

EAST DEERING: PATHWAYS TO BRIDGE THE GAP PROJECT

BENEFIT-COST ANALYSIS

The Benefit-Cost Analysis estimates that there will be more than \$163 million in total benefits over the 30-year analysis period (undiscounted), resulting from the \$35,146,938 investment. When evaluated on a discounted NPV basis (3.1% for all costs and benefits except CO₂, which is discounted at 2%), the Project yields a benefit-cost ratio of 3.08:1. Benefits arise from various sources, including safety improvements, ongoing maintenance cost savings, property value enhancements, reduced harmful emissions, increased active transportation, travel time savings, and the value associated with bicycling facility improvements. Additionally, there is a modest residual value that remains at the end of the 30-year analysis period.

NPV @ 3.1% Summary over 30 Years		
	Costs	Benefits
CAPEX - Project Cost	\$27,970,515	
Maintenance Costs Savings		\$2,174,707
Property Value Enhancements		\$27,600,039
Safety Savings		\$17,229,264
Amenity Benefits		\$11,026,377
Induced Active Transportation		\$20,905,687
Congestion & Emissions Reduction		\$610,632
Travel Time Savings		\$1,196,952
Residual Value of the Project		\$5,528,308
TOTAL	\$ 27,970,515	\$86,271,966
Benefit-Cost Ratio		3.08

The proposed improvements will enhance safety for transit through East Deering, promote non-vehicular traffic, reduce road maintenance costs, and significantly improve the aesthetics and quality of life for both regional residents and visitors relying on the commercial district, including tourists. These enhancements will lead to an appreciable increase in residential and commercial property values in East Deering, as well as the East Bayside and East Bay neighborhoods.

All savings are presented in 2022 dollars, and the Project is expected to start accruing full benefits in 2032 after construction is completed in 2031, with the end of the 30-year analysis period set for 2061.

Net Maintenance Costs

A modest overall benefit to the Project is the reduction in maintenance required post-construction, achieved through resurfacing and improved drainage on shared-use pathways to address deficiencies. The total new pedestrian bridge lifespan is anticipated to be 90 years, with significantly less wear and tear compared to vehicular bridges, and other project components are estimated to have a useful life of 45 years. The BCA includes provisions for one-time repairs in specific years. The NPV of the net savings in the build vs. no-build scenario amounts to **\$2,174,707**.

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Property Value Enhancements

Because the Project improves many aspects over much of East Deering, property values will be enhanced by the Project as many studies conclude. It has been noted that:

Changes in property values are driven by, and hence reflect, the value associated with local changes in community impacts (**accessibility, safety...visual amenity, and community cohesion**), as well as economic development impacts (**business productivity**). In general, a transportation project would only lead to changes in property values (and subsequent land use) if it causes a direct change in one or more of these other local factors that affect the desirability of a location.³⁸

The Project specifically targets the items in bold. The analysis utilizes recent assessment values for three neighborhoods: East Deering, East Bayside, and East End, and assumes a one-time two percent improvement in values upon Project completion.

The analysis takes a conservative approach in a number of ways. First, previous studies have concluded that infrastructure improvements yield increases to property values in excess of six percent while this analysis only presumes two.³⁹ Second, while the BCA guidance advises a one-time increase, the BCA assumes this increase is realized over a three-year period. The NPV of those enhancements is **\$27,600,039**.

Safety

The calculated nominal annualized safety benefit is \$1.345 million, resulting in an overall NPV of **\$17,229,264**. These savings are derived from the estimated reduction in crashes resulting from the new bicycle lanes designed with Complete Streets principles, exit ramp modifications, and the implementation of a single-point T-intersection aimed at reducing vehicle speeds at heavily used intersections and crosswalks.

Amenity Benefits and Induced Active Transportation

The newly established path systems, connecting to both existing and new infrastructure, are expected to significantly increase pedestrian and cyclist activity, enhancing connectivity throughout the project area. Benefits were calculated for both existing and new users, with the latter calculated using the rule of half. The NPV of these benefits is **\$31,932,064**.

Travel Time, Congestion, and Emissions Savings

Construction of the interstate ramp will yield savings as 514,020 vehicle trips will experience a reduction of 0.2 miles on each trip, resulting in reduced emissions, travel time, and congestion. The NPV of these benefits is **\$1,807,584**.

Residual Value

In terms of savings, the lifespan of Project improvements greatly exceeds the 30-year analysis period and yields an NPV of **\$5,528,308**. The expected useful life of the bridge is 90 years, while other project components have an anticipated useful life of 45 years.

³⁸ <https://sites.google.com/site/benefitcostanalysis/benefit-cost-analysis>

³⁹ Sources: <https://publications.iadb.org/publications/english/document/The-Impact-of-Upgrading-Municipal-Infrastructure-on-Property-Prices-Evidence-from-Brazil.pdf>, <https://www.povertyactionlab.org/evaluation/increasing-access-infrastructure-and-property-values-through-urban-investment-mexico>