

- Emissions cost from railroad crossing.
- Non-motorized amenities benefit from multimodal path.
- Construction and right-of-way costs.
- Remaining value of facilities (residual value).
- Maintenance costs.

Key assumptions used to calculate costs and benefits for the BCA are in **Table 1**. **Table 2** shows the estimated quantities for the Build Scenario.

Table 1: Benefit-Cost Analysis Traffic Assumptions

Variable	Value
Railroad crossings (trains/day)	12
Blockage time per train (min)	5
Vehicle crossings (vehicles/day)	4,355
Railroad maintenance (days/year)	7
Traffic Growth rate	0.75%
Non-motorized trips (trips/year)	4,000

Table 2: Grade Separation Cost Estimates (2024)

Bid Item	Unit	Unit Bid Price	Estimated Quantity	Estimated Cost
Approach Embankment Earthwork	Cu Yd	\$15	61,500	\$922,500
Retaining Wall	Sq Ft	\$150	2,100	\$315,000
Bridge	Sq Ft	\$350	11,160	\$3,906,000
Railroad Protective Services	LSum	\$330,000	1	\$330,000
CSAH 130 Reconstruction	Lin Ft	\$550	2400	\$1,320,000
Forestry Road Obliteration	LSum	\$75,000	1	\$75,000
Box Culvert Pedestrian Underpass	Lin Ft	\$2500	128	\$320,000
Subtotal				\$7,188,500
Contingency	%	20%	-	\$1,437,700
Total				\$8,626,200

Results of the calculations from the BCA are in **Table 3** and **Table 4** and derived from the assumptions stated above. Resulting Benefit-Cost Ratio (BCR) of the grade separation over the CN railway is estimated to be **1.20**, so benefits are greater than the cost of the construction of the grade separation crossing by 20%. While safety benefits based on historic risk are low, future safety risk mitigation is expected to add even more value to the proposed construction of a CSAH 100 railroad grade separation.

Table 3: Benefit-Cost Analysis: User Benefits (2022 \$)

Safety Benefits	Operating Benefits	Detour Travel Time Benefits	Railroad Crossings Delay Benefits	Emissions Benefits	Amenities Benefits	Total User Benefits
\$14,488	\$5,051,466	\$798,241	\$2,699,262	\$281,266	\$16,126	\$8,797,850

Table 4: Benefit-Cost Analysis: Residual Value & Maintenance value (2022 \$)

Residual Value	Net Maintenance Cost	Total Benefit	Estimated Construction Cost	Benefit Cost Ratio
\$965,630	-\$59,649	\$9,703,831	\$8,115,255	1.20