



COLORADO

Department of Transportation

I-70 Exit 203 and EB Aux Lane Feasibility Study

June 3, 2020



Agenda

- Introductions
- Project Overview / Study Limits
- Project Critical Success Factors
- Work Completed
- Feasibility Study Findings
 - Exit 203 & CO 9/DDR-Lusher
 - I-70 Eastbound Aux Lane
- Project Schedule & Funding
- Next Steps





Project Overview

- Address Safety and Capacity of I-70 Corridor
- Improve I-70 Corridor and EXIT 203 Operations
- Address the I-70 lane balance at EXIT 205





Study Limits





I-70 Programmatic Environmental Impact Statement (PEIS)

- Includes reference to improvements on eastbound I-70 between Frisco and Silverthorne





Where Feasibility Study is in CSS Process?



- Developed the Critical Success Factors (Criteria)

- Initial Alternatives Development



Critical Success Factors

- Address Safety and Capacity of I-70 Corridor
- Improve I-70 Corridor Operations
- Address the I-70 lane balance at EXIT 205





Critical Success Factors

- Comply with the PEIS
- Consider Local Planning Efforts
- Evaluate SH 9 / Dillon Dam Road Intersection





Work Completed

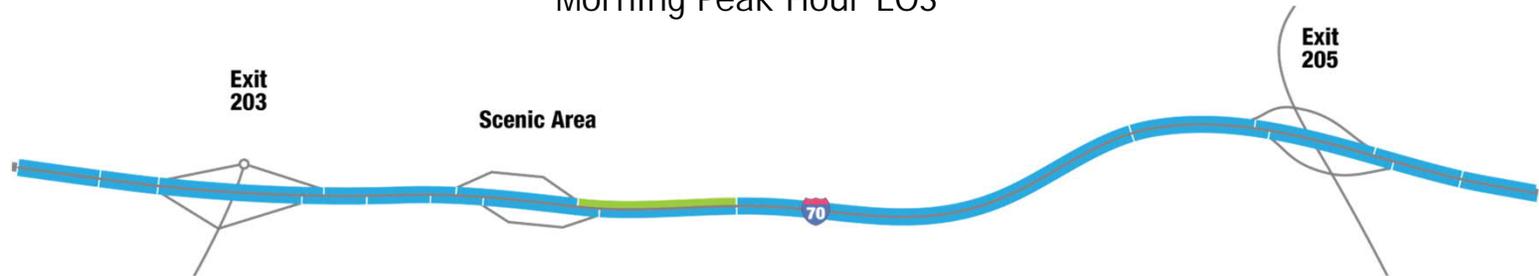
- Environmental Overview
- Traffic Forecasting
- Traffic Operations
- Alternative Development / Conceptual Design
- Public and Stakeholder Engagement



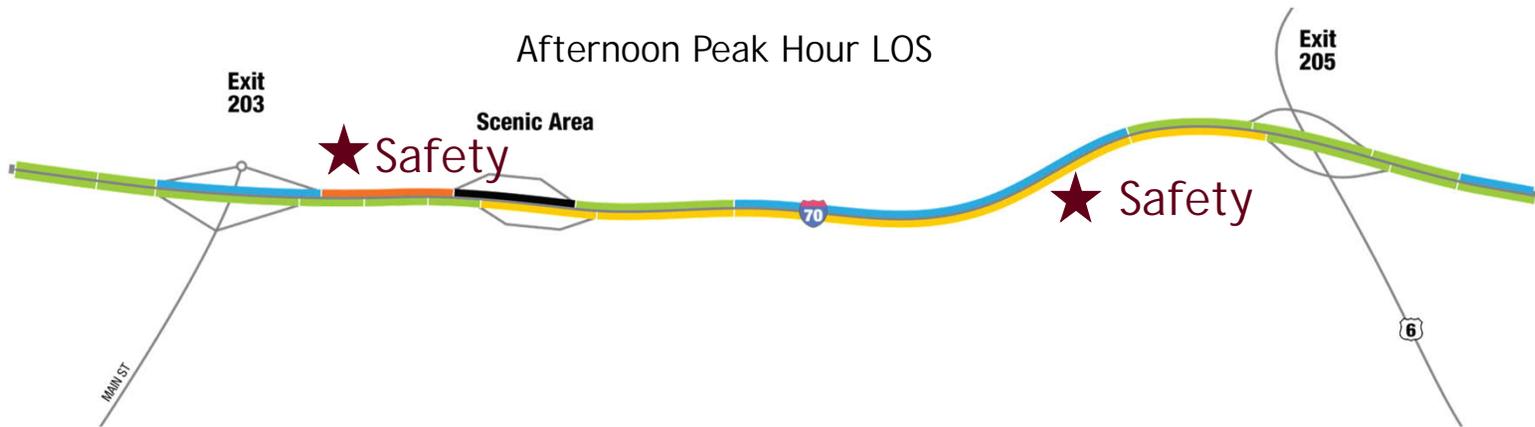


EXISTING CONDITIONS

Morning Peak Hour LOS



Afternoon Peak Hour LOS



Level of Service

Blue A

Green B

Yellow C

Orange D

Red E

Black F

Light Gray Westbound Freeway LOS

Dark Gray Eastbound Freeway LOS



EXISTING CONDITIONS

- I-70 EB / WB Operations
- EXIT203 Interchange
- SH 9 & Lusher Ct/ Dillon Dam Rd

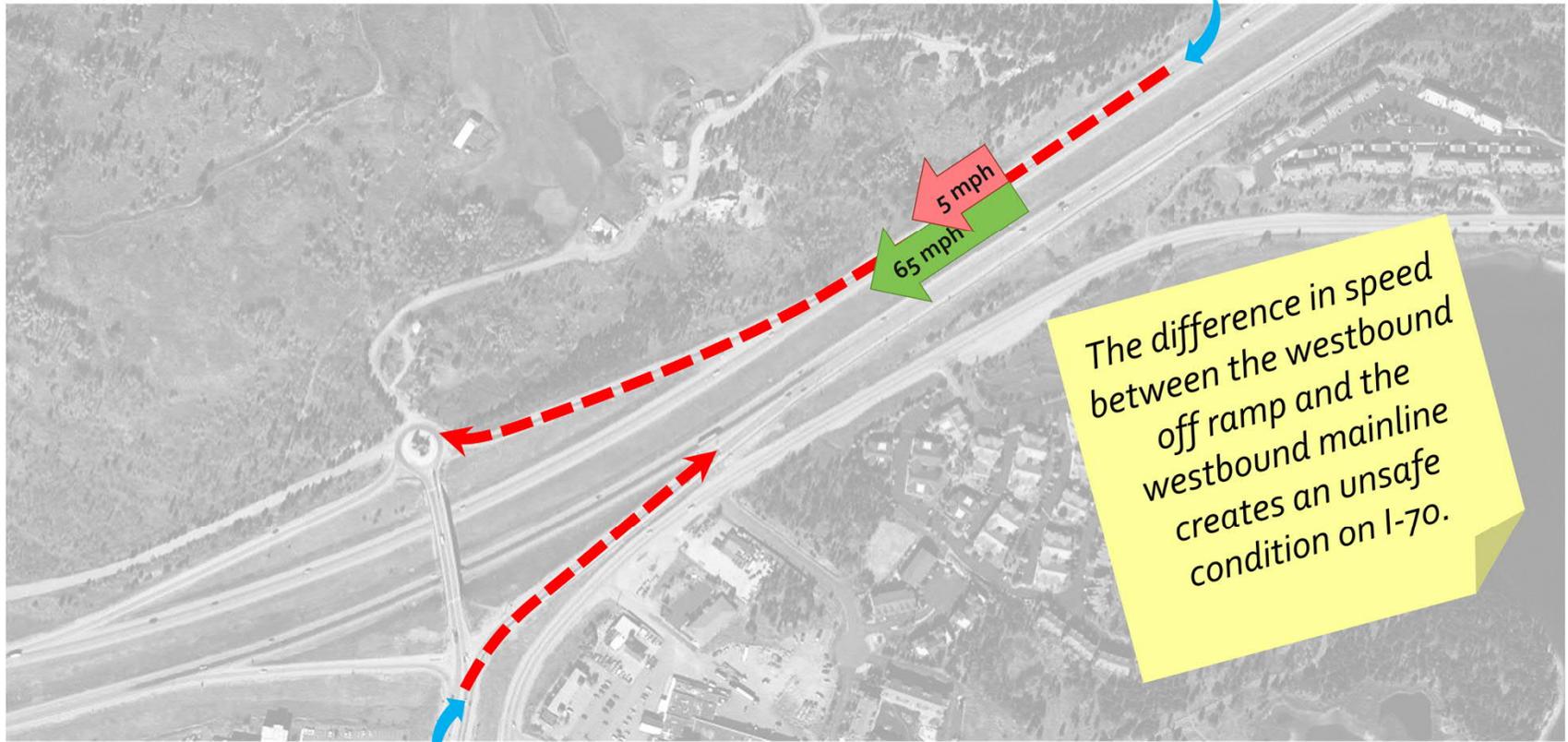
Existing Intersection Levels of Service (LOS)
(Saturday, December 30, 2017)





EXISTING CONDITIONS

Maximum extent of the vehicle queue from the roundabout at Exit 203



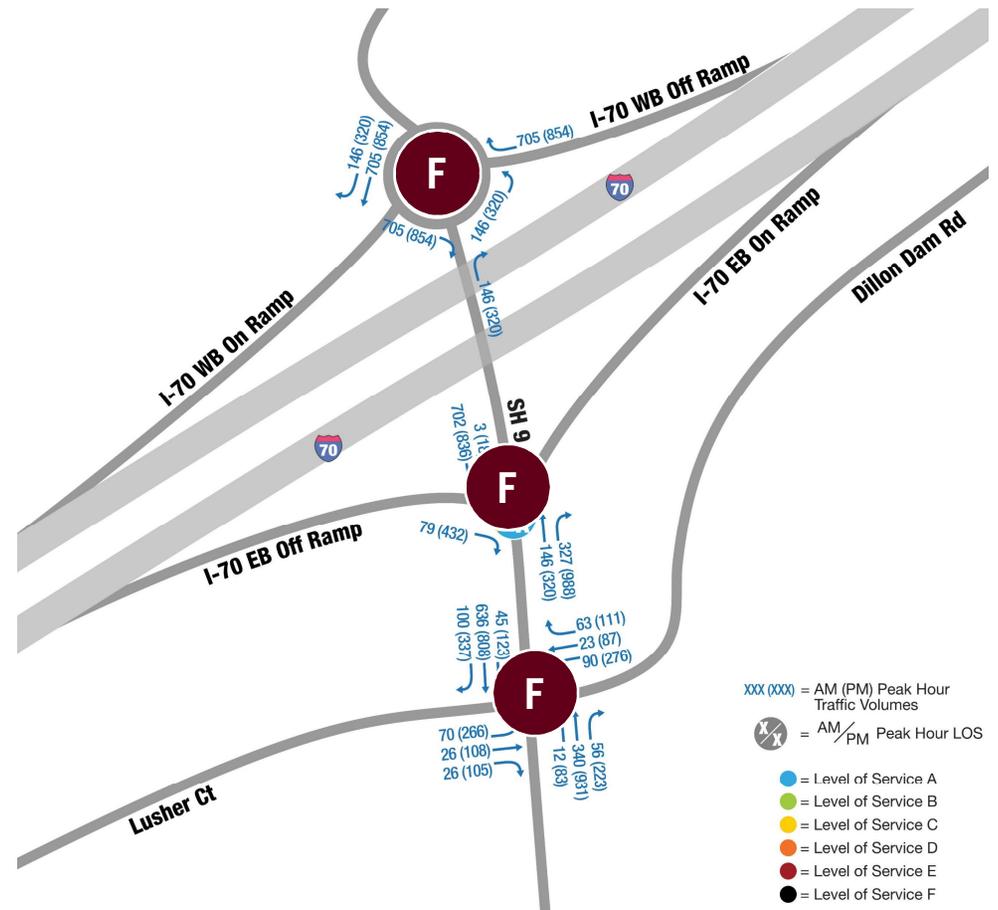
Maximum extent of the vehicle queue from the ramp meter



FUTURE (2045) CONDITIONS

Future Intersection Levels of Service (LOS)
(Saturday PM Winter 2045)

- Future Conditions
 - Year 2045
 - Design Hour is Saturday PM during Peak Winter Season



XXX (XXX) = AM (PM) Peak Hour Traffic Volumes
 X/X = AM/PM Peak Hour LOS
 ● = Level of Service A
 ● = Level of Service B
 ● = Level of Service C
 ● = Level of Service D
 ● = Level of Service E
 ● = Level of Service F



FUTURE (2045) CONDITIONS



Maximum extent of vehicle queue lengths



SH 9 / DDR-Lusher Intersection

CO 9/DDR Intersection Option	Intersection Level of Service	Overall Intersection Delay (sec/veh)
Enhanced Detection	LOS E	76
Minor Widening and Realignment	LOS E	61
Major Widening and Realignment	LOS E	58
Controlled Access Intersection		
<ul style="list-style-type: none"> • Eliminate EB/WB Lefts 	LOS D	36
<ul style="list-style-type: none"> • Eliminate EB/WB Throughs 	LOS D	40
Partial Continuous Flow Intersection (CFI)	LOS D	48

(Controlling access/eliminating movements are the only options that provide substantial long term improvements due to the close proximity of Lusher/DDR to the EB Ramps)



Exit 203 Interchange Alternatives

1. Two-lane roundabout at the westbound (WB) ramps and a signalized intersection at the eastbound (EB) ramps
2. Signalized intersection at the WB ramps and a signalized intersection at the EB ramps

Originally only two alternatives were considered, but due to substandard traffic operations additional alternatives were developed

3. Diverging Diamond Interchange (DDI)
4. Single point urban interchange (SPUI) combining the EB and WB ramps
5. Tight urban diamond interchange (TUDI), which includes a signalized intersection at the WB ramps, a signalized intersection at the EB ramps, access control at CO 9/DDR, and includes a new frontage road underpass providing bypass operations for east-west movements under CO 9.

Following development of the 5 alternatives, and based on stakeholder input the new Frontage Rd bypass was analyzed for each alternative, leading to a revised concept 1:

Revised Concept: Option 1 including the new Frontage Rd Bypass under CO 9 and additional access control at Lusher/Dillon Dam Rd



1. Exit 203 - Two Lane Roundabout and EB Signalized Intersection Alternative

Description:

- WB Ramp - Improved Two Lane Roundabout
- EB Ramp - New Signalized Intersection
- Lusher/DDR - Improved Signalized Intersection





2. Exit 203 - Signalized Intersections Alternative

Description:

- WB Ramp - New Signalized Intersection
- Existing Bridge
- EB Ramps - New Signalized Intersection
- Lusher/DDR - Improved Signalized Intersection





3. Exit 203 - Diverging Diamond Interchange Alternative

Description:

- WB Ramp - Stop Controlled intersection
- Traffic between ramps travels on opposite sides of road (NB on west side, SB on east side)
- EB Ramps - New Signalized Intersection where NB and SB traffic Crossover

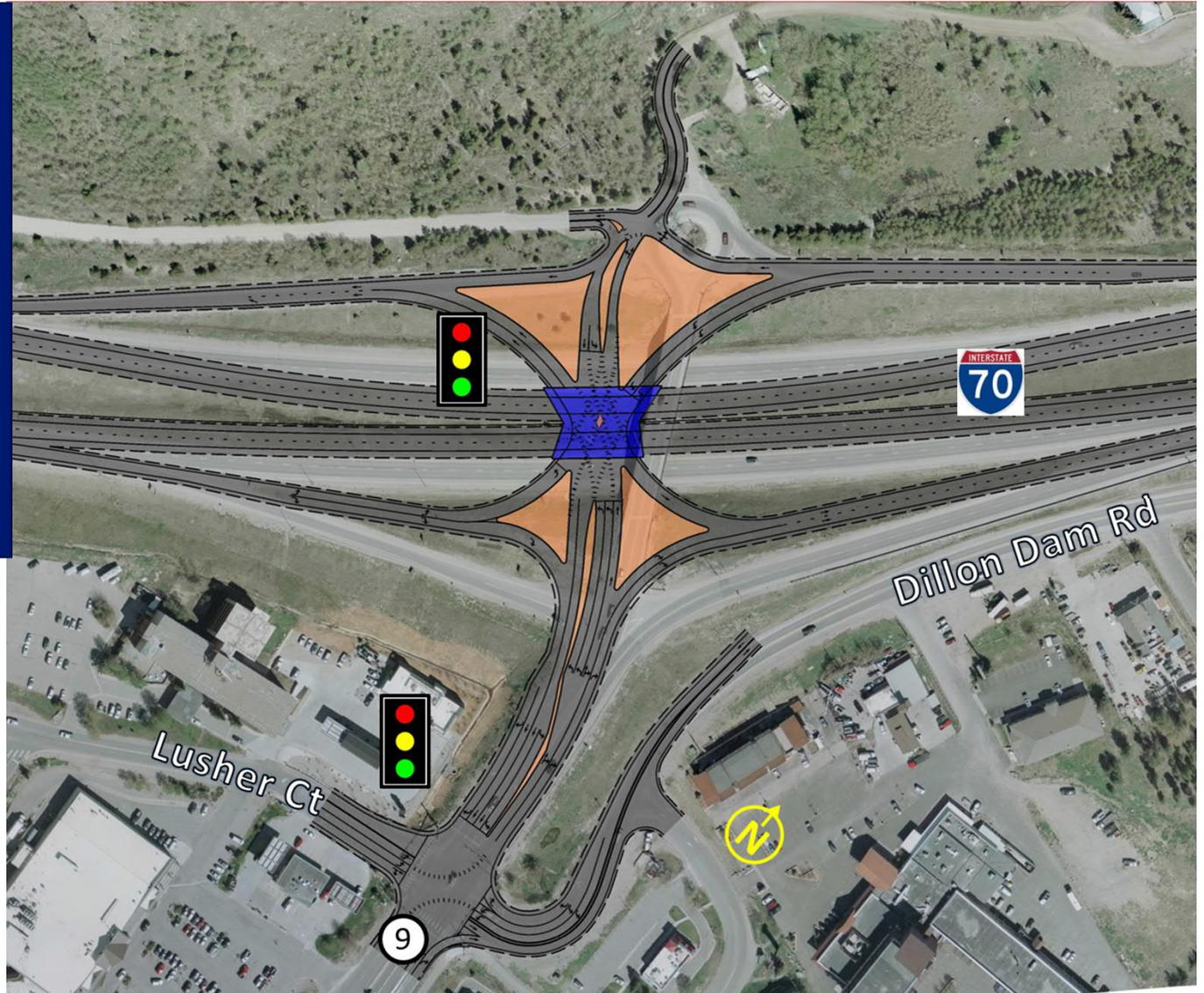




4. Exit 203 - Single Point Urban Interchange (SPUI) Alternative

Description:

- Single intersection for EB and WB ramps over I-70
- Realign I-70 through interchange
- Lusher/DDR - Improved Signalized Intersection
- Provides more spacing between Ramps and Lusher/DDR

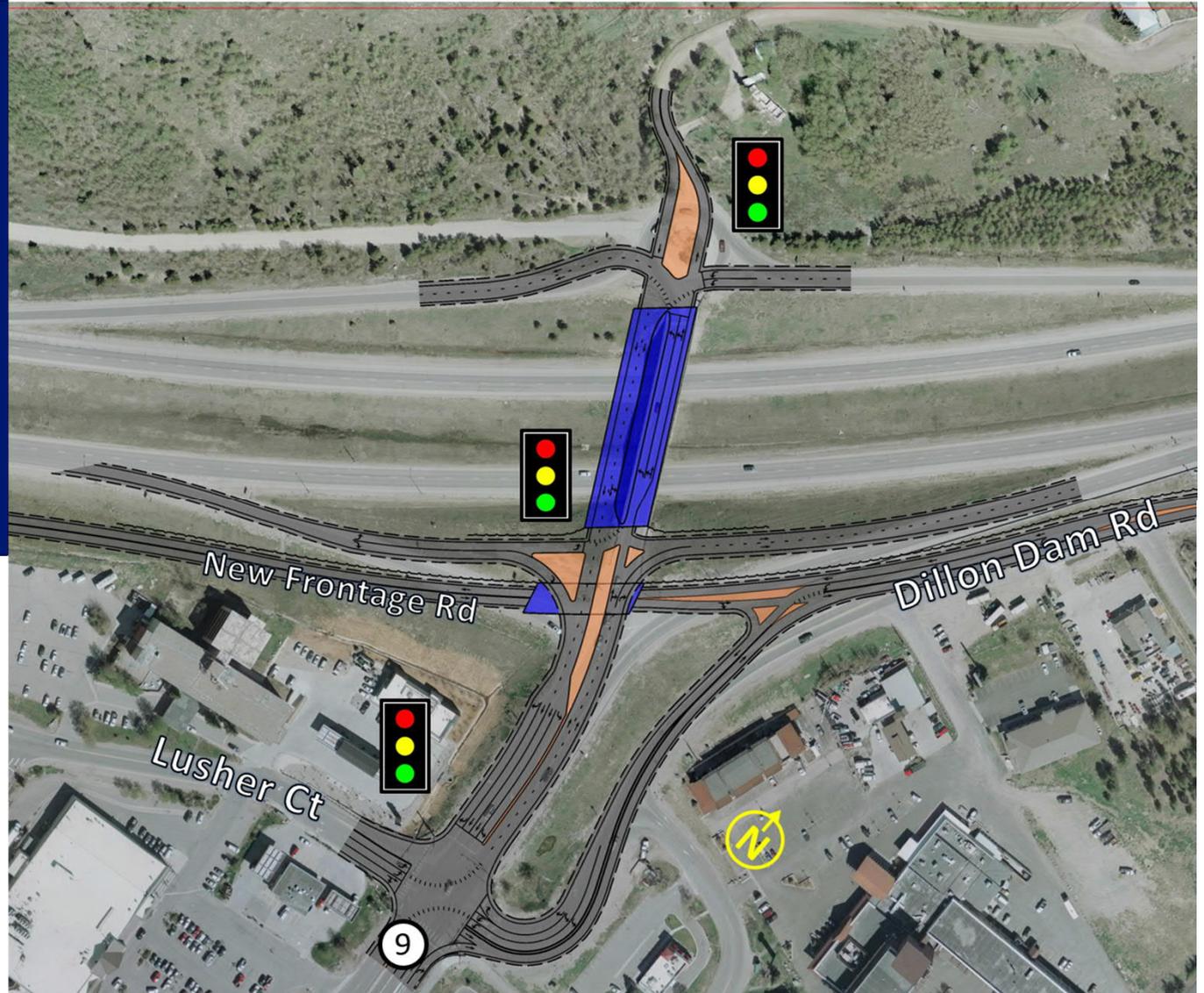




5. Exit 203 - Tight Urban Diamond Interchange (TUDI) Alternative

Description:

- Reconstructed interchange with signalized ramp intersections
- New Frontage Road bypass under CO 9
- Removes through (east-west) traffic at Lusher/DDR





Revised Exit 203 Interchange and CO 9 & Lusher/DDR Concept

Description:

- WB Ramp - Two Lane Roundabout
- EB Ramps - New Signalized Intersection
- Widen existing bridge for snow storage and bike/peds
- New Frontage Road bypass under CO 9 connecting DDR and Lusher Court
- Lusher/DDR - Access Control to Right-In/Right-Out (w/ NB to WB free left turn)



Benefits:

- Similar configuration to today for driver expectations
- Improved traffic operations along CO 9
- Improved traffic operations crossing CO 9, Allows local DDR traffic to cross CO 9 on new road
- Transit service through right turn movements
- Opportunity for grade separated pedestrian crossing of CO 9 along the new frontage road
- Can be implemented in Phases

Revised Exit 203 Interchange and CO 9 & Lusher/DDR Concept





I-70 Eastbound Auxiliary Lane

(Addressing existing safety and operation issues)

Eastbound I-70 2045 No-Action Conditions

EASTBOUND I-70												
Time Period	LOS											
4:00 - 4:15 PM	F	F	C	F	F	F	F	F	F	C	C	B
4:15 - 4:30 PM	F	F	F	F	F	F	F	F	F	C	C	C
4:30 - 4:45 PM	F	F	F	F	F	F	F	F	F	C	C	C
4:45 - 5:00 PM	F	F	F	F	F	F	F	F	F	C	C	C
Segment #	1	2	3	4	5	6	7	8	9	10	11	
Segment Type	B	D	B	W	B	M	B	D	B	M	B	
Note: B= Basic Segment, D = Diverge Segment, M = Merge Segment, O = Overlap Segment, and W = Weave Segment.												

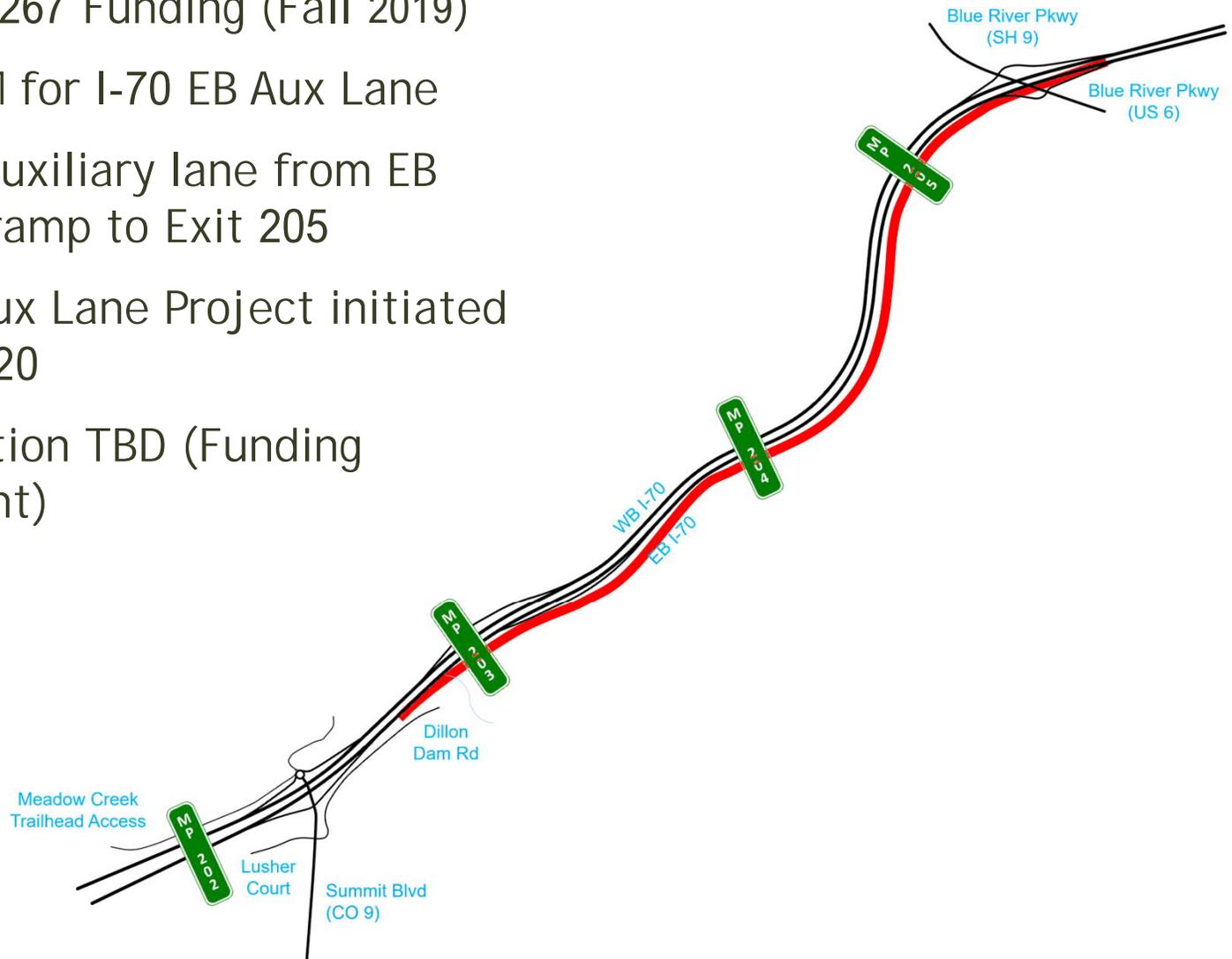
Eastbound I-70 2045 – with continuous Aux Lane to Exit 205

EASTBOUND I-70													
Time Period	LOS												
4:00 - 4:15 PM	F	F	C	D	D	C	D	C	D	D	D	C	C
4:15 - 4:30 PM	F	F	D	D	D	C	D	C	D	D	D	D	C
4:30 - 4:45 PM	F	F	D	D	D	C	D	C	D	D	D	D	C
4:45 - 5:00 PM	F	F	D	D	D	C	D	C	D	D	D	D	C
Segment #	1	2	3	4	5	6	7	8	9	10	11	12	13
Segment Type	B	D	B	M	O	D	B	M	B	D	B	M	B
Note: B= Basic Segment, D = Diverge Segment, M = Merge Segment, O = Overlap Segment, and W = Weave Segment.													



I-70 Eastbound Auxiliary Lane

- CDOT SB 267 Funding (Fall 2019)
 - \$24 M for I-70 EB Aux Lane
- New EB auxiliary lane from EB Exit 203 ramp to Exit 205
- I-70 EB Aux Lane Project initiated March 2020
- Construction TBD (Funding Dependent)





Project Schedule & Funding

	2020			2021			2022					
	FALL	SPRING	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL
PLT		◆	◆		◆		◆					
Public Outreach			◆					◆				
Feasibility Study			◆ <i>Completion</i>									
Exit 203 Interchange												
Scoping			* █									
Prelim Design				█	█							
I-70 EB Aux Lane												
Scoping		█	█									
Prelim Design			█	█	█							
Final Design					█	█	█	█				
Advertisement												* █
Construction											█	█

PLT = Project Leadership Team

* Funding Dependent



Next Steps

- I-70 Eastbound Auxiliary Lane Preliminary Design and NEPA (kicked off in March 2020)
 - Includes stakeholder engagement and public outreach
- Preliminary Design and NEPA for Exit 203 (Funding Dependent)
 - Includes additional traffic analysis, stakeholder engagement, and public outreach
- Final Design of I-70 EB Aux Lane
- Construct I-70 EB Aux Lane (Funding Dependent)



Comments and Questions

We want your feedback!

Project Website

www.codot.gov/projects/i70-exit203-interchange-frisco