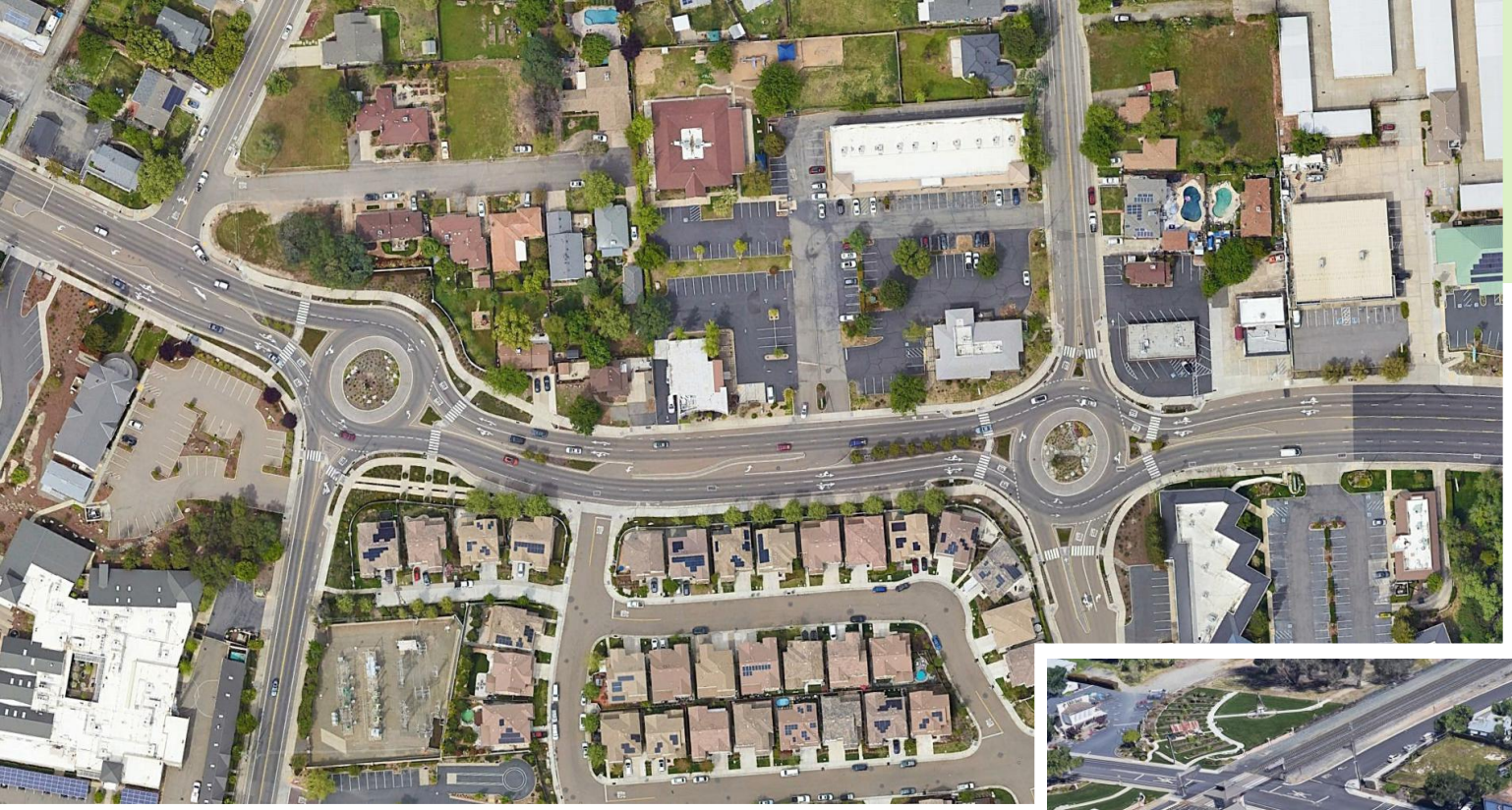
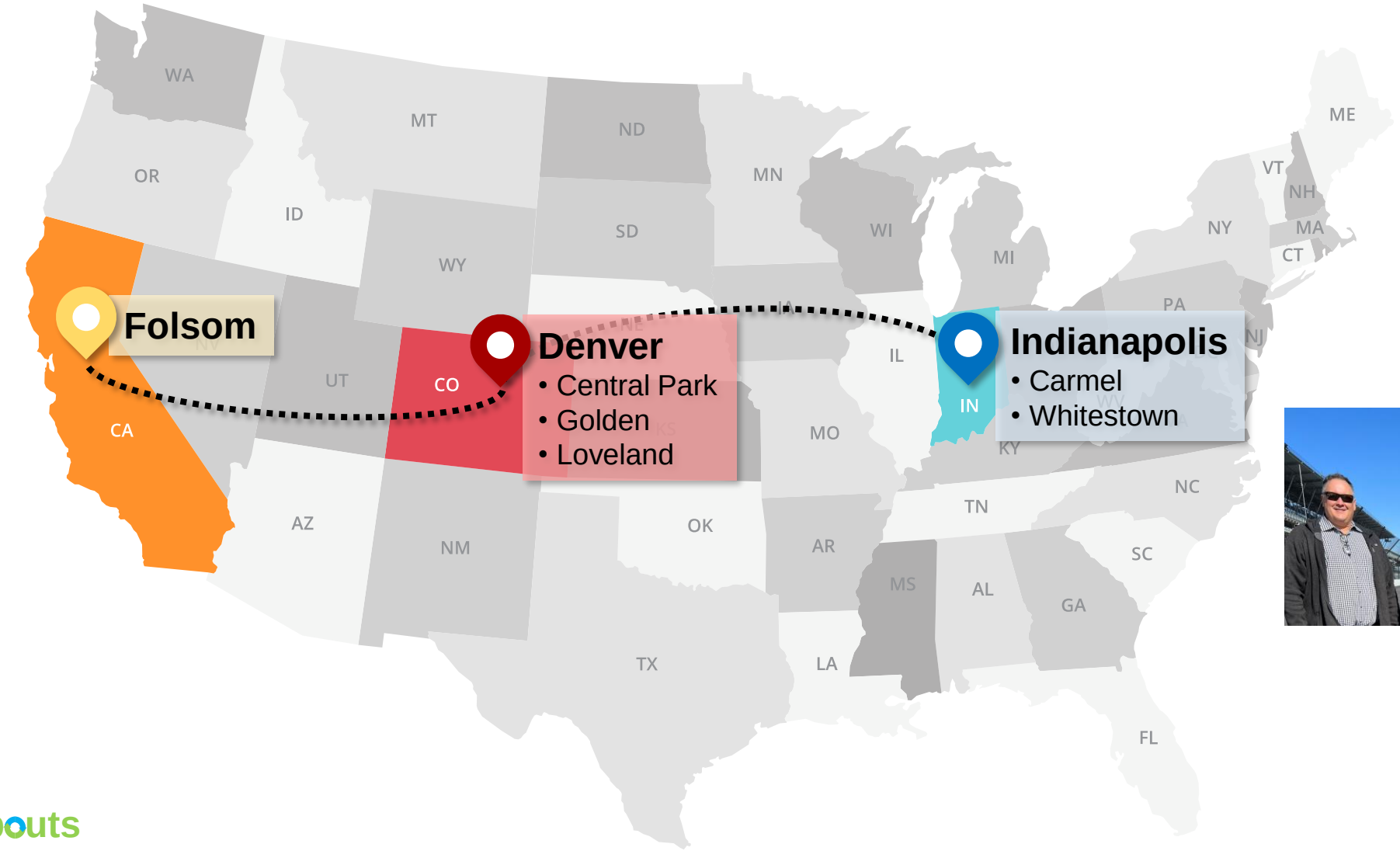
Roundabouts



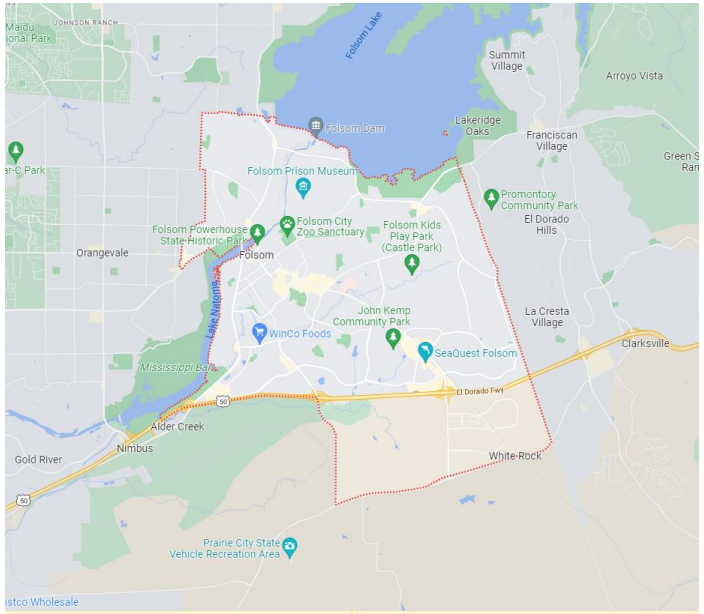
Roundabouts

Fact-Finding Trip Overview



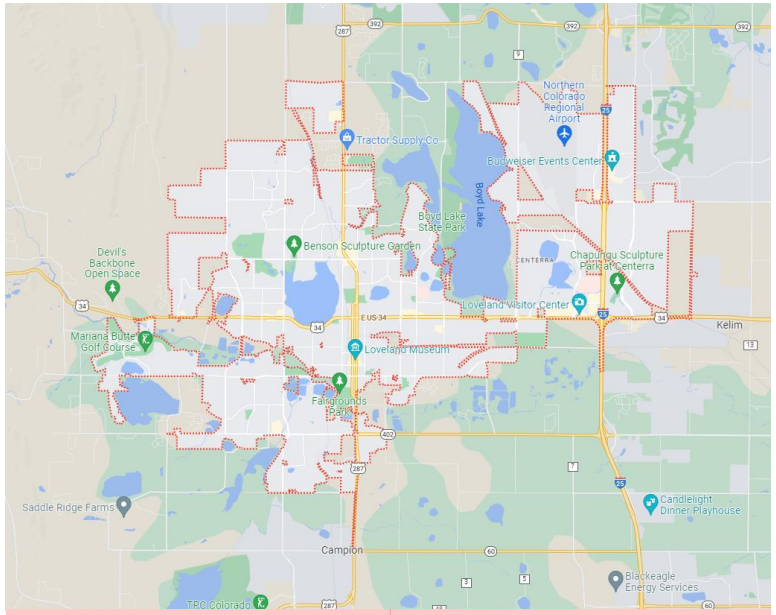
Sense of Scale

Folsom, CA



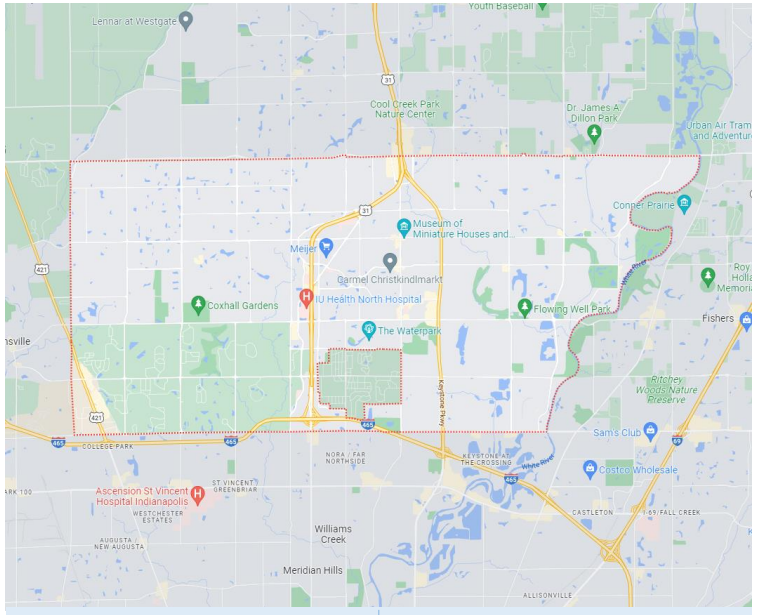
81,000 Population	30 Sq. Miles
105 Signals	5 Roundabouts

Loveland, CO

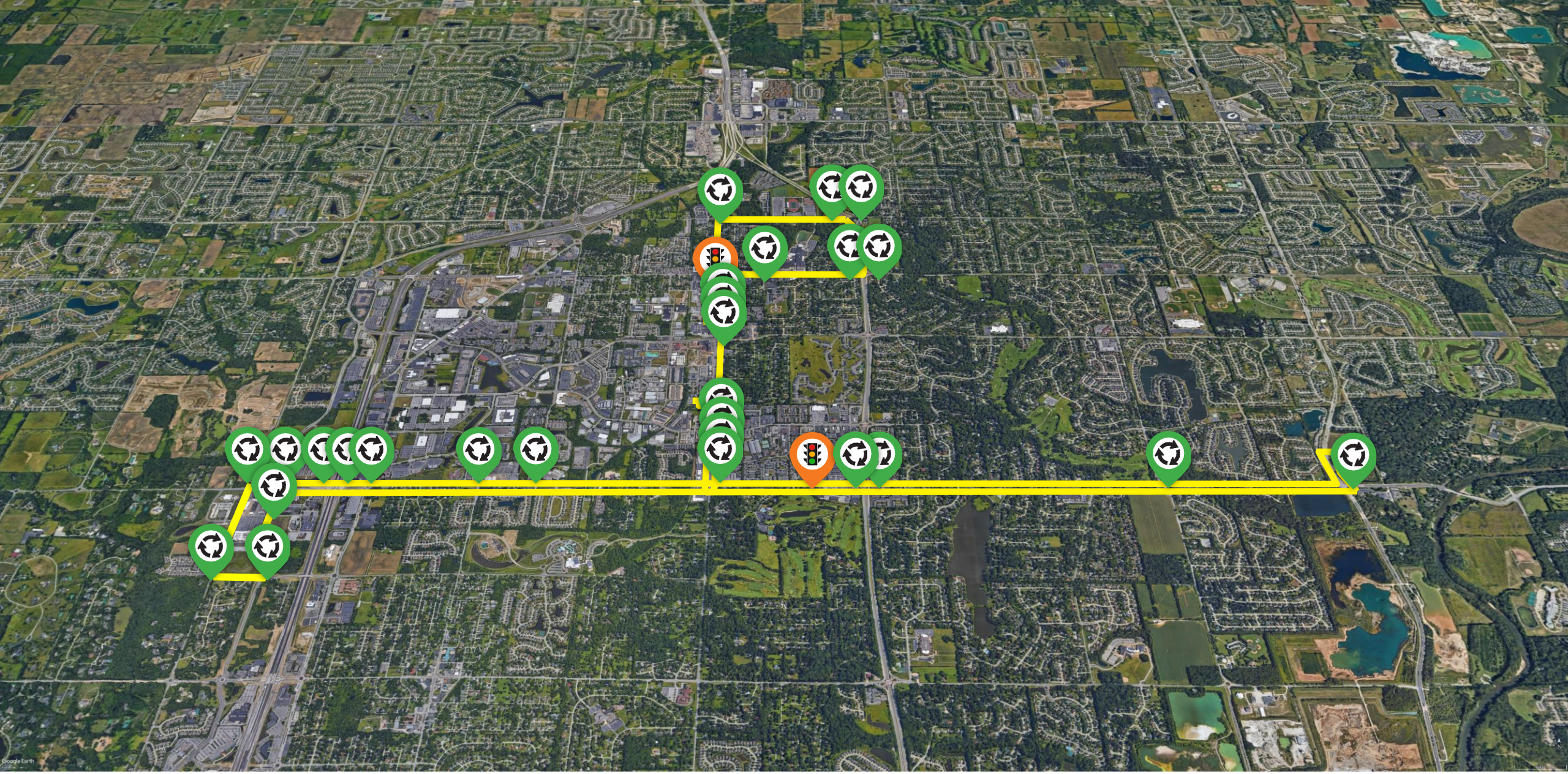


77,000 Population	35 Sq. Miles
100 Signals	60 Roundabouts

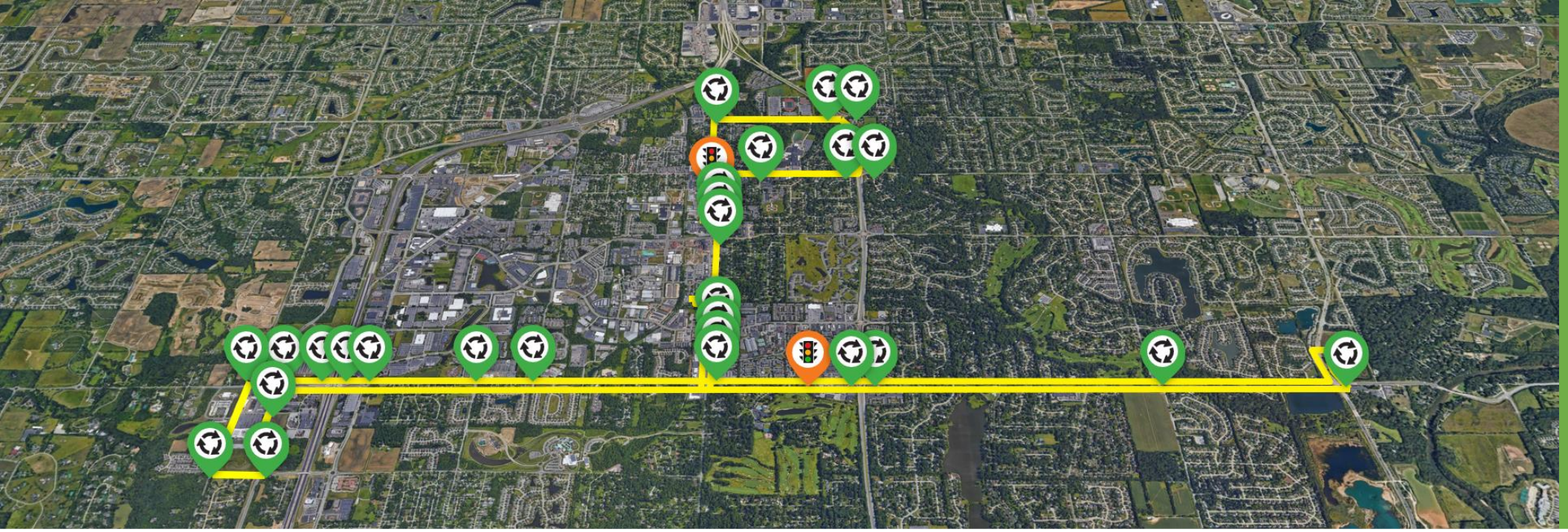
Carmel, IN



105,000 Population	49 Sq. Miles
9 Signals	147 Roundabouts



Roundabouts



Carmel

16.5 Miles

48 Controlled Intersections

2 Signalized Intersections

Folsom

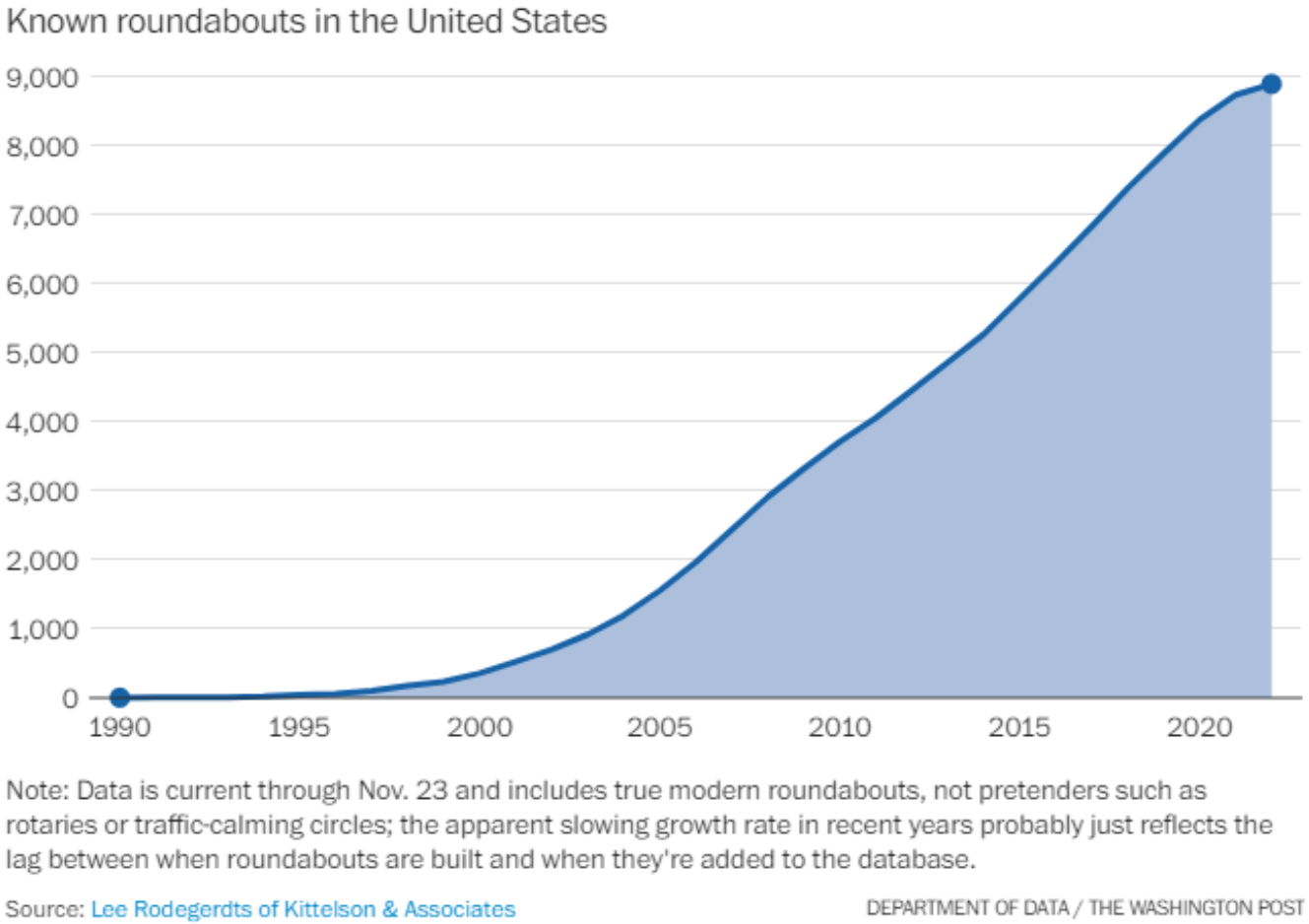
17 Miles

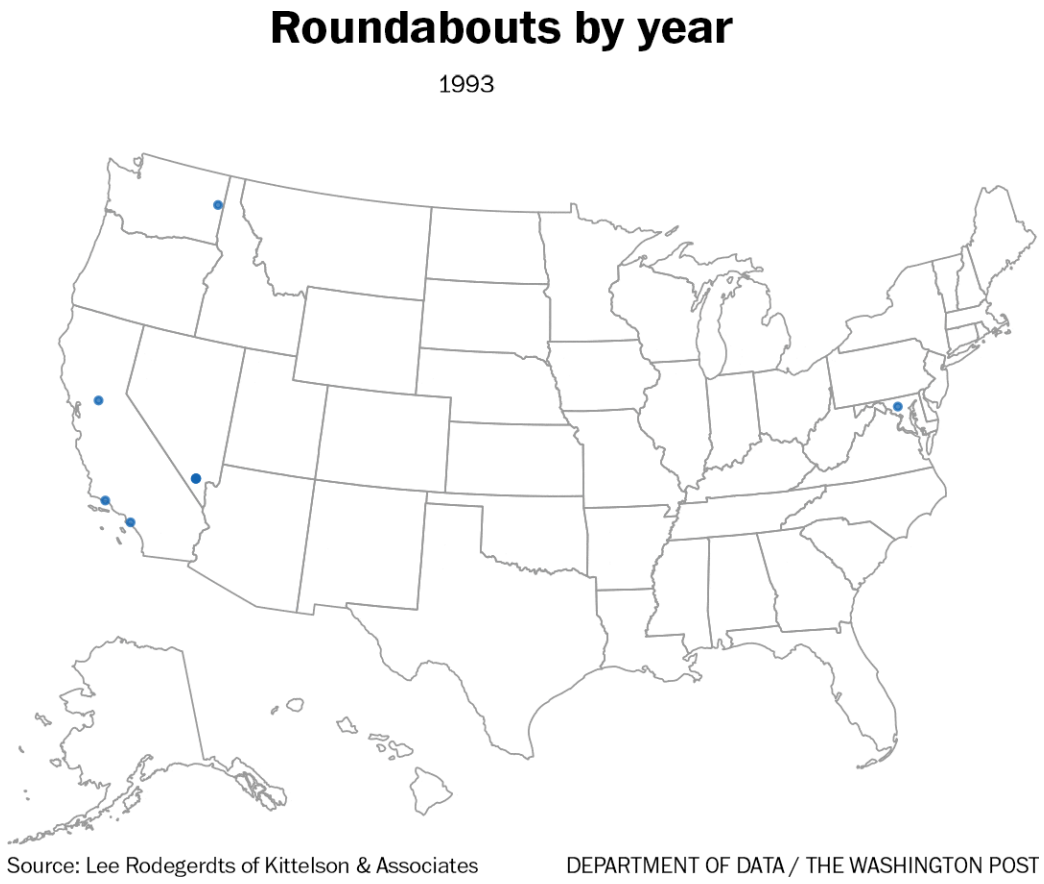
58 Controlled Intersection

53 Signalized Intersections

5 AWSC Intersections

Roundabout Acceptance





The Basics

Traffic Control

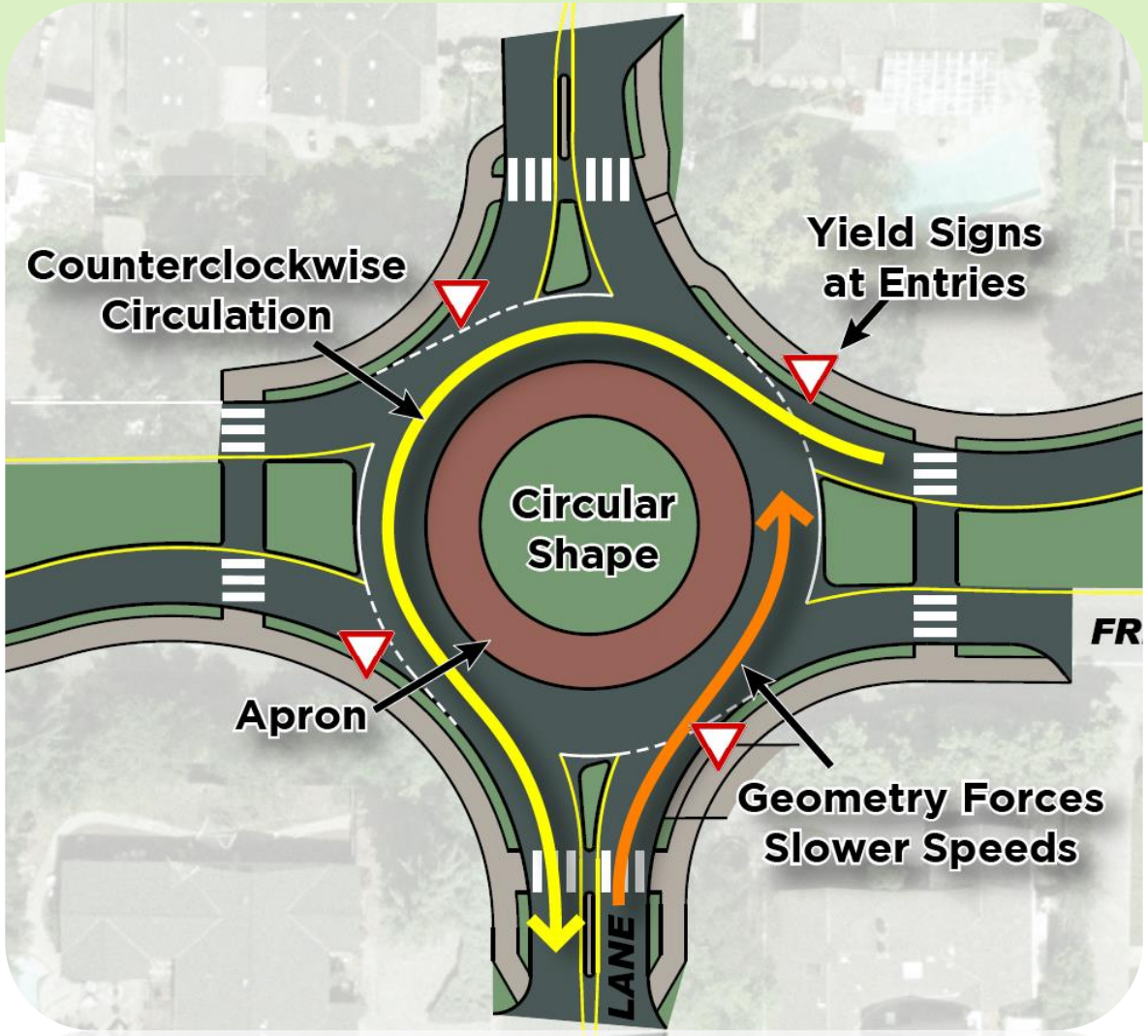
- Yield at Entry

Traffic Deflection

- Pavement markings and raised islands direct traffic into a one-way counterclockwise flow

Geometrics

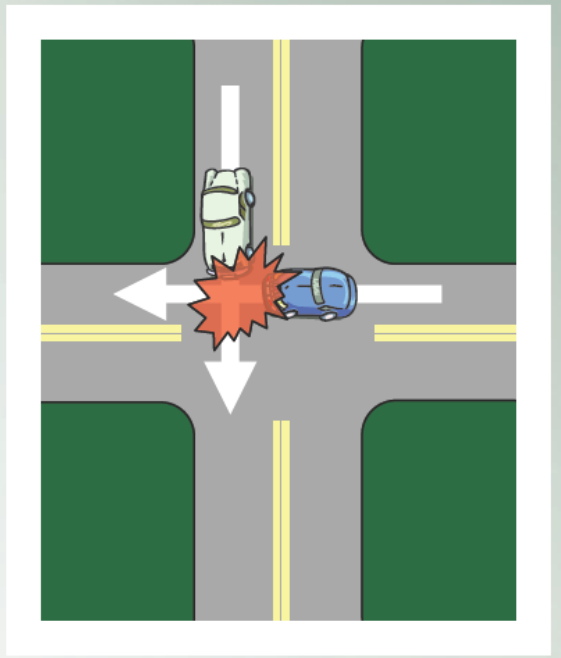
- The radius of the circular road and the angles of entry are designed to slow the speed of vehicles



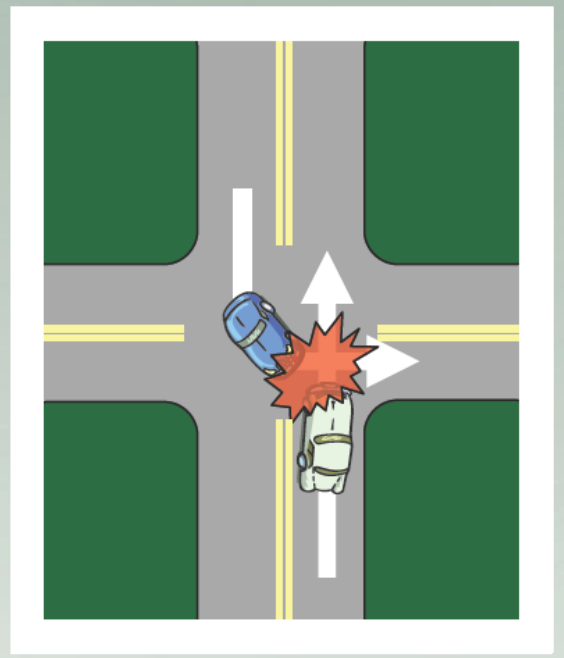
The Basics

Typical 4-leg intersection

Angle

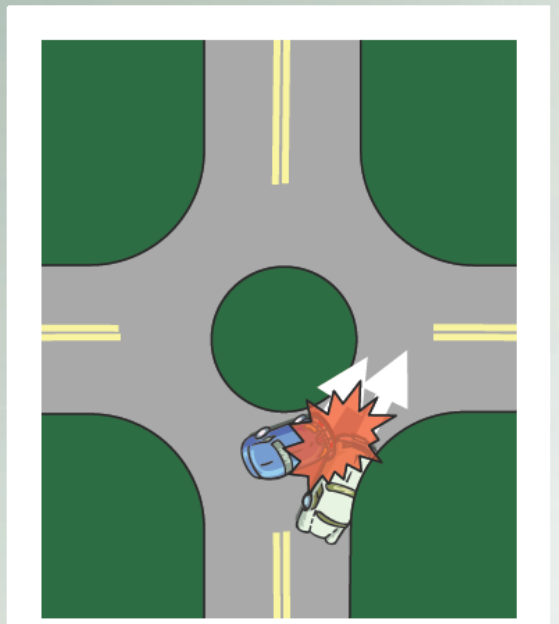


Left turn



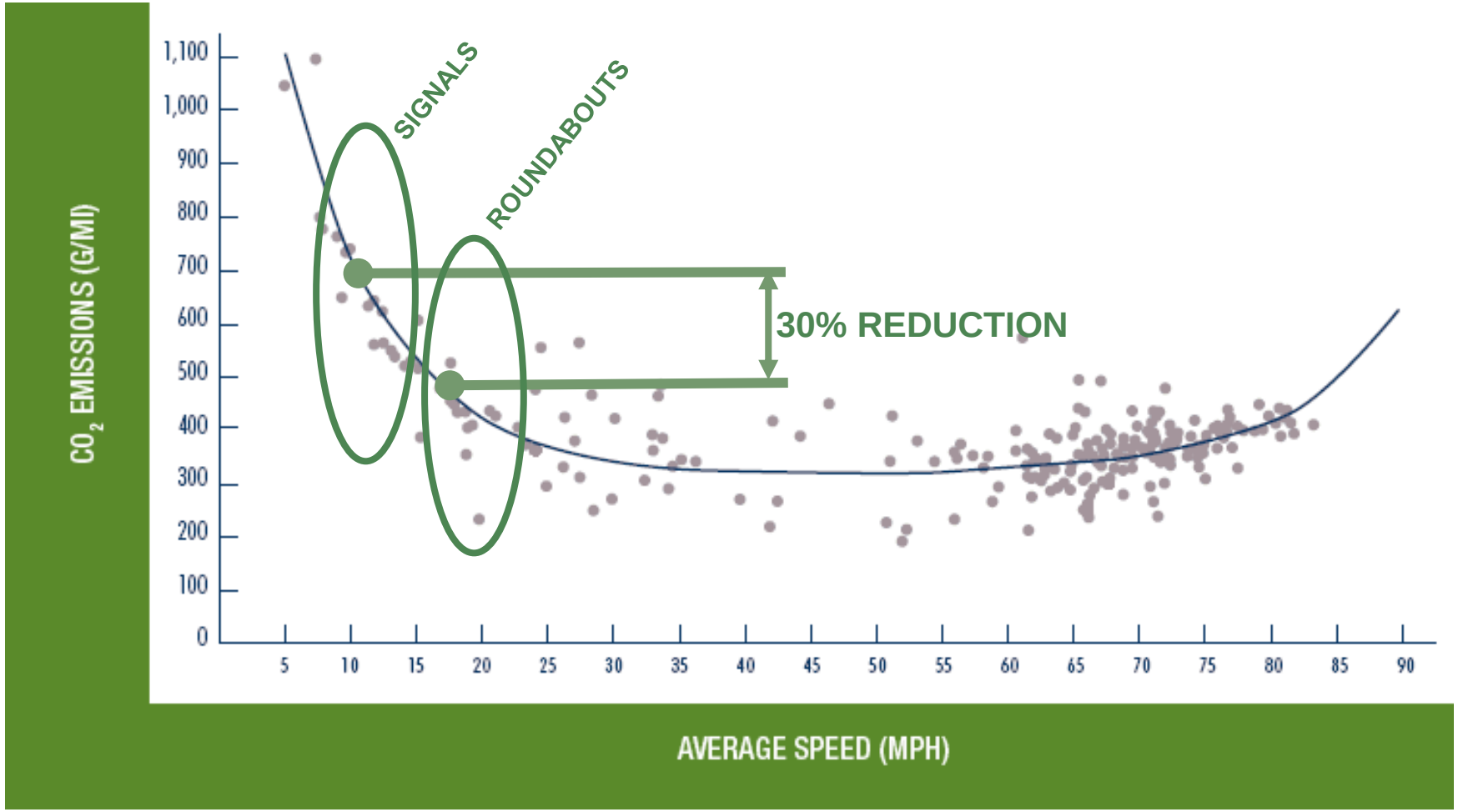
Roundabout

Sideswipe



Source: FHWA

Emission Reduction: Effect of Speed on GHG



Source: AASHTO Transportation and Climate Change Resource Center

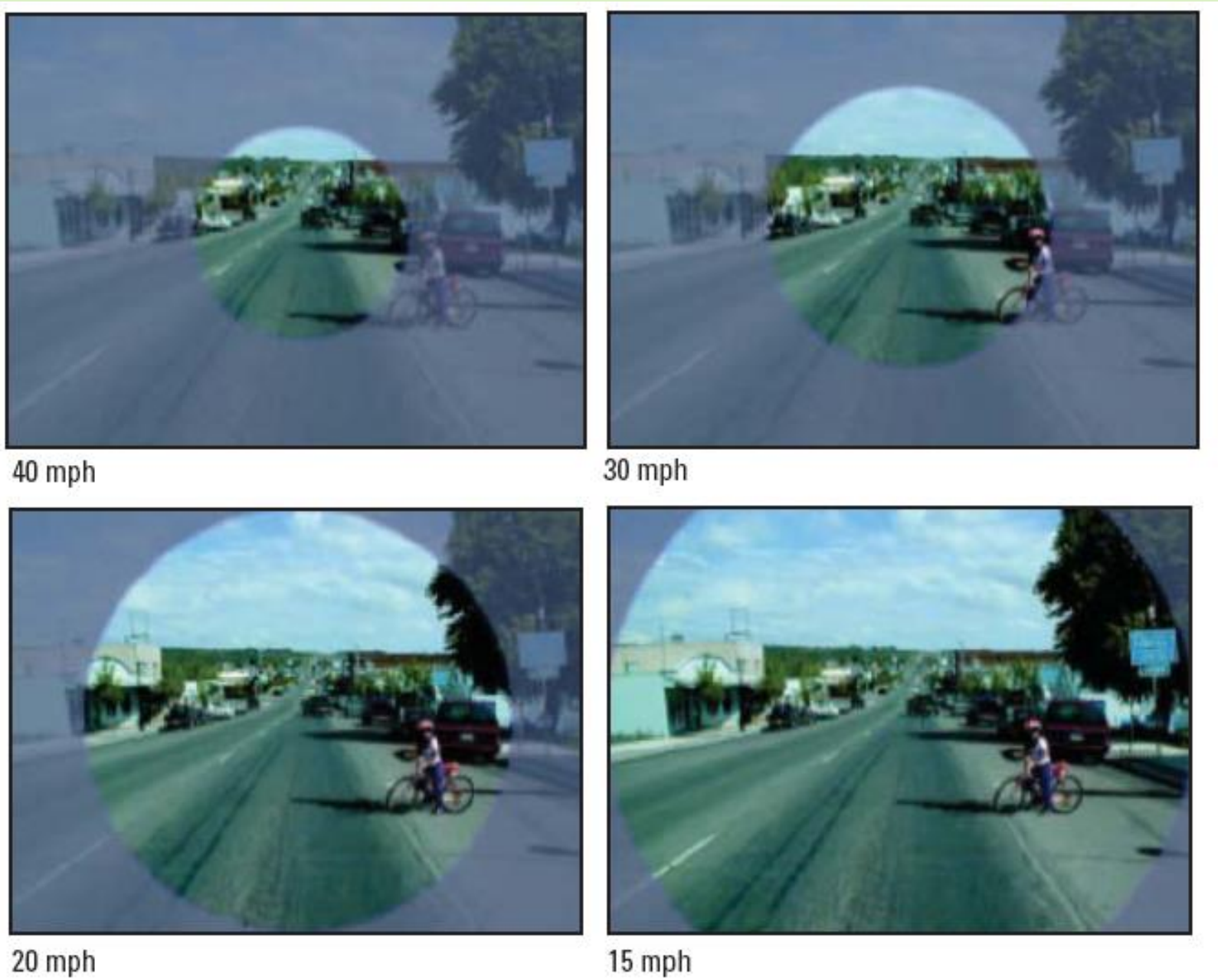
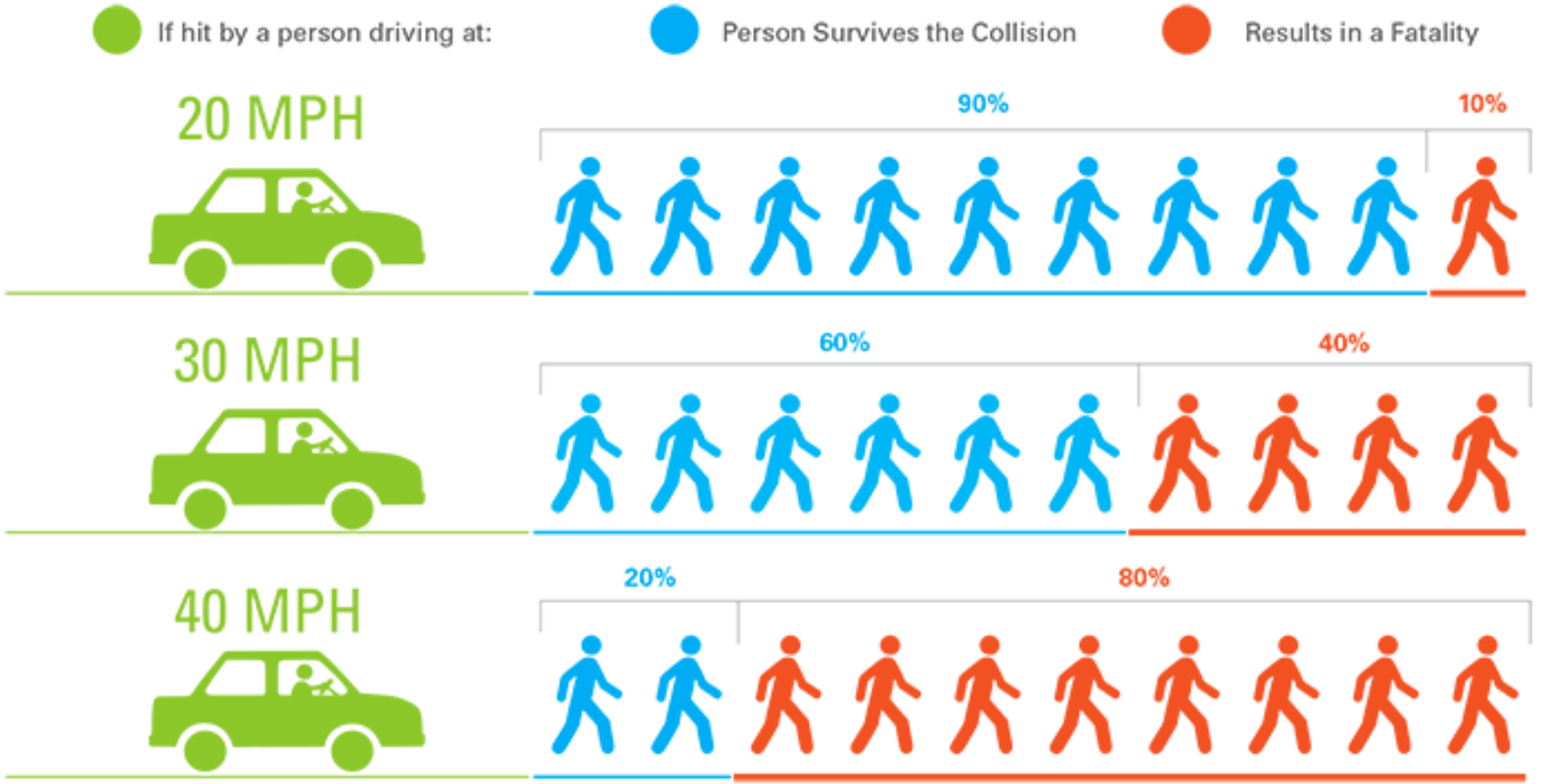


Figure 5.9. Driver focus at different speeds (Source: TGM 1999)

Pedestrian Safety



Benefits

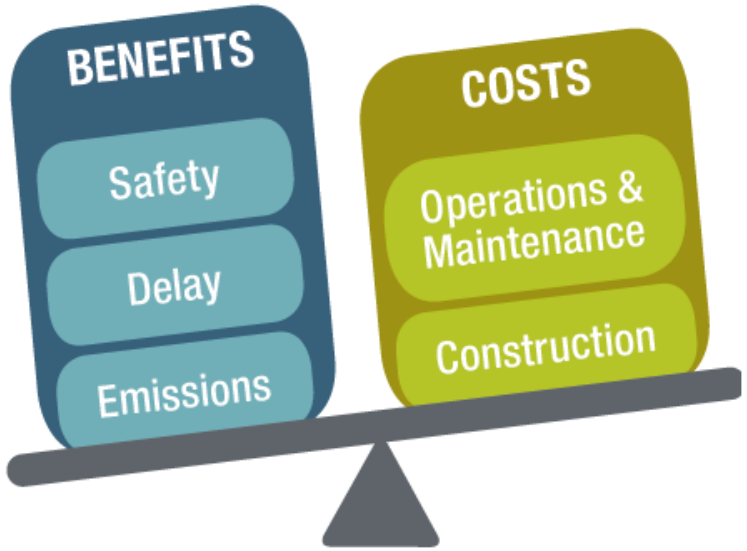
	Roundabout	Traffic Signals
Vehicle and Driver Safety	Eliminates high-speed crashes and reduces fatalities and injuries by 70+%	Numerous vehicle and pedestrian conflict points on standard intersection (32 vehicle/24 pedestrian)
Pedestrian and Bicyclist Safety	Shorter one-directional crossings provide greater pedestrian focus and awareness	Vehicles are more focused on signal changes than on pedestrian movements
Space/Development Footprint	Reduces additional right-of-way between links of intersections	May require additional turn lanes in future if traffic volumes or traffic patterns change
Cost and Sustainability	Less expensive than a signal for greenfield construction (new location)	Increase in fuel consumption and emissions due to stopped and delayed vehicles during red lights
Traffic Capacity	Creates equal priority for all approaches	Typically prioritizes mainline traffic allowing progression of high volumes approaches
Access Management	Provides equal priority of driveway/business access	Requires drivers to make additional left turns or right turns to access certain properties/businesses
Aesthetics	Provides attractive entries and gateways to communities	Various lighting and signing distractions can impact the overall aesthetic appeal for the user
Maintenance	Pavement markings, lighting, and some landscape maintenance may be more intensive than signals	Requires staff time required to maintain signals, provide retiming, and conduct repair

What Performance Measures are Considered?

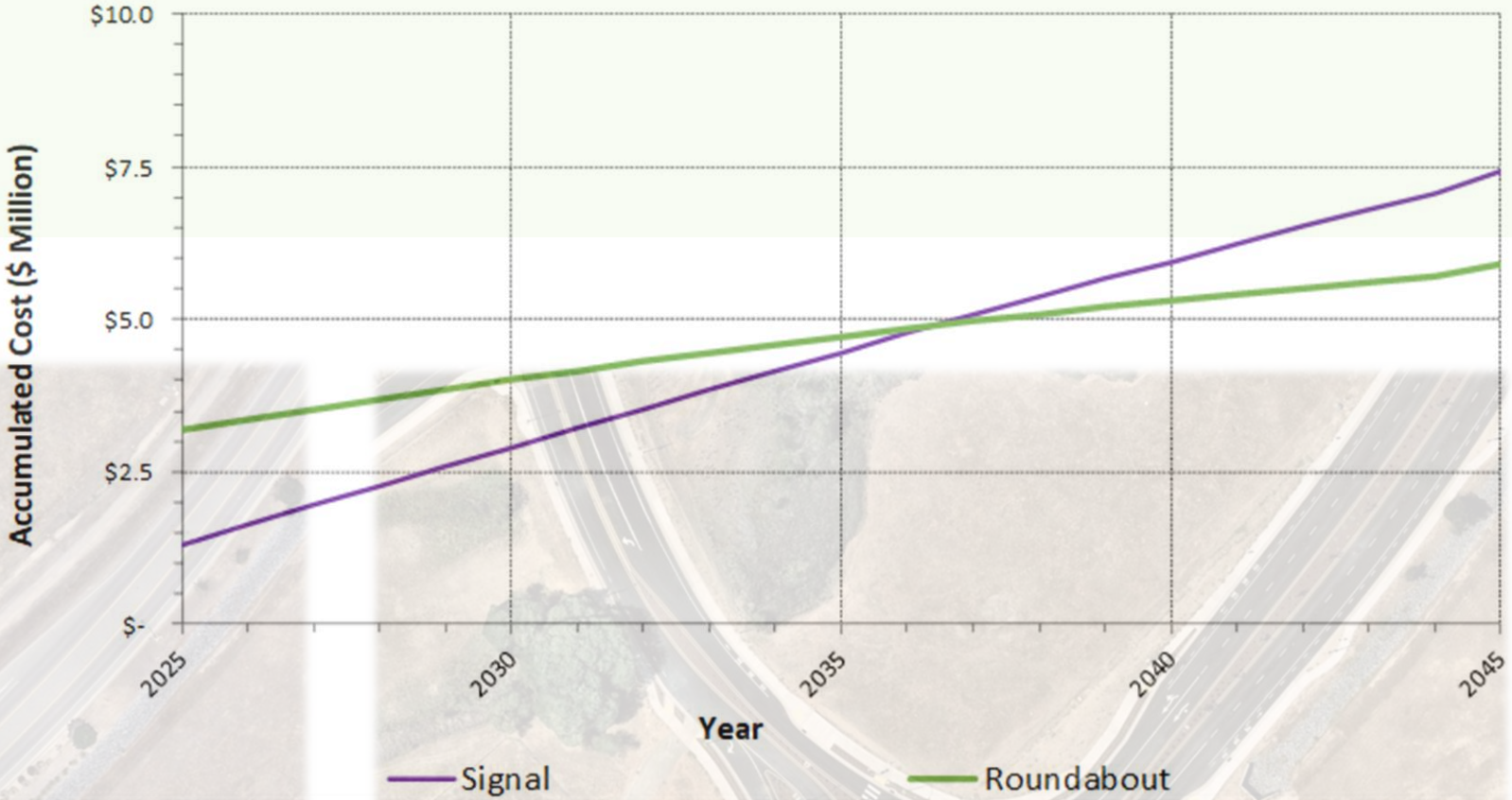
1. **Safety**
2. **Delay** (travel time reduction savings)
3. **Emission reductions** (not used in some states)
4. **Operations and maintenance**
5. **Initial capital cost**

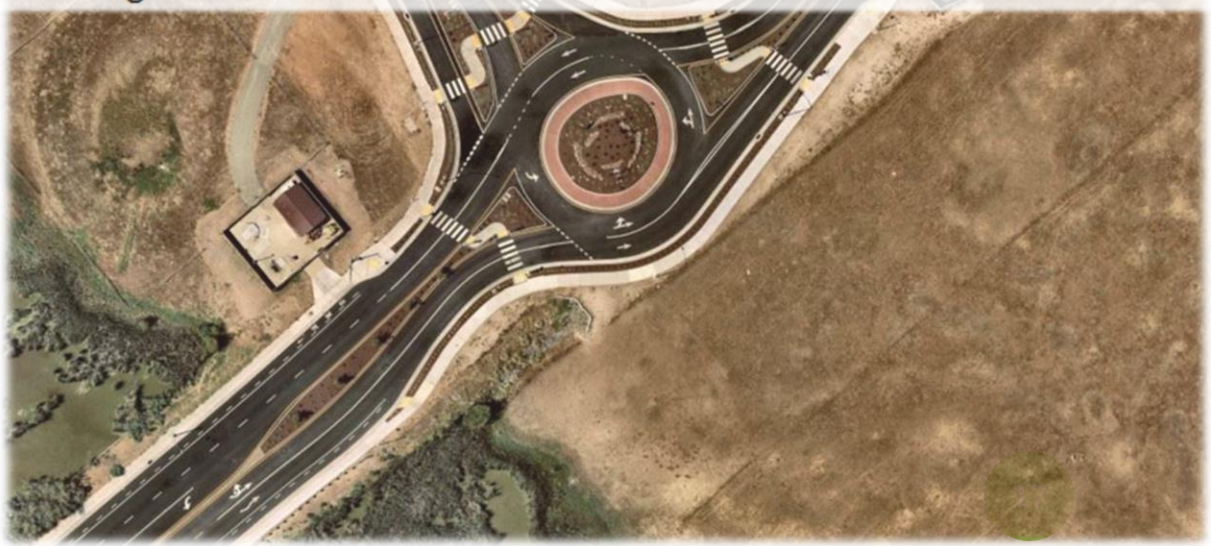
Benefit Performance Measures calculate the benefits of an alternative compared to the existing condition

Cost Performance Measures calculate the added costs of an alternative compared to the existing condition



Lifecycle Costs





Benefits

2.4 TIMES LESS
likely to have an injury accident

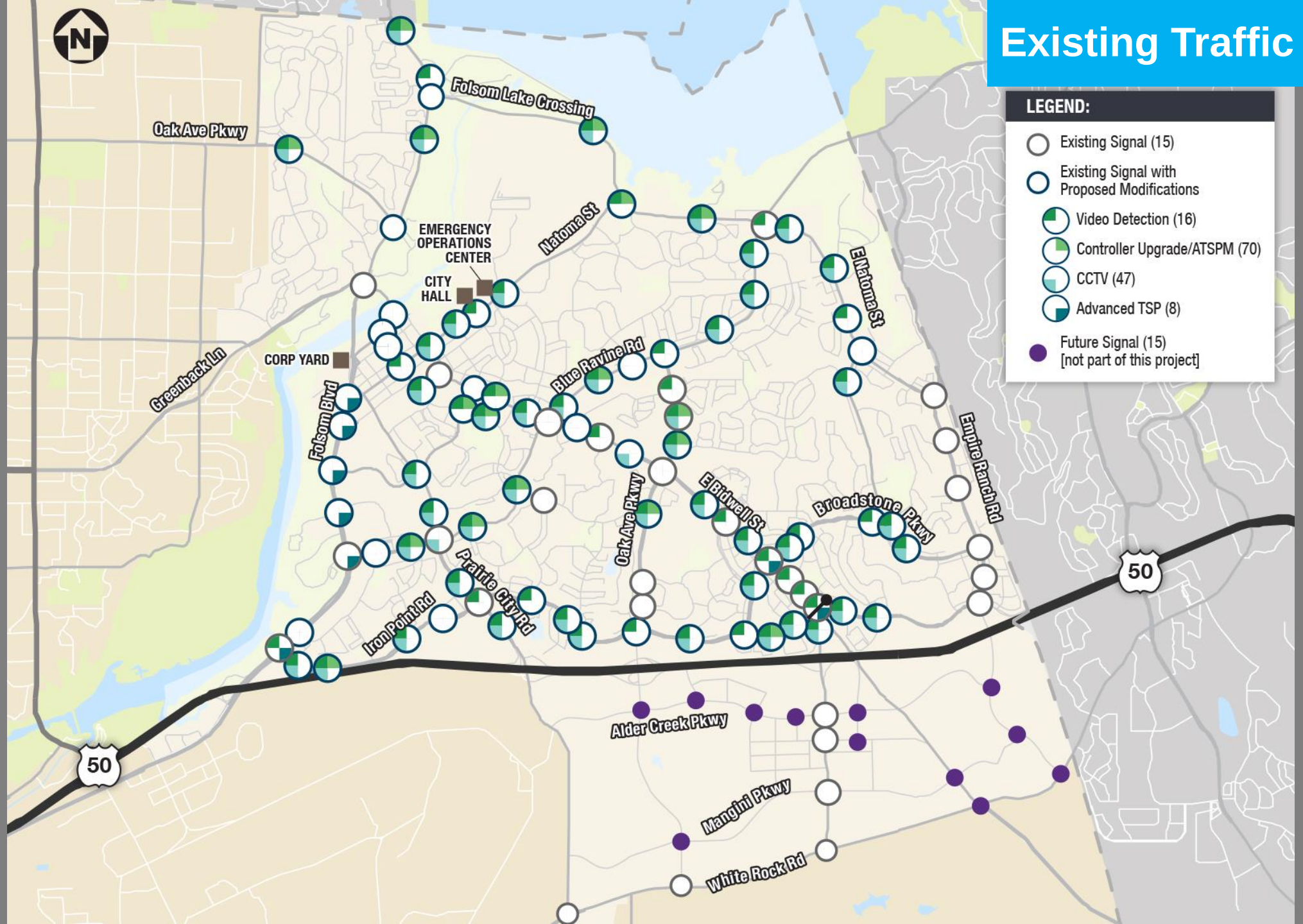
57% REDUCTION
in traffic delays

53% REDUCTION
in O&M cost compared to a traffic signal

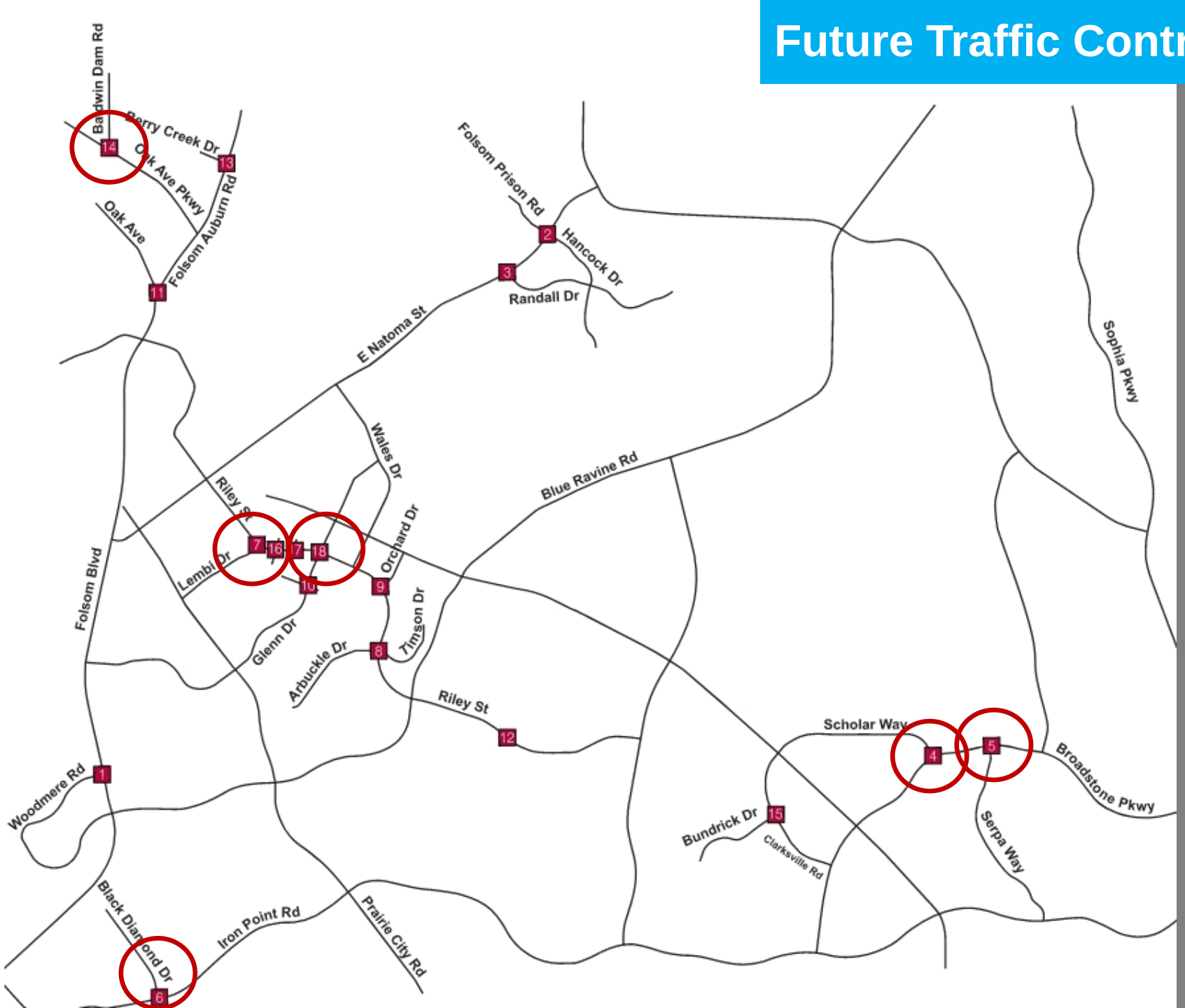
Potential Funding Sources

Benefit	Potential Funding Sources
Cost (greenfield only)	Folsom Plan Area developer fees
Safety	HSIP, SS4A
Sustainability/Air Quality	CMAQ, Sustainable Communities grants
Bike/Ped	ATP (State or Regional)
Place-making	Community Design/CDBG

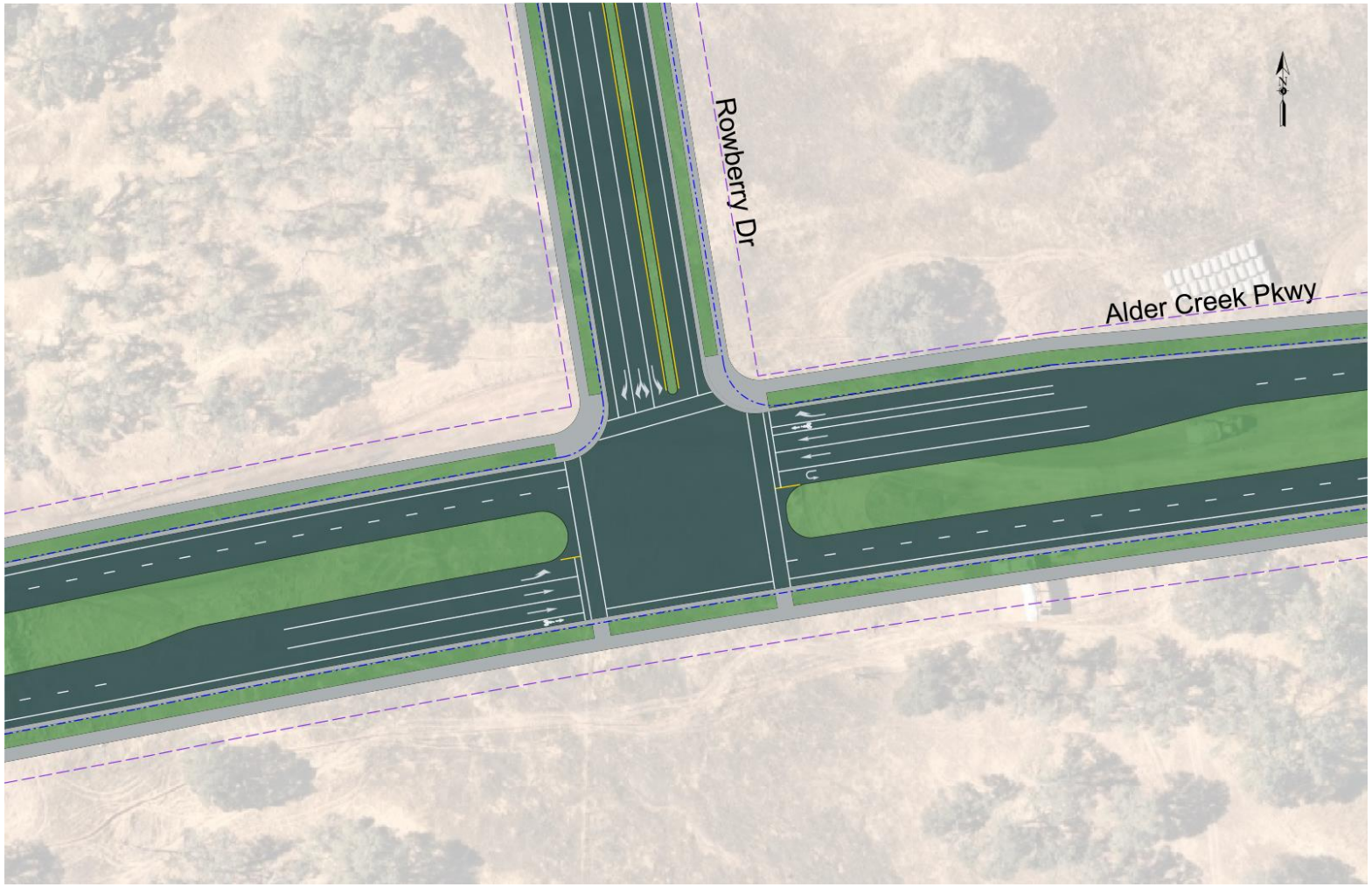
Existing Traffic Signals



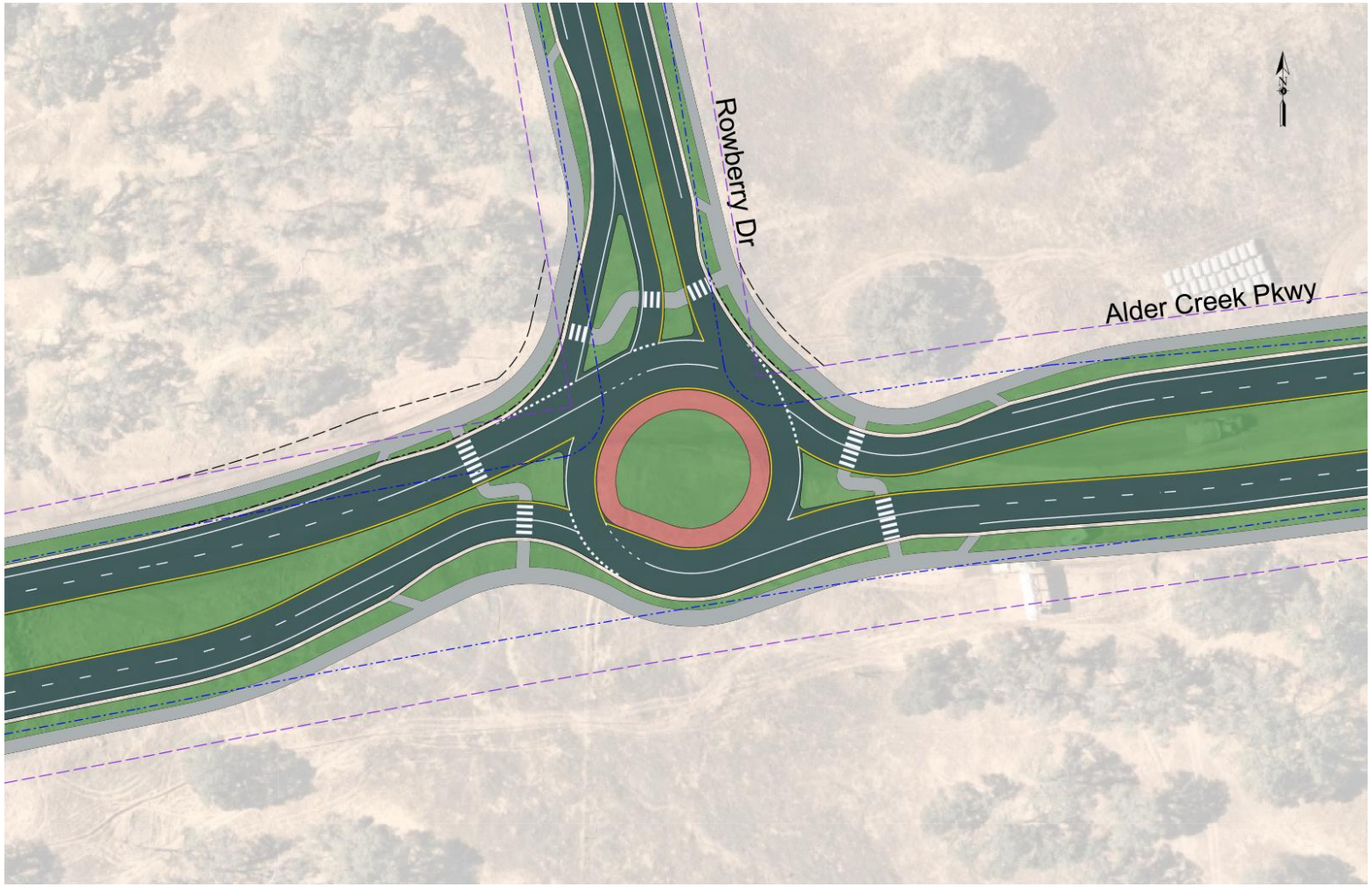
Future Traffic Control Locations



Potential Roundabout Candidates



Potential Roundabout Candidates



Wrap-Up

- Do you need any more information about roundabouts (RABs)?
- Shall staff develop a formal policy to prioritize RABs over other traffic control methods?

Thank you!