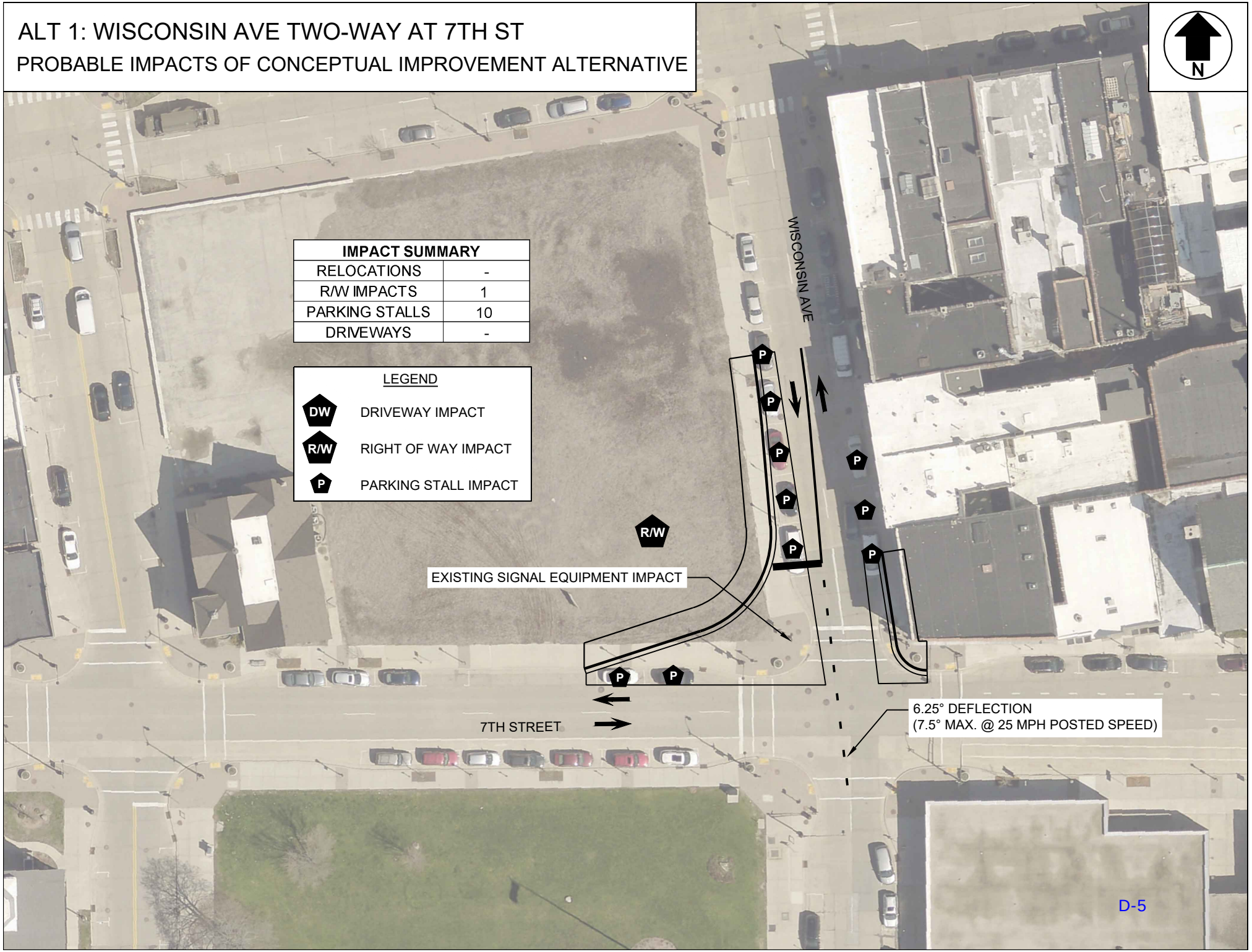
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	2
PARKING STALLS	8
DRIVEWAYS	3
ALLEYS	1
GARBAGE ACCESS	1

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT
- A — ALLEY ACCESS IMPACT
- G — GARBAGE ACCESS IMPACT

ALT 1: WISCONSIN AVE TWO-WAY AT 7TH ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



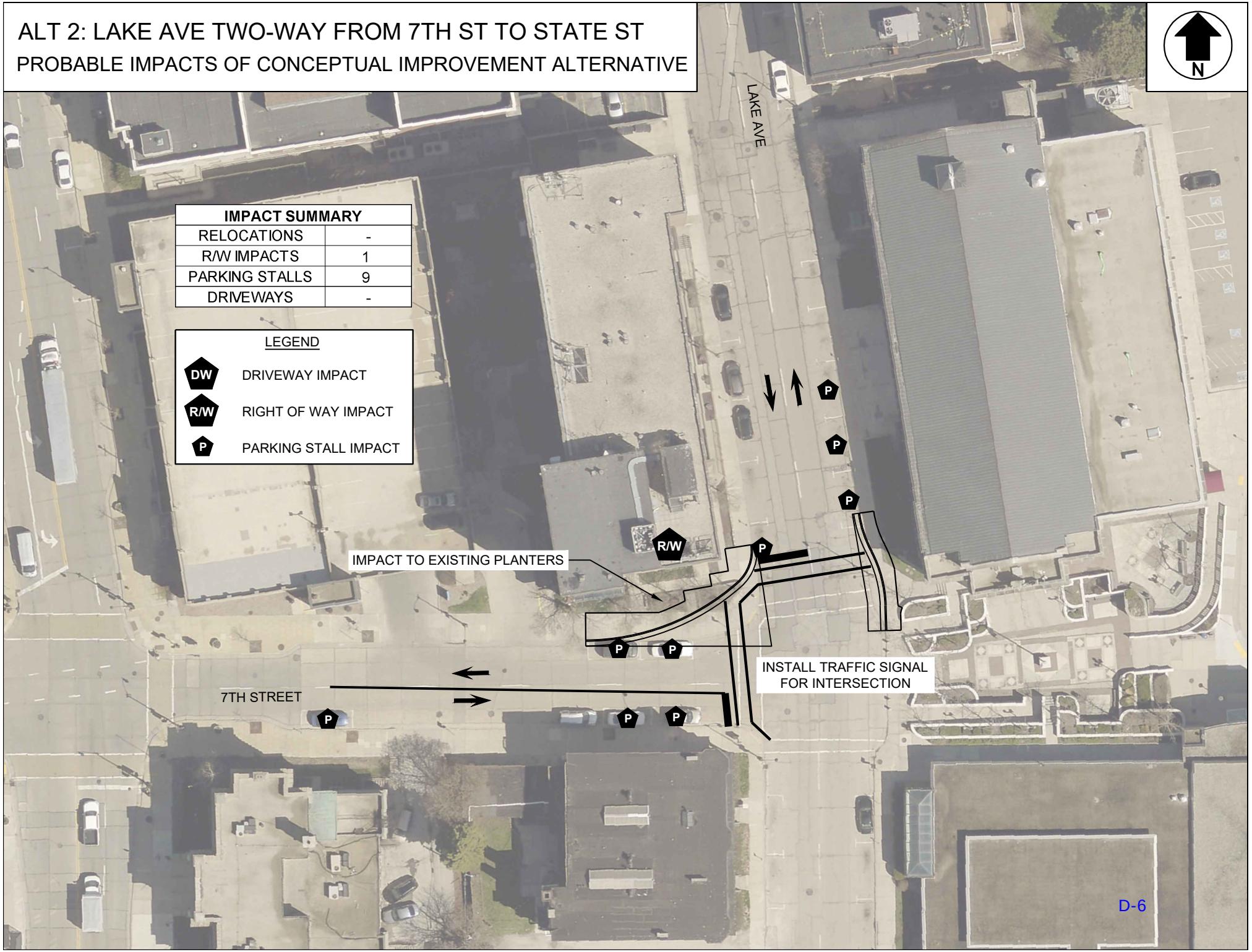
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	1
PARKING STALLS	10
DRIVEWAYS	-

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT

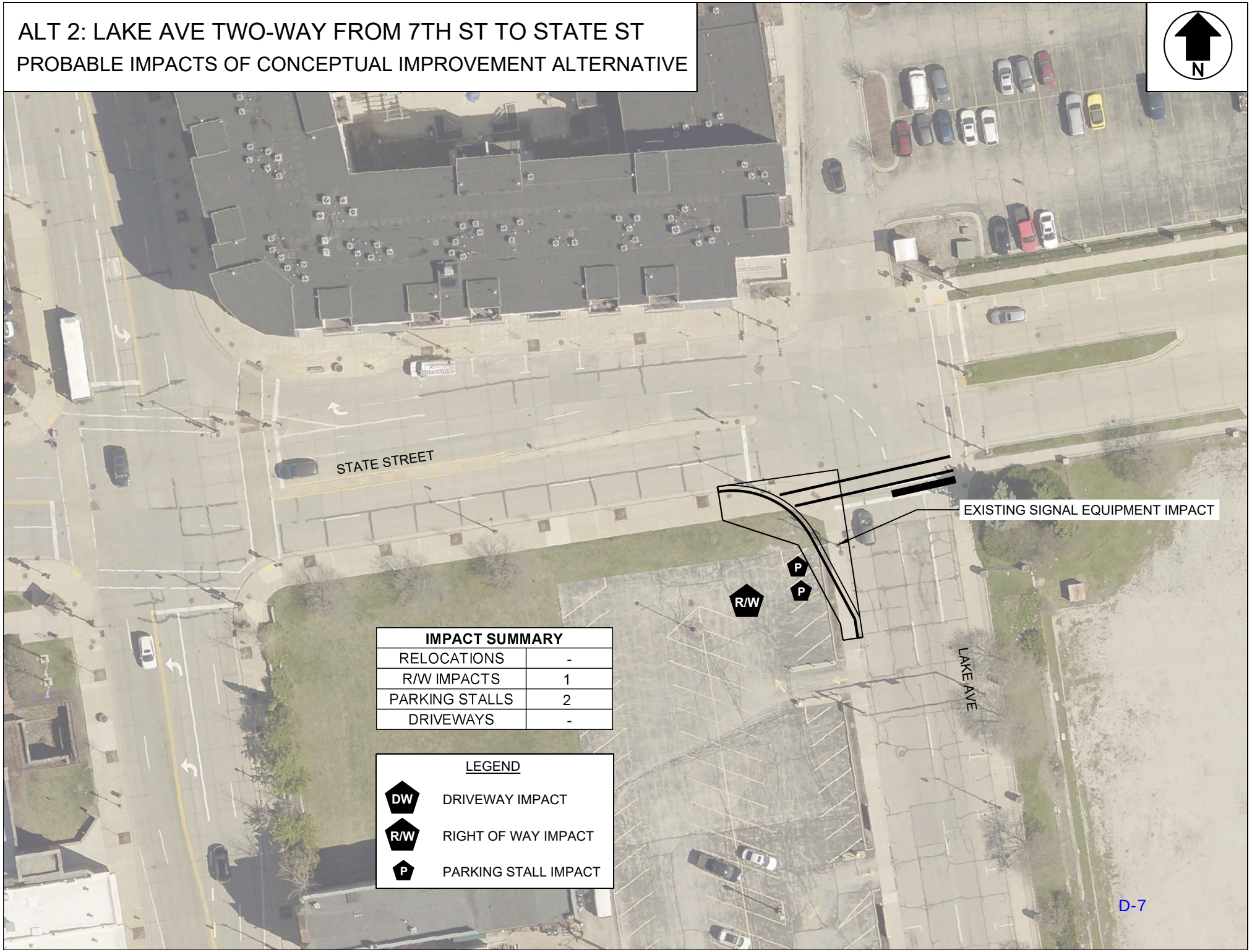
ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



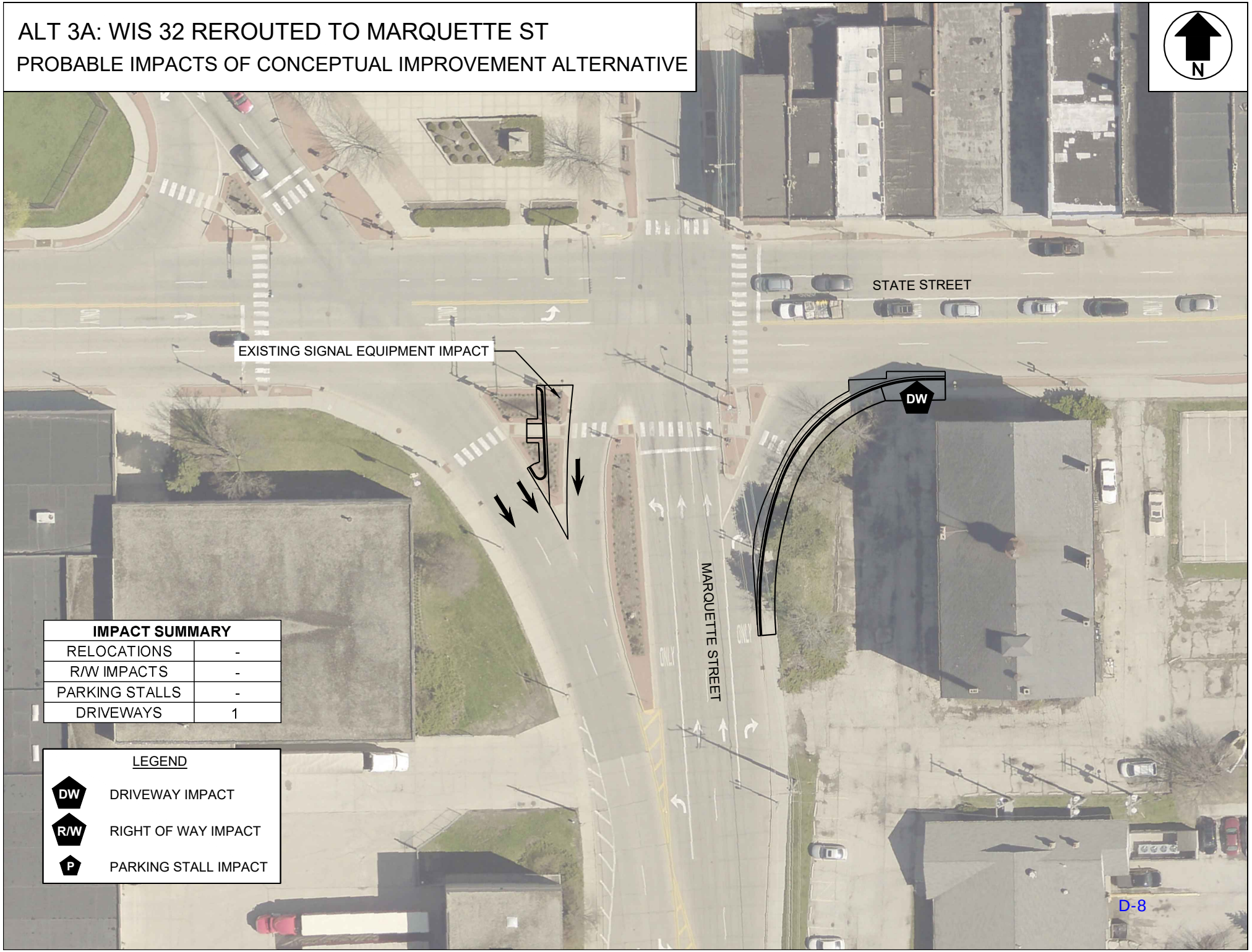
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	1
PARKING STALLS	2
DRIVEWAYS	-

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT

ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



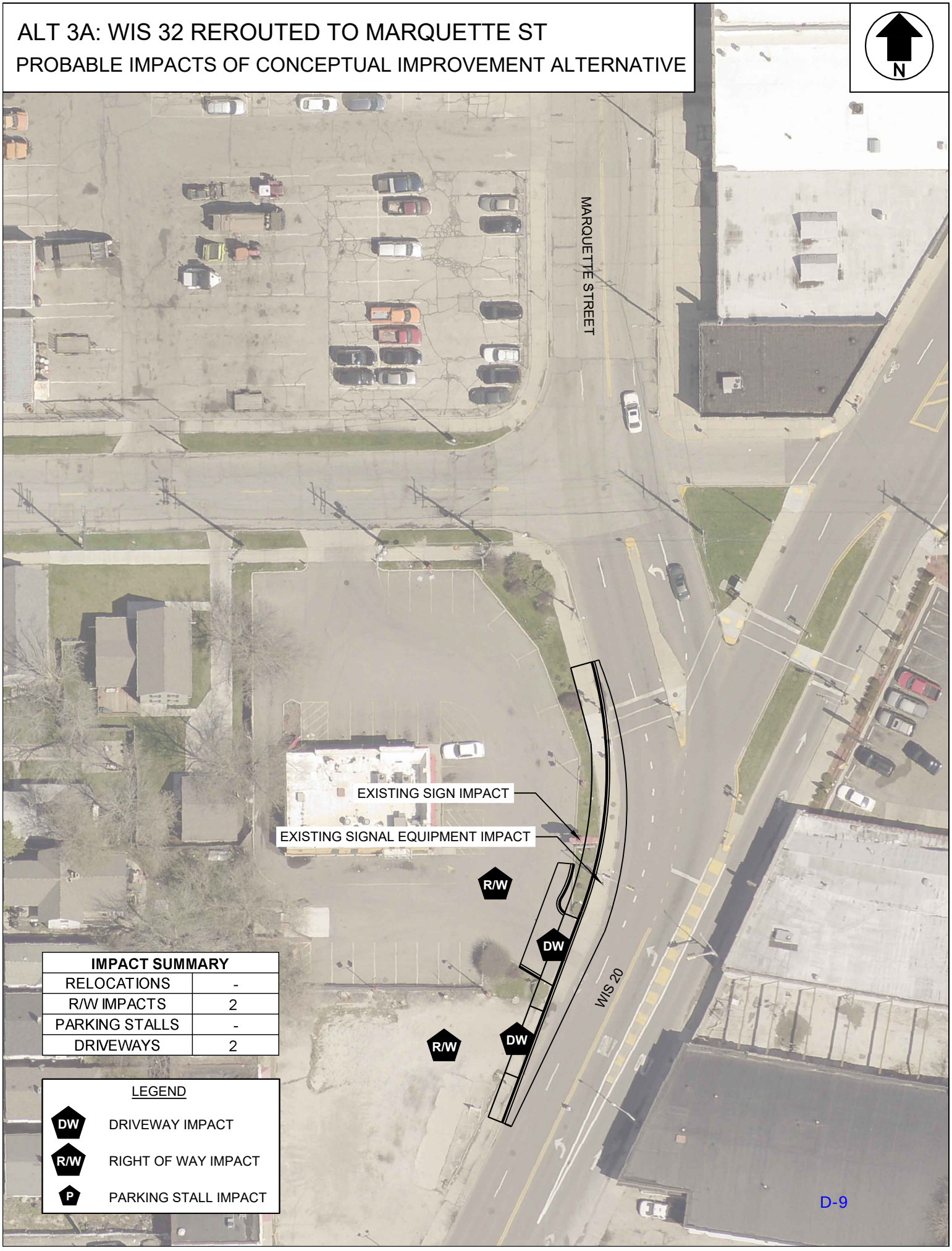
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	-
PARKING STALLS	-
DRIVEWAYS	1

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT

ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



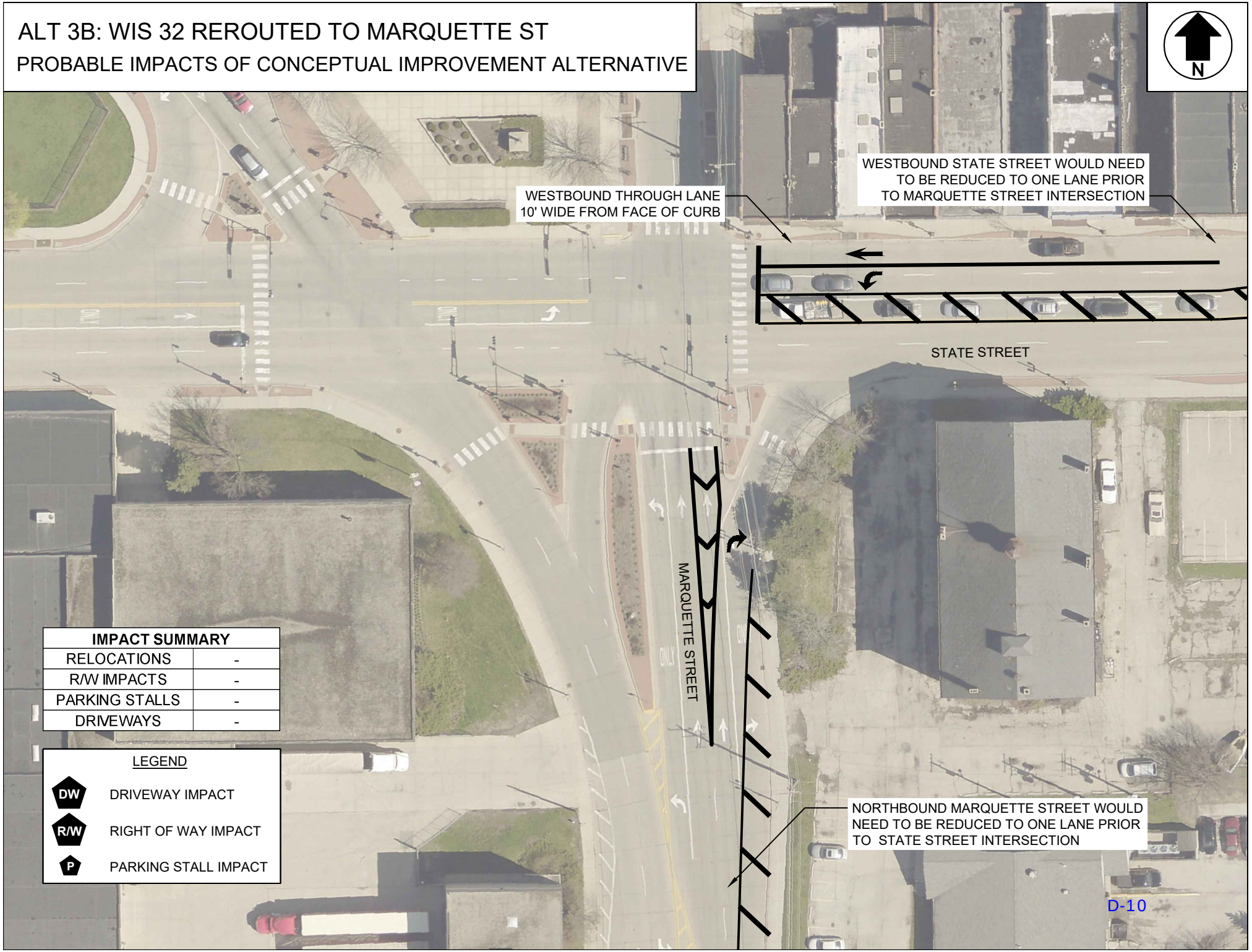
IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	2
PARKING STALLS	-
DRIVEWAYS	2

LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT

ALT 3B: WIS 32 REROUTED TO MARQUETTE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	-
PARKING STALLS	-
DRIVEWAYS	-

LEGEND

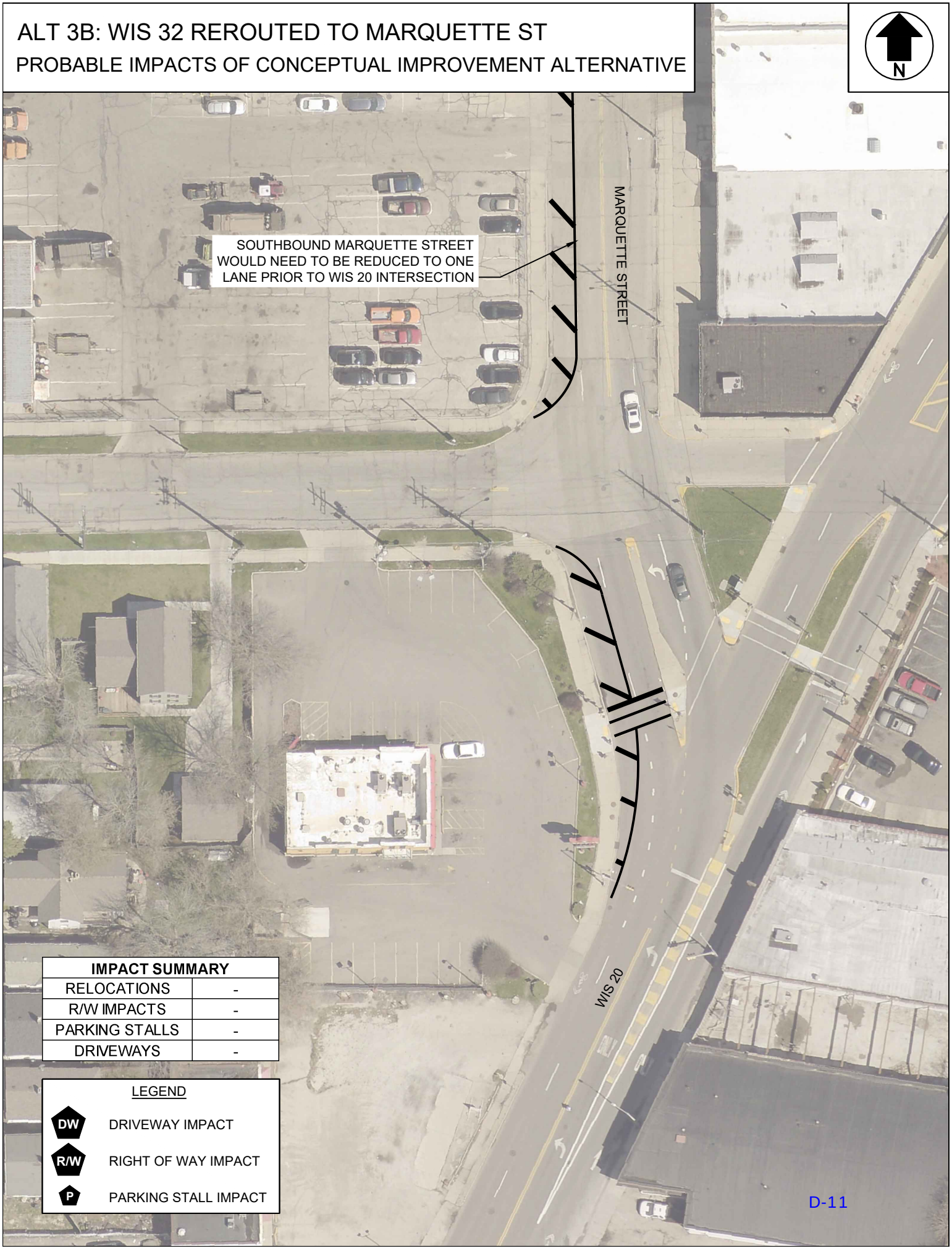
DW — DRIVEWAY IMPACT

R/W — RIGHT OF WAY IMPACT

P — PARKING STALL IMPACT

ALT 3B: WIS 32 REROUTED TO MARQUETTE ST

PROBABLE IMPACTS OF CONCEPTUAL IMPROVEMENT ALTERNATIVE



IMPACT SUMMARY	
RELOCATIONS	-
R/W IMPACTS	-
PARKING STALLS	-
DRIVEWAYS	-

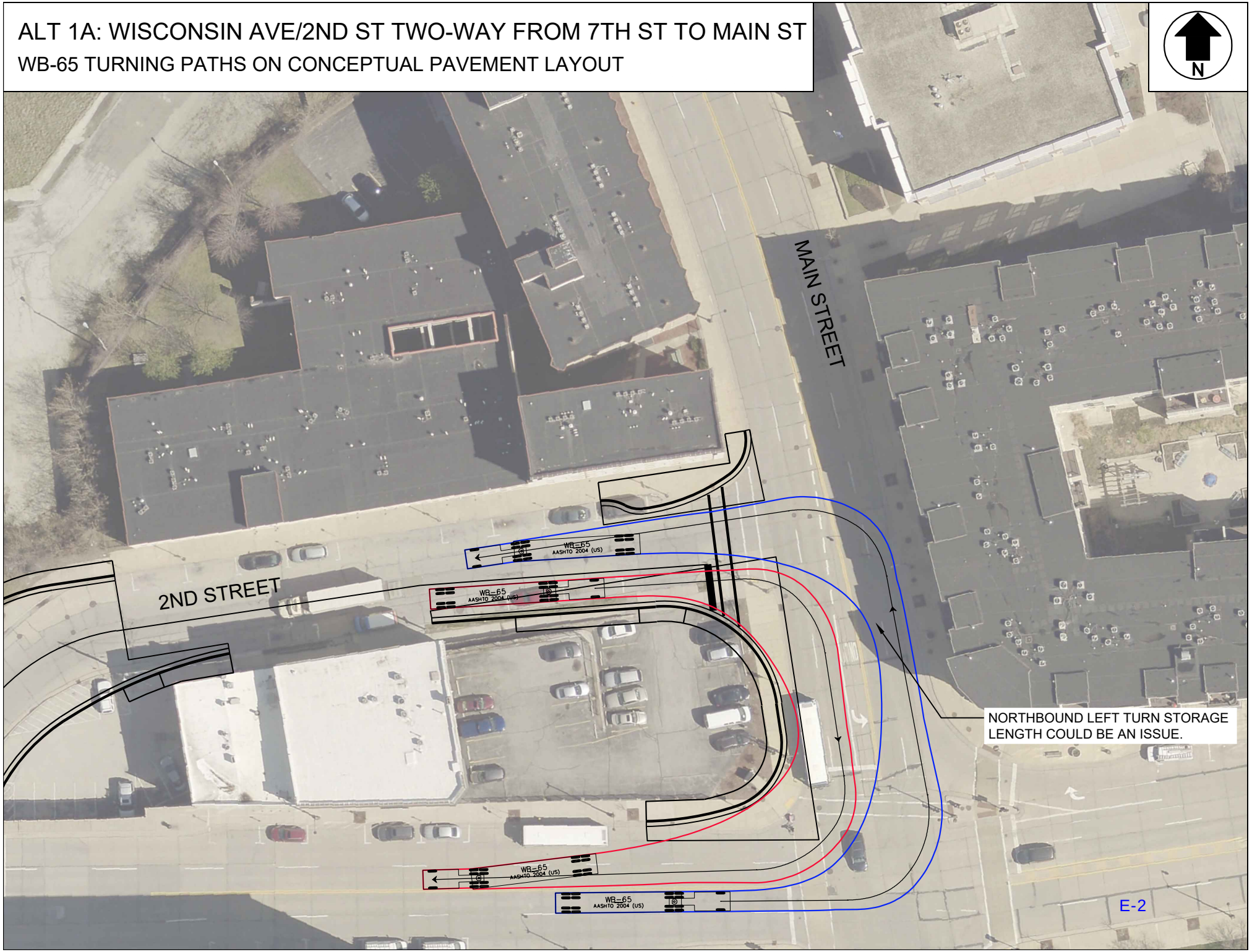
LEGEND

- DW — DRIVEWAY IMPACT
- R/W — RIGHT OF WAY IMPACT
- P — PARKING STALL IMPACT

APPENDIX E
TRUCK TURNING PATHS ON CONCEPTUAL IMPROVEMENT LAYOUTS

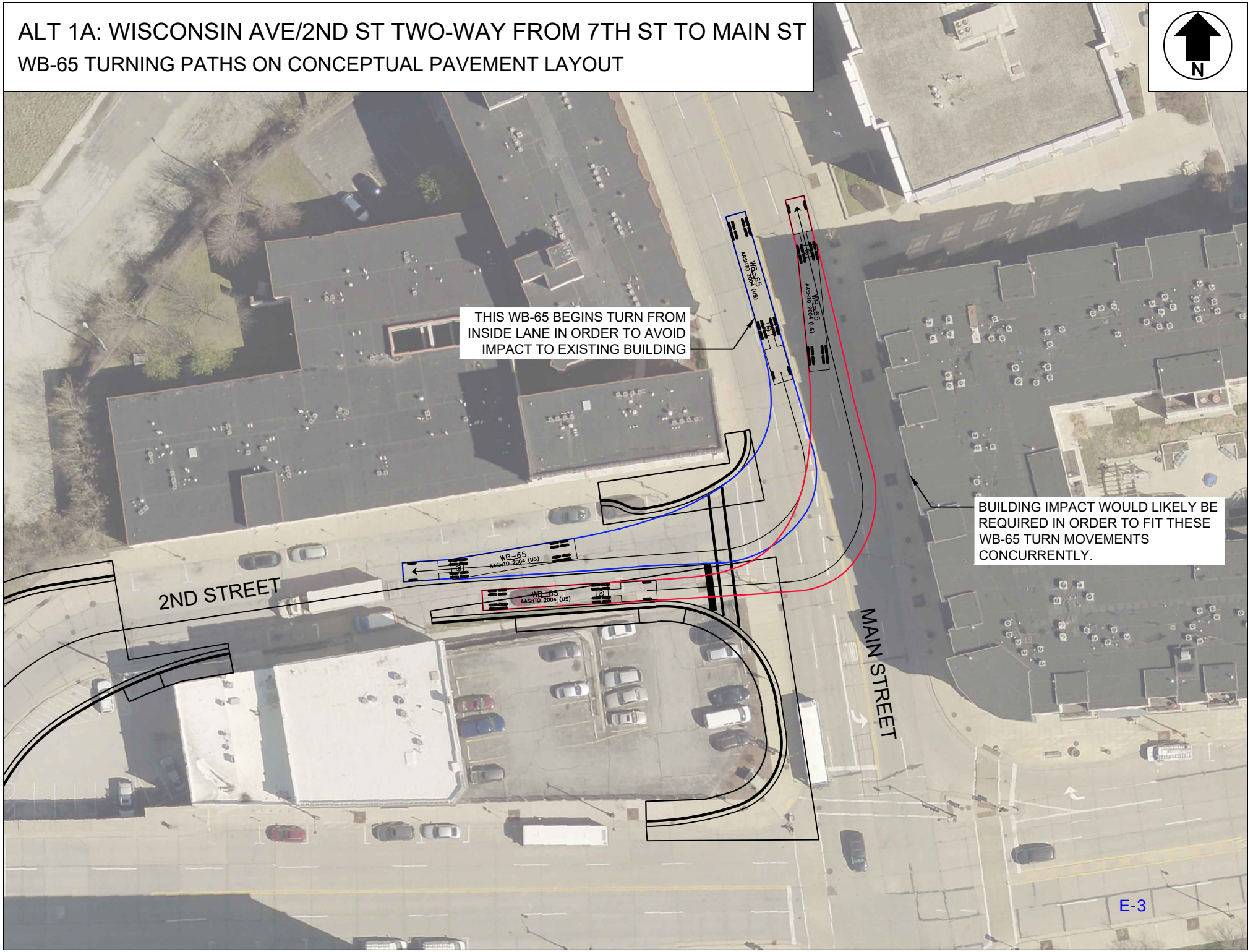
ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



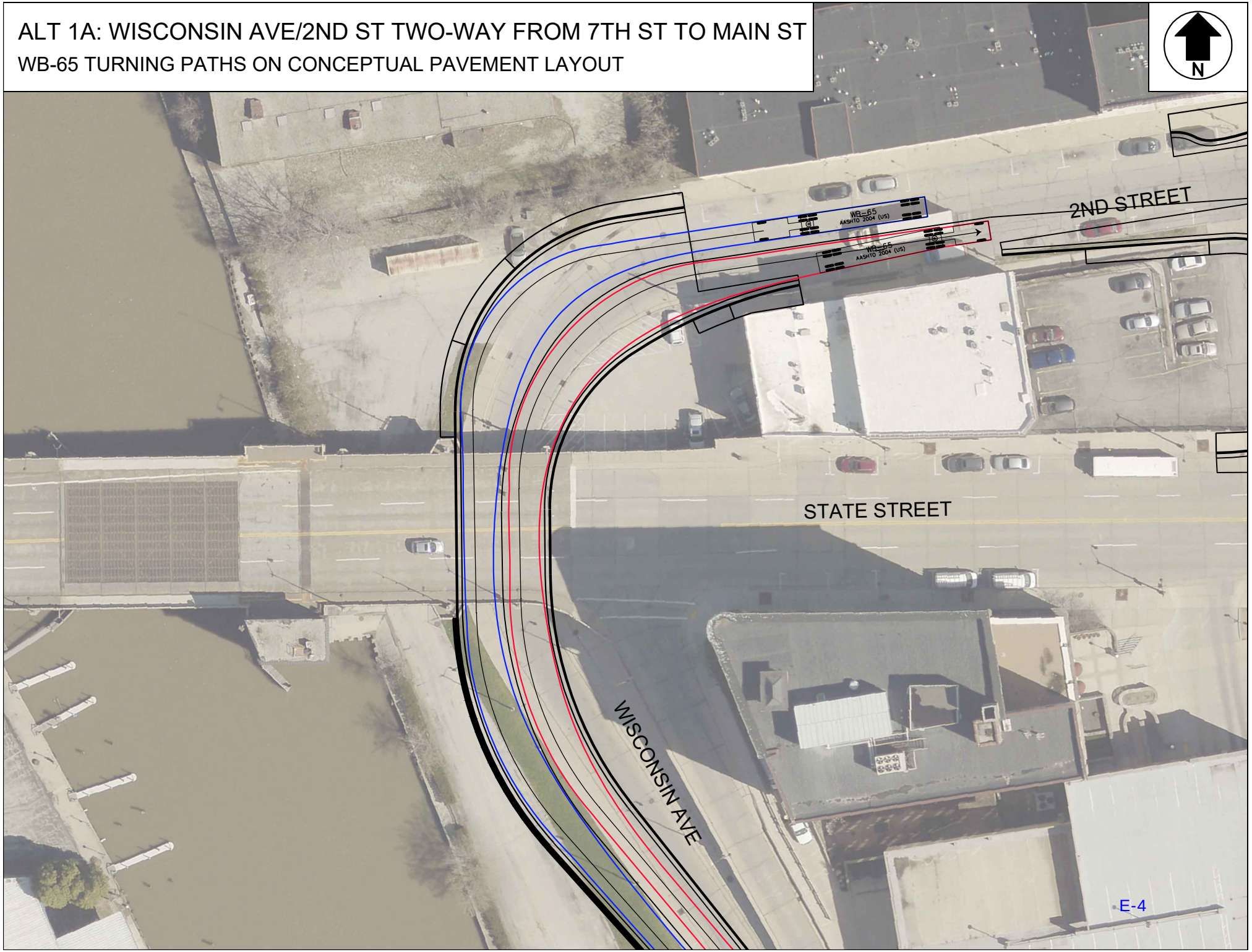
ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



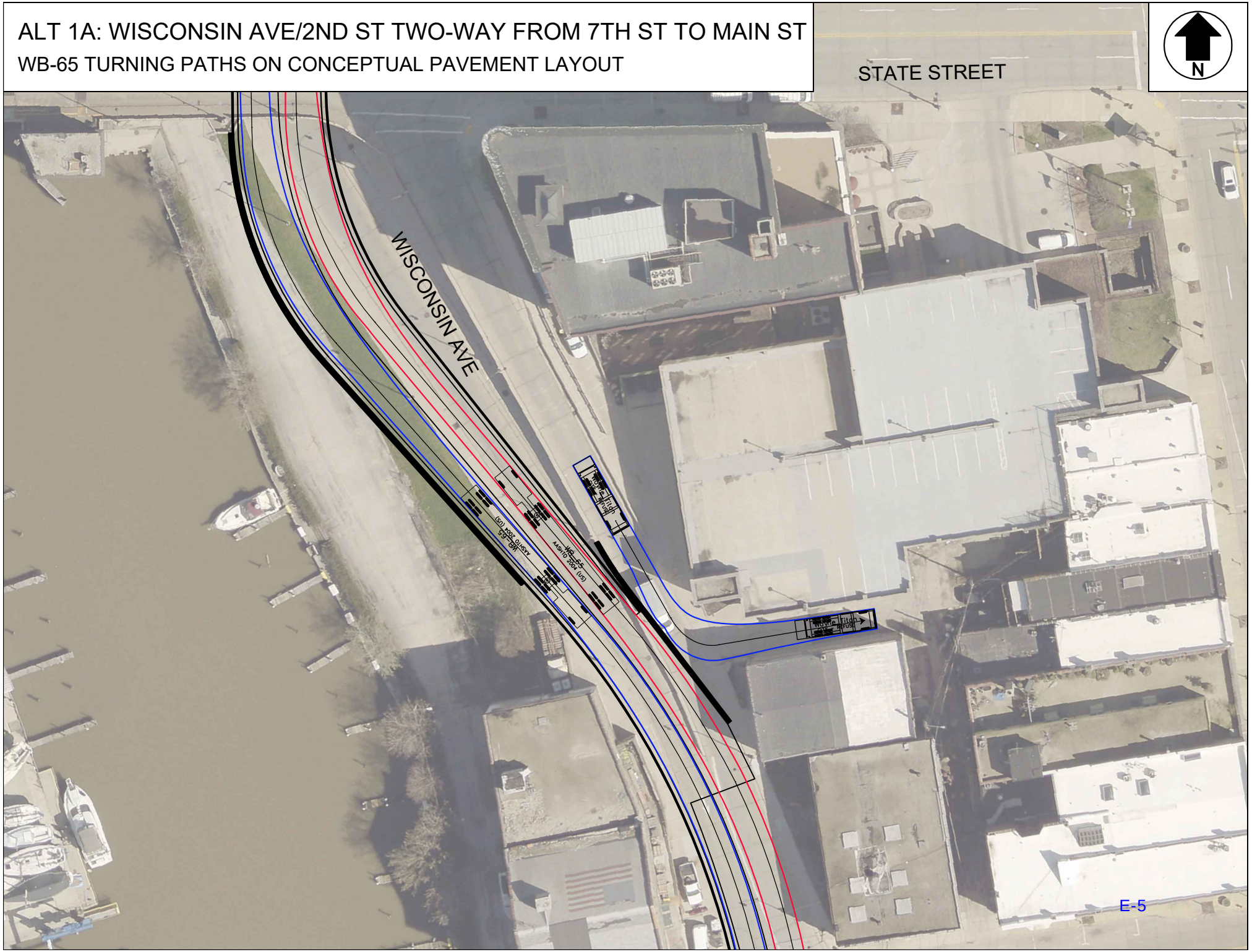
ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



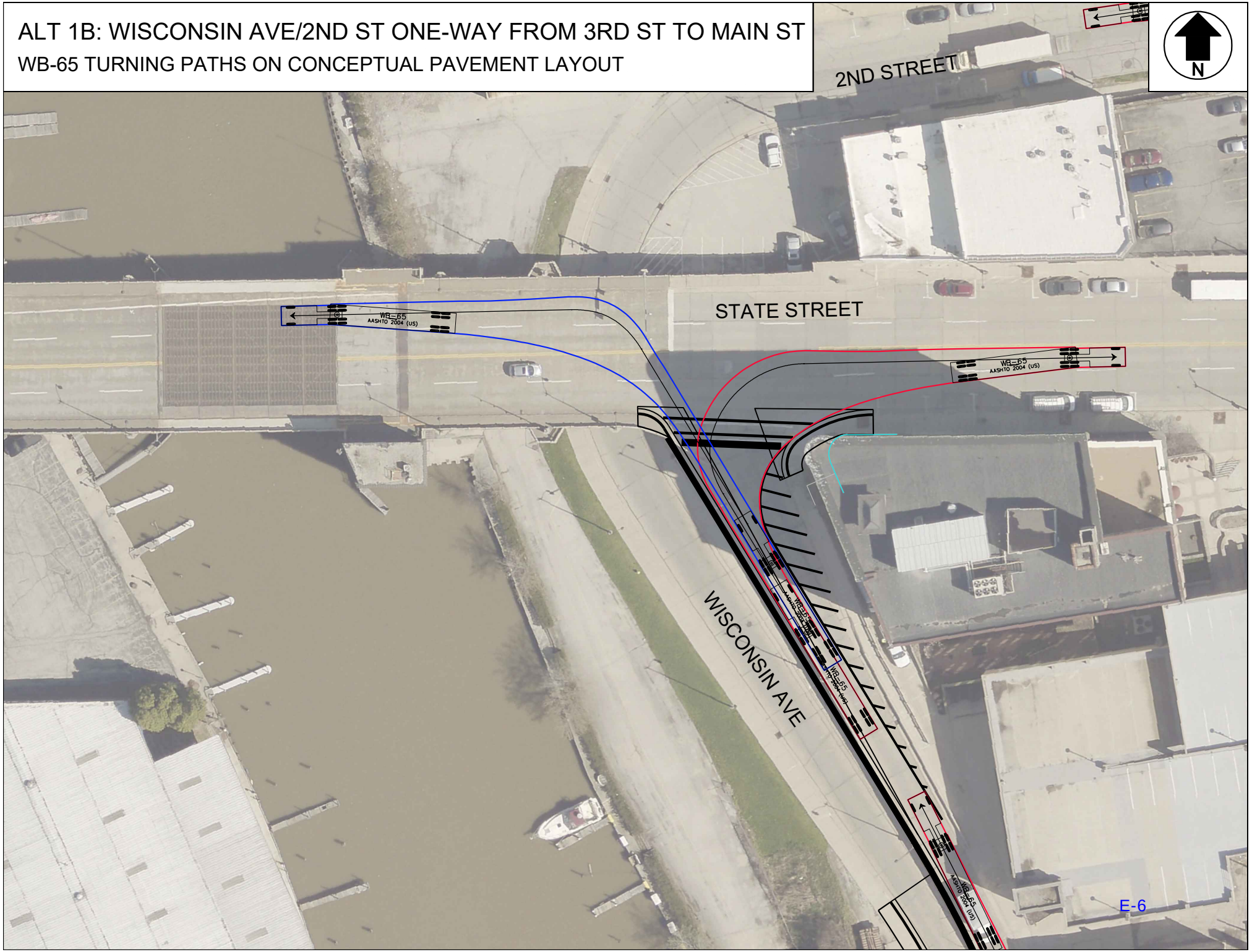
ALT 1A: WISCONSIN AVE/2ND ST TWO-WAY FROM 7TH ST TO MAIN ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



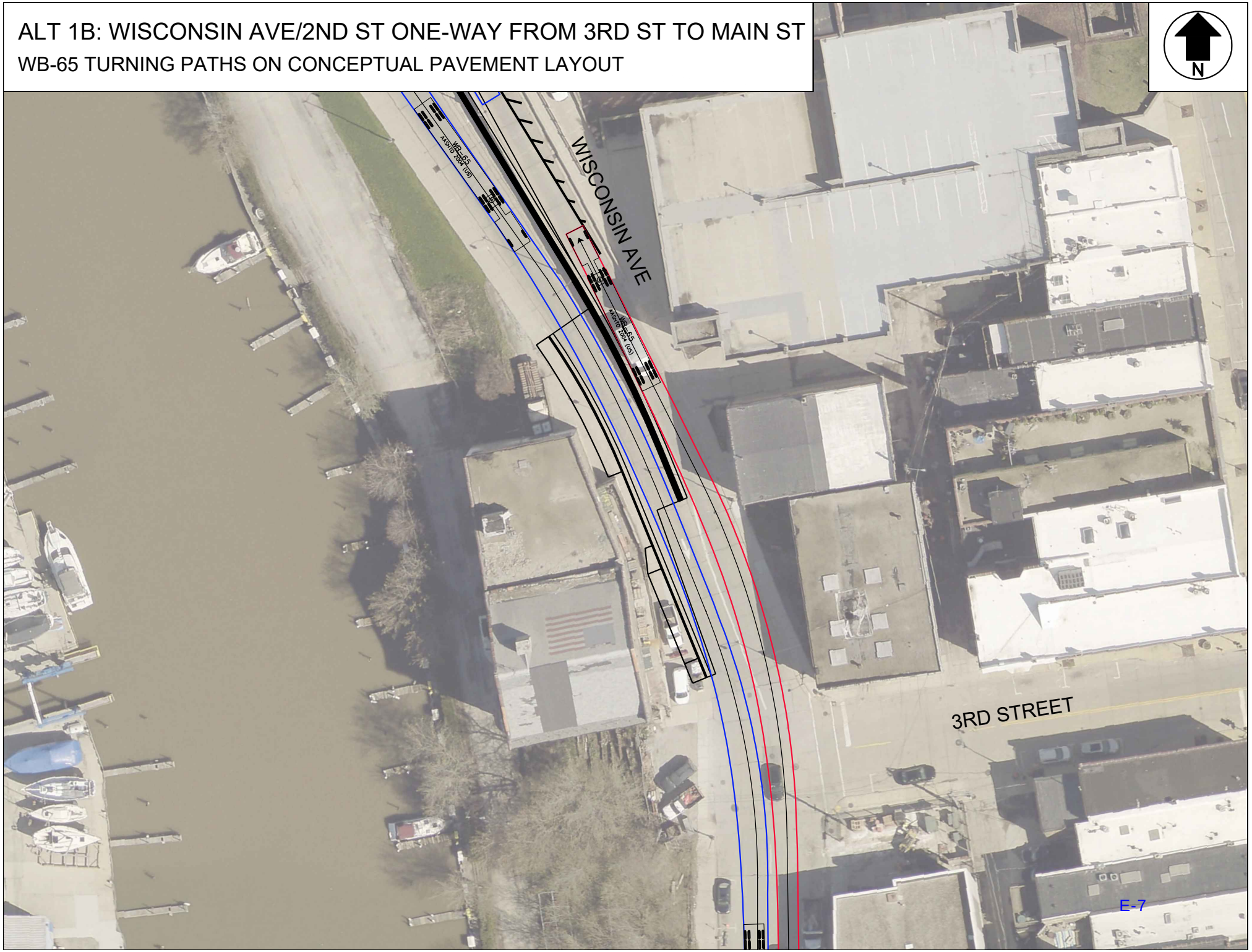
ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



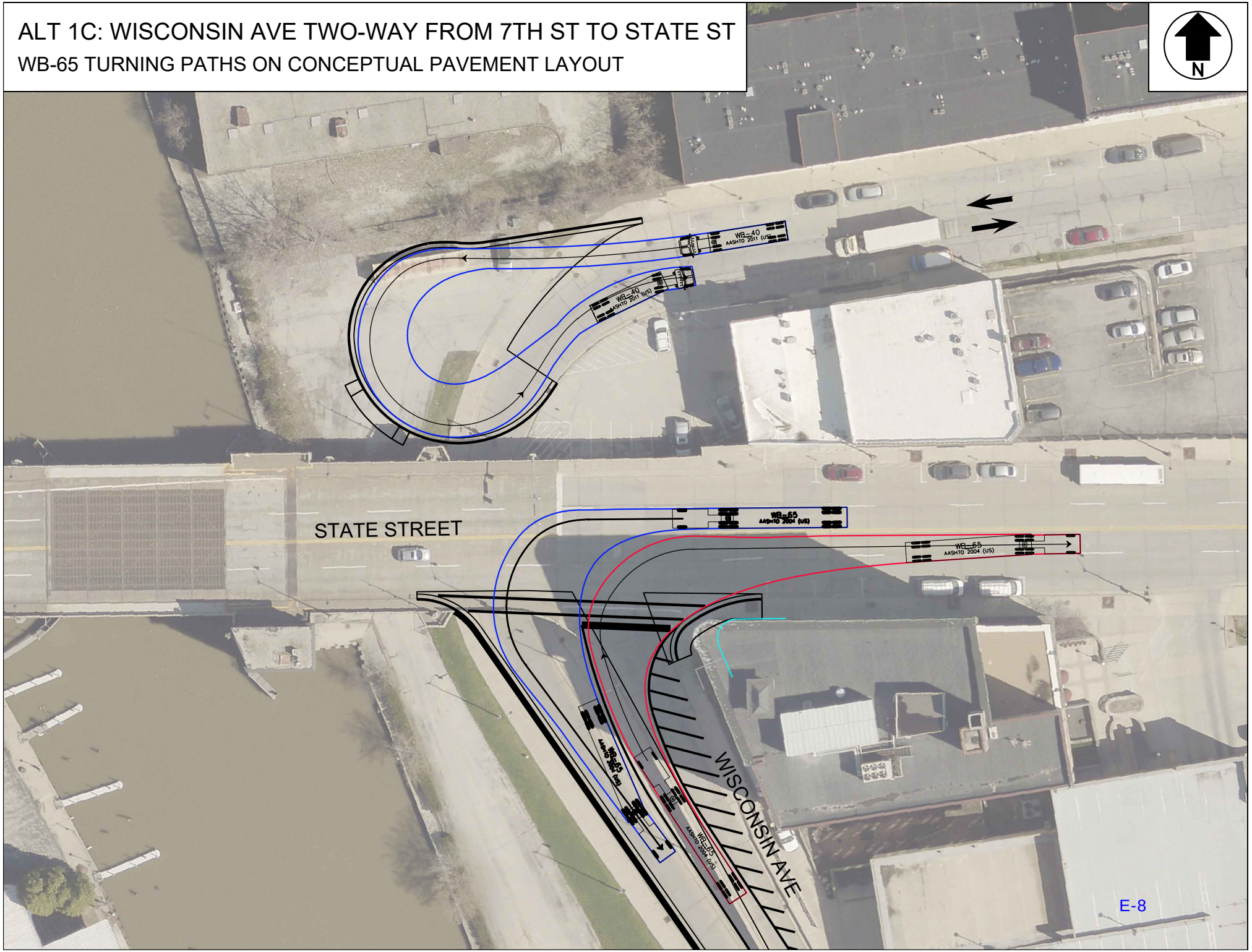
ALT 1B: WISCONSIN AVE/2ND ST ONE-WAY FROM 3RD ST TO MAIN ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



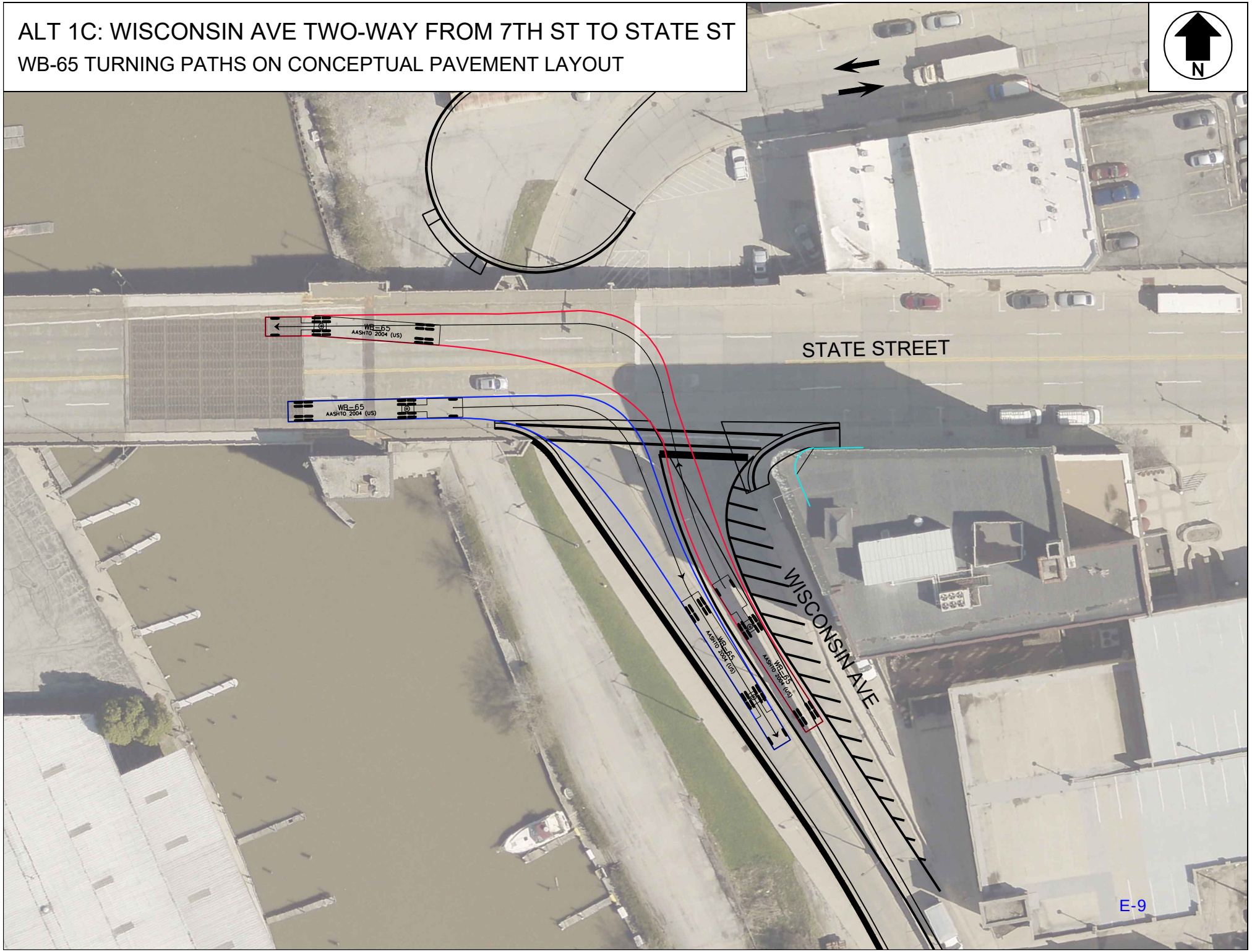
ALT 1C: WISCONSIN AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



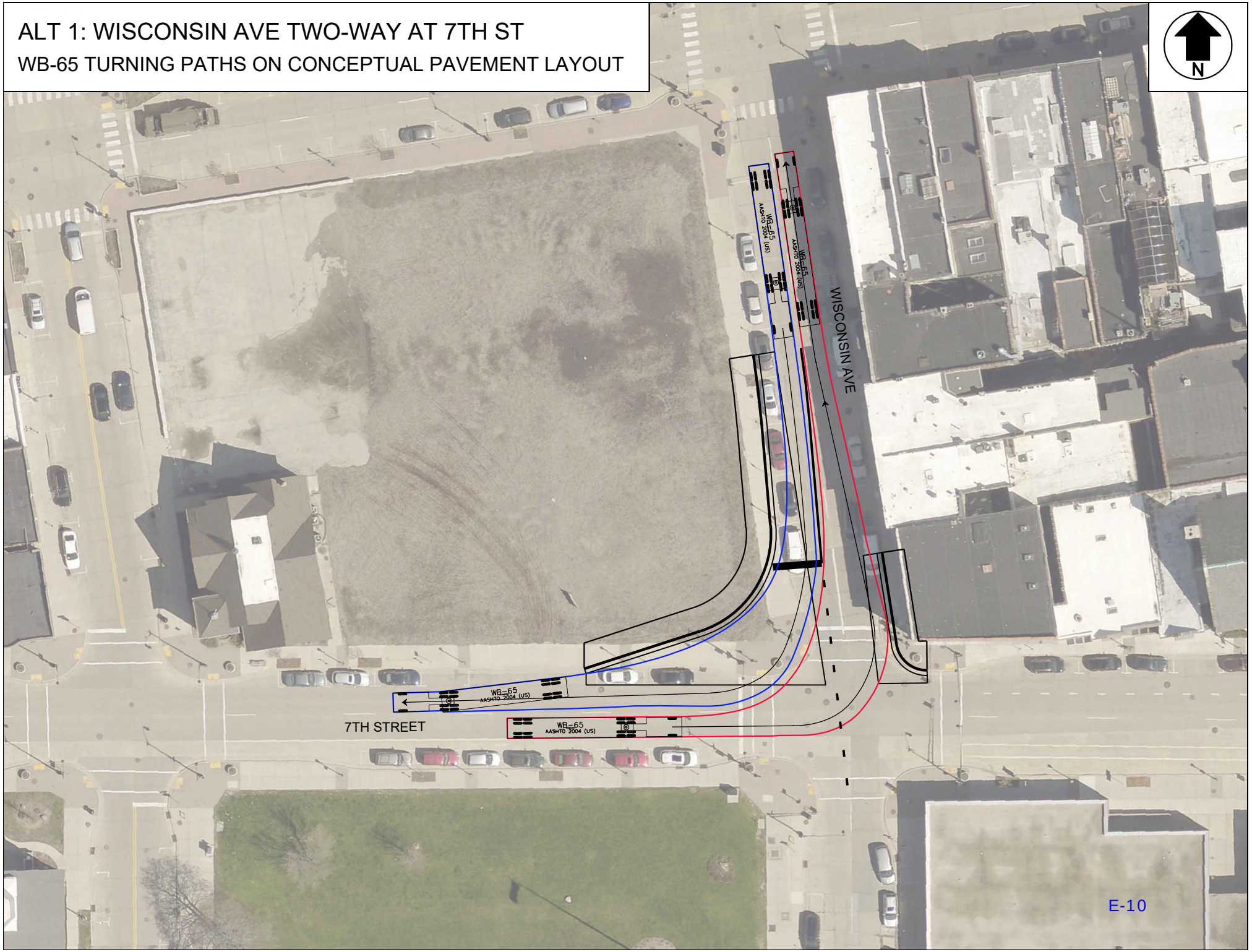
ALT 1C: WISCONSIN AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



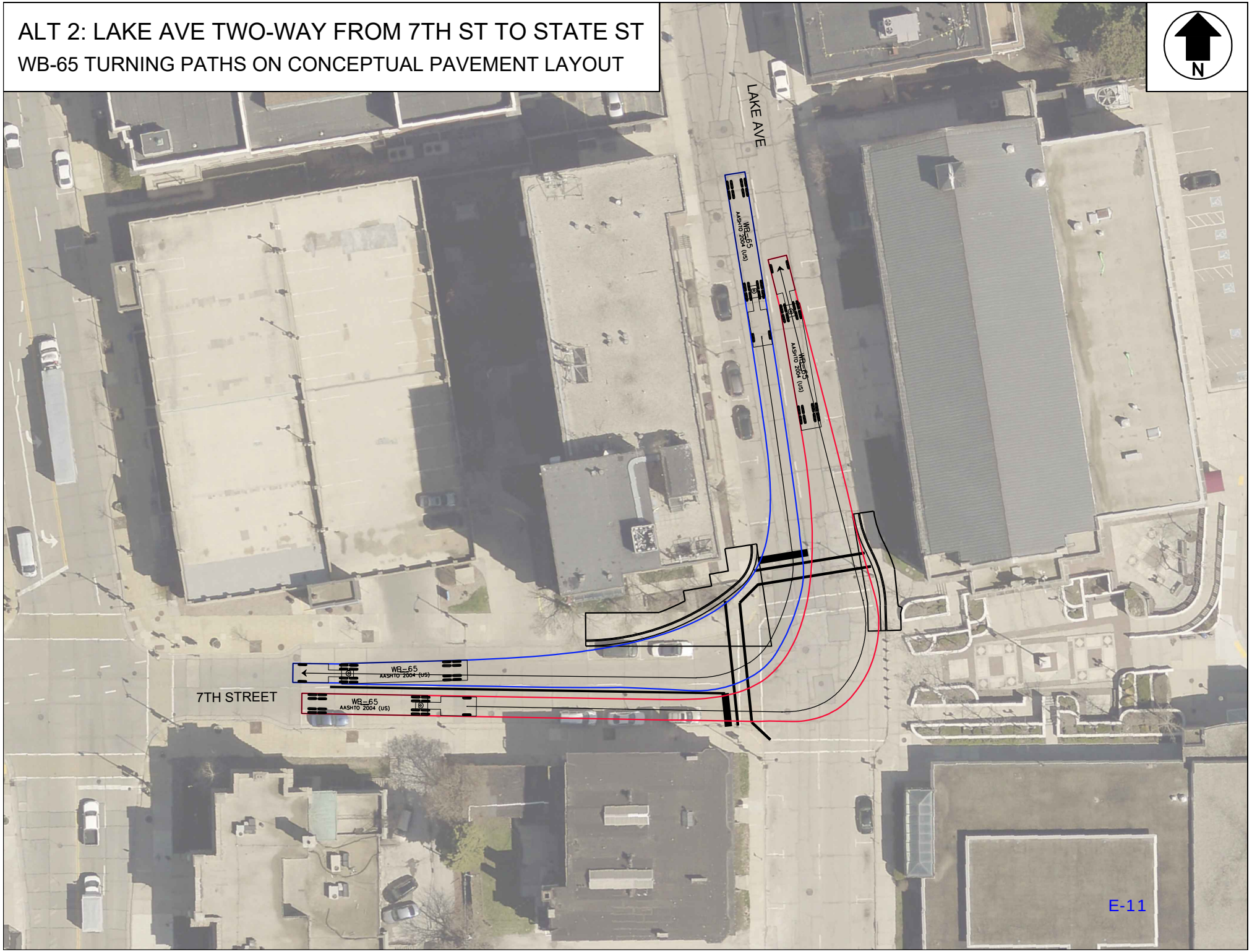
ALT 1: WISCONSIN AVE TWO-WAY AT 7TH ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



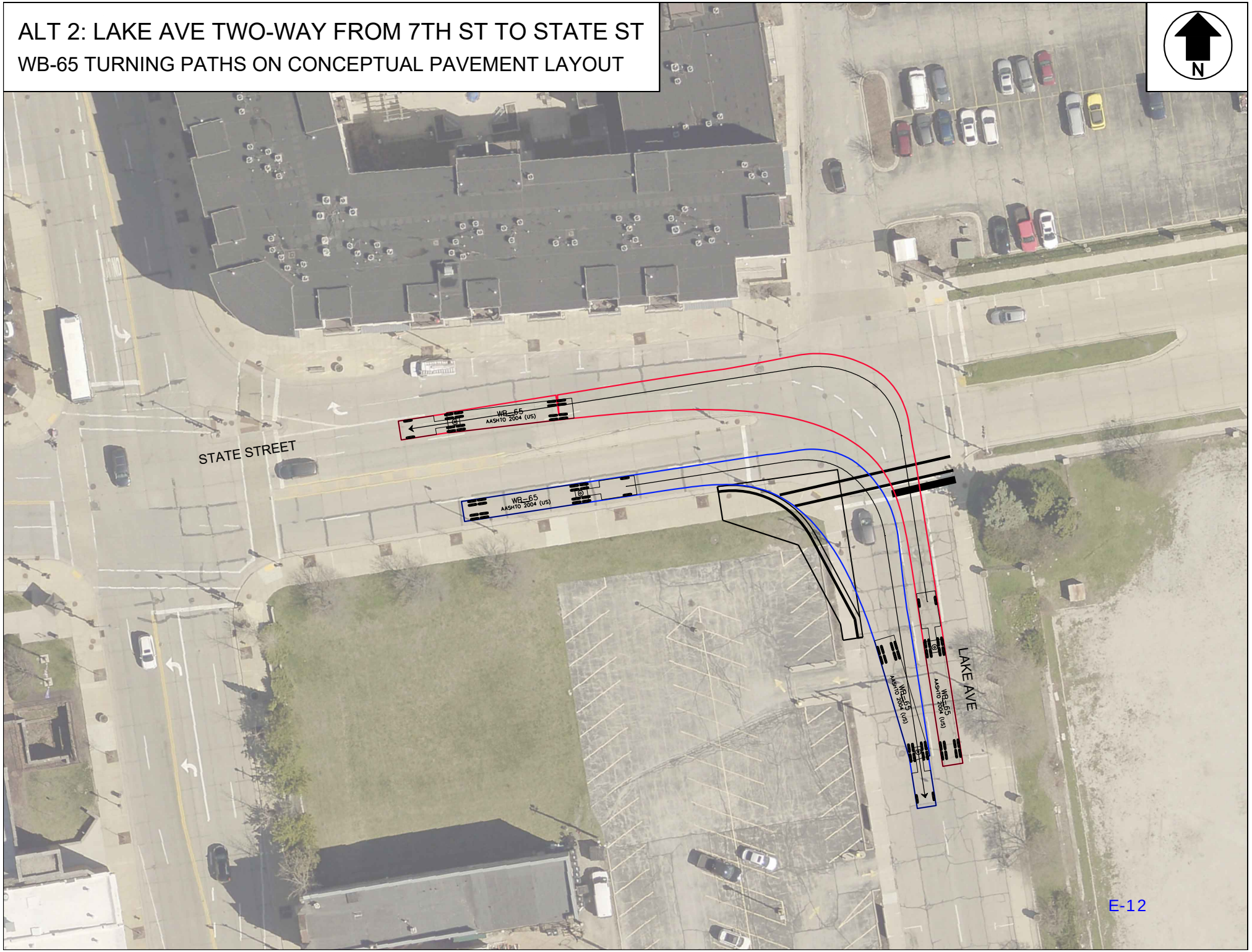
ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



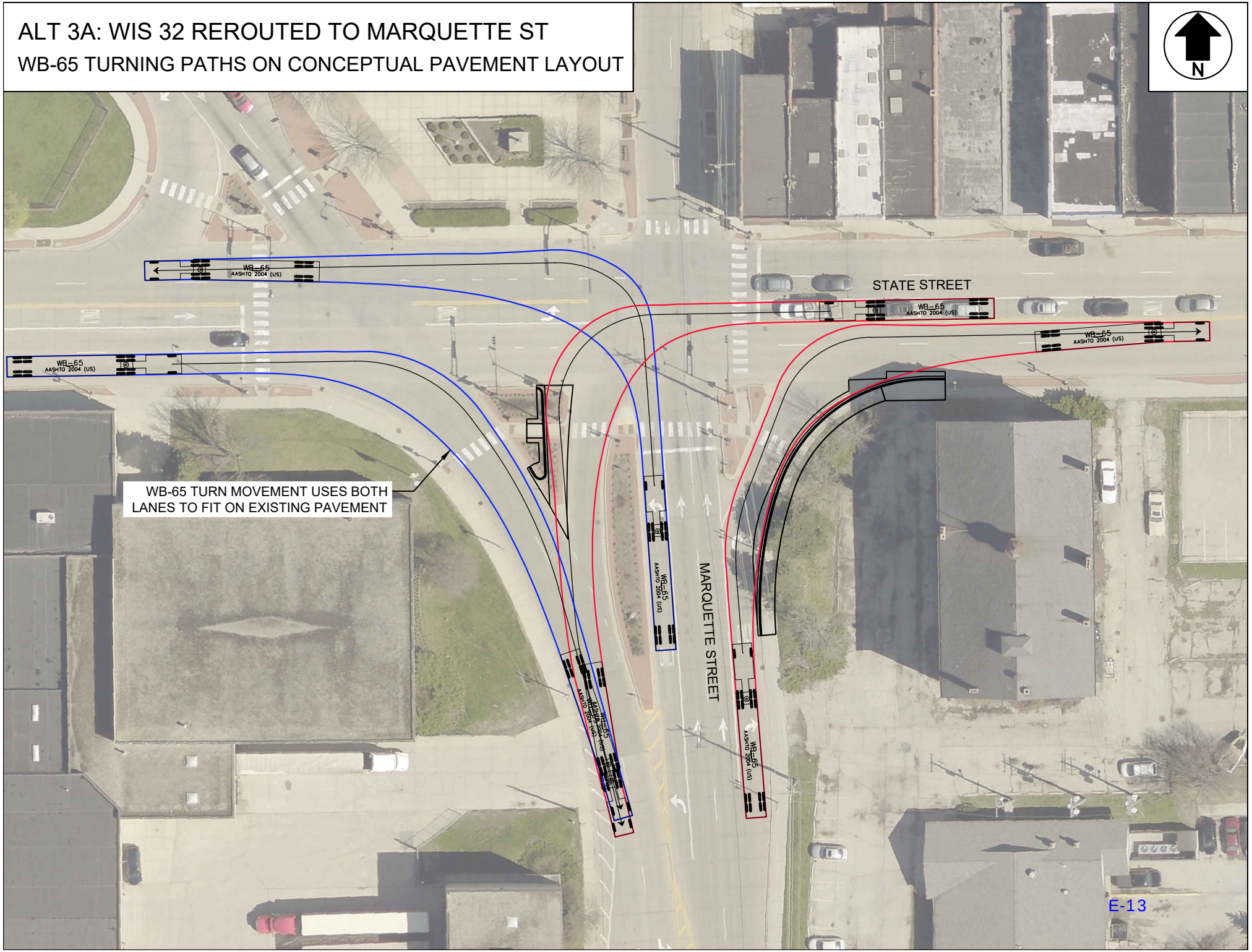
ALT 2: LAKE AVE TWO-WAY FROM 7TH ST TO STATE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



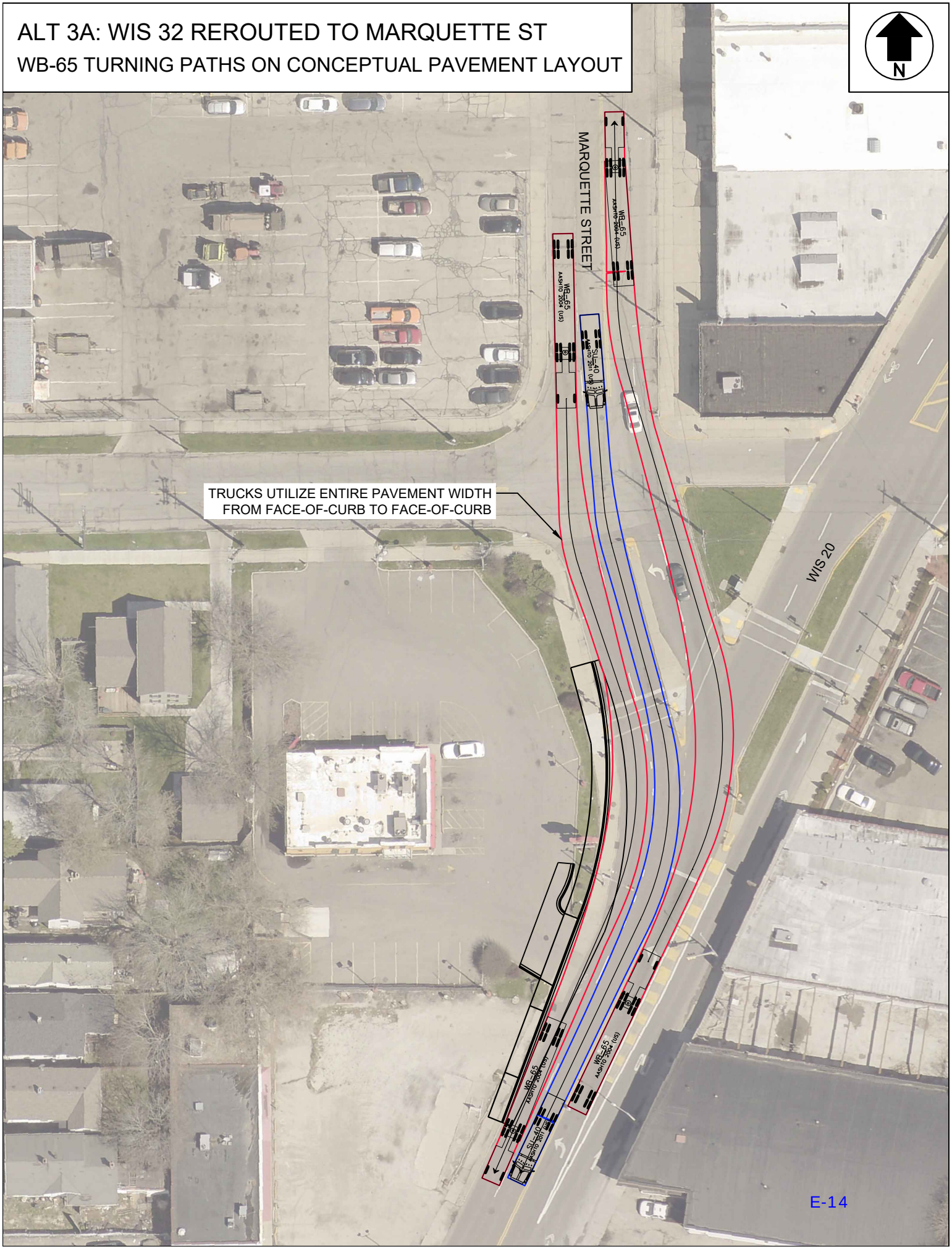
ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



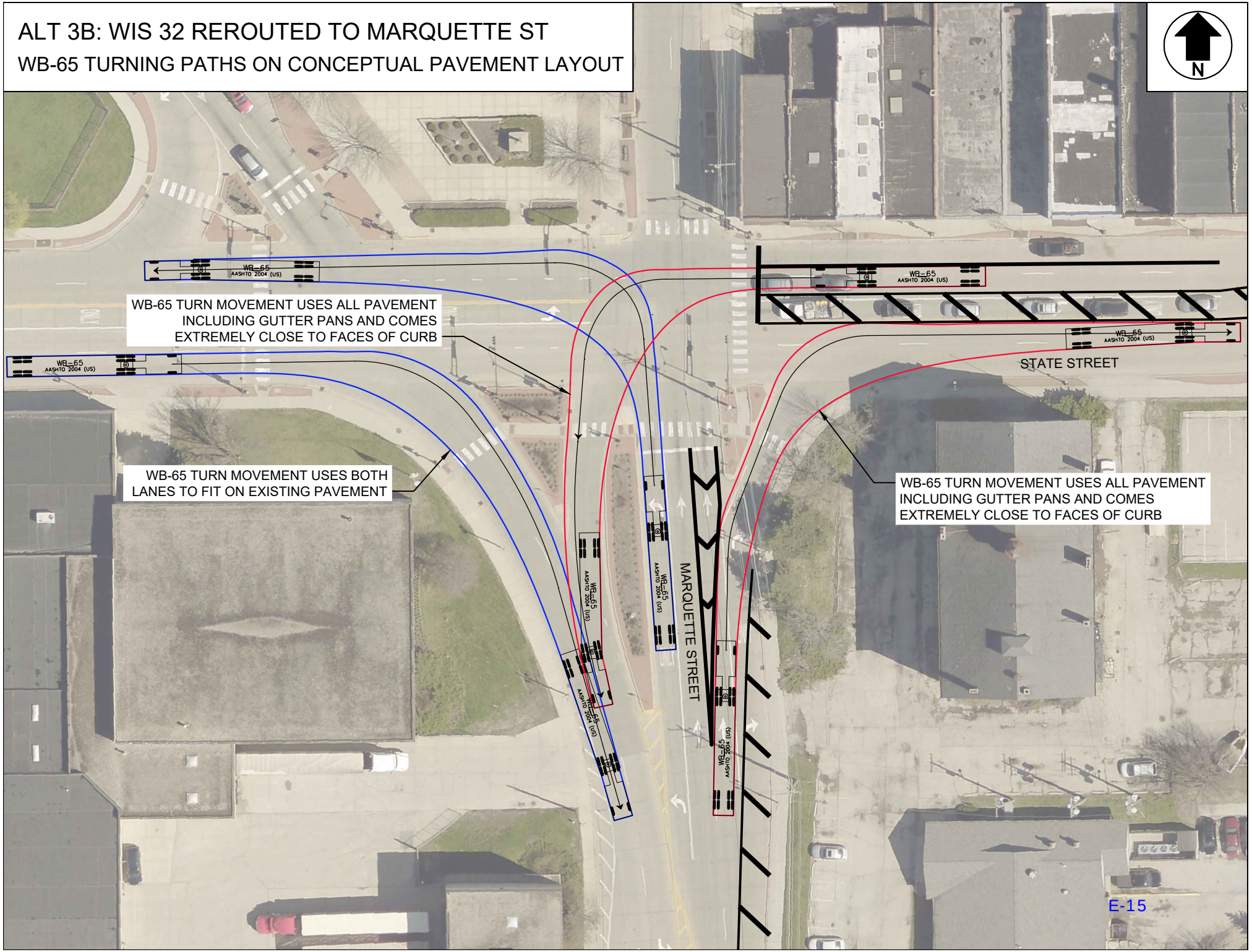
ALT 3A: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



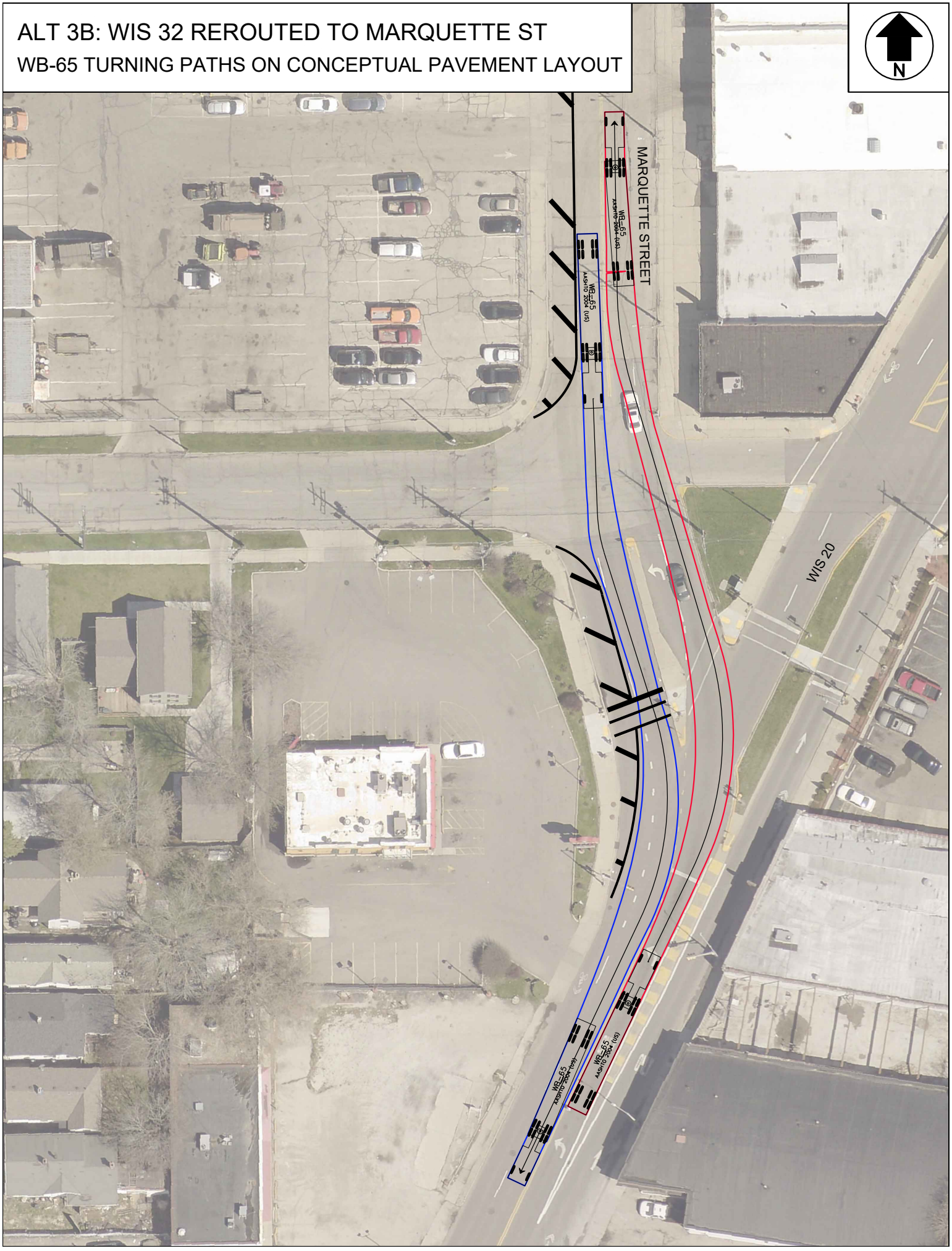
ALT 3B: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



ALT 3B: WIS 32 REROUTED TO MARQUETTE ST

WB-65 TURNING PATHS ON CONCEPTUAL PAVEMENT LAYOUT



APPENDIX F
OPCC

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

SUMMARY

Opinion of Probable Construction Cost

April 2020

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

Opinion of Probable Construction Cost Comparison

No.	Alternative Name	Estimated Cost Major Items/Real Estate	Remarks
1	Alt 1A: Wisconsin Avenue/2nd Street Two-Way from 7th Street to Main Street	$ 1,624,000	High cost
2	Alt 1B: Wisconsin Avenue/2nd Street One-Way from 3rd Street to Main Street	$ 1,860,000	Higher cost
3	Alt 1C: Wisconsin Avenue Two-Way from 7th Street to State Street	$ 1,878,000	Highest cost
4	Alt 2: Lake Avenue Two-Way from 7th Street to State Street	$ 547,000	Low cost
5	Alt 3A: Marquette Street Two-Way from WIS 20 to WIS 38	$ 462,000	Lower cost
6	Alt 3B: Marquette Street Two-Way from WIS 20 to WIS 38	$ 25,000	Lowest cost

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

Opinion of Probable Construction Cost
Alt 1A: Wisconsin Avenue/2nd Street Two-Way from 7th Street to Main Street

Sheet No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ESTIMATED COST
2.1	**REMOVALS**				
203.0200	Removing Old Structure	LS	1	$50,000.00	$ 50,000
204.0100	Removing Pavement	SY	2,689	$6.50	$ 17,479
204.0155	Removing Concrete Sidewalk	SY	1,178	$7.00	$ 8,246
204.0157	Removing Concrete Barrier	LF	101	$50.00	$ 5,050
	Subtotal Removals				**$ 80,775**
2.2	**NEW PAVEMENT**				
305.0110	Base Aggregate Dense 3/4-Inch	TON	134	$50.00	$ 6,700
305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,262	$16.20	$ 20,444
415.0080	Concrete Pavement 8-Inch	SY	2,988	$45.00	$ 134,460
2.3	**EARTHWORK**				
205.0100	Excavation Common	CY	1,163	$19.00	$ 22,097
208.0100	Borrow	CY	404	$20.00	$ 8,080
2.4	**CONCRETE CURB AND GUTTER, SIDEWALK**				
601.0409	Concrete Curb & Gutter 30-Inch, Type A	LF	1,432	$20.00	$ 28,640
416.0160	Concrete Driveway (6-Inch)	SY	51	$50.00	$ 2,550
602.0410	Concrete Sidewalk 5-Inch	SF	4,967	$6.20	$ 30,795
603.0205	Concrete Barrier 32-Inch Double Faced	LF	95	$500.00	$ 47,500
	Subtotal Items 2.2 to 2.4				**$ 301,267**
2.5	**SIGNAL**				
	Signal Small	Each	2	$150,000.00	$ 300,000
	Signal Large	Each	1	$250,000.00	$ 250,000
	Real Estate	LS	1	$30,000.00	$ 30,000
	Subtotal Items 2.5				**$ 580,000**
2.6	**ALLOWANCES ITEMS**				
2.6.1	Drainage	*4.0% of Items 2.1 to 2.5*			$ 38,482
2.6.2	Erosion Control & Restoration	*1.0% of Items 2.1 to 2.5*			$ 9,620
2.6.3	Lighting	*7.0% of Items 2.1 to 2.5*			$ 67,343
2.6.4	Roadway Incidentals	*25.0% of Items 2.1 to 2.5*			$ 240,510
2.6.5	Signing/Marking	*1.5% of Items 2.1 to 2.5*			$ 14,431
2.6.6	Traffic Control & Staging	*5.0% of Items 2.1 to 2.5*			$ 48,102
	Subtotal Items 2.6				**$ 418,488**
2.7	**MSE Wall**	SF	1619	$150.00	**$ 242,850**
	Rounded Total				**$ 1,624,000**

Unit prices used on the Opinion of Probable Cost are based on the bid price for Durand Ave (ID. 2260-07-70), let date Sept 10, 2019 and WisDOT's Average Unit Price List for FY 17 to FY 19.

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

Opinion of Probable Construction Cost
Alt 1B: Wisconsin Avenue/2nd Street One-Way from 3rd Street to Main Street

Sheet No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ESTIMATED COST
2.1	**REMOVALS**				
203.0200	Removing Old Structure	LS	1	$150,000.00	$ 150,000
204.0100	Removing Pavement	SY	689	$6.50	$ 4,479
204.0155	Removing Concrete Sidewalk	SY	647	$7.00	$ 4,529
204.0157	Removing Concrete Barrier	LF	286	$50.00	$ 14,300
	Subtotal Removals				**$ 173,308**
2.2	**NEW PAVEMENT**				
305.0110	Base Aggregate Dense 3/4-Inch	TON	81	$50.00	$ 4,050
305.0120	Base Aggregate Dense 1 1/4-Inch	TON	362	$16.20	$ 5,864
415.0080	Concrete Pavement 8-Inch	SY	824	$45.00	$ 37,080
2.3	**EARTHWORK**				
205.0100	Excavation Common	CY	290	$19.00	$ 5,510
208.0100	Borrow	CY	749	$20.00	$ 14,980
2.4	**CONCRETE CURB AND GUTTER, SIDEWALK**				
601.0409	Concrete Curb & Gutter 30-Inch, Type A	LF	467	$20.00	$ 9,340
416.0160	Concrete Driveway (6-Inch)	SY	28	$50.00	$ 1,400
602.0410	Concrete Sidewalk 5-Inch	SF	3,004	$6.20	$ 18,625
603.0205	Concrete Barrier 32-Inch Double Faced	LF	30	$500.00	$ 15,000
	Subtotal Items 2.2 to 2.4				**$ 111,849**
2.5	**SIGNAL**				
	Signal Small	Each	1	$150,000.00	$ 150,000
	Signal Medium	Each	2	$200,000.00	$ 400,000
	Real Estate	LS	1	$10,000.00	$ 10,000
	Subtotal Items 2.5				**$ 560,000**
2.6	**ALLOWANCES ITEMS**				
2.6.1	Drainage	*10.0% of Items 2.1 to 2.5*			$ 84,516
2.6.2	Erosion Control & Restoration	*1.0% of Items 2.1 to 2.5*			$ 8,452
2.6.3	Lighting	*20.0% of Items 2.1 to 2.5*			$ 169,031
2.6.4	Roadway Incidentals	*25.0% of Items 2.1 to 2.5*			$ 211,289
2.6.5	Signing/Marking	*2.0% of Items 2.1 to 2.5*			$ 16,903
2.6.6	Traffic Control & Staging	*8.0% of Items 2.1 to 2.5*			$ 67,613
	Subtotal Items 2.6				**$ 557,804**
2.7	**MSE Wall**	SF	2740	$130.00	**$ 356,200**
2.8	**State Street Bridge Work**	LS	1	$100,000.00	**$ 100,000**
	Rounded Total				**$ 1,860,000**

Unit prices used on the Opinion of Probable Cost are based on the bid price for Durand Ave (ID. 2260-07-70), let date Sept 10, 2019 and WisDOT's Average Unit Price List for FY 17 to FY 19

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

Opinion of Probable Construction Cost
Alt 1C: Wisconsin Avenue Two-Way from 7th Street to State Street

Sheet No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ESTIMATED COST
2.1	**REMOVALS**				
203.0200	Removing Old Structure	LS	1	$150,000.00	$ 150,000
204.0100	Removing Pavement	SY	1,899	$6.50	$ 12,344
204.0155	Removing Concrete Sidewalk	SY	973	$7.00	$ 6,811
204.0157	Removing Concrete Barrier	LF	286	$50.00	$ 14,300
	Subtotal Removals				**$ 183,455**
2.2	**NEW PAVEMENT**				
305.0110	Base Aggregate Dense 3/4-Inch	TON	71	$50.00	$ 3,550
305.0120	Base Aggregate Dense 1 1/4-Inch	TON	841	$16.20	$ 13,624
415.0080	Concrete Pavement 8-Inch	SY	2,096	$45.00	$ 94,320
2.3	**EARTHWORK**				
205.0100	Excavation Common	CY	485	$19.00	$ 9,215
208.0100	Borrow	CY	3,173	$20.00	$ 63,460
2.4	**CONCRETE CURB AND GUTTER, SIDEWALK**				
601.0409	Concrete Curb & Gutter 30-Inch, Type A	LF	653	$20.00	$ 13,060
416.0160	Concrete Driveway (6-Inch)	SY	43	$50.00	$ 2,150
602.0410	Concrete Sidewalk 5-Inch	SF	2,625	$6.20	$ 16,275
	Subtotal Items 2.2 to 2.4				**$ 215,654**
2.5	**SIGNAL**				
	Signal Small	Each	1	$150,000.00	$ 150,000
	Signal Large	Each	1	$250,000.00	$ 250,000
	Real Estate	LS	1	$8,000.00	$ 8,000
	Subtotal Items 2.5				**$ 408,000**
2.6	**ALLOWANCES ITEMS**				
2.6.1	Drainage	*10.0% of Items 2.1 to 2.5*			$ 80,711
2.6.2	Erosion Control & Restoration	*1.0% of Items 2.1 to 2.5*			$ 8,071
2.6.3	Lighting	*22.0% of Items 2.1 to 2.5*			$ 177,564
2.6.4	Roadway Incidentals	*25.0% of Items 2.1 to 2.5*			$ 201,777
2.6.5	Signing/Marking	*2.0% of Items 2.1 to 2.5*			$ 16,142
2.6.6	Traffic Control & Staging	*8.0% of Items 2.1 to 2.5*			$ 64,569
	Subtotal Items 2.6				**$ 548,834**
2.7	**MSE Wall**	SF	3240	$130.00	**$ 421,200**
2.8	**State Street Bridge Work**	LS	1	$100,000.00	**$ 100,000**
	Rounded Total				**$ 1,878,000**

Unit prices used on the Opinion of Probable Cost are based on the bid price for Durand Ave (ID. 2260-07-70), let date Sept 10, 2019 and WisDOT's Average Unit Price List for FY 17 to FY 19

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

Opinion of Probable Construction Cost
Alt 2: Lake Avenue Two-Way from 7th Street to State Street

Sheet No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ESTIMATED COST
2.1	**REMOVALS**				
204.0100	Removing Pavement	SY	135	$6.50	$ 878
204.0150	Removing Curb & Gutter	LF	38	$10.00	$ 380
204.0155	Removing Concrete Sidewalk	SY	259	$7.00	$ 1,813
204.9060.S	Removing Concrete Planter	EACH	2	$1,000.00	$ 2,000
	Subtotal Removals				**$ 5,071**
2.2	**NEW PAVEMENT**				
305.0110	Base Aggregate Dense 3/4-Inch	TON	48	$50.00	$ 2,400
305.0120	Base Aggregate Dense 1 1/4-Inch	TON	109	$16.20	$ 1,766
415.0080	Concrete Pavement 8-Inch	SY	210	$45.00	$ 9,450
2.3	**EARTHWORK**				
205.0100	Excavation Common	CY	109	$19.00	$ 2,071
2.4	**CONCRETE CURB AND GUTTER, SIDEWALK**				
601.0409	Concrete Curb & Gutter 30-Inch, Type A	LF	234	$20.00	$ 4,680
602.0410	Concrete Sidewalk 5-Inch	SF	1,743	$6.20	$ 10,807
	Subtotal Items 2.2 to 2.4				**$ 31,173**
2.5	**SIGNAL**				
	Signal Small	Each	1	$150,000.00	$ 150,000
	Signal Medium	Each	1	$200,000.00	$ 200,000
	Real Estate	LS	1	$20,000.00	$ 20,000
	Subtotal Items 2.5				**$ 370,000**
2.6	**ALLOWANCES ITEMS**				
2.6.1	Drainage	*7.0% of Items 2.1 to 2.5*			$ 28,437
2.6.2	Erosion Control & Restoration	*1.0% of Items 2.1 to 2.5*			$ 4,062
2.6.3	Lighting	*6.0% of Items 2.1 to 2.5*			$ 24,375
2.6.4	Roadway Incidentals	*10.0% of Items 2.1 to 2.5*			$ 40,624
2.6.5	Signing/Marking	*2.5% of Items 2.1 to 2.5*			$ 10,156
2.6.6	Traffic Control & Staging	*8.0% of Items 2.1 to 2.5*			$ 32,500
	Subtotal Items 2.6				**$ 140,154**
	Rounded Total				**$ 547,000**

Unit prices used on the Opinion of Probable Cost are based on the bid price for Durand Ave (ID. 2260-07-70), let date Sept 10, 2019 and WisDOT's Average Unit Price List for FY 17 to FY 19

WIS 32 Reroute Preliminary Investigation
Main Street to 7th Street and WIS 20 to WIS 38
City of Racine

Opinion of Probable Construction Cost
Alt 3A: Marquette Street Two-Way from WIS 20 to WIS 38

Sheet No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ESTIMATED COST
2.1	**REMOVALS**				
204.0100	Removing Pavement	SY	289	$6.50	$ 1,879
204.0150	Removing Curb & Gutter	LF	38	$10.00	$ 380
204.0155	Removing Concrete Sidewalk	SY	237	$7.00	$ 1,659
	Subtotal Removals				**$ 3,918**
2.2	**NEW PAVEMENT**				
305.0110	Base Aggregate Dense 3/4-Inch	TON	47	$50.00	$ 2,350
305.0120	Base Aggregate Dense 1 1/4-Inch	TON	169	$16.20	
415.0080	Concrete Pavement 8-Inch	SY	237	$45.00	$ 10,665
465.0120	Asphaltic Surface Driveways and Field Entrances	TON	39	$130.00	$ 5,012
2.3	**EARTHWORK**				
205.0100	Excavation Common	CY	153	$19.00	$ 2,907
2.4	**CONCRETE CURB AND GUTTER, SIDEWALK**				
601.0407	Concrete Curb & Gutter 18-Inch Type A	LF	435	$18.00	$ 7,830
416.0160	Concrete Driveway (6-Inch)	SY	63	$50.00	$ 3,150
602.0410	Concrete Sidewalk 5-Inch	SF	1,767	$6.20	$ 10,955
	Subtotal Items 2.2 to 2.4				**$ 42,869**
2.5	**SIGNAL**				
	Signal Small	Each	2	$150,000.00	$ 300,000
	Real Estate	LS	1	$4,000.00	$ 4,000
	Subtotal Items 2.5				**$ 304,000**
2.6	**ALLOWANCES ITEMS**				
2.6.1	Drainage	*1.5% of Items 2.1 to 2.5*			$ 5,262
2.6.2	Erosion Control & Restoration	*1.0% of Items 2.1 to 2.5*			$ 3,508
2.6.3	Lighting	*8.0% of Items 2.1 to 2.5*			$ 28,063
2.6.4	Roadway Incidentals	*10.0% of Items 2.1 to 2.5*			$ 35,079
2.6.5	Signing/Marking	*3.0% of Items 2.1 to 2.5*			$ 10,524
2.6.6	Traffic Control & Staging	*8.0% of Items 2.1 to 2.5*			$ 28,063
	Subtotal Items 2.6				**$ 110,499**
	Rounded Total				**$ 462,000**

Unit prices used on the Opinion of Probable Cost are based on the bid price for Durand Ave (ID. 2260-07-70), let date Sept 10, 2019 and WisDOT's Average Unit Price List for FY 17 to FY 19

Opinion of Probable Construction Cost
Alt 3B: Marquette Street Two-Way from WIS 20 to WIS 38

1.0	Opinion of Probable Construction Cost to Reconfigure Pavemnet Markings	**$ 25,000**