



# US 40 Fraser



Project Leadership Team Meeting #2  
February 3, 2020



## Today's Discussion

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Project Overview

CSS 6-Step Process

Traffic Forecasting

Alternatives Analysis Update

Traffic Summary - What does it all mean?

Conclusions

Timeline and Next Steps





# Project Overview

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## CDOT US 40 Fraser Feasibility Study

- US 40 Widening to 4 Lanes - Rendezvous Road to Eisenhower Drive
  - Multi-use path realignment if warranted
- Explore US 40 Intersection Improvements at:
  - Rendezvous Rd. = Existing Signal improvements
  - Old Victory Rd. = New Traffic Signal
  - CR 72 = Roundabout & Traffic Signal
  - Eisenhower Dr. = New Traffic Signal
  - CR 8 = Roundabout & Traffic Signal
  - CR 5 = Roundabout & Traffic Signal
- US 40 Safety Improvements based on accident history

## Town of Fraser/Grand County (Scope B)

- US 40 Widening to 4 Lanes - Eisenhower Drive to CR 5
  - US 40 Alternative Road analysis - Fraser Valley Parkway
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# Context Sensitive Solutions (CSS)

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## Overview of the 6-Step Process



<https://www.codot.gov/projects/contextsensitivesolutions>

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# Critical Success Factors



## US 40 Fraser



## Critical Success Factors

1. Design a project that allows CDOT to meet all State and Federal requirements
2. Define safe and efficient access movements for all users along the corridor and at intersections (e.g. maintenance vehicles, residential and commercial driveways, town streets)
3. Enhance multimodal mobility options to serve travel demand for all users. Support connectivity to trails from Town and winter recreation.
4. Minimize and mitigate environmental impacts (e.g. wetlands, water quality, revegetation)
5. Include design measures to help manage speeds (e.g. raised medians, curb and gutter, lane widths)
6. Preserve small town feel through project aesthetics and lighting
7. Accesses should be designed so they are appropriate for use.
8. Preserve and enhance mobility along the corridor.
9. Support pedestrian accessibility around town including parking and access from Amtrak station.
10. Accommodate large vehicles and emergency services (Oversize loads, school buses, The Lift). Accommodate transit include The Lift and future transit operations on US 40.
11. Balance local access and regional mobility
12. Support local and regional planning efforts
13. Public input and involvement
14. Improve accessibility for tourism. Appropriate Signage Plan (CDOT) and wayfinding signage (by Town and County).
15. Build a project that is maintainable by CDOT, Town and County.
16. Develop a Methods for Maintenance plan.
17. Determine the best management practices for point source discharge locations
18. Secure partnerships between CDOT, County and Town to expand scope of study to CR 5
19. Identify logical phased implementation projects
20. Identify capital investment partnerships

The project's critical success factors were defined by the Project Leadership Team (PLT). Team members on the PLT included CDOT, Town of Fraser, and Grand County.



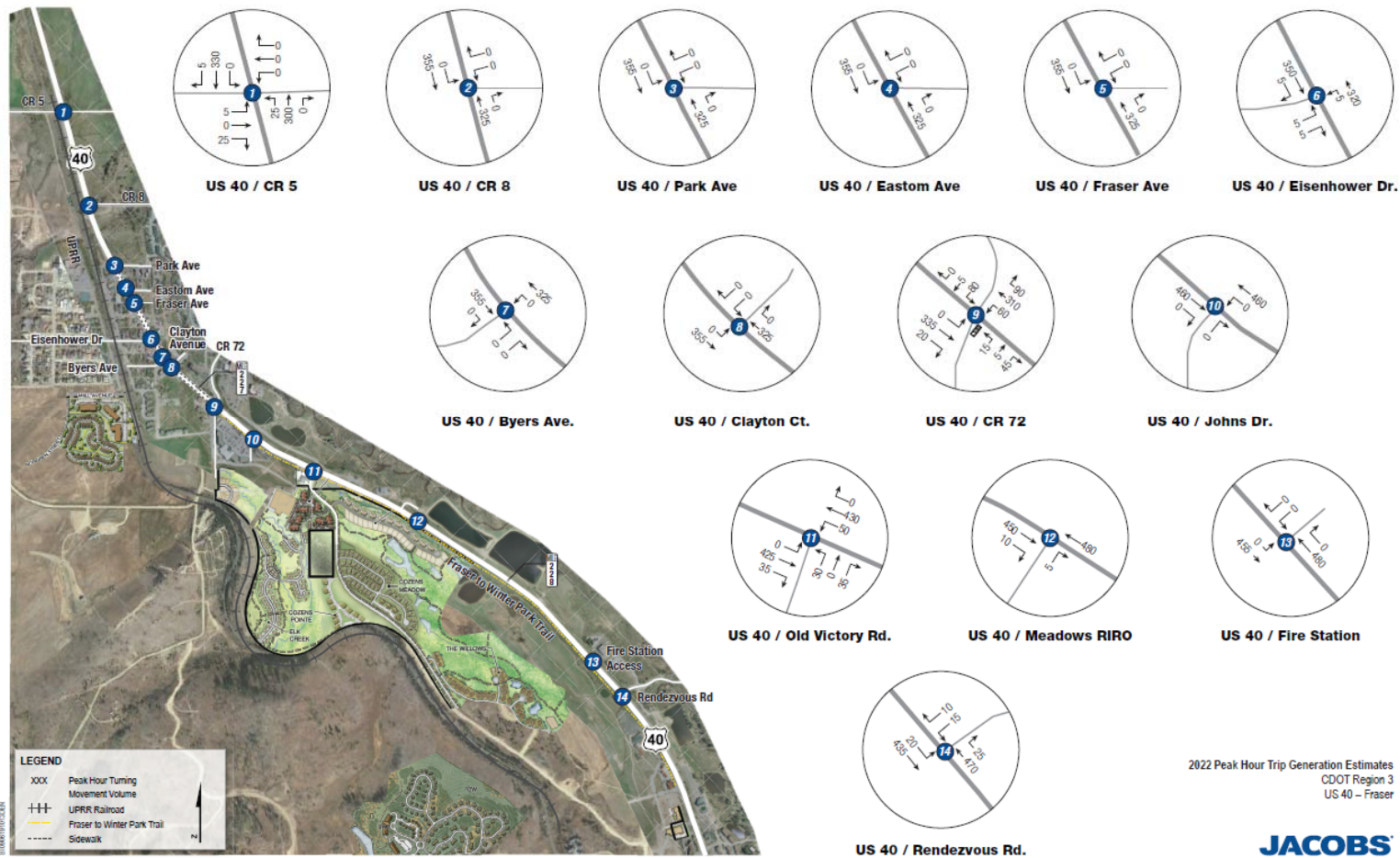
# Traffic Forecasting







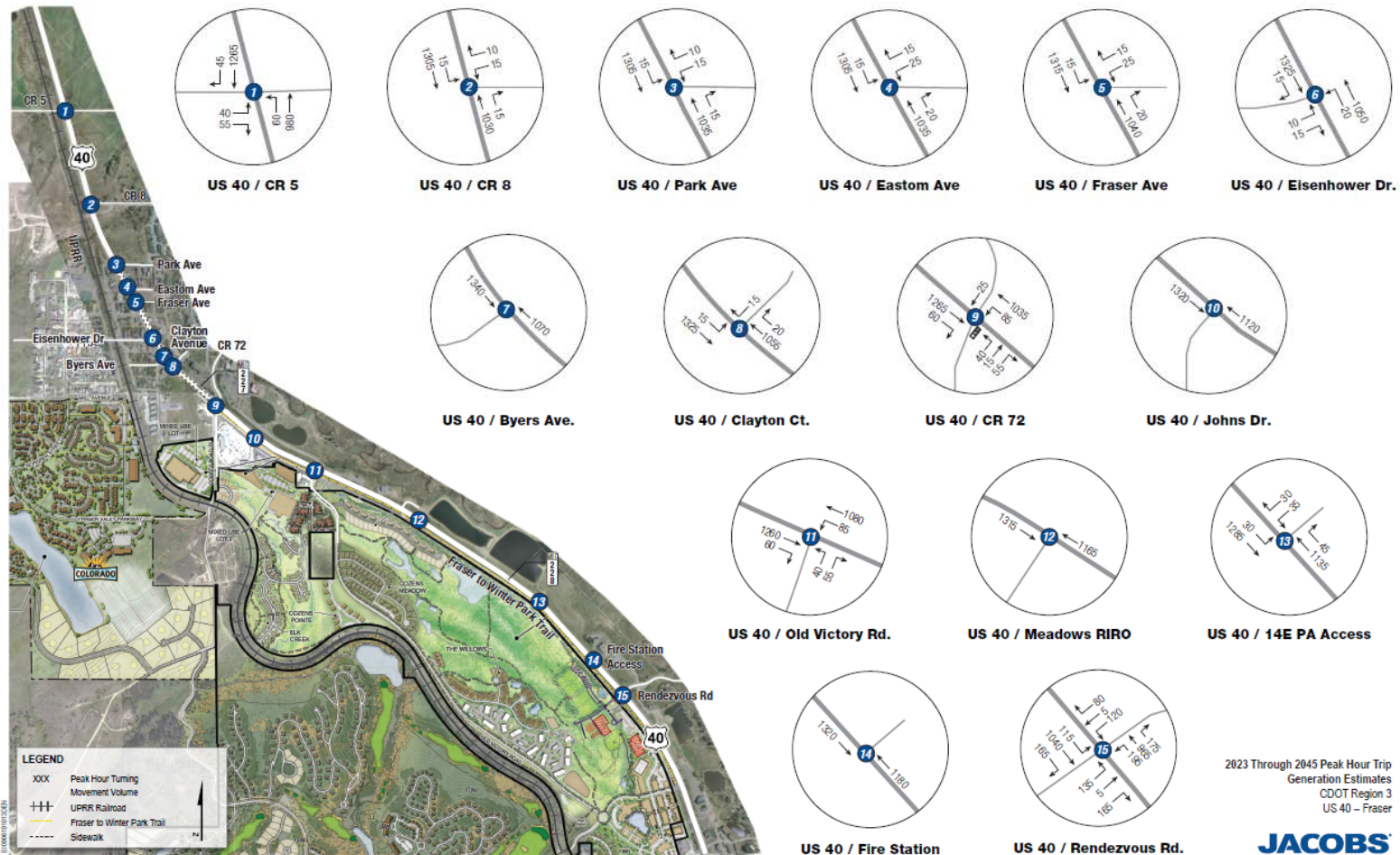
# Traffic Forecasting 2022 Trip Generation & Distribution







# Traffic Forecasting 2045 Trip Generation & Distribution





## Traffic Forecasting Conditions Considered

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1. 2019 Existing Condition
2. 2022 Existing Plus Committed Scenario
3. 2045 No Build Scenario
4. 2045 Build with Roundabouts (Alternative 1) Scenario
5. 2045 Build with Traffic Signals (Alternative 2) Scenario
6. 2045 Build with Refined Traffic Signals Scenario







# Alternatives Analysis





# Alternative Descriptions

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## 2019 Existing Condition

- Represents July 13, 2019 Mid-day traffic data collection

## 2022 Existing Plus Committed Developments Scenario

- Includes background traffic growth from 2019 Existing volume and the development generated traffic to be complete by 2022
- Adds US 40 RIRO for Meadows at Grand Park
- US 40 remains 2-Lane condition

## 2045 No Build Scenario

- All roadway network and access remain the same as 2022 conditions
- The background traffic is grown from 2022 and the remainder of development generated traffic for build out condition is applied







## Alternative Descriptions

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### 2045 Build with Roundabouts (Alternative 1) Scenario

- New Roundabouts - CR 5, CR 8 and CR 72
- New Signals - Eisenhower Road and Old Victory Road
- Widening US 40 to 4 lanes between Eisenhower and CR 5

### 2045 Build with Traffic Signals (Alternative 2) Scenario

- New Signals at CR 5, CR 8, Eisenhower Road and Old Victory Road
- Upgraded Signal at CR 72
- Widening US 40 to 4 lanes between Eisenhower and CR 5

### 2045 Build (Refined Traffic Signals)

- Two eastbound lanes entering the study area west of CR 5
- Dual left-turn lanes on CR 72 approaches
- Right-turn acceleration/deceleration lanes at Rendezvous Road





## Alternative 1 – Roundabouts

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US 40 Roll Plot ALT 1 11-20-19.pdf







## Alternative 2 – Traffic Signals

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US 40 Alt 2 - Traffic Signal Option 11-21-19.pdf





# Fraser Downtown Core – Access Options And Typical Section Review

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Fraser Town Core Access Option A.pdf



Fraser Town Core Access Option B.pdf



Fraser Town Core Access Option C.pdf







# Intersection Level of Service (LOS)

Level of Service (Signalized Intersections)	Average Vehicle Delay at Intersection (seconds)
A	$\leq 10$
B	$> 10$ and $\leq 20$
C	$> 20$ and $\leq 35$
D	$> 35$ and $\leq 55$
E	$> 55$ and $\leq 80$
F	$> 80$

<b>A</b>  Free flow	<b>B</b>  Reasonably free flow	<b>C</b>  Stable flow
<b>D</b>  More restrictive movements for motorists	<b>E</b>  Delay to all motorists due to congestion	<b>F</b>  Complete congestion





# Traffic Model Scenario Results

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## 2019 Existing Condition

- The corridor operates at acceptable levels of service and drivers can generally travel close to the posted speed limits.

## 2022 Existing Plus Committed Developments Scenario

- Lower levels of service at each intersection and travel times that are double the existing scenario are primarily attributable to the volume increase caused by development-generated traffic and not the background volume growth over the three-year period from 2019 to 2022.
- CR 8, Eisenhower, Byers and Old Victory go from LOS B & C to LOS F
- WB direction sees increased delay east of CR 72 due to limited capacity of existing signal

## 2045 No Build Scenario

- The increased volume on the existing roadway network results in near saturation conditions for the study corridor
- CR 5, CR 8, Eisenhower, Byers, Old Victory, Fire Station & Rendezvous go from LOS B & C to LOS F
- Travel times would be significantly worse if the cross street volumes weren't constrained and the demand was able to access US 40 within the peak hour





# Traffic Model Scenario Results

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## 2045 Build Condition (Alternative 1) - Roundabouts Scenario

- West of CR 5 is constrained with 2-Lane section and is why CR 5 & CR 8 operate at acceptable LOS B
- CR 72 is unacceptable at LOS F and causes the flanking unsignalized intersection at Byers Ave and Johns Drive to operate with LOS F conditions.
- Average US 40 through movement queues of 970 feet in the eastbound direction and 1,425 feet in the westbound direction on US 40, and nearly one-half mile in each direction on CR 72 which will likely impact access locations and operations on CR 72

## 2045 Build Condition (Alternative 2) - Traffic Signals Scenario

- Average travel times decrease by half and corresponding speeds double over the No Build Condition
- Average US 40 through movement queues extend 380 feet upstream in the eastbound direction and 740 feet in the westbound direction.
- All of the intersections except Rendezvous Road operate at acceptable LOS with two lanes per direction and signal control at all three county road intersections
- Rendezvous westbound approach reaches hourly capacity for a signalized intersection. The delay results in average queue lengths of over ½ mile east of the intersection







## Refined Traffic Signal Scenario

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- Implemented 2-Lanes approaching CR 5 in the eastbound direction
- Conventional Traffic signal was implemented at CR 8 to accommodate the Regional Trail Crossing
- Dual Left-turn Lanes were incorporated at the CR 72 approaches
- Restricting Bike/Pedestrian Crossing of US 40 to the west side of the intersection
- Added Eastbound Accel/Decel Lanes at Rendezvous Road





# Traffic Model Scenario Results

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## 2045 Build Condition Refined Traffic Signal Scenario

- Increased eastbound capacity serves 22 percent more of the peak hour demand
- Increased left-turn capacity at CR 72, reduced bicyclist/pedestrian crossing exposure at CR 8 and CR 72, and acceleration/deceleration lanes at Rendezvous improve operations and safety
- Additional eastbound volume served decreases performance through the study area (a lower service volume with the Traffic Signals Alternative allows the intersections to perform better and drivers would experience less delay once they were in the study area)
- Provides a consistent cross section with the segment of US 40 to the east through Winter Park





# 2022 Interim Build Scenario – Roadway Network

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CDOT 2022 Interim Roadway Network Assumptions 1-28-2020.pdf







# 2045 Build Scenario – Roadway Network

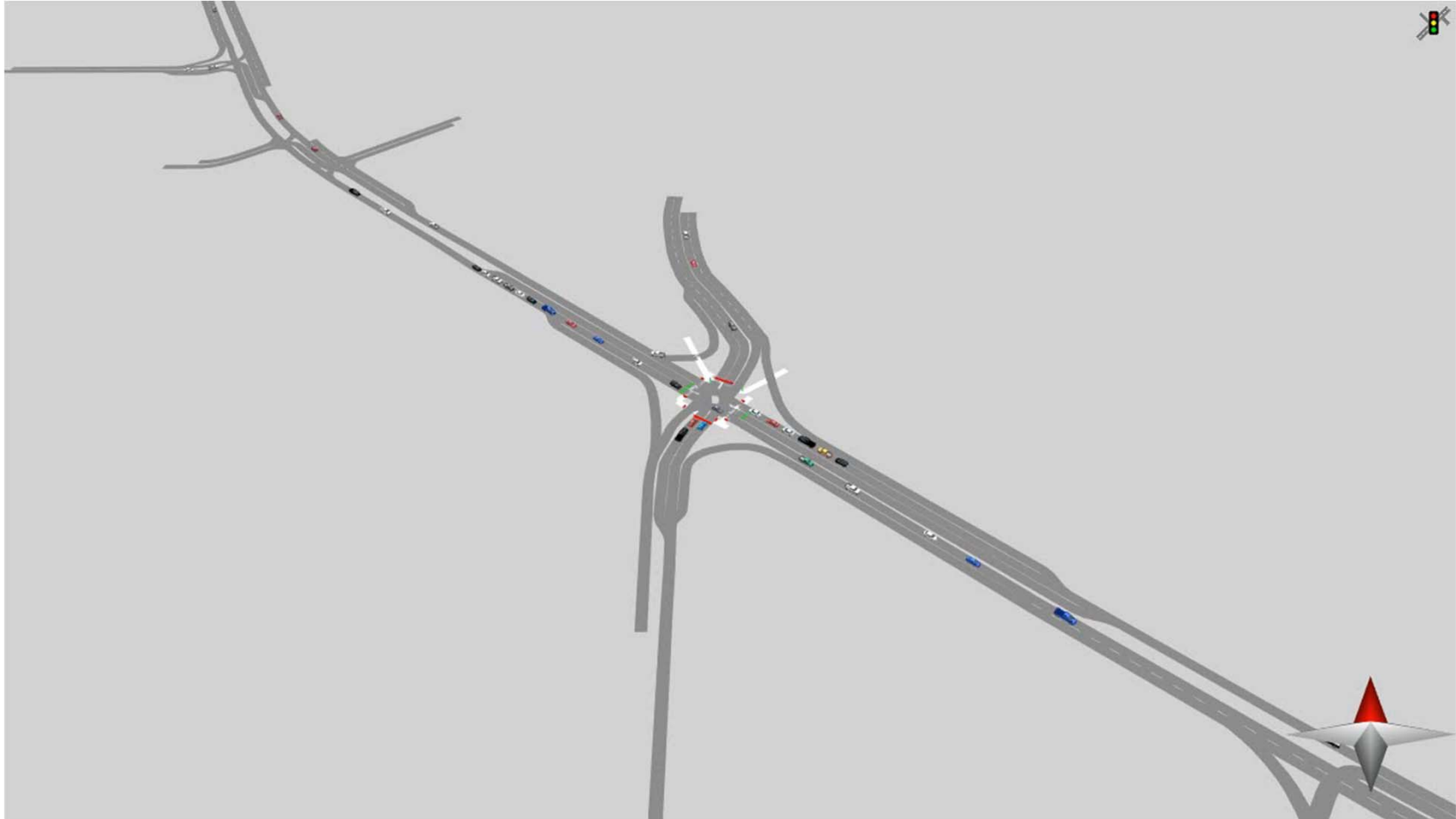
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CDOT 2045 Build Roadway Network Assumptions 1-28-2020.pdf



# 2019 Existing Condition

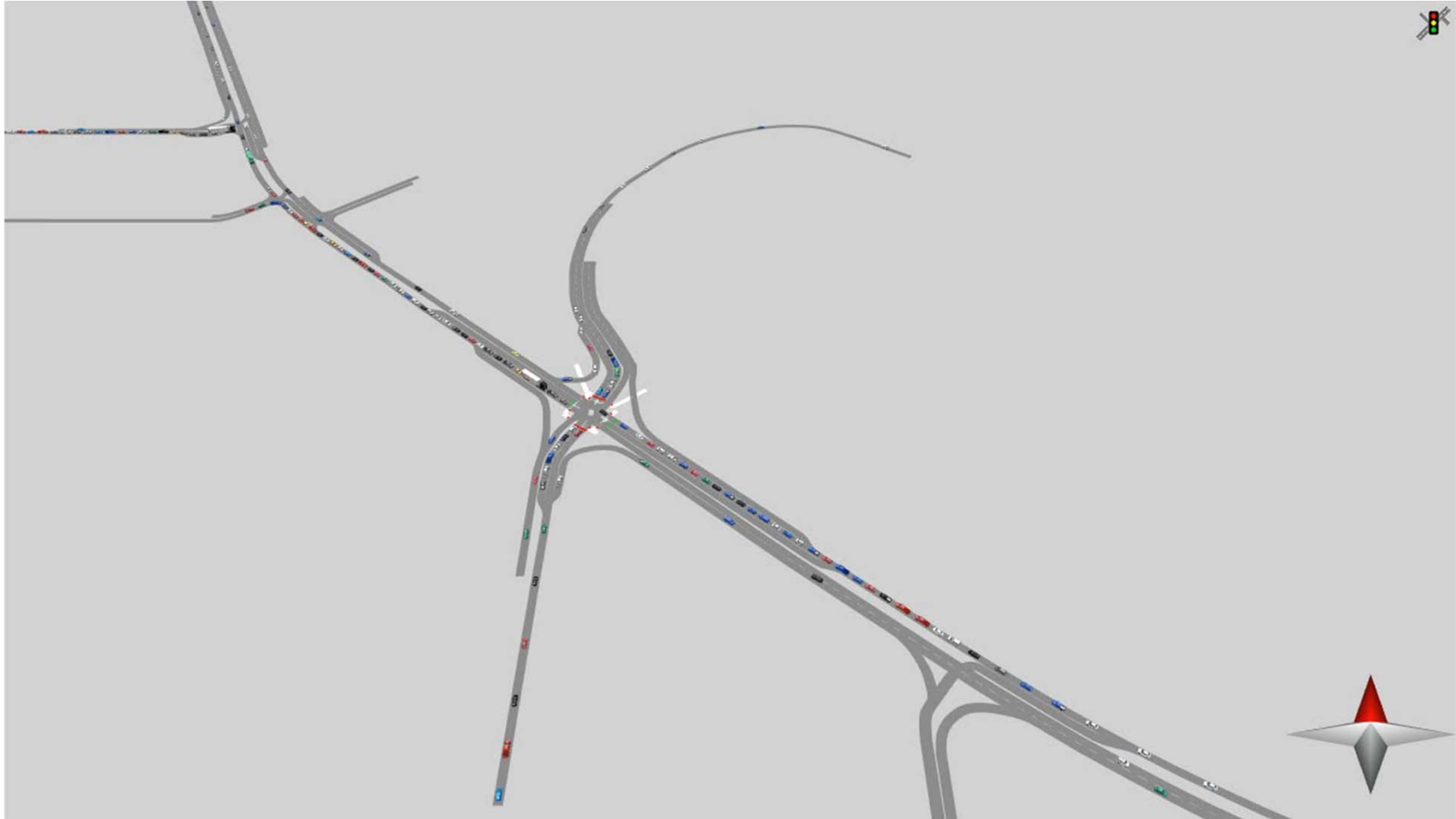


# 2022 Interim Scenario

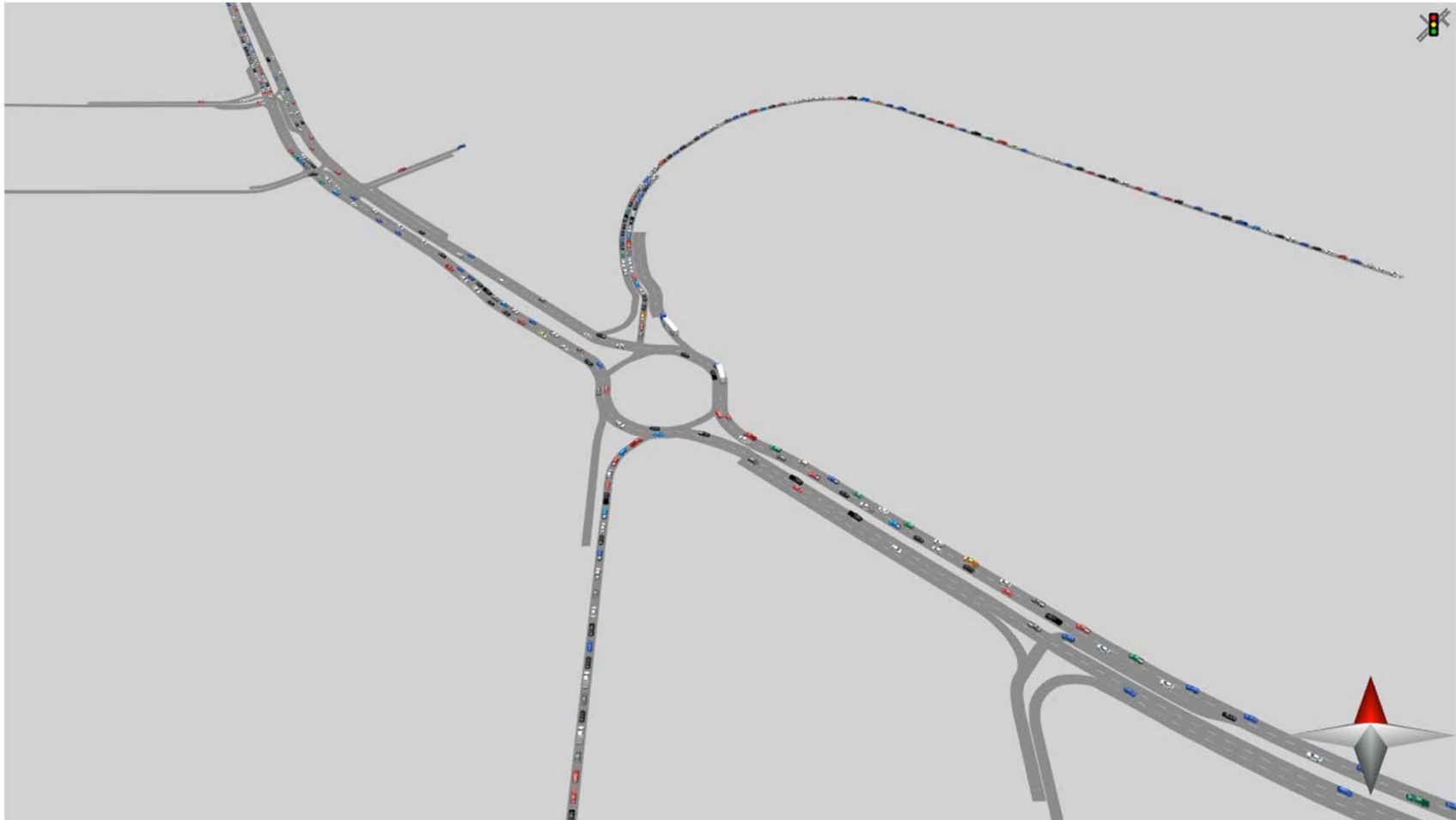




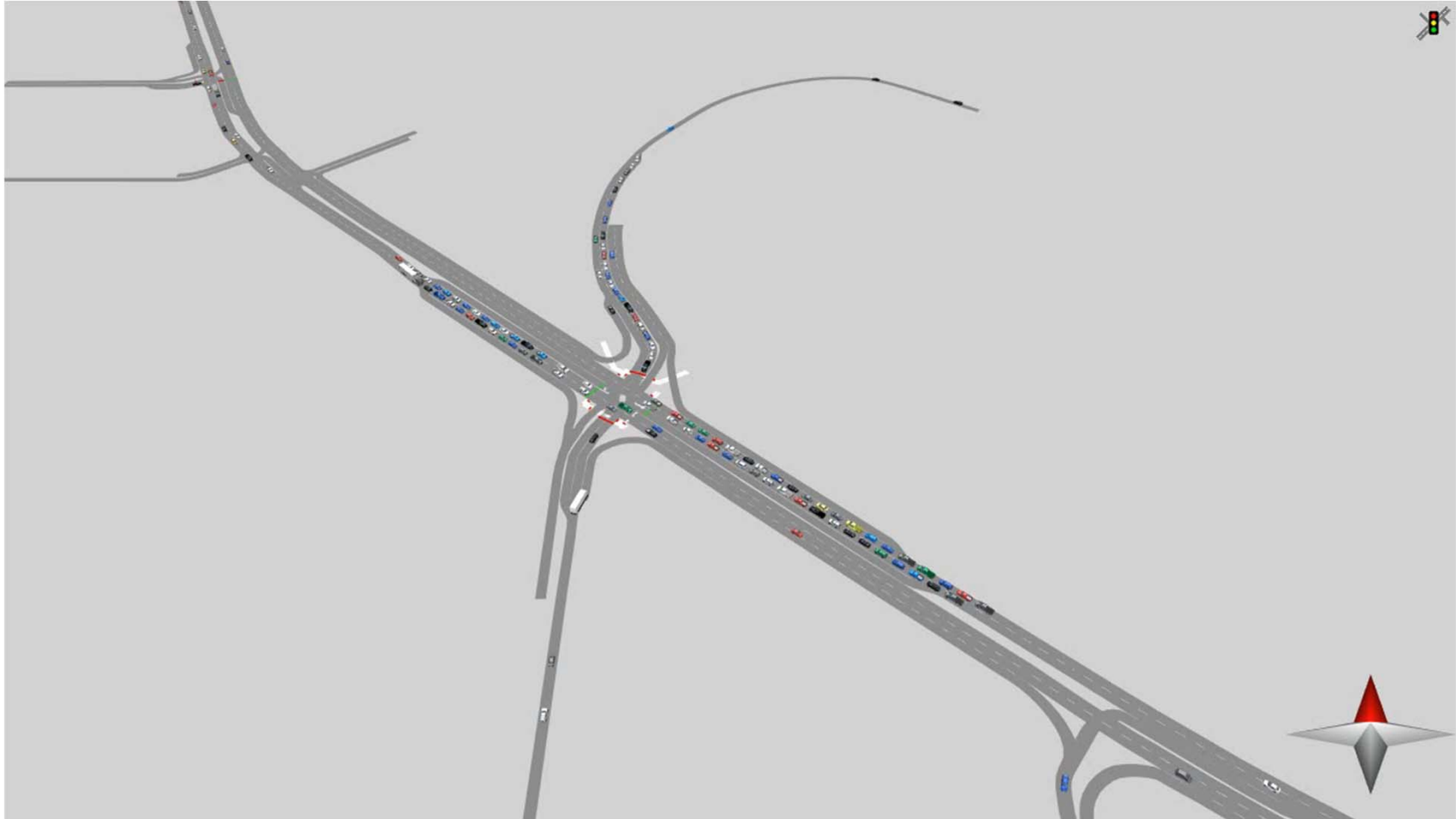
# 2045 No Build



# 2045 Build Alt 1 (Roundabouts)

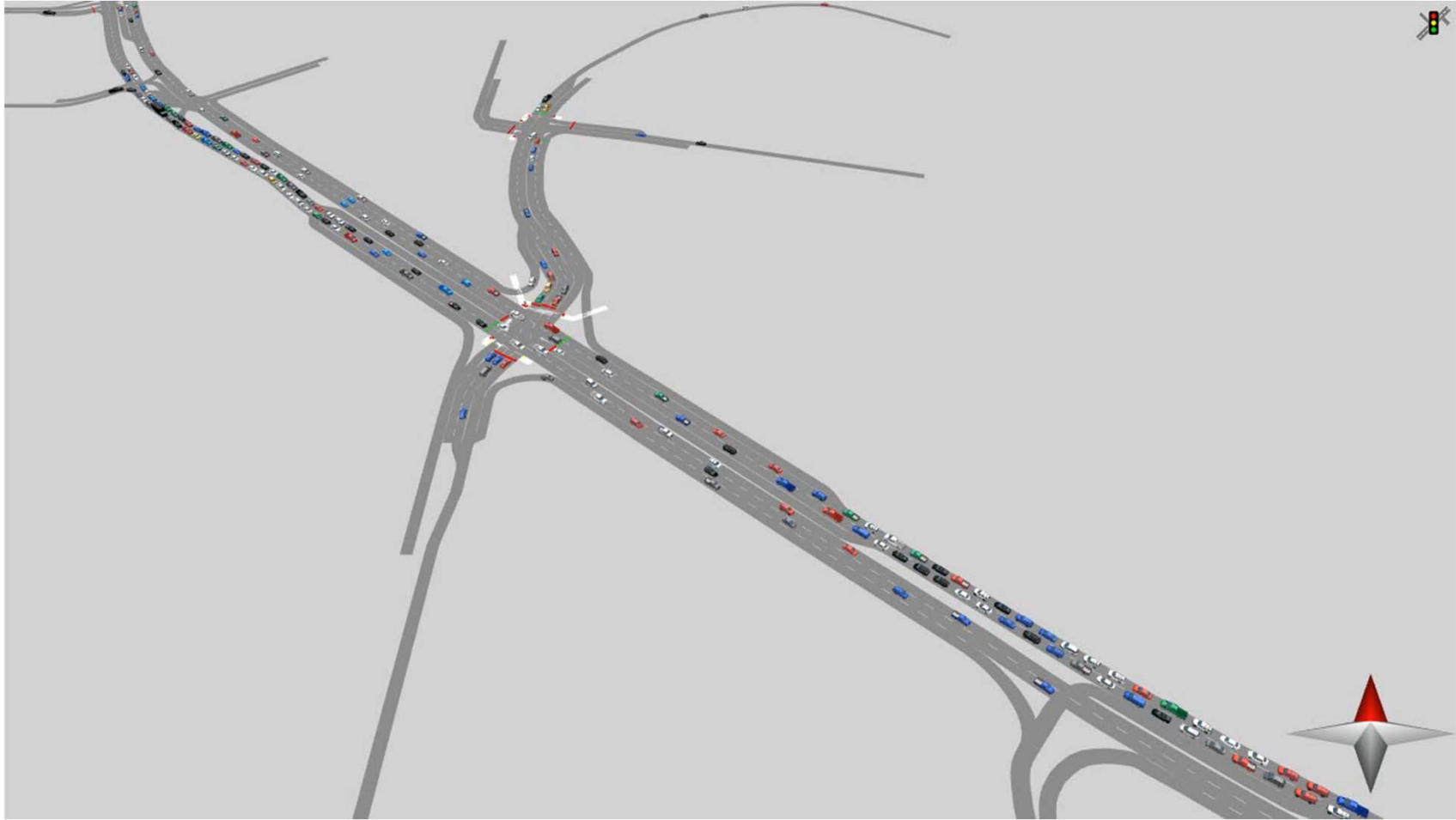


# 2045 Build Alt 2 (Traffic Signals)





# 2045 Refined Traffic Signals





## Traffic Summary – What does it all mean?

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- 2019 Existing Conditions - Operate acceptably
- 2022 Existing Plus Committed Scenario - Nearly doubles 2019 volumes and resultant travel times
- 2045 No Build Scenario - Near saturation conditions for the corridor limits
- 2045 Roundabouts - Poor performance at CR 72 intersection negatively impacts entire corridor limits
- 2045 Traffic Signals - 5 additional signals reduces delay. Most effective option
- 2045 Refined Traffic Signals - Serves a higher proportion of the peak hour demand volume.
- Fraser Valley Parkway - Project Team will evaluate US 40 operations with a Fraser Valley Parkway facility in place.





## Conclusions

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1. US 40 needs 4 lanes in Fraser, not funded at this time. This study will wrap up and advise future efforts on US 40 and local planning.
2. Roundabouts have been ruled out. At least 4 signals are recommended within 5 years.
3. Rapid growth in the area is showing significant capacity problems within 5 years.
4. CDOT R3 Access Manager will continue to work on individual Access Permits, and those requirements, as they come in.
5. The Critical Success Factors serve to balance many competing needs on the corridor and will be referenced in future efforts.
6. Enhance Multi-Modal and Transit Opportunities to better serve local demands
7. Need to find funding for improvements to begin any design efforts.
8. Thoughts for an Open House?





# Timeline and Next Steps

