Base Condition

Existing I-70 with EB Peak Period Shoulder Lane

Base Condition includes the existing highway infrastructure including the planned improvement of the EB peak period shoulder lane from Empire to Floyd Hill. The recently completed widening of the EB Twin Tunnel is part of the peak period shoulder lane project.

Roadway Information

Extent of Roadway Improvements	Empire to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by restriping existing pavement
Direction of Improvements	EB Only Direction
Design Speed	Match Existing
Trucks, Private Buses, BRT	Allowed in Peak Period Shoulder Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for EB Peak Period Shoulder Lane
Tunnels	Dynamic priced toll as part of the EB Peak Period Shoulder Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2014 (Assumes NEPA Cat-Ex)
Construction Duration	1 year
First Year Operation	2014 - WB Tunnel / 2015 - EB PPSL
Financial Period	50 years

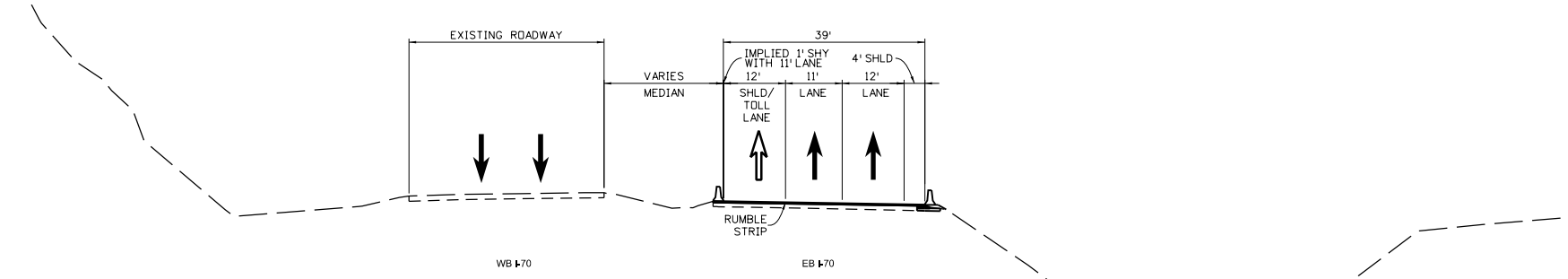
Transit Information

Termini	Glenwood Springs to Denver (CDOT Bus)
Special Infrastructure	N/A
Schedule	Fall 2014
Stations	6 CDOT Bus Stations - Glenwood Springs, Eagle, Vail, Frisco, Denver (2)
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	N/A

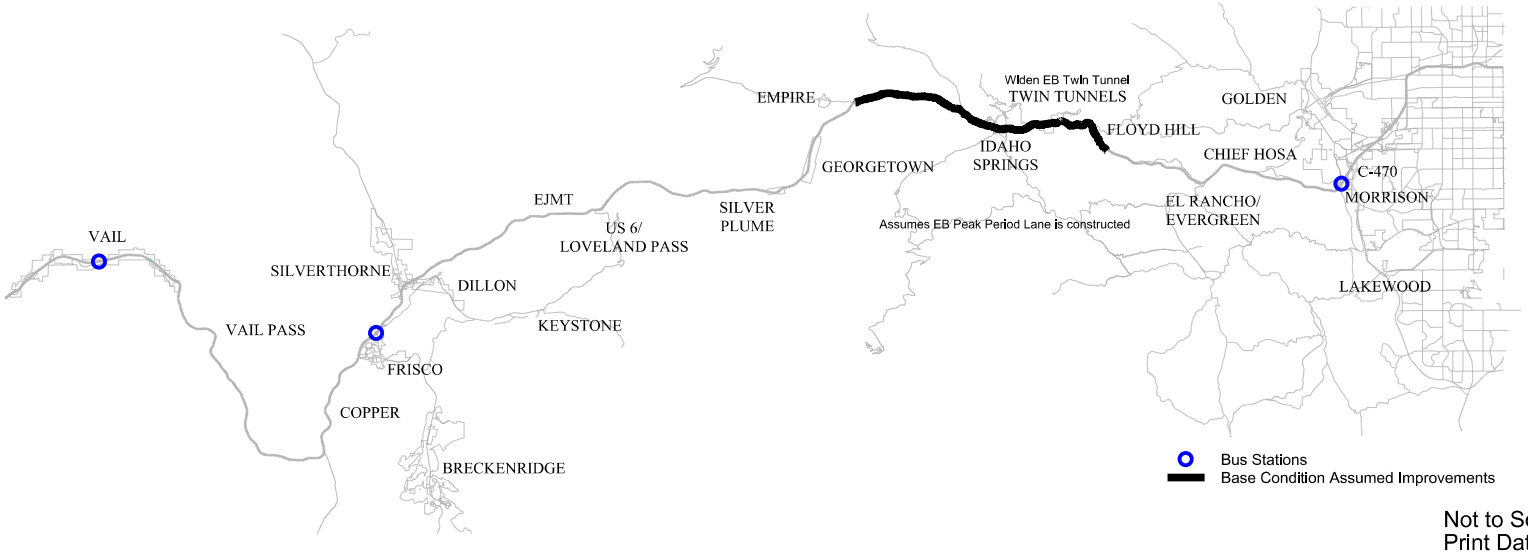
Special Structures

Special Structures	Existing EB Twin Tunnel Widening

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION BASE CONDITION
PEAK PERIOD SHOULDER LANE (TEMPORARY)
APPROX LIMITS: EB I-70 EMPIRE TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt01_Opt01

2 Tolled Reversible Managed Lanes

Reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General purpose (GP) lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds & lanes will remain.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes except from E Idaho Springs to Floyd Hill
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph Managed Lanes, 55 mph GP lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

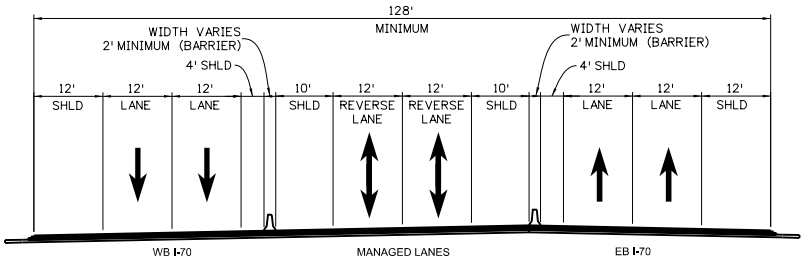
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

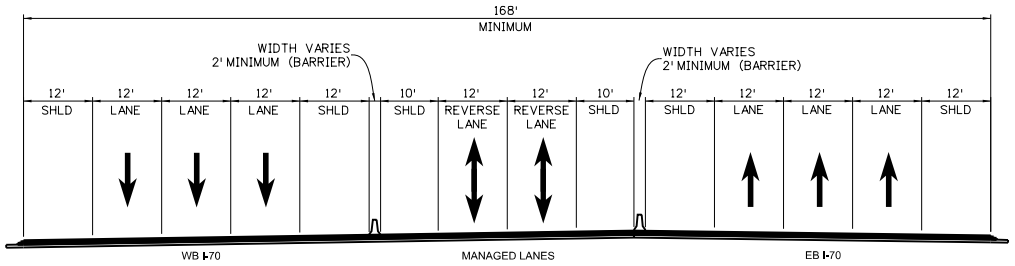
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores
	Managed Lanes on Viaduct from East Idaho Springs to Floyd Hill

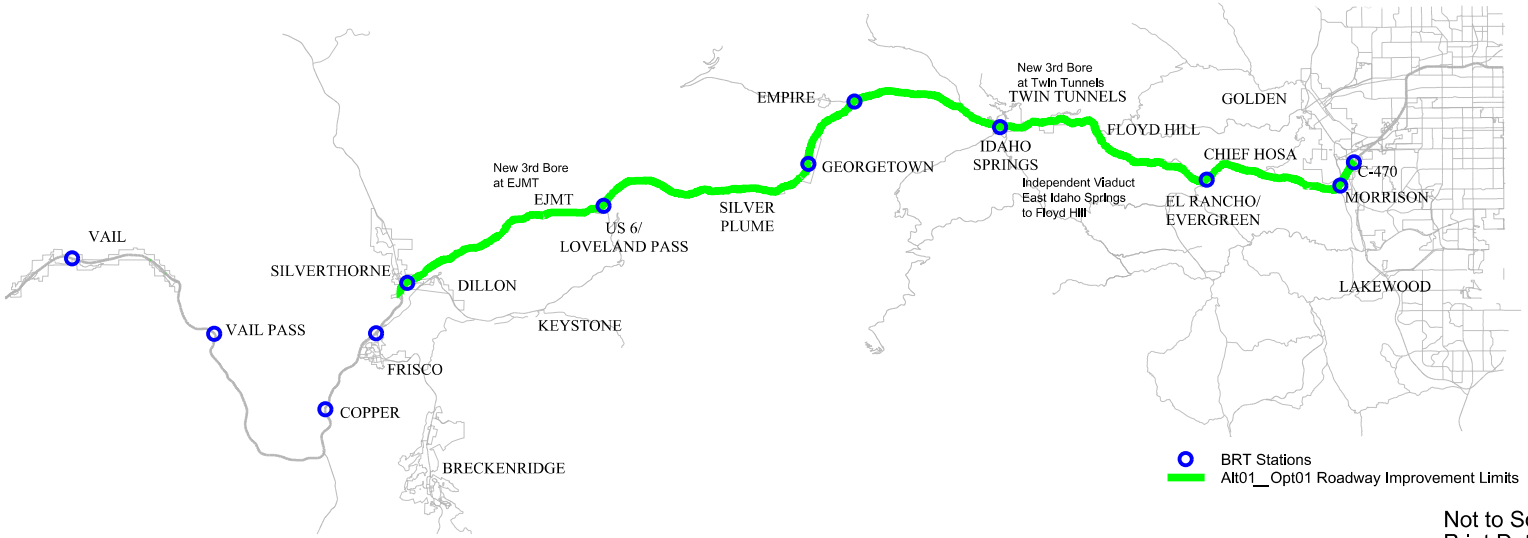
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt01_Opt02

2 Tolled Reversible Managed Lanes

Reversible managed lanes and I-70 designed at 65 mph. This option matches Alt01_Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 will be reconstructed to meet a 65 mph design speed.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph - Managed Lanes & GP Lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

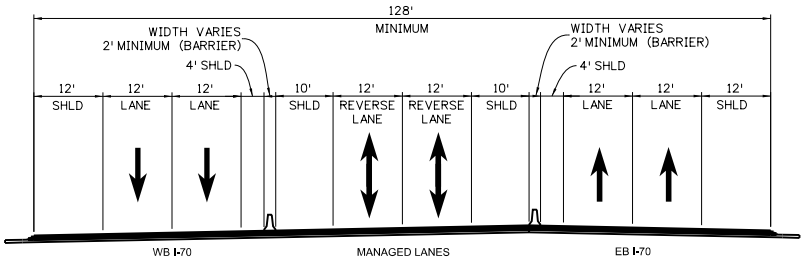
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

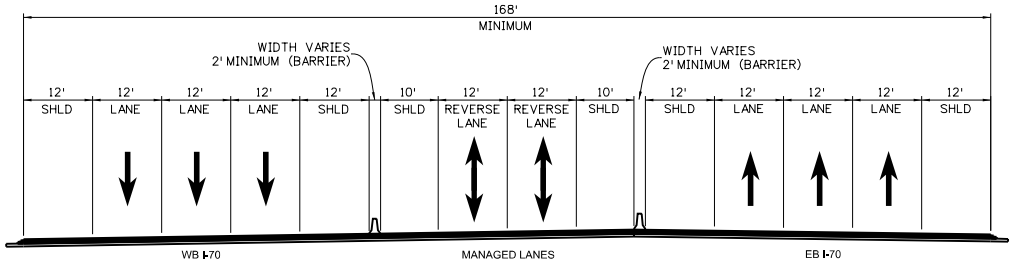
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores

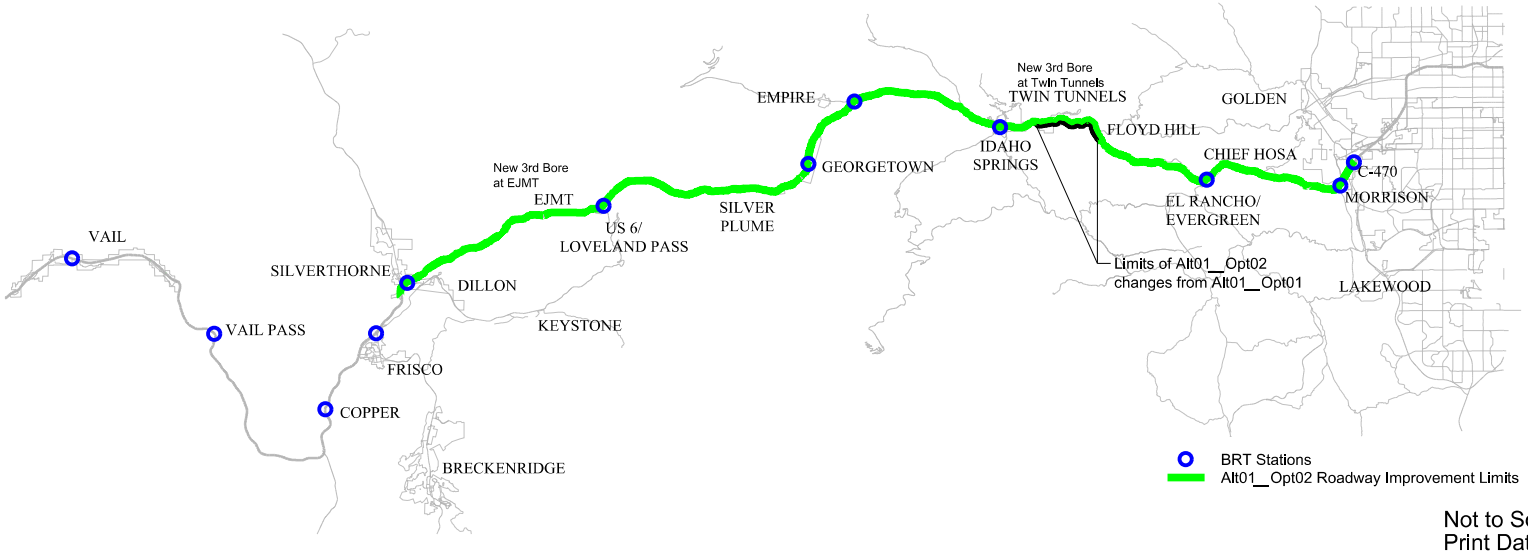
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT01
2 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt02_Opt01

3 Tolled Reversible Managed Lanes

Reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from East Idaho Springs to Floyd Hill in order to maintain 65 mph design speed. General purpose (GP) lanes designed at 55 mph except from East Idaho Springs to Floyd Hill, where existing design speeds & lanes will remain.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes except from E Idaho Springs to Floyd Hill
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph Managed Lanes, 55 mph GP lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

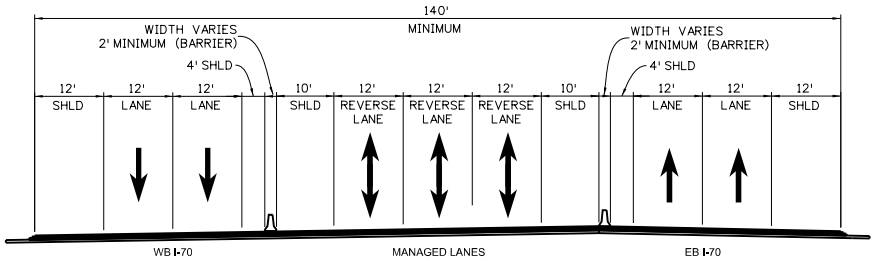
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

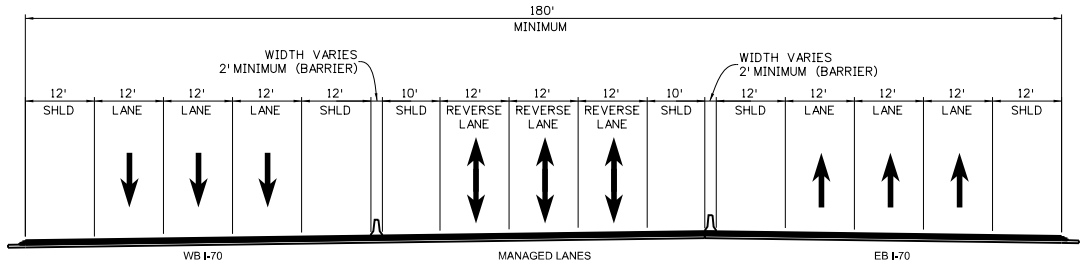
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores
	Managed Lanes on Viaduct from East Idaho Springs to Floyd Hill

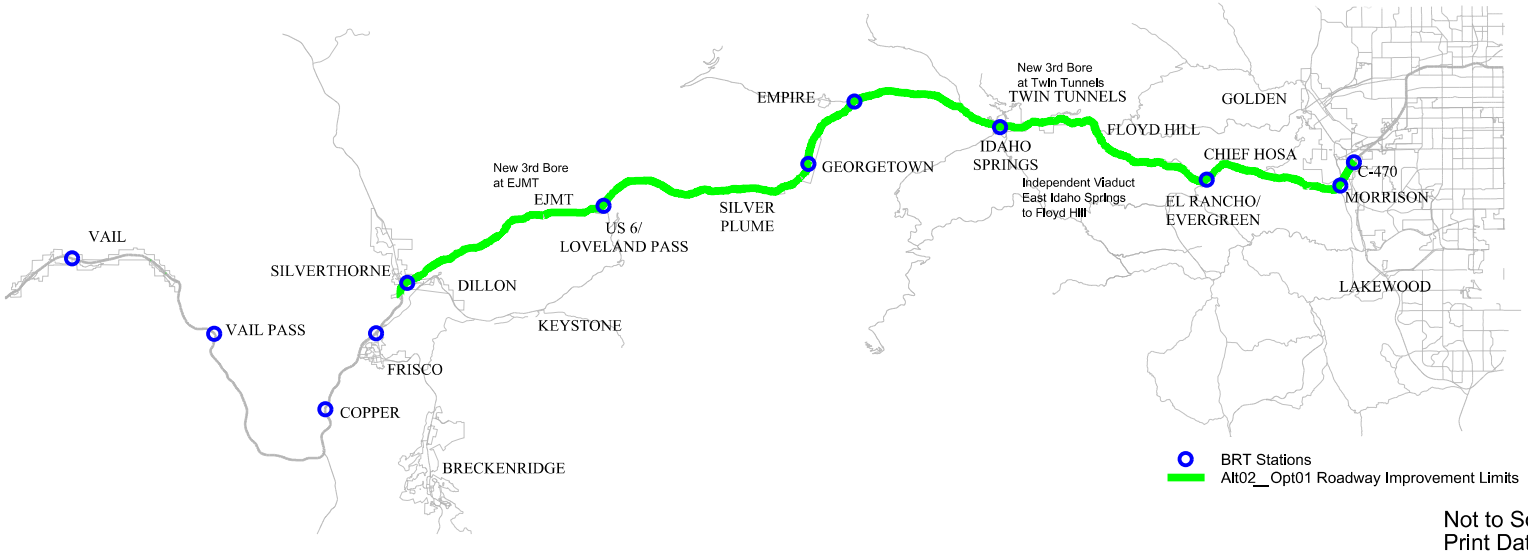
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt02_Opt02

3 Tolled Reversible Managed Lanes

Reversible managed lanes and I-70 designed at 65 mph. This option matches Alt02_Opt01 except from East Idaho Springs to Floyd Hill, where the reversible managed lanes and I-70 GP lanes will be reconstructed to meet a 65 mph design speed.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph - Managed Lanes & GP Lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

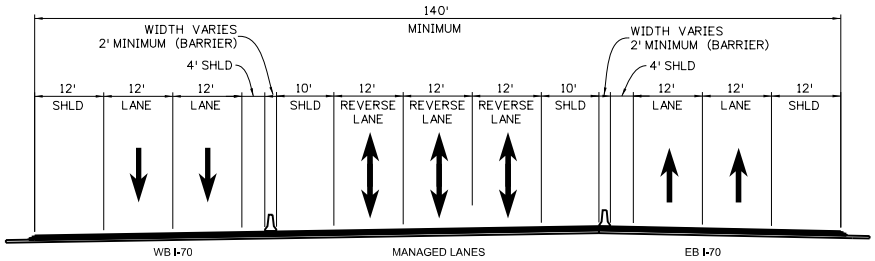
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

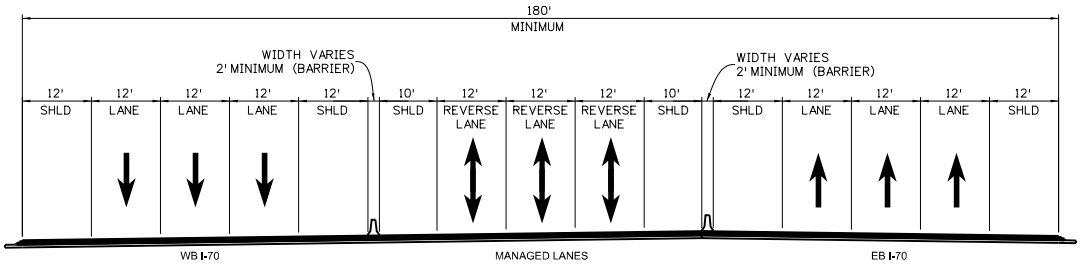
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores

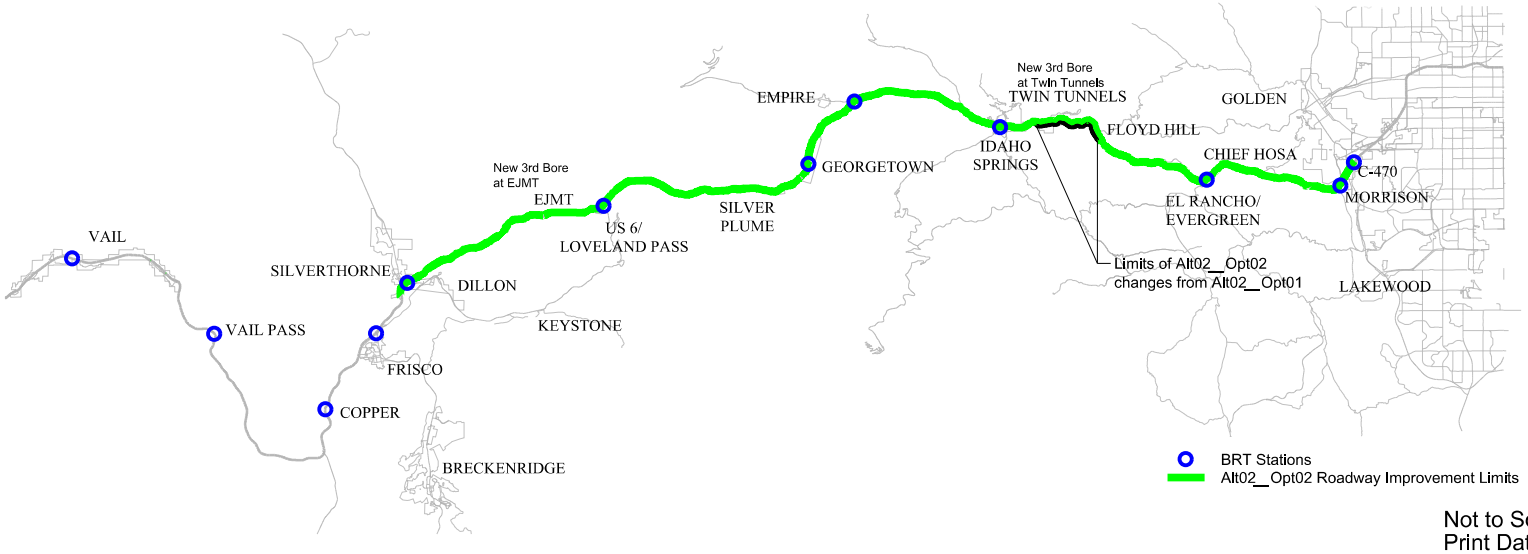
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt02_Opt03

3 Tolled Reversible Managed Lanes

Reversible managed lanes designed at 65 mph. The reversible managed lanes are on a separate viaduct structure from West Idaho Springs to Floyd Hill to minimize impacts. General purpose (GP) lanes designed at 65 mph except from West Idaho Springs to Floyd Hill, where existing design speeds & lanes will remain. This option is similar to Alt02_Opt01, except viaduct extends to West Idaho Springs.

Roadway Information

Extent of Roadway Improvements	Silverthorne to C-470
General Purpose (GP) Lane Information	Align managed lanes with GP lanes except from W Idaho Springs to Floyd Hill
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph Managed Lanes, 55 mph GP lanes
Trucks, Private Buses, BRT	Allowed in Managed Lanes (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for Reversible Managed Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd bore
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA & Procurement)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

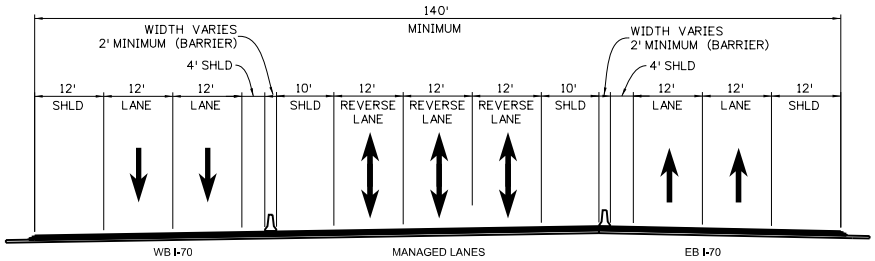
Transit Information

Termini	Vail to Denver
Special Infrastructure	Stations
Schedule	2019 - Limited Startup / 2023 - Full BRT Service
Stations	12 Total
Type	
CDOT Bus	N/A
BRT	Transit option for full 50 year concession
AGS	N/A

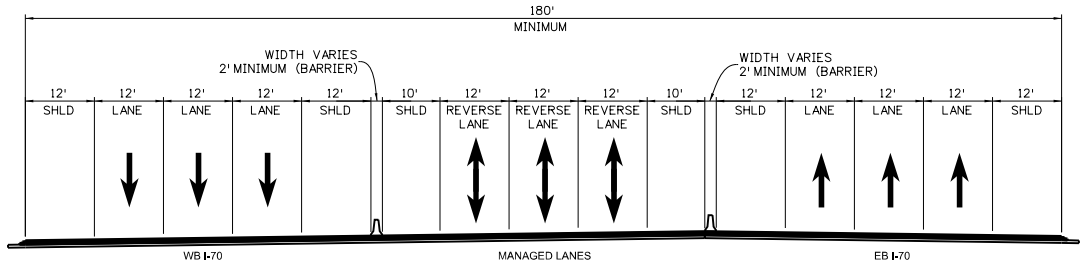
Special Structures

Special Structures	EJMT and Twin Tunnel 3rd Bores
	Managed Lanes on Viaduct from West Idaho Springs to Floyd Hill

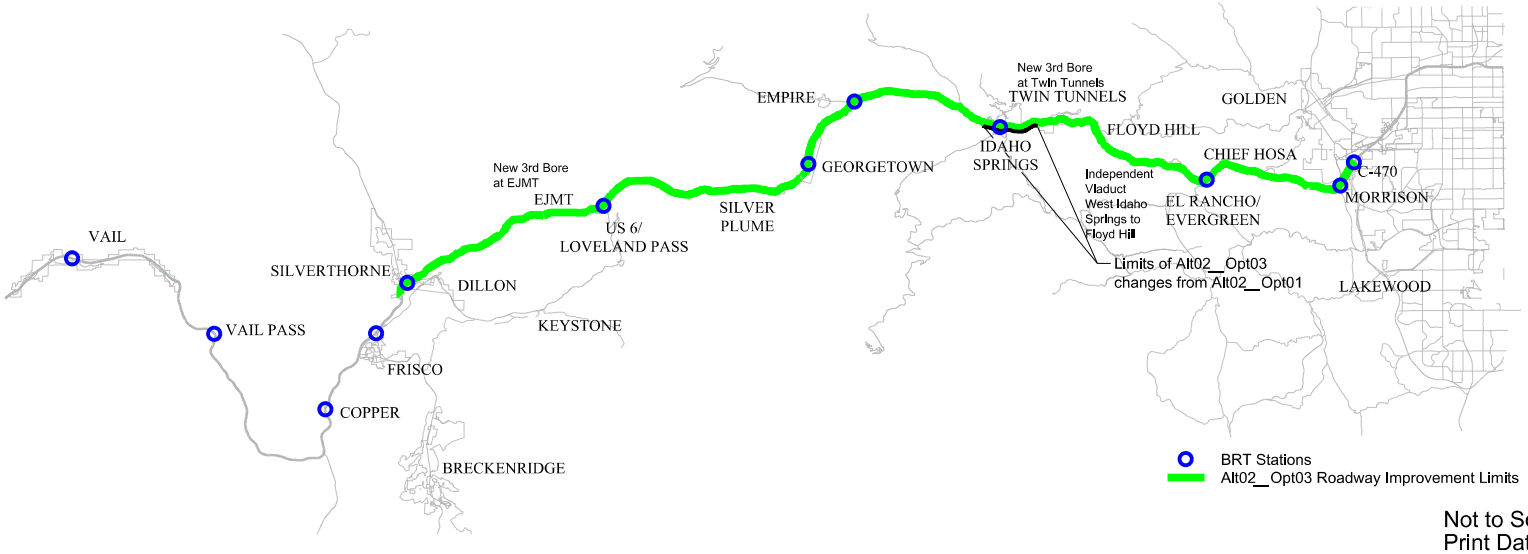
GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 2 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: EJMT TO FLOYD HILL



TYPICAL SECTION ALT02
3 TOLLED REVERSIBLE MANAGED LANES
EXISTING 3 GENERAL PURPOSE LANES EB & WB I-70
APPROX LIMITS: SILVERTHORNE TO EJMT, FLOYD HILL TO C-470



Not to Scale
Print Date: 1/16/2014

Alt03_Opt01

Minimum Program per PEIS

Minimum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	55 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

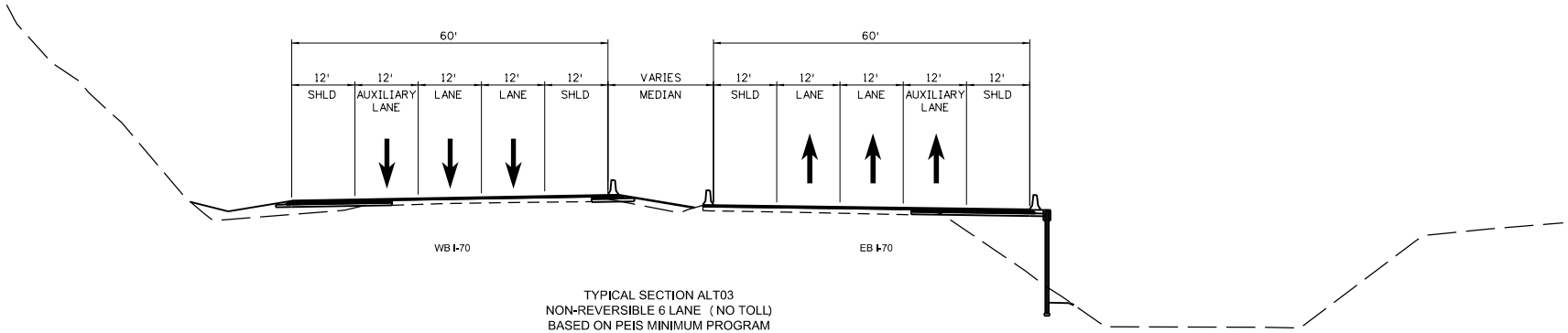
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

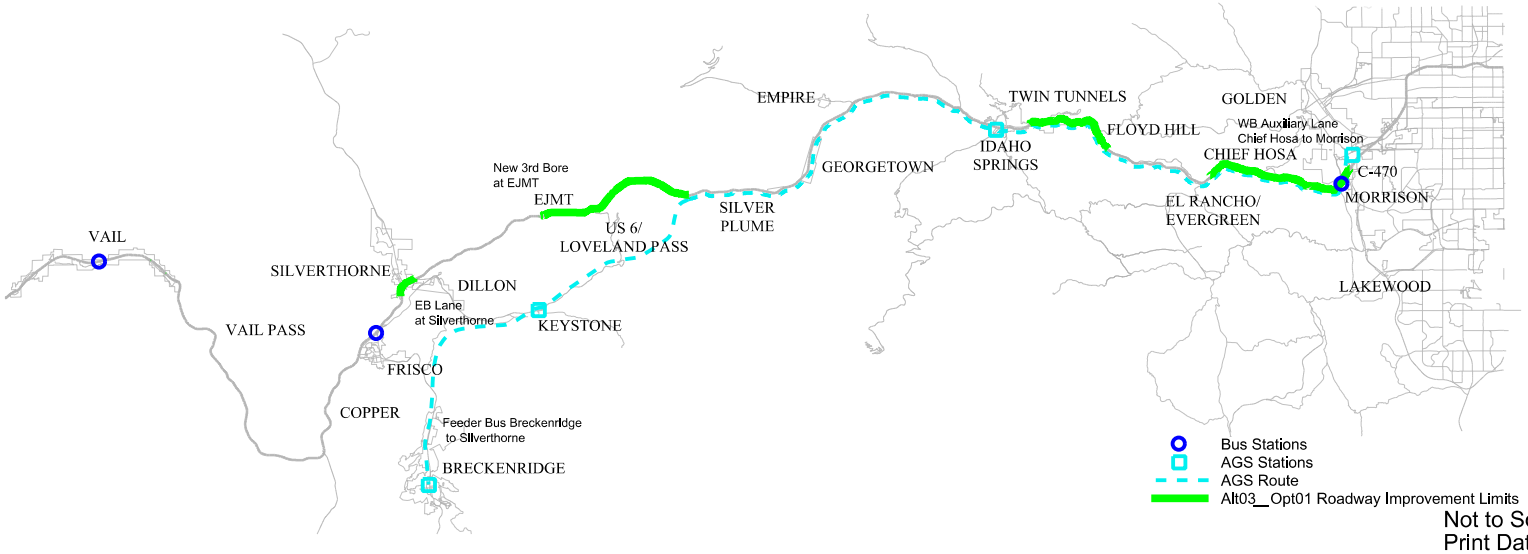
Special Structures

Special Structures	EJMT 3rd Bore

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt03_Opt02

Minimum Program per PEIS

Minimum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore, New & Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

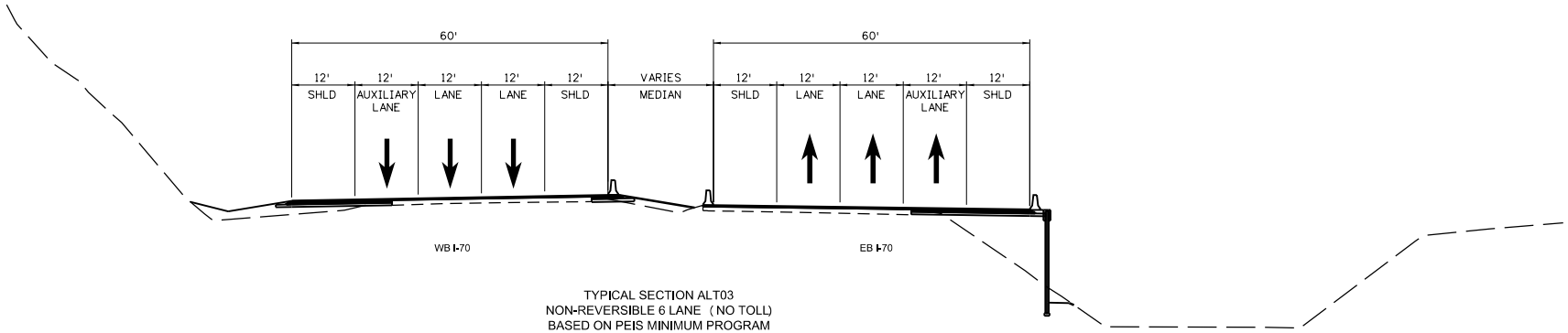
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

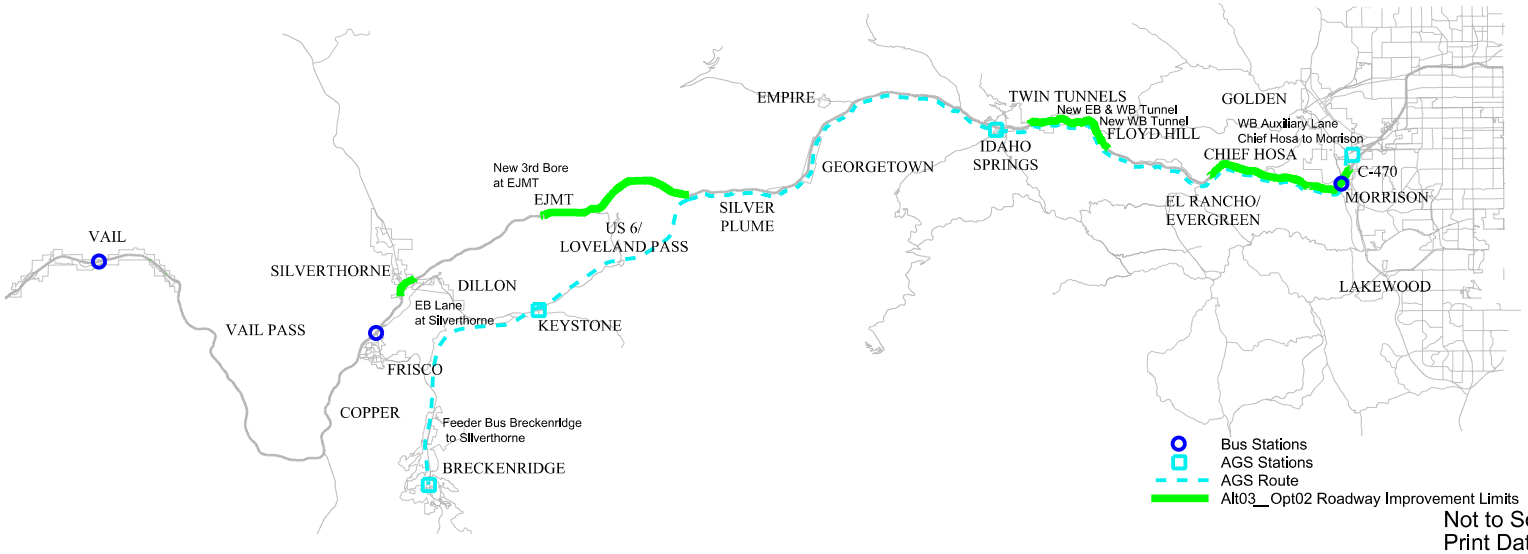
Special Structures

Special Structures	EJMT 3rd Bore
	New EB & WB Tunnel at Hidden Valley, New WB Tunnel near SH 6

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt03_Opt03

Minimum Program per PEIS

Minimum program per PEIS with 55 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements. Option is similar to Alt03_Opt01 without 3rd Bore EJMT.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	55 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

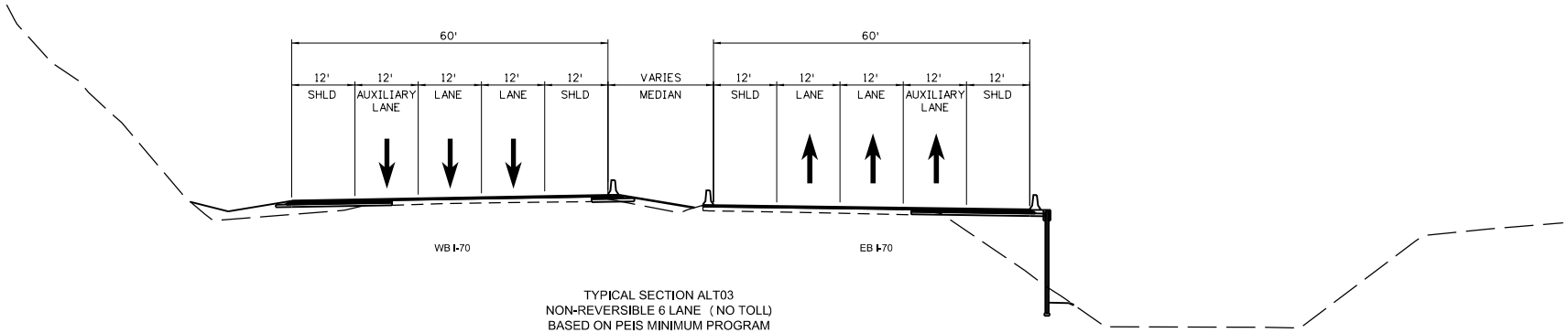
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

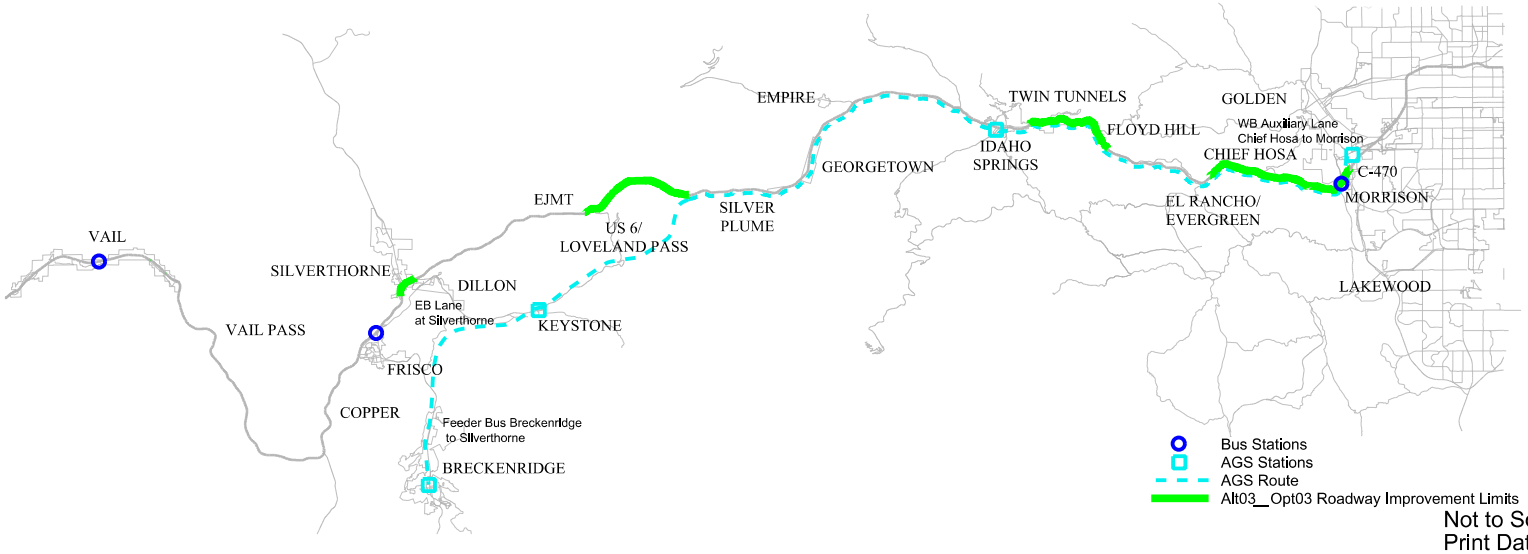
Special Structures

Special Structures	

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



Not to Scale
Print Date: 1/16/2014

Alt03_Opt04

Minimum Program per PEIS

Minimum program per PEIS with 65 mph design speed without a 3rd bore at EJMT. Minimum program is generally localized auxiliary lane improvements. Option is similar to Alt03_Opt02 without 3rd Bore EJMT.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Auxiliary lanes added at localized areas between interchanges
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph
Trucks, Private Buses, BRT	Allowed in GP Lanes and auxiliary lanes
Tolling	
Capacity Improvements	No toll for auxiliary lanes
Tunnels	Dynamic priced toll for New & Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	3 years
First Year Operation	2021
Financial Period	50 years

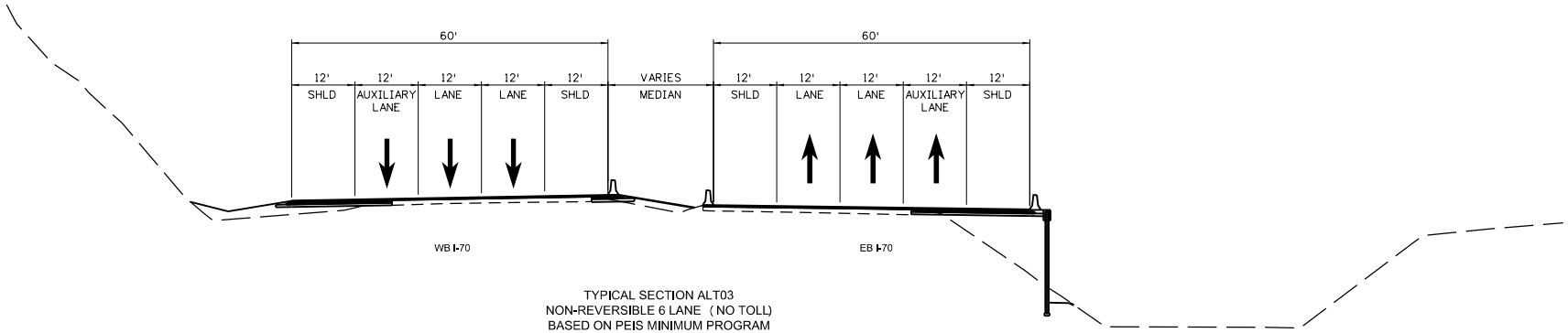
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

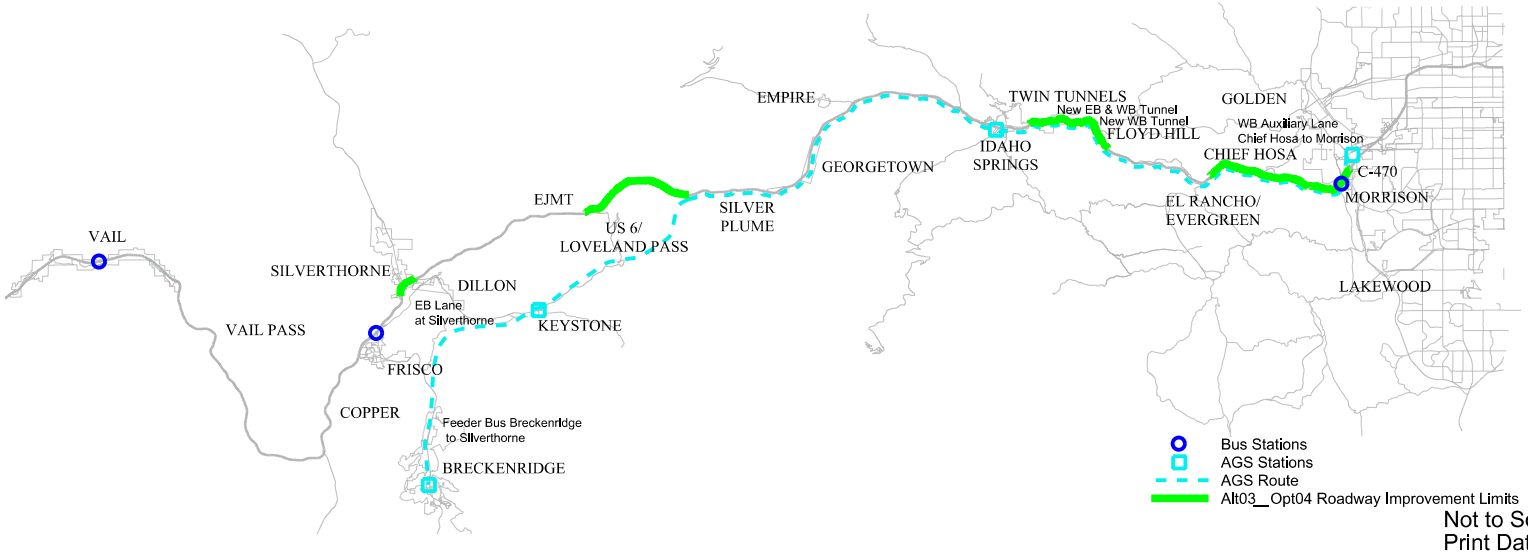
Special Structures

Special Structures	New EB & WB Tunnel at Hidden Valley, New WB Tunnel near SH 6

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT03
NON-REVERSIBLE 6 LANE (NO TOLL)
BASED ON PEIS MINIMUM PROGRAM
APPROX LIMITS: EJMT TO BAKERVILLE, IDAHO SPRINGS TO FLOYD HILL



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Alt04_Opt01

Maximum Program per PEIS

Maximum program per PEIS with 55 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by widening existing (Non-reversible)
Direction of Improvements	Both directions (EB and WB)
Design Speed	55 mph
Trucks, Private Buses, BRT	Allowed in Toll Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for 3rd toll lane
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	4 years
First Year Operation	2022
Financial Period	50 years

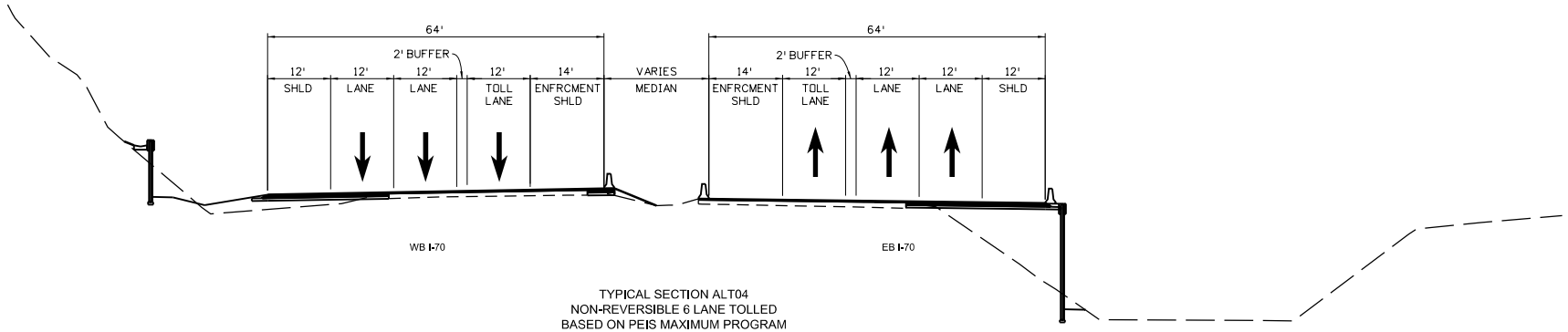
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

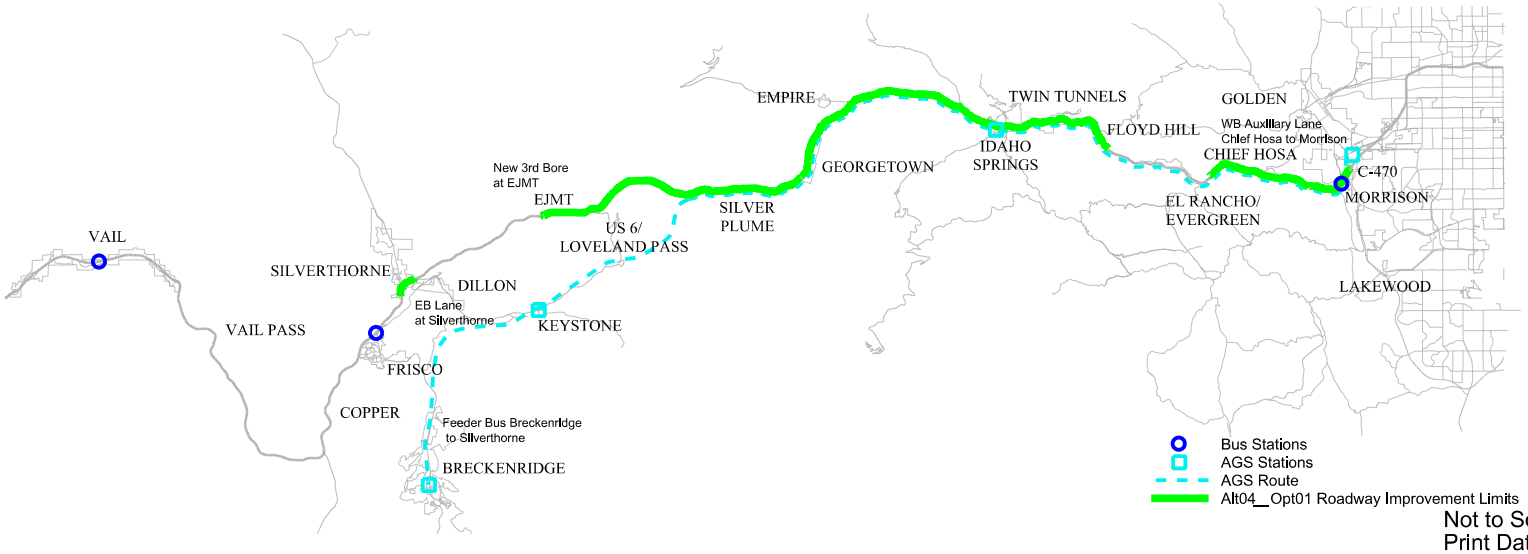
Special Structures

Special Structures	EJMT 3rd Bore

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT04
NON-REVERSIBLE 6 LANE TOLLED
BASED ON PEIS MAXIMUM PROGRAM
APPROX LIMITS: EJMT TO FLOYD HILL



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Print Date: 1/16/2014

Alt04_Opt02

Maximum Program per PEIS

Maximum program per PEIS with 65 mph design speed including a 3rd bore at EJMT. Maximum program includes one additional non-reversible tolled lane (EB & WB) between EJMT and Floyd Hill.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by widening existing
Direction of Improvements	Both directions (EB and WB)
Design Speed	65 mph
Trucks, Private Buses, BRT	Allowed in Toll Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for 3rd toll lane
Tunnels	Dynamic priced toll for EJMT 3rd Bore and New & Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2018 (Assumes 3 years NEPA)
Construction Duration	4 years
First Year Operation	2022
Financial Period	50 years

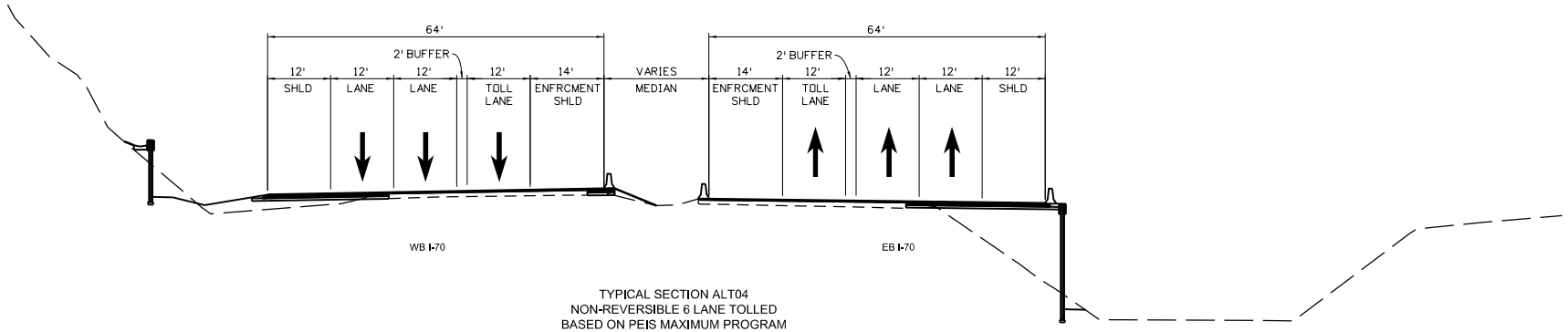
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

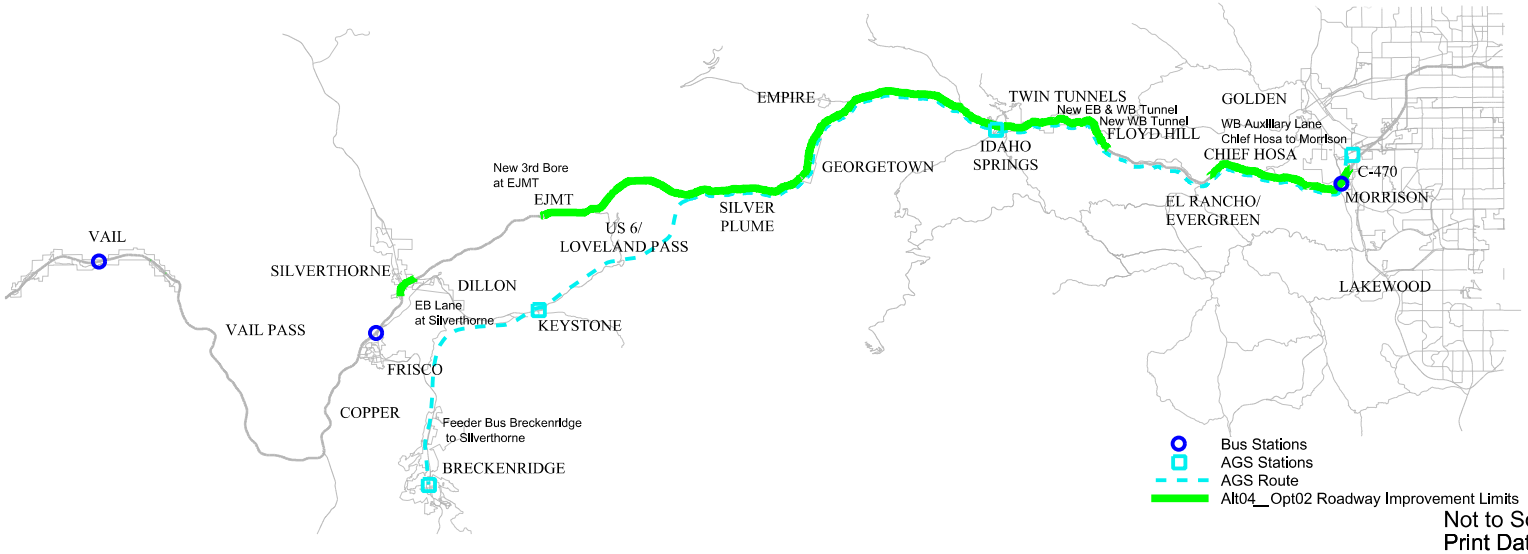
Special Structures

Special Structures	EJMT 3rd Bore
	New EB & WB Tunnel at Hidden Valley, New WB Tunnel near SH 6

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT04
NON-REVERSIBLE 6 LANE TOLLED
BASED ON PEIS MAXIMUM PROGRAM
APPROX LIMITS: EJMT TO FLOYD HILL



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Alt05_Opt01

Permanent Peak Period Shoulder Lane

Widen the existing roadway to accommodate one additional left side managed lane (EB & WB) for use during peak times, during non-peak times operates as a standard shoulder. Provide full width shoulder on right side.

Roadway Information

Extent of Roadway Improvements	EJMT to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by widening existing
Direction of Improvements	Both directions (EB and WB)
Design Speed	Match Existing
Trucks, Private Buses, BRT	Allowed in Peak Period Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for EB & WB Peak Period Shoulder Lanes
Tunnels	Dynamic priced toll for EJMT 3rd Bore and Twin Tunnels 3rd Lane
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2019 (Assumes 4 years NEPA)
Construction Duration	4 years
First Year Operation	2023
Financial Period	50 years

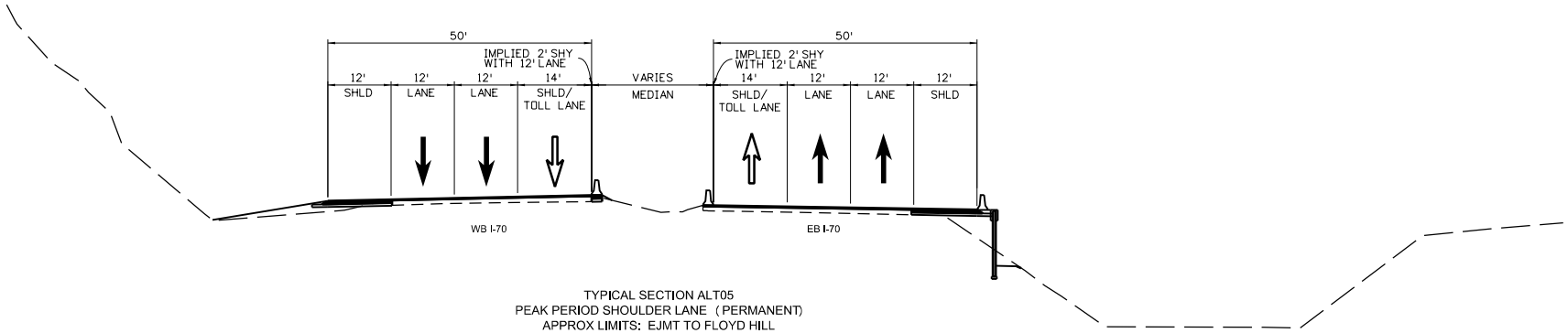
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

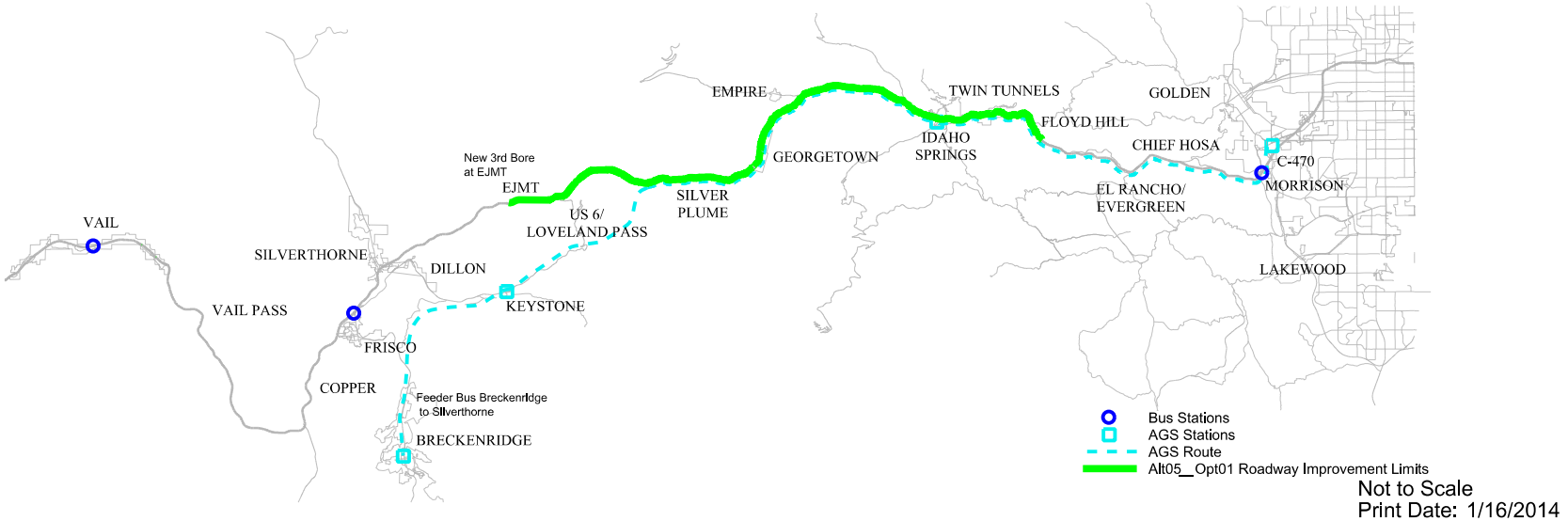
Special Structures

Special Structures	EJMT 3rd Bore

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT05
PEAK PERIOD SHOULDER LANE (PERMANENT)
APPROX LIMITS: EJMT TO FLOYD HILL



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Print Date: 1/16/2014

Alt06_Opt01

Temporary Peak Period Shoulder Lane

Using the existing roadway, accommodate one additional WB left side managed lane for use during peak times; during non-peak times operates as a standard shoulder. No twelve foot wide shoulders are available during peak periods. During non-peak periods, twelve foot breakdown shoulder is on left side instead of right. Construction of WB peak period lane from Empire to Floyd Hill only. (This alternative assumes EB direction peak period lane from Empire to Floyd Hill is constructed.)

Roadway Information

Extent of Roadway Improvements	Empire to Floyd Hill
General Purpose (GP) Lane Information	Additional capacity by restriping existing
Direction of Improvements	WB Only Direction
Design Speed	Match Existing
Trucks, Private Buses, BRT	Allowed in Peak Period Lane (Always in GP Lanes)
Tolling	
Capacity Improvements	Dynamic priced toll for EB & WB Peak Period Shoulder Lanes
Tunnels	Dynamic priced toll for Twin Tunnels 3rd Lanes
Technology	Transponder and license plate recognition
Schedule	
Construction Start	2016 (Assumes 1.5 years NEPA)
Construction Duration	3 years
First Year Operation	2019
Financial Period	50 years

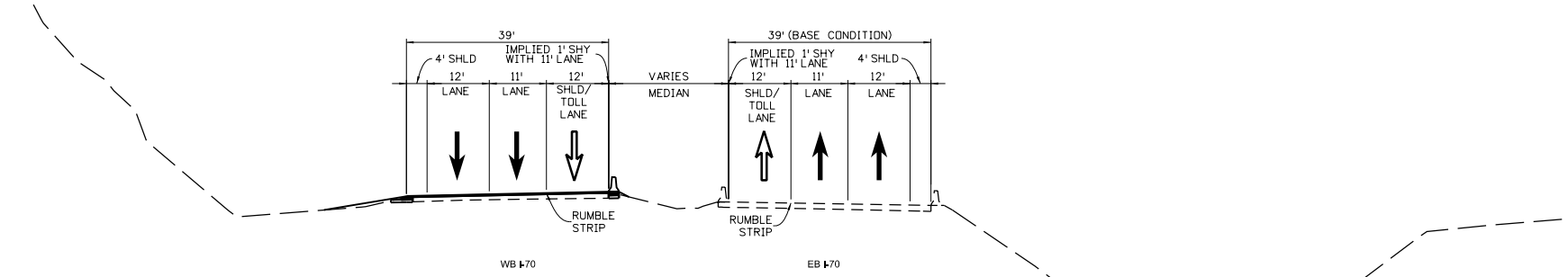
Transit Information

Termini	Silverthorne-Denver, Service to GWS (CDOT Bus), Breckenridge-Denver (AGS)
Special Infrastructure	AGS System; None for CDOT Bus
Schedule	Fall 2014 - CDOT Bus / After 2035 - AGS
Stations	6 CDOT Bus Stations - GWS, Eagle, Vail, Frisco, Denver (2); 5 AGS Stations
Type	
CDOT Bus	TBD by CDOT
BRT	N/A
AGS	In operation after 2035

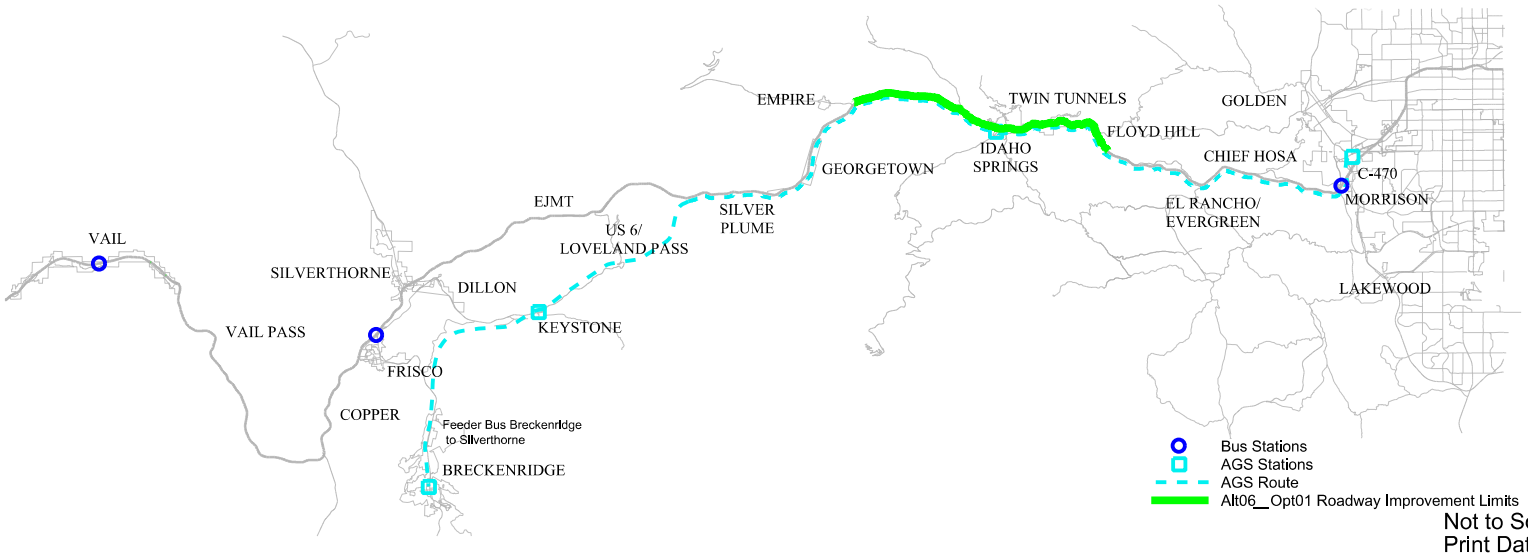
Special Structures

Special Structures	

GP = General Purpose Lane EJMT = Eisenhower Johnson Memorial Tunnels GWS = Glenwood Springs



TYPICAL SECTION ALT06__OPT01
PEAK PERIOD SHOULDER LANE (TEMPORARY)
APPROX LIMITS: WB I-70 EMPIRE TO FLOYD HILL



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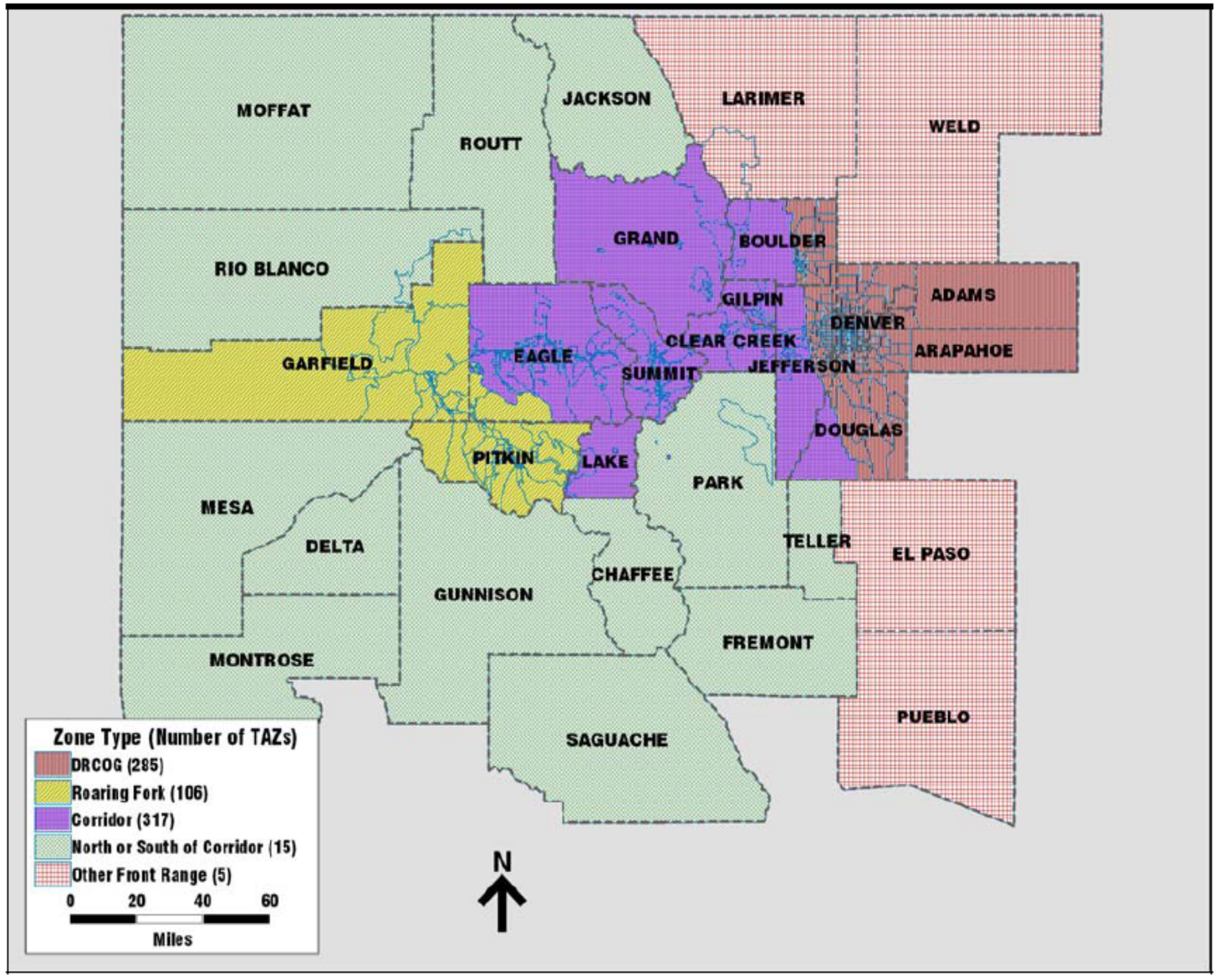
Print Date: 1/16/2014

I-70 Mountain Corridor Traffic and Revenue Study - Assumptions		
Draft Framework for Discussion 12-05-2013		
	Level 1 Traffic and Revenue Study	**Justification**
Trip Descriptors and Market Segments		
Trip purposes	As defined in PEIS Corridor Model: Home-based work; local non-work; front range day recreation; stay at hotel, resort, or forest; corridor to airport / front range; corridor day recreation; second homes; visit friends and family; out of state air; gaming trips	The PEIS does a good job at identifying the market segments and sub segments for the corridor. We will use these for level 1 and corroborate / adjust based on the SP survey results in level 2.
Trip lengths	Calculated for each OD pair and trip purpose represented in the Corridor Model	Utilizing the existing trip duration data is appropriate for level 1 screening.
Origin / Destination of trips	As specified in Corridor Model and benchmarked to AirSage O/D data obtained for AGS study.	Utilizing the existing OD data is appropriate for level 1 screening.
Peak Travel Season	Peak season: Winter weekend days (Friday after Thanksgiving to April 15th, 48/year). Summer weekend days (69 per year) Source: PEIS	We will use the same seasons of travel as designated in the PEIS in order to appropriately compare across results. The peak travel seasons are defined by 12 winter weekends in a year (a total of 48 days) running from the Friday after Thanksgiving to April 15th; and 17 summer weekends in a year (a total of 69 days). The remaining 23 weekends in the year (92 days) are considered off-peak for the purposes of this analysis.
Vehicle occupancy rate	Work trips: 1.1; local non-work trips, home-based other, and non-home based: 1.7; other trip purposes: 2.7. Source: PEIS	We will use these PEIS values for level 1 screening and corroborate / adjust based on the SP survey results during level 2.
Population, households, income, employment	As evaluated in PEIS; the Corridor Model will be updated with 2010 demographics	We will use same sources as PEIS for the socioeconomic data
Model Run Parameters		
Base year	2010	to provide an updated baseline for the forecasts
Forecast year	2025 (PEIS forecast year)	The PEIS includes travel demand forecasts in the Corridor for the years 2025, 2035, and 2050. The 2035 travel demand forecasts, performed to have a forecast 20 years out, were factored from the 2025 travel demand forecasts and is subject to the same uncertainties as the 2025 forecast. Our 2035 forecast will be extrapolated based on land use forecasts from the ROD study. The 2050 forecasts were developed to identify long-term solutions for the Corridor and model the long-term cash flow. To account for increasing variability of projecting into the future, the 2050 travel demand will estimated as a range, as was the case for the PEIS.
Future years	2035 and 2050 (to match PEIS future years)	
Sensitivity Test	Modeling all existing highway lanes with toll applied. Toll = initial toll rate for autos and trucks as specified below. This sensitivity test includes CDOT bus up to 2035 and AGS post-2035	The toll rates for the sensitivity test are equivalent to those used to evaluate the managed lanes alternatives to allow for a direct comparison.
Existing traffic volumes (all vehicles)	C-DOT traffic counts 2012 to be used as a benchmark for volumes represented in the Corridor Model	Utilizing the existing traffic volume data is appropriate for level 1 screening. We are conducting traffic counts for the winter days to improve the model's accuracy
Toll structure	Based on cents/mile. Optimized rates for specific day types based on model sensitivity tests (toll response curves). Fixed tunnel charges will be analyzed separately.	Standard industry practice
Initial toll rate auto (/mi)	$0.10 - Range to be tested: initial rate $0.05 - $1.00	We will extend the range to include a rate 5 cents lower than the base toll rate to evaluate the impact of a lower rate
Initial toll rate truck (/mi)	$0.30 - Range to be tested: initial rate $0.15-$3.00	We will extend the range to include a rate 5 cents lower than the base toll rate to evaluate the impact of a lower rate
Value of Time (VOTs) - 2013 dollars	VOT for transit: $8-$25/hr. Source: Colorado AGS Mode Choice Model spreadsheet from SDG SP Survey Results	The VOTs proposed come directly from existing studies of the corridor including the PEIS (Pg. A-149 Technical Report) and the AGS study (Colorado AGS Mode Choice Model spreadsheet from SDG SP Survey Results). We are utilizing the same VOTs provided in earlier studies in order to compare across results. The PEIS VOTs match the market segments and sub segments we will evaluate; the AGS study provides a VOT for transit; and the DRCOG model provides VOT for freight vehicles during peak and off-peak, which is critical to evaluate their willingness to pay for managed lanes. The values were updated from their original year to 2013 dollars. We will use these numbers as a starting point, but given that they do seem low when compared to the USDOT guidelines ("Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis" Sept. 28, 2011 http://www.dot.gov/office-policy/transportation-policy/revised-departmental-guidance-valuation-travel-time-economic), we will test a range of numbers and evaluate based on the results.
	VOT for home-based work; front range day recreation; stay at hotel resort or forest; second homes; and out of state air: $12.52/hr. Source: PEIS (Pg. A-149 Technical Report)	
	VOT for local non-work; corridor to airport / front range; corridor day recreation; visit friends and family: $6.27/hr. Source: PEIS (Pg. A-149 Technical Report)	
	VOT for trucks: $54 in peak; $26 in off-peak. Source: DRCOG Model	
Traffic growth		
Car / commercial / through / out-of-state traffic	Based on PEIS demographic assumptions, benchmarked to DRCOG and AGS growth assumptions	Utilizing PEIS data benchmarked to assumptions in other studies is appropriate for level 1 screening.
Analysis Periods	As established by the PEIS AM peak period: 6:00 AM to 9:59 AM; Midday or Noon period: 10:00 AM to 2:59 PM; PM peak period: 3:00 PM to 6:59 PM; Night period: 7:00 PM to 5:59 AM the next day	We are utilizing the same analysis periods as the PEIS in order to compare across results.
Peak Days of the week	Thursday - Sunday inclusive	We are utilizing the same analysis periods as the PEIS in order to compare across results
Mix of traffic	Trucks represent all day average 10% of traffic. As stated in the PEIS: "On weekends, truck and recreational vehicle use is most dominant in Garfield and Eagle counties: seven to eight percent, respectively. In the rest of the Corridor, truck and recreational vehicle use is about three to four percent of person trips. On summer weekdays, truck and recreational vehicle use is most dominant in Glenwood Canyon at 12 to 14 percent, followed by Clear Creek County at nine or ten percent, then Silverthorne to the Loveland Pass interchange with nine percent, and finally the Edwards to Vail East Entrance and Jefferson County segments tying with eight percent. (The fraction of heavy vehicles in Jefferson County represents a smaller percentage, but the greatest number of these vehicle trips in both directions combined.)" (Pg. 7 of the Technical Report).	We are utilizing the same analysis periods as the PEIS in order to compare across results
Unmet demand	Estimated through comparison of capacity constrained vs. unconstrained model runs	This is the simplest way to identify unmet demand in level 1 screening. The results are rough given that the trip rates

I-70 Mountain Corridor Traffic and Revenue Study - Assumptions		
Draft Framework for Discussion 12-05-2013		
Level 1 Traffic and Revenue Study		**Justification**
Induced demand	Calculated from improvement in generalized cost of travel; each alternative as compared to no build future condition	This is a simple way to calculate induced demand in level 1 screening. We will conduct a deeper analysis in level 2 in order to corroborate/improve this first cut.
Diverted traffic for tolling estimation purposes	As calculated through the capacity constrained network model	The East side of the corridor presents a segment with an alternate route to I-70. We will calculate diverted traffic in that area through the capacity constrained network model and estimate any impact on revenue expected from
Assignment for Managed Lanes (ML)	The split between free lanes and managed lanes will take place in the traffic assignment step. We will manually adjust for expected ridership from AGS, BRT, and the CDOT bus as projected in earlier studies. The effect of managed lanes on the AGS ridership will not be modeled.	Level 1 will use ridership estimates from the AGS Study. The Parsons team in conjunction with the Transit ITF will finalize the BRT ridership that we will utilize.
Operations		
Lane widths and geometrics	All alternatives will be modeled using full AASHTO Standards. Lane widths and geometrics will be used to determine capacities for Level 1	As agreed with FHWA and CDOT
Minimum shoulder width	Based on TRB Highway Capacity Manual (HCM) or material provided by Parsons Engineering Team	Per industry standards
Vehicle lane capacity	For managed lanes, we will use HCM speed-flow curves for freeways adjusted for number of entry points, lane width, truck utilization, grade, and other relevant factors (appropriate for managed lanes where open road tolling is implemented). Capacity assumptions used by Parsons to determine the number of exit lanes: • 1,700 max vehicles per hour per lane (veh/hr./ln) for direct connector ramps • 1,500 max veh/hr./ln for diamond/traditional ramps • 1,300 max veh/hr./ln for loop ramps	Provided by Parsons Engineering Team
Grade	Derived from topographical mapping or material provided by Parsons Engineering Team	
Percent grade	Derived from topographical mapping or material provided by Parsons Engineering Team	
Interchange configuration	Alt03 and 04: standard diamond interchanges as they currently exist, except where operational improvements are needed. Alt01 and 02: (1) For a weave access type, standard diamonds similar to existing configurations except where operational improvements are needed. Exit/entrance to managed lanes occurs outside of the ramp gores at appropriate distances to allow merge and weave movements across the GP lanes. (2) For a direct connect access, diamond interchanges with a direct connect in the middle and a combination of roundabouts and median separation to control directional access to the reversible lanes. (3) Direct system-to-system connection for the connections onto US 40, C-470, and other areas.	Provided by Parsons Engineering Team
Trucks allowed on toll lanes	Yes, except for Options 04 (maximum program with managed lane) and 05 (hard shoulder running)	As agreed with CDOT and Parsons Engineering team
Buses allowed on toll lanes	Yes, except for Options 04 (maximum program with managed lane) and 05 (hard shoulder running)	As agreed with CDOT and Parsons Engineering team
HOV implementation	No	As agreed with CDOT and Parsons Engineering team, and in line with Parsons financial analysis
Days of year of lane closure	Based on historical data for lane closures on the corridor due to weather, construction, or accidents	Utilizing historical data available for days of year of road/lane closures is appropriate for level 1 screening.
Construction Costs		
Estimating Format	Spreadsheet based workbooks for each Alternative	Consistent with standard formatting
Roadway, Structures, & Tunnels	Construction line items based on PEIS Estimates; Additional items added to reflect recently developed options & replace some allowances with specific line items	Consistent with standard estimating procedures w/ ITF collaboration
Transit	AGS - Estimates directly from 2013 AGS Study	Recent study information used
Transit	BRT - Developed estimates from "ground-up" assumptions for rolling stock and stations. Construction line items aligned with roadway and structure line items.	Consistent with standard estimating procedures w/ ITF collaboration
Transit	Circulator/Connector Bus Systems - Based on costs from existing systems (Summit Stage, RFTA). Scaled to match T&R options	Consistent with standard estimating procedures w/ ITF collaboration
Mitigation	Mitigation for historic, wildlife protection, and water quality based on PEIS data - updated by Issue Task Forces	Consistent with standard estimating procedures w/ ITF collaboration
Right-of-Way	Estimated per Federal Regulations	Consistent with standard estimating procedures & specified guidelines
Operations & Maintenance	CDOT cost data for items currently maintained by CDOT. Other items as determined through similar projects. Carried through Issue Task Force.	Consistent with standard estimating procedures w/ ITF collaboration
Other	Design, Environmental Clearances, and Construction Management are based on percentage of capital costs. CSS cost information provided by CDOT	Consistent with standard estimating procedures w/ ITF collaboration
Transit Assumptions		
AGS		
Mode share	9-11% (Source: AGS study). Ridership will be subtracted prior to mode split step in the model	We are utilizing AGS study figures in order to compare across results
Fare	$.26/mi., established by the AGS committee	We are utilizing AGS study figures in order to compare across results
Frequency	30 minute service in peak period (6 hours/day); hourly service for remaining 12 hours of the day (18 hour day service span). Source: AGS Study	We are utilizing AGS study figures in order to compare across results
Capex and O&M Cost	$11-$32 Billion for full option, $5.5-$18 Billion for MOS costs. Source: AGS Study	We are utilizing AGS study figures in order to compare across results
Revenue forecast	Will use traffic forecast parameters as defined in the PEIS and ROD analysis unless updated information is available from current studies or traffic collection information.	We are utilizing AGS study figures in order to compare across results

I-70 Mountain Corridor Traffic and Revenue Study - Assumptions		
Draft Framework for Discussion 12-05-2013		
	Level 1 Traffic and Revenue Study	**Justification**
Start year of operation	2035	
BRT		
Mode share	BRT ridership will not be modeled; a mode share of 3-6% based on capacity limits with a low and high occupancy rate range will be subtracted prior to the mode split step in the model	As agreed in Transit ITF
Fare	$.17/mi. same as the CDOT bus service	Based on the expected fare for the CDOT bus service starting 2014
Frequency	20 minute service in peak period (9 hours/day); hourly service for remaining 11 hours of the day (18 hour day service span). Source: Parsons Team; Transit ITF	Based on Parsons and Transit ITF analysis
Capex and O&M Cost	$90.5 million, based on Transit ITF estimates	As agreed with CDOT and Parsons Engineering team
Revenue forecast	Based on mode share assumptions and fares	As agreed in Transit ITF
Start year of operation	2018	
CDOT Bus		
Mode share	CDOT bus ridership will not be modeled; a mode share based on capacity limits with a low and high occupancy rate range will be subtracted prior to the mode split step in the model.	As agreed in Transit ITF
Fare	$.17/mi.	Based on CDOT estimates
Frequency	Two round trips per day 2014-2017. Source: CDOT	Based on CDOT estimates
Capex and O&M Cost	TBD; estimates being developed by CDOT	Based on CDOT estimates
Revenue forecast	TBD; estimates being developed by CDOT	Based on CDOT estimates
Start year of operation	2014	
Financial Assumptions		
Build year	See description of each alternative	Based on estimates for each alternative
Construction end year	See description of each alternative	Based on estimates for each alternative
CPI	3%	Standard industry practice
Toll rate increase over CPI	0%	Variable pricing based on congestion levels - no yearly increases based on CPI
Initial toll year	See description of each alternative	Based on estimates for each alternative; same as construction end year
Toll days per year (Monday-Thursday)	200	Number of Monday-Thursday in a standard year
Toll days per year (Friday)	52	Number of Fridays in a standard year
Toll days per year (Saturday)	52	Number of Saturdays in a standard year
Toll days per year (Sunday + holiday)	61	Number of Sundays and holidays in one average year
Annual O&M	Calculated by T&R and Engineering Team	
Capex	Calculated by T&R and Engineering Team	
Capex base year	See description of each alternative	
WACC	8.25%	Same assumption as Parsons financial analysis
% Equity	25%	Standard industry practice
Debt service coverage ratio	160%	Standard industry practice
CSS Contingency Factor	27% for Design, 19% for Construction Items not meeting	As determined by the CDOT team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WELD
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RIO BLANCO
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GARFIELD
EAGLE
SUMMIT
JEFFERSON
DOUGLAS
PITKIN
LAKE
PARK
MESA
TELLER
EL PASO
DELTA
CHAFFEE
GUNNISON
FREMONT
MONTROSE
PUEBLO
SAGUACHE
Zone Type (Number of TAZs)
DRCOG (285)
Roaring Fork (106)
Corridor (317)
North or South of Corridor (15)
Other Front Range (5)
0 20 40 60
Miles
N