



# Conceptual Design Options for Main St. (Rte. 27) at Prospect St.

## Presented by:

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December 6, 2018



Building better communities with you

# Presentation Outline

- ❖ Study Intersection
- ❖ Background
- ❖ Conceptual Design Options
- ❖ Questions

# Study Intersection



# Background

- ❖ Existing Conditions Memorandum – June 21, 2018
- ❖ Public Outreach Meeting – June 27, 2018
- ❖ Conceptual Design Options Memorandum – September 5, 2018
- ❖ Public Outreach Meeting – December 6, 2018

# Existing Conditions Memorandum

- Traffic Data Collection
  - Automatic Traffic Recorder (ATR) Volumes
    - Main Street – approx. 16,000 vehicles per day
    - Prospect Street – approx. 3,000 vehicles per day
  - Turning Movement Counts (TMCs)
  - Vehicle Speeds (Main Street – Posted: 35 mph; 85<sup>th</sup> %ile: 42 mph)
  - Vehicle Classification (2% to 4% heavy vehicles)
- Crash Data
  - Crash reports – 2013 to 2017 (15 crashes in 5 years)
  - Intersection Crash Rate – compare to MassDOT District 3 and Statewide Averages (below both averages)
- Traffic Signal Warrant Analysis
  - Meets traffic volume signal warrants – 8-Hour, 4-Hour, Peak Hour

# Public Outreach Meeting – June 27, 2018

- Existing Issues (based on community input and site visit observations)
  - Geometry
    - Excessive number of conflict points
    - Unconventional turning movements
  - Vehicle Speeds
    - Main Street southbound right-turns
  - Traffic Operations
    - Prospect Street left-turn delays
    - Prospect Street = Cut-through
  - Pedestrian Accommodations
    - Long crosswalk across Prospect Street
    - No crosswalk across Main Street



# Conceptual Design Options Memorandum / Public Outreach Meeting – December 6, 2018

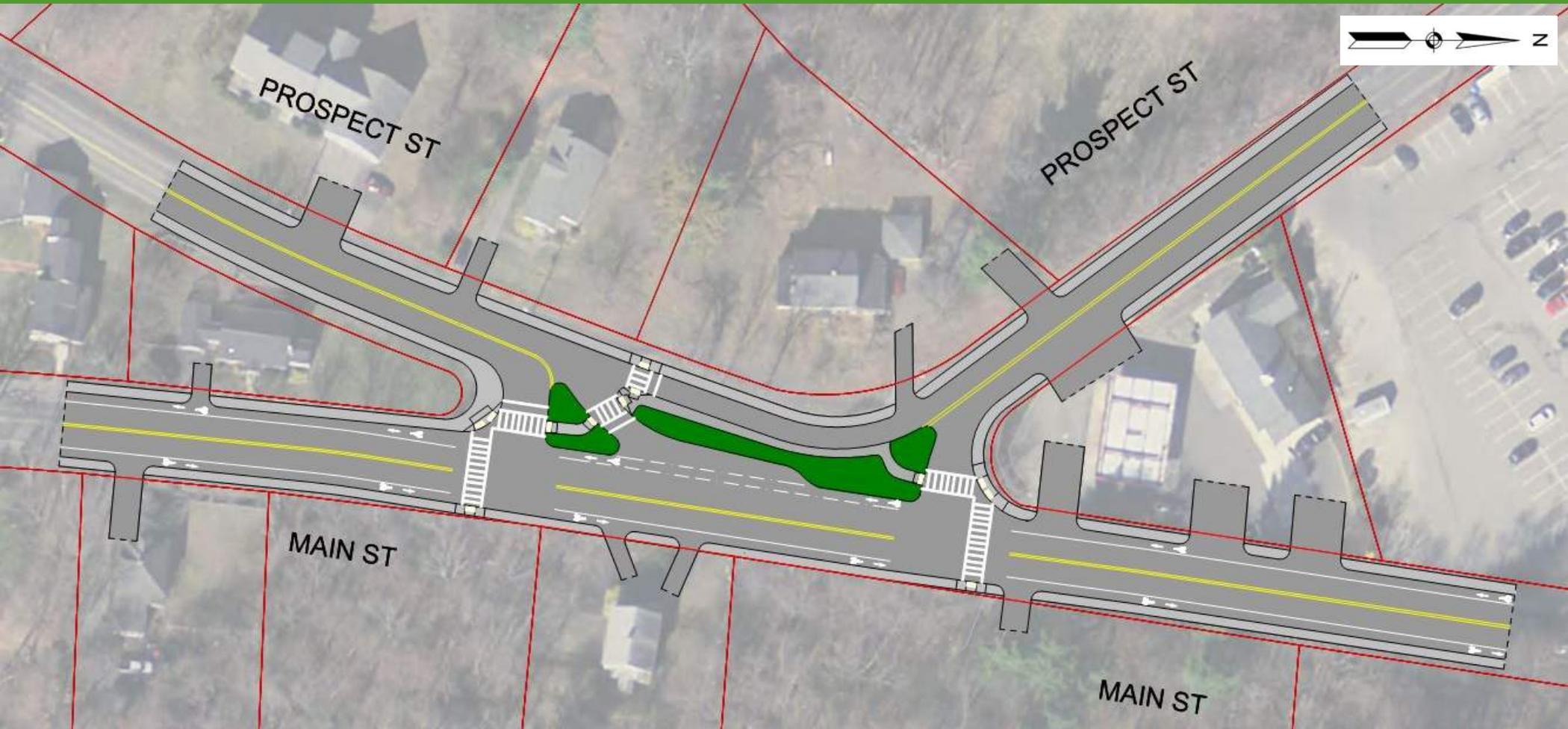
- **4 Total Concept Options:**
  - 2 Unsignalized Concepts
  - 1 Signalized Concept
  - 1 Roundabout Concept



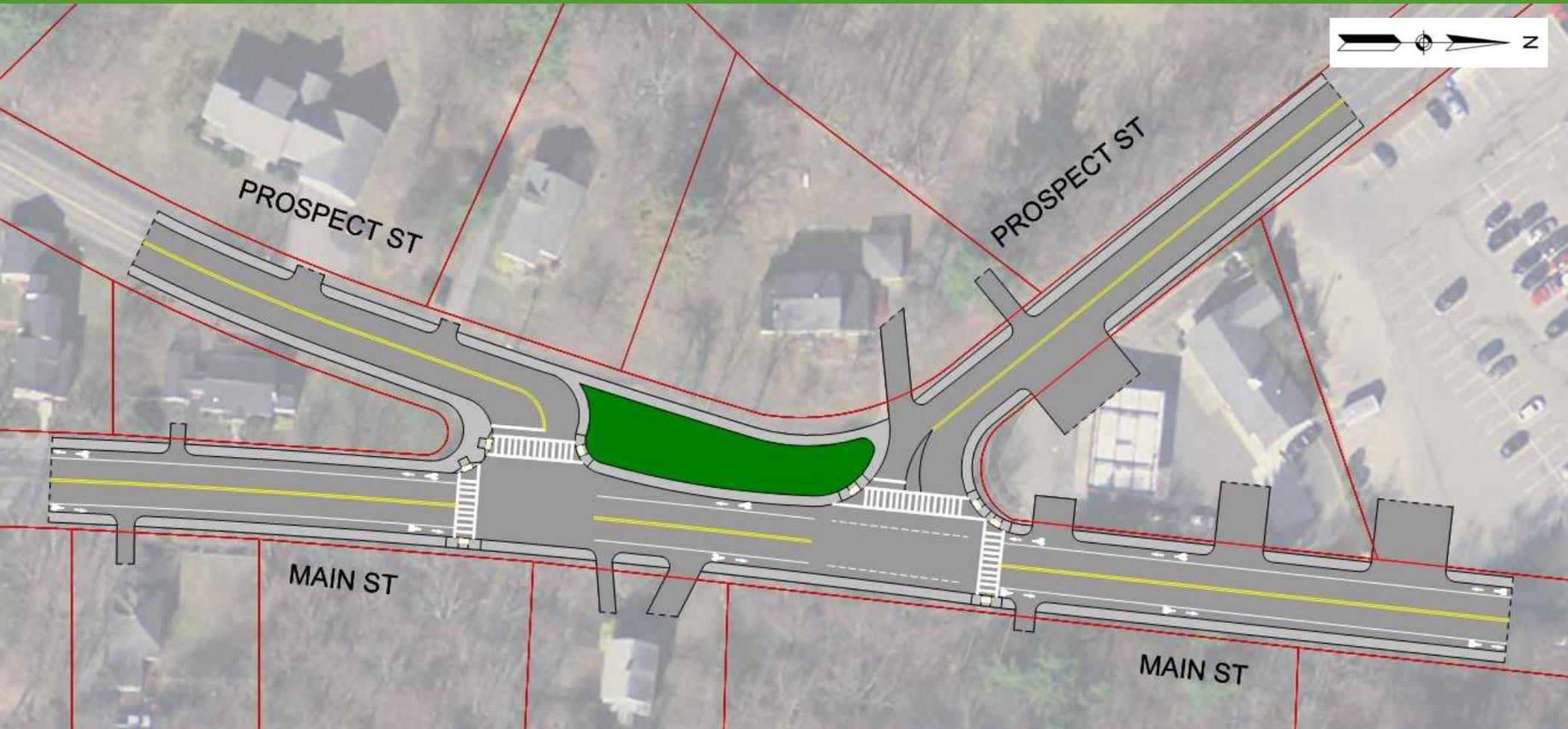
# Goals of the Conceptual Design

- Geometry
  - Reduce number of conflict points
  - Improve turning movements
- Vehicle Speeds
  - Reduce speeds through geometric modifications and intersection control
- Traffic Operations
  - Maintain or improve capacity
  - Reduce quantity and severity of crashes
- Pedestrian and Bicycle Accommodations
  - Provide crosswalks at all approaches
  - Maintain existing bicycle lanes

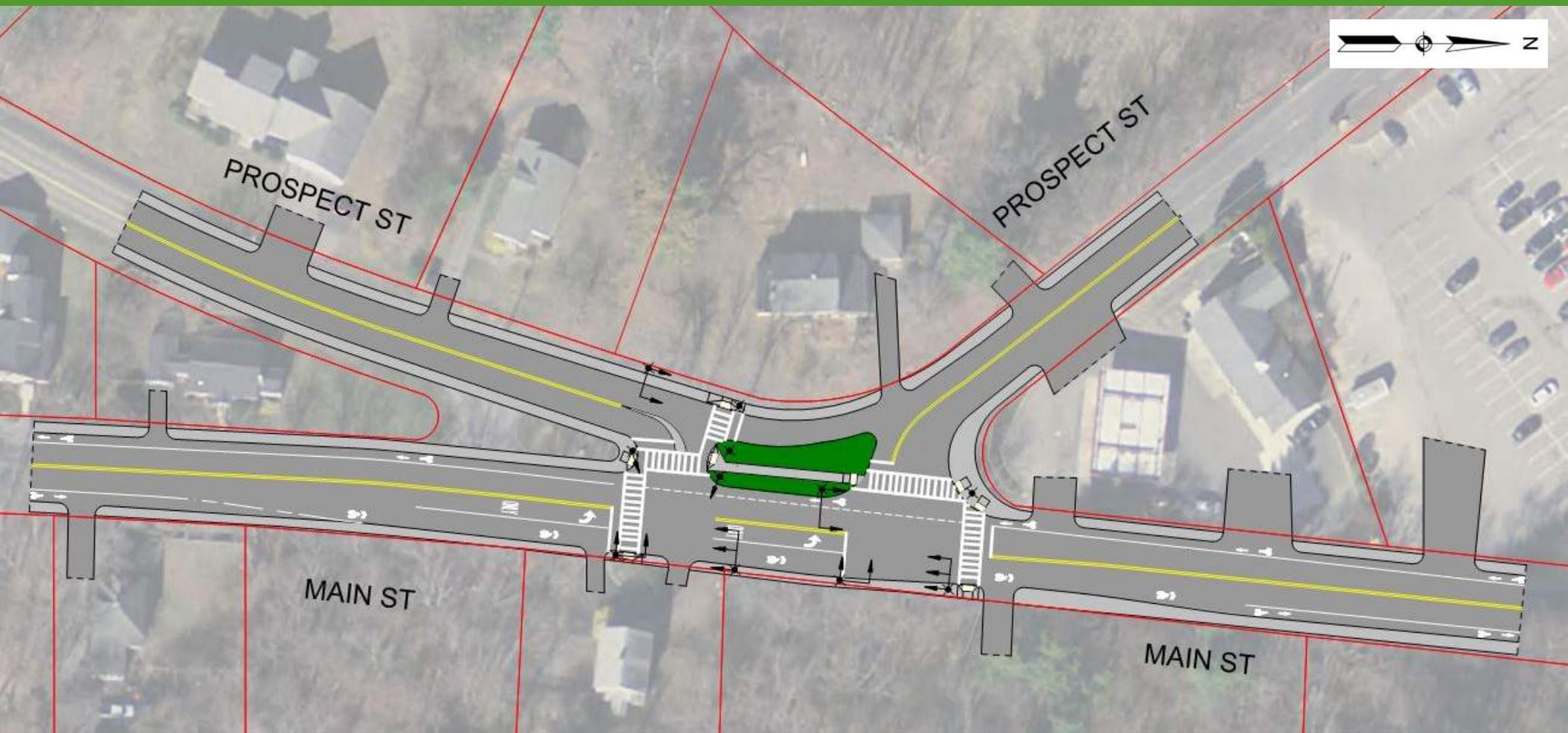
# Unsignalized Concept 1



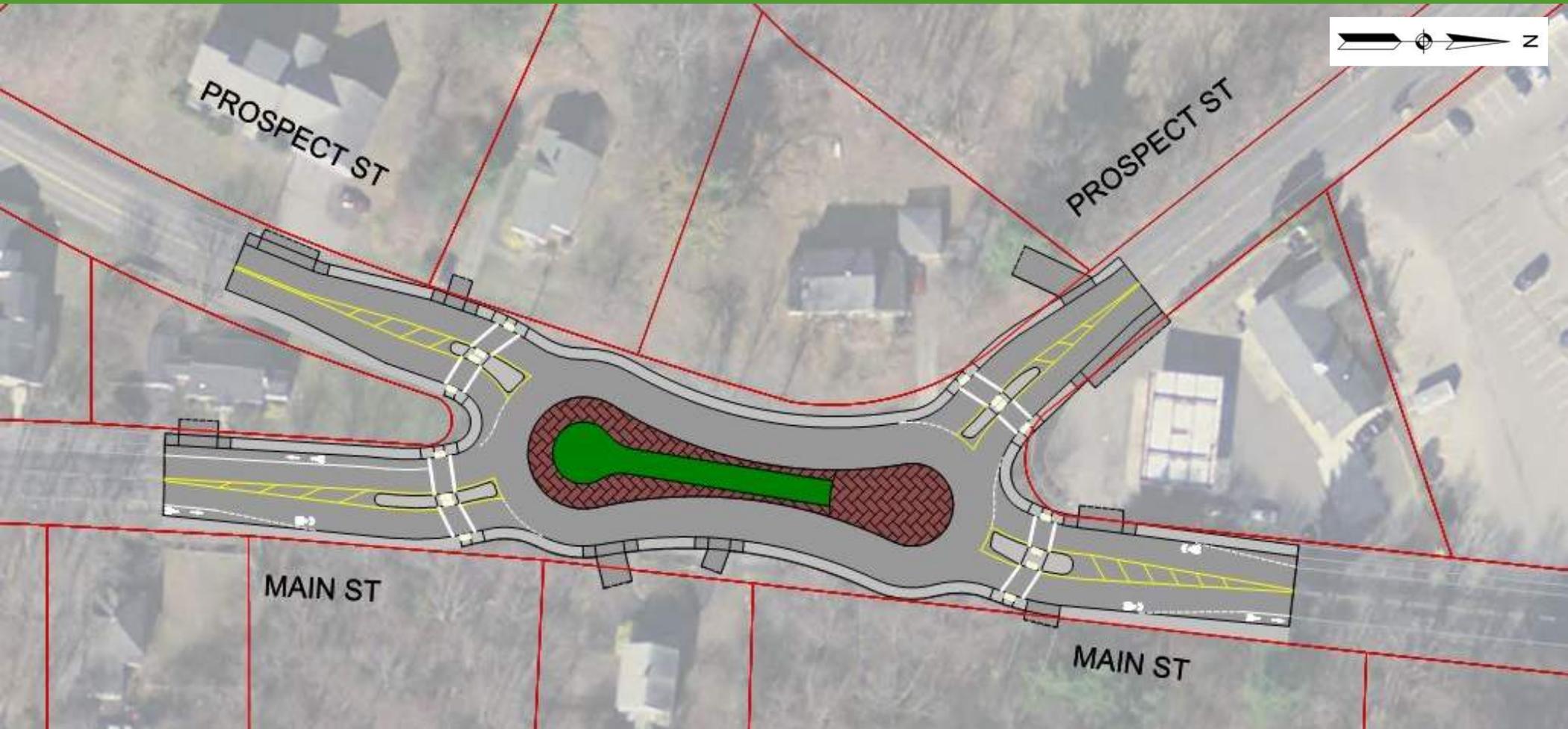
# Unsignalized Concept 2



# Signalized Concept



# Roundabout Concept



# Summary

UNSIGNALIZED CONCEPT 1	SIGNALIZED CONCEPT
<ul style="list-style-type: none"><li>• Fewer conflict points than existing</li><li>• Fewer conflict points than Unsignalized 2</li><li>• Continued delay for Prospect Street left-turns</li><li>• Relatively low cost</li><li>• Relatively low maintenance</li></ul>	<ul style="list-style-type: none"><li>• Exclusive pedestrian phase</li><li>• Longer vehicle queues along Main Street compared to all concepts</li><li>• Less delay for Prospect Street compared to unsignalized concepts</li><li>• Relatively high cost</li><li>• Relatively high maintenance</li></ul>
UNSIGNALIZED CONCEPT 2	ROUNDBABOUT CONCEPT
<ul style="list-style-type: none"><li>• Fewer conflict points than existing</li><li>• More conflict points than Unsignalized 1</li><li>• Continued delay for Prospect Street left-turns</li><li>• Relatively low cost</li><li>• Relatively low maintenance</li></ul>	<ul style="list-style-type: none"><li>• Fewer conflict points than all concepts</li><li>• Least amount of overall delay compared to all concepts</li><li>• Relatively high cost</li><li>• Relatively low maintenance</li></ul>

Questions?

