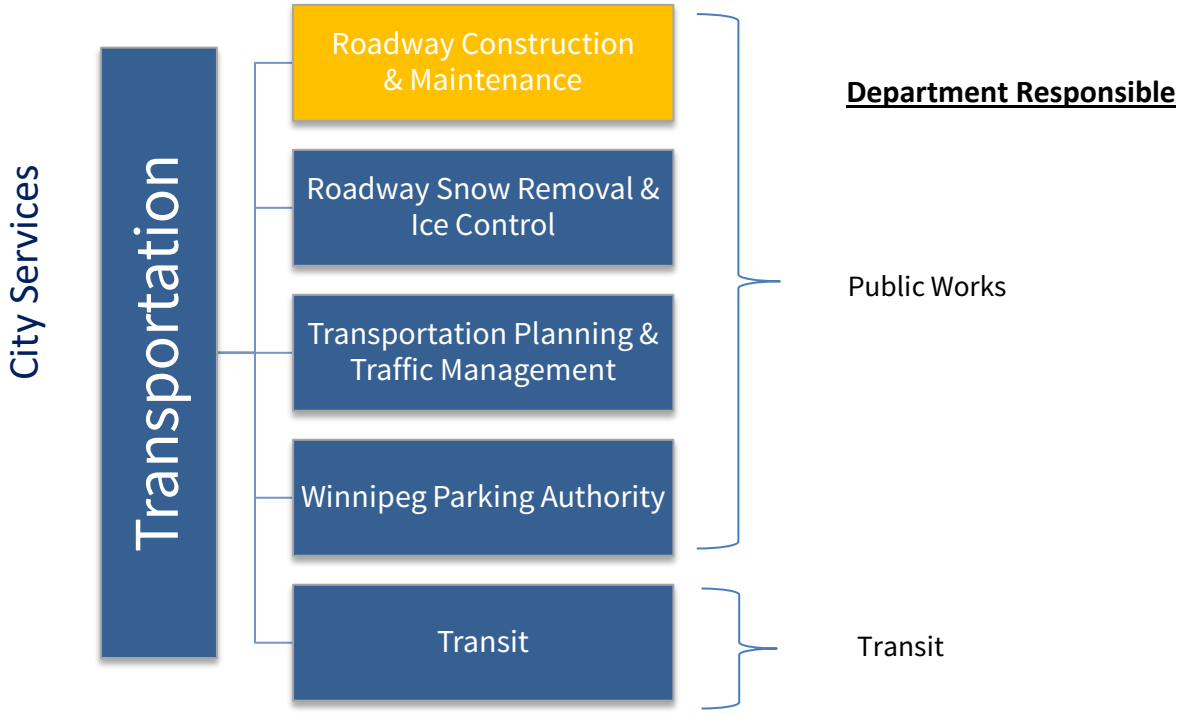
APPENDIX A:
Proposed Funding Strategy for Multimodal Roadway and Bridge Infrastructure Renewal

Through effective asset and financial management, the City can achieve its organizational objectives relating to transportation infrastructure by delivering agreed and affordable levels of service at the appropriate lifecycle cost while minimizing risk. While we often focus on the 2% of new assets created each year, we must not forget to effectively manage the other 98%. By defining proposed levels of service and an associated long-term financial strategy for multimodal roadway and bridge infrastructure renewal, we will be better able to:

- Model the financial implications of proposed service levels and revenue scenarios
- Determine a combination of proposals that best meets the service level needs and preferences of Winnipeggers in an equitable manner over time
- Ensure ongoing financial sustainability of our transportation infrastructure

Within the City of Winnipeg, delivery of the transportation service overall is currently categorized under five main service areas:



Maintenance, renewal and replacement of roadway and bridge infrastructure falls within the ***Roadway Construction and Maintenance*** service within the City of Winnipeg's service-based budget; however the above services are inter-related and collectively support the delivery of the City's transportation service as a whole.

PROPOSED LEVELS OF SERVICE

Levels of Service (LoS) represent a defined amount of output for a particular activity or service area against which performance may be measured. Levels of service describe the objectives our organization intends to deliver and should drive everything that we do. They are the link between providing the outcomes Winnipeggers desire and the way in which the City provides the service.

Generally, there are three types of service levels as shown in Figure 01:

- **Corporate Levels of Service** *(Corporate objectives)* – high level statements outlining what we, as a city, intend to deliver
- **Customer Levels of Service** *(Customer expectations)* – how the customer receives or experiences the service
- **Technical Levels of Service** *(Technical objectives)* – what we do to deliver the service

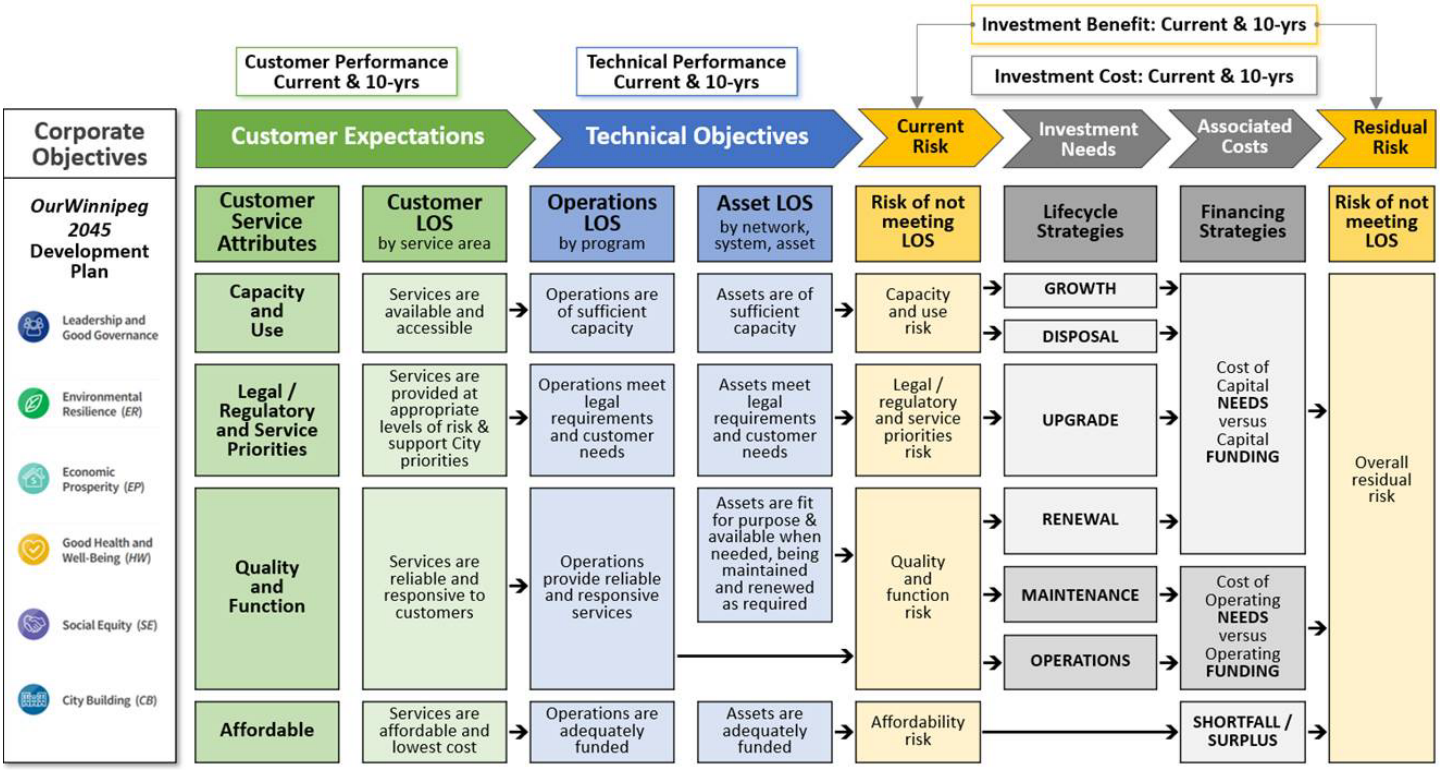


Figure 01: City of Winnipeg Level of Service Framework

Performance measures are used to help indicate how we are doing in relation to the target levels of service, and are applied to both the customer and technical levels of service. Existing performance measures are communicated through our annual budgeting process. As we strive to meet customer expectations, there is always a balancing act required between the level of service provided, the accepted level of risk, and willingness to pay (affordability).

In recent years, the overall condition of regional and local streets has been gradually improving (Fig. 02).

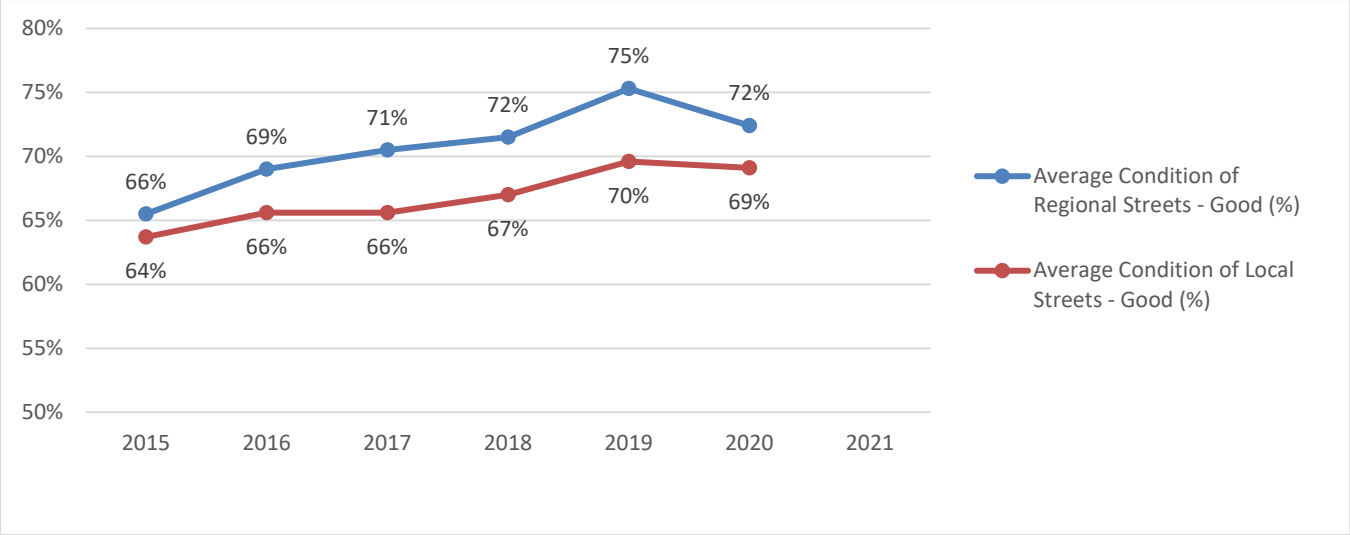


Figure 02: Condition of regional and residential streets (Source: City of Winnipeg Budgets - Vol.1 Community Trends and Performance (2015-2021). Please note that starting in 2020 Regional street ratings are collected every second year and will be reported on in the year they are rated. Local streets ratings are collected on a three-year cycle and will be reported on at the end of each three-year cycle. Alley ratings are not yet included.).

During this same period, data has shown a general gradual increase in the number of Winnipeggers satisfied with the condition of our regional and residential streets, with a slight decrease in 2021 (Fig. 03).

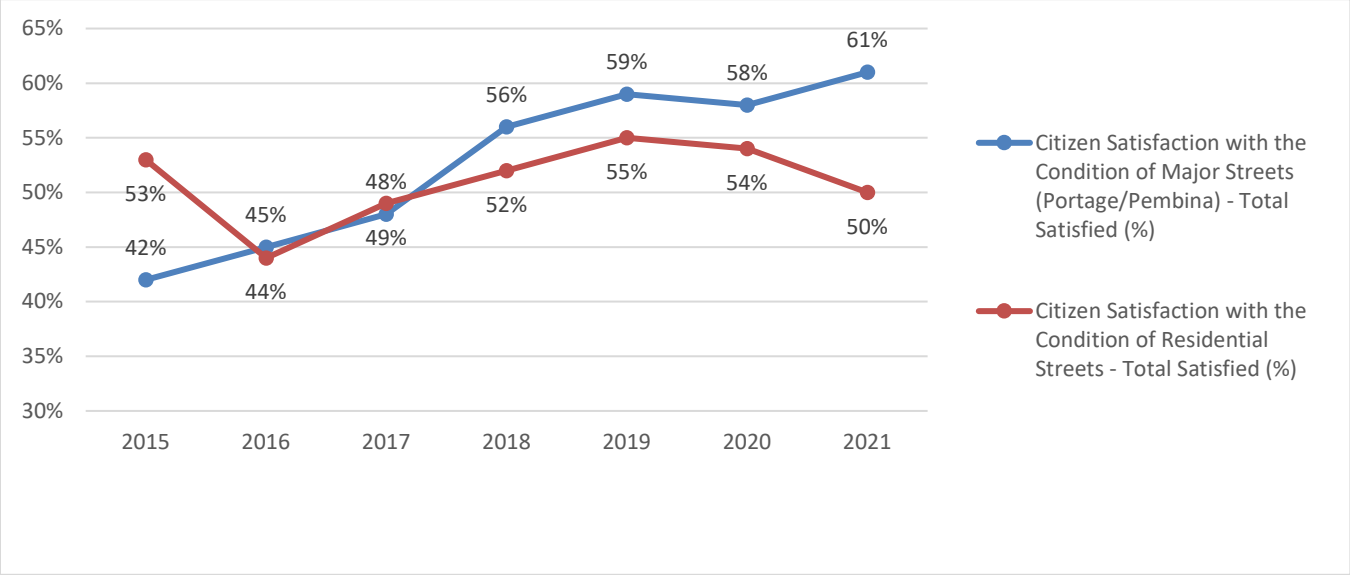


Figure 03: Citizen satisfaction in condition of regional and residential streets (Source: City of Winnipeg Budgets - Vol.1 Community Trends and Performance (2015-2021))

To continue this positive upward trend, the proposed levels of service and associated performance measures for the *Roadway Construction and Maintenance* service have been refined and expanded upon to better understand customer expectations and the measures that must be put in place to determine how well we are performing against those expectations (refer to Tables 01 to 03).

Service: Roadway Construction and Maintenance

To provide Winnipeggers and visitors with access to well-maintained roadways, sidewalks, pathways, and bridges in order to ensure the safe, efficient movement of people, goods and services.

Table 01: Corporate Levels of Service (Roadway Construction and Maintenance)

Corporate Objectives			
Corporate Level of Service Statements (Key Goals)		**OurWinnipeg 2045 Alignment**	
RC-01	Provide resilient transportation infrastructure by ensuring the street, sidewalk and pathway networks are in 'good' condition, 'fit for purpose', and renewed at the optimum point in their lifecycle.		**2.2, 2.4, 2.7, 2.9, 2.16, 2.21**
			**3.4**
			**4.10, 4.12**
			**6.14, 6.15**
RC-02	Ensure streets, sidewalks and pathways are safe and accessible at all times by providing timely, adequate maintenance to prevent costly alternatives.		**2.4, 2.15**
			**6.9, 6.14, 6.15**
			**5.7**
RC-03	Enable safe and resilient waterway crossings and grade separations by ensuring bridges and supporting infrastructure are maintained, meet all regulatory requirements and support alternative modes of transportation.		**2.2, 2.4, 2.5, 2.7, 2.9**
			**6.18**
			**4.10, 4.12**
RC-04	Design and construct new transportation infrastructure in an environmentally sustainable manner and address social and aesthetic considerations.		**2.5, 2.7, 2.9, 2.21**
			**4.10**
			**6.12, 6.13, 6.16, 6.17, 6.18**

Table 02: Proposed Customer Levels of Service – Roadway Construction and Maintenance. Target is 'Good'.

Customer Expectations		
Customer Service Attributes	**Customer Level of Service**	**2022 Customer Performance Grade**
Capacity and Use Services have enough capacity and are accessible to everyone	Bridges and underpasses are designed to accommodate vehicular and truck traffic users who need them	**Good**
	Bridges and underpasses minimize barriers to alternate modes of travel to the users who need them	**Fair**
Quality and Function Services are reliable and responsive to customers	Major streets are well-maintained and kept in a safe condition for all users	**Poor**
	Paved residential street surfaces are kept in a safe condition for all users	**Poor**
	Paved alley surfaces are passable and kept in a safe condition for all users	**Very Poor**
	Unpaved residential street surfaces are kept in a safe condition	**Very Good**
	Winnipeggers receive fast responses to and resolution of pavement-related questions, concerns, and complaints	**Future**
	Walking and cycling infrastructure is well-maintained	**Future**
	Bridges and underpasses are well-maintained and kept in a safe condition for all users	**Poor**
	Access to bridges and underpasses is minimally disrupted by closures	**Good**
	Winnipeggers receive fast responses to and resolution of bridge-related questions, concerns, and complaints	**Good**
Affordable Services are affordable, provided at lowest cost for both current and future customers	Winnipeggers see value in how street renewal funding is spent	**Poor**
	Bridge renewal and maintenance dollars are well-spent	**Good**

Table 03: Draft Technical Levels of Service – Roadway Construction and Maintenance *(currently under development)*

Technical Objectives							
Customer Service Attributes	**Customer Level of Service**	**Technical Level of Service**	**Current Technical Performance**	**Target Technical Standard**	**Data Confidence**	**Lifecycle Strategies***	**Key Goal Reference**
Capacity and Use	Bridges and underpasses are designed to accommodate vehicular and truck traffic users who need them	% of bridges, culverts, and underpasses where **Load Capacity** Appraisal State is 4+	89.2%	80%	High	Growth	RC-03
		% of bridges, culverts, and underpasses where **Vertical Clearance** Appraisal State is 4+	72.0%	80%	High	Growth	RC-03
		% of bridges, culverts and underpasses where **# Lanes** Appraisal State is 4+	94.0%	80%	High	Growth	RC-03
		% of B/C/U where **Roadside Safety Devices** Appraisal State is 4+	84.6%	80%	High	Growth	RC-03
		% of bridges, culverts, and underpasses where **Roadway Geomatics** Appraisal State is 4+	91.3%	80%	High	Growth	RC-03
		% of bridges, culverts, and underpasses where **Hydraulics / Fish Passage / Navigation** Appraisal State is 4+	89.4%	80%	High	Growth	RC-03
	Bridges and underpasses minimize barriers to travel and accommodate the users who need them	% of bridges, culverts, and underpasses where **Accommodation of Buses** Appraisal State is 4+	87.2%	80%	High	Growth	RC-03
		% of bridges, culverts, and underpasses where **Accommodation of Pedestrians** Appraisal State is 3+	68.1%	80%	High	Growth	RC-03
		% of bridges, culverts, and underpasses where **Accommodation of Bicycles/AT** Appraisal State is 3+	37.5%	80%	High	Growth	RC-03
		% of bridges, culverts, and underpasses where **Accessibility** Appraisal State is 4+	79.2%	80%	High	Growth	RC-03

Technical Objectives							
Customer Service Attributes	**Customer Level of Service**	**Technical Level of Service**	**Current Technical Performance**	**Target Technical Standard**	**Data Confidence**	**Lifecycle Strategies***	**Key Goal Reference**
Quality and Function	Major streets are well-maintained and kept in a safe condition for all users	Average Condition of Regional Streets (%) – Good/Very Good Fair Poor	 72% 21% 7%	 85% 10% 5%	High	Renewal	RC-01
		% Priority 1 pothole service requests closed within service level agreement (Regional streets)	43%	80%	High	Maintenance	RC-02
Quality and Function	Paved local street surfaces are kept in a safe condition for all users	Average Condition of Residential Streets (%) – Good/Very Good Fair Poor	 70% 16% 13%	 75% 15% 10%	High	Renewal	RC-01
		Average Condition of Industrial Streets (%) – Good/Very Good Fair Poor	 58% 17% 25%	 75% 15% 10%	High	Renewal	RC-01
		% Priority 2 pothole service requests closed within service level agreement	54%	80%	High	Maintenance	RC-02
		% Priority 3 pothole service requests closed within service level agreement	76%	80%	High	Maintenance	RC-02
Quality and Function	Paved alley surfaces are passable and kept in a safe condition for all users	Average Condition of Alleys (%) – Good/Very Good Fair Poor	 33% 46% 20%	 55% 30% 15%	High	Renewal	RC-01
Quality and Function	Unpaved residential street surfaces are kept in a safe condition	% planned granular road program delivered	Future	Future	n/a	Operations	RC-02
		% planned chip seal program delivered	100%	100%	High	Operations	RC-02
		% planned dust control program delivered	Future	Future	n/a	Operations	RC-02

Technical Objectives							
Customer Service Attributes	**Customer Level of Service**	**Technical Level of Service**	**Current Technical Performance**	**Target Technical Standard**	**Data Confidence**	**Lifecycle Strategies***	**Key Goal Reference**
Quality and Function	Walking and cycling infrastructure is well-maintained	Average Condition of Multi-use Paths (%) – Good/Very Good Fair Poor	Future	Future	n/a	Renewal	RC-01
		Average Condition of Sidewalks (%) – Good/Very Good Fair Poor	Future	Future	n/a	Renewal	RC-01
Quality and Function	Bridges and underpasses are well-maintained and kept in a safe condition for all users	% of bridges, culverts, and underpasses where **Condition** Appraisal State is 4+	59.6%	75%	High	Renewal	RC-03
		% of bridges, culverts, and underpasses where **Riding Surface** Appraisal State is 4+	80.7%	90%	High	Renewal	RC-03
		# of days where we have **unplanned/emergency full or partial bridge closures** due to imminent safety issues caused by age-related deterioration	36	10	High	Renewal	RC-03
		# of days of **planned full bridge closures on Regional streets** (not including planned major rehabs/recons)	0	< 20	High	Renewal	RC-03
		# days of **planned full closure to sidewalk / AT facilities** (not including planned major rehabilitations or reconstructions)	0	0	High	Renewal	RC-03
		# of incidents where underpasses are impassable due to flooding	2	< 2	High	Renewal	RC-03

Technical Objectives							
Customer Service Attributes	**Customer Level of Service**	**Technical Level of Service**	**Current Technical Performance**	**Target Technical Standard**	**Data Confidence**	**Lifecycle Strategies***	**Key Goal Reference**
Quality and Function	Winnipeggers receive fast responses to and resolution of pavement-related questions, concerns, and complaints	% of 311 calls responded to within the service level agreement	Future	Future	n/a	Operations	RC-01
Quality and Function	Winnipeggers receive fast responses to and resolution of bridge-related questions, concerns, and complaints	% of 311 calls responded to within the service level agreement	87%	80%	High	Operations	RC-03
Affordable	Winnipeggers see value in how street renewal funding is spent	% of capital budget spent annually	75%	75%	High	Financial Sustainability	RC-01
		% of maintenance expenditure allocated to proactive maintenance	19%	50%	High	Financial Sustainability	RC-02
	Bridge renewal and maintenance dollars are well-spent	% bridge maintenance budget spent on repetitive reactive repairs (not including accident damages)	16%	< 10%	High	Financial Sustainability	RC-03
		% of projects where engineering studies and lifecycle cost analysis conducted (Major rehab & recon)	100%	100%	High	Financial Sustainability	RC-03

*Lifecycle Strategies:

Growth: Provide assets of sufficient capacity that are available, convenient, and accessible
Operations: Conduct regular activities to provide services
Maintenance: Retain asset condition to enable reliable service provision
Renewal: Retain assets in a good state of repair to enable reliable service provision
Upgrade: Provide assets that comply with regulations, perform their intended function and are safe, secure, and sustainable
Financial Sustainability: Assets are adequately funded in both the short and long term

Condition Rating Scale – Technical Levels of Service			
Type	**Very Good (new)/Good**	**Fair**	**Poor/Very Poor**
	Acceptable physical condition; minimal short-term failure risk, but potential for deterioration in the long term. Only minor work required.	Significant deterioration is evident; minor components or isolated sections of the asset need replacement or repair now, but the asset is still serviceable and functions safely at an adequate level of service.	Closure likely and substantial work required in the short term. Asset barely serviceable.
Regional			
Residential			
Industrial			
Alleys			

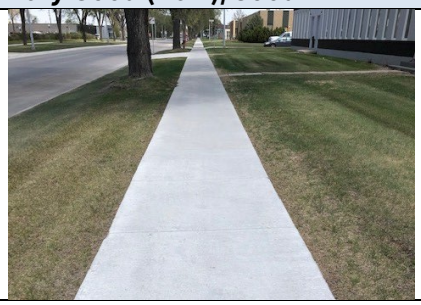
Condition Rating Scale – Technical Levels of Service			
Type	**Very Good (new)/Good**	**Fair**	**Poor/Very Poor**
Sidewalks			
Pathways			
Bridges			
Underpass			
Culverts			

Figure 04: Condition Rating Descriptions – Roadway and Bridge Infrastructure

When defining our target LoS, risks must be considered and managed against our goals and objectives. Current target service levels have been set to mitigate current risks including:

- Continued customer dissatisfaction with the condition of roads
- Possible lane closures or traffic disruption (longer commuting times)
- Continued deterioration
- Increased claims against the City of Winnipeg
- Increased cost to repair due to lack of preventative maintenance treatments

Through understanding target levels of service, risk and cost of road and bridge renewals, this information can be used to drive affordable service delivery through transparent and evidence-based decision-making.

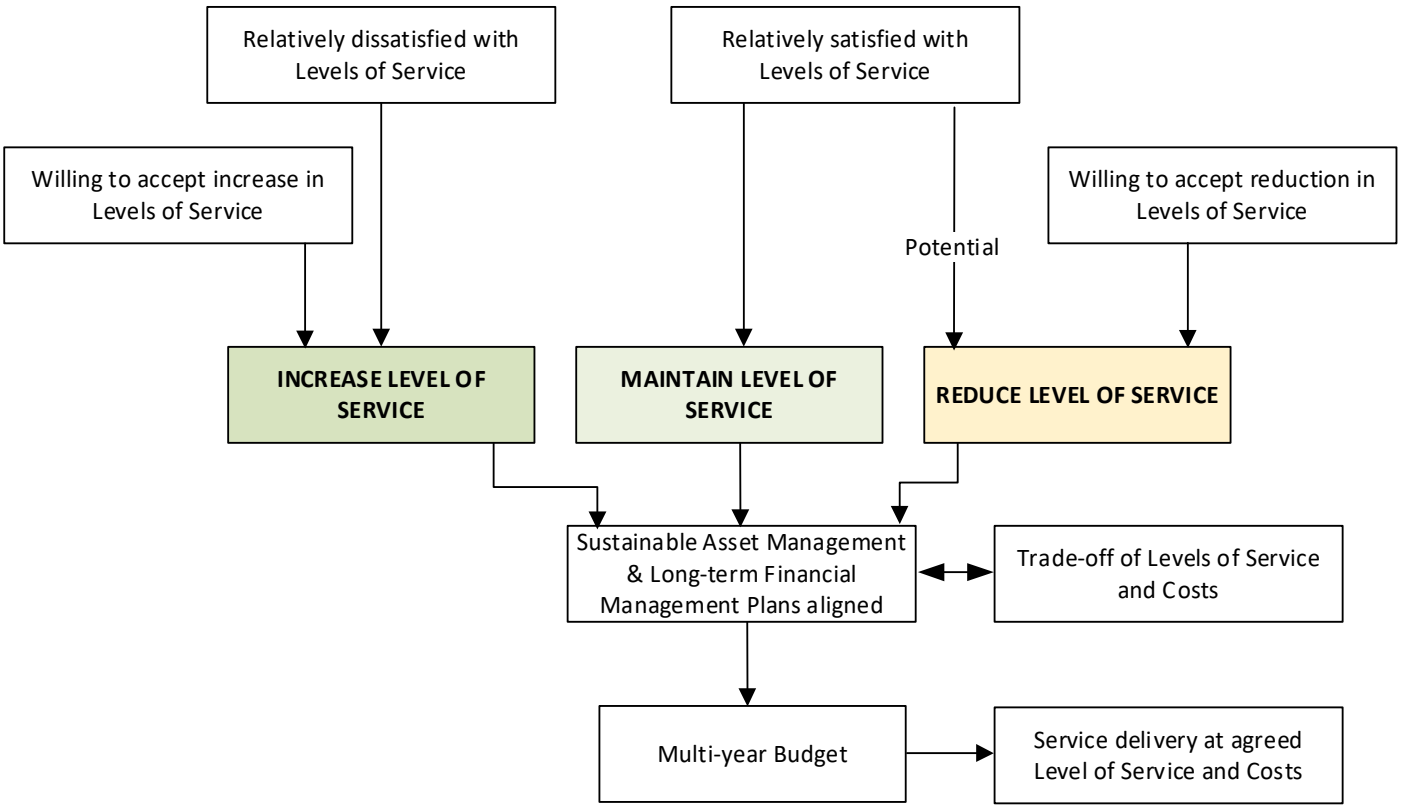


Figure 05: Decision framework to drive service delivery (Source: IPWEA Practice Note 8, Level of Service)

POTENTIAL FUNDING SCENARIOS for RENEWALS

Three potential funding scenarios have been reviewed to help determine how the City may best meet customer expectations while minimizing risk and maintaining affordability.
The following criteria applies to all scenarios:

- construction inflation applied at 3% annually
- renewal needs for bridges include only those bridge projects with cost estimates generally less than approximately $75 million (in 2023$).
- renewal needs for sidewalks and pathways increased to address assets recorded in poor condition within the chosen timeframe
- unit costs for road projects include estimates of renewal needs for sidewalks, active transportation, traffic signals and engineering improvements, and utilities as part of the overall project
- other funding sources included (frontage levy, provincial and federal funding):
    - 2024-2028 as forecasted in 2023 capital budget
    - 2029 and beyond, assumed annual Canada Community Building Fund ($5.0 million) and frontage levy ($22.8 million)
- assume reserves are maintained beyond 2037, with annual contributions equivalent to 2037 funding

Criteria	Description	Scenario 1 *Status Quo*	Scenario 2 *Renewals Only*	Scenario 3 *New RSIP & Pathways*
Dedicated tax allocation	Current budget forecast • Regional – 0.3% (2023-2037) • Local – 1.7% (2023-2037)	**X**		
	Adjusted to meet targets by 2037		**X**	**X**
Tree replacements	Completed as part of road renewal projects to address assets in poor condition within the right-of-way		**X**	**X**
New infrastructure *(outside road renewal projects)*	Roadway safety improvements			**X**
	Pedestrian and cycling pathways			**X**

Sustainability Indicator: Asset Renewal Funding Ratio

Asset Renewal Funding Ratio (ARFR) = $\dfrac{\textit{Capital Renewal Planned Budget for a period}}{\textit{Capital Renewal Forecast Outlays warranted for the period}}$

The *Asset Renewal Funding Ratio (ARFR)* will be used as a measure of asset renewal performance, i.e., whether asset renewal is accommodated in an optimal and cost-effective way from a timing perspective relative to financial constraints and the risk it is prepared to accept, and the service levels it wishes to maintain.

The ratio of asset renewal expenditures for a period relative to the asset renewal expenditures identified as warranted in an asset management plan for the same period. If the indicator is significantly materially higher or lower than 100%, particularly over a period of time, it suggests a disconnect between the asset management plan and expenditure decisions.

Target: Asset renewal funding ratio between 90% and 110%.

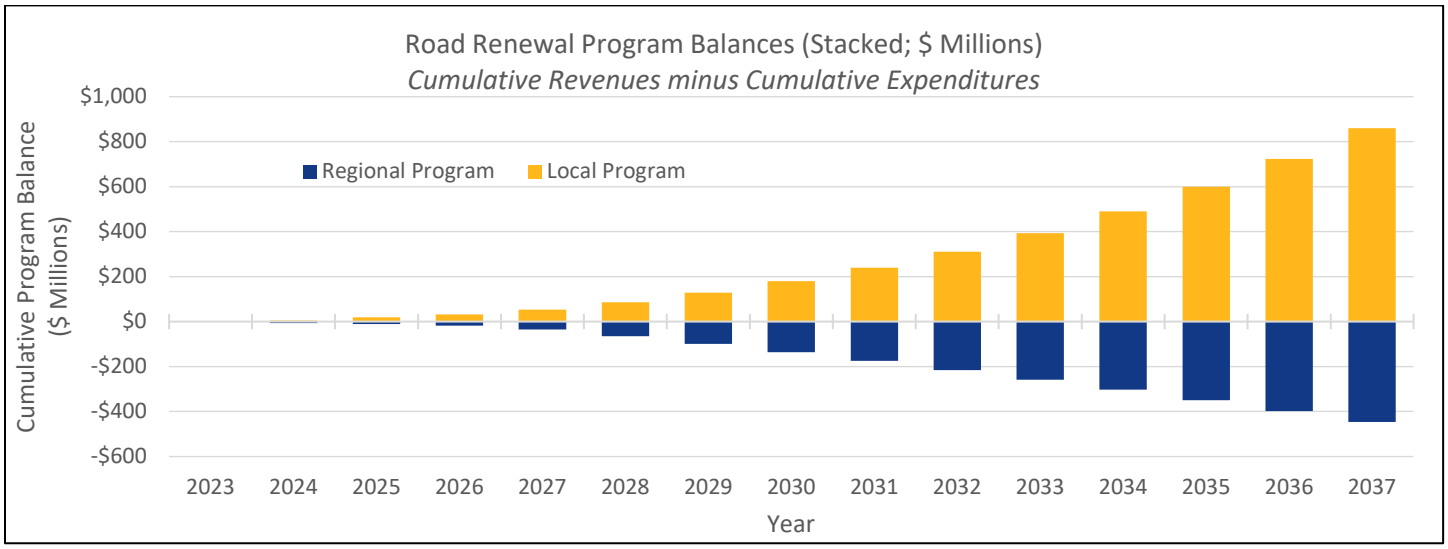
SCENARIO 1: Status quo, 15-year horizon (2023-2037)

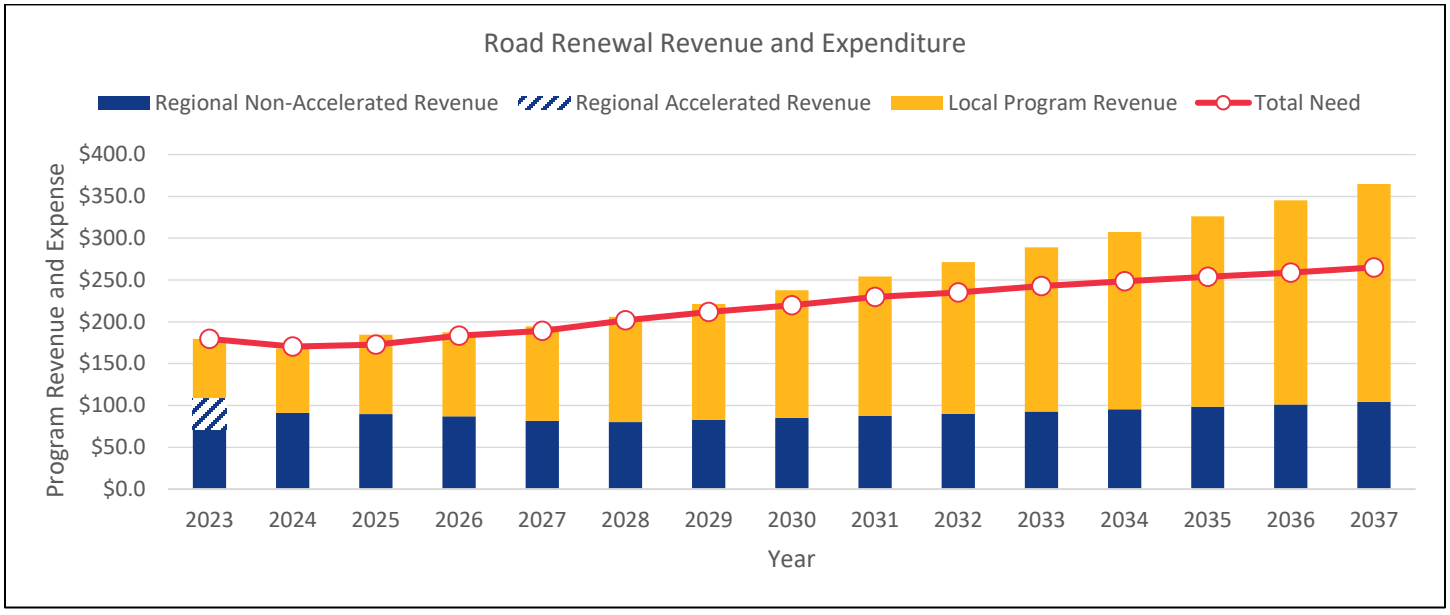
- Dedicated 0.3% tax increase for regional street and bridge renewals in 2023 and beyond
- Dedicated 1.7% tax increase for local street renewals in 2023 and beyond

Asset Renewal Funding Ratio (ARFR)

(in millions $)	15-Year Revenue Forecast	Forecast Need	Surplus (+) / Deficit (-)	ARFR
Regional Street Renewal	$1,376	$1,761	-$385	78 %
Local Street Renewal	$2,361	$1,501	$860	157 %
Total Regional & Local	**$3,737**	**$3,262**	**$475**	**115 %**

Dedicated Property Tax Increases	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Regional Roads and Bridges	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Local Streets and Lanes	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
Total Dedicated Property Tax Increases	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%





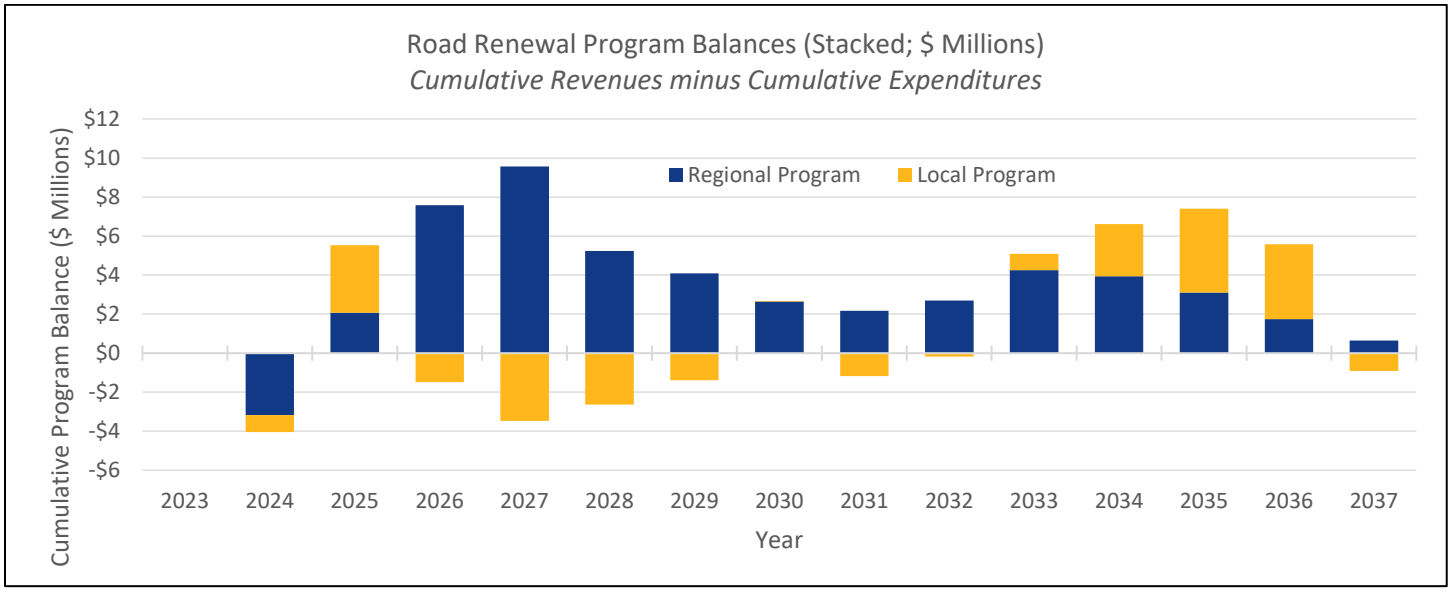
SCENARIO 2: Percent allocation adjusted to breakeven, 15-year horizon (2023-2037)

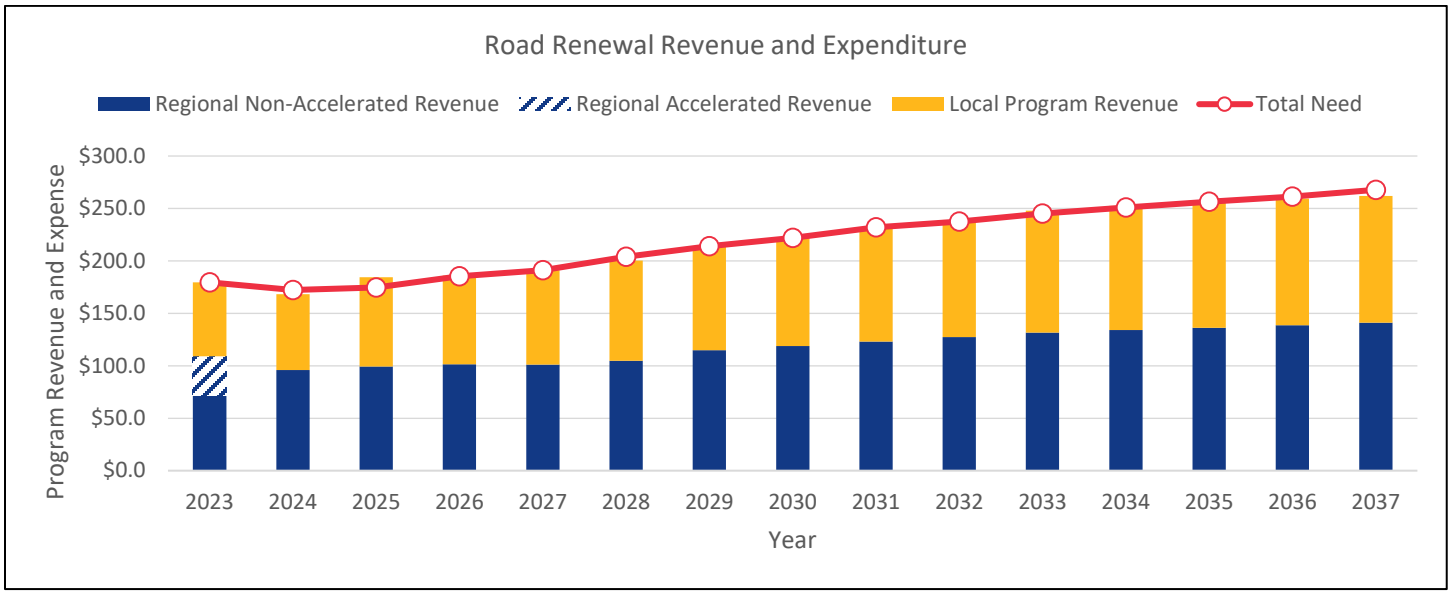
- Dedicated tax increases adjusted to reflect regional and local street and bridge renewal needs, including tree preservation/replacement on road renewal projects

Asset Renewal Funding Ratio (ARFR)

(in millions $)	15-Year Revenue Forecast	Forecast Need	Surplus (+) / Deficit (-)	ARFR
Regional Street Renewal	$1,778	$1,777	$1	100 %
Local Street Renewal	$1,516	$1,517	-$1	100 %
Total Regional & Local	**$3,294**	**$3,294**	**$0**	**100 %**

Dedicated Property Tax Increases	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Regional Roads and Bridges	0.30%	1.00%	1.00%	1.00%	1.00%	1.00%	1.25%	0.50%	0.50%	0.50%	0.50%	0.25%	0.25%	0.25%	0.25%
Local Streets and Lanes	1.70%	1.00%	1.00%	0.75%	0.75%	0.75%	0.50%	0.50%	0.50%	0.50%	0.50%	0.25%	0.25%	0.00%	0.00%
Total Dedicated Property Tax Increases	2.00%	2.00%	2.00%	1.75%	1.75%	1.75%	1.75%	1.00%	1.00%	1.00%	1.00%	0.50%	0.50%	0.25%	0.25%





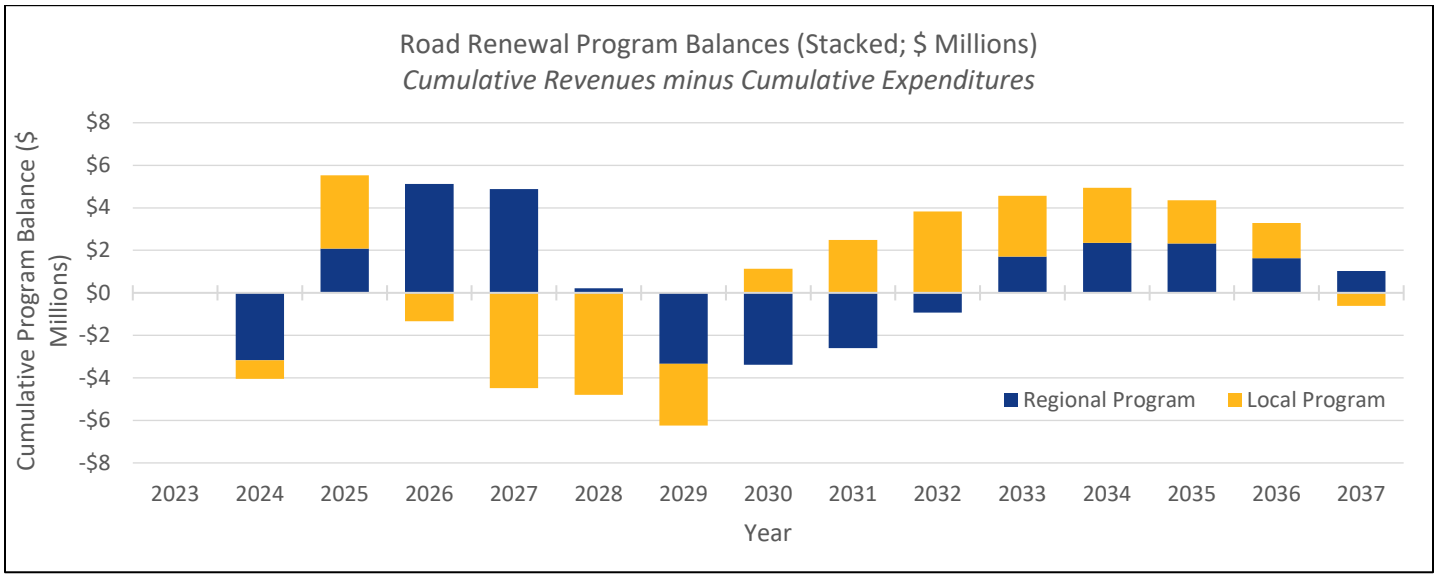
SCENARIO 3 (RECOMMENDED): Addition of Roadway Safety Improvements and Pedestrian & Cycling Program at current funding levels, 15-year horizon (2023-2037)

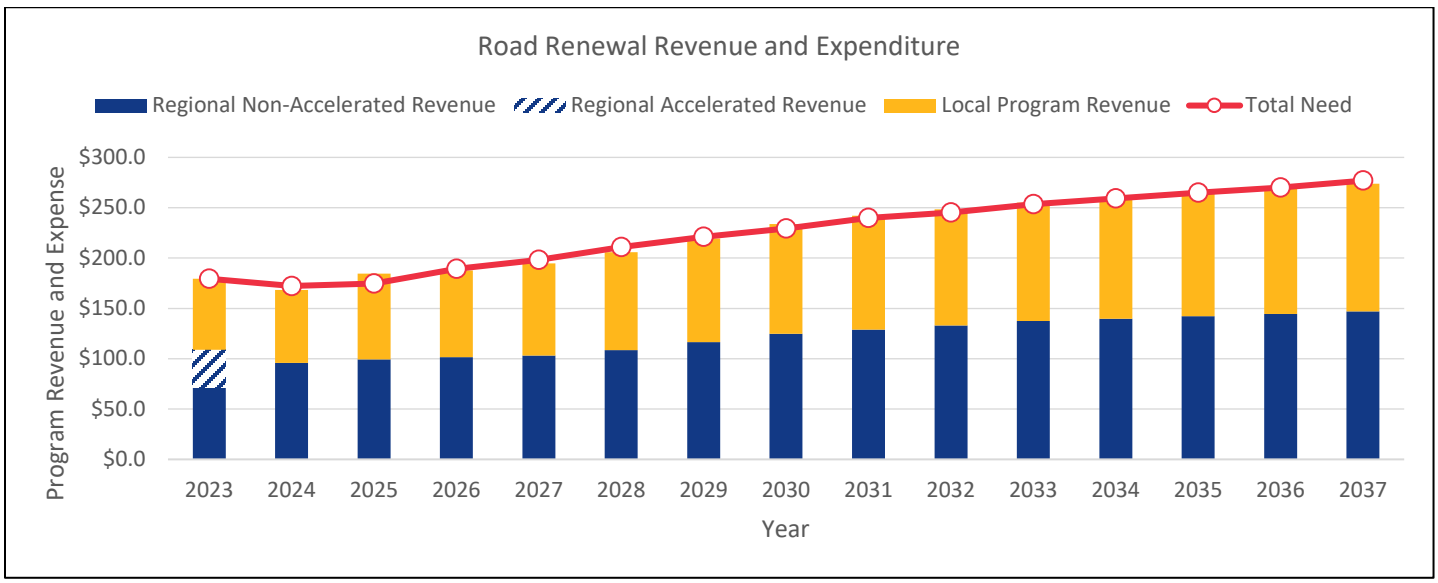
- Dedicated tax increases adjusted to reflect regional and local street and bridge renewal needs, tree preservation/replacement, plus new infrastructure related to road safety and active transportation

Asset Renewal Funding Ratio (ARFR)

(in millions $)	15-Year Revenue Forecast	Forecast Need	Surplus (+) / Deficit (-)	ARFR
Regional Street Renewal	$1,831	$1,830	$1	100 %
Local Street Renewal	$1,555	$1,555	$0	100 %
Total Regional & Local	**$3,386**	**$3,385**	**$1**	**100 %**

Dedicated Property Tax Increases	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Regional Roads and Bridges	0.30%	1.00%	1.00%	1.00%	1.25%	1.25%	1.00%	1.00%	0.50%	0.50%	0.50%	0.25%	0.25%	0.25%	0.25%
Local Streets and Lanes	1.70%	1.00%	1.00%	1.00%	0.75%	0.75%	0.75%	0.75%	0.50%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
Total Dedicated Property Tax Increases	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	1.75%	1.75%	1.00%	0.75%	0.75%	0.50%	0.50%	0.50%	0.50%





Recommendation

In order to meet the target levels of service by the year 2037, the Public Service is recommending annual dedicated tax increases as outlined in **Scenario 3**.

Under this scenario, the forecasted needs, and cumulative investments for the 15-year period would be $3.4 billion (see Table 04). Through these investments, Winnipeggers are expected to benefit from:

- a noticeable improvement to the look and feel of the local and regional street and bridge network
- better protection and enhancement of the urban tree canopy to beautify the City, connect people with nature, and help mitigate the heat island effect in an urban environment;
- increased road safety improvements which will help residents feel safer on City streets;
- anticipated reduction in traffic congestion through improvements to the active transportation network; and
- greater opportunities for Winnipeggers of all ages and abilities to become active.

The proposed dedicated tax increases will be reviewed on a 4-year cycle to coincide with the multi-year budget process to assess progress towards achieving target levels of service, seek to measure related benefits, and evaluate overall sustainability of the proposed funding model.

Table 04: Scenario 3 - Breakdown of Projected Revenue and Funding Needs from Long-Term Funding Model (2023-2037)

Estimated Funding Needs per Model *(in millions)*	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**Total**
Regional Street Renewals	87.6	66.7	69.4	69.4	76.6	75.7	77.6	80.8	82.8	84.9	87.0	89.9	91.4	92.9	93.7	**1,226.6**
Residential Street Renewals	47.3	45.9	44.6	49.9	50.2	51.8	53.5	55.3	60.8	61.7	64.8	64.9	66.0	67.0	70.3	**854.0**
Industrial Street Renewals	15.9	11.2	11.5	11.8	12.1	12.5	12.8	13.1	13.5	13.8	14.2	14.6	15.0	15.3	15.7	**203.2**
Alley Renewals	2.7	12.0	20.6	21.1	21.7	22.3	23.4	24.9	25.6	26.1	26.9	27.6	28.4	28.8	29.0	**341.1**
Sidewalk and Pathway Renewals	5.5	4.3	4.5	6.8	8.1	8.3	8.6	8.9	9.1	9.4	9.7	10.0	10.3	10.6	10.9	**124.9**
Bridge Infrastructure Renewals	20.5	30.3	22.3	24.3	20.2	31.0	35.8	36.9	38.0	39.1	40.3	41.5	42.8	44.1	45.4	**512.5**
Roadway Safety Improvements Program	-	-	-	1.5	3.7	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.3	4.4	4.5	**45.1**
Pedestrian and Cycling Program	-	-	-	2.5	3.3	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.3	4.4	4.5	**45.7**
Tree Replacement and Preservation on Renewal Projects	-	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.6	2.7	**31.7**
Sub-total	**179.5**	**172.3**	**174.8**	**189.4**	**198.0**	**210.8**	**221.1**	**229.5**	**239.7**	**245.3**	**253.4**	**259.2**	**264.9**	**270.1**	**276.9**	**3,384.7**
Projected in-year Surplus/(Shortfall) in the model*	-	(4.0)	9.7	(1.8)	(3.4)	(4.9)	(1.5)	4.2	2.2	3.1	1.7	0.4	(0.6)	(1.1)	(2.9)	**1.2**
TOTAL	**$179.5**	**$168.2**	**$184.5**	**$187.6**	**$194.7**	**$205.9**	**$219.5**	**$233.6**	**$242.0**	**$248.4**	**$255.1**	**$259.6**	**$264.3**	**$269.1**	**$274.0**	**$ 3,385.9**

*Projected revenues within the model include additional funding sources outside the Regional and Local Street Renewal Reserves. From 2024 to 2028, projected revenues from other sources include Frontage Levy and Canada Community-Building Fund funding consistent with the 2023 Adopted Budget (2024-2028 forecast) for related projects and programs. Beyond 2028, projected revenues of $22.8 million annually from Frontage Levy ($17.8 million) and Canada Community-Building Fund ($5 million) are included.