City of Madison Engineering Division

John Nolen Drive Reconstruction

Project I.D. 5992-11-20
City of Madison, John Nolen Drive
(Olin Avenue – North Shore Drive)

Transportation Commission

May 24, 2023

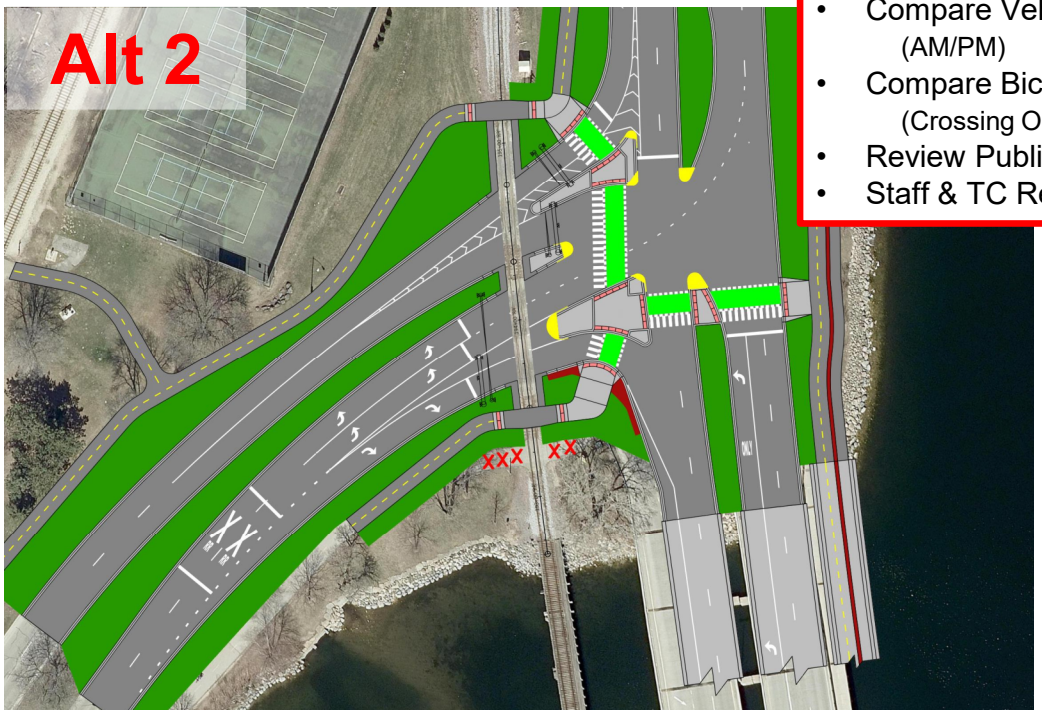
Introduction

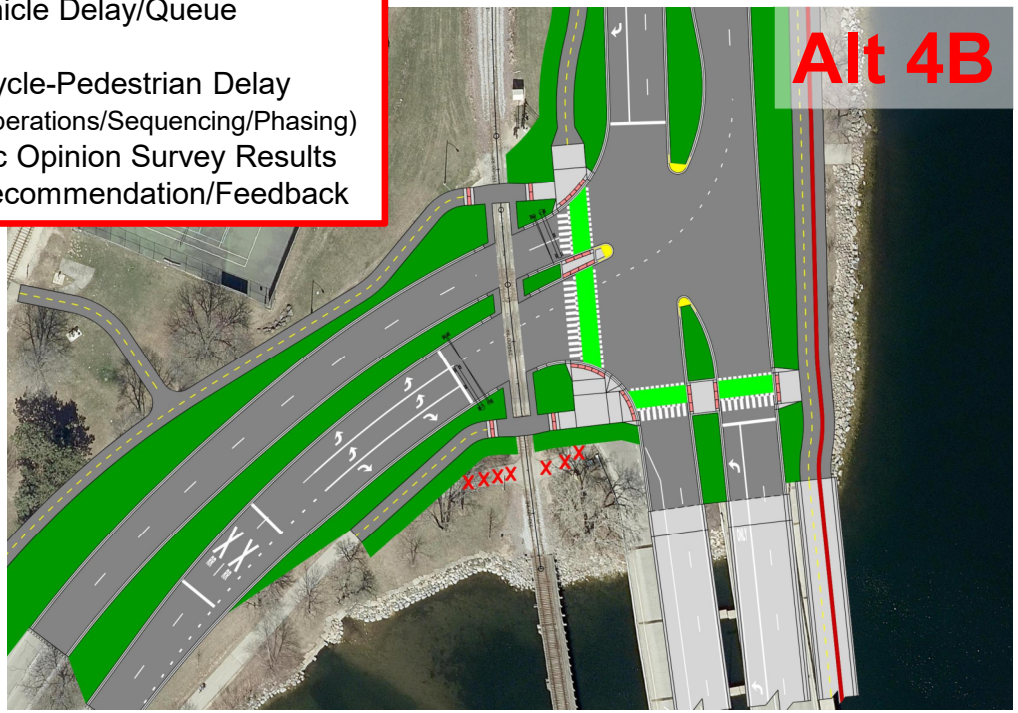
- John Nolen Drive (Lakeside Street to North Shore Drive) Reconstruction Starting in 2025
  - Includes Pavement, Bridges, Path Facility, North Shore Drive Intersection
  - NOT Lakeside Street Intersection
- Coordinating with Lake Monona Waterfront Master Plan
- Previous Presentations to Public and Transportation Commission
  - Street Typical Section
  - Pathway Typical Section
  - Bridge Structure Sections
  - North Shore Drive Intersection (follow up is primary focus of this meeting)
  - Underpass/Overpass Alternatives
    - **NOT part of this project**, but not precluded as a potential future improvement
  - Broom Street Intersection
    - **NOT part of this project**, but not precluded as a potential future improvement
- Today's Focus is the North Shore Drive Intersection
- Received Lot's of Feedback on Final Design Details to Consider
  - Stop Bar Locations
  - Bicycle Queuing Areas Adjacent to Capital City Path
  - Traffic Signal Head Locations/Types
  - Push Button Locations/Types
  - Crosswalk Width & Separation for Different Modes

North Shore Drive Intersection

Objectives for Today:

- Discuss Safety Studies & Research on Channelized Right Turns
- Analyze Traffic Operations Modeling
  (Existing vs Alt 2 vs Alt 4B)
- Compare Vehicle Delay/Queue
  (AM/PM)
- Compare Bicycle-Pedestrian Delay
  (Crossing Operations/Sequencing/Phasing)
- Review Public Opinion Survey Results
- Staff & TC Recommendation/Feedback

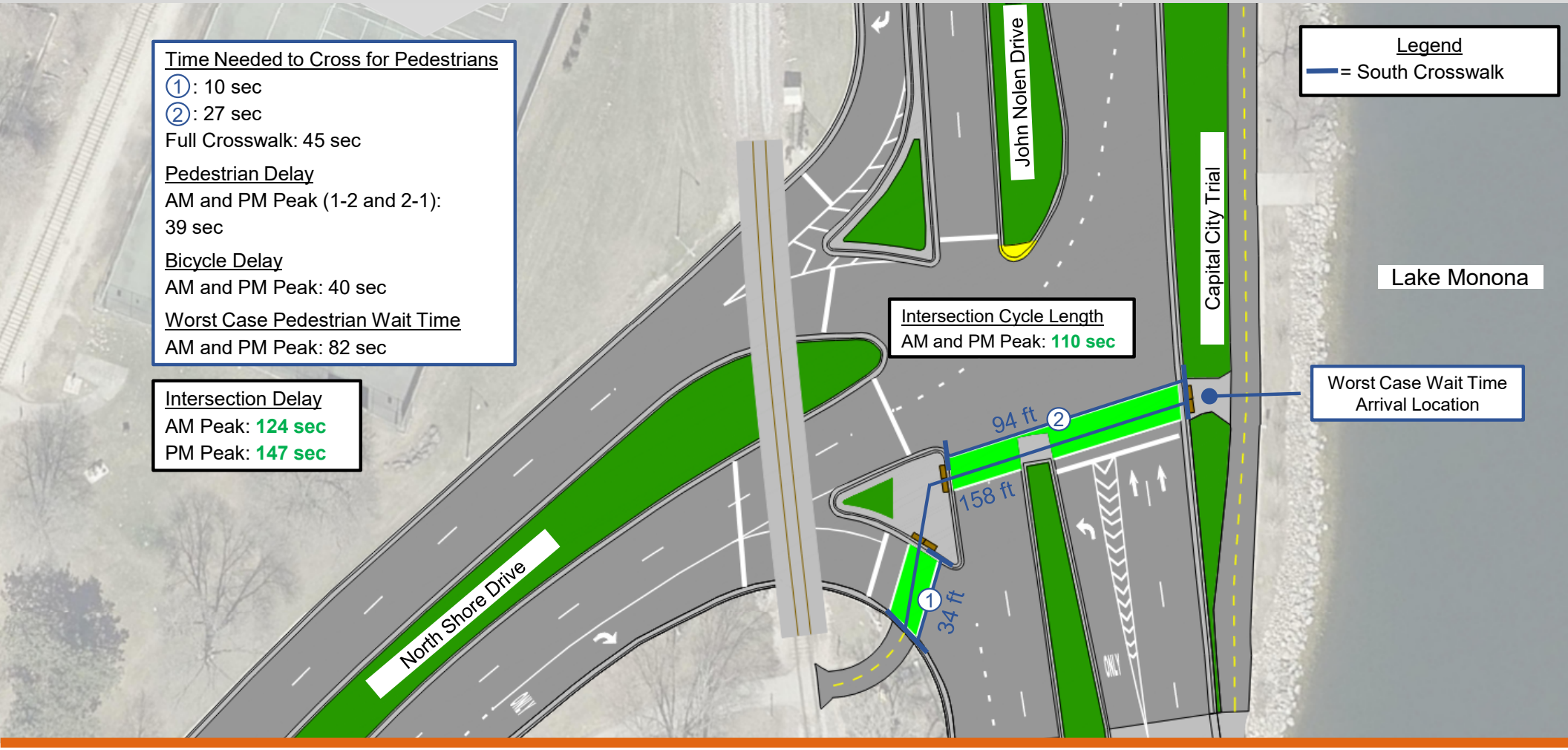




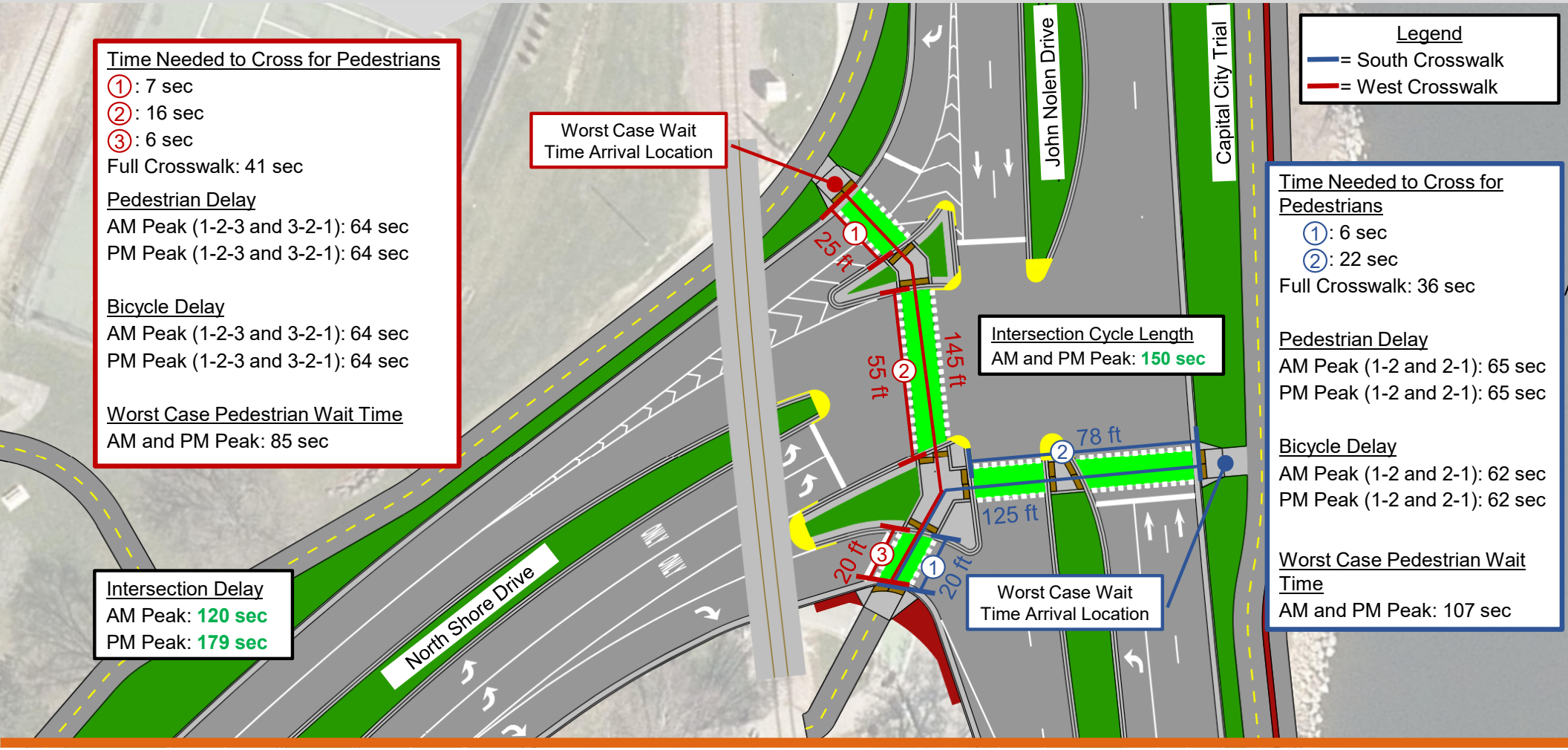
Channelized Right Turns – Safety Studies & Research

SOURCE	DETAILS
Pedestrian Safety Guide and Countermeasure Selection System (USDOT/FHWA)	http://www.pedbikesafe.org/pedsafe/countermeasures_detail.cfm?CM_NUM=24 • Slows Turning Vehicles • Allow Drivers & Pedestrians to Easily See Each Other • Reduce Pedestrian Exposure in the Roadway • Reduce Complexity of Intersection by Breaking into Manageable Parts
Safety & Economic Evaluation of the Highway Safety Improvement Program: Is There a Return on Investment (Transportation Research Board)	https://www.cmfclearinghouse.org/study_detail.php?stid=651 • Providing Right Turn Channelization as a Countermeasure for a Reduction in Traffic Fatalities & Serious Injuries on All Public Roads (40% Reduction)
Department of Civil & Environmental Engineering Traffic Operations & Safety (TOPS) Laboratory University of Wisconsin - Madison	Presented John Nolen Drive and North Shore Drive intersection alternatives to the TOPS Laboratory at UW-Madison for feedback & discussion • Both intersection alternatives (2 & 4B) are viable solutions • Anytime an increase in user delay (vehicle or bicycle/pedestrian) is experienced at an intersection, an increase in non-compliance can be expected as well

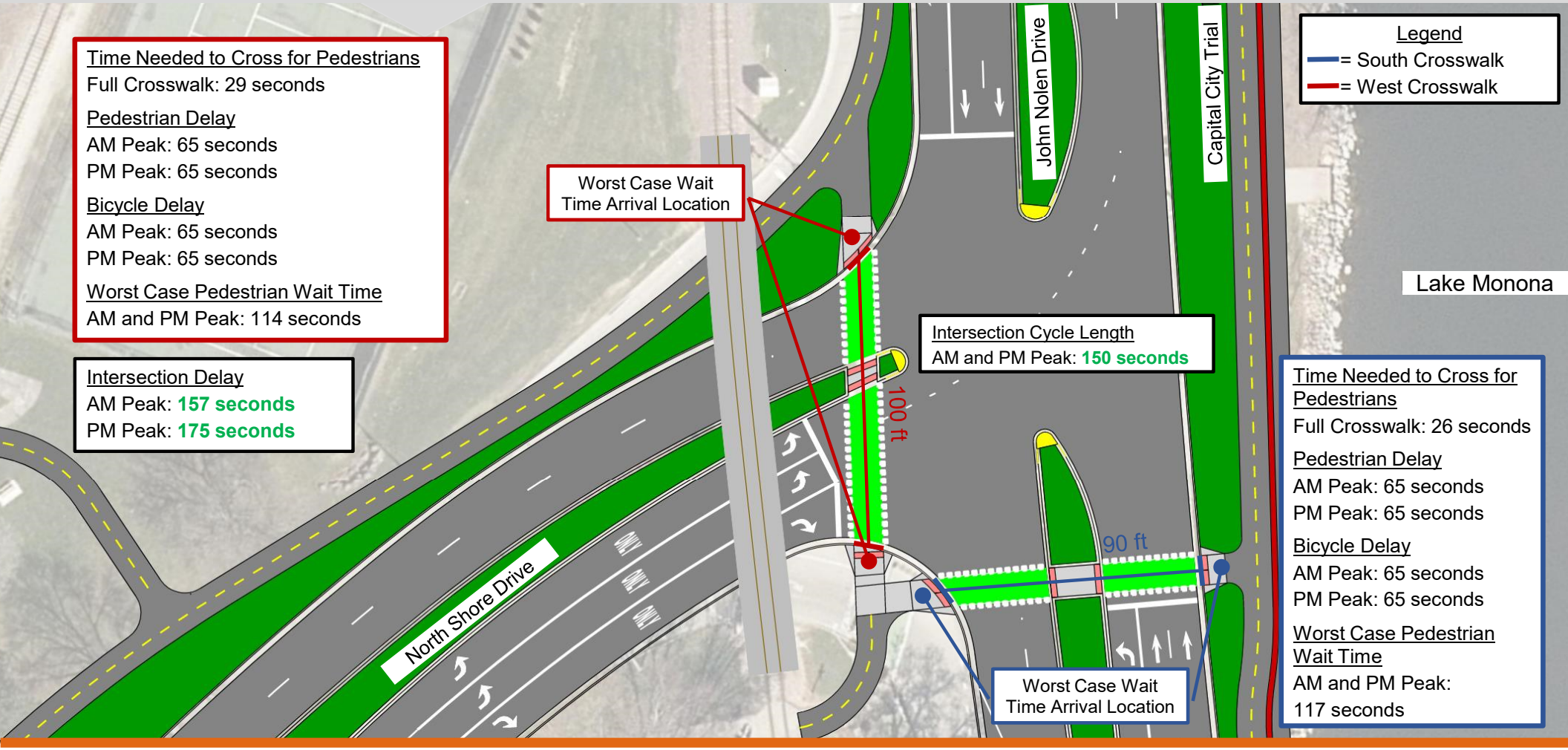
North Shore Drive Intersection – Existing Conditions



North Shore Drive Intersection – Alt 2 (Single "L" Crossing w/ Islands)

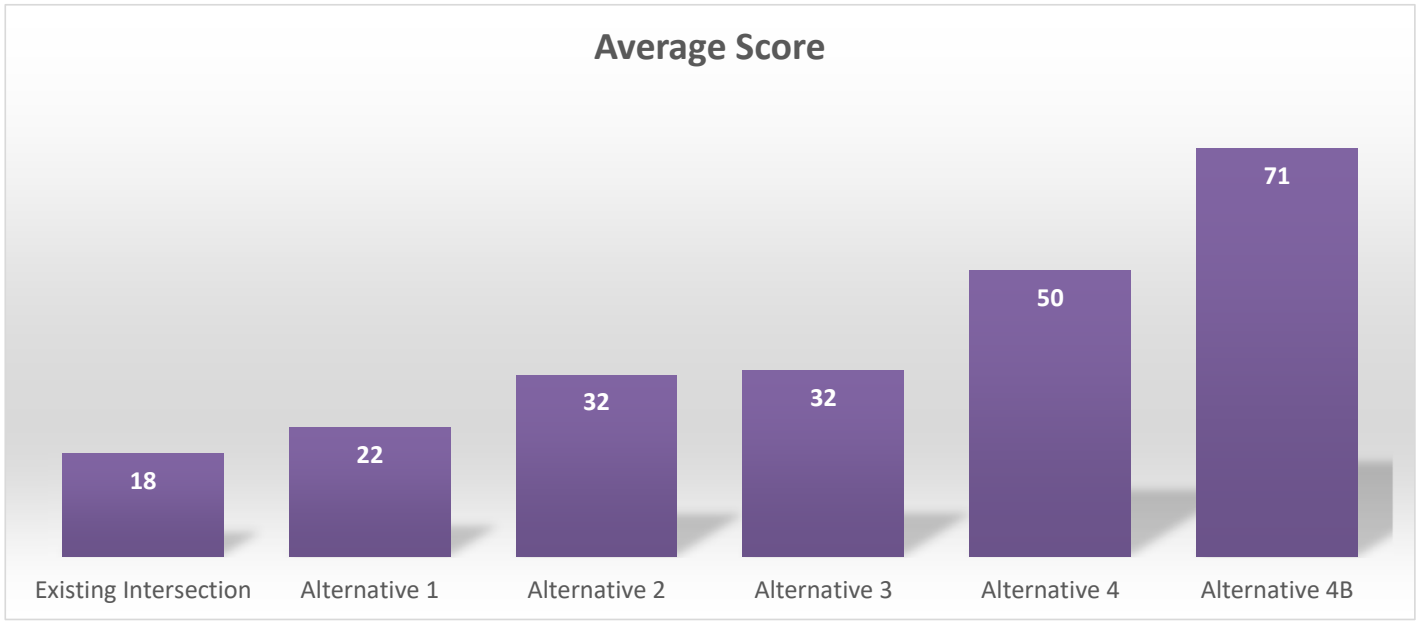


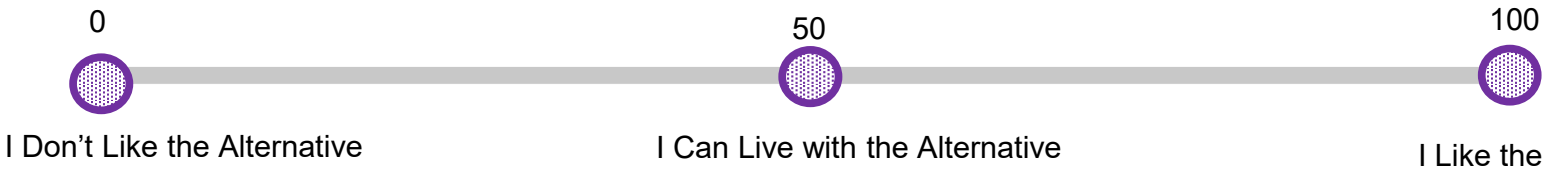
North Shore Drive Intersection – Alt 4B (Single "L" Crossing w/o Islands)



Public Opinion Survey Results

North Shore Drive Intersection Survey Responses





Notes:

Survey Closed 5/15/2023

578 Responses

North Shore Drive – Summary

	ALTERNATIVES COMPARISON							
	Average Vehicle Delay (sec)	**Average – Max Ped Delay S Crosswalk (sec)**	**Average – Max Ped Delay W Crosswalk (sec)**	**Visibility of Rt Turning Vehicle & Path User in Crosswalk**	**Rt Turning Vehicle Speed Through Crosswalk after Stop Bar**	**Bike/Ped Crossing Length (S Crosswalk)**	**Bike/Ped Crossing Length (W Crosswalk)**	**Simplicity of Bike/Ped Crossing (S Crosswalk)**
EXISTING	124/147 sec AM/PM 110 sec Cycle Length	40 – 82 sec	N/A	Crosswalk on near-side of turning movement & perpendicular to vehicle	Crosswalk on near-side of turning movement	158-ft to Cross Roadway	N/A	3 Segments & Turns within Island
ALT 2 **L-Crossing w/ Islands**	+ 120/179 AM/PM 150 sec Cycle Length	+ 62 – 107 sec	+ 64 – 85 sec	+ Crosswalk on near-side of turning movement & perpendicular to vehicle	+ Crosswalk on near-side of turning movement	- 125-ft to Cross Roadway	- 145-ft to Cross Roadway	- 3 Segments & Turns within Island
ALT 4B **L-Crossing w/o Islands**	- 157/175 AM/PM 150 sec Cycle Length	- 65 – 117 sec	- 65 – 114 sec	- Crosswalk on far-side of turning movement & parallel to vehicle	- Crosswalk on far-side of turning movement	+ 90-ft to Cross Roadway	+ 100-ft to Cross Roadway	+ 2 Segments & No Turns within Median

North Shore Drive – Staff & TC Recommendation

Staff Recommendation

- Staff are OK with both alternatives (Alt 2 & 4B)
- Staff recommend Alt 2:
  - Lower user delay (Alt 2 vs 4B) likely result in improved user compliance
  - Better visibility between right turning vehicles and people walking/biking
  - Flexibility to include raised crossings on rt turns (slow vehicle speed)
- Staff realize Alt 4B benefits:
  - Smaller roadway footprint (less pavement, may reduce speeds)
  - Simpler & shorter crosswalks
  - Public support & feedback

Transportation Commission Recommendation

- Feedback & Thoughts

THANK YOU!

- Project Website: https://www.cityofmadison.com/JohnNolenDrive
- Contact: **JohnNolenDrive@cityofmadison.com**