

Rolling Highway Between Edmonton and Calgary For: Alberta Regional Rail



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Executive Summary

Calgary and Edmonton count with one of Canada's most critical logistics corridors, the Queen Elizabeth II highway, with a freight transportation volume of approximately 8,000 heavy trucks per day. Moreover, the growing congestion, rising greenhouse gas emissions, escalating carbon costs, and a structural driver shortage are placing mounting pressure on the corridor's highway. This study evaluates whether a Rolling Highway (RoLa) service represents a technically, operationally, economically, and environmentally feasible alternative for the Calgary–Edmonton corridor.

Demand analysis confirms that the corridor is well-suited for Rolling Highway operations. The screenline methodology applied to the Alberta Transportation's 2024 Traffic Volume and Classification Report, obtained a volume-weighted AADT of 79,076.67 vehicles, of which approximately 10.16% are heavy vehicles feasible for the project, producing an estimated transferable pool of roughly 4,000 trucks per direction per day. Afterwards, an exponential smoothing forecast showed stable corridor volumes of 74,000 - 75,000 vehicles through 2029, confirming that structurally strong demand will persist over the planning horizon.

The proposed service design consists of 6–8 daily departures per direction using trainsets configured with 25–30 low-floor flatcar wagons, two locomotives, and a passenger coach. A complete round-trip operational cycle is estimated at 7.5 hours, supporting two round-trips per trainset per day and requiring a fleet of 6–8 dedicated trainsets. Additionally, the new needed terminals were analyzed and selected using the Best–Worst Method, identifying the Stoney Trail (Calgary) and the Ellerslie–41 Avenue (Edmonton) as the most optimal locations, both with highway access, direct rail connectivity, and logistics cluster proximity.

Financial modelling indicates that the service is economically viable under realistic operating assumptions. The total train operating costs were estimated from CAD \$9,250 to \$13,550 per round trip, and annual terminal operating costs for both sites range from \$4.3M to \$7.8M. So, against a conventional trucking benchmark of \$459–\$493 per load, a proposed RoLa price of \$350–\$430 per truck delivers a discount of 7%–29% while remaining above the financial break-even threshold. Thus, break-even analysis identifies a required daily capture of approximately 247–373 trucks, representing less than 5% of available corridor traffic.

The environmental case is compelling and strengthens over time. For each truck that shifts to rail, it would avoid 0.83–1.07 tonnes of CO_{2e} per one-way trip, representing an emission reduction of 69%–87% per load. Additionally, as Canada's federal carbon price increases from \$80/tonne (2024) to \$170/tonne (2030), the carbon cost advantage of Rolling Highway grows to \$142–\$186 per truck.

Three strategic recommendations are also suggested. First, the RoLa should secure contracts with anchor logistics operators prior to the launch date, accompanied by pricing discounts that reward high freight volume while operating above break-even. Second, to direct the marketing efforts on the benefit of the hours-of-service recovery to fleet managers and drivers, framing the service as a partial structural response to Alberta's documented driver shortage. Lastly, to implement two daily departures per direction aligned with peak-period services with the corridor's morning (7:00–Alberta's) and afternoon (4:00–6:00 p.m.) congestion windows, priced at a schedule-reliability premium of \$410–\$430 per load.

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1. Introduction

The freight transport between Calgary and Edmonton is one of the most important logistics corridors in Western Canada, which supports distribution operations within the region, industrial supply chains and interprovincial trade flows. The Queen Elizabeth II Highway (QE2) is mostly used by heavy-duty trucks and trailers through this corridor, which has been a major contributor to congestion, infrastructure degradation, greenhouse gas emissions, and capacity restrictions. Moreover, traffic congestion at peak-hours has also been reported to create travel time and transportation infrastructure congestion, which is indicative of the expanding imbalance between freight demand and road capacity (Canadian Broadcasting Corporation, 2015). With the freight activity growing steadily along with the growth of population and economy, the overwhelming reliance of the corridor on road transport draws attention to structural constraints in modal variety as well as network resilience.

At the same time, the parallel rail infrastructure owned by Canadian Pacific Kansas City presents an opportunity for modal integration that remains unexploited for short-haul accompanied freight transport (Canadian Pacific Kansas City, 2023). The Rolling Highway (RoLa) concept represents one potential solution to this imbalance. Under this model, truck drivers take their tractor and trailer units onto specialized low-floor rail wagons while travelling in a separate passenger coach during the journey, allowing them to rest while the freight continues to move. This type of RoLa transport system has already been successfully implemented across European freight corridors, where they have demonstrated reductions of highway congestion, improved environmental performance, and enhanced driver productivity (UIC, 2021).

This study is therefore an evaluation of the technical, operational, economic, and environmental feasibility of implementing a Rolling Highway transportation service in the Calgary and Edmonton corridor. Hence, the project scope includes demand estimation, operational design, terminal location analysis, cost modelling, and benchmarking against conventional trucking operations.

To accomplish this objective, the study addresses three groups of research questions. Demand-related questions investigate total daily truck volumes within the corridor, the share of freight compatible with Rolling Highway operations, and environmental policies that could incentivize modal shift toward rail. Operational questions look at pricing structure, required daily truck throughput, frequency of service, duration of operation, fleet size, train speed, terminal location, and the cost of operating the trains and terminals, which results in break-even analysis. Lastly, a benchmarking analysis compares overall results against traditional trucking costs and assesses the environmental performance advantages to determine whether the implementation of the Rolling Highway represents a competitive and sustainable logistics alternative in the Calgary–Edmonton freight corridor.

2. Literature Review and Conceptual Framework

2.1 Rolling Highway and Intermodal Rail Freight Literature

A Rolling Highway (RoLa) is a specialized and combined form of accompanied transport in which complete heavy trucks are transported on low-floor rail wagons while drivers travel in separate passenger coaches in the same train. Most research on Rolling Highway systems shows the viability of this intermodal solution where containerization or trailer-only rail transport is not feasible due to equipment constraints or market structure (International Union of Railways [UIC], 2021). Additionally, transport literature commonly states several advantages of RoLa systems, such as energy efficiency, improved corridor capacity utilization, and reduced traffic congestion on roads (UIC, 2021).

In addition, the evidence from the existing intermodal systems in Europe shows the potential of the Rolling Highway in terms of fuel savings, efficiency and compliance with hours of service of the driver, and highway and load safety through reduced exposure on the highway (Hupac Group, 2023).

2.2 Comparable International Case Studies

For assessing the feasibility of the service in Alberta's QE2 corridor, examples from European operations provide practical blueprints. For example, the Rolling Highway services by RAlpin AG (2023) in Switzerland carried accompanied trucks along the Alpine routes to reduce the effects of heavy vehicles on the sensitive areas. This system also demonstrates the significance of demand, public policy support, and terminal infrastructure to the sustainability of the service (Hupac Group, 2023).

A further relevant benchmark is the Eurotunnel Le Shuttle system, which carries trucks through the Channel Tunnel between the UK and France using drive-on rail

technology. Although this system's primary focus is on cross-border connectivity, this system demonstrates the commercial viability of accompanying truck rail services over relatively short corridors where road congestion, regulatory constraints, or environmental considerations affect trucking efficiency (Channel Tunnel Group, 2015).

2.3 Rail vs. Road Freight Economics in Canada and Alberta

The Canadian freight transportation system depends largely on rail for long-haul bulk transportation, and trucking dominates the regional and medium-haul distribution.

Considering the previous, some economic analyses commonly show that rail freight mode is more fuel-efficient and less expensive to operate per ton-kilometre than trucking, mostly because of scale economies and low rolling resistance (Railway Association of Canada, 2024).

Within Alberta, the Calgary–Edmonton corridor functions as a high-density freight axis linking distribution centres, manufacturing clusters, and energy-related logistics flows. According to Transport Canada (2023), recent growth of truck freight and rail volumes has remained steady, which indicates that there is an opportunity to implement intermodal solutions that have the potential to capture medium-haul demand, where road congestion and labour limitations could become increasingly severe. These external factors offer an economic rationale to study accompanied combined transport as an add-on freight alternative.

3. Methodology

This study employs a multi-method quantitative design to assess the feasibility of a Rolling Highway (RoLa) service between Calgary and Edmonton across five analytical components.

The corridor demand was estimated using a screen-line methodology on QE2 Control Sections; sections 18th to 32nd were drawn from the Alberta Transportation and Economic Corridors' 2024 Traffic Volume and Classification Report. The Annual Average Daily Traffic (AADT) were registered from northern, central, and southern segments and was averaged to produce a corridor-level flow estimate of 79,076.67 vehicles per day, avoiding double-counting of local trips.

Demand forecasting was conducted using exponential smoothing applied to observed AADT data from 2020 to 2024, projecting stable corridor volumes of 74,000–75,000 vehicles annually through 2029.

Terminal location selection used the Best-Worst Method (BWM), a multi-criteria decision-making technique in which nine criteria, including highway accessibility, rail connectivity, and infrastructure readiness, were weighted by the client, Thomas Fryer, through structured pairwise comparisons. Four candidate sites in Calgary and Edmonton were scored and ranked accordingly. Terminal land requirements were validated against the RAlpin Freiburg facility.

Cost modelling was built bottom-up from published industry benchmarks, separating per-round-trip train operating costs from annual terminal operating costs across both terminals. Revenue was modelled using a per-truck pricing range benchmarked against the all-in trucking cost of \$459–\$493 per load on the corridor.

The financial viability was evaluated through operational break-even analysis, whereas the quantification of the savings was carried out through a quantified environmental benchmarking method using a "bottom-up" accounting of the emissions of diesels, scaled against the Canadian carbon pricing plan through 2030.

4. Market Demand Analysis

4.1 Truck Traffic on the Calgary–Edmonton Corridor

The screen-line analysis (see Appendix A) shows an AADT of 79,076.67 vehicles in 2024, confirming the corridor's high utilization. Additionally, from the vehicle classification results, it was revealed that heavy vehicles constitute a meaningful share of total traffic, with single-unit trucks accounting for approximately 2.73 % and tractor–trailer combinations accounting for approximately 7.43 % of flows.

In addition, the report estimates 247.17 million kilometres travelled annually, only in the selected section of the corridor. Hence, illustrating the cumulative scale of corridor utilization. Also, Equivalent Single Axle Load (ESAL) values of approximately 6,499.93 per day per direction highlight the substantial infrastructure loading generated by heavy vehicles.

The directional movement of the corridor is quite balanced because both cities have complementary roles in the industry. The morning hours between 7:00 and 9:00 a.m. and the afternoon hours between 4:00 and 6:00 p.m. are the busiest peak hours during which there are major roadways with delays (Havre, 2024).

The forecast and historical traffic data from 2020 to 2029 (see Appendix B) offer an understanding of the dynamics of the corridor's utilization over time. The observed yearly volumes increased from 65,647 AADT vehicles in 2020 to 80,647 AADT vehicles in 2024, reflecting a strong and organic freight recovery and corridor growth after the pandemic. Regarding the forecast results, it projected stable AADT volumes ranging between 74,000 and 75,000 vehicles through 2029. This pattern suggests that the 2024 peak represents a high-demand reference point; the forecast indicates structurally stable corridor demand with modest long-term growth, which is advantageous for Rolling Highway planning.

4. 2 Freight Suitability for Rolling Highway

The suitability assessment in this study is also based on the *2024 Traffic Volume, Vehicle Classification, Travel and ESAL Statistics Report*, the nature of the transportation service, and the capability of the existing rail tracks.

First, the distance suitability is met by the approximate length of the Calgary-Edmonton corridor, about 300 km, which is in the medium-haul operation range. Second, the compatibility of trailer types is supported by the freight structure of the corridor, where trucks and trailers are compatible directly with the low-floor wagon loading systems. Third, time sensitivity factors imply that shipments with repetitive distribution models, backhaul flows, and shipment timelines with medium turnaround times are the most transferable, but highly time-constrained shipments that need route flexibility may remain road-bound (Hupac Group, 2023).

The traffic report reveals a heavy vehicle volume of 2.73% of the traffic being single-unit trucks and 7.43% being tractor-trailer combinations, resulting in a transferable total truck share of approximately 10.16% of corridor traffic. Therefore, based on these percentages, the estimated truck traffic volume on the corridor is approximately 8,000 trucks per day in both directions, equivalent to 4,000 trucks per direction daily. Thus, the project does not show a traffic volume constraint.

Nevertheless, some existing constraints affecting traffic transferability are the cargo transporting dangerous goods subject to regulatory restrictions, oversized or overweight loads, and multi-stop distribution routes incompatible with the selected terminals. Consequently, while complete transferability is neither operationally feasible nor part of the scope, the identified transferable segment constitutes a substantial demand pool capable of supporting the Rolling Highway service.

5. Operational Design and System Configuration

The proposed service is structured as a two-way train linking the Calgary and Edmonton logistics regions. The Rolling Highway train is assumed to include a locomotive, a passenger car for truck drivers, a loading/unloading wagon, 25–30 connected 89/90-foot flat deck wagons carrying complete tractor–trailer combinations, a second loading/unloading wagon, and a trailing locomotive. The flatcars are estimated to be approximately 89 feet (27m) long, equal to the maximum allowed legal truck length of 25m in Alberta for tractor–trailer combinations. With locomotives approximately 21 m in length and all wagons approximately 27 m long, the total train length is estimated at approximately 798 m for a 25-truck configuration and 933 m for a 30-truck configuration. Thus, terminal yard design must accommodate trains approaching 1 km in length, and loading platforms would be constructed at flatcar deck height to allow efficient drive-on/drive-off operations.

The assumption of 6 - 8 departures per direction, 12 - 16 round-trips total, represents a conservative and operationally feasible scenario for a pilot/initial stage of the Rolling Highway service while allowing the system to scale gradually. Operating 6 - 8 departures per direction per day would therefore provide a daily transport capacity of approximately 180 - 240 trucks per direction and 360 - 480 trucks round-trip based on the full 30 tractor-trailer combination capacity.

Train speed is primarily determined by track condition, train size and weight, and the type of goods being transported. Due to their lower weight and shorter length than normal North American freight trains, RoLa trains potentially have passenger-train-like speeds of about 130 km/h on regular track and 175km/h on improved or enhanced track systems. In reality, though, the average commercial speeds would be less likely because dispatching restrictions, safety margins and terminal approaches. Since the corridor is supposed to be

non-electrified, the operations would be based on diesel locomotives that could be used with the existing infrastructure. The assumed level of service availability is around 350 days of operation per year with some planned maintenance time and other possible instances of disruption of operations due to weather conditions or the activity of the rail network.

5.1 Terminal Location Analysis

The location of each terminal was selected based on various factors such as multimodal accessibility, availability of industrial lands, and connectivity with logistic centres in the region. The ideal location of the Calgary-based terminal is the Stoney Trail and Balzac logistics area, which is located north of the metropolitan centre. It is a region that focuses on major distribution centres and offers direct access to flows along QE2 and excellent connectivity to regional ring-road systems and a close vicinity to major freight rail mainlines. Also, the lengthy track geometry needed by the RoLa operations is favoured by industrial zoning and the size of available parcels.

The preferred zone in Edmonton is the Ellerslie and Anthony Henday yard area, which has connectivity to the ring-road infrastructure. High regional highway integration and compatibility with large-footprint logistics infrastructure characteristic of intermodal terminals can be found in this area as well.

5.1.1 Best Worst Method (BWM)

A set of nine evaluation criteria was selected to assess potential Rolling Highway terminal locations both in Edmonton and Calgary by using the Best–Worst Method. The chosen criteria are highway access, rail accessibility, proximity of the logistics cluster, land availability and geometry, infrastructure preparedness, cost of land acquisition and development, environmental impact, expansion potential, and market capture potential. These

criteria ensure that both operational requirements and long-term system performance are considered in the decision-making process.

According to the inputs by Thomas Fryer (personal communication, February 25, 2026), the result of the Best–Worst Method (see Appendix C) shows that access to highways (0.256) is the most affecting factor in the selection of Rolling Highway terminal location, due to the importance of reducing first- and last-mile trucking time. The next most influential factors are rail connectivity (0.156) and infrastructure preparedness (0.156), demonstrating that it should be able to connect with the current rail infrastructure and be operated. The proximity of logistics clusters (0.104) and the availability and geometry of land (0.104) are also significant to capture adequate demand and terminal physical suitability. Conversely, environmental impact (0.022) had the least weight meaning in this context the operational and accessibility factors dominate terminal location decision-making.

5.1.2 BWM Locations Scores

These weighted results show that the Ellerslie–41 Avenue location in Edmonton and the Stoney Trail access location in Calgary are the most suitable terminal locations within their respective metropolitan areas. The Ellerslie–41 Avenue site achieves the highest total score of 4.54, due to its infrastructure readiness, logistics cluster proximity, and land availability, and highway and rail accessibility. In Calgary, the Stoney Trail location ranks highest with a total score of 4.28, as it has access to the regional highway network and strong market capture potential along the primary freight corridor. Although the Balzac and Anthony Henday alternatives perform competitively, their slightly lower scores reflect trade-offs related to infrastructure readiness or land characteristics.

5.1.3 Selected Terminals Capacity

To find the total area in hectares for these two locations, the square kilometres (km²) and square meters (m²) estimates provided in the satellite images from Google Maps were converted to hectares (see Appendix D).

With train length measurements of approximately 798m and 933m require terminals capable of accommodating long continuous loading tracks, truck staging areas, and internal circulation lanes for tractor–trailer movements. Therefore, as the proposed Rolling Highway service would transport 25–30 complete tractor–trailer combinations using 89-foot (27 m) flat-deck wagons, terminals must incorporate drive-through loading platforms raised to flatcar deck height to enable efficient drive-on/drive-off operations.

As a benchmarking reference for terminal scale, the Swiss Rolling Highway system operated by RAlpin AG provides a useful analogue capacity-wise. One of the system's operational facilities is the Freiburg RoLa Terminal. Geospatial analysis of the parcel on the rail side indicates a specialized operational area of 18.5 hectares. According to RAlpin's AG (2023), this terminal can handle up to 100,000 trucks per year, with 48 services per week. This equates to 8 to 10 departures per day. The RoLa train will carry 22 to 24 low-floor wagons. This will result in a train length of 600 to 700 m. This can be compared to the proposed Calgary to Edmonton RoLa train.

The spatial requirement of a terminal to handle the proposed Rolling Highway trains can be estimated by using the Freiburg terminal as a planning benchmark. This will be done relative to the train length. In this case, with a 25-truck operating scenario, the train length will be approximately 798 m. Dividing this value by the 700 m reference train length produces a scaling factor of 1.14. Applying this factor to the 18.5-hectare Freiburg terminal footprint suggests an estimated land requirement of approximately 21 hectares for a comparable terminal serving the Calgary–Edmonton corridor.

Under the 30-truck operating scenario, the train length is approximately 933 m. So, dividing this value by the 700 m reference length produces a scaling factor of 1.33, which, when applied to the Freiburg footprint, suggests a theoretical land requirement of approximately 24 - 25 hectares.

These figures should be interpreted as high-level planning benchmarks rather than precise engineering requirements. A Rolling Highway terminal serving the Calgary–Edmonton corridor could adopt a larger and more flexible layout due to greater land availability and simpler operational requirements.

5.2 Turnaround Times and Operational Cycle

The operational cycle for a Rolling Highway train between Calgary and Edmonton is estimated at 7.5 hours for a complete round trip, assuming a twinned rail track configuration, reduced staging requirements, and integrated cleaning and maintenance activities during loading and unloading operations.

The example of an operational sequence of a train is summarized as follows:

- **0:00 – 0:30:** Trucks loading in Calgary/Edmonton.
- **0:30 – 3:00:** Travel to Calgary/Edmonton at approximately 140 km/h.
- **3:00 – 3:30:** Unloading in Calgary/Edmonton (cleaning done at the same time).
- **3:30 – 3:45:** Return departure staging (15-minute buffer).
- **3:45 – 4:15:** Loading in Calgary/Edmonton for return trip (cleaning performed simultaneously).
- **4:15 – 6:45:** Travel back to Calgary/Edmonton at approximately 140 km/h.
- **6:45 – 7:15:** Unload in Calgary/Edmonton (cleaning done at the same time).
- **7:15 – 7:30:** Staging for the next trip.

This program leads to a complete round-trip service cycle of 7.5 hours and a number of rotations per trainset per day.

5.3 Fleet Size and Utilization Rates

Based on a 7.5-hour round-trip, a single trainset could complete approximately three full round-trips within a 24-hour operating period, assuming high operational efficiency and minimal delays. Nevertheless, in order to control schedule reliability and enable operational buffers, the maintenance operations and network dispatching constraints, a more conservative utilization assumption of two full round-trip per trainset per day is used.

At the suggested 6 - 8 departures per direction per day (12 - 16 total departures), the service would need about 6 - 8 dedicated trainsets to run throughout the corridor.

Each train set would be configured as follows:

- 2 locomotives
- 25 - 30 RoLa wagons
- 1 passenger coach
- 2 loading transition wagons



This configuration implies a total fleet requirement of approximately:

- 12 - 16 locomotives
- 150 - 240 RoLa wagons
- 6 - 8 passenger coaches

At the assumed operating frequency, wagon utilization would remain relatively high, with each wagon participating in multiple daily trips and achieving strong asset productivity.

6. Cost and Revenue Model

6.1 Revenue Assumptions

The projected revenue of the proposed RoLa service between Calgary and Edmonton was done in accordance with current North American intermodal freight pricing standards. As per the current market statistics, the average domestic intermodal spot rates are about \$1.39 per mile without fuel surcharges (Fuller, 2026).

Since the fuel surcharge is often separated in freight transportation pricing, the cost of fuel per mile would need to be added to the intermodal spot rate to estimate the overall cost shippers would pay. According to present prices of diesel and assumptions of heavy-duty truck fuel efficiency, the cost of the fuel per mile of travel is estimated between \$1.08 and \$1.26 (the calculation is presented in Section 6.2).

Combining the base intermodal spot rate and the estimated fuel cost produces the total intermodal trucking cost per mile of \$2.47 - \$2.65. Considering the highway distance between Calgary and Edmonton is approximately 186 miles (300 km), and applying the estimated cost per mile to this distance results in the total estimated intermodal trucking cost per load of \$459 - \$493. These values serve as a point of reference in gauging the competitive pricing scope of the Rolling Highway service since the RoLa service should be economically viable compared to the traditional intermodal.

Freight transport demand tends to be fairly elastic, and research shows that the price elasticities of a rail-road modal shift have a tendency to fall between -0.3 and -0.7, so a modest price decrease can have a strong impact on modal choice (Transport Canada, 2022). Hence, logistics operators might be willing to change to RoLa services if they save

considerable driver hours, improve reliability, or address corporate environmental, social, and governance (ESG) goals.

6.2 Train Operating Costs

Fuel represents the largest single operating expense. Most contemporary freight locomotives usually use 3 - 4 litres of diesel per kilometre, based on the weight of the train and the working conditions (Association of American Railroads, 2023). Along the 300 km route between Calgary and Edmonton, the overall consumption is estimated to be 900 -1200 litres per one-way travel or 1800 -2400 litres per round trip. So, using a national diesel price of approximately CAD \$2.00 per litre as of March 2026, the resulting fuel cost ranges from \$3,600 to \$4,800 per round trip.

Crew and labour costs reflect the standard two-person operating crew required for Canadian freight trains, typically consisting of a locomotive engineer and conductor. According to the benchmarks of labour compensation provided by Transport Canada and the Railway Association of Canada, the average cost of labour in terms of a round trip is estimated as \$1,200-\$1,800 (RAC, 2025; Transport Canada, 2023).

Maintenance and depreciation costs account for routine inspections, component replacement, and the long-term capital recovery of locomotives and RoLa wagons. The freight rail rolling stock is normally subjected to depreciation schedules of about 20 -30 years for wagons and 25 years for locomotives (UIC, 2024). Maintenance and depreciation costs are approximated to be \$2,000 - \$3,000 per round trip when amortized annually over the anticipated operating period per round trip.

Additional costs include track access charges and infrastructure usage fees. Because most Canadian rail infrastructure is owned by private railways, third-party operators must

negotiate access agreements. These fees are conservatively estimated at \$2,000 - \$3,000 per round trip based on comparable freight service agreements.

Lastly, the third-party damages, cargo liability, and passenger liability in transporting truck drivers on RoLa trains necessitate operating liability insurance. According to the Canadian rail insurance standards, this amount is estimated to range between \$450 and \$950 round-trip (Senko et al., 2023).

Overall, the combined operating costs result in a total estimated \$9,250 - \$13,550 per train round trip, as summarized in Appendix E. Assuming 25 - 30 trucks per train, this corresponds to an approximate cost of \$308 - \$542 per transported truck.

6.3 Terminal Operating Costs

6.3.1 Personnel and Labour Costs

Shunting operations and loading coordination by operators and drivers are projected to cost \$450k-\$750k annually, based on estimations of 5-7 full-time employees needed to ensure 24/7 operations, and average railway compensation is approximately \$110,000 per year (RAC, 2025).

According to CareerBeacon (2026), station staff performing tasks in check-in of trucks, also gate operations and safety supervision have an average salary valued between \$65,000 and \$85,000 with benefits, therefore, estimated yearly expenditure of the unit is \$350k-\$550k.

Estimates of maintenance crews (track maintenance, loading ramp systems, mechanical inspections, etc.) are at \$300k - \$600k/year, based on average salary data at Statistics Canada (2025). The estimated administrative staff to schedule, bill, and coordinate

logistics is \$250k - \$400k/year, based on the average Canadian terminal manager and administrative personnel salaries for logistics management.

6.3.2 Utilities and Infrastructure

These terminal utilities comprise lighting, electrical power, and mechanical systems. High mast lighting and operational equipment drawing is estimated to be between \$120k - \$220k annually, as per the industrial electricity benchmarks of the Canadian Transportation Agency (2021).

Annual administrative building and driver facility heating/cooling costs are projected to be between \$60k - \$100k annually, as per the mechanical operating cost indexes of the Altus Group Canadian Cost Guide (2026).

Ventilation and drainage systems are approximated to cost \$40k - \$90k yearly based on energy consumption statistics presented in the Government of Newfoundland and Labrador (2004) Railway Tunnel Operating Study that offers references to industrial ventilation fans and sump pumps.

6.3.3 Facility and Professional Services

Other recurring expenses are facility cleaning insurance, city taxes, office supplies and contractor services. Cleaning of 24/7 transport facilities would be about \$80k-\$150k per year, depending on the commercial contract. Rail insurance protection is presumed to be between \$150k and \$300k a year based on liability and asset protection criteria in line with Canadian insurance provisions in rail operations.

Property taxes are estimated between \$100k - \$250k annually, reflecting municipal tax rates applied to industrial rail-zoned properties. Office supplies and IT equipment costs

are estimated at \$30k - \$60k annually, based on administrative cost benchmarks reported by the Canadian Transportation Agency's Guide to Railway Charges.

Lastly, contractor services, specialized inspections, security services, and external switching services are estimated to cost \$200k-\$450k per year, according to tariff benchmarks provided in Logistics Canada Rail Services Tariff (DP World, 2024).

With two terminals required for the corridor, the combined annual terminal operating cost is estimated at approximately \$4.3M - \$7.8M per year (see Appendix F). Efficient terminal utilization and high throughput will therefore be critical to ensuring that these largely fixed operational costs are distributed across a sufficient volume of transported trucks.

7. Financial Feasibility and Break-Even Analysis

7.1 Cost Structure Summary

The overall operational cost of the proposed RoLa system is a combination of two main elements: train operating cost and terminal operating cost. The data is based on the assumptions detailed in Section 6.2, the estimated train operating cost range of CAD \$9,250 to \$13,550 per round trip. With a proposed service frequency of up to 8 round-trip departures per day per direction, the aggregate daily train operating cost ranges from approximately \$74,000 to \$108,400.

Terminal operating costs reflect services across the two terminals located at Stoney Trail (Calgary) and Ellerslie 41 Avenue (Edmonton). The combined annual terminal operating cost is estimated at \$4.3M to \$7.8M, which, when distributed across 350 annual operating days, yields a daily terminal cost of approximately \$12,286 to \$22,286.

Combining both cost categories, the total daily operating cost for the service ranges from approximately \$86,300 to \$130,700, as summarized in Appendix G.

7.2 Revenue Assumptions and Pricing Strategy

As determined in Section 6.1, the estimated price of intermodal trucking along the Calgary - Edmonton corridor is estimated to be between \$459 and \$493 per load. Thus, the Rolling Highway service has to be priced below this competitive mark and still be profitable.

In this analysis, a proposed per-truck price range of between \$350 and \$430 per load is adopted. The range corresponds to a discount of about 7% to 30% in comparison to traditional intermodal prices, which aligns with the previously mentioned demand elasticity which shows that a moderate price discount can have considerable effect on modal choice (Transport Canada, 2022).

Theoretical maximum daily revenue capacity is between \$140,000 (400 trucks × \$350) and \$206,400 (480 trucks × \$430) at a midpoint price of \$390 per truck load and bidirectional capacity of 25-30 trucks per train with 8 round trips daily, These values fall within the range of the operating cost per day that is estimated between \$86,300 and \$130,700, meaning that the service is able to have positive operating margins in both high-utilization and mid-to-upper price conditions.

7.3 Break-Even Analysis

7.3.1 Required Daily Truck Volumes

The break-even level of trucks/ day is calculated by dividing the daily operating cost by the revenue per truck. With the average daily operating costs of \$108,486 and average price per truck of \$390, the break-even point is approximately 278 trucks per day in each direction, as depicted in Appendix H.

These thresholds are evaluated against the corridor's estimated truck traffic of approximately 4,000 trucks per direction per day (8,000 total). Even under the most conservative break-even scenario requiring 373 trucks per day at a low price and high cost, so the required capture rate represents less than 5% of total daily truck traffic. Given the corridor's scale, this level of demand is operationally achievable, particularly once the service establishes market presence and demonstrates reliability.

7.3.2 Minimum Trains Per Day

At the break-even point, i.e., 278 trucks per day, and assuming a maximum configuration of 30 trucks per train, the minimum number of one-way services per direction, and thus the number of round trips per day, to arrive at the break-even point would be approximately 5. Under the 25-truck configuration, the number of one-way services per

direction increases to approximately 6. Both options fall under the proposed service design, which validates that the operation framework is sufficiently sized to attain financial viability.

7.3.3 Annual Operating Thresholds

On an annual basis (350 operating days), the break-even thresholds translate to the following:

- **Minimum annual truck volume:** approximately 87,150 trucks (low cost / mid price) to 130,550 trucks (high cost / low price)
- **Midpoint annual break-even volume:** approximately 97,300 trucks per year
- As a point of reference, the Freiburg RAAlpin terminal, which serves as a planning reference, gets about 100,000 trucks each year, which proves that the planned annual throughput falls within the operational spectrum of similar systems.

8. Benchmarking Analysis

8.1 Road Trucking Cost Benchmark

8.1.1 Cost per Kilometre and per Trip on the Calgary–Edmonton Corridor

The total cost of road trucking on the Calgary–Edmonton corridor is assembled from three components: base transportation rates, fuel costs, and driver labour costs. Each is benchmarked against current Canadian industry data.

Base freight rates. The current rate for full truckloads in Canada is between \$2.10 and \$3.50 per mile for standard van freight. The average rate for a tractor-trailer is \$2.76 per mile for van freight and \$3.00 per mile for flatbed and specialized trucks. (American Transportation Research Institute, 2025; Rolls Right, 2025). According to the American Transportation Research Institute (2025), marginal operating costs in North American trucking have reached USD \$2.27 per mile in 2023, with the largest unit of cost being the wages of the driver, which were USD \$0.779 per mile, and the second leading cost unit was fuel, at about USD \$0.585 per mile (Canadian Trucking Alliance, 2025). When these benchmarks are applied to the 186-mile (300km) Calgary - Edmonton corridor, the base freight cost per load is approximately \$409 to \$651, with a midpoint estimate of \$513.

Fuel cost component. Using the data in Section 6.1 and that a tractor-trailer consumes between 35 and 40 litres per 100 km of fuel on the road, the fuel consumption contribution to the RoLa distance is between \$201 and \$234 per trip, assuming diesel prices are around CAD \$2.00 per litre. These results are in line with Natural Resources Canada benchmarking data that show that the Canadian long-haul fleets that are the most fuel-efficient use about 33-35 litres per 100km (Natural Resources Canada, 2025).

Driver labour cost component. The average pay of a transport truck driver in Canada is CAD \$27.10 per hour, and long-haul drivers with experience make up to \$30.15 per hour (Statistics Canada, 2023). So, assuming a one-way transit time of approximately 3.5 hours on the corridor (including loading, driving, and unloading), the driver labour cost per one-way trip is estimated at approximately \$95 to \$106. For a round-trip with mandatory rest, the total driver cost per load cycle exceeds \$190 to \$210, representing a fixed operational burden that the Rolling Highway's driver rest-in-coach model eliminates.

Combining these components, the total all-in trucking cost per load on the Calgary-Edmonton corridor is estimated at \$459 to \$493, as summarized in Appendix I. This range is consistent with the revenue assumptions developed in Section 6.1 and provides the competitive pricing benchmark against which the proposed Rolling Highway price of \$350 to \$430 per truck is evaluated.

8.1.2 Competitiveness of Rolling Highway Pricing

The proposed price for the RoLa system of between \$350 and \$430 per truck load is a discount of about 7% to 29% compared to the intermodal trucking cost of \$459 to \$493 per load. This position is aimed at providing a plausible financial incentive to logistics operators without sacrificing enough margin to cover the operating costs, as confirmed in the break-even analysis in Section 7. The competitive advantage of the RoLa service is expected to strengthen as the carbon price trajectory escalates, as driver shortages intensify, and as highway infrastructure costs are increasingly reflected in provincial road-use pricing frameworks.

Furthermore, the Rolling Highway offers non-price value drivers that are not captured in direct cost comparisons. As an example, the increased predictability of the schedules, the

lesser wear of the vehicles, and the ability of the logistics companies to fulfill the ESG goals (see Appendix J).

8.2 Environmental Feasibility and Advantages

8.2.1 CO₂ Emissions Comparison: Rail vs. Road

The scientific and policy literature supports the environmental case of the modal shift of trucking to rail. The number of GHGs produced by Canadian railways makes up only 0.9% of the total GHG emissions in Canada and only 3.0% of the GHG emissions in the transportation sector, despite the fact that nearly 70% of all intercity freight is moved by tonne-kilometre on the railways (Railway Association of Canada, 2024). Trains are, on average, four times more fuel-efficient than trucks, and one locomotive can haul a tonne of freight more than 220 kilometres on a single litre of fuel (Railway Association of Canada, 2022).

For the specific case of tractor-trailer freight on the Calgary-Edmonton corridor, the GHG comparison is quantified as follows. An average tractor-trailer combination powered by diesel emits around 160 to 200 grams of CO₂ equivalent per tonne-kilometre (g CO₂e/t-km) in long-haul freight operations, which is comparable to the EU baseline data of 57-100 g CO₂e/t-km in long-haul tractor-trailers, and much higher when operating at low payload utilization (ICCT, 2021). Therefore, a fully loaded tractor-trailer (approximately 20 tonnes payload), a one-way trip of 300 km generates approximately:

Truck CO₂ per trip = 20 tonnes × 300 km × 160 - 200 g CO₂e/t-km ÷ 1,000,000 = 0.96 to 1.20 tonnes CO₂e per trip.

A Rolling Highway train hauling 25-30 trucks consumes approximately 900-1,200 litres of diesel per one-way trip of 300 km. So, by assuming an emission of approximately

2.68 kg CO₂ per litre (Environment and Climate Change Canada, 2023), the total train CO₂ per one-way is:

Train CO₂ per one-way trip = 900 – 1,200 L × 2.68 kg CO₂/L ÷ 1,000 = 2.41 to 3.22 tonnes CO₂e.

Distributed across 25 to 30 trucks, the rail CO₂ per truck would be approximately:

Rail CO₂ per truck = 2.41 – 3.22 tonnes ÷ 25–30 = 0.080 to 0.129 tonnes CO₂e per truck.

In other words, a one-way shift from truck to rail would have a greenhouse gas emission reduction potential of 0.83 to 1.07 tonnes CO₂ per one-way trip, or a reduction potential of 69 to 87 percent.

8.2.2 Carbon Pricing Implications and Policy Alignment

The environmental advantage of the Rolling Highway service is progressively monetized through Canada’s federal carbon pricing trajectory. Under the Greenhouse Gas Pollution Pricing Act (2018), the carbon price reached CAD \$80 per tonne CO₂e in 2024 and is scheduled to increase to \$170 per tonne by 2030 (Environment and Climate Change Canada, 2023). For a tractor-trailer generating approximately 0.96 to 1.20 tonnes CO₂e per one-way trip, the current carbon cost is approximately \$77 to \$96 per trip.

Applying the 2030 carbon price of \$170 per tonne, the carbon cost of a conventional truck trip rises to \$163 to \$204 per trip. On the other hand, the carbon price of a Rolling Highway truck-equivalent trip of \$170/tonne would result in about \$14-\$22 per-truck on rail, since the per-truck emissions are much lower on rail (see Appendix K).

These dynamics correlate with the policy targets of the Government of Canada 2030 Emissions Reduction Plan, the federal Green Freight Program, and the Alberta TIER

regulation, which all introduce financial incentives in the process of decarbonizing supply chains. Therefore, the Rolling Highway is viable to achieve verifiable GHG reductions, which qualifies it well for accessing the National Trade Corridors Fund (2023) capital support and programs of clean transportation innovation.

9. Recommendations

9.1 Recommendation 1: Anchor Client Partnerships and Volume-Commitment Pricing

9.1.1 Pre-Launch Volume Commitments

Prior to the launch of the service, the RoLa must secure volume commitments for a minimum of 12 months from two to three anchor logistics operators. Ideally, these operators must generate 40 to 60 truck movements per week on the Calgary–Edmonton corridor. These contracts must be designed as take-or-pay or ship-or-pay contracts, such that a minimum revenue rate is ensured on the first working day, regardless of movements in the spot market. Moreover, companies already concentrated in the Balzac area and the Ellerslie industrial zone represent potential candidates.

9.1.2 Tiered Pricing Structure

All bookings should be charged using a three-tier pricing structure. The normal rate of CAD \$410 per truckload is charged on spot bookings without volume commitment. Operators who make commitments of 50 or more trucks per week will be offered a rate of \$390 per load, whereas operators making commitments of 100 or above trucks per week will be offered a rate of between \$365 to \$370 per load. All three levels do not drop below the break-even floor set in the financial analysis of \$350 per truck, which maintains operating margin throughout the entire spectrum of business environments. The structure will thus favour the volume loyalty without compromising the financial discipline needed to maintain the service operations until the ramp-up period.

9.1.3 ESG Co-Branding and Carbon Certificate Program

Anchor clients must be given the opportunity to have access to greenhouse gas reduction certificates that conform to GHG Protocol Scope 3 frameworks. Each truck load that is taken off the road and onto the rail at the federal CAD \$170 per tonne carbon price saves between \$142 and \$186 in carbon costs. This is a measurable key performance indicator that supply chains can use to show decarbonization results, like large retailers, e-commerce operators, and industrial shippers, who are required to disclose their emissions. Providing the documentation infrastructure to capture and report these savings materially strengthens the commercial proposition for logistics procurement teams who are evaluated on sustainability performance in addition to cost.

9.2 Recommendation 2: Marketing the Passenger-Coach Experience

9.2.1 Fleet Manager Targeting

The main marketing campaign surrounding the passenger-coach benefit must be targeted to the fleet operations managers and owner-operators, and not the logistics procurement teams. The applicable value proposition at this level of audience is not the price per load, but the operational advantages of the Hours-of-Service clock suspension in the 2.5-hour rail transit. A driver who travels Calgary-Edmonton RoLa is able to arrive with remaining HOS hours and is rested to continue the next dispatch cycle. So, assuming average compensation of CAD \$27.10-\$30.15 per hour to drivers, the wage-equivalent time recovered per one-way trip is about \$68-\$75. Thus, when an average of five round-trip per week is made over the corridor, the recovery per driver in terms of driver hours is over \$35,000 annualized, which is enough to justify a discussion on train-level adoption.

9.2.2 Industry Partnership for Driver Shortage Positioning

The Rolling Highway service should be formally positioned within the broader driver shortage conversation by partnering with the Alberta Motor Transport Association and Trucking HR Canada to present it at industry workforce events. The Alberta trucking industry is currently experiencing a well-documented and rising driver shortage condition, and the service provides a partial structural solution to the driver shortage condition by allowing a driver to achieve a greater distance per day without sacrificing HOS hours on the rail segment.

9.2.3 Safety and Congestion Narrative

Marketing materials should also incorporate the improved highway safety factor of peak-period congestion on the Queen Elizabeth II Highway. The corridor's service would decrease the elevated incident risk for heavy vehicles operating at highway speeds in mixed traffic. Therefore, shifting trucks to rail during these windows reduces the drivers' exposure to high-risk driving conditions and targets the main issue, highway congestion.

9.3 Recommendation 3: Two Priority Departures During Peak Congestion Windows

9.3.1 Peak Departure Timetable

The service timetable should designate two daily departures per direction as timetabled peak-period services aligned with the corridor's documented morning and afternoon congestion windows. The morning peak services should be scheduled from 7:00 a.m. to 8:00 a.m. from Calgary, and from 7:30 a.m. to 8:30 a.m. from Edmonton, with the trains arriving at their destinations between 9:30 a.m. and 11:00 a.m. in order to pick up the outbound dispatch cycles from the warehouses that dominate the freight patterns in the metropolitan logistics clusters. Afternoon peak services must leave Calgary at 4:00 to 5:00 p.m. and Edmonton at 4:30 to 5:30 p.m., which are to arrive between 6:30 and 8:00 p.m., to

match the backhaul and return-load demand of afternoon industrial shift patterns and distribution centre closing cycles.

9.3.2 Peak Slot Pricing and Advance Booking

The two peak departure slots in each direction should be priced at the upper end of the revenue range, between CAD \$410 and \$430 per truck load. This is a price that represents the system's advantages during peak hours. Off-peak departures would be offered at \$365 to \$390, preserving the full pricing spectrum modelled in the break-even analysis. To enable accurate trainset staging, terminal staffing alignment, and load planning, peak slots should require 24-hour advance booking as a standard condition of carriage.

10. Conclusions

This study set out to answer whether a Rolling Highway service between Calgary and Edmonton is technically, operationally, economically, and environmentally feasible. The answer, across all four dimensions, is affirmative. The corridor possesses the demand scale, infrastructure adjacency, and competitive cost conditions necessary to support a viable accompanied intermodal service, and the regulatory environment is moving in a direction that will only strengthen that case over time.

The study's principal findings span five areas. On demand, the corridor carries approximately 8,000 heavy vehicles per day in both directions and corridor volumes are projected to remain stable through 2029, confirming a reliable planning baseline. Technically speaking, 6-8 round-trip daily services per direction (7.5 hours round-trip) with 25-30 truck trainsets, with preferred terminal locations at Stoney Trail in Calgary and Ellerslie 41 Avenue in Edmonton, established through the Best-Worst Method analysis, is technically feasible using existing CPKC rail infrastructure. Under financial feasibility, the proposed prices per-truck at \$350-\$430 will cover all operating expenses at a break-even daily volume of 247-373 trucks, which aligns with throughput benchmarks for similar European systems. On environmental performance, every modal shift prevents 0.83-1.07 tonnes CO_{2e} per one-way trip, equivalent to a 69% -87% reduction per load, which becomes economically significant with the increasing carbon price in Canada towards \$170 per tonne in 2030. On market competitiveness, the RoLa service offers a 7%–29% price discount relative to conventional trucking while delivering additional non-price value through hours-of-service recovery, improved schedule reliability, and reduced vehicle wear.

There are a number of research limitations that should be acknowledged. Estimates of costs and revenues are based on published industry averages, not on negotiated operator

arrangements and the access fees in this context will be based on commercial agreements with CPKC. The financial model operates under homogeneous prices and does not model seasonal change in demand and ramp-up lags. Terminal land requirements are derived from a single European analogue and require site-specific engineering validation. Future studies must consider and research actual shipper willingness-to-pay targeting logistics operators active on the corridor, a detailed engineering and environmental assessment of both terminal sites, and an expanded financial model incorporating phased ramp-up scenarios and potential access to the National Trade Corridors Fund and Green Freight Program.

The Calgary-Edmonton Rolling Highway is not just a project on the efficiency of logistics. It is a solution to the issues of increasing traffic congestion, carbon pricing, driver shortage, and infrastructure degradation, which are changing the economic model for road freight in Canada. The Rolling Highway has the potential to expand and be a permanent component of the freight infrastructure in Alberta, depending on the right business alliances, pricing model, and public support.

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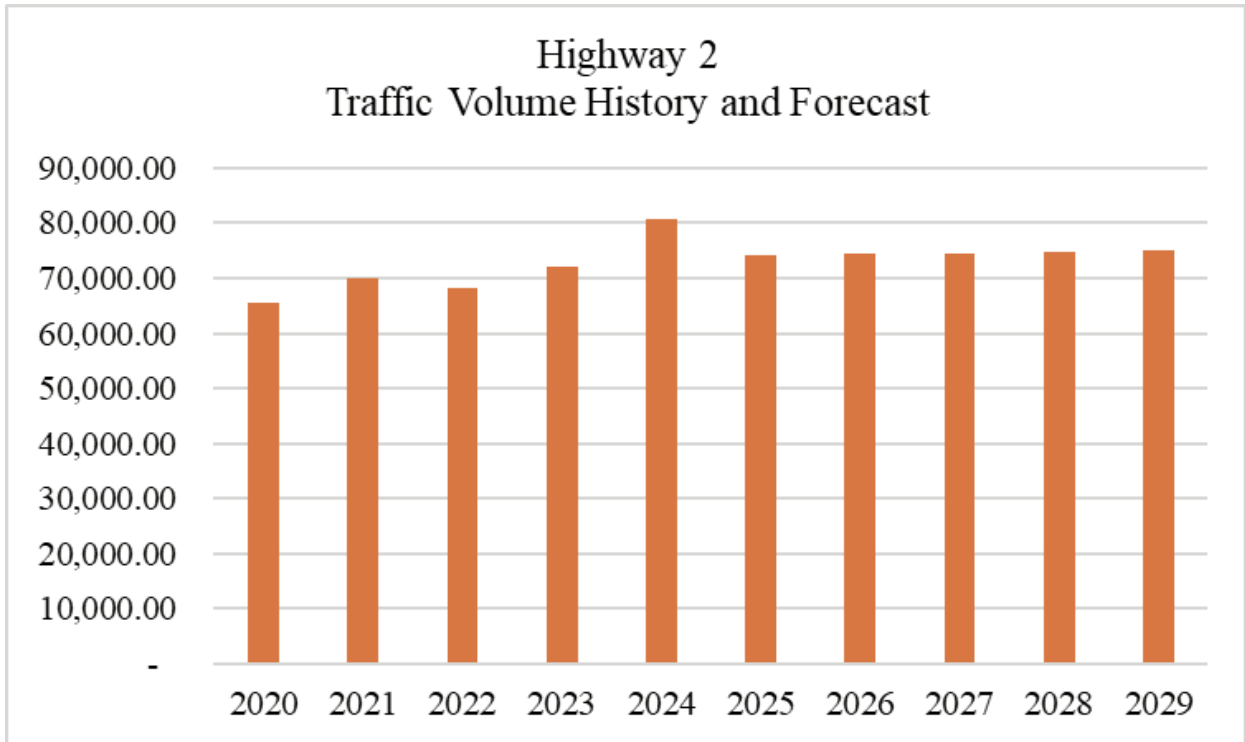
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Appendices

Appendix A. Highway 2 Traffic Volume, Classification, and ESAL Statistics (Averaged Screenline)

Volume Weighted Annual Average Daily Traffic	% Single Unit Trucks	% Tractor Trailer Combinations	Travel Million Vehicle Kilometres Annual	Equivalent Single Axle Load per Day per Direction (ESAL) Total
79,076.67	2.73	7.43	247.17	6,499.93

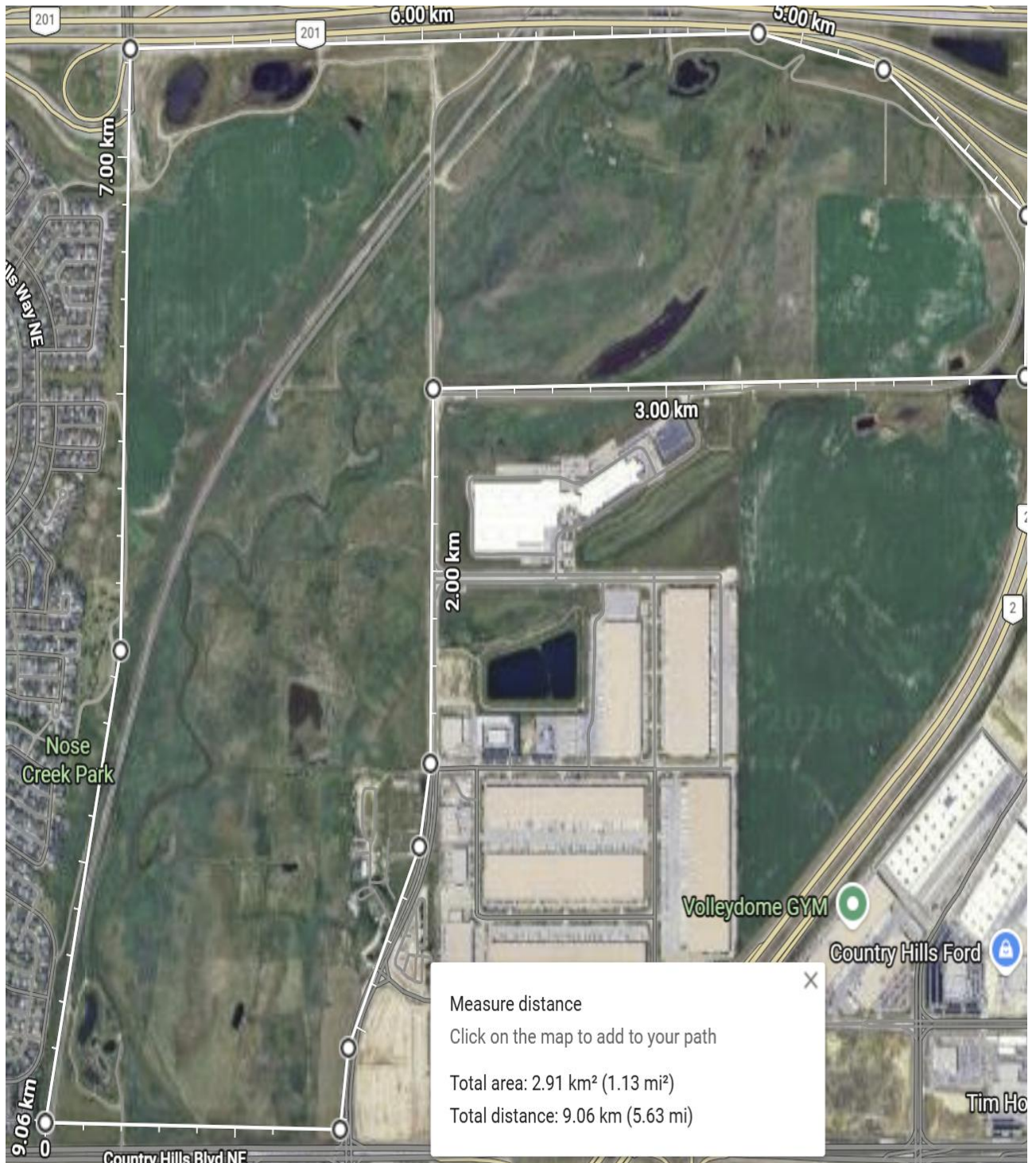
Appendix B. Highway 2 Traffic Volume History and Forecast Graph.



Note: Numbers are in AADT.

Appendix C. Best Worst Method (BWM)

Stoney Trl access, Calgary, Google Maps satellite screenshot.



Stoney Trl Access, Calgary, criteria scores justification

Criterion	Score (1-5)	Justification
Highway Accessibility	5	The site provides direct access to Queen Elizabeth II Highway and Stoney Trail, enabling efficient first- and last-mile truck movements and strong connectivity to Calgary's regional highway network.
Rail Connectivity	5	The location sits immediately adjacent to the freight corridor operated allowing direct spur connection to the mainline with minimal additional infrastructure.
Logistics Cluster Proximity	5	The site is embedded within logistics hubs, near facilities such as DHL Supply Chain – Cabela's Distribution Centre, maximizing potential demand capture.
Land Availability & Geometry	4	Although industrial parcels exist, the surrounding logistics cluster is increasingly developed and a residential area limits its availability.
Infrastructure Readiness	3	Some existing industrial infrastructure, access roads, and utilities significantly reduce development requirements and support immediate operational readiness.
Land Acquisition & Development Cost	3	Land values are relatively high, and assembling large parcels could require multiple acquisitions and redevelopment.
Environmental Impact	5	The industrial context limits residential conflict and reduces environmental permitting risks relative to greenfield sites.
Expansion Potential	3	Expansion opportunities are constrained by surrounding industrial development and existing logistics facilities and residential areas.
Market Capture Potential	5	Immediate proximity to the highest concentration of distribution centres in the Calgary region maximizes potential Rolling Highway demand.

Balzac Access, Calgary

Balzac access, Calgary, Google Maps satellite screenshot.

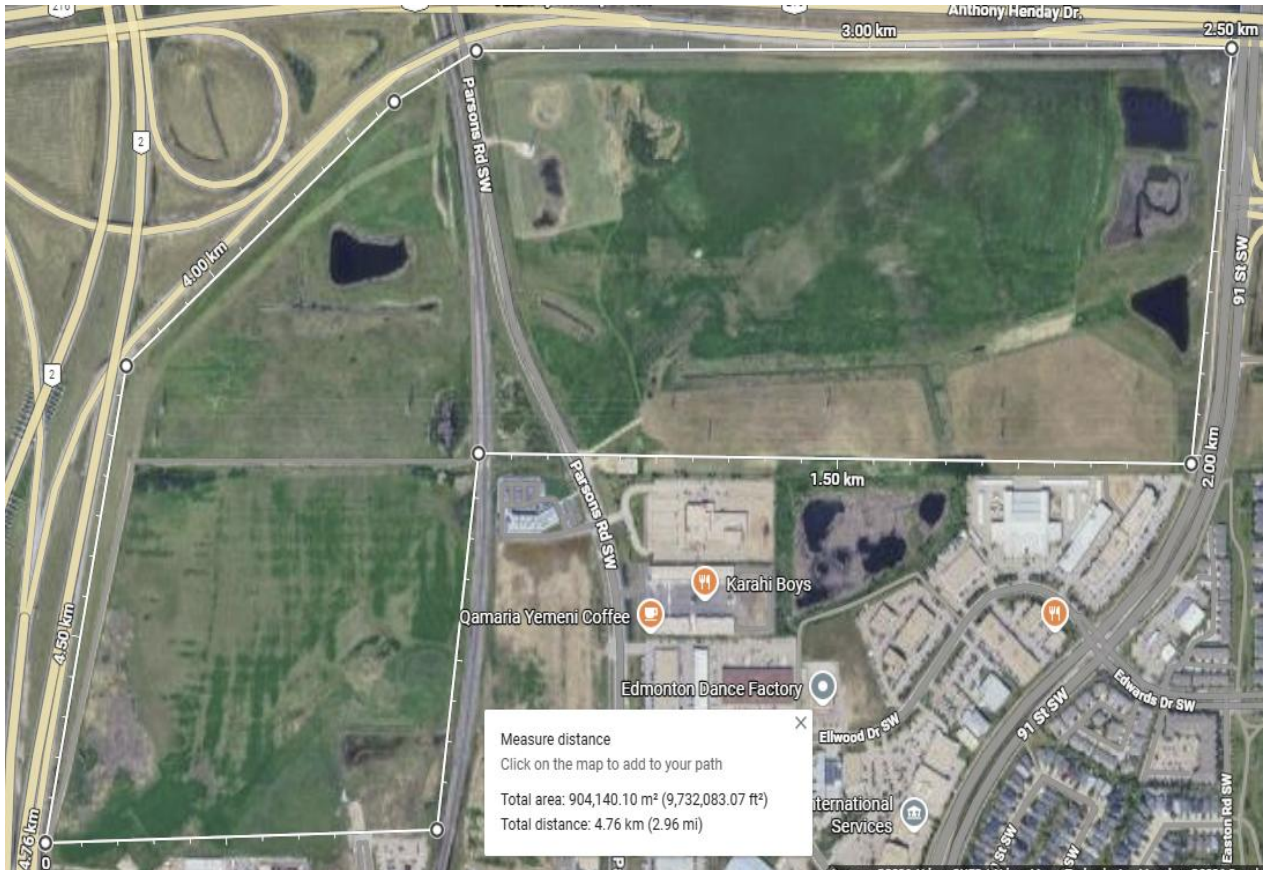


Balzac access, Calgary, criteria scores justification

Criterion	Score (1-5)	Justification
Highway Accessibility	5	Located directly adjacent to Queen Elizabeth II Highway, ensuring efficient access for trucks travelling along the corridor.
Rail Connectivity	5	The parcel sits next to the freight rail line, enabling direct rail integration for terminal operations.
Logistics Cluster Proximity	4	The site is slightly farther from the densest logistics facilities but remains within the broader Balzac distribution corridor.
Land Availability & Geometry	3	Large contiguous undeveloped land parcels are available in the area.
Infrastructure Readiness	2	As a largely undeveloped site, new access roads, utilities, and rail yard infrastructure would need to be constructed.
Land Acquisition & Development Cost	4	Agricultural or undeveloped land is likely to be less expensive than industrial parcels within the existing logistics cluster.
Environmental Impact	3	Potential wetlands or natural features could require environmental assessments and mitigation measures.
Expansion Potential	5	Significant surrounding undeveloped land provides strong opportunities for future terminal expansion and capacity growth.
Market Capture Potential	5	The site remains positioned along the primary trucking corridor, enabling access to north–south freight flows.

Anthony Henday Drive, Edmonton

Anthony Henday Drive, Edmonton, Google Maps satellite screenshot.



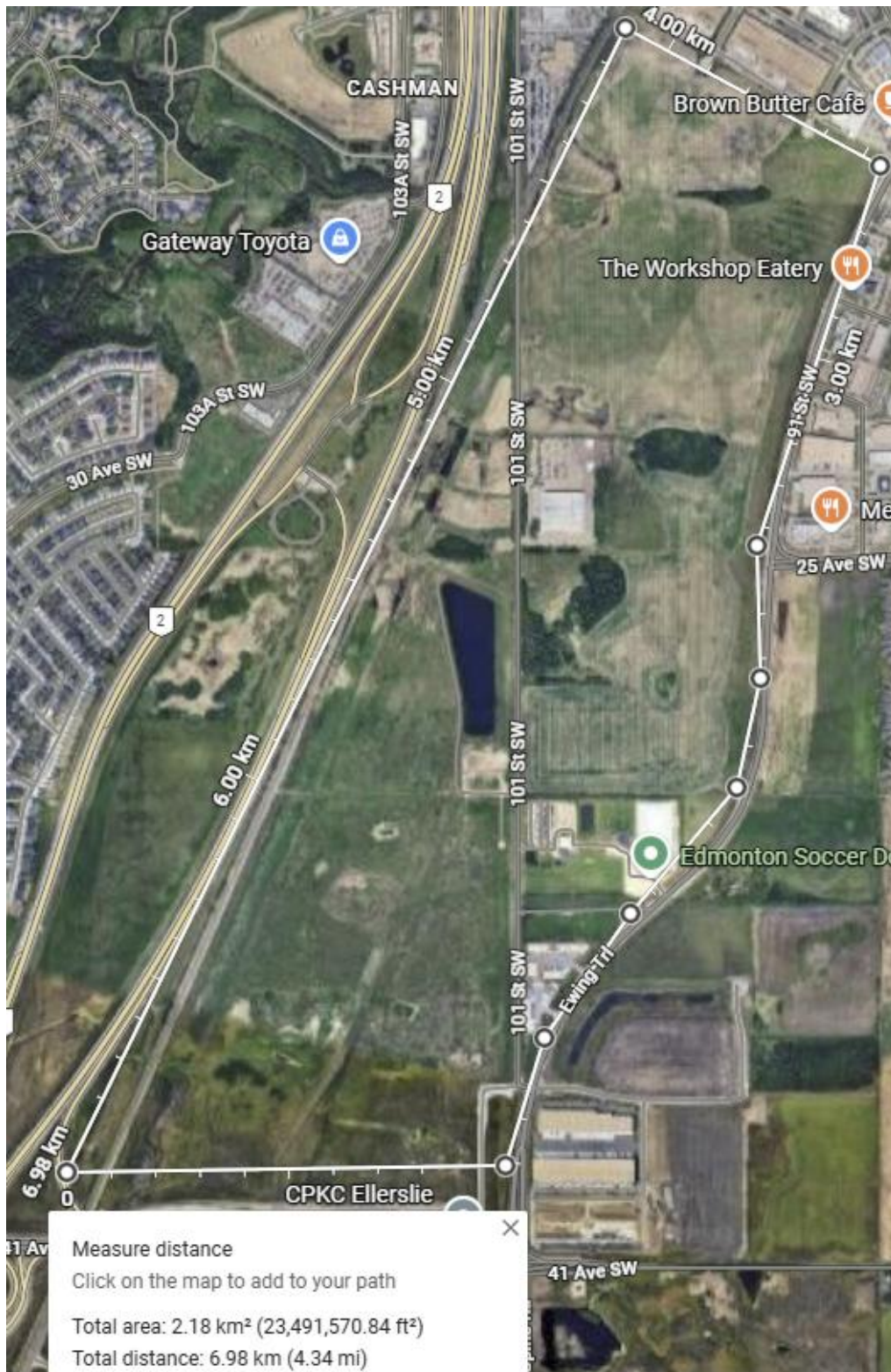
Anthony Henday Drive, Edmonton, criteria scores justification

Criterion	Score (1-5)	Justification
Highway Accessibility	5	The parcel is located immediately adjacent to Anthony Henday Drive, providing rapid access to the metropolitan freeway network and the Queen Elizabeth II Highway, which is the primary freight route between Edmonton and Calgary.
Rail Connectivity	5	The parcels lie immediately beside the freight rail corridor operated by Canadian Pacific Kansas City , allowing direct rail siding construction and integration with the mainline network.
Logistics Cluster Proximity	4	The location is positioned within the southern Edmonton logistics corridor near Ellerslie industrial zones, providing access to regional distribution

		activity.
Land Availability & Geometry	3	Industrial parcels are sufficiently large, although surrounding development may constrain layout optimization.
Infrastructure Readiness	4	Existing access roads, highway interchanges, and nearby utilities reduce the complexity of external infrastructure development.
Land Acquisition & Development Cost	3	Land acquisition costs are expected to be moderate, reflecting undeveloped or agricultural land located near major highway infrastructure.
Environmental Impact	4	The site appears largely undeveloped with minimal surrounding residential land use, reducing potential social and environmental conflicts.
Expansion Potential	3	Strong expansion potential exists because the parcel is contiguous with the second candidate site, enabling future development as a single integrated terminal area.
Market Capture Potential	5	Direct adjacency to the primary regional freight corridor allows strong capture of truck traffic travelling between Edmonton and Calgary.

Ellerslie 41 Ave, Edmonton

Ellerslie 41 Ave, Edmonton, Google Maps satellite screenshot.



Ellerslie 41 Ave, Edmonton, criteria scores justification

Criterion	Score (1-5)	Justification
Highway Accessibility	5	Provides rapid access to the metropolitan freeway system and to the Queen Elizabeth II Highway.
Rail Connectivity	5	The parcels allow direct rail access and integration with the mainline network.
Logistics Cluster Proximity	5	Lies in between two industrial hubs: Ellerslie and Nisku. Leveraging access from both sides.
Land Availability & Geometry	4	Land availability could be insufficient for the estimated market demands and potential growth of the project.
Infrastructure Readiness	4	Regardless of existing road and rail infrastructure, the land still requires configuration.
Land Acquisition & Development Cost	4	Land acquisition costs are expected to be higher, reflecting the land's location asset.
Environmental Impact	3	The site shows a water deposit which could represent regulatory barriers.
Expansion Potential	4	Expansion is possible but may be constrained by surrounding logistics developments.
Market Capture Potential	5	Direct access to the corridor and logistics hubs maximizes potential truck capture.

BWM TOTAL Scores

Weighted Criteria	Stoney Trl Access, Calgary	Balzac Access, Calgary	Anthony Henday Drive, Edmonton	Ellerslie, 41 Ave
Highway Accessibility (0.256)	5	5	5	5
Rail Connectivity (0.16)	5	5	5	5
Logistics Cluster Proximity (0.10)	5	4	4	5
Land Availability & Geometry (0.10)	4	3	3	4
Infrastructure Readiness (0.16)	3	2	4	4
Land Acquisition & Development Cost (0.06)	3	4	3	4
Environmental Impact (0.02)	5	3	4	3
Expansion Potential (0.08)	3	5	3	4
Market Capture Potential (0.06)	5	5	5	5
TOTAL WEIGHTED SCORE	4.280	4.100	4.220	4.540

Appendix D. Selected Terminals Capacity

The conversion rate is: 1 km² = 100 hectares, and 1 m² = 0.0001 hectares. Thus, the results are:

Location	Original Area	Calculation	Area in Hectares
Stoney Trl Access, Calgary	2.91 km ²	2.91×100	291.00 ha
Ellerslie 41 Ave, Edmonton	2.18 km ²	2.18×100	218.00 ha

Appendix E. Estimated Train Operating Cost per Round Trip

Cost Category	Assumption	Estimated Cost (CAD)
Fuel	3–4 litres of diesel per kilometre. 1,800–2,400 L per round trip × \$2.00/L	\$3,600 – \$4,800
Crew and Labour	2 crew members per train. Round-trip.	\$1,200 – \$1,800
Maintenance and Depreciation	Depreciation of 20–30 years for wagons and 25 years for locomotives. Annualized depreciation and maintenance costs.	\$2,000 – \$3,000
Track Access	Access to rail infrastructure. Depends on negotiated agreement.	\$2,000 – \$3,000
Insurance (Operating Liability)	Train operating insurance per round trip covering third-party liability, Cargo/Carrier Liability, and passenger liability.	\$450 – \$950
	TOTAL Estimated	\$9,250 – \$13,550

Appendix F. Estimated Terminal Operating Costs

Cost Category	Assumption	Estimated Annual Cost (CAD)
Operators and Drivers	24/7 coverage (3 shifts) for shunting and loading coordination.	\$450k – \$750k
Station Staff	Truck check-in, safety supervision, yard coordination	\$350k – \$550k
Maintenance Crews	Track maintenance, loading ramp systems, mechanical inspections	\$300k – \$600k
Administrative Personnel	Scheduling, accounting, logistics coordination	\$250k – \$400k
Terminal Lighting and Power	Yard lighting, electrical systems, operational equipment	\$120k – \$220k
HVAC Systems	Heating and cooling for operational buildings	\$60k – \$100k
Tunnel Ventilation and Pumps	Ventilation and drainage infrastructure for enclosed facilities	\$40k – \$90k
Facility Cleaning	Cleaning of operational areas and driver facilities	\$80k – \$150k
Insurance	Liability and asset coverage	\$150k – \$300k
Taxes	Property taxes and municipal levies	\$100k – \$250k
Office Supplies and Equipment	IT systems, communications, operational equipment	\$30k – \$60k
Contractor Fees	External services (technical inspections, specialized repairs)	\$200k – \$450k
	TOTAL Estimated	\$2.13M – \$3.92M

Appendix G. Daily Operating Cost Summary (CAD)

Cost Category	Low Estimate (CAD)	High Estimate (CAD)
Train Operating Costs (8 round trips/day)	\$74,000	\$108,400
Daily Terminal Operating Costs	\$12,286	\$22,286
Total Daily Operating Cost	\$86,286	\$130,686

Appendix H. Break-Even Truck Volume by Pricing Scenario (CAD)

Daily Cost Scenario	Price per Truck (\$350)	Price per Truck (\$390)	Price per Truck (\$430)
Low Cost (\$86,286/day)	247 trucks	221 trucks	201 trucks
Midpoint (\$108,486/day)	310 trucks	278 trucks	252 trucks
High Cost (\$130,686/day)	373 trucks	335 trucks	304 trucks

Appendix I. Total Trucking Cost per Load: Calgary–Edmonton Corridor (CAD)

Cost Component	Low Estimate	High Estimate	Basis
Base freight rate (186 miles)	\$261	\$465	\$1.39– \$2.50/mile
Fuel surcharge	\$201	\$234	\$1.08– \$1.26/mile
Driver labour (one-way)	\$95	\$106	\$27.10– \$30.15/hr
Total Cost per Load	\$459	\$493	
RoLa Price (proposed)	\$350	\$430	Competitive discount
Shipper Saving vs. Trucking	\$29 (6%)	\$143 (29%)	

Appendix J. Road Trucking vs. Rolling Highway: Comparative Benchmarking

Summary

Dimension	Road Trucking (Status Quo)	Rolling Highway (RoLa)
Cost per Load (Calgary–Edmonton)	\$459–\$493	\$350–\$430 (proposed)
Fuel Cost Exposure	High - full diesel consumption per truck	Low - shared locomotive consumption across 25–30 trucks
Driver Labour per Trip	\$95-\$106 per one-way trip; rising due to wage inflation	Eliminated - driver rests in passenger coach
HOS Compliance	Transit time reduces available productive hours	Transit time does not count against HOS limits
Schedule Reliability	Subject to highway congestion and weather delays	Fixed departure schedule; insulated from highway congestion
Infrastructure Impact	High ESAL loading; contributes to pavement degradation	Removes truck axle loads from highway; reduces pavement wear
ESG / Emissions Profile	High GHG emissions; exposed to carbon price escalation	Significantly lower GHG per truck transported; carbon cost advantage
Driver Shortage Exposure	High - directly dependent on driver availability	Reduced - same driver covers greater productive distance per day

Appendix K. Carbon Cost Advantage of Rolling Highway at Escalating Carbon Price

Levels

Carbon Price (CAD/tonne)	Trucking Carbon Cost/Trip	RoLa Carbon Cost/Truck	RoLa Carbon Cost Advantage
\$65 (2023)	\$62–\$78	\$5–\$8	\$54–\$73 per truck
\$80 (2024)	\$77–\$96	\$6–\$10	\$67–\$90 per truck
\$110 (2026)	\$106–\$132	\$9–\$14	\$92–\$123 per truck
\$170 (2030)	\$163–\$204	\$14–\$22	\$142–\$186 per truck