CDOT COLORADO Department of Transportation

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

Goal	Tier 2 Screening Criteria	Concepts				
					Full and Partial On-Ramp Closure Concepts	
		NA	4	7	8	9
		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
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 along southbound I-225 between Yosemite Street and I-25	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.
	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.	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.
Improve Safety by Reducing 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	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.
	Satisfy engineering design standards and criteria	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.
Improve Accessibility and Connectivity	Meet driver's expectations	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.
	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.	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.
	Minimize out-of-direction travel to access I-225 and the I-225/Yosemite Street and I-225/DTC Boulevard interchanges	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.
Avoid Community Impacts	Avoid direct and indirect property and business impacts	No property or business impacts would be required with this Concept.	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.	No property or business impacts would be required with this Concept, which stays within existing ROW.
	Avoid business/resident displacements	No business/resident displacements would be required with this Concept.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept, which stays within existing ROW.
	Evaluate compatibility with local land use planning	This Concept is compatible with local land use planning .	This Concept is compatible with local land use planning .	This Concept is compatible with local land use planning .	This Concept is compatible with local land use planning .	This Concept is compatible with local land use planning .
Summary of Results		Retained:	Eliminated:	Eliminated:	Eliminated:	Eliminated:
		This Concept has been retained for Comparison Purposes	**This Concept has been eliminated due to the unacceptable mainline and intersection operations, the greater number of lane changes, the unacceptable shoulder widths, and inability to meet driver expectations.**	**This Concept has been eliminated due to the unacceptable mainline and intersection operations and the greater number of lane changes.**	**This Concept has been eliminated due to the unacceptable intersection operations and the extensive out-of-direction travel distance which is not reasonable**	**This Concept has been eliminated due to the unacceptable intersection operations, inability to meet design criteria and driver expectancy, and the extensive out-of-direction travel distance which is not reasonable**

Goal	Tier 2 Screening Criteria	Full and Partial On-Ramp Closure Concepts					
		10	11	12	13	14	15
		DDI with Braided Ramp and DTC On Ramp to northbound I-25 Only	Reroute DTC Ramp to Yosemite	Braided Ramps between Yosemite and DTC	Combine interchanges with U-Turn Bridge	Texas U-Turn	Two DDIs - Yosemite and DTC
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 along southbound I-225 between Yosemite Street and I-25	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.	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.
	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.	• 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. • 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 DDI intersections operate at an overall LOS D or better.	• 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 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. • Significant out-of direction travel is required with this Concept, adding left turning traffic at both Yosemite Street ramp intersections. This additional left turning demand will result in the north Yosemite Street ramp intersection to function at a LOS F in the AM peak hour and the south Yosemite Street 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 these intersections.	• 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.	• 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.
Improve Safety by Reducing 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	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.	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.
	Satisfy engineering design standards and criteria	This Concept could be constructed to meet standards.	This Concept could be constructed to meet standards.	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.
Improve Accessibility and Connectivity	Meet driver's expectations	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.	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.
	Preserve system interchange access	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.	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.
	Minimize out-of-direction travel to access I-225 and the I-225/Yosemite Street and I-225/DTC Boulevard interchanges	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.	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.
Avoid Community Impacts	Avoid direct and indirect property and business impacts	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.	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.	No property or business impacts would be required with this Concept, which stays within existing ROW.	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.
	Avoid business/resident displacements	No business/resident displacements would be required with this Concept.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept, which stays within existing ROW.	No business/resident displacements would be required with this Concept.
	Evaluate compatibility with local land use planning	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.	This Concept is compatible with local land use planning .	This Concept is compatible with local land use planning.	This Concept is compatible with local land use planning.	This Concept is compatible with local land use planning.	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.
Summary of Results		Eliminated:	Eliminated:	Eliminated:	Eliminated:	Eliminated:	Eliminated:
		This Concept has been eliminated due to the unacceptable intersection operations; inability to meet driver expectations, minimize property impacts, and meet local land use planning; and the extensive out-of-direction travel distance which is not reasonable	**This Concept has been eliminated due to the unacceptable duration of LOS F on mainline, unacceptable intersection operations, inability to meet driver expectations, and the extensive out-of-direction travel distance which is not reasonable**	**This Concept has been eliminated due to the unacceptable duration of LOS F on mainline, the unacceptable intersection operations and the extensive out-of-direction travel distance which is not reasonable**	**This Concept has been eliminated due to the unacceptable duration of LOS F on mainline, the unacceptable intersection operations, and the extensive out-of-direction travel distance which is not reasonable**	**This Concept has been eliminated due to the unacceptable duration of LOS F on mainline, the unacceptable intersection operations, and the extensive out-of-direction travel distance which is not reasonable**	**This Concept has been eliminated due to the unacceptable duration of LOS F on mainline, the unacceptable intersection operations, and the extensive out-of-direction travel distance which is not reasonable**

Goal	Tier 2 Screening Criteria	Braided Ramps with I-225 Concepts					
		16	17	18	19	20	21
		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	Bifurcate I-225 East of DTC and Roundabouts at DTC	Braid Ramps East and West of DTC
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 along southbound I-225 between Yosemite Street and I-25	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.	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.
	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.	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.	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.	• 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.	This Concept will maintain traffic operations at the intersections.	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.	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.
Improve Safety by Reducing 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	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.	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.
	Satisfy engineering design standards and criteria	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.	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	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. 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.
	Preserve system interchange access	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.	The current movements would be preserved and one movement is added from Yosemite Street directly to southbound I-225.
	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.	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.
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.	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	No business/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.	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 local land use planning	This Concept is compatible with local land use planning.	This Concept is compatible with local land use planning.	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 local land use planning .	This Concept is compatible with local land use planning .	This Concept is compatible with local land use planning .
Summary of Results		Retained:	Retained:	Retained, Not Recommended:	Retained:	Eliminated:	Retained:
		This Concept has been retained for further analysis.	**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 provides improved levels of service at the DTC Boulevard ramp intersections.**	**This Concept has been retained for further analysis.**	**This Concept has been eliminated due to the unacceptable intersection operations and the extensive queue lengths that will back into adjacent intersections, which are not reasonable**	**This Concept has been retained for further analysis.**

Notes

All Concepts will Avoid Environmental and Cultural Resource Impacts with the exception of Concept 18 which will impact 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); will impact floodplain areas east of DTC Boulevard and north of I-225 (the loop ramp extends into the 100-year floodway associated with Goldsmith Gulch); will impact sensitive species areas east of DTC Boulevard and north of I-225; and the loop ramp extends into the lower half of the Goldsmith Gulch North Middle Park where one black-tailed prarie dog colony is located.

All Concepts will maintain or improve north-south bicycle or pedestrian connectivity under I-225 along Yosemite Street and DTC Boulevard with respect to existing conditions

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