

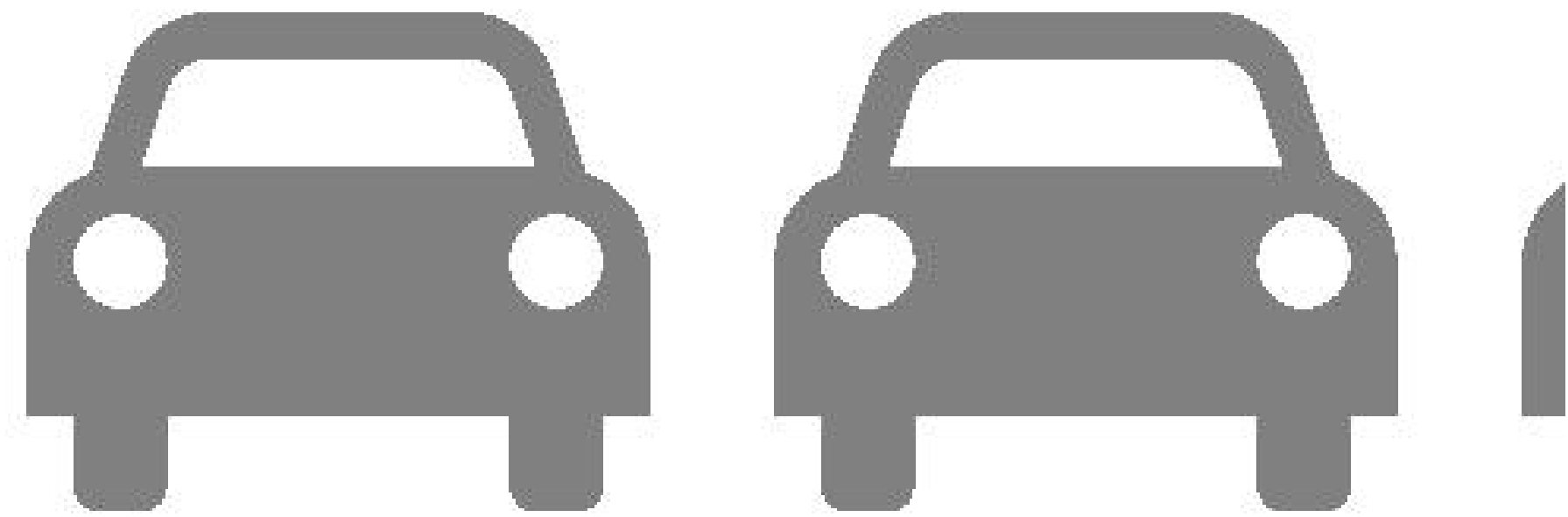
Project purpose and need

Why are improvements being planned?

- *To improve safety and mobility.*
 - In peak periods, congestion at the ramp intersections can cause traffic queues to extend back onto I-15, potentially leading to severe crashes.
 - Congestion at the ramp intersections increases delay at the nearby frontage road intersections, which are projected to operate at level of service (LOS) F with 2042 traffic volumes.
 - The ramps were not designed for the current speed limit of 80 mph. To improve safety, the ramps will be extended to provide adequate acceleration and deceleration lengths.

Existing and projected traffic

2015 traffic



2,075 vehicles enter the intersections (ramp and frontage road intersections) during the PM peak hour

Projected 2042 traffic



3,050 vehicles enter the intersections (ramp and frontage road intersections) during the PM peak hour

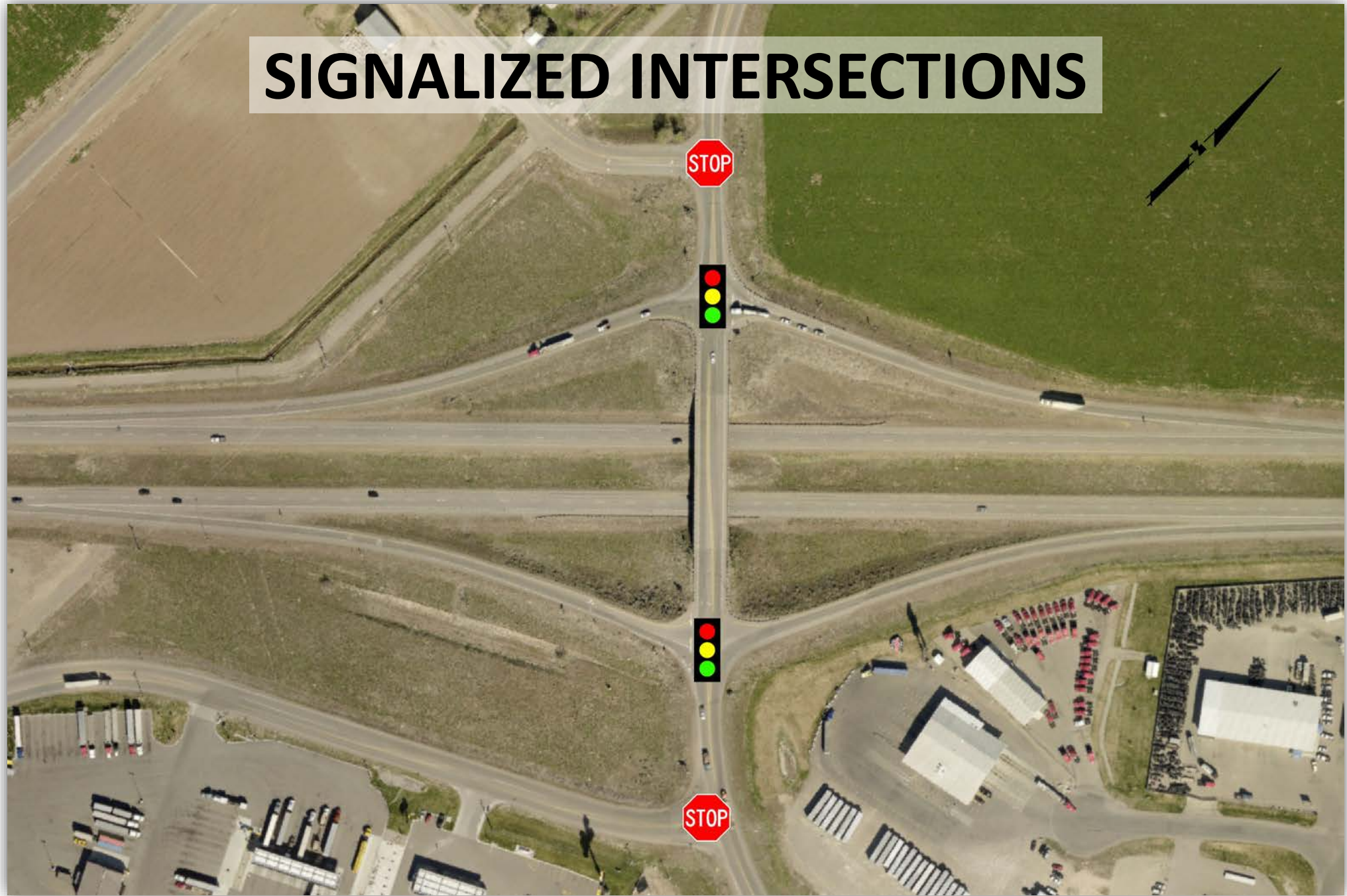
42%
*increase
in traffic
by 2042*

Intersection alternatives considered

SIGNALIZED INTERSECTIONS

The stop sign control at the ramp intersections is replaced with traffic signals and the **overpass is replaced** to add left-turn lane storage. Estimated project cost: **\$8 million**

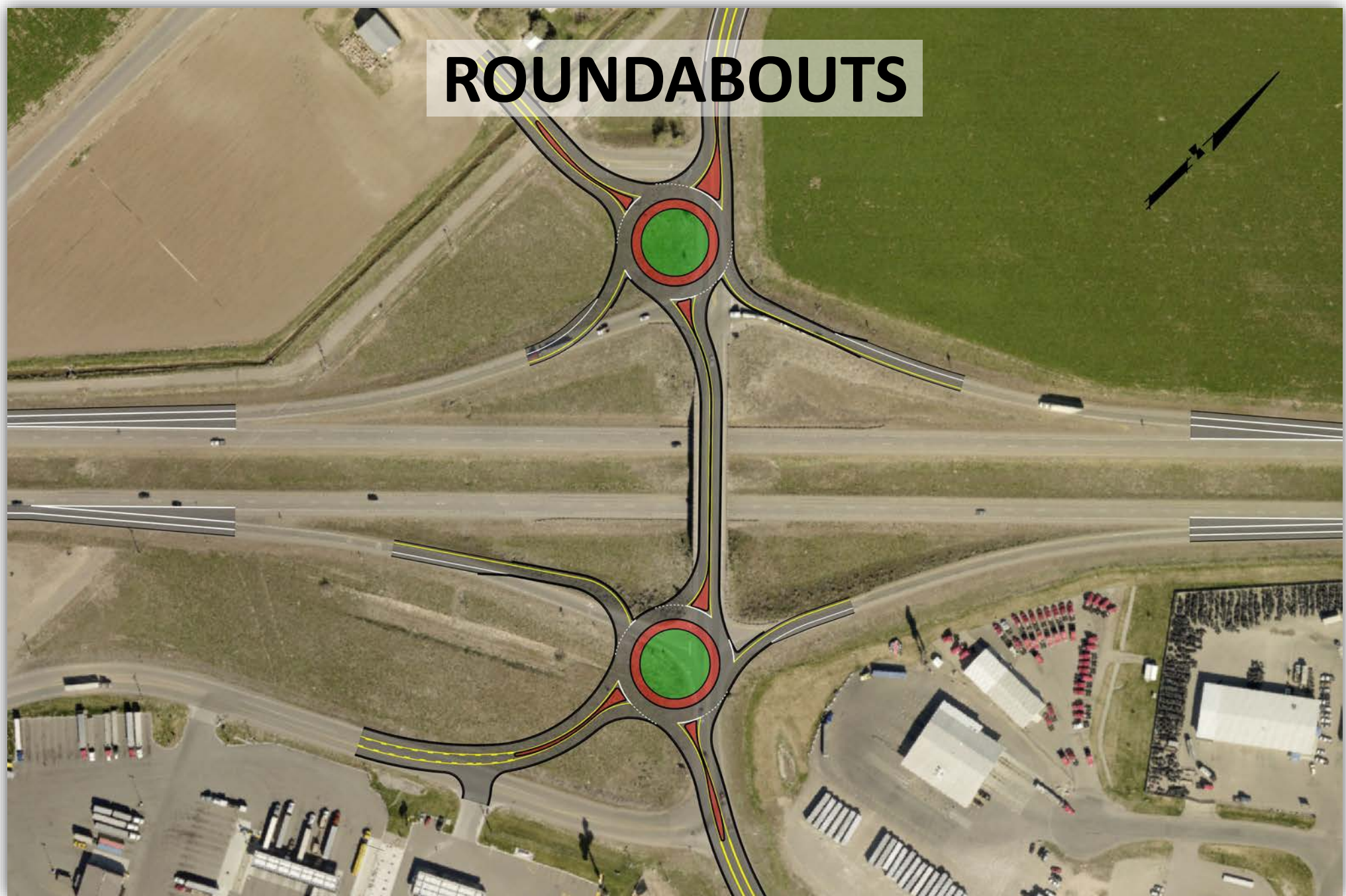
Pros	Cons
<ul style="list-style-type: none">• Familiar• Reduces delay for ramp traffic	<ul style="list-style-type: none">• Estimated cost exceeds project funding• Signals are not currently warranted• Vehicle queues increase delay for frontage road traffic (LOS F in 2042)



ROUNDBABOUTS

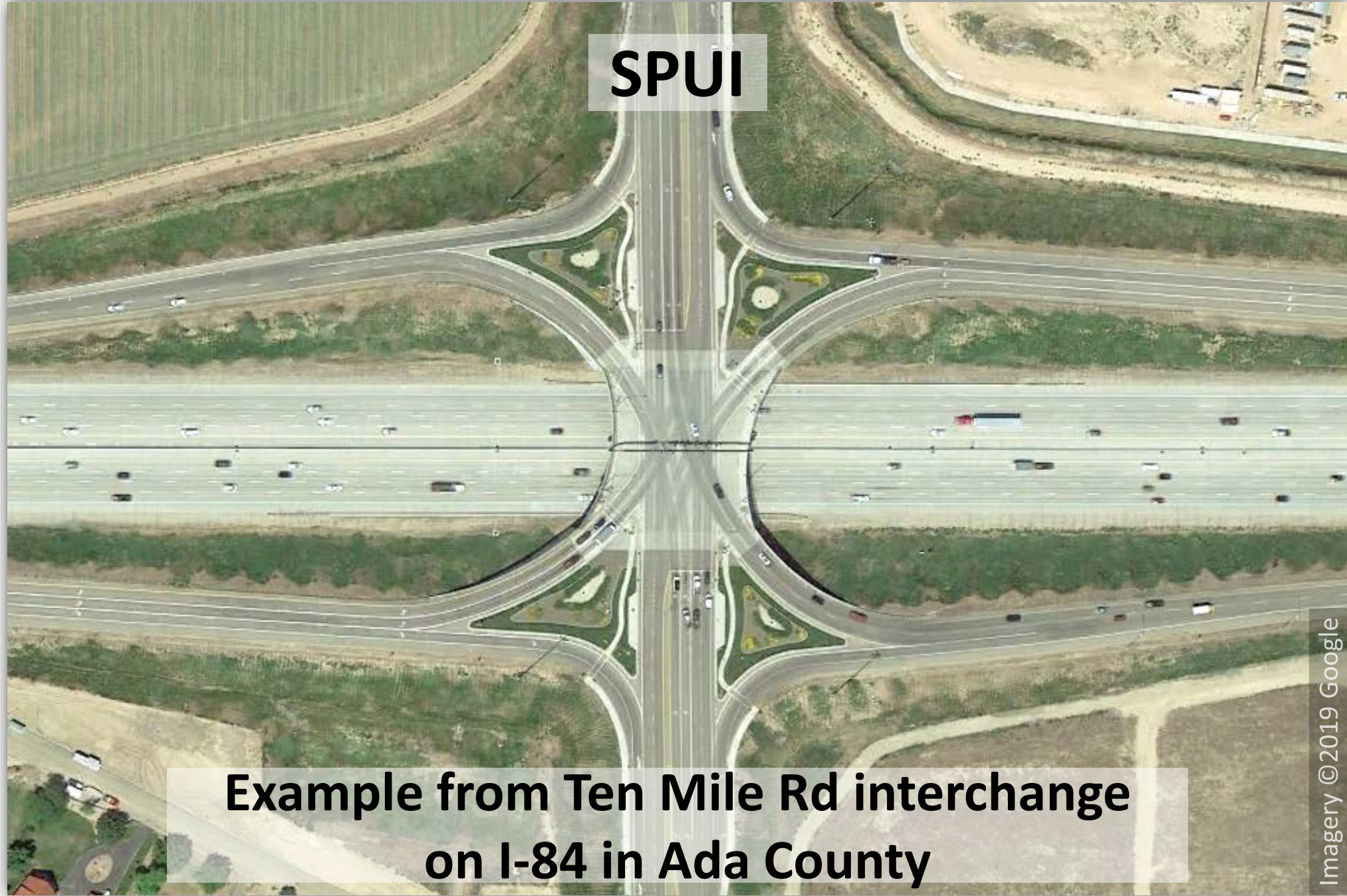
The four ramp and frontage road intersections are combined into two single-lane roundabouts and the current **overpass is retained**. Estimated project cost: **\$4 million**

Pros	Cons
<ul style="list-style-type: none">• Estimated cost meets project funding• Reduces delay for ramp and frontage road traffic compared to all other options• Reduces number of crashes and crash severity compared to signalized option• Deterrent to wrong-way driving on the off-ramps	<ul style="list-style-type: none">• Less familiar

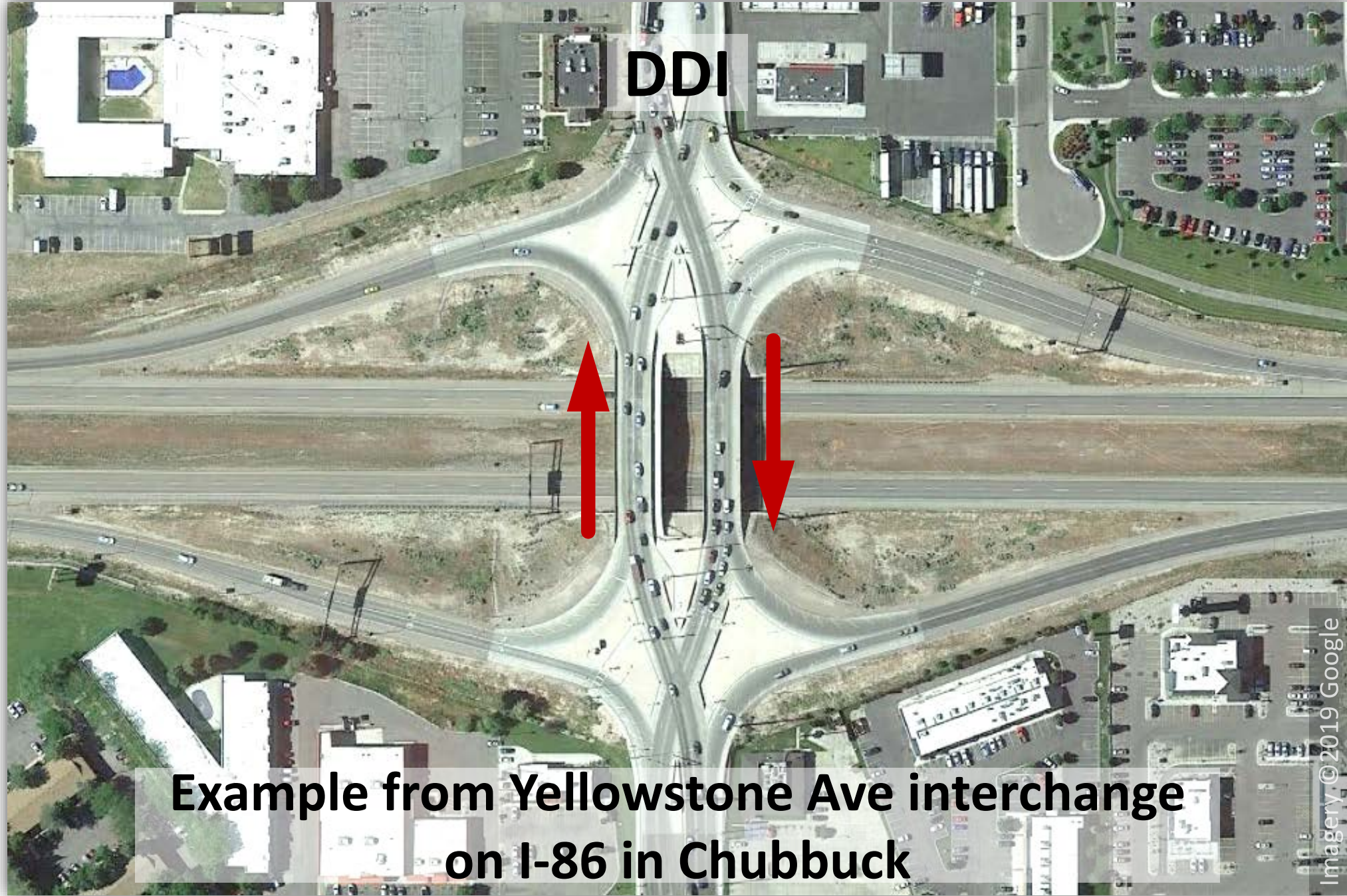


Intersection alternatives considered

SINGLE-POINT URBAN INTERCHANGE (SPUI) The two ramp intersections are combined into one signalized intersection and the overpass is replaced . Estimated project cost: \$25 million	
Pros	Cons
<ul style="list-style-type: none">• Increases capacity and reduces delay more than signalized intersections option• Deterrent to wrong-way driving on the off-ramps	<ul style="list-style-type: none">• Estimated cost exceeds project funding• Less familiar



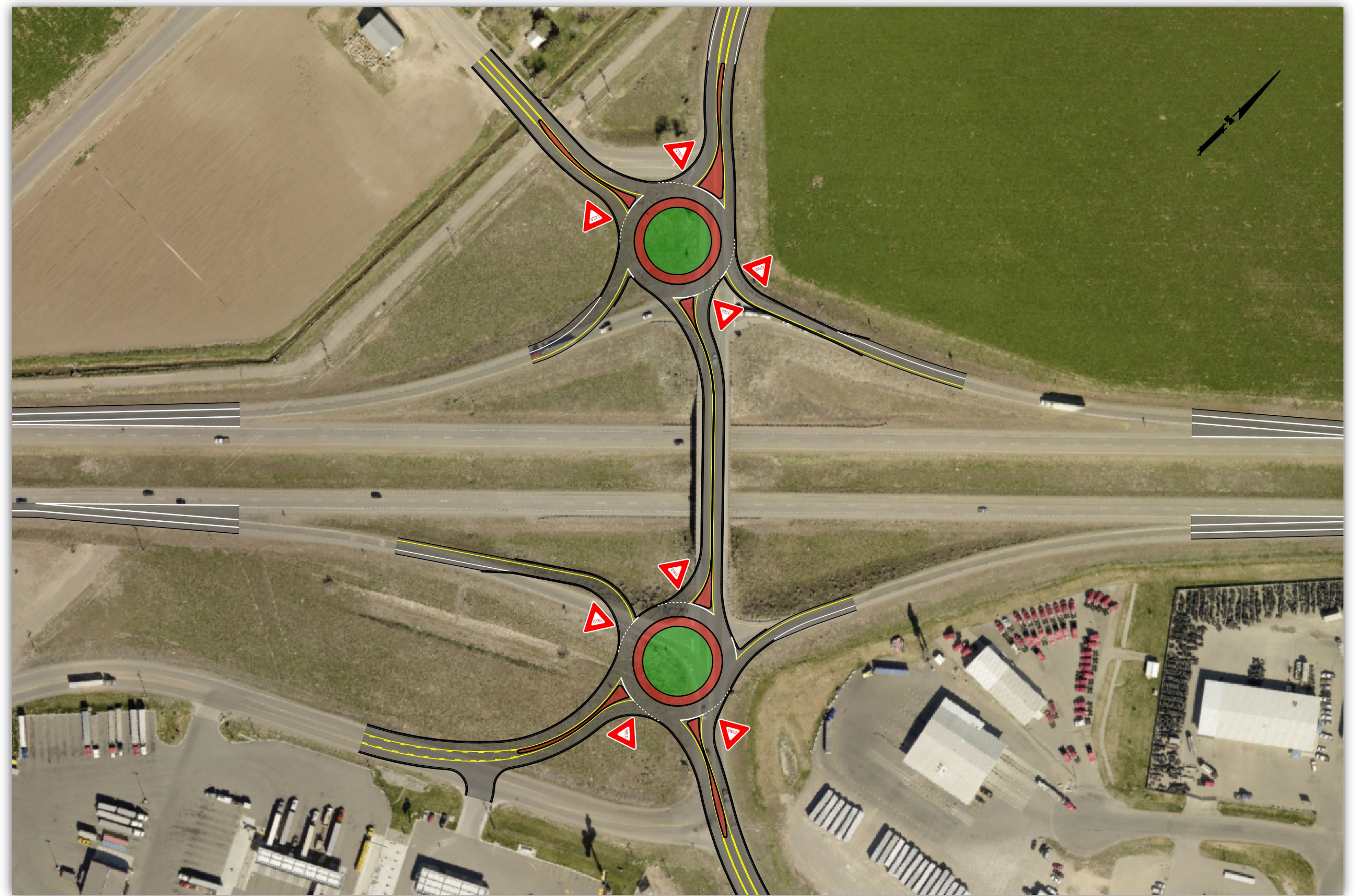
DIVERGING DIAMOND INTERCHANGE (DDI) The two ramp intersections are signalized, with the overpass traffic direction switched to eliminate opposing traffic for left-turns to on-ramps, and the overpass is replaced . Estimated project cost: \$15 million	
Pros	Cons
<ul style="list-style-type: none">• Increases capacity and reduces delay more than signalized intersections option• Deterrent to wrong-way driving on the off-ramps	<ul style="list-style-type: none">• Estimated cost exceeds project funding• Less familiar and contrary to driver expectations



Selected intersection alternative

Roundabouts

- Estimated project cost meets program funding – other options exceed funding
- Expected traffic delays in 2042 for roundabouts (combining the ramp and frontage road traffic in one intersection) is less than other options
- Roundabouts are safer than other options



Safety of roundabouts

Fewer Crashes

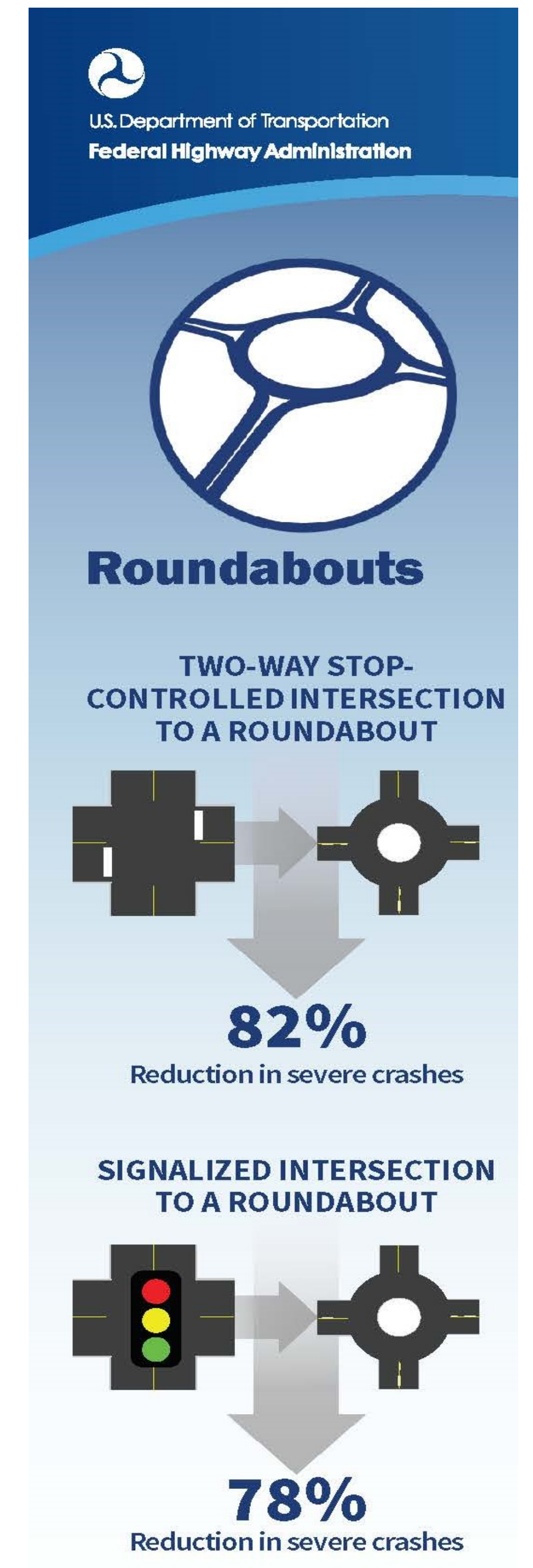
Intersections converted to roundabouts have shown fewer total crashes (property damage only, injury and fatality) than crashes at two-way stop-controlled and signalized intersections.

From "NCHRP Report 672 – Roundabouts An Informational Guide" (2010)

32%
*reduction
in total
crashes*

Less Severe Crashes

Intersections converted to roundabouts have shown significantly fewer injury and fatality crashes than crashes at two-way stop-controlled and signalized intersections.



Design features for large trucks

- **Roundabout curbs** are designed with smooth (rolled) profiles to minimize the disruption to off-tracking vehicles.
- Roundabouts have **raised truck aprons** around the center island, designed to accommodate the off-tracking trailers of large trucks.
- **WB-67s and smaller trucks** can navigate the roundabouts without off-tracking on the aprons. Larger trucks may need to use the aprons.
- The proposed roundabouts can handle **oversize vehicles** as long as 150', when utilizing rear steering.

