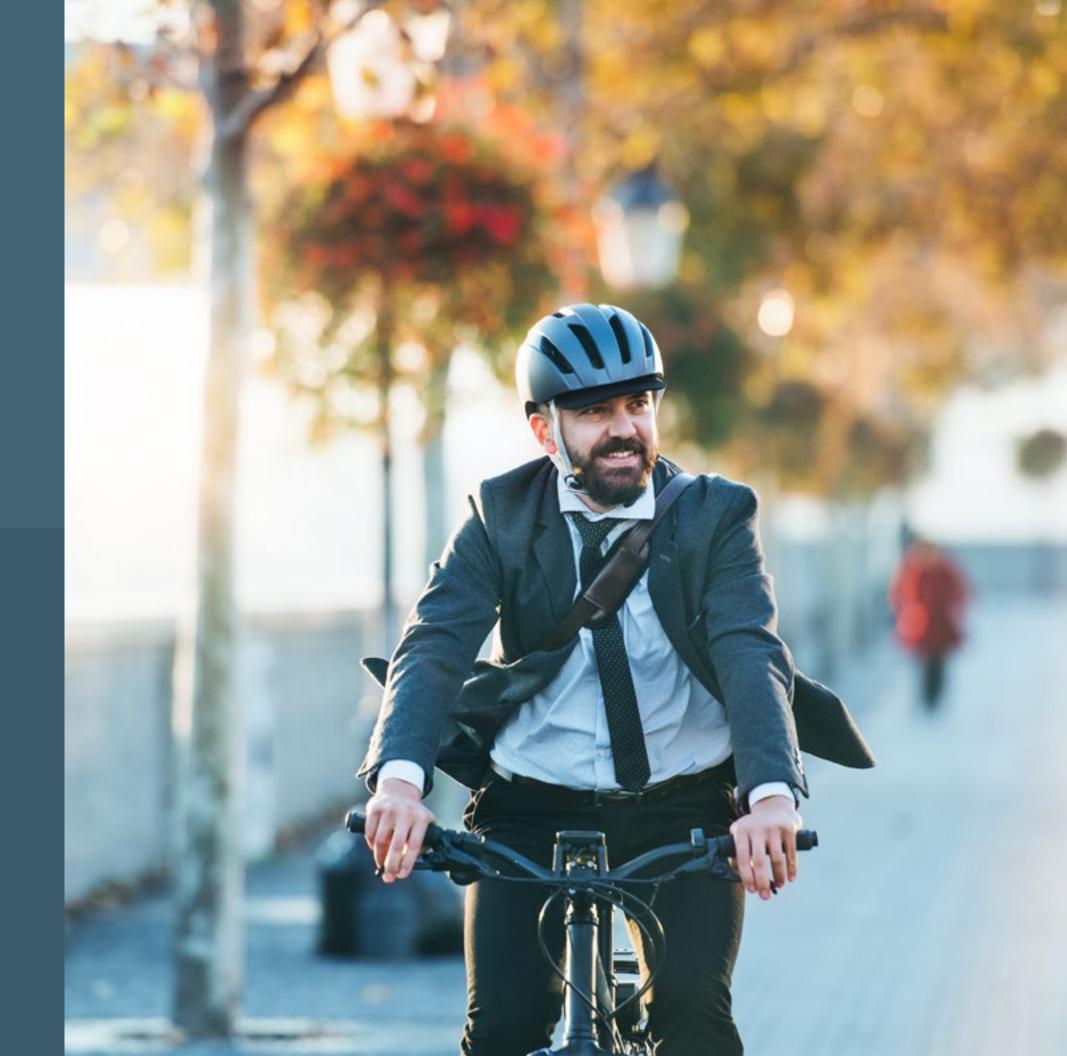# Part H

**Performance Monitoring
and Evaluation Framework**

Performance indicators to monitor, evaluate, and prioritize

Performance indicators are metrics that help measure the impact of strategies and actions on achieving the region's goals and headline targets as presented in this strategy. Indicators serve two purposes in support of implementation:

1) **Evaluation for prioritization:** Transport 2050 is a long-range strategy that includes many strategies and actions. An important next step in implementation is to prioritize the strategies and actions into those that will be implemented sooner (versus later) or given more resources (versus less). Performance indicators are critical in evaluating and prioritizing strategies and actions. The method by which this is accomplished is set out in an evaluation framework.

2) **Monitoring performance:** Following implementation, monitoring the effectiveness of the various strategies and actions, as well as the collective impacts of all the strategies and actions within Transport 2050, is critical to ensuring that progress is being made towards goals. These indicators will be used to monitor performance over time. The method by which is this accomplished is set out in a monitoring framework.

Evaluation Framework

An evaluation framework is currently under development to prioritize the TransLink-led strategies and actions contained within Transport 2050 for early implementation. This evaluation framework will assess the ability of the proposed strategies and actions to achieve the goals and targets set out in Transport 2050. The evaluation framework seeks to strike a balance between comprehensiveness, manageability, and efficacy in measuring impacts. Additionally, the evaluation metrics need to be projectable into the future using available tools and methodologies. The evaluation will inform TransLink's next 10-year implementation plan, which will identify the prioritized strategies and actions. This implementation plan is similar to the existing 2014 Mayors' Vision.

Various approaches will be used to estimate outcomes for the evaluation framework. One of the key analytical tools is the regional transportation model. This model projects future transportation conditions in the region based on inputs describing the distribution of homes and jobs throughout the region, the roads and transit services available, and the time and dollar costs of using each mode. The model projects the amount of travel that would occur by auto, transit, walking, and cycling, and the location of this travel (i.e., from where to where, and along which corridor).

A variety of other models and tools will be used to both generate and validate our estimates. It is important to emphasize that these models are simply tools to help us assess the relative impacts of different options. While these models are sophisticated, they are still ultimately just depictions of reality — our best guesses of what we think might happen. We can never accurately predict the future, as there are many external variables that we can't always predict.

Social equity evaluation:

Social equity is identified as a strategic lens in Transport 2050. The analysis of social equity will take a cross-cutting approach and will require different methodologies for different aspects of the plan. For non-spatial policies and investments, the direct impacts will be evaluated using quantitative and qualitative methods. Where possible, a spatially driven approach will be pursued for geographically specific components such as transit and infrastructure investments. This will entail assessing the intersection of the spatial distribution of the costs and benefits of infrastructure with the spatial distribution of equity-denied residents. The social equity lens will aim to ensure that the gap in access between the general population and the equity-denied populations reduces in the future, and that equity-denied populations receive a fair share of the region's investments.

Monitoring Framework

The monitoring framework will consist of the indicators below supplemented by a wider suite of monitoring criteria. Monitoring criteria are not constrained by the requirement to be able to project or evaluate in advance and, as a result, can include a wider and more comprehensive set of indicators. Transport 2050 includes several actions that will improve the ability to monitor the regional transportation system.

In 2020, battery-electric vehicles represented 8.4% of total new vehicle registrations in BC, according to Statistics Canada

Establishing Targets

Setting targets motivates action and helps with monitoring our progress. The five headline targets in Transport 2050 outline the future transportation system we want, where:

Goal 1 Convenient: By 2050, active transportation and transit are competitive choices accounting for at least half of all passenger trips, with taxi, ride-hail, and carshare accounting for most of the remaining passenger trips.

Goal 2 Reliable: By 2050, we are all spending 20% less time stuck in congestion, compared to today.

Goal 3 Affordable: By 2050, none of us — especially those of us with less wealth and lower incomes — need to spend more than 45% of our household incomes on housing and transport combined.

Goal 4 Safe and Comfortable: Reduce serious traffic injuries and fatalities by at least 5% annually until we reach zero before 2050.

Goal 5 Carbon-Free: By 2030, we have lowered carbon pollution from light-duty vehicles by 65% over 2010 levels and we have eliminated carbon pollution from transport altogether by 2050.

Tracking Our Progress on Other Regional Targets

Transport 2050 is informed by several regional plans. We will track our progress towards these complementary targets as well. Other regional transportation targets include:

Metro Vancouver Climate 2050:

45% reduction in emissions from 2010 levels by 2030, and carbon-neutral region by 2050

Metro Vancouver Clean Air Plan:

Air quality in the region is continually improving, protecting human health and the environment, by ensuring that:

- Ambient air quality meets or is better than the ambient air quality objectives and standards that are regularly updated by Metro Vancouver, the BC Government and the Government of Canada

- The amount of time that visual air quality is classified as "excellent" is increasing

Transportation sector emissions targets:

- Passenger vehicles: 65% reduction in greenhouse gas emissions from 2010 levels by 2030

- Commercial vehicles, rail locomotives, marine vessels, and aircraft: 35% reduction in greenhouse gas emissions from 2010 levels by 2030

- Passenger and commercial vehicles, rail locomotives, marine vessels, and aircraft: 25% reduction in diesel particulate matter emissions from 2020 levels, and 40% reduction in nitrogen oxides emissions from 2020 levels by 2030

Regional Cycling Strategy:

Cycling feels safer so that, by 2040, 50% of all cycling trips are made by females. We are tracking our progress against these targets using the indicators listed below.

List of Proposed Performance Indicators

The following table outlines the performance indicators used for evaluation and for monitoring. Some of these indicators are not currently collected and will require co-ordination and collaboration across municipal and regional agencies. It also includes cross-listed indicators from Metro Vancouver's Regional Growth Strategy, Metro 2050.

GOAL ONE
Convenient Choices for Everyone

We all have universally accessible choices that allow us to conveniently connect to opportunities without needing to rely on a car such that, by 2050, active transportation and transit are competitive choices accounting for at least half of all passenger trips, with taxi, ride-hail, and carshare accounting for most of the remaining passenger trips.

	Monitoring	Evaluation
1.1. Make active transportation the most convenient choice for shorter trips.		
• Percentage of envisioned bikeway network completed	X	
• Percentage of envisioned walkway network completed	X	
• Walkway/bikeway connectedness score, by traffic zone (nodes/segments ratio)	X	
• Percentage of trips by walking, rolling, biking, scooters, or electric mobility (by distance, by region, and overall)	X	
• Ratio of access to jobs by active transportation vs. auto	X	X
• Accessibility to jobs, education, healthcare, and green spaces by active transportation	X	X
• *A walkability index composed of land use mix, commercial floor area ratio, intersection density, residential density, and sidewalk completeness [Metro 2050]*	X	
• *Total and change in number of community services and amenities in Urban Centres and Frequent Transit Development Areas, including, but not limited to, childcare, green space, and land use mix [Metro 2050]*	X	

	Monitoring	Evaluation
1.2. Make transit the most convenient choice for most longer trips.		
• Annual Service Hours (ASH) of transit by mode/service, total and per capita	X	
• Ratio of access to jobs by transit vs. auto	X	X
• Accessibility to jobs, education, healthcare, and green spaces by transit transportation	X	X
• Percentage of trips by transit (by distance, region, and overall)	X	
• Percentage of transit stations/stops/services that are universally accessible	X	
• *Total and change in trips by transportation mode [Metro 2050]*	X	
• *Percentage of residents within walking distance of the Major Transit Network [Metro 2050]*	X	
1.3. Make it convenient for all households to make the occasional car trip without needing to own a car.		
• Percentage of regional light-duty fleet that is shared and/or accessible	X	
• Proportion of auto trips that are shared	X	X
• *Total and per capita change in the number of actively insured vehicles [Metro 2050]*	X	
1.4. Seamlessly connect different transport services both physically and digitally.		
• Percentage of trips accessed through Mobility-as-a-Service (MaaS) apps	X	
• Percentage of stations/stops with easy connection to non-transit modes, by number of modes	X	

GOAL TWO
Reliable Choices for Everyone

We all have reliable choices that get us where we need to go on time such that, by 2050, we are all spending 20% less time stuck in congestion compared to today.

	Monitoring	Evaluation
2.1. Make transit more reliable.		
• Percentage of Frequent Transit Network (FTN) with bus lanes/all-day bus lanes	X	
• Transit travel time in top 20 corridors	X	
• Total time spent in congestion by transit users	X	X
• On-time performance (%)	X	
2.2. Make goods movement more reliable.		
• Percentage of peak-hour truck vehicle-kilometres travelled in congested corridors	X	
• Total time spent in congestion by goods movement	X	X
• Travel time reliability on designated truck routes	X	
2.3. Make driving and parking more reliable.		
• Percentage of public parking spaces that are priced and/or dynamically priced, on- and off-street	X	
• Percentage of peak-hour vehicle-kilometres travelled in congested corridors	X	
• Total time spent in congestion by auto users	X	X
• Travel time reliability on Major Road Network	X	
2.4. Maintain transportation infrastructure in a state of good repair.		
• On-time performance (%)	X	
• Mean distance between failures	X	
• Mean distance between service removals	X	
• Percentage of assets in state of good repair	X	X
• Backlog of investment needs ($)	X	

GOAL THREE
Affordable Choices for Everyone

We all have affordable choices, allowing us to easily live and move in this region such that, by 2050, none of us — especially those of us with less wealth and lower incomes — need to spend more than 45% of our household incomes on housing and transport combined.

	Monitoring	Evaluation
3.1. Make living close to frequent transit more affordable.		
• Percentage of housing units within 800 metres of Major Transit Network stops and stations that are affordable	X	
• Percentage of regional affordable housing units that are within 800 metres of Major Transit Network stops and stations	X	
• Percentage of income spent on housing, by neighbourhood transit accessibility score	X	
• *Percentage of regional dwelling unit growth located in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors [Metro 2050]*	X	
• *Percentage of affordable rental housing in new and redeveloped units in Urban Centres and Frequent Transit Development Areas [Metro 2050]*	X	
• *Percentage of household income spent on housing and transportation expenses across the region and by tenure and income level [Metro 2050]*	X	
3.2. As a priority, invest in transportation modes that are lowest cost and most affordable to residents.		
• Percentage of income spent on transportation, by neighbourhood	X	
• Ratio of access to jobs by active transportation and transit relative to auto	X	X
• Investments in cycling, walking, and transit infrastructure, by neighbourhood	X	

GOAL THREE
Affordable Choices for Everyone

	Monitoring	Evaluation
3.3. Ensure that transport taxes and fees are affordable for everyone.		
• Transportation costs	X	X
• Percentage of dollars raised for regional transportation linked to ability to pay	X	
3.4. Help people and businesses connect to more economic opportunities.		
• Percentage of employment within 800 metres of Major Transit Network stops/stations		
• Accessibility to jobs by all modes	X	X
• *Change in people plus jobs per hectare in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors [Metro 2050]*	X	
• *Percentage of regional employment growth located in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors [Metro 2050]*	X	
• *Total and change in employment by sector in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors [Metro 2050]*	X	
• *Change in office floor area within Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors [Metro 2050]*	X	
• *Average number of kilometres travelled for commute (region-wide) [Metro 2050]*	X	
• *Average number of minutes travelled for commute (region-wide) [Metro 2050]*	X	
• *Average trip length by transportation mode (region-wide) [Metro 2050]*	X	

GOAL FOUR
Safe & Comfortable Choices for Everyone

We all have safe and comfortable choices that make us all healthier and happier and where we reduce serious traffic injuries and fatalities by at least 5% annually until we reach zero before 2050.

	Monitoring	Evaluation
4.1. Eliminate traffic fatalities and serious injuries.		
• Number and percentage of collisions resulting in serious injury or death, by demographic group	X	
• Percentage of street-kilometres by speed limit and design speed by typology	X	
• Percentage of people walking, biking, and rolling who rate feeling welcome and safe, by demographic group on Customer Feedback Survey	X	
• *Total and per capita change in annual vehicle kilometres travelled by transportation mode [Metro 2050]*	X	X
4.2. Ensure everyone feels welcome, comfortable, and physically secure while getting around.		
• Percentage of transit trips with overcrowding	X	X
• Percentage of people who rate feeling welcome and safe on transit, by demographic group on Customer Feedback Survey	X	
• Percentage of cyclists that are women		
4.3. Minimize transportation's adverse impacts on local communities.		
• Average/maximum decibels along road/rail network	X	
• Vehicle kilometres travelled	X	X
• Number of air quality exceedances of annual objectives attributable to vehicular emissions	X	
• Particulate matter and nitrogen oxide emissions, by vehicle type	X	
• Public realm quality score	X	
• *Change in the percentage of regional total tree canopy cover within the Urban Containment Boundary [Metro 2050]*	X	
4.4. Safely respond to and recover from disruptions and disasters.		
• Value ($) of transportation assets in identified high-risk areas	X	X
• Network redundancy index	X	

GOAL FIVE
Carbon-Free Choices for Everyone

We have many transportation choices that are carbon-free, supporting local and global efforts to tackle climate change such that, by 2030, we have lowered carbon pollution from light-duty vehicles by 65% over 2010 levels, and we have eliminated carbon pollution from transport altogether by 2050.

	Monitoring	Evaluation
Regional GHG emissions — all sectors (tonnes)	X	
GHG emissions from transportation by vehicle size category (LDV/MDV/HDV) (tonnes)	X	
5.1. Reduce the energy requirements of the transport system.		
• Total vehicle kilometres travelled, by mode	X	X
• Total and per capita transportation energy consumption	X	
• Percentage of land use devoted to driving and parking	X	
5.2. Transition to zero-emissions vehicles.		
• Percentage of registered light-, medium-, and heavy-duty vehicles that are zero- or near-zero emissions	X	
• Percentage of new light-, medium-, and heavy-duty sales that are zero- or near-zero emissions	X	
5.3. Support ready access to low-carbon fuels for the transportation system.		
• Number of public Level 2 (or faster) EV chargers	X	
• Percentage of parking stalls in multi-unit buildings that have EV charging	X	
• Transportation fuel consumption by fuel type	X	

	Monitoring	Evaluation
5.4. Account for and reduce upstream and downstream emissions in the transport system.		
• Total upstream, downstream, and operational emissions in the transportation sector, by vehicle type	X	X
• *Total and change in tonnes of regional greenhouse gas emissions related to land use, buildings, industry, agriculture, waste, transportation, and other emission sources in support of the regional target to reduce greenhouse gas emissions by 45% below 2010 levels by the year 2030 and to achieve a carbon-neutral region by the year 2050 [Metro 2050]*	X	