Castle Creek Bridge

Prepared for the City of Aspen, Colorado

August 05, 2024 Part 2

Jacobs Engineering Group Inc

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Presenters:

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Agenda

- Bridge Sidewalk Removal
- Confirm Right-Of-Way (ROW) needs for 3-Lane Bridge Options
- S-Curve Refinement
- Traffic Modeling
- Economic Impact Analysis
- Funding and Financial Assessment
- Follow-up from Previous Meeting
- Next Steps/Council Direction

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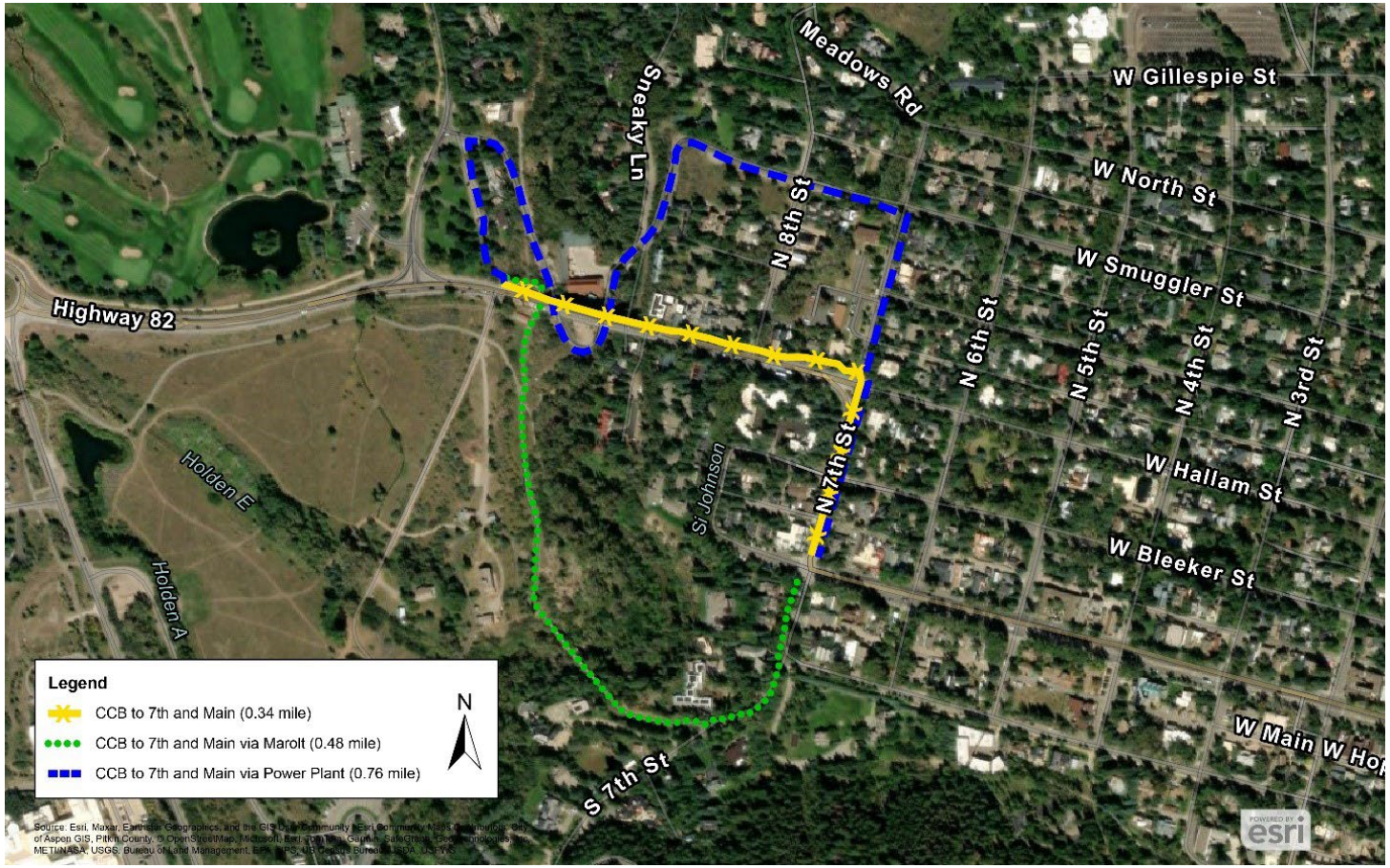
Removal of Sidewalk

Bridge Sidewalk Removal

- Jacobs evaluated:
  - Federal, State and Aspen policy
  - Volume of bicycle use on the Castle Creek Bridge and Marolt Bridge
  - Potential alternative routes
  - Impacts to the school campus



Graphic depicting the existing pedestrian route crossing the Castle Creek Bridge and alternate routes should the bridge sidewalks be removed

- Findings:
  - Existing sidewalks provide an important and highly used bicycle and pedestrian connection
  - Federal and state policies dictate that removal of this connection would require providing an alternative reasonable, ADA accessible route.
  - No significant benefit of sidewalk removal for ROW acquisition or utility construction.

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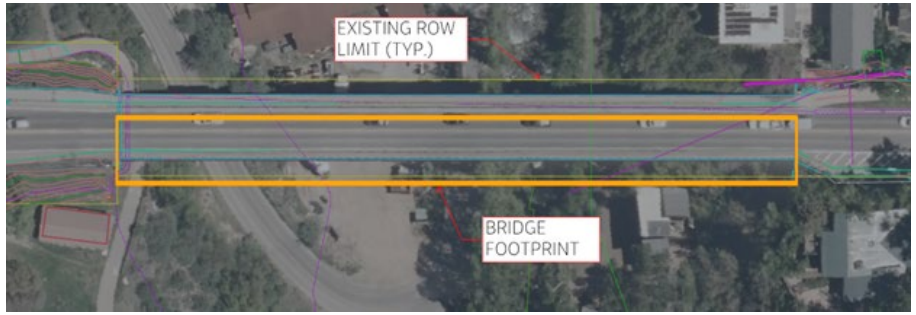
Confirm Right-of-Way Needs for 3-Lane Bridge Options

ROW When Removing the Sidewalk on a 3-Lane Bridge

Options Reviewed:

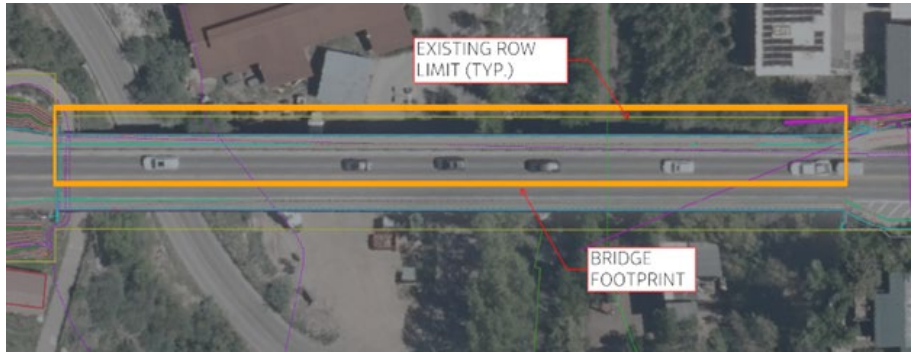


Three-lane Faster, without Sidewalk:

- No change to ROW needs (4’) or bridge width

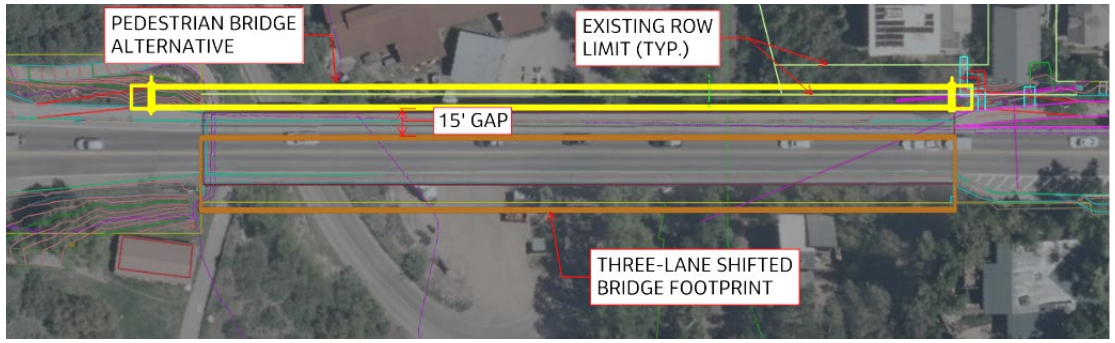
Three-lane Shifted, without Sidewalk:

- No improvement on ROW needs (5’) on SE corner
- High risk of land acquisition for 10 Harbour Ln



Three-lane North, without Sidewalk:

- ROW needs (7’) on NE corner



Three-lane Shifted, with a Pedestrian Bridge:

- ROW needs (7’ on NE corner and 5’ on SE corner)
- Introduces another bridge asset for maintenance

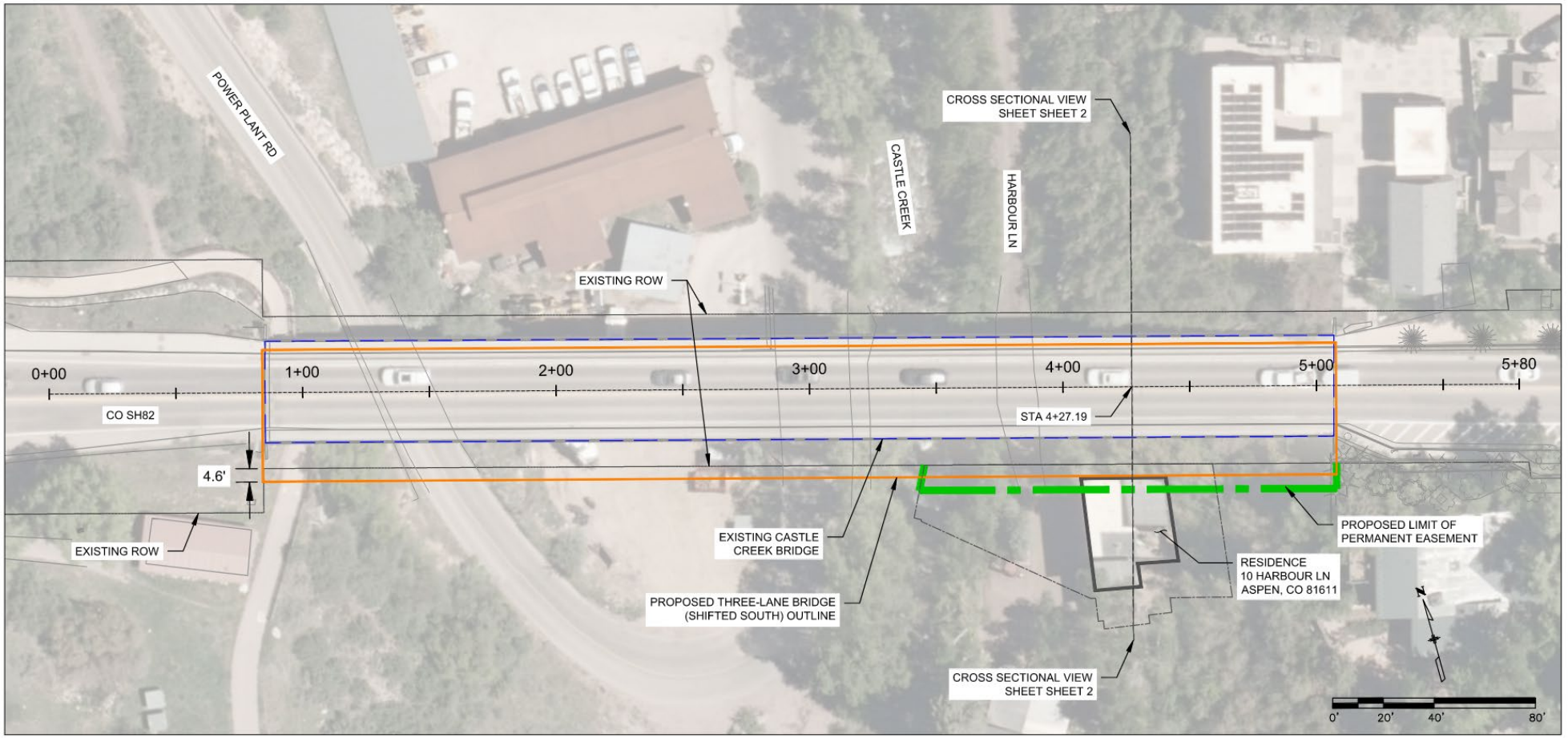
NO THREE-LANE BRIDGE OPTION SUPPORTING TWO LANES IN CONSTRUCTION COMPLETELY AVOIDS ROW

3-Lane Bridge Shifted – Risk Item Plan View

ASPEN CASTLE CREEK BRIDGE
PROPOSED THREE-LANE BRIDGE (SHIFTED SOUTH)
SHEET 1

LEGEND

EXISTING BRIDGE
PROPOSED BRIDGE
EXISTING ROW
PERMANENT EASEMENT



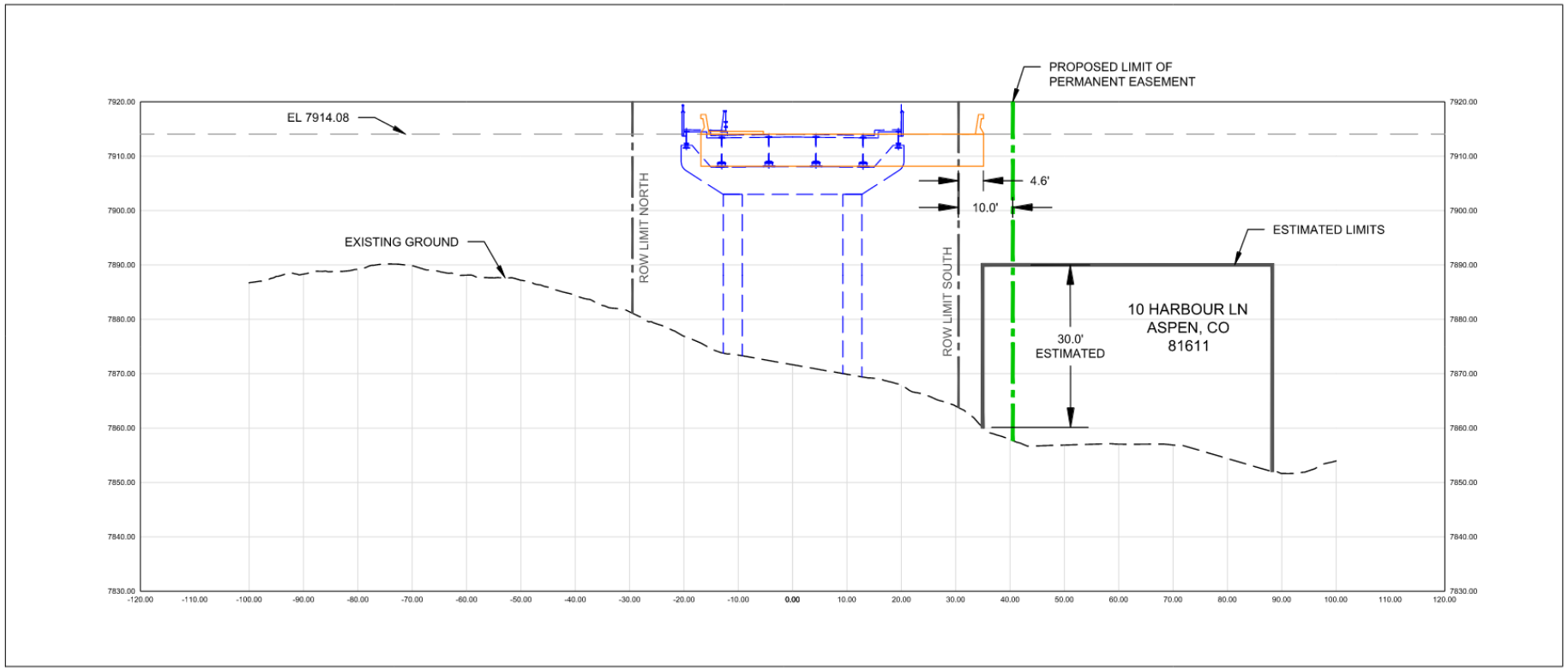
NOTES:
1. LIMITS AND HEIGHT OF 10 HARBOR LN ARE ESTIMATED BASED ON AERIAL IMAGES AND LIDAR CONTOURS.

3-Lane Bridge Shifted – Risk Item Elevation View

ASPEN CASTLE CREEK BRIDGE
PROPOSED THREE-LANE BRIDGE (SHIFTED SOUTH)
CROSS SECTION
SHEET 2

LEGEND

EXISTING BRIDGE
PROPOSED BRIDGE
EXISTING ROW
PERMANENT EASEMENT



NOTES:
1. LIMITS AND HEIGHT OF 10 HARBOR LN ARE ESTIMATED BASED ON AERIAL IMAGES AND LIDAR CONTOURS.

Questions?

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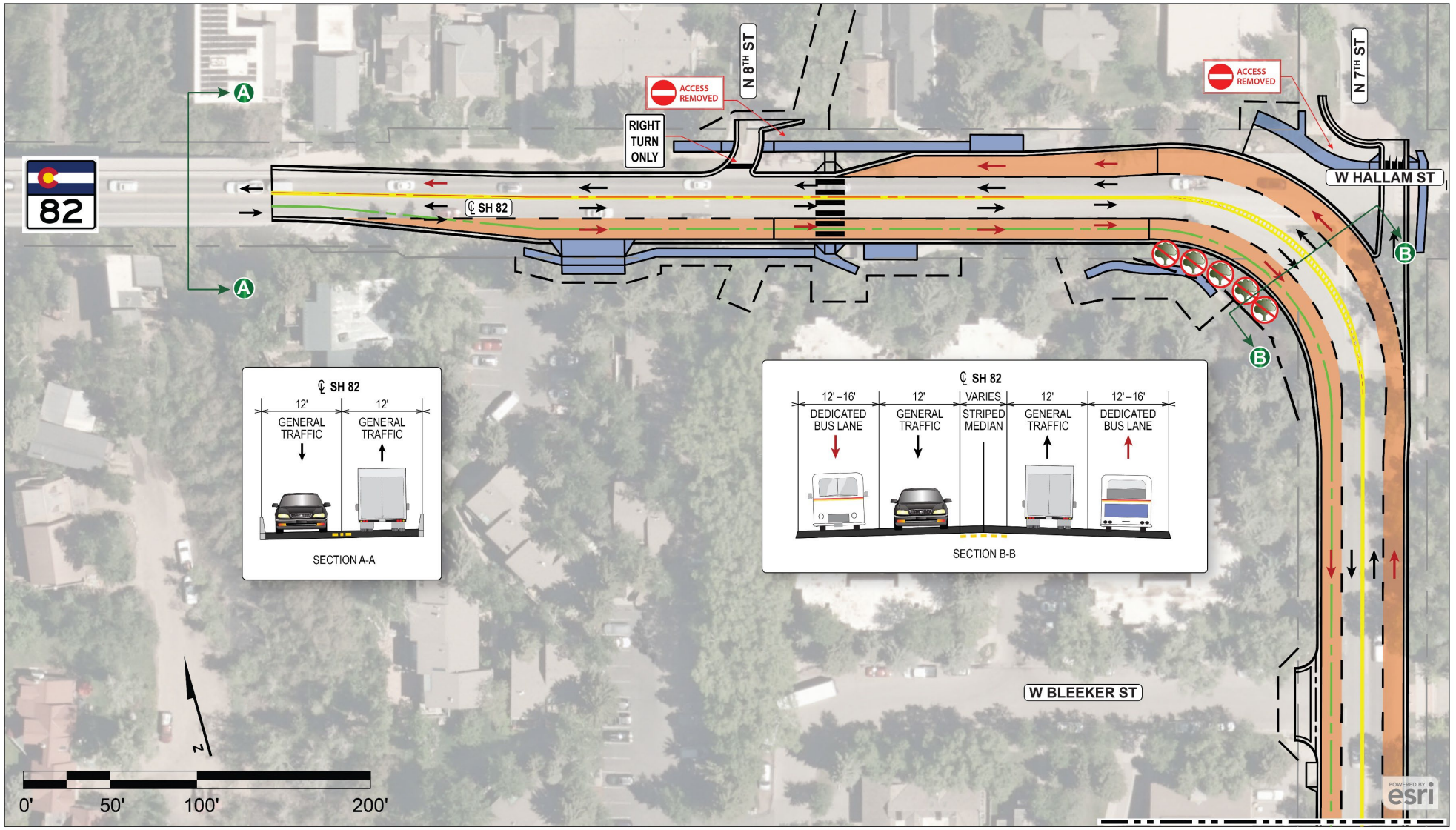
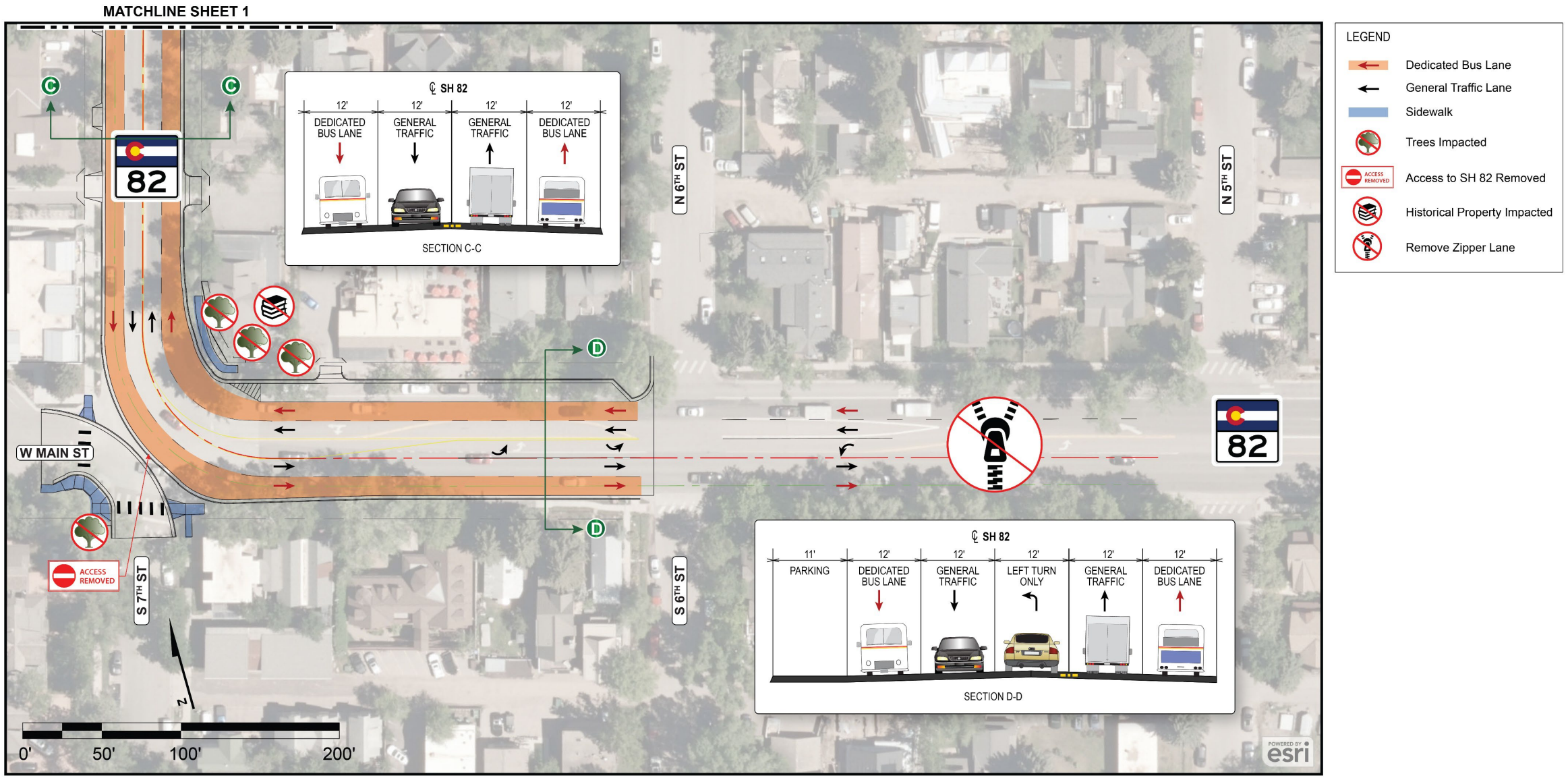
S-Curve Refinement

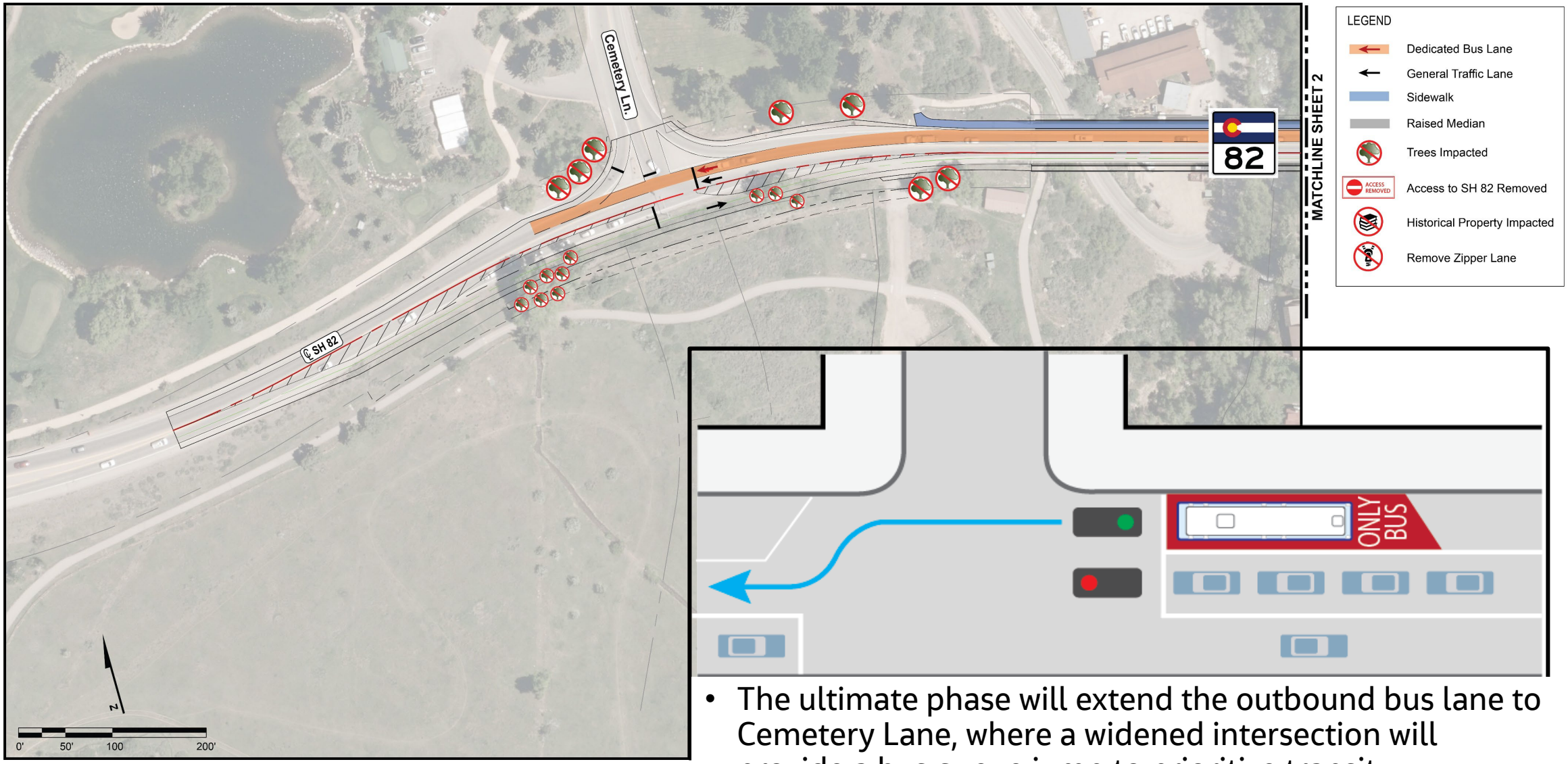
S-Curve Refinement – Refined Option 2 - Initial Phase (2-lane)



S-Curve Refinement – Refined Option 2 - Initial Phase

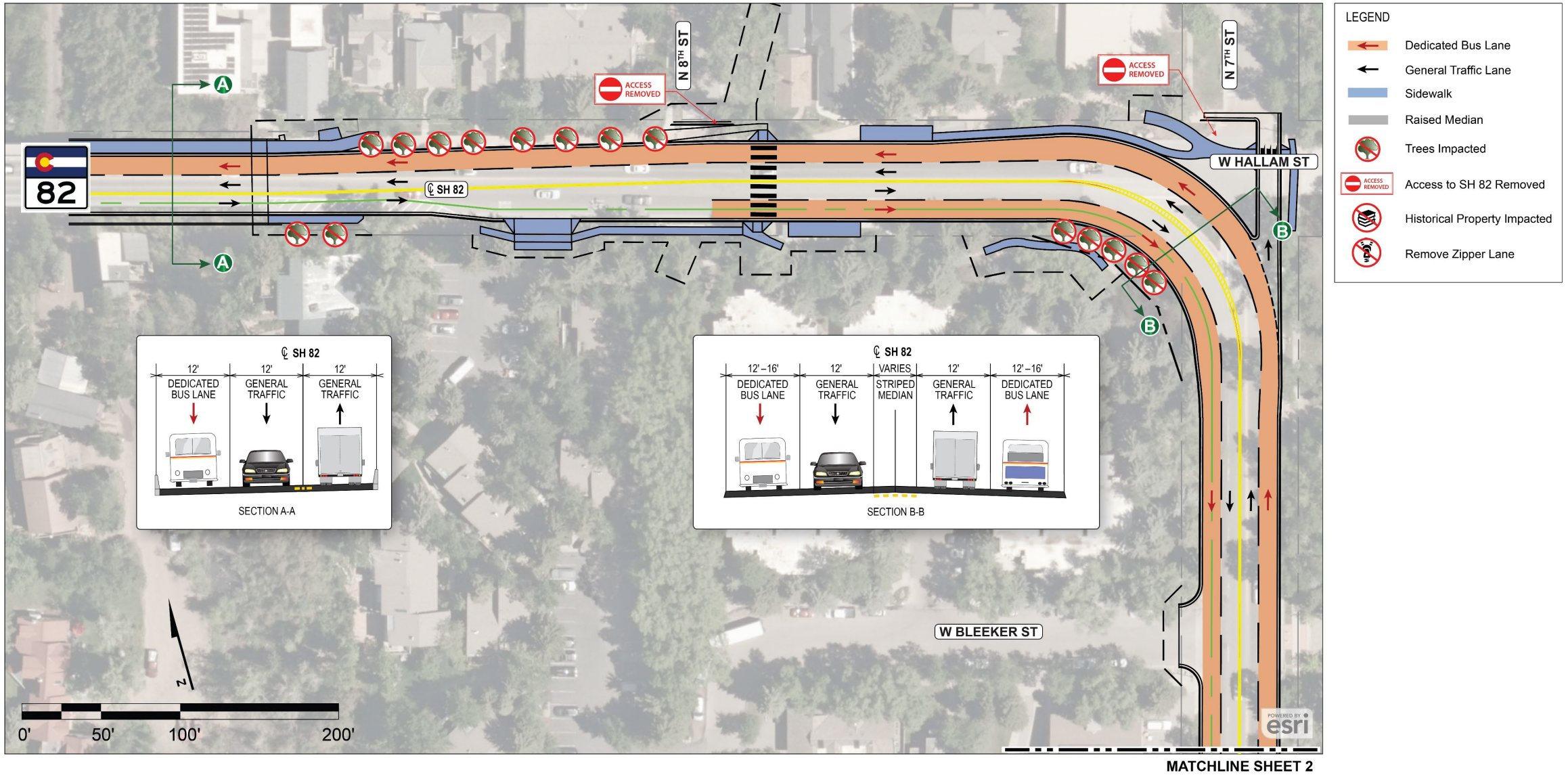


S-Curve Refinement – Refined Option 2 - Ultimate Phase (3-lane)

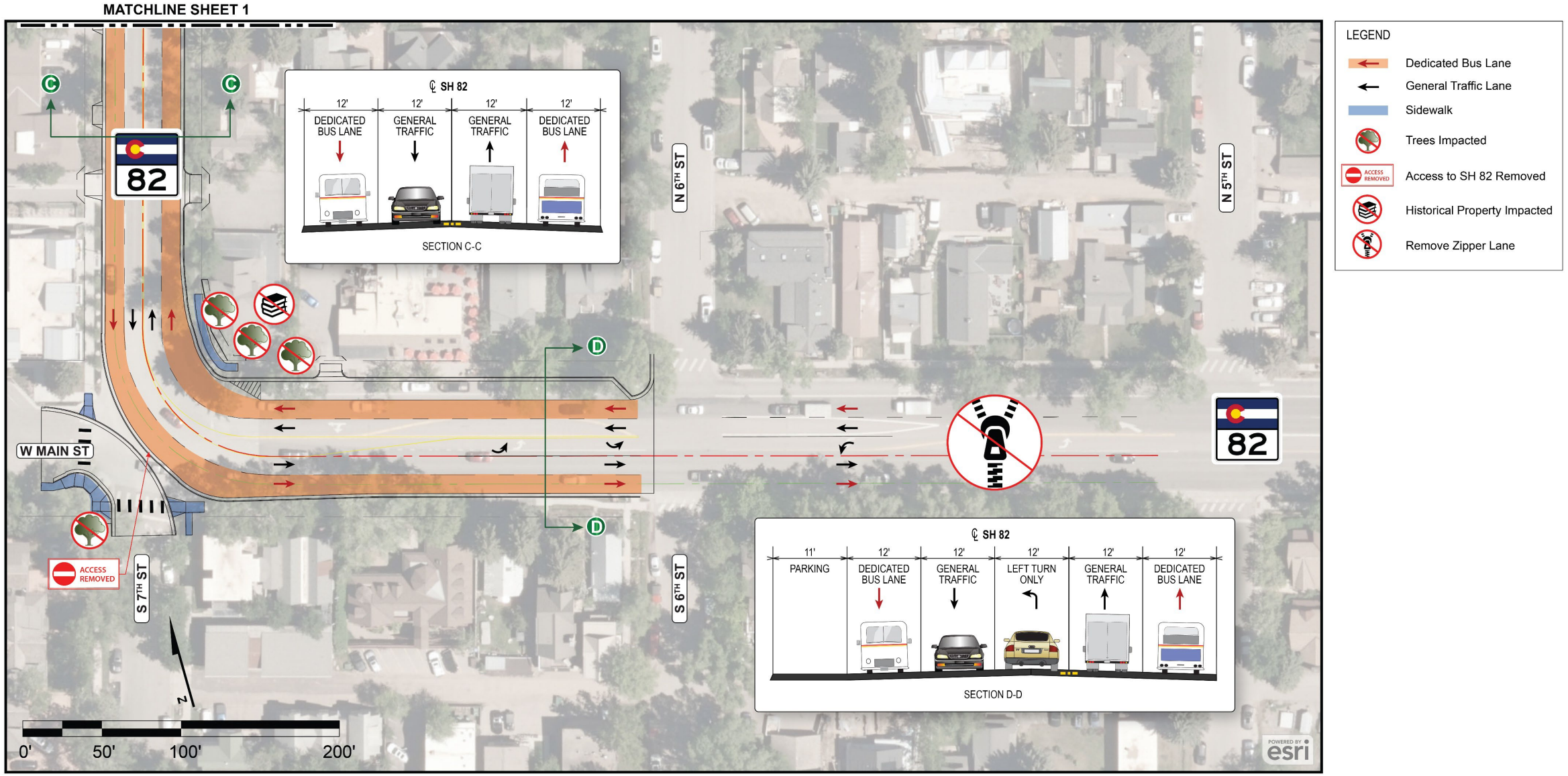


- The ultimate phase will extend the outbound bus lane to Cemetery Lane, where a widened intersection will provide a bus queue jump to prioritize transit

S-Curve Refinement – Refined Option 2 - Ultimate Phase

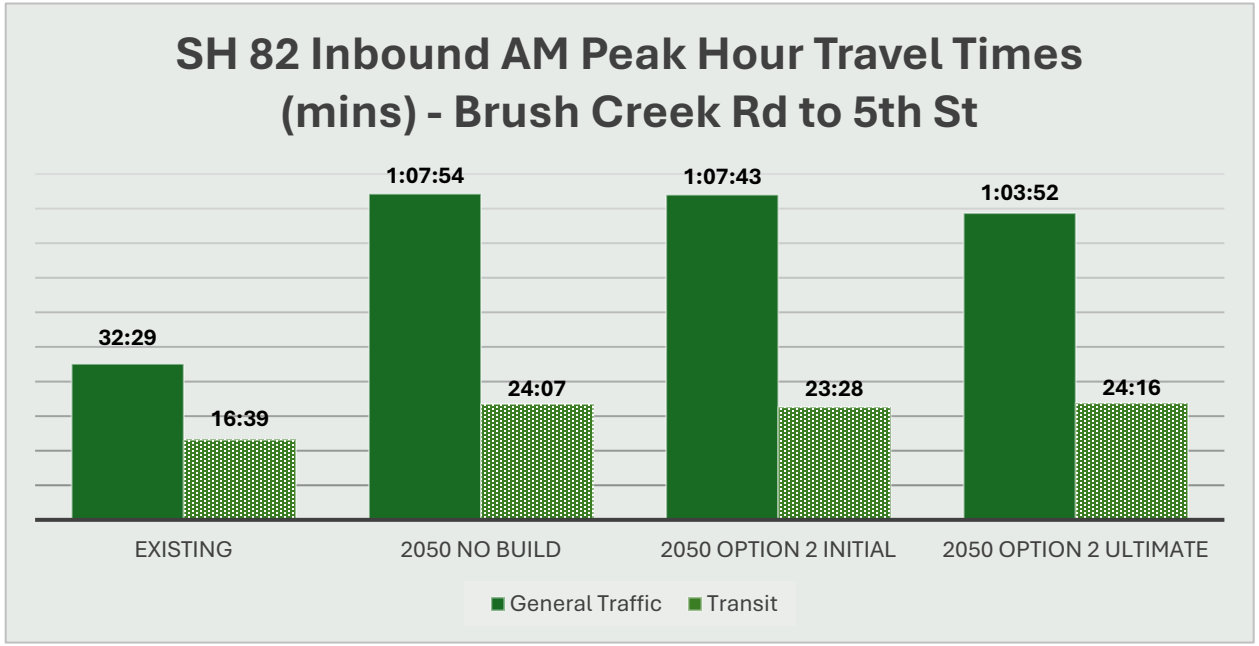


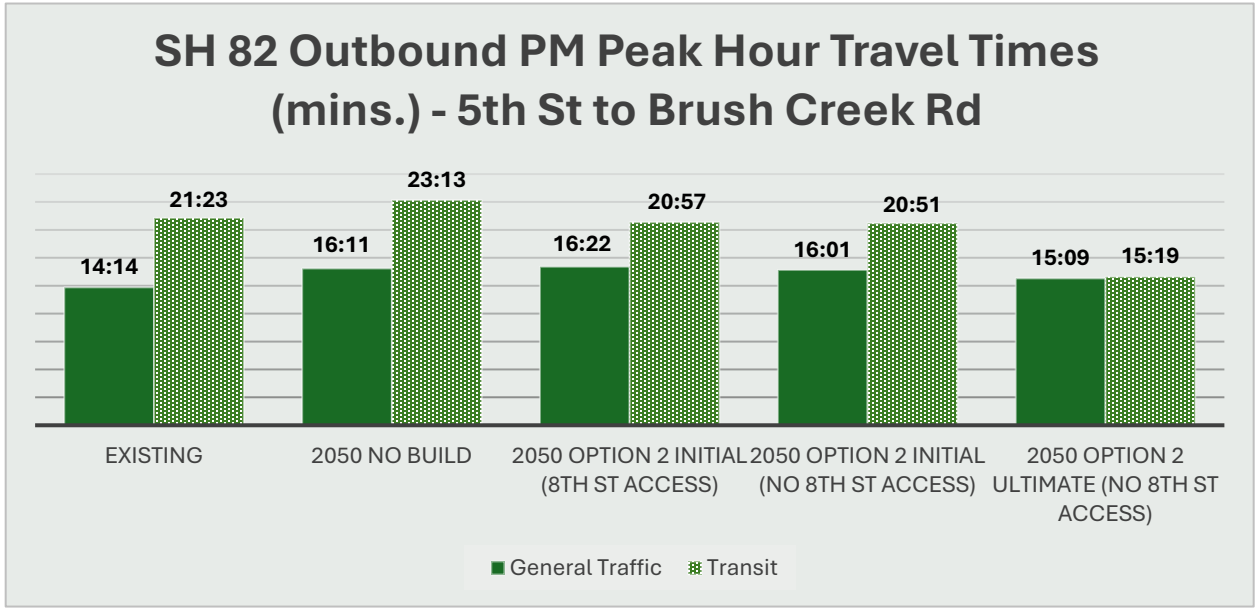
S-Curve Refinement – Refined Option 2 - Ultimate Phase



S-Curve Refinement – Traffic for Initial and Ultimate Phase

- Modeling 2050 Traffic
  - 8th Street Access for Initial phase - Removed in Ultimate
- AM Peak Hour (Inbound)
  - No travel benefits for Initial S-Curve improvements and minor for Ultimate
- PM Peak Hour (Outbound)
  - No travel benefits general traffic between Initial Phase and No-Build Option
  - Slight gain for transit travel times between Initial Phase and No-Build Option
  - Minute travel benefits general traffic between Ultimate Phase and No-Build Option
  - Better gain for transit travel times between Ultimate Phase and No-Build Option





S-Curve Refinement – Initial & Ultimate Phase Costs

- Costs based on 15% level design
- Increase in ROW and Easement costs
- Ultimate costs include reconstructing the Cemetery Lane for the Transit priority queue jump

Scope of Work	Initial Phase (Two Lane)[a]	Ultimate Phase (Three Lane)[a]	Δ Ultimate (Three Lane)[b]
Construction Items	$4,794,000	$8,371,000[c]	$4,348,000[d]
Utilities and Traffic Control	$431,000	$1,005,000[c]	$698,000[d]
Design/NEPA/CE&I	$1,927,000	$3,625,000[c]	$2,064,000[d]
ROW and TCEs	$30,538,000	$32,713,000	$2,644,000
Project Totals	**$37,690,000**	**$45,714,000**	**$9,754,000**

[a] 2024 dollars

[b] Inflated to 2028 dollars

[c] Does not include a potential wall between SH 82 and the Marolt property

[d] Costs for design and reconstruction of the approaches for a Three-lane Shifted bridge were provided for in the cost estimates developed for the SH 82 Castle Creek Over Bridge Feasibility Study (Jacobs 2024).

S-Curve Refinement – Initial Phase Conclusions

- **Constructing the Initial phase - Benefits**
  - Reduces intersection conflict points
  - increases safety on the corners
  - extends the bus lanes within the S-curves
- **Constructing the Initial phase - Cons**
  - Negligible or No traffic gains for general or transit lanes
  - Does not address congestion/other pinch points
  - Does not prioritize inbound transit
  - Does not address the aging bridge or emergency egress concerns
  - High capital cost ($37M) for minimal gain

S-Curve Refinement – Ultimate Phase Conclusions

- **Constructing the Ultimate phase - Benefits**
  - Provides additional lane (via new 3-Lane bridge) for emergency egress
  - extends the outbound bus lane past Cemetery Lane – prioritizing outbound transit
  - Provides some outbound traffic gains for both general and transit
- **Constructing the Ultimate phase - Cons**
  - Does not prioritize inbound transit needs
  - Does not address congestion/other pinch points (Roundabout)
  - Does not provide community a redundant emergency access
  - High capital cost (does not include additional cost for new 3-Lane bridge)

Questions?