



**North Metro Corridor EIS**  
**Level 3 Technology Evaluation Matrix**  
 September 26, 2007

**Vehicle Technology**

Criteria	Diesel Multiple Unit (DMU)	Electric Multiple Unit (EMU)
<b>1. Fulfills Purpose &amp; Need</b>	Yes	Yes
<b>2. Affordability</b>		
2a. Capital costs for vehicles and related equipment (2006 dollars)	\$68 Million	\$126.7 Million
2b. Total Project Capital Costs (YOE dollars)	\$637 Million	\$710 Million
2c. Average Annual Debt Cost (2006 dollars)	\$7.6 Million	\$13.5 Million
2d. Average Annual O & M costs (2006 dollars)	\$19.0 Million	\$17.0 Million
2e. Total Debt Service for Incremental Capital Costs	\$228.2 Million	\$404.8 Million
2f. Number of years for DMU & EMU total costs (capital + O/M) to be equal	30 years ++	
2g. Total local government contribution (2.5% of capital costs)	\$15.9 Million	\$17.4 Million
2h. Affordability within FasTracks Budget	Yes	No
<b>3. Mobility Improvements</b>		
3a. Travel time (minutes) - Using I-25 in 2030, peak period auto travel time from 162nd Ave to Denver Union Station is estimated to be approximately 51 minutes.	30 minutes	28 minutes
3b. Total riders (daily - average weekday)	17,100	17,500
3c. 2030 Daily Vehicle miles traveled in the Region	To be Refined	109,091,600
3d. Change in daily vehicle miles traveled over No-Action - Region	Comparable No Action to be refined.	-61,600
3e. Passenger comfort and convenience	Good	
3f. System Reliability	Signals require electricity	Vehicles and signals require electricity
3g. Proven technology	Yes	
3h. Number of North American transit systems using technology for revenue service	3	7
<b>4. Environmental Impacts/Benefits</b>		
4a. Air Quality Net Benefits - Annual Tons of Emissions (2030) Reduction	DMU*	EMU*
4a.1. CO	-104.7	-150.1
4a.2. NO <sub>x</sub>	-1.9	-5.0
4a.3. VOCs	-4.0	-7.2
4a.4. PM <sub>10</sub>	-0.1	-0.4
4b. Regional Air Quality Impacts vs. No Action	Improvement	
Notes - * DMU based on DMU Emissions & VMT Reduction; EMU based on VMT Reduction		



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<b>5. Community Impacts/Benefits</b>		
5a. Noise		
5a.1. Noise exposure near stations	Louder than EMU	Quieter than DMU
5a.2. Noise exposure along alignment	Louder than EMU	Quieter than DMU
5a.3. Noise exposure at grade crossings (horn noise)	Similar	
5b. Vibration	Similar	
5c. Visual and Aesthetic Resources	No visual impacts from catenary system	Overhead catenary, one electrical utility substation, and two electrical paralleling stations.
5d. Maintenance facility - environmental	Improvement over existing conditions	
<b>6. Compatibility with Other Projects / Railroads</b>		
6a. Denver Union Station	Compatible	
6b. East Corridor	Compatible	
6c. Northwest Rail	Compatible	
6d. Gold Line	Compatible	
6e. CDOT North I-25 EIS	Compatible	
6f. Future North Front Range rail service	Compatible	
6g. Freight railroad compatibility/acceptability	Compatible	
6h. Vehicle/fleet sharing opportunities w/other corridors	Northwest	East Corridor, Gold Line
6i. Overall Systems Efficiency	Similar	
<b>7. Degree of Community Support (Comments received to date)</b>		
	Low support (16%)	High support (84%)
7a. Reasons for support	Cost effective, no visual impacts	Cleaner and quieter technology
7b. Reasons for opposition	Air quality and noise impacts	Visual impacts
<b>8. Degree of Agency Support</b>		
8a. City and County of Denver	Stated "no preference" to date	
8b. Commerce City		
8c. Northglenn		
8d. Thornton	Stated "no preference" to date	
8e. Brighton		
8f. Adams County		
8g. CDOT		
8h. USACE		
8i. EPA		
8j. FHWA		
8k. FRA		
8l. CDPHE		
8m. SHPO		
8n. DRCOG		
8o. CDOW		
8o. UDFCD		