

Level 2 Screening Evaluation of Build Alternatives

Level 2 Evaluation Criteria	Commuter Rail Options		Light Rail Transit (LRT) Options				Streetcar Options	
	Alternative 3 EMU - BN/UP	Alternative 4 DMU - BN/UP	Alternative 6B LRT - Lowell/52nd (38th/Lowell/ 52nd/Olde Town/Ward)	Alternative 6BB LRT -Lowell/Ralston (38th/Lowell/ 52nd/Sheridan/58th/ Olde Town/Ward)	Alternative 6D LRT -Sheridan/Ralston (38th/Sheridan/ 58th/Olde Town/Ward)	Alternative 6F LRT -Lowell/BN (38th/Lowell/ 52nd/Olde Town/BNSF to Ward)	Alternative 7A EMU/Streetcar (EMU in UP corridor to Sheridan/58th, then Streetcar to Olde Town to Ridge Road to Ward Road)	Alternative 7B Streetcar - Lowell/52nd (Wewatta to Park Avenue to 38th to Lowell to 52nd to Vance to Old Wadsworth to Ridge Road to Ward Road)
1. Fulfills P&N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Affordability/Cost-effectiveness								
Distance (miles)	11.1	11.1	10.6	11.1	12.1	10.6	EMU 6.3 mi. and Streetcar, 4	11.2
Number of Grade Separations	Rail over Road - 1 @ Wadsworth Road over Rail - 2 @ Tennyson & @ Sheridan	Rail over Road - 1 @ Wadsworth Road over Rail - 2 @ Tennyson & @ Sheridan	LRT over Road - 1 @ Wadsworth Rail over LRT - 1 @ 38th (Depress LRT)	LRT over Road - 2 @ Wadsworth & @ I-76 Ramps Rail over LRT - 1 @ 38th (Depress LRT)	LRT over Road - 2 @ Wadsworth & @ I-76 Ramps Rail over LRT - 1 @ 38th (Depress LRT)	LRT over Road - 1 @ Wadsworth Rail over LRT - 1 @ 38th (Depress LRT)	Road over Rail - 1 @ Sheridan Streetcar over Rail - 1 @ UP Tracks	None
Number of 90-degree turns	None	None	6	8	6	6	11	12
Cost in millions/mile: YOE EMU=\$42 M/mi + prop acquisitions DMU=\$39 M/mi + prop acquisitions LRT=\$43.4 M/mi Streetcar=\$26 M/mi	\$466.20	\$432.90	\$460.04	\$481.74	\$525.14	\$460.04	\$389.40	\$291.20
3. Environmental Impacts								
Number of stream crossings	5	5	3	4	4	3	5	4
Floodplain Acres Disturbed	2.5	2.5	1	6.5	6.5	1	5	6
Total Acres disturbed during construction	54	54	87	90	90	87	54	54
Number of Historic Districts Adjacent to Alignment	3	3	4	5	6	4	3	5
4. Community Impacts/Benefits								
Number of full parcels within 300 feet of Alignment <i>Used as a surrogate for human density</i>	377	377	1,237	1,338	1,338	1,237	554	1,338
Number of persons within 1/2 mile of stations	18,535	18,535	34,573	34,180	34,180	34,573	18,652	34,180
Number of low income populations within 1/2-mile of stations	1,242	1,242	2,361	2,306	2,306	2,361	1,225	2,306
Number of minority populations within 1/2-mile of stations	6,774	6,774	15,694	15,621	15,621	15,694	6,844	15,621
Number of persons over 65 years of age within 1/2-mile of stations	1,940	1,940	4,043	4,075	4,075	4,043	1,928	4,075
Number of homes with no autos within 1/2-mile of stations	601	601	1,566	1,499	1,499	1,566	600	1,499
Number of potential properties required along alignment <i>Based on any acquisition > 25% of a parcel</i>	18	18	80	80	80	45	<10	<10
5. Consistency with Local Land Use Plans								
Denver <i>Characterized as 1.Supportive; 2.Not Supportive; or 3.Neutral (plan does not reference)</i>	Supportive	Supportive	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Adams County	Supportive	Supportive	Not Supportive	Not Supportive	Not Supportive	Not Supportive	Not Supportive	Not Supportive
Arvada	Supportive	Supportive	Not Supportive	Not Supportive	Not Supportive	Not Supportive	Not Supportive	Not Supportive
Wheat Ridge	Supportive	Supportive	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Jefferson County	Supportive	Supportive	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral

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6. Mobility Improvements								
Estimated Average Speed	To be updated in Level 3 Detailed Evaluation 27 mph	To be updated in Level 3 Detailed Evaluation 27 mph	To be updated in Level 3 Detailed Evaluation 24 mph	To be updated in Level 3 Detailed Evaluation 24 mph	To be updated in Level 3 Detailed Evaluation 24 mph	To be updated in Level 3 Detailed Evaluation 24 mph	To be updated in Level 3 Detailed Evaluation 23 mph	To be updated in Level 3 Detailed Evaluation 19 mph
Estimated Travel Time	To be updated in Level 3 Detailed Evaluation 25 min	To be updated in Level 3 Detailed Evaluation 25 min	To be updated in Level 3 Detailed Evaluation 27 min	To be updated in Level 3 Detailed Evaluation 27 min	To be updated in Level 3 Detailed Evaluation 30 min	To be updated in Level 3 Detailed Evaluation 27 min	To be updated in Level 3 Detailed Evaluation TBD	To be updated in Level 3 Detailed Evaluation 35
Preliminary Ridership	To be updated in Level 3 Detailed Evaluation 14,000-17,000	To be updated in Level 3 Detailed Evaluation 14,000-17,000	To be updated in Level 3 Detailed Evaluation 13,000-16,000	To be updated in Level 3 Detailed Evaluation 13,000-16,000	To be updated in Level 3 Detailed Evaluation 12,000-15,000	To be updated in Level 3 Detailed Evaluation 13,000-16,000	To be updated in Level 3 Detailed Evaluation TBD	To be updated in Level 3 Detailed Evaluation 11,000-13000
Equivalent Auto Drive Time in 2030	50 min	50 min	50 min	50 min	50 min	50 min	50 min	50 min
Travel Markets Served	Major Activity Centers and Populations Served Original Station Areas in FasTracks	Major Activity Centers and Populations Served Original Station Areas in FasTracks	Major Activity Centers and Populations Served Original Station Areas in FasTracks, Regis and NW Denver communities	Major Activity Centers and Populations Served Same travel markets as 6B.	Major Activity Centers and Populations Served Same travel markets as 6B but without Regis.	Major Activity Centers and Populations Served Original Station Areas in FasTracks, Regis and NW Denver communities	Major Activity Centers and Populations Served Original Station Areas in FasTracks	Major Activity Centers and Populations Served Same travel markets as 6B.
7. Degree of Community Support								
Denver	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Adams County	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Arvada	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Wheat Ridge	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Jefferson County	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
8. Degree of Agency Support								
MUNICIPAL								
Denver	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Adams County	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Arvada	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Wheat Ridge	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Jefferson County	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
OTHER								
DRCOG	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
CDOT	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Pros	Faster trip than an Alternative Alignment; Closest alternative to the original LPA; provides a direction connection to NW Rail.	Very similar to Alternative 3.	Serves Regis; good neighborhood access; generally sufficient arterial ROW; serves East Arvada TOD; does not use state highway.	Serves Regis; good neighborhood access; generally sufficient arterial ROW; serves East Arvada TOD.	Good neighborhood access; good ROW entire length; serves East Arvada TOD.	Is an impact avoidance alternative--avoids residential acquisition impacts on Ridge Road in Arvada. It also, like 6B, serves Regis; good neighborhood access; generally sufficient arterial ROW; serves East Arvada TOD; does not use state highway.	Serves Adams Co.; good neighborhood access west of Sheridan; more affordable combination of technologies.	Serves Regis; good neighborhood access; generally sufficient arterial ROW; serves East Arvada TOD; likely most affordable technology.
Cons	Uncertainty with acquiring railroad ROW.	Uncertainty with acquiring RR r/w. Also the diesel technology is publicly perceived as more polluting than EMU.	Lowell constrained for 1 mi. (possible single-track?); does not serve Adams Co.; requires grade separation at Wadsworth.	Lowell constrained for 1 mi (single-track?); uses portion of state highway (Sheridan); does not serve Adams Co.; requires grade separation at Wadsworth and 58th + Sheridan.	Does not serve Regis; uses state highway (Sheridan); adds traffic on Sheridan; does not serve Adams Co.; requires grade separation at Wadsworth and 58th + Sheridan.	Lowell constrained for 1 mi. (possible single-track?); does not serve Adams Co.; requires grade separation at Wadsworth.	Requires technology change; does not serve Regis.	Lowell constrained; does not serve Adams Co.; traffic on Sheridan (state hwy).
RECOMMENDATION	PASS	PASS	PASS	PASS	FAIL	PASS	PASS	PASS

ASSUMPTIONS

- 1 Typical in-street LRT section requires 28 ft ROW
- 2 Cross sections based on City + County of Denver criteria, although sections may not be universally applied or accepted
- 3 Assumes 28-foot LRT envelope and one, 14-foot travel lane each direction will be provided on all roadways, for total minimum LRT ROW requirement of 56 feet
- 4 Google Earth was used to count properties and as a second check to field work.
- 5 Our evaluation assumes NO TAKES on 38th, 52nd west of Sheridan, Sheridan, or 58th
- 6 Assumes 38th Ave ROW averages 60 feet; Lowell Blvd ROW between 50 and 60 feet; 52nd Ave ROW between Lowell and Tennyson is 36 to 48 feet.
- 7 Assumes that any street narrower than 56 feet requires property acquisition; that is it could not meet the 56 foot min. of 28 feet for LRT and two 14 foot travel lanes.
- 8 Assumes potential Lowell Blvd takes would occur on west side, south of I-70. No takes on Lowell north of I-70 except for portion of Regis for station
- 9 Lowell Blvd contingency allowance: 16 homes
- 10 Assumes potential partial takes on south side of 52nd with caveat that Willis Case parkland would be impacted
- 11 52nd Avenue contingency allowance: 5 homes
- 12 Assumes potential Ridge Road takes would occur on north side
- 13 Station takes based on 400 ft station requirement (will reduce to 270 feet if directed to)
- 14 Assumes grade separations required at state highways when 2030 AADT exceeds 50,000 with headways between 5 & 10 minutes
- 15 All LRT alignments start at DUS 1 (LRT leaves DUS, travels Park Avenue to 38th)