

City of Northfield

TH 246 / Jefferson Parkway Area Traffic Study

City Council – Tuesday, February 14, 2017



Agenda

- Introduction
- History / Problem / Goals
- Considerations / Recommendations
- Next Steps

TH 246 at Jefferson Parkway

History / Problem

- ❖ Peak hour operational issues causing lengthy vehicular backups and delays.
- ❖ Lack of pedestrian crossings and infrastructure design results in accessibility to schools challenging.



TH 246 at Jefferson Parkway

Goals

- ❖ Alleviate peak hour congestion
- ❖ Improve pedestrian and bike access
- ❖ Improve school ingress/egress
- ❖ Improve safety for all users

TH 246 at Jefferson Parkway

Considerations

❖ All-way stop

- Traffic operation will continue to worsen
- Level of Service (LOS)
 - A = free flow conditions
 - F = stopped, congested flow
- Currently LOS D and delay of 28 sec/veh
- Projected LOS F and delays continue to increase
- Driver confusion with multiple lanes and traffic legs

❖ Traffic signal

- Not warranted at this time (possibly 2040 when traffic volumes increase)
- Concerns of increased vehicle speed and severity of crash.

TH 246 at Jefferson Parkway

- Considerations

- ❖ Roundabout

- Best for traffic flow (operates at higher level of service than a stop sign or signal)
 - LOS B in 2040 with delay of 10 sec/veh
 - Fewer vehicle crashes and less severe
 - Single lane have been found safe for pedestrians and bicyclists
 - Reduces confusion that exists at the all-way stop
 - Reduces speeds – Increased Safety

- ❖ Mini roundabout

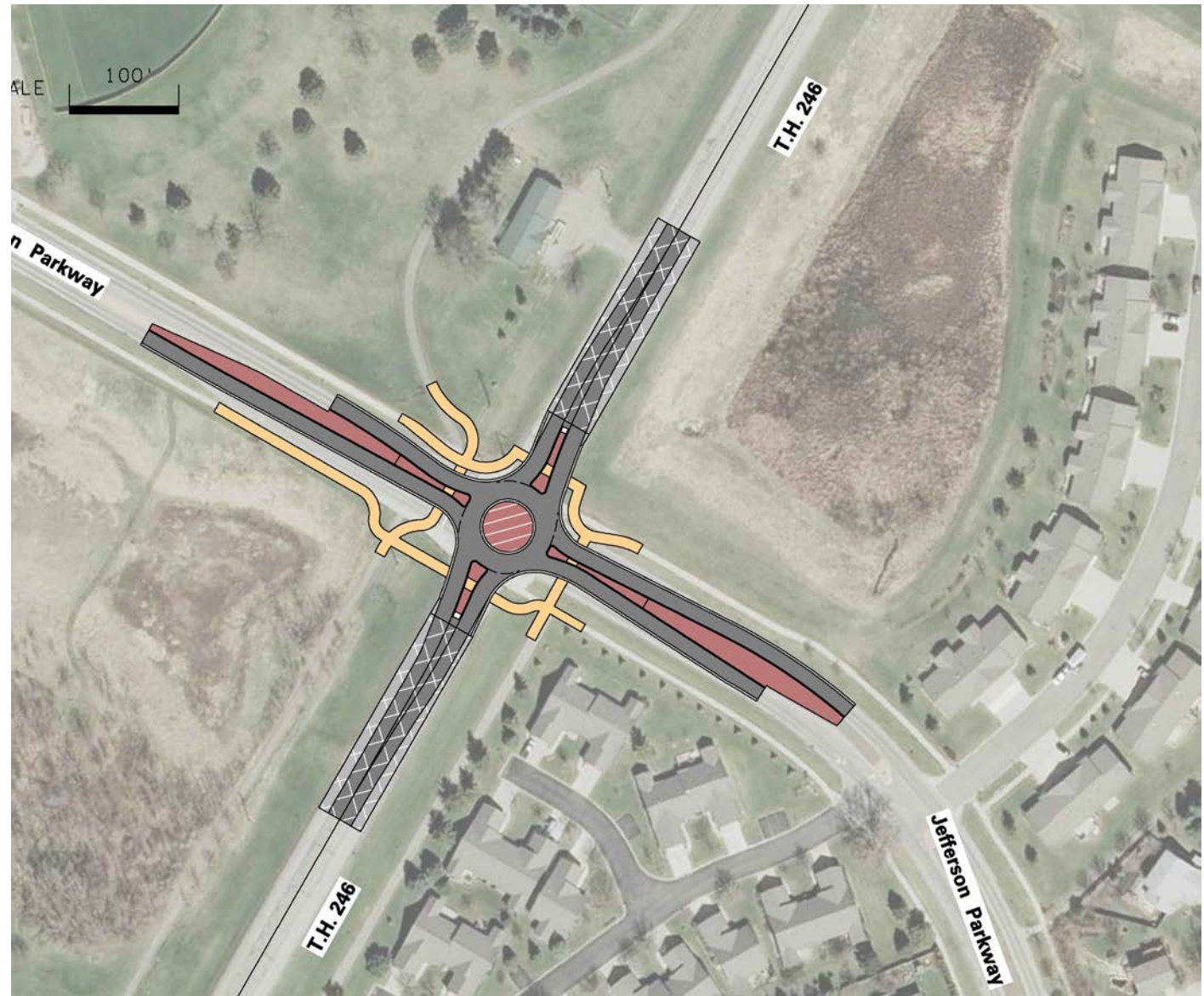
- Concern with approaching traffic speeds

- ❖ Pedestrian underpass

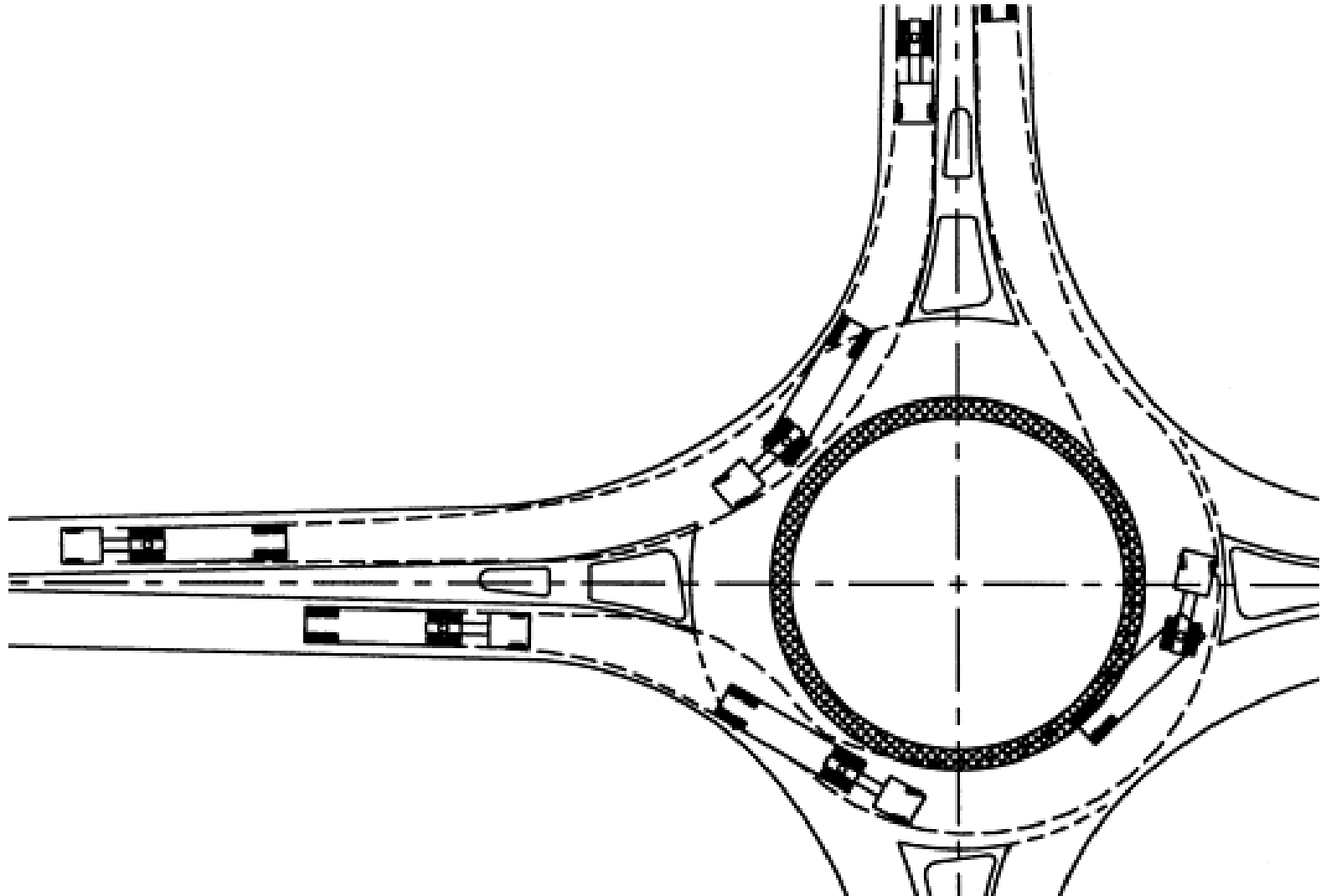
Single Lane Roundabout



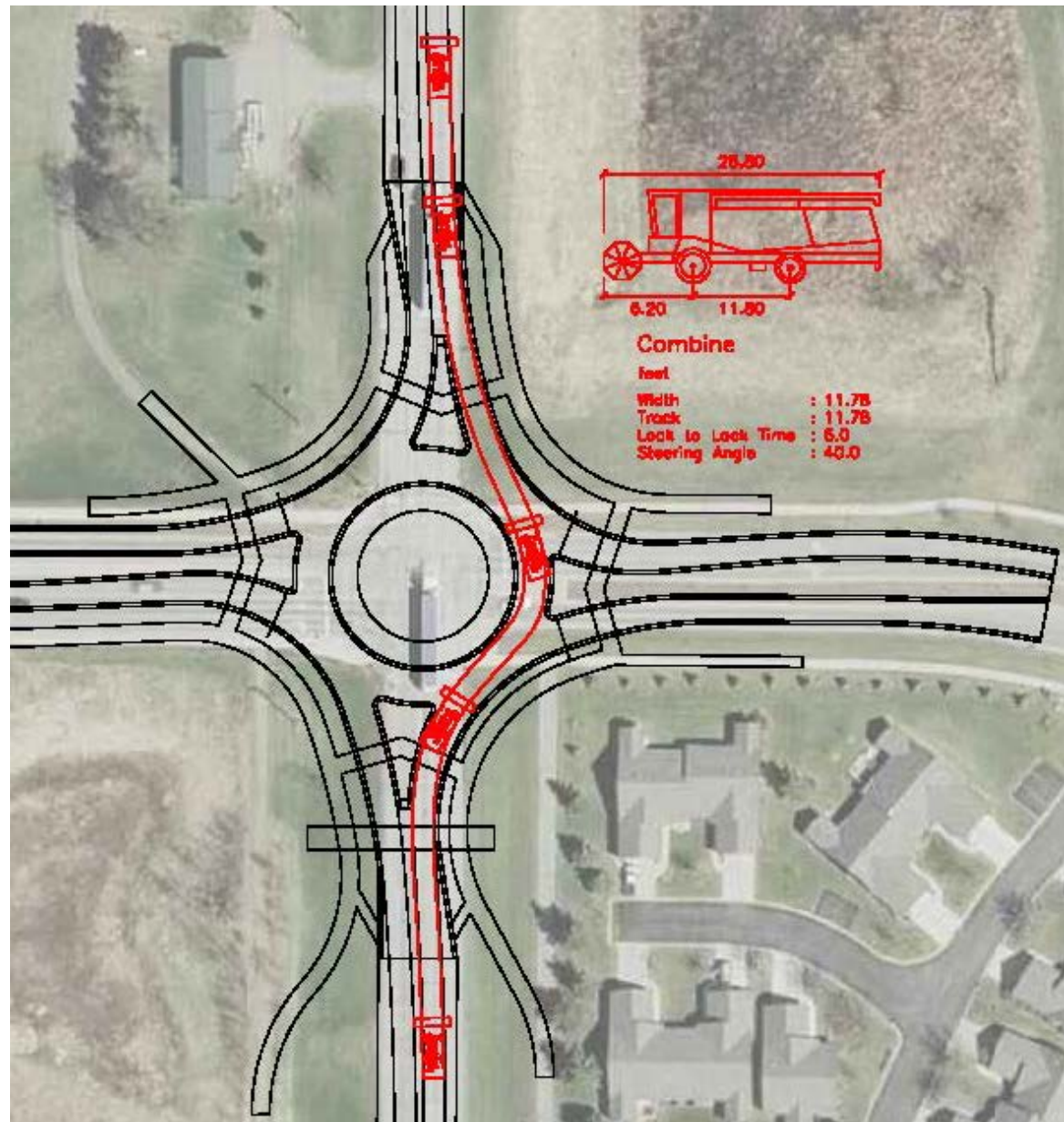
Single Lane Mini Roundabout



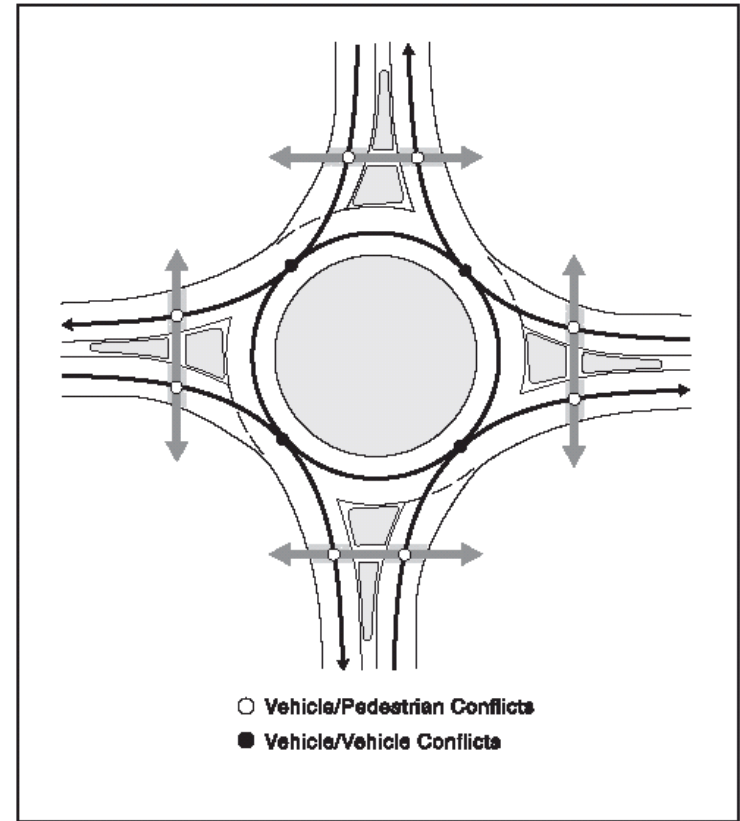
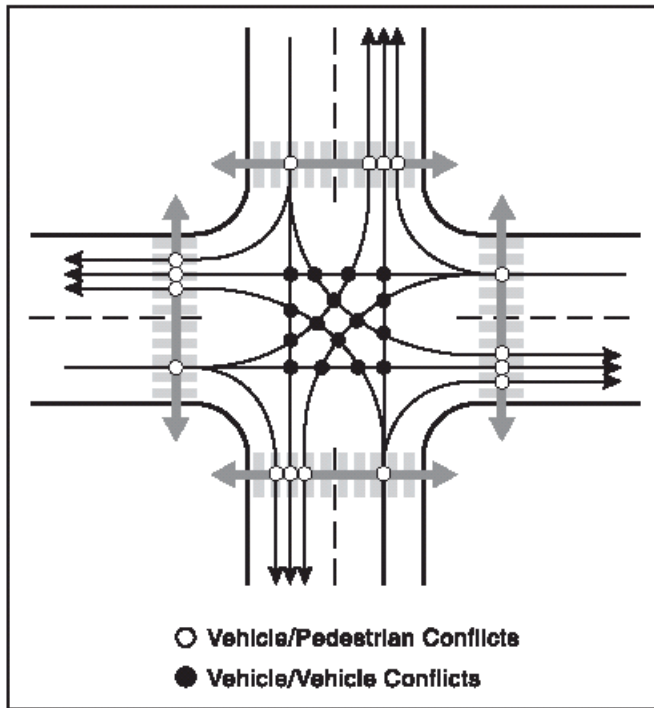
Design Vehicle



Design Vehicle



Increased Vehicle & Ped Safety



Source – Roundabouts: An Informational Guide (FHWA)





Safety – Increased Ped Safety

- Shorter crossing distance
- Pedestrian only looks one direction
- Drivers at signals watch the light
- Drivers at typical intersections tend to look left and turn right
- Pedestrian crossing separated from intersection – allows driver to pay more attention to pedestrian





Pedestrian Safety

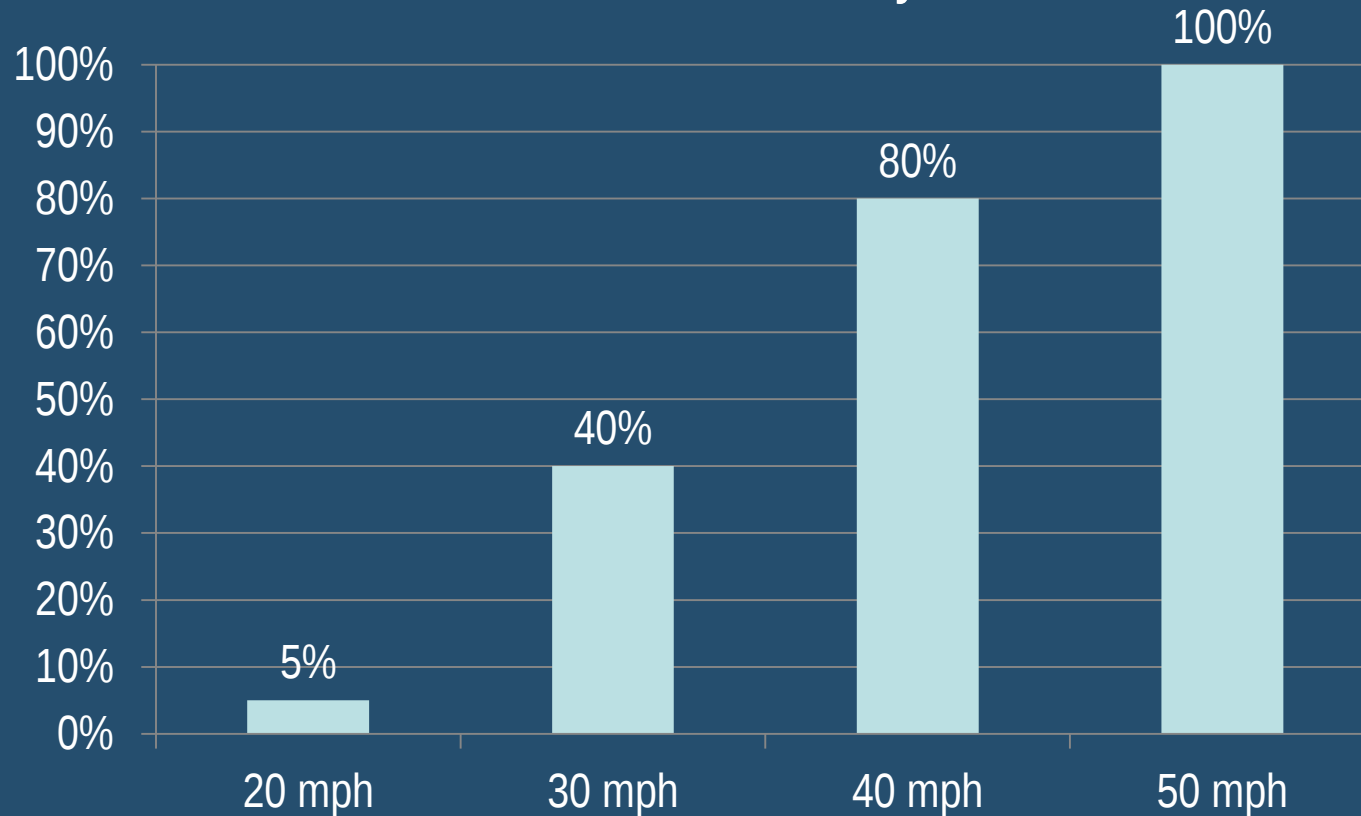
- Disadvantage is that vehicles aren't necessarily stopping
- Reduced speeds help
- Possible issues with visually-impaired pedestrians





Pedestrians

Chance of Pedestrian Death If Hit By a Motor Vehicle



Literature Review on Vehicle Travel Speeds and Pedestrian Injuries
– Final Report DOT HS 809 021, October 1999



Roundabout Safety

❖ Pedestrian / Bike

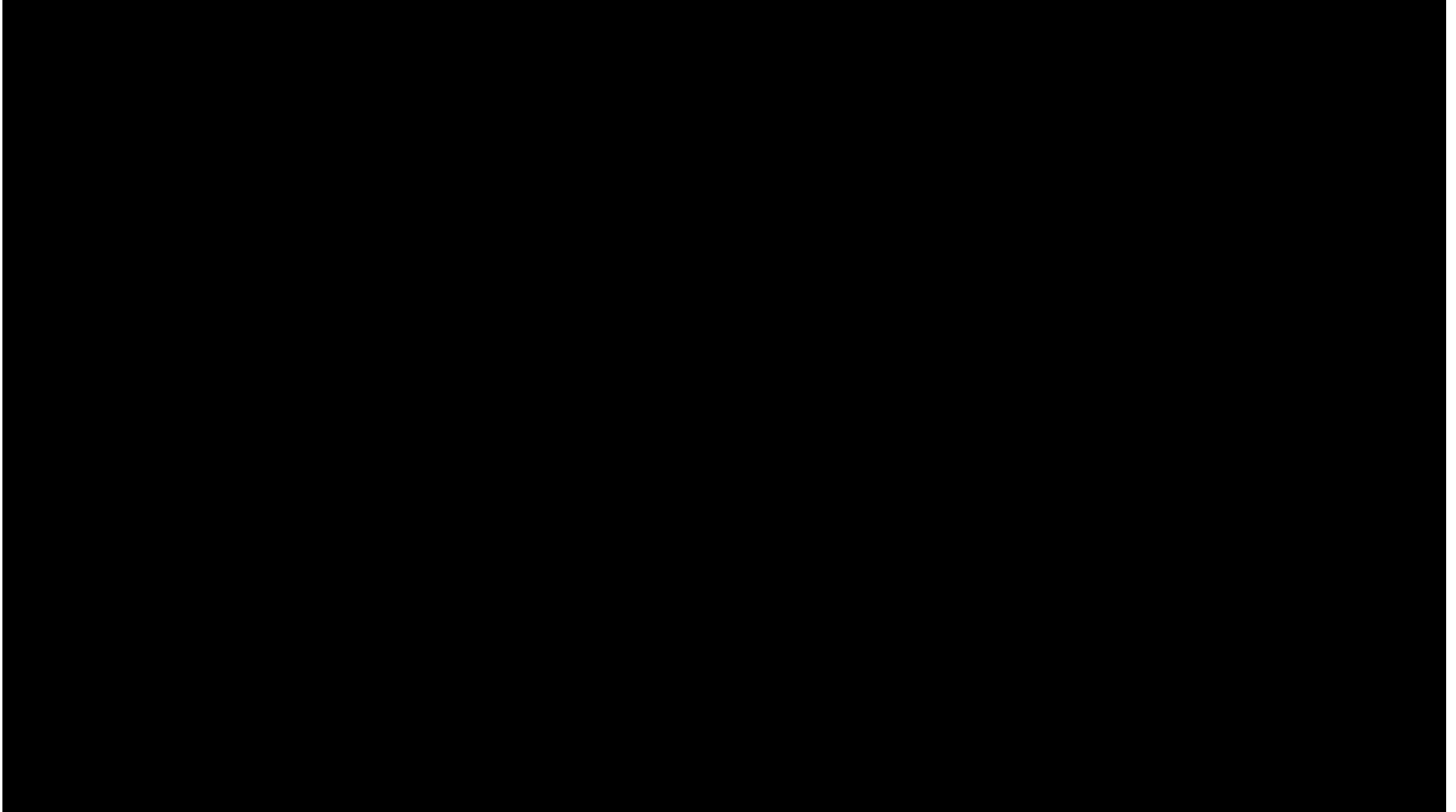
No serious injury or fatalities at any roundabout in Minnesota in the last 10 years.

❖ Vehicles

In comparison to a traffic signal:

- 78% reduction in severe crashes; and
- 48% reduction in overall crashes.

Pedestrian Crossing Video

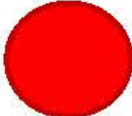
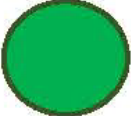


RRFB Installation



TH 246 at Jefferson Parkway

Improvement Options

	MUTCD Warrants	Traffic Operation	Traffic Safety	Pedestrian Safety	Cost
All-Way Stop					\$
Traffic Signal					\$\$
Roundabout					\$\$\$



= Best



= Acceptable



= Not Acceptable

TH 246 at Jefferson Parkway

Recommendations

- ❖ Single lane roundabout with RRFB pedestrian crossings
 - Cost = \$1,640,262

- ❖ Trail pedestrian underpass TH 246 when Mill Towns Trail is extended
 - Cost = \$697,770

Other Near Term Recommendations

❖ Jefferson Parkway at Raider Drive

- Lengthen the eastbound left turn lane
 - Cost = \$38,624

❖ TH 246 at Northfield High School

- Install sidewalk and marked/signed pedestrian crossing (\$76,740).
- Future design development should consider best practice design considerations such as mid-block bumpouts, mid-block island, and RRFB's.

❖ Bridgewater Elementary School traffic flow

High School Ped Crossing



Elementary School Traffic Flow

❖ Enter from TH 246 & exit to Jefferson Pkwy



Long Term Recommendations

- ❖ Jefferson Parkway at Jefferson Road
 - Single lane roundabout
- ❖ TH 246 at Woodley Street
 - Traffic signal or single lane roundabout
- ❖ TH 246 south of Jefferson Parkway
 - Plant trees and consideration to a curb and gutter cross section

Next Steps

- ❖ Resolution to Receive the Final Report.
- ❖ Discuss “Next Steps” to Consider.

Next Steps

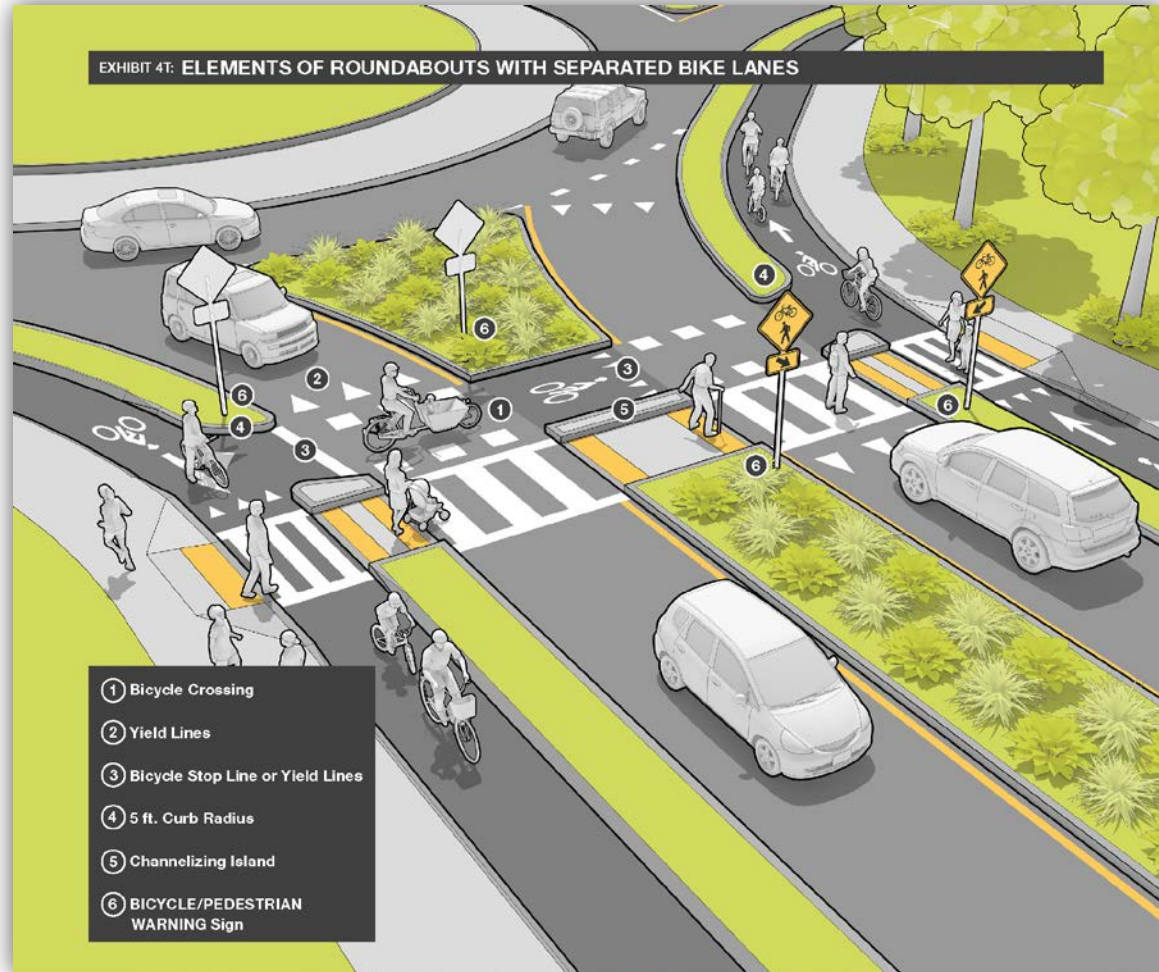
❖ Roundabout Improvement

■ MnDot Funding Options

- Request MnDOT Funding:
 - D6 Municipal Set Aside Fund, not available until 2021
 - City Could work on an Advanced Construction Agreement
- Pursue Turnback Route Consideration – Would take commitments from Rice and Goodhue County (CTY 30 by Nerstand to HWY 3 in Northfield)
- Future Design will consider best practice design for pedestrian & bicycles in addition to vehicles.

Next Steps

❖ Example of Design Concept.



Next Steps

❖ Mill Towns Trail & Underpass

- Staff to work with Mill Towns State Trail JPA to bring forward potential realignment consideration for Comprehensive Plan Update (Planning Commission recommendation to Council).
- Further evaluate underpass design in conjunction with roundabout.
- Pursue potential funding solutions (DNR, MnDOT).

Next Steps

❖ Sidewalk and Crossing on TH 246

- Partner with School in pursuing a Safe Routes to School Capital Grant for sidewalk and crossing.
- Partner with School in pursuing a Safe Route to School Planning Grant.
 - Scope: High School. Updates to others or add other new ones?
- Design Development for Crossing – Review safety enhancements including bumpouts, mid-block island and RRFB's

Next Steps

- ❖ Turn Lane Extension onto Raider Drive
 - Partner with School, City use of State-Aid Funds
 - Plan in City Capital Improvement Plan (CIP) development in conjunction with another State-aid Project
- ❖ Other Related Future “System-Wide” Network Planning
 - Complete Streets Policy Training & Review.
 - Comprehensive Plan Transportation Updates.

Questions, Comments and Discussion