

# Highway 5 Arboretum Area Minnewashta Parkway Safety Study

November 1, 2023



# Presentation Contents

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## Meeting Format:

Presentation, then break out into questions with staff. (Please hold questions until after the presentation)

## Questions we Hope to Answer:

- What is the impact of the Highway 5 project on Minnewashta Pkwy?
- What is the impact of the Arb Entrance & Apple House projects on Minnewashta Pkwy?
- Are there issues on Minnewashta Pkwy that warrant improvements?



# Minnewashta Pkwy – Functional Class

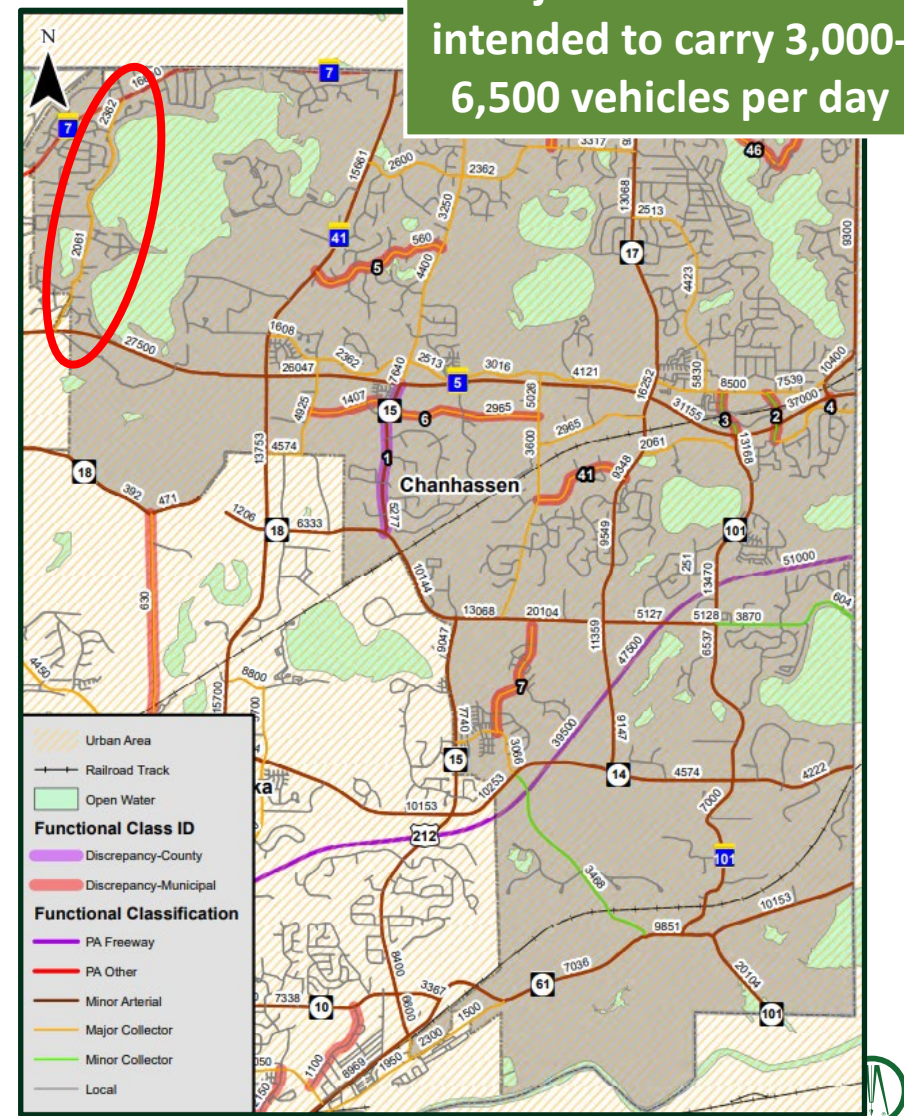
**Minnewashta Parkway (Major Collector)** – “This street serves as the only north/south route between TH 5 and TH 7 west of Lake Minnewashta. It is also located such that it likely serves some through trips from outside the city along TH 5, traveling to the north to TH 7, as well as locally generated traffic along its route.” – *2040 Chanhassen Comprehensive Plan*

**Minnewashta Pkwy (2,300 ADT, 30 mph)**

## Other Major Collectors in Chanhassen:

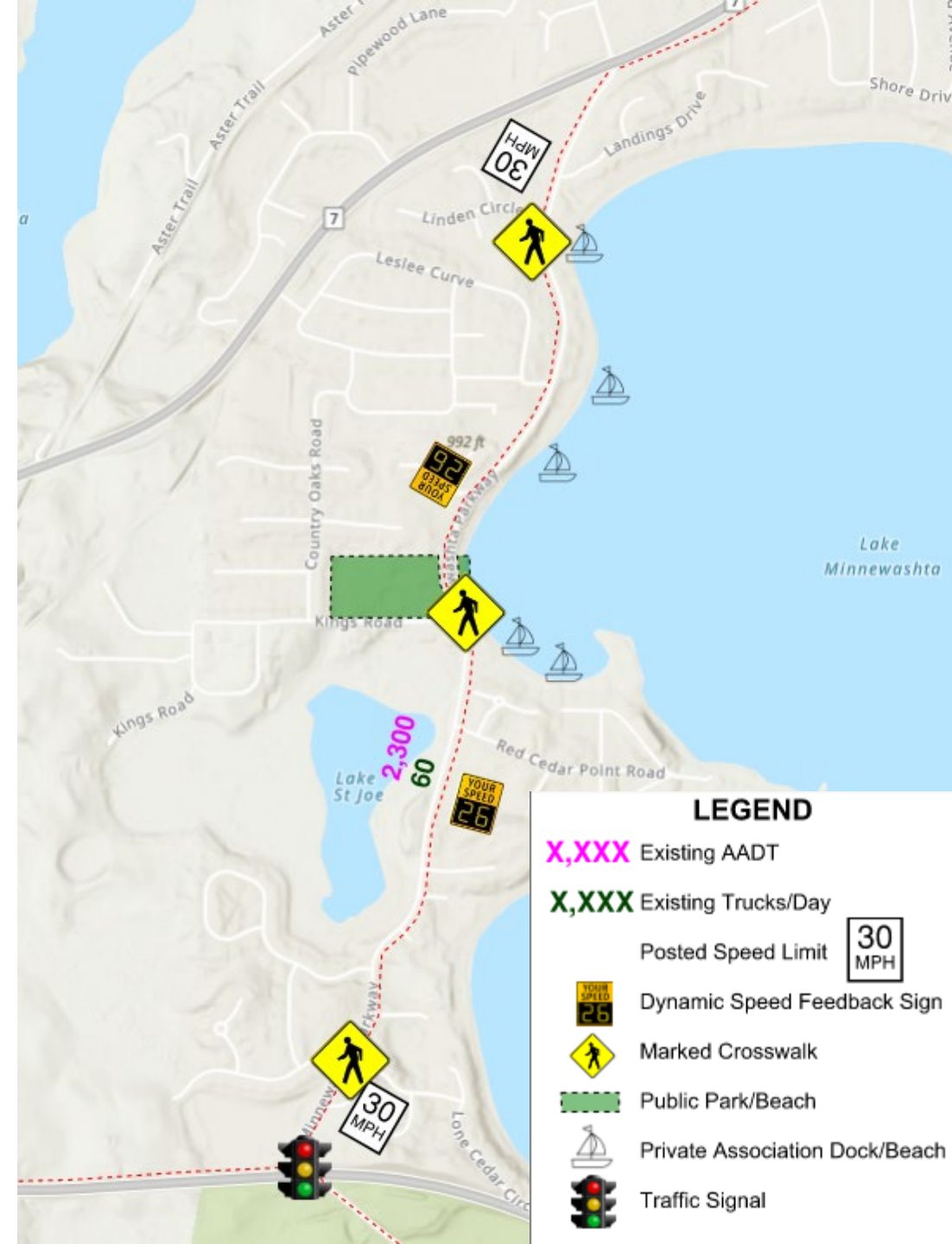
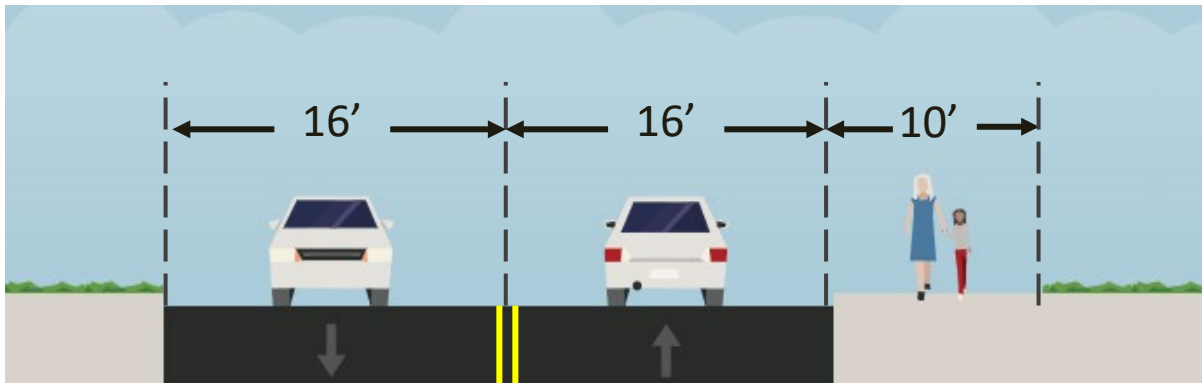
- Galpin Blvd (3,250 – 7,640 ADT, 45 mph)
- Lake Dr (2,100 – 3,000 ADT, 30 mph)
- Pleasant View Rd (1,900 – 3,100 ADT, 25-30 mph)
- Lake Lucy Rd (2,400 – 3,300 ADT, 30-35 mph)
- Coulter Blvd (1,400 – 3,000 ADT, 30 mph)
- W. 78<sup>th</sup> St (1,600 – 8,500 ADT, 30-40 mph)

Major Collectors are intended to carry 3,000-6,500 vehicles per day



# Minnewashta Pkwy Overview

- 1.6 mile corridor
- 30 mph posted speed limit
- Low density residential and public green space



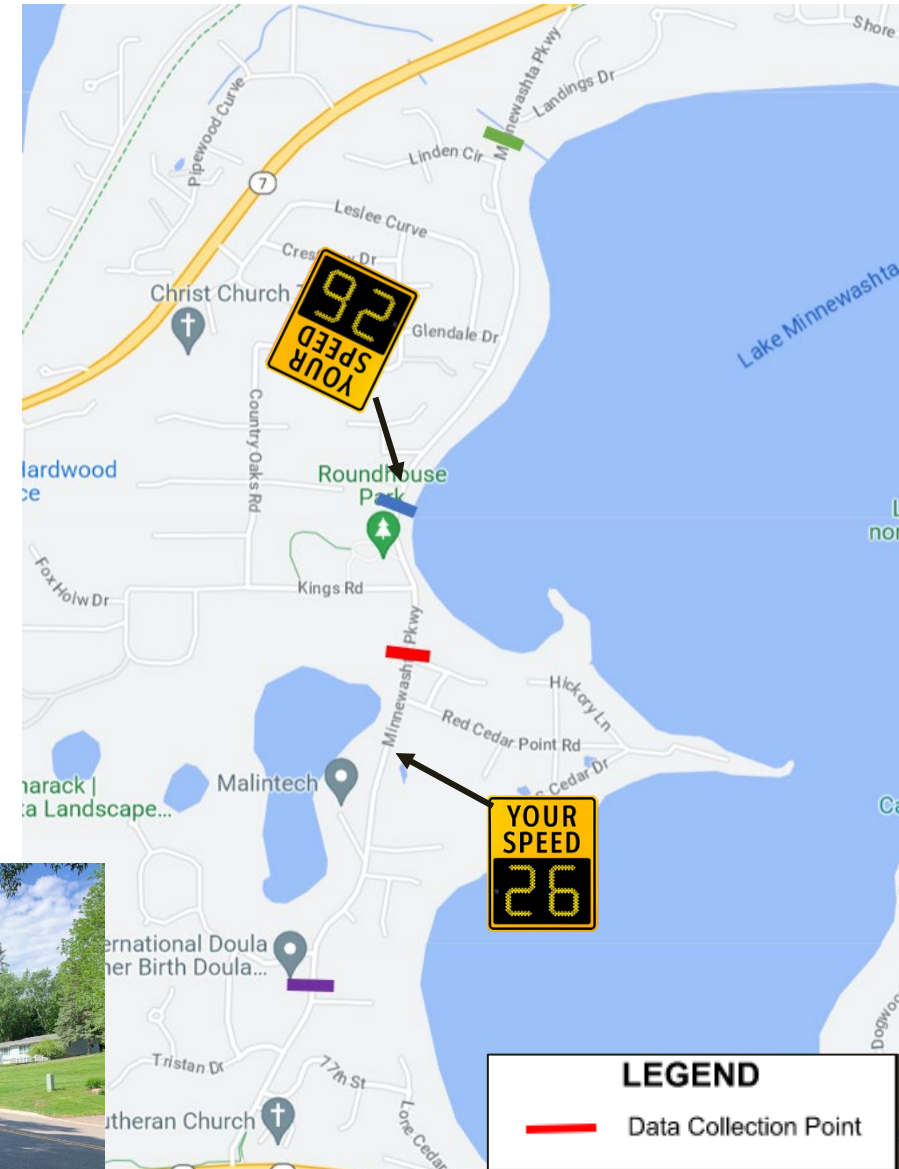
LEGEND	
X,XXX	Existing AADT
X,XXX	Existing Trucks/Day
30 MPH	Posted Speed Limit
YOUR SPEED 26	Dynamic Speed Feedback Sign
Yellow diamond with pedestrian	Marked Crosswalk
Green dashed box	Public Park/Beach
Sailboat icon	Private Association Dock/Beach
Traffic light icon	Traffic Signal





# Minnewashta Pkwy – Speeds

- 30 mph posted speed limit throughout
- Dynamic Speed Feedback Signs at 2 locations
- 4 locations of radar recorded speeds in both directions -> 8 data points
  - Data collected May 2023
  - 48 continuous hours recorded

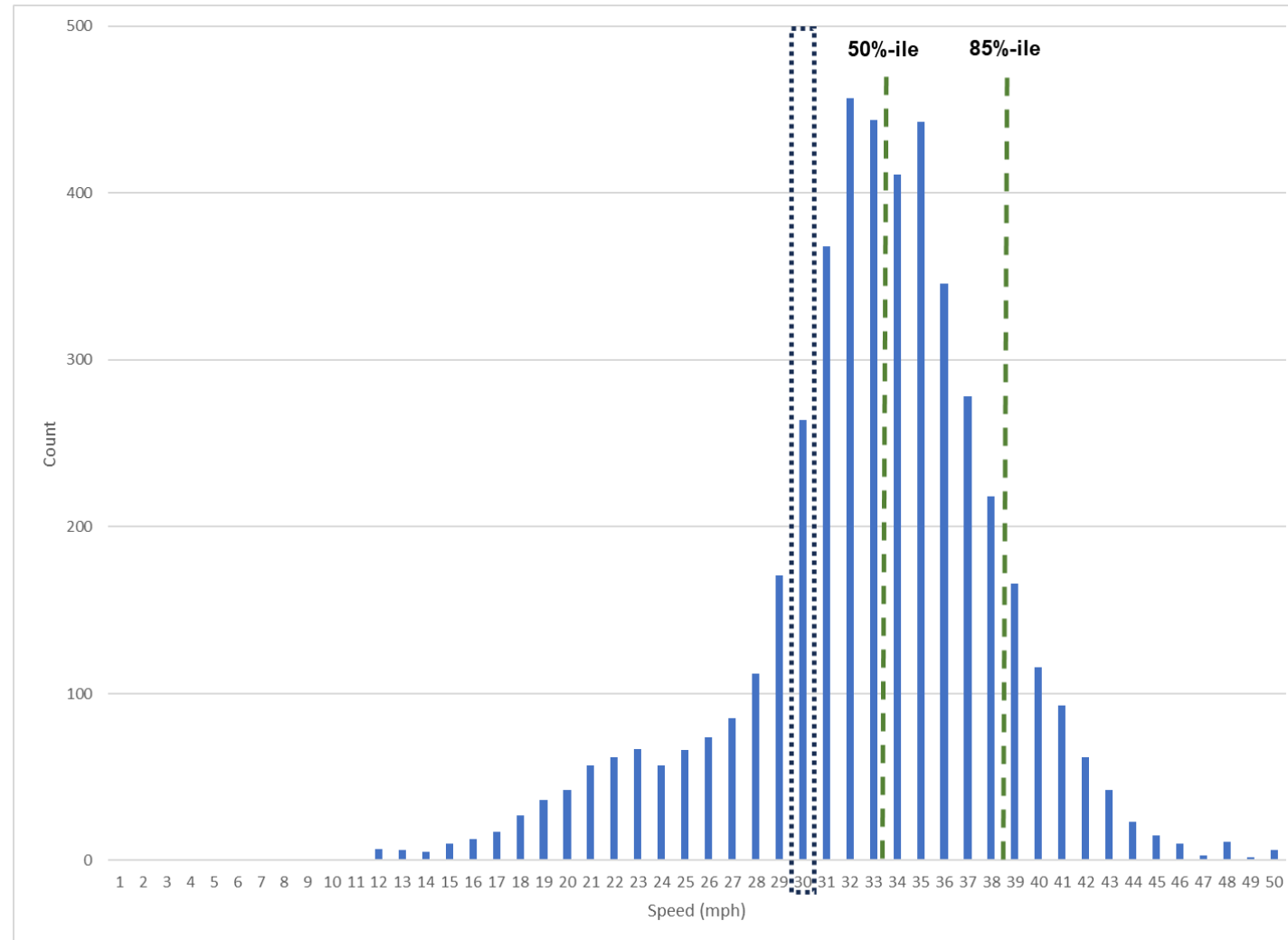


# Minnewashta Pkwy – Speeds

- Average speeds: 31 mph – 33 mph
- 85<sup>th</sup> %-ile speeds: 35 mph – 38 mph

## Conclusion:

- The speed limit should be raised to 35 mph, OR
- Traffic calming should be introduced to lower speeds



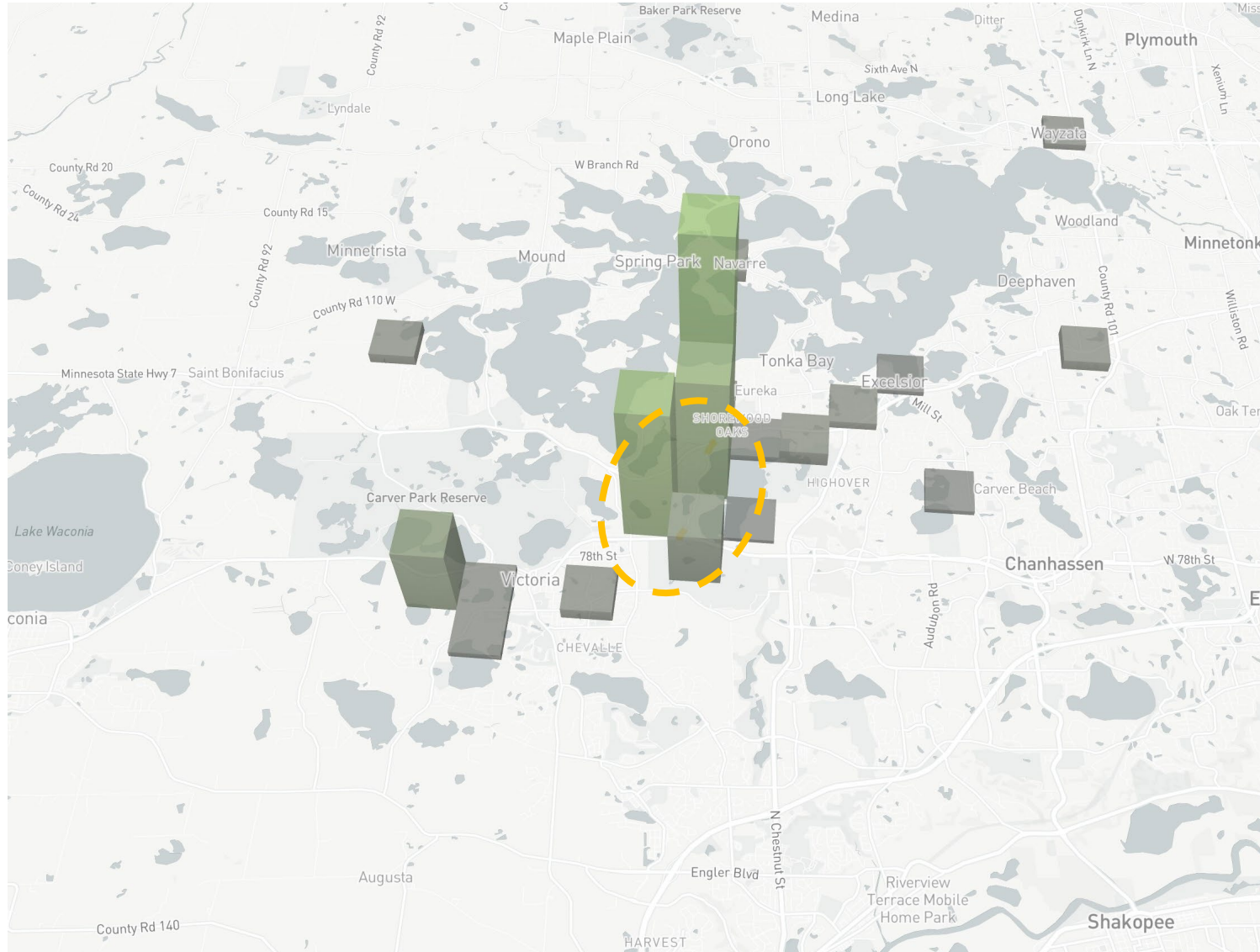


# Minnewashta Pkwy – Cut Thru Traffic



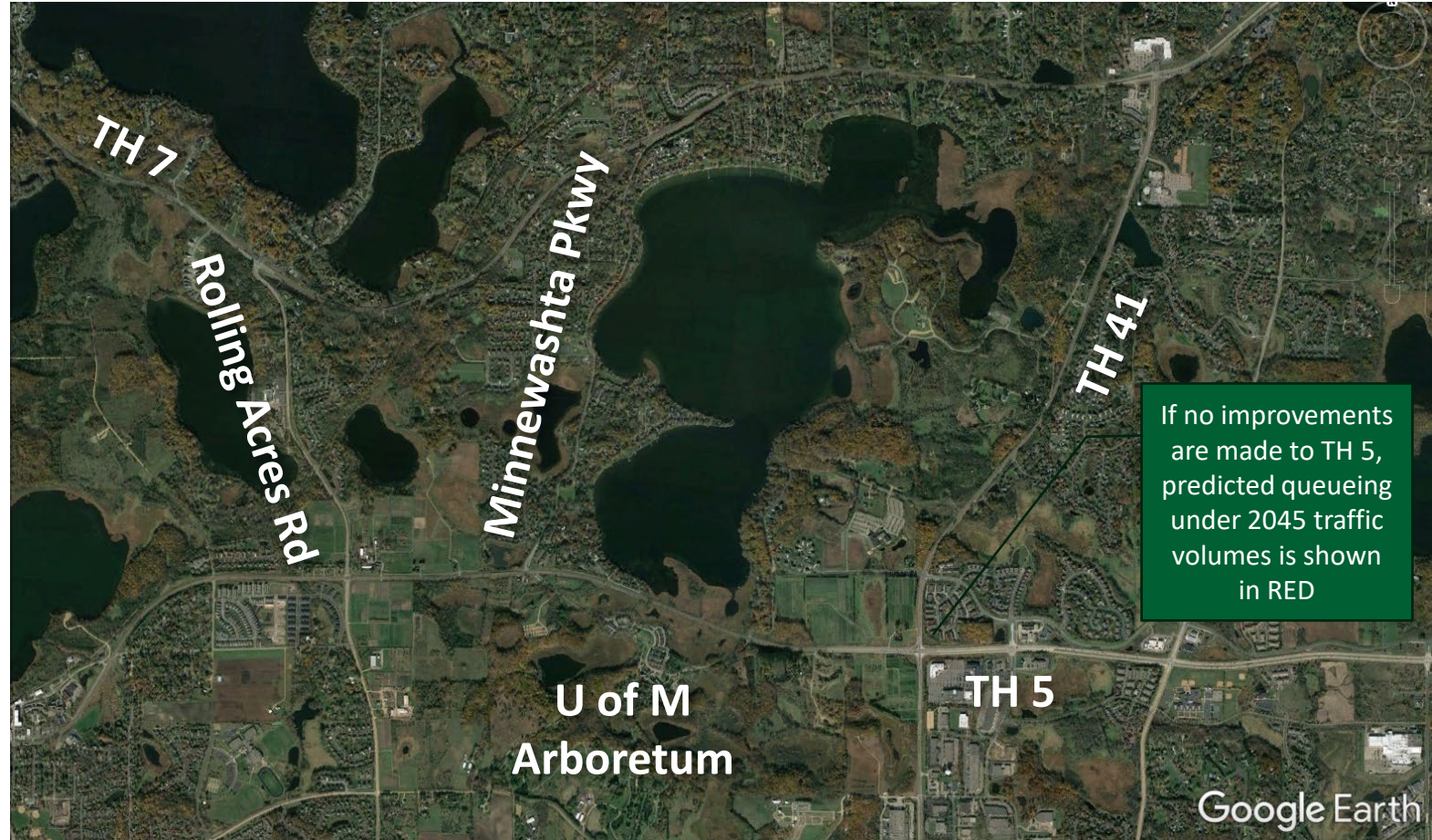


# Minnewashta Pkwy – Cut Thru Traffic



# Minnewashta Pkwy – Traffic Volumes

- Build = full TH 5 project as proposed, Arb entrance moved
- No Build = existing condition remains
- Existing Weekday = 2,300 vpd
- Existing Weekend = 1,700 vpd
- 2027 Build = 1,950 vpd
- **2045 No Build = 6,600 vpd**
- 2045 Build = 3,000 – 4,000 vpd





# Arboretum Traffic

## Pre-Pandemic Annual Visitor Data

- 500,000 visitors/year across all facilities (Arb, Bee Center & Apple House)
- Average visitors/day = 1,236 -> 825 vehicles/day
- Peak visitors/weekday (non-holiday) = 4,293 -> 2,860 vehicles/day
- Peak visitors/weekend day = 7,247 -> 4,800 vehicles/day

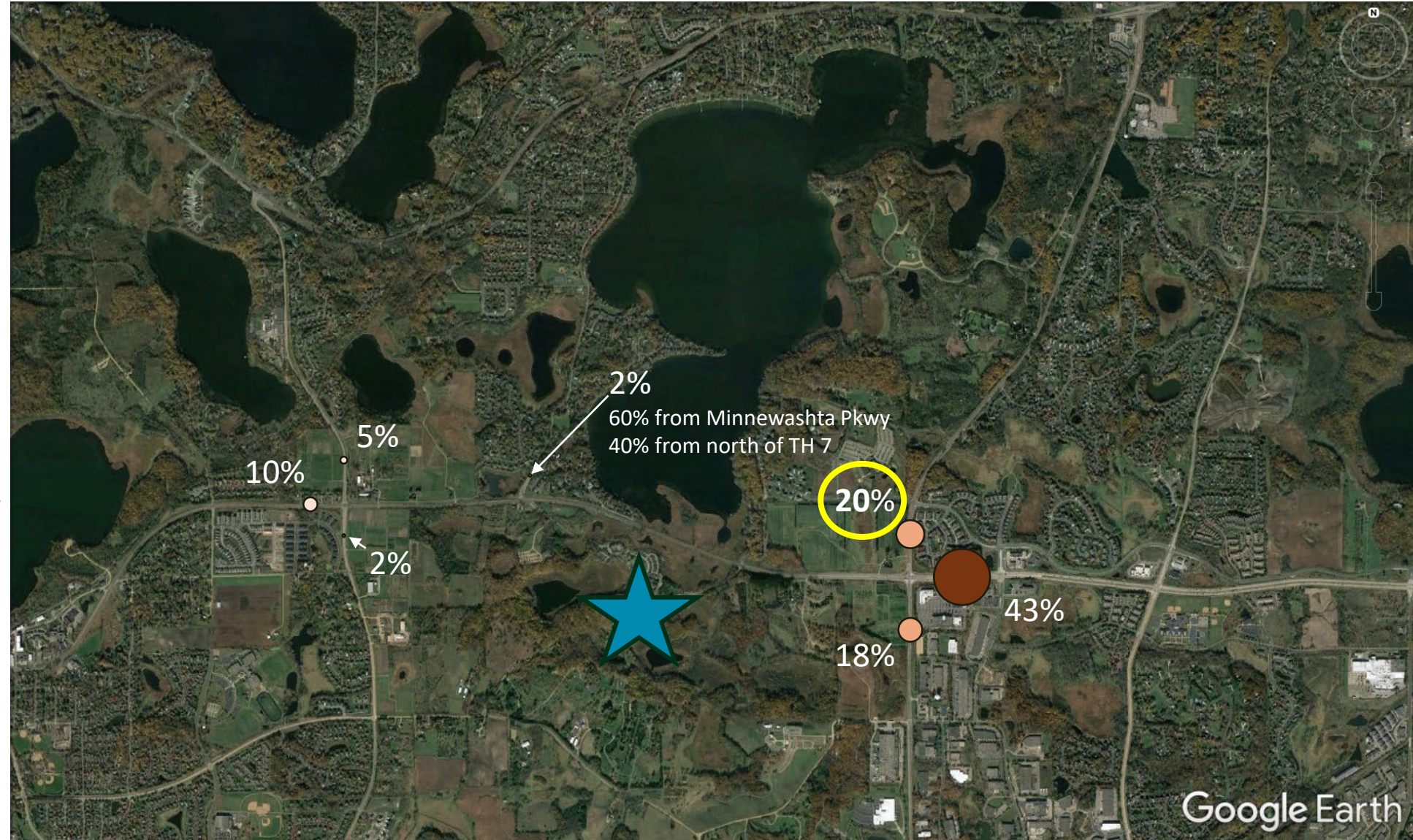


# Origin-Destination Analysis – Existing Condition

- Data derived from GPS data, traffic counts, and Arboretum visitor count information
- **Weekends only**
- 2018-2019: May and October

**~81%+**

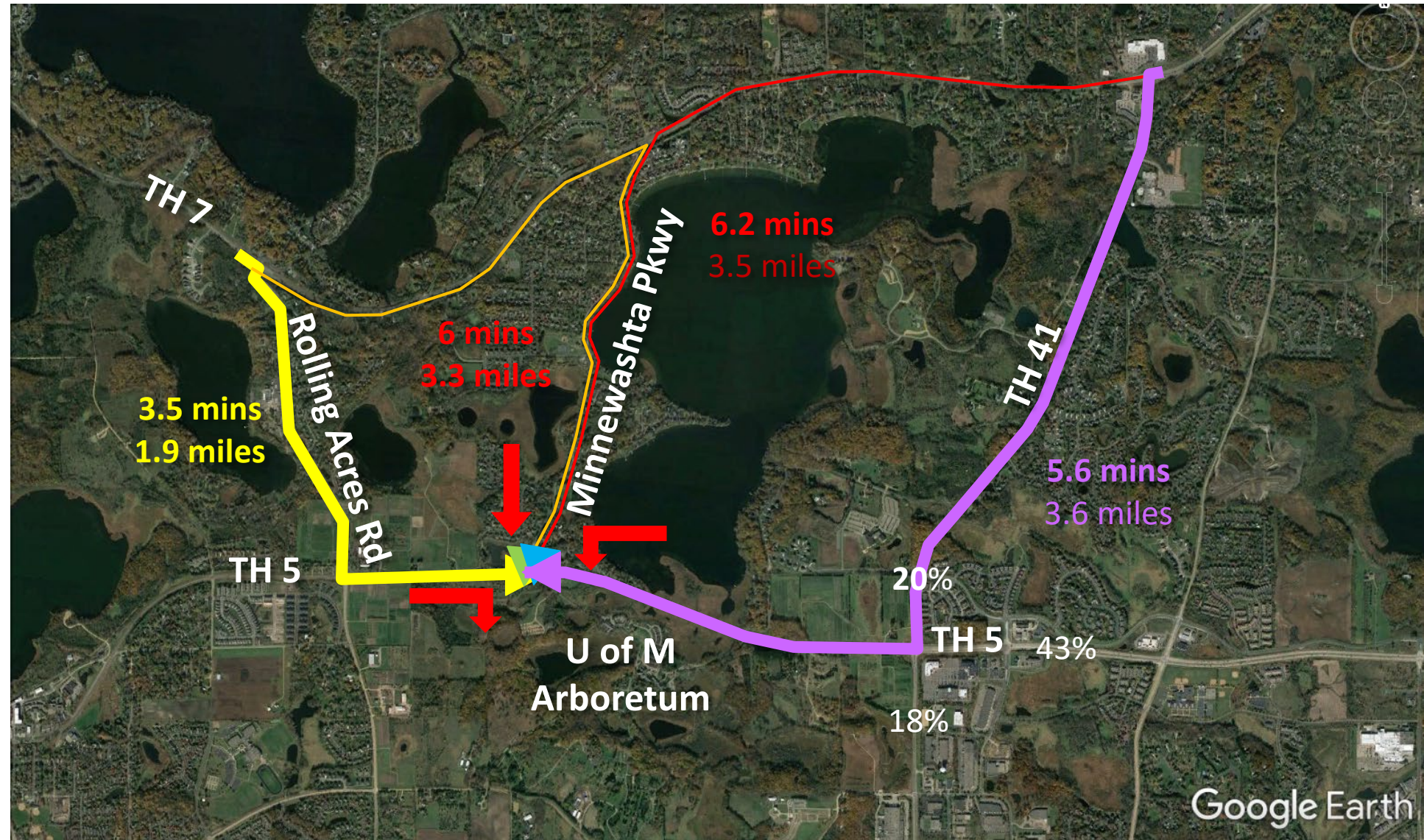
**To/From East**





# Entering Arb with Access Shift

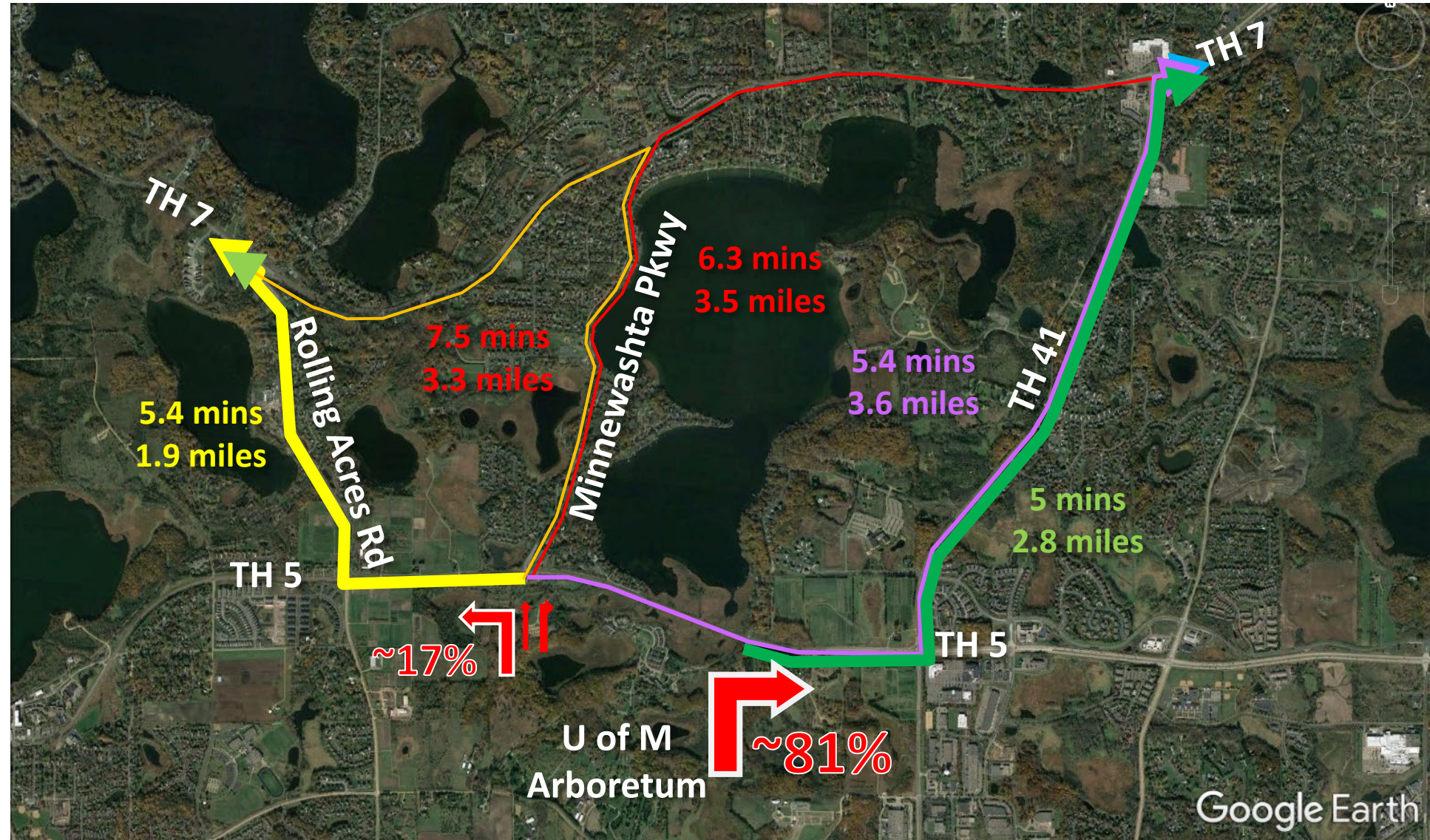
- Time data based on measured speeds
- Adjusted to account for new signal and Hwy 5 expansion





# Exiting Arb with Access Shift

- Time data based on measured segment speeds
- Adjusted to account for new signal and Hwy 5 expansion





# What we can't do

The Arboretum cannot be forced to restrict movements from their access. MnDOT will permit full signalized access only.

A traffic signal will not be warranted without the relocation of the Arboretum Access



# Trip Routing – Worst-Case Navigation Route Selection

- Major delay on TH 41 on a weekday & during Arb's busiest day of the year
- Navigation apps route TH 7 traffic to Arboretum via Minnewashta Pkwy
- 100% traffic on Westbound TH 7 destined for Arboretum uses Minnewashta Pkwy

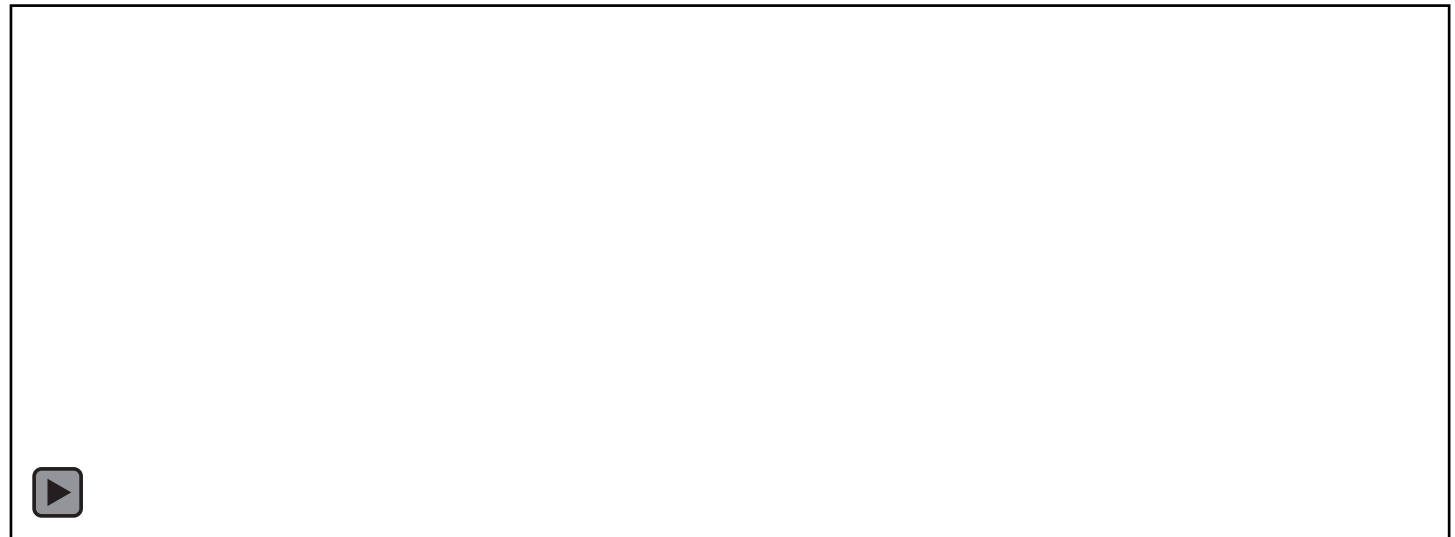
$$2,860 \text{ vpd} \times 20\% \text{ via TH 7} = 572 \text{ vpd added to Pkwy}$$

- The same scenario on a weekend may add 960 vpd to Pkwy



# What does worst-case traffic look like?

Scenario	Minnewashta Pkwy Daily Volumes (vpd)	Vehicles per minute
Typical Weekday Arb Entrance not moved	2,300	2.5
Typical Weekend Arb Entrance not moved	1,700	1.9
Weekday Arb Entrance Moved + Worst-case routing	2,872 (+25%)	3.1
Weekend Arb Entrance Moved + Worst-case routing	2,660	2.9



MnDOT analysis of daily traffic volumes statewide finds that roadways carrying 1,500-4,999 vpd may fluctuate +/- 20% from day to day

# Minnewashta Pkwy FAQ's

## Why not lower the speed limit?

*"Although it is a commonly held belief that posting a speed limit sign will reduce speeds, research indicates that **a driver's speed is influenced more by their comfort level driving on the road** which can be commonly related to the **geometrics of the road and the prevailing traffic conditions** rather than the posted speed limit.*

*Additionally, if speed limit signs are posted artificially low, many drivers will ignore posted limits while some drivers will stay within the posted limits. This creates a conflict between faster and slower moving drivers and an increase in the number of accidents."*

– **Chanhassen Speed Limit Policy based on industry standard**

Answer: Because it does not work to control speeds and causes additional safety concerns and enforcement issues.



# Minnewashta Pkwy FAQ's

## Why not install an All-Way Stop at Kings Road?

*"Stop signs are often requested to control speeds and/or to encourage traffic to use other routes. A stop sign is ineffective as a comprehensive speed control device. Stop signs installed without meeting **proper criteria**, result in high occurrence of violations and increased disrespect for traffic signs in general. Speed reduction is usually only effective in the immediate vicinity of the stop sign. Increased speeds between intersections often occur as drivers attempt to make up time lost."*

– Chanhassen Stop Signs Policy based on industry standard

Proper Criteria per the federal guidance (FHWA's MUTCD):

- Signal to be installed in 1 year - **X**
- Volume thresholds met - **X**
- Crash History - **X**
- Others: left turn conflicts/crashes, near high-pedestrian generating locations, restricted sightlines, two similar collector/thru streets - **X**

Answer: There are better ways to improve pedestrian safety than an all-way stop



# Findings

- 85<sup>th</sup> %-ile speeds were found to be 35-38 mph
- The Parkway is operating with a below average amount of crashes
- There is no pedestrian/bike crash history
- Many private destinations along the lake require mid-block crossings
  - The only method to correct this concern is related to speed management
- 70% of Pkwy traffic is local
- Relocation of the Arb entrance may add 40-60 vehicles to the Parkway on an average day

# Q&A

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- What is the impact of the Highway 5 project on Minnewashta Pkwy?
  - *Added capacity to Highway 5 will decrease highway travel times and reduce the need to use local cut thru routes*
- What is the impact of the Arb Entrance & Apple House projects on Minnewashta Pkwy?
  - *The relocation of the Arboretum entrance may add 40-60 vehicles to Minnewashta Pkwy on an average day (4-6 vehicles per hour)*
- Are there issues on Minnewashta Pkwy that warrant improvements?
  - *Yes – traffic speeds are generally higher than the posted speed limits.*
  - *All issues are existing, not project related*

# Suggestions

Maintain existing 30 mph speed limit

Consider the following for traffic calming:

- Striped edge lines for 11' lanes (\$10k)
- Bump outs at crossing locations, intersections (\$150k/intersection)
- In-road crosswalk signs at Kings Road (\$200/each)
- Review intersection lighting (\$5k/intersection)
- Review existing signing placements, age, condition (\$2k)
- Increased enforcement





# What to Expect

The City will:

1. Install in-road pedestrian bollard at Kings Road (2024)
2. Edge/fog lines will be striped to create narrower driving lanes throughout parkway with Highway 5 project (2026/27)
3. Program bump outs and other traffic calming improvements at Kings Road/Roundhouse Park Beach area



# Question & Answer in Small Group Breakout



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