



**Level 3 Criteria**

**Detailed Mode Evaluation**

*Detailed evaluation of top alternatives*

					Modes		
Criteria	Description	Measurement	Thresholds	High-Speed Rail	Maglev	Hyperloop	
Constructability/Operability	Technology Maturity (Safety Systems)	Technology Readiness Levels (TRLs) for safety systems requirements including emergency response, ventilation, fire life safety, etc.	Technology Readiness Levels	High = 8-9 (Final product demonstrated/performed) Medium = 6-7 (Prototype performed in operational environment) Low ≤ 5 (Simulated, and predictable performance or less)	High	High	Medium
	Technology Maturity (Operations Systems)	Technology Readiness Levels (TRLs) for operational systems requirements including signaling, autonomous vehicle operations, control systems, etc.	Technology Readiness Levels	High = 8-9 (Final product demonstrated/performed) Medium = 6-7 (Prototype performed in operational environment) Low ≤ 5 (Simulated, and predictable performance or less)	High	High	Medium
	Technology Maturity (Revenue Operation)	Number of Routes (10+ miles) currently in revenue operation worldwide	Number of routes	High ≥ 10 Medium = 1-9 Low = 0	High	Medium	Low
	Potential to serve as an extension to planned high-speed systems	Ability of mode to serve as an extension to planned high-speed systems assuming specific chosen technology, equipment and specifications are appropriately compatible.	Yes/No	High = Yes Low = No	High	Low	Low
	Potential Adverse Impacts to Transportation Systems	Are there any potential adverse impacts to existing transportation systems due to mode-specific operations or maintenance?	Yes/No	High = able to conduct O&M with little impact Medium = able to conduct O&M with moderate impact Low = able to conduct O&M with high impact	Medium	High	High
Costs	Capital (Construction) Cost	Rough Order of Magnitude Construction cost for the guideway, ancillary facilities, maintenance facilities and vehicles, per mile	Cost per mile	High ≤ \$75 million Medium = \$75 million - \$150 million Low > \$150 million  <i>Based upon our draft estimate, HSR is about \$95M/mile, Maglev is about \$180M/mile, Hyperloop is about \$90M/mile.</i>	Medium	Low	Medium
O&M	Travel Time	Running time between Dallas and Fort Worth under a mid-corridor station scenario.	Travel Time	High: Slowest run time ≤ 15 minutes Medium: Slowest run time = 16 - 19 minutes Low: Slowest run time ≥ 20 minutes	Medium	Medium	High
	Vertical Profile	How well can each technology accommodate higher grades?	Grade %	Med = 0-5% High > 5%	Medium	Medium	High
	Max Curve Speed	Theoretical design speed at which a mode is able to travel through curves in the alignment.	Speed	High/Med/Low	Low	Medium	High