



Alternatives Comparison Matrix - Operational and Engineering Considerations

EVALUATION CRITERIA	Units	Alternative 1B	Alternative 4B	Alternative 4C	Alternative 4D	Alternative 4E	Alternative 8A	Alternative 8B	Alternative 9A	Alternative 9B	VE
IMPROVE RAIL SERVICE RELIABILITY AND SAFETY											
Eliminates operational disruptions/delays	Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connects to NS wye and provides grades acceptable for freight operations		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of bridge structures	#	2	2	2	1	1	2	1	2	2	2
IMPROVE OPERATIONAL FLEXIBILITY AND ACCOMMODATE REDUCED TRIP TIMES											
Reduces operational conflicts	Level at which alternative meets criteria	Excellent	Excellent	Excellent	Fair	Fair	Excellent	Fair	Excellent	Excellent	Excellent
Eliminates or reduces existing speed restrictions for intercity trains		Eliminates	Eliminates	Eliminates	Eliminates	Eliminates	Reduces	Reduces	Eliminates	Eliminates	Eliminates
Provides flexibility for operational and maintenance work windows		Very Good	Very Good	Very Good	Good	Good	Very Good	Good	Very Good	Very Good	Very Good
Ability to provide for NS/MARC Operations during Construction		Good	Good	Good	Good	Good	Good	Good	Good	Excellent	Excellent
OPTIMIZE EXISTING AND PLANNED INFRASTRUCTURE											
Eliminates two-track section in this portion of NEC and meets corridor wide improvement needs along NEC	# of tracks provided by alternative	4 tracks	4 tracks	4 tracks	3 tracks	3 tracks	4 tracks	3 tracks	4 tracks	4 tracks	4 tracks
Meets future planned 160 mph corridor-wide improvement without future speed restrictions for intercity trains	Y/N - Maximum allowable speed (mph)	No - 140 mph	Yes - 160 mph	No - 135 mph	Yes - 160 mph	No - 135 mph	No - 120 mph	No - 120 mph	Yes - 160 mph	No - 150 mph	No - 140 mph
Impacts to Perry Electrical Substation	Level of impact	Major	Major	Major	Major	Major	Major	Major	Minor	Minor	Major
Allows shared corridor with Bike/Ped path (feasibility evaluation in progress)	Whether alternative precludes	Does not preclude	Does not preclude	Does not preclude	Does not preclude	Does not preclude	Does not preclude	Does not preclude	Does not preclude	Does not preclude	Does not preclude
MAINTAIN ADEQUATE NAVIGATION AND IMPROVE SAFETY ALONG THE SUSQUEHANNA RIVER											
Provides suitable vertical clearance (at least 60')	Y/N - Clearance provided (feet)	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'	Yes - 60'
Maintains or widens horizontal clearance (at least 200')		Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +	Yes - 200' +
Requires temporary winter closure of movable span?	Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Retained for further evaluation		No	No	No	No	No	No	No	Yes	Yes	No
Elimination Rationale		Lower maximum allowable speed than 9B with comparable environmental impacts	Impact to Lafayette Senior Housing Facility	Impact to Lafayette Senior Housing Facility and low maximum authorized speed	Impact to Lafayette Senior Housing Facility; provides three tracks only	Impact to Lafayette Senior Housing Facility; offers low maximum authorized speed and three tracks only	Undesirable maximum authorized speed	Undesirable maximum authorized speed	N/A	N/A	Higher property and natural environmental impacts, but lower speed than 9B

First Tier of Impacts
 Second Tier of Impacts
 Third Tier of Impacts