



LEVEL 3 SCREENING CRITERIA
4/14/2006 (REVISED)

OVERVIEW

These Level 3 screening criteria are designed to utilize the more detailed level of information now available with the traffic model, engineering analysis and alternatives definition to distinguish alternative differences. For each criterion, one or more measures of effectiveness (MOE) is provided. These criteria are derived from remaining local concerns listed in the Interest Matrix, project needs, and project goals. The basis or origin of each criterion is identified. Not all of the items listed in the original Interest Matrix can be utilized in the Level 3 screening. Some interests have already been used in previous screening; others may be more appropriately applied as part of the evaluation in the EA; others may not be used at all because they do not provide information to distinguish between alternatives or because they are not measurable. **Each alternative will receive a rating for each criteria. We intend to use ratings of Very Good, Good, Fair, Poor and Very Poor. Though several of the measures of effectiveness will give us quantifiable results, the intent of this screening is not to end up with numeric scores but to compare the alternatives. From the comparison ratings we can select the best alternatives and/or components of alternatives.**

Criteria	Question	Measures of Effectiveness (MOEs)	Basis
A. Addressing South Broadway Peak Period Demand	1. Does the alternative address anticipated traffic needs?	Percent of traffic demand served (Broadway / Lincoln corridor)	- Project Need: Broadway Congestion - Interest Matrix Items: C.1.a and C.1.b
		Intersection approach delays (north/south movements)	
		Maximum Broadway queue lengths (study intersections)	
		Avg. travel speed on Broadway	
		Avg. travel time on Broadway	
		Vehicle miles traveled (selected O/D pairs)	
		Vehicle hours traveled (selected O/D pairs)	
		Significance of out of direction vehicle movements	
B. Addressing Traffic Access/Connectivity	1. Does the alternative reduce intersection delay to facilitate east/west connections?	East-west street intersection LOS and maximum queue length (Center; Exposition; Ohio; Kentucky; Tennessee; Mississippi; Arizona; Louisiana)	- Project Need: Access - Interest Matrix Items: C.2.b and C.2.c
		Average travel speed and travel time (selected east/west and north/south O/D pairs)	
C. Minimizing Regional Traffic Cutting Through Neighborhoods	1. Does the alternative minimize cut-through/spillover traffic?	Intersection LOS and maximum queue length (4 intersection locations: Logan at Ohio, Mississippi and Louisiana, and Washington at Louisiana)	- Project Need: Cut-through Traffic - Interest Matrix Item: C.3.a
		Rating - based on congestion on major roadways, local street access, local street continuity	
D. Enhancing Bike/Ped Access/Mobility/Safety	1. Does the alternative improve north/south, east/west and Broadway Station pedestrian safety/accessibility?	Rating - based on number and type of routes, vehicle conflicts, significant new infrastructure, etc.	- Project Goal: Multi-modal Access/Safety - Interest Matrix Items: A.1.a, A.1.a.ii, A.3.b, A.4.c, B.1.a, B.1.a.ii, B.3.b, B.4.b, B.4.c and C.4.a
	2. Does the alternative improve north/south, east/west and Broadway Station bicycle safety/accessibility?	Rating - based on number and type of routes, vehicle conflicts, significant new infrastructure, etc.	
E. Promoting/Increasing Transit Access and Ridership	1. Does the alternative minimize out of direction movement for private vehicles to access the Broadway Station?	Rating - based on how much out-of-direction movement	- Project Need: Multi-modal Travel Options - Interest Matrix Items: A.1.a.iii, A.3.b, A.4.b, B.1.a.iii, B.3.b, B.4.d, D.1.a, D.1.b, D.2.a - D.2.b.iii
	2. Does the alternative minimize out of direction movement for bus routes?	Rating - based on how much out-of-direction movement	
	3. Does the alternative include accommodations for additional transit ridership?	Rating - based on level and potential effectiveness of transit accommodations and not precluding potential alignments needed for future improvements?	
	4. Does the alternative encourage transit use?	Rating - based on transit ridership potential; proximity and access to bus/transit stops	
	5. Does the alternative minimize effects to parking at the Broadway station?	Quantify change in number of parking spaces	
F. Consistency with Adopted Positions of Project Stakeholders	1. How consistent is the alternative with the Cherokee and Lionstone Redevelopment Plans?	Rating - based on significance of features that are either positive or negative with respect to existing development plans.	- Project Goals: Economic Viability; Development Opportunities; Approved Plans - Interest Matrix Items: E.1 - E.3 and G.2
	2. How consistent is the alternative with approved agency plans?	Rating - based on significance of features that are either positive or negative with respect to agency plans including: Blueprint Denver, Comprehensive Plan 2000 and relevant supplements (including BARs Broadway streetscape plans), FasTracks, and DRCOG's Metro Vision	
	3. How consistent is the alternative with CDOT's VHEIS?	Rating - based on significance of features that are either positive or negative with respect to the VHEIS	
G. Impact to Environmental Resources	1. Does the alternative avoid impacts to historic structures or parks? [Section 106 and 4(f)]	Rating - based on level of impacts and how well impacts are minimized	- Project Goal: Environmental Resources - Interest Matrix Items: C.1.c, H.1 - H.3 and H.11
	2. Does the alternative avoid disproportionate impacts to environmental justice populations?	Rating - based on level of impacts and how well impacts are minimized	
	3. Does the alternative avoid impacts to hazardous materials sites?	Rating - based on level of impacts and how well impacts are minimized	
	4. What are estimated ROW impacts?	Rating - quantify estimated ROW impacts	
	5. What are potential noise impacts?	Rating - based on qualitative estimate of noise impacts	
H. Impact to the Viability of Existing Neighborhoods	1. Does the alternative preserve existing on-street parking in neighborhoods?	Rating - number of parking spaces lost	- Project Goals: Parking; Economic Viability - Interest Matrix Items: A.2.b, C.1.d, C.3.a and
	2. Does the alternative maintain existing functional roadway classification?	Rating - based on volumes, speeds, and access.	
I. Impact to Existing Businesses	1. Does the alternative preserve access to businesses along Broadway?	Rating - based on access requirements / changes	- Project Goals: Parking; Economic Viability - Interest Matrix Items: A.1.i, B.1.a.i, G.1.b and G.1.d
	2. Does the alternative maintain existing parking for businesses along Broadway?	Rating - quantify number of parking spaces lost	
J. Funding and Construction Feasibility	1. Is the alternative feasible and reasonable to fund and construct?	Rating - discussion	- Project Goals: Implementation; Funding
K. Improving Traffic Safety	1. Does the alternative meet applicable design standards?	Rating - based on how well the alternative meets minimum and desirable design standards	- Project Purpose: Safety - Interest Matrix Items: C.4.a - C.4.c

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Criteria	Question	Basis	Rating
A. Addressing South Broadway Peak Period Demand	1. Does the alternative address anticipated traffic needs?	- Project Need: Broadway Congestion - Interest Matrix Items: C.1.a and C.1.b	Very Good Good Fair Poor Very Poor N/A

Measures of Effectiveness (MOEs)	Criteria A									
	Percent of traffic demand served (Broadway / Lincoln corridor).	Intersection approach delays (north/south movements).	Maximum Broadway queue lengths (study intersections).	Vehicle hours traveled (selected O/D pairs).	Average travel time on NB & SB Broadway (through trips).	Average travel time on Broadway (local trips).	Traffic attracted to Lincoln/Broadway corridor.	Significance of out of direction vehicle movements.	Summary	Notes
ALTERNATIVES										
No Action										
TSM/TDM										
1										Added 570 trips in AM and 260 trips in the PM to and from Kentucky and Ohio due to the increased parking. Wedge ramp diverts SB I-25 traffic off Broadway earlier than No-Action and does not need a signalized phase to do so. No NB Broadway to SB I-25 movement (these trips were diverted to Buchtel or Louisiana).
2										SB and NB through traffic on Broadway from Mississippi benefit from Multi-Way Blvd. Turning movements onto Kentucky, Tennessee and Mississippi from Broadway are penalized.
3										Fly-over diverts SB I-25 traffic off Broadway earlier than No-Action and does not need a signalized phase to do so. No NB Broadway to SB I-25 movement (these trips were diverted to Buchtel or Louisiana). Closes Exposition between Broadway and Lincoln so traffic is diverted to Center.
5										Increases capacity on Broadway and turning capacity at Mississippi/Broadway intersection possibly releasing the bottleneck there.
6										NB and SB Broadway traffic do not have to stop at Mississippi due to grade separation. Turning traffic at Mississippi separated into two different intersections, increasing the amount of green time. Wedge ramp diverts SB I-25 traffic off Broadway earlier than No-Action and does not need a signalized phase to do so. No NB Broadway to SB I-25 movement (these trips were diverted to Buchtel or Louisiana).
7										SB Broadway traffic does not stop at Mississippi. Out of direction travel for SB Broadway to Mississippi traffic. Eliminates the conflict of NBL and SB throughs at Kentucky giving more green time to peak direction movements.
8										NB traffic diverted from Lincoln couplet because of reduced capacity. Turning traffic at Mississippi separated into two different intersections, increasing the amount of green time.
UNUSED SUGGESTIONS										
40										Should not affect Broadway traffic.
63										High turn volumes to/from Mississippi would be shifted to other locations.
66										Too high of volumes to make roundabout work.
69										High volume of u-turn traffic at intersections and high number of out of direction traffic.
70										Large Right-of-Way acquisition.
76										Worse than alternative 8 because of out of direction movements created by Acoma couplet.
79										How do left-turn lanes work?
86										
113b										
119										Shifts more turning traffic to Arizona and Tennessee to access development.
120										Shifts more turning traffic to Arizona and Tennessee to access development.



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Criteria	Question	Basis	Rating		
B. Addressing Traffic Access/Connectivity	1. Does the alternative reduce intersection delay to facilitate east/west connections?	- Project Need: Access - Interest Matrix Items: C.2.b and C.2.c	Very Good	Good	Fair
			Poor	Very Poor	N/A

Measures of Effectiveness (MOEs)	Criteria B								Average travel time on Louisiana	Average travel time on Mississippi	Average travel time on Ohio	Summary	Notes
	East/West street intersection LOS and maximum queue length: Center Avenue	East/West street intersection LOS and maximum queue length: Exposition Avenue	East/West street intersection LOS and maximum queue length: Ohio Avenue	East/West street intersection LOS and maximum queue length: Kentucky Ave	East/West street intersection LOS and maximum queue length: Tennessee Avenue	East/West street intersection LOS and maximum queue length: Mississippi Avenue	East/West street intersection LOS and maximum queue length: Arizona Avenue	East/West street intersection LOS and maximum queue length: Louisiana Avenue					
ALTERNATIVES													
No Action													
TSM/TDM													
1													
2													
3													Ohio west of Broadway changes to an on-ramp for I-25 so Ohio times were not calculated.
5													Mississippi widened and extended over I-25.
6													
7													
8													Travel time on Mississippi Ave increases due to traffic diverting from Broadway to Logan.
UNUSED SUGGESTIONS													
40													Traffic calming will slow traffic on local streets.
63													Diverts Mississippi traffic to Ohio and Louisiana creating more delay.
66													Too high of volumes to make roundabout work.
69													Access restrictions will cause more cut through traffic at locations outside the study area.
70													
76													
79													
86													
113b													
119													Less traffic on local streets in study area.
120													Shifts traffic to Louisiana from Mississippi.

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Criteria	Question	Basis	Rating								
C. Minimizing Regional Traffic Cutting Through Neighborhoods	1. Does the alternative minimize cut-through/spillover traffic?	- Project Need: Cut-through Traffic - Interest Matrix Item: C.3.a	<table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Very Good</td> <td style="width: 25%;">Good</td> <td style="width: 25%;">Fair</td> <td style="width: 25%;"></td> </tr> <tr> <td>Poor</td> <td>Very Poor</td> <td>N/A</td> <td></td> </tr> </table>	Very Good	Good	Fair		Poor	Very Poor	N/A	
Very Good	Good	Fair									
Poor	Very Poor	N/A									

Criteria C					
Measures of Effectiveness (MOEs)	Traffic Diverted from Logan Ave	Traffic Diverted from Ohio Ave	Traffic Diverted from Louisiana Ave	Summary	Notes
ALTERNATIVES					
No Action					
TSM/TDM					
1					Wedge ramp/flyover on-ramp alternatives divert traffic from Ohio because there is more available capacity on Broadway when vehicles are diverted off Broadway north of Ohio.
2					
3					Wedge ramp/flyover on-ramp alternatives divert traffic from Ohio because there is more available capacity on Broadway when vehicles are diverted off Broadway north of Ohio.
5					Ohio Ave volumes increase because traffic uses Broadway/Lincoln instead of Logan. Logan volumes decrease because of added capacity to Lincoln/Broadway corridor. Traffic is diverted from Louisiana Ave because Mississippi Ave extends over I-25.
6					Wedge ramp/flyover on-ramp alternatives divert traffic from Ohio because there is more available capacity on Broadway when vehicles are diverted off Broadway north of Ohio.
7					
8					
UNUSED SUGGESTIONS					
40					Traffic calming might shift some cut-through traffic back to Broadway.
63					Traffic will use other local streets if Mississippi access is closed.
66					Delay from roundabout will divert traffic to local streets.
69					When left-turn access restricted on Broadway more vehicles will use Logan to access development.
70					
76					2-lane Lincoln couplet will divert traffic to Logan and Ohio.
79					An extra lane in peak direction on Broadway might divert traffic from local streets.
86					An extra lane in each direction for HOV use on Broadway might divert traffic from local streets.
113b					
119					Traffic will use other east-west streets to access development.
120					Traffic will use other local streets if Mississippi access is closed.



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Criteria	Question	Basis	Rating
D. Enhancing Bike/Ped Access/Mobility/Safety	1. Does the alternative improve north/south, east/west and Broadway Station pedestrian safety/accessibility?	- Project Goal: Multi-modal Access/Safety - Interest Matrix Items: A.1.a, A.1.a.ii, A.3.b, A.4.c, B.1.a, B.1.a.ii, B.3.b, B.4.b, B.4.c and C.4.a	Very Good Good
	2. Does the alternative improve north/south, east/west and Broadway Station bicycle safety/accessibility?		Fair Poor Very Poor N/A

Criteria D				
Measures of Effectiveness (MOEs)	1.) Rating - based on number and type of routes, vehicle conflicts, significant new infrastructure, etc.	2.) Rating - based on number and type of routes, vehicle conflicts, significant new infrastructure, etc.	Summary	Notes
	ALTERNATIVES			
No Action				New sidewalks and bike lanes provide minor improvements to N/S and E/W safety/accessibility
TSM/TDM				New sidewalks and bike lanes and the bike/ped overlay would improve E/W and N/S safety/accessibility
1				New sidewalks, bike lanes and bike/ped overlay in conjunction with increased transit would benefit N/S and E/W safety/accessibility
2				New sidewalks, bike lanes and bike/ped overlay in conjunction with increased transit and increased bike/ped amenities would benefit N/S and E/W safety/accessibility
3				New sidewalks, bike lanes and bike/ped overlay would benefit N/S and E/W safety/accessibility.
5				New sidewalks, bike lanes and bike/ped overlay in conjunction with increased bike/ped amenities would benefit N/S and E/W safety/accessibility
6				New sidewalks, bike lanes and bike/ped overlay in conjunction with increased bike/ped amenities would benefit N/S and E/W safety/accessibility
7				New sidewalks, bike lanes and bike/ped overlay in conjunction with increased bike/ped amenities would benefit N/S and E/W safety/accessibility
8				New sidewalks, bike lanes and bike/ped overlay would benefit N/S and E/W safety/accessibility, may be increased vehicle conflicts
UNUSED SUGGESTIONS				
40				Improves Bicycle and Pedestrian Safety
63				May improve N-S and E-W mobility and safety by removing potential vehicle conflicts
66				Will likely have negative impacts on bicycle/pedestrian safety and accessibility
69				Faster traffic and reduced crossings could have negative impacts
70				Faster traffic through intersection could have negative impacts
76				May improve N-S Pedestrian Access, but creates potential new vehicle conflicts
79				Would likely create additional vehicle conflicts without improving N/S or E/W accessibility
86				Could result in faster traffic and potential new vehicle conflicts
113b				
119				Improves Safety but may reduce N/S accessibility
120				Improves Safety, no change to bike/ped accessibility



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Criteria	Question	Basis	Rating
E. Promoting/ Increasing Transit Access and Ridership	1. Does the alternative minimize out of direction movement for private vehicles to access the Broadway Station?	- Project Need: Multi-modal Travel Options - Interest Matrix Items: A.1.a.iii, A.3.b, A.4.b, B.1.a.iii, B.3.b, B.4.d, D.1.a, D.1.b, D.2.a - D.2.b.iii	Very Good Good Fair Poor Very Poor
	2. Does the alternative minimize out of direction movement for bus routes?		N/A
	3. Does the alternative include accommodations for additional transit ridership?		
	4. Does the alternative encourage transit use?		
	5. Does the alternative minimize effects to parking at the Broadway station?		

Criteria E							
Measures of Effectiveness (MOEs)						Summary	Notes
	1.) Rating - based on how much out-of-direction movement.	2.) Rating - based on how much out-of-direction movement.	3.) Rating - based on level and potential effectiveness of transit accommodations and not precluding potential alignments needed for future improvements?	4.) Rating - based on transit ridership potential; proximity and access to bus/transit stops.	5.) Quantify change in parking spaces.		
ALTERNATIVES							
No Action							Doing nothing shouldn't positively or negative impact transit usage for this small of a study area.
TSM/TDM							From a transit perspective, TSM/TDM is the same as the No Build.
1							Providing additional parking and left turn access will make using the Broadway LRT station easier.
2							Providing the outside lanes could will provide better access to the bus stops.
3							This alternative provides improvements for traffic mobility at the interchange. It doesn't impact transit.
5							This alternative should improve vehicular traffic into and out of the Broadway station. This should provide marginal benefit.
6							The interchange in this alternative is expected to decrease the pedestrian environment and make it so that buses have to take a circuitous route.
7							Provides access closer to the LRT station.
8							This couplet takes the movement of traffic further away from the transit station.
UNUSED SUGGESTIONS							
40							Does not have a foreseeable impact on transit usage.
63							Does not have a foreseeable impact on transit usage.
66							Does not have a foreable impact on transit usage. Roundabout are not pedestrian friendly.
69							This is expected to make it more difficult for buses/vehicles to access the Broadway station.
70							Does not have a foreable impact on transit usage. CFI require ped bridges in order to transverse.
76							This alternative should provide additional access to the Broadway Station.
79							With most designs, this would limit access to/from the Broadway station.
86							HOV are accessible for buses. Should improve bus service.
113b							
119							This will limit the ability of buses and vehicle to access the LRT.
120							This will slightly limit the ability of buses and vehicle to access the LRT.



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Criteria	Question	Basis	Rating
I. Impact to Existing Businesses	1. Does the alternative preserve access to businesses along Broadway?	- Project Goals: Parking; Economic Viability - Interest Matrix Items: A.1.i, B.1.a.i, G.1.b and G.1.d	Very Good Good Fair Poor
	2. Does the alternative maintain existing parking for businesses along Broadway?		Very Poor N/A

Measures of Effectiveness (MOEs)	Criteria I			
	1.) Rating - based on access requirements / changes.	2.) Rating - quantify number of parking spaces lost.	Summary	Notes
ALTERNATIVES				
No Action				
TSM/TDM				
1				
2				
3				
5				
6				
7				
8				
UNUSED SUGGESTIONS				
40				
63				
66				
69				
70				
76				
79				
86				
113b				
119				
120				



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Rating		
Very Good	Good	Fair
Poor	Very Poor	N/A

Criteria Summary	Criteria A	Criteria B	Criteria C	Criteria D	Criteria E	Criteria F	Criteria G	Criteria H	Criteria I	Criteria J	Criteria K
ALTERNATIVES											
No Action											
TSM/TDM											
1											
2											
3											
5											
6											
7											
8											
UNUSED SUGGESTIONS											
40						0			0		
63						0			0		
66						0			0		
69						0			0		
70						0		0	0	0	
76						0			0		
79						0			0		
86						0			0		
113b	0	0	0	0	0	0			0	0	0
119						0			0		
120						0			0		