TRANSIT FAST FORWARD

MOUNTAIN VALLEY INSTITUTE

POLICY • RESEARCH • ADVOCACY

Part II: Cost Control ⏭

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MOUNTAIN VALLEY INSTITUTE

Mountain Valley Institute (MVI; formerly MVX) is a Vancouver-based non-profit society advocating for sustainable mobility infrastructure projects that promote generational investments in durable, dignified, and viable transportation choices. Our roots are in building the case for a transformative regional rail network across BC's South Coast, which MVI continues to staunchly advocate for. Founded by commuters, engineers, planners, and experts, MVI envisions a non-polluting, time-competitive transportation system linking Metro Vancouver with the Fraser Valley and Sea-to-Sky—outperforming driving times while promoting sustainable growth and First Nations co-leadership.

Selected publications:

- MVX Nexus - A Technical Report on a Regional Rail Network Serving the South Coast of BC, 2023
- Exploring Sustainable Transportation Solutions: A Study on the Feasibility of MVX Regional Rail in the Fraser Valley - A Collaboration Between Mountain Valley Express and University of the Fraser Valley, 2024

LUTI CONSULTING GROUP

LUTI Consulting specializes in integrated land-use and transport economics, modeling, and policy advisory, leveraging advanced willingness-to-pay and hedonic land-value techniques. Their flagship work includes a 2020 update of their value-creation model for Sydney (covering 2000–2019), analyzing how major public transit investments and zoning changes have reshaped urban land markets—making it one of Australia's most comprehensive land-market studies

The firm's experts—led by Director Dr. James McIntosh and Principals Dr. Roman Trubka and Matthew Yi—bring decades of experience in urban economics, transport planning, econometric modelling, business-case development, and benefits appraisal. Their work has guided public- and private-sector clients through scenario modeling, transit-oriented development strategies, and value-sharing approaches tied to infrastructure investments across Australasia.

ACKNOWLEDGEMENTS

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MVX is now MVI
we're chaninging our name to reflect a broader purpose.

Support for Transit Fast Forward

MOVeMENT

Metro Vancouver desperately needs more rapid transit. It's essential for our economic growth and for social justice. We're tired of watching cities like Toronto, Montreal, and Seattle sprint ahead of us. Transit Fast Forward offers a detailed approach on how to address the key barrier to expansion: money. It shows how transit construction costs can be significantly reduced, and how development can help pay for transit. These have the potential to help break the logjam. I hope to see it discussed widely.

Denis Agar
Executive Director, Movement: Metro Vancouver Transit Riders

TRANSIT COSTS PROJECT NYU Marron Institute of Urban Management

Canadian cities need more and better public transit to drive economic growth, improve quality of life, and advance environmental sustainability. Yet, despite substantial investments, Canada continues to build less transit infrastructure than it should. Construction costs remain significantly higher than in peer developed countries, limiting the country's ability to deliver the transit systems its citizens rely on.

To get better value from public spending, Canada must lower construction costs by adopting proven best practices from jurisdictions that build transit more efficiently and with fewer delays. Transit Fast Forward offers a clear and comprehensive roadmap for the essential reforms in planning, design, procurement, and construction—reforms that will enhance British Columbia's ability to deliver transit infrastructure more affordably and on time.

Marco Chitti
Research Fellow, Transit Cost Project, NYU - Marron Institute

PREFACE

Our province's population is rapidly growing and is facing challenges in funding infrastructure improvements to serve this growing population.

Transit Fast Forward is a set of policy recommendations to help get transit investments built sooner in British Columbia.

Part 1 of Transit Fast Forward focused on using land value capture mechanisms such as Transit Expansion Charges (TECs) and tax-increment financing (TIF) as mechanisms to help fund the construction of new transit infrastructure.

Part 2 focuses on how we can reduce the capital costs of transit projects by adopting the best practices used in jurisdictions where such costs are relatively low, such as Italy, Spain and South Korea.

BACKGROUND

Transit construction in North America—particularly in Canada—has become increasingly expensive, often to the point of limiting the number and scope of projects that can be built. In recent years, major projects have faced costs far above global norms, with limited transparency, frequent delays, and growing public skepticism about the value and efficiency of transit investments.

Recent examples in British Columbia illustrate this clearly:

- **The Broadway Subway** in Vancouver, a 5.7 km mostly underground extension of the Millennium Line, has seen its budget rise to $3.18 billion, or over $550 million per kilometre, and is running more than two years behind schedule.
- **The Surrey–Langley SkyTrain Extension**, a 16 km entirely elevated line, is now projected to cost $6 billion, translating to $375 million per kilometre—a remarkably high figure given the absence of tunneling.

In contrast, countries like Italy, Spain, and South Korea continue to deliver complex urban transit projects—including underground lines—for less than half the cost per kilometre, and often in shorter timeframes. Crucially, this difference is not primarily due to lower wages or material costs—factors largely outside our control—but rather to how projects are planned, procured, and managed. That means we can change it.

The table below compares recent Canadian projects with international examples from consistently low-cost jurisdictions. All costs are converted to 2025 Canadian dollars, adjusted for inflation and purchasing power parity:

Project	Year Completed	% Underground	Cost per km (2025 CAD)
Milan Metro Line 5 (Italy)	2015	100%	$150 million
Seville Metro Line 1 (Spain)	2009	~70%	$120 million
Busan Metro Line 4 (South Korea)	2011	~90%	$140 million
Broadway Subway (Vancouver)	est. 2027	~85%	$558 million
Surrey–Langley SkyTrain	est. 2028	0%	$375 million
Canada Line (Vancouver)	2009	~60%	$133 million

The Canada Line stands out as a reminder that affordable, complex transit projects have been delivered in Canada before. Completed in 2009 for just $133 million per kilometre, it combined underground, elevated, and at-grade construction, and opened ahead of schedule. This shows that, with the right policy framework and execution model, it is entirely possible to deliver high-quality, urban rapid transit at a fraction of today's typical Canadian costs.

By learning from global best practices—and rethinking how transit projects are planned, tendered, and managed —the amount of transit built can be dramatically increased, even in built-up urban settings, without increasing budgets. **The challenge is not technical; it is institutional and policy-driven—and that is within our power to change.**

COST REDUCTION POLICIES

This policy document details 20 policies that lead to efficient and cost-effective construction of transit infrastructure projects based on evidence from hundreds of projects from around the world.

These policies have been divided into **five (5)** categories that cover vital stages in the construction process:

1.0 Information Policies

2.0 Planning Policies

3.0 Preparation Policies

4.0 Procurement Policies

5.0 Management Policies

1.

Information Policies

1. Information Policies

"As a general rule the most successful man in life is the man who has the best information." - Benjamin Disraeli.

For a problem to be solved, it needs to be understood. Having information relevant to transit infrastructure construction is critical for improving how major infrastructure projects are planned, tendered, and built.

1.1 MANDATE SHARING OF PROJECT COST DATA

Public agencies in Canada often award major transit and infrastructure contracts without requiring disclosure of detailed cost breakdowns. This limits the ability of governments, planners, and the public to benchmark costs, identify inefficiencies, or ensure accountability. To improve cost control and project planning, governments should mandate the standardized public release of project component costs for all publicly funded infrastructure projects above a defined threshold (e.g., $50 million).

This policy would require recipients of public funding—whether agencies, municipalities, or private partners—to disclose detailed information on capital costs such as trackwork, electrification, tunneling, stations, vehicles, and systems. Data should be made publicly available at key project milestones and after completion, using a consistent national format.

Benefits:

- Improves cost benchmarking for future projects
- Supports accurate budgeting and planning by smaller agencies and municipalities
- Reduces opportunities for overcharging or inflated bids by contractors
- Builds public trust through transparency and accountability
- Enables independent academic and civil society analysis
- Encourages inter-agency learning and best practice adoption
- Supports new market entrants by giving them better information for bidding

Examples:

- **Spain** – ADIF High-Speed Rail. ADIF (Administrador de Infraestructuras Ferroviarias) routinely publishes detailed project cost breakdowns, including unit costs for tunnels, viaducts, stations, and signaling systems. These are made available in procurement documentation and post-construction audits.
- **Italy** – RFI (Rete Ferroviaria Italiana). RFI reports detailed costs for each infrastructure component of high-speed rail projects (e.g., €5–7 million/km for electrification). These are used to inform both future contracts and parliamentary oversight.
- **South Korea** – Korea Rail Network Authority. KRNA publishes standardized unit cost estimates for rail infrastructure components such as track, bridges, signaling, and rolling stock. These figures are updated regularly and used for planning and budgeting across national and regional agencies.
- **United Kingdom** – Infrastructure and Projects Authority. The UK's IPA maintains a public "cost database" of key infrastructure project benchmarks across sectors, which is referenced in project business cases and value-for-money audits.

1.2 MANDATE SHARING OF GEOTECHNICAL DATA

Geotechnical investigations—such as boreholes, soil tests, and groundwater monitoring—are essential for the planning and construction of infrastructure projects, especially tunnels, bridges, and utilities. Yet in British Columbia and much of Canada, this valuable data is often siloed within individual projects, consultants, or agencies, and rarely shared publicly. This lack of coordination leads to redundant investigations, higher construction risk premiums, and avoidable delays.

To improve planning efficiency and lower project costs, the Province of British Columbia should require that all geotechnical data collected for development permitting from both public and private projects be submitted to a centralized, open-access database.

Benefits:

- Reduces redundant borehole and site investigations
- Lowers contractor risk premiums due to reduced uncertainty
- Improves tunnel/alignment planning
- Enhances hazard mapping (e.g., landslides, liquefaction, flooding)
- Accelerates environmental assessment and design review processes
- Builds a long-term public dataset for planning, research, and resilience

Examples:

- **Netherlands** – Subsurface Key Register (BRO). Since 2018, all public and private subsurface investigations must be submitted to the BRO, a centralized national database. Data includes boreholes, CPTs, groundwater, soil composition, and more. The open, standardized system supports infrastructure planning and climate adaptation.
- **Norway** – NADAG (National Ground Investigation Database). All geotechnical data from public projects must be uploaded to NADAG, run by the Geological Survey of Norway. The database improves tunnel and rail planning in Norway's challenging terrain and is freely accessible to engineers and planners.
- **Finland** – OIVA System. Collects and shares geotechnical and environmental site data from municipalities and national infrastructure agencies. It enables better coordination and reduces data fragmentation.

2.

Planning Policies

2. Planning Policies

"If you fail to plan, you are planning to fail!"
- Benjamin Franklin.

The success or failure of a project is often determined at the planning stage. Problems that aren't identified and accounted for at the planning stage exacerbate as the project progresses.

Despite its importance, it is perhaps the stage that gets neglected the most due to lack of time devoted to it (often for political reasons) or a lack of relevant expertise to ensure it is done properly. This section focuses on policies that improve the planning process and allow for the project to have as cost-efficient of a design as possible.

2.1 ESTABLISH AN IN-HOUSE ADVANCED TRANSIT PROJECT PLANNING BODY

In many low-cost jurisdictions, public agencies maintain robust in-house teams with deep technical expertise to plan and scope transit projects well in advance of procurement. These internal teams develop detailed designs, cost estimates, geotechnical analyses, and risk assessments—ensuring projects are better scoped, more accurate, and less vulnerable to cost overruns.

In Canada, project sponsors often rely heavily on external consultants from the outset, with limited public-sector capacity to develop projects to a mature stage. This results in higher risk premiums, poorly defined scopes, and greater susceptibility to contractor-driven decisions.

To address this, the BC Government should establish a provincial body (or work with the Government of Canada in establishing a national body) of dedicated in-house transit planning teams—similar to agencies in Spain, South Korea, and Italy—tasked with advancing projects to a high level of readiness before tendering, including alignment, engineering, costing, and permitting.

Benefits:

- Reduces reliance on expensive external consultants
- Improves cost and schedule certainty
- Strengthens public-sector control over project scope
- Lowers risk premiums by clarifying uncertainties early
- Prevents gold-plating and overdesign
- Improves coordination with land use, utilities, and permitting
- Enhances capacity to manage complex, multi-phase projects

Examples:

- **Spain** – ADIF and Renfe. Spanish infrastructure agencies develop projects to a highly advanced state in-house, with detailed design and costing before procurement. This reduces risk and increases competition among bidders by giving them clearer, more consistent baselines.
- **South Korea** – Korea Rail Network Authority (KRNA). KRNA has over 1,000 in-house engineers and planners who scope and develop major transit and rail projects before issuing tenders. This internal capacity allows for continuous improvement across projects and long-term cost discipline.
- **Italy** – Rete Ferroviaria Italiana (RFI). RFI develops detailed alignments, geotechnical studies, and unit cost models in-house prior to any tendering. Contractors bid on clearly defined scopes, reducing the risk of scope creep or design changes mid-construction.

2.2 PERFORM PROJECT PLANNING AND CONSULTATION WELL IN ADVANCE OF ACTUAL CONSTRUCTION

Major infrastructure projects that succeed tend to "think slow, build fast." This means that extensive planning, public consultation, risk evaluation, and design refinement are completed before construction begins—minimizing surprises and political interference once shovels are in the ground.

In many Canadian projects, political pressure to announce and begin construction prematurely leads to incomplete designs, unresolved public concerns, and unidentified risks, which cause delays, cost overruns, and scope changes during delivery. To avoid this, governments should require that project planning—including route selection, consultation, environmental studies, and engineering to at least 15–30% design—be completed before announcing construction start dates or tendering major contracts.

Benefits:

- Reduces costly mid-construction scope changes
- Ensures meaningful, early public and stakeholder consultation
- Improves design quality and constructability
- Allows time for utility relocation, permitting, and land assembly
- De-risks political interference and litigation
- Prevents symbolic "early works" that drive up costs without accelerating delivery
- Enables faster and more confident construction once underway

Examples:

- **Spain** – High-Speed Rail (AVE). Projects are scoped, aligned, and environmentally approved years before procurement. Stakeholder concerns and technical risks are resolved early, enabling rapid delivery once construction begins.
- **France** – Grand Paris Express. Extensive pre-construction work—including consultation, utility coordination, and geotechnical studies—was done up to 5–7 years before groundbreaking. This ensured construction could proceed at speed and scale with minimal redesign or political delay.
- **South Korea** – Seoul Metro and KTX. Long-term capital plans are matched with detailed early design, public consultation, and phased permitting before tenders are issued. This approach enables complex underground projects to proceed quickly once contracts are awarded.

2.3 COORDINATE ACROSS AGENCIES TO IDENTIFY INFRASTRUCTURE SYNERGIES

Significant infrastructure cost savings and performance gains can be achieved when local, regional, and utility agencies work together to coordinate planning and delivery. When projects are designed in isolation—each focused narrowly on its own mandate—opportunities for shared infrastructure, integrated service, and long-term savings are often missed.

One of the clearest examples is in rail planning: instead of building separate tunnels for local and regional trains, a shared corridor can be designed to serve both, saving billions in construction and minimizing urban disruption. Similar synergies exist with station co-location, utility upgrades, bus hubs, and land development coordination. Achieving

these benefits requires agencies to jointly plan infrastructure with a "whole network" perspective, rather than independently pursuing siloed capital programs.

Benefits:

- Reduces capital and excavation costs by combining corridors
- Minimizes construction disruption in dense urban areas
- Enables integrated services across regional and local networks
- Improves station design and land use outcomes
- Supports joint procurement and cost-sharing
- Leverages utility and municipal upgrades during transit delivery

Examples:

- **France** – RER System in Paris. RER tunnels serve both suburban and metro-style services on shared alignments through the urban core. This enables high-frequency service and eliminates the need for duplicative city-centre corridors.
- **Australia** – Sydney Metro and Sydney Trains Coordination. Sydney's new metro lines and legacy suburban rail are being planned with coordinated hubs and shared rights-of-way where feasible. Key interchanges and corridors (e.g., Central Station precinct) are designed to serve both networks efficiently.
- **San Francisco Bay Area** – Salesforce Transit Center Vision. Efforts are underway to integrate local Muni Metro, BART, and Caltrain/HSR into a single downtown tunnel and station. Though not fully realized, the coordinated vision sets the foundation for future synergies and shared savings.

2.4 PLAN OUT THE CONSTRUCTION SEQUENCE OF TRANSIT PROJECTS WITHIN A REGION

Delivering transit projects in a deliberately sequenced, regionally coordinated manner can significantly reduce costs and improve construction efficiency. Instead of treating each project as a one-off initiative, governments should maintain a long-term regional buildout plan that sequences projects so that construction crews, equipment, fabrication facilities, and project management expertise can be retained and redeployed across multiple projects.

This approach fosters an experienced local workforce, reduces mobilization and demobilization costs, and enables contractors and suppliers to plan for long-term capacity. Jurisdictions that build transit incrementally and continuously—rather than sporadically—often see faster delivery, lower unit costs, and higher quality outcomes.

Benefits:

- Reduces remobilization costs between projects
- Retains skilled labour and project management capacity
- Encourages local investment in fabrication, casting, and logistics facilities
- Improves learning curve efficiencies (e.g., tunnel boring, precast systems)
- Enables better contractor planning and price certainty
- Supports long-term industry development and job continuity

Examples:

- **Spain** – Madrid Metro Expansion. Madrid's extensive and continuous metro expansion in the 1990s and 2000s allowed for seamless reuse of TBMs, crews, and concrete casting facilities across phases. This sequencing helped achieve some of the lowest urban rail construction costs in the world.
- **South Korea** – Seoul Metro Network. Seoul's metro lines have been built in overlapping phases for decades, with a clear sequence and coordination between agencies. This has supported a stable domestic construction sector and highly efficient delivery.
- **Turkey** – Istanbul Metro Buildout. Istanbul has rapidly expanded its metro network by sequencing projects to allow continuous use of TBMs, tunneling crews, and casting yards. The city's ability to deliver multiple lines in succession has created strong institutional knowledge and low per-kilometre construction costs, even with complex underground segments.

2.5 DESIGN FOR MODULAR, REPEATABLE CONSTRUCTION

Designing transit infrastructure—especially stations and structures—with modular, repeatable elements can significantly reduce costs, accelerate timelines, and improve construction quality. By standardizing components and layouts, agencies can benefit from economies of scale, streamlined approvals, and simplified fabrication and assembly.

This approach is particularly impactful for station construction, where custom designs often introduce complexity, longer timelines, and higher costs. Instead, a template-based station model—with consistent dimensions, structural systems, and architectural elements—allows for mass production of components, faster contractor onboarding, and more efficient construction sequencing.

Modular and repeatable design does not preclude architectural quality; thoughtful, flexible templates can accommodate contextual variation while still reducing costs through standardization.

Benefits:

- Reduces station construction and design costs
- Speeds up procurement, fabrication, and installation
- Improves build quality through repetition and refinement
- Simplifies training for crews and maintenance teams
- Shortens design and permitting timelines
- Supports prefabrication and off-site assembly methods

Examples:

- **Spain** – Madrid Metro Stations. Madrid's 1990s–2000s expansion used standardized cut-and-cover and shallow bored templates, dramatically reducing per-station costs. Stations used common dimensions and fit-out systems, allowing mass production of components.
- **Denmark** – Copenhagen Metro. Copenhagen's automated metro lines were developed using modular station designs, with nearly identical underground station boxes and standardized mechanical layouts. This enabled efficient tunneling and rapid construction, helping deliver the city's M1, M2, and Cityringen lines on time and on budget.
- **Turkey** – Istanbul Metro. Istanbul used modular station designs to scale construction across multiple lines simultaneously. Common structural vaults and finishes enable use of centralized casting and material supply chains.

2.6 APPLY CONTEXTUAL RATHER THAN PRESCRIPTIVE SAFETY STANDARDS

In North America, safety regulations for transit infrastructure—especially in tunnels—are often highly prescriptive, requiring strict adherence to fixed rules (e.g., maximum spacing between evacuation exits). While these rules are well-intentioned, they can drive up project costs significantly without proportionate safety benefits, particularly when applied rigidly regardless of context.

In contrast, many lower-cost jurisdictions in Europe and Asia employ a performance-based or contextual safety philosophy, where the goal is to achieve equivalent or superior safety outcomes using the most appropriate combination of design measures. For example, evacuation spacing in tunnels may be relaxed if alternative safety features like pressurized cross-passages, fire-rated safe rooms, or lower passenger volumes are present.

Adopting this more flexible, evidence-based approach allows for cost-effective safety design tailored to real operational risks—without compromising public protection.

Benefits:

- Reduces unnecessary and costly overbuilding
- Enables innovation in safety design and materials
- Aligns risk mitigation strategies with actual operating conditions
- Improves integration with international best practices
- Supports faster approvals and design iteration
- Preserves safety while lowering capital costs

Examples:

- **France** – Grand Paris Express. Tunnel egress spacing is based on fire modelling, train frequency, and system redundancy, not fixed intervals. Use of pressurized cross-passages and advanced ventilation systems enables safe evacuation with fewer costly structural interventions.
- **Germany** – Urban Rail Tunnel Standards. German transit tunnels allow greater flexibility in egress design, with emphasis on contextual fire scenarios and train technology (e.g., automatic train stop, materials used, and rescue time). This helps reduce footprint and civil costs in dense urban areas.
- **Switzerland** – Gotthard Base Tunnel. Uses safety zones and pressurized compartments instead of frequent cross passages. Safety design was tailored to the tunnel's unique length, usage, and train characteristics, achieving high safety ratings while managing cost and complexity.

2.7 BALANCE CONSTRUCTION COST WITH DISRUPTION THROUGH COMPENSATION-BASED DESIGN

In North America, transit project designs often prioritize minimizing disruption at all costs, leading to an overreliance on expensive construction methods such as deep tunnel boring instead of more cost-effective but temporarily disruptive options like cut-and-cover. This approach drives up capital costs significantly, even when more disruptive methods could be safely used with appropriate mitigation and compensation for affected residents and businesses.

In contrast, many low-cost jurisdictions—such as Italy—explicitly recognize the tradeoff between construction disruption and cost. When surface disruption is unavoidable, they use well-structured

compensation programs to support local businesses and residents during construction. This enables the use of shallower, simpler, and more affordable construction methods, such as cut-and-cover stations or tunnels closer to the surface.

Rather than automatically rejecting disruptive methods, Canadian and U.S. agencies should evaluate the full cost-benefit picture—including the feasibility of compensation—when choosing construction techniques.

Benefits:

- Reduces capital costs by allowing more cost-effective construction methods
- Enables shallow alignments and simpler station designs
- Supports impacted communities through fair compensation
- Encourages open and honest engagement on construction tradeoffs
- Improves public trust by recognizing and mitigating local impacts
- Avoids excessive overbuilding motivated by disruption avoidance

Examples:

- **Italy** – Milan Metro Line 5. Used cut-and-cover construction for many stations in densely built areas. Project planners accepted temporary surface disruption and used well-communicated timelines and mitigation measures to maintain public support. Line 5 was delivered at a much lower cost per kilometre than comparable projects in North America, despite urban complexity.
- **France** – Paris Metro and Tramway Expansions. Projects often use surface or shallow construction in constrained urban spaces. Compensation, scheduling adjustments, and temporary relocation programs are used to mitigate impacts—acknowledging that disruption is manageable and temporary.
- **Spain** – Madrid Metro Sur. Employed cut-and-cover extensively in suburban areas to save on tunneling costs, paired with community engagement and clear timelines. Public acceptance was achieved through transparent communication and mitigation measures, not through over-engineering.

3.

Preparation Policies

3. Preparation Policies

"Be prepared" - Boy Scouts, Girl Guides motto.

Planning and preparation are both focused on the work that needs to happen beforehand for the project to be successful. Whereas planning policies focus more on designing well, preparation policies focus on the groundwork needed for the efficient execution of the project. This section focuses on policies that create an environment conducive to project success.

3.1 SECURE LABOUR PEACE AGREEMENTS TO PREVENT CONSTRUCTION DELAYS

Labour disruptions during construction—such as strikes or lockouts—can result in significant delays, cost overruns, and reputational damage for major infrastructure projects. In large-scale transit construction, even a brief halt in concrete supply, tunneling, or formwork can set schedules back by months and trigger costly rework or rescheduling across multiple contractors.

To avoid these risks, public agencies should proactively negotiate labour peace agreements (LPAs) with major construction unions and critical suppliers before construction begins, ensuring a commitment to avoid strikes or work stoppages for the duration of the project.

These agreements provide certainty to project owners, contractors, and the workforce, and are especially critical for mega-projects where tight sequencing, climate windows, and specialized equipment leave little room for delay.

Benefits:

- Protects project timelines and budgets
- Provides contractors with labour certainty
- Reduces risk premiums in bids
- Builds trust between labour, government, and industry
- Avoids cascading schedule impacts from missed milestones
- Strengthens public confidence in delivery reliability

Examples:

- **Portugal** – Lisbon Metro Circular Line Expansion. Labour coordination and steady workforce availability have allowed cut-and-cover and TBM tunneling to proceed smoothly in urban areas. No major strikes or stoppages have been reported, and the project is being delivered at moderate costs by international standards.
- **United States** – LAX People Mover (California). LA Metro negotiated labour peace agreements with key trades as part of the project's procurement process. The project progressed through critical construction milestones without work stoppages, helping maintain its delivery timeline despite the challenges of a major airport environment
- **Italy** – Milan Metro Line 4. Labour agreements were secured in advance through coordination between the city, contractors, and trade unions. The project experienced smooth construction continuity, allowing work to proceed through densely built areas with minimal interruption.

3.2 SECURE A LONG-TERM PREFABRICATION SITE TO SUPPORT REGIONAL INFRASTRUCTURE DELIVERY

Prefabrication of components—such as tunnel linings, viaduct segments, and station modules—is a proven strategy to reduce construction timelines, lower costs, and improve quality through factory-controlled production. However, in many jurisdictions, each project must secure its own site for casting yards or modular fabrication, leading to duplication, inefficiency, and site clearance delays.

Establishing a dedicated, long-term prefabrication facility—ideally located near a major urban centre with good transport access—would allow governments to reuse the site across multiple infrastructure projects, generating significant savings. During periods of lower public construction activity, the facility could also serve the private sector, including modular housing production or structural components for commercial development, maximizing its utility.

This approach aligns with practices in low-cost jurisdictions that have delivered mega-projects efficiently by securing permanent or semi-permanent casting yards at the outset of long-term transit or public works programs.

Benefits:

- Reduces startup and shutdown costs across projects
- Improves quality through standardized, repeatable fabrication
- Enables economies of scale and reduces per-unit costs
- Speeds up project timelines with on-demand segment production
- Supports local employment and industrial training
- Provides dual-use flexibility during off-peak periods

Examples:

- **Turkey** – Istanbul Metro Expansion. A handful of long-term casting yards have supplied segmental tunnel linings and viaduct structures to multiple metro lines over two decades. Facilities are located near ports and major transport hubs, ensuring low-cost logistics and rapid deployment.
- **France** – Grand Paris Express. Massive prefabrication sites were established to produce hundreds of thousands of tunnel segments across multiple lines. The reusability of facilities across phases reduced setup costs and improved supply reliability.
- **India** – Delhi Metro. Delhi Metro Rail Corporation developed long-term casting yards that have been reused for six different phases of metro expansion. The model is credited with helping keep construction costs and timelines low by avoiding repetitive site development.

3.3 LEGISLATE PERMIT TIMELINES TO PREVENT LOCAL DELAYS ON MAJOR PROJECTS

One of the most common but underestimated sources of delay for major transit and infrastructure projects is slow municipal permitting. Even when a project is provincially funded and approved, delays in issuing building permits, utility relocation approvals, or street-use authorizations can stall construction, disrupt timelines, and drive up costs.

To prevent this, provincial governments can enact legislation requiring municipalities to process and respond to permit applications within a defined time frame—for example, 60 or 90 days. If no response is issued within that time, the application is deemed approved by default. This approach provides certainty to project delivery teams and incentivizes municipalities to prioritize major infrastructure projects without overriding their ability to review submissions.

This legislative model has already been used in Canada to successfully accelerate high-profile transit projects, and is common in other countries that prioritize delivery efficiency.

Benefits:

- Avoids bureaucratic delays that increase project costs
- Provides timeline certainty for construction planning
- Encourages better municipal–provincial coordination
- Reinforces infrastructure as a shared priority
- Still allows municipalities to reject incomplete or unsafe applications
- Reduces risk premiums in project procurement

Examples:

- Canada – Québec's Act Respecting the REM (2018). To accelerate the Réseau express métropolitain (REM), the Québec government passed legislation requiring municipal permits to be issued within 60 days of application. If no decision was rendered, the permit was deemed approved by default. The policy helped prevent local administrative delays across multiple jurisdictions affected by the REM.
- France – National Infrastructure Acceleration Law. For major state-designated public interest projects, French law imposes strict permitting deadlines for local authorities. Silence beyond the legal time frame is interpreted as implicit consent, ensuring timely approvals while preserving local review powers.
- United States – FAST-41 Federal Permitting Dashboard. While not municipal, FAST-41 imposes timeline accountability on federal permitting agencies for large infrastructure projects. It has helped streamline approvals and track performance across multiple government entities.

3.4 COORDINATE EARLY WITH UTILITY PROVIDERS FOR EFFICIENT RELOCATION

Utility relocation is often one of the first—and most disruptive—tasks for large-scale infrastructure projects. Whether it's moving power lines, water mains, or telecommunications infrastructure, poor planning and coordination of these activities can significantly delay projects, disrupt nearby services, and increase overall construction costs.

To avoid these issues, it's essential for governments and project teams to coordinate early and extensively with utility providers, establishing dedicated task forces or committees that ensure relocation work is scheduled, completed on time, and in a cost-effective manner. Early coordination allows for better synchronization of work, reduces conflicts, and ensures that utilities are aware of their responsibilities before construction begins.

This proactive approach can save months of delays and provide certainty that all utility works will be ready before construction moves forward.

Benefits:

- Prevents delays by addressing utility relocations early in the process
- Reduces the risk of rework or unforeseen conflicts
- Minimizes disruptions to local services during construction
- Ensures that all stakeholders are informed and aligned on schedules
- Improves communication and cooperation between utility providers and construction teams
- Reduces overall project costs by avoiding last-minute utility adjustments

Examples:

- **India** – Delhi Metro. Delhi Metro Rail Corporation (DMRC) established a dedicated Utility Coordination Cell for each phase of its expansion. The Cell worked with municipal agencies and utility companies months in advance to map and relocate conflicting infrastructure. A "no surprises" policy ensured all utilities were identified during the design phase, and preconstruction work proceeded smoothly. The approach is credited with helping DMRC maintain tight timelines and deliver one of the world's most efficient large-scale urban rail systems.
- **United Kingdom** – Crossrail (London). Early utility relocation was a key part of the Crossrail project, with a dedicated Utility Coordination Team formed to identify conflicts and establish a relocation schedule. The team worked across multiple boroughs and utility companies to streamline the process, ensuring utilities were moved or upgraded before major works began.
- **Australia** – Sydney Metro. The Sydney Metro Coordination Committee oversaw utility relocations across the metro corridor, bringing together contractors, local councils, and utility providers. Monthly coordination meetings allowed for joint scheduling and rapid resolution of conflicts, helping keep the project on track.

4.

Procurement Policies

4. Procurement Policies

"Purchasing power is a license to purchase power." — Raoul Vaneigem.

In procurement, the selection process is just as important as the contractor selected. A well-designed process can promote competition, accountability, and cost control—while a poorly structured one can invite blame-shifting, legal disputes, and runaway budgets. This section outlines proven procurement practices that increase the odds of delivering projects on time and on budget.

4.1 PRIORITIZE CONSORTIUM QUALIFICATIONS OVER PRICE IN BID EVALUATION

In large transit and infrastructure projects, the selection of delivery partners is one of the most important decisions a public agency can make. When bid evaluation overemphasizes price and underweights qualifications, it creates strong incentives for firms to underbid strategically to win the contract—often at the expense of quality, capability, and delivery certainty.

A more resilient approach is to weigh consortium experience, technical capability, and delivery track record heavily in the evaluation process—especially for complex, multi-year undertakings. This helps ensure that the selected team has the expertise, coordination, and risk awareness to deliver the project on time and on budget, rather than depending on costly change orders or renegotiations.

This procurement strategy is used effectively in jurisdictions with low-cost, high-reliability infrastructure delivery, and its absence has contributed to major failures in Canada.

Benefits:

- Reduces risk of selecting under-qualified bidders
- Prevents strategic underbidding and post-award cost escalation
- Promotes partnerships with teams that can manage complexity
- Improves delivery outcomes and public confidence
- Encourages realistic pricing and transparent proposals
- Protects against political pressure to "pick the lowest number"

Examples:

- **Canada** – Vancouver Canada Line. The project used a balanced procurement approach, with significant weight on technical and financial capacity. The winning consortium (led by SNC-Lavalin (now AtkinsRéalis), Serco, and others) had extensive experience with transit infrastructure and operations. The line was completed three months ahead of schedule and under budget, and continues to operate successfully as part of TransLink's rapid transit network.
- **France** – Grand Paris Express. This multibillion-euro metro expansion relies on a qualification-first evaluation model, emphasizing experience with urban tunneling and complex station construction. Contractors are selected based on proven delivery capacity, which has contributed to reliable cost control across multiple lines.
- **India** – Delhi Metro. Delhi Metro Rail Corporation evaluates bids using a scoring model that prioritizes technical and managerial qualifications, often placing them equal to or above price. This approach has contributed to the Metro's global reputation for efficient, on-time, and on-budget delivery.

4.2 BREAK PROJECTS INTO MID-SIZED SEGMENTS TO PROMOTE COMPETITION AND MANAGE RISK

Large infrastructure projects are often contracted as single multibillion-dollar packages awarded to one consortium responsible for delivering the entire line. While this seems efficient, it reduces competition, concentrates risk in a one contractor, and can lead to system-wide delays if that contractor underperforms.

An alternative approach successfully used in many low-cost jurisdictions is to break large projects into smaller segments worth approx. $300–500 million each. This encourages greater competition, including from domestic and mid-sized firms who might not qualify for megaprojects. It also creates redundancy: if one contractor falls behind or fails, others can continue or take over unfinished portions.

Segments are typically defined geographically, ensuring each contract is responsible for its own tunneling, track, and stations. Where common elements are involved (e.g., signaling systems, elevators, HVAC), those suppliers are often procured separately and subcontracted by segment. Central integration ensures coordination.

Benefits:

- Expands the pool of qualified bidders
- Reduces the risk of total project failure from one bad contractor
- Increases flexibility in scheduling and resource deployment
- Promotes competitive pricing
- Allows faster mobilization of high-performing contractors
- Enables better oversight and phased delivery

Examples:

- **Denmark** – Copenhagen Metro Cityringen. The Cityringen project was divided into multiple packages, including separate civil works, track, and systems contracts. Segmenting contracts allowed for targeted competition and easier management of performance issues. A dedicated coordination body oversaw integration between work streams and maintained timeline alignment.
- **Chile** – Santiago Metro Expansion. Santiago Metro divides its lines into civil works, system supply, and station fit-out packages, often at the $300–500 M scale. This has enabled multiple domestic and international contractors to participate simultaneously, increasing resilience and keeping costs low. Santiago's segmented model has helped maintain efficient project delivery across successive line expansions.
- **India** – Mumbai Metro Line 3. Contracted in 7 civil packages for tunneling and station works, the segmentation encouraged local participation and reduced risk concentration. A central project implementation unit handled integration across segments, including systems and testing.

4.3 REQUIRE ITEMIZED, UNIT-PRICE CONTRACTING TO CONTROL COSTS AND MANAGE CHANGE ORDERS

Many large transit projects in North America use lump-sum, design-build contracts where bidders submit a total project price with limited detail on cost breakdowns. While this simplifies procurement, it makes projects highly vulnerable to cost escalation, opaque change orders, and legal disputes. Once construction begins, small scope changes can lead to lengthy renegotiations and inflated costs, often without clear reference pricing.

A more transparent and resilient approach is to require itemized, unit-price bidding, as used in Italy and other low-cost jurisdictions. Under this model, bidders submit a detailed price breakdown by work item (e.g., per cubic metre of concrete, per linear metre of track, per station element), and these unit prices are used both to evaluate bids and to adjust prices during construction if quantities change.

Itemized contracts make it easier to approve scope adjustments and fairly compensate contractors without spiraling costs. They reduce disputes, improve cost forecasting, and encourage bidders to submit realistic pricing aligned with actual effort.

Benefits

- Improves cost transparency and accountability
- Reduces risk of inflated change orders
- Provides a fair and consistent basis for adjustments
- Discourages strategic underbidding and gaming
- Streamlines dispute resolution and contract management
- Aligns with international best practices for efficient infrastructure delivery

Examples:

- **Italy** – National Transit Projects. Italy requires unit-price bids for nearly all major public works. Transit projects such as Milan Metro Line 4 and Turin Metro have been delivered using itemized contracts, helping keep costs in check despite scope evolution. The approach reduces legal wrangling and keeps contractors and agencies aligned on how changes are priced.
- **Spain** – Madrid Metro Expansions. Unit-pricing is used across many civil works tenders. Madrid Metro expansions have benefited from modular pricing that allows adjustments as conditions evolve without renegotiating entire contracts. The system promotes faster progress and more stable relationships with contractors.
- **India** – National Highways and Metro Contracts. Unit-price contracting is standard across India's public works and metro projects, including the Delhi and Bangalore Metros. This has enabled consistent budget management and cost control, even across multi-phase expansions.

5.

Management Policies

5. Management Policies

"Management is doing things right; leadership is doing the right things."
- Peter Drucker

While every policy mentioned so far focuses on actions before construction begins, management policies apply for when construction is underway. These policies are about ensuring the efficient, harmonious and cost-effective execution of the project.

5.1 EMPHASIZE FAST DECISION-MAKING DURING CONSTRUCTION

A critical but often overlooked driver of project efficiency is the speed at which decisions are made once construction begins. Even well-planned projects can face escalating costs and delays if they lack the internal agility to respond quickly to issues on the ground—whether it's approving minor design changes, resolving field conflicts, or coordinating between contractors.

Successful infrastructure projects around the world adopt the principle of "think slow, build fast": extensive planning up front, followed by rapid, confident execution. This requires institutional structures, delegated authority, and a culture that empowers project managers and engineers to make timely decisions without bureaucratic bottlenecks.

Fast decision-making doesn't mean skipping due diligence—it means having the right people on site, with access to information and clear authority to act. It is one of the most consistent traits observed in low-cost, high-performance infrastructure programs globally.

Benefits:

- Avoids costly construction delays caused by indecision
- Prevents cascading schedule impacts from minor unresolved issues
- Improves contractor productivity and morale
- Reduces administrative overhead and change-order disputes
- Builds a delivery culture focused on solutions, not blame
- Supports agile responses to unexpected site conditions

Examples:

- **India** – Delhi Metro under E. Sreedharan. E. Sreedharan, former Managing Director of Delhi Metro Rail Corporation (DMRC), implemented a flat decision-making structure with strong on-site authority. Engineers and project leads were empowered to approve changes within hours, not weeks. This model was instrumental in delivering over 300 km of metro on time and under budget, setting a global benchmark.
- **Spain** – Madrid Metro Expansions. Madrid Metro's internal project teams are co-located with contractors and empowered to resolve technical and logistical issues in real time. Fast approvals and integrated site management have been key to its rapid, low-cost delivery model over successive expansions.
- **Turkey** – Istanbul Metro. Istanbul's metro expansions rely on streamlined coordination between city agencies and contractors, often via weekly integration meetings and delegated decision-making authority. This approach has enabled simultaneous delivery of multiple lines without paralysis by bureaucracy.

5.2 ENSURE TRANSPARENCY AROUND CONSTRUCTION DISRUPTIONS TO ENABLE EFFICIENT DELIVERY

Public infrastructure projects often face pressure to minimize disruption to surrounding communities. In response, agencies frequently limit construction hours and adopt more expensive methods (like deep tunneling over cut-and-cover) to avoid impacts like noise, dust, and vibration. While well-intentioned, these choices can substantially increase costs and delay completion.

Instead of relying solely on avoidance, jurisdictions can adopt a transparency-first approach—openly sharing real-time data on construction impacts such as noise, air quality, and vibration through public dashboards or notification systems. This empowers communities with information, builds trust, and enables the use of more efficient, albeit more disruptive, construction methods—such as cut-and-cover or extended work hours.

Transparency around disruptions is a key enabler of cost-effective delivery, especially when paired with clear mitigation commitments and compensation or support programs for affected businesses and residents.

Benefits:

- Builds public trust through openness and accountability
- Enables use of faster, more efficient construction methods
- Supports extended work hours (nights/weekends) to accelerate delivery
- Reduces pressure for costly design changes solely to avoid disruption
- Defuses misinformation and prevents public backlash
- Improves long-term acceptance of future infrastructure projects

Examples:

- United Kingdom – Crossrail (London). Crossrail implemented a public "Noise and Vibration Mitigation Scheme" along with online dashboards and real-time monitors around sensitive locations. Residents could access live and historical data on noise and air quality, and automatically receive alerts when thresholds were exceeded. This transparency helped support 24/7 construction in some areas, enabling faster completion of tunneling and station works.
- Australia – Sydney Metro. Sydney Metro's environmental monitoring dashboard provided real-time updates on noise, vibration, and dust. Affected communities could view metrics for their area and report concerns online. This proactive communication helped maintain support for intensive construction schedules in urban areas.
- France – Grand Paris Express. The Société du Grand Paris developed a public-facing environmental monitoring platform, including air and noise data from construction sites. The transparency program has been critical in maintaining local support for construction that often occurs in dense, mixed-use neighborhoods.

5.3 DEPLOY RAPID REPAIR TEAMS TO MANAGE MINOR SETTLEMENT DAMAGE DURING CONSTRUCTION

One reason shallow tunnel boring and other cost-effective construction methods (e.g., cut-and-cover) are often avoided in North America is the fear of minor damage to nearby structures—such as small cracks in walls or sidewalks caused by ground settlement. To eliminate this risk entirely, projects are often buried deeper, overengineered, or use more expensive construction methods, significantly increasing costs.

In contrast, low-cost jurisdictions like Italy accept that minor, localized damage is sometimes unavoidable—and instead focus on building public confidence by deploying dedicated repair teams during construction. These teams can respond quickly to cosmetic issues, carry out light repairs, and directly engage with property owners to mitigate disruption and maintain trust.

By acknowledging and managing—rather than overdesigning to eliminate—low-risk impacts, this approach enables shallower tunneling, lower construction costs, and faster project delivery, without compromising public support.

Benefits:

- Enables cost-effective tunneling closer to the surface
- Reduces need for costly deep alignments or heavy overbuilding
- Builds public trust through visible, responsive mitigation
- De-escalates concerns before they become political or legal
- Accelerates construction by reducing unnecessary precaution delays
- Demonstrates accountability and proactive problem-solving

Examples:

- **Italy** – Milan and Rome Metro Extensions. Italian tunneling projects routinely operate at shallower depths, accepting small, manageable settlement impacts. Dedicated repair teams are deployed during active construction to quickly address cracks, pavement issues, or façade damage. This responsiveness has helped maintain positive public perception while keeping tunneling costs among the lowest in Europe.
- **India** – Delhi Metro. Delhi Metro Rail Corporation (DMRC) deployed on-call civil response teams throughout the project's construction phases to address minor surface-level damage caused by tunneling or utility works. This approach helped avoid disruption, reassured nearby residents and business owners, and contributed to DMRC's strong public reputation and on-time delivery.
- **Turkey** – Istanbul Metro Expansions. Istanbul's metro authority has managed rapid network expansion by employing localized repair and support teams during construction in historic and densely built areas. These teams are tasked with monitoring and addressing minor settlement impacts, enabling the use of shallower and more direct tunnel alignments without provoking widespread opposition or delays.

5.4 PROVIDE DISRUPTION COMPENSATION NEAR MAJOR CONSTRUCTION SITES

Cost-effective construction methods—like cut-and-cover tunneling, shallow alignments, or extended work hours—can significantly reduce project costs and accelerate delivery timelines. However, these methods can also cause disruptions to residents and businesses near the construction zone, including noise, vibration, dust, access limitations, and reduced foot traffic.

Rather than avoiding these impacts by resorting to more expensive methods (such as deep tunneling), some jurisdictions embrace direct compensation for those most affected. By providing modest financial compensation, rent subsidies, or temporary relocation support, agencies can build public trust, mitigate political opposition, and unlock cheaper and faster forms of construction.

Disruption compensation reframes the public conversation: rather than denying impacts, it acknowledges them—and provides fair and proactive support. In doing so, it allows transit agencies to make better engineering decisions without being constrained by unrealistic expectations of zero disturbance.

Benefits:

- Enables cost-saving construction methods like cut-and-cover
- Reduces political pressure to overbuild or reroute infrastructure
- Builds public trust through fairness and transparency
- Increases tolerance for longer work hours and faster delivery
- Provides tangible support to vulnerable residents and businesses
- Encourages faster conflict resolution and community cooperation

Examples:

- Italy – Turin Metro Line 1 & Milan Expansions. In Italy, authorities have openly used cut-and-cover methods in dense areas, paired with direct compensation schemes for residents and commercial tenants affected by long-term construction. Compensation includes rental assistance, facade repairs, and temporary relocation support, enabling shallower alignments and lower costs while maintaining public goodwill.
- France – Grand Paris Express. The Société du Grand Paris offers targeted compensation to impacted businesses and temporary rent relief for residents adjacent to major worksites. This has supported the use of aggressive construction techniques and night work, accelerating delivery while minimizing resistance.
- South Korea – Seoul Subway Extensions. Seoul's metro expansions in built-up areas included pre-arranged disruption allowances for small businesses and homeowners near surface construction sites. These programs helped maintain community cooperation and allowed cut-and-cover and shallow tunneling where appropriate—contributing to cost-effective, rapid network growth.

CASE STUDY: SKYTRAIN EXTENSION TO UBC

To illustrate the potential benefits of cost control policies, the cost of the Skytrain extension to UBC was estimated. The UBC Extension was chosen for several reasons. First, it will likely be the next major transit project in Metro Vancouver. Second, early cost estimates already exist. In 2019, TransLink estimated the cost of the extension would be between $3.98 B and $4.58 B (2025 $CAD). This gives a point of reference for evaluating the cost saving benefits of the proposed measures.

Assumptions

For estimating a cost-controlled cost for the UBC Extension, the assumptions that were made publicly available in the 2019 study were replicated and reasonable assumptions were made for details that weren't. Component cost assumptions were primarily based on an Italian cost model that was adjusted to account for higher North American material and labour costs.

Note: the objective here was to illustrate the value of cost control measures, not to find a cost optimal design for this project. It is therefore possible that the actual cost of the UBC Extension may be even lower if a different design and construction approaches are used.

ROUTE ASSUMPTIONS

The route was modeled off of what TransLink has published and includes four (4) stations with a terminus at Wesbrook Mall. It is assumed that geological conditions will be similar to the Broadway Subway and two Earth-Pressured Tunnel Boring Machines (EPBMs) will be used to optimize cost efficiency. To ensure reliability, two cut-and-cover crossovers are anticipated at both Jericho and UBC stations.

Table 1: UBC Extension Route Assumptions

Component	Particulars
Stations	4 (Macdonald, Alma, Jericho and UBC)
Length	7.15 km
Tunnel Construction Method	Twin EPBMs
Crossovers	2 x 150 m (Jericho and UBC)

STATION ASSUMPTIONS

It is assumed that stations will be basic, functional, shallow and employ repeatable designs. Station excavation will be minimized in order to reduce costs. Since door spacing is not yet standardized on the Millennium Line, platform-screen doors are not included.

Table 2: UBC Extension Station Assumptions

Component	Particulars
Platform Arrangement	Island platforms
Road Decking	All (ex. Jericho Station)
Station Box Dimensions	14 m x 85 m x 13 m
Escalators	2
Elevators	1
Entrance Pavilions	1
Stairwells	2 (1 emergency)

SYSTEMS ASSUMPTIONS

Since the UBC Extension is an extension of the Millennium Line, it will use the same systems technology as the rest of the line, including linear induction motor (LIM) propulsion and Communications-Cased Train Control (CBTC) signalling.

Table 3: UBC Extension Systems Assumptions

Component	Particulars
Power Distribution	650 kV DC third-rail
Propulsion	LIM
Signalling	CBTC

ADDITIONAL COST ASSUMPTIONS

A generous construction disruption compensation of $2.15 M per km for cut-and-cover sections is assumed. Sewer main relocation at Macdonald Station is assumed to cost $1.54 M.

Soft costs only include design and engineering and are assumed to amount to 10% of the estimated construction cost. Property acquisition costs are excluded and it is assumed that these costs will be offset by future property development. Rolling stock acquisition costs are also excluded.

A contingency of 5-10% was added to produce an overall estimate. This is much lower than for most North American projects but is in line with projects where cost control measures have been implemented.

Results

It is estimated that, with cost control measures in place, an extension of the Millennium Line to UBC should cost $1.15 to $1.20 B. This results in a cost-per-km of $161-168 M, slightly higher than that of Milan Metro Line 5 ($150 M per km) but much lower than TransLink's 2019 cost estimate ($556-$641 M per km).

This estimate may seem shockingly low compared to Milan Metro's Line 5 considering the UBC Extension will require LIM propulsion and longer stations. However, there were certain costs that were included for Line 5 that were excluded from the UBC Extension estimate. These include platform-screen doors, archeological costs, connecting tunnels to facilitate common maintenance facility usage and some property acquisition costs. For these reasons, it can assumed that the UBC Extension cost estimate here, though low, is reasonable.

Comparing the $1.15-$1.20 B capital cost of the UBC Extension to the estimated land capture revenue from one station of the extension ($4.14-$4.85 B), it is clear that land value capture alone should be able to easily fund the extension and that there should be a significant surplus in funds.

POLICY IMPLICATIONS

UBC Extension Surplus Revenues

Part One examined a possible distribution of surplus revenues between the municipality, TransLink, First Nations and a transit fund as a way of encouraging support and efficient approval for the project. Assuming land value capture revenues are at least $4.14 B and the capital cost is $1.20 B, there would be at least $2.94 B in surplus revenues. This means $744 M could be allocated to each of these funds. (Keep in mind that for the City of Vancouver, the $744 M is in addition to $301 M in ACC revenue.)

In addition, this $2.94 B surplus is from only one station. With three additional stations to capture revenue from, the final surplus is likely to be significantly higher. If total land value capture revenue from the UBC Extension were to reach $7 billion, this would result in revenues of $1.46 B for the City of Vancouver, TransLink, First Nations and future transit projects. These sums could be transformational in improving infrastructure, advancing economic development and ensuring stable transit funding.

Ensuring the Viability of Land Value Capture Mechanisms

As housing supply becomes increasingly abundant, land value capture mechanism revenue is expected to decrease significantly, especially when it comes to TECs. However, keeping project capital costs down will ensure this funding mechanism can still be a significant contributor even as land value capture revenues decrease.

For the UBC Extension example, if it is assumed that housing supply is abundant, TECs and TIF would still generate $764 M in revenue from Macdonald Station. This amounts to almost two-thirds of the capital cost of the UBC Extension if costs are kept under control. If revenues were to double with the inclusion of the other three stations, land value capture mechanisms would be able to cover the full cost of the extension.

This example demonstrates the importance of capital cost controls and how they ensure viability of land value capture mechanisms as a transit expansion funding tool even when they cannot capitalize on the scarcity of housing supply. It also implies that governments need not delay transit expansion in fear of causing land value capture mechanism revenue to collapse.

NEXT STEPS

Further analysis is needed to determine how far land value capture and cost controls could help in funding the next phase of transit improvements. Below are suggested areas for further study:

- Research land value capture potential for remaining Millennium Line UBC Extension stations
- Research land value capture potential for funding TransLink's Transport 2050 vision
- Research land value capture potential for regional rail projects across BC
- Conduct preliminary design for Transport 2050 projects assuming cost controls have been implemented
- Conduct preliminary design for regional rail projects assuming cost controls have been implemented

Final Word

BC is a rapidly growing province and our transportation infrastructure needs to change to not only keep up with growth, but allow its citizens to shift to cleaner, safer and more cost-effective forms of transportation. It is not good enough to throw our hands in the air and complain about how challenging it is; the people of British Columbia deserve solutions. They deserve better.

These problems can be solved and be turned into advantages if there is an earnest willingness to be creative and explore unconventional options.

By using land value capture mechanisms around future transit stations, transit expansion can be funded without requiring funds from higher levels of government. By implementing project cost control measures, public dollars can be extended much further.

In 2023, BC demonstrated leadership in linking transit with development through law. Once again, there is an opportunity for BC to be a global leader when it comes to how transit is funded and expanded.

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