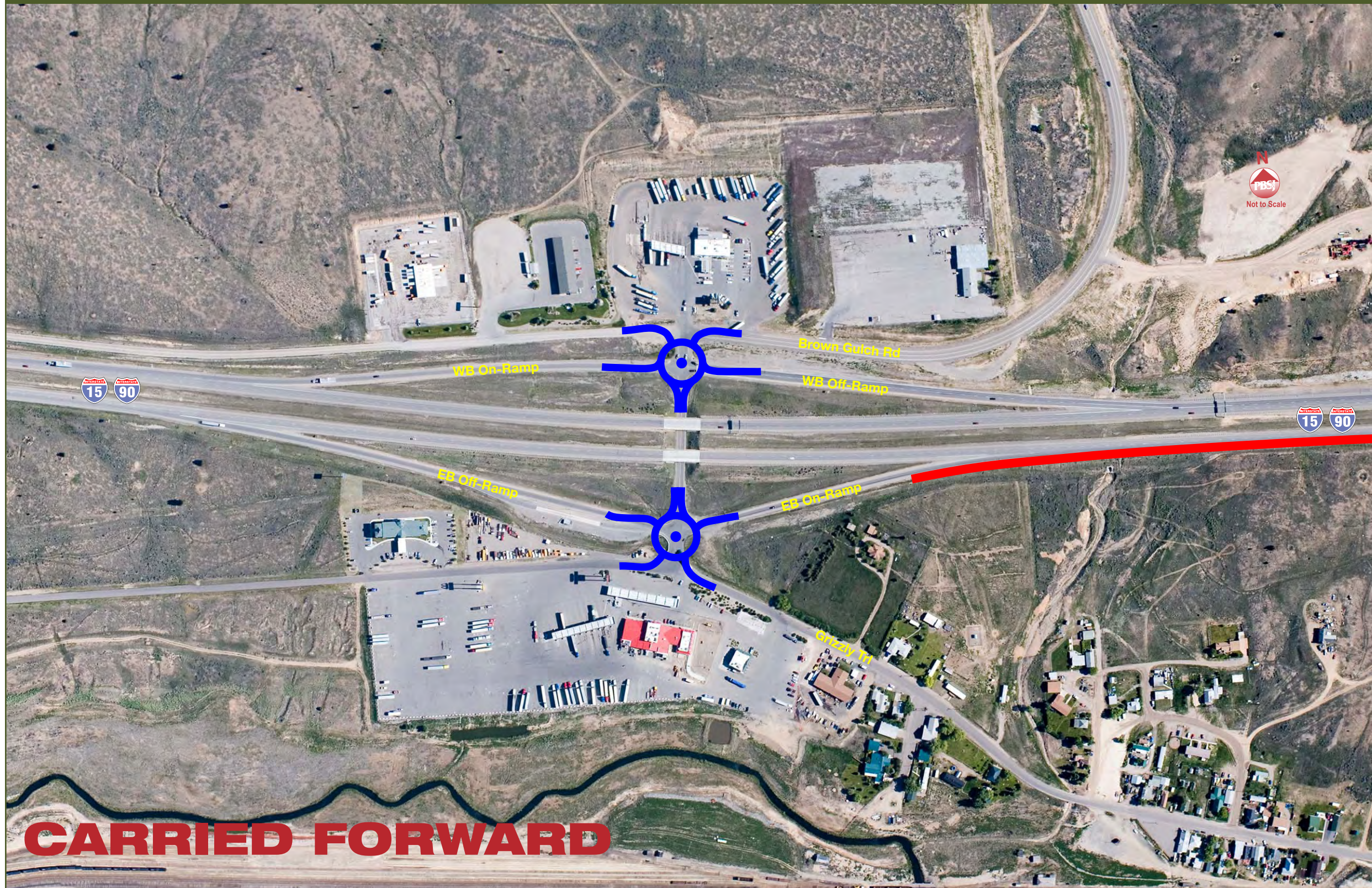


Deficiencies

- Intersection Sight Distance
- Intersection Spacing
- Intersection Geometry (radiuses, turning movements)
- Access Control Issues
- Deficient Acceleration Length (EB on-ramp)
- Deficient Guardrail lengths

Legend

	Access Control Issues		Deficient Acceleration Lane (Existing)
	Intersection Deficiencies		Acceleration Lane (Required)



CARRIED FORWARD

Option 1

Combine frontage road and ramp terminal intersections into one single lane roundabout on each side of the interstate. Develop a continuous acceleration/auxiliary lane for the eastbound on-ramp (common for all option 1 and 2).

Pros:

- Eliminates intersection spacing problem
- Eliminates intersection sight distance issues
- Improves geometry for turning movements
- Corrects access issues
- Safest and most efficient operations

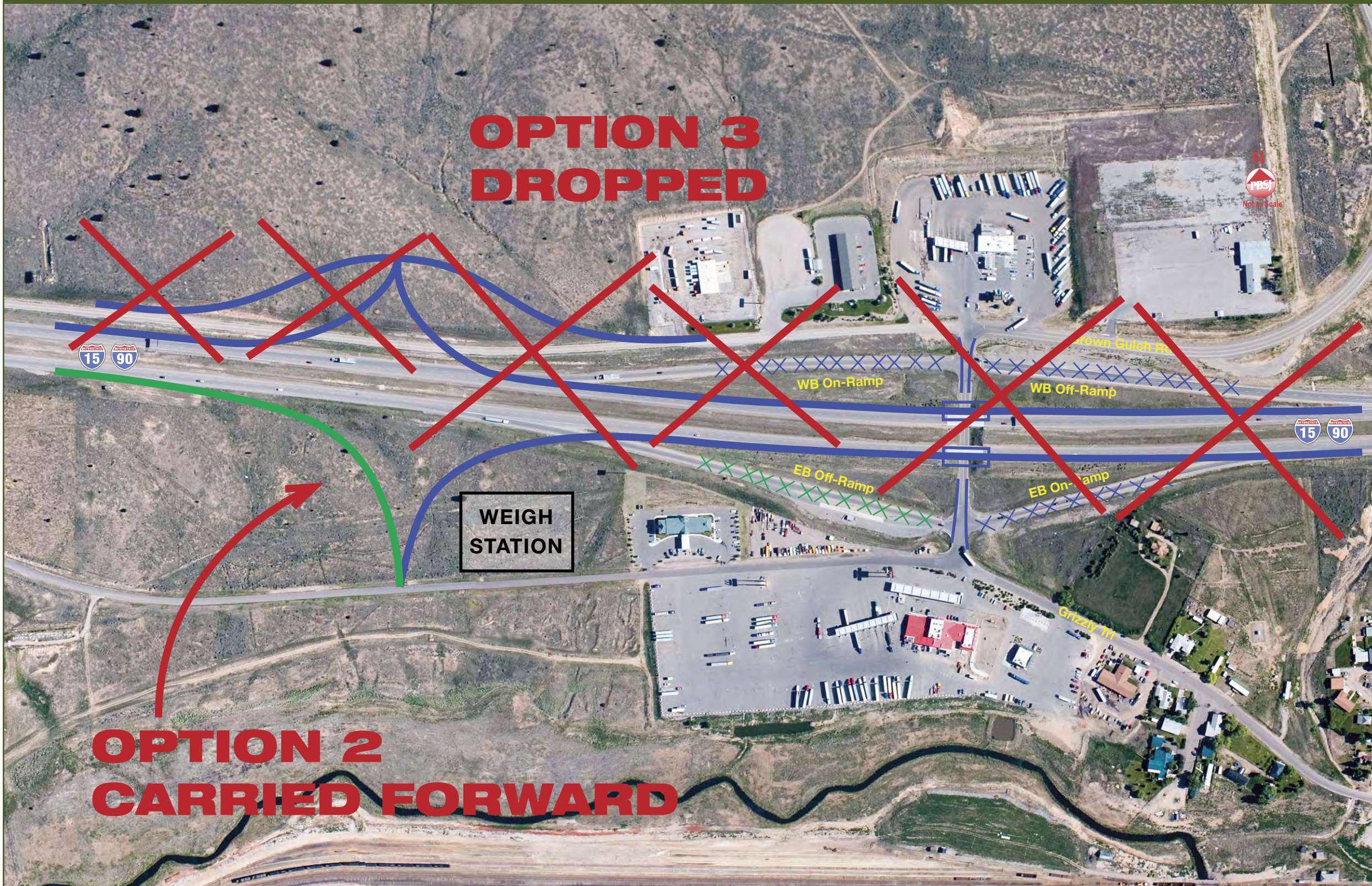
Cons:

- High truck volume will require large roundabouts
- Truck operations at roundabout.
- EB off-ramp weigh station will need to be relocated
- Requires significant access changes to truck stops
- Westbound off-ramp will need to drop to one lane at roundabout

Legend

Option 1

Extend Acceleration Lane



**OPTION 3
DROPPED**

**OPTION 2
CARRIED FORWARD**

**WEIGH
STATION**

WB On-Ramp

WB Off-Ramp

EB Off-Ramp

EB On-Ramp

N
Not to Scale

- Legend
- Option 2
 - Option 3
 - XXX Remove in Option 2
 - XXX Remove in Option 3

Option 2/3

Option 2 – Relocate EB off-ramp west and tie into south frontage road.

Option 3 – Relocate other three ramps west into a button hook configuration. EB on-off ramps will tie into south frontage road, WB ramps tie into a relocated north side frontage road.

Pros:

- Option 2**
- Eliminates tightest intersection configuration
- Option 3**
- Eliminates intersection spacing and intersection sight distance issues
 - Relocates traffic away from access control issues
 - Provides acceleration lane on flatter grade for EB on-ramp

Cons:

- Option 2**
- EB off-ramp weigh station will need to be relocated
 - Does not improve intersection issues at north side intersections.
 - Proximity of relocated ramp to Nissler Interchange
- Option 3:**
- EB off-ramp weigh station will need to be relocated
 - Proximity of relocated ramps to Nissler Interchange
 - Requires widening of bridges over Rocker Road

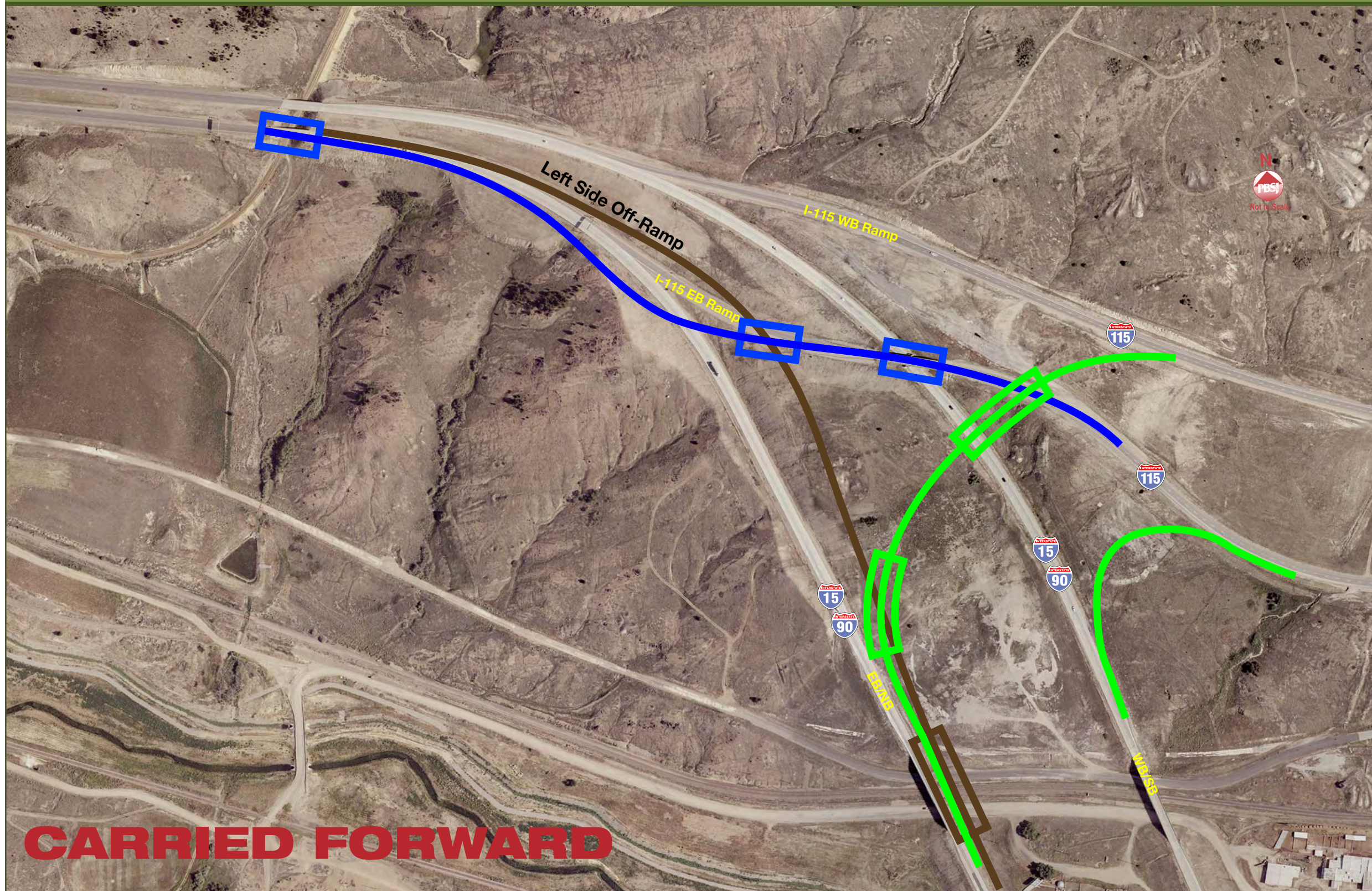


Deficiencies

- Ramp Geometry
- Left side Off-ramp
- Horizontal Curvature (EB I-15/90 & EB I-115)
- Non-recoverable Side slopes
- Functionally Obsolete Bridges
- Confusing Signs
- Poor Lighting
- Deficient Guardrail lengths
- Not a full movement interchange

Legend

Deficient Radius	Functionally Obsolete Bridge	Horizontal Curvature
Poor Lighting	Confusing Signs	



CARRIED FORWARD

Legend

█ Option 1 █ Mainline Realignment

█ Option 2

Option 1/2

Option 1 – Relocate EB ramp to I-115 to a right side exit with new bridges over EB and WB I-15/90. Improve EB I-15/90 horizontal curvature (common to all options).

Option 2 (Full Movement) – Provide WB I-15/90 to EB I-115 ramp and WB I-115 to EB I-15/90 flyover ramp with bridges over EB I-115/WB I-15/90 and EB I-15/90.

Pros:

Option 1

- Eliminates left side exit (eliminating confusing signage)
- Moves off-ramp diverge away from curve
- Improves horizontal alignment on I-115

Option 2

- Provides full movement system level interchange

Cons:

Option 1

- High costs for improvements to one ramp

Option 2

- Added ramps will likely experience very low traffic volumes
- High costs for low volume of traffic
- Potential grade issues on WB I-115 to EB I-15/90 ramp



Option 3

Option based on reclassifying I-115 to a primary route. Reconfigure interchange ramps to a diamond configuration. Maintain WB I-115 to WB I-15/90 ramp in current configuration.

Pros:

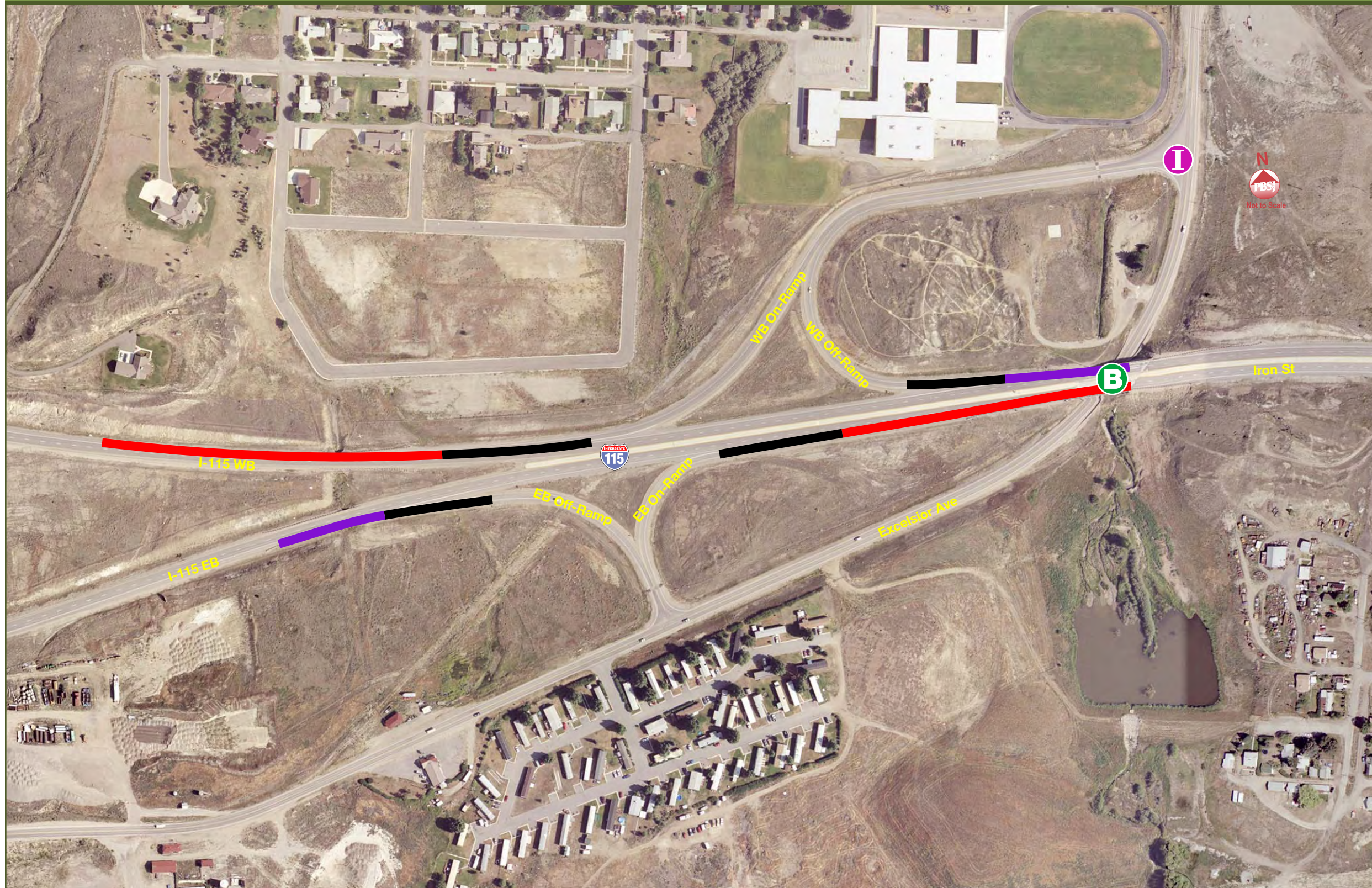
- Provides a full movement interchange

Cons:

- Changes operation of existing ramps to include intersection control
- Potential grade issues on EB on-ramp
- EB on-ramp and WB off-ramp likely will have very low traffic volumes
- Requires downgrading process

CARRIED FORWARD

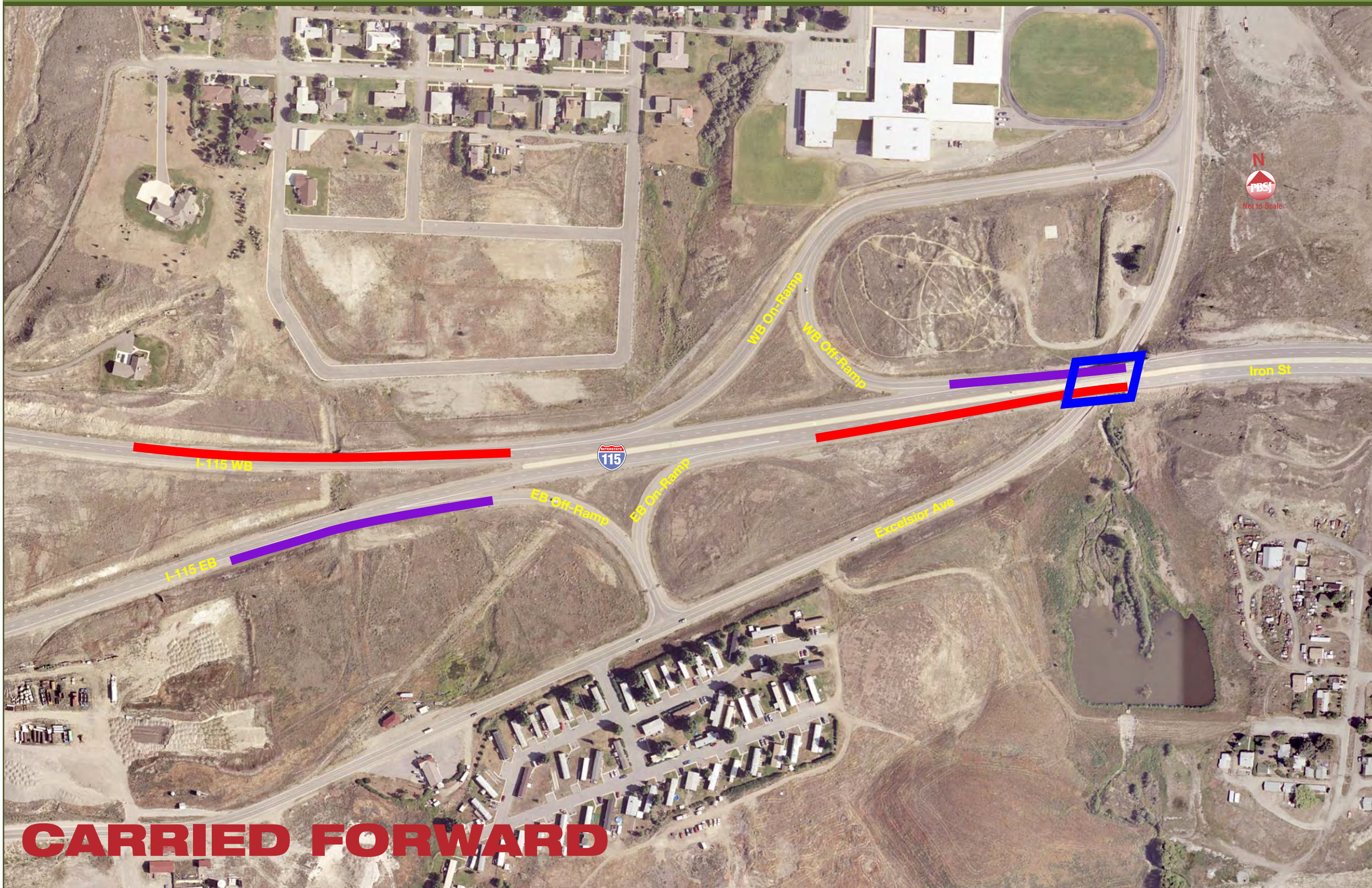
Legend  Option 3  Mainline Realignment



Deficiencies

- Deficient Deceleration Length (EB and WB off-ramps)
- Deficient Acceleration Length (EB and WB on-ramps)
- Ramp Geometry (Tight Curvature)
- Functionally Obsolete Bridges
- Deficient Guardrail lengths

Legend		Intersection Deficiencies		Deficient Acceleration Lane (Existing)		Deficient Acceleration Lane (Existing)
		Functionally Obsolete Bridge		Acceleration Lane (Required)		Acceleration Lane (Required)



Option 1

Extend acceleration and deceleration lane to appropriate lengths, widen bridge over Excelsior Avenue accordingly.

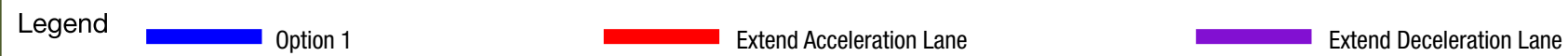
Pros:

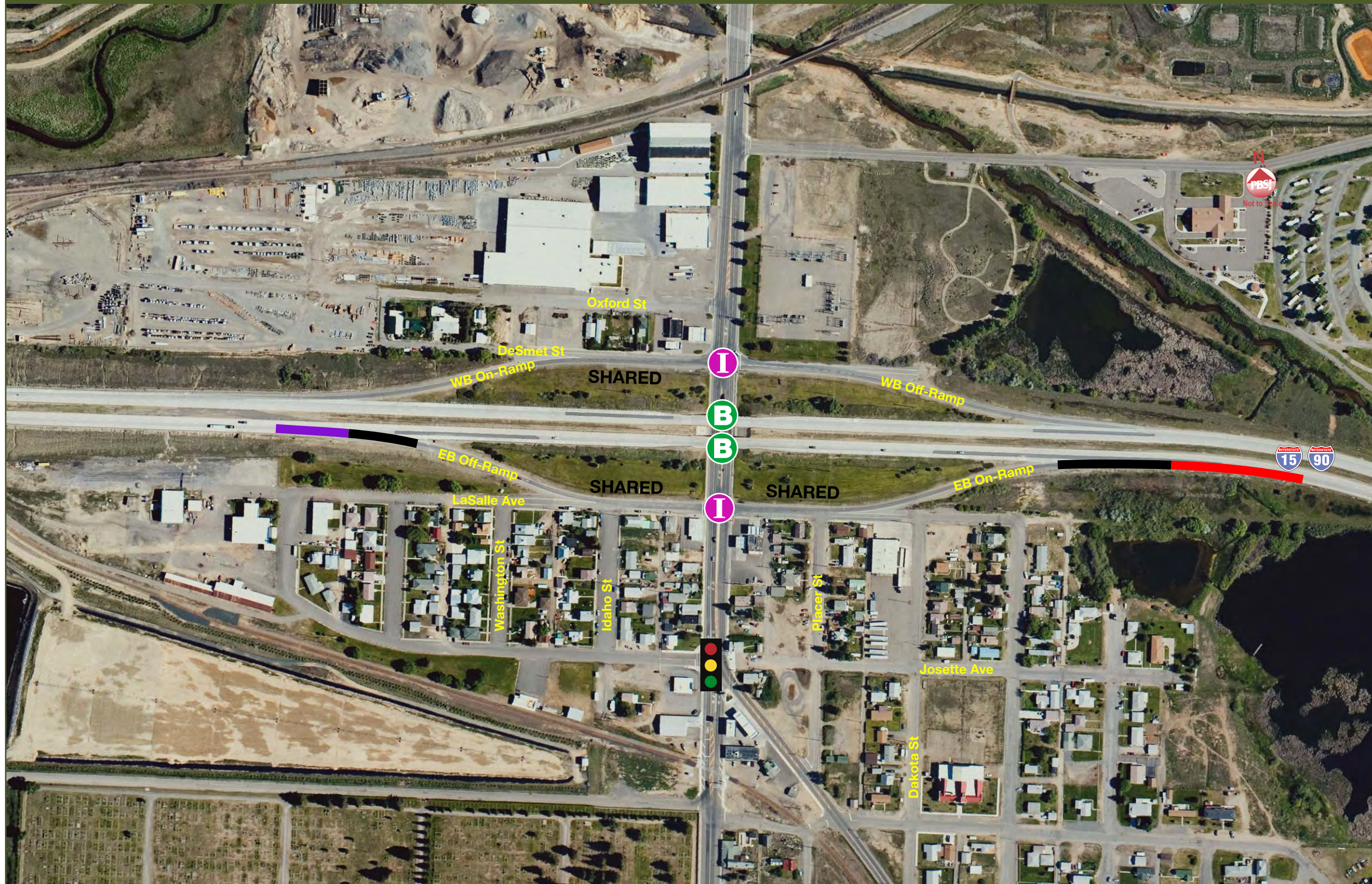
- Extended ramps allow existing tight ramp geometry to be utilized
- Brings ramps up to current design standards

Cons:

- Potentially no work required if I-115 is reclassified to a primary route.

CARRIED FORWARD





Deficiencies

- Access Control Issues
- Ramp Configurations (shared ramps and frontage roads)
- Functionally Obsolete Bridges
- Intersection Spacing
- Intersection Sight Distance
- Intersection Geometry (radiuses, turning movements)
- Deficient Acceleration Length (EB on-ramp)
- Deficient Deceleration Length (EB off-ramp)
- Ramp terminals meet signal warrants

Legend	I Intersection Deficiencies	Deficient Acceleration Lane (Existing)	Deficient Deceleration Lane (Existing)
	B Functionally Obsolete Bridge	Acceleration Lane (Required)	Deceleration Lane (Required)



Option 1/2

Complete minor improvements including ramp terminal traffic control improvements (signals **Option 1** or roundabouts – **Option 2**), extend EB deceleration and acceleration length, and provide physical delineation separating the shared ramp and frontage roads.

Pros:

- Solves majority of intersection deficiencies
- Eliminates shared ramp and frontage roads
- Low cost improvements

Cons:

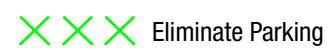
- Traffic signals would be closely spaced with Rowe Road signal
- Roundabouts may need to be two lanes on Montana Street
- Does not address functionally obsolete bridges over Montana Street

CARRIED FORWARD

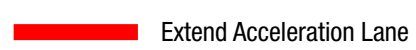
Legend



Option 1



Eliminate Parking



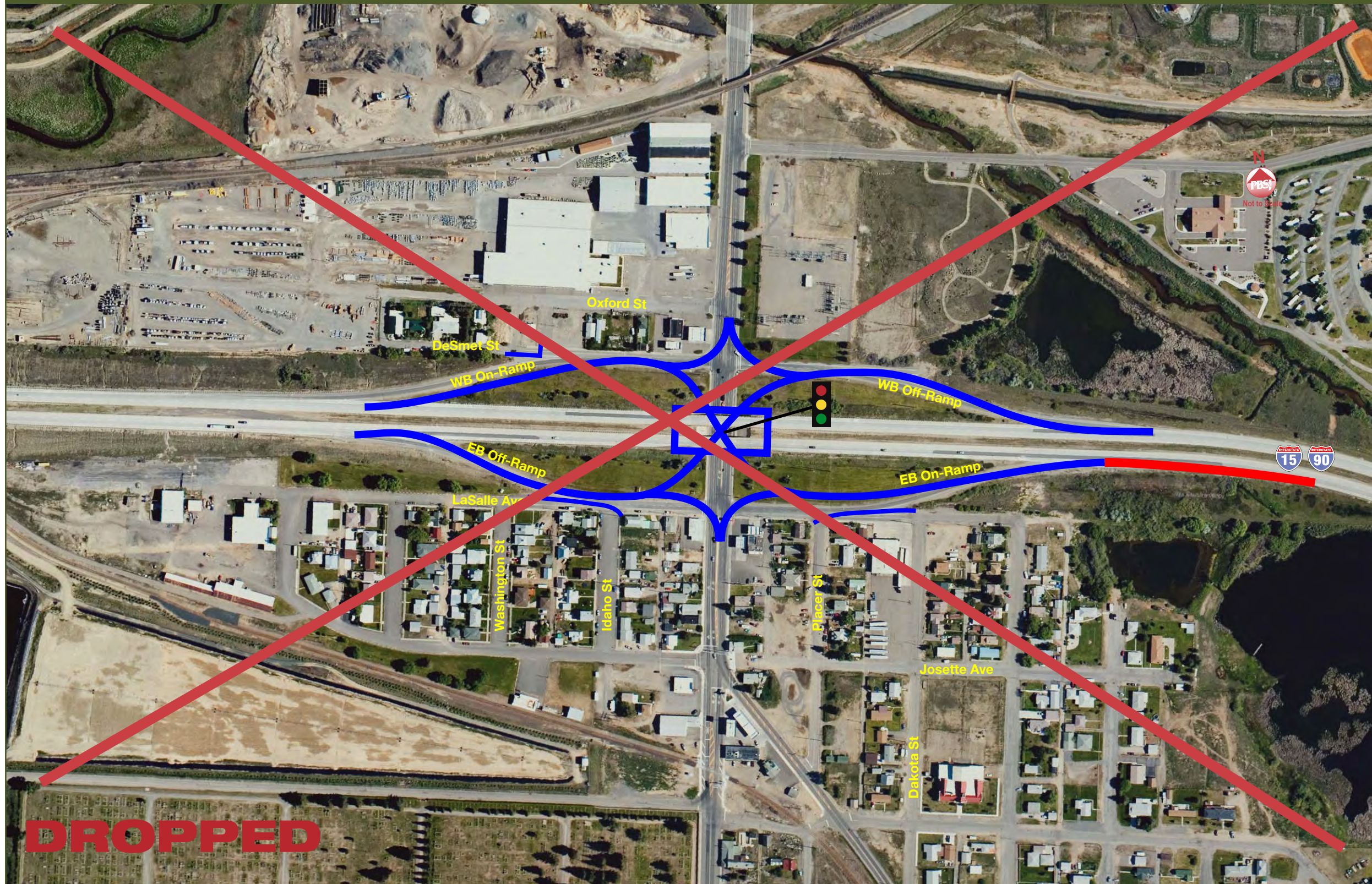
Extend Acceleration Lane



Option 2



Extend Deceleration Lane



Option 3

Completely reconfigure interchange to a Single Point Urban Interchange configuration. Replace bridges over Montana Street and eliminate shared ramp and frontage roads.

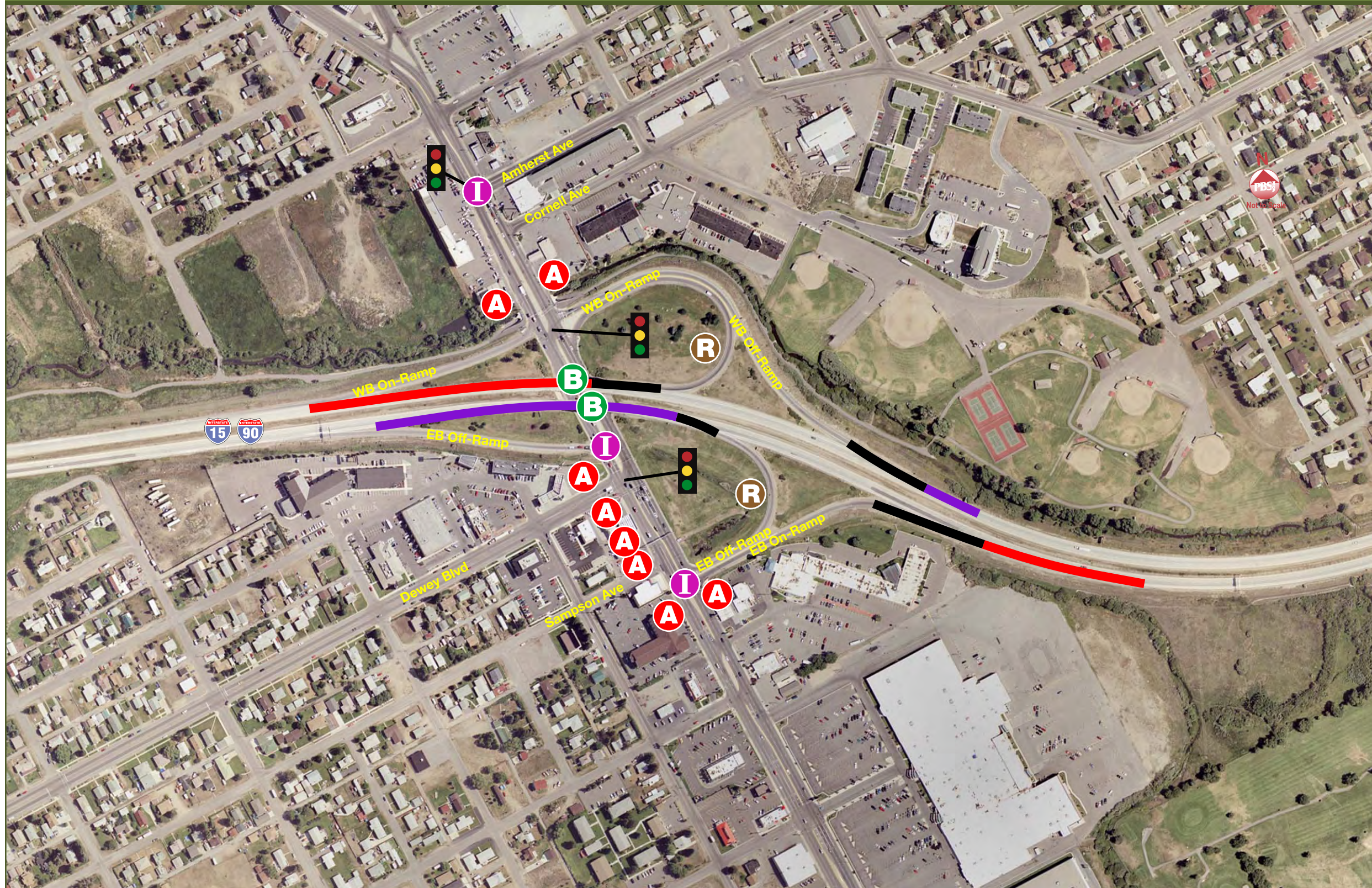
Pros:

- Provides good spacing with Rowe Road intersection
- Improves radiuses and turning movements
- Replaces functionally obsolete bridges

Cons:

- High costs
- Will require raising interstate mainline

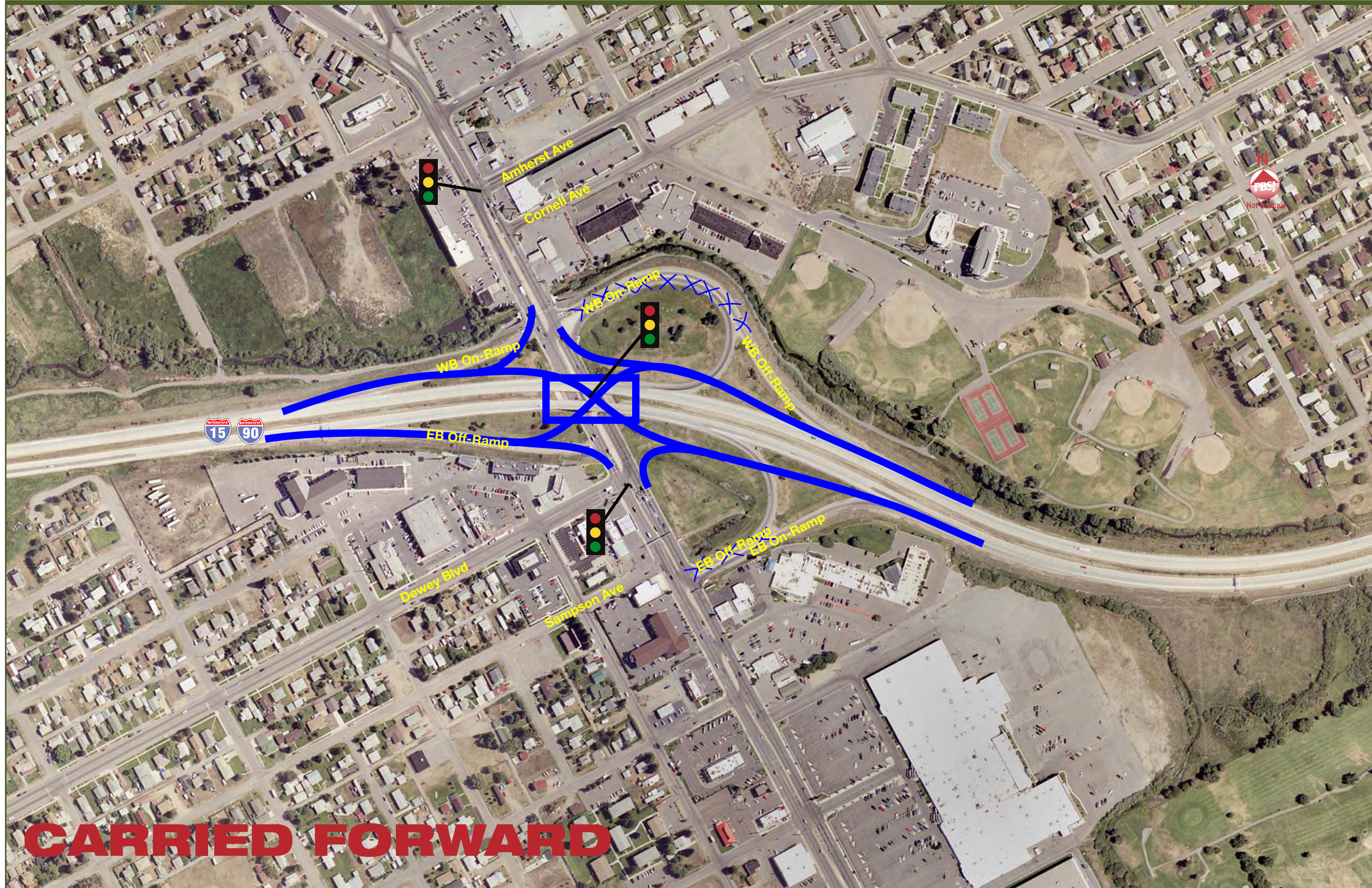
Legend  Option 3



Deficiencies

- Deficient Deceleration Length (EB off-ramp (loop), WB off-ramp)
- Deficient Acceleration Length (WB on-ramp (loop), EB on-ramp)
- Ramp Geometry Issues
- Intersection Spacing
- Intersection Sight Distance
- Intersection Geometry (radiuses, turning movements)
- Access Control Issues
- Functionally Obsolete Bridges

Legend	A Access Control Issues	B Functionally Obsolete Bridge	Deficient Acceleration Lane (Existing)	Deficient Acceleration Lane (Existing)
	I Intersection Deficiencies	R Deficient Radius	Acceleration Lane (Required)	Acceleration Lane (Required)



Option 1

Completely reconfigure interchange to a Single Point Urban Interchange configuration. Replace bridges over Harrison Avenue.

Pros:

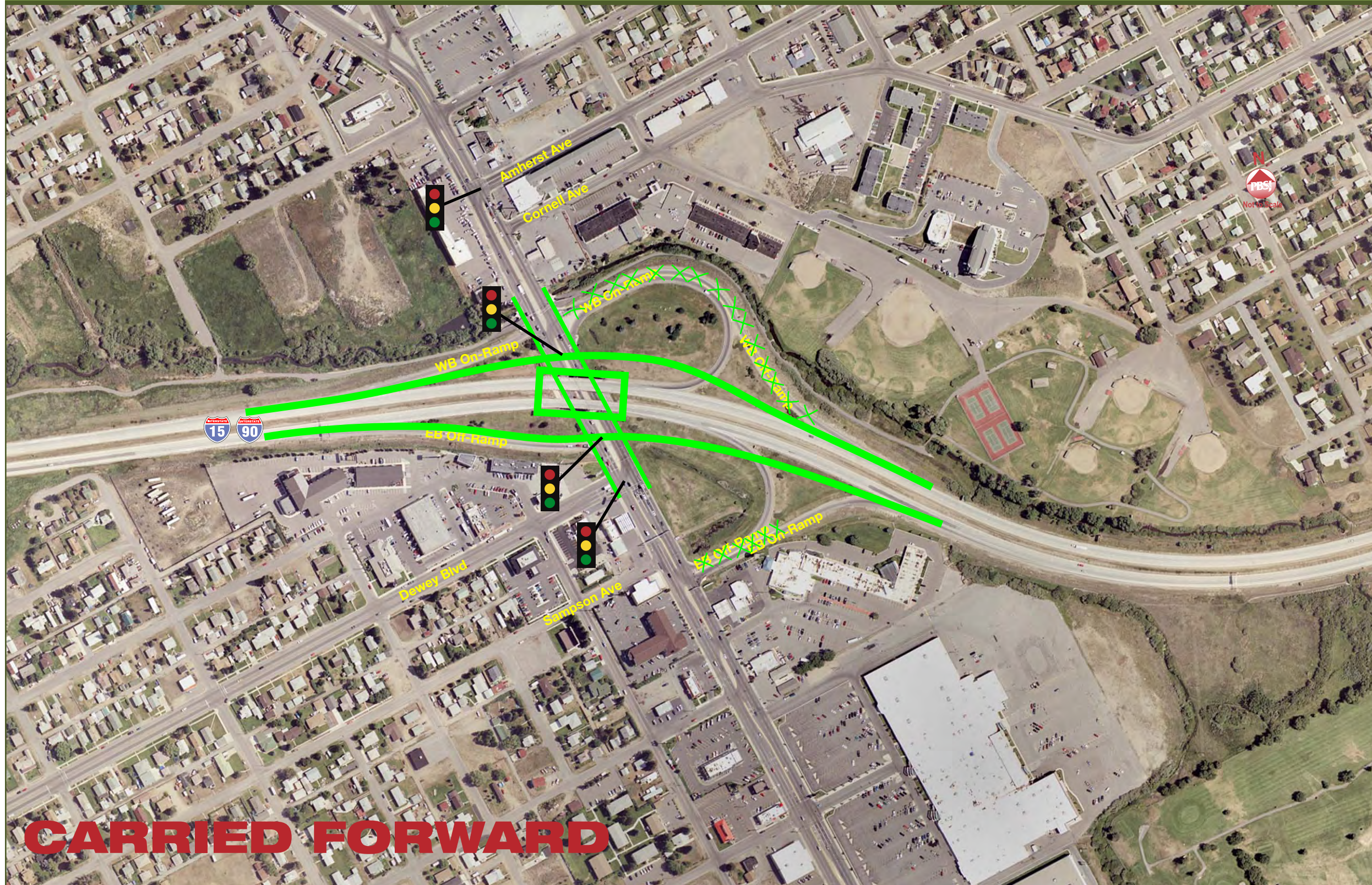
- Consolidates ramp terminal intersections on Harrison Avenue to one
- Eliminates many of the access issues
- Corrects acceleration and deceleration lane deficiencies

Cons:

- High costs
- Will require raising interstate mainline
- Proximity to Dewey Boulevard still a problem

CARRIED FORWARD

- Legend
- Option 1
 - ××× Remove in Option 1



Option 2

Reconfigure interchange to a Tight Diamond configuration. Replace bridges over Harrison Avenue and widen Harrison for side by side double left turn lanes. Move EB on/off-ramp terminal as far north as possible.

Pros:

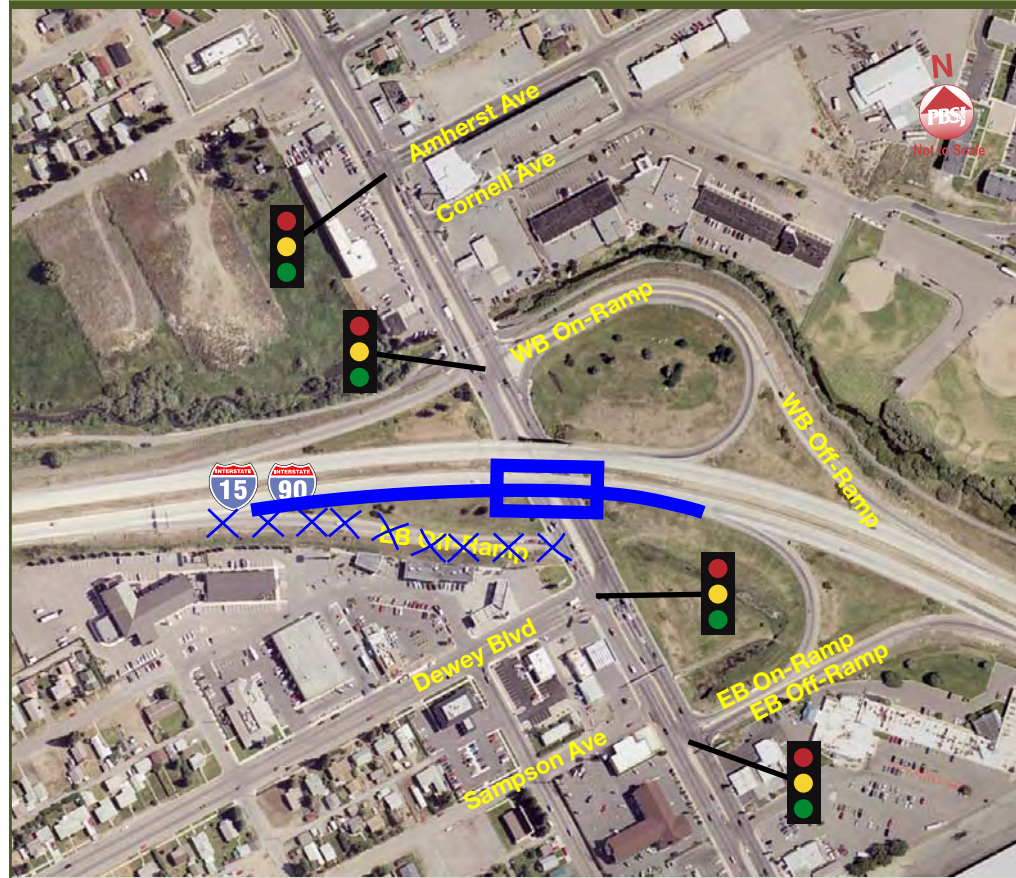
- Consolidates ramp terminal intersections on Harrison Avenue
- Improves spacing with Dewey Boulevard

Cons:

- Adds additional traffic signal
- Will require raising interstate mainline
- EB on/off-ramp and Dewey Blvd traffic signals are closely spaced
- Partial Reconfigurations

CARRIED FORWARD

- Legend
- Option 2
 - XXX Remove in Option 2



Legend
— Option
X X X Remove in Option

Option 3

Eliminate EB off-ramp to SB Harrison. Extend deceleration lane for EB off-ramp (loop) and add traffic signal at EB on/off-ramp.

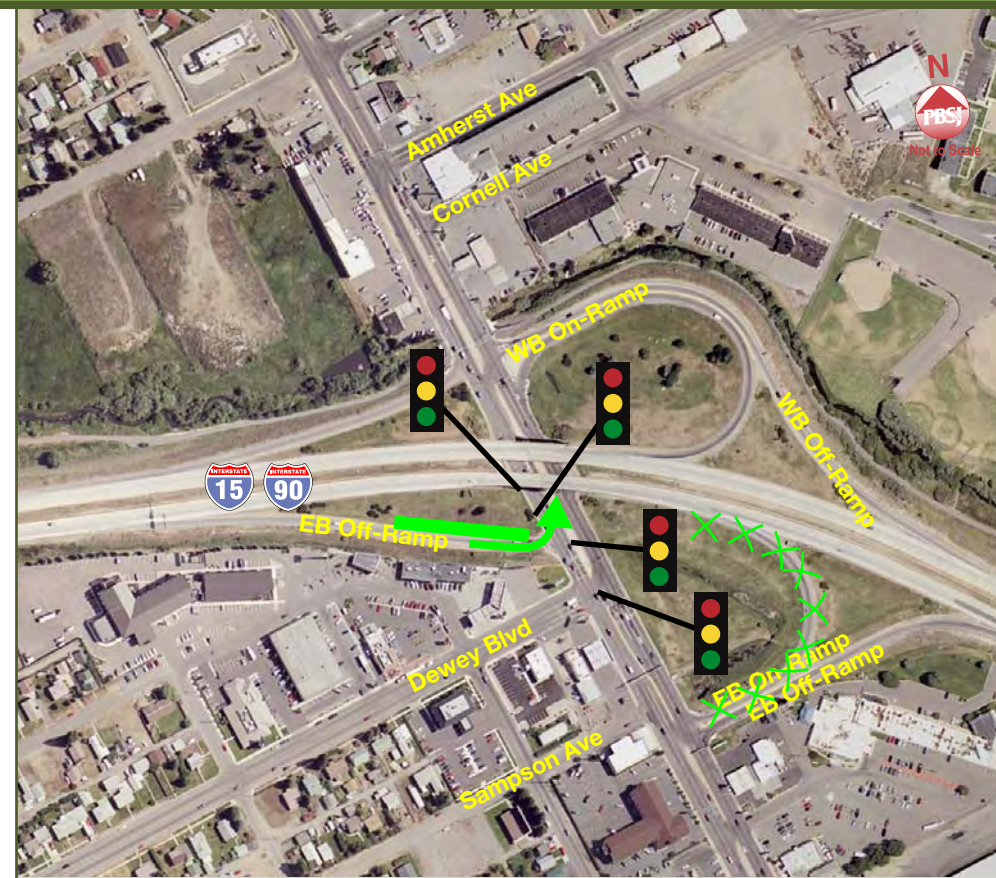
Pros:

- Eliminates ramp terminal spacing issues with Dewey Boulevard
- Corrects acceleration lane and ramp spacing issues

Cons:

- New signal on Harrison is spaced close to Dewey Boulevard signal
- Requires new or widened EB I-15/90 bridge over Harrison Avenue

CARRIED FORWARD



Legend
— Option
X X X Remove in Option

Option 4

Eliminate EB off-ramp (loop). Reconfigure the EB off-ramp (to SB Harrison) to add a left turn lane (to NB Harrison) and a traffic signal. Add advanced warning traffic signals underneath the overpass. Operate new signal and Dewey Boulevard together and stripe intersection so cars will not get caught between signals.

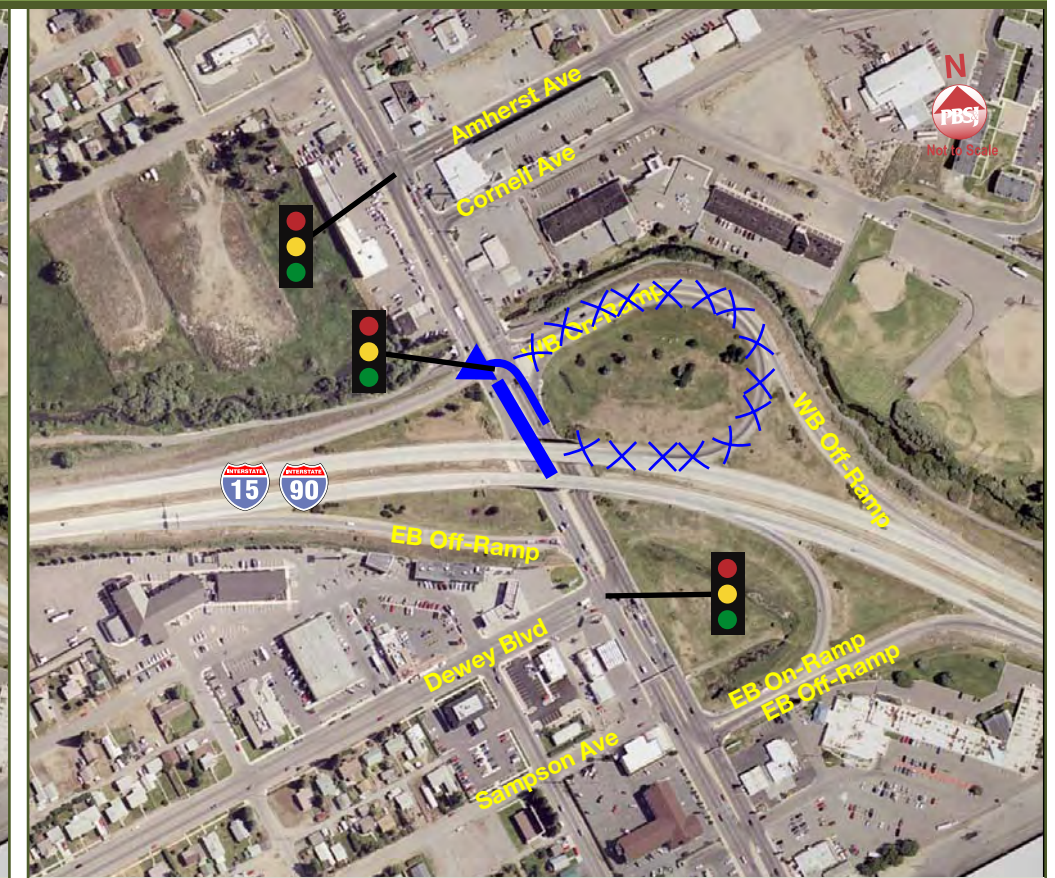
Pros:

- Eliminates tight EB loop ramp with an unsafe deceleration lane

Cons:

- Signal sight distance issues for SB Harrison Avenue
- Close spacing of signals may be confusing
- Does not improve intersection geometry for EB off-ramp to Dewey Boulevard

CARRIED FORWARD



Legend
— Option
X X X Remove in Option

Option 5

Eliminate WB on-ramp (loop) and add a left turn pocket on Harrison Avenue for a NB Harrison to WB on-ramp movement.

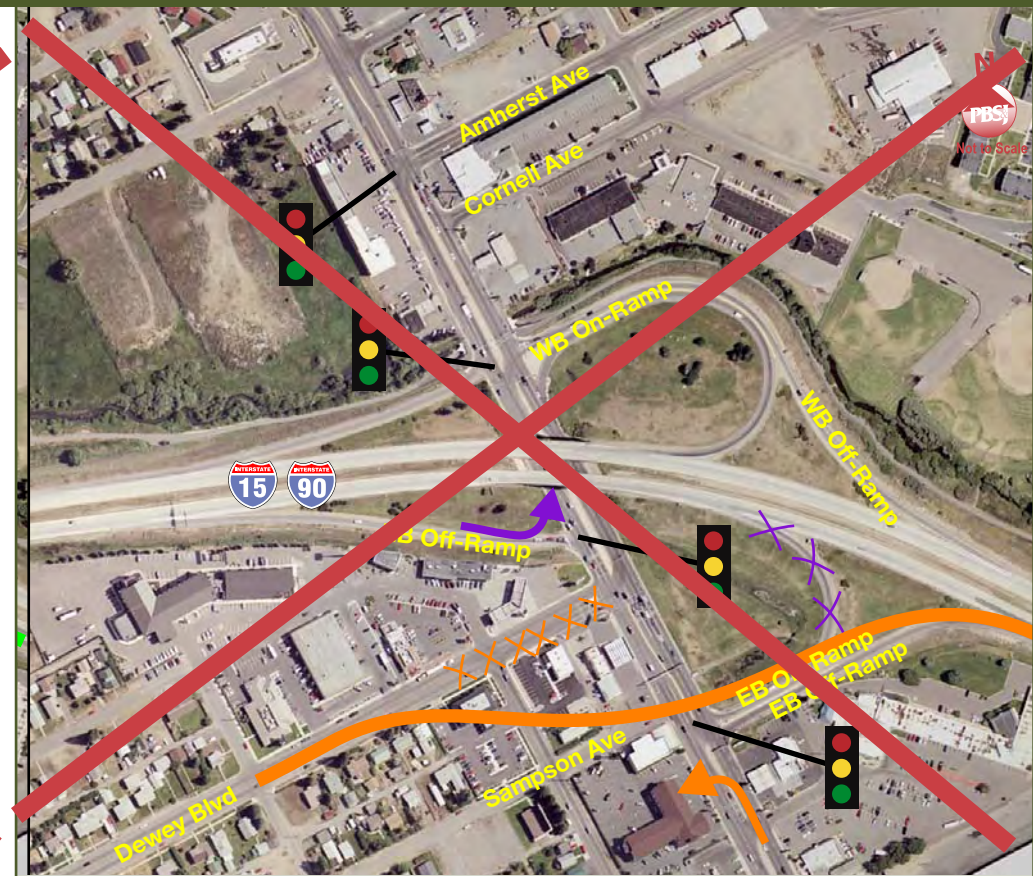
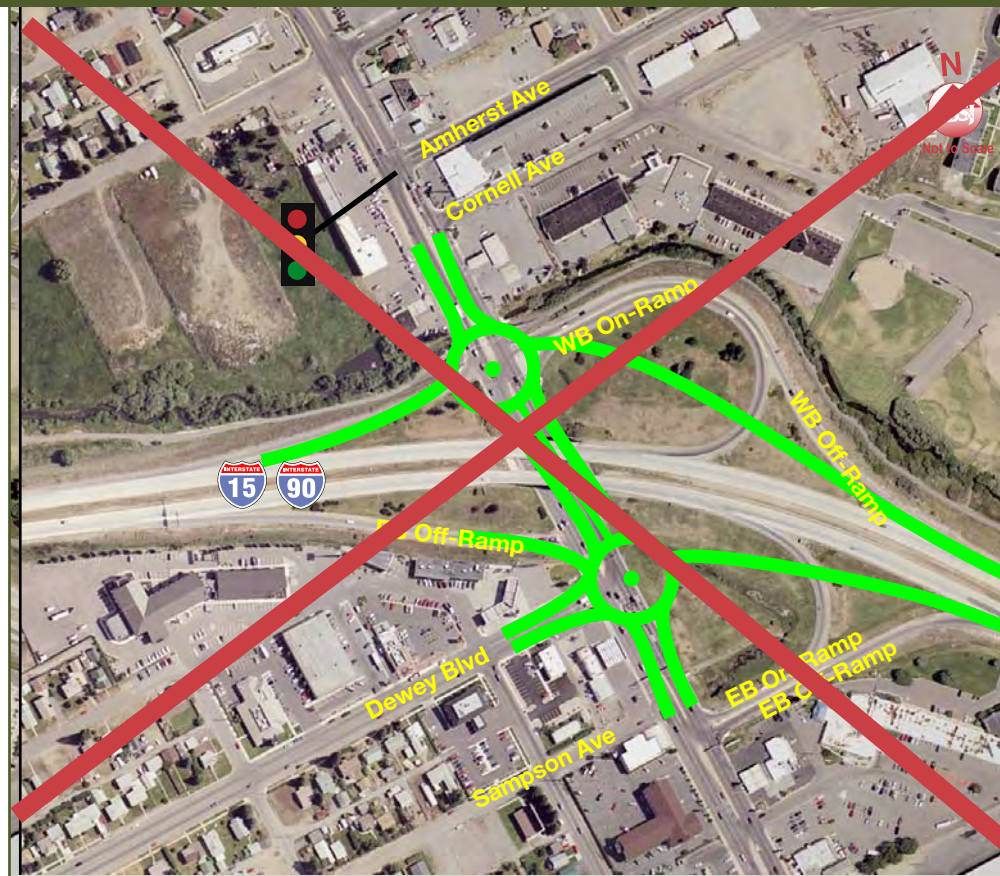
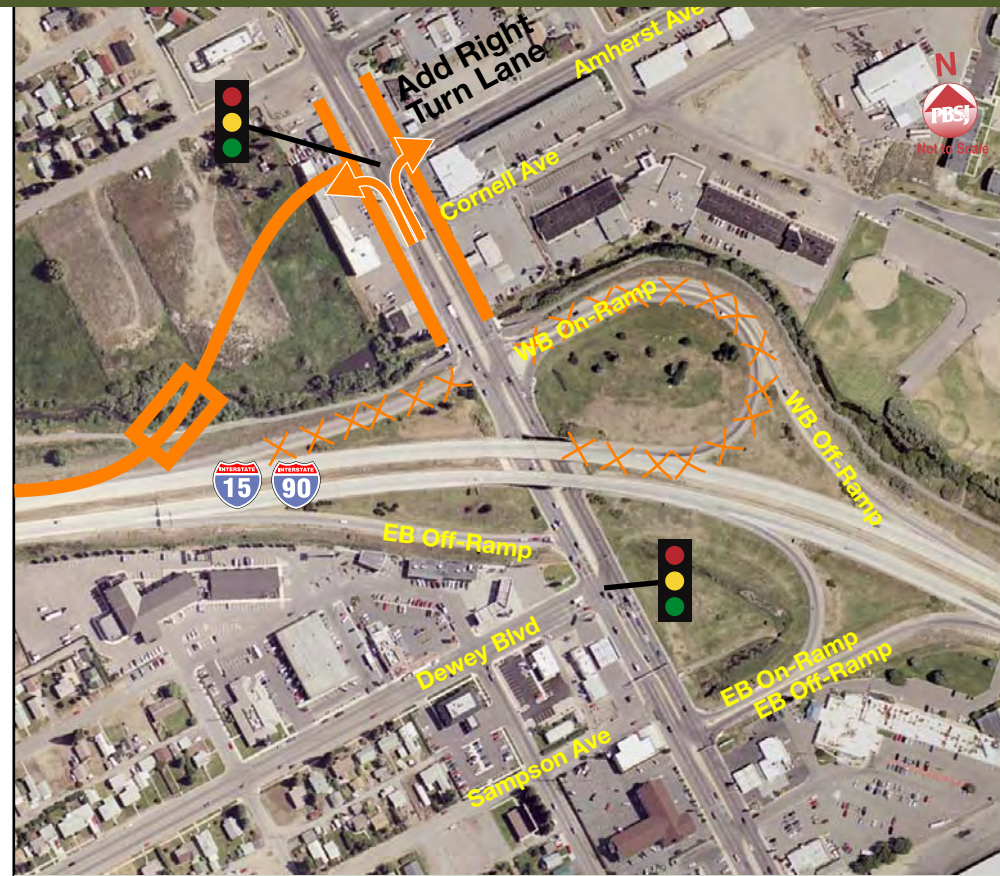
Pros:

- Eliminates tight loop ramp with an unsafe acceleration length and merge for WB loop on-ramp

Cons:

- Requires additional traffic signal phase for WB ramp terminal signal

CARRIED FORWARD



Legend
— Option
X X X Remove in Option

Legend
— Option

Legend
— Option
X X X Remove in Option
— Option
X X X Remove in Option

Option 6

Eliminate both WB on-ramps and build a new WB on-ramp to the north tying in at the Amherst intersection. Realign Harrison so that third NB through lane can be extended from Cornell to Amherst and the appropriate left turn lanes can be included.

Pros:

- Eliminates tight loop ramp with an unsafe acceleration length and merge for WB loop on-ramp
- Improves Amherst and Harrison capacity and operation

Cons:

- Property acquisition required
- Potential environmental impacts (natural and social resources)

CARRIED FORWARD

Option 7

Reconstruct interchange ramp terminals with roundabouts (double lane on Harrison and single from all ramps and Dewey Boulevard). Combine Dewey Boulevard with EB ramp terminal intersections.

Pros:

- Eliminates ramp terminal spacing issues
- Reduces the number of traffic signals
- Eliminates tight loop ramp with an unsafe acceleration length for EB and WB loop ramps

Cons:

- Difficult roundabout configurations
- Potential environmental impacts (natural and social resources) south of the EB ramps and Dewey Boulevard roundabout.
- Will require changes to many access near Dewey Boulevard

INITIALLY CARRIED FORWARD - DROPPED DUE TO FEASIBILITY

Option 8

Eliminate EB off-ramp (loop) and realign Dewey Boulevard to align with the EB on-ramp and add a new traffic signal. Add a left turn lane at the remaining EB off-ramp and add a traffic signal.

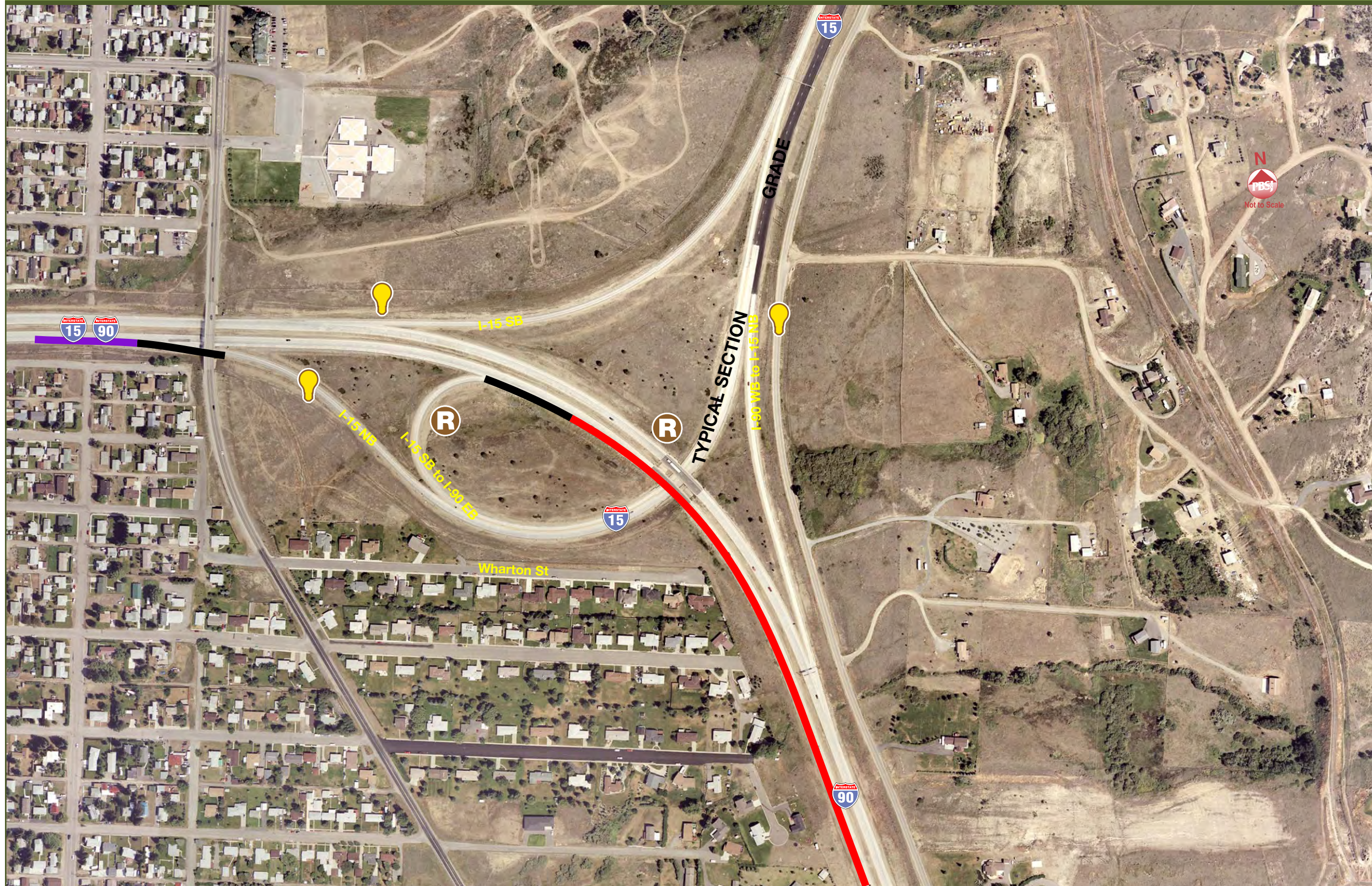
Pros:

- Eliminates ramp terminal spacing issues
- Improves traffic signal spacing
- Eliminates tight loop ramp with an unsafe acceleration length and merge for WB loop on-ramp

Cons:

- Requires numerous property acquisitions
- Traffic Signals at EB off-ramp may be difficult to see

DROPPED



Deficiencies

- Ramp Geometry (Tight Curves)
- Deficient Deceleration Length (EB off to NB I-15)
- Deficient Acceleration Length (SB I-15 to EB on)
- Poor Lighting
- Steep Grade on I-15

Legend		Deficient Radius		Deficient Acceleration Lane (Existing)		Deficient Acceleration Lane (Existing)
		Poor Lighting		Acceleration Lane (Required)		Acceleration Lane (Required)



Option 1

Eliminate tight SB I-15 to EB on-ramp loop ramp and build a new flyover ramp that bridges the EB to NB ramp and the mainline.

Pros:

- Eliminates tight loop ramp with an unsafe acceleration length and merge for WB loop on-ramp
- Provides a higher design speed for SB to EB ramp

Cons:

- High cost vs. low traffic volumes
- Long bridge on downhill grade will ice up in winter
- Will probably require property acquisitions and relocations

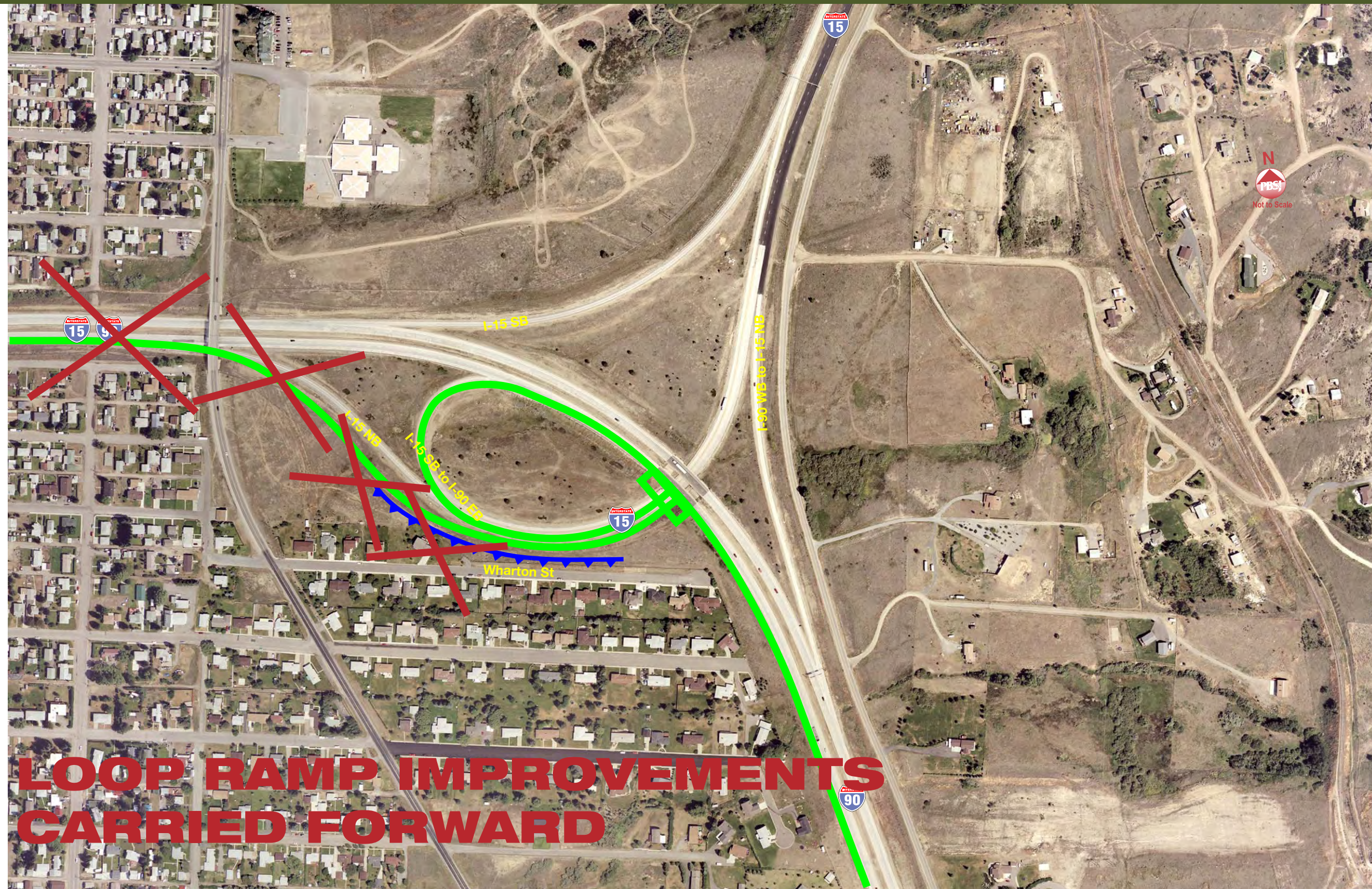
CARRIED FORWARD

Legend

 Option 1

 Extend Deceleration Lane

 Remove in Option 1



Option 2

Modify loop ramp configuration by realigning the EB to NB ramp so that there is more room for the loop ramp. Realign loop ramp to the maximum design speed within the available area and provide the appropriate acceleration length (widen mainline EB bridge).

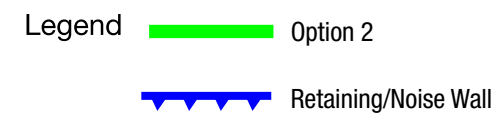
Pros:

- Improves loop ramp
- Provides adequate acceleration length

Cons:

- Does not improve the design speed of the SB to EB ramps
- Will require walls and potential noise walls

LOOP RAMP IMPROVEMENTS CARRIED FORWARD





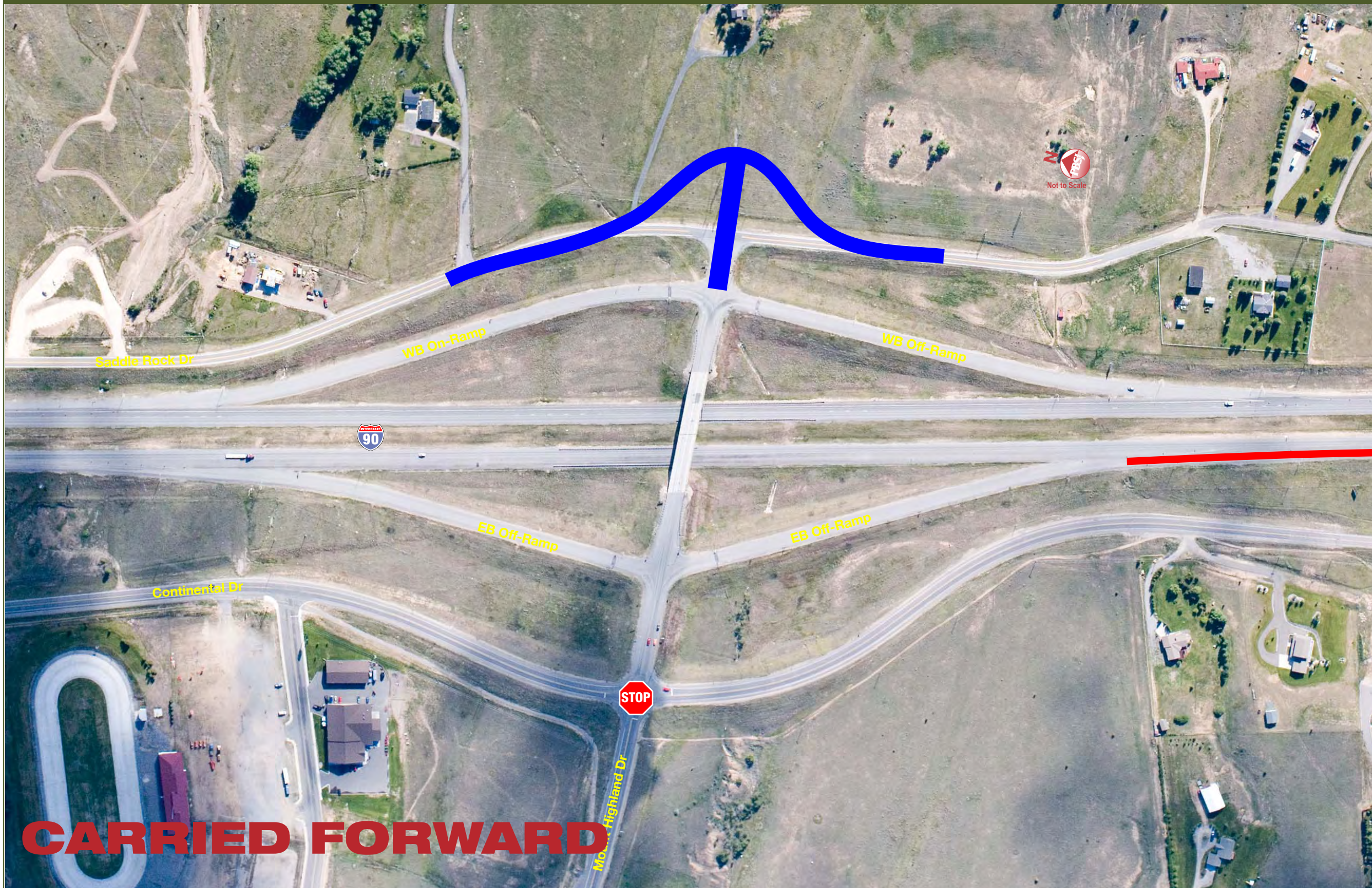
Deficiencies

- Deficient Acceleration Length (EB on-ramp)
- Intersection Spacing
- Intersection Geometry (radiuses, turning movements)
- Intersection Sight Distance

Legend **I** Intersection Deficiencies

Deficient Acceleration Lane (Existing)

Acceleration Lane (Required)



CARRIED FORWARD

Option 1


Realign east side frontage road to the east to provide adequate spacing between ramp terminal intersection and frontage road. Extend the EB on-ramp acceleration lane (common for all alternatives)

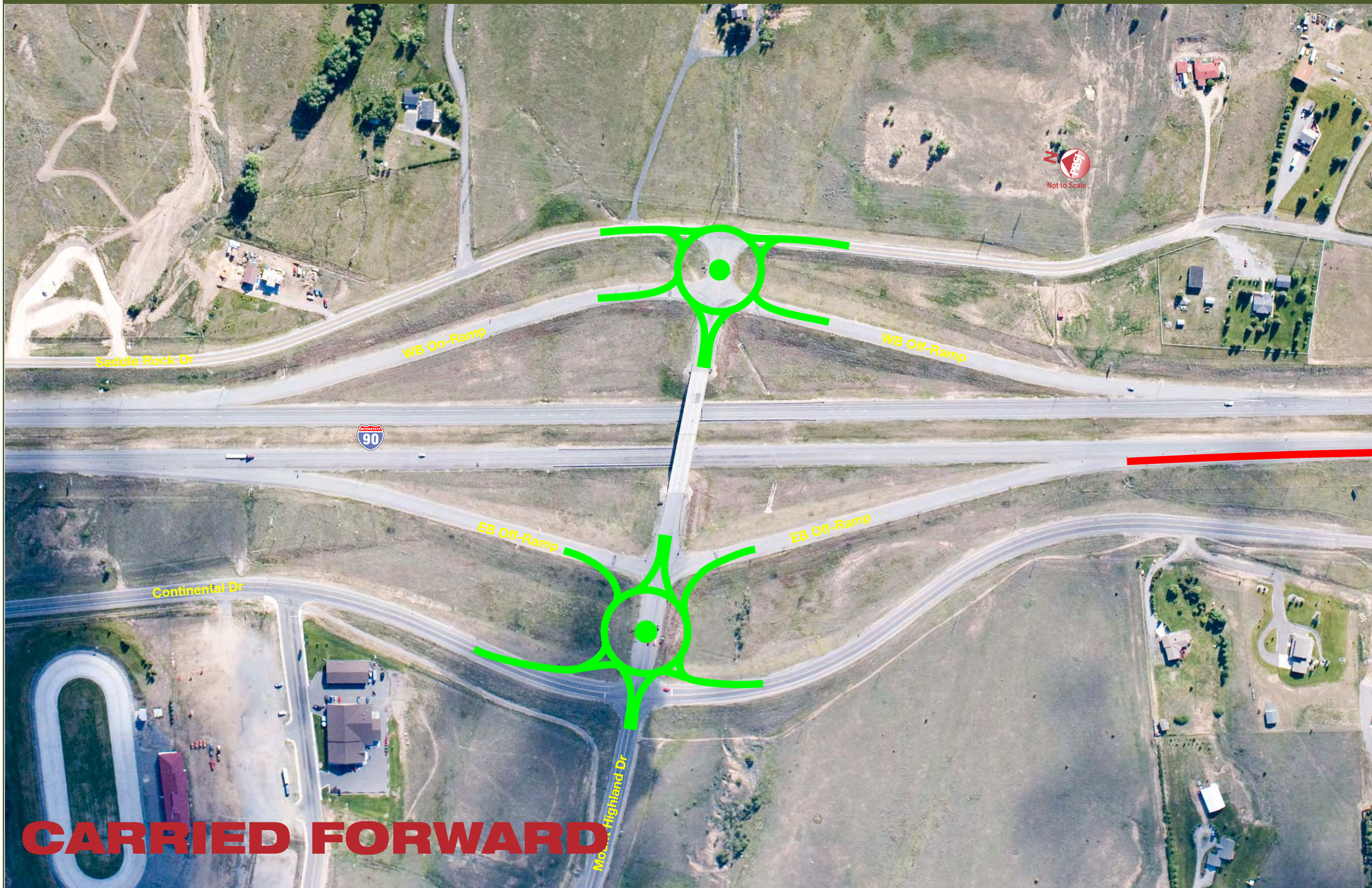
Pros:

- Eliminates intersection spacing and geometry issues
- Solves most deficiencies

Cons:

- Does not address ramp terminal intersection sight distance issues

Legend  Option 1  Extend Acceleration Lane



Option 2

Description: Combine frontage road and ramp terminal intersections into one single lane roundabout on each side of the interstate.

Pros:

- Eliminates intersection spacing issue
- Can prolong the life of the two lane bridge as traffic volumes increase in the area (eliminates need for left turn lanes)
- May improve safety of Continental and Mount Highland intersection

Cons:

CARRIED FORWARD

Legend  Option 2  Extend Acceleration Lane