

Concept 16



Concept 17



Concept 18



Concept 19



Concept 21



NORTH
Not To Scale

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 1 - No Action and Alternative Concepts - Purpose and Need Screening Matrix

May 30, 2014		Concepts							
Goal	Tier 1 Screening Criteria	NA	1	2	3	4	5	6	7
		No Action	Managed Lanes	Transit	ITS/TDM Only	Hard Shoulder Running Only	Speed Harmonization Only	Queue Warning Only	Third Lane Only
			Bus-only and Bus/HOV/Hot Lanes	Provide additional transit improvements.	Use of information technologies, such as traffic management and traffic control through ramp metering, with travel demand strategies, such as rideshare programs	Use of the shoulder as a third-travel lane during peak periods.	Speed harmonization uses over-lane speed signs and lane control signs to dynamically and automatically reduce speed limits in areas of congestion to maintain traffic flow and reduce collision risks due to speed differentials related to queuing and congestion.	Queue warning uses electronic signs to warn motorists of downstream congestion and slowed or stopped vehicles to allow drivers to adjust to the downstream travel conditions.	Addition of a third southbound lane on I-225.
Reduce Congestion and Travel Time	Can the concept reduce existing and future (2035) delay and travel time due to traffic congestion along SB I-225 between Yosemite Street and I-25?	No	No	No	No	Yes	No	No	Yes
		Delay and travel time is anticipated to worsen with no improvements and increased traffic volumes.	This concept will only minimally improve delay and travel time due to the inability to add managed lanes at the terminus of I-225 into I-25 within the project limits. Terminating a managed lane requires approximately 1000' and an ingress/egress lane merge requires 1000' to 3000' depending on the criteria used. The project length is about 7000 feet, which is inadequate for an actual managed lane to function. In addition, this Concept would not add sufficient capacity as a stand-alone improvement.	There is currently light rail (dual tracks) along the corridor and a robust bus transit system; yet congestion still exists. The additional capacity available by adding rail cars and fully using existing routes for transit has been explored and found that this alone does not reduce delay and travel time. In the future traffic model, maximum transit has been included with FasTracks and other planning efforts to address future ridership. Based on the No Action model, additional transit provides a negligible benefit for this segment of the corridor as the No Action essentially maximizes transit potential already.	The extent of the congestion along the corridor will require more substantial measures than ITS/TDM elements alone to notably improve delay and travel time along the corridor. The amount of improvement is based on several variables, typically a modest (5-10%) increase in roadway capacity has been accomplished using these methods of traffic management.	Hard shoulder running would improve capacity and thus delay and travel time with an additional third lane, but the new (and less constraining) bottleneck would be the merge/weave of the on-ramp traffic from DTC Boulevard to southbound I-225. The amount of improvement is based on several variables and if combined with speed harmonization, typically a modest (5-10%) increase in roadway capacity has been accomplished using this method of traffic management. More analysis is needed to determine the benefit of this concept.	The extent of the congestion along the corridor will require more substantial measures than speed harmonization alone to notably improve delay and travel time along the corridor. Based on previous studies, typically a modest (5-10%) increase in roadway capacity has been accomplished using this method of traffic management.	The extent of the congestion along the corridor will require more substantial measures than speed harmonization alone to notably improve delay and travel time along the corridor. Based on previous studies, typically a modest (4-5%) increase in throughput has been accomplished using this method of traffic management.	A third lane would improve capacity and thus delay and travel time, but the new (and less constraining) bottleneck would be the merge/weave of the on-ramp traffic from DTC Boulevard to southbound I-225. More analysis is needed to determine the benefit of this concept.
Summary of Results		Retained:	Eliminated:	Eliminated:	Eliminated:	Retained:	Eliminated:	Eliminated:	Retained:
		This Concept has been retained for Comparison Purposes	This concept is not responsive to purpose and need because it would only minimally improve congestion or reduce travel time along southbound I-225. The 2035 traffic conditions would be much worse than existing. <ul style="list-style-type: none"> There is inadequate project length to accommodate a functioning managed lane while also including the requirements for termination and ingress/egress merge lane length within the project limits is a major challenge. Current legislation makes it difficult if not impossible to toll existing capacity without jeopardizing federal funding. To make the project financially viable, the C-470 Coalition is targeting a minimum 3 mile ExpressToll lane trip. Again, this exceeds the length of our current project limits, which is just over a mile. This concept does not lend itself to a short highway segment. 	This concept is not responsive to purpose and need because it would not improve congestion or reduce travel time to the extent required along southbound I-225 with additional transit service alone. The 2035 traffic conditions would be much worse than existing.	This concept is not responsive to purpose and need because it would only minimally improve congestion or reduce travel time along southbound I-225. The 2035 traffic conditions would be much worse than existing. <ul style="list-style-type: none"> The ITS/TDM concept is not sufficient to improve congestion or travel time as a stand-alone alternative. These elements may be used in conjunction with build concepts to improve traffic operations along the corridor. 	This concept has been retained for further analysis.	This concept is not responsive to purpose and need because it would only minimally improve congestion or reduce travel time along southbound I-225. The 2035 traffic conditions would be much worse than existing. <ul style="list-style-type: none"> The speed harmonization concept is not sufficient to improve congestion or travel time as a stand-alone alternative. CDOT's Denver Metro Area Active Traffic Management Feasibility Study did not recommend this treatment to address congestion as a long-term solution but as an immediate treatment. These elements may be used in conjunction with build concepts to improve traffic operations along the corridor. 	This concept is not responsive to purpose and need because it would only minimally improve congestion or reduce travel time along southbound I-225. The 2035 traffic conditions would be much worse than existing. <ul style="list-style-type: none"> The queue warning concept is not sufficient to improve congestion or travel time as a stand-alone alternative. CDOT's Denver Metro Area Active Traffic Management Feasibility Study did not recommend this treatment to address congestion as a long-term solution but as an immediate treatment. These elements may be used in conjunction with build concepts to improve traffic operations along the corridor. 	This concept has been retained for further analysis.

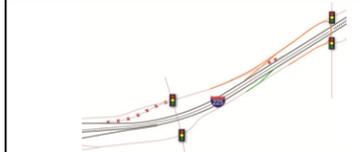
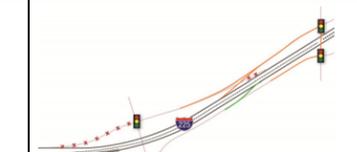
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts						
Goal	Tier 2 Screening Criteria	NA	4	7	Full and Partial On-Ramp Closure Concepts			
					8	9	10	11
		No Action	Hard Shoulder Running Only	Third Lane Only	DTC On Ramp to northbound I-25 Only	Texas U-Turn with DTC On Ramp to northbound I-25 only	DDI with Braided Ramp and DTC On Ramp to northbound I-25 Only	Reroute DTC Ramp to Yosemite
								
	Concept Description	The No Action Concept involves maintaining the existing roadways and bridges on southbound I-225 through 2035 without any major improvements. The existing number of lanes on southbound I-225 would remain as they are today.	This Concept involves using the existing shoulder as a third travel lane along southbound I-225 during peak traffic congestion periods.	This Concept involves constructing an additional third lane along southbound I-225 and widening the bridges to accommodate three lanes and shoulders.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to southbound I-25 traffic, and rerouting traffic to the Yosemite Street interchange. The rerouted traffic would be directed to use the existing west shoulder over the Yosemite Street bridge to access the Collector-Distributor (C-D) road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be removed.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to southbound I-25 traffic, and rerouting traffic to a Texas U-turn bridge over I-225 near Yosemite Street. The rerouted traffic would be directed to the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be removed.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to southbound I-25 traffic, and rerouting traffic to the Yosemite Street interchange. The Yosemite interchange would be converted to a Diverging Diamond Interchange (DDI) to access the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be replaced with a braided ramp with the new Yosemite Street on ramp.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to both northbound and southbound I-25 traffic, and rerouting traffic to the Yosemite Street interchange. The rerouted traffic would be directed to use the existing Yosemite Street ramp intersections to access the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be removed.
		No	No	No	Yes	Yes	Yes	No
Reduce Congestion and Travel Time/Improve Traffic Operations	Improve traffic operations along southbound I-225 between Yosemite Street and I-25 by restricting LOS F freeway flow to less than two hours per day but by no more than three hours given 2035 traffic demands	Without any improvements, traffic congestion along I-225 will worsen. Currently the mainline narrows from 4 lanes to 2 lanes in just over one mile from Yosemite Street to the I-25 convergence. The two-lane bridge carrying I-225 across DTC Boulevard will continue to be the bottleneck, and the section between Yosemite Street and I-25 on southbound I-225 could experience LOS F for 8 to 12 hours per day in 2035.	Adding the third lane via converting the shoulder will alleviate the two-lane bottleneck. The constraining component will be the three-lane section just west of the on-ramp merge as this will be where traffic demand will be greatest. The section between Yosemite Street and I-25 on southbound I-225 could experience LOS F for 4 to 5 hours per day in 2035.	Adding the third lane will alleviate the two-lane bottleneck. The constraining component will be the three-lane section just west of the on-ramp merge as this will be where traffic demand will be greatest. The section between Yosemite Street and I-25 on southbound I-225 could experience LOS F for 4 to 5 hours per day in 2035.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the new on-ramp from Yosemite Street as part of this Concept also incorporates on-ramp traffic from DTC Boulevard heading for southbound I-25 resulting in a LOS F during the AM peak period lasting approximately two to three hours per day in 2035.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the new on-ramp from Yosemite Street as part of this Concept also incorporates on-ramp traffic from DTC Boulevard heading for southbound I-25 resulting in a LOS F during the AM peak period lasting approximately two to three hours per day in 2035.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the new on-ramp from Yosemite Street as part of this Concept also incorporates on-ramp traffic from DTC Boulevard heading for southbound I-25 resulting in a LOS F during the AM peak period lasting approximately two to three hours per day in 2035.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the on-ramp from Yosemite Street incorporates all on-ramp traffic from DTC Boulevard resulting in a LOS F during the AM peak period lasting approximately four to five hours per day.
	Maintain or improve future traffic operations with respect to No Action at the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersections.	Traffic conditions at the interchanges' intersections will worsen without improvements to LOS E for two of the intersections. The two noted intersections include the north Yosemite Street intersection and the north DTC Boulevard intersection during the AM peak hour for 2035.	Traffic conditions at the interchanges' intersections will worsen without improvements to LOS E for two of the intersections, similar to the No Action Alternative. The two noted intersections include the north Yosemite Street intersection and the north DTC Boulevard intersection during the AM peak hour for 2035.	Traffic conditions at the interchanges' intersections will worsen without improvements to LOS E for two of the intersections, similar to the No Action Alternative. The two noted intersections include the north Yosemite Street intersection and the north DTC Boulevard intersection during the AM peak hour for 2035.	Some out-of direction travel is required with this Concept since the DTC Boulevard on-ramp is closed to traffic wanting to go to southbound I-25 and the traffic is rerouted to the Yosemite interchange. This will add more left turning traffic to the south DTC Boulevard ramp intersection. The additional burden would result in this intersection functioning at LOS F during the PM peak hour. Stacking of the southbound left turn movement would fill the left turn lane storage lanes with queues at times blocking the north DTC Boulevard ramp intersection.	Some out-of direction travel is required with this Concept since the DTC Boulevard on-ramp is closed to traffic wanting to go to southbound I-25 and the traffic is rerouted to the Yosemite interchange. This will add more left turning traffic to the south DTC Boulevard ramp intersection. The additional burden would result in this intersection functioning at LOS F during the PM peak hour. Stacking of the southbound left turn movement would fill the left turn lane storage lanes with queues at times blocking the north DTC Boulevard ramp intersection.	Some out-of direction travel is required with this Concept, adding left turning traffic to the south DTC Boulevard ramp intersection. The additional burden would result in this intersection functioning at LOS F during the PM peak hour. Southbound left turn movement stacking would fill the left turn lane storage.	Some out-of direction travel is required with this Concept, adding left turning traffic to the south DTC Boulevard ramp intersection. This additional left turning demand will result in the south DTC Boulevard ramp intersection to function at a LOS F in the PM peak hour. The increase in left turn movements could also fill the available left turn storage at this intersection.

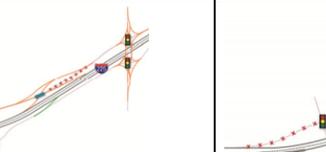
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts						
Goal	Tier 2 Screening Criteria	NA	4	7	Full and Partial On-Ramp Closure Concepts			
		8	9	10	11			
		No Action	Hard Shoulder Running Only	Third Lane Only	DTC On Ramp to northbound I-25 Only	Texas U-Turn with DTC On Ramp to northbound I-25 only	DDI with Braided Ramp and DTC On Ramp to northbound I-25 Only	Reroute DTC Ramp to Yosemite
								
Improve Safety Due to Congestion	Maintain existing or improve future traffic operations with respect to existing conditions for weave areas along southbound I-225 with regard to distance of weave and number of lane changes	No	No	No	Yes	Yes	Yes	No
		The No Action 2035 weave areas will continue to deteriorate to longer periods of LOS F without any improvements.	The southbound lane configuration would require all DTC Boulevard on-ramp traffic to merge over one lane. Traffic oriented to southbound I-25 would then need to make one additional lane change. This Concept requires a greater number of lane changes than the existing lane geometry and would not maintain or improve future traffic operations.	The southbound lane configuration would require all DTC Boulevard on-ramp traffic to merge over one lane. Traffic oriented to southbound I-25 would then need to make one additional lane change. This Concept requires a greater number of lane changes than the existing lane geometry and would not maintain or improve future traffic operations.	On-ramp DTC Boulevard traffic oriented to northbound I-25 does not merge onto I-225. On-ramp traffic to southbound I-25 has approximately one mile to make a single lane change, which is an improvement over the existing one-half mile length. Therefore, this Concept would improve future traffic operations.	On-ramp DTC Boulevard traffic oriented to northbound I-25 does not merge onto I-225. On-ramp traffic to southbound I-25 has approximately one mile to make a single lane change, which is an improvement over the existing one-half mile length. Therefore, this Concept would improve future traffic operations.	On-ramp DTC Boulevard traffic oriented to northbound I-25 does not merge onto I-225. On-ramp traffic to southbound I-25 has approximately one mile to make a single lane change, which is an improvement over the existing one-half mile length. Therefore, this Concept would improve future traffic operations.	On-ramp DTC Boulevard traffic oriented to northbound I-25 and southbound I-25 must all merge onto I-225. While the distance to the I-25 diverge is approximately twice as long as the existing configuration, DTC Boulevard on-ramp traffic oriented to northbound I-25 does not require a lane change. This Concept requires one lane change in the form of a merge. Therefore, this Concept does not maintain existing or improve future traffic operations with respect to lane changing conflicts.
Improve Safety through Design	Satisfy engineering design standards and criteria	No	No	Yes	Yes	No	Yes	Yes
		No changes to current highway and interchange conditions. On Southbound I-225 to Southbound I-25 there is limited sight distance for the off ramp. The weaving distance is insufficient between southbound I-225 DTC Boulevard Entrance Ramp and I-25 Exit Gore. The shoulder widths do not meet CDOT standards for the inside shoulder which is less than 4 feet with two lanes and less than 10 feet with three lanes.	The Concept would not meet CDOT or AASHTO criteria since the inside and outside shoulder widths would be less than 4 feet wide, which does not provide sufficient area for emergency vehicles to pass, for emergency storage of disabled vehicles, for enforcement activities, and for drivers to maneuver to avoid crashes. Interstates with 6 or more lanes (three in each direction) require 10 foot inside and outside shoulders and 12-foot should be considered with more than 250 trucks per hour.	Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.	The Concept includes using the west side shoulder along the bridge to provide a dedicated lane for the rerouted movement. This Concept may be constructed to meet criteria; however, meeting sight distance at the approach to Yosemite Street from the northbound C-D Road presents a challenge due to the proximity and height of the bridge rail to the receiving lane as viewed from the approach left turn lane turning into the dedicated west shoulder on the bridge.	This Concept cannot be constructed to meet criteria due to the limited space between the highway, existing northbound slip ramp from DTC Boulevard, and the northbound C-D road to fit an elevated ramp lane to cross I-225 and the LRT envelope and touch down on the other side of the highway. Also, providing vertical grades on the Texas U-turn ramps that meet standards in order to provide proper clearance over I-225 and LRT presents a challenge.	This Concept could be constructed to meet standards.	This Concept could be constructed to meet standards.

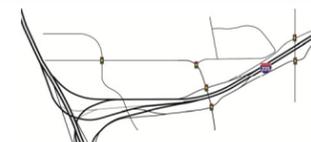
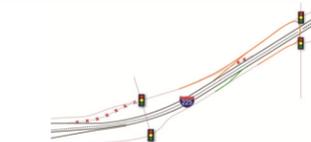
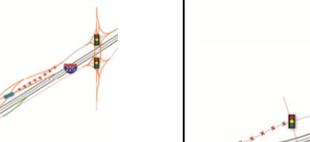
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts						
Goal	Tier 2 Screening Criteria	NA	4	7	Full and Partial On-Ramp Closure Concepts			
		8	9	10	11			
		No Action	Hard Shoulder Running Only	Third Lane Only	DTC On Ramp to northbound I-25 Only	Texas U-Turn with DTC On Ramp to northbound I-25 only	DDI with Braided Ramp and DTC On Ramp to northbound I-25 Only	Reroute DTC Ramp to Yosemite
								
Improve Accessibility and Connectivity	Meet driver's expectations	Yes	No	Yes	No	No	No	No
		No changes to current highway and interchange conditions. Currently, along southbound I-225 there is a split diamond interchange with Yosemite Street and DTC Boulevard roadways with C-D roads connecting these roadways, an exit ramp at Yosemite Street and an entrance ramp at DTC Boulevard from southbound I-225. There is also a slip ramp from southbound I-225 to DTC Boulevard. This interchange has been constructed since 2006 and drivers are accustomed to the configuration. C-D roads are becoming more common along highways and a split diamond interchange with C-D roads was constructed recently at Colfax Avenue and I-225.	This Concept would not meet driver expectancy, since it does not provide typical Colorado traffic operations along the highway. Drivers will be driving along the highway with less than 4-foot shoulders on each side of the roadway during the peak period, which does not provide sufficient area for emergency vehicles to pass, for emergency storage of disabled vehicles, for enforcement activities, and for drivers to maneuver to avoid crashes. CDOT is proposing hard shoulder running along the I-70 mountain corridor in 2015, which will be the first such use.	Consistent with driver expectations.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. Drivers that are rerouted to the Yosemite interchange and will use the Yosemite bridge over I-225 to reach the C-D road and merge with southbound I-225 traffic will be driving against southbound Yosemite Street opposing traffic as they cross along the west side of the Yosemite Street Bridge using the existing shoulder, which is not a typical operation at an interchange.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. Currently, Colorado does not have any Texas U-Turn configurations along any of the highways.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. There are no operating DDIs in Colorado at this time, although the DDI at Exit 26 on I-70 in Grand Junction will be completed in early 2014.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. Currently, drivers are not expected to drive upstream to an adjacent interchange to make a U-turn to enter the highway in the downstream direction along any highways in Colorado.
	Preserve system interchange access	Yes	Yes	Yes	No	No	Yes	No
		No changes to interchange access. Currently, along southbound I-225 there is a split diamond interchange with Yosemite Street and DTC Boulevard roadways with C-D roads connecting these roadways, an exit ramp at Yosemite Street and an entrance ramp at DTC Boulevard from southbound I-225. There is also a slip ramp from southbound I-225 to DTC Boulevard.	The current movements would be preserved.	The current movements would be preserved.	System interchange access would not be preserved. Direct access would be removed from southbound I-225 to DTC Boulevard. Although access would be preserved, the DTC Boulevard on ramp to southbound I-225 and to southbound I-25 would be rerouted through the Yosemite Street interchange.	System interchange access would not be preserved. Direct access would be removed from southbound I-225 to DTC Boulevard. Although access would be preserved, the DTC Boulevard on ramp to southbound I-225 and to southbound I-25 would be rerouted through the Texas U-Turn Bridge.	System interchange access would be preserved. Direct access would be added from Yosemite Street to southbound I-225 with a braided ramp. Although access would be preserved, the DTC Boulevard on ramp to southbound I-225 and to southbound I-25 would be rerouted through the Yosemite Street DDI.	System interchange access would not be preserved. Direct access would be removed from southbound I-225 to DTC Boulevard. Although access would be preserved, the DTC Boulevard on ramp to southbound I-225 and to southbound I-25 would be rerouted through the Yosemite Street interchange.
	Minimize out-of-direction travel to access I-225 and the I-225/Yosemite Street and I-225/DTC Boulevard interchanges	Yes	Yes	Yes	No	No	No	No
		No changes to the current I-225/DTC Boulevard and I-225/Yosemite Street Interchange Complex.	No out-of-direction travel is required with this Concept.	No out-of-direction travel is required with this Concept.	This Concept would require southbound I-225 to South I-25 motorists to head east through two Yosemite Street ramp intersections (holding to the west side of the Yosemite Street bridge in their own lane) and onto a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 6500 feet in comparison to the existing on ramp in the No Action.	This Concept would require southbound I-25 motorists to head east over I-225 and enter a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 5600 feet in comparison to the existing on ramp in the No Action.	This Concept would require southbound I-225 to southbound I-25 motorists to head east through two diverging diamond interchanges (DDI), Yosemite Street ramp intersections and onto a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 6400 feet in comparison to the existing on ramp in the No Action.	This Concept would require motorists to head east through two Yosemite Street ramp intersections and onto a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 6600 feet in comparison to the existing on ramp in the No Action.

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

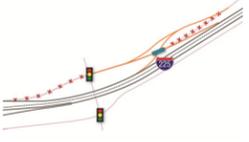
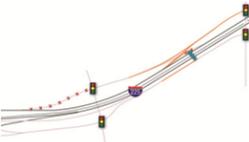
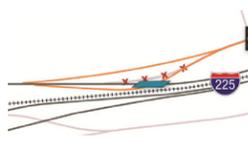
Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

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					8	9	10	11
		No Action	Hard Shoulder Running Only	Third Lane Only	DTC On Ramp to northbound I-25 Only	Texas U-Turn with DTC On Ramp to northbound I-25 only	DDI with Braided Ramp and DTC On Ramp to northbound I-25 Only	Reroute DTC Ramp to Yosemite
								
Summary of Results	Retained:	Eliminated:	Eliminated:	Eliminated:	Eliminated:	Eliminated:	Eliminated:	Eliminated:
	<p>This Concept has been retained for Comparison Purposes</p>	<p>Concept 4 would not address purpose and need to reduce existing and future (2035) traffic congestion and improve safety due to congestion. This concept would experience congestion (LOS F) four to five hours per day in 2035 and requires a greater number of lane changes than the existing lane geometry; thereby, Concept 4 does not maintain existing operations.</p>	<p>Concept 7 would not address purpose and need to reduce existing and future (2035) traffic congestion and improve safety due to congestion. This concept would experience congestion (LOS F) four to five hours per day in 2035 and requires a greater number of lane changes than the existing lane geometry; thereby, Concept 7 does not maintain existing operations.</p>	<p>Concept 8 would not address purpose and need to reduce future (2035) traffic congestion. Concept 8 does not maintain the I-225/DTC Boulevard interchange intersection operations. The I-225/DTC Boulevard southern intersection will degrade in 2035 from a LOS C to a LOS D in the AM peak hour and from LOS C to LOS F for the PM peak hour.</p>	<p>Concept 9 would not address purpose and need to reduce future (2035) traffic congestion. Concept 9 does not maintain the I-225/DTC Boulevard interchange intersection operations. The I-225/DTC Boulevard southern intersection will degrade in 2035 from a LOS C to a LOS D in the AM peak hour and from LOS C to LOS F for the PM peak hour.</p>	<p>Concept 10 would not address purpose and need to reduce future (2035) traffic congestion. Concept 10 does not maintain the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersection operations. The I-225/Yosemite Street southern intersection will degrade in 2035 from a LOS D to a LOS F for the PM peak hour. The I-225/DTC Boulevard southern intersection will degrade in 2035 from a LOS C to LOS F for the PM peak hour.</p>	<p>Concept 11 would not address purpose and need to reduce future (2035) traffic congestion. Concept 11 would experience congestion (LOS F) four to five hours per day in 2035 on southbound I-225. This concept does not maintain the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersection operations. The I-225/Yosemite Street northern intersection will degrade in 2035 from a LOS E to a LOS F for the AM peak hour and from a LOS B to a LOS D for the PM peak hour. The southern intersection will degrade in 2035 from a LOS C to a LOS F for the PM peak hour. The I-225/DTC Boulevard southern intersection will degrade in 2035 from a LOS C to LOS F for the PM peak hour.</p>	
		<ul style="list-style-type: none"> By adding the third lane, this section could experience LOS F four to five hours per day in 2035. Intersection operations will degrade similar to the No Action Alternative concept. This Concept requires a greater number of lane changes than the existing lane geometry, thereby rendering this Concept not maintaining existing operations. Concept does not meet design criteria or driver expectations. Drivers would have less than 4-foot shoulders on both sides of the highway with minimal room for incident management and emergency vehicles to pass. Colorado does not have any current hard shoulder running locations. 	<ul style="list-style-type: none"> By adding the third lane, this section could experience LOS F four to five hours per day in 2035. Intersection operations will degrade similar to the No Action Alternative concept. This Concept requires a greater number of lane changes than the existing lane geometry, thereby rendering this Concept not maintaining existing conditions. 	<ul style="list-style-type: none"> Concept does not maintain the DTC south intersection operations; the Tamarac/DTC south intersection LOS (delay) will degrade substantially compared to the No Action from a LOS C to a LOS D for the AM peak hour and from LOS C to a LOS F for the PM peak hour. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange. Concept requires a substantial amount out-of-direction travel distance, almost 7 times longer than the No Action. 	<ul style="list-style-type: none"> Concept does not maintain the DTC south intersection operations; the Tamarac/DTC south intersection LOS (delay) will degrade substantially compared to the No Action from a LOS C to a LOS D for the AM peak hour and from LOS C to a LOS F for the PM peak hour. Concept does not meet design criteria due to steep vertical grades required to cross over I-225 and LRT and meet existing ground, which would exceed standards. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange. Also, Colorado does not have any existing Texas U-turns currently in operation. Concept requires a substantial amount out-of-direction travel distance, almost 6 times longer than the No Action. 	<ul style="list-style-type: none"> Concept does not maintain the Yosemite Street south intersection eastbound left turn movement and the DTC south intersection operations; these LOS (delay) will degrade substantially compared to the No Action. The Yosemite Street south intersection left turn degrades from a LOS D to a LOS F for the PM peak hour. The DTC south intersection degrades from a LOS C to a LOS F for the PM peak hour. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange, paired with the added confusion associated with being rerouted to an unfamiliar interchange configuration that has not been used in Colorado. Concept requires a substantial amount out-of-direction travel distance, more than 7 times longer than the No Action. Concept lacks through movements at the ramp intersections of the DDI. Concept impacts private property at the Yosemite Street interchange with the free right turns at the DDI ramp intersections and does not meet local land use planning with the closure of two local road accesses. 	<ul style="list-style-type: none"> This Concept could experience LOS F four to five hours per day in 2035 on mainline southbound I-225. Concept does not maintain the Yosemite Street north and south intersection operations; the Yosemite Street intersections LOS (delay) degrades substantially compared to the No Action. The Yosemite Street north intersection degrades from LOS E to a LOS F for the AM peak hour and from LOS B to a LOS D for the PM peak hour. The Yosemite Street south intersection degrades from LOS C to a LOS F for the PM peak hour. Also, the DTC south intersection degrades from a LOS C to a LOS F for the PM peak hour. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange. Concept requires a substantial amount out-of-direction travel distance, almost 7 times longer than the No Action. 	

Note: Reference to the DTC Boulevard and Tamarac Parkway roadways, bridges, and interchanges has been simplified to DTC Boulevard.

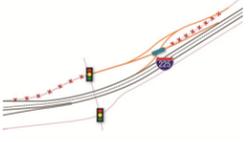
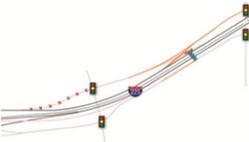
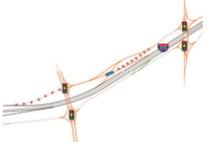
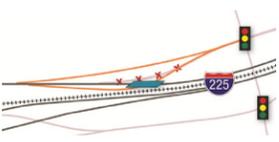
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Full and Partial On-Ramp Closure Concepts				Braided Ramps with I-225 Concepts
		12	13	14	15	16
		Braided Ramps between Yosemite and DTC	Combine interchanges with U-Turn Bridge	Texas U-Turn	Two DDIs - Yosemite and DTC	Braided Ramps between DTC and Ulster
						
	Concept Description	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to both northbound and southbound I-25 traffic, and rerouting traffic to the Yosemite Street interchange. The rerouted traffic would be directed to use the existing Yosemite Street ramp intersections to access the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be replaced with a braided ramp with the new Yosemite Street on ramp.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to both northbound and southbound I-25 traffic, and rerouting traffic to a u-turn bridge grade crossing halfway to Yosemite Street. The rerouted traffic would be directed to use the grade crossing to access the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be removed.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to both northbound and southbound I-25 traffic, and rerouting traffic to a Texas U-turn bridge over I-225 near Yosemite Street. The rerouted traffic would be directed to the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be removed.	This Concept involves constructing a third lane along southbound I-225, closing the DTC Boulevard on ramp to both northbound and southbound I-25 traffic, and rerouting traffic to the Yosemite Street interchange. The DTC Boulevard and Yosemite Street interchanges would be converted to diverging diamond interchanges. Traffic would be directed to access the C-D road to the north and merge onto southbound I-225 with an on ramp. The off ramp to DTC Boulevard from southbound I-225 would be replaced with a braided ramp with the new Yosemite Street on ramp.	This Concept involves constructing a third lane along southbound I-225. The DTC Boulevard on ramp to southbound I-25 would cross under southbound I-225 with a new bridge on southbound I-225 and then merge onto southbound I-225 from the left side of the highway. The DTC Boulevard on ramp to northbound I-25 would continue to use a dedicated lane to the exit ramp to I-25.
Improve Traffic Operations	Improve traffic operations along southbound I-225 between Yosemite Street and I-25 by restricting LOS F freeway flow to less than two hours per day but by no more than three hours given 2035 traffic demands	No	No	No	No	Yes
		This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the on-ramp from Yosemite incorporates all on-ramp traffic from DTC Boulevard/Yosemite Street area resulting in a LOS F during the AM peak period lasting approximately four to five hours per day.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the on-ramp from Yosemite incorporates all on-ramp traffic from DTC Boulevard/Yosemite Street area resulting in a LOS F during the AM peak period lasting approximately four to five hours per day.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the on-ramp from Yosemite incorporates all on-ramp traffic from DTC Boulevard/Yosemite Street area resulting in a LOS F during the AM peak period lasting approximately four to five hours per day.	This Concept provides a third lane along southbound I-225 and improves the weave distance with I-25. However, merging operations with the on-ramp from Yosemite incorporates all on-ramp traffic from DTC Boulevard/Yosemite Street area resulting in a LOS F during the AM peak period lasting approximately four to five hours per day.	This Concept provides a third lane along southbound I-225 and eliminates the weave between DTC Boulevard and I-25. All the traffic merging onto southbound I-225 converges into a four lane section between the DTC ramps and I-25. The three-lane over DTC Boulevard section would operate at LOS F for one to two hours per day. Also, a new weave along the on-ramp to the braided split is introduced.
	No	No	No	No	Yes	
	Maintain or improve future traffic operations with respect to existing conditions at the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersections. Should operations degrade, overall LOS D during both peak hours is required. Further, traffic queues should not stack between successive intersections.	<ul style="list-style-type: none"> Significant out-of direction travel is required with this Concept, adding left turning traffic to the south DTC Boulevard ramp intersection. This additional left turning demand will result in the south DTC Boulevard ramp intersection functioning at a LOS E with the southbound left turn at a LOS F. Significant out-of direction travel is required with this Concept, adding left turning traffic at both Yosemite Street ramp intersections. During the AM peak hour, the north Yosemite Street ramp intersection will operate at a LOS F and during the PM peak hour, the south Yosemite Street ramp intersection will operate at a LOS F. 	The u-turn bridge will operate under STOP control which is projected to function at an LOS F during both peak hours including significant stacking back to DTC Boulevard. Further, out-of direction travel is required with this Concept, adding left turning traffic to the south DTC Boulevard ramp intersection. This additional left turning demand will result in the south DTC Boulevard ramp intersection functioning at a LOS F in isolation; the queuing from the u-turn bridge will exasperate this problem.	Significant out-of direction travel is required with this Concept, adding left turning traffic to the south DTC Boulevard ramp intersection. This additional left turning demand will result in the south DTC Boulevard ramp intersection functioning at a LOS F. Southbound left turn movement stacking would fill the left turn lane storage with queues at times blocking the north intersection.	<ul style="list-style-type: none"> At DTC Boulevard north intersection, the westbound left turn is a LOS F during the AM peak hour and the westbound right turn is a LOS F during the PM peak hour. At the DTC south intersection, the eastbound right turn is a LOS F during the AM peak hour. The southern Yosemite Street intersection's eastbound left turn movement will function at LOS F during the PM peak hour as this movement will be required to merge with the northbound through traffic along Yosemite Street. The queue of the left turn is approximately 850 feet. There would be no queue spillbacks between the two signalized intersections of the DDI and the overall LOS D or better for Yosemite Street's DDI. 	This Concept will maintain traffic operations at the intersections. However, traffic turning at the north DTC Boulevard ramp intersection will need clear signing given impending directional decision associated with the downstream ramp braid.

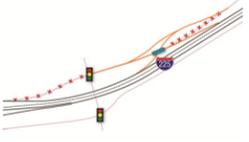
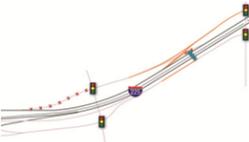
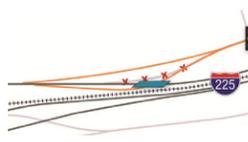
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Full and Partial On-Ramp Closure Concepts				Braided Ramps with I-225 Concepts
		12	13	14	15	16
		Braided Ramps between Yosemite and DTC	Combine interchanges with U-Turn Bridge	Texas U-Turn	Two DDIs - Yosemite and DTC	Braided Ramps between DTC and Ulster
						
Reduce Congestion and Travel Time	Maintain existing or improve future traffic operations with respect to existing conditions for weave areas along southbound I-225 with regard to distance of weave and number of lane changes	No	No	No	No	Yes
		On-ramp DTC Boulevard traffic oriented to northbound I-25 and southbound I-25 must all merge onto I-225. While the distance to the I-25 diverge is approximately twice as long as the existing configuration, DTC Boulevard on-ramp traffic oriented to northbound I-25 does not require a lane change. This Concept requires one lane change in the form of a merge. Therefore, this Concept does not maintain existing conditions with respect to lane changing conflicts.	On-ramp DTC Boulevard traffic oriented to northbound I-25 and southbound I-25 must all merge onto I-225. While the distance to the I-25 diverge is approximately twice as long as the existing configuration, DTC Boulevard on-ramp traffic oriented to northbound I-25 does not require a lane change. This Concept requires one lane change in the form of a merge. Therefore, this Concept does not maintain existing conditions with respect to lane changing conflicts.	On-ramp DTC Boulevard traffic oriented to northbound I-25 and southbound I-25 must all merge onto I-225. While the distance to the I-25 diverge is approximately twice as long as the existing configuration, DTC Boulevard on-ramp traffic oriented to northbound I-25 does not require a lane change. This Concept requires one lane change in the form of a merge. Therefore, this Concept does not maintain existing conditions with respect to lane changing conflicts.	On-ramp DTC Boulevard traffic oriented to northbound I-25 and southbound I-25 must all merge onto I-225. While the distance to the I-25 diverge is approximately twice as long as the existing configuration, DTC Boulevard on-ramp traffic oriented to northbound I-25 does not require a lane change. This Concept requires one lane change in the form of a merge. Therefore, this Concept does not maintain existing conditions with respect to lane changing conflicts.	On-ramp DTC Boulevard traffic oriented to northbound I-25 and southbound I-25 must all merge onto I-225. While the distance to the I-25 diverge is approximately twice as long as the existing configuration, DTC Boulevard on-ramp traffic oriented to northbound I-25 does not require a lane change. This Concept requires one lane change in the form of a merge. Therefore, this Concept does not maintain existing conditions with respect to lane changing conflicts.
Improve Safety Through Design	Satisfy engineering design standards and criteria	Yes	No	No	Yes	Yes
		Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.	This Concept cannot be constructed to meet criteria due to the limited space between the highway, existing northbound slip ramp from DTC Boulevard, and the northbound C-D road to fit an elevated ramp lane to cross I-225 and the LRT envelope and touch down on the other side of the highway. Also, providing vertical grades on the midway u-turn ramps that meet standards in order to provide proper clearance over I-225 and LRT presents a challenge.	This Concept cannot be constructed to meet criteria due to the limited space between the highway, existing northbound slip ramp from DTC Boulevard, and the northbound C-D road to fit an elevated ramp lane to cross I-225 and the LRT envelope and touch down on the other side of the highway. Also, providing vertical grades on the Texas U-turn ramps that meet standards in order to provide proper clearance over I-225 and LRT presents a challenge.	This Concept could be constructed to meet standards. Further analysis would be required to verify.	Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.
Improve Accessibility and Connectivity	Meet driver's expectations	No	No	No	No	No
		This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. Currently, drivers are not expected to drive upstream to an adjacent interchange to make a U-turn to enter the highway in the downstream direction along any highways in Colorado.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. Currently, Colorado does not have any elevated u-turn configurations along any of the highways.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. Currently, Colorado does not have any Texas U-Turn configurations along any of the highways.	This Concept would not meet driver expectancy, since it does not provide typical traffic operations as at other Colorado interchanges. There are no operating DDIs in Colorado at this time, although the DDI at Exit 26 on I-70 in Grand Junction will be completed in early 2014. Also, with this configuration, northbound I-225 traffic no longer has a direct connection to Yosemite Street.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. The braided ramp would need to merge with traffic from the left side of the highway, which is not a typical merge onto the freeway and does not meet driver's expectations.
	Preserve system interchange access	Yes	No	No	No	Yes
		System interchange access is preserved. Although access is preserved, the DTC Boulevard on ramp to southbound I-225 and to northbound and southbound I-25 would be rerouted through the Yosemite Street interchange.	System interchange access is not preserved. Direct access is removed from southbound I-225 to DTC Boulevard. Although access is preserved, the DTC Boulevard on ramp to southbound I-225 and to northbound and southbound I-25 would be rerouted through the u-turn bridge.	System interchange access is not preserved. Direct access is removed from southbound I-225 to DTC Boulevard. Although access is preserved, the DTC Boulevard on ramp to southbound I-225 and to northbound and southbound I-25 would be rerouted through the Texas U-Turn Bridge.	System interchange access is not preserved. This Concept no longer provides direct access from northbound I-225 to Yosemite Street. DDI's do not allow for through movements at intersections from cross streets, which is how this access would be provided at the south ramp and the DTC Boulevard intersection and using the northbound C-D road.	The current movements would be preserved.
	Minimize out-of-direction travel to access I-225 and the I-225/Yosemite Street and I-225/DTC Boulevard interchanges	No	No	No	No	Yes
		This Concept would require motorists to head east through two Yosemite Street ramp intersections and onto a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 6600 feet in comparison to the existing on ramp in the No Action.	This Concept would require motorists to head east over I-225 and enter a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 3600 feet in comparison to the existing on ramp in the No Action.	This Concept would require northbound and southbound I-25 motorists to head east over I-225 and enter a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 5600 feet in comparison to the existing on ramp in the No Action.	This Concept would require northbound and southbound I-25 motorists to head east through the DTC Boulevard DDI and then through the Yosemite Street DDI and onto a slip ramp to reach southbound I-225 to address the weave issue. This would extend the distance traveled by 6400 feet in comparison to the existing on ramp in the No Action.	No out-of-direction travel is required with this Concept.

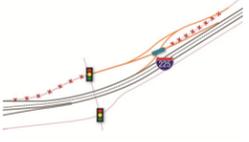
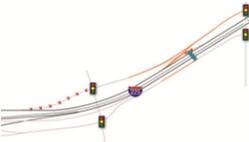
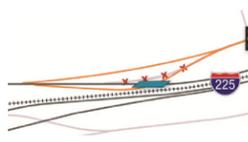
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
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		Braided Ramps between Yosemite and DTC	Combine interchanges with U-Turn Bridge	Texas U-Turn	Two DDIs - Yosemite and DTC	Braided Ramps between DTC and Ulster
						
Avoid Community Impacts	Avoid direct and indirect property and business impacts	Yes No property or business impacts would be required with this Concept, which stays within existing ROW.	Yes No property or business impacts would be required with this Concept, which stays within existing ROW.	Yes No property or business impacts would be required with this Concept, which stays within existing ROW.	No The existing intersections at Yosemite Street are close to existing private property. Constructing the free rights associated with this Concept would impact these properties on all four quadrants.	Yes No property or business impacts would be required with this Concept, which stays within existing ROW.
	Avoid business/resident displacements	Yes No business/resident displacements would be required with this Concept, which stays within existing ROW.	Yes No business/resident displacements would be required with this Concept, which stays within existing ROW.	Yes No business/resident displacements would be required with this Concept, which stays within existing ROW.	Yes No business/resident displacements would be required with this Concept.	Yes No business/resident displacements would be required with this Concept, which stays within existing ROW.
	Evaluate compatibility with existing local land use	Yes This Concept is compatible with existing local land use.	Yes This Concept is compatible with existing local land use.	Yes This Concept is compatible with existing local land use.	No Two roadways would need to be closed with this intersection configuration due to their close proximity to the interchange intersections. This includes Radcliffe Avenue to the south and Oxford Drive to the north.	Yes This Concept is compatible with existing local land use.
Avoid Environmental and Cultural Resource Impacts	Avoid impacts to environmental and cultural resources based on direct impacts on parks, open space, and trails	Yes No parks, open space or trails would be impacted with this Concept.	Yes No parks, open space or trails would be impacted with this Concept.	Yes No parks, open space or trails would be impacted with this Concept.	Yes No parks, open space or trails would be impacted with this Concept.	Yes No parks, open space or trails would be impacted with this Concept.
	Avoid impacts to environmental and cultural resources based on direct impacts on floodplains	Yes No floodplains would be impacted with this Concept.	Yes No floodplains would be impacted with this Concept.	Yes No floodplains would be impacted with this Concept.	Yes No floodplains would be impacted with this Concept.	Yes No floodplains would be impacted with this Concept.
	Avoid impacts to environmental and cultural resources based on direct impacts on wetlands and waters of the US	Yes No wetlands and waters of the US would be impacted with this Concept.	Yes No wetlands and waters of the US would be impacted with this Concept.	Yes No wetlands and waters of the US would be impacted with this Concept.	Yes No wetlands and waters of the US would be impacted with this Concept.	Yes No wetlands and waters of the US would be impacted with this Concept.
	Avoid impacts to environmental and cultural resources based on direct impacts on sensitive species	Yes No sensitive species would be impacted with this Concept.	Yes No sensitive species would be impacted with this Concept.	Yes No sensitive species would be impacted with this Concept.	Yes No sensitive species would be impacted with this Concept.	Yes No sensitive species would be impacted with this Concept.
Address Multimodal Considerations	Maintain or improve north-south bicycle or pedestrian connectivity under I-225 along Yosemite Street and DTC Boulevard with respect to existing conditions	Yes Current north-south bicycle and pedestrian connectivity is maintained.	Yes Current north-south bicycle and pedestrian connectivity is maintained.	Yes Current north-south bicycle and pedestrian connectivity is maintained.	Yes Current north-south bicycle and pedestrian connectivity is maintained.	Yes Current north-south bicycle and pedestrian connectivity is maintained.

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

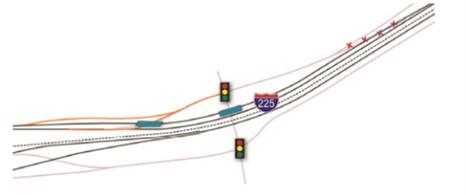
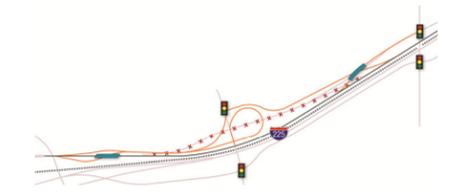
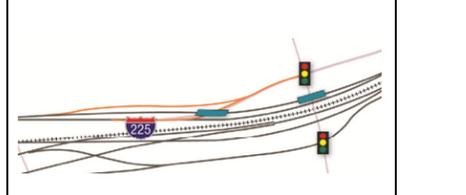
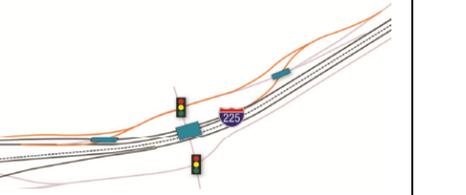
Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

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Summary of Results	Eliminated:	Eliminated:	Eliminated:	Eliminated:	Retained:	
	<p>Concept 12 would not address purpose and need to reduce future (2035) traffic congestion. This concept would experience congestion (LOS F) four to five hours per day in 2035 on southbound I-225. Concept 12 does not maintain the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersection operations. The I-225/Yosemite Street northern intersection will degrade in 2035 from a LOS E to a LOS F for the AM peak hour and from a LOS B to a LOS F for the PM peak hour. The southern intersection will degrade in 2035 from a LOS C to a LOS F for the PM peak hour. The I-225/DTC Boulevard southern intersection will degrade in 2035 from a LOS C to LOS E for the PM peak hour.</p> <ul style="list-style-type: none"> This Concept could experience LOS F four to five hours per day in 2035 on mainline southbound I-225. Concept does not maintain LOS D or better for the south DTC Boulevard intersection. The north and south Yosemite Street intersections will experience a LOS F during the AM and PM peak hours respectively. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange. Concept requires a substantial amount out-of-direction travel distance, almost 7 times longer than the No Action. 	<p>Concept 13 would not address purpose and need to reduce future (2035) traffic congestion. This concept would experience congestion (LOS F) four to five hours per day in 2035 on southbound I-225. Concept 13 does not maintain the I-225/DTC Boulevard interchange intersection operations. The I-225/DTC Boulevard southern intersection will degrade substantially in 2035 from a LOS C to LOS F for the PM peak hour. In addition, queues from the U-turn bridge would operate at LOS F in both peak hours and would back into the I-225/DTC Boulevard interchange intersection.</p> <ul style="list-style-type: none"> This Concept could experience LOS F four to five hours per day in 2035 on mainline southbound I-225. Concept does not maintain acceptable intersection operations. The south intersection at DTC Boulevard is a LOS F for both peak hours and the southbound left turn queues extend out of the turn bay storage area. This Concept has the u-turn bridge that operates LOS F in the AM peak hour with queues of 2,180 feet. The PM peak hour will experience LOS F with queues of 2,820 feet. Both queues will back into the DTC Boulevard south ramp intersection. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange. Concept will remove the direct access from southbound I-225 to DTC Boulevard currently provided and is a goal to preserve. Concept requires a substantial amount out-of-direction travel distance, almost 5 times longer than the No Action. 	<p>Concept 14 would not address purpose and need to reduce future (2035) traffic congestion. This concept would experience congestion (LOS F) four to five hours per day in 2035 on southbound I-225.</p> <ul style="list-style-type: none"> This Concept could experience LOS F four to five hours per day in 2035 on mainline southbound I-225. Concept lacks constructability to satisfy engineering design standards and criteria based on the constraints of the existing topography and providing the vertical grades to meet clearance over I-225 and LRT immediately adjacent to I-225 and the northbound C-D road. Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange. Concept will remove the direct access from southbound I-225 to DTC Boulevard currently provided and is a goal to preserve. Concept requires a substantial amount out-of-direction travel distance, almost 6 times longer than the No Action. 	<p>Concept 15 would not address purpose and need to reduce future (2035) traffic congestion. Concept 15 would experience congestion (LOS F) four to five hours per day in 2035 on southbound I-225. This concept does not maintain the I-225/DTC Boulevard interchange intersection operations. The I-225/DTC Boulevard northern and southern intersection will degrade in 2035 from LOS C to LOS F for the PM peak hour.</p> <ul style="list-style-type: none"> This Concept could experience LOS F four to five hours per day in 2035 on mainline southbound I-225. Concept does not maintain acceptable operations at the DTC north and south intersection due to spillback queues between the intersections and key left turn movements experiencing LOS F operations. The southern Yosemite Street intersection's eastbound left turn movement will function at LOS F during the PM peak hour. Concept lacks through movements at the ramp intersections of the DDI and thus removal of access to Yosemite Street from northbound I-225 Concept does not meet driver expectations by directing drivers to follow a route in the opposite direction than just getting on to the highway from the local road at the interchange, which is typically anticipated at a Colorado highway interchange, paired with the added confusion associated with being rerouted to an unfamiliar interchange configuration that has not been used in Colorado. Concept requires a substantial amount out-of-direction travel distance, almost 7 times longer than the No Action. Concept impacts private property at the Yosemite Street interchange with the free right turns at the DDI ramp intersections. 	<p>This Concept has been retained for further analysis.</p>	

Note: Reference to the DTC Boulevard and Tamarac Parkway roadways, bridges, and interchanges has been simplified to DTC Boulevard.

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Braided Ramps with I-225 Concepts				
		17	18	19	20	21
		True C-D Road, Bifurcate I-225 East and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Bifurcate I-225 East of DTC and Braided Ramps West of DTC	Bifurcate I-225 East of DTC and Roundabouts at DTC	Double Braided Ramp
						
Concept Description	<p>This Concept involves dividing southbound I-225 just west of Yosemite Street into two, two-lane highways directed either to northbound I-25 or southbound I-25. The DTC Boulevard on ramp would cross under southbound I-225 with a new bridge and then merge onto the highway to southbound I-25 from the right side. The DTC Boulevard on ramp to northbound I-25 would continue to use a dedicated lane to the exit ramp to I-25. The off ramp to DTC Boulevard from southbound I-225 would be removed and traffic would be redirected to the Yosemite Street off ramp and through the ramp intersection to reach DTC Boulevard.</p>	<p>This Concept involves constructing a third lane along southbound I-225. The northbound DTC Boulevard traffic heading to southbound I-225 would use a loop ramp; whereas the southbound Tamarac Parkway traffic would use a new slip ramp. The DTC Boulevard on-ramps merge to a C-D road to access the northbound and southbound I-25 ramps. The DTC Boulevard to southbound I-25 on-ramp would cross under southbound I-225 with a new bridge on southbound I-225 and then merge onto southbound I-225 from the left side of the highway. The off ramp to DTC Boulevard from southbound I-225 would be replaced with a braided ramp with the new Yosemite Street on ramp. The loop ramp and C-D road would impact an apartment complex and Goldsmith Gulch and associated environmental resources.</p>	<p>This Concept is the same as Concept 17 except that it maintains the DTC Boulevard off ramp from southbound I-225.</p>	<p>This Concept is the same as Concept 19 except that it maintains the DTC Boulevard off ramp from southbound I-225 and the DTC Boulevard ramp intersections would be converted to roundabouts.</p>	<p>This Concept is the same as Concept 19 except that the existing DTC Boulevard off ramp from southbound I-225 ramp is braided with a new Yosemite Street on ramp to southbound I-225.</p>	
Improve Traffic Operations	Yes	Yes	Yes	Yes	Yes	
	<p>Improve traffic operations along southbound I-225 between Yosemite Street and I-25 by restricting LOS F freeway flow to less than two hours per day but by no more than three hours given 2035 traffic demands</p>	<p>This Concept provides a third lane along southbound I-225 and eliminates the weave between I-25 and DTC. Two two-lane freeway segments serve each diverging direction to I-25 resulting in a LOS F for no more than one hour per day.</p>	<p>This Concept provides a third lane along southbound I-225 and eliminates the weave between DTC Boulevard and I-25. All the traffic merging onto southbound I-225 converges into a four lane section between the DTC ramps and I-25. The three-lane over DTC Boulevard section would operate at LOS F for one to two hours per day. Also, a new weave along the C-D road is introduced.</p>	<p>This Concept provides a third lane along southbound I-225 and eliminates the weave between I-25 and DTC. Two two-lane freeway segments serve each diverging direction to I-25 resulting in a LOS F for no more than one hour per day.</p>	<p>This Concept provides a third lane along southbound I-225 and eliminates the weave between I-25 and DTC. Two two-lane freeway segments serve each diverging direction to I-25 resulting in a LOS F for no more than one hour per day.</p>	<p>Three lanes are provided along I-225 and the weaving issue is addressed with braiding the ramps between DTC Boulevard and I-25. The on-ramp traffic would be spread out onto three ramps and three merge points with the Yosemite Street on-ramp merging on to a three-lane section and the DTC on-ramps merging onto a four-lane section. The three-lane section between Yosemite Street and I-25 ramps will result in LOS F for two to three hours per day.</p>
	<p>Maintain or improve future traffic operations with respect to existing conditions at the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersections. Should operations degrade, overall LOS D during both peak hours is required. Further, traffic queues should not stack between successive intersections.</p>	<p>Traffic operations can be maintained with this concept. This Concept will only impact traffic flow through the northern Yosemite Street Interchange, and the analysis indicates that this intersection can absorb the additional traffic without any degradation to LOS.</p>	<ul style="list-style-type: none"> The north intersection at DTC Boulevard interchange will have improved operations with this Concept. The C-D road was evaluated for the weave interaction from the interchange ramps to the I-225 diverging braided ramps. The weave is two lanes, one from northbound (loop) DTC Boulevard and the southbound right turn from DTC Boulevard. The weave will have a LOS A for both peak hours. 	<p>This Concept will maintain traffic operations at the intersections.</p>	<p>Both two-lane roundabouts at DTC Boulevard interchange will operate overall at a LOS F for both AM and PM peak hours. During the PM peak hour, queues between the two roundabouts spill into the adjacent roundabout both northbound and southbound. Queues will also build along the roundabouts approaches and spill into the intersections of Tufts Avenue and Quincy Avenue.</p>	<p>Traffic operations will improve over the No Action, specifically for DTC Boulevard interchange north intersection. This is due to fewer vehicles entering via the westbound approach.</p>

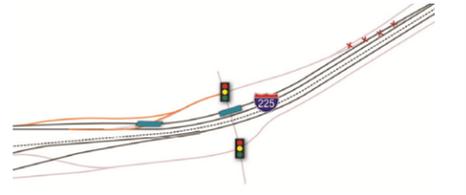
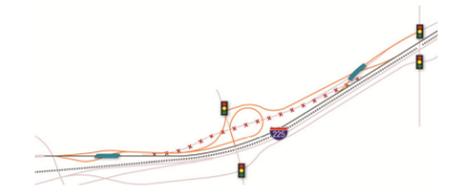
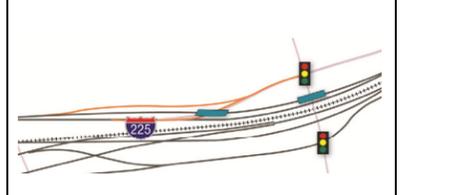
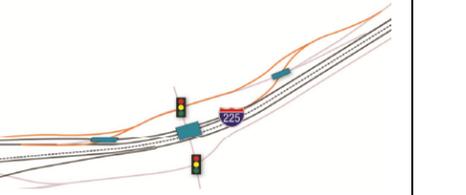
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Braided Ramps with I-225 Concepts				
		17	18	19	20	21
		True C-D Road, Bifurcate I-225 East and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Bifurcate I-225 East of DTC and Braided Ramps West of DTC	Bifurcate I-225 East of DTC and Roundabouts at DTC	Double Braided Ramp
Reduce Congestion and Travel Time	Maintain existing or improve future traffic operations with respect to existing conditions for weave areas along southbound I-225 with regard to distance of weave and number of lane changes	Yes	Yes	Yes	Yes	Yes
		Spreading freeway demand across four freeway lanes (two in each bifurcation) and merging a ramp into each would approximately equate to existing weave conditions. Therefore, this Concept would maintain existing operations.	On-ramp DTC Boulevard traffic oriented to either northbound I-25 or southbound I-25 must all merge onto I-225 via separate ramps. Traffic would merge onto I-225 from both sides of the freeway in the same general vicinity which could introduce safety concerns. This Concept is an improvement over existing conditions given entering traffic need not weave. Therefore, this Concept would improve future traffic operations.	Spreading freeway demand across four freeway lanes (two in each bifurcation) and merging a ramp into each would approximately equate to existing weave conditions. Therefore, this Concept would maintain existing operations.	Spreading freeway demand across four freeway lanes (two in each bifurcation) and merging a ramp into each would approximately equate to existing weave conditions. Therefore, this Concept would maintain existing operations.	On-ramp DTC Boulevard traffic oriented to either northbound I-25 or southbound I-25 must all merge onto I-225 via separate ramps. Traffic would merge onto I-225 from both sides of the freeway in the same general vicinity which could introduce safety concerns. This Concept is an improvement over existing conditions given entering traffic need not weave. Therefore, this Concept would improve future traffic operations.
Improve Safety Through Design	Satisfy engineering design standards and criteria	Yes	Yes	Yes	Yes	Yes
		Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.	Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.	Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.	Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.	Based on current level of design, the improvements could meet current engineering standards, further analysis is needed to confirm.
Improve Accessibility and Connectivity	Meet driver's expectations	Yes	No	Yes	Yes	Yes
		There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Therefore, this Concept meets driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Loop ramps are also common in the Denver Metro area. The braided ramp would need to merge with traffic from the left side of the highway, which is not a typical merge onto the freeway and does not meet driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Therefore, this Concept meets driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. There are an increasing number of roundabout ramp intersections in Colorado, although more of these are along I-70 in the mountain regions and North I-25 north of the Denver area. Therefore, this Concept meets driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Therefore, this Concept meets driver's expectations.
	No	Yes	Yes	Yes	Yes	
Preserve system interchange access	System interchange access is not preserved. Direct access is removed from southbound I-225 to DTC Boulevard.	System interchange access is not preserved. Direct access is removed from southbound I-225 to DTC Boulevard.	The current movements would be preserved, although the north ramp and DTC Boulevard intersection is reconfigured. One movement is added from Yosemite Street directly to southbound I-225.	The current movements would be preserved.	The current movements would be preserved.	The current movements would be preserved and one movement is added from Yosemite Street directly to southbound I-225.
		Yes	Yes	Yes	Yes	Yes
Minimize out-of-direction travel to access I-225 and the I-225/Yosemite Street and I-225/DTC Boulevard interchanges	No out-of-direction travel is required with this Concept.	Yes	Yes	Yes	Yes	Yes
		No out-of-direction travel is required with this Concept.	No out-of-direction travel is required with this Concept.	No out-of-direction travel is required with this Concept.	No out-of-direction travel is required with this Concept.	No out-of-direction travel is required with this Concept.

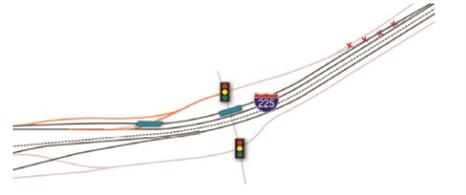
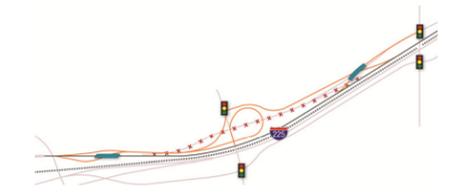
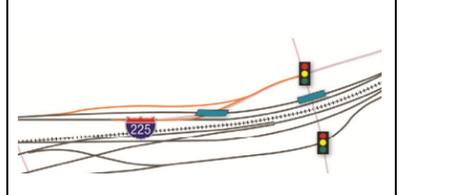
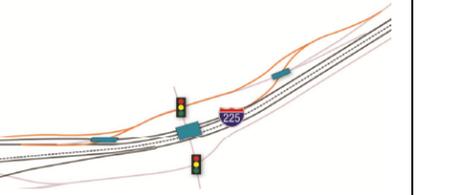
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Braided Ramps with I-225 Concepts				
		17	18	19	20	21
		True C-D Road, Bifurcate I-225 East and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Bifurcate I-225 East of DTC and Braided Ramps West of DTC	Bifurcate I-225 East of DTC and Roundabouts at DTC	Double Braided Ramp
						
		Yes	No	Yes	Yes	Yes
Avoid Community Impacts	Avoid direct and indirect property and business impacts	No property or business impacts would be required with this Concept, which stays within existing ROW.	This Concept impacts Summitt Ridge Luxury Apartment Homes property. The loop ramp extends into the apartment residential property, one apartment building, parking spaces, and the circulatory roadway internal to the apartment complex.	No property or business impacts would be required with this Concept, which stays within existing ROW.	No property or business impacts would be required with this Concept, which stays within existing ROW.	No property or business impacts would be required with this Concept, which stays within existing ROW.
	Avoid business/resident displacements	Yes	No	Yes	Yes	Yes
		No business or resident displacements would be required with this Concept, which stays within existing ROW.	This Concept impacts one building within the Summitt Ridge Luxury Apartment Homes property. The loop ramp extends into one residential apartment building with 10 - 12 residential units that will be displaced.	No business or resident displacements would be required with this Concept, which stays within existing ROW.	No business or resident displacements would be required with this Concept, which stays within existing ROW.	No business or resident displacements would be required with this Concept, which stays within existing ROW.
	Evaluate compatibility with existing local land use	Yes	No	Yes	Yes	Yes
		This Concept is compatible with existing local land use.	This Concept is not compatible with local land use. A portion of the residential land use will be converted to transportation land use. In addition, impacts to parking and circulation would affect the viability of the existing site development plan.	This Concept is compatible with existing local land use.	This Concept is compatible with existing local land use.	This Concept is compatible with existing local land use.

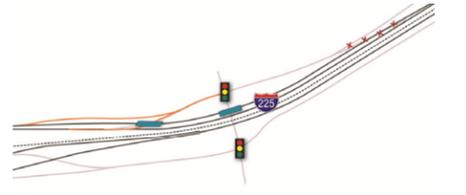
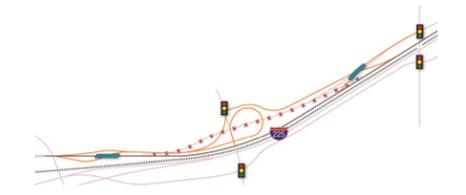
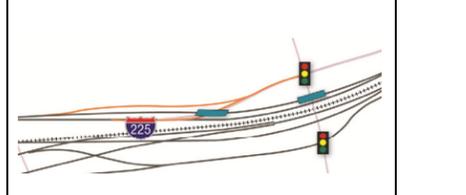
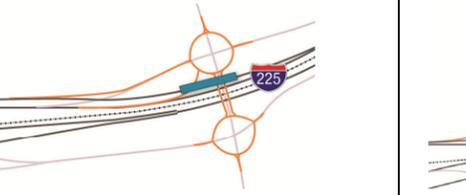
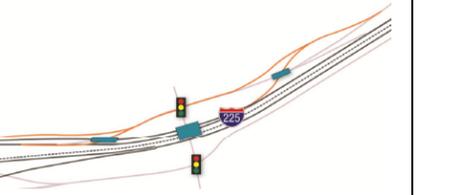
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Braided Ramps with I-225 Concepts				
		17	18	19	20	21
		True C-D Road, Bifurcate I-225 East and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Bifurcate I-225 East of DTC and Braided Ramps West of DTC	Bifurcate I-225 East of DTC and Roundabouts at DTC	Double Braided Ramp
						
		Yes	No	Yes	Yes	Yes
Avoid Environmental and Cultural Resource Impacts	Avoid impacts to environmental and cultural resources based on direct impacts on parks, open space, and trails	No parks, open space or trails would be impacted with this Concept.	This Concept impacts open space east of DTC Boulevard and north of I-225. The loop ramp extends into the lower half of the Goldsmith Gulch North Middle Park.	No parks, open space or trails would be impacted with this Concept.	No parks, open space or trails would be impacted with this Concept.	No parks, open space or trails would be impacted with this Concept.
	Avoid impacts to environmental and cultural resources based on direct impacts on floodplains	No floodplains would be impacted with this Concept.	This Concept impacts floodplain areas east of DTC Boulevard and north of I-225. The loop ramp extends into the 100-year floodway associated with Goldsmith Gulch.	No floodplains would be impacted with this Concept.	No floodplains would be impacted with this Concept.	No floodplains would be impacted with this Concept.
	Avoid impacts to environmental and cultural resources based on direct impacts on wetlands and waters of the US	No wetlands and waters of the US would be impacted with this Concept .	This Concept impacts wetland areas east of DTC Boulevard and north of I-225. The loop ramp construction would impact wetlands associated with Goldsmith Gulch.	No wetlands and waters of the US would be impacted with this Concept.	No wetlands and waters of the US would be impacted with this Concept.	No wetlands and waters of the US would be impacted with this Concept.
	Avoid impacts to environmental and cultural resources based on direct impacts on sensitive species	No sensitive species would be impacted with this Concept .	This Concept impacts sensitive species areas east of DTC Boulevard and north of I-225., mainly prairie dog conservation area. The loop ramp extends into the lower half of the Goldsmith Gulch North Middle Park where one black-tailed prairie dog colony is located.	No sensitive species would be impacted with this Concept.	No sensitive species would be impacted with this Concept.	No sensitive species would be impacted with this Concept.
Address Multimodal Considerations		Yes	Yes	Yes	Yes	Yes
	Maintain or improve north-south bicycle or pedestrian connectivity under I-225 along Yosemite Street and DTC Boulevard with respect to existing conditions	Current north-south bicycle and pedestrian connectivity is maintained.	Current north-south bicycle and pedestrian connectivity is maintained; however, the number of crossings is increased with the loop ramp.	Current north-south bicycle and pedestrian connectivity is maintained.	Current north-south bicycle and pedestrian connectivity is maintained.	Current north-south bicycle and pedestrian connectivity is maintained.

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

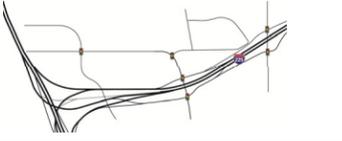
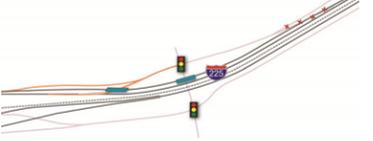
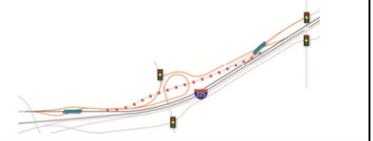
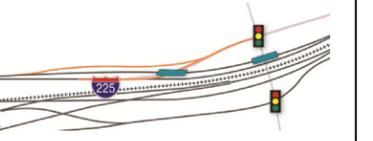
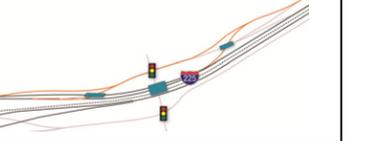
Tier 2 - No Action and Alternative Concepts - Project Goals Screening Matrix

May 30, 2014		Concepts				
Goal	Tier 2 Screening Criteria	Braided Ramps with I-225 Concepts				
		17	18	19	20	21
		True C-D Road, Bifurcate I-225 East and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Bifurcate I-225 East of DTC and Braided Ramps West of DTC	Bifurcate I-225 East of DTC and Roundabouts at DTC	Double Braided Ramp
						
		Retained:	Retained, Not Recommended:	Retained:	Eliminated:	Retained:
		This Concept has been retained for further analysis.	This Concept has been retained for further analysis to determine if the community and environmental impacts can be avoided.	This Concept has been retained for further analysis.	Concept 20 would not address purpose and need to reduce future (2035) traffic congestion. Concept 20 does not maintain the I-225/DTC Boulevard interchange intersection operations. The I-225/DTC Boulevard northern and southern intersection will degrade in 2035 from LOS C to LOS F for the PM peak hour. During the PM peak hour, queues between the two roundabouts will spill between the two roundabouts, as well as into the intersections at Tamarac Parkway/Quincy Avenue and DTC Boulevard/Tufts Avenue.	This Concept has been retained for further analysis.
Summary of Results			<ul style="list-style-type: none"> • Concept provides improved levels of service at the DTC Boulevard ramp intersections. • Concept impacts property and displaces residences of the Summitt Ridge Luxury Apartment Homes and does not meet local land use planning, which the Concept will need to be refined to avoid these impacts with the next screening. • Concept impacts open space, floodplains, wetlands, and sensitive species, which the Concept will need to be refined to avoid these impacts with the next screening. 		<ul style="list-style-type: none"> • Concept does not maintain acceptable intersection operations. Both two-lane roundabouts at DTC Boulevard interchange will operate overall a LOS F for both AM and PM peak hours. During the PM peak hour, queues between the two roundabouts spill into the adjacent roundabout both northbound and southbound. Queues will also build along the roundabouts approaches and spill into the intersections of Tufts Avenue and Quincy Avenue. • From the north DTC Boulevard intersection (southbound approach), the queues will back into the next intersection approximately 2,300 feet and the westbound approach will back into the Yosemite Street north intersection by approximately 1000 feet. Southbound queues from the south intersection between the roundabouts will queue into the north intersection by more than 1200 feet. 	

Note: Reference to the DTC Boulevard and Tamarac Parkway roadways, bridges, and interchanges has been simplified to DTC Boulevard.

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		No Action	16	17	18	19	21
							
Concept Description		The No Action Concept involves maintaining the existing roadways and bridges on southbound I-225 through 2035 without any major improvements. The existing number of lanes on southbound I-225 would remain as they are today.	This Concept involves constructing a third lane along southbound I-225. The DTC Boulevard on ramp to southbound I-225 would cross under southbound I-225 with a new bridge on southbound I-225 and then merge onto southbound I-225 from the left side of the highway. The DTC Boulevard on ramp to northbound I-25 would continue to use a dedicated lane to the exit ramp to I-25.	This Concept involves dividing southbound I-225 just west of Yosemite Street into two, two-lane highways directed either to northbound I-25 or southbound I-25. The DTC Boulevard on ramp would cross under southbound I-225 with a new bridge and then merge onto the highway to southbound I-25 from the right side. The DTC Boulevard on ramp to northbound I-25 would continue to use a dedicated lane to the exit ramp to I-25. The off ramp to DTC Boulevard from southbound I-225 would be removed and traffic would be redirected to the Yosemite Street off ramp and through the ramp intersection to reach DTC Boulevard.	This Concept involves constructing a third lane along southbound I-225. The northbound DTC Boulevard traffic heading to southbound I-225 would use a loop ramp; whereas the southbound Tamarac Parkway traffic would use a new slip ramp. The DTC Boulevard on ramps merge to a C-D road to access the northbound and southbound I-225 ramps. The DTC Boulevard to southbound I-225 on ramp would cross under southbound I-225 with a new bridge on southbound I-225 and then merge onto southbound I-225 from the left side of the highway. The off ramp to DTC Boulevard from southbound I-225 would be replaced with a braided ramp with the new Yosemite Street on ramp. The traffic operations for this concept performed well for 2035, which is why Concept 18 was retained for more detailed analysis. The loop ramp and C-D road would impact an apartment complex and Goldsmith Gulch and associated environmental resources.	Concept 19 is the same as Concept 17 except that it maintains the DTC Boulevard off ramp from southbound I-225.	Concept 21 is the same as Concept 19 except that the existing DTC Boulevard off ramp from southbound I-225 ramp is braided with a new Yosemite Street on ramp to southbound I-225.
Reduce Congestion and Travel Time/Improve Traffic Operations		No	Yes	Yes	Yes	Yes	No
		Without any improvements, traffic congestion along I-225 will worsen. Currently the mainline narrows from 4 lanes to 2 lanes in just over one mile from Yosemite Street to the I-25 convergence. The two-lane bridge carrying I-225 across DTC Boulevard will continue to be the bottleneck, and the section between Yosemite Street and I-25 on southbound I-225 could experience LOS F for 8 to 12 hours per day in 2035.	This Concept provides a third lane along southbound I-225 and eliminates the weave between DTC Boulevard and I-25. All the traffic merging onto southbound I-225 converges into a four lane section between the DTC ramps and I-25. The three-lane over DTC Boulevard section would operate at LOS F for one to two hours per day . Also, a new weave along the on-ramp to the braided split is introduced.	This Concept provides a third lane along southbound I-225 and eliminates the weave between I-25 and DTC. Two two-lane freeway segments serve each diverging direction to I-25 resulting in a LOS F for no more than one hour per day .	This Concept provides a third lane along southbound I-225 and eliminates the weave between DTC Boulevard and I-25. All the traffic merging onto southbound I-225 converges into a four lane section between the DTC ramps and I-25. The three-lane over DTC Boulevard section would operate at LOS F for one to two hours per day . Also, a new weave along the C-D road is introduced.	This Concept provides a third lane along southbound I-225 and eliminates the weave between I-25 and DTC. Two two-lane freeway segments serve each diverging direction to I-25 resulting in a LOS F for no more than one hour per day .	Three lanes are provided along I-225 and the weaving issue is addressed with braiding the ramps between DTC Boulevard and I-25. The on-ramp traffic would be spread out onto three ramps and three merge points with the Yosemite Street on-ramp merging on to a three-lane section and the DTC on-ramps merging onto a four-lane section. The three-lane section between Yosemite Street and I-25 ramps will result in LOS F for two to three hours per day .
Reduce Congestion and Travel Time/Improve Traffic Operations		Yes	Yes	Yes	Yes	Yes	Yes
		Traffic conditions at the interchanges' intersections will worsen without improvements to LOS E for two of the intersections. The two noted intersections include the north Yosemite Street intersection and the north DTC Boulevard intersection during the AM peak hour for 2035. N. DTC – AM: LOS E (62.5) – PM: LOS C (31.8) S. DTC – AM: LOS A (7.1) – PM: LOS C (24.4) N. Yos. – AM: LOS E (72.2) – PM: LOS B (10.2) S. Yos. – AM: LOS B (11.0) – PM: LOS C (25.6)	This Concept will maintain traffic operations at the intersections. However, traffic turning at the north DTC Boulevard ramp intersection will need clear signing given impending directional decision associated with the downstream ramp braid. N. DTC – AM: LOS E (62.5) – PM: LOS C (31.8) S. DTC – AM: LOS A (7.1) – PM: LOS C (24.4) N. Yos. – AM: LOS E (72.2) – PM: LOS B (10.2) S. Yos. – AM: LOS B (11.0) – PM: LOS C (25.6)	Traffic operations can be maintained with this concept. This Concept will only impact traffic flow through the northern Yosemite Street interchange, and the analysis indicates that this intersection can absorb the additional traffic without any degradation to LOS. However, traffic turning at the north DTC Boulevard ramp intersection will need clear signing given impending directional decision associated with the downstream ramp braid. N. DTC – AM: LOS E (62.5) – PM: LOS C (31.8) S. DTC – AM: LOS A (7.1) – PM: LOS C (24.4) N. Yos. – AM: LOS E (62.1) – PM: LOS B (11.6) S. Yos. – AM: LOS B (12.1) – PM: LOS C (25.6)	<ul style="list-style-type: none"> The north intersection at DTC Boulevard interchange will have improved operations with this Concept. The C-D road was evaluated for the weave interaction from the interchange ramps to the I-225 diverging braided ramps. The weave is two lanes, one from northbound (loop) DTC Boulevard and the southbound right turn from DTC Boulevard. The weave will have a LOS A for both peak hours. N. DTC – AM: LOS C (28.5) – PM: LOS C (24.8) S. DTC – AM: LOS B (15.3) – PM: LOS C (29.0) N. Yos. – AM: LOS E (72.2) – PM: LOS B (10.2) S. Yos. – AM: LOS B (12.1) – PM: LOS C (25.6)	This Concept will maintain traffic operations at the intersections. However, traffic turning at the north DTC Boulevard ramp intersection will need clear signing given impending directional decision associated with the downstream ramp braid. N. DTC – AM: LOS E (62.5) – PM: LOS C (31.8) S. DTC – AM: LOS A (7.1) – PM: LOS C (24.4) N. Yos. – AM: LOS E (72.2) – PM: LOS B (10.2) S. Yos. – AM: LOS B (11.0) – PM: LOS C (25.6)	Traffic operations will improve over the No Action, specifically for DTC Boulevard interchange north intersection. This is due to fewer vehicles entering via the westbound approach. N. DTC – AM: LOS D (50.6) – PM: LOS B (13.4) S. DTC – AM: LOS A (7.1) – PM: LOS C (24.8) N. Yos. – AM: LOS E (72.2) – PM: LOS B (10.2) S. Yos. – AM: LOS B (11.0) – PM: LOS C (25.6)

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		16	17	18	19	21	
		No Action	Braid Ramps West of DTC	Divide I-25, Remove DTC Off Ramp, and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Divide I-225 and Braid Ramps West of DTC	Braid Ramps East and West of DTC
Reduce Congestion and Travel Time/Improve Traffic Operations (Continued)	Maintain or improve future traffic operations with respect to existing conditions at the I-225/Yosemite Street and I-225/DTC Boulevard interchange intersections. Traffic queues should not stack between successive intersections.	Yes	Yes	Yes	No	Yes	No
		<ul style="list-style-type: none"> • During the AM and PM peak hours, the southbound through movement at the DTC north intersection spills back into the Quincy/Tamarac intersection. • Queues between the DTC interchange intersections are OK. • During the PM peak hour, the northbound through/right-turn movements at the DTC south intersection spills back into the Tufts intersection. • During the PM peak hour, at the Yosemite north intersection, the northbound through movement spills back into the south intersection. 	Concept 16 will continue to maintain the queues at the intersections in relation to No Action Concept.	Concept 17 will continue to maintain the queues at the intersections in relation to No Action Concept.	During the AM peak hour, the southbound through movement at the DTC south intersection spills back into the north intersection.	Concept 19 will continue to maintain the queues at the intersections in relation to No Action Concept.	During the AM peak hour, the southbound through movement at the DTC south intersection spills back into the north intersection.
		Yes	Yes	Yes	Yes	Yes	Yes
	Maintain or improve traffic operations on the adjacent local street network compared to the No Action Alternative	Yes	Yes	Yes	Yes	Yes	Yes
		No Action will maintain traffic operations on the adjacent local street network.	Concept 16 will maintain traffic operations on the adjacent local street network in relation to the No Action Alternative.	Concept 17 will maintain traffic operations on the adjacent local street network in relation to the No Action Alternative.	Concept 18 will maintain traffic operations on the adjacent local street network in relation to the No Action Alternative.	Concept 19 will maintain traffic operations on the adjacent local street network in relation to the No Action Alternative.	Concept 21 will maintain traffic operations on the adjacent local street network in relation to the No Action Alternative.
		Yes	No	Yes	No	Yes	No
Reduce weaves along southbound I-225. Weaves are less desirable than a merge or diverge due to the traffic streams crossing each other in a short distance.	Yes	No	Yes	No	Yes	No	
	No Action has a weave movement between the DTC Boulevard on ramp and southbound I-225 to southbound I-25.	Concept 16 eliminates the weave movement between the DTC Boulevard on ramp and southbound I-225 to southbound I-25 by splitting the on ramp traffic directionally before entering I-225 and having the DTC Boulevard traffic enter from the left side of southbound I-225. Concept 16 does not completely omit the weave due to traffic still having the ability to cross southbound I-225 to access either I-25 directional ramps.	Concept 17 eliminates the weave movement by bifurcating southbound I-225 before the DTC Boulevard on ramp.	Concept 18 eliminates the weave movement between the DTC Boulevard on ramp and southbound I-225 to southbound I-25 by splitting the on ramp traffic directionally before entering I-225 and having the DTC Boulevard traffic enter from the left side of southbound I-225. Concept 18 does not completely omit the weave due to traffic still having the ability to cross southbound I-225 to access either I-25 directional ramps.	Concept 19 eliminates the weave movement by bifurcating southbound I-225 before the DTC Boulevard on ramp.	Concept 21 does not eliminate the weave movement. Rather, it relocates the weave on southbound I-225 north of the proposed bifurcation at the new on ramp from Yosemite Street.	
	Yes	No	Yes	No	Yes	No	

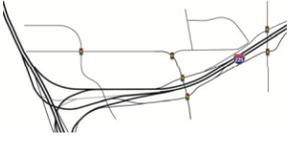
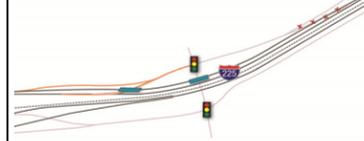
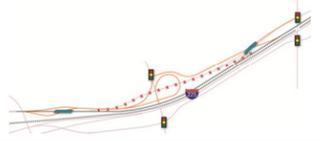
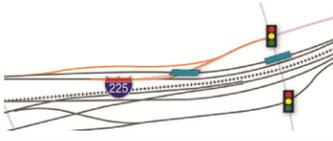
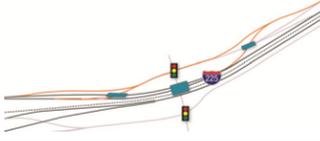
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		16	17	18	19	21	
		No Action	Braid Ramps West of DTC	Divide I-25, Remove DTC Off Ramp, and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Divide I-225 and Braid Ramps West of DTC	Braid Ramps East and West of DTC
		Yes	No	No	No	No	No
		No Action is to remain the same as the existing design, the diverge (off ramps) to I-25, the diverge (off ramp) to DTC Boulevard, and the diverge (off ramp) to Yosemite Street will remain.	Concept 16 maintains the diverge (off ramps) to I-25, the diverge (off ramp) to DTC Boulevard, and the diverge (off ramp) to Yosemite Street. This concept adds two merges (on ramps) from DTC to I-225. The left-hand on ramp from DTC Boulevard to I-225 is contrary to driver expectations, and studies indicate that crashes may be reduced as much as 25 to 70 percent with the use of right-hand on- and off ramps compared to left-hand ramps. Traffic speeds are typically faster in the left-most lanes of the highway; therefore, speed differentials between entering and existing traffic and through traffic is usually greater with left-hand ramps. Of the FHWA recommended mitigation measures for left-hand on ramps, only supplement advanced signing can be provided. Extending the auxiliary lanes to reduce speed differential conflicts, providing full decision sight distance in advance of the left-side on ramp, or providing ramp geometry near the point of physical merge that accommodates a high speed design cannot be accomplished without shortening the weave distance, creating steeper grades requiring design variance, or relocating the LRT substation. 1,030 feet of sight distance would be required.	Concept 17 maintains the diverge (off ramps) to I-25, removes the diverge (off ramp) to DTC Boulevard, and maintains the diverge (off ramp) to Yosemite Street and adds two merges (on ramps) from DTC to I-225.	Concept 18 maintains the diverge (off ramps) to I-25, maintains the diverge (off ramp) to DTC Boulevard, and the diverge (off ramp) to Yosemite Street. However, it adds a merge (on ramp) from Yosemite Street and adds two merges (on ramps) from DTC to I-225.	Concept 19 maintains the diverge (off ramps) to I-25, maintains both the diverge (off ramp) to DTC Boulevard, and the diverge (off ramp) to Yosemite Street. This concept adds two merges (on ramps) from DTC to I-225.	Concept 21 maintains the diverge (off ramps) to I-25, maintains the diverge (off ramp) to DTC Boulevard, and the diverge (off ramp) to Yosemite Street and adds two merges (on ramps) from DTC to I-225.
Reduce Congestion and Travel Time/Improve Traffic Operations (Continued)		Yes	No	No	Yes	Yes	Yes
	Maintain or improve safety at the DTC Boulevard and Yosemite Street ramp intersections compared to the No Action Alternative	No Action will maintain safety on the DTC Boulevard and Yosemite Street ramp Intersections.	Concept 16 will maintain safety on the DTC Boulevard and Yosemite Street ramp Intersections in relation to the No Action Alternative.	Concept 17 will decrease safety at the Yosemite Street north intersection by increasing traffic at the intersection compared to the No Action Alternative due to the closure of the DTC Boulevard off ramp and a shift of traffic to that intersection thus increasing congestion and opportunities for more crashes.	Concept 18 will increase safety at the DTC Boulevard north intersection by reducing traffic at that intersection compared to the No Action Alternative due to the loop and due to adding the Yosemite Street on ramp, thereby reducing congestion and the opportunities for additional crashes.	Concept 19 will maintain safety on the DTC Boulevard and Yosemite Street ramp Intersections in relation to the No Action Alternative.	Concept 21 will increase safety at the DTC Boulevard north intersection by reducing traffic at that intersection compared to the No Action Alternative by adding the Yosemite Street on ramp thus reducing congestion and the opportunities for additional crashes.
	Maintain or improve traffic safety on the adjacent local street network compared to the No Action Alternative. DRCOG models were used to determine effects of concepts on local street network.	No Action will maintain existing traffic safety on the adjacent local street network.	Concept 16 will maintain No Action traffic safety on the adjacent local street network in relation to the No Action Alternative.	Concept 17 will maintain No Action traffic safety on the adjacent local street network in relation to the No Action Alternative.	Concept 18 will maintain No Action traffic safety on the adjacent local street network in relation to the No Action Alternative.	Concept 19 will maintain No Action traffic safety on the adjacent local street network in relation to the No Action Alternative.	Concept 21 will maintain No Action traffic safety on the adjacent local street network in relation to the No Action Alternative.

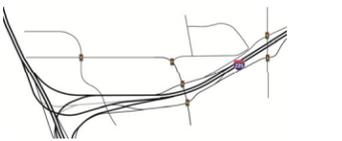
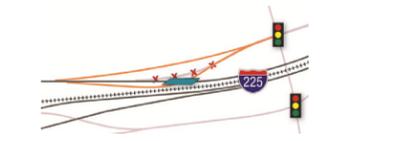
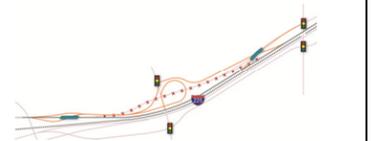
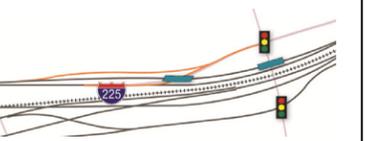
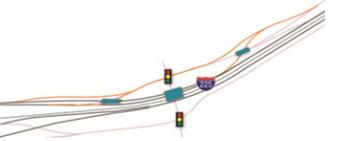
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		16	17	18	19	21	
		No Action	Braid Ramps West of DTC	Divide I-25, Remove DTC Off Ramp, and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Divide I-225 and Braid Ramps West of DTC	Braid Ramps East and West of DTC
							
Improve Safety through Design	Satisfy engineering design standards and criteria	No	No	Yes	Yes	Yes	Yes
		The existing design does not meet current criteria as noted in the Existing Conditions Report including inadequate shoulder widths and inadequate stopping sight distance at the southbound I-225 to southbound I-25 ramp exit.	Concept 16 does not meet several K values for three vertical curves and does not meet stopping sight distance criteria at three locations.	Concept 17 meets most design criteria and standards and with minor adjustments could meet all during final design.	Concept 18 meets design criteria and standards.	Concept 19 meets most design criteria and standards and with minor adjustments could meet all during final design.	Concept 21 meets most design criteria and standards and with minor adjustments could meet all during final design.
Improve Accessibility and Connectivity	Meet driver's expectations	Yes	No	No	No	Yes	Yes
		No changes to current highway and interchange conditions. Currently, along southbound I-225 there is a split diamond interchange with Yosemite Street and DTC Boulevard roadways with C-D roads connecting these roadways, an exit ramp at Yosemite Street and an entrance ramp at DTC Boulevard from southbound I-225. There is also a slip ramp from southbound I-225 to DTC Boulevard. This interchange has been constructed since 2006 and drivers are accustomed to the configuration. C-D roads are becoming more common along highways and a split diamond interchange with C-D roads was constructed recently at Colfax Avenue and I-225.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. The braided ramp would need to merge with traffic from the left side of the highway, which is not a typical merge onto the freeway and does not meet driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. However, by removing the slip ramp southbound and not the northbound slip ramp is not consistent with expectations. Therefore, this Concept does not meet driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Loop ramps are also common in the Denver Metro area. The braided ramp would need to merge with traffic from the left side of the highway, which is not a typical merge onto the freeway and does not meet driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Therefore, this Concept meets driver's expectations.	There are other areas within the Denver Metropolitan area that have braided ramps including the northbound I-225 and DTC Boulevard interchange. Therefore, this Concept meets driver's expectations.
	Yes	Yes	No	Yes	Yes	Yes	
	Preserve system interchange access	No changes to interchange access. Currently, along southbound I-225 there is a split diamond interchange with Yosemite Street and DTC Boulevard roadways with C-D roads connecting these roadways, an exit ramp at Yosemite Street and an entrance ramp at DTC Boulevard from southbound I-225. There is also a slip ramp from southbound I-225 to DTC Boulevard.	The current movements would be preserved.	System interchange access is not preserved. Direct access is removed from southbound I-225 to DTC Boulevard.	The current movements would be preserved, although the north ramp and DTC Boulevard intersection is reconfigured. One movement is added from Yosemite Street directly to southbound I-225.	The current movements would be preserved.	The current movements would be preserved and one movement is added from Yosemite Street directly to southbound I-225.

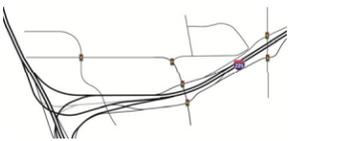
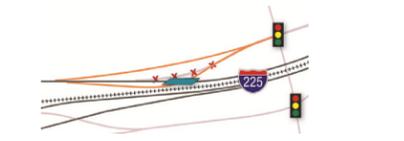
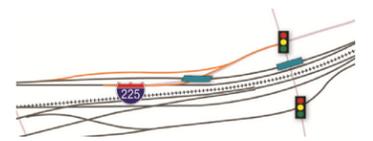
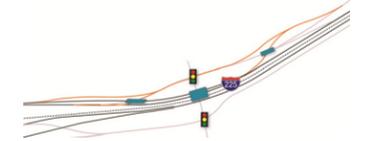
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		No Action	16	17	18	19	21
							
Yes	No	No	No	No	No	No	
Avoid/Minimize Community Impacts	Avoid/minimize direct and indirect business and resident impacts	No changes from the existing concept so no impacts.	Total Parcel Impacts: 81,624 sq ft / 1.87 acres. Partial acquisition of property from the Sonic Burger Restaurant parcel .	Total Parcel Impacts: 65,363 sq ft / 1.5 acres. Partial acquisition of property from the Sonic Burger Restaurant parcel and the Public Storage Units parcel.	Total Parcel Impacts: 363,373 sq ft / 8.34 acres	Total Parcel Impacts: 65,363 sq ft / 1.5 acres. Partial acquisition of property from the Sonic Burger Restaurant parcel and the Public Storage Units parcel.	Total Parcel Impacts: 738,071 sq ft / 16.94 acres. Partial acquisition of property from the Summit Ridge Apartment Homes parcel. Partial impact to the swimming pool, tennis court/basketball court. Partial acquisition of property from the Public Storage Units parcel.
	Avoid/minimize resident and business displacements	No changes from the existing concept so no displacements.	The RTD Substation would need to be relocated with this concept.	No displacements.	Partial acquisition of property from the Summit Ridge Apartment Homes parcel. There are a total of 360 apartment units, and a total of 10 apartment buildings. Alternative 18 would require the take of 3 apartment buildings for a total of 108 apartment units. The pool, tennis court/basketball court would also be impacted. The RTD Substation would need to be relocated with this concept.	No displacements.	No displacements.
	Evaluate compatibility with existing local land use	No changes from the existing concept so existing compatibility would remain.	The existing compatibility with existing land use would remain.	The existing compatibility with existing land use would remain.	Partial acquisition of property from the Summit Ridge Apartment Homes parcel would require a modification to the traffic circulation within this parcel.	The existing compatibility with existing land use would remain.	The existing compatibility with existing land use would remain.

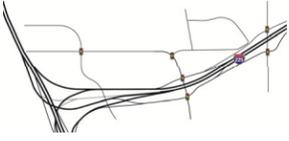
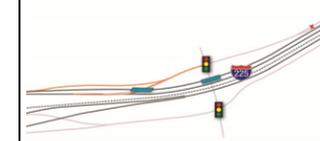
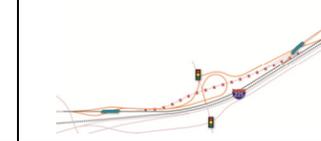
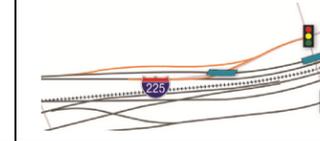
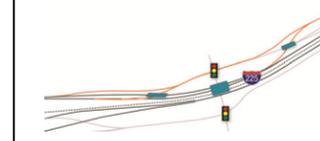
I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		No Action	16	17	18	19	21
							
Avoid/Minimize Environmental and Cultural Resource Impacts	Yes	No	No	No	No	No	No
	There are no impacts to parks, open space, and trails.	Temporary impacts during construction to the Yosemite Street and Ulster Street bike routes.	Temporary impacts during construction to the Yosemite Street and Ulster Street bike routes.	Temporary impacts during construction to the Yosemite Street and Ulster Street bike routes.	Temporary impacts during construction to the Yosemite Street and Ulster Street bike routes. Total Trail Impacts: 95 linear ft Total Parks and Open Space Impacts: 55,353 sq ft / 1.27 acres	Temporary impacts during construction to the Yosemite Street and Ulster Street bike routes.	Total Trail Impacts: 39 linear ft Temporary Impacts during construction to the Yosemite Street and Ulster Street bike routes. Total Parks and Open Space Impacts: 2,723 sq ft / 0.06 acres
	Yes	No	No	No	No	No	No
	There are no impacts on noise receptors.	270 linear feet of existing noise wall would be removed.	295 linear feet of existing noise wall would be removed.	2,372 linear feet of existing noise wall would be removed.	295 linear feet of existing noise wall would be removed.	3,122 linear feet of existing noise wall would be removed.	
	Yes	No	No	No	No	No	No
	There are no impacts to floodplains.	Total Floodplain Impacts: 8,092 sq ft / 0.19 acres	Total Floodplain Impacts: 13,478 sq ft / 0.31 acres	Total Floodplain Impacts: 132,985 sq ft / 3.05 acres	Total Floodplain Impacts: 13,478 sq ft / 0.31 acres	Total Floodplain Impacts: 39,462 sq ft / 0.91 acres	
	Yes	No	No	No	No	No	No
	There are no impacts on wetlands and waters of the US.	There are no impacts on wetlands. Total Waters of the US Impacts: 134 linear ft	There are no wetland impacts. Total Waters of the US Impacts: 128 linear ft	There are no wetland impacts. Total Waters of the US Impacts: 619 linear ft	There are no wetland impacts. Total Waters of the US Impacts: 128 linear ft	there are no wetland impacts. Total Waters of the US Impacts: 281 linear ft	
Yes	Yes	Yes	No	Yes	No	No	
There are no impacts on Prairie Dogs or Nesting Birds.	There are no impacts on Prairie Dogs or Nesting Birds.	There are no impacts on Prairie Dogs or Nesting Birds.	Total Prairie Dog Habitat Impacts: 56,508 sq ft / 1.3 acres	There are no impacts on Prairie Dogs or Nesting Birds.	Total Prairie Dog Habitat Impacts: 5,334 sq ft / 0.12 acres		
Yes	No	Yes	No	Yes	No	No	
There are no Hazmat Impacts.	There are no Hazmat Impacts.	There are no Hazmat Impacts.	Impacted Hazmat Location: • Historical Auto (Currently Summitt Ridge Apartments), 8330 E Quincy Ave, Parcel ID # 162094559	There are no Hazmat Impacts.	Impacted Hazmat Locations: • Historical Auto (Currently Summitt Ridge Apartments), 8330 E Quincy Ave, Parcel ID # 162094559 • Historical Auto (Currently Brandy Chase Apartment Home Complex), 4400 S Quebec St, Parcel ID # 162099968		
Yes	Yes	No	Yes	No	No	No	
No changes to view sheds.	No changes to view sheds.	The new bridge structure over DTC Boulevard is higher than the existing structure and changes the view shed by about five feet.	No changes to view sheds.	The new bridge structure over DTC Boulevard is higher than the existing structure and changes the view shed by about five feet.	No changes to view sheds.		

I-225 Planning and Environmental Linkages Study from Yosemite Street to I-25

Tier 3 - No Action and Alternative Concepts - Quantitative Goals Screening Matrix

May 30, 2014		Alternative Concepts					
Goal	Tier 3 Screening Criteria	NA	Braided Ramps with I-225 Alternative Concepts				
		16	17	18	19	21	
		No Action	Braid Ramps West of DTC	Divide I-225, Remove DTC Off Ramp, and Braid Ramps West of DTC	Add Loop Ramp and Braid Ramps East and West of DTC	Divide I-225 and Braid Ramps West of DTC	Braid Ramps East and West of DTC
							
Address Multimodal Considerations	Yes	Yes	Yes	Yes	Yes	Yes	
	Current north-south bicycle and pedestrian connectivity is maintained for the No Action.	Current north-south bicycle and pedestrian connectivity is maintained for Concept 16.	Current north-south bicycle and pedestrian connectivity is maintained for Concept 17.	Current north-south bicycle and pedestrian connectivity is maintained; however, the number of crossings is increased with the loop ramp for Concept 18.	Current north-south bicycle and pedestrian connectivity is maintained for Concept 19.	Current north-south bicycle and pedestrian connectivity is maintained for Concept 21.	
	No	Yes	No	Yes	Yes	Yes	
	For the No Action, the regional and local bus routes will experience more traffic congestion and increased travel times.	Concept 16 does not impact local bus routes compared to the No Action. The AT and T routes have increased mobility compared to the No Action.	Concept 17 impacts the Route 121 bus route that uses the southbound I-225 DTC Boulevard off ramp with the removal of this ramp and redirecting the bus to use the Yosemite exit and pass through an additional signalized intersection. Concept 17 does not impact the remainder of the local bus routes compared to the No Action. The AT and T routes have increased mobility compared to the No Action.	Concept 18 does not impact local bus routes compared to the No Action. The AT and T bus routes have increased mobility compared to the No Action.	Concept 19 does not impact local bus routes compared to the No Action. The AT and T bus routes have increased mobility compared to the No Action.	Concept 21 does not impact local bus routes compared to the No Action. The AT and T bus routes have increased mobility compared to the No Action.	
Summary of Results	Retained:	Eliminated:	Not Recommended:	Eliminated:	Recommended:	Eliminated:	
	For comparison purposes.	Concept 16 would not address purpose and need to improve safety. The left-hand on ramp from DTC Boulevard to I-225 is contrary to driver expectations, and studies indicate that crashes may be reduced as much as 25 to 70 percent with the use of right-hand on- and off ramps compared to left-hand ramps. Traffic speeds are typically faster in the left-most lanes of the highway; therefore, speed differentials between entering and existing traffic and through traffic is usually greater with left-hand ramps. Of the FHWA recommended mitigation measures for left-hand on ramps, only supplemental advanced signing can be provided. Extending the auxiliary lanes to reduce speed differential conflicts, providing full decision sight distance in advance of the left-side on ramp, or providing ramp geometry near the point of physical merge that accommodates a high speed design cannot be accomplished without shortening the weave distance, creating steeper grades requiring design variance, or relocating the LRT substation. 1,030 feet of sight distance would be required.	Concept 17 would not preserve the system interchange access. Direct access from southbound I-225 to DTC Boulevard would be removed. The local agencies, Arapahoe County, the City and County of Denver, and the City of Greenwood Village do not support Concept 17 due to the off ramp closure. Concept 17 has less congestion on southbound I-225 for 2035 compared to the No Action Alternative and Concepts 16, 18, and 21. Removal of the DTC Boulevard off ramp will also affect a RTD bus route.	Concept 18 would not address purpose and need to reduce future (2035) traffic congestion. During the AM peak hour, the southbound through movement at the I-225/DTC Boulevard interchange southern intersection would queue into the northern I-225/DTC Boulevard interchange intersection affecting the operations of this intersection. In addition, Concept 18 would be eliminated because of the magnitude of negative impacts on the community. This concept would require partial acquisition of the Summit Ridge Apartment Homes parcel, requiring the displacement of 108 residences. Concept 18 also will 95 feet of the Goldsmith Gulch trail, impact 1.27 acres of Goldsmith park, remove 2,372 feet of an existing noise wall, impact 3.05 acres of the existing floodplain, affect 619 linear feet of Waters of the US along Goldsmith Gulch, impact 1.3 acres of prairie dog habitat, and impact historic gas station site.	Concept 19 has less congestion on southbound I-225 for 2035 compared to the No Action Alternative and Concepts 16, 18, and 21. Concept 19 requires less property be acquired for right-of-way than Concepts 16, 18, and 21, has no residential or commercial displacements, and has fewer environmental and community impacts compared to Concepts 16, 18, and 21.	Concept 21 would not address purpose and need to reduce future (2035) traffic congestion. This concept would experience congestion (LOS F) two to three hours per day in 2035 on southbound I-225. During the AM peak hour, the southbound through movement at the I-225/DTC Boulevard interchange southern intersection would queue into the northern I-225/DTC Boulevard interchange intersection affecting the operations of this intersection. Concept 21 would require the acquisition of 738,071 sq ft / 16.94 acres of property for right-of-way. Partial acquisition of property from the Summit Ridge Apartment Homes parcel. Partial impact to the swimming pool, tennis court/basketball court. Partial acquisition of property from the Public Storage Units parcel.	

Note: Reference to the DTC Boulevard and Tamarac Parkway roadways, bridges, and interchanges has been simplified to DTC Boulevard.