



**City of Kingston
Report to Council
Report Number 26-002**

To: Mayor and Members of Council

From: Neil Carbone, Commissioner, Corporate & Emergency Services

Resource Staff: Brent Fowler, Director, Corporate Asset Management & Fleet

Date of Meeting: December 16, 2025

Subject: Asset Management Plan Update Required to Meet Ontario Regulation 588/17 Requirements

Council Strategic Plan Alignment:

Theme: Regulatory & compliance

Goal: See above

Executive Summary:

The City of Kingston has made considerable progress in formalizing asset management practices that align with provincial requirements and emerging municipal best practices. The 2025 Asset Management Plans (AMPs) are a significant milestone for the City, being the first time the City has had standardized data on all \$8.3 billion in municipal assets (with some exceptions noted below), consolidated into a comprehensive, unified framework.

This asset portfolio supports essential municipal services such as transportation, facilities, fire services, public transit, stormwater, parks and recreation, fleet, information technology and numerous others.

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These asset management planning efforts serve to enhance data-driven decision-making capabilities and promote sustainable financial practices, essential for managing municipal infrastructure.

Through this report, Council is being asked to approve a **2025 Asset Management Additional Information Report**, the **Natural Asset Management Plan**, and an updated **Asset Management Policy (2025)**, which collectively demonstrate leadership in sustainable infrastructure management and regulatory compliance.

The City has completed its first **Natural Asset Management Plan**, marking a significant milestone in recognizing natural systems—such as wetlands, woodlands, and green spaces as essential municipal infrastructure. Natural assets provide critical services, including stormwater regulation, flood mitigation, and air quality enhancement, and support Kingston’s broader climate resilience and sustainability goals.

The **2025 Asset Management Additional Information Report** fulfills Phase 4 of O. Reg. 588/17, which requires municipalities to define proposed Levels of Service (LOS), establish performance metrics, and prepare 10-year financial strategies for all municipal asset categories. This report extends upon the City’s existing Asset Management Plans developed between 2022 and 2025, covering 25 service areas.

- 1) Core Asset Management Plan (June 2022)
- 2) Asset Management Plan (November 2024)
- 3) Facilities Asset Management Plan (November 2024)

The assets associated with water and wastewater services, gas operations, and appliance rental services fall under the responsibility of Utilities Kingston and are considered in the Utilities Kingston updated Water and Wastewater Utilities Asset Management Plan, the Natural Gas Distribution System Asset Management Plan, and the Water Heater Asset Management Plan, which were approved by Council in October 2025 ([Report Number 25-237](#)). These AMPs are outside the scope of the analysis conducted for this report.

The primary objectives of this report are to:

- Refine current LOS parameters and performance metrics, and establish clear proposed LOS targets; and
- Provide a forward-looking analysis of LOS and financial implications under three investment scenarios: 1) maintaining current forecasted funding, 2) maintaining current LOS, and 3) achieving proposed LOS over the next ten years.

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In each scenario above, there is a predicted backlog of infrastructure renewal work at the end of the 10-year forecast period. This is common to nearly all municipalities; in a [Municipal Infrastructure report published in August 2021](#), the Financial Accountability Office of Ontario estimated that across the province there was an estimate of \$52B in municipal infrastructure work in backlog.

For the City, the value of the current backlog emphasizes the need for continued asset renewal investment despite current capital pressures to help reach sustainable funding levels that are aligned with approved levels of service.

Importantly, the identified backlog is not intended to be fully funded under the City's proposed levels of service for the prescribed 10-year timeframe. As permitted in O. Reg 588/17, the City is not required to approve a financial plan that fully funds its proposed levels of service or that addresses the entirety of its SOGR backlog over the prescribed 10-year period, provided it has identified strategies to mitigate the resulting asset performance risks. Consequently, the City has identified certain lifecycle and renewal activities in its Asset Management Plans that over the longer-term will be prioritized to help manage those risks.

It should be noted that few if any comparator municipalities are fully funding their proposed levels of service, with most employing similar strategies to the approach referenced above.

Furthermore, despite analyzing and modelling a more realistic funding strategy over a 20-year time frame, there is still potential for the City not to achieve the proposed reinvestment rates or meet the proposed levels of service targets when faced with other non-renewal capital priorities, overall affordability and capacity challenges.

However, together, all these documents position the City of Kingston to fully meet Phase 4 requirements outlined under O. Reg. 588/17, while providing overall guidance and action items to strengthen long-term financial stewardship, support informed decision-making that balances cost, risk, and service outcomes for the community.

Recommendation:

That Council adopt the 2025 Asset Management - Additional Information Report as set out in Exhibit A to Report Number 26-002; and

That Council adopt the Natural Asset Management Plan as set out in Exhibit B to Report Number 26-002; and

That Council adopt the updated 2025 Asset Management Policy as set out in Exhibit C to Report Number 26-002; and

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That the Director of Corporate Asset Management & Fleet be delegated the authority to make any required non-material amendments to the 2025 Asset Management – Additional Information Report and the Natural Asset Management Plan, as approved by the City Solicitor, with said authority to be added to By-Law Number 2025-157, Delegation of Authority By-Law, as part of future amendments; and

That Council direct staff to submit the final approved 2025 Corporate Asset Management Plan – Additional Information Report and Natural Asset Management Plan to the Provincial Ministry of Infrastructure and to make it available to the public via the City’s website along with the City’s Asset Management Policy.

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Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

**Neil Carbone, Commissioner,
Corporate & Emergency
Services**

ORIGINAL SIGNED BY CHIEF

ADMINISTRATIVE OFFICER

**Lanie Hurdle, Chief
Administrative Officer**

Consultation with the following Members of the Corporate Management Team:

Paige Agnew, Commissioner, Growth & Development Services

Jennifer Campbell, Commissioner, Community Services

David Fell, President & CEO, Utilities Kingston

Not required

Desirée Kennedy, Chief Financial Officer & City Treasurer

Jenna Morley, City Solicitor, Legislative Services

Ian Semple, Commissioner, Transportation & Infrastructure Services

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Options/Discussion:**Background**

Ontario Regulation 588/17: *Asset Management Planning for Municipal Infrastructure* was enacted on January 1, 2018, under the Infrastructure for Jobs Prosperity Act 2015 establishing mandatory requirements and timelines for municipal asset management plans and policies. It builds on the provinces 10-year infrastructure plan. "Building Together: Guide for Municipal Asset Management Plans (2012)". The regulations were subsequently amended in March of 2021 under Ontario Regulation 193/21, to change the timing of reporting requirements under the Act.

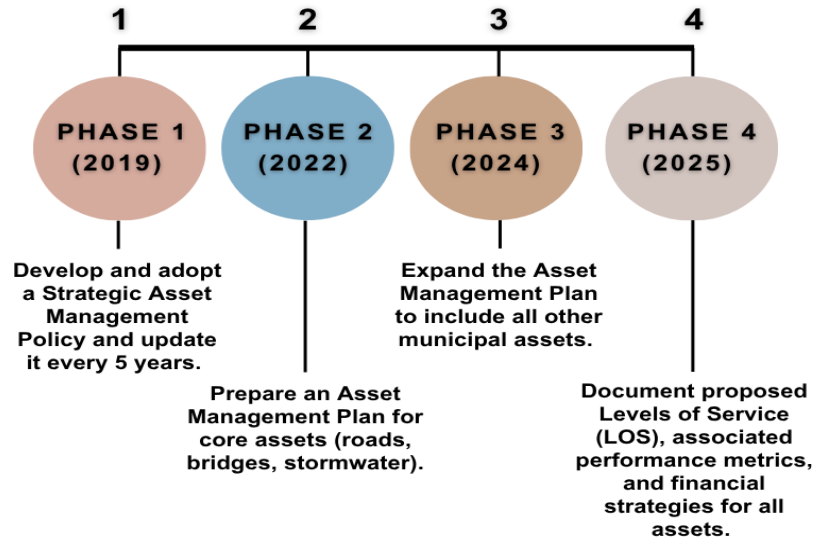
Additionally, the Regulation requires that the strategic asset management policy and asset management plans be approved by a resolution passed by Council and made available to the public via the City's website and to persons who may request a copy.

Under this regulation, the province mandated phased requirements to ensure that municipalities develop Asset Management Plans. Following the adoption of an Asset Management Policy, Asset Management Plans for Core Assets, and Asset Management Plans for all other assets, the final phase 4 of O Reg 588/17 requires the development and approval of a Proposed LOS and the lifecycle management and financial strategy for a 10-year period to achieve the proposed LOS. An outline of the milestones and deadlines from the province are as follows:

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O. REG. 588/17 SETS OUT A PHASED APPROACH TO COMPLIANCE:



The City has successfully met all previous milestones through completion of the following:

- [2019 Asset Management Policy](#) (2025 – Currently Seeking Approval)
- [2022 Core Asset Management Plan](#)
- [2023 Facilities Asset Management Plan](#)
- [2024 Corporate Asset Management Plan](#)

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The City's Asset Management Plans include owned assets that support the following service areas. *(Water and wastewater asset management documents and plans are the responsibility of Utilities Kingston)*



In accordance with Clause 4(1) of O. Reg. 588/17, municipalities must review and, if necessary, update their Strategic Asset Management Policy at least every five years. The City's original 2019 Asset Management Policy has therefore been reviewed and updated in 2025 to align with current best practices, evolving organizational needs, and the City's strategic priorities related to climate resilience, lifecycle optimization, and transparent governance.

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Furthermore, under Clause 5(1) of O. Reg. 588/17, municipalities are required to include in their Asset Management Plans all owned infrastructure assets that provide services essential to the community—a scope that encompasses both built and natural assets. To satisfy this requirement, the City has developed its first Natural Asset Management Plan (2025), recognizing the vital role of ecosystems such as wetlands, woodlands, and green spaces in providing municipal services including stormwater regulation, flood mitigation, carbon storage, and biodiversity support.

The scale and criticality of the City's asset portfolio demands an integrated asset management approach that requires collaboration from multiple departments and operations to ensure that value from assets is realized, risks reduced and expected community levels of service maintained.

The City of Kingston's commitment to develop asset management plans goes well beyond simply meeting the provincial regulatory requirements and treating it as a one-off project. The City recognizes the value and benefits of an integrated, holistic approach to asset management planning. As such, the project objectives include the following:

- Ensure that the City is well-positioned for current and future grant programs by meeting the requirements of O. Reg 588/17.
- Enhance service delivery to the community by developing a framework for corporate infrastructure planning and asset lifecycle management thereby maximizing the benefit of the dollars invested in those assets.
- Raise awareness of asset management as a business model, its purpose and how it can enhance decision making and assist with meeting strategic objectives.
- Meet provincial regulatory requirements for asset management planning.
- Enhance interdepartmental communication and collaboration on projects that involve asset management.
- Create a consistent management process and protocol for all corporate assets.
- Support and foster the development of improved asset management practices that clarify and justify funding requirements.
- Support both internally and externally the prioritization and rationale of capital plans and capital funding resources.
- Demonstrate long-term asset stewardship and sustainability.

Current Status

1) 2025 Asset Management Additional Information Report

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This report serves as an extension to the City's existing Asset Management Plans developed between 2022 and 2025, consolidates and refines asset data across 25 service areas and represents a total capital replacement value (CRV) of approximately \$8.3 billion.

1. Core Asset Management Plan (June 2022)
2. Asset Management Plan (November 2024)
3. Facilities Asset Management Plan (November 2024)

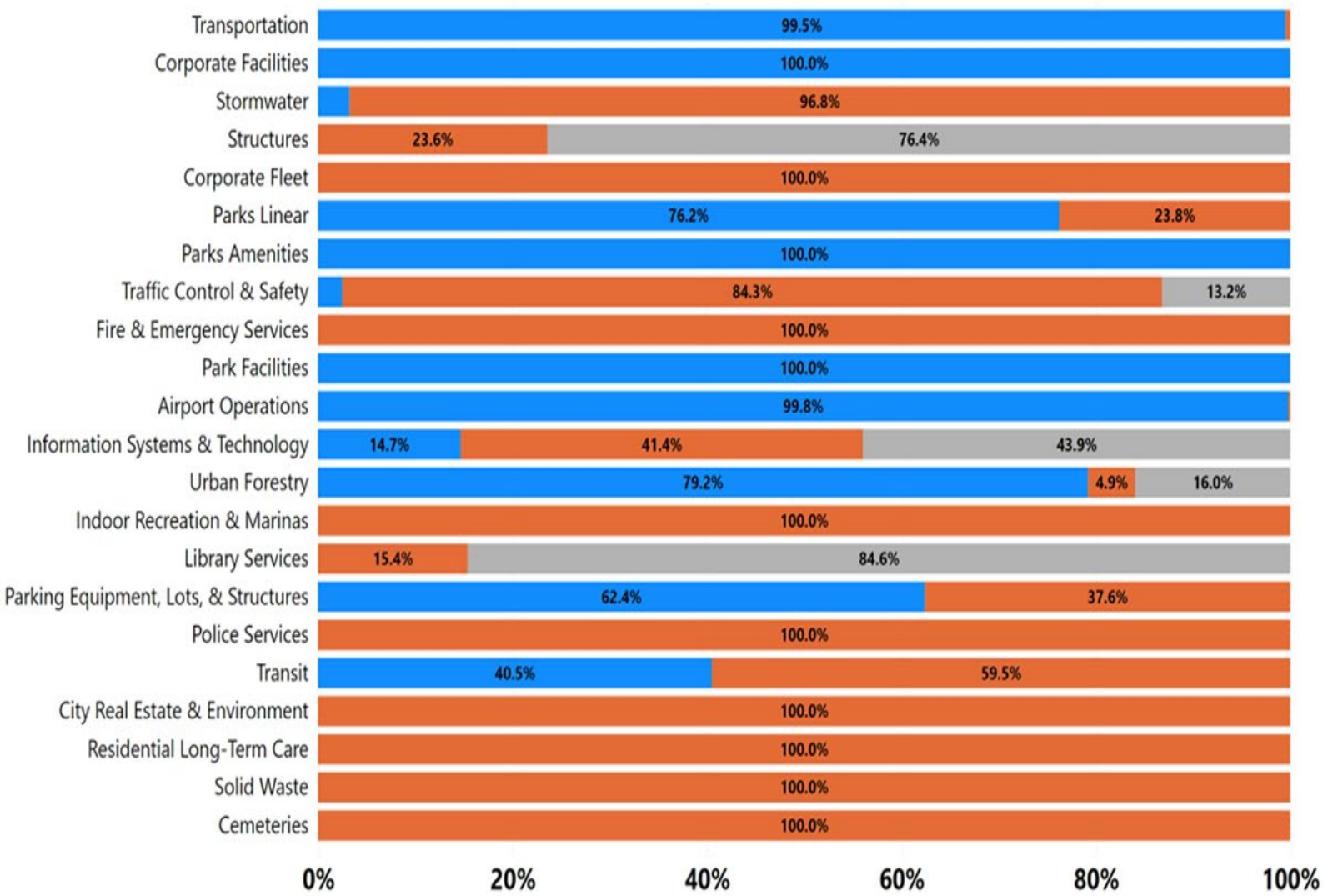
The below figure summarizes the percentage of analyzed assets by CRV using available condition information, age-based methods, or that could not be analyzed due to gaps in available age and condition information.

Overall, approximately 78% of the City's asset portfolio (based on replacement value) has some level of condition-based data to support asset management decision making.

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● % of CRV with Condition Data ● % of CRV Assessed with Age-Based Methods ● % of CRV Not Assessed



The report models the financial and service-level implications of different investment strategies over a 10-year horizon (2025–2035).

The following three standardized performance metrics have been used to evaluate asset condition and investment effectiveness:

1. **State of Good Repair (SOGR) Backlog**, representing the value of deferred maintenance and renewal needs;

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2. **Asset Reinvestment Rate**, the annual level of renewal spending as a percentage of the total asset value; and
3. **Percentage of Assets in Fair or Better Condition**, an overall indicator of infrastructure health.

To analyze the associated LOS performance and financial implications of different investment strategies, an analysis of three different LOS scenarios was conducted and evaluated using the three metrics outlined above. All LOS scenarios were modelled using the Asset Inventory results as of December 2024. This ensures that the analysis reflects the most current and comprehensive dataset available at the time of modelling. The three scenarios analyzed are:

Scenario 1 – Existing Capital Forecast (based on 2025)

- A budget-driven analysis that illustrates the expected Levels of Service (LOS) that can be achieved within each service area under the funding levels included in the first 10 years of the 2025 15-Year Capital Forecast.
- Reflects the likely condition and performance outcomes if no changes are made to current investment practices.

Scenario 2 – Maintain Current LOS

- A LOS-driven analysis focused on maintaining the current average condition of assets across each service area.
- Evaluates the investment required to sustain existing LOS with **no** financial constraints applied.
- Represents the cost to minimize degradation trends, ensuring assets remain in fair or better condition.

Scenario 3 – Proposed LOS

- A staff recommended budget-driven analysis balancing affordability, levels of service goals, risk and long-term financial planning over a 20-year baseline.
- Based on a phased longer-term investment strategy that gradually increases from a minimum of \$99.8M to a maximum of \$157.8M, representing a 10-year annual average of \$127.9M in capital renewal investment.
- The above, working towards a 20-year proposed average of \$163 million by 2045 for asset renewal.
- This scenario provides a more realistic, balanced and sustainable LOS target for the City that over-time improves service levels and asset condition.
- The Proposed LOS (Scenario 3) was established with a focus on affordability and strategic financial resource allocation, initially targeting a \$150 million fixed investment goal per year across the multiple service areas.

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The existing Capital Forecast Scenario was analyzed for all 25 service areas to establish a financial baseline, only the 18 and 13 service areas with sufficient data maturity were subjected to the Maintain LOS and Proposed LOS scenario analyses, respectively as shown in **Table 1** below. The primary constraint encountered was the presence of asset data gaps within these specific service areas. These gaps typically manifest in one or more of the following critical areas:

- Asset inventory completeness
- Lack of asset condition
- Age-based data sources
- Lack of historical lifecycle cost data

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Table 1: Summary of LOS Scenario Analysis Completed by Service Area

Service Area	Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
Transportation (Roads, Bridges, Structures)	✓	✓	✓
Corporate Facilities (Buildings and Sites)	✓	✓	✓
Stormwater (Ponds, Pipes, etc.)	✓	✓	✓
Structures (Sidewalks, etc.)	✓	✓	✓
Corporate Fleet (Vehicles & Equipment)	✓	✓	✓
Parks Linear (Fencing, Trails, Park Land, Pathways, Shoreline Protection Infrastructure)	✓	✓	✓
Parks Amenities (Gardens, Playgrounds, Skateparks, Splash Pads, Sports Fields)	✓	✓	✓
Traffic Control & Safety (Signs, Streetlights, Signals)	✓	✓	✓
Fire & Emergency Services (Fleet, Equipment)	✓	✓	✓
Park Facilities (Maintenance Buildings, Lighting, Shelters)	✓	✓	✓
City Real Estate & Environment (Housing, Land Assets, Environmental Remediation Infrastructure)	✗	✗	✗
Parking Equipment, Lots, & Structures	✓	✓	✓
Airport Operations (Site, Runway, Lighting)	✓	✓	✗
Information Systems & Technology (IT Infrastructure, End-User Devices, Software)	✓	✓	✓
Urban Forestry (Tree Canopy)	✓	✓	✗
Indoor Recreation & Marinas (Pool Equipment, Ice Plants, Marinas, etc.)	✗	✗	✗
Library Services (Fleet, Equipment)	✓	✓	✗
Police Services (Fleet)	✓	✓	✗
Transit (On-Street Infrastructure, Other Equipment)	✓	✓	✓
Residential Long-Term Care (IT, Resident Care Equipment)	✓	✓	✗
Solid Waste (Carts and Bins)	✗	✗	✗
Cemeteries (Structures)	✗	✗	✗
Heritage Services (Public Art & Civic Collections)	✗	✗	✗
Arts & Culture Services (Grand Theatre, Tett Centre Functional Capital)	✗	✗	✗
Natural Assets (Wetlands, Woodlots, Marshes, Shorelines)	✗	✗	✗

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Airport Operations

There is no new capital investments reflected in the Airport's long-term funding requirements as the City evaluates governance, operational models, and capital funding structures for the Airport. These options require a clear understanding of future roles and responsibilities before major capital commitments are determined.

The absence of forecasted capital investment in the present plan does not indicate any risk to the integrity or safety of airport operations. Airside and groundside infrastructure remain safe, reliable, and fully compliant with regulatory standards. Staff will continue to undertake and fund all required capital maintenance to ensure operational continuity, public safety, and service quality. Any interim capital work will be aligned with Council's approved strategies for the airport's future operations and be presented for Council consideration as necessary.

Structures

Minor Culverts (with a diameter of less than 3 meters) within the Structures service area were omitted from the LOS scenario analysis. This decision was predicated on the limited reliability of the existing asset inventory data, the minimal risk profile associated with these assets, their comparatively low individual replacement cost, and the City's established maintenance strategy of contingent replacement rather than preventative programming.

The following **Table 2** summarizes the modeling results for the assets across 18 service areas analyzed for the 10-year planning horizon (ending in 2035), based on the standard LOS performance metrics.

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Table 2: Summary of LOS Scenarios – Key Findings (2026 – 2035)

	Year 2025 (only)	Scenario #1: Forecasted Budget (2035)	Scenario #2: Maintain Current LOS (2035)	Scenarios #3: Proposed LOS (2035)
Average Annual Investment Rate (as modelled)	\$77.4 M	\$78.7 M/year	\$282.1 M/year	\$127.9 M/year
SOGR Backlog	\$0.6B	\$3.7B	\$1.1B	\$3.0B
Target Annual Investment	\$182.6 M	\$182.6 M	\$182.6 M	\$182.6 M
Variance from Target (dollars)	\$105.3M shortfall	\$103.9M short fall	\$99.5 M above target	\$54.7M shortfall
Target Annual Asset Reinvestment Rate	2.2% ¹	2.2% ¹	2.2% ¹	2.2% ¹
Asset Reinvestment Rate	0.9%	1.0%	3.4%	1.5%
% of Assets in Fair or Better Condition (based on CRV)	59.8%	38.7%	61.8%	44.5%

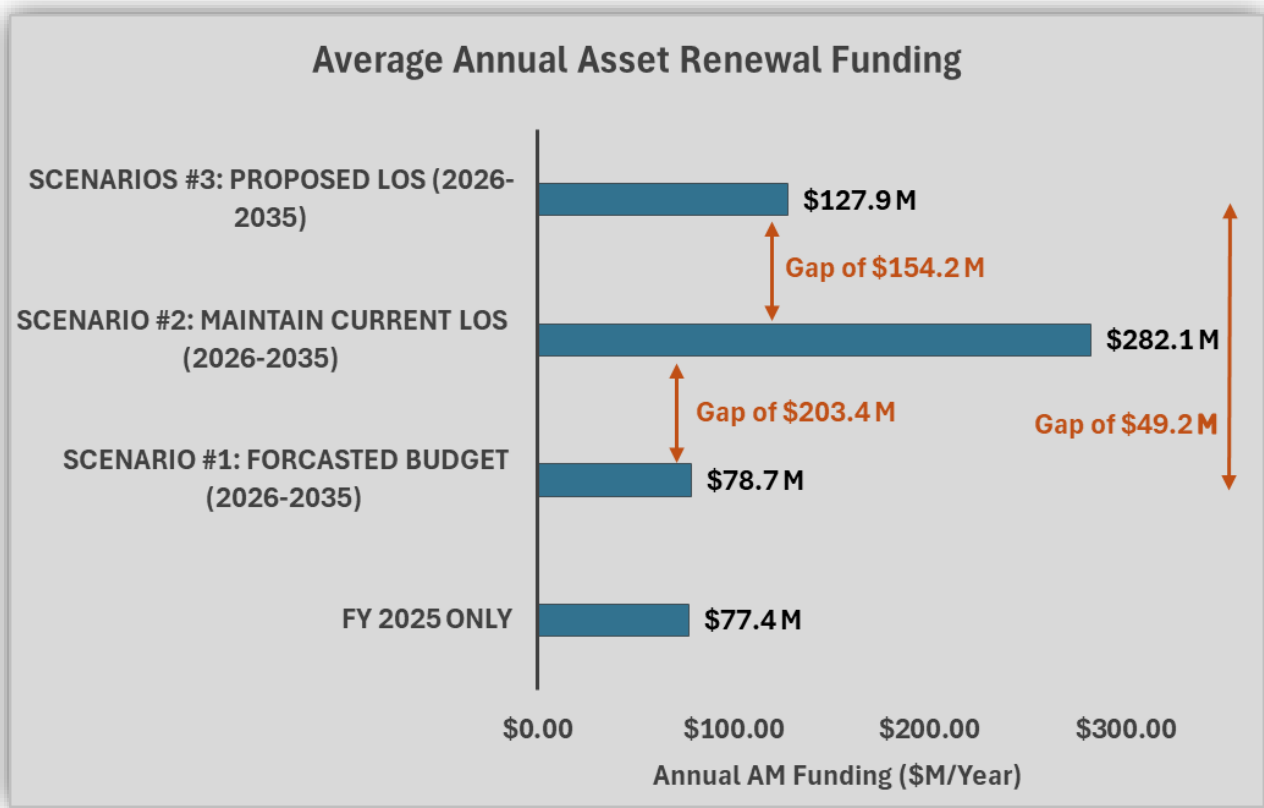
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¹ Target annual capital renewal investment is based on asset management best practices, such as guidance provided by the [Canadian Infrastructure Report Card \(CIRC\)](#) and varies by Service Area.

The current annual renewal investment averages \$78.7 million, compared to the \$282.1 million required to maintain existing LOS—creating an annual funding gap of approximately \$203.4 million.

An important item to consider is there are some asset renewal activities delivered through Operations and Maintenance departmental budgets and are not captured within the capital modelling assumptions. Capturing these activities will form part of future updates to the Asset Management Plans.



The Proposed LOS scenario (Scenario #3) projects a total backlog of \$3 billion over the 10-year period from 2026-2035. This result suggests that the proposed target service area funding allocations derived by key City personnel are sufficient to slow the accumulation of asset degradation, resulting in a \$700 million lower backlog than continuing with the forecasted budget

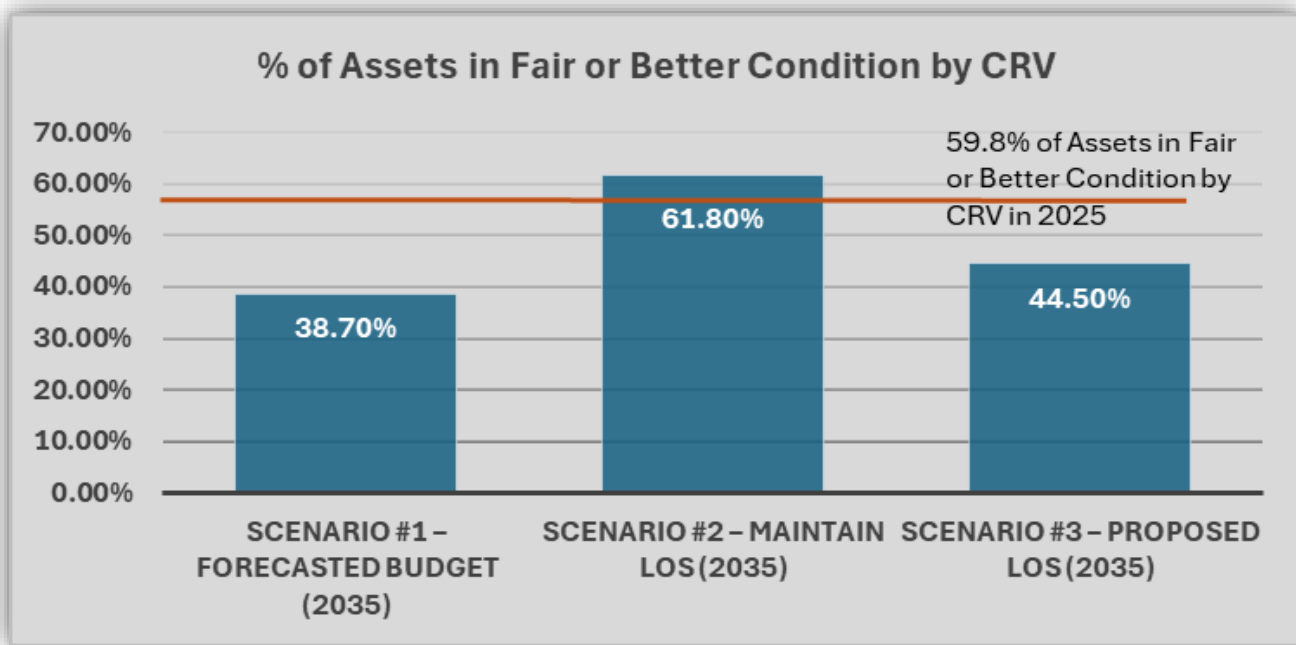
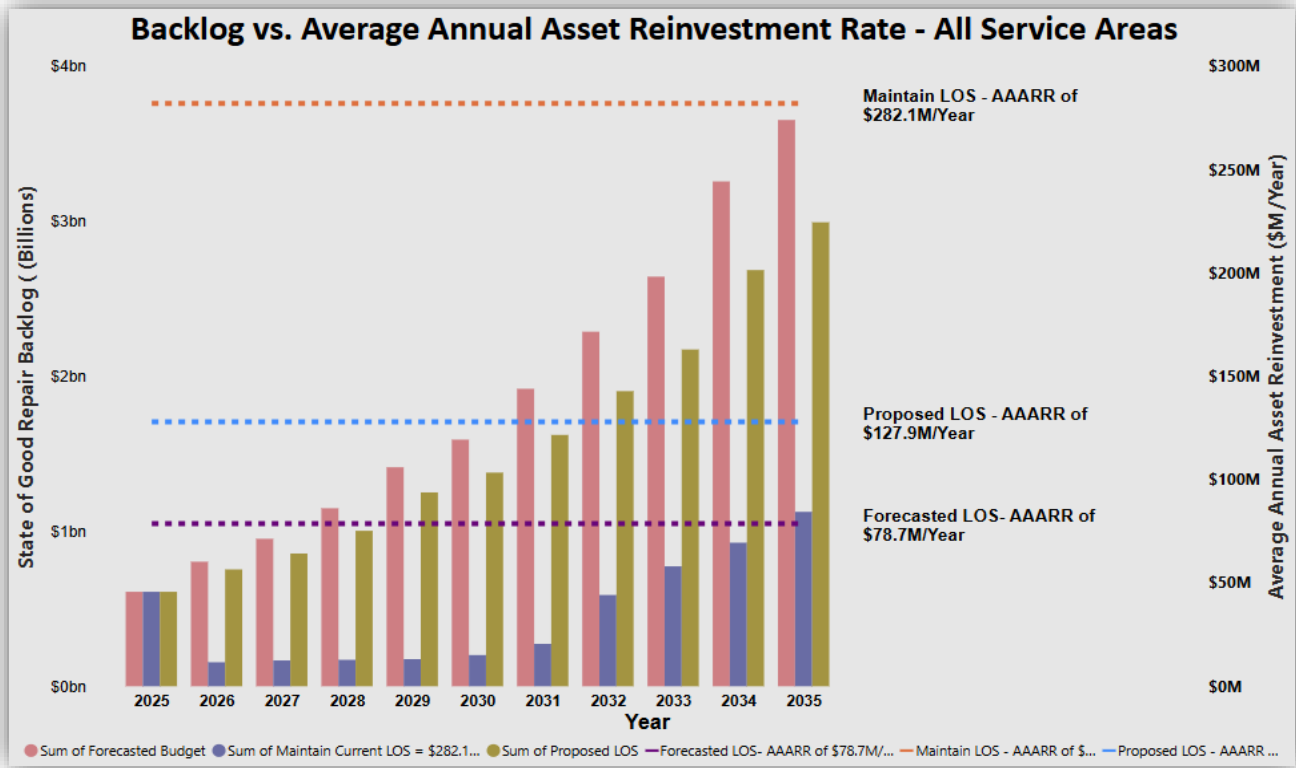
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through to the year 2035. This outcome represents a positive shift towards systematically reducing the accumulated backlog over the next 10 years through increased renewal investments and prioritization. To maintain current LOS, an average annual asset reinvestment rate of \$282.1 million for asset renewal was projected, representing a significant increase compared to the forecasted budget investment level of \$78.7 million annually. The Proposed LOS demonstrates a strategy to provide a meaningful increase in investment, above current levels that is achievable for the City, with an average annual asset reinvestment rate of \$127.9 million, representing an increase of \$49.2 million annually compared to the forecasted budget investment level.

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Note: Currently approximately 60% of the City's assets are considered in "fair", "good" or "very good" condition.

Alternatively, those remaining assets categorized as "Poor" or "Very Poor" may still be fit for service and performing at an acceptable standard but are approaching the end of their prescribed service life. It is critical to note that these categorizations of "Poor" and "Very Poor" are not representative of any health or safety risks to the public. Anything identified as essential to the community's well-being is proactively identified and prioritized for action by City staff through capital and operational planning. Critical to this is the City's continued prioritization of legislated minimum maintenance standards for specific infrastructure assets and adoption of formalized condition assessment programs for approximately 78% of the City's infrastructure.

The below figure shows the Percentage of Assets in fair or better condition by CRV per service area. It excludes Minor Culverts (< 3 m) and the Library Collection assets.

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Table 3: Percentage of Assets in Fair or Better Condition by CRV broken down by Service Area				
Service Area	2025	2035		
	Current LOS	Forecasted Budget	Maintain LOS	Proposed LOS
Transportation	48.7%	32.5%	54.9%	38.1%
Corporate Facilities	93.3%	49.4%	89.2%	55.5%
Stormwater	72.3%	62.3%	62.3%	54.2%
Structures	34.7%	39.1%	32.2%	84.6%
Corporate Fleet	67.5%	34.6%	66.9%	58.1%
Parks Linear	75.8%	41.2%	50.9%	42.8%
Park Amenities	61.1%	9.4%	50.2%	11.7%
Traffic Control & Safety	62.6%	32.6%	70.6%	57.9%
Fire & Emergency Services	32.6%	43.8%	68.2%	78.1%
Parks Facilities	92.5%	72.9%	100.0%	93.0%
IS & T	29.6%	53.9%	43.1%	29.7%
Urban Forestry	67.8%	60.6%	67.8%	67.8%
Library Services	86.5%	50.1%	50.1%	50.1%
Parking Equipment, Lots, & Structures	58.8%	58.7%	53.7%	35.8%
Police Services	39.5%	45.9%	35.8%	45.9%
Transit	91.7%	65.8%	67.2%	10.0%
Residential Long-Term Care	71.7%	25.3%	73.8%	73.8%

The proposed LOS represents the most balanced and fiscally responsible strategy that involves an acceptable level of strategic risk. While the proposed funding level of **\$127.9** million over the next 10 years is not sufficient to address full asset maintenance, any risk of unplanned asset failures and increased costs will be managed by prioritizing lifecycle investment.

This scenario will utilize a risk-based approach to prioritize investments that focus on safety, criticality and service continuity, particularly in key areas of focus such as roads, sidewalks, and active transportation which also reflect the areas that were highlighted in the Asset Management Public Engagement findings outlined later in this report.

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Based on the Proposed LOS, the total projected financial requirement over the 10-year horizon is \$1.74 billion, comprising:

- 76% – Capital Renewal;
- 24% – Growth-Related Investments

It should be noted that some asset renewal activities are delivered through Operations and Maintenance budgets and are not captured within the capital modelling assumptions. The City's assets provide essential and diverse services to the community. As the City grows to an anticipated permanent population of 197,000, by the year 2051 (as outlined in the Medium Growth Scenario presented in [Report Number 24-016 Population, Housing and Employment Growth Forecast Update to 2051](#)), the asset management plans and corresponding financial strategy become increasingly important to meet the rising need. The future expected renewal of new assets implemented over the next 10 years to support growth are factored into the plan.

Asset Management Levels of Service Modelling Conclusion

The 2025 analysis confirms that the investment required to maintain current levels of service across the 25 service areas is significantly higher than current forecasted renewal funding allocations. As a result, the City would need to either significantly reduce service levels, adjust investment strategies, acquire additional capacity, or secure considerable additional revenues to achieve the current levels of service within the planning timeframe established under O. Reg. 588/17.

It is important to note that the Proposed Levels of Service (LOS) scenario is designed as a fiscally responsible option that balances affordability and long-term risk *over a more realistic and achievable 20-year timeframe*. However, it targets a phased annual investment over the next 10 years of approximately \$129.7 million, which represents a significant increase over current funding levels but avoids the substantially higher annual investment of \$288.5 million required to fully maintain existing service levels. The Proposed LOS scenario reduces the projected long-term infrastructure backlog by approximately \$850 million by 2035 compared to the City's current rate of reinvestment and improves the overall condition of the municipal asset portfolio.

In the recommended scenario above, where the City is projecting a funding shortfall the City's AMP's and continuous improvement initiatives identify a number of current and future strategies to manage risk. These include:

- Continued prioritization of critical high-risk assets for renewal.
- Increasing preventative maintenance activities where applicable.
- Elevating and prioritizing asset monitoring and inspections including the deployment of innovative remote monitoring techniques and solutions.

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Complimenting the risk management strategies identified, City staff continue to prioritize and include the use of higher-confidence condition-based methods for estimating renewal needs, rather than age-based methods, this can lead to more accurate and potentially lower funding gap estimates. These updated methods will require additional investments in staff time, prioritization and funding.

2) Natural Asset Management Plan (2025)

The City's first Natural Asset Management Plan (2025) identifies and manages Kingston's natural systems such as wetlands, woodlands, meadows, watercourses etc. as municipal infrastructure assets that provide essential municipal services. Of note, City-owned tree canopy assets have been included in the 2024 All Other Asset Management Plans in Volume 1: Infrastructure, Transportation, Transit and Emergency Services. It evaluates the services these natural assets provide, including stormwater management, flood mitigation, cooling, carbon storage, and biodiversity support, and outlines the condition, risks, and investment needs required to sustain these benefits over time. The Plan aligns with Clause 5(1) of O. Reg. 588/17, which requires municipalities to include City-owned green infrastructure in Asset Management Plans.

This established a baseline inventory of 2,508 natural assets across 3,031 hectares, valued at **\$1.8 billion**. It should be noted that the asset inventory excludes those owned and managed by the Cataraqui Regional Conversation Authority (CRCA).

The Plan establishes preliminary Levels of Service (LOS) using methodologies developed by Dillon Consulting and supported by reference standards from Natural Assets Initiative (NAI).

Relationship with the City's other Natural Asset Plans and Studies in Progress

While the Natural Asset Management Plan is used to comply with O. Reg. 588/17 and integrate natural assets into the City's asset management and financial frameworks, the City is also advancing two complementary initiatives that serve distinct purposes:

The Natural Heritage Study (NHS)

The City is developing a Natural Heritage Study (NHS) to guide the new Official Plan and promote a greener, healthier, and more equitable Kingston for the next 25+ years. The NHS will map key natural features—wetlands, woodlands, watercourses—and their connecting corridors, regardless of ownership. It will recommend policies for identifying and protecting these features. Findings will support natural asset management, including system enhancements, wildlife habitat and species-at-risk protection, linkage roles, and opportunities to expand public access for education, recreation, and cultural use.

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The Forest Management Strategy (FMS)

The Forest Management Strategy (FMS) outlines a 24-year plan to sustain and grow Kingston’s Rural and Urban Forest (RUF) as vital community infrastructure. It reviews the current state of the RUF and sets a clear direction for future management, emphasizing climate resilience, biodiversity, and community well-being to create a greener, healthier Kingston for generations to come.



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Table 4: Highlights of the 2025 Natural Asset Management Plan

Category	Asset Area (ha)	Replacement Value (\$Millions) *
Woodlands, Forests, Plantations	902.0	\$357.2
Constructed Green Lands	730.3	\$807.7
Meadows and Thickets	516.6	\$151.9
Marshes	292.6	\$166.2
Swamps	261.0	\$109.9
Agriculture & Fencerows	184.2	\$54.1
Watercourses & Rivers	100.0	\$113.9
Lakes & Shorelines	22.6	\$12.9
Rock Barrens	4.2	\$0.8
Total	3,013.5 ha	\$1,774.6M

*Replacement costs were calculated using standardized unit rates from the Region of Peel (Beacon Environmental, December 2020) framework, applying the average of moderate-level creation and acquisition costs per hectare and adjusting for inflation. These rates were multiplied by mapped natural asset areas to produce current replacement values.

The Plan emphasizes risk-based management—with high-risk areas including shorelines and wetlands—and proposes future actions such as standardized condition assessments, data verification, and integration of ecological performance into corporate reporting.

By formally valuing and managing its natural assets, Kingston strengthens its commitment to climate resilience, sustainability, and evidence-based decision-making, positioning the City as a provincial leader in natural asset management.

3) 2025 Asset Management Policy

The updated 2025 Asset Management Policy has also been completed in accordance with Clause 4(1) of O. Reg. 588/17, which requires that the policy be reviewed and updated at least every five years. The updated policy formalizes governance, accountability, and the integration of climate resilience and sustainability principles into the City's corporate asset management framework while aligning with Kingston's Strategic Plan.

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Together, these deliverables ensure the City's full compliance with Phase 4 of O. Reg. 588/17, advance corporate asset management maturity, and strengthen the City's ability to make data-driven, transparent, and sustainable investment decisions that support long-term service delivery and community well-being.

Public Engagement

Public consultation, as required under O. Reg. 588/17, was carried out through [Get Involved Kingston](#) between January 24 and February 24, 2025, and Asset Management Public Engagement Consultation "What we heard Summary Report" was presented to council on May 20, 2025 ([Report Number 25-083](#)). The engagement included an online survey, focus groups, and internal workshops, gathering input from over 400 residents and staff across service areas.

Feedback showed strong satisfaction with recreation, arts, and heritage services, while roads, sidewalks, and active transportation emerged as top improvement priorities. Most participants supported maintaining or modestly enhancing current service levels, even with small tax increases.

Public engagement informed the Proposed Levels of Service (LOS) and financial strategy in the 2025 Asset Management Plan by identifying which services residents value most, their satisfaction with current service levels, and their willingness to pay to maintain or improve them. Insights from the internal focus group and the public survey—particularly priorities around roads, sidewalks, pathways, and transit—were used to align LOS targets with community expectations and financial affordability.

Existing Policy/By-Law

City of Kingston – Asset Management Policy, Version 1.0, April 2019

Financial Considerations

Adoption of the recommended 2025 Asset Management Additional Information Report, Natural Asset Management Plan, and updated 2025 Asset Management Policy are not a request for new capital funding and does not have immediate financial implications. These documents are strategic planning tools that support Council and staff to understand the current state of infrastructure, help forecast future needs and allow for decision-making that better balances cost, risk and service delivery. Additional funding requirements will continue to be brought forward through the City's existing annual capital and operating budget processes.

A measured backlog can be expected in established municipal infrastructure portfolios. Documenting current condition performance, service levels, funding gaps, and future risks provides clearer insight into key drivers, impacts, and strategies for managing a diverse asset portfolio.

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For Kingston, like other Canadian municipalities, the City continues to experience a growing infrastructure funding gap, driven by older assets, climate change effects, rising costs and stretched revenue services. The scale and magnitude of these challenges highlight just how critical a tool asset management practices and processes are.

As outlined in the conclusion above, the 2025 analysis confirms that the investment required to maintain current levels of service across the 25 service areas is significantly higher than current forecasted renewal funding allocations. As a result, the City would need to either significantly reduce service levels, adjust investment strategies, or secure considerable additional revenues to achieve the current levels of service within the planning timeframe established under O. Reg. 588/17.

It is important to note that the Proposed Levels of Service (LOS) scenario is designed as a fiscally responsible option that balances affordability and long-term risk *over a more realistic and achievable 20-year timeframe*. However, it targets a phased annual investment over the next 10 years of approximately \$129.7 million, which represents a significant increase over current funding levels but avoids the substantially higher annual investment of \$288.5 million required to fully maintain existing service levels. The Proposed LOS scenario reduces the projected long-term infrastructure backlog by approximately \$850 million by 2035 compared to the City's current rate of reinvestment and improves the overall condition of the municipal asset portfolio.

In the recommended scenario above, where the City is projecting a funding shortfall the City's AMP's and continuous improvement initiatives identify a number of current and future strategies to manage risk. These include:

- Continued prioritization of critical high-risk assets for renewal.
- Increasing preventative maintenance activities where applicable.
- Elevating and prioritizing asset monitoring and inspections including the deployment of innovative remote monitoring techniques and solutions.

The 1% annual tax levy increase dedicated to capital infrastructure has been an important strategy in achieving the city's current level asset management investment and will continue to be an essential component of the financial strategy needed to support future asset management requirements.

Complimenting the risk management strategies identified, City staff continue to prioritize and include the use of higher-confidence condition-based methods for estimating renewal needs, rather than age-based methods, this can lead to more accurate and potentially lower funding gap estimates. These updated methods will require additional investments in staff time, prioritization and funding.

The Natural Asset Management Plan does not create immediate funding obligations but establishes a structured basis for incorporating green infrastructure into financial planning

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cycles. As the City advances climate resilience and ecosystem services integration, natural assets will increasingly be considered in capital prioritization and long-term asset renewal strategies.

Finally, an approved Asset Management Plan remains an eligibility requirement for several provincial and federal grant programs. Plans such as the Municipal Asset Management Program (FCM) and Federal Gas Tax / Canada Community-Building Fund require municipalities to demonstrate asset management maturity and compliance with O. Reg. 588/17. The Asset Management plans together with the City's updated Official Plan, Integrated Mobility Plan, Climate Leadership Plans establish a coordinated framework for managing infrastructure through a sustainable, resilient and community needs lens. Approval of these documents positions the City to continue leveraging external funding opportunities that support infrastructure renewal, risk mitigation, and service delivery.

Future Tasks and Initiatives (Next Steps)

The 10-year Infrastructure Funding Gap provides a strategic indicator of the magnitude of the City's long-term capital pressures and funding shortfall. It is unreasonable to expect that this can be funded immediately, but helps inform a balanced approach between affordability, performance, intergenerational equity and the risk to achieve sustainable service levels.

To effectively manage this, the City will require potential adjustments to its current longer-term financial plan. Such a plan will need to encompass other activities beyond the sorts of additional funding sources implemented by peer municipalities – such as increasing dedicated capital levies and implementing stormwater utility fees to help pay for rising infrastructure and operational costs resulting from climate change. These other activities would include:

- Increasing data confidence.
- Further levels of service adjustments (where applicable)
- Completing additional condition assessments
- Continue implementing proven rehabilitation & intervention programs to maintain or extend the life of the asset while evaluating and exploring new innovative methodologies.
- Rationalizing the asset portfolio (where applicable)
- Refining and adjusting acceptable risk thresholds

The advancement of several planned initiatives to improve the data quality are being prioritized and some already underway including:

- **Data Maturity of Asset Inventory:** Complete inventories and condition assessments for assets with low data confidence to help target backlog of unfunded needs while establishing a framework to maintain timely asset register updates.

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- **Condition Assessment Planning:** Establishing a structured framework for assessing asset conditions with appropriate review cycles and processes for updating condition information.
- **Level of Service (LOS) Optimization:** Exploring ways to improve the current LOS framework for better infrastructure management and adjusting LOS targets to reflect the levels of service the community wants and are willing to pay for.
- **Lifecycle Activity Documentation:** Improving forecasting for new asset acquisitions and raising awareness to the inclusion of future operating cost impacts in forecasts and budgets.
- **Performance Monitoring:** Implementing regular performance tracking with dashboards for transparent reporting.
- **Risk Framework Enhancement:** Refining the risk assessment process, integrating it with asset performance, incorporating climate change impacts and leveraging for project prioritization.
- **Integration of Asset Management Plans with Capital Prioritization Framework and Budgeting:** Enhancing the existing capital prioritization processes used in strategic decision-making; Ensuring full lifecycle and renewal requirements are considered through a framework that emphasizes evidence-based decision-making.
- **Technology Utilization;** Leverage existing systems available to the City to streamline asset register data capture while exploring methods to integrate field inspection results.
- **Data Governance Model:** Establish and implement a framework for data management and governance as it relates to asset management critical components and performance measures.
- **Review of Current Asset Estimated Useful Life Assumptions:** Multiple recommendations were made by (Subject Matter Experts) SME's concerning re-evaluating current (Estimated Useful Life) EUL's for certain assets because of new technologies, life cycle management lessons learned and benchmarks from other municipalities.

Other Identified Continuous Improvement Initiatives:

- Incorporate asset management training and awareness into staff professional development and training programs
- Expand Asset Management Steering Committee to include additional representatives and establish "Terms of Reference"
- Develop and implement a Change Management and Communication Plan with consideration of the governance of the asset management program.
- Network and share ideas and best practices with other municipal peers on asset management processes and data governance.

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- Build upon the City's previous Asset Management Public Consultation project for the 2025 Asset Management Plans. Staff will continue to engage residents and stakeholders in service level and investment priorities.
- Continue to improve the condition, performance, and safety of our roads and structures through the implementation of the long-term Asset Management Plan.
- **Service Level Optimization for Rural Roads:** Continue to assess and identify opportunities within the rural road network where service levels can be strategically adjusted to improve long-term affordability and asset performance. Although local gravel roads represent less than 3% of the total network (approximately 50 lane-kilometres), they account for a disproportionately high share of annual operating costs. Upgrading selected gravel segments to surface-treated standards may lower lifecycle maintenance costs, even with higher upfront capital investment. Conversely, targeted service changes may be required in other classifications of the road network—such as converting asphalt roads to surface-treated roads—given constrained budgets and a significant rehabilitation backlog. Together, these adjustments aim to optimize overall network condition, improve cost-effectiveness, and align service levels with available resources.

Upcoming Key Milestones and Future Asset Management Reporting to Council:

Annually

- As required by O. Reg. 588/17, municipalities will report to their Councils at least once per year on the current progress of asset management in the Municipality and any barriers to aligning operations with the AMP.

Fiscal Year 2030

- A full update of all AMP's will be required within 5 years.

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Exhibits Attached:

Exhibit A - 2025 Corporate Asset Management Plan – Additional Information Report

Exhibit B – Natural Asset Management Plan

Exhibit C – 2025 Asset Management Policy



City of Kingston

Additional Information Report

2025 Asset Management Plan Updates and Financial Strategy

November 2025



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Appendix A: LOS Summary Cards & Modelling

Appendix B: 10-Year Projected Growth Projects

Acronyms and Abbreviations

Acronyms and Abbreviations

Acronym	Definition
AAARR	Average Annual Asset Reinvestment Rate
AMP	Asset Management Plan
B	Billion
CIRD	Canadian Infrastructure Report Card
CPI	Consumer Price Index
CRV	Capital Replacement Value
DC	Development Charges
D.C Study	Development Charges Background Study
DMAF	Disaster Mitigation Adaptation Fund
FCM	Federation of Canadian Municipalities
GMF	Green Municipal Fund
HVAC	Heating, Ventilation, and Air Conditioning.
ICIP	Investing in Canada Infrastructure Program
IS&T	Information Systems & Technology
K	Thousand

Acronyms and Abbreviations

Acronym	Definition
LOS	Levels of Service
M	Million
O&M	Operations and Maintenance
O. Reg. 588/17	Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure
SME	Subject Matter Experts
SOGR	State of Good Repair
WIG	Wildly Important Goals

Executive Summary

Executive Summary

This Additional Information Report was prepared for the City of Kingston (the City) to fulfill the requirements outlined under Phase 4 of **Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure** (O. Reg. 588/17). This report acts as a critical extension to the City's existing Asset Management Plan (AMP) documents that have been generated between 2022 to 2025, covering 25 service areas.

1. Core Asset Management Plan (June 2022)
2. Facilities Asset Management Plan (November 2023)
3. Asset Management Plan for All Other Assets (November 2024)
4. Asset Management Plan: Volume 6 Natural Assets (November 2025)

The analysis excludes city-owned water, wastewater, natural gas, and water heater rental assets, which fall under the responsibility of Utilities Kingston.

The primary objectives of this report are:

1. To review and refine current Levels of Service (LOS) parameters and performance metrics and develop clear proposed LOS targets across multiple service areas; and
2. To provide a forward-looking analysis of the LOS and financial implications tied to the City's forecasted budget, maintaining the current LOS, and ultimately achieving the proposed LOS.

The total 2025 Capital Replacement Value (CRV) of all assets across the service areas included in this report is **\$8.3 billion**.

Executive Summary

LOS Approach and Scenario Analysis

Based on best practices in asset management and to guide development of proposed Asset LOS while standardizing reporting across various service areas, the City has selected three standard performance metrics. These metrics correspond to the asset parameters of **Quality** (the asset is meeting its intended function effectively) and **Reliability** (providing continuous service operation). The three metrics chosen are:

- **Metric #1: State of Good Repair (SOGR) Backlog**, which provides a clear, quantifiable understanding of the current infrastructure and maintenance deficit, including repair and replacement projects that are currently unfunded, delayed, or stalled due to insufficient resources or execution capacity;
- **Metric #2: Asset Reinvestment Rate**, which evaluates the City's current capital budget allocation against the total CRV of the assets, and comparing that result with industry-recommended reinvestment rates; and
- **Metric #3: Percentage of Assets in Fair or Better Condition**, which provides a clear understanding of the overall relative health and quality of the asset portfolio within each service area.

LOS Scenarios

To analyze the associated LOS performance and financial implications of different investment strategies, an analysis of three different LOS scenarios was conducted and evaluated using the three standard performance metrics outlined above. The three scenarios analyzed are:

- **Scenario #1: Forecasted Budget**, which uses the City's forecasted 10-year capital budget developed in 2025;
- **Scenario #2: Maintain Current LOS**, which calculates the associated cost required to maintain the current LOS for each of the service areas with no financial constraints; and
- **Scenario #3: Proposed LOS**, which provides a more balanced investment approach based on the City's current financial constraints. This approach was developed in consultation with key City staff and Subject Matter Experts (SME's) within each service area including Finance and represents staff's recommended option.

Executive Summary

The Proposed LOS (Scenario #3) was established with a focus on affordability and strategic financial resource allocation, initially targeting a phased investment strategy which gradually increases capital investment for asset renewal to \$150 million annually over the next 20 years across all service areas. Due to unavailable asset register and or condition data, the detailed analysis was completed for 18 of the 25 service areas. The following table summarizes the modelling results for the assets across the 18 service areas analyzed for the 10-year planning horizon (ending in 2035), based on the standard LOS performance metrics.

Table E-1: Summary of LOS Scenarios (18 Service Areas)

Metric	Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS	Outcome (Relative to Forecasted Budget)
Metric #1: 10-Year SOGR Backlog (2035)	\$3.7B	\$1.1B	\$3.0B	The Proposed LOS is projected to reduce the accumulated backlog by approximately \$700M by 2035.
Metric #2: Average Annual Asset Reinvestment Rate	\$78.7M (56.9% shortfall against the Target Annual Investment of \$182.6M)	\$282.1M (54.5% above the Target Annual Investment of \$182.6M)	\$127.9M (30.0% shortfall against the Target Annual Investment of \$182.6M)	This represents an increase of \$49.2M annually compared to the Forecasted Budget investment level.
Metric #3: % of Assets in Fair or Better Condition (2035)	38.7%	61.8%	44.5%	The Proposed LOS projects a 5.8% increase of assets in fair or better condition by CRV relative to the Forecasted Budget scenario.

The modelling above demonstrates that the Proposed LOS (Scenario #3) offers a fiscally responsible path forward, providing tangible improvements in asset condition (an increase to 44.5% of assets in fair or better condition by CRV) and a reduction in the long-term backlog (by approximately \$700 million), while avoiding the significantly higher annual investment of \$282.1 million required to fully maintain the current LOS.

Executive Summary

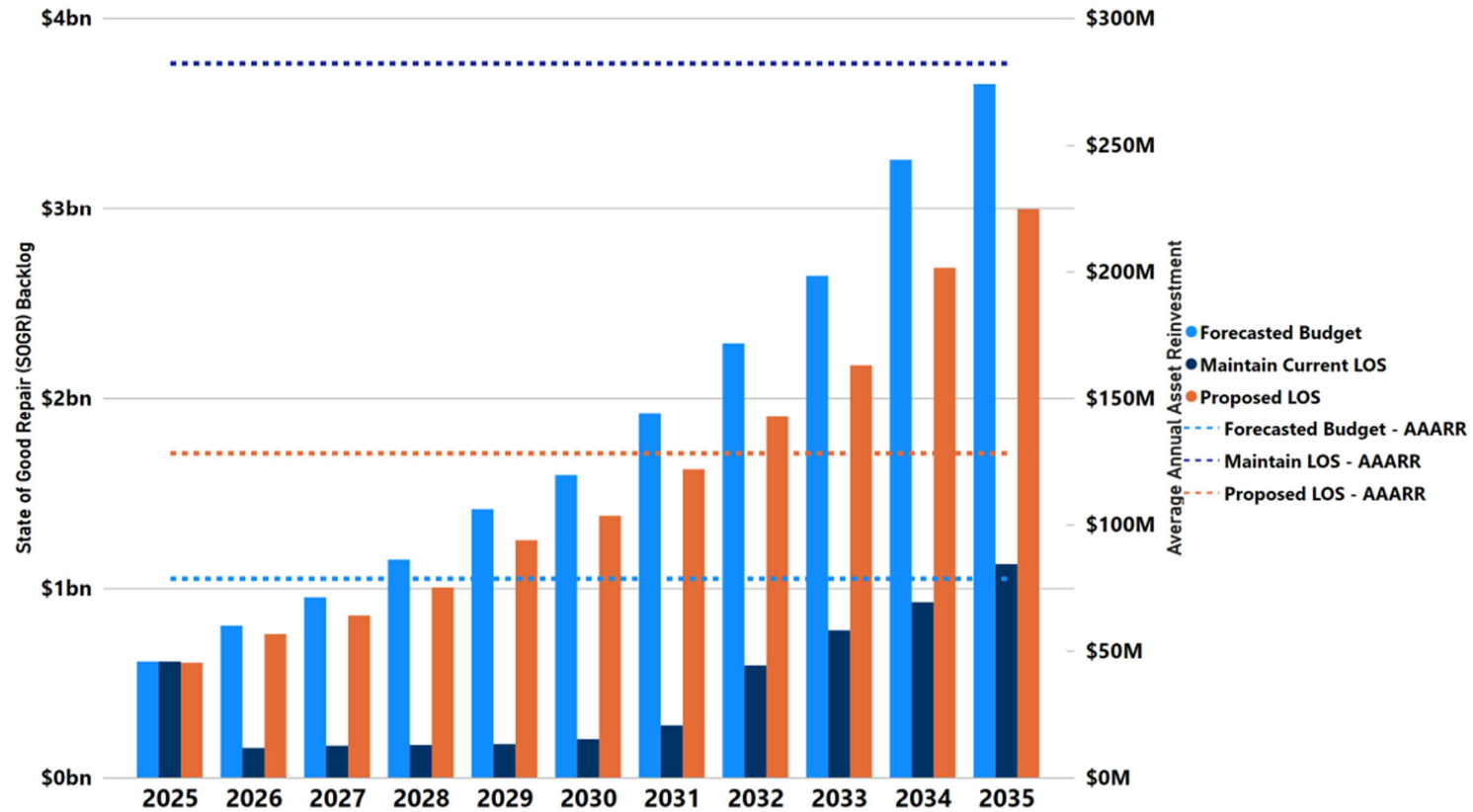
Financial Risk and Mitigation

A critical finding from the analysis was the large financial deficit in projected levels of asset renewal funding. The analysis shows that the investment required to maintain the existing LOS and prevent further deterioration of critical assets requires an average annual capital investment of \$282.1 million. The current forecasted capital budget allocation commits an average of \$78.7 million per year to renewal. This results in an annual funding gap of \$203.4 million, representing unsustainable financial liability and accelerating potential risk exposures for the City. **Figure E-1** summarizes state of good repair backlog projected over the next 10-years for each scenario on the primary axis and the associated average annual asset reinvestment rate (AAARR) on the secondary axis. The figure illustrates a significant financial risk for the City of Kingston, as the forecasted capital budget consistently falls substantially short of the cost required to maintain the existing LOS over the next 10 years and translates to an anticipated accumulation of state of good repair backlog in the amount of \$3.7 billion by year 2035. Unless capital funding dramatically increases towards the required investment to Maintain LOS, assets will continue to deteriorate, leading to service failures, increased reactive spending, and a failure to meet community expectations for service quality.

The Proposed LOS scenario, by contrast, adopts a higher, more consistent investment level, specifically bridging the gap with an additional \$27 million to \$40 million per year resulting in an average annual capital investment of \$127.9 million. This proactive approach immediately mitigates the acute financial risk, resulting in a 10-year cumulative backlog that is contained around \$3 billion by 2035. This \$700 million reduction in deferred renewal liability translates directly into a lower risk of reduced LOS. Instead of facing unpredictable and widespread infrastructure failure, the slightly higher investment level demonstrated in the Proposed LOS scenario provides funding to manage a more controlled, deliberate decline in LOS, allowing the City to strategically prioritize critical assets specifically, high-risk service areas like Transportation, Corporate Facilities, and Stormwater, which constitute approximately 80% of the City's total asset CRV, face potential risks regarding increased backlog and asset deterioration. Additionally, this recommended option will buy the City some time to develop a robust long-term financial strategy.

Executive Summary

Figure E-1: 10-Year Cumulative Backlog vs. AAARR – All Scenarios



Executive Summary

Total 10-Year Financial Outlook

The total projected financial requirement over the 10-year planning horizon, encompassing capital renewal and anticipated capital growth needs is **\$1.7 billion**. Capital renewal projects represent the largest component at 76% of this total spend, while the plan is structured to accommodate significant growth investments in 2027 and 2029 which is supported by the City's 2024 Development Charges Background Study.

Strategic Financial Decisions

To successfully implement the recommended \$127.9 million annual investment and support long-term stability, the following four strategic financial and operational recommendations were established:

- **Improving Asset Condition Information:** Continue to prioritize funding and resource allocation to develop a Standardized Condition Assessment Program across multiple asset classes leveraging the best practices established already for Roads, Bridges, Structures, Stormwater, Sidewalks and Facility assets. This is an investment in data quality, ensuring the annual \$127.9 million is prioritized based on genuine asset risk and return on investment, moving beyond some simple age-based replacement schedules.
- **Performance Governance:** Establish a governance framework requiring regular, transparent reporting through the asset management program. This tracks the effectiveness of the investment by linking capital spending directly to the results of key performance indicators, ensuring accountability and preventing mission drift.
- **Developing a Long-Term Infrastructure Financing Strategy:** To achieve the Proposed LOS and move the asset portfolio into a fiscally sustainable position, the City should immediately develop and implement a comprehensive, long-term infrastructure financing strategy. This strategy should move beyond reliance on federal or provincial grants for core capital renewal and focus on diversified, dedicated municipal revenue tools. Drawing on public sector best practices, such as those promoted by the Federation of Canadian Municipalities (FCM), recommended mechanisms include establishing an infrastructure levy (a dedicated percentage of the property tax levy solely for capital renewal) or implementing targeted user fees and surcharges to ensure that residents who directly benefit from infrastructure services contribute to the full lifecycle cost of those assets. The City currently has a 1% infrastructure levy which could be increased to help close the capital renewal funding gap.

Executive Summary

This report provides a fiscally responsible roadmap that, together with sound governance and sustainable, dedicated revenue streams, positions the City to prudently manage financial risk and support the ongoing health of its infrastructure.

Introduction



1.0 Introduction

This **Additional Information Report** has been prepared for the City of Kingston (the City) to meet the comprehensive requirements of Phase 4 under **Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17)**. It is intended to serve as a critical extension to the City's foundational asset management documentation, specifically supplementing the following previously completed documents:

- Asset Management Policy (2025 – Currently Seeking Approval);
- 2022 Asset Management Plan (Core Assets – Roads, Bridges, Retaining Walls, and Stormwater);

Introduction

- 2023 Facilities Asset Management Plan;
- 2024 Asset Management Plans (All Other Assets):
 - Executive Summary and Introduction (All Other Infrastructure Asset Management Plans);
 - Volume 1 – Infrastructure, Transportation, Transit, and Emergency Services;
 - Volume 2 – Corporate Services and Parking Operations;
 - Volume 3 – Community Services;
 - Volume 4 – Parks, Parkland, and Trails; and
 - Volume 5 – Police, Libraries, City Real Estate, and Environment.
- 2025 Asset Management Plan:
 - Volume 6 – Natural Assets.

The assets associated with water and wastewater services, gas operations, and appliance rental services fall under the responsibility of Utilities Kingston and are not included in the analysis for this report. These assets are considered in Utilities Kingston's updated Water and Wastewater Utilities Asset Management Plan, the Natural Gas Distribution System Asset Management Plan, and the Water Heater Asset Management Plan, which were approved by council in October 2025 ([Report Number 25-237](#)). These AMPs are outside the scope of the analysis conducted for this report.

This Additional Information Report builds upon the City's ongoing efforts to establish comprehensive Asset Management Plans (AMP) that comply with O. Reg. 588/17. The primary objective of this report is twofold:

- **Levels of Service (LOS) and Growth:** To review and refine the current LOS parameters and performance metrics across the 25 service areas, and, where applicable, develop clear proposed LOS targets. Foundational to this exercise was the development of standardized LOS performance metrics that were employed across most service areas; and

Introduction

- **Lifecycle Management and Financial Strategy:** To provide a forward-looking analysis of the LOS and financial implications tied to the City’s forecasted budget allocations across multiple service areas, to maintaining the current LOS within each service area, and to ultimately achieving the City’s proposed LOS.

1.1 Alignment with Regulation

Provincial O. Reg. 588/17 - Asset Management for Municipal Infrastructure is built on an earlier document called “Building Together: Guide for Municipal Asset Management Plans (2012)” and aligns with the international standard ISO55000. The regulation establishes the following timeline for compliance:

Phase 1 - 2019

- A strategic asset management policy must be developed.

Phase 2 - 2022

- All core assets to be covered in the asset management plan with current LOS. Core assets include water, wastewater, stormwater, roads and bridges/culverts.

Phase 3 - 2024

- All assets owned by the municipality to be covered in the AMP with current LOS. Non-core assets include buildings, fleet and equipment as well as green infrastructure assets.

Phase 4 - 2025

- Proposed LOS, lifecycle and financial strategy for a 10-year period to achieve the proposed LOS.

Introduction

1.2 Scope of Report

This **Additional Information Report** serves as an extension of the City’s existing AMPs: the 2022 AMP (Core Assets), the 2023 Facilities AMP, and the 2024/2025 AMP (All Other Assets). Together, these documents cover a comprehensive total of 25 unique service areas, as detailed in **Table 1-1**.

Table 1-1: Service Areas Included in Scope

Asset Management Plan	Service Areas	Example Asset Classes / Types
2022 AMP (Core Assets)	<ul style="list-style-type: none"> • Transportation • Stormwater 	<ul style="list-style-type: none"> • Roads, bridges, retaining walls, storm lines, storm manholes, detention ponds, storm inlets & outlets, oil-grit separators
2023 Facilities AMP	<ul style="list-style-type: none"> • Corporate Facilities 	<ul style="list-style-type: none"> • Corporate buildings
2024 AMP: Volume 1 - Infrastructure, Transportation, Transit, & Emergency Services	<ul style="list-style-type: none"> • Transit • Traffic Control & Safety • Structures • Urban Forestry • Fire & Emergency Services • Solid Waste • Airport Operations 	<ul style="list-style-type: none"> • Bus shelters, on-board bus equipment, guiderails, traffic signs, streetlights, traffic signals, sidewalks, wildlife fencing, minor culverts (< 3 m), street trees, fleet, equipment, collection carts, airport site elements (runways, runway lighting), other equipment
2024 AMP: Volume 2 - Corporate Services & Parking Operations	<ul style="list-style-type: none"> • Corporate Fleet • Information Systems & Technology • Parking Equipment, Lots, & Structures 	<ul style="list-style-type: none"> • Vehicles, fleet equipment, IT infrastructure, end user devices, video camera systems, surface Lots, parking structures, parking equipment

Introduction

Asset Management Plan	Service Areas	Example Asset Classes / Types
2024 AMP: Volume 3 - Community Services	<ul style="list-style-type: none"> • Heritage Services • Arts & Culture Services • Residential Long-Term Care • Indoor Recreation & Marinas 	<ul style="list-style-type: none"> • Heritage collections, facility equipment and furniture, resident direct care equipment, pool equipment, arena equipment, fitness equipment, boat launches, wharfs
2024 AMP: Volume 4 - Parks, Parkland, & Trails	<ul style="list-style-type: none"> • Park Linear • Park Amenities • Park Facilities • Cemeteries 	<ul style="list-style-type: none"> • Trails & paths, shoreline protection & seawalls, off-leash dog parks, skateparks & splash pads, playgrounds, sports fields & courts, park maintenance buildings, park (site) lighting, picnic shelters, park washrooms
2024 AMP: Volume 5 - Police, Libraries, City Real Estate & Environment	<ul style="list-style-type: none"> • Library Services • Police Services • City Real Estate & Environment 	<ul style="list-style-type: none"> • Vehicles, specialized equipment, other equipment, environmental remediation infrastructure
2025 AMP: Volume 6 - Natural Assets	<ul style="list-style-type: none"> • Natural Assets 	<ul style="list-style-type: none"> • Woodlots, forests, plantations, constructed green lands, meadows & thickets, marshes, swamps, agriculture & fencerows, watercourses & rivers, lakes & shorelines, rock barrens

Introduction

Figure 1-1: Total Current Capital Replacement Value (2025) by Service Area

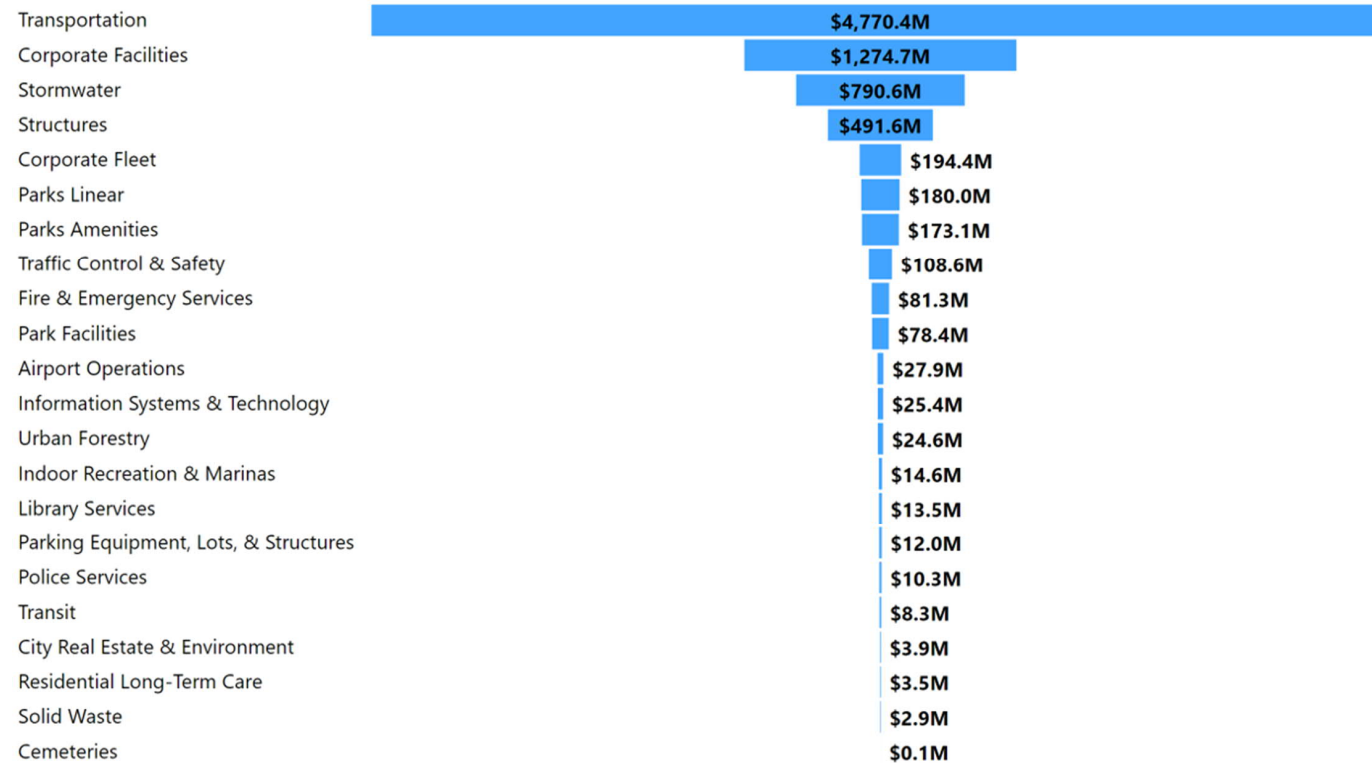


Figure 1-1 Notes

¹ Library Assets excludes the Collections.

² In the absence of a centralized repository for functional capital assets related to Arts & Culture Services, key asset attributes—such as age, condition, and replacement cost remain unknown, limiting the ability to incorporate these assets into the asset management analysis. For Heritage Services, no replacement cost data is available as these assets are considered irreplaceable. The City maintains an extensive civic collection of historical artifacts and artworks that hold significant cultural value. As such, these pieces do not have a defined replacement value or service life and are not subject to depreciation or depletion. City staff ensure that these items are managed as unique assets, with preservation and conservation practices prioritized to safeguard them for future generations. Functional capital assets will be captured in the 2026 update.

Introduction

Figure 1-1 summarizes the total current Capital Replacement Value (CRV) for all Service Areas organized from highest to lowest. The overall total CRV for all assets is approximately **\$8.3 billion**.

Asset replacement forecasts could not be developed for the Heritage Services and Art & Culture Services assets at this time due to significant asset data gaps.

As the City continues its journey of improving its asset management program, this report aims to enhance the existing AMPs. Its core purpose is to provide more detailed strategies for asset performance, lifecycle management, and financial planning.

Specifically, this report will outline both the qualitative expectations, and the specific performance metrics used to measure the LOS. It will also provide lifecycle management strategies, identifying the activities needed to maintain infrastructure, and present a proposed financial strategy for the next 10-years, including estimated capital costs and recommended funding levels.

This report is organized into the following key sections:

- Section 2: Levels of Service;
- Section 3: Growth Planning;
- Section 4: Asset Management Strategy;
- Section 5: Financial Analysis and Strategy; and
- Section 6: Next Steps and Recommendations.

Introduction

1.3 Assumptions and Limitations

The report uses several key assumptions for the asset modeling and financial planning, they include:

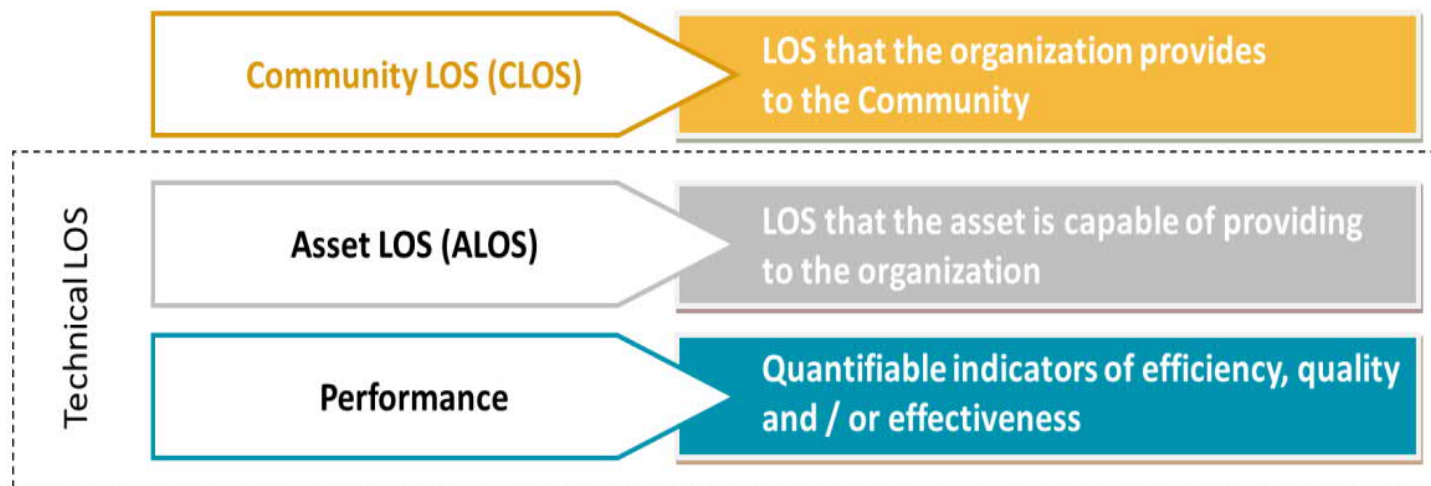
- Water, wastewater, natural gas, and water heater services are excluded from this report as they fall under Utilities Kingston.
- Future costs derived within the lifecycle modeling incorporate an assumed average inflation rate of 3% annually.
- The ability to model Scenarios #2 and #3 was restricted to 18 service areas due to varying maturity and availability of asset data.
- The 10-year planning horizon (2026 to 2035) is the primary period for financial and performance projections.
- Growth projections rely on the City's 2024 Development Charges Background Study.
- Assets missing replacement cost data or those with significant asset data gaps were not included in the model.

Levels of Service

2.0 Levels of Service

Asset management is fundamentally centered on the services that a municipality provides to its end-users. The LOS is a combination of indicators that reflect the social and economic goals of the municipality and link an asset's performance to its target performance goals. LOS is measured from both the community and the technical perspective, as shown in **Figure 2-1**.

Figure 2-1: LOS Definitions



To effectively manage the existing and future performance of assets in providing a service, measures such as lagging and leading indicators may be used. This approach is in alignment with a recognized robust model for assessing public sector service delivery performance. These two categories of indicators provide critical, complementary support for managing performance:

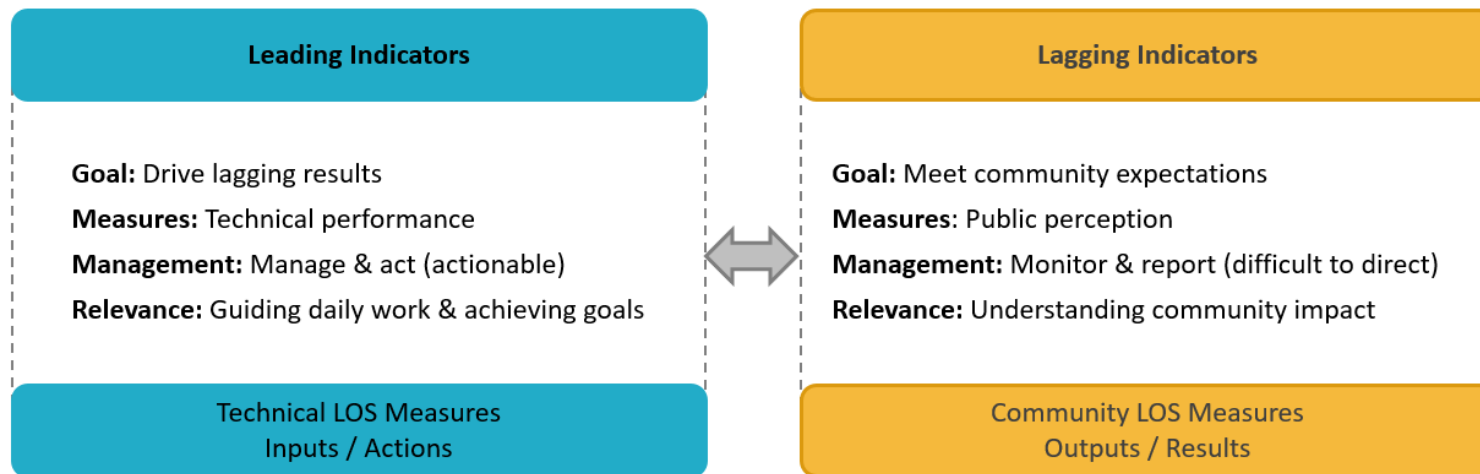
- Lagging indicators measure the ultimate, desired outcomes and define the core service delivery goals. They reflect past performance and are typically focused on the realized LOS, asset condition, or failure rates; and

Levels of Service

- Leading indicators track the specific, influential activities that drive performance improvement. They are predictive, enabling proactive change management actions that secure the achievement of desired outcomes and prevent issues before they impact the lagging metrics.

Innovative asset management performance measurement requires the clear alignment and interaction of these two categories: lagging indicators (outcome-focused) and leading indicators (driver-focused) as presented in **Figure 2-2**, related to LOS performance.

Figure 2-2: Defining Leading Indicators and Lagging Indicators Related to Performance



Each lagging or community measure is supported by one or more leading or technical measures that focus on the actions needed to deliver effective asset management. For each of the LOS measures, performance indicators will focus on service delivery results. These indicators serve multiple purposes:

- They document the results of asset management efforts, providing accountability;
- They set targets for asset management improvement, guiding future actions;
- They inform daily operations, particularly maintenance activities; and

Levels of Service

- They report on performance by comparing actual results against set targets.

For this additional information report, the LOS builds on the existing indicators developed through the various City AMPs. The following sections include a summary of the results of the community engagement as it applies to service delivery, an overview of standardizing LOS metrics, and the current results of these measures.

2.1 Community Engagement

In alignment with O.Reg. 588/17, the City conducted a comprehensive, multi-phased public engagement process to help inform the development of the proposed LOS. The AMP Public Engagement process commenced in November 2024 and was designed to identify and assess the public's perspective on Asset LOS that are important to them.

The engagement focused on asset and service categories that the community interacts with the most, representing 13 of the 24 areas outlined in the City's Corporate Asset Management plans. Many of these related directly to the following Council 2023-2026 Strategic Priorities:

- Build an active and connected community;
- Lead environmental stewardship and climate action; and,
- Drive inclusive economic growth.

The overall purpose and objectives of the community engagement were to:

- **Inform city residents:** Provide an overview to the community about municipal services, cost of service delivery, and preference for payment for those services;
- **Gather input on service:** satisfaction levels with current service, willingness to pay to maintain or improve current service; and
- **Gain customer perspective:** include a customer perspective in the proposed LOS recommendations to Council.

Levels of Service

As part of the Public Engagement Consultation Plan, a project website was launched, an internal focus group was organized, a public survey questionnaire was distributed (launched on Get Involved Kingston in January), and two online community-based focus groups were held. Additional pop-up events and other engagement tactics were also utilized.

The service and asset categories selected for Public Engagement represented 13 of 24 areas outlined in the City's Corporate AMPs. Priority was placed on those assets and services that the community interacts with the most. The full 2025 Asset Management Public Engagement Overview & Results report (Report Number 25-083), was presented to Council on May 20, 2025.

2.1.1 Internal Focus Group

An Internal Focus Group consisting of Senior City staff was held in November 2024. The group's primary goal was to understand the current alignment of their departmental work with the City's 2023-2026 Strategic Plan priorities and Council-approved service levels. The specific goals of the focus group were to determine:

- Current alignment with City of Kingston strategic priorities;
- Department capacities to improve LOS; and
- Barriers to providing the expected or projected LOS.

Input from senior staff helped inform the design and the information that was included in the public Asset Management survey.

2.1.2 Public Online Survey

The public survey and other engagement channels obtained specific community feedback. Overall participants expressed a strong preference to:

- Maintain current levels of service with modest cost increases.

Levels of Service

- Prioritize investment in transportation infrastructure (roads, sidewalks), natural assets, and core facilities.
- Allocate more resources toward transportation asset capital maintenance needs.

It is important to note that while there was a relatively high level of engagement through the community survey and other channels, public engagement is just one of several sources of information, alongside best practices, fiscal constraints, and other strategies, which will help support the development of the City's Asset Management Plan, service levels, and financial planning decisions.

2.2 LOS Approach

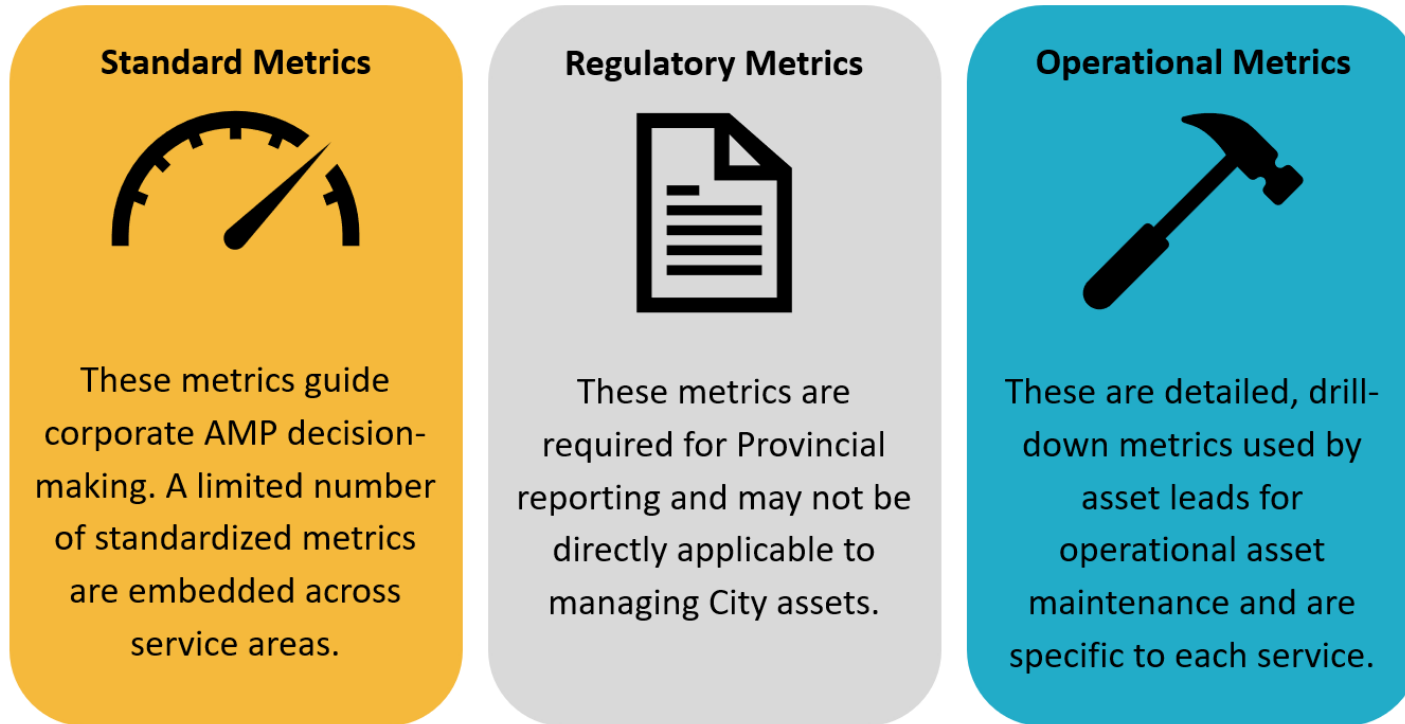
As the City has completed their AMPs over several years, a refinement of the LOS parameters and indicators was undertaken as part of this most recent update. This refinement aimed to guide the development of the City's proposed LOS measures. The principles guiding this refinement included:

- **A Standardized Measurement Approach Across Service Areas:** Implement a consistent set of standard measurements across the 25 service areas;
- **Improved Organizational Reporting:** Develop a recurring and compelling holistic narrative to articulate the City's AMP story across all service areas; and
- **Alignment of Asset Performance Priorities with Community Expectations and Affordability:** Ensure that asset performance priorities are reflective of community expectations and are financially sustainable.

To facilitate reporting, three categories of performance indicators were assigned to the measures. These categories help identify their role in the decision-making process. The three categories are highlighted in **Figure 2-3** below.

Levels of Service

Figure 2-3: Performance Indicator Categories



The repository of performance indicators includes the following elements:

- **Service Attribute:** The LOS parameter that is most applicable to the service area and the assets that are providing the service;
- **Service Expectation:** An overview of the meaning of the service attribute with respect to the service area;

Levels of Service

- **Community Performance Metrics:** How the customer receives the service; and
- **Technical Performance Metrics:** How the organization provides the service (or will provide the service). Where applicable the driver for the technical performance metric is stated and comments are provided.

2.2.1 Asset Condition

To standardize the methodology for evaluating and reporting on the condition of the assets, a condition rating was assigned using a 5-scale rating system, which is based on the Canadian Infrastructure Report Card (2019) produced by the Canadian Network of Asset Managers and several other Canadian Associations. **Table 2-1** outlines the rating system which ranges from 1 (Very Good) to 5 (Very Poor).

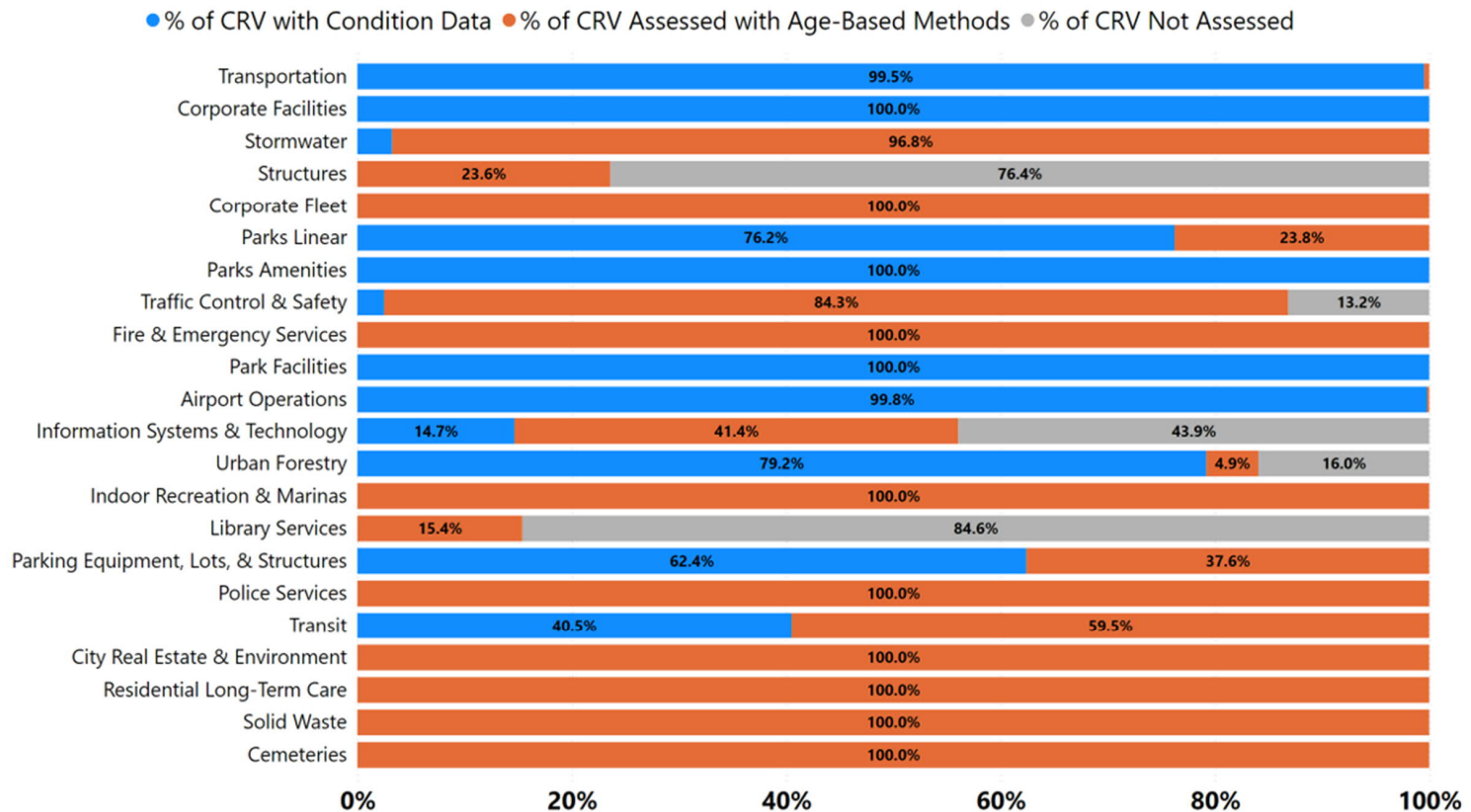
Table 2-1: Condition Rating System

Condition Rating	Condition Grade	Remaining Useful Life	Description
1	Very Good	more than 80%	Physically sound, performing as intended and resembles “like-new” condition.
2	Good	60% - 80%	Physically sound and performing as intended. Needs to be re-inspected in the medium term.
3	Fair	40% - 60%	Showing deterioration, with some elements physically deficient. Early stages of decay are becoming evident.
4	Poor	20% - 40%	Major portion of asset is physically deficient. It is not functioning properly due to significant deterioration and is a candidate for replacement in the short term.
5	Very Poor	less than 20%	Asset is physically unsound. There is a high probability it will fail, or it already has. Immediate replacement is required.
N/A	Unknown	N/A	No or limited data to estimate the condition of the asset.

Levels of Service

A hybrid approach was used for determining the condition, considering: 1) the age of the asset; 2) expected useful life (EUL); and 3) the last known condition rating assigned to the asset. It is important to note that if condition assessment information was not available, asset deterioration was assumed to calculate the condition ratings based on remaining useful life. For each service area, **Figure 2-4** summarizes the percentage of assets by CRV analyzed using available condition information, age-based methods, or that could not be analyzed due to gaps in available age and condition information.

Figure 2-4: Condition Information Summary



Levels of Service

2.2.1.1 Corporate Facilities and Park Facilities – Condition Methodology Variation

The City's 2023 Facilities AMP assesses the overall condition of its facility assets primarily using the Facility Condition Index (FCI). The FCI is a widely recognized, monetary-derived measure used in facilities management to gauge the economic health and relative condition of an asset. It is fundamentally a financial liability index, indicating the investment required to address deficiencies relative to the asset's overall worth. The FCI primarily assesses financial liability (the required investment) and does not directly correspond to an engineering-derived Physical Condition Index (like a Pavement or Bridge Condition Index), which is based on explicit physical deterioration characteristics (e.g., crack severity, structural faults). While the FCI is calculated from the outcomes of a physical condition assessment, its ultimate purpose is a comparative financial benchmark.

The central objective of this report is the assessment of LOS for all services, including Corporate Facilities and Park Facilities. To further facilitate the review of asset condition across all service areas, a Remaining Service Life (RSL) analysis for the facilities was conducted for this report that considered facility element condition information to forecast future lifecycle costs. The approach used to establish and maintain the LOS of Corporate Facilities and Park Facilities in this report differs from the one presented in the 2023 Facilities AMP. This difference is intentional and necessary to ensure a like-for-like comparison using standardized LOS metrics across various service areas within the City and results are derived based on influencing physical deterioration of facility elements rather than striving to achieve or maintain financial liability targets.

2.3 Standard LOS Performance Metrics

City staff have selected three standard LOS performance metrics to establish the current and proposed LOS. The three metrics are:

1. State of Good Repair Backlog (**Section 2.3.1**);
2. Asset Reinvestment Rate (**Section 2.3.2**); and
3. Percentage of Assets in Fair or better Condition (**Section 2.3.3**).

Levels of Service

These metrics correspond to the parameters of Quality (the important role of an asset in meeting its intended function effectively) and Reliability (ensuring reliable service, often involving proactive maintenance and contingency planning to minimize disruptions and maintain continuous operation). The above three metrics are based on best practices in asset management and have been utilized across many Ontario municipalities.

NOTE: The following figures exclude assets associated with Library Services (specifically collections), Structures (specifically Minor Culverts (< 3 m)), Heritage Services, and Arts & Culture Services. In the absence of a centralized repository for minor culverts (< 3 m) and functional capital assets related to Arts & Culture Services, key asset attributes—such as age, condition, and replacement cost remain unknown, limiting the ability to incorporate these assets into the asset management analysis. For Heritage Services, no replacement cost data is available as these assets are considered irreplaceable. The City maintains an extensive civic collection of historical artifacts and artworks that hold significant cultural value. As such, these pieces do not have a defined replacement value or service life and are not subject to depreciation or depletion. City staff ensure that these items are managed as unique assets, with preservation and conservation practices prioritized to safeguard them for future generations. Functional capital assets will be captured in the 2026 update.

2.3.1 Metric #1: State of Good Repair Backlog

The purpose of the State of Good Repair (SOGR) Backlog metric is to provide the City with a clear and quantifiable understanding of its current infrastructure and renewal or maintenance deficit. By identifying and quantifying repair, renewal, and replacement projects that are currently unfunded (“waiting” for capital budget inclusion), those previously delayed or dropped due to insufficient resources, and projects stalled due to limited execution capacity, this metric serves as a critical indicator of potential risks to service levels and asset integrity. Ultimately, this insight will empower the City to prioritize investments, strategically allocate resources, and develop proactive strategies to address its existing infrastructure needs.

Levels of Service

The SOGR backlog is calculated as follows:

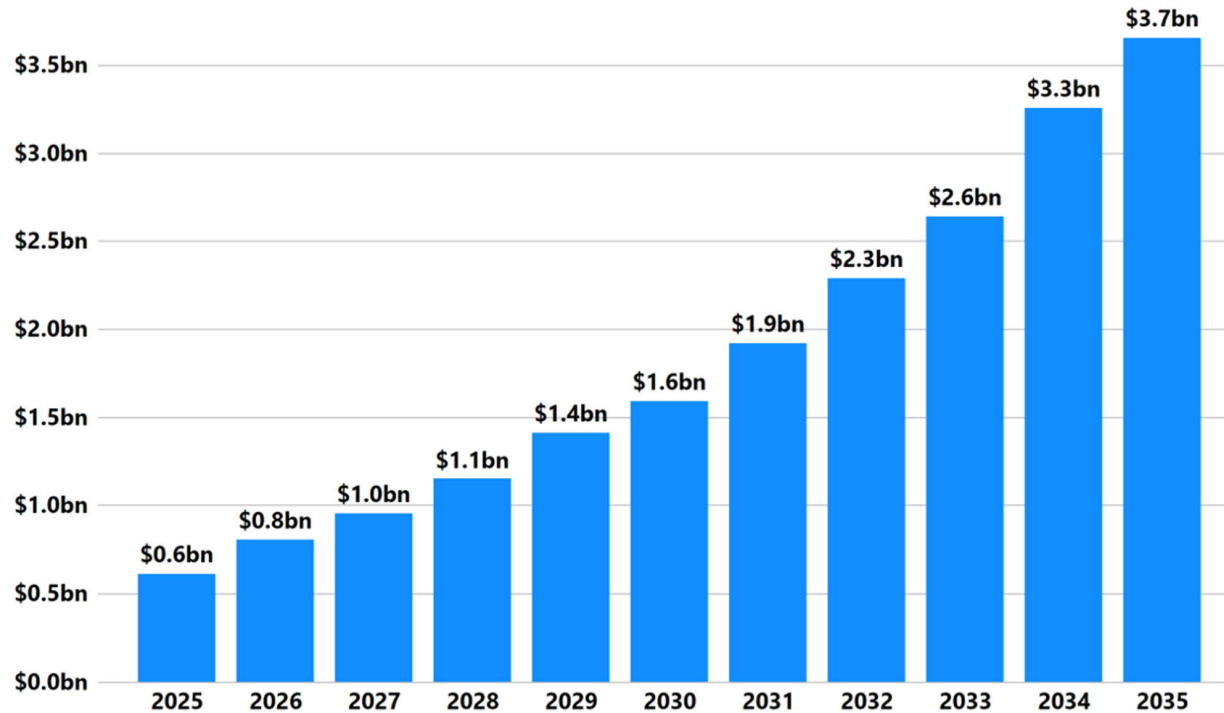
1. **Calculate the Projected Annual Renewal Needs:** This is calculated by projecting the replacement year of all assets in the service area and their capital replacement value.
2. **Determine the Actual Annual Renewal Contribution to Capital Budget:** The planned capital budget allocated to each service area, as provided by the City, will be utilized in subsequent steps to calculate the SOGR backlog. This budget amount represents the planned average of current allocated funding available for addressing capital asset renewal projects within each service area.
3. **Determine the Annual SOGR Backlog:** The Annual SOGR Backlog is calculated by subtracting the Annual Renewal Contribution to the Capital Budget from the Projected Annual Renewal Needs.
4. **Total SOGR Backlog:** The estimated annual SOGR Backlog (calculated in Step 3) is projected across each year of the 10-year planning horizon. The sum of these annual backlog amounts represents the Total SOGR Backlog LOS metric.

$$\text{SOGR Backlog} = \text{Capital Needs} - \text{Capital Renewal Contribution}$$

This calculation yields the estimated annual shortfall in funding for maintaining the assets in a SOGR. **Figure 2-5** illustrates the accumulating SOGR backlog anticipated over the 10-year planning horizon based on the current planned capital renewal contribution to the City's capital budget. The 2025 SOGR backlog across all assets is estimated to be approximately **\$0.6 billion**, accumulating to **\$3.7 billion** by 2035.

Levels of Service

Figure 2-5: Current LOS – Total SOGR Backlog



2.3.2 Metric #2: Asset Reinvestment Rate

The purpose of the Asset Reinvestment Rate is to evaluate the City's current capital budget allocation against the current replacement value of the assets and compare those results with industry recommended reinvestment rates (e.g., the Canadian Infrastructure Report Card). This metric will indicate whether current funding levels are sufficient to meet established reinvestment targets. Furthermore, tracking this rate over time will provide valuable insights into a reasonable reinvestment range for the City, facilitating informed financial planning and benchmarking against best practices and other municipalities.

Levels of Service

The asset reinvestment rate is calculated as follows:

1. **Determine the Current Capital Investment:** Identify the current planned spend for capital renewal projects in the City's 15-year Capital Plan.
2. **Determine the Current Asset Capital Replacement Value:** Based on the current asset inventory, determine the Total Capital Replacement Value of all assets.
3. **Determine the Reinvestment Rate:** Divide the Current Capital Renewal Investment by the Total Capital Replacement Value of all assets.

$$\text{Reinvestment Rate} = \frac{\text{Capital Renewal Contribution}}{\text{Total CRV}}$$

Table 2-2: Current LOS – Asset Reinvestment Rate

Total 2025 Capital Replacement Value	Total 2025 Capital Renewal Investment	Target Annual Capital Renewal Investment	2025 Asset Reinvestment Rate	Target Annual Asset Reinvestment Rate
\$8.29 B	\$77.35 M	\$182.6 M ¹	0.9%	2.2% ¹

Table 2-2 Notes

¹ Target annual capital renewal investment is based on asset management best practices, such as guidance provided by the Canadian Infrastructure Report Card (CIRC) and varies by Service Area.

Levels of Service

2.3.3 Metric #3: Percentage of Assets in Fair or Better Condition

The purpose of the percentage of assets in Fair or better condition metric is to provide the City with a clear understanding of the overall relative health of its asset portfolio within each service area and to focus on the quality of the assets. This metric offers a valuable snapshot of the current state of all assets. Furthermore, tracking this percentage over time will enable the city to evaluate trends in asset condition, identify areas of improvement or deterioration, and assess the effectiveness of current asset management strategies.

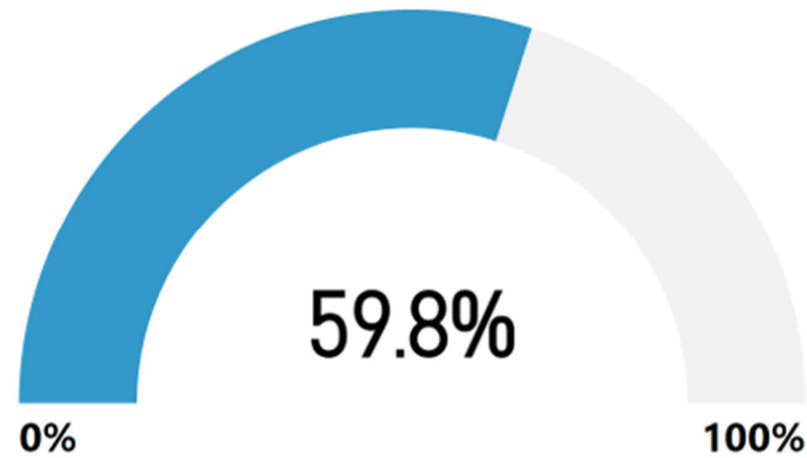
The percentage of assets in Fair or better condition is calculated as follows:

1. **Determine the Number of Assets in Fair or Better Condition:** The total number of assets within a specific service area was determined by asset inventories and the number of assets within the same service area that has been assessed and classified as being in fair or better condition, determined based on established condition assessment criteria;
2. **Calculate the Quotient of Assets in Fair or Better Condition:** Divide the total number of assets in fair or better condition (as determined by Step 1) by the total number of assets in the service area (as determined by Step 1); and
3. **Calculate the Percentage of Assets in Fair or Better Condition:** Multiply the resulting quotient by 100 to express the proportion as a percentage to determine the assets in fair or better condition.

$$\% \text{ of Assets in Fair or Better Condition} = \frac{\text{CRV of Assets in Fair or Better Condition}}{\text{Total CRV}} \times 100$$

Levels of Service

Figure 2-6: Current LOS – Percentage of Asset in Fair or Better Condition by CRV (2025)



Growth Planning

3.0 Growth Planning

As the City continues to grow, there are multiple impacts to existing service levels and assets based on future needs. Proactive planning to align future service delivery with anticipated growth is essential. By evaluating the effects of this growth, the City can better prepare a strategy that optimizes asset investment and maintains desired service levels.

3.1 Long-Term Growth Forecast (2021 to 2051)

In 2023, the City completed a “Population, Housing & Employment Projections” study. The study was conducted to provide a basis for the City’s long-range land use, transportation, infrastructure, and capital expenditure planning. The study is completed every five years based on updated Statistics Canada Census data. Within this study, the City identified three growth scenarios (low, medium and high) spanning a period of 30 years (up to the year 2051, using 2021 Census data).

The growth scenarios for population, housing, and employment are summarized in **Table 3-1** below.

Table 3-1: Growth Scenarios (Low, Medium, High)

Scenario	Permanent Population	Total Population (permanent & students)	Permanent Housing (number of units)	Total Households (permanent & students)	Employment (number of jobs)
Existing (2021)	136,600	154,100	57,800	62,900	71,900
Low Growth (2051)	186,600	210,500	80,800	88,200	107,800
Medium Growth (2051)	197,000	220,900	84,800	92,200	113,900
High Growth (2051)	207,400	231,300	88,500	95,900	119,900

Growth Planning

In December 2023, Council approved the medium growth scenario as the City's official growth forecast (Report Number 24-016) for future planning. The resulting forecasted growth, presented in 5-year intervals, is shown in **Table 3-2**.

Table 3-2: Forecasted Growth in 5-Year intervals for Medium Growth Scenario

Year	Permanent Population	Total Population (permanent & students)	Permanent Housing (number of units)	Total Households (permanent & students)	Employment (number of jobs)
2021	136,300	154,100	57,800	62,900	71,900
2026	148,000	166,800	63,000	68,600	85,900
2031	158,900	178,400	67,800	73,600	92,700
2036	169,900	189,500	72,600	78,500	98,800
2041	179,600	200,700	77,000	83,300	104,500

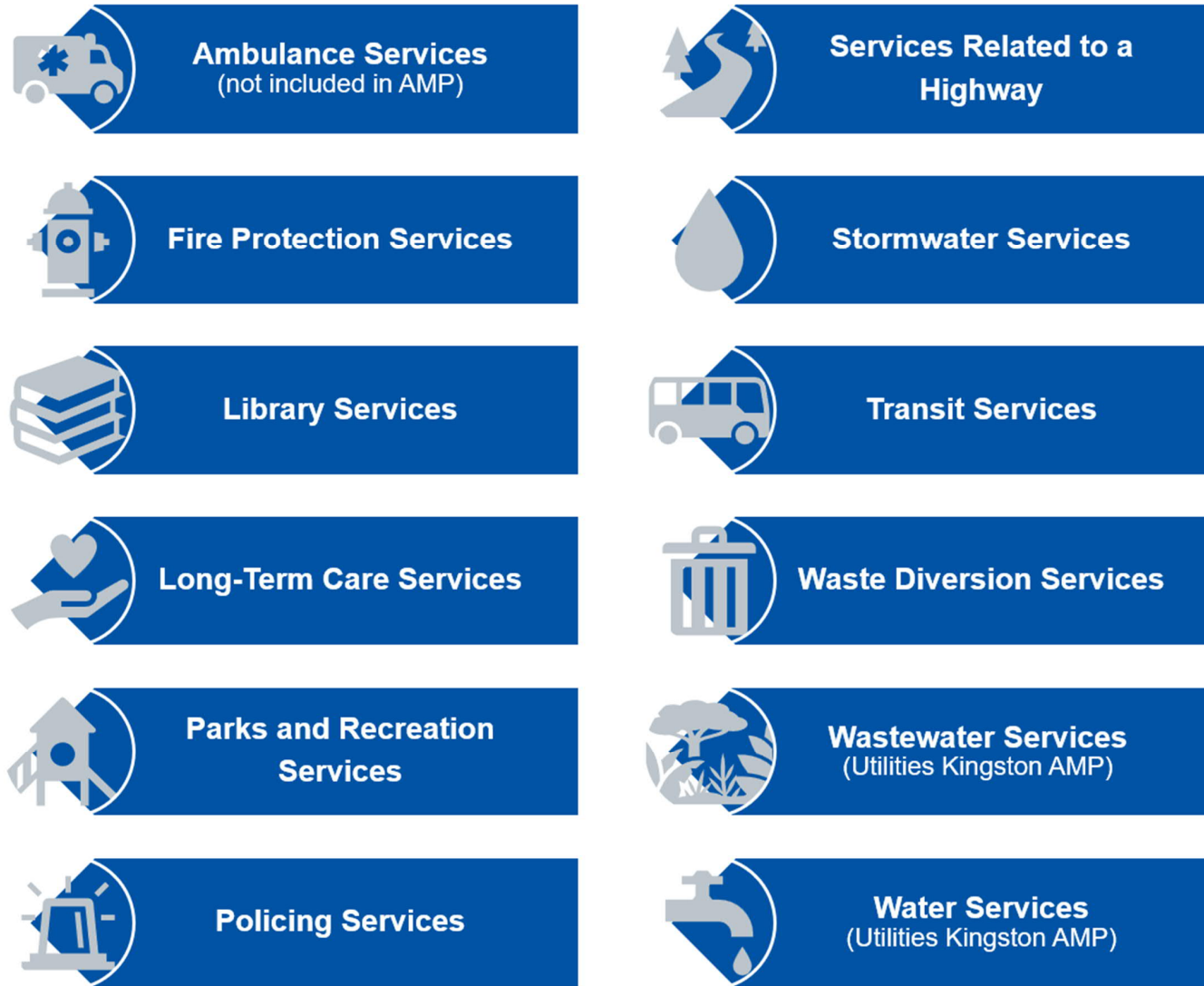
The impact of this long-term growth is that as the community expands, the need for new or expanded capacity infrastructure assets also grows. These needs are identified in Master Plans and formally quantified in the Development Charges Background Study.

3.2 2024 Development Charges Background Study

The baseline for growth projections relies on the City's 2024 Development Charges Background Study prepared by Watson and Associates (D.C. Study). It is pertinent to note a slight divergence between the services in the study and the service areas in the asset hierarchy under consideration. Specifically, the D.C. Study encompasses the services included in **Figure 3-1**. For clarity, water, wastewater, and ambulance services are excluded from this baseline data as these essential utilities are owned and operated by Utilities Kingston or other agencies.

Growth Planning

Figure 3-1: Services included in the D.C. Study



Growth Planning

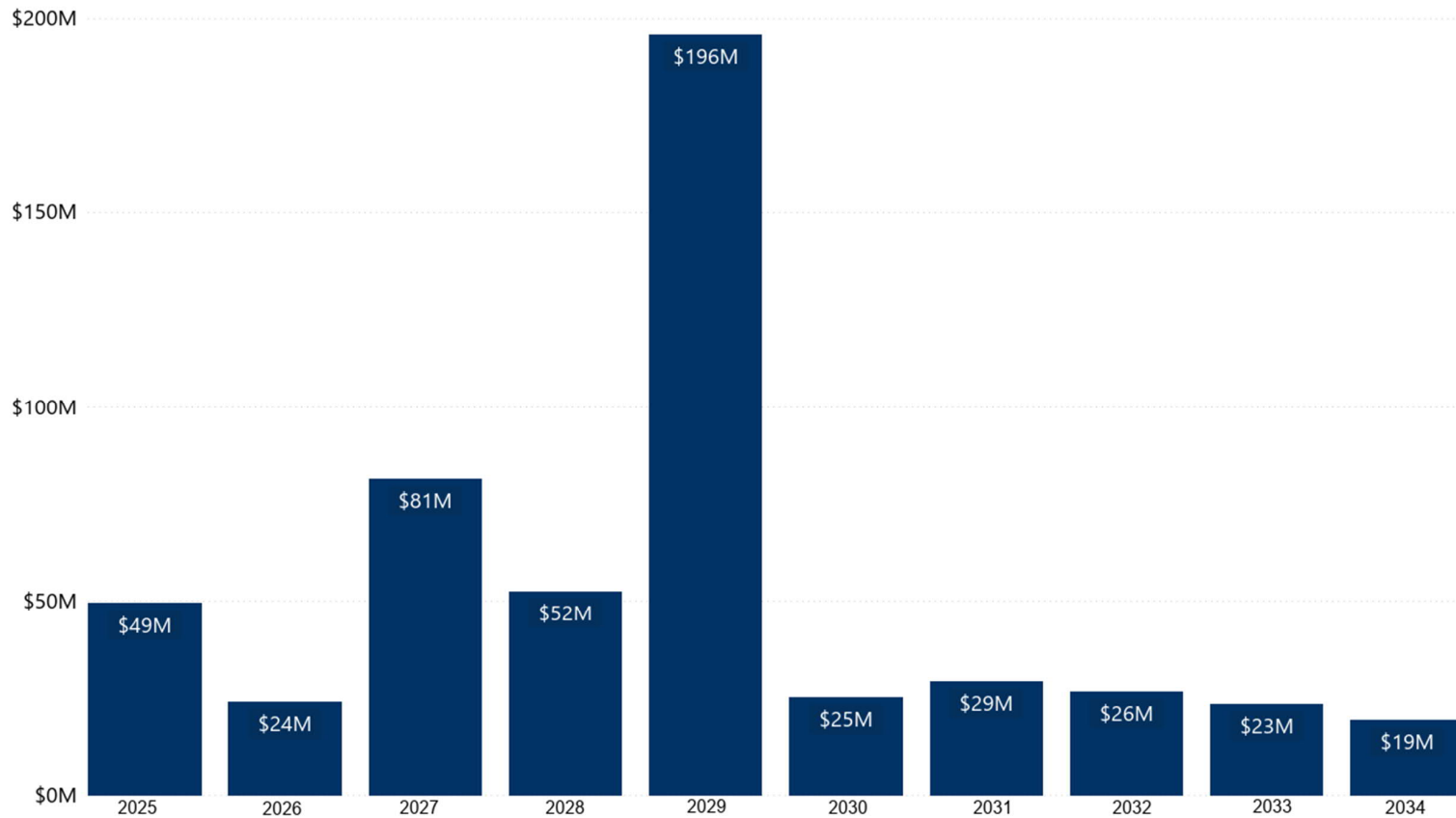
3.2.1 10-Year Projected Growth Projects

The 10-year growth projection, informed by the D.C. Study and City insights and subsequently approved by Council, provides a summary of anticipated growth across various service areas. For consistency, all projects initially slated to begin in 2024 are now projected to commence in 2025. Where project timelines included a range of potential start dates, the final year of that range was adopted for this projection. The resulting 10-year gross capital costs estimate (2024) for all service areas is presented in **Figure 3-2**, with a more granular breakdown of the services provided in **Appendix B**. Services under the ownership of Utilities Kingston are excluded from this analysis. The Population, Housing, and Employment Growth Forecast Update to 2051 ([Report Number 24-016](#)) was brought to Council in December 2023 and Council approved the medium growth scenario as the recommended growth forecast scenario to be used by the City.



Growth Planning

Figure 3-2: 10-Year Growth Projections



The City's projected growth is planned to have two significant spikes, one in 2027 and another in 2029. These large investments are for new facilities (e.g., new Firehall and Aquatics Partnerships). The annual cost then stabilizes between \$20 million and \$30 million.

Growth Planning

3.3 Future Considerations

The City's projected growth presents a critical point, offering both opportunities for advancement and potential challenges to existing infrastructure and service delivery. As such, the City may strategically consider two primary paths forward in response to these anticipated changes.

3.3.1 Strategy A: Maintaining Current LOS

This strategy involves continuing the current approach of regular maintenance and refurbishment of existing City assets, focusing on like-for-like replacement to maintain the current LOS.

- **Benefit:** This approach offers predictable capital costs, as expenditures can be generally forecasted by conducting thorough asset condition analysis.

This strategy may be recommended if the City forecasts minimal population, commercial, or environmental growth over the next 10-year period. However, the City may still choose to direct additional funding toward larger capital projects or projects of lower risk/priority where funding is not usually directed. This will improve the average overall condition of assets and take a proactive approach to asset management.

3.3.2 Strategy B: Strategic Improvements to Meet Future Growth

If the City forecasts an increase in population growth over the next 10-year period, the City may choose to make strategic improvements to their existing assets to match these needs. This strategy suggests a focus on high-risk assets, directing additional funding toward increasing asset capacity for future needs, increased demand, and comprehensive planning efforts.

- **Benefit:** Provides the opportunity to plan for future capital expenditures and creates a schedule that aligns with official land use and infrastructure plans.

Growth Planning

Regardless of the growth trajectory and the chosen strategic response, it is critical to acknowledge the potential effects on key areas. Maintaining the desired LOS under increased demand will require diligent, evidence-based planning and resource allocation. Furthermore, growth invariably introduces new risks that demand careful assessment and robust mitigation strategies. Finally, the impact on the quality and longevity of the City's assets necessitates proactive management and strategic investments, informed by a comprehensive understanding of the lifecycle costs associated with both current and future infrastructure.

Recognizing that growth itself follows a lifecycle, from initial planning and investment through implementation, ongoing operation and decommissioning or retirement, this perspective must inform our understanding of long-term financial planning. The planned growth expenditures by service area presented in **Appendix B** provides critical insights into managing the lifecycle costs associated with the City's projected growth.

Asset Management Strategy

4.0 Asset Management Strategy

The asset management strategy outlines the City's current approach to managing asset lifecycles. It provides an overview of the service level modelling, including proposed service level outputs and the risks of not achieving them.

4.1 Lifecycle Management Activities

To assess the long-term financial implications and LOS performance metrics for the service areas selected for modelling, a detailed approach to lifecycle activity modelling was employed where possible. This modelling forms the basis for understanding the costs associated with maintaining current LOS and achieving proposed LOS across the City's diverse asset portfolio. **All future costs derived within the modelling incorporate an assumed average annual inflation rate of 3%.** The adoption of a 3% average annual inflation rate is a prudent assumption for long-term Canadian asset lifecycle analysis. This rate aligns with the upper boundary of the Bank of Canada's 1% to 3% inflation-control target, thereby incorporating a conservative safety margin necessary for robust fiscal planning. Furthermore, using 3% helps mitigate the inherent risk that capital expenditure costs (such as construction and specialized materials) may persistently outpace general Consumer Price Index (CPI) inflation over multi-year planning horizons.

4.1.1 Core Activity Assumption

For all service areas modelled from the City's asset inventory, the core lifecycle activity modelled was the reconstruction/replacement of the asset or asset component at the end of its service life. This activity is utilized as the primary mechanism for renewing assets and is fundamental to calculating long-term sustainable funding requirements.

Asset Management Strategy

4.1.2 Facility-Specific Lifecycle Activities

Given the complexity and multi-component nature of facilities, a supplementary lifecycle activity was modelled for Corporate Facilities and Parks Facilities. In addition to the replacement of individual facility components (e.g., HVAC systems, roofing, etc.), an allowance for Major Rehabilitation (repair) was considered for components in poor condition.

This major rehabilitation activity was factored into the modelling using an assumed cost equivalent to 30% of the component replacement cost, providing a fiscal mechanism to account for significant, periodic upgrades necessary to extend the service life of the facility components and the facility itself. The timing of these activities was assumed to occur when the component enters a state of poor repair for the first time and subsequent applications of the major rehabilitation activity before replacement were not permitted (i.e., it was assumed a major rehabilitation activity can only be performed once over the course of the component's service life).

4.1.3 Road-Specific Lifecycle Activities

Due to the significant CRV and high public profile of the City's transportation network, the modelling for Roads incorporated an extensive and detailed suite of lifecycle activities. This approach allows for a granular understanding of how investment in various maintenance and rehabilitation levels affects asset condition and LOS performance over time, moving beyond simple end-of-life replacement.

The road network's lifecycle activity modelling included four distinct categories of lifecycle activities: preventative maintenance, minor rehabilitation, major rehabilitation, and reconstruction. The specific activities are summarized in **Table 4-1** below.

Asset Management Strategy

Table 4-1: Roads Treatments

Activity Category	Activity Name	2022 Unit Cost (\$/m ²) ¹
Preventative Maintenance	AC – Application of Rejuvenator	\$3
Preventative Maintenance	AC – Cape Seal (slurry + micro)	\$18
Preventative Maintenance	AC – Crack Seal	\$4
Preventative Maintenance	AC – Slurry Seal	\$8
Preventative Maintenance	AST – Fog Seal	\$2.6
Preventative Maintenance	Double Micro – Surfacing + Crack Seal	\$18
Minor Rehabilitation Treatment	Ultra-Thin Overlay	\$21
Major Rehabilitation Treatment	AST – Double Surface Treatment + Fog Seal	\$13
Major Rehabilitation Treatment	AST – Pulverize + Double SFT + Fog Seal	\$21
Major Rehabilitation Treatment	AST – Single Surface Treatment + Fog Seal	\$10
Major Rehabilitation Treatment	HMA Overlay	\$59
Major Rehabilitation Treatment	Mill & Pave	\$69

Table 4-1 Notes

¹ Specific lifecycle activities and their associated unit costing were developed and verified by City staff. Unit costing originates from 2022 and was inflated based on an assumed average inflation rate of 3% annually.

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4.2 LOS Scenarios Review

To analyze the associated LOS performance and financial implications of different LOS scenarios, an analysis of three distinct LOS scenarios was conducted and evaluated using the standard LOS performance metrics discussed in **Section 2.3**.

The three scenarios analyzed include:

- **Scenario #1: Forecasted Budget** – This scenario uses the City’s planned 10-year budget from 2025 to project the resulting LOS.
- **Scenario #2: Maintain LOS** – This scenario calculates the associated cost required to fully maintain the City’s current LOS until the end of the 10-year planning period.
- **Scenario #3: Proposed LOS** – This scenario provides a more balanced investment approach based on the City’s current financial constraints. This approach was developed in consultation with key City staff and Subject Matter Experts (SME’s) within each service area including Finance and represents staff’s recommended option.

4.2.1 Limitations in LOS Scenario Analysis

It is important to note that the rigorous analysis of all three LOS scenarios - Forecasted Budget, Maintain LOS, and Proposed LOS - could not be applied uniformly across all 25 service areas. The depth of analysis for each service area was necessarily governed by the maturity and availability of the underlying asset data.

The primary constraint is the presence of asset data gaps within certain service areas. These gaps typically manifest in one or more of the following critical areas:

- **Asset Inventory Completeness:** The absence of a fully comprehensive or accurately classified inventory for specific asset classes made it impossible to reliably model future lifecycle needs.

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- **Asset Condition and Age Data:** Reliable condition data or application of age-based methods is essential for determining the current LOS and forecasting the degradation rate of an asset or asset component. Where up-to-date condition or age information was unavailable, it was impossible to reliably model future lifecycle needs.
- **Historical Lifecycle Cost Data:** Accurate scenario modelling requires detailed historical cost data for various lifecycle activities (e.g., maintenance, rehabilitation, replacement). For service areas lacking consistent historical financial tracking, developing defensible cost projections for some lifecycle activities was not feasible.

Consequently, while the Forecasted Budget Scenario was analyzed for all provided service areas to establish a financial baseline, only 18 service areas were analyzed for the Maintain LOS and 13 services areas were analyzed for the Proposed LOS, as shown in **Table 4-2**. This difference is due to the fact that only service areas with sufficient data maturity were subjected to the Maintain LOS and Proposed LOS scenario analyses, respectively. The associated asset classes or types can be found in their associated AMPs or examples in **Table 1-1**.

The results of the LOS scenarios modelled for each service area are detailed in LOS scenario summary cards provided in **Appendix A**.

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Table 4-2: Summary of LOS Scenario Analysis Completed by Service Area

Service Area	Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
Transportation	Yes	Yes	Yes
Corporate Facilities	Yes	Yes	Yes
Stormwater	Yes	Yes	Yes
Structures	Yes	Yes	Yes
Corporate Fleet	Yes	Yes	Yes
Parks Linear	Yes	Yes	Yes
Parks Amenities	Yes	Yes	Yes
Traffic Control & Safety	Yes	Yes	Yes
Fire & Emergency Services	Yes	Yes	Yes
Park Facilities	Yes	Yes	Yes
City Real Estate & Environment	No	No	No
Parking Equipment, Lots, & Structures	Yes	Yes	Yes
Airport Operations	Yes	Yes	No
Information Systems & Technology	Yes	Yes	Yes
Urban Forestry	Yes	Yes	No
Indoor Recreation & Marinas	No	No	No
Library Services	Yes	Yes	No
Police Services	Yes	Yes	No
Transit	Yes	Yes	Yes
Residential Long-Term Care	Yes	Yes	No
Solid Waste	No	No	No
Cemeteries	No	No	No
Heritage Services	No	No	No
Arts & Culture Services	No	No	No
Natural Assets	No	No	No

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4.2.2 Scenario #1: Forecasted Budget

Scenario #1 utilizes the City's planned 10-year capital budget as of 2025 (based on the previous annual planning period) as its Forecasted Budget scenario. The City generates a 15-year funding model annually, which utilizes input from staff to consistently reprioritize projects and adjust scheduling. The forecasted budget per service area is detailed in **Table 4-3**. The associated asset classes or types can be found in their associated AMPs or examples in **Table 1-1**.

This scenario provides a critical baseline, illustrating the projected LOS performance over the 10-year planning horizon under current funding commitments.

The absence of forecasted capital investment in the present plan does not indicate any risk to the integrity or safety of airport operations. Airside and groundside infrastructure remain safe, reliable, and fully compliant with regulatory standards. Staff will continue to undertake and fund all required capital maintenance to ensure operational continuity, public safety, and service quality. Any interim capital work will be aligned with Council's approved strategies for the airport's future operations and be presented for Council consideration as necessary.

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Table 4-3: Forecasted Budget Plan 2025 - Capital Renewal by Service Area

Service Area	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Transportation	\$15.4M	\$26.3M	\$33.6M	\$28.6M	\$14.6M	\$11.4M	\$17.9M	\$20.2M	\$10.7M	\$9.0M
Corporate Facilities	\$13.1M	\$14.9M	\$12.9M	\$12.3M	\$14.6M	\$12.5M	\$16.1M	\$14.7M	\$15.5M	\$18.7M
Stormwater	\$10.9M	\$17.5M	\$16.8M	\$18.2M	\$28.3M	\$21.1M	\$18.0M	\$23.1M	\$9.6M	\$16.7M
Structures	\$2.3M	\$451.4K	\$2.2M	\$2.3M	\$2.6M	\$2.9M	\$2.4M	\$2.7M	\$3.0M	\$3.4M
Corporate Fleet	\$8.3M	\$7.7M	\$9.5M	\$20.7M	\$8.4M	\$10.1M	\$10.0M	\$10.5M	\$12.4M	\$10.1M
Parks Linear	\$5.5M	\$2.6M	\$2.5M	\$1.6M	\$2.2M	\$2.2M	\$2.2M	\$2.5M	\$3.2M	\$695.0K
Parks Amenities	\$3.2M	\$1.6M	\$820.9K	\$698.6K	\$1.4M	\$1.5M	\$1.9M	\$1.4M	\$1.2M	\$2.4M
Traffic Control & Safety	\$945.0K	\$12.3M	\$4.9M	\$7.4M	\$1.2M	\$1.2M	\$1.3M	\$1.3M	\$1.4M	\$1.5M
Fire & Emergency Services	\$3.0M	\$2.7M	\$4.3M	\$3.0M	\$5.0M	\$10.2M	\$10.2M	\$3.0M	\$300.0K	\$3.8M
Parks Facilities	\$355.0K	\$415.0K	\$325.0K	\$75.0K	\$75.0K	\$75.0K	\$75.0K	\$75.0K	\$75.0K	\$75.0K
Parking Equipment, Lots, & Structures	\$2.2M	\$365.2K	\$737.0K	\$2.1M	\$238.5K	\$2.4M	\$38.4K	\$383.9K	\$860.0K	\$774.6K
Airport Operations ¹	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
IS&T	\$5.1M	\$3.5M	\$3.0M	\$2.1M	\$2.5M	\$2.2M	\$2.3M	\$2.5M	\$2.6M	\$2.4M
Urban Forestry	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Transit	\$4.8M	\$5.5M	\$4.0M	\$1.1M	\$1.6M	\$370.0K	\$412.5K	\$895.6K	\$409.4K	\$1.4M

Table 4-3 Notes

¹ No new capital investments are reflected in the Airport's long-term funding requirements as the City evaluates governance, operational models, and capital funding structures for the Airport. These options require a clear understanding of future roles and responsibilities before major capital commitments are determined.

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4.2.3 Scenario #2: Maintain LOS

The Maintain LOS scenario (Scenario #2) was a critical planning exercise intended to determine the financial requirements necessary to prevent the degradation of LOS performance and sustain the current LOS for applicable service areas over the 10-year planning period.

The core intent of this scenario is to provide the City with an accurate cost benchmark for "business as usual," isolating the investment required to prevent further asset service decline. It addresses the fundamental question: What is the cost of business as usual?

This analysis focused on 18 service areas where sufficient asset inventory and condition data were available to model Scenario #2 (as noted in **Section 4.2.1**). The resulting financial figures from the Maintain LOS scenario provide key insight for subsequent decision-making by demonstrating the cost differential between the Forecasted Budget scenario (Scenario #1) and the investment level required to keep asset condition and associated LOS levels from deteriorating.

4.2.4 Scenario #3: Proposed LOS Methodology

The Proposed LOS scenario (Scenario #3) was developed after reviewing the results of the Forecasted Budget scenario (Scenario #1) and Maintain LOS scenario (Scenario #2). The significant degradation of LOS performance observed in Scenario #1, including unacceptable asset degradation and increasing state of good repair backlog, was not acceptable for the City. Furthermore, the cost of maintaining the current LOS as analyzed in Scenario #2 was financially prohibitive.

To establish a feasible strategy, the Proposed LOS scenario (Scenario #3) adopted a budget-driven approach that considered the City's service delivery goals, previous public engagement results and existing financial position, and targeted gradual increases in asset reinvestment.

Asset Management Strategy

The strategy developed was guided by the following steps:

1. **Affordability Workshop:** The City held a collaborative internal session, which included senior leadership, many of whom are participants in the City's Asset Management Steering Committee. It was determined that the City needed to prioritize a financial commitment over the longer term, making a budget threshold the primary driving factor for the Proposed LOS.
2. **Working Sessions:** Following the workshop, sessions were held with key City staff and Subject Matter Experts (SMEs) representing various asset groups including Finance to confirm and refine this budget-driven approach.

This overall effort successfully determined the maximum attainable annual investment the City could strive towards for asset renewal. The resulting goal is a phased investment strategy which gradually increases capital investment for asset renewal to **\$150 million annually over the next 20 years** across all service areas. This level of investment was determined to not be realistically achievable over the 10-year planning period as outlined in O.Reg. 588/17.

To execute the planned strategy, key City personnel and SMEs considered a 20-year planning horizon and adjusted asset reinvestment rates in 5-year increments, ultimately working towards a “ramp-up” of asset reinvestment towards the \$150 million per year goal. The exercise resulted in an average annual capital investment of \$163 million by year 2045, slightly above the \$150 million target after considerations from SMEs. This financial investment target, acting as a primary resource constraint, was the main consideration for defining the Proposed LOS while maintaining an appropriate level of risk. This longer-term view also allows the City to improve key elements of its asset management program over time including data quality, expansion of condition assessment programs & rigor to other service areas, asset rationalization reviews and potential service delivery model changes.

Asset Management Strategy

Scenario #3 reflects the results of the City's phased investment strategy over the first 10-year planning period to report consistently against the results of Scenarios #1 and #2. This analysis focused on 13 service areas where sufficient asset inventory and condition data were available to model Scenario #3 (as noted in **Section 4.2.1**). A summary of the target reinvestment rates derived by key City personnel is provided in **Table 4-4**. The annual renewal budgets for each service area were derived based on adjusting annual reinvestment rates in consideration of the total 2025 CRV of each service area and the City's priorities.

Table 4-4: Target Reinvestment Rates & Funding Allocations for Proposed LOS

Service Area	Total CRV	Target Average Annual Reinvestment Rate (2026-2030)	Target Average Annual Reinvestment (2026-2030)	Target Average Annual Reinvestment Rate (2031-2035)	Target Average Annual Reinvestment (2031-2035)
Transportation	\$4.77B	1.0%	\$47.7M	1.5%	\$71.6M
Corporate Facilities	\$1.27B	1.2%	\$15.3M	1.5%	\$19.1M
Stormwater	\$790.6M	1.0%	\$7.9M	1.5%	\$11.9M
Structures	\$491.6M	2.0%	\$9.8M	2.0%	\$9.8M
Corporate Fleet	\$194.4M	9.0%	\$17.5M	10.0%	\$19.4M
Parks Linear	\$180.0M	1.5%	\$2.7M	1.5%	\$2.7M
Parks Amenities	\$173.1M	1.0%	\$1.7M	1.5%	\$2.6M
Traffic Control & Safety	\$108.6M	3.0%	\$3.3M	4.0%	\$4.3M
Fire & Emergency Services	\$81.3M	9.0%	\$7.3M	10.0%	\$8.1M
Park Facilities	\$78.4M	1.0%	\$0.8M	1.5%	\$1.2M
Information Systems & Technology	\$25.4M	8.0%	\$2.0M	4.0%	\$1.0M
Parking Equipment, Lots, & Structures	\$12.0M	3.0%	\$0.4M	3.0%	\$0.4M
Transit	\$8.3M	1.0%	\$0.1M	1.0%	\$0.1M

Asset Management Strategy

4.2.5 Summary of LOS Modelling Results

The LOS analysis focused on the three standard LOS performance metrics discussed in **Section 2.3**. This analysis, the results of which are in **Table 4-5**, was conducted for 18 service areas where sufficient asset inventory and condition data were available to model scenarios beyond only the Forecasted Budget scenario (Scenario #1).

Table 4-5: Summary of LOS Modelling Results - All 18 Analysed Service Areas

Metric	Forecasted Budget	Maintain LOS	Proposed LOS	Proposed LOS Outcome
Metric #1: SOGR Backlog	\$3.7B	\$1.1B	\$3.0B	Reduced by \$700M
Metric #2: Average Annual Asset Reinvestment Rate	\$78.7M	\$282.1M	\$127.9M	Increased by \$49.2M
Metric #3: % of assets in Fair or Better Condition by CRV (2035)	38.7%	61.8%	44.5%	Increased by 5.8%

As summarized above, the Proposed LOS scenario (Scenario #3) projects a total backlog of **\$3 billion**. This result suggests that the proposed target service area funding allocations derived by key City personnel are sufficient to slow the accumulation of asset degradation, resulting in a backlog approximately **\$700 million** lower than continuing with the forecasted budget as of the year 2035. This outcome represents a positive shift towards chipping away at the accumulated backlog over the next 10 years.

To maintain current LOS, an average annual asset reinvestment rate of **\$282.1 million** for asset renewal was projected, representing a significant increase compared to the forecasted budget investment level of **\$78.7 million** annually. The Proposed LOS demonstrates a strategy to provide a meaningful increase in investment above current levels that is achievable for the City, with an average annual asset reinvestment rate of **\$127.9 million**, representing an increase of **\$49.2 million** annually compared to the forecasted budget investment level.

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To summarize, the Proposed LOS scenario (Scenario #3) will provide tangible improvements in asset condition (**44.5%**) and reduces the long-term backlog (**\$3 billion**) relative to the Forecasted Budget scenario (Scenario #1), all while offering a fiscally responsible path forward by avoiding the higher annual investment required to fully maintain the current LOS (**\$282.1 million**).

4.2.5.1 Proposed LOS Outcome Summary by Service Area

Table 4-6, Table 4-7, and Table 4-8 below summarize the key outcomes of the LOS performance modelling for the 18 service areas where analysis was able to be conducted based on the Proposed LOS.

Table 4-6: 10-Year Proposed LOS Results – Metric #1: State of Good Repair Backlog (2035)

Service Area	Forecasted Budget SOGR Backlog (2035)	Proposed LOS SOGR Backlog (2035)	Proposed LOS Outcome
Transportation	\$2.4B	\$2.0B	Reduced by \$400M
Corporate Facilities	\$734M	\$645M	Reduced by \$89M
Stormwater	\$0	\$79.8M	Increased by \$79.8M
Structures	\$71.4M	\$0	Reduced by \$71.4M
Corporate Fleet	\$135M	\$74.0M	Reduced by \$61M
Parks Linear	\$33.1M	\$29.7M	Reduced by \$3.4M
Parks Amenities	\$112M	\$106M	Reduced by \$6M
Traffic Control & Safety	\$30.6M	\$27.5M	Reduced by \$3.1M
Fire & Emergency Services	\$42.5M	\$7.0M	Reduced by \$35.5M
Park Facilities	\$22.9M	\$7.3M	Reduced by \$15.6M
Parking Equipment, Lots, & Structures	\$4.4M	\$10.1M	Increased by \$5.7M
Airport Operations	\$217M	\$29.5M	Reduced by \$187.5M
IS & T	\$5.1M	\$11.1M	Increased by \$6M
Urban Forestry	\$2.0M	\$0	Reduced by \$2M
Library Services	\$0	\$0	No change
Police Services	\$5.6M	\$5.6M	No change
Transit	\$151K	\$5.9M	Increased by \$5.7M
Residential Long-Term Care	\$2.5M	\$0	Reduced by \$2.5M

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Table 4-7: 10-Year Proposed LOS Results – Metric #2: Average Annual Asset Reinvestment Rate (AAARR)

Service Area	Forecasted Budget AAARR	Proposed LOS AAARR	LOS Outcome
Transportation	\$17.4M	\$57.5M	Increased by \$40.1M
Corporate Facilities	\$14.5M	\$17.2M	Increased by \$2.7M
Stormwater	\$16.6M	\$9.9M	Reduced by \$6.7M
Structures	\$2.4M	\$8.5M	Increased by \$6.1M
Corporate Fleet	\$10.6M	\$16.6M	Increased by \$6M
Parks Linear	\$1.8M	\$2.2M	Increased by \$400K
Parks Amenities	\$1.6M	\$2.1M	Increased by \$500K
Traffic Control & Safety	\$3.3M	\$3.8M	Increased by \$500K
Fire & Emergency Services	\$4.5M	\$7.1M	Increased by \$2.6M
Park Facilities	\$147K	\$979K	Increased by \$832K
Parking Equipment, Lots, & Structures	\$998K	\$359K	Reduced by \$639K
Airport Operations	\$0	\$1.5M	Increased by \$1.5M
IS & T	\$2.4M	\$1.5M	Reduced by \$900K
Urban Forestry	\$264K	\$456K	Increased by \$192K
Library Services	\$87K	\$85K	Reduced by \$2K
Police Services	\$1.2M	\$1.2M	No change
Transit	\$668K	\$81K	Reduced by \$587K
Residential Long-Term Care	\$96K	\$375K	Increased by \$279K

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Table 4-8: 10-Year Proposed LOS Results - Metric #3: Percentage of Assets in Fair or Better Condition by CRV (2035)

Service Area	Forecasted Budget % Fair or Better Condition by CRV	Proposed LOS % Fair or Better Condition by CRV	LOS Outcome
Transportation	32.5%	38.1%	Increased by 5.6%
Corporate Facilities	49.4%	55.5%	Increased by 6.1%
Stormwater	62.3%	54.2%	Reduced by 8.1%
Structures	39.1%	84.6%	Increased by 45.5%
Corporate Fleet	34.6%	58.1%	Increased by 23.5%
Parks Linear	41.2%	42.8%	Increased by 1.6%
Parks Amenities	9.4%	11.7%	Increased by 2.3%
Traffic Control & Safety	32.6%	57.9%	Increased by 25.3%
Fire & Emergency Services	43.8%	78.1%	Increased by 34.3%
Park Facilities	72.9%	93.0%	Increased by 17.1%
Parking Equipment, Lots, & Structures	58.7%	35.8%	Reduced by 22.9%
Airport Operations	0%	53.0%	Increased by 53%
IS & T	53.9%	29.7%	Reduced by 24.2%
Urban Forestry	60.6%	67.8%	Increased by 7.2%
Library Services	50.1%	50.1%	No change
Police Services	45.9%	45.9%	No change
Transit	65.8%	10.0%	Reduced by 55.8%
Residential Long-Term Care	25.3%	73.8%	Increased by 48.5%

Asset Management Strategy

4.3 Risk Management

In accordance with O. Reg. 588/17, a risk assessment directly tied to the City's ability to achieve its Proposed LOS is to be undertaken. This is a foundational element of the asset management strategy, guiding investment prioritization. The risk review identifies the main risks associated with adopting the Proposed LOS scenario (Scenario #3) as shown in **Section 4.2.4** for the applicable service areas. The risk assessment will review the ability or elements that would prevent the City from potentially delivering the Proposed LOS. Some of the key risks themes across the Services Areas are:

- **Increased Infrastructure Backlog:** This metric reflects deferred capital renewal costs and the resulting increase in future financial liability. A key risk is the expected growth in the 10-year State of Good Repair (SOGR) backlog (Metric #1), which increases future funding pressures and unfunded liability. Deferring asset interventions typically leads to higher operating, maintenance, and capital costs over time, as treatments become more intensive and are affected by inflation.
- **Financial Under-Investment:** A potential risk of underfunding asset replacement (Metric #2) is that it increases the likelihood of critical asset failures, leading to loss of service (e.g., road closures, bridge restrictions), increased public safety hazards, and emergency repair costs that often exceed the cost of carrying out pro-active planned maintenance; and
- **Overall Asset Health Deterioration:** The risk of an increase in assets in poor or very poor condition (Metric #3) decreases the reliability and performance of assets. Assets that are in poor or very poor condition require more reactive maintenance, ultimately impacting Metric #1 and #2. This inefficiency drives up lifecycle operating costs potentially diverting resources from planned projects.

A summary of the specific risk associated with not achieving the Proposed LOS for high-risk services and all other services is provided below.

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4.3.1 High-Risk Service Areas

The service areas that currently have the highest risk are Transportation, Corporate Facilities and Stormwater, together they make up approximately 80% of the City’s total CRV of all assets. A more detailed risk assessment was completed for these services area and are outlined in **Tables 4-9, 4-10, and 4-11**.

Table 4-9: Transportation - Risk Assessment

Metric	Proposed LOS	Risk Review	Recommended Mitigation
Metric #1: SOGR Backlog	\$2.0B	Failure to fully fund the targeted investment leads to a large projected SOGR backlog by 2035. The Proposed LOS scenario does help proactively prioritize the backlog compared to the Forecasted Budget scenario. However, due to the extensive quantity of assets, there is potential for the backlog to increase further, leading to more critical asset failures.	<ul style="list-style-type: none"> Secure additional funding, either moving funds from other service areas or from grant opportunities. Implement additional lifecycle activities that prolong the life of assets but minimize the cost. Continue condition assessment investments and practices
Metric #2: Average Reinvestment	\$57.5M	The proposed investment is 39% less than the targeted annual investment of \$95.41M. The Proposed LOS's average annual capital investment is less than 40% of the funding required to maintain the current LOS, which is the underlying cause for the increased backlog and potential condition deterioration.	<ul style="list-style-type: none"> Seek alternative financing options to help close the annual funding gap. Prioritize spending on critical assets that directly affect safety and system operation.
Metric #3: % of assets in Fair or Better (2035)	38.1%	The Proposed LOS scenario does improve the asset condition compared to the Forecasted Budget scenario. It still results in a large deterioration of assets compare to current condition. This can lead to loss of service, increase failure of assets or providing reliable service.	<ul style="list-style-type: none"> Prioritize critical assets to minimize service interruptions such as prioritizing arterial roads. Reduce the number or quantity of assets within the service (where possible).

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Overall, the Proposed LOS is expected to significantly reduce the overall risk to Transportation assets compared to continuing with the existing Forecasted Budget scenario based on the 2025 Budget year. While the financial commitment provided in the Proposed LOS option mitigates some risk, the substantial investment required to Maintain LOS introduces a large-scale financial risk due to the sheer size of the investment required. Additionally, the currently proposed level of funding is inadequate to address asset replacement needs, which will accelerate the likelihood of unwanted failures and lead to even greater long-term financial liabilities (as noted in the SOGR backlog projection).

Table 4-10: Corporate Facilities – Risk Assessment

Metric	Proposed LOS	Risk Review	Recommended Mitigation
Metric #1: SOGR Backlog	\$645.2M	Not achieving the Proposed LOS will increase the City’s future financial liability on these assets. The Proposed LOS does support minimizing the Forecasted Budget SOGR; however, the SOGR backlog continues to grow.	<ul style="list-style-type: none"> Secure additional funding (i.e., user fees) or move funds from other service areas or from grant opportunities. Invest in new technologies aimed at prolonging the life of assets while minimizing costs.
Metric #2: Average Reinvestment	\$17.2M	Failure to fully fund the targeted annual investment leads to increased in potential failure of assets or expensive emergency repairs when needed.	<ul style="list-style-type: none"> Prioritize spending on critical assets that directly affect safety and system operation.
Metric #3: % of assets in Fair or Better (2035)	55.5%	Not achieving the Proposed LOS results in a deterioration of asset health. Causing potential loss of service levels or increase maintenance requirements.	<ul style="list-style-type: none"> Prioritize critical assets to minimize service interruptions. Asset Rationalization where feasible.

The Proposed LOS for Corporate Facilities is expected to reduce the overall risk to assets compared to the Forecasted Budget scenario. Securing more funds, completing additional lifecycle activities or prioritizing high-risks assets reduce the risk of unplanned failures and support the delivery of services.

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Table 4-11: Stormwater – Risk Assessment

Metric	Proposed LOS	Risk Review	Recommended Mitigation
Metric #1: SOGR Backlog	\$79.8M	The Proposed LOS scenario will generate a 10-year SOGR backlog of nearly \$80 million, unlike the fully funded scenarios (Forecasted Budget and Maintain LOS scenarios). This is due to funds being reallocated to other services.	<ul style="list-style-type: none"> Re-allocate funds from non-critical service areas with lower risks to support minimizing the SOGR backlog. Consider the implementation of a stormwater use/utility fee.
Metric #2: Average Reinvestment	\$9.9M	The Proposed LOS requires lowering the average annual capital investment, resulting in a 26.5% funding gap against the target investment. This shortfall is highly likely to cause asset deterioration, increasing the probability and consequence of failure.	<ul style="list-style-type: none"> Prioritize annual investment on high-risk assets to mitigate deterioration and minimize the overall loss of service.
Metric #3: % of assets in Fair or Better (2035)	54.2%	The Proposed LOS shows a decrease in asset health, with the percentage of assets in "Fair or Better Condition" by CRV dropping by 8.1% compared to the Forecasted Budget scenario. While the overall average condition remains "Fair," the decline may lead to increased maintenance and operational costs due to assets not performing as intended.	<ul style="list-style-type: none"> Continue to prioritize and fund the existing CCTV asset condition data collection program started in 2023, which has completed inspection of approximately 18% of the storm sewer system to date, to ensure accurate assessment of the overall health of the network of assets. Identify high-risk assets and proactively monitor their condition for necessary intervention.

Asset Management Strategy

The Proposed LOS for Stormwater represents a trade-off that accepts a moderate, yet managed, increase in asset risk to achieve short-term budgetary relief for other service areas. The trade-off does increase the overall risk of the service by increasing the SOGR backlog and a deterioration of the overall asset health. This approach is also highly influenced by existing Climate Change Risks and Climate Adaptation Strategies, which continue to shape asset performance expectations, renewal priorities, and long-term service resilience.

It is important to note that the primary driver for the current condition rating was asset age, which was based on incomplete data. Better, more complete stormwater asset data may therefore lead to a different risk assessment. To date, approximately 18% of the total storm sewer network has undergone CCTV inspections, providing verified condition information for those assets. As inspection coverage increases, the accuracy and confidence in the overall network condition and associated risk assessments will continue to improve.

4.3.2 Other Service Areas

Table 4-12 provides a summary of risk associated with reduced LOS for all other service areas.

Table 4-12: Summary of Risk Considerations for Other Service Areas

Service Area	Potential Risk of Not Sustaining LOS
Structures	Structural failure (e.g., culvert collapse, sinkholes), increased liability from poor sidewalk condition, and localized flooding.
Corporate Fleet	Lead to significant increases in operational downtime and disruption across all departments due to frequent vehicle and equipment breakdowns, leading to higher emergency repair costs decreased community service levels for critical municipal services and increased internal or third-party resource demands.
Parks Linear	Erosion, surface deterioration, and public safety risks (tripping hazards) leading to closure or limited accessibility.

Asset Management Strategy

Service Area	Potential Risk of Not Sustaining LOS
Parks Amenities	Deterioration and closure of amenities (e.g., sports fields), leading to reduced public utilization and potential negative perception. Health and safety hazards (e.g., failed playground equipment, structural deterioration), leading to public injury and liability claims.
Traffic Control & Safety	Increased traffic congestion, higher rates of vehicular accidents, and pedestrian safety hazards due to faulty signals, signage, or barriers.
Fire & Emergency Services	Slower emergency response times, increased risk of injury, and greater property damage due to potential unreliable or outdated fleet/equipment.
Park Facilities	Health and safety hazards (e.g., structural deterioration), leading to potential public injury and liability claims.
City Real Estate & Environment	Loss of environmental management systems, introducing the risk of regulatory fines and environmental damage.
Parking Equipment, Lots, & Structures	Revenue loss due to non-functioning meters/pay stations, lot surface deterioration leading to higher renewal costs, and risk of potential injuries, tripping in potholes and cracks.
Airport Operations	Safety risks from deteriorated runway/taxiway surfaces, non-compliance with aviation regulations, and operational delays or mandated closures. Loss of existing flight operators (flights schools, medical patient transfers, UPS freight flights, etc.) and inability to attract and retain new schedule service operations.
Information Systems & Technology	Increased vulnerability to cyber-attacks/data breaches, system-wide failure (outages), and loss of business for critical services.
Urban Forestry	Increased number of hazardous tree failures (falling branches/trees), leading to property damage, injury, increased tree removal costs, and increased liability claims.
Indoor Recreation & Marinas	Failure of specialized systems (e.g., ice plants, pool filtration), facility closure and loss of user fees.
Library Services	Deterioration of essential functional capital (e.g., shelving, furniture) leading to unplanned closure of some spaces, failure of essential materials handling equipment, and outdated collections/resources.

Asset Management Strategy

Service Area	Potential Risk of Not Sustaining LOS
Police Services	Reduced patrol visibility, and delays in response, potentially compromising public safety.
Transit	Increased service delays and cancellations, lower reliability, reduced ridership, and higher operating costs.
Residential Long-Term Care	Deterioration of essential functional capital (e.g., beds, lifts) leading to regulatory non-compliance and potentially impact resident health and comfort.
Solid Waste	Reduced collection frequency, public health hazards (vermin, odor), and potential regulatory fines.
Cemeteries	Instability of monuments and safety hazards for visitors.
Heritage Services	Permanent deterioration or loss of historical assets and artifacts, safety hazards for visitors in aging structures, and loss of cultural value.
Arts & Culture Services	Facility closures due to maintenance backlog (e.g., specialized theatre equipment failure), compromising arts programming, and revenue generation.
Natural Assets	Decline of ecological function (e.g., reduced flood attenuation, poor water quality), increasing vulnerability to climate risks and damage.

Financial Analysis and Strategy

5.0 Financial Analysis and Strategy

Based on the Proposed LOS, the projected financial forecast for the 10-year planning period (**2026 to 2035**) for each service area is shown in **Table 5-1**. This table also includes a summary of the projected growth from the D.C. Study (as outlined in **Section 3.0**). The total projected cost is **\$1.7 billion**.

Financial Analysis and Strategy

Table 5-1: Projected Total 10-Year Capital Forecast

Service Area	Projected Capital Plan	Projected Growth Needs	Total Projected Cost
Transportation	\$575M	\$61.8M	\$637M
Corporate Facilities	\$172M	\$247M	\$419M
Stormwater	\$98.8M	\$0	\$98.8M
Structures ¹	\$84.5M	\$0	\$84.5M
Corporate Fleet	\$166M	\$8.0M	\$174M
Parks Linear	\$22.0M	\$16.9M	\$38.9M
Parks Amenities	\$21.3M	\$46.6M	\$67.9M
Traffic Control & Safety	\$38.0M	\$0	\$38.0M
Fire & Emergency Services	\$70.8M	\$513K	\$71.3M
Park Facilities	\$9.8M	\$0	\$9.8M
City Real Estate & Environment ²	\$773K	\$23.6M	\$24.4M
Parking Equipment, Lots, & Structures	\$3.6M	\$0	\$3.6M
Airport Operations	\$14.6M	\$0	\$14.6M
Information Systems & Technology	\$15.2M	\$0	\$15.2M
Urban Forestry	\$4.6M	\$0	\$4.6M
Indoor Recreation & Marinas ²	\$4.8M	\$0	\$4.8M
Library Services	\$849K	\$0	\$849K
Police Services	\$11.5M	\$0	\$11.5M
Transit	\$811K	\$10.4M	\$11.2M
Residential Long-Term Care	\$3.7M	\$0	\$3.7M
Solid Waste ²	\$3.9M	\$3.2M	\$7.1M
Cemeteries ²	\$0	\$0	\$0
Heritage Services ³	\$0	\$0	\$0
Arts & Culture Services ³	\$1.7M	\$0	\$1.7M
Natural Assets ³	\$0	\$0	\$0
Total	\$1.3B	\$418.0M	\$1.7B

Financial Analysis and Strategy

Table 5-1 Notes

¹ Minor Culverts (with a diameter of less than 3 meters) within the Structures service area were omitted from the LOS scenario analysis. This decision was predicated on the limited reliability of the existing asset inventory data, the minimal risk profile associated with these assets, their comparatively low individual replacement cost, and the City's established maintenance strategy of contingent replacement rather than preventative programming.

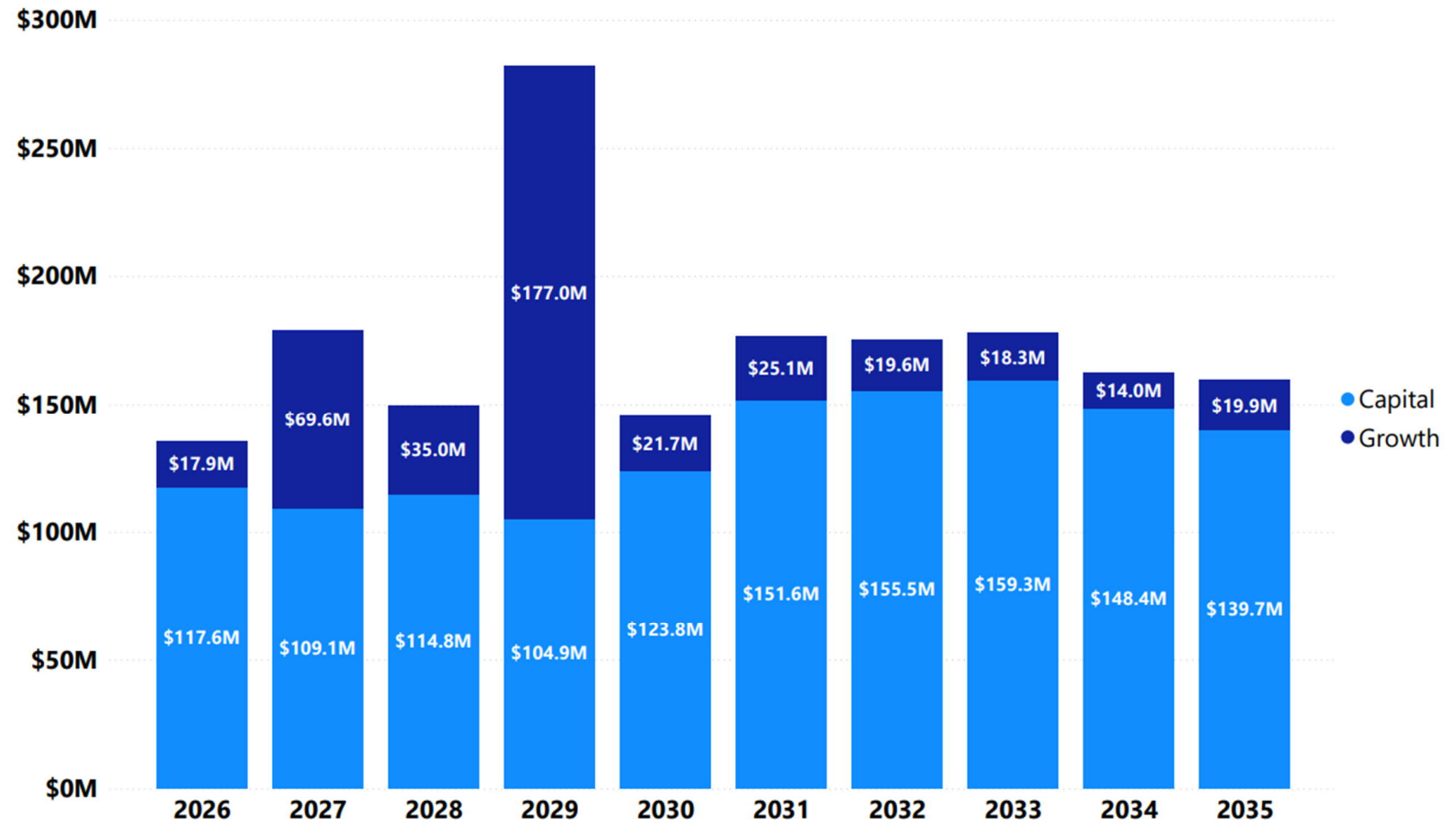
² For these service areas, sufficient asset inventory and condition data was not available to fully model lifecycle activities. As a result, projected capital needs were informed by the previously completed AMPs.

³ For these service areas, sufficient asset inventory and condition data was not available at the time of this report. As a result, projected capital needs appear as denoted in the City's forecasted budget from the 2025 Capital Plan.

Figure 5-1 illustrates the projected annual capital investments across two categories: Capital and Growth. Over the 10-year period, the total annual capital expenditure shows a relatively consistent baseline, fluctuating between approximately \$130 million and \$175 million. Noteworthy are the two significant spikes in growth investment projected for 2027 and 2029 primarily attributed to funding for new facilities, capacity expansions, and strategic partnerships. On average, the Capital category dominates the 10-year expenditures, accounting for approximately 76% of the total projected costs. Growth investments represent a smaller portion at about 24%.

Financial Analysis and Strategy

Figure 5-1: Proposed LOS – 10 Year Projected Annual Capital Spend



Financial Analysis and Strategy

5.1 Funding Sources

The City funds its capital projects and municipal infrastructure investments through various sources of revenue streams, local capital levies, development charges, and external grants.

5.1.1 Municipal Funding

The primary source of funding comes from municipal sources, which are critical for supporting the long-term sustainability of existing assets and financing capital projects.

- **Capital Levy:** The City has a policy to increase the annual capital investment by 1% annually. This annual levy has been in place since 2000 and is raised through the operating budget and transferred to the capital reserve funds. This strategy is intended to ensure the sustainability of the City's infrastructure and reduce reliance on long-term debt.
- **Reserves and Reserve Funds:** The City uses its reserves and reserve funds as dedicated savings to finance capital projects on a pay-as-you-go basis, support debt repayment, and manage one-time or unforeseen operating pressures, helping to stabilize tax and rate impacts. While reserves provide flexibility and help smooth tax and rate impacts, they are not a substitute for ongoing, sustainable capital funding. Long-term sustainability depends on matching annual contributions to the level of investment required to manage the SOGR backlog and maintain desired levels of service.
- **Development Charges:** These fees are collected from developers and property owners to fund the construction of new infrastructure related to new development, such as roads, emergency services, transit, and parks. Recent legislative changes (amendments to the D.C. Act through the Protect Ontario by Building Faster and Smarter Act, 2025 [Bill 17]) mean that, in some cases, D.C. are no longer required to be paid at the time of the building permit issuance but can be deferred until the occupancy stage. This deferral may impact the City's ability to fund new infrastructure up front. Additionally, certain types of development, such as long-term care homes, are now exempt from D.C., and further changes to the legislation are anticipated.
- **Community Benefit Charges:** These are applied to high-density developments to help fund community amenities like parks and recreational facilities.

Financial Analysis and Strategy

5.1.2 Federal and Provincial Grants

External funding streams also support the City's capital budget requirements for strategic projects. The following grants and funds have been used to support past projects. However, it should be noted that these external funding sources are unpredictable and cannot be guaranteed to support annual funding requirements.

- **Provincial Gas Tax:** In Ontario, Dedicated Gas Tax funding can be used for eligible public transit operating and capital costs or set aside in a transit reserve. It cannot be applied to general municipal operating expenses. The City uses these funds to support public transportation operations. Funds are not routinely allocated to capital reserve funds for roads and transit infrastructure renewal.
- **Investing in Canada Infrastructure Program (ICIP):** This is a multi-year federal and provincial funding program designed to invest in public infrastructure across the country, working in partnership with provinces, territories, municipalities, and Indigenous communities.
- **Green Municipal Fund (GMF):** This fund, managed by the Federation of Canadian Municipalities (FCM), provides loans and grants for projects that improve environmental performance in municipal energy, transportation, waste, and water.
- **Disaster Mitigation and Adaptation Fund (DMAF):** This is another multi-year funding program, ending in 2033, included in the City's capital plans used to fund Shoreline protection infrastructure.
- **Building Faster Fund:** A three-year, \$1.2 billion provincial program that provides funding to municipalities that meet their provincially designated housing targets. The City received \$3.2 million from this fund to help build more homes and community infrastructure, these funds are transferred to the Municipal Capital Reserve Fund.

Financial Analysis and Strategy

5.2 Strategy For Addressing Funding Gaps

To effectively help minimize the identified funding gap and address the SOGR backlog, the City could implement a phased financial strategy centered on a blend of asset optimization, asset rationalization, operational savings, and targeted revenue generation. The following components should be gradually implemented with the goal of achieving long-term, sustainable capital funding for infrastructure renewal.

5.2.1 Financial Strategy Benchmarking Study

In 2025, the City completed a Financial Strategy Benchmarking Study Technical Memo which qualitatively assessed the financial strategies of six peer single-tier Ontario municipalities: Barrie, Brantford, Greater Sudbury, Guelph, London, and Peterborough. The study's primary objective was to identify best practices and key trends in areas like common funding sources, the strategic role of reserve funds, and policies governing debt financing to enhance the City's ongoing development of its financial strategies associated with asset management. The insights gained from the study helped to determine achievable LOS and the strategy for managing the SOGR backlog over a 10-year planning horizon.

5.2.2 Strategic Optimization and Asset Management

These strategies focus on maximizing the efficiency of current assets and operations to generate internal capital.

- **Master Plan Streamlining to Maximize Existing Assets:** Transition master planning to an infill and intensification-driven approach to maximize existing asset utilization and reduce reliance on new facilities. This shift avoids new construction costs, mitigates negative development charge outflow, and ensures infrastructure investment is focused on current needs, yielding a significant net financial benefit.
- **Core Service Reviews and Dedicated Savings:** Conduct service reviews to rationalize municipal operations. Identify opportunities for asset/facility divestiture (converting operating expenses to capital funding) or operational cost reduction. All savings generated would be dedicated to reducing the SOGR backlog. Demonstrating these savings may be necessary for securing future residential property tax increases.

Financial Analysis and Strategy

- **Prioritized and Targeted Investment Strategy:** Develop a focused investment plan to address the most critical and high-risk asset categories to maintain LOS. This approach includes:
 - Detailed risk assessment and condition-based prioritization to allocate funding where the need and impact are highest; and
 - Enhancing preventative maintenance programs to extend asset lifespan and reduce the need for premature capital expenditures.

5.2.3 Sustainable Financial Funding

These strategies focus on creating stable, long-term revenue streams dedicated specifically to infrastructure renewal.

- **Phased Tax Increases:** Implement carefully planned and transparent incremental property tax increases, explicitly dedicating these funds to capital infrastructure reserves. Based on the Mayor's 2024 Budget, Council's direction was to maintain a total tax rate increase of no more than 3.5%, including the necessary 1% increase explicitly allocated for infrastructure investments. Additionally, in 2023, the City already approved an incremental tax increase of 0.16% annually for a four-year period to fund the Green Standard Community Improvement Plan Program.
- **User Fee Adjustments:** Review and adjust existing or future User Fees to ensure they accurately reflect the full lifecycle costs of the associated infrastructure.
- **Strategic Debt Servicing Capacity:** Utilize the City's Debt Servicing Capacity to fund infrastructure renewal, particularly for reducing the accumulated SOGR backlog. This strategy supports intergenerational equity by spreading the cost of long-term assets to those who benefit from them.
- **Develop a Capital Financing Sustainability Strategy:** The purpose of a capital financing sustainability strategy is to align long-term infrastructure needs with stable, predictable funding sources, so the municipality can maintain desired levels of service, manage financial and infrastructure risk, and avoid sudden tax or rate increases over time.

Next Steps and Recommendations

6.0 Next Steps and Recommendations

This section focuses on recommendations identified through the development of the 2024 and 2025 AMPs and this Additional Information Report. These recommendations are based on barriers experienced with limited or outdated data, gaps or barriers to reporting on LOS and performance, or the desire to apply global best practices to advance asset management at the City. The recommendations have been listed below in **Table 6-1**.

Table 6-1: Recommendations

Type	Recommendation
Asset Data	Continue to update the asset inventory on a regular basis as new assets are added and end-of-life assets are disposed of.
Asset Data	Develop an overall plan for condition assessments, including a standardized process for updating condition information, the appropriate frequency for gathering new condition information and a review of software platform(s) used to store and consolidate that data (technology review).
Performance	Monitor the performance of assets on a regular basis and generate an interactive dashboard for regular reporting of standard LOS performance metrics.
Financial Modelling	Develop a long-term infrastructure financing strategy. To achieve the Proposed LOS and move the asset portfolio into a fiscally sustainable position, the City should immediately develop and implement a comprehensive, long-term infrastructure financing strategy. This strategy should move beyond reliance on federal or provincial grants for core capital renewal and focus on diversified, dedicated municipal revenue tools.
Financial Modelling	Complete an analysis of the funding requirements needed for a 50- or 100-year lifecycle to confirm the financial forecast of maintaining the current LOS.
Organizational Development	It is recommended that the City develop and execute a comprehensive asset management strategy to systematically embed standardized asset management principles and practices across all service areas. A critical component of this implementation will be the mandatory adoption of the standardized LOS performance metrics, as defined in this report, to ensure consistent and accurate reporting of asset and LOS performance.
Organizational Development	Incorporate asset management training and awareness into staff professional development and training programs.

Next Steps and Recommendations

Type	Recommendation
Organizational Development	Expand Asset Management Steering Committee to include additional representatives and establish “Terms of Reference”.
Organizational Development	Develop and implement a Change Management and Communication Plan with consideration of the governance of the asset management program.
Organizational Development	Conduct a review of technology and business practices that support asset management at the City and how asset management can be further embedded across the organization.
Organizational Development	Network and share ideas and best practices with other municipal peers on asset management processes and data governance.

Appendix A

LOS Summary Cards & Modelling



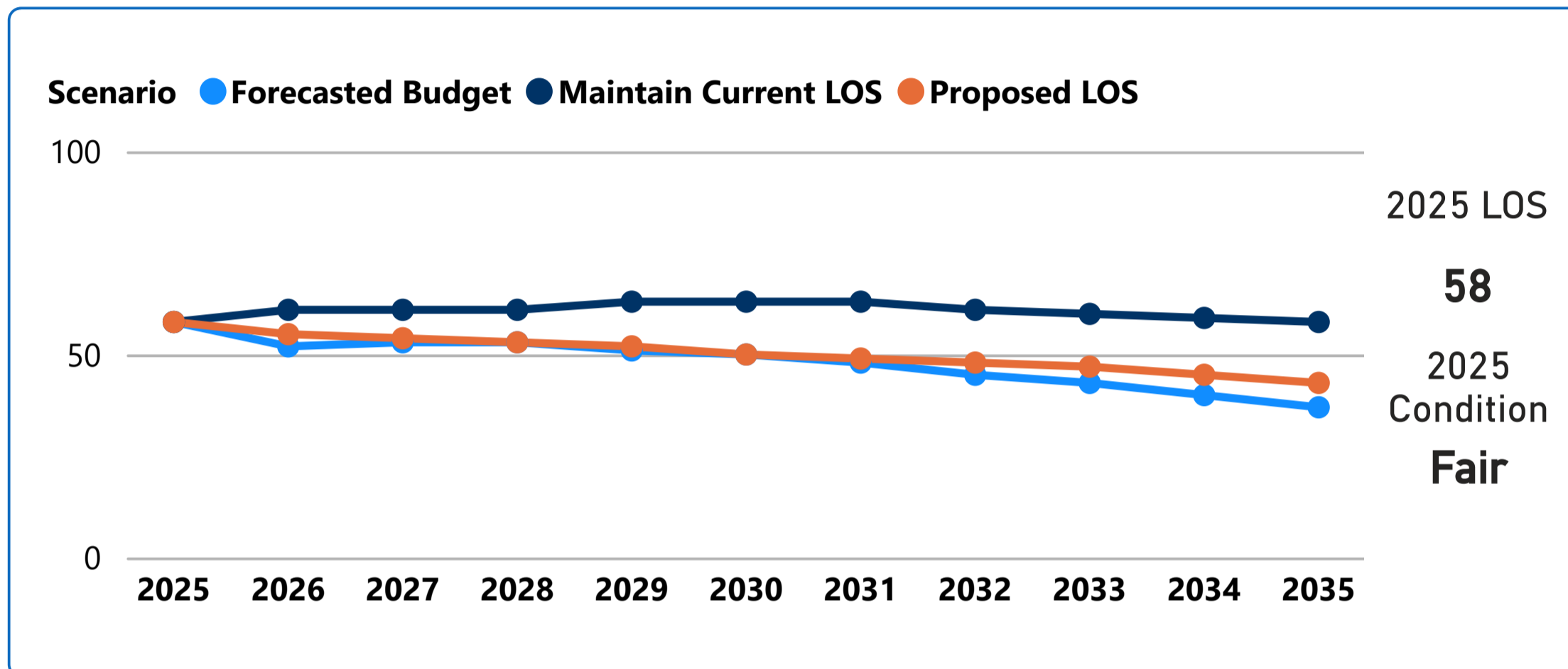
Scenario Summary Card

Level of Service Modelling

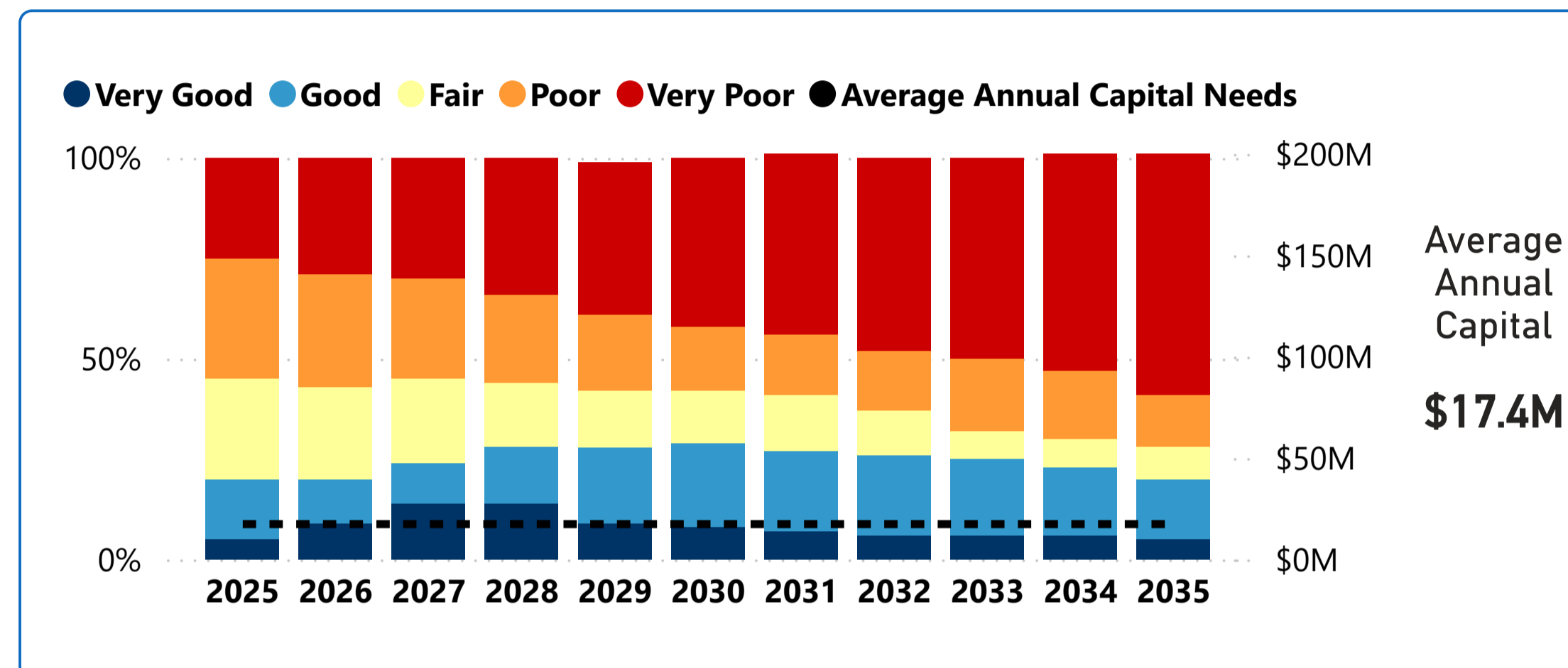
Service Area
Transportation

Asset Classes/Types
Roads

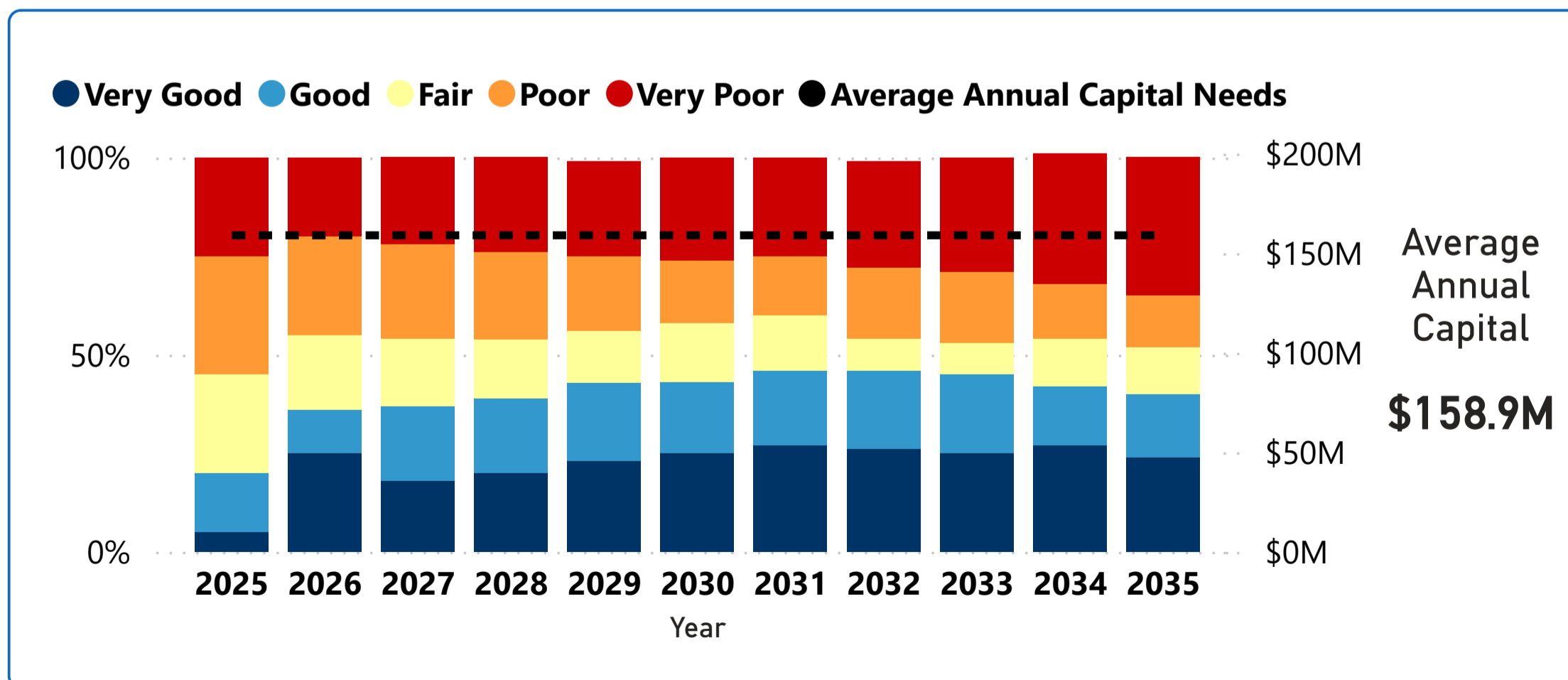
Average Network Condition (Pavement Condition Index)



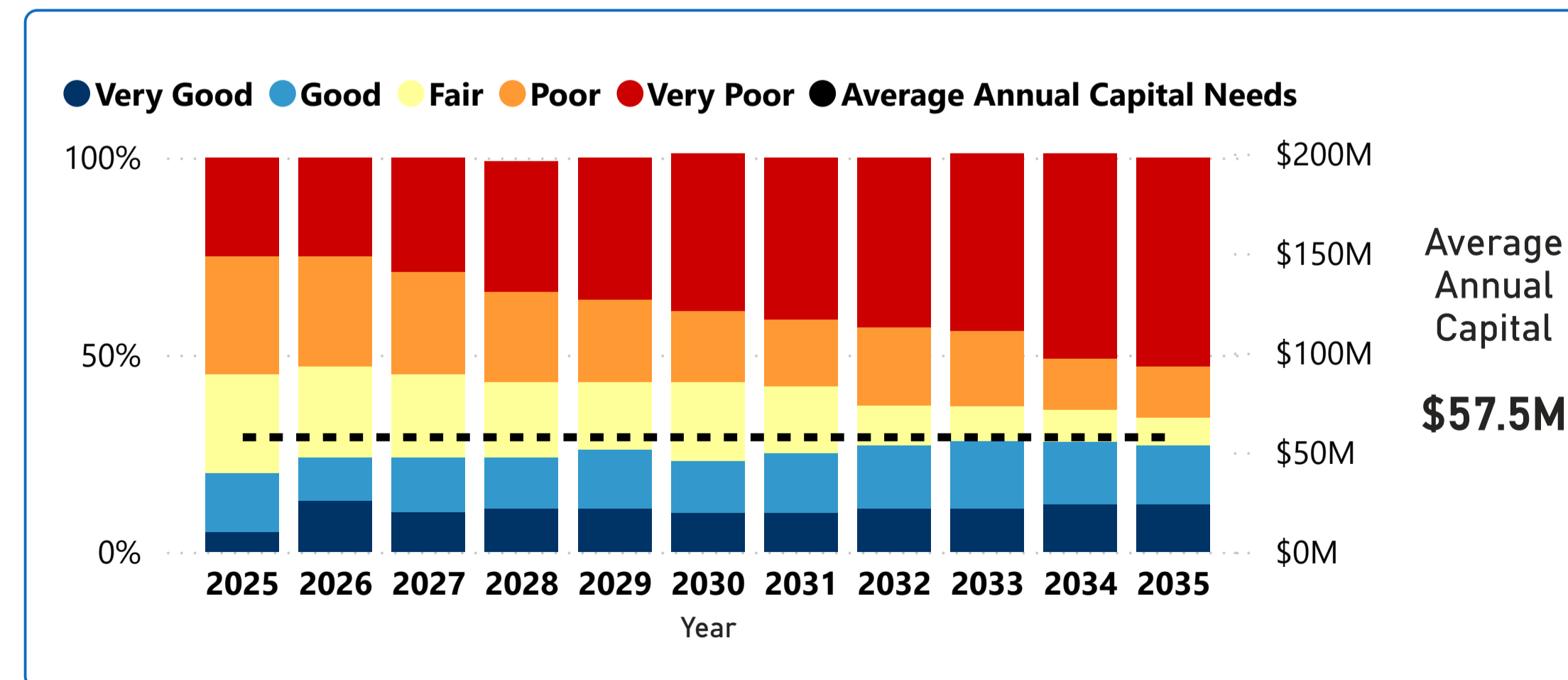
Condition Distribution by CRV- Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

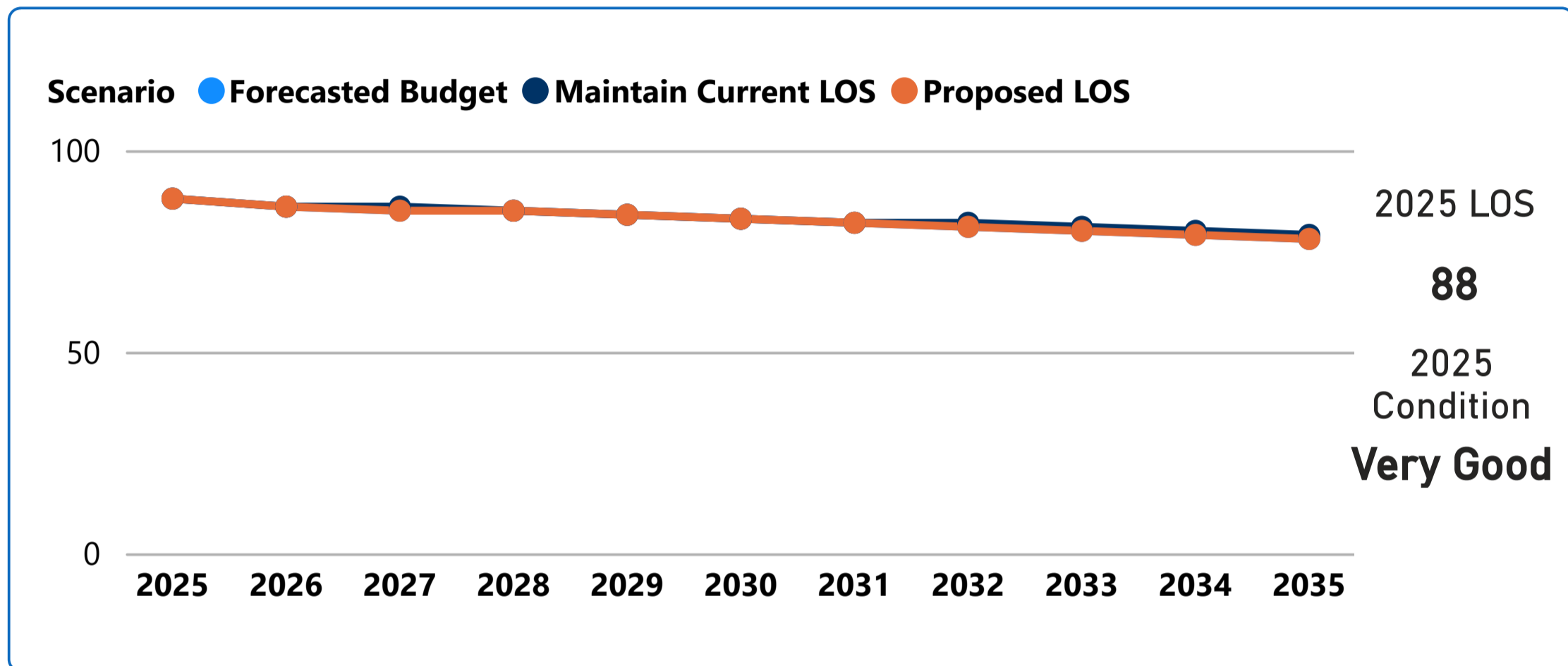
Service Area

Transportation

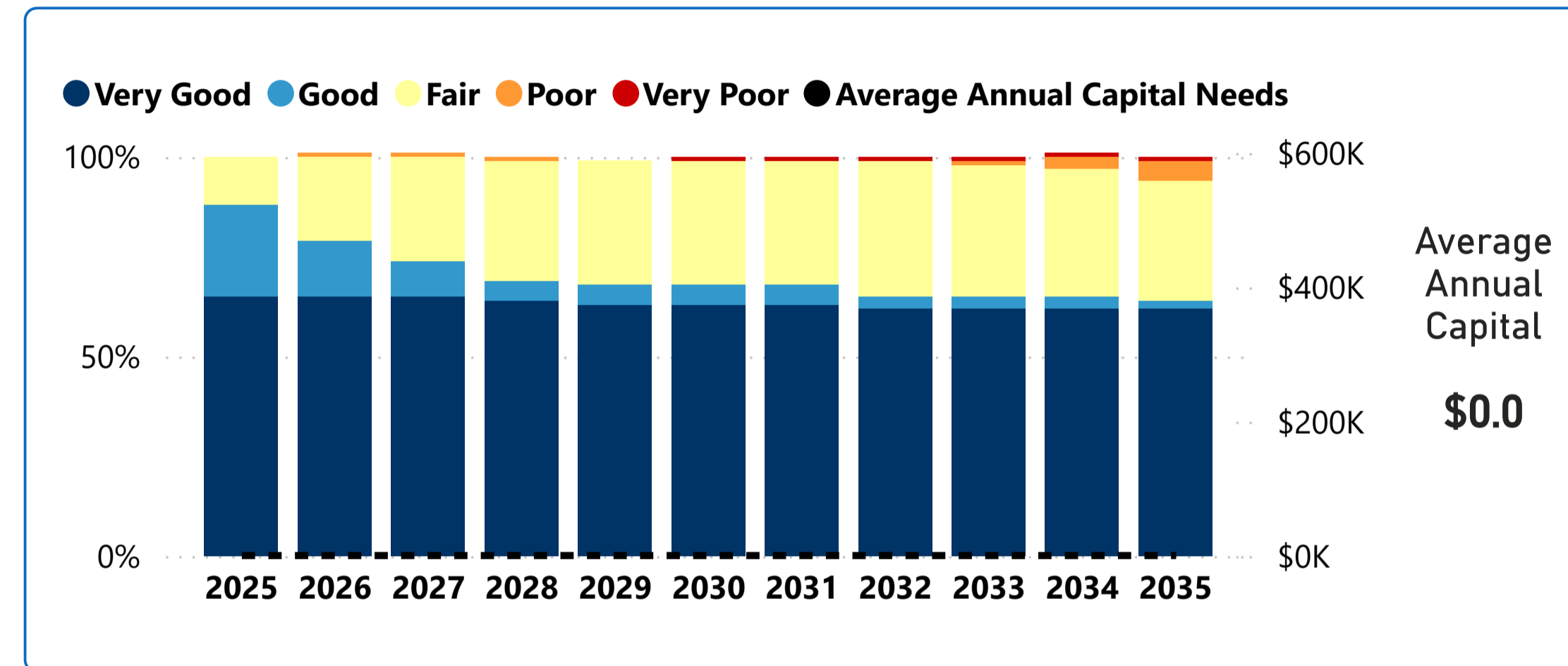
Asset Classes/Types

Bridges & Major Culverts (> 3 m)

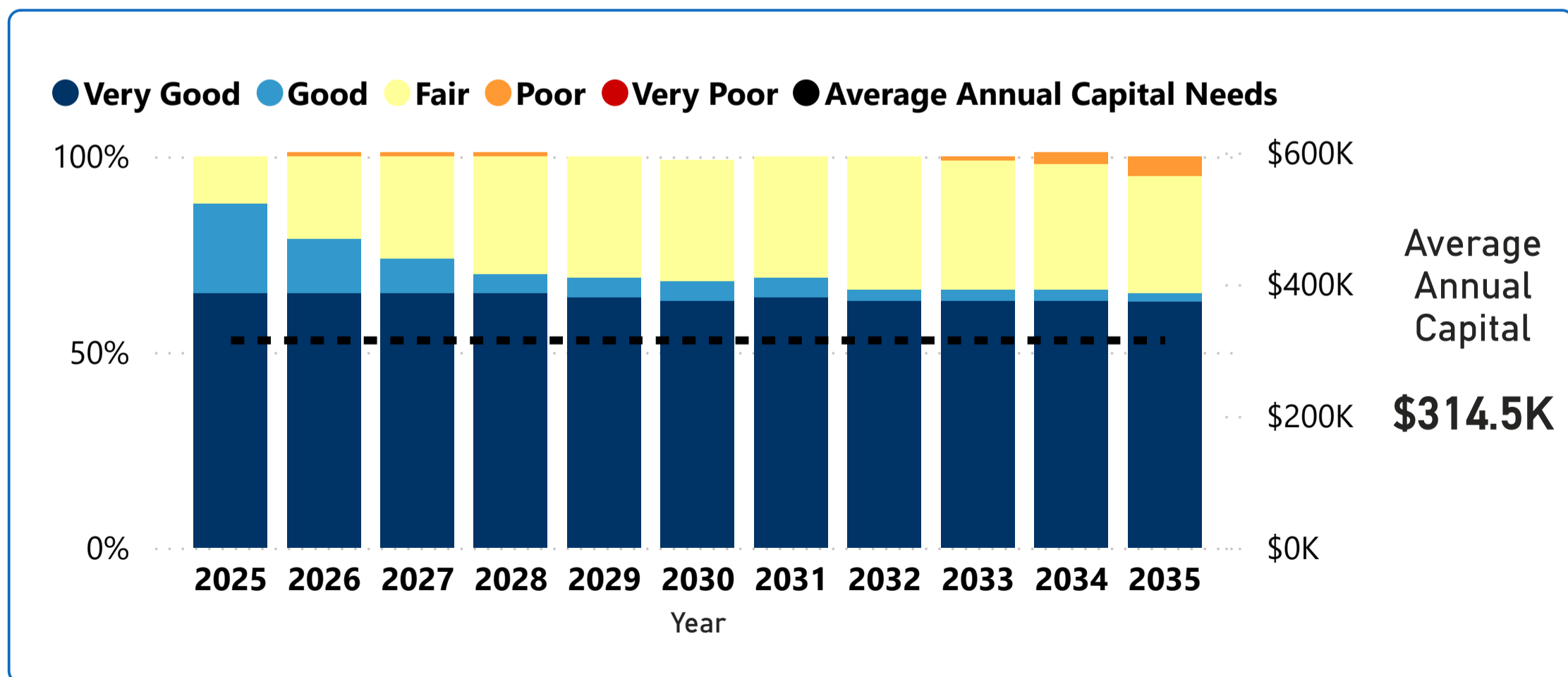
Average Network Condition (Bridge Condition Index)



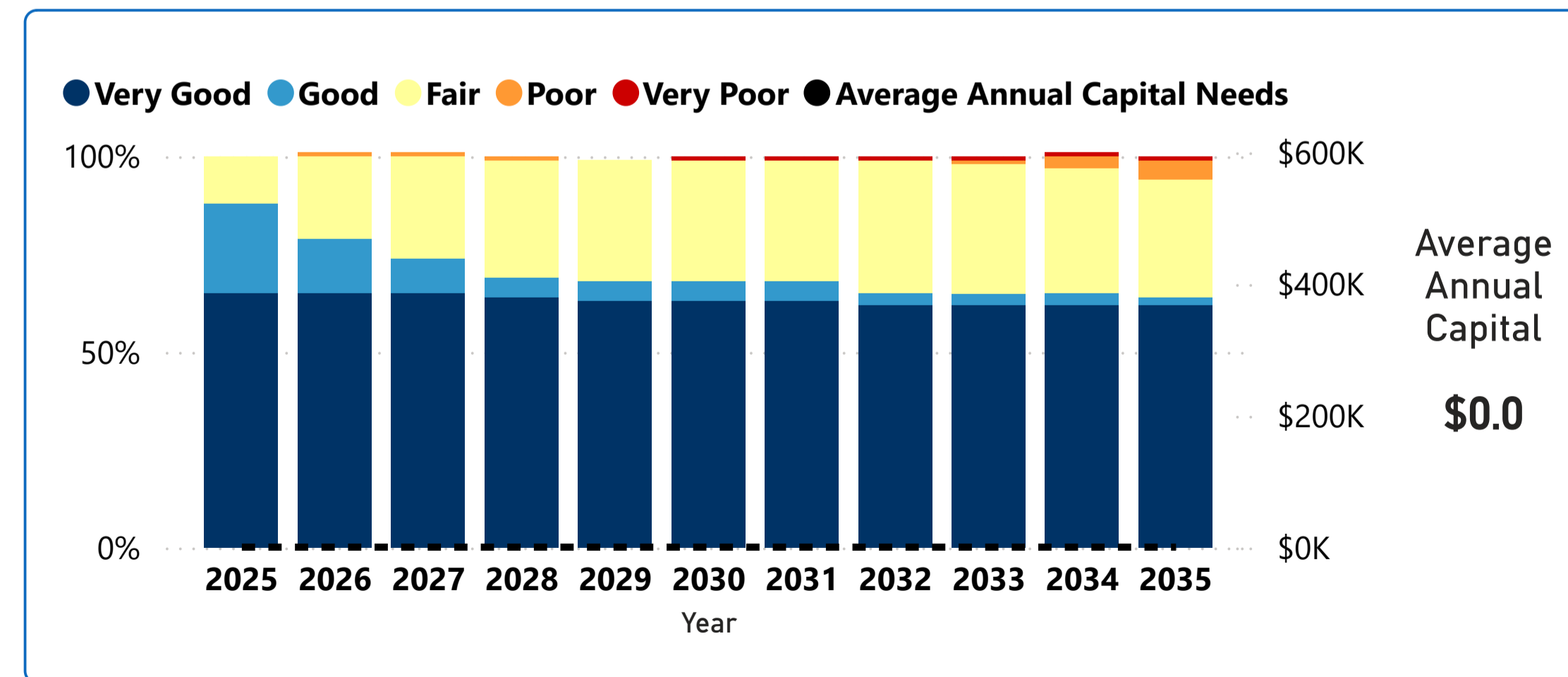
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: For the Proposed LOS and Forecasted Budget LOS 10-year scenarios, bridge and structure assets were not allocated any funding due to their current overall positive condition levels while prioritizing additional funding to support more pressing road infrastructure needs.



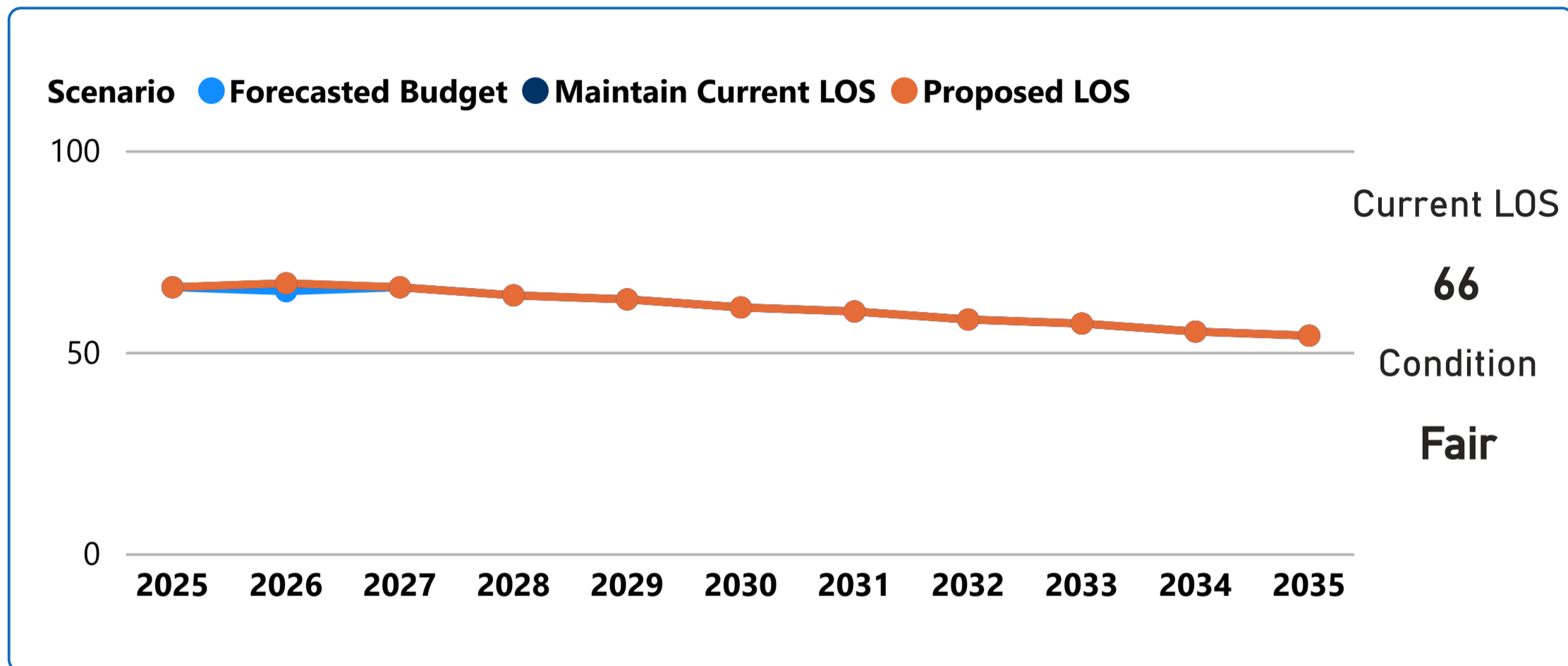
Scenario Summary Card

Level of Service Modelling

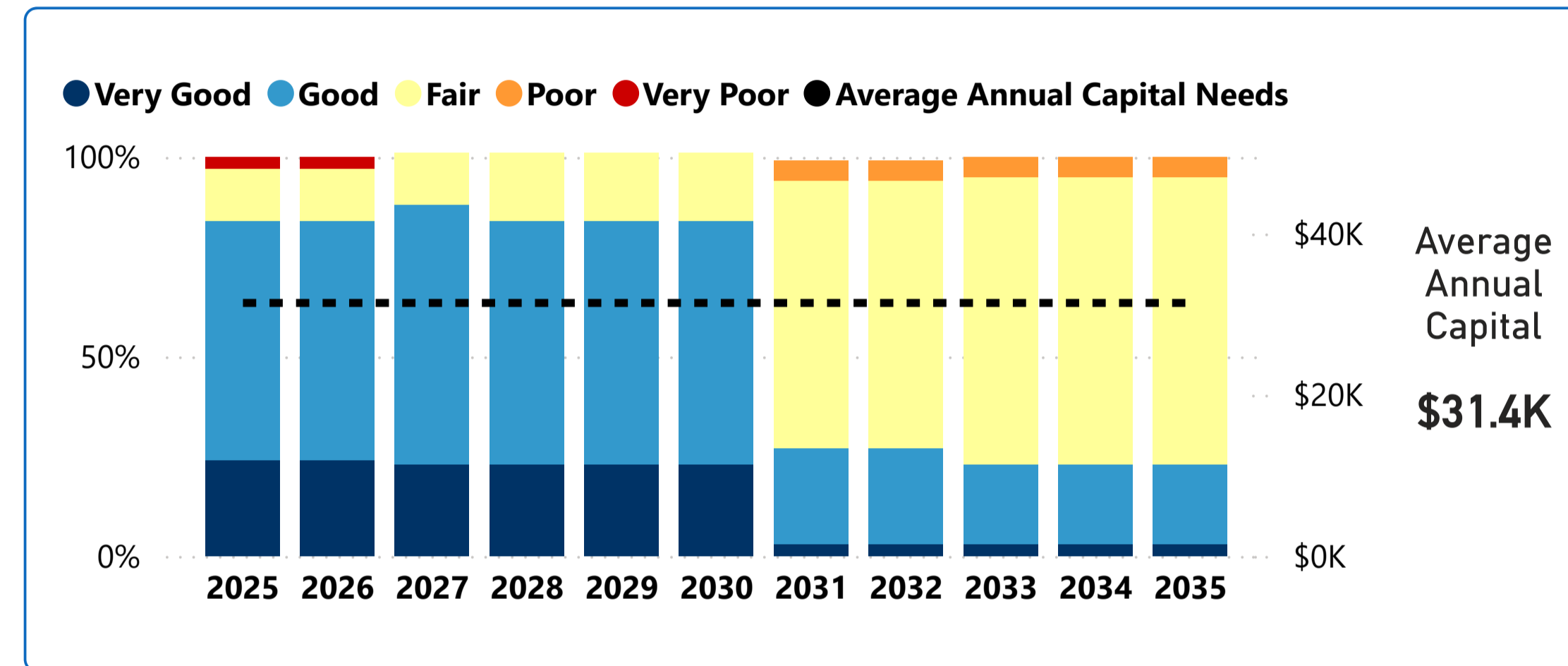
Service Area
Transportation

Asset Classes/Types
Retaining Walls

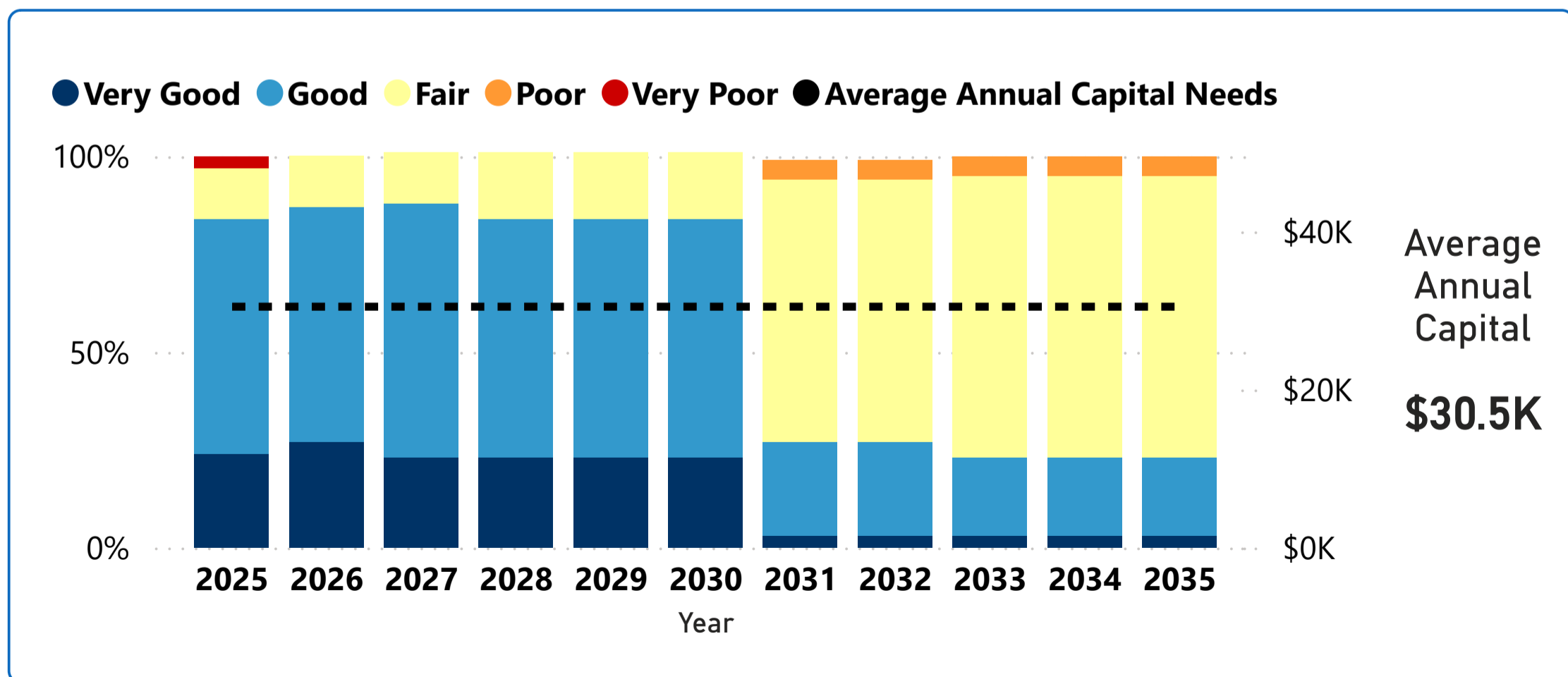
Average Network Condition (% Remaining Service Life)



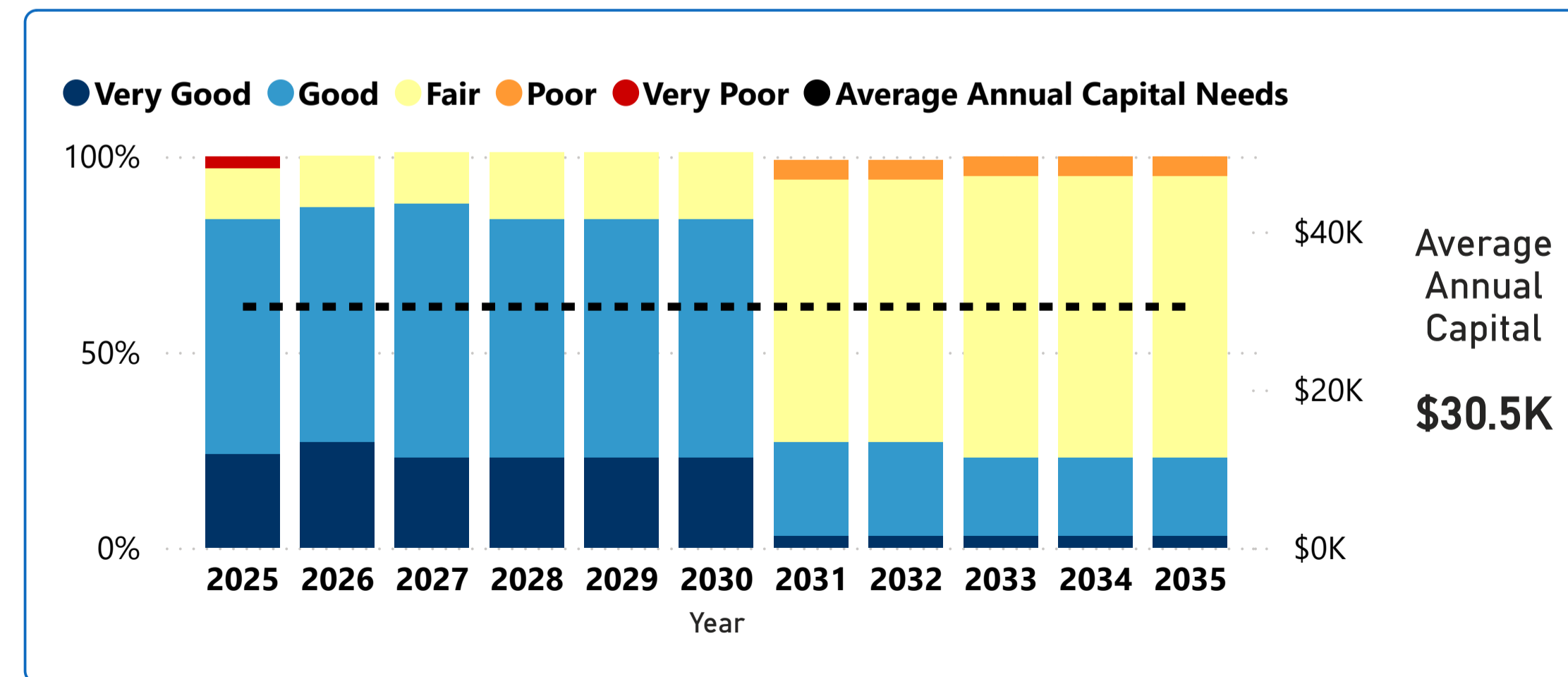
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





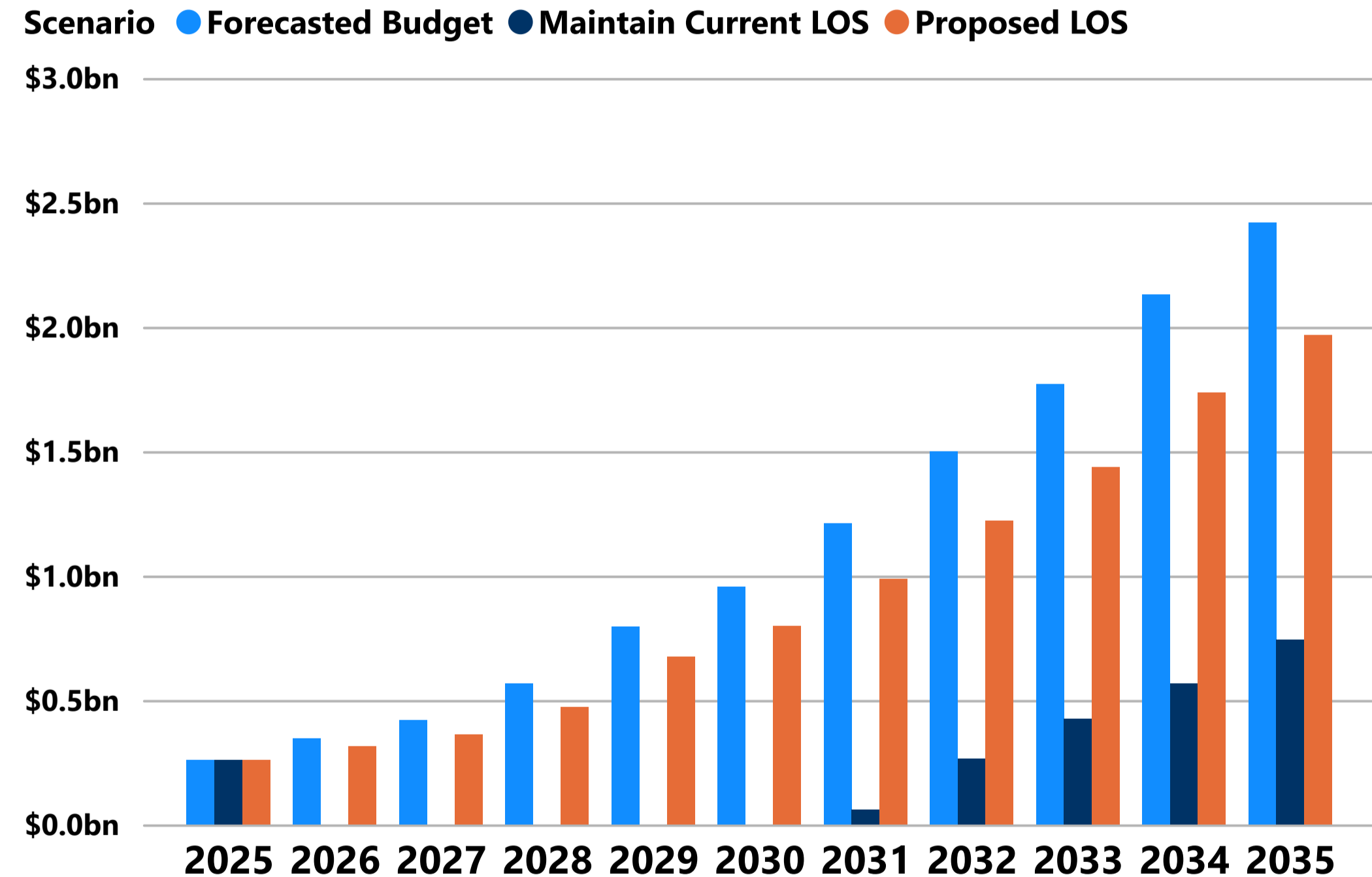
Scenario Summary Card

Level of Service Modelling

Service Area
Transportation

Asset Classes/Types
All Roads, Bridges, Major Culverts (> 3 m), and Retaining Walls

Metric #1 - 10-Year State of Good Repair Backlog



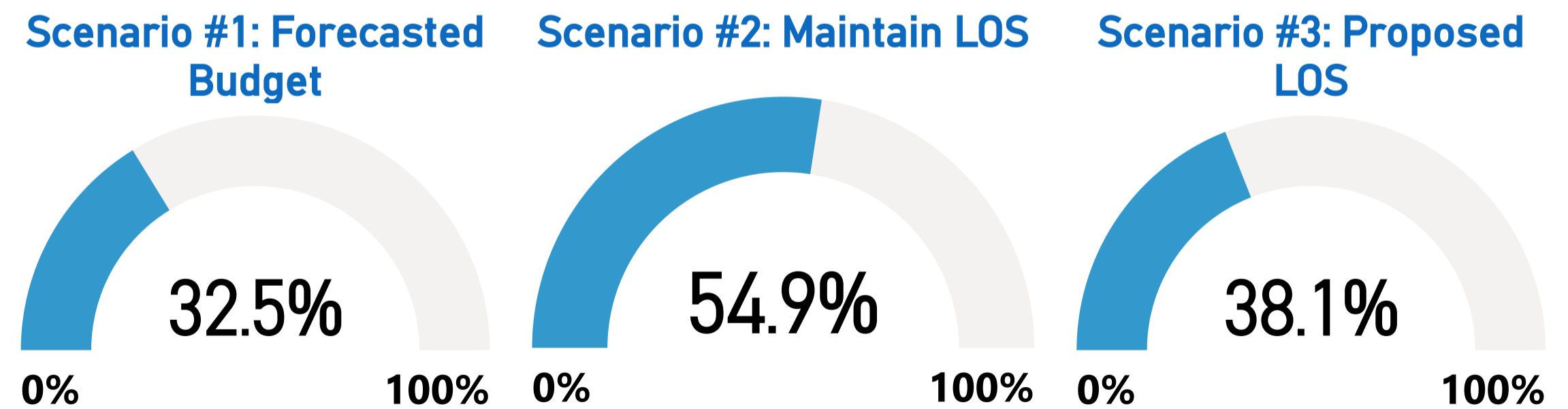
Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$2.4bn	\$742.0M	\$2.0bn

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$17.4M! Targeted Annual Investment: \$95.4M (-81.74%)	\$159.3M✓ Targeted Annual Investment: \$95.4M (+66.93%)	\$57.5M! Targeted Annual Investment: \$95.4M (-39.72%)

Metric #3 - Percentage of Assets in Fair or Better Condition (2035)





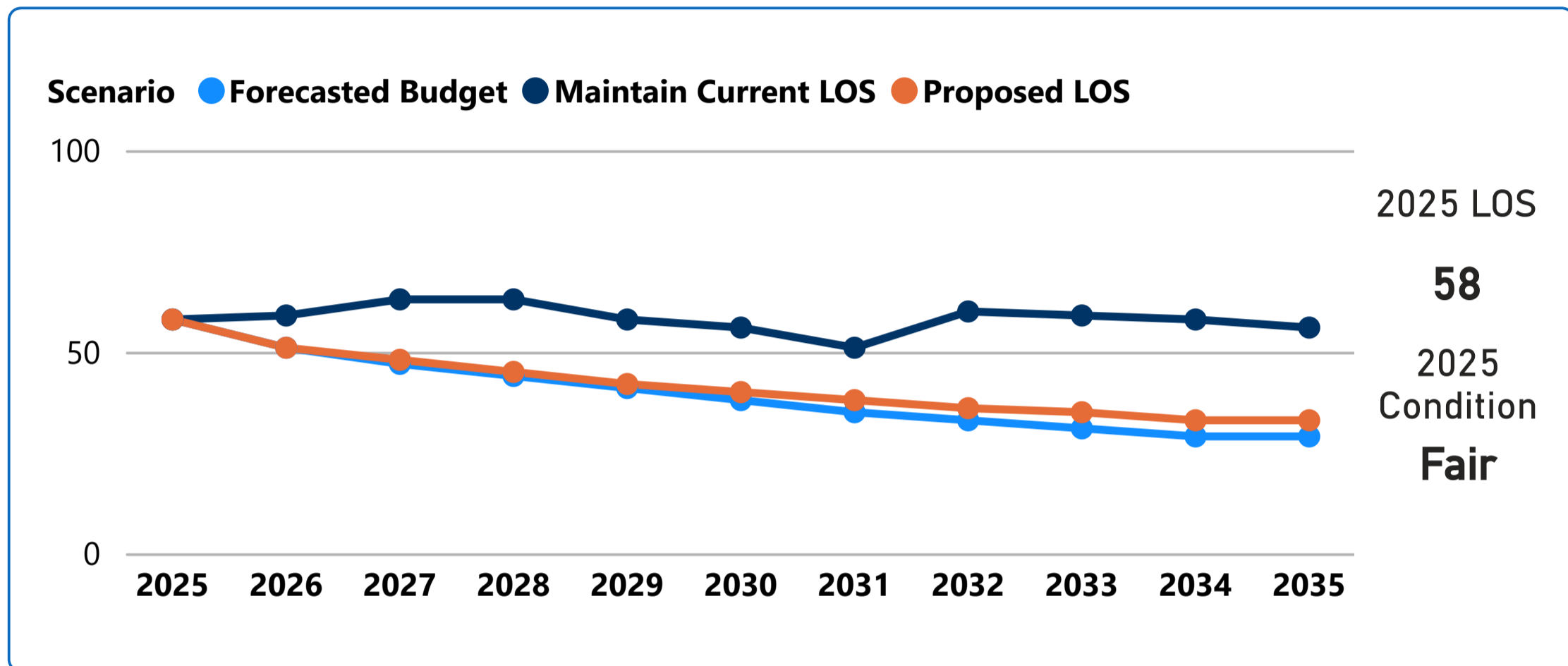
Scenario Summary Card

Level of Service Modelling

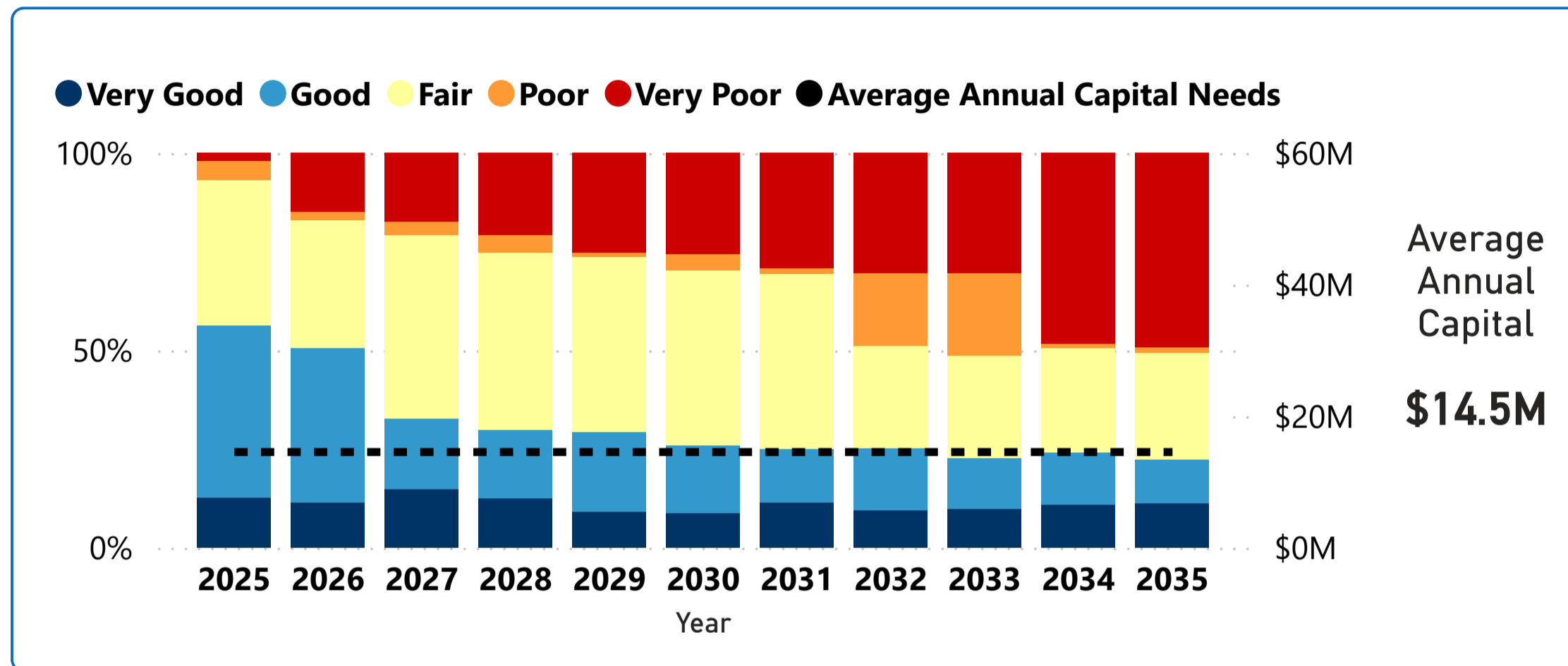
Service Area
Corporate Facilities

Asset Classes/Types
Facility Components

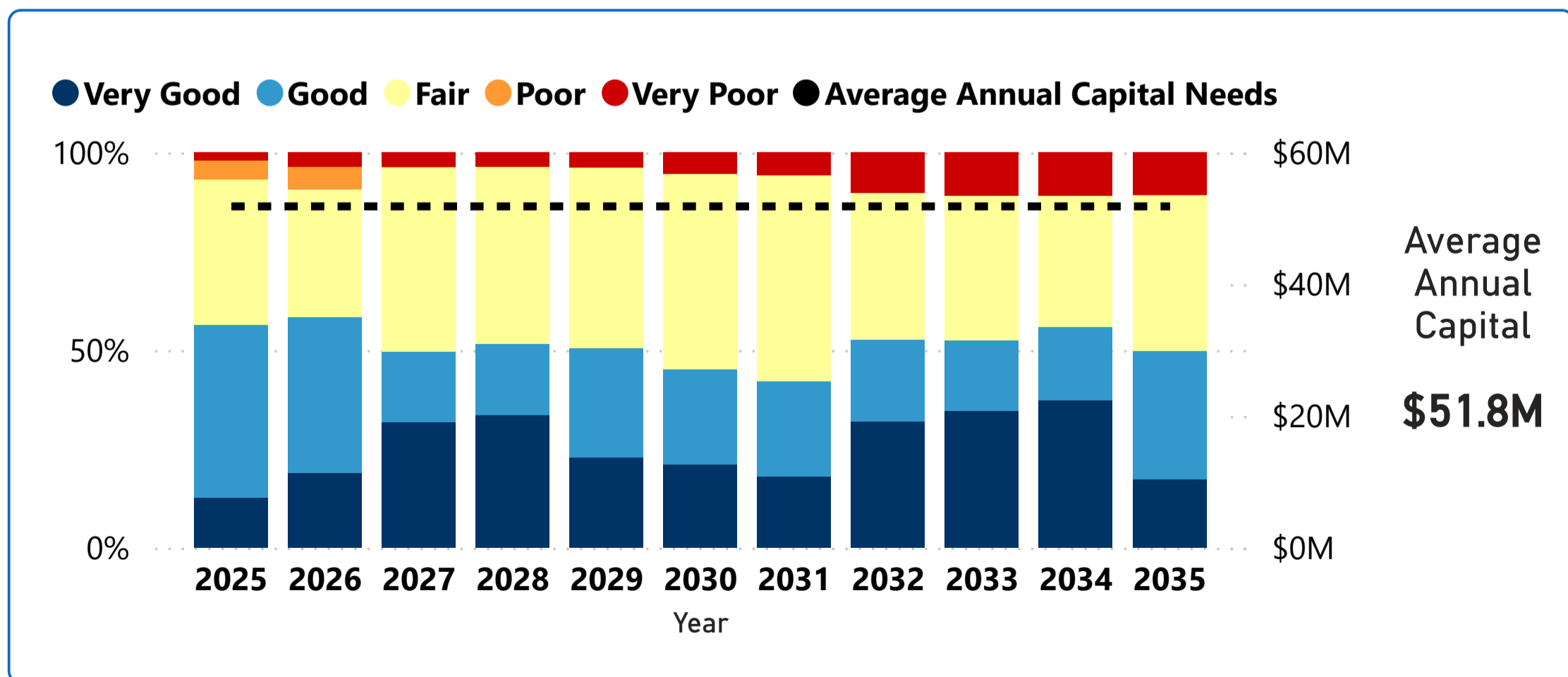
Average Network Condition (% Remaining Service Life)



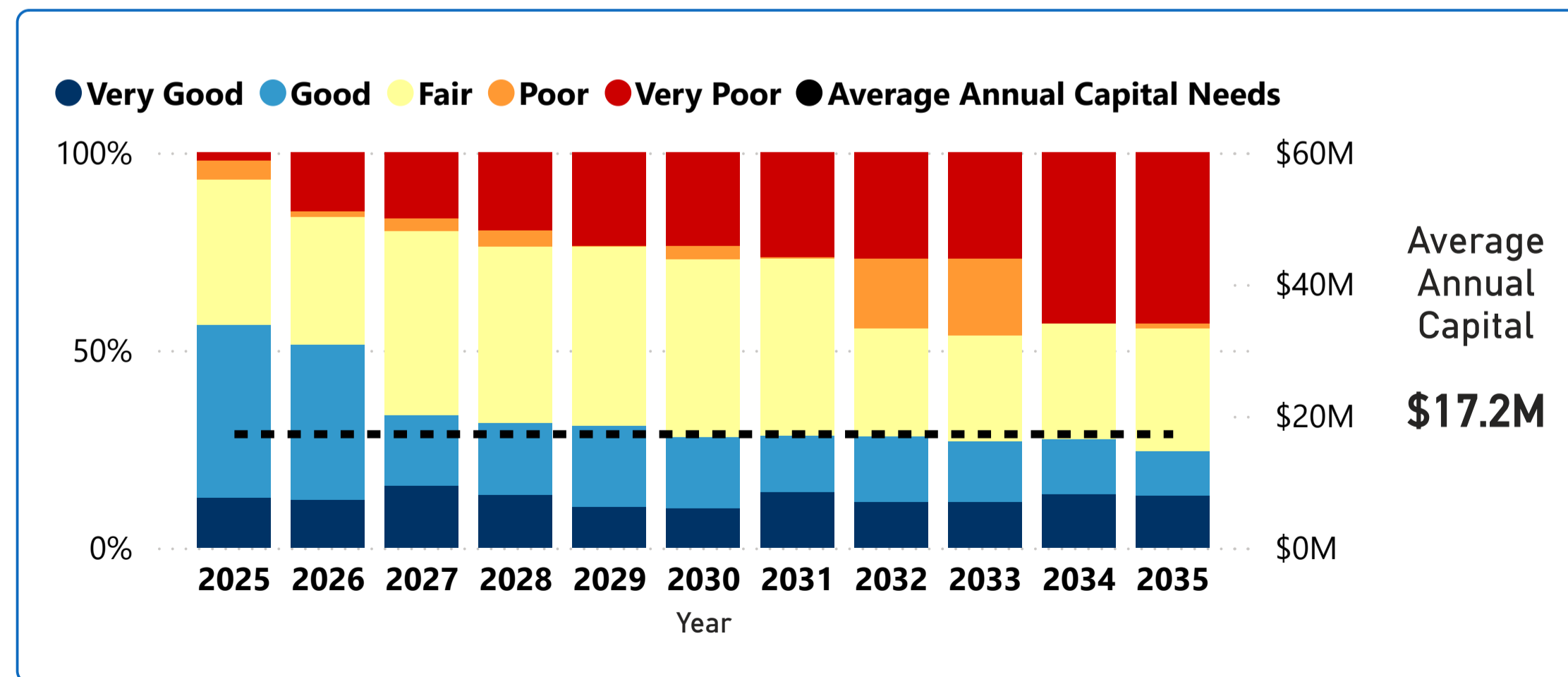
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





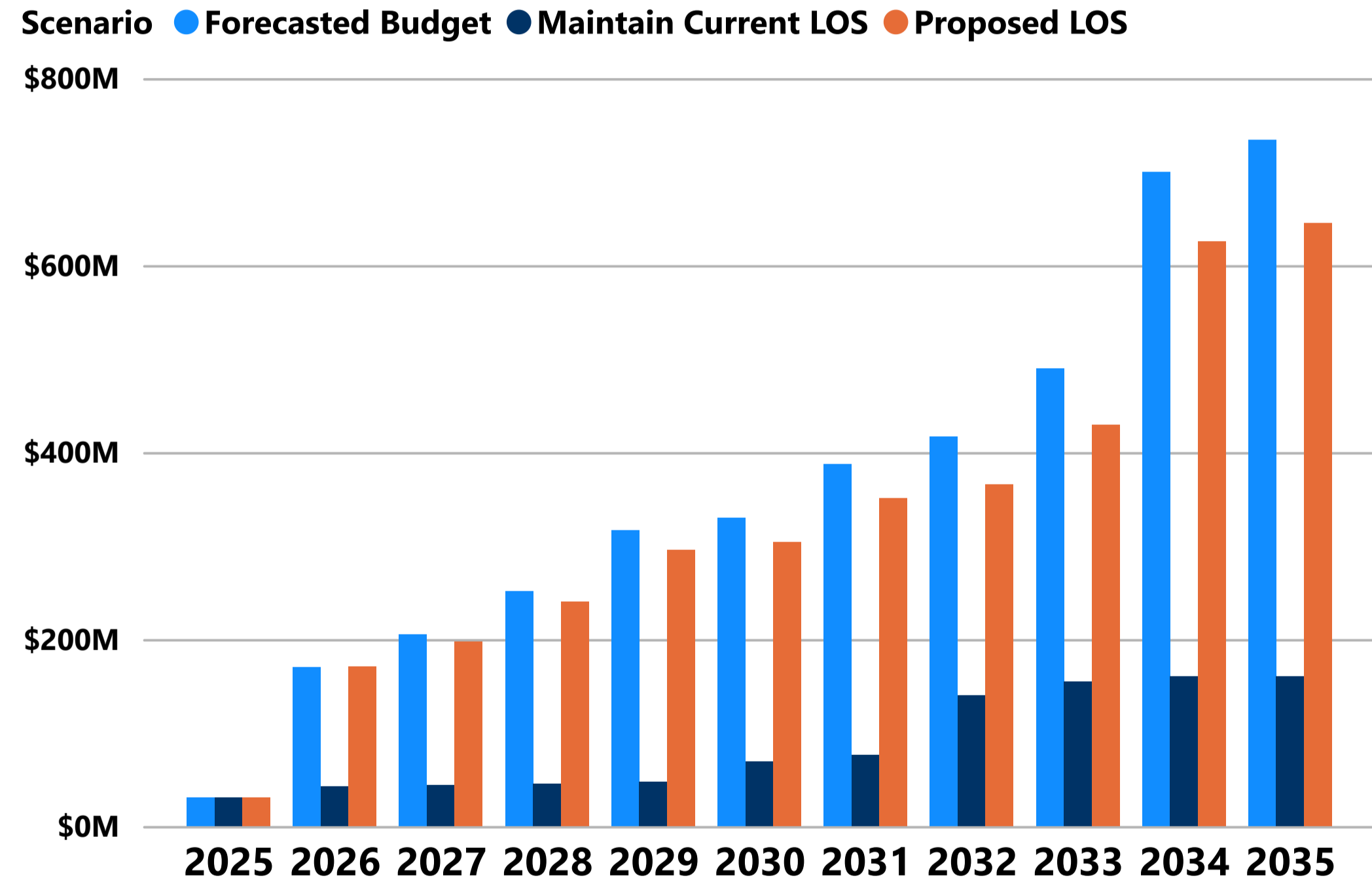
Scenario Summary Card

Level of Service Modelling

Service Area
Corporate Facilities

Asset Classes/Types
Facility Components

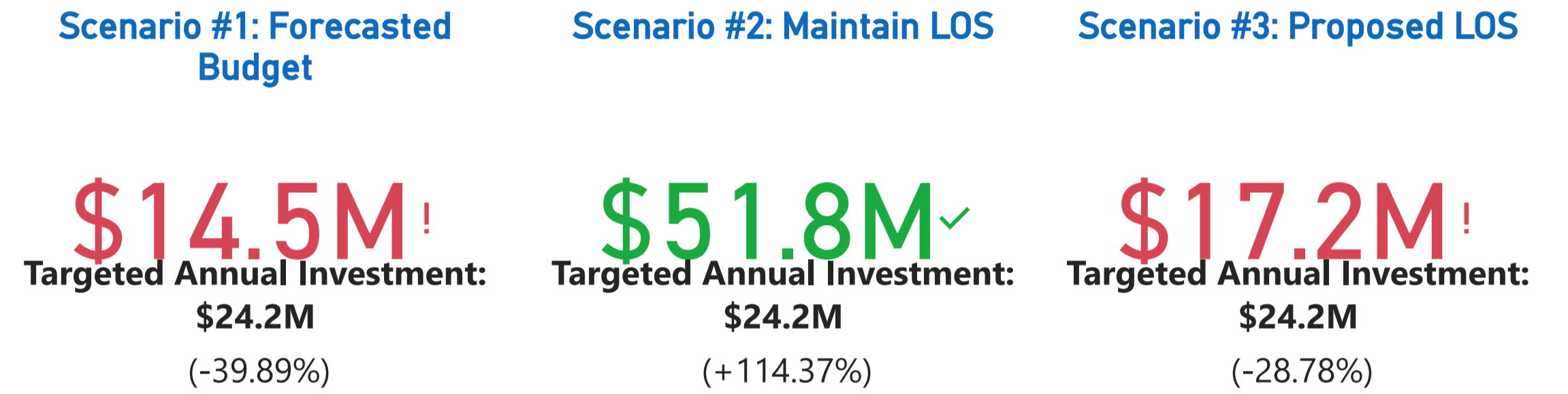
Metric #1 - 10-Year State of Good Repair Backlog



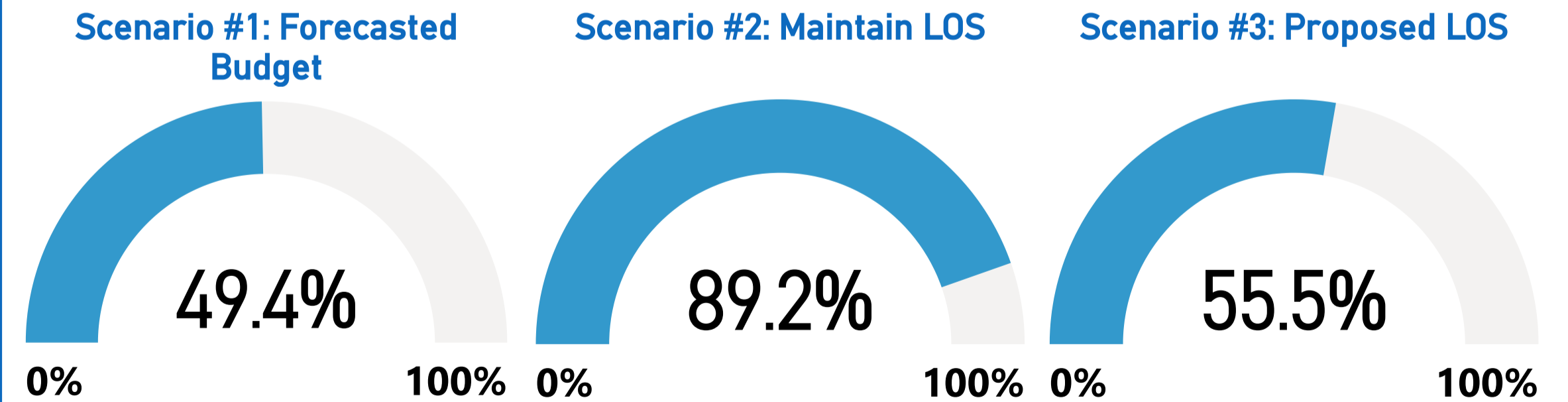
Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$734.1M	\$160.3M	\$645.2M

Metric #2 - Average Annual Asset Reinvestment Rate



Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)





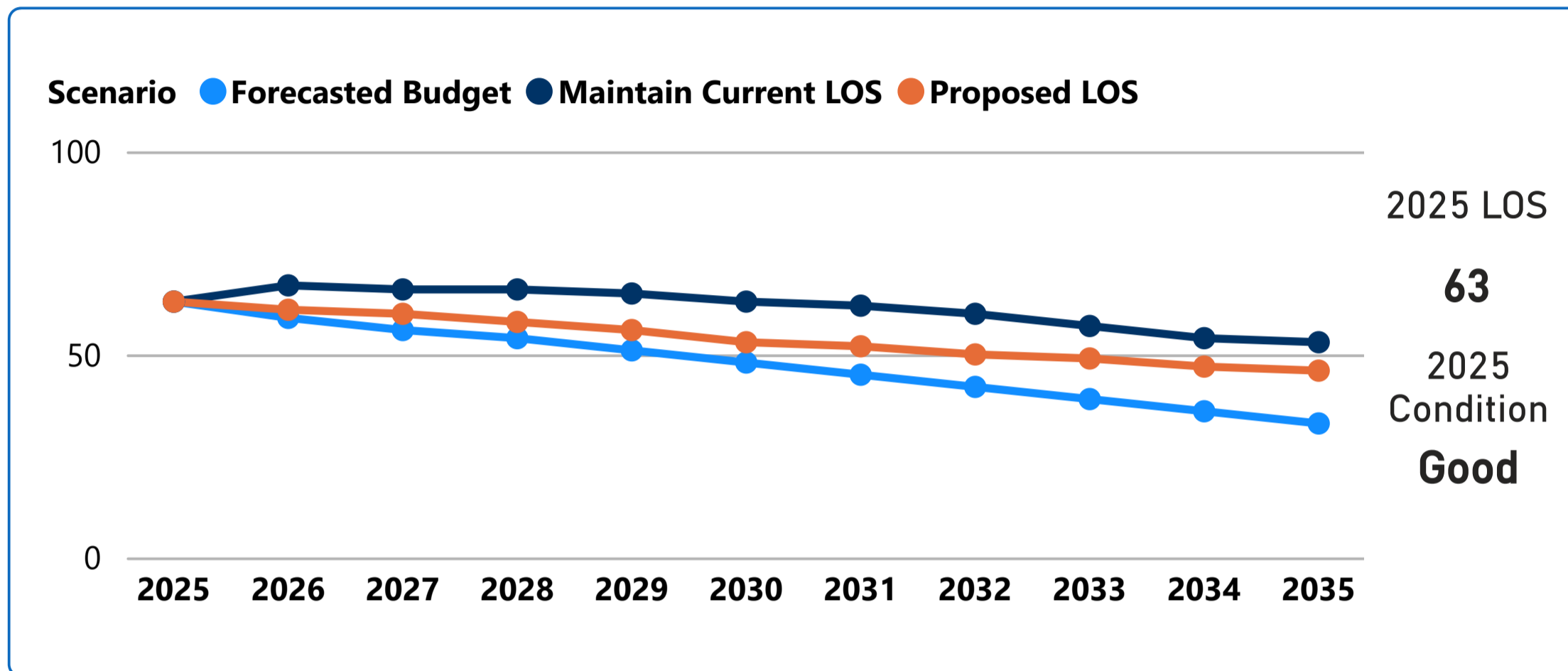
Scenario Summary Card

Level of Service Modelling

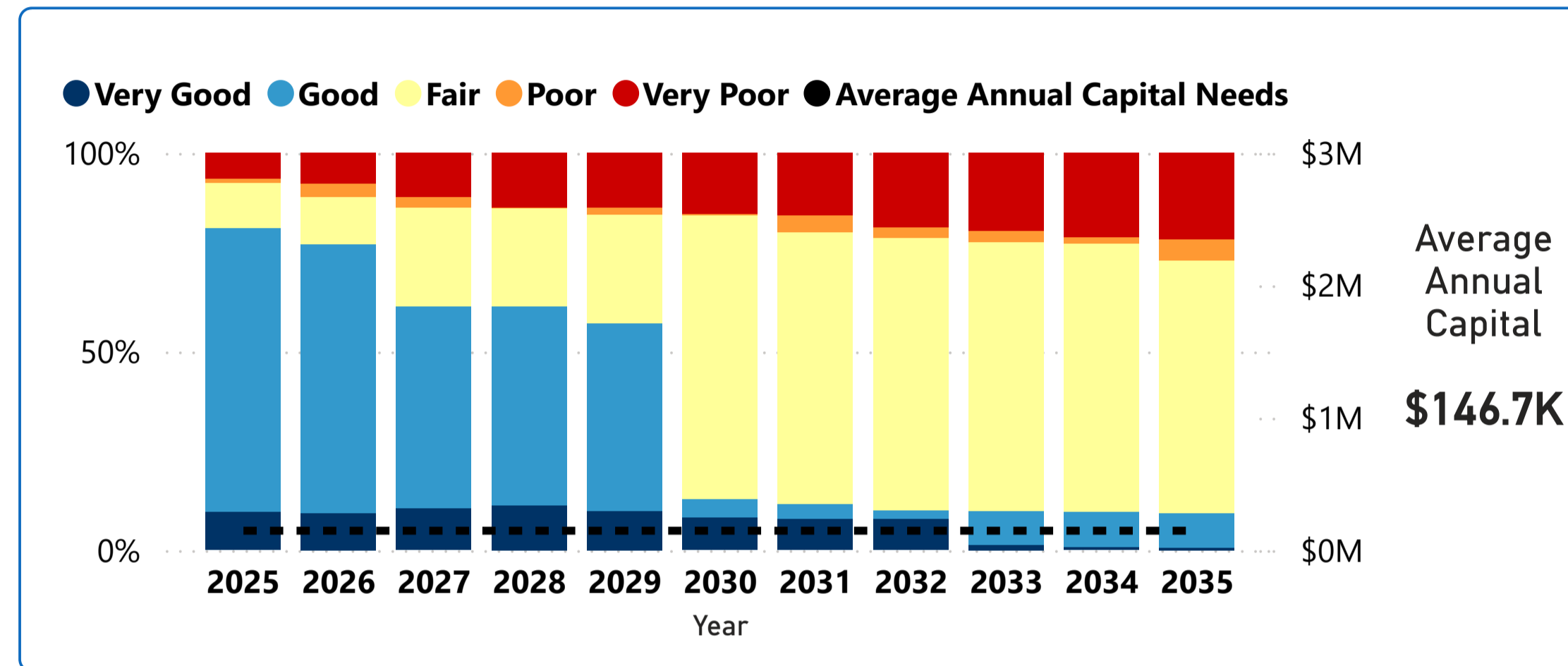
Service Area
Parks Facilities

Asset Classes/Types
Facility Components

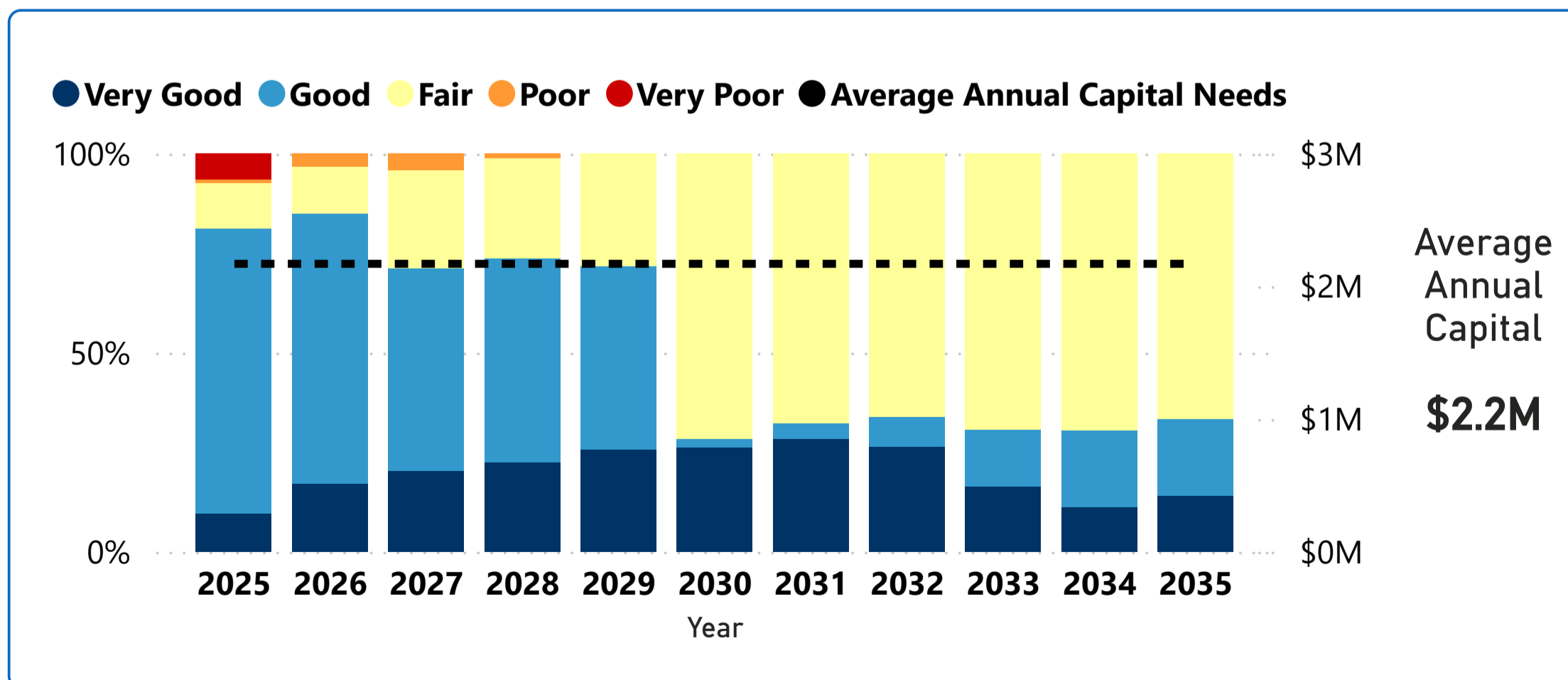
Average Network Condition (% Remaining Service Life)



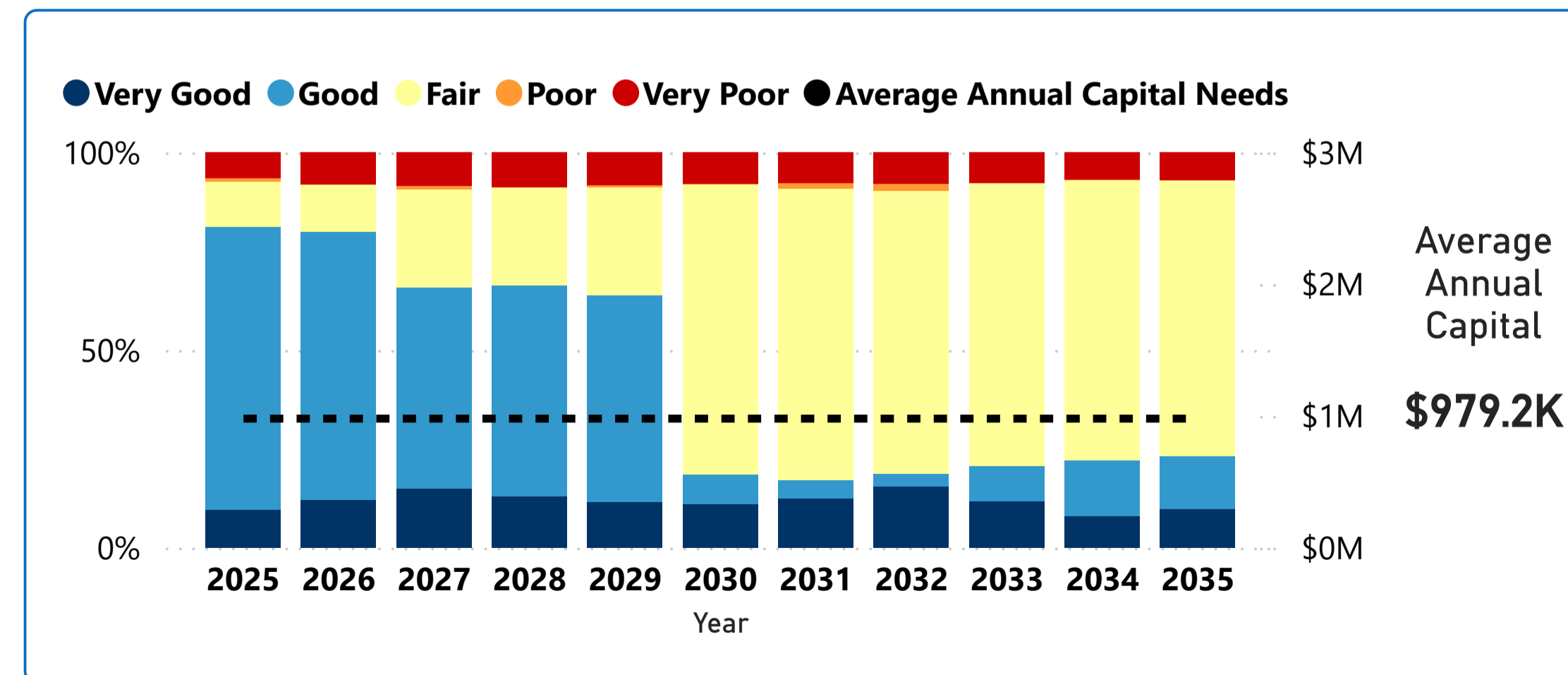
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

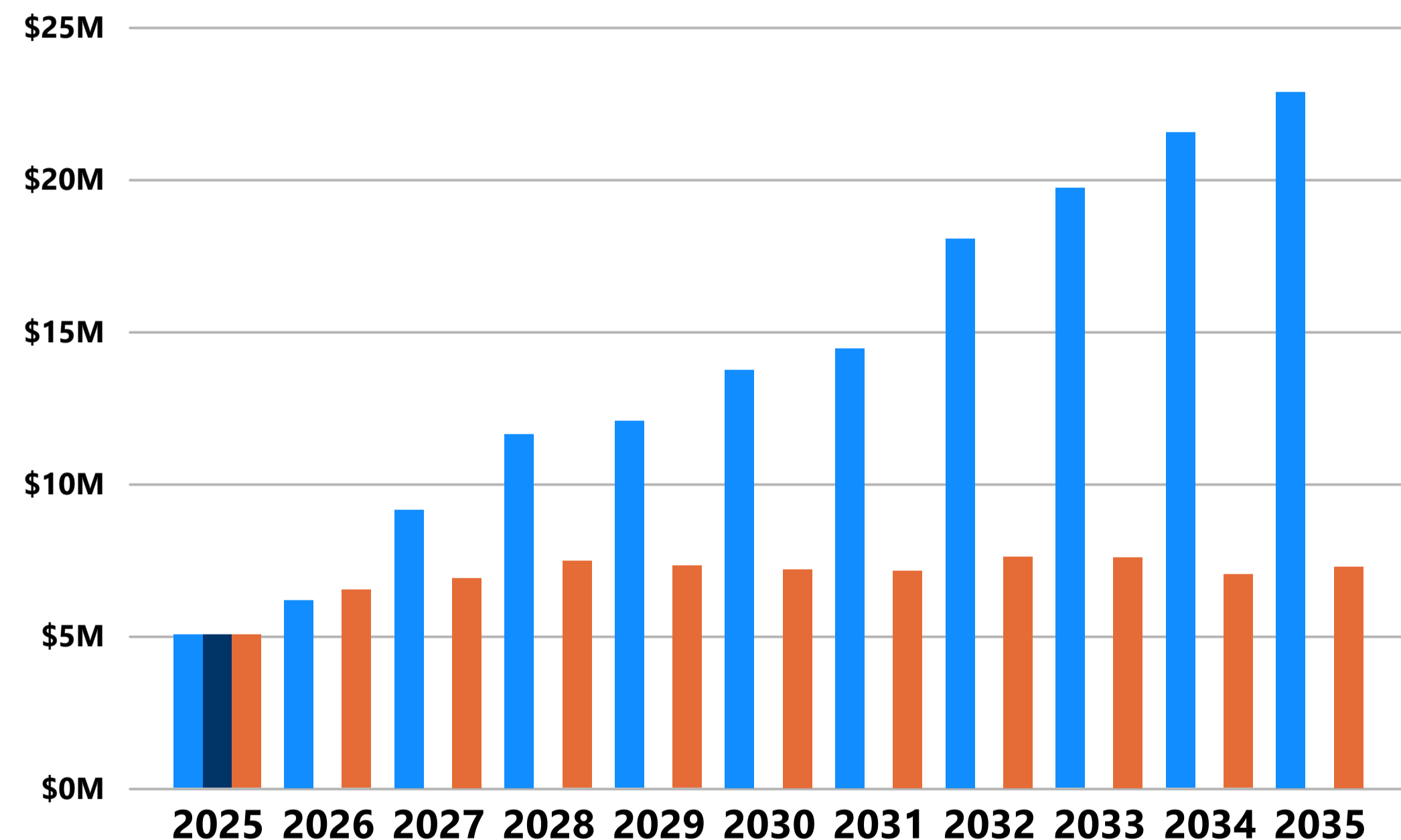
Level of Service Modelling

Service Area
Parks Facilities

Asset Classes/Types
Facility Components

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget Scenario #2: Maintain LOS Scenario #3: Proposed LOS

\$22.9M

\$0.0

\$7.3M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$146.7K!
Targeted Annual Investment:
\$24.2M
(-99.39%)

\$2.2M!
Targeted Annual Investment:
\$24.2M
(-91.02%)

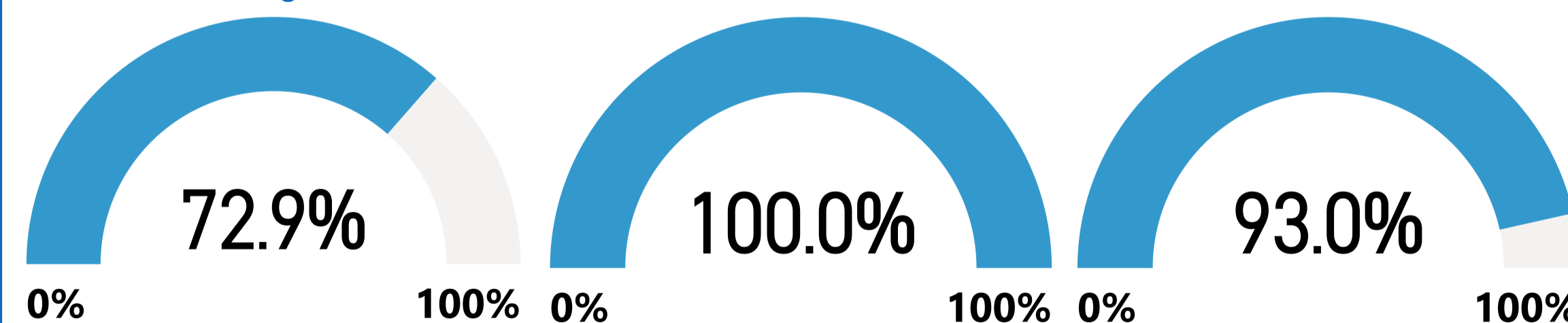
\$979.2K!
Targeted Annual Investment:
\$24.2M
(-95.95%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS





Scenario Summary Card

Level of Service Modelling

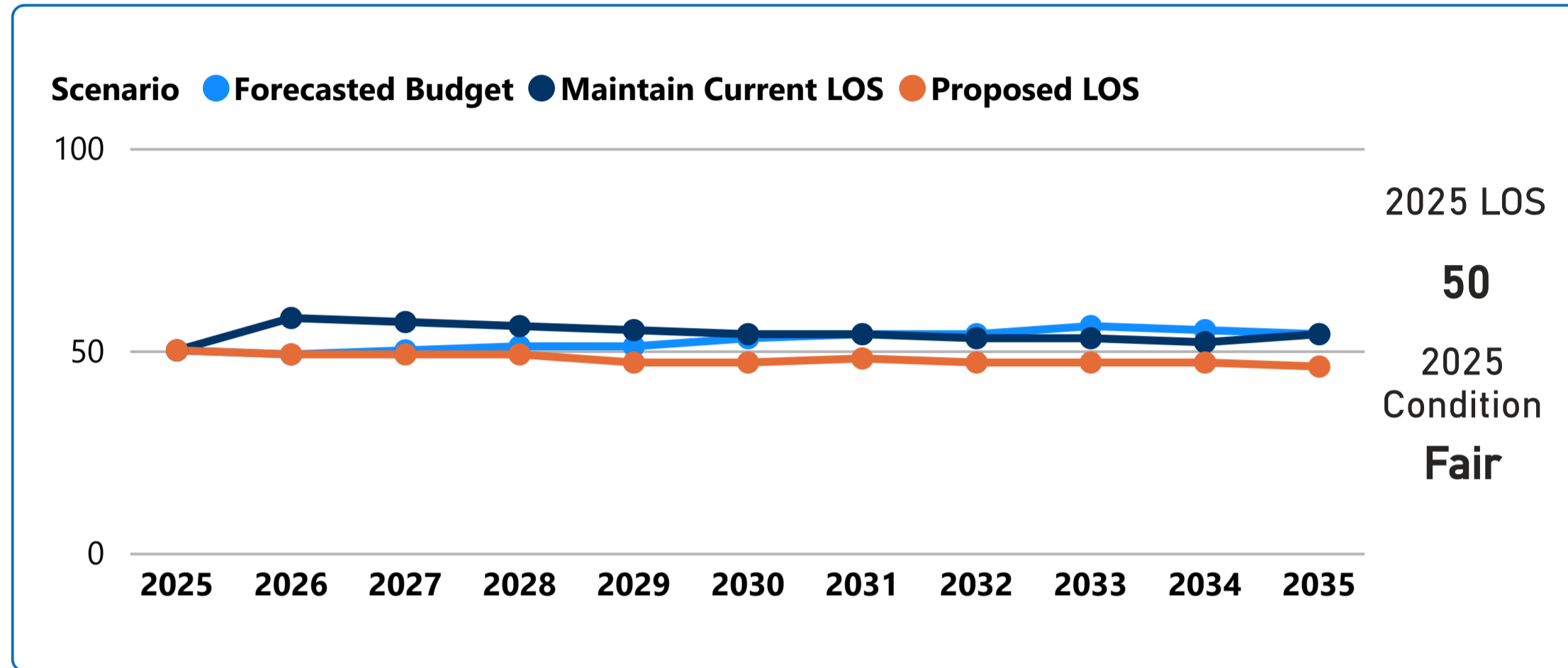
Service Area

Stormwater

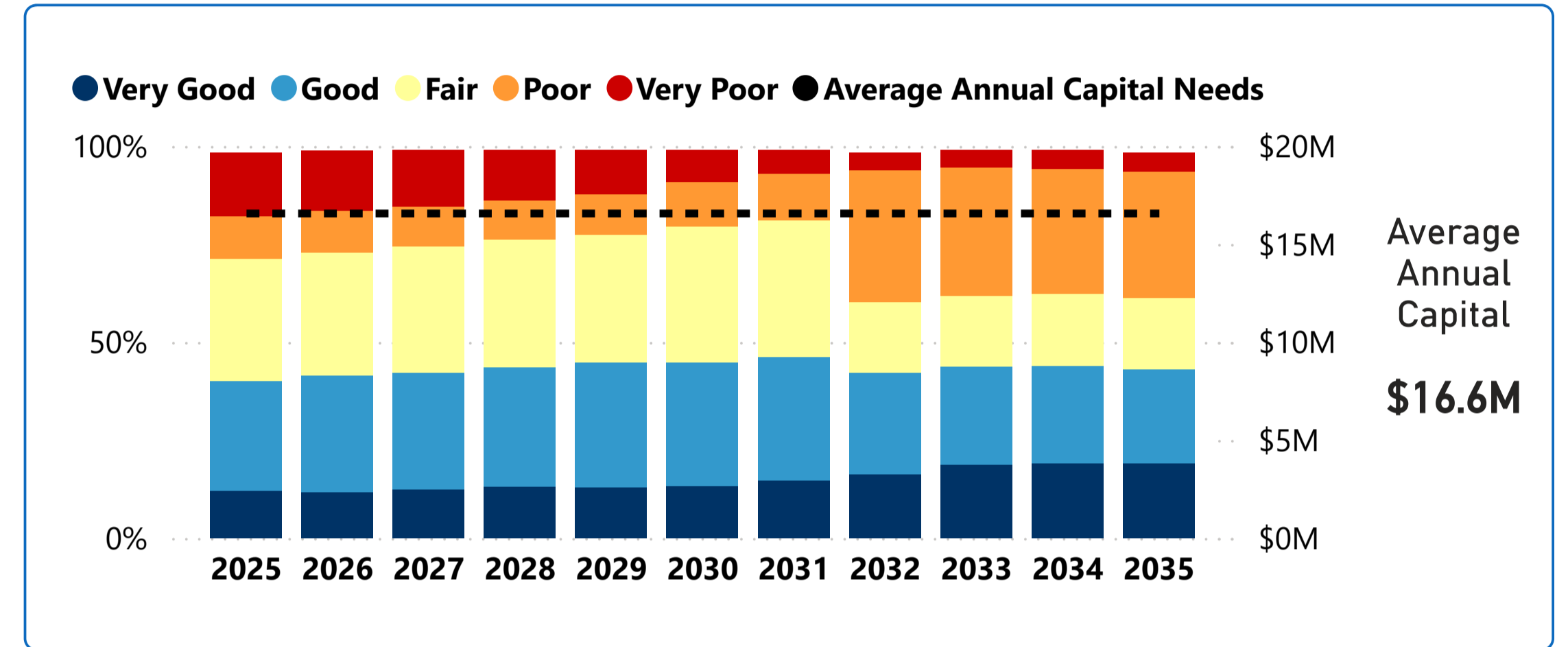
Asset Classes/Types

All Assets

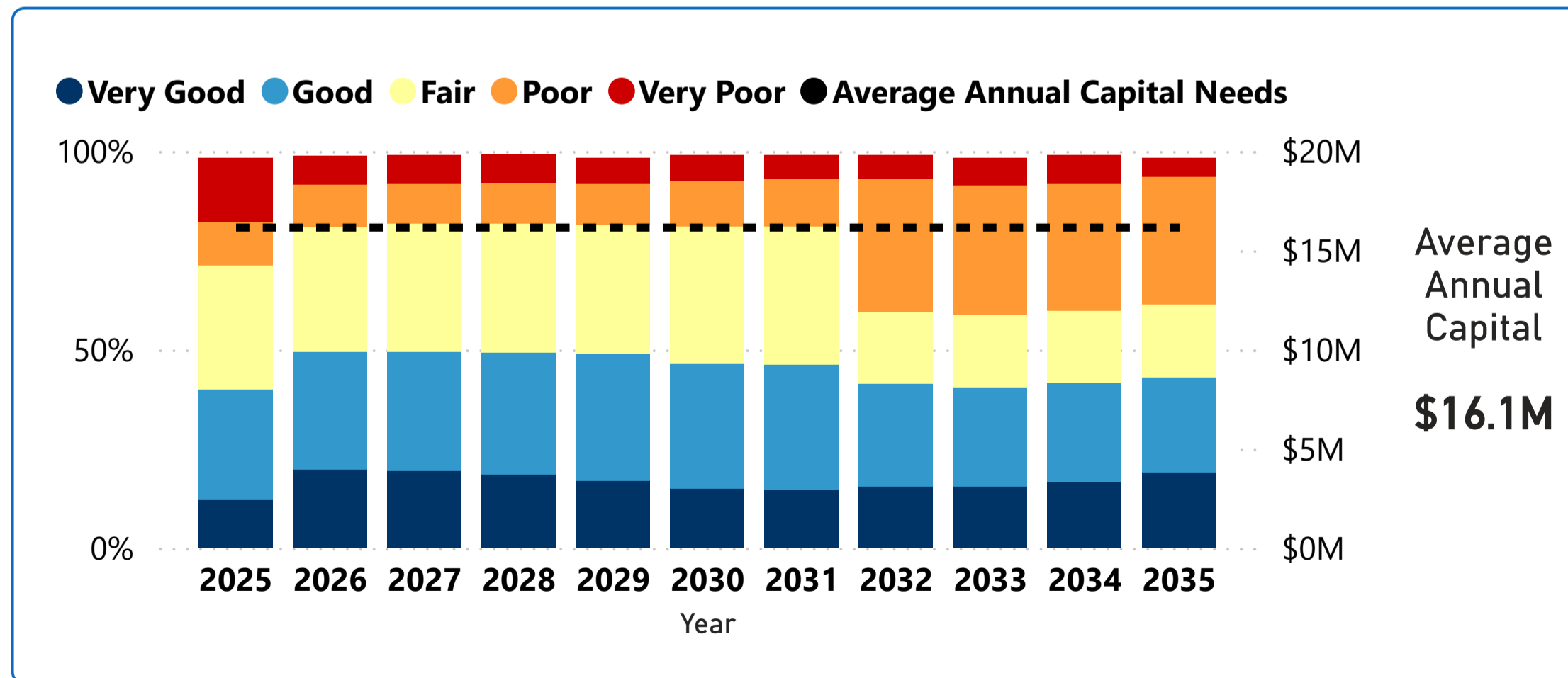
Average Network Condition (% Remaining Service Life)



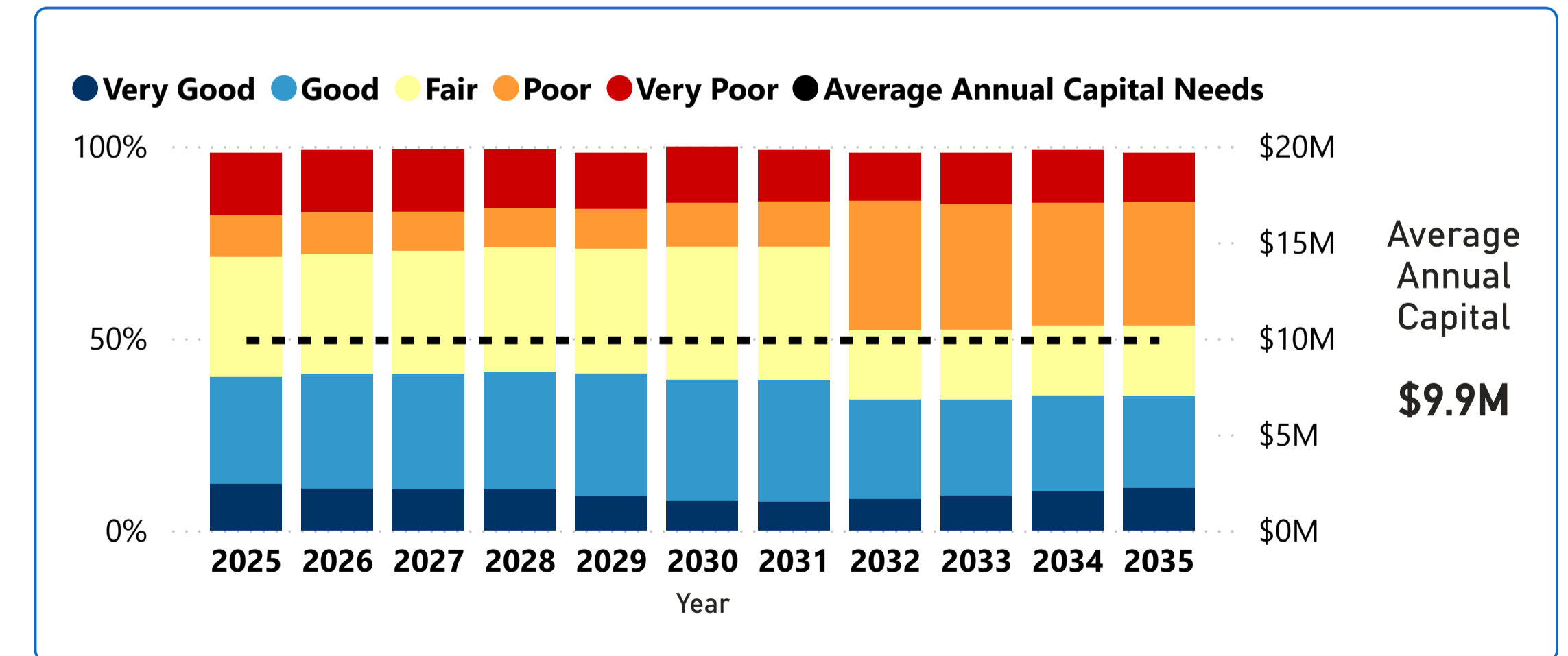
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

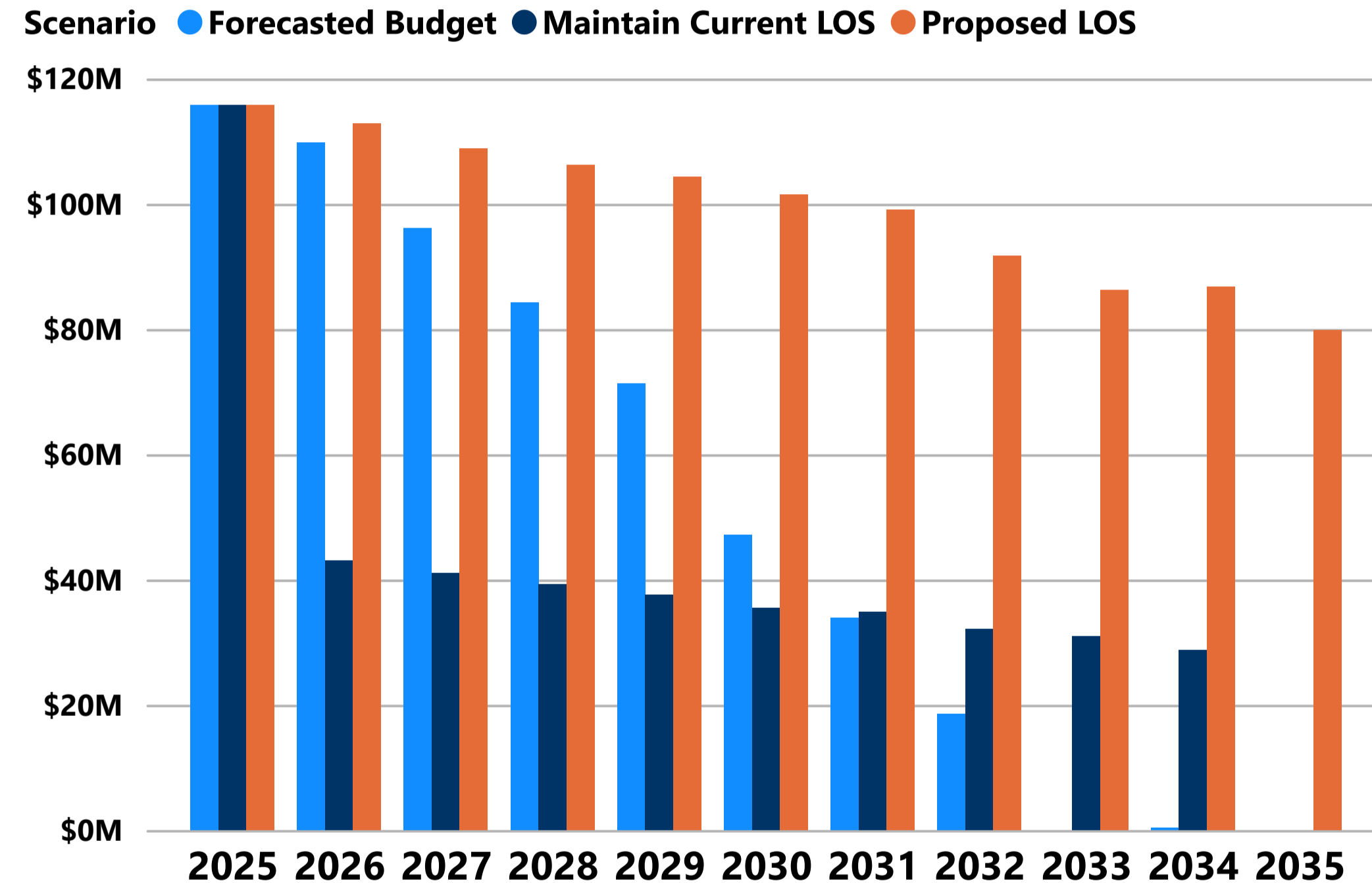
Level of Service Modelling

Service Area
Stormwater

Asset Classes/Types

All Storm Lines, Manholes, Detention Ponds, Inlets/Outlets & OGS Units

Metric #1 - 10-Year State of Good Repair Backlog



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$0.0	\$0.0	\$79.8M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

\$16.6M ✓
Targeted Annual Investment:
\$13.4M
(+23.16%)

Scenario #2: Maintain LOS

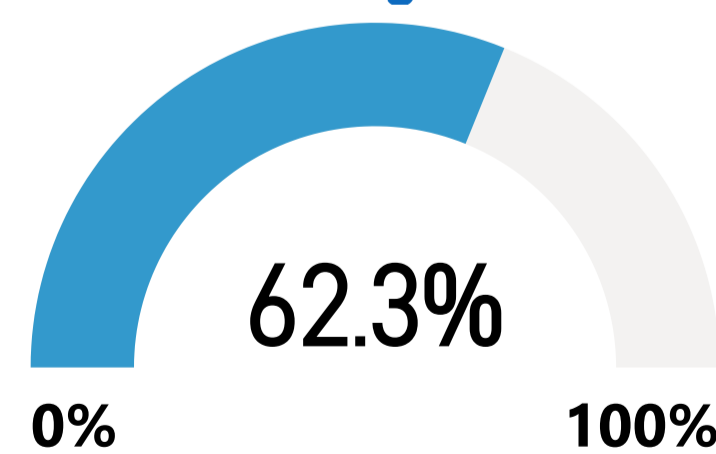
\$16.1M ✓
Targeted Annual Investment:
\$13.4M
(+20.08%)

Scenario #3: Proposed LOS

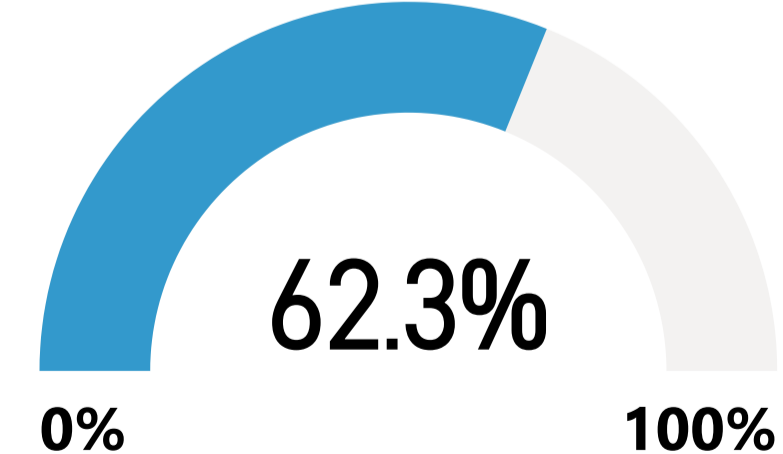
\$9.9M !
Targeted Annual Investment:
\$13.4M
(-26.47%)

Metric #3 - Percentage of Assets in Fair or Better Condition (2035)

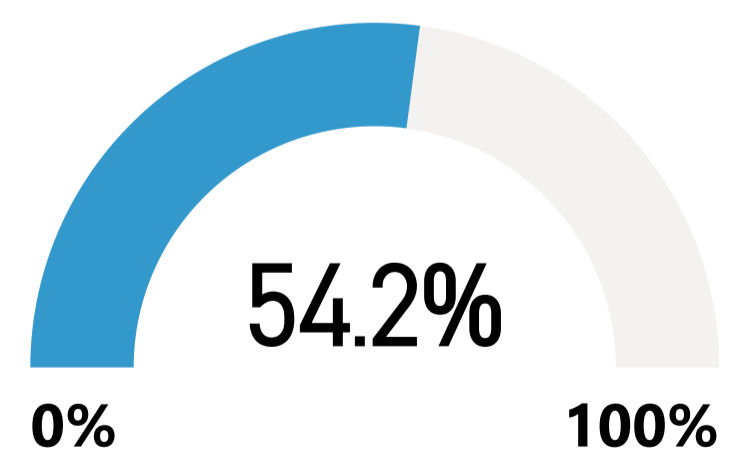
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS





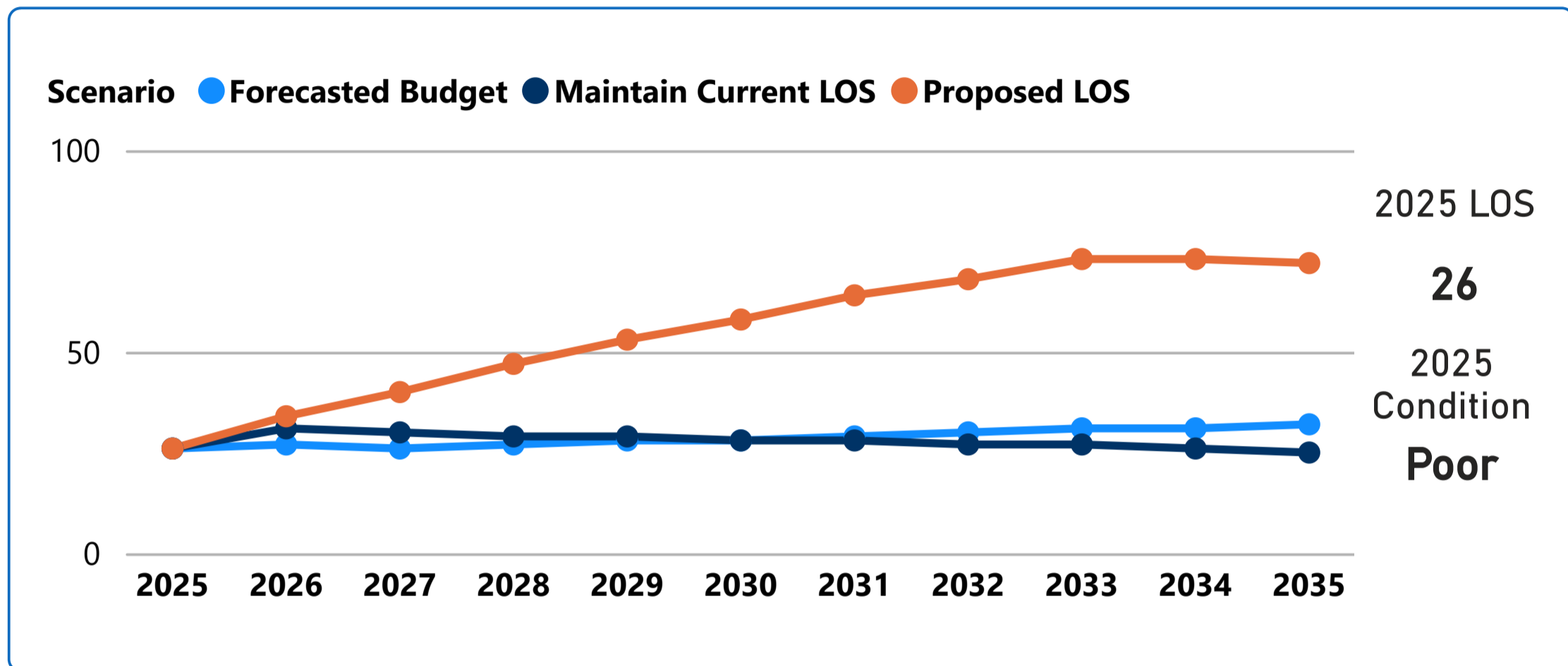
Scenario Summary Card

Level of Service Modelling

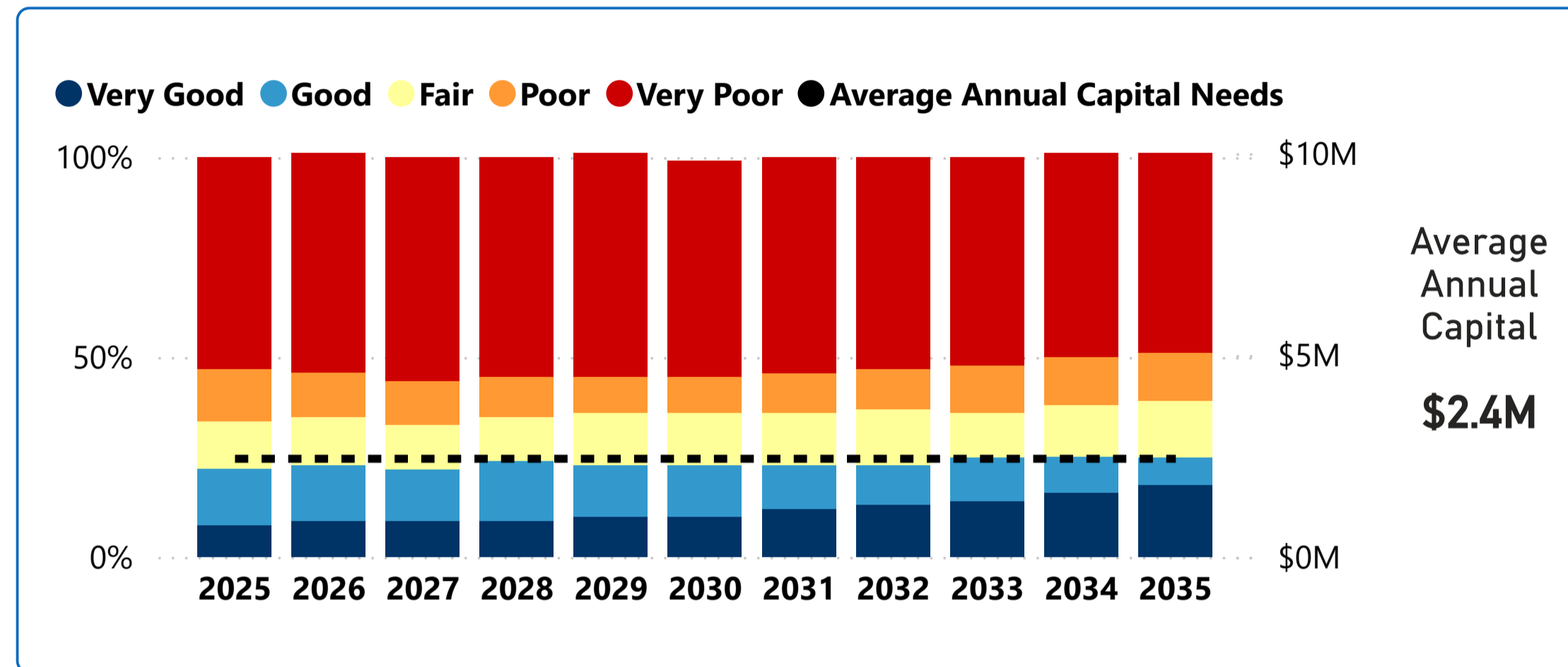
Service Area
Structures

Asset Classes/Types
Sidewalks

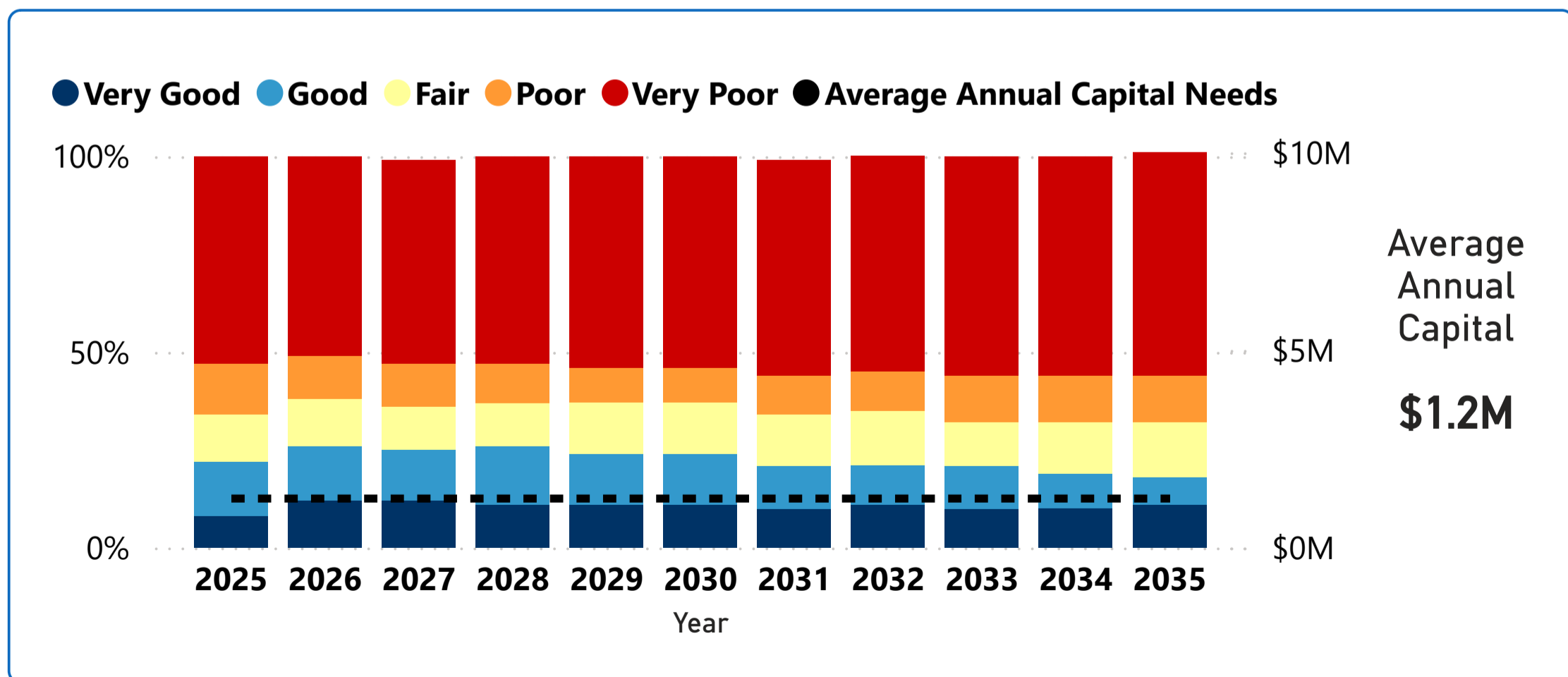
Average Network Condition (% Remaining Service Life)



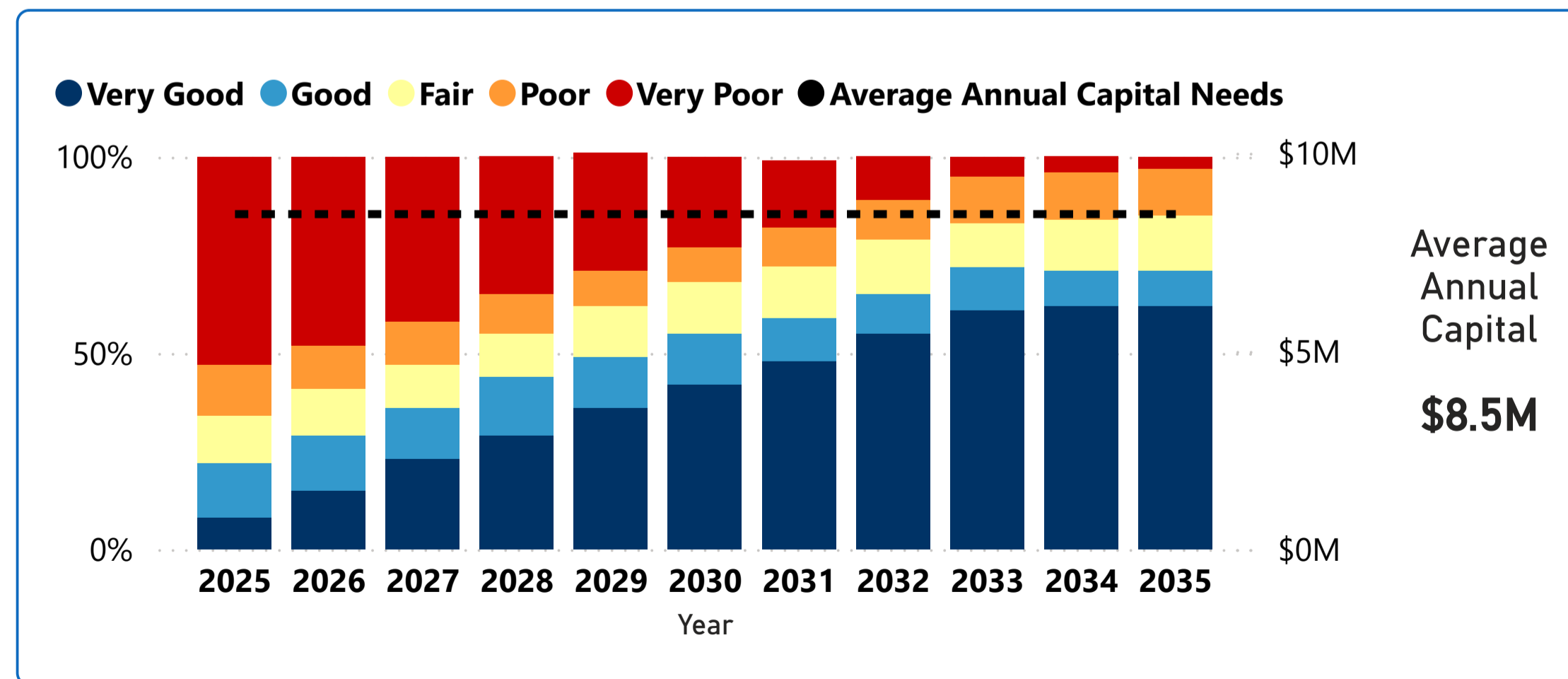
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: The current condition score is reflective of an age-based calculation and does not reflect recent condition data obtained through the City's partner, Safesidewalks Canada. These results will be reflected in future updates.



Scenario Summary Card

Level of Service Modelling

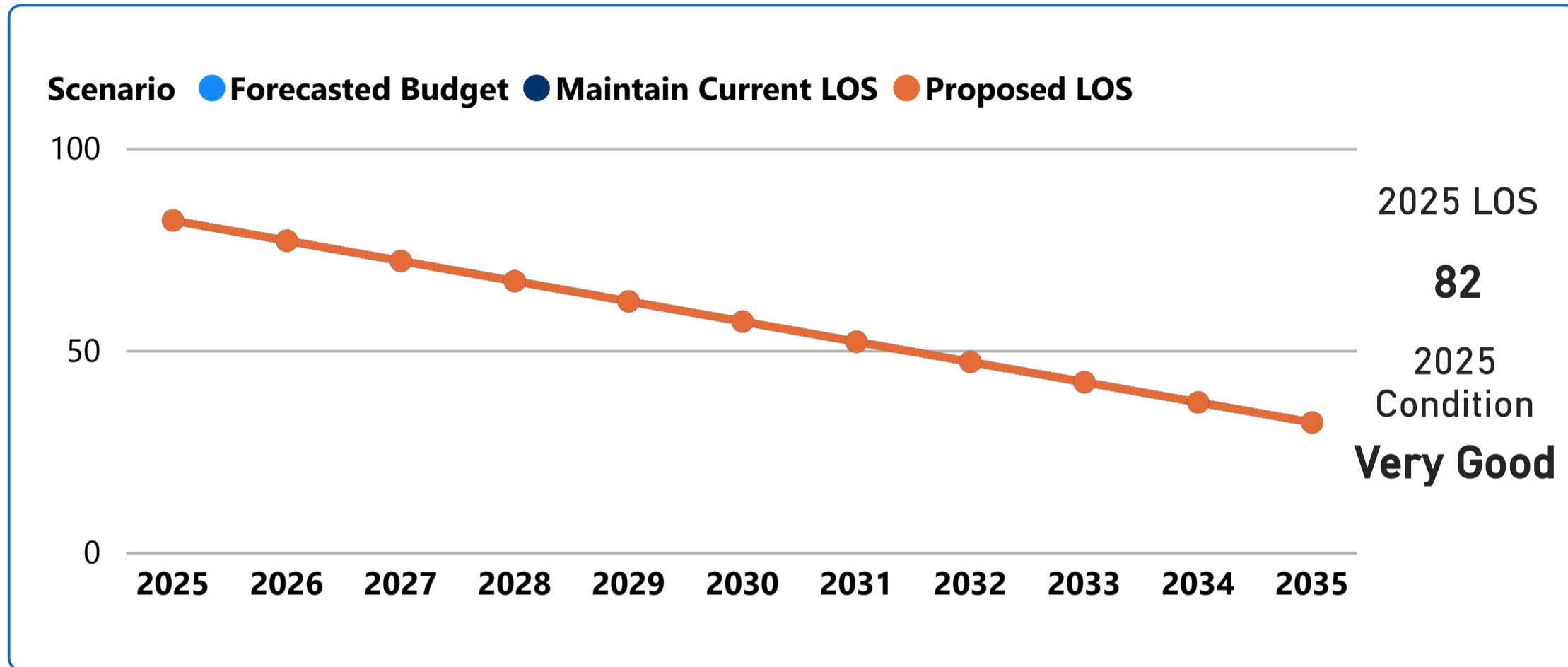
Service Area

Structures

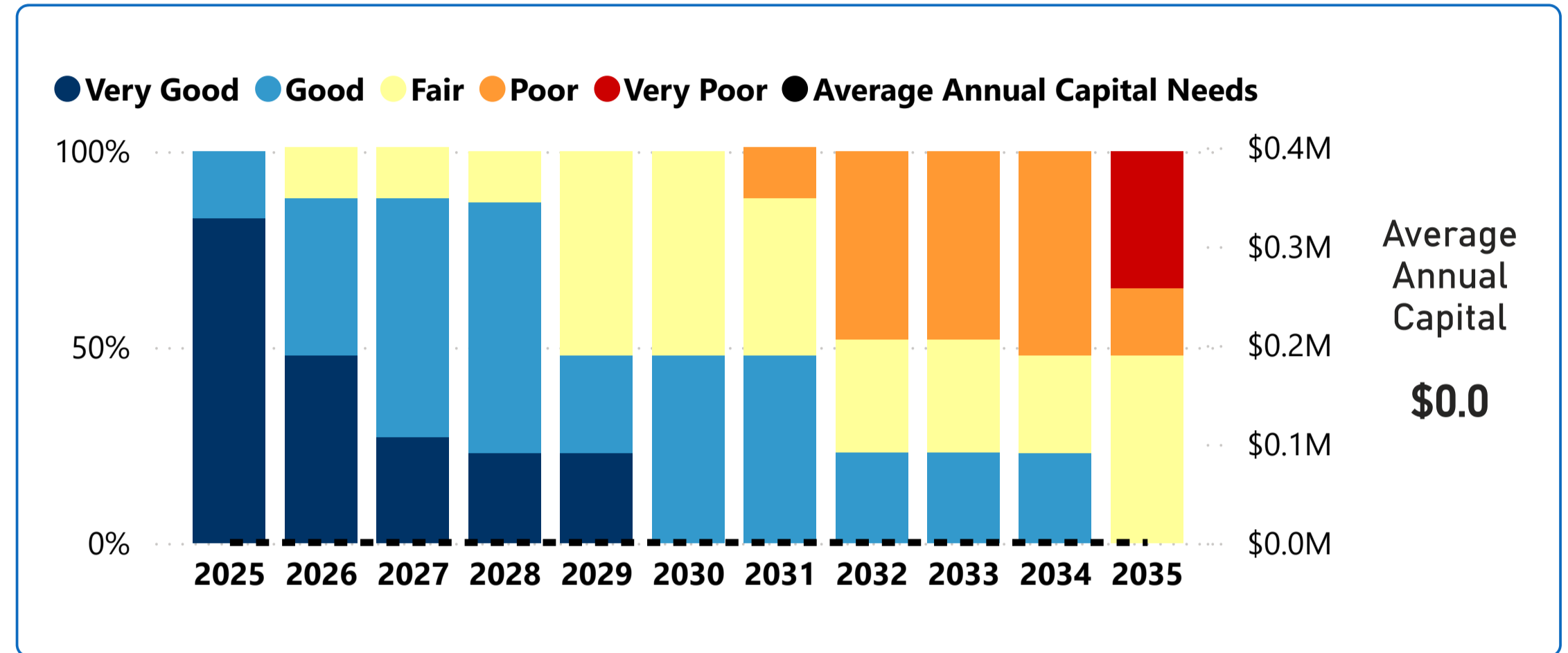
Asset Classes/Types

Wildlife Fencing

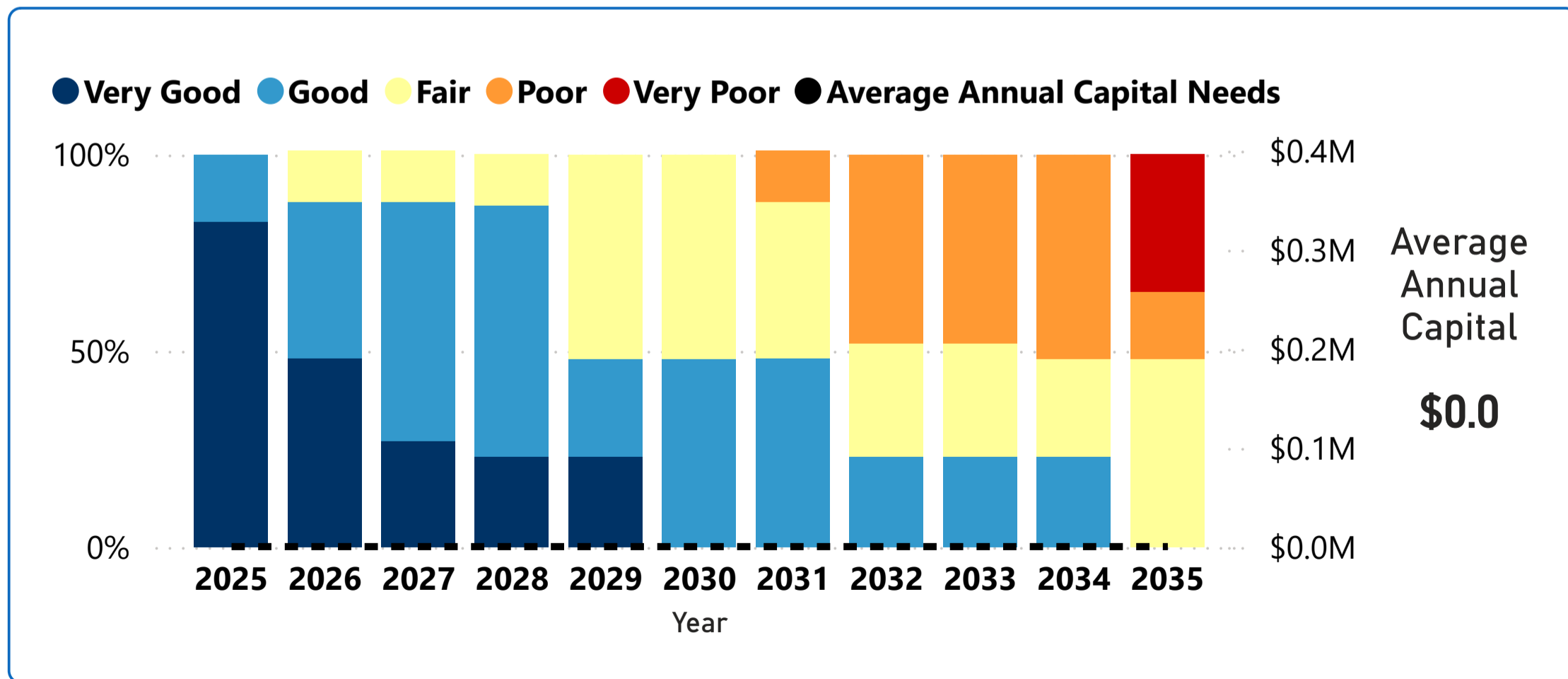
Average Network Condition (% Remaining Service Life)



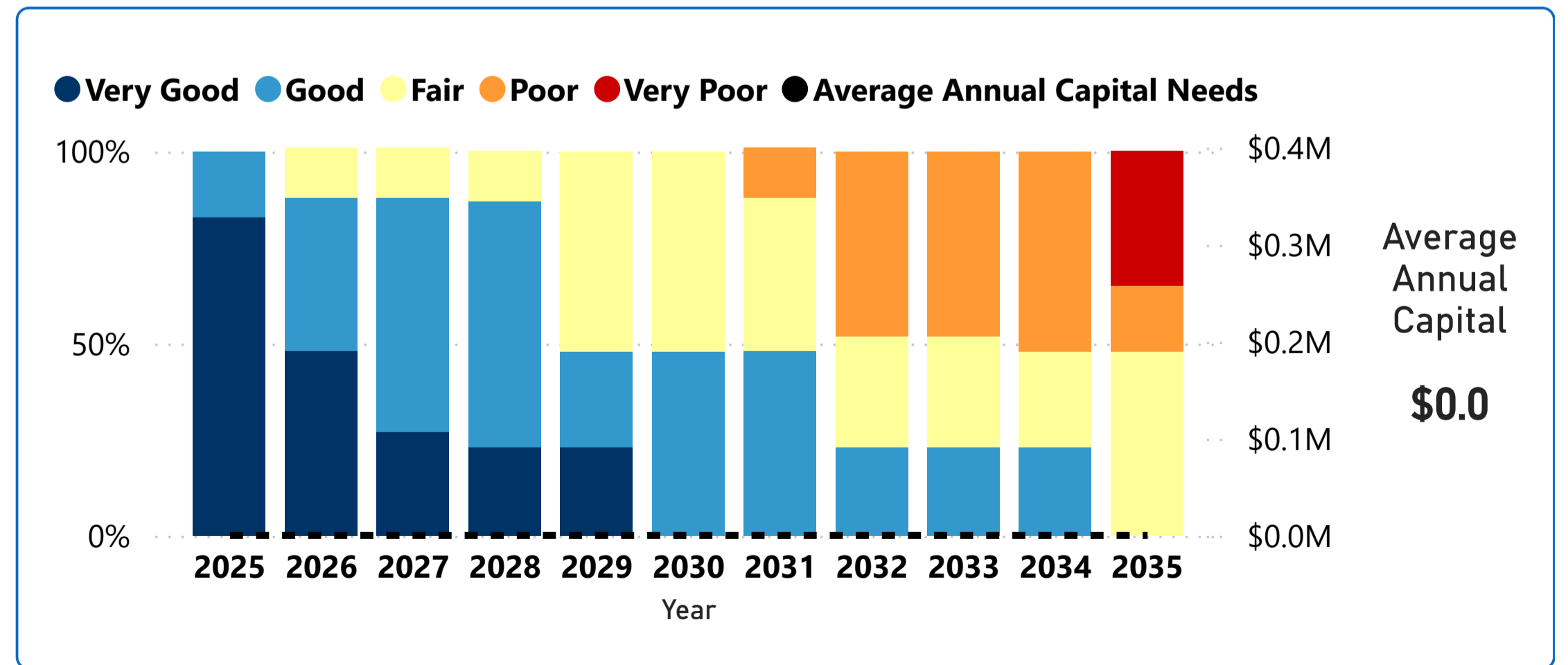
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

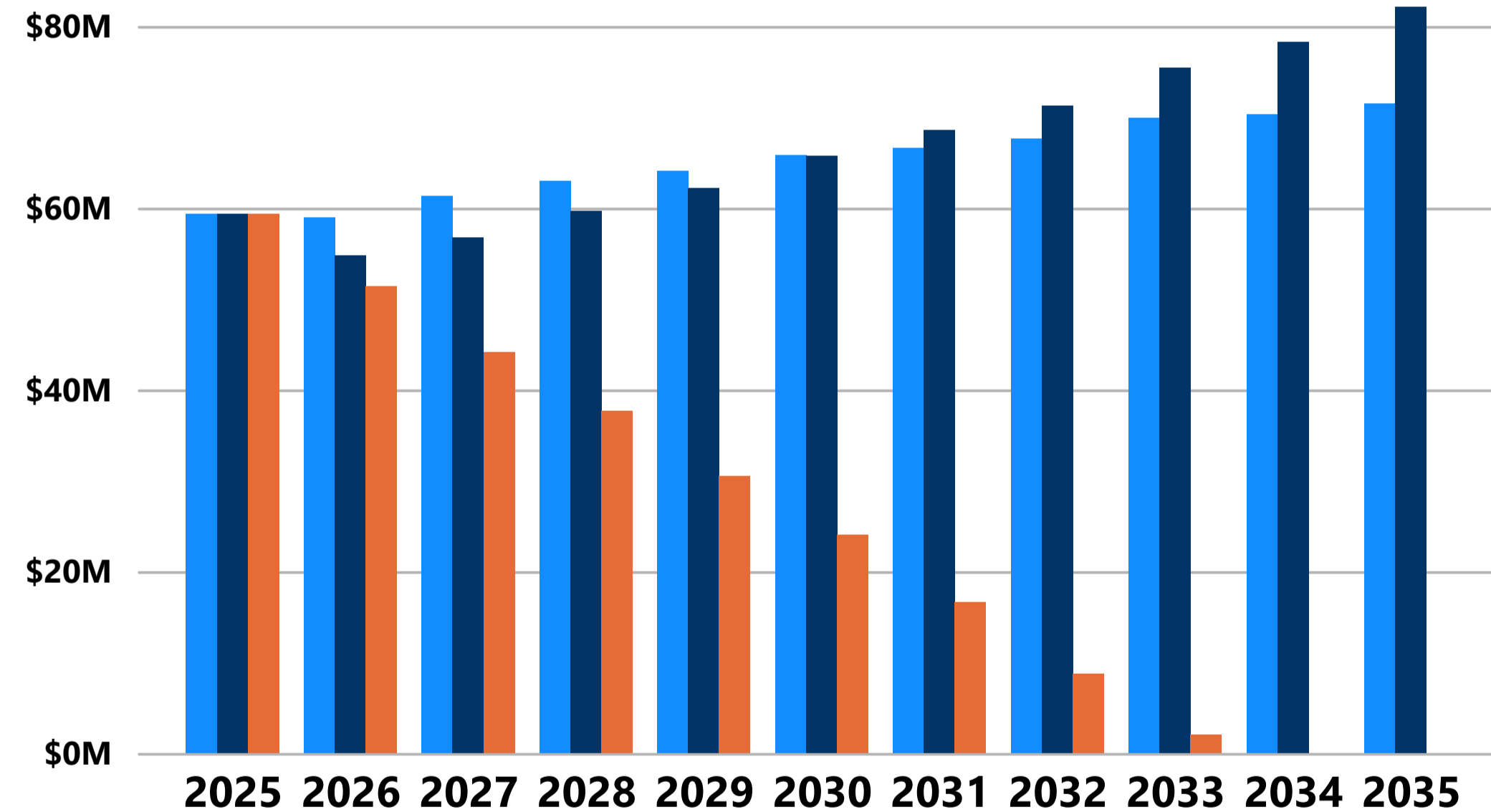
Level of Service Modelling

Service Area
Structures

Asset Classes/Types
All Sidewalks & Wildlife Fencing

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$71.4M	\$82.1M	\$0.0

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

\$2.4M!
Targeted Annual Investment:
\$8.4M
(-70.95%)

Scenario #2: Maintain LOS

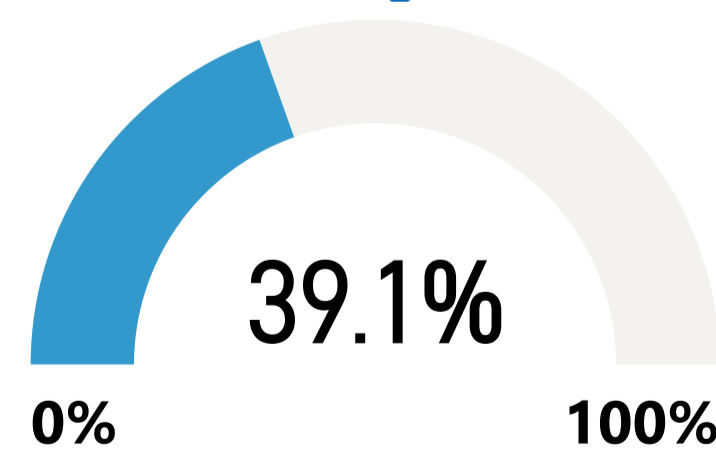
\$1.4M!
Targeted Annual Investment:
\$8.4M
(-83.5%)

Scenario #3: Proposed LOS

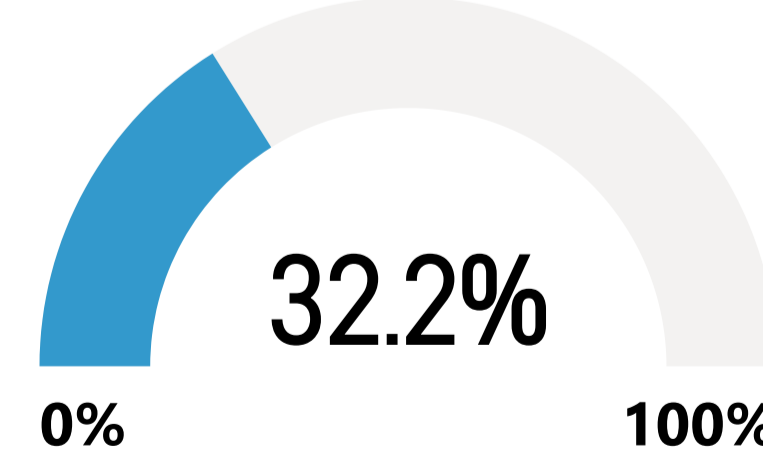
\$8.5M✓
Targeted Annual Investment:
\$8.4M
(+1.14%)

Metric #3 - Percentage of Assets in Fair or Better Condition (2035)

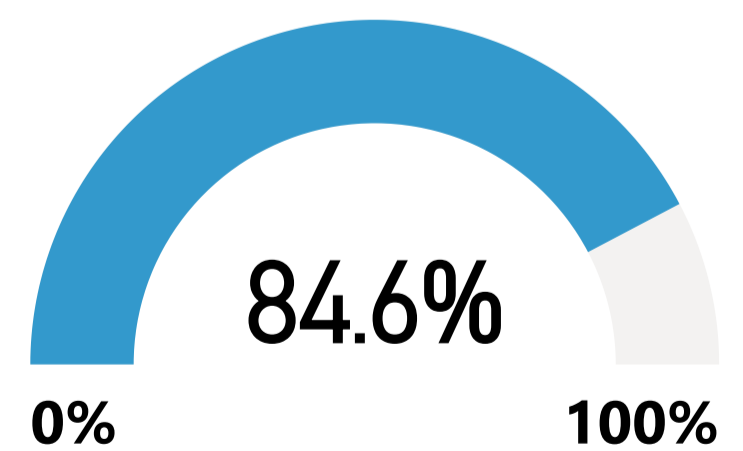
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS



Note: Minor Culverts (< 3 m) were omitted from LOS scenario analysis due to the limited reliability of asset inventory data, their minimal risk classification by SMEs, low individual replacement costs, and the City's established maintenance strategy of contingent replacement rather than preventative programming.



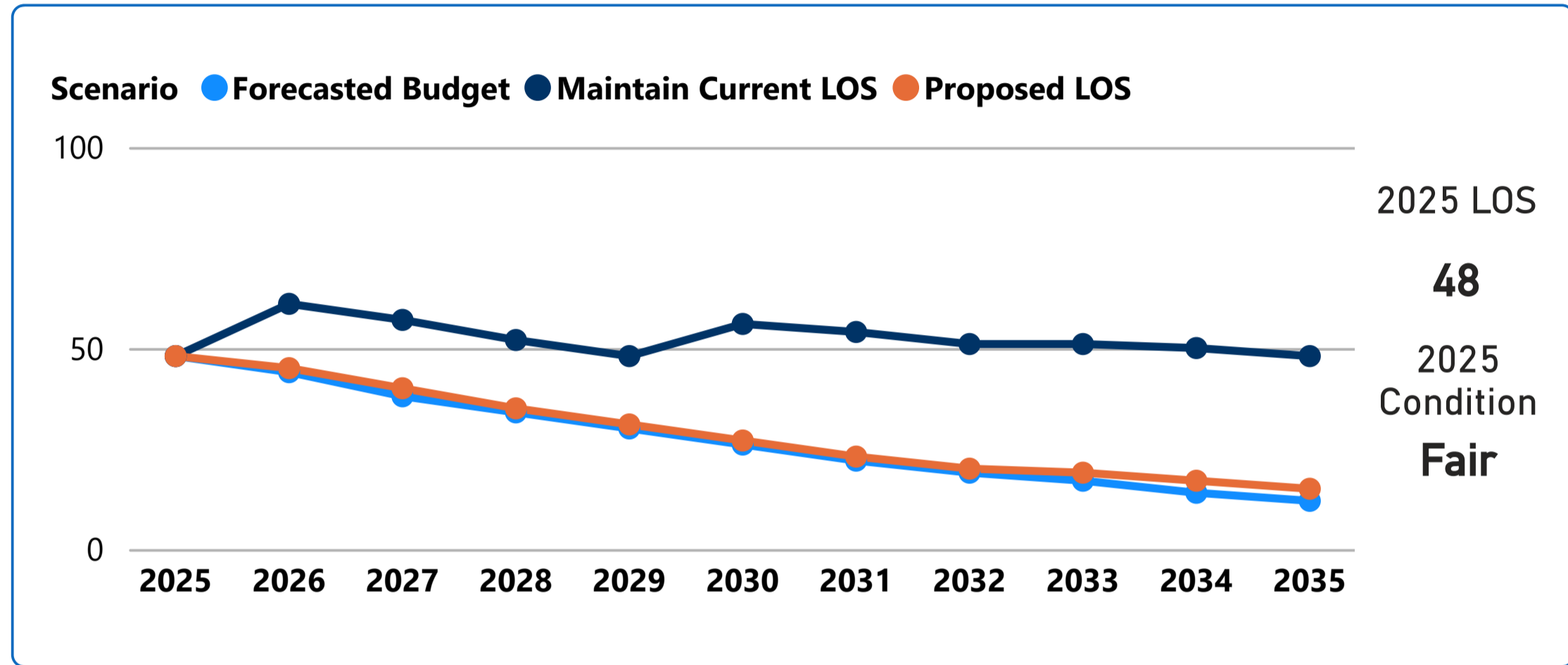
Scenario Summary Card

Level of Service Modelling

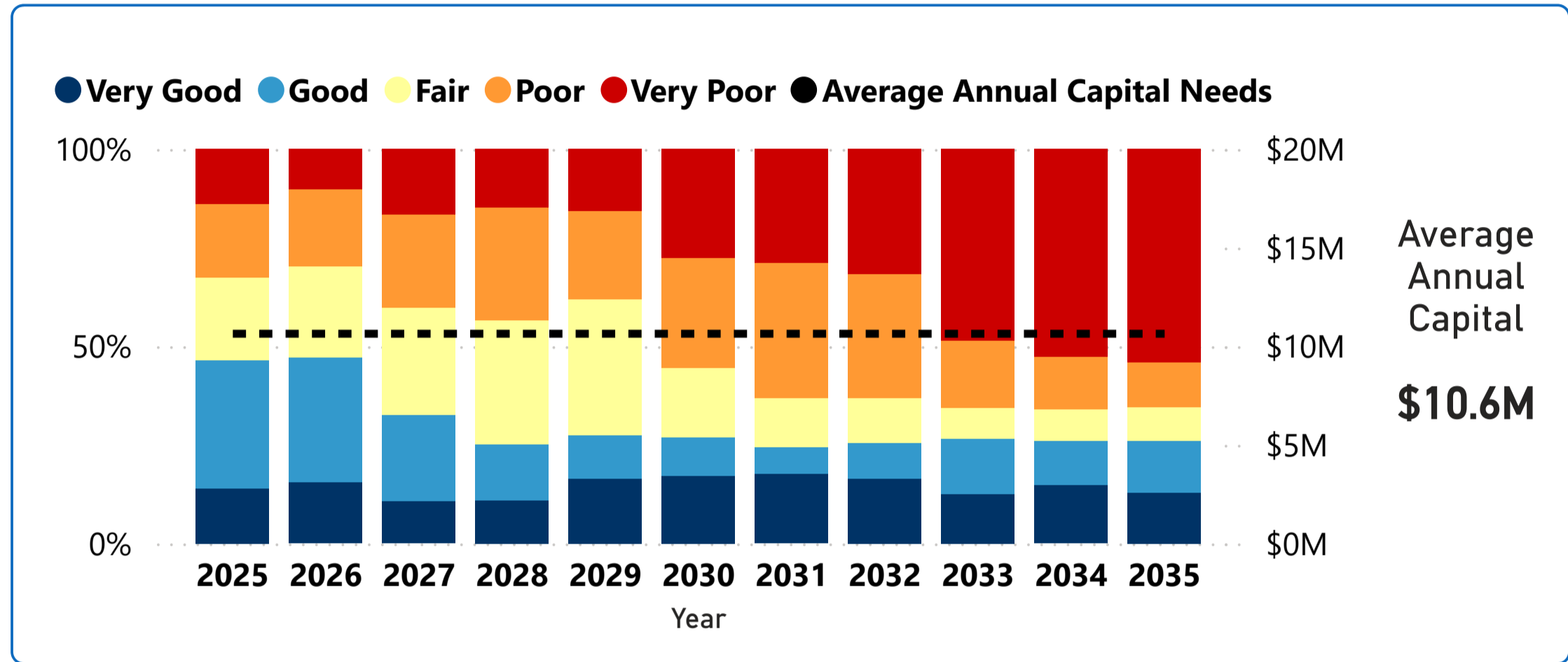
Service Area
Corporate Fleet

Asset Classes/Types
Fleet & Equipment

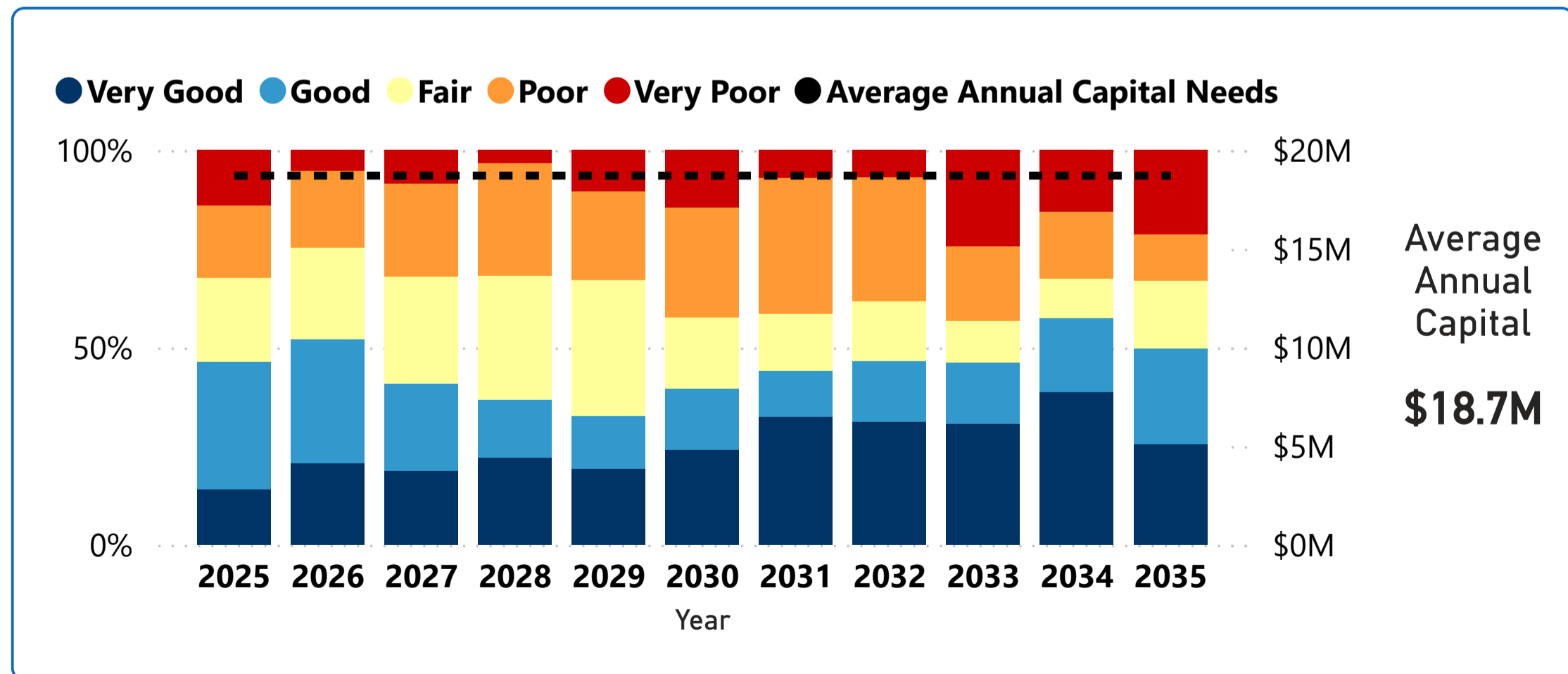
Average Network Condition (% Remaining Service Life)



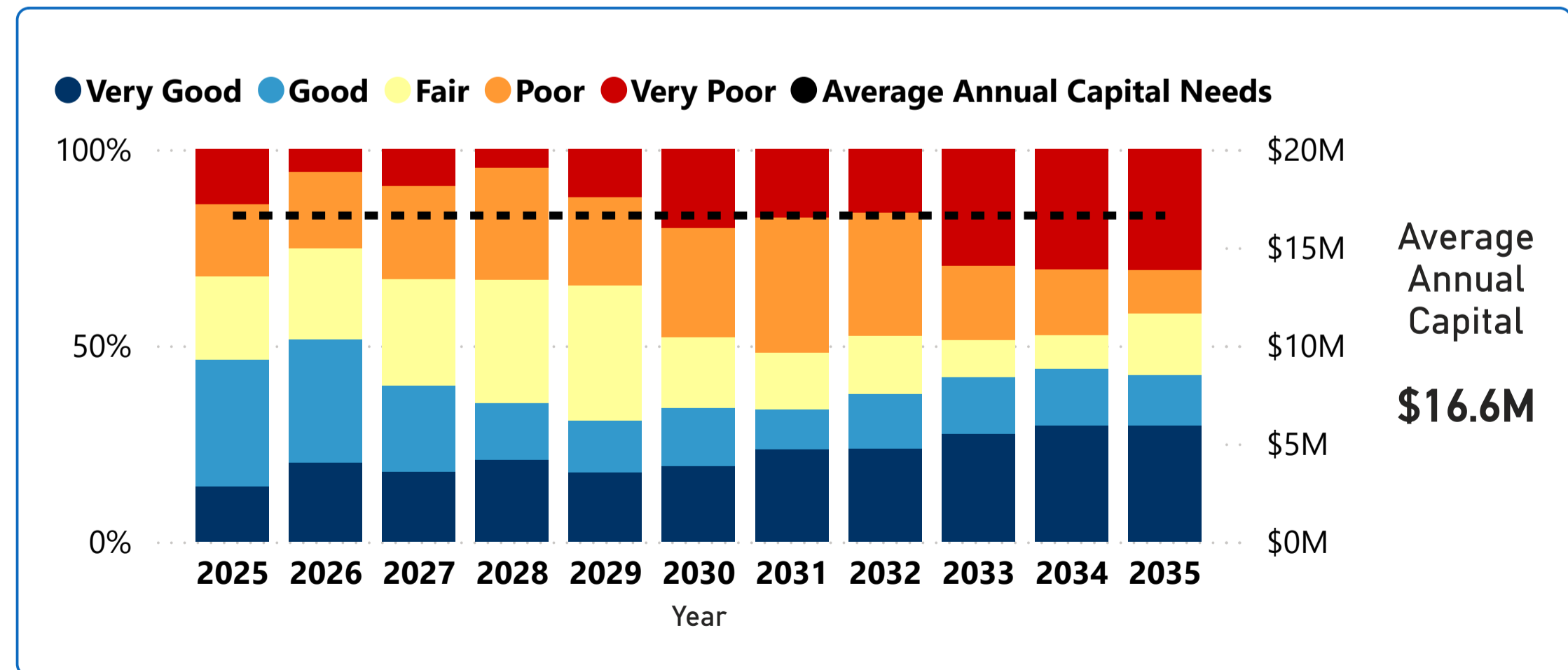
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

Service Area

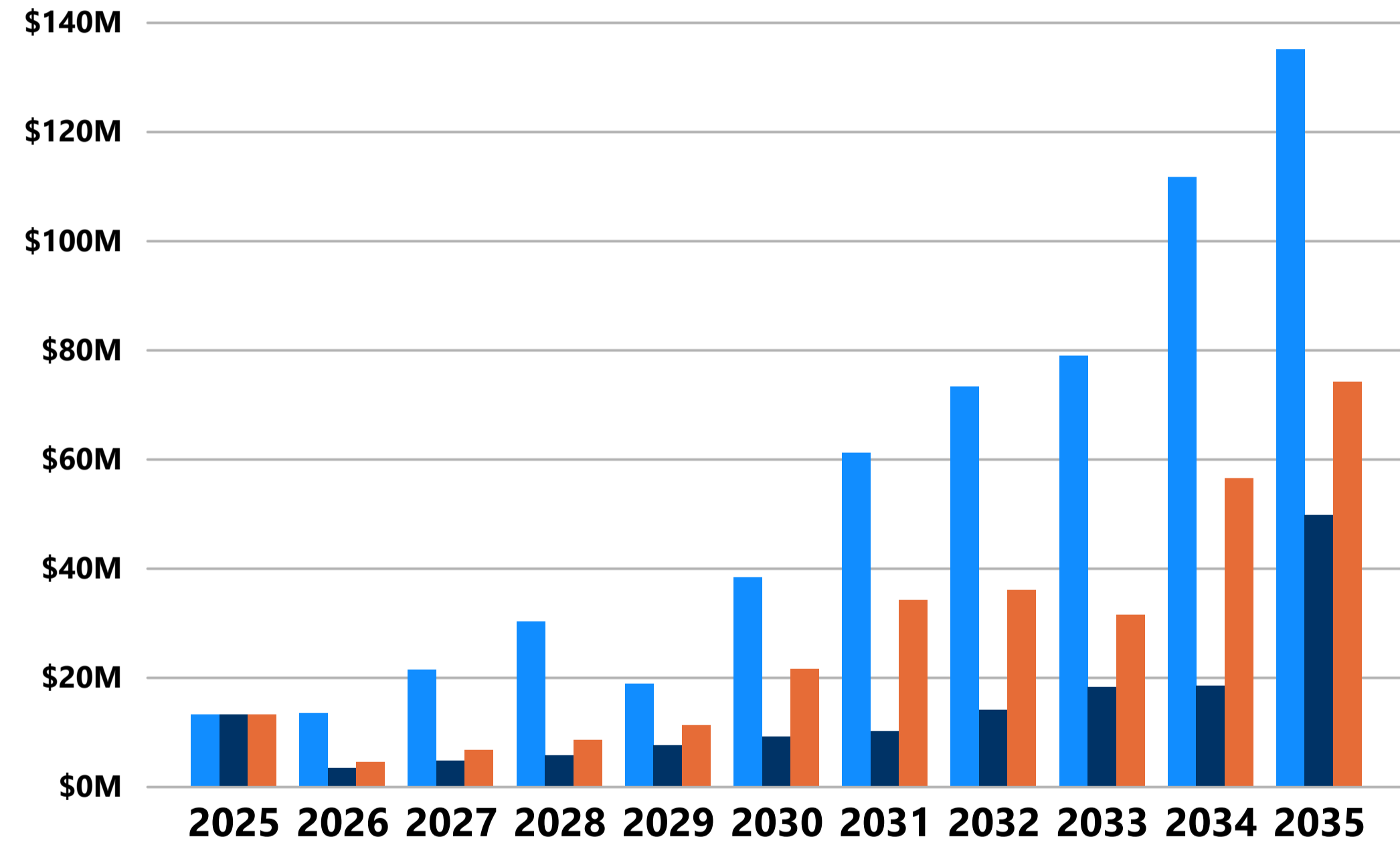
Corporate Fleet

Asset Classes/Types

Fleet & Equipment

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget Scenario #2: Maintain LOS Scenario #3: Proposed LOS

\$135.0M

\$49.6M

\$74.0M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$10.6M!
Targeted Annual Investment:
\$19.4M
(-45.31%)

\$18.7M!
Targeted Annual Investment:
\$19.4M
(-3.81%)

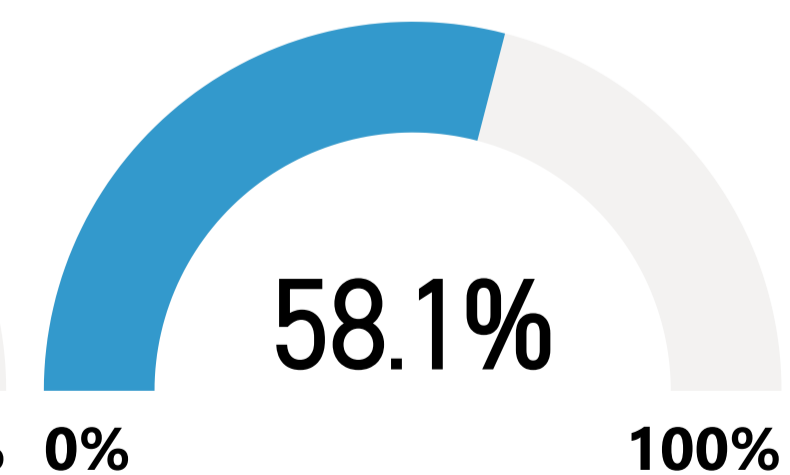
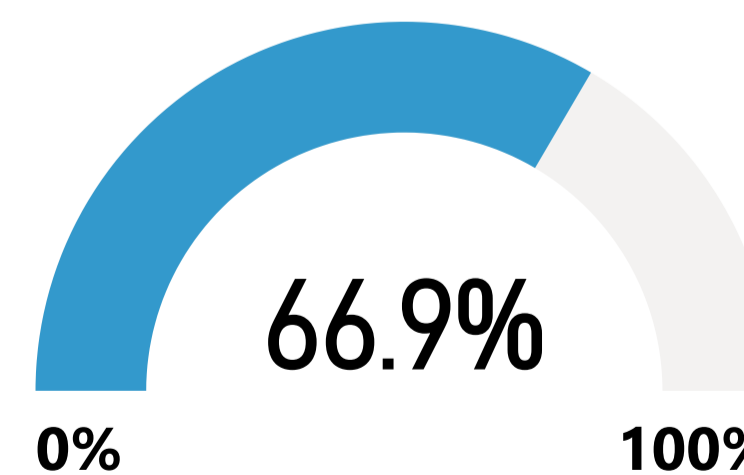
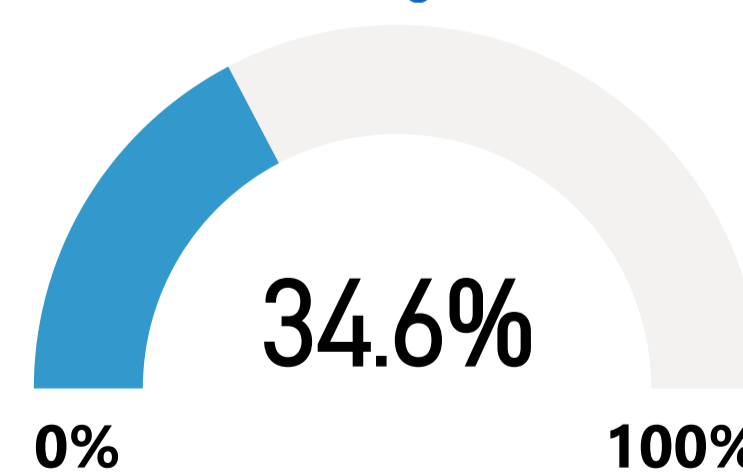
\$16.6M!
Targeted Annual Investment:
\$19.4M
(-14.55%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS





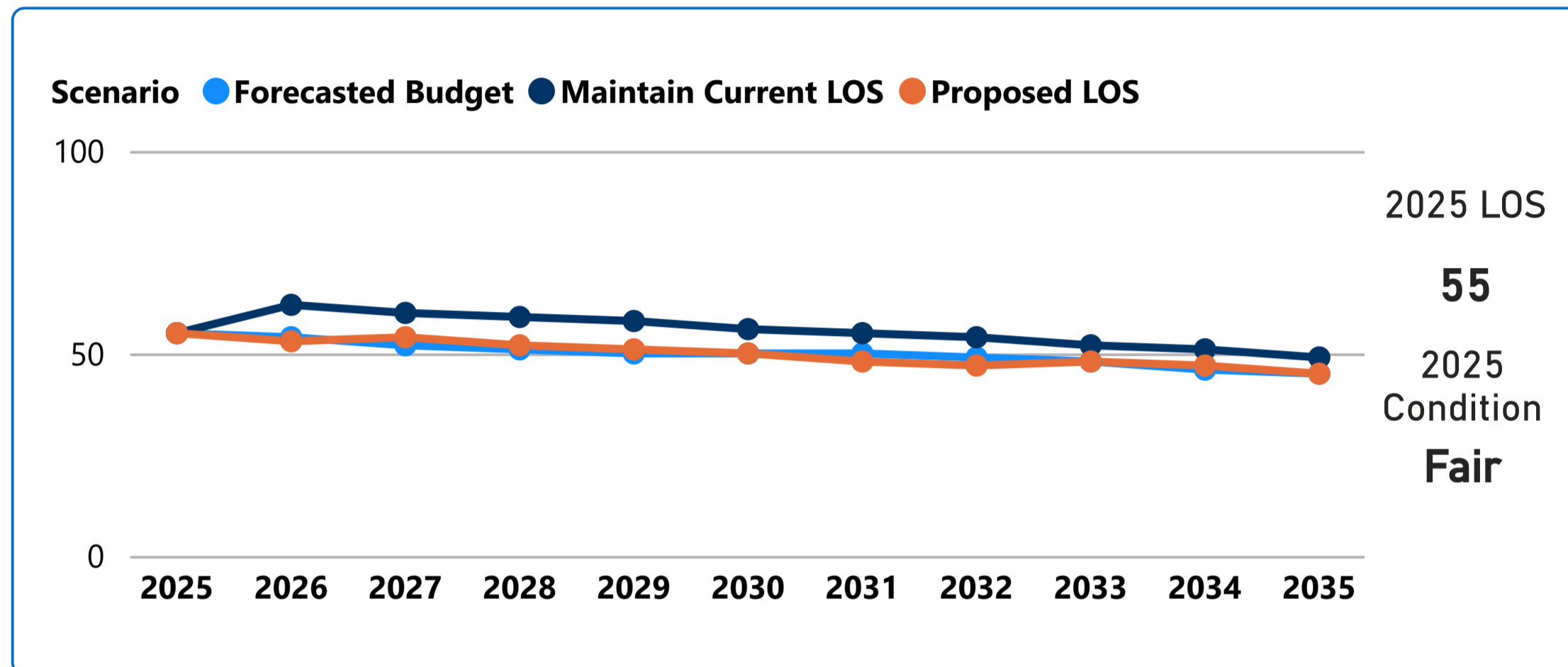
Scenario Summary Card

Level of Service Modelling

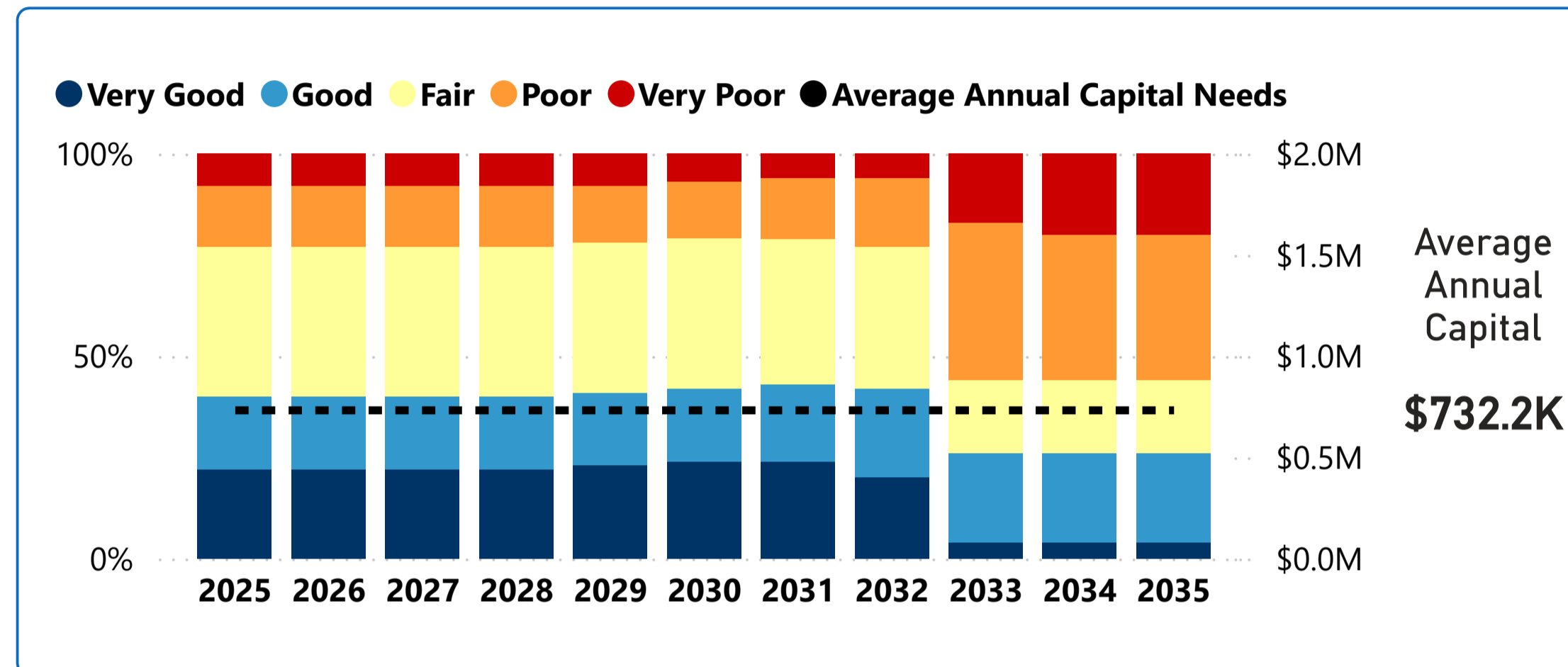
Service Area
Parks Linear

Asset Classes/Types
Shoreline Assets

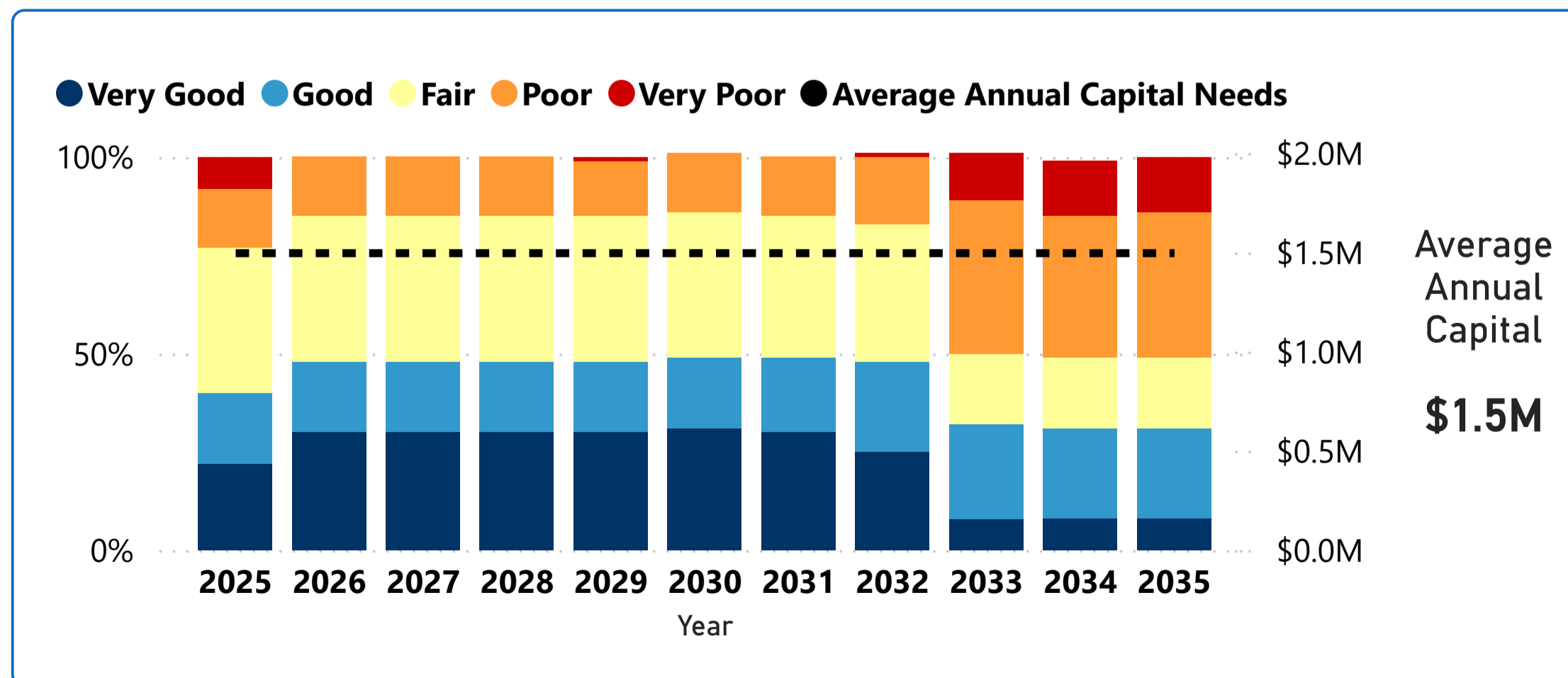
Average Network Condition (% Remaining Service Life)



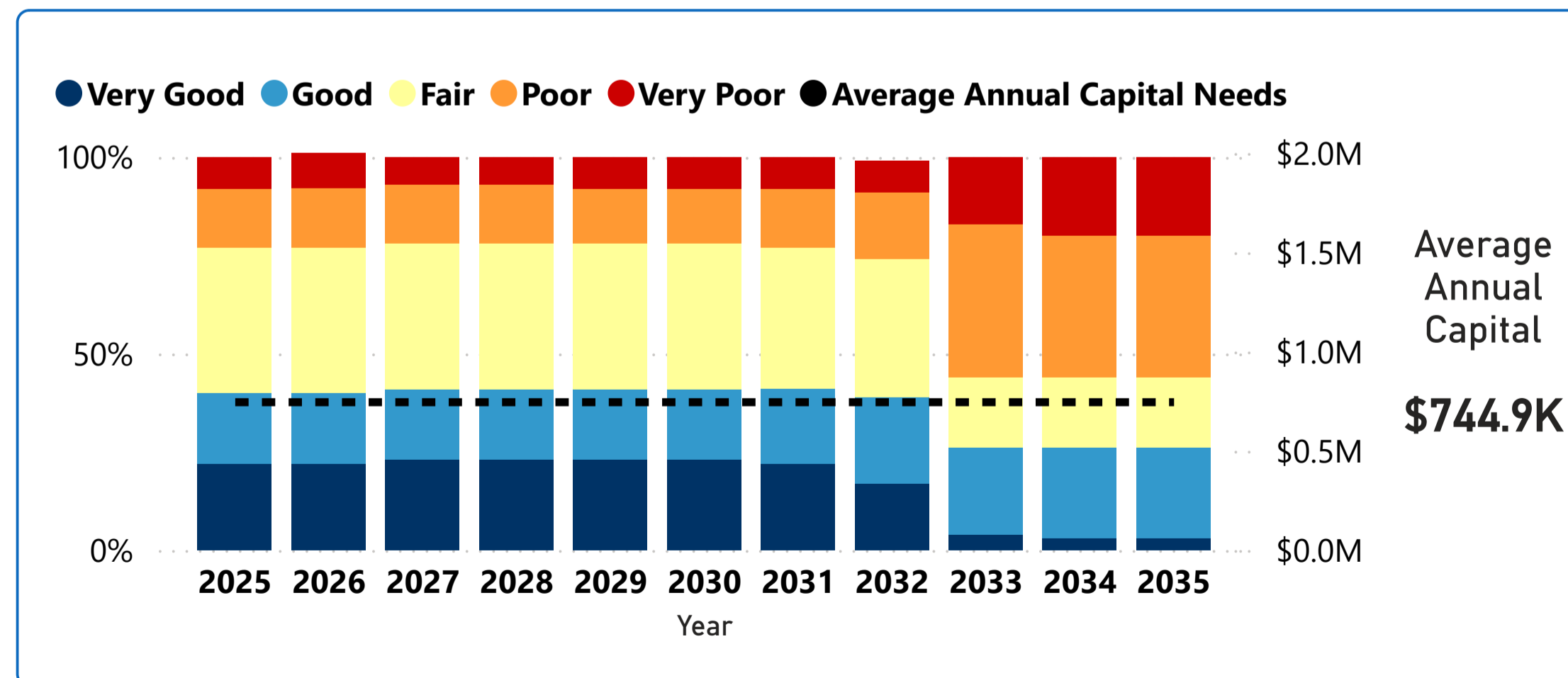
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: These results include shoreline protection assets such as seawalls and other assets such as docks and boat ramps.



Scenario Summary Card

Level of Service Modelling

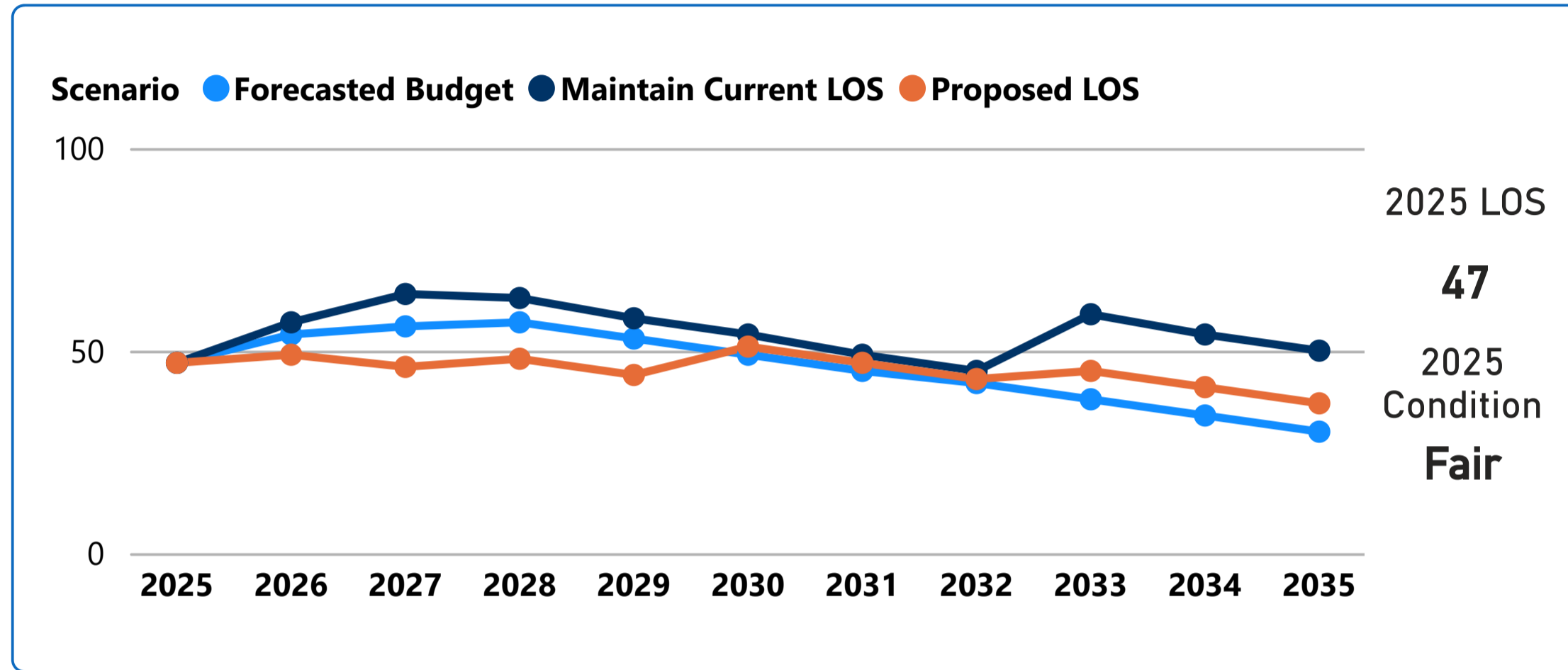
Service Area

Parks Linear

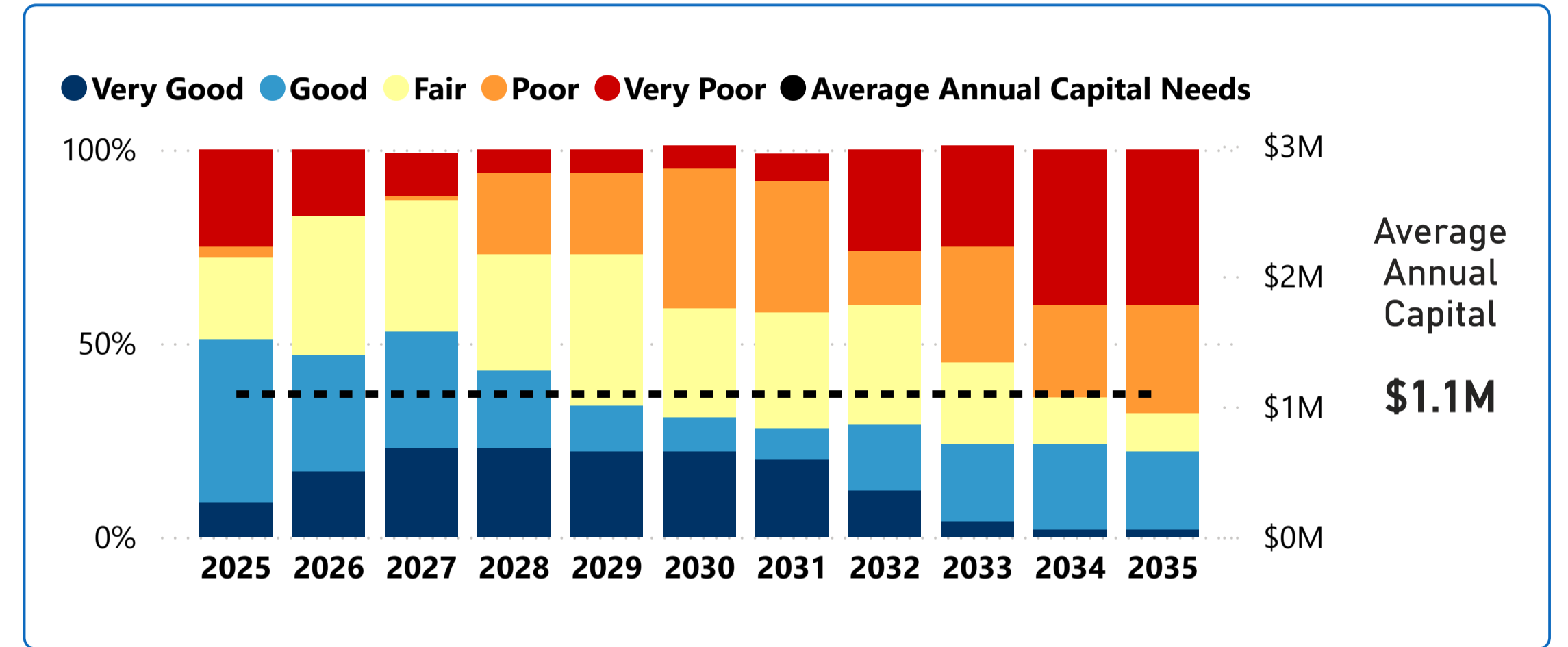
Asset Classes/Types

Paths and Trails

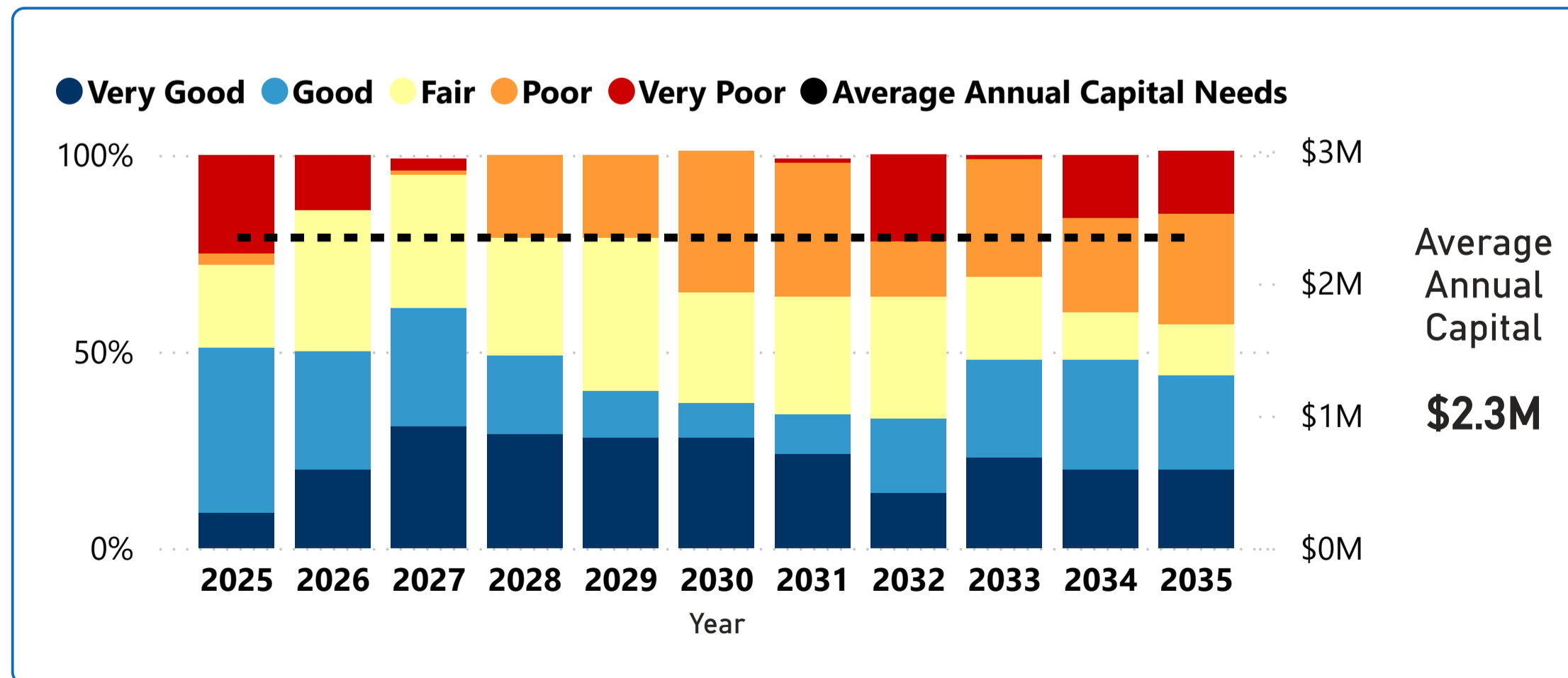
Average Network Condition (% Remaining Service Life)



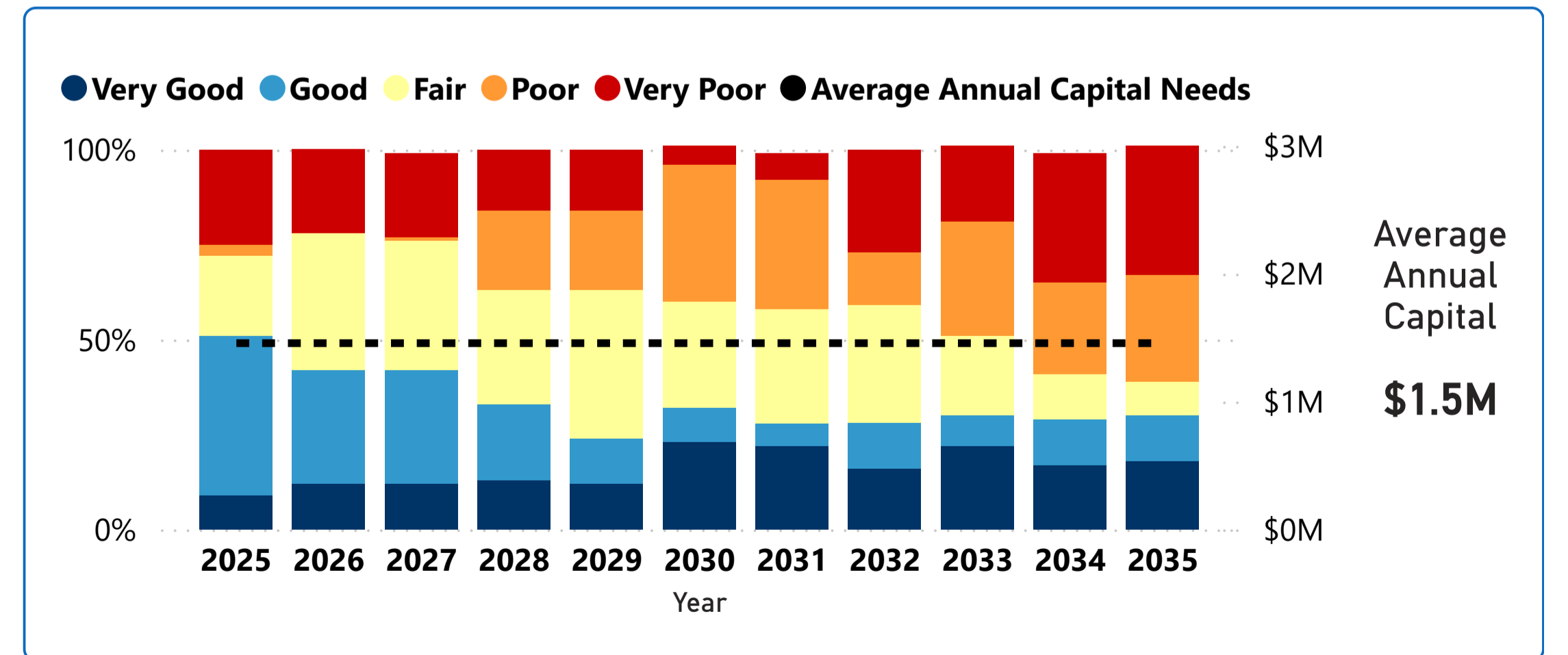
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

Service Area

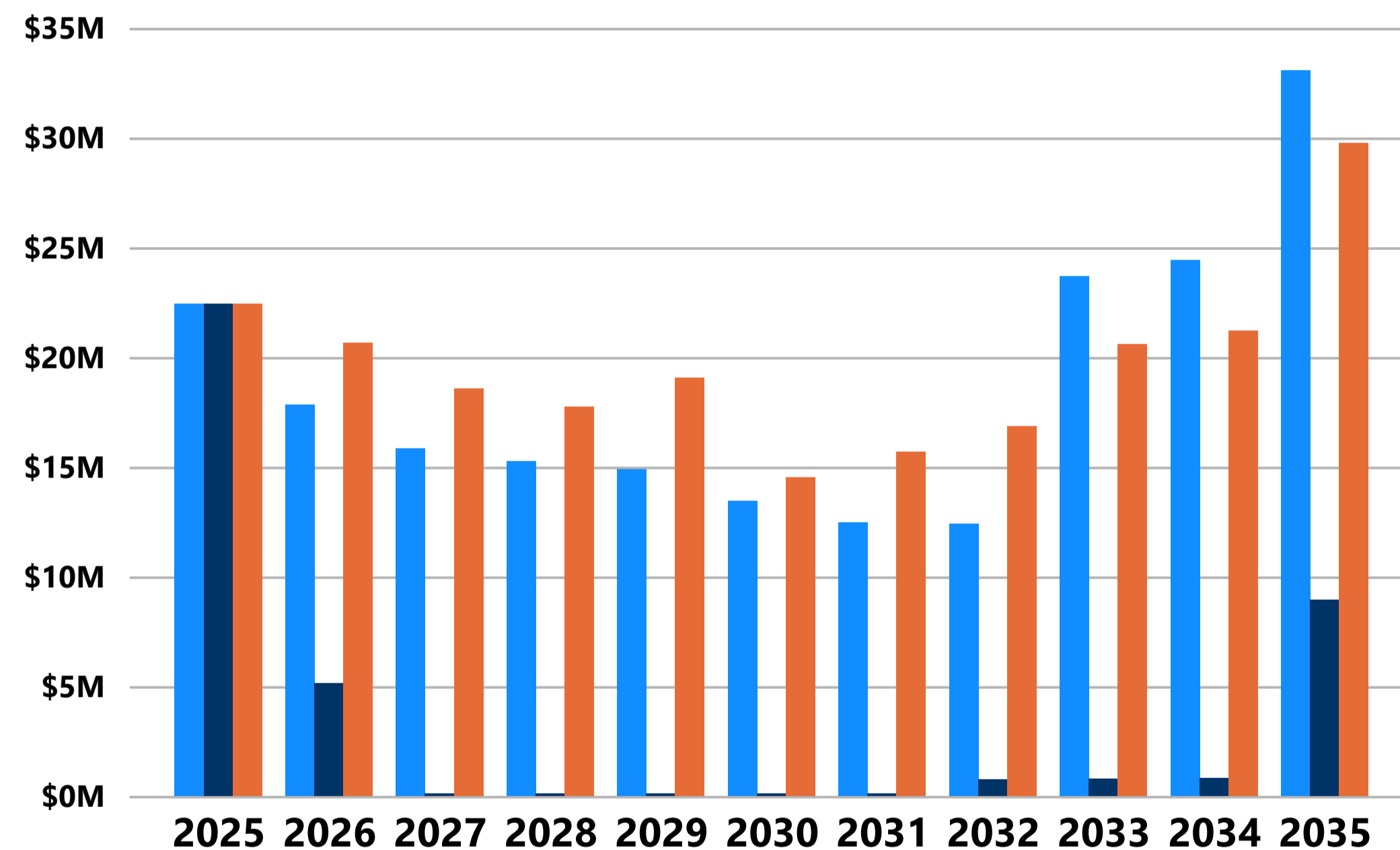
Parks Linear

Asset Classes/Types

All Paths, Trails, and Shoreline Assets

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$33.1M	\$8.9M	\$29.7M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

\$1.8M!
Targeted Annual Investment:
\$3.1M
(-40.31%)

Scenario #2: Maintain LOS

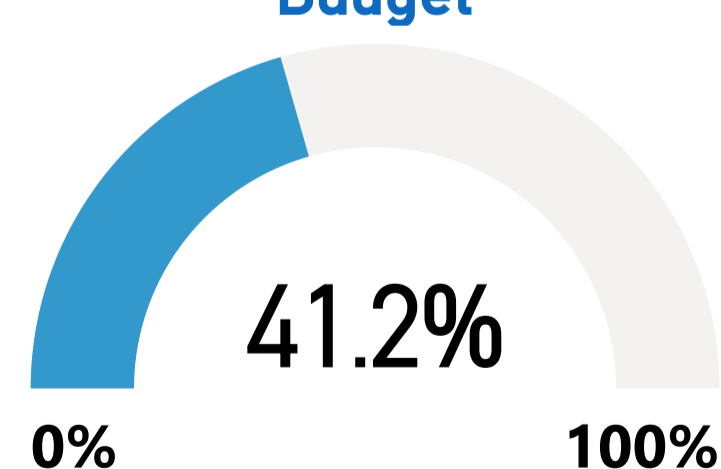
\$3.8M✓
Targeted Annual Investment:
\$3.1M
(+25.5%)

Scenario #3: Proposed LOS

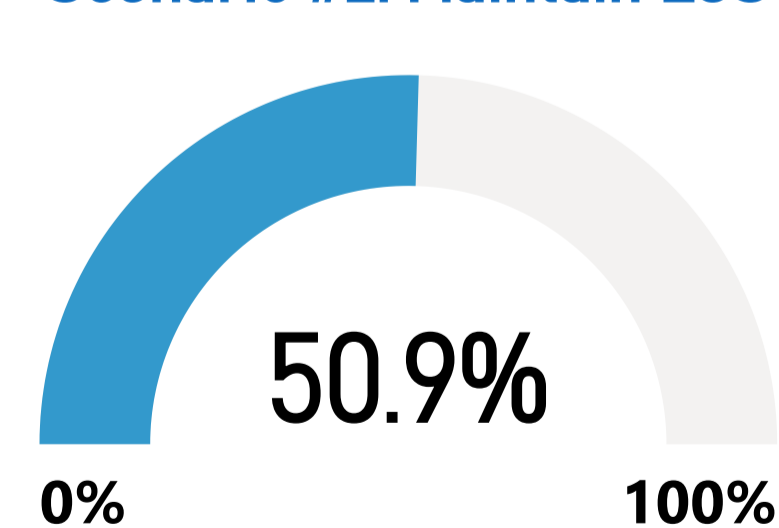
\$2.2M!
Targeted Annual Investment:
\$3.1M
(-28.07%)

Metric #3 - Percentage of Assets in Fair or Better Condition (2035)

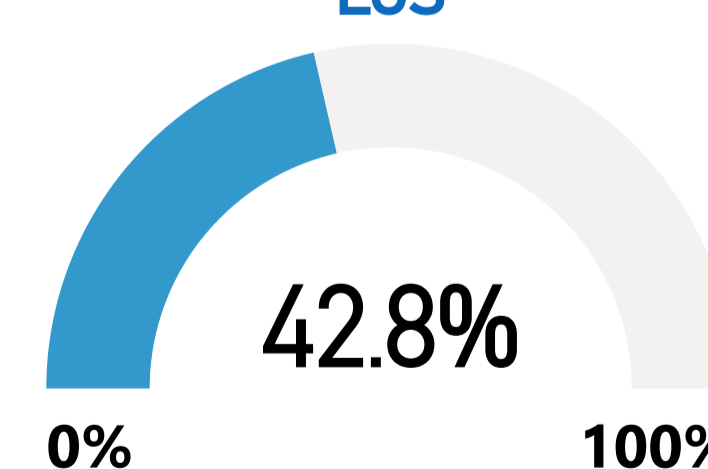
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS





Scenario Summary Card

Level of Service Modelling

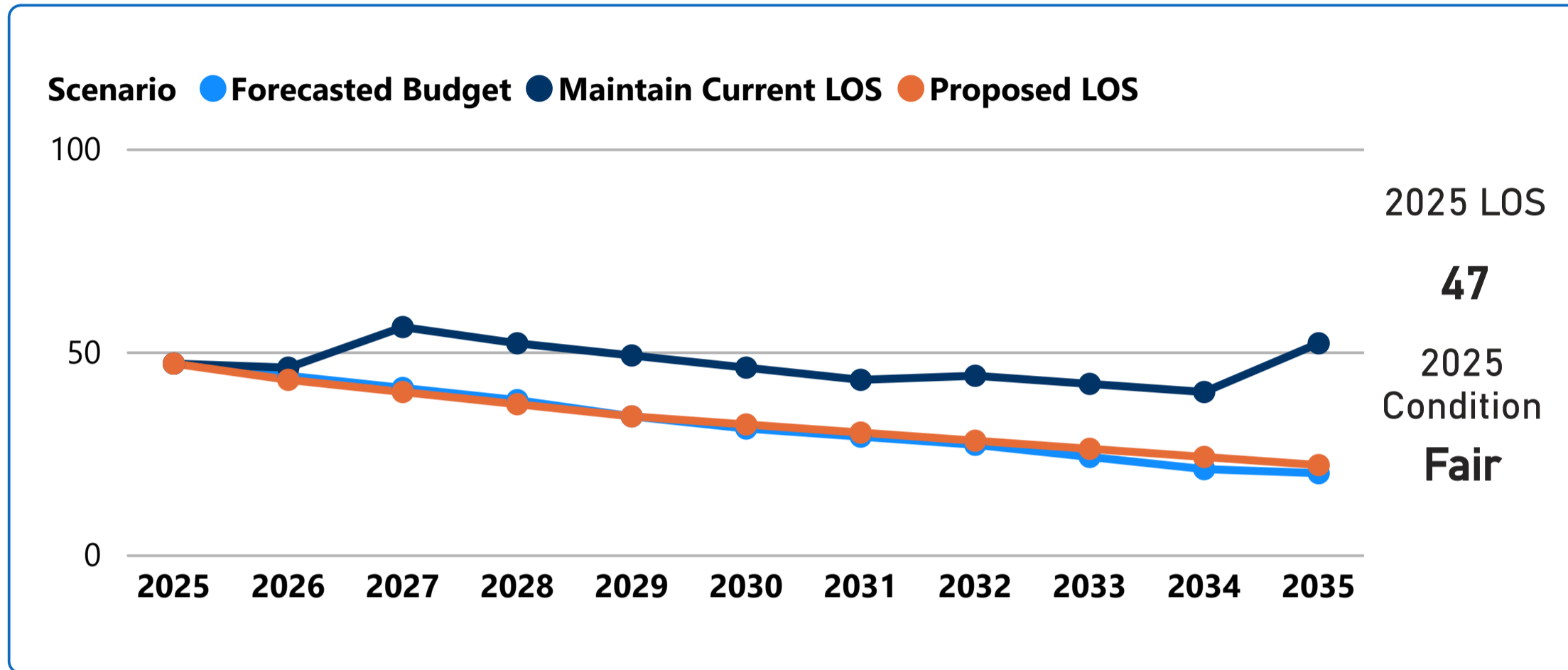
Service Area

Park Amenities

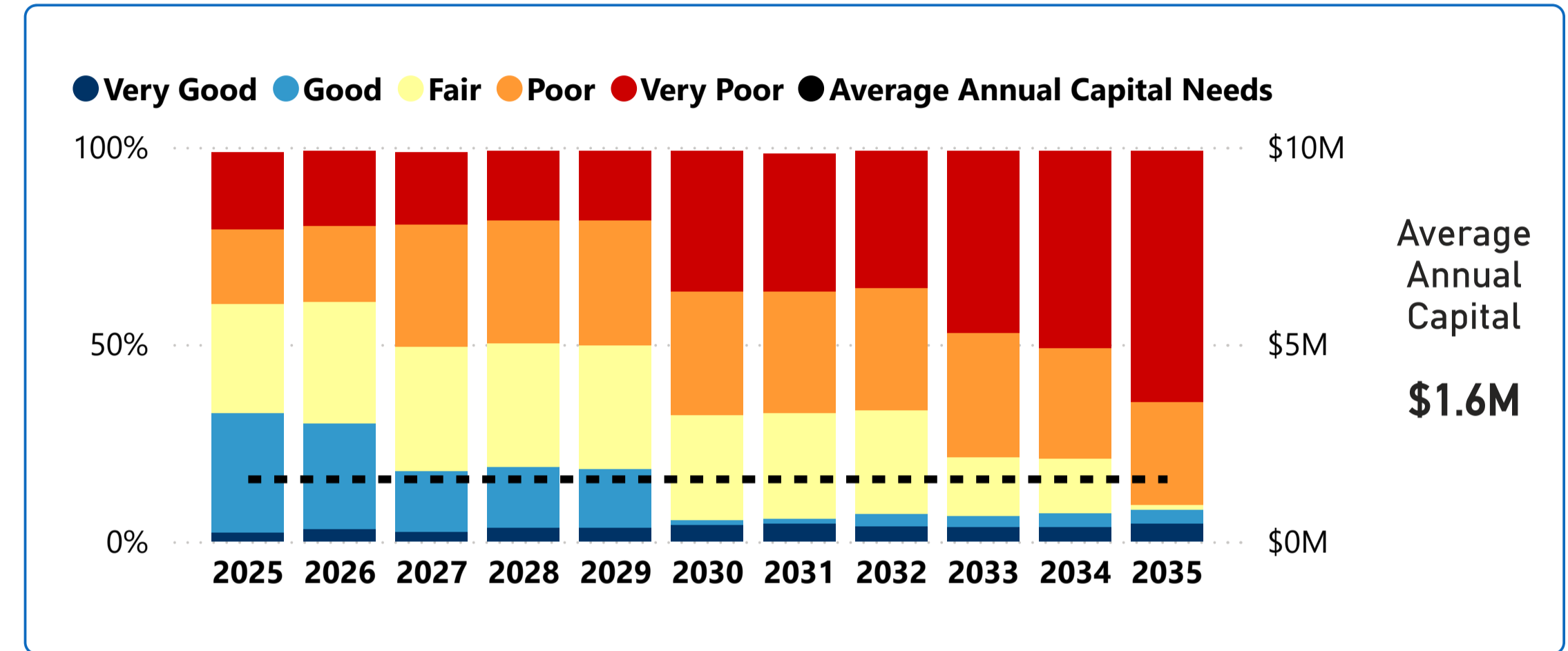
Asset Classes/Types

All Assets

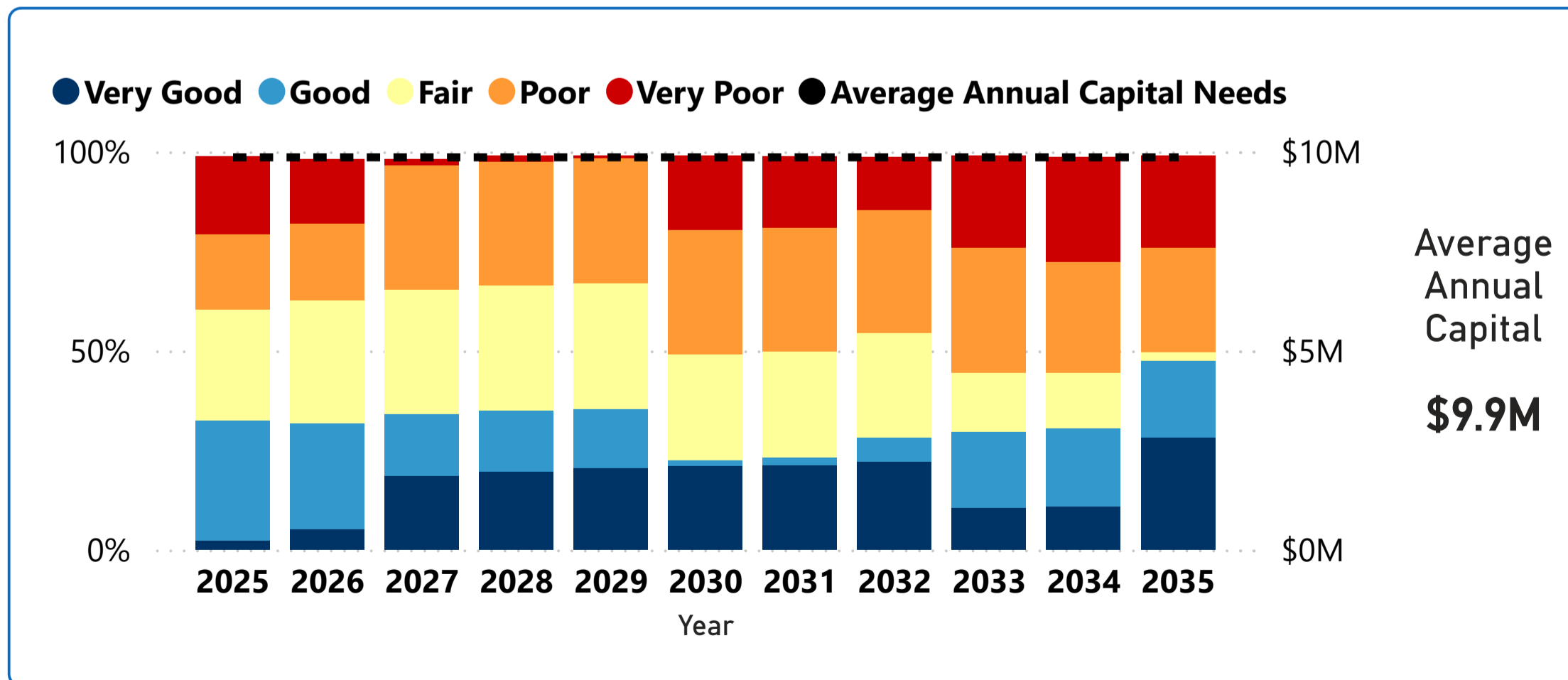
Average Network Condition (% Remaining Service Life)



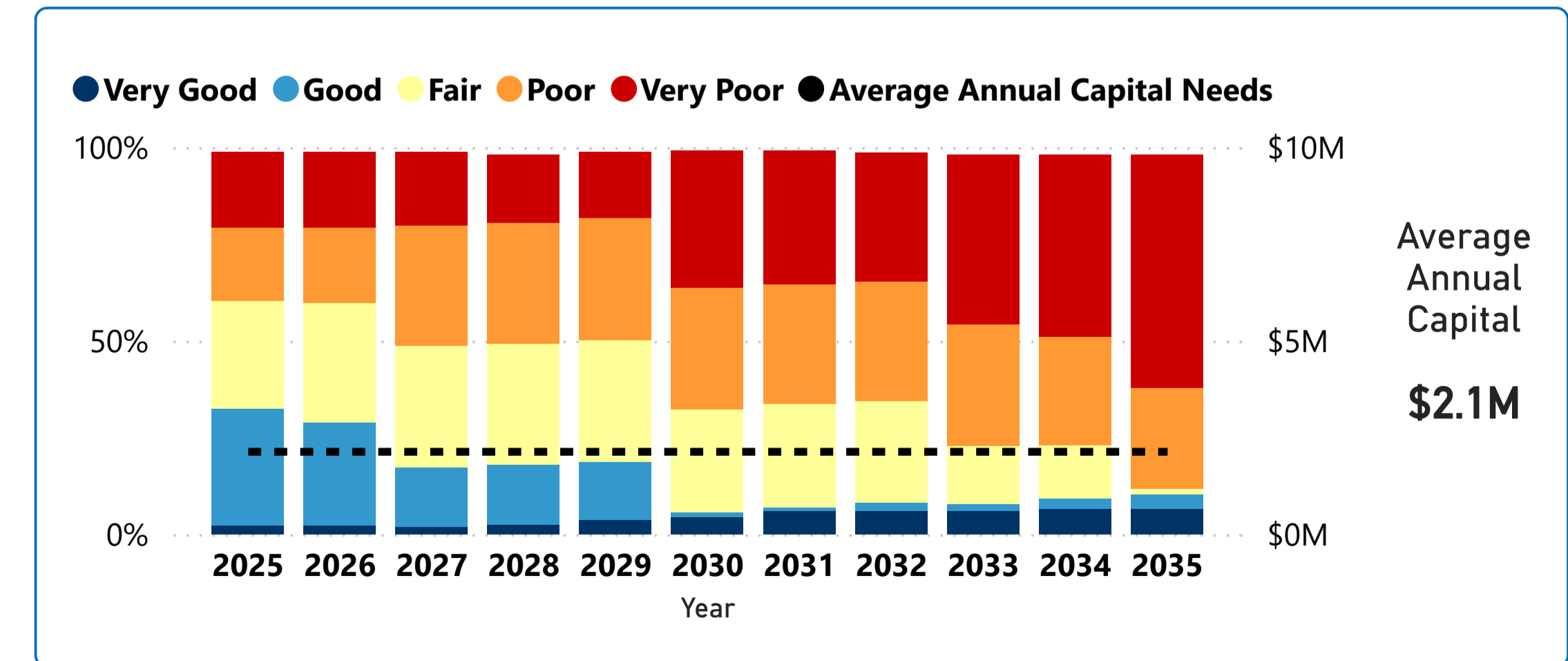
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





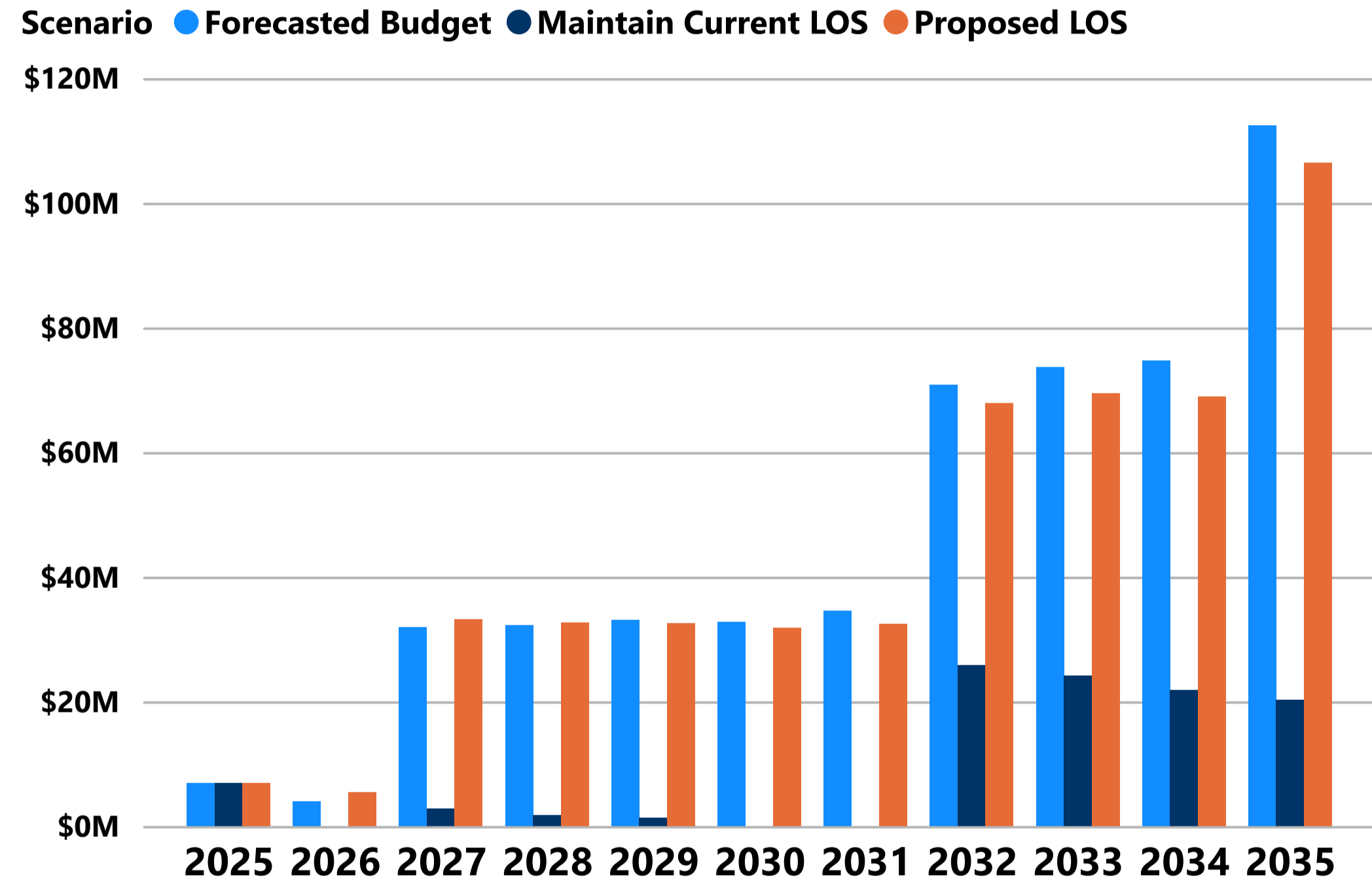
Scenario Summary Card

Level of Service Modelling

Service Area
Park Amenities

Asset Classes/Types
All Sports Fields & Courts, Playgrounds, Off-Leash Dog Parks, Splashpads, and Skateparks.

Metric #1 - 10-Year State of Good Repair Backlog



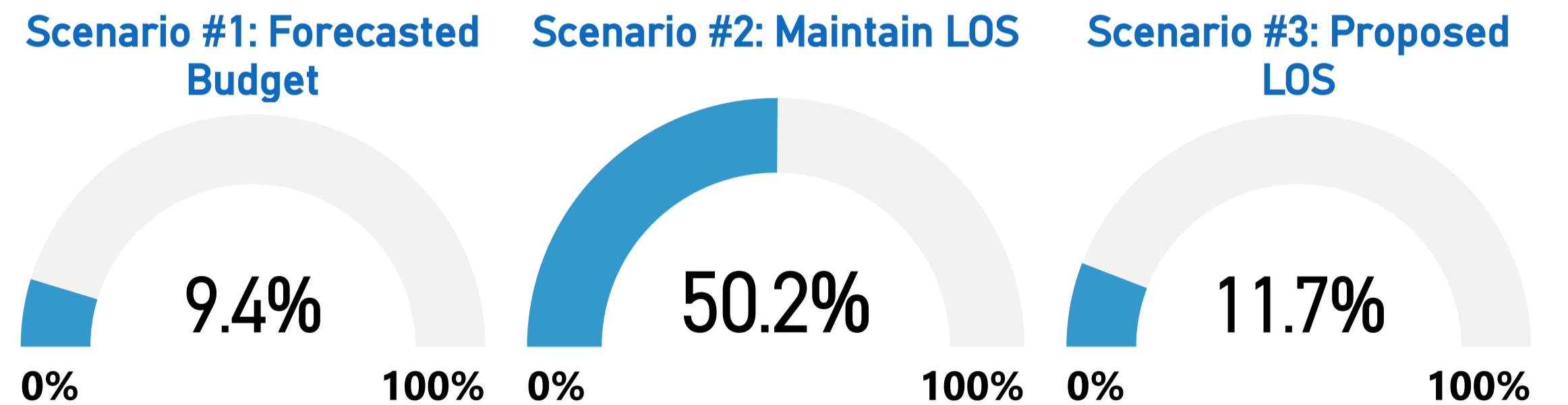
Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$112.4M	\$20.3M	\$106.4M

Metric #2 - Average Annual Asset Reinvestment Rate



Metric #3 - Percentage of Assets in Fair or Better Condition (2035)





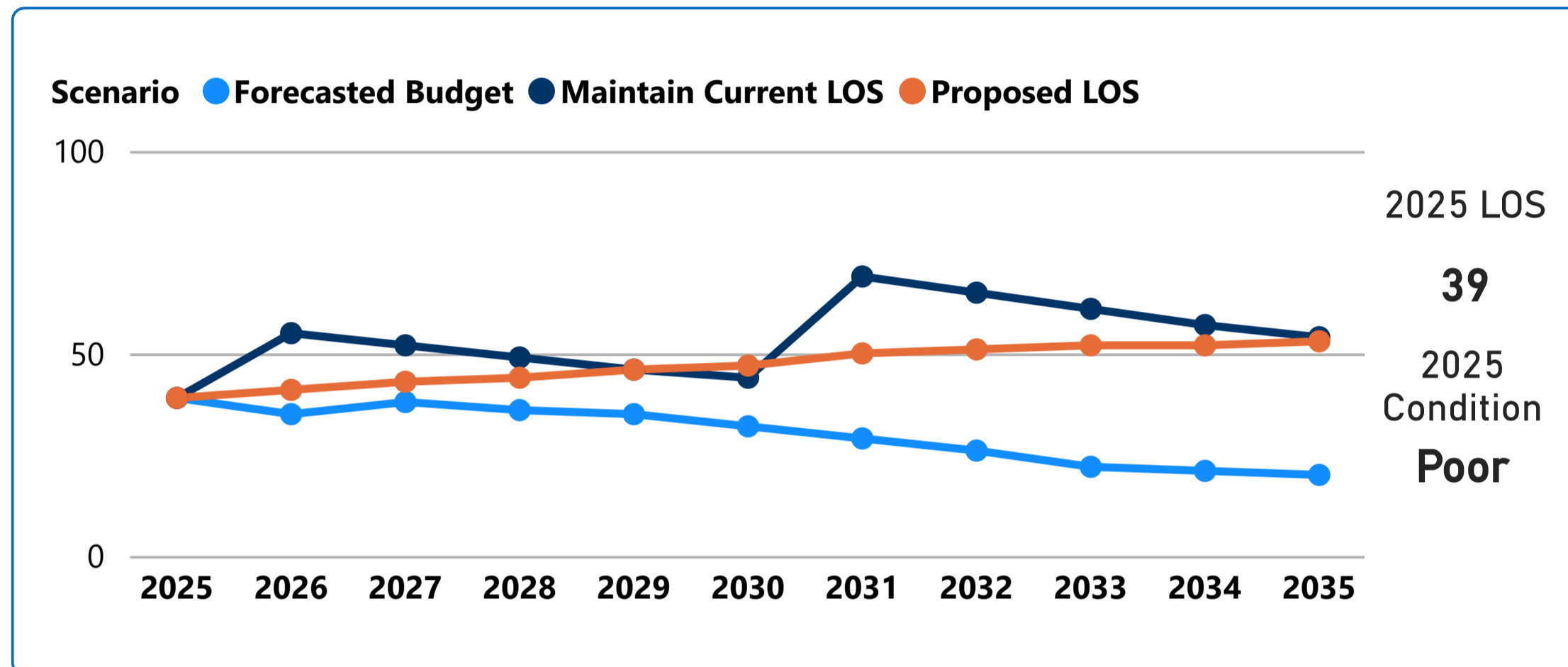
Scenario Summary Card

Level of Service Modelling

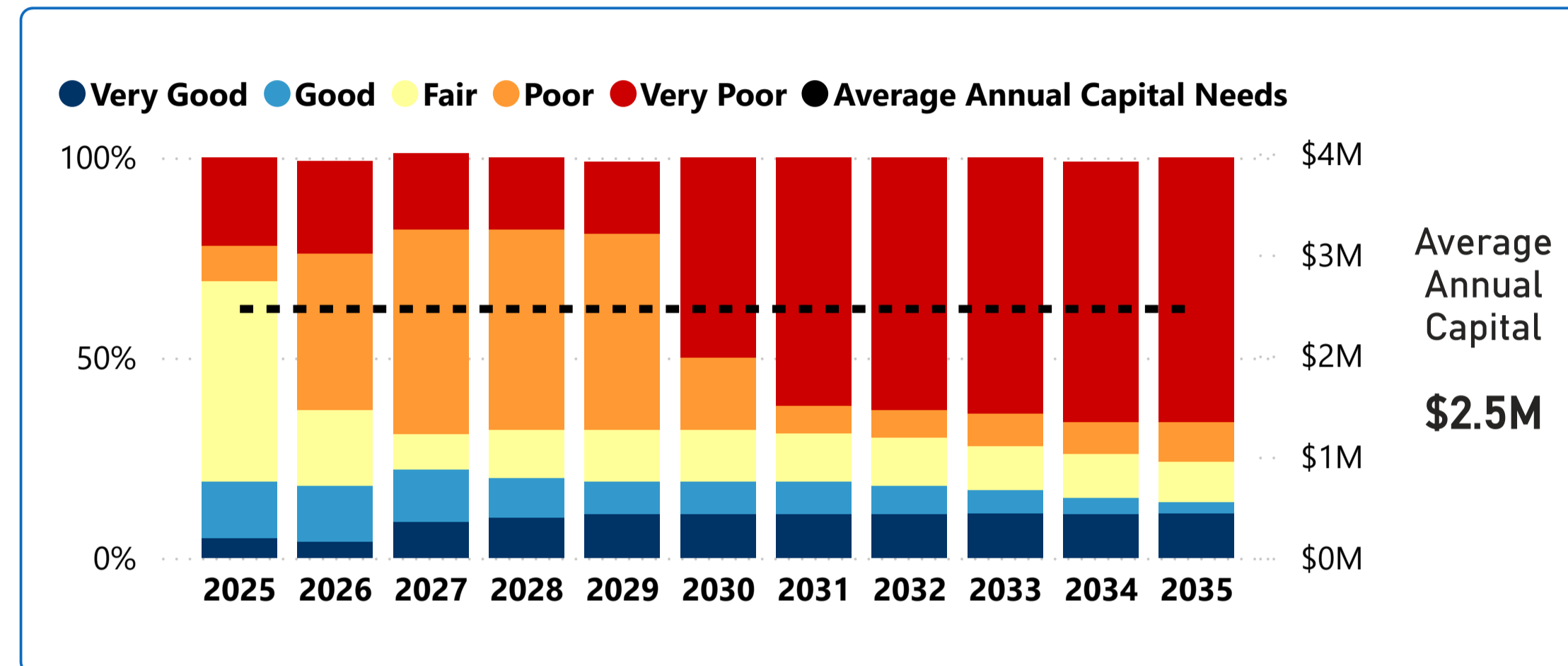
Service Area
Traffic Control & Safety

Asset Classes/Types
Streetlights

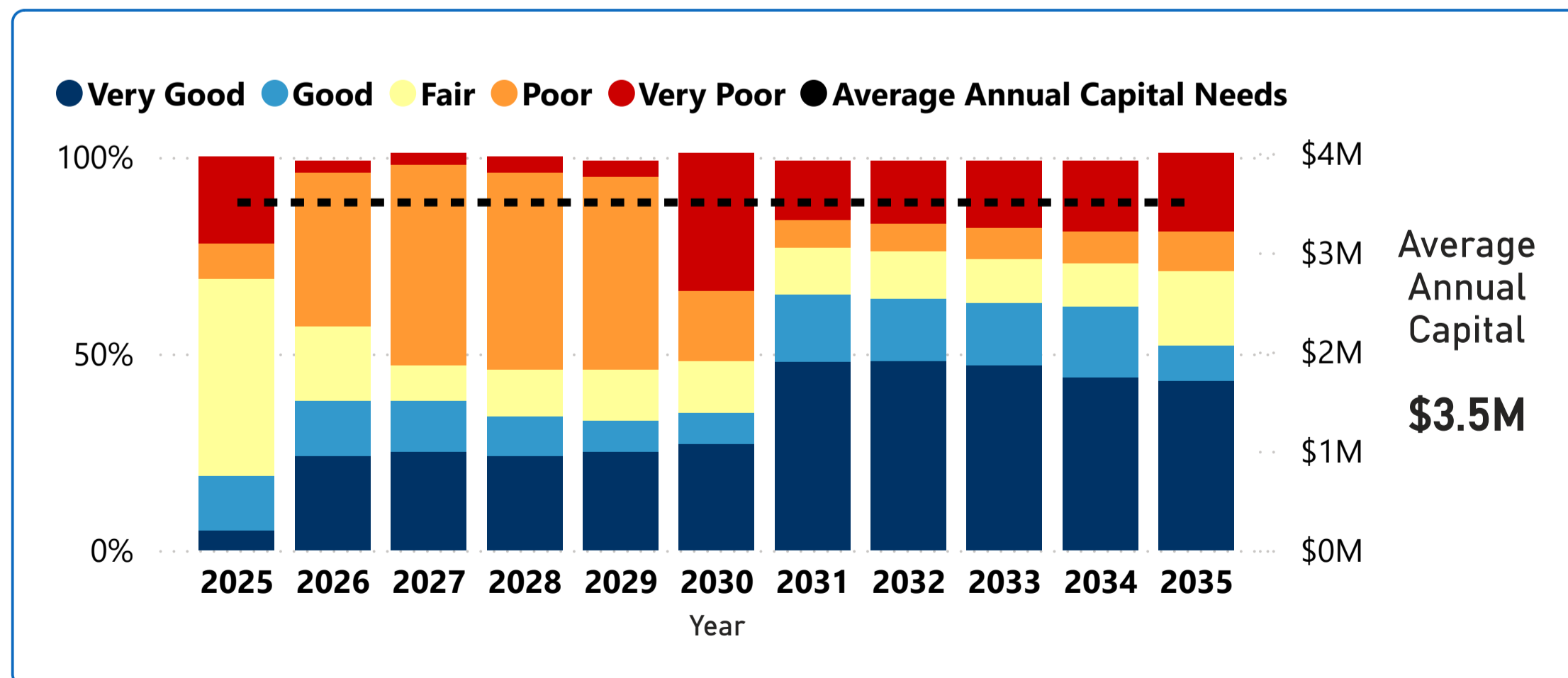
Average Network Condition (% Remaining Service Life)



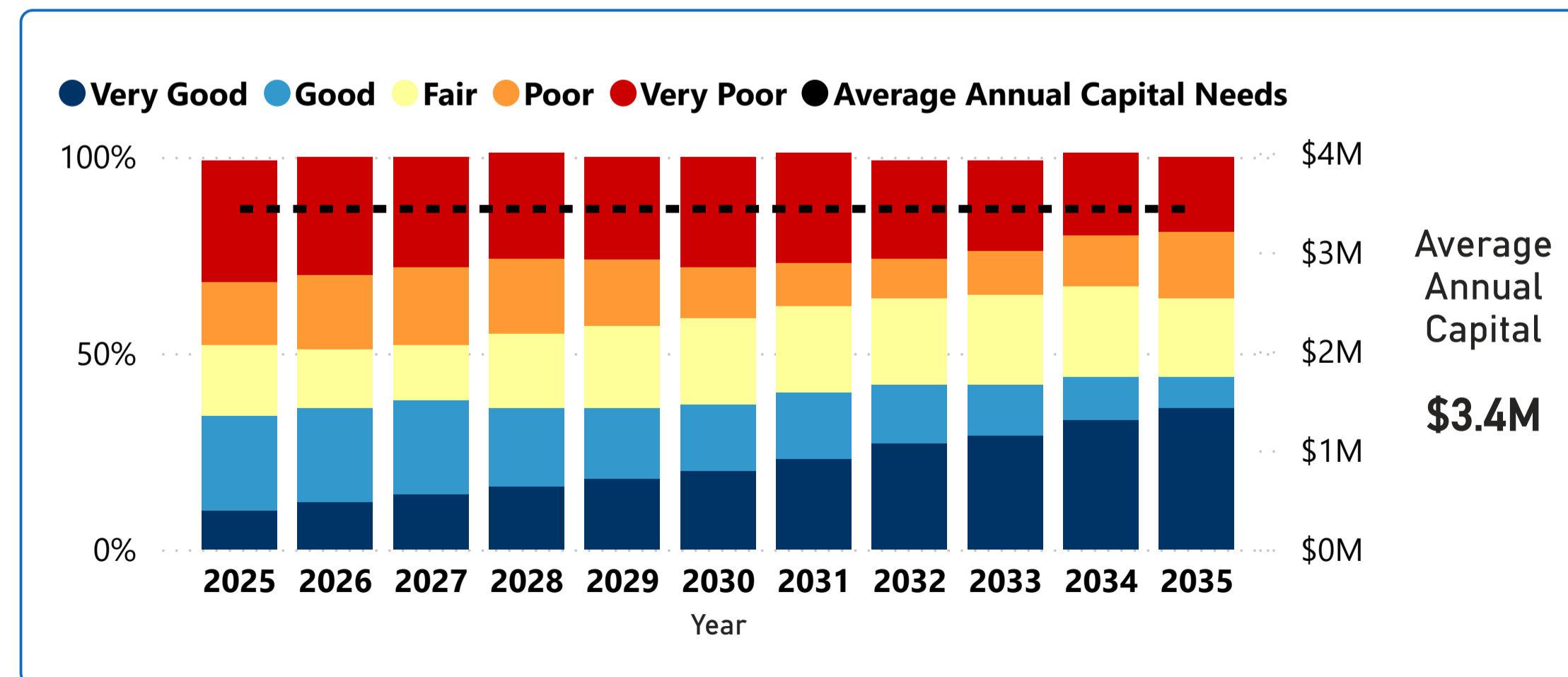
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: The current condition score is reflective of an age-based calculation and does not reflect condition data. In addition, there is a portion of the asset portfolio where age-based information was not available.



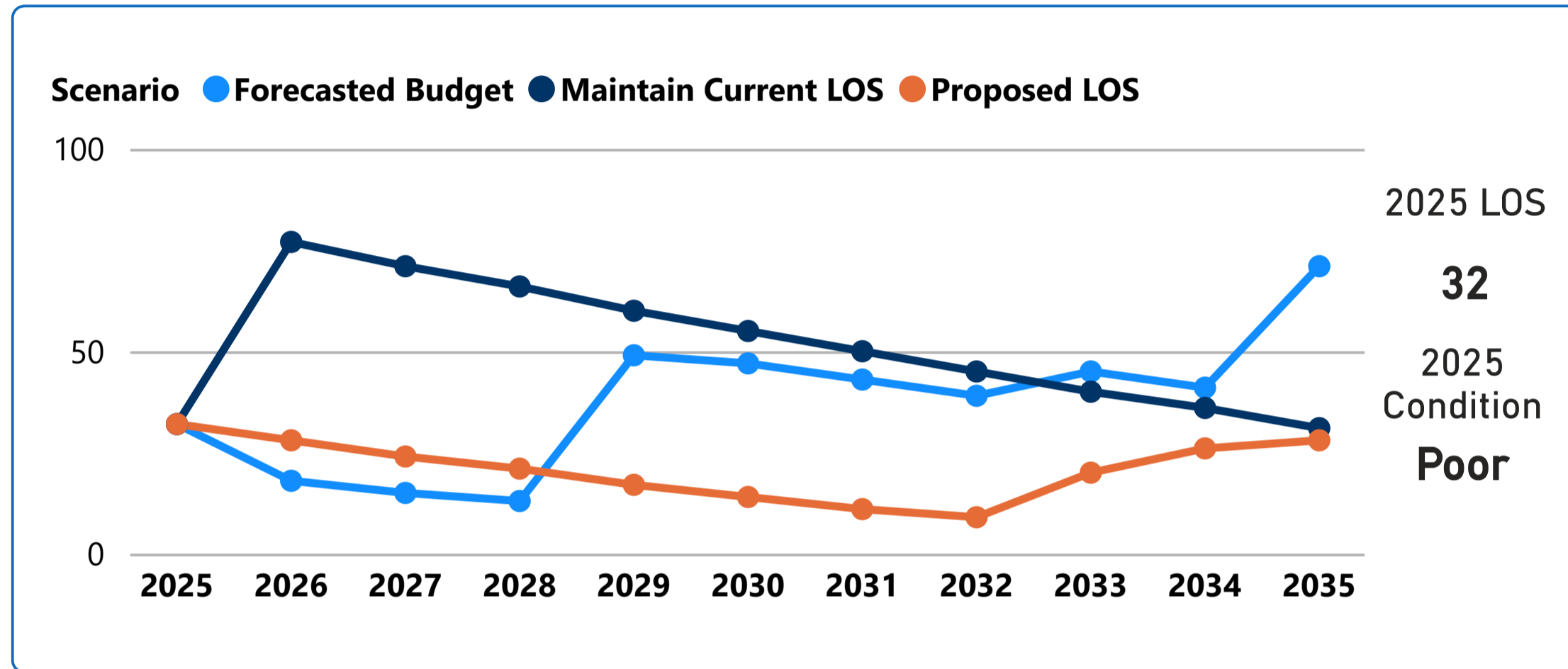
Scenario Summary Card

Level of Service Modelling

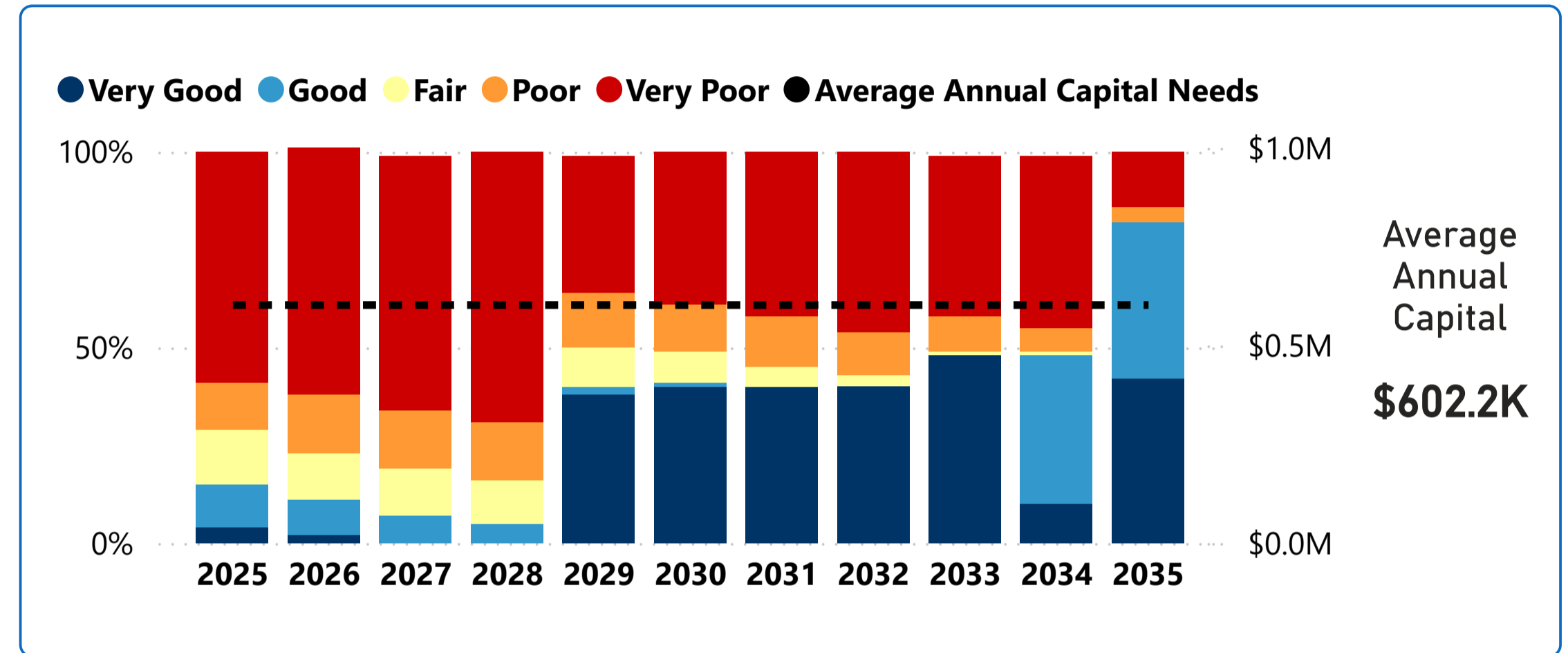
Service Area
Traffic Control & Safety

Asset Classes/Types
Traffic Signals

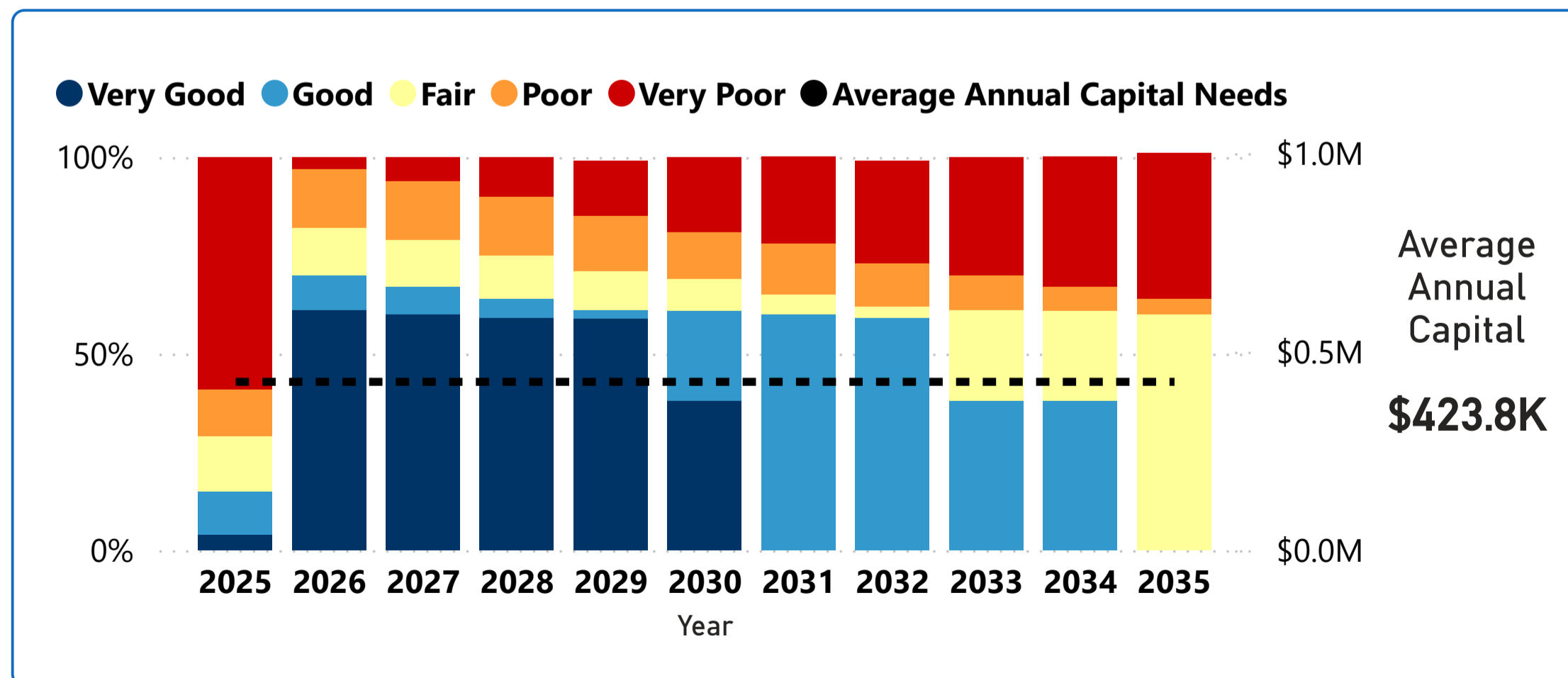
Average Network Condition (% Remaining Service Life)



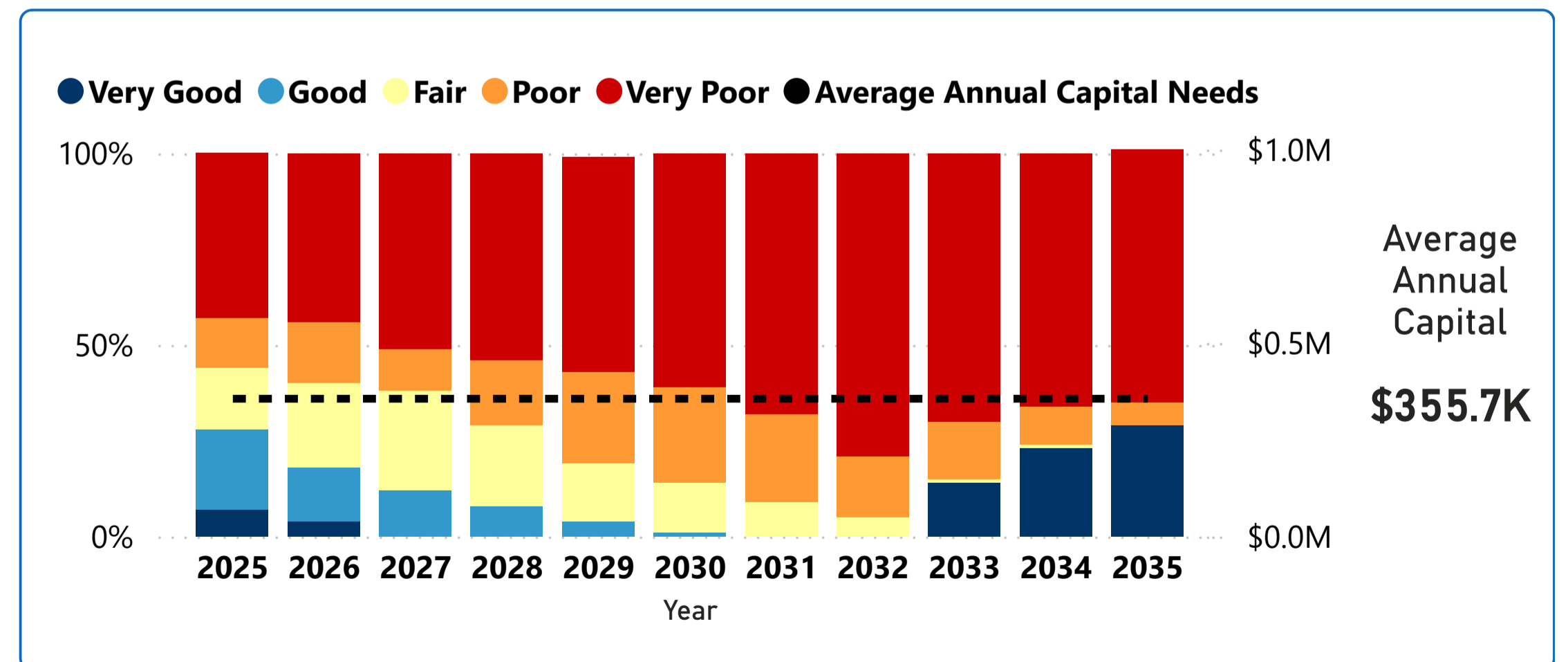
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: The current condition score is reflective of an age-based calculation and does not reflect condition data. As a result, a higher-level of funding was allocated to the Streetlight assets.



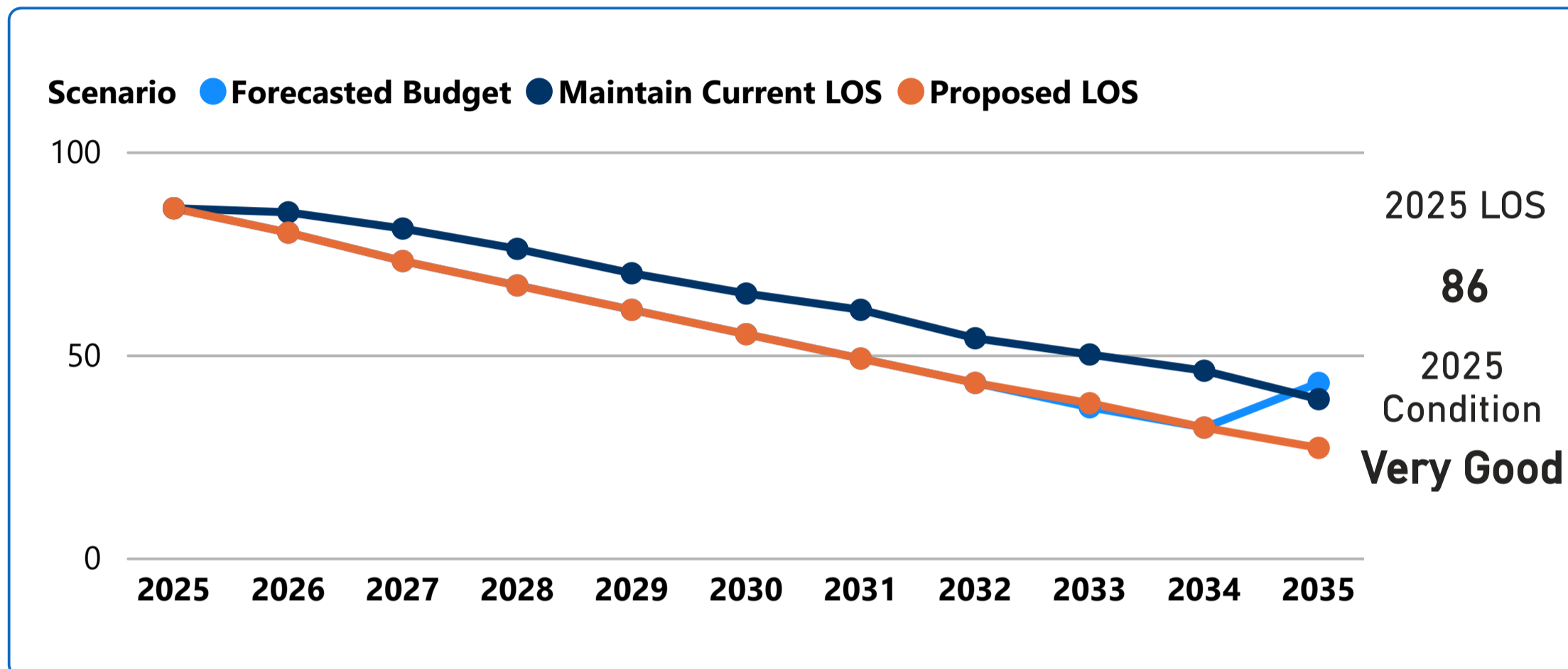
Scenario Summary Card

Level of Service Modelling

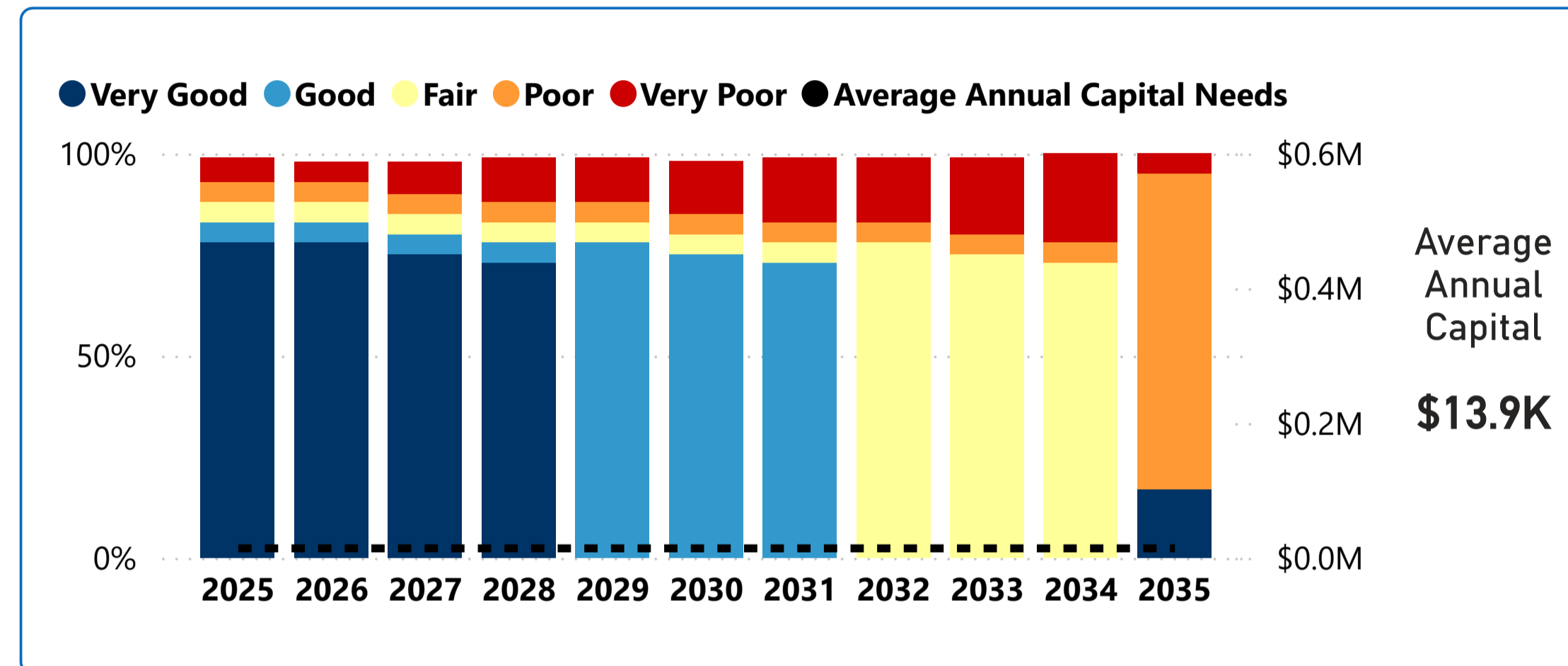
Service Area
Traffic Control & Safety

Asset Classes/Types
Traffic Signs

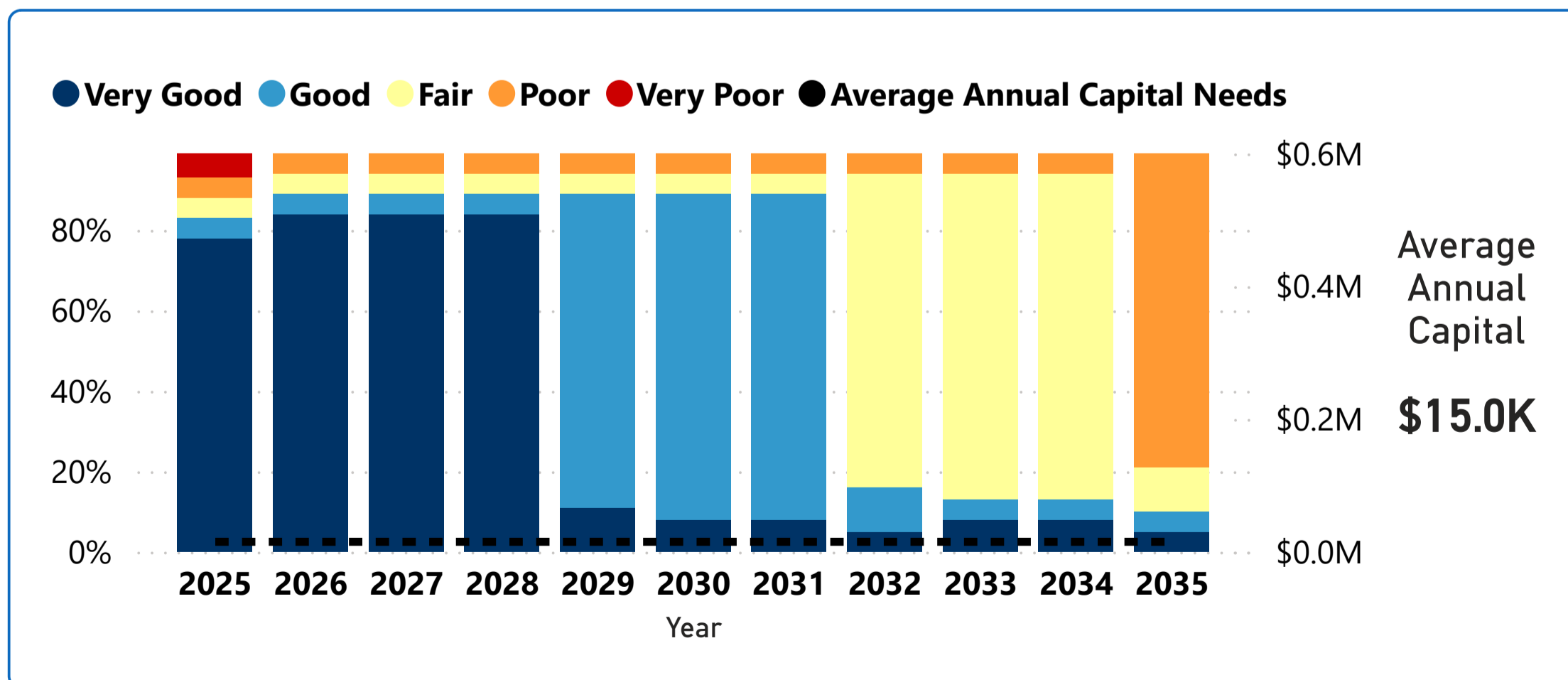
Average Network Condition (% Remaining Service Life)



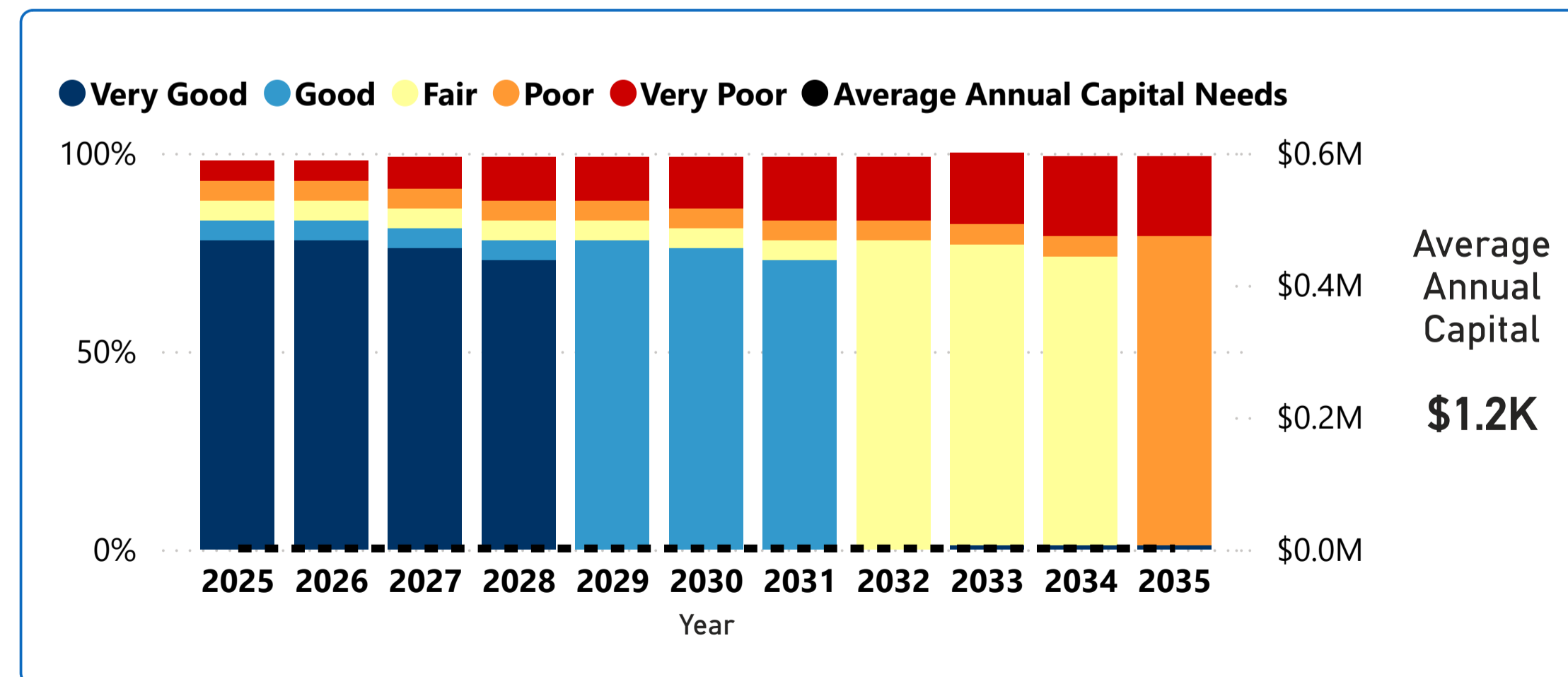
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





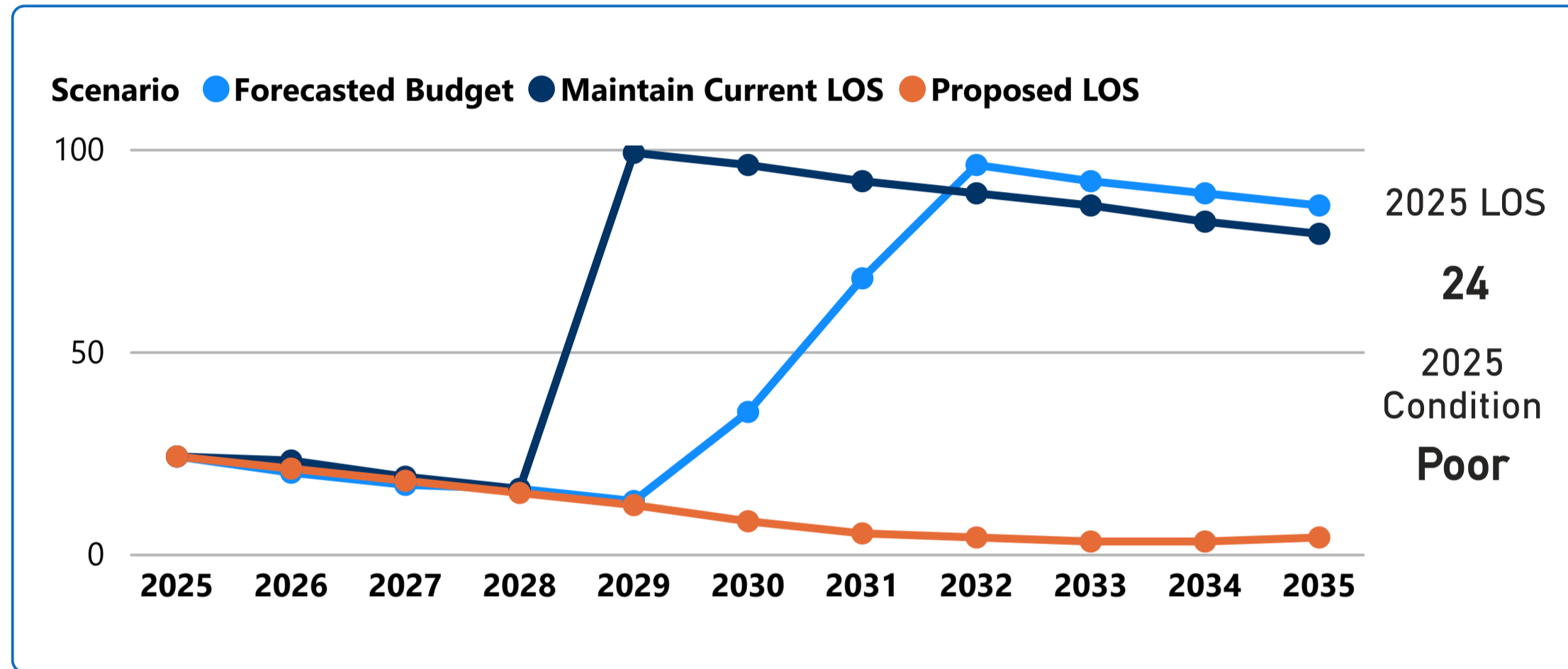
Scenario Summary Card

Level of Service Modelling

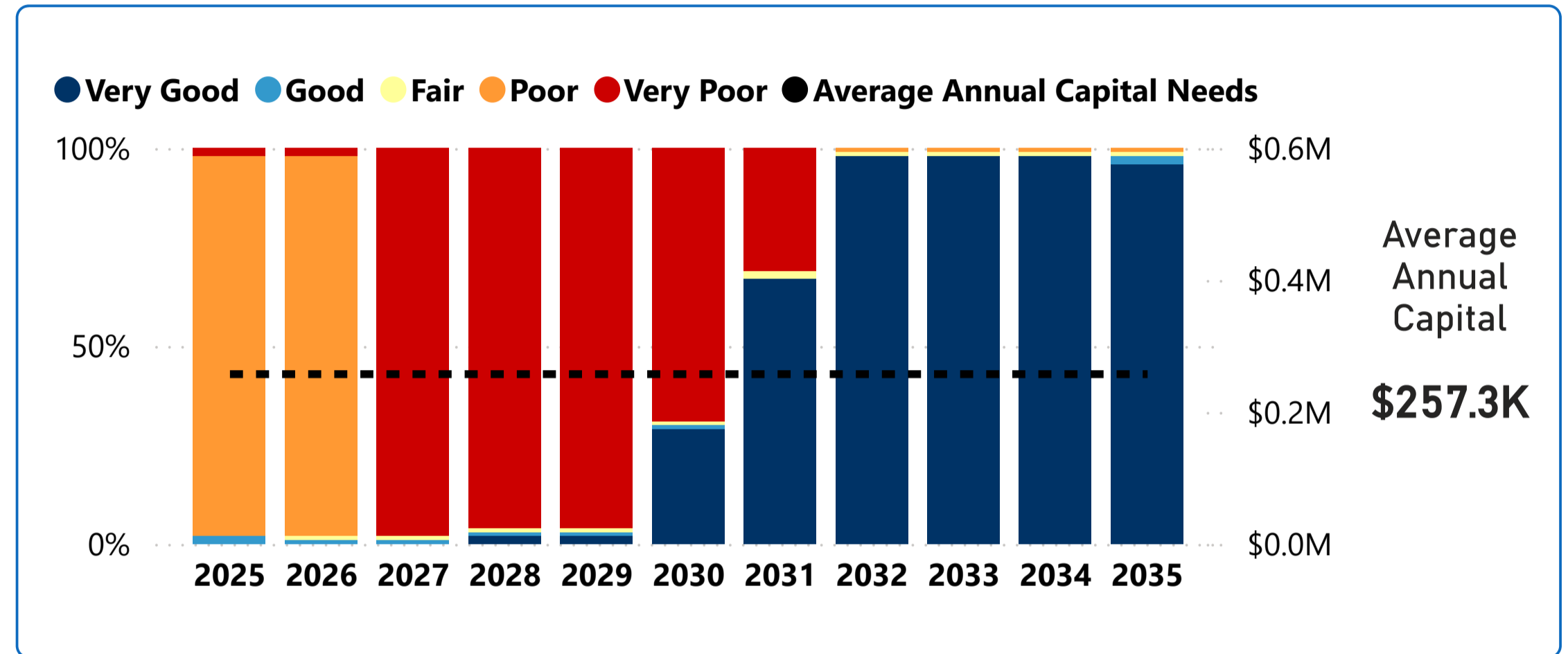
Service Area
Traffic Control & Safety

Asset Classes/Types
Guiderails & Fencing

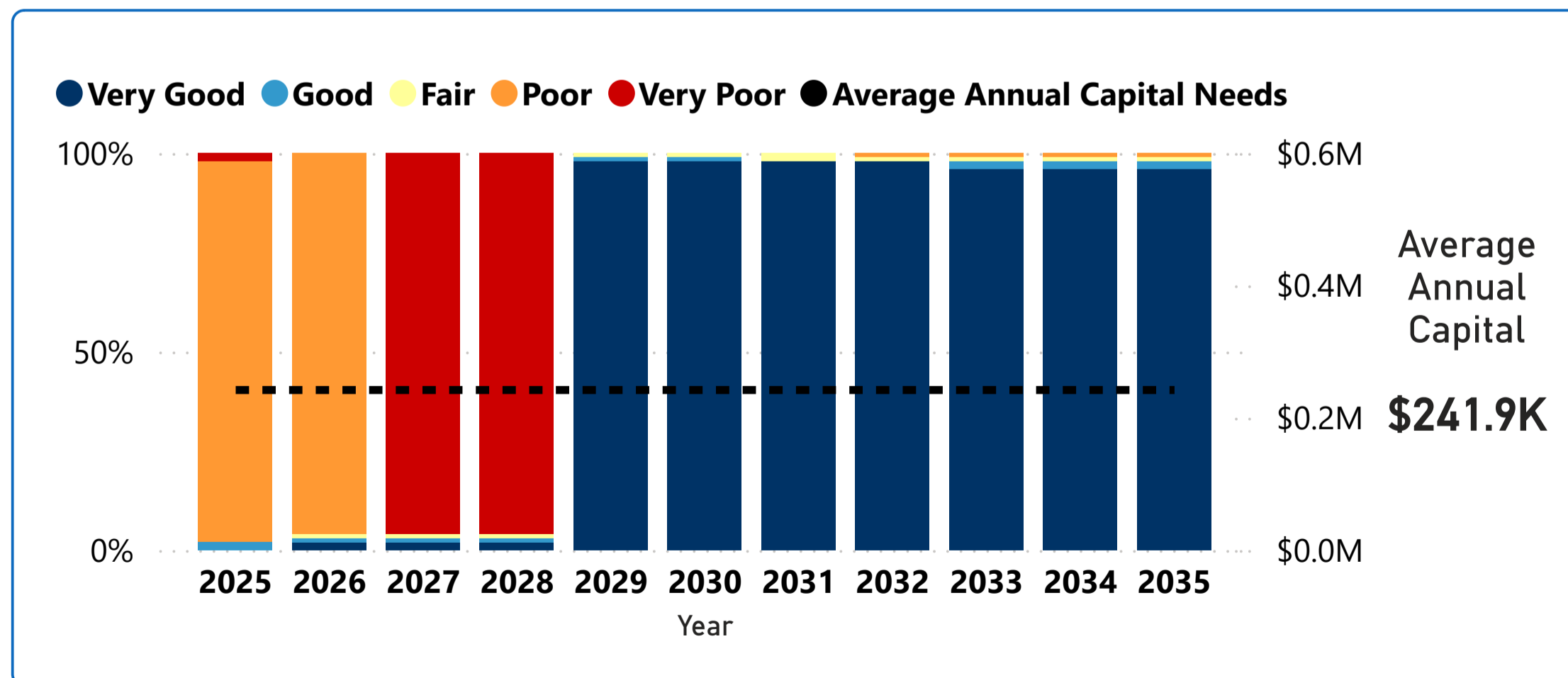
Average Network Condition (% Remaining Service Life)



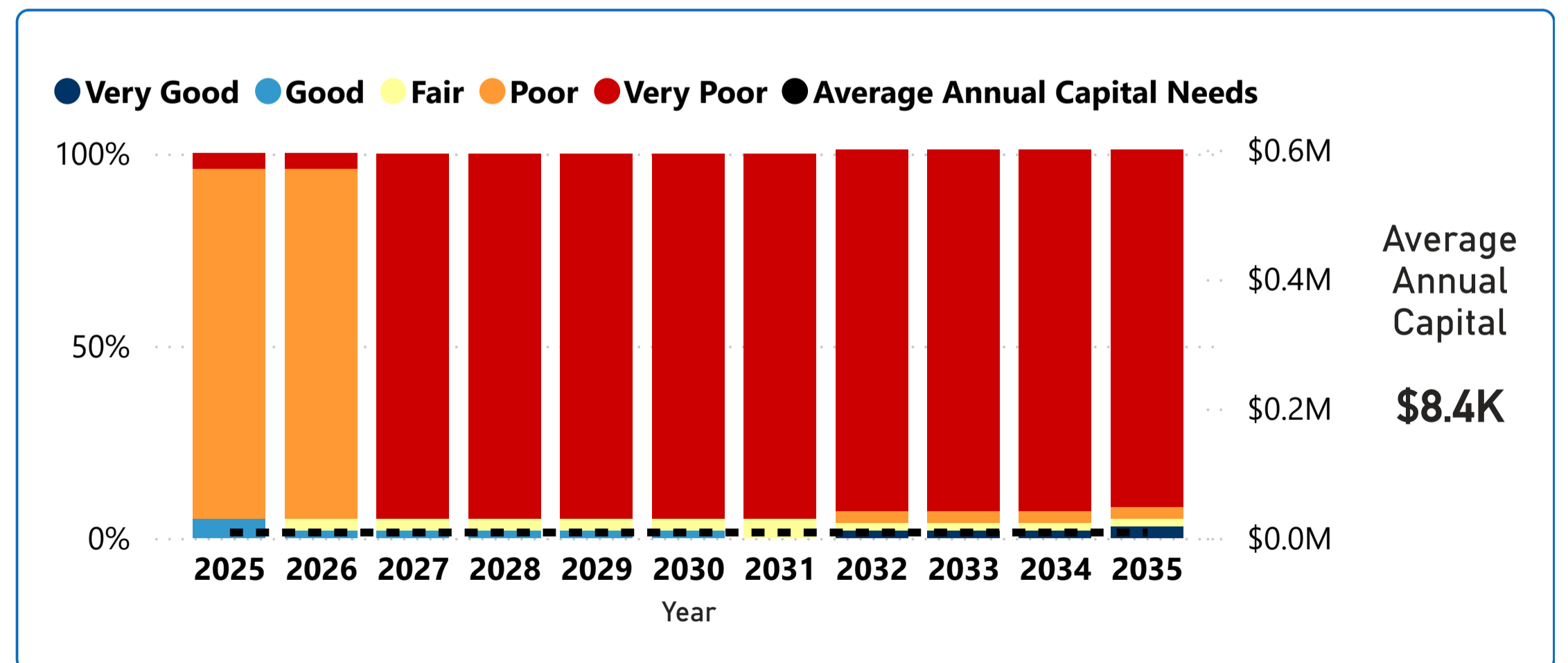
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: The current condition score is reflective of an age-based calculation and does not reflect condition data. The City does have an established maintenance & inspection strategy for replacement rather than preventative programming.



Scenario Summary Card

Level of Service Modelling

Service Area

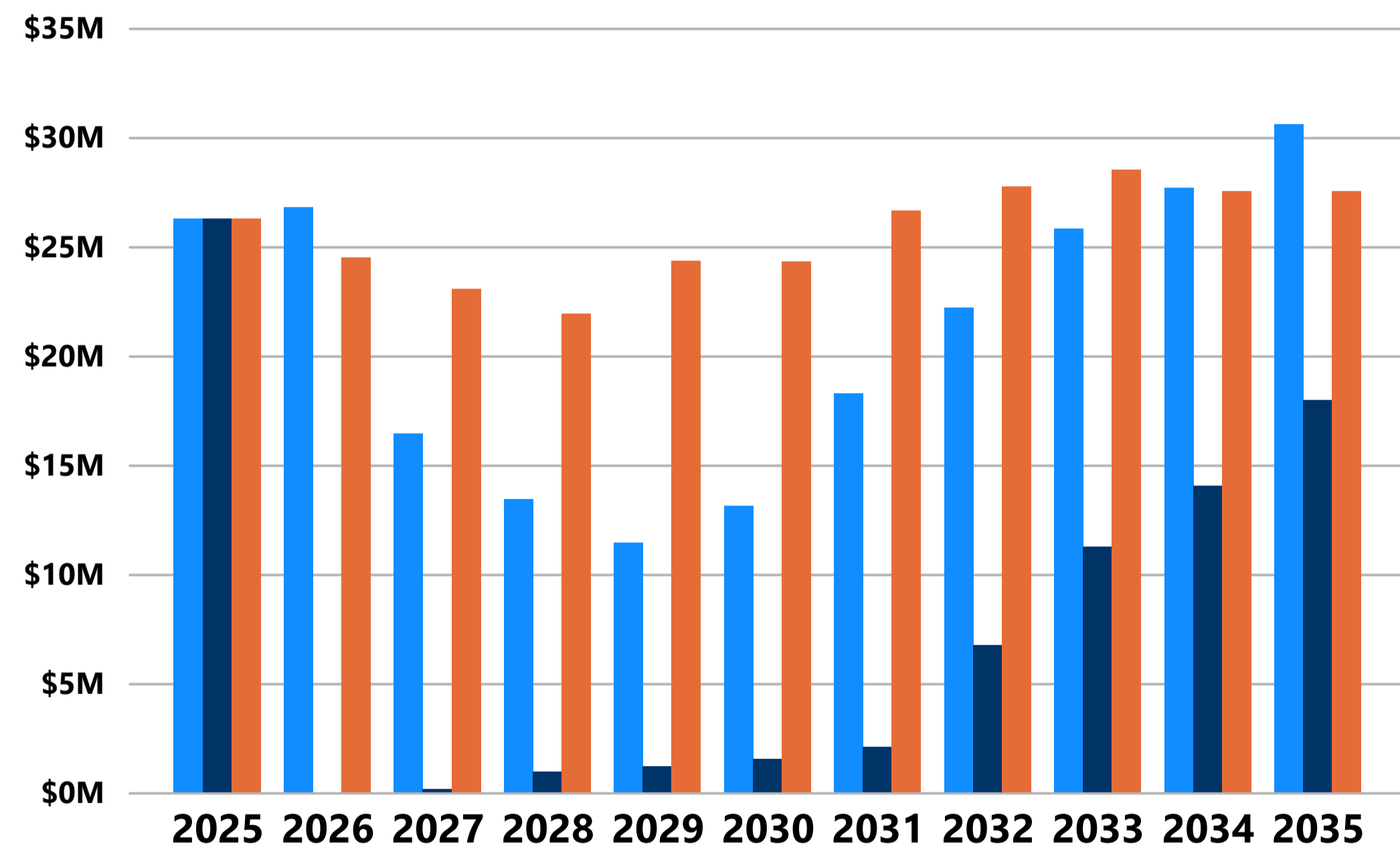
Traffic Control & Safety

Asset Classes/Types

All Streetlights, Traffic Signals, Signs, Guiderails & Fencing

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$30.6M	\$18.0M	\$27.5M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

\$3.3M ✓
Targeted Annual Investment:
\$2.2M
(+53.58%)

Scenario #2: Maintain LOS

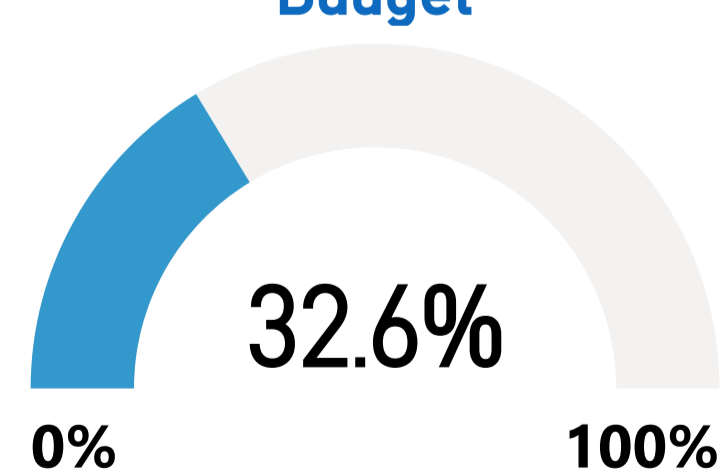
\$4.2M ✓
Targeted Annual Investment:
\$2.2M
(+92.66%)

Scenario #3: Proposed LOS

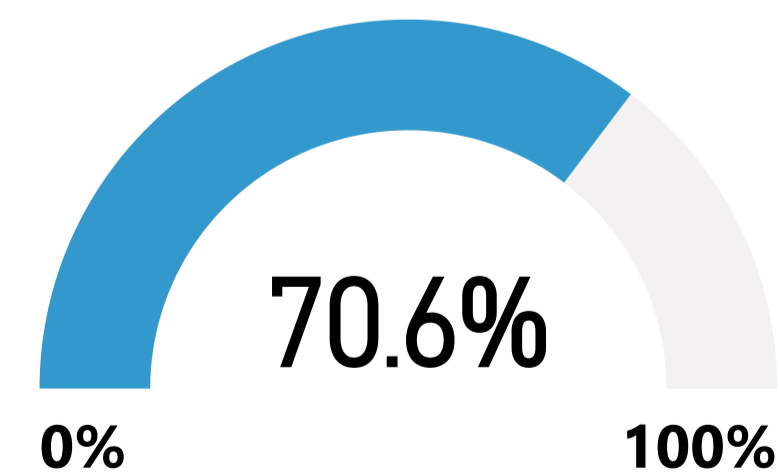
\$3.8M ✓
Targeted Annual Investment:
\$2.2M
(+75%)

Metric #3 - Percentage of Assets in Fair or Better Condition (2035)

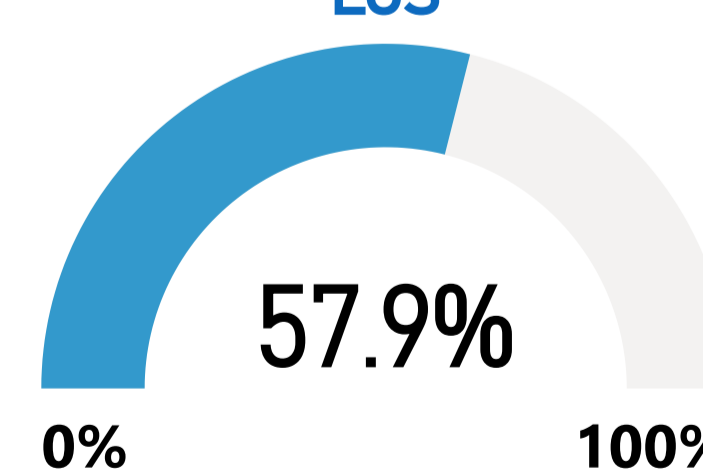
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS





Scenario Summary Card

Level of Service Modelling

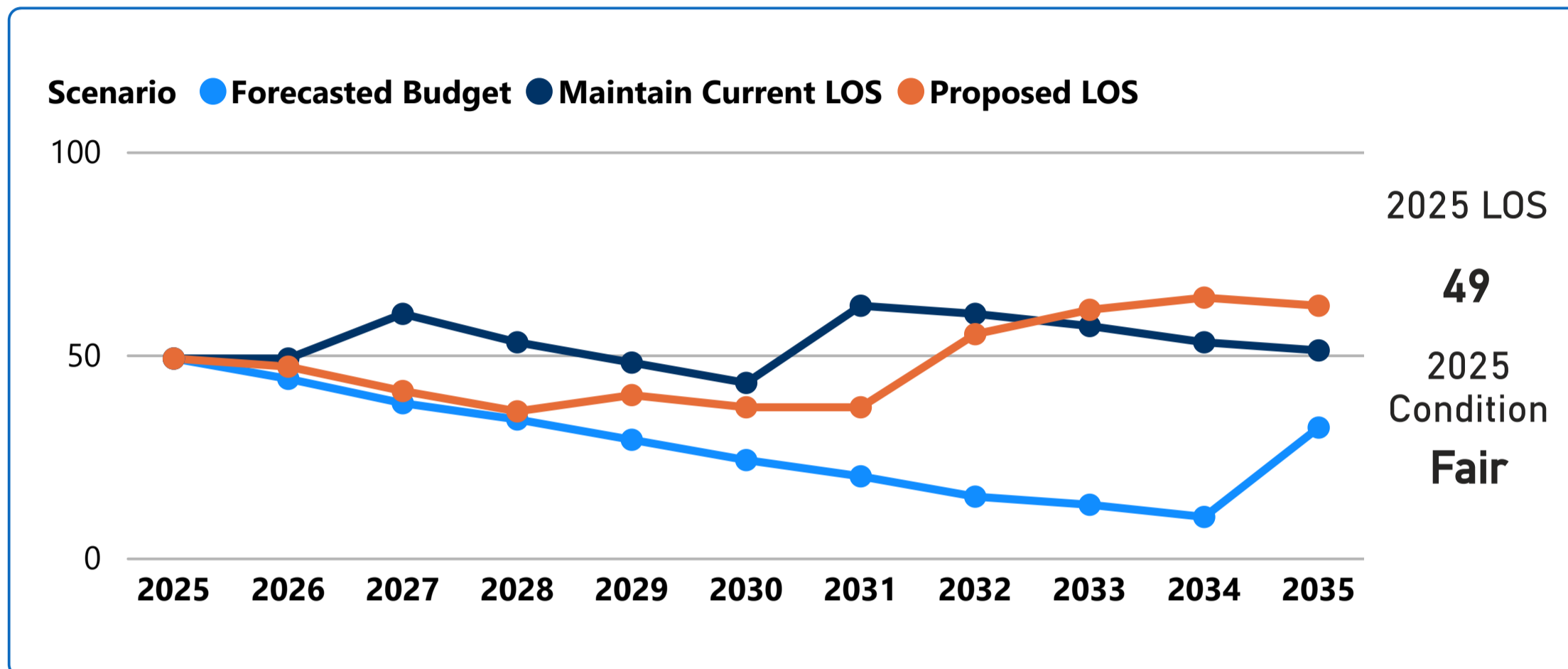
Service Area

Fire & Emergency Services

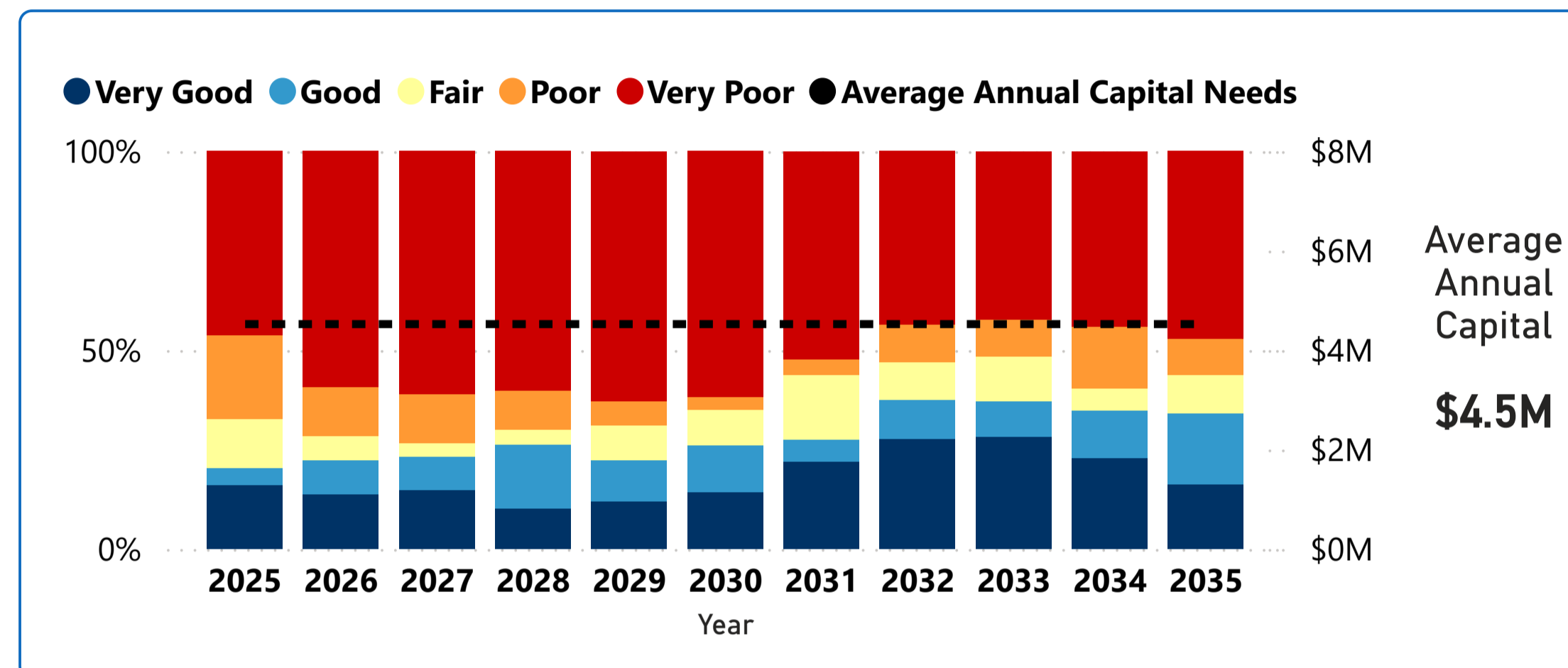
Asset Classes/Types

Fleet & Equipment

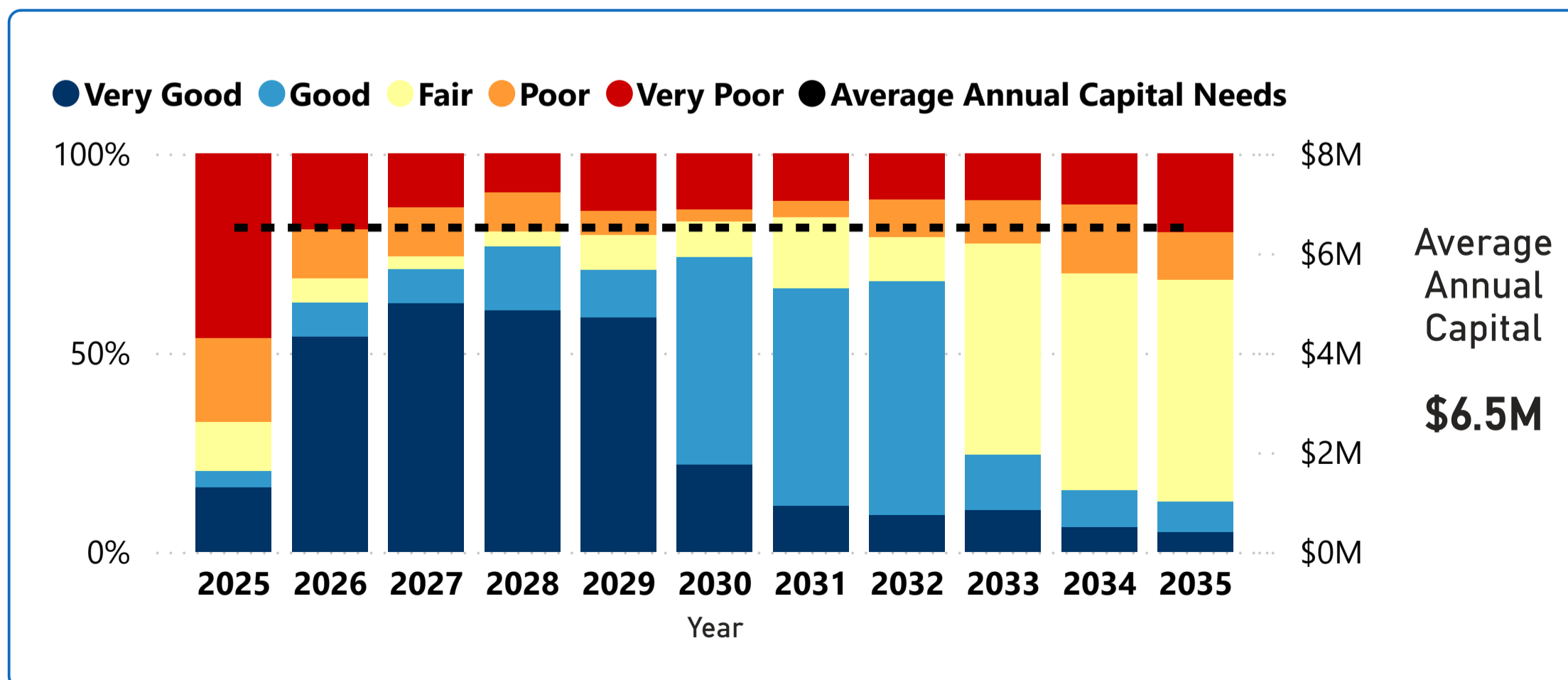
Average Network Condition (% Remaining Service Life)



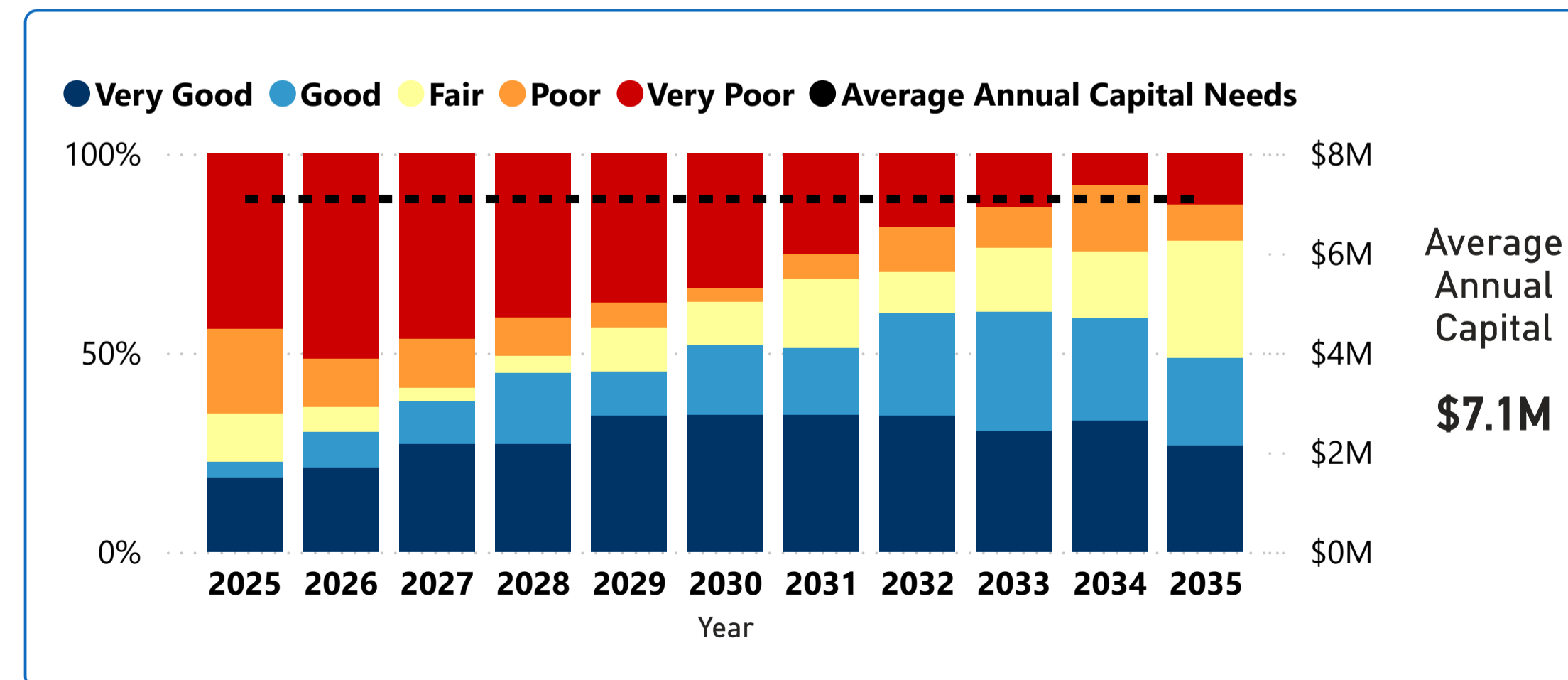
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

Service Area

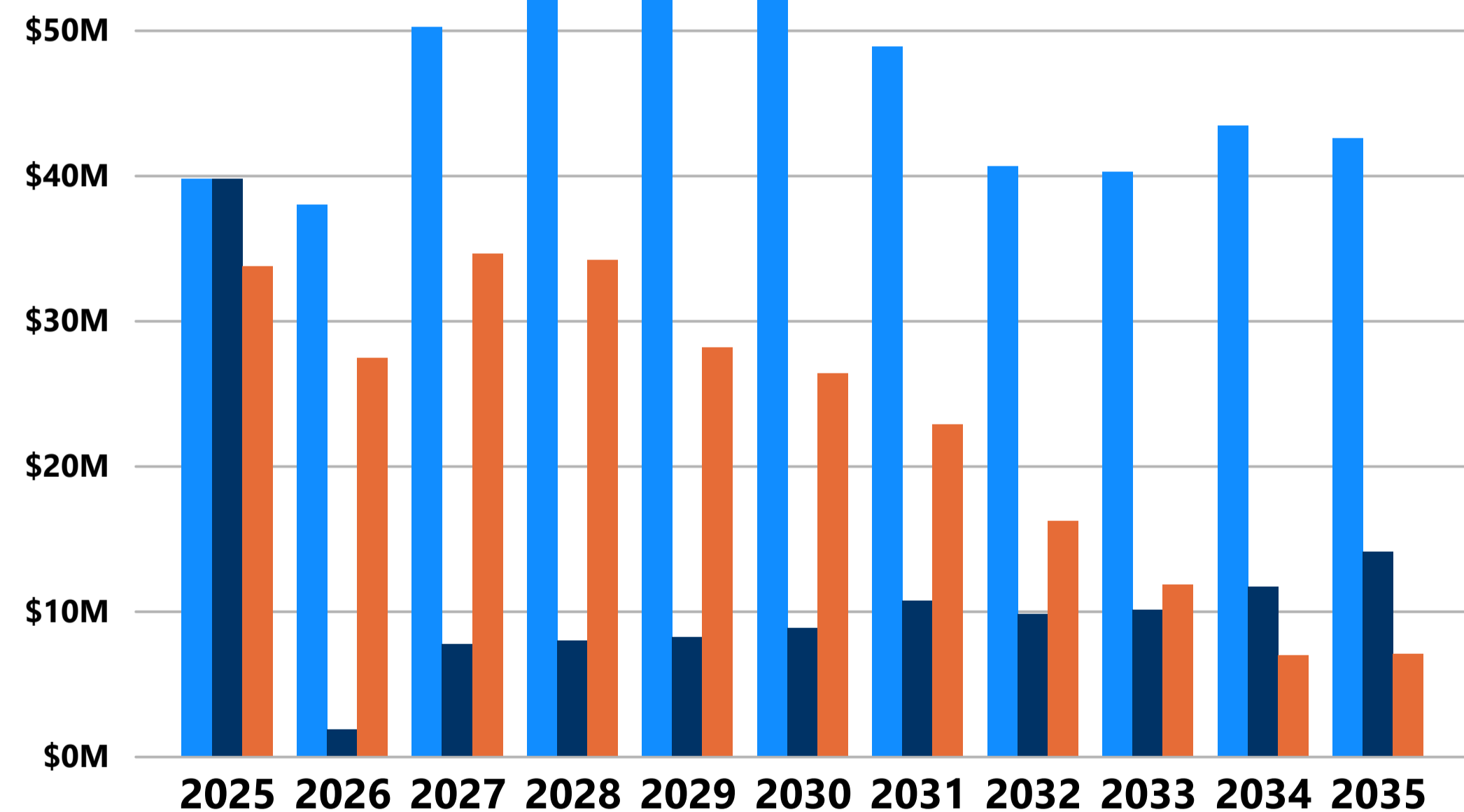
Fire & Emergency Services

Asset Classes/Types

Fleet & Equipment

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget Scenario #2: Maintain LOS Scenario #3: Proposed LOS

\$42.5M

\$14.0M

\$7.0M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$4.5M!
Targeted Annual Investment:
\$8.1M
(-44.39%)

\$6.5M!
Targeted Annual Investment:
\$8.1M
(-19.96%)

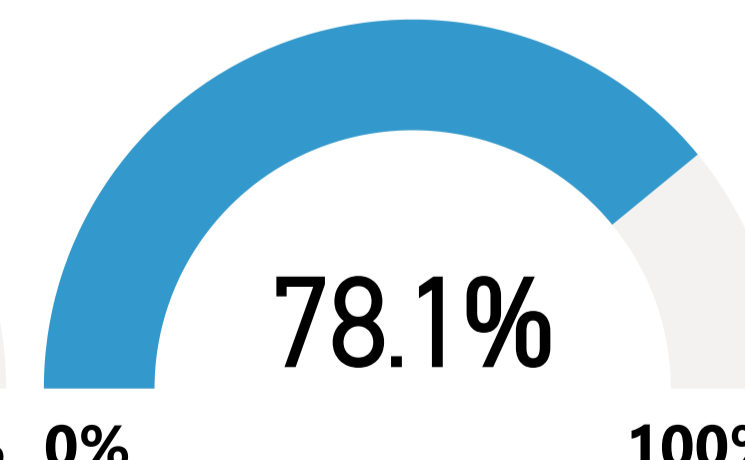
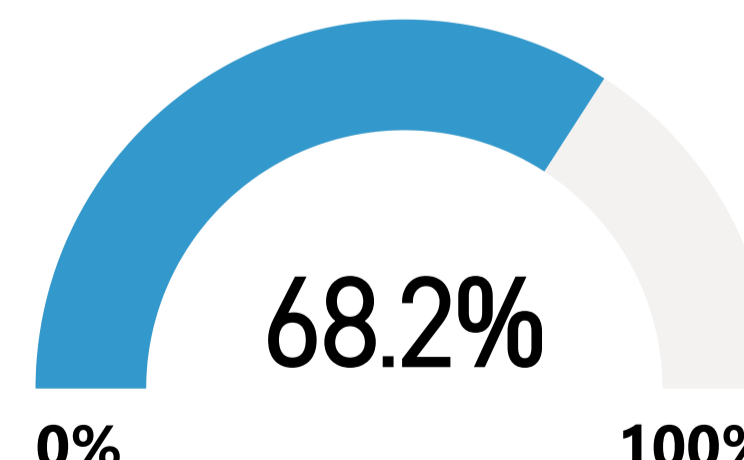
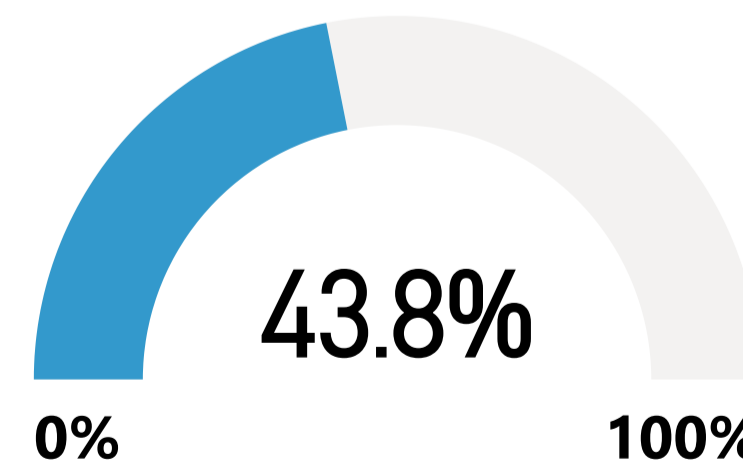
\$7.1M!
Targeted Annual Investment:
\$8.1M
(-12.89%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS





Scenario Summary Card

Level of Service Modelling

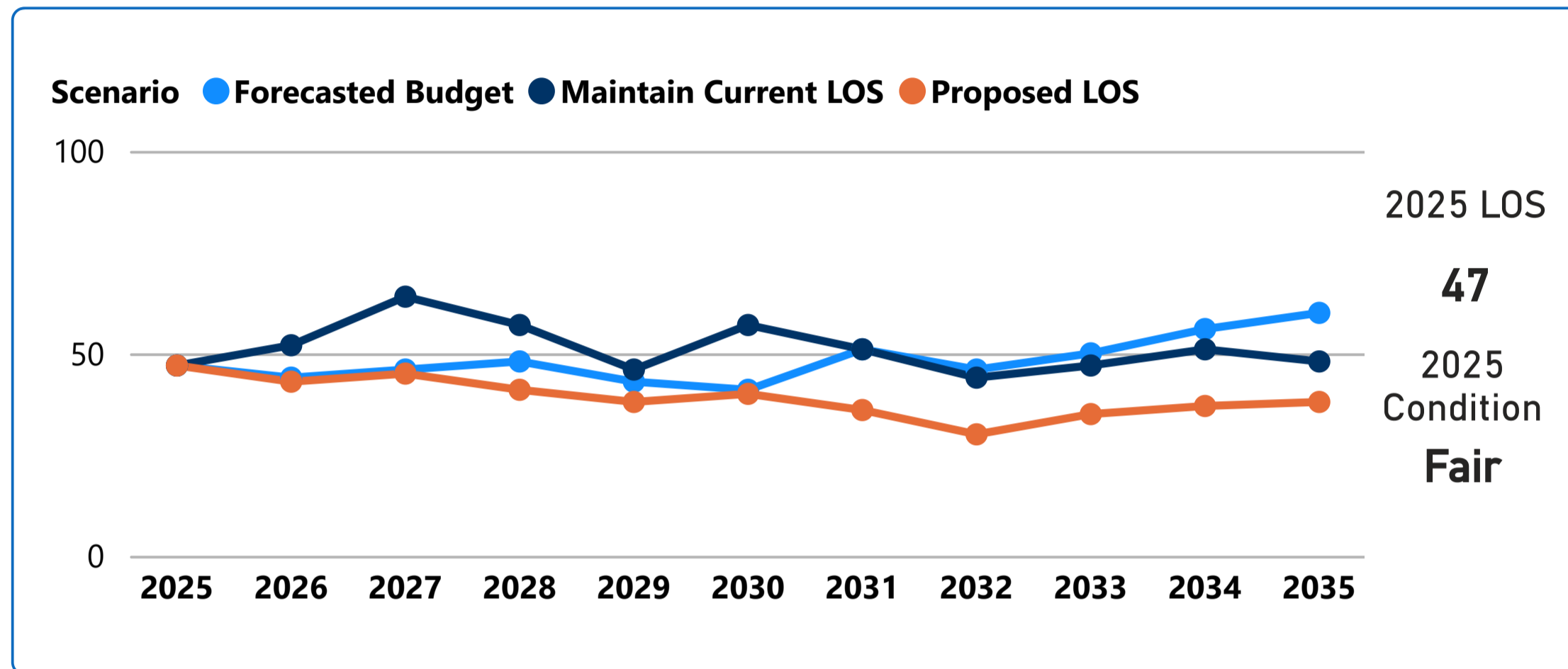
Service Area

Parking Equipment,
Lots, & Structures

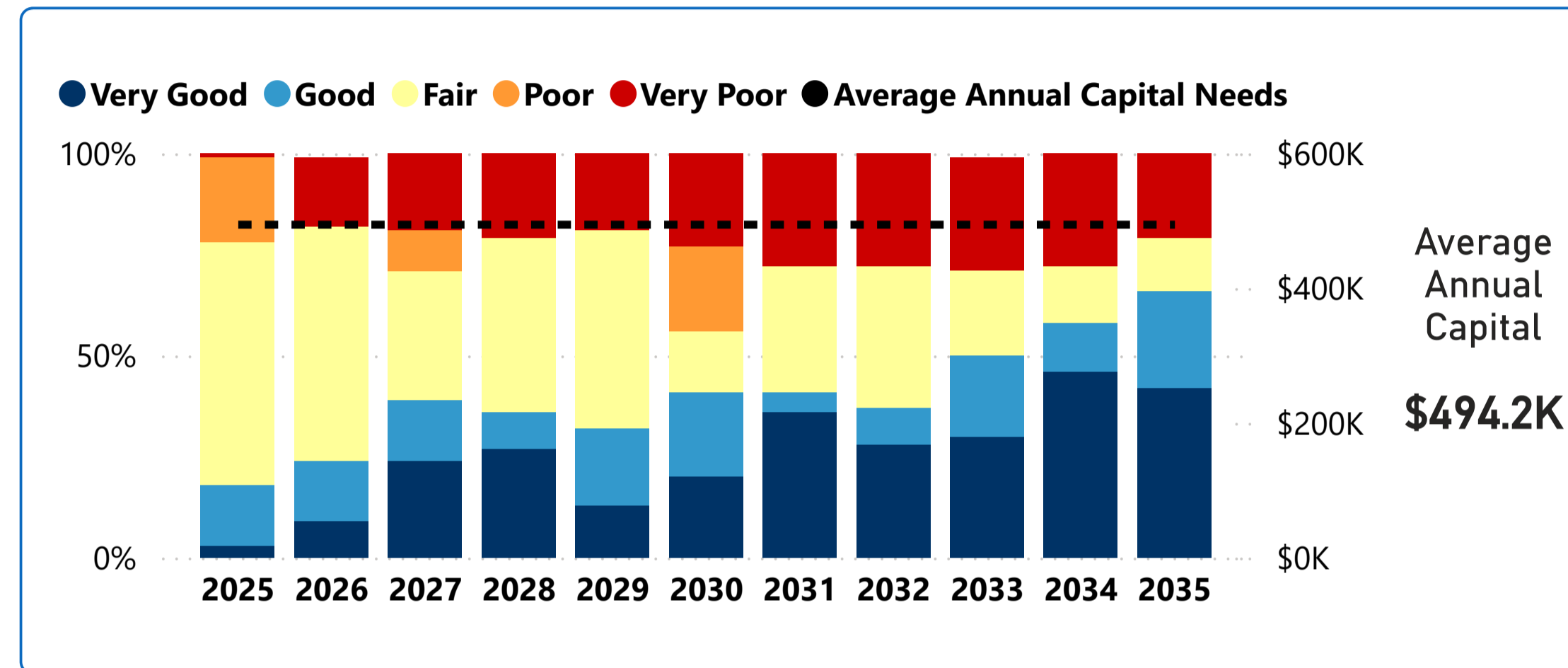
Asset Classes/Types

Parking Lots & Structures

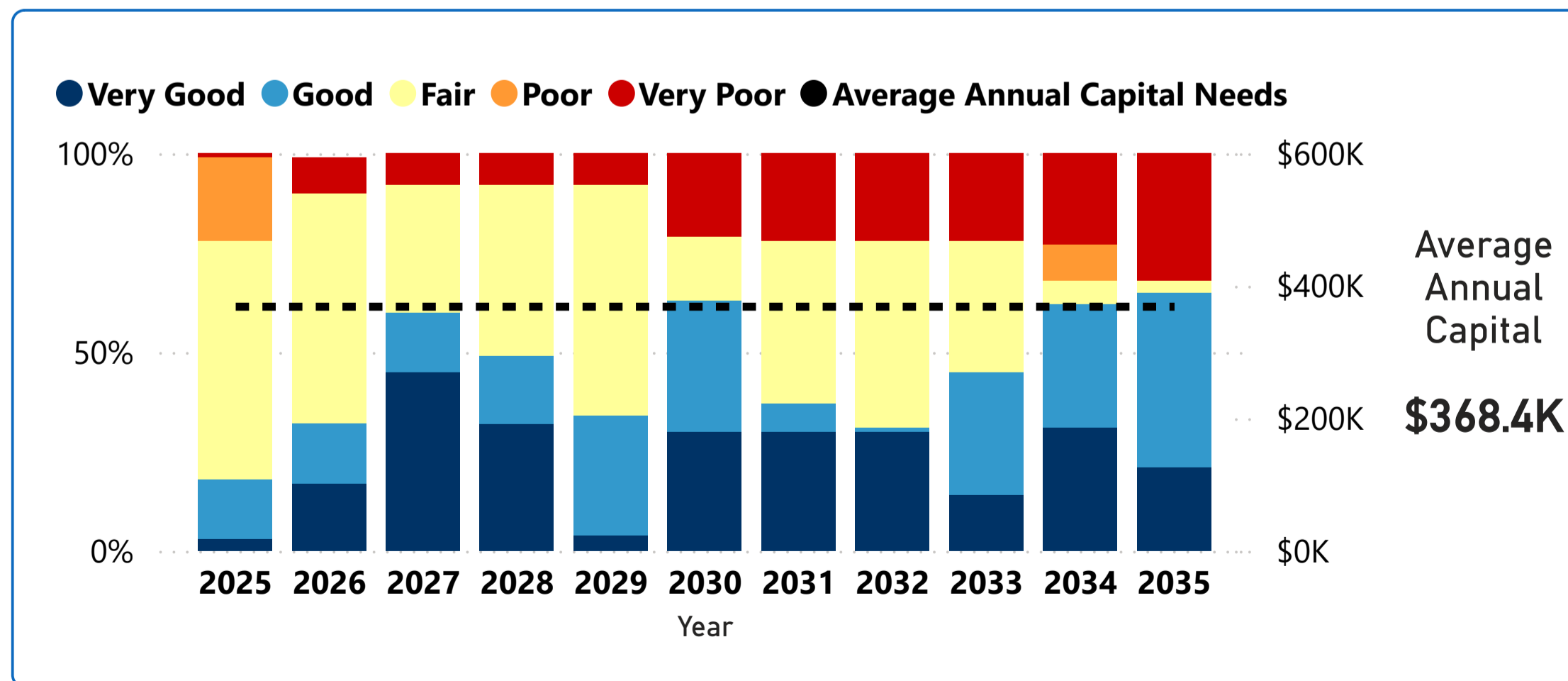
Average Network Condition (% Remaining Service Life)



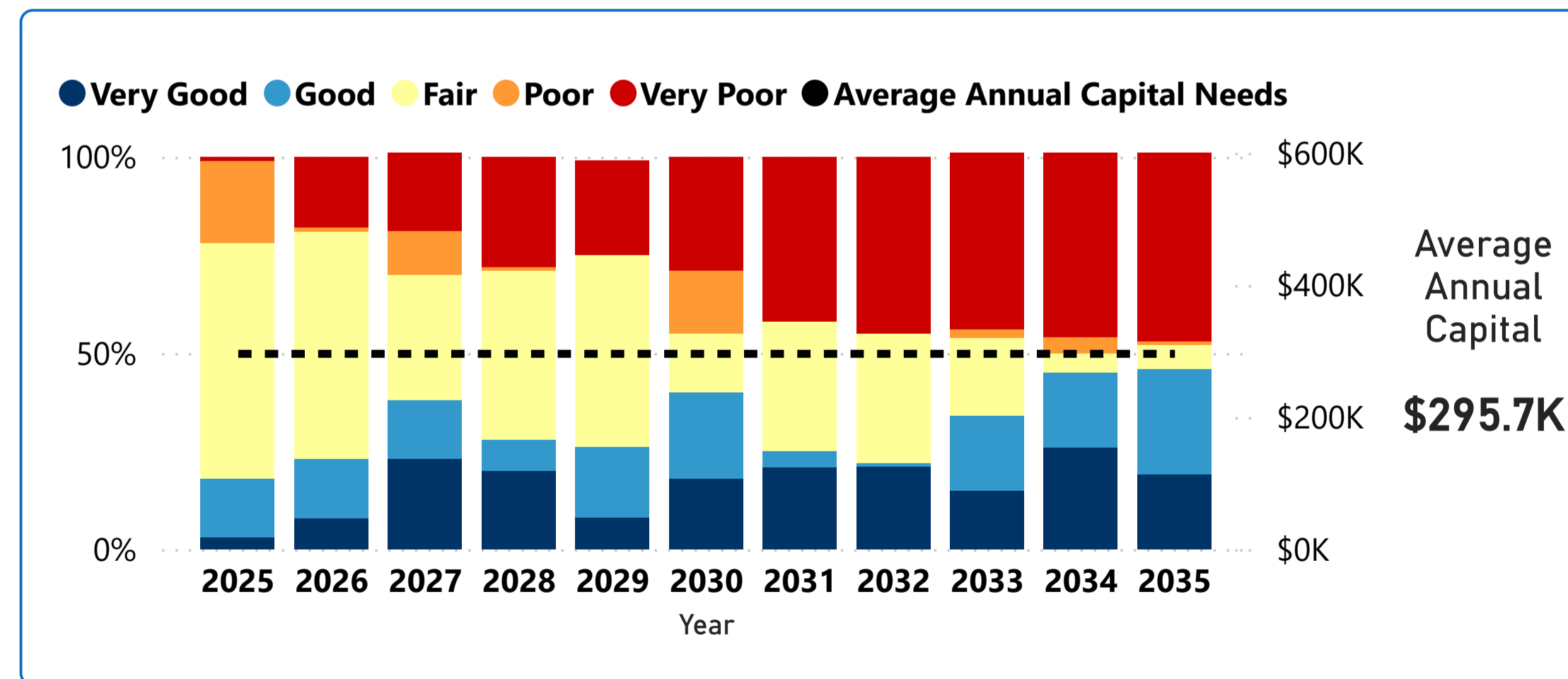
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

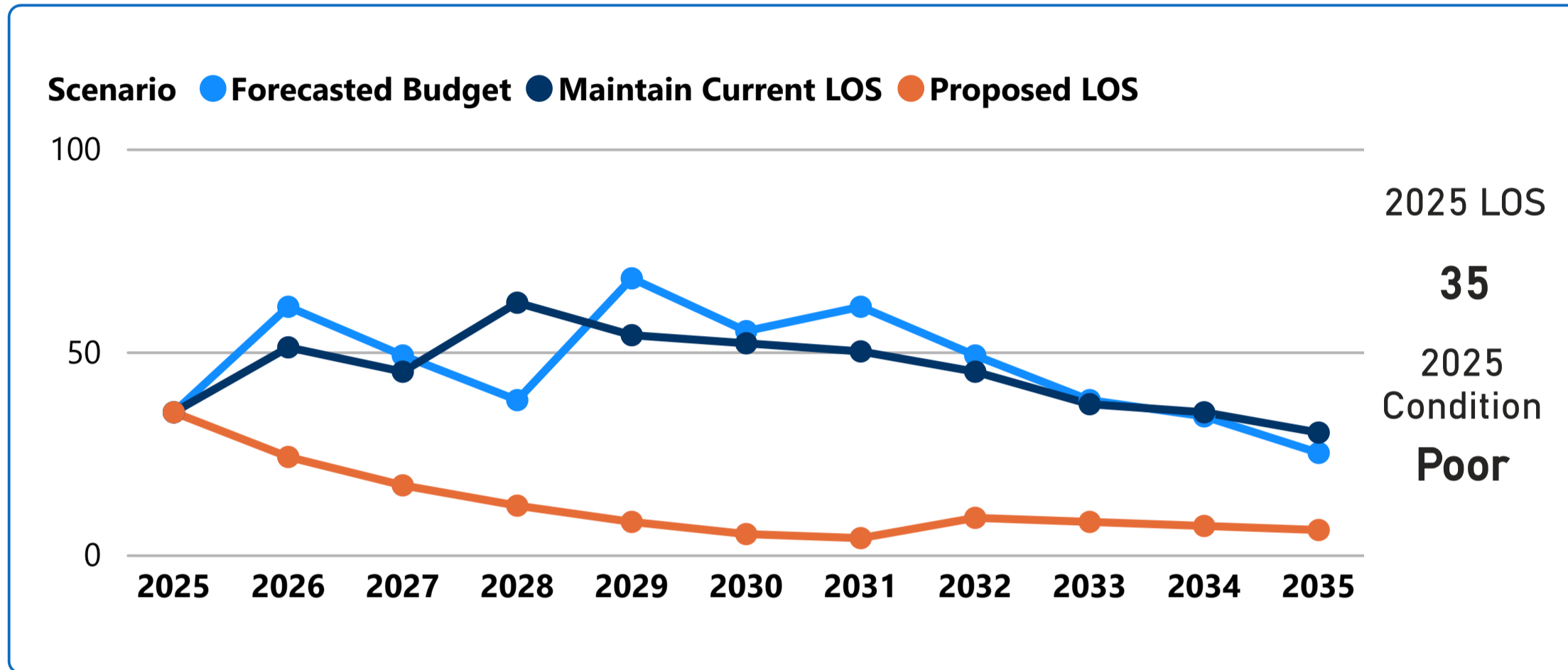
Service Area

Parking Equipment,
Lots, & Structures

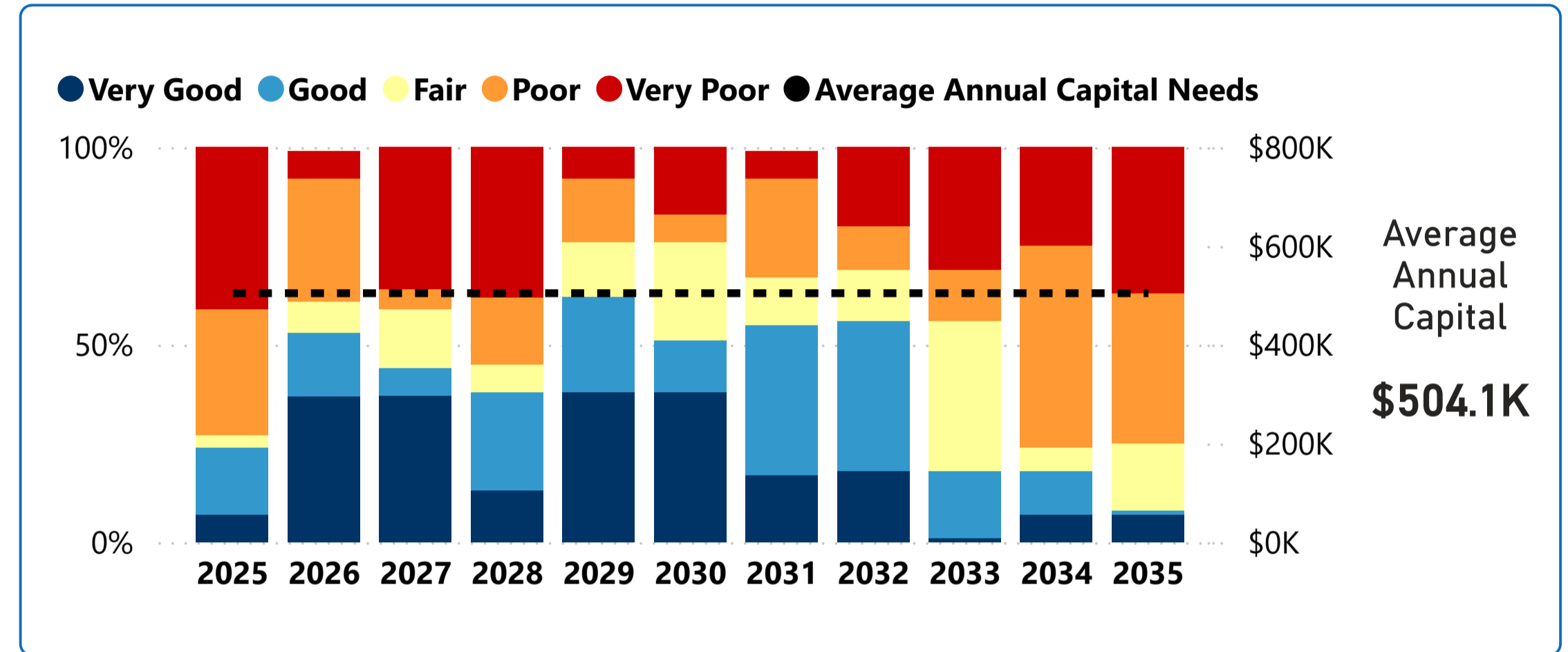
Asset Classes/Types

Parking Equipment

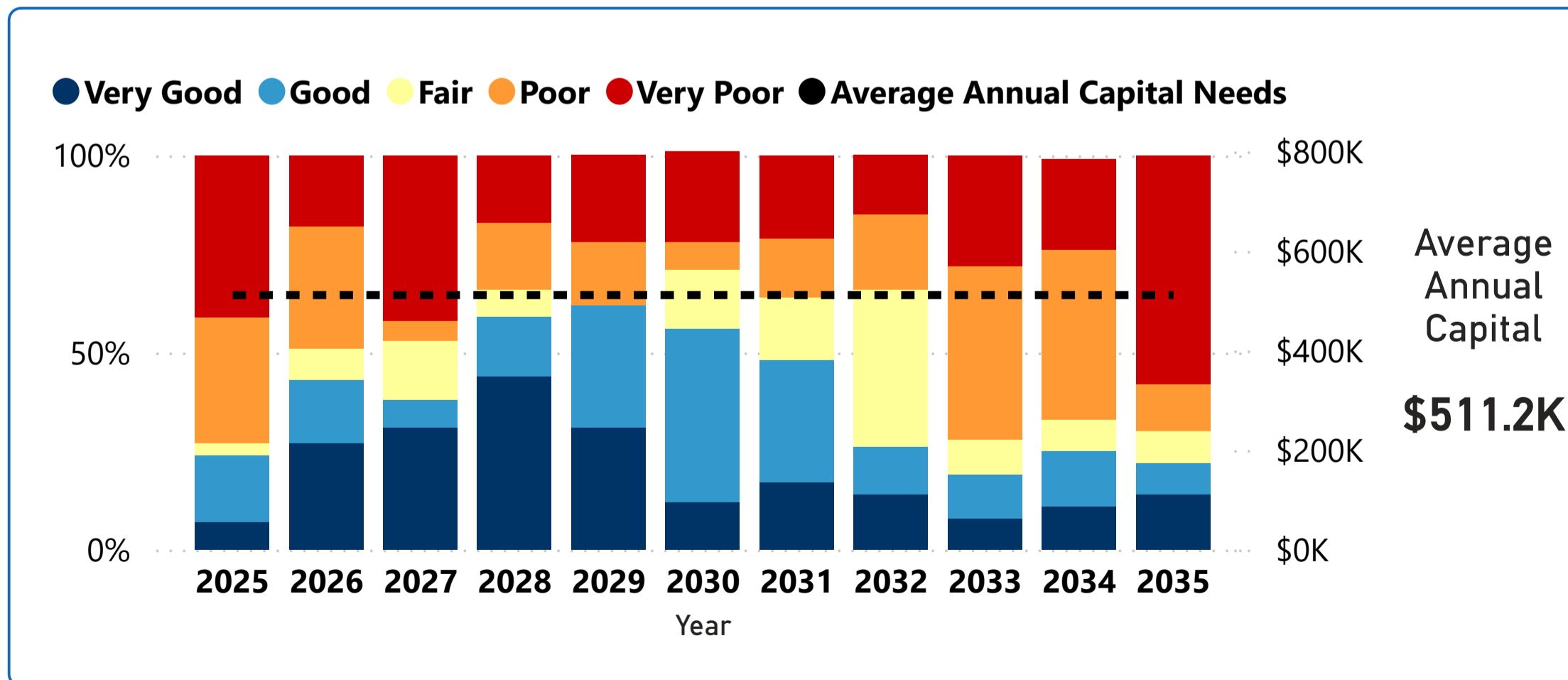
Average Network Condition (% Remaining Service Life)



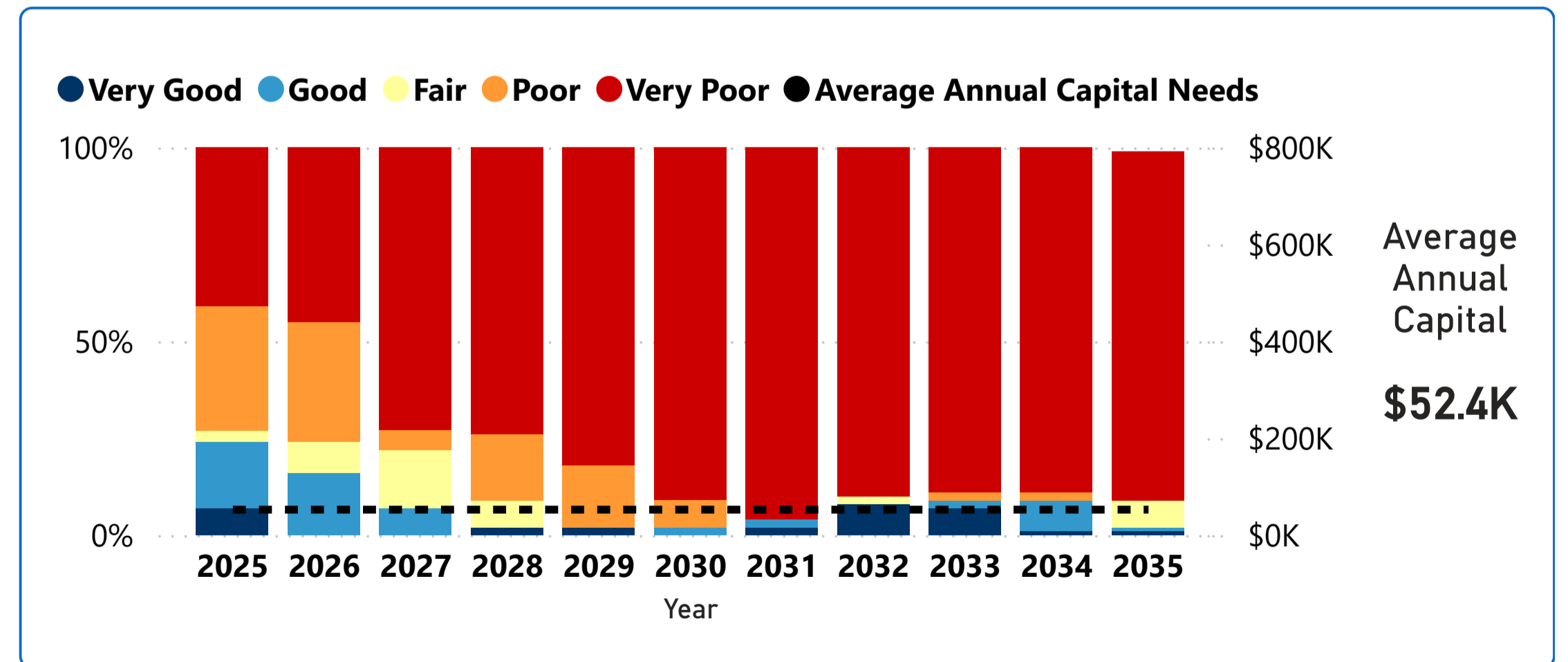
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

Service Area

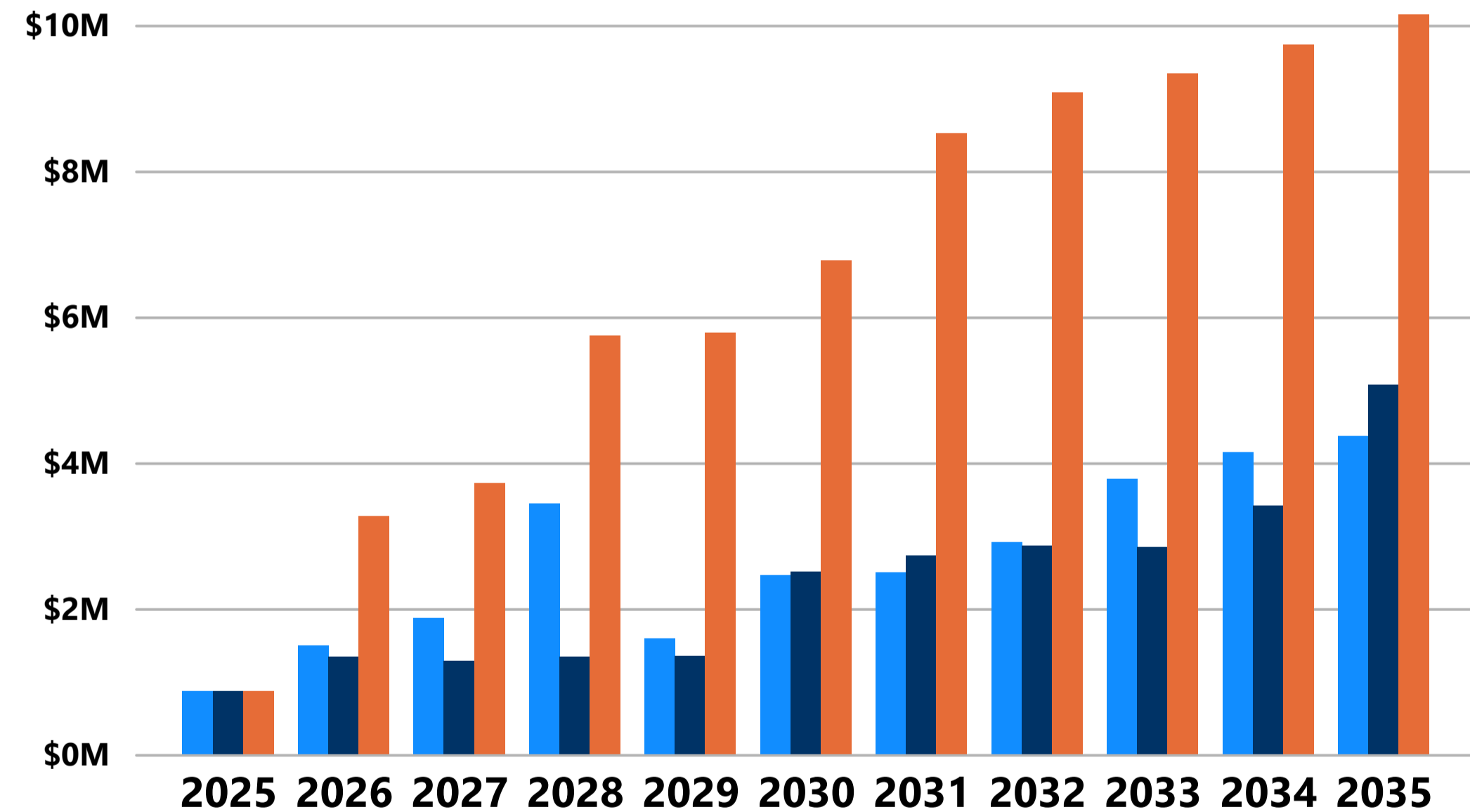
Parking Equipment, Lots, & Structures

Asset Classes/Types

All Parking Equipment, Lots, & Structures

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget	Scenario #2: Maintain LOS	Scenario #3: Proposed LOS
\$4.4M	\$5.1M	\$10.1M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

\$998.2K ✓
Targeted Annual Investment:
\$239.2K
(+317.37%)

Scenario #2: Maintain LOS

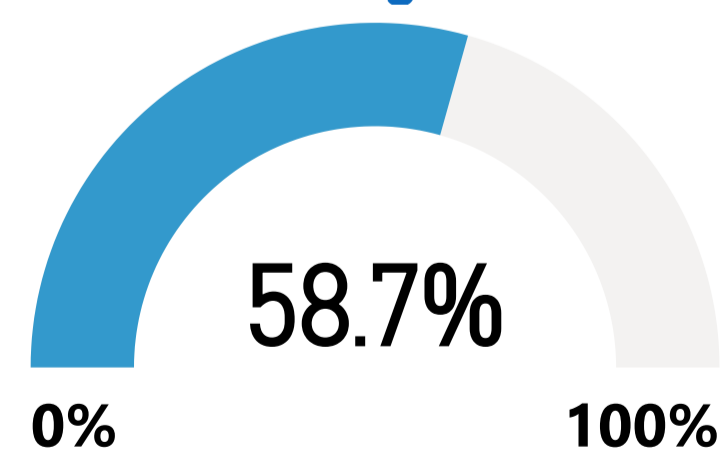
\$879.6K ✓
Targeted Annual Investment:
\$239.2K
(+267.78%)

Scenario #3: Proposed LOS

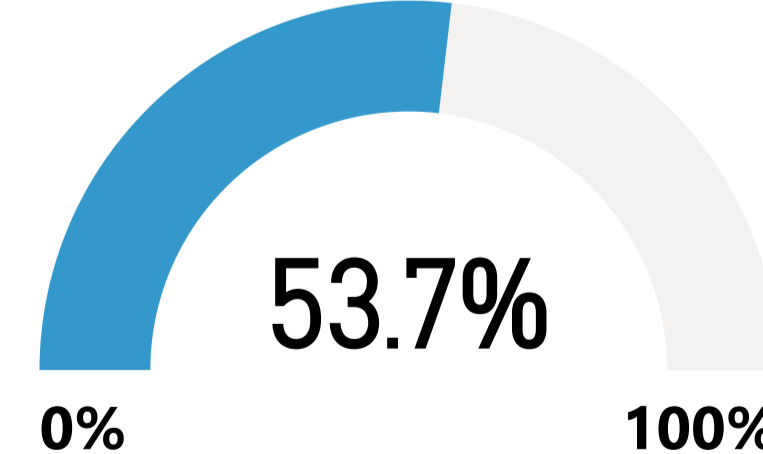
\$358.8K ✓
Targeted Annual Investment:
\$239.2K
(+50%)

Metric #3 - Percentage of Assets in Fair or Better Condition (2035)

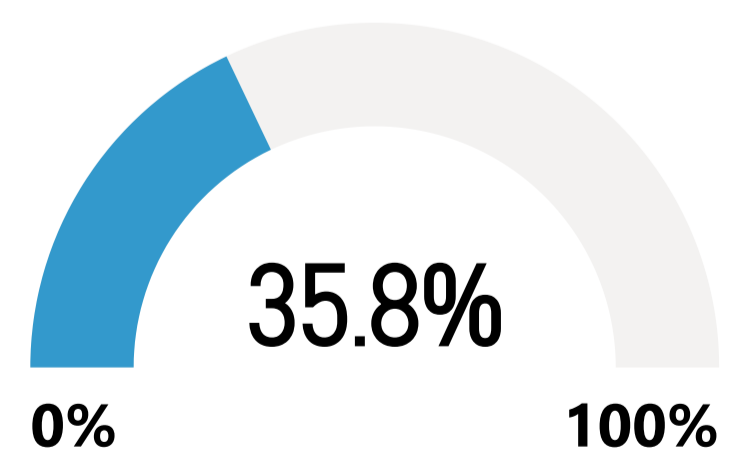
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS





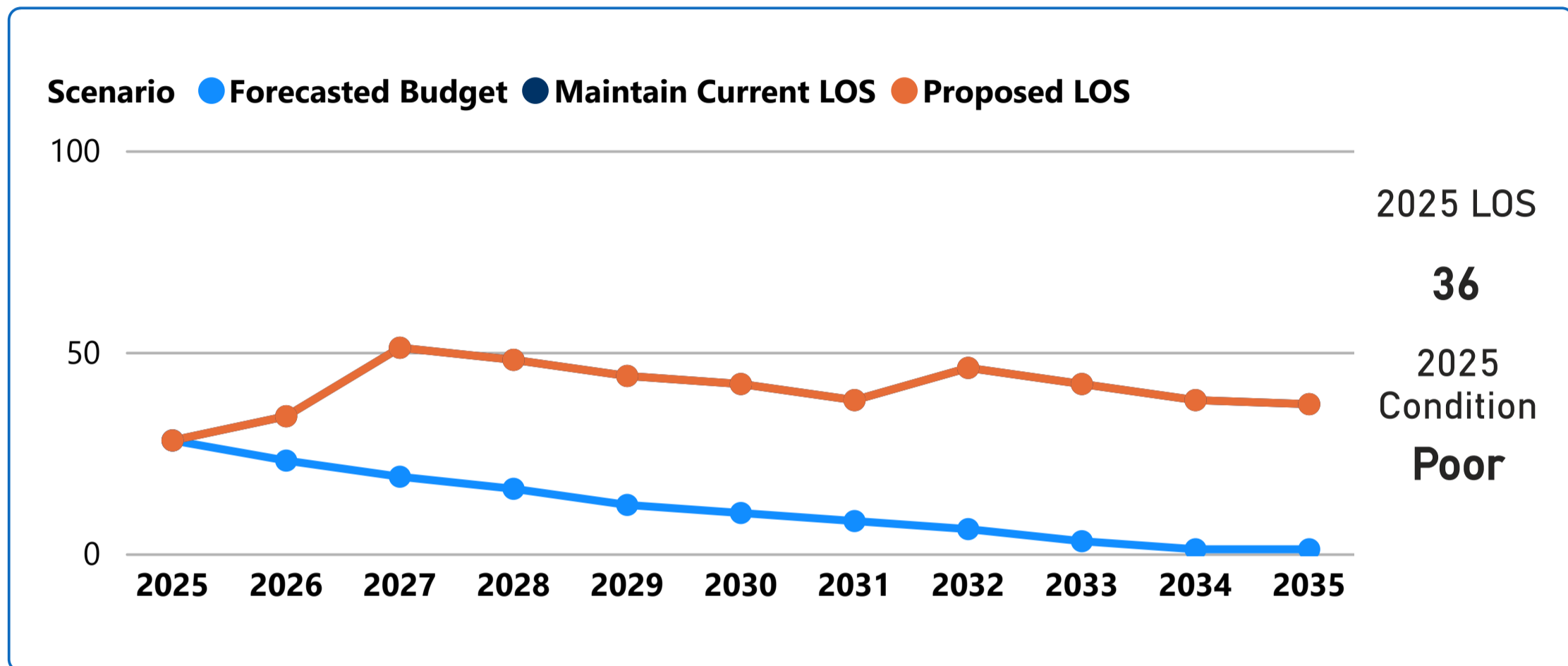
Scenario Summary Card

Level of Service Modelling

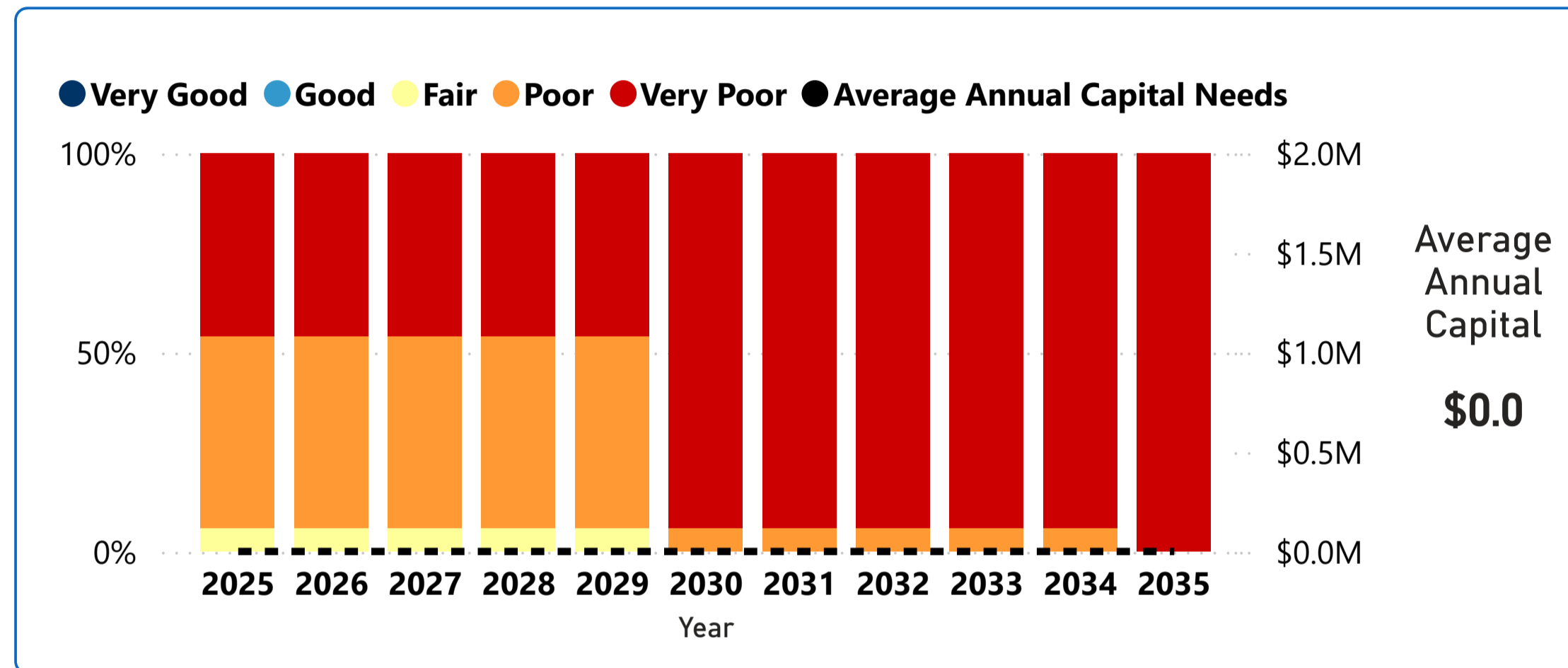
Service Area
Airport Operations

Asset Classes/Types
Pavements & Lighting

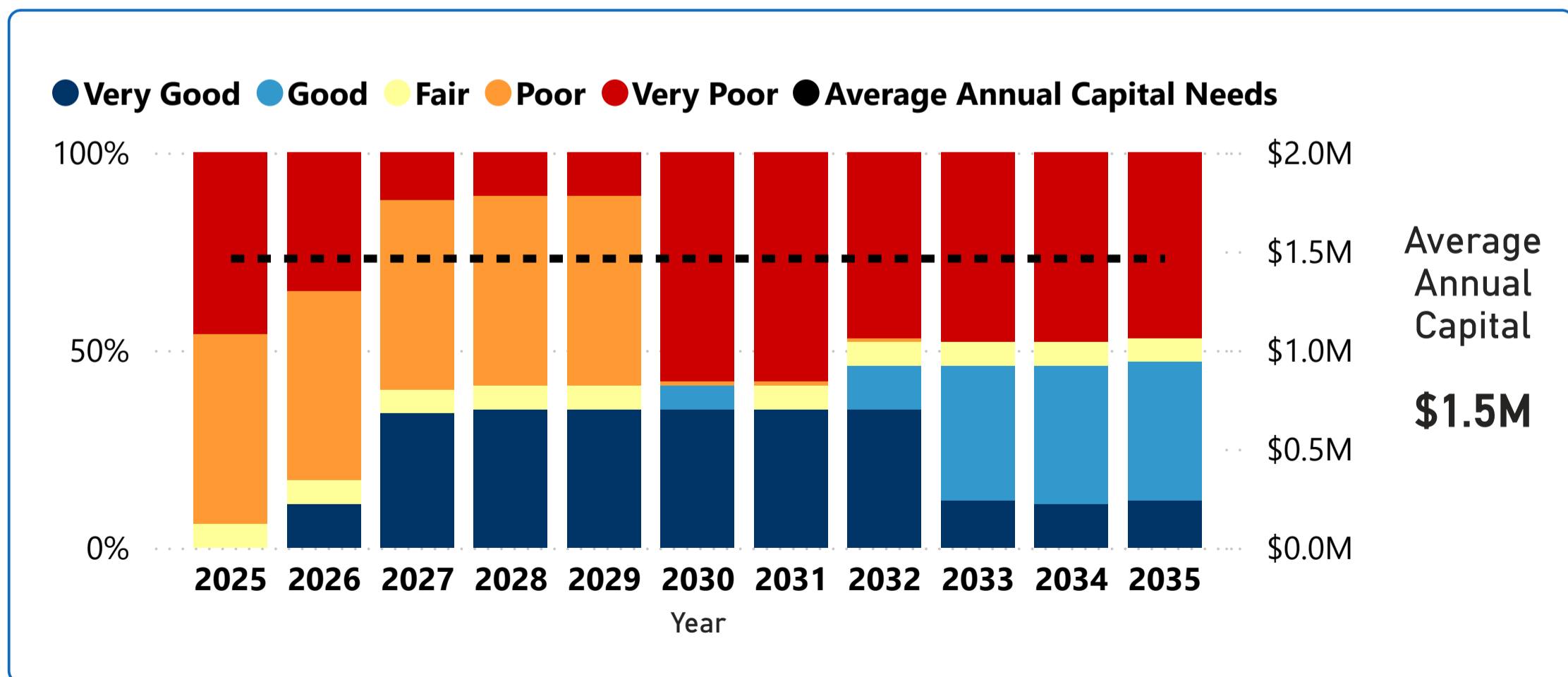
Average Network Condition (% Remaining Service Life)



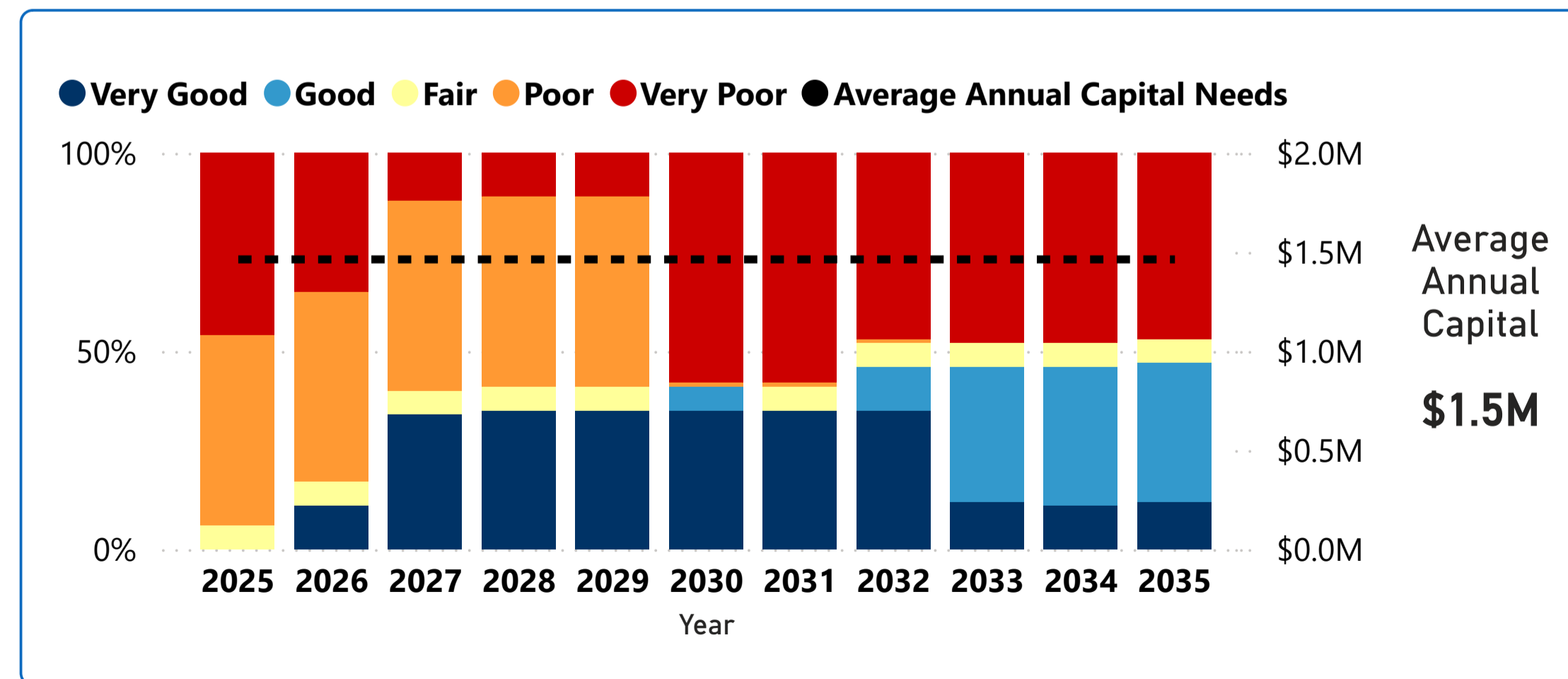
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: No capital renewal investments are detailed in the existing forecasted budget as the City evaluates future governance and funding options, but essential capital maintenance will be funded by staff to ensure safe, compliant, and continuous airport operations.



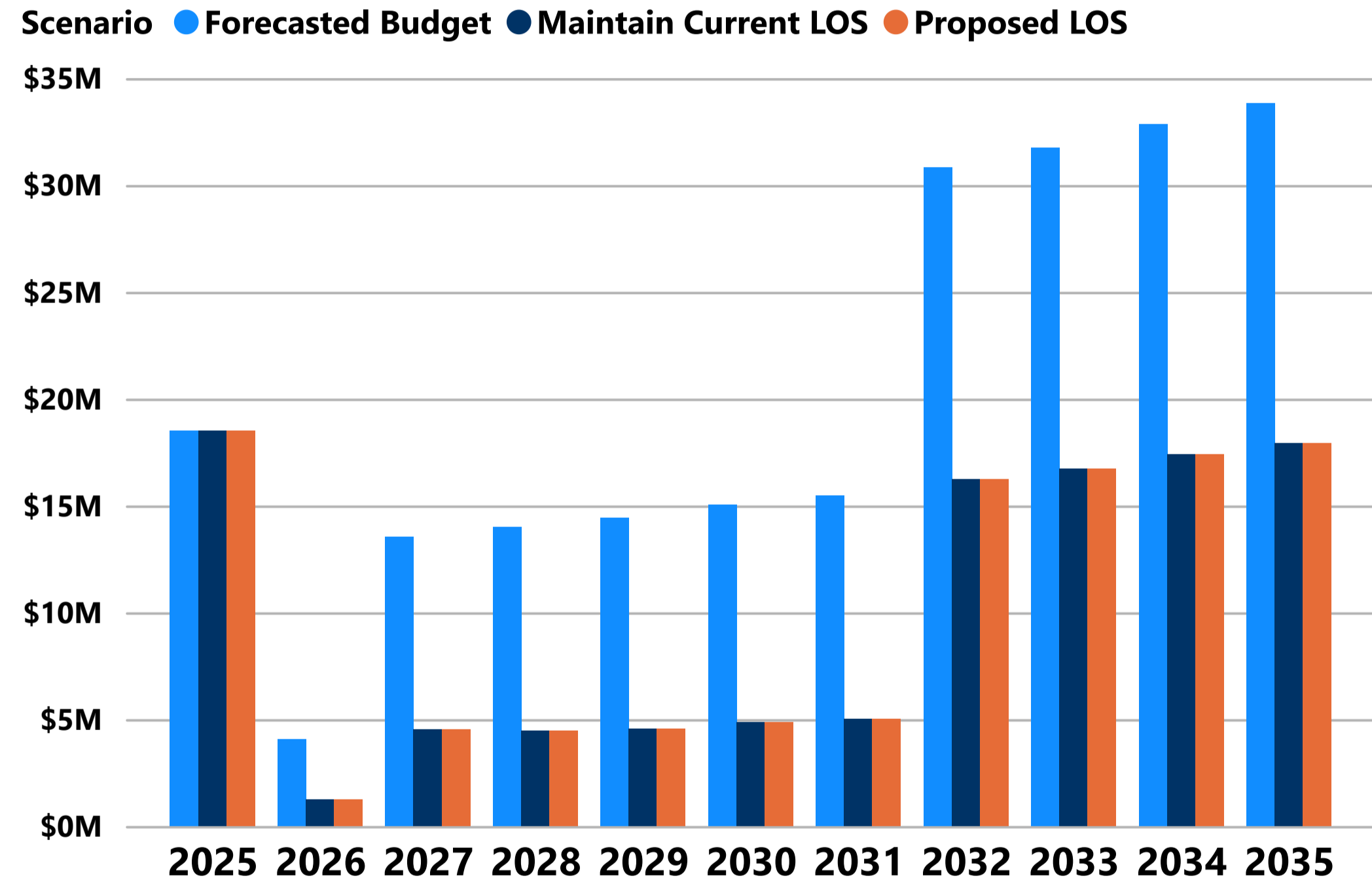
Scenario Summary Card

Level of Service Modelling

Service Area
Airport Operations

Asset Classes/Types
Pavements & Lighting

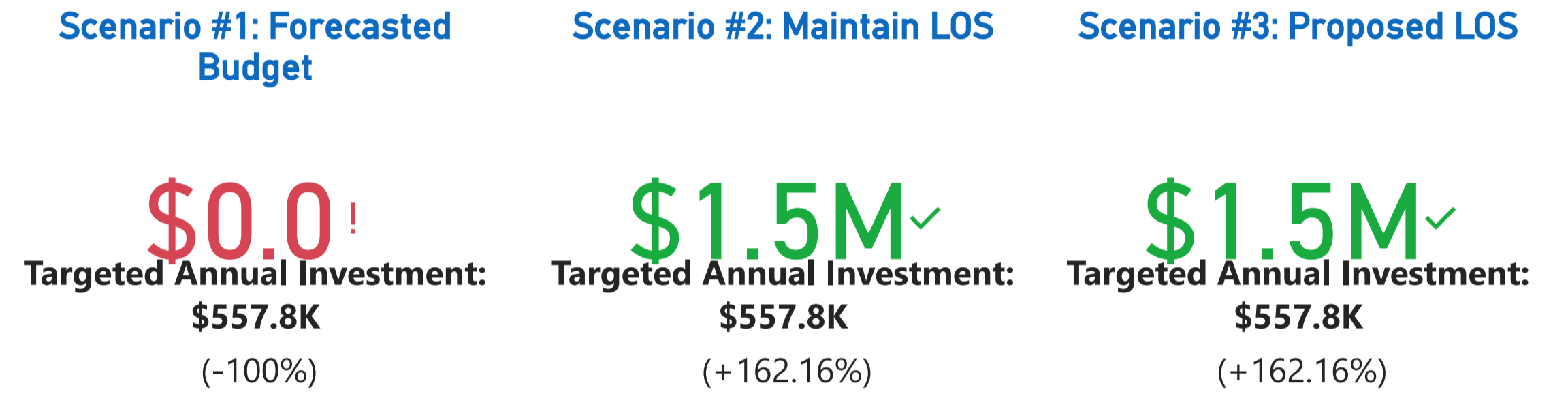
Metric #1 - 10-Year State of Good Repair Backlog



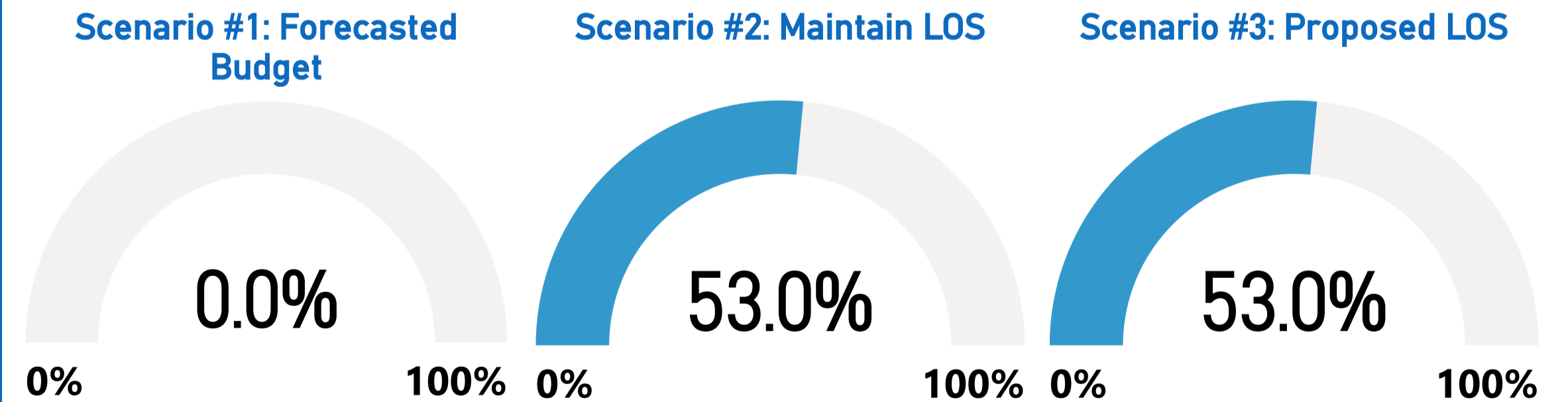
Year 10 Total Backlog (2035)



Metric #2 - Average Annual Asset Reinvestment Rate



Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)



Note: No capital renewal investments are detailed in the existing forecasted budget as the City evaluates future governance and funding options, but essential capital maintenance will be funded by staff to ensure safe, compliant, and continuous airport operations.



Scenario Summary Card

Level of Service Modelling

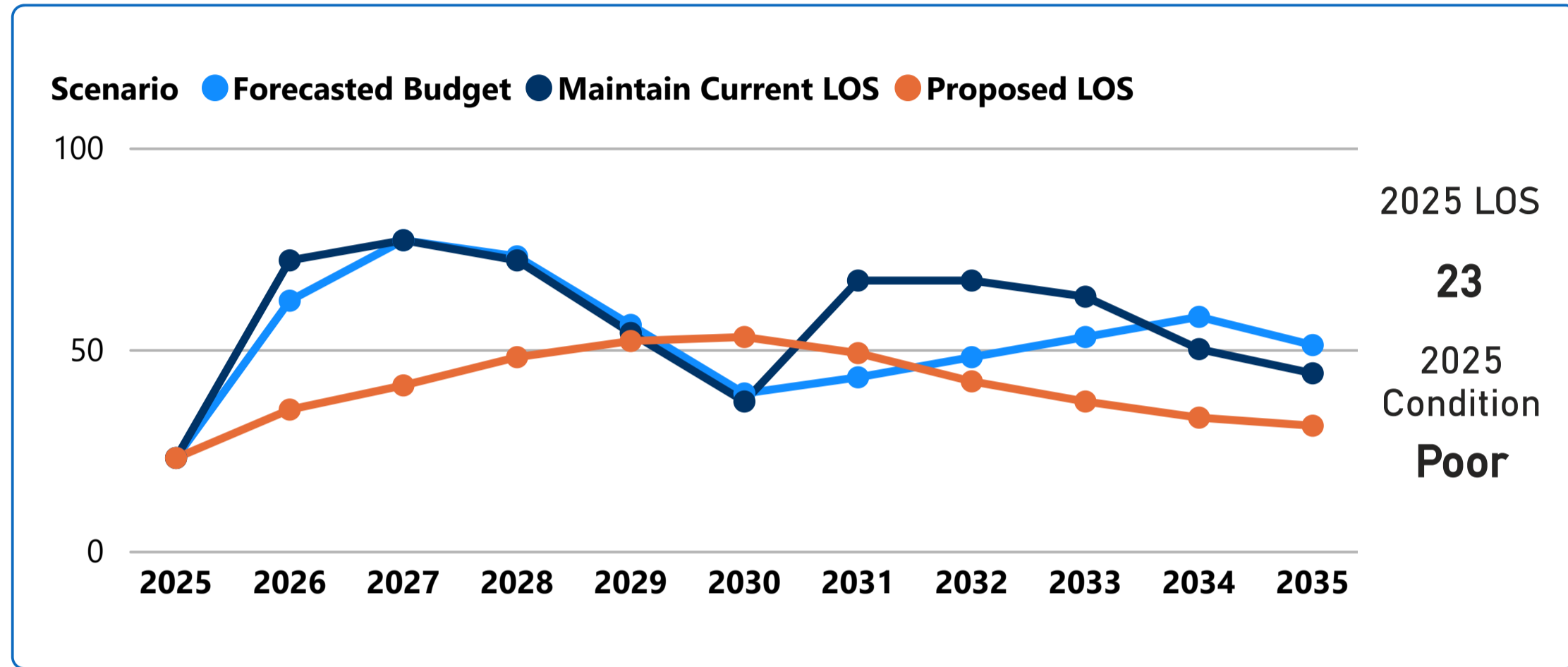
Service Area

IS & T

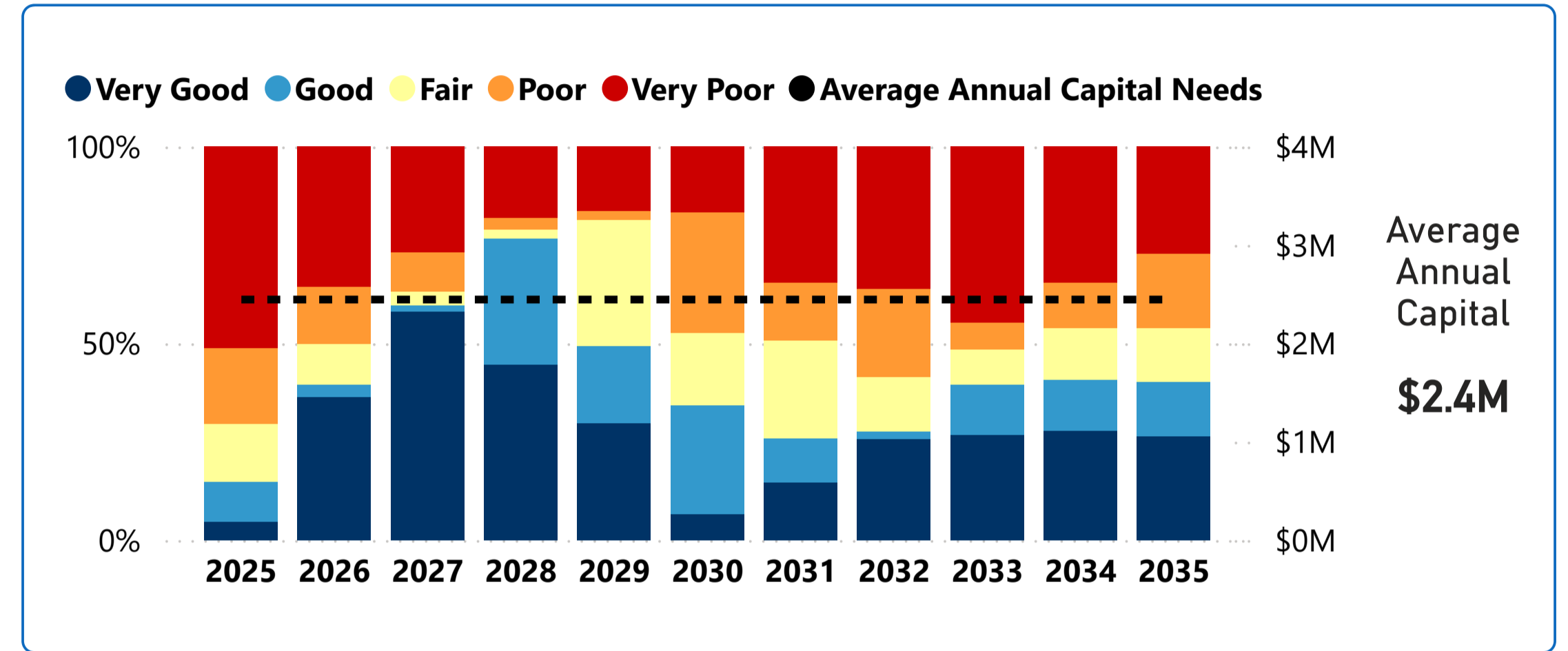
Asset Classes/Types

Hardware

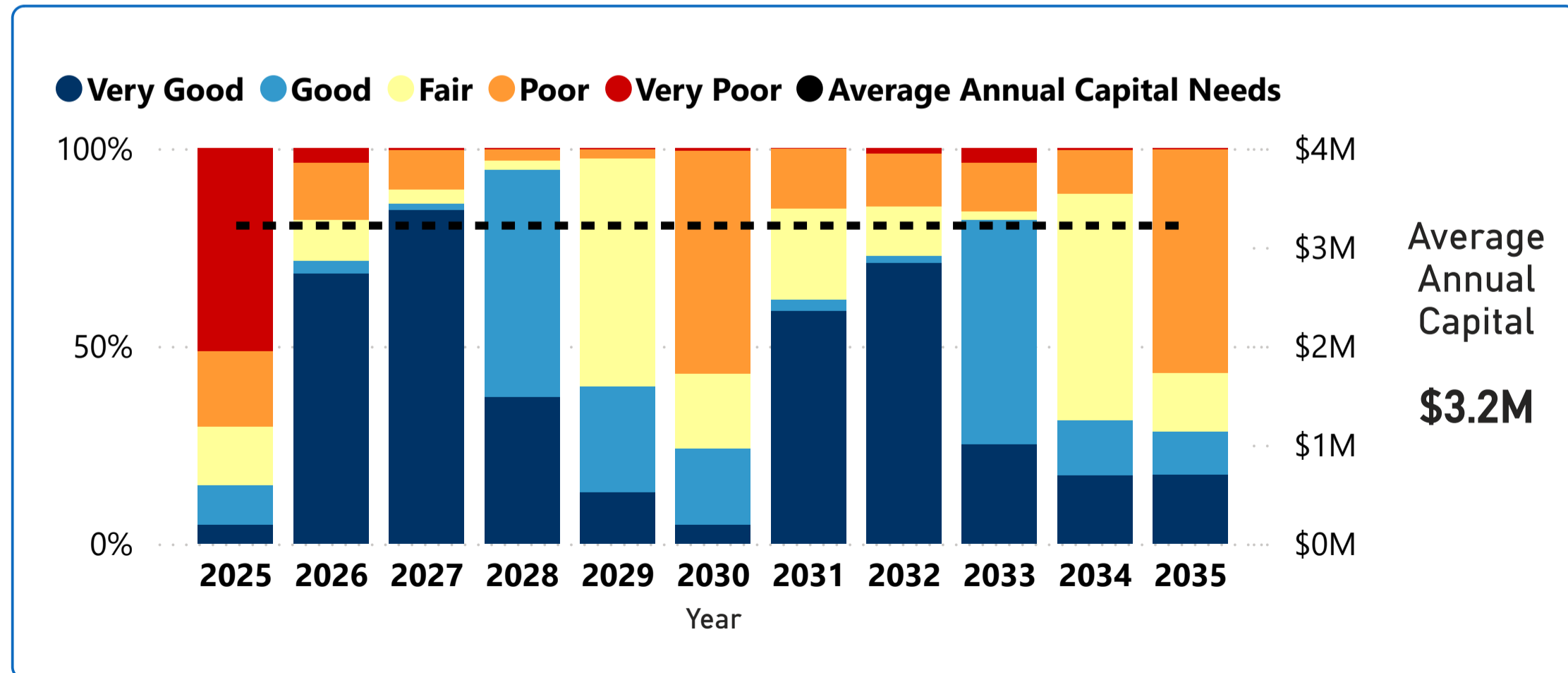
Average Network Condition (% Remaining Service Life)



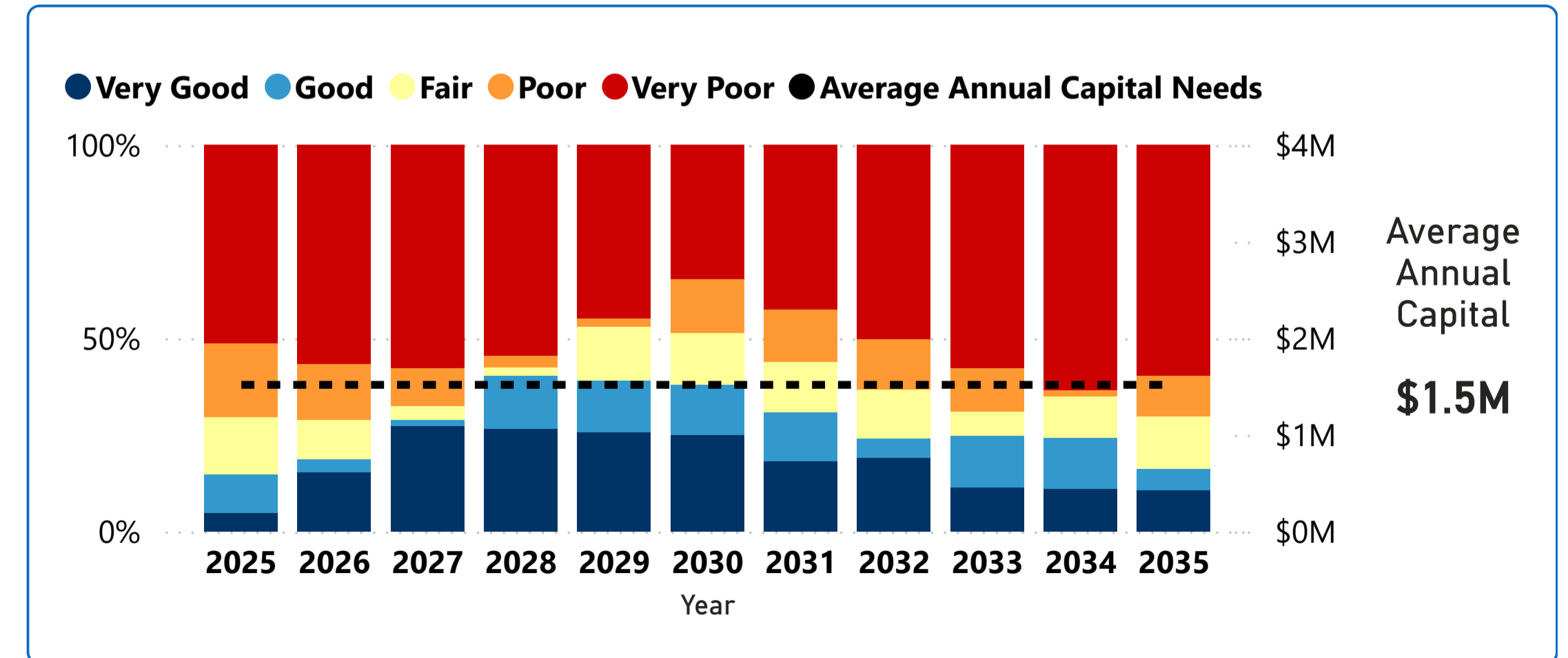
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: The current condition score is reflective of an age-based calculation for 41% of the assets and does not reflect any condition data. Due to the shorter lifecycle of many IT assets this is skewing the results. Plans are in place to address this review in 2026.



Scenario Summary Card

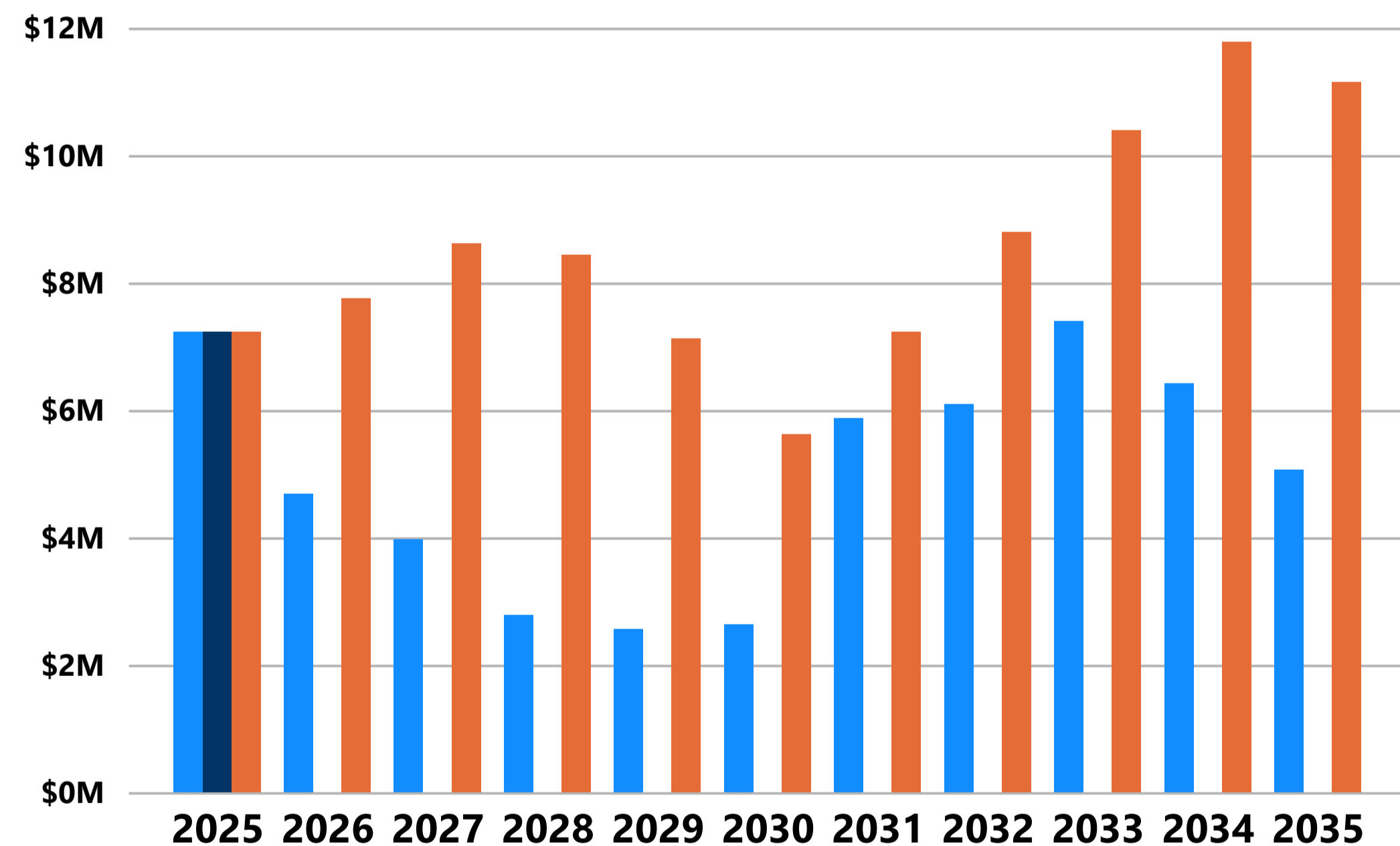
Level of Service Modelling

Service Area
IS & T

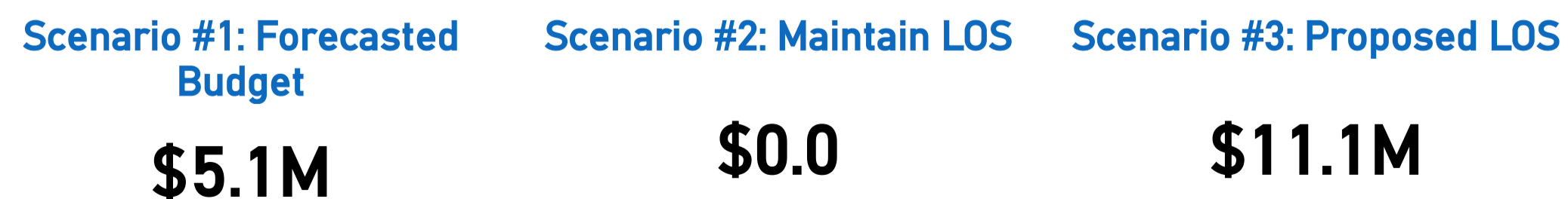
Asset Classes/Types
Hardware

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS

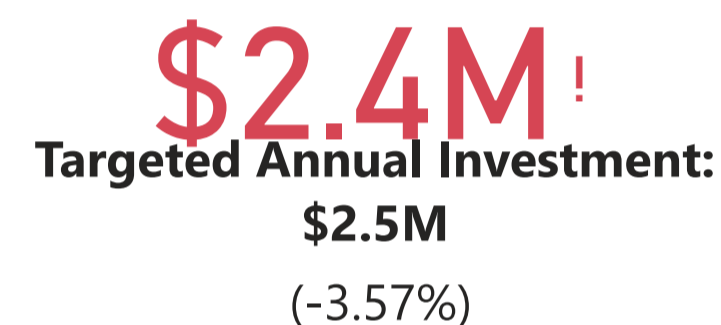


Year 10 Total Backlog (2035)

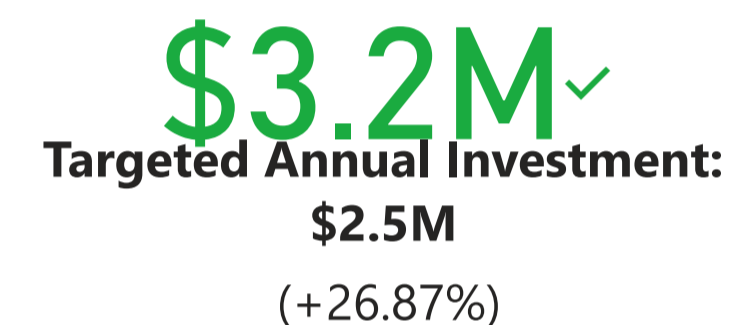


Metric #2 - Average Annual Asset Reinvestment Rate

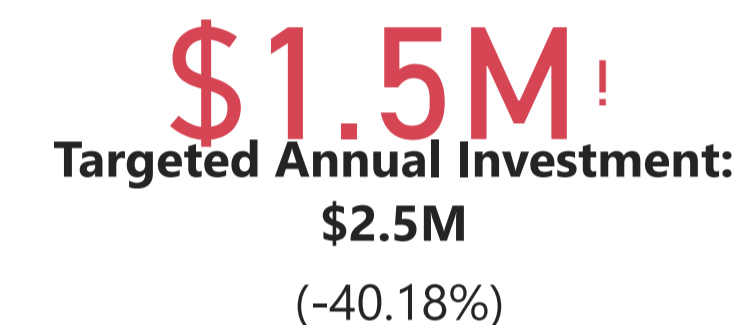
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS

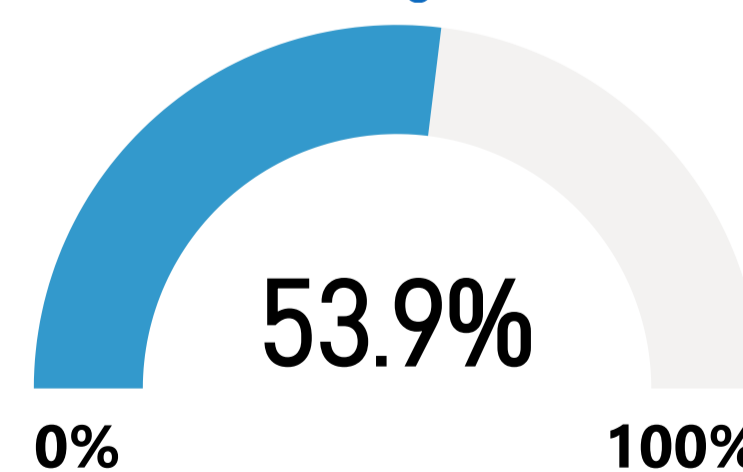


Scenario #3: Proposed LOS

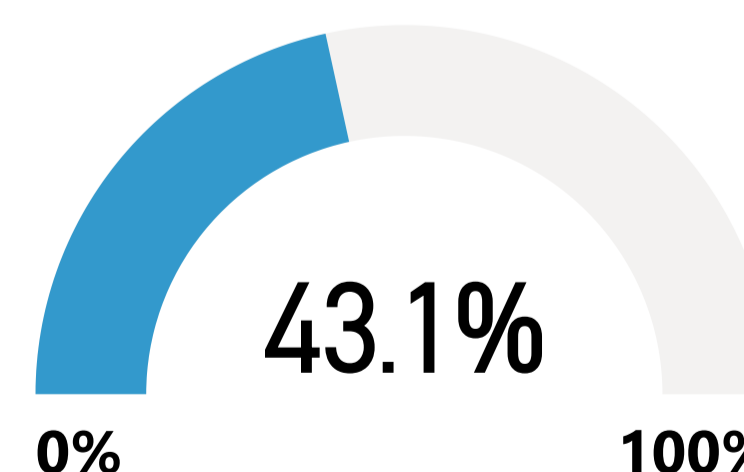


Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

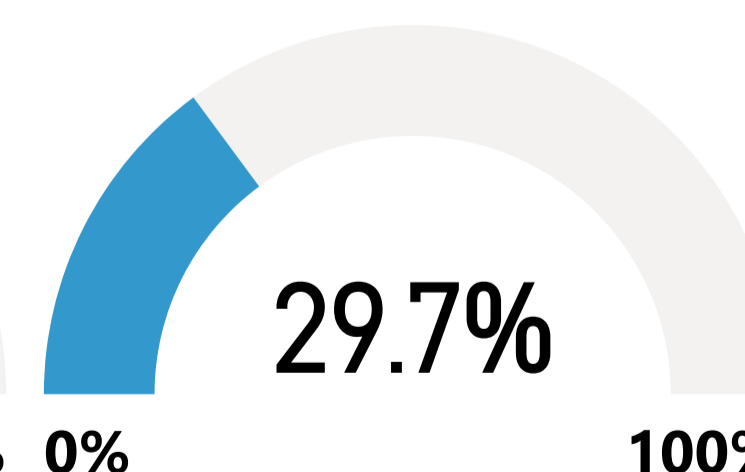
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS





Scenario Summary Card

Level of Service Modelling

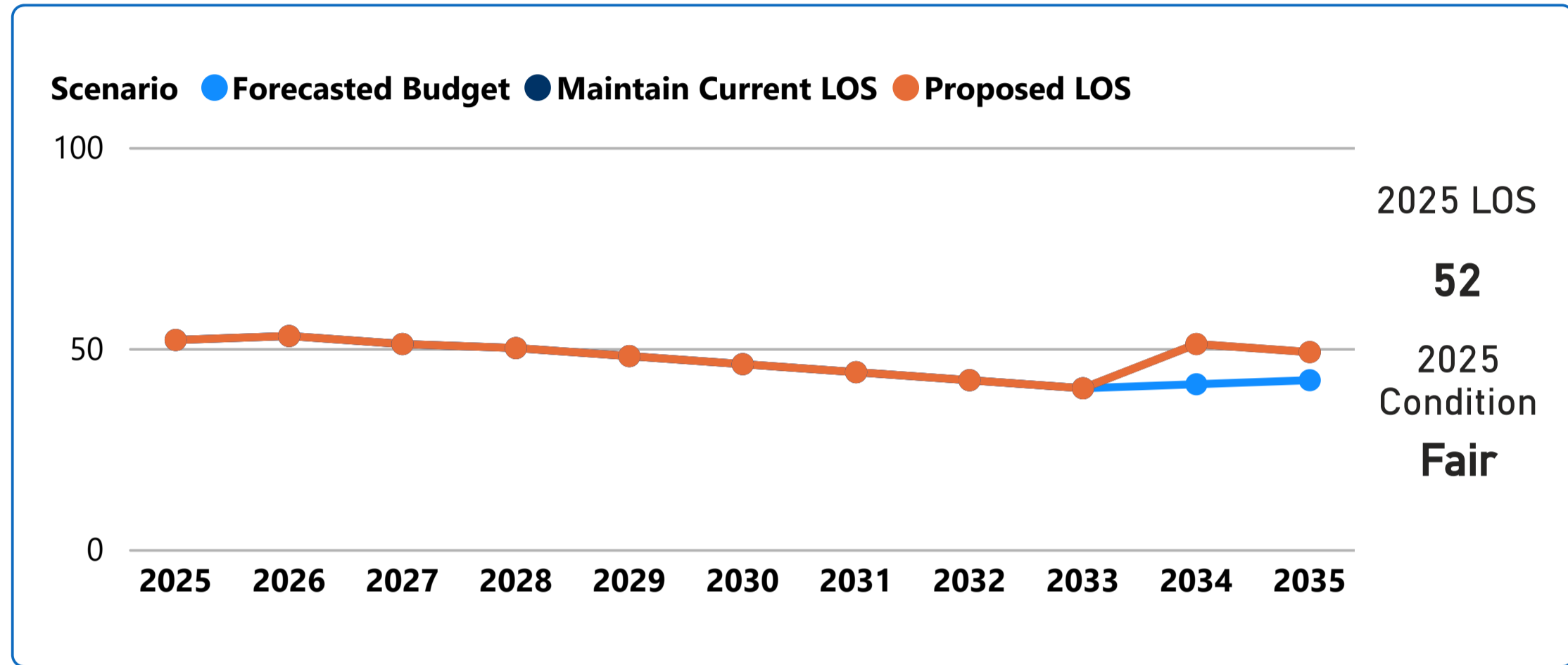
Service Area

Urban Forestry

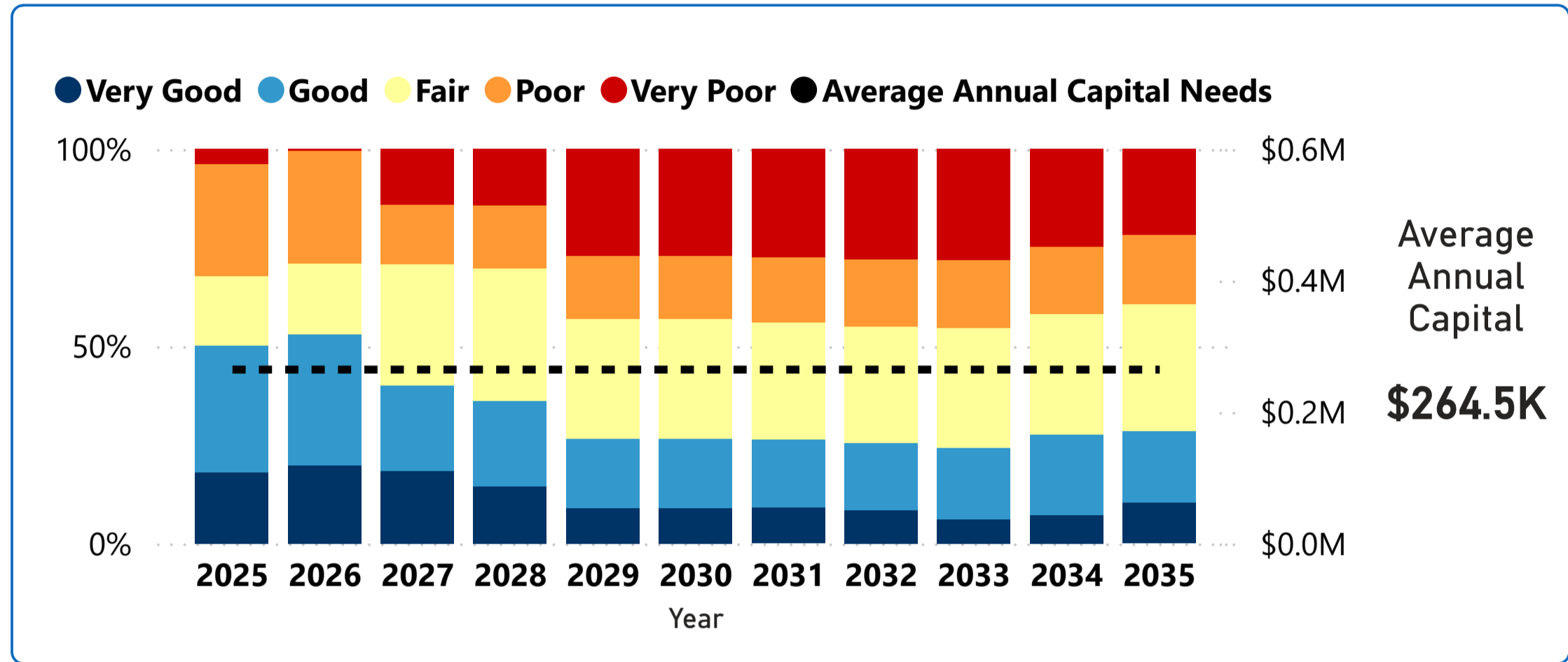
Asset Classes/Types

Trees

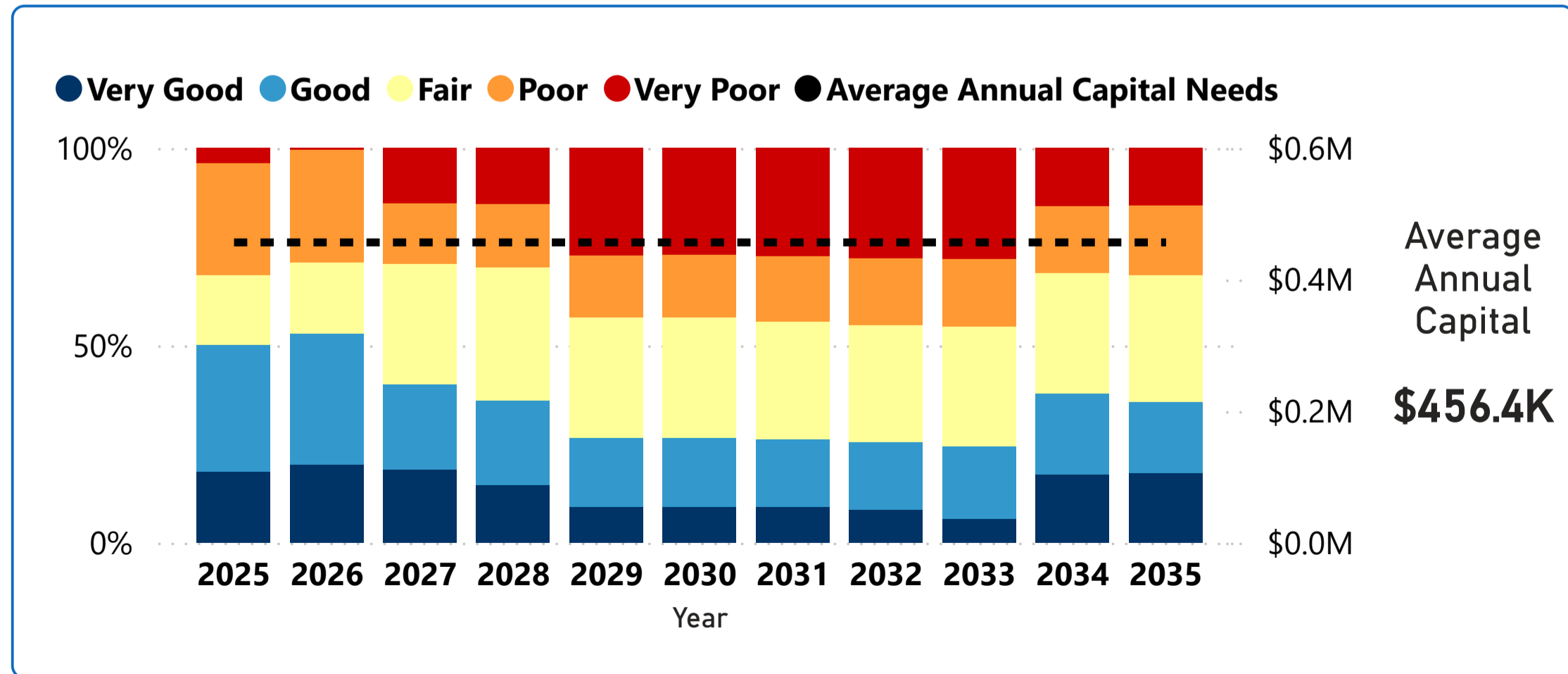
Average Network Condition (% Remaining Service Life)



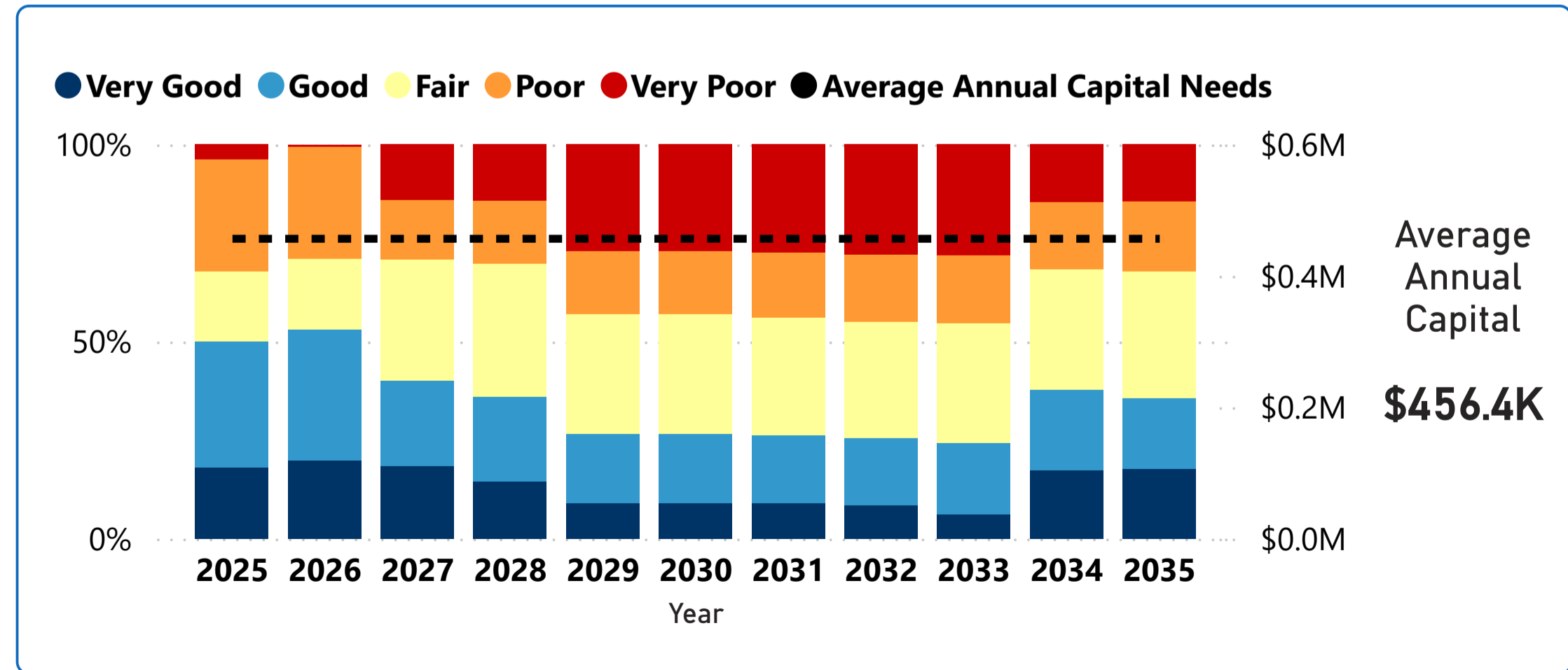
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

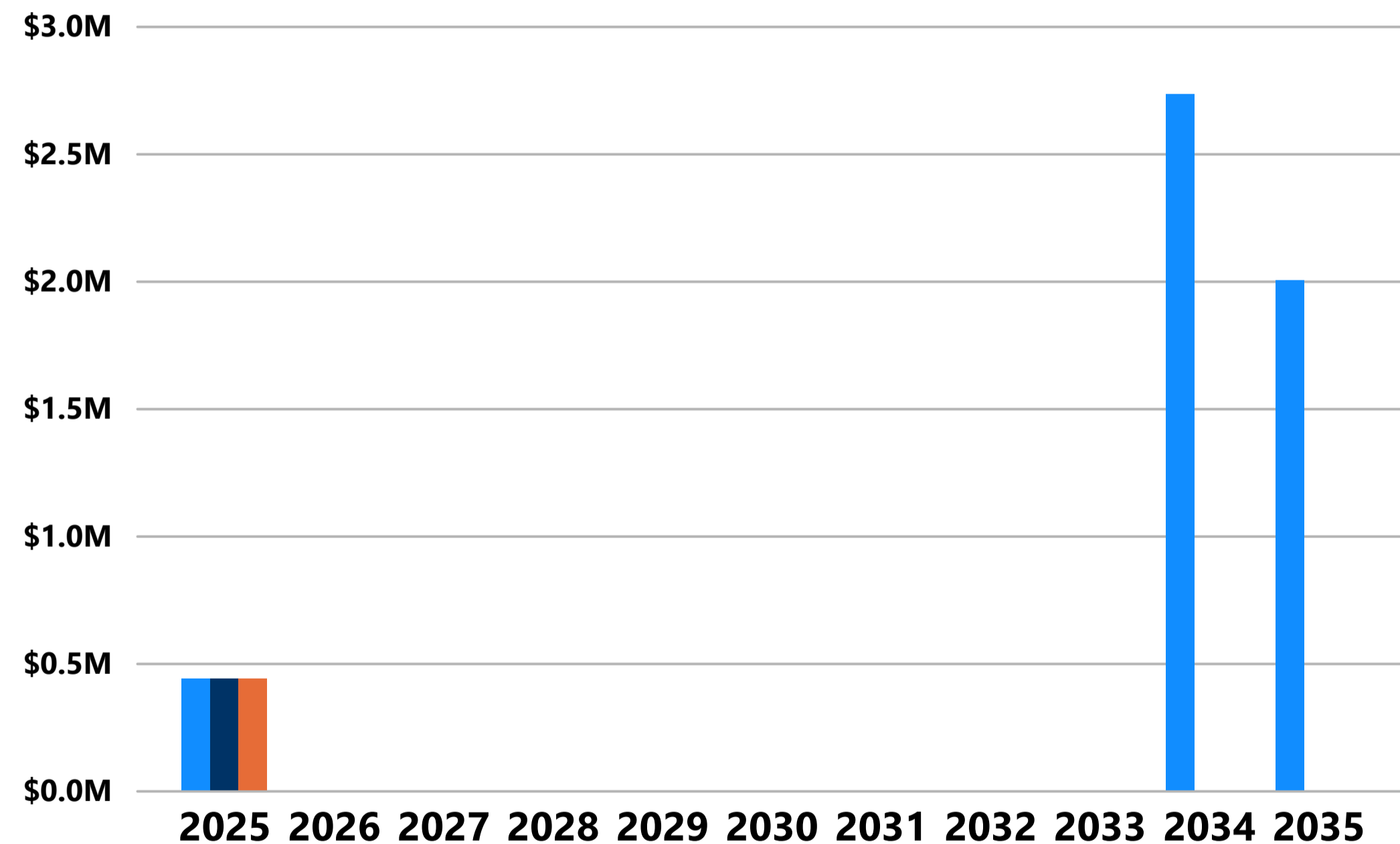
Level of Service Modelling

Service Area
Urban Forestry

Asset Classes/Types
Trees

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)



Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$264.5K!
Targeted Annual Investment:
\$491.7K
(-46.21%)

\$456.4K!
Targeted Annual Investment:
\$491.7K
(-7.18%)

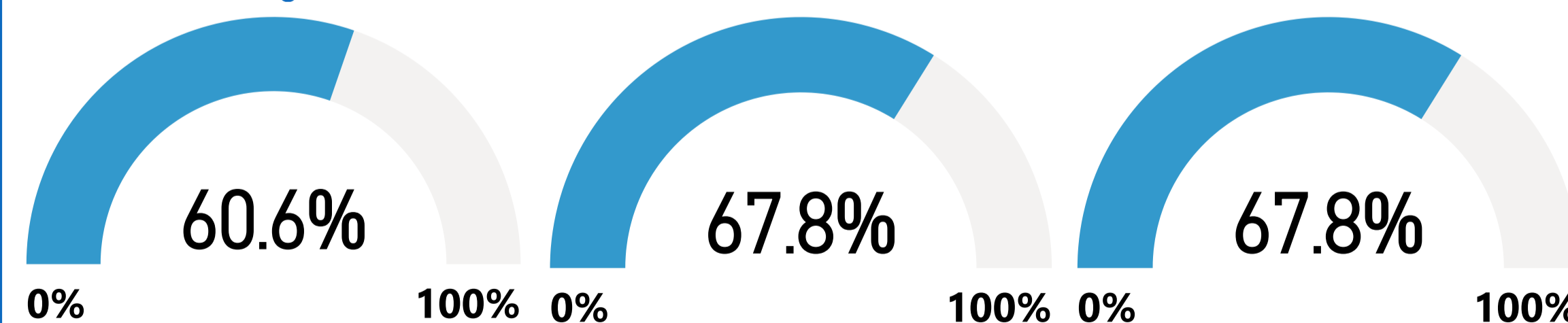
\$456.4K!
Targeted Annual Investment:
\$491.7K
(-7.18%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS





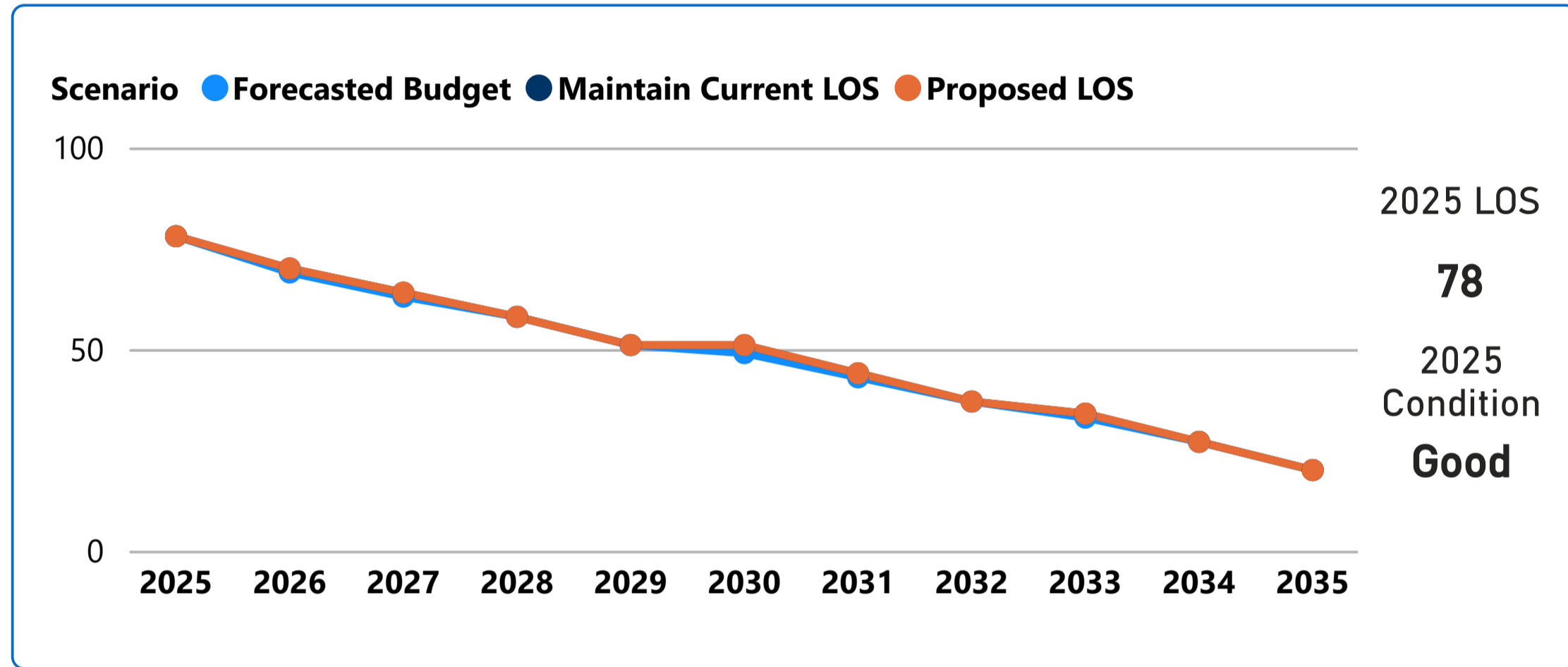
Scenario Summary Card

Level of Service Modelling

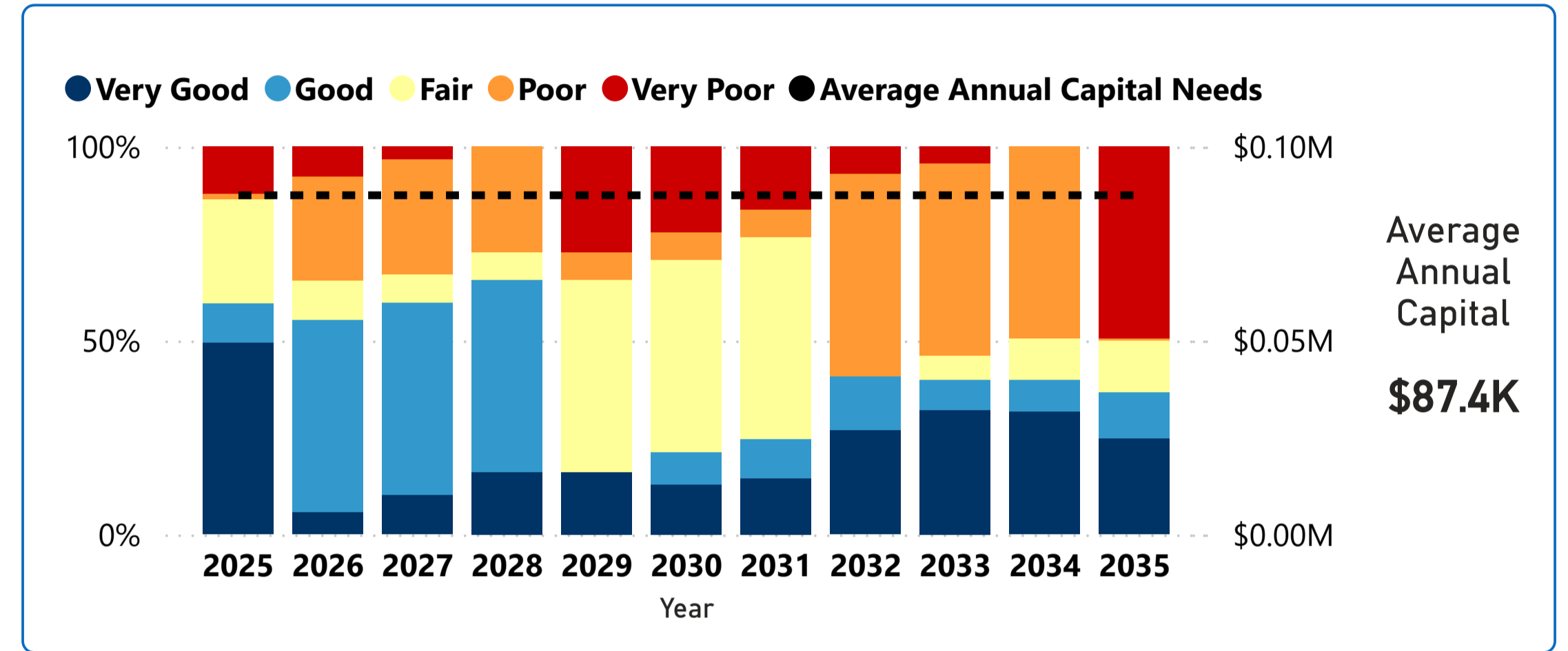
Service Area
Library Services

Asset Classes/Types
Automated Materials Handling, Furniture,
Custodial Equipment, Other Equipment

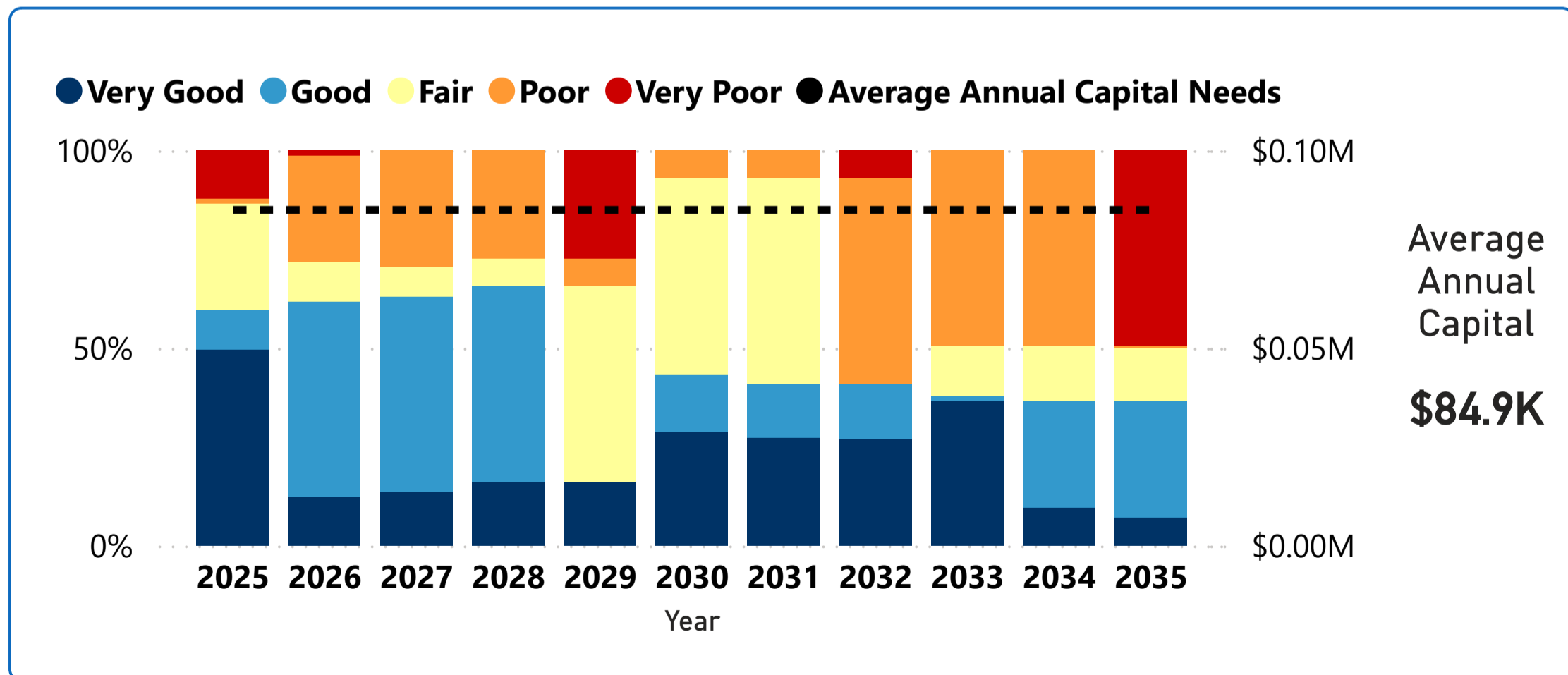
Average Network Condition (% Remaining Service Life)



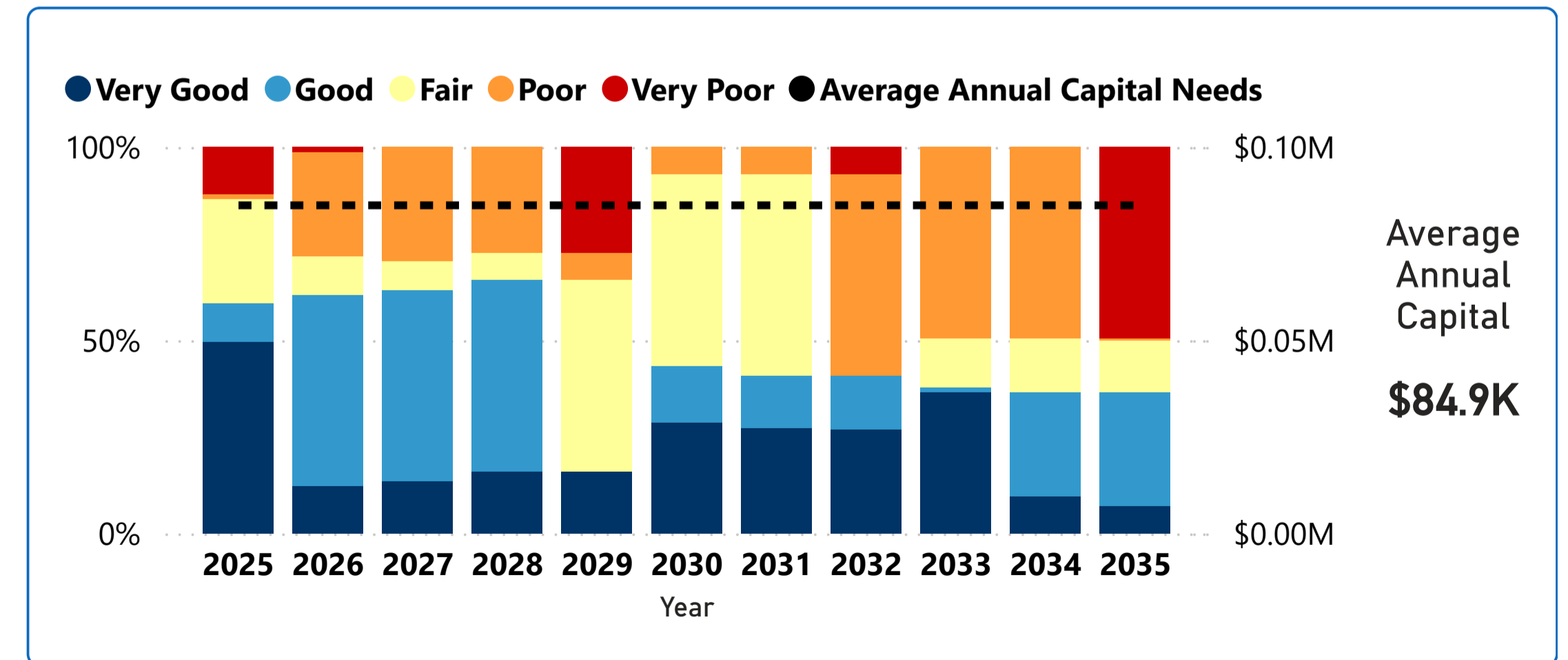
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

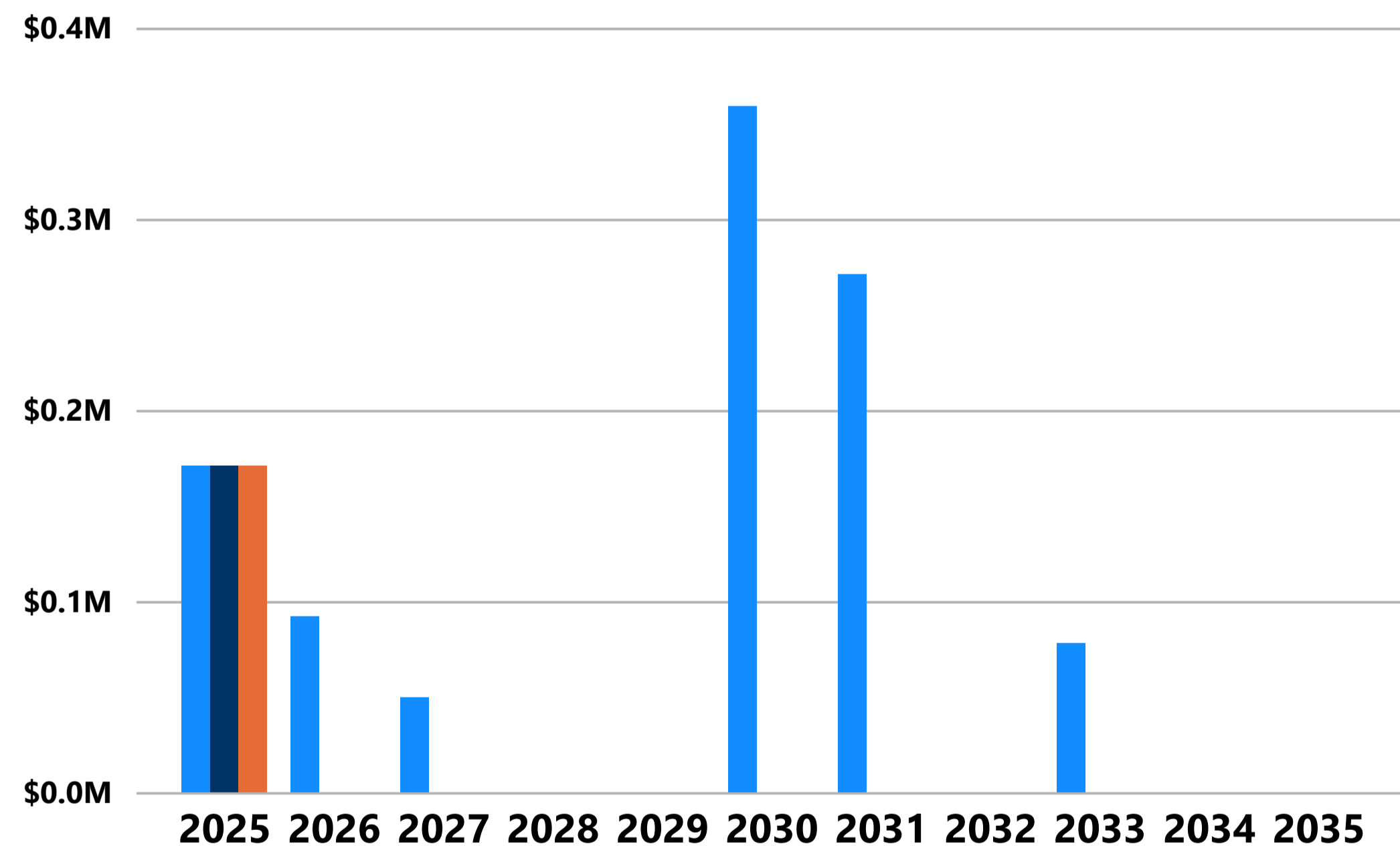
Level of Service Modelling

Service Area
Library Services

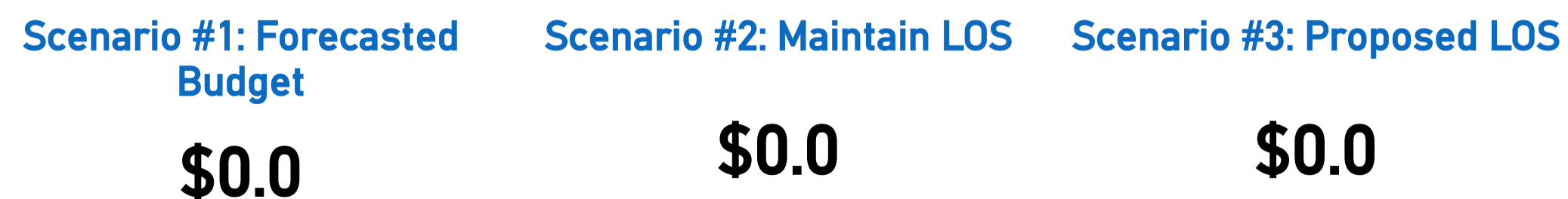
Asset Classes/Types
Automated Materials Handling, Furniture,
Custodial Equipment, Other Equipment

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)



Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$87.4K ✓
Targeted Annual Investment:
\$41.6K
(+110.02%)

\$84.9K ✓
Targeted Annual Investment:
\$41.6K
(+103.9%)

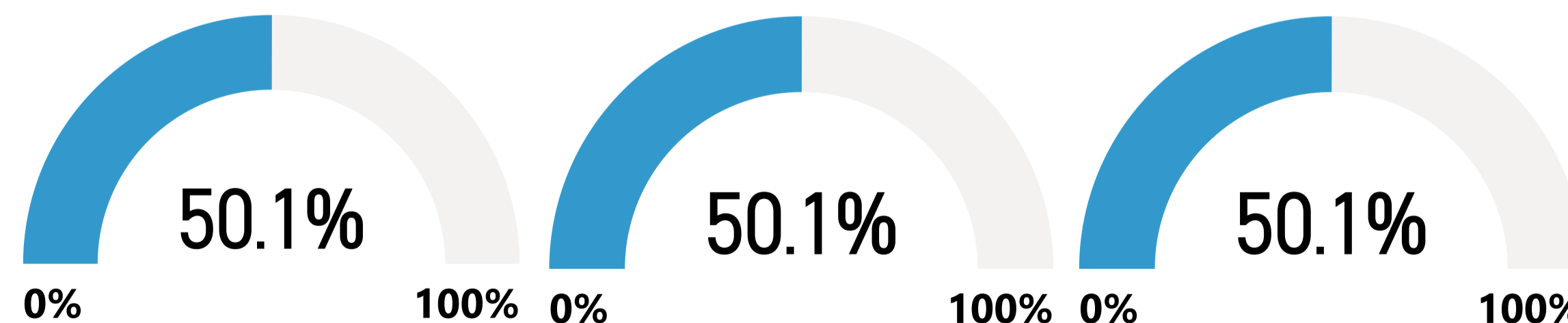
\$84.9K ✓
Targeted Annual Investment:
\$41.6K
(+103.9%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS





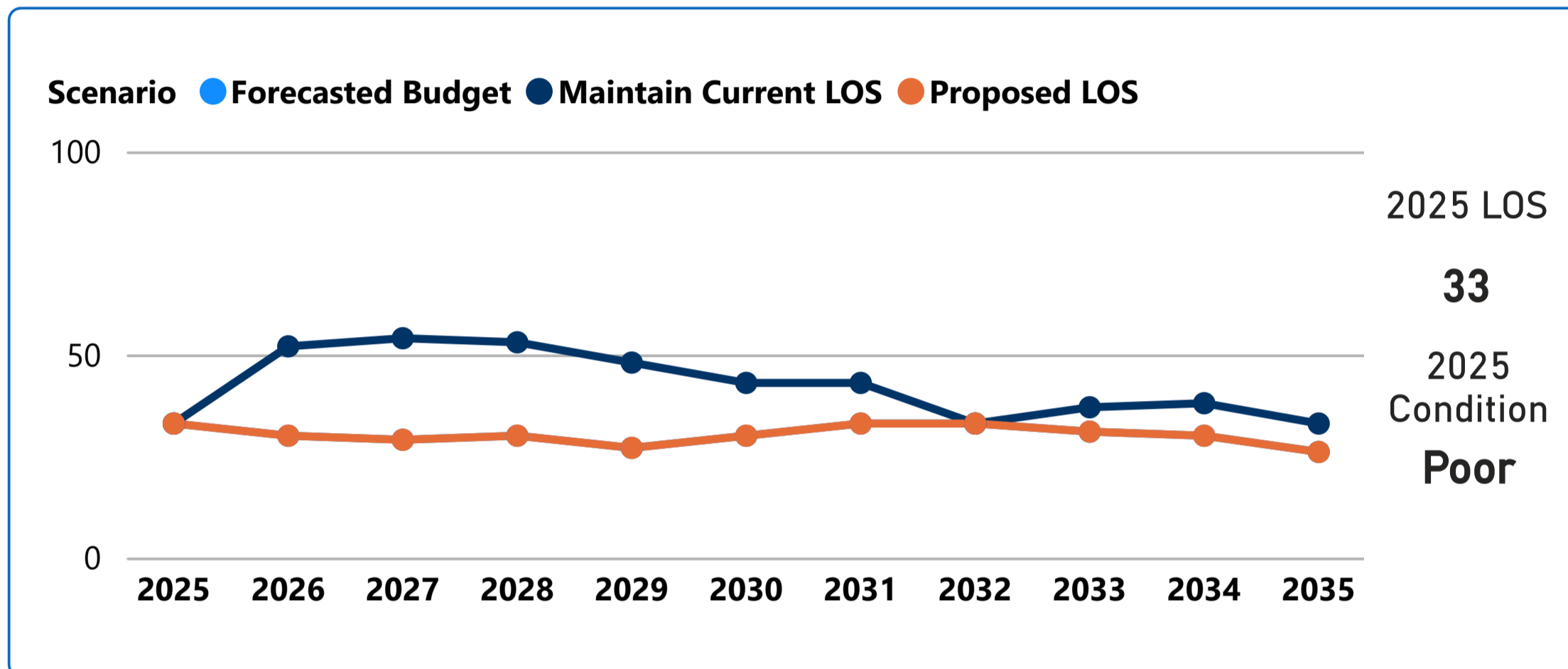
Scenario Summary Card

Level of Service Modelling

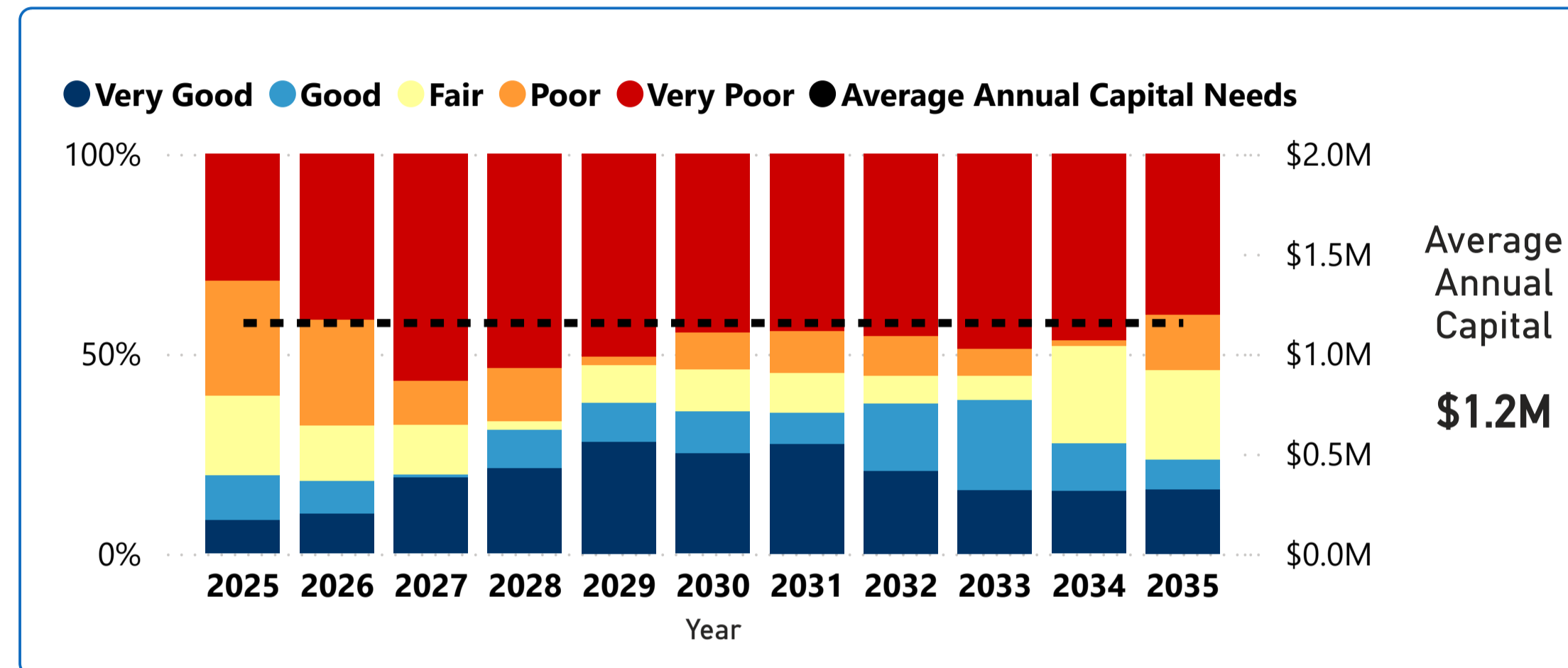
Service Area
Police Services

Asset Classes/Types
Fleet

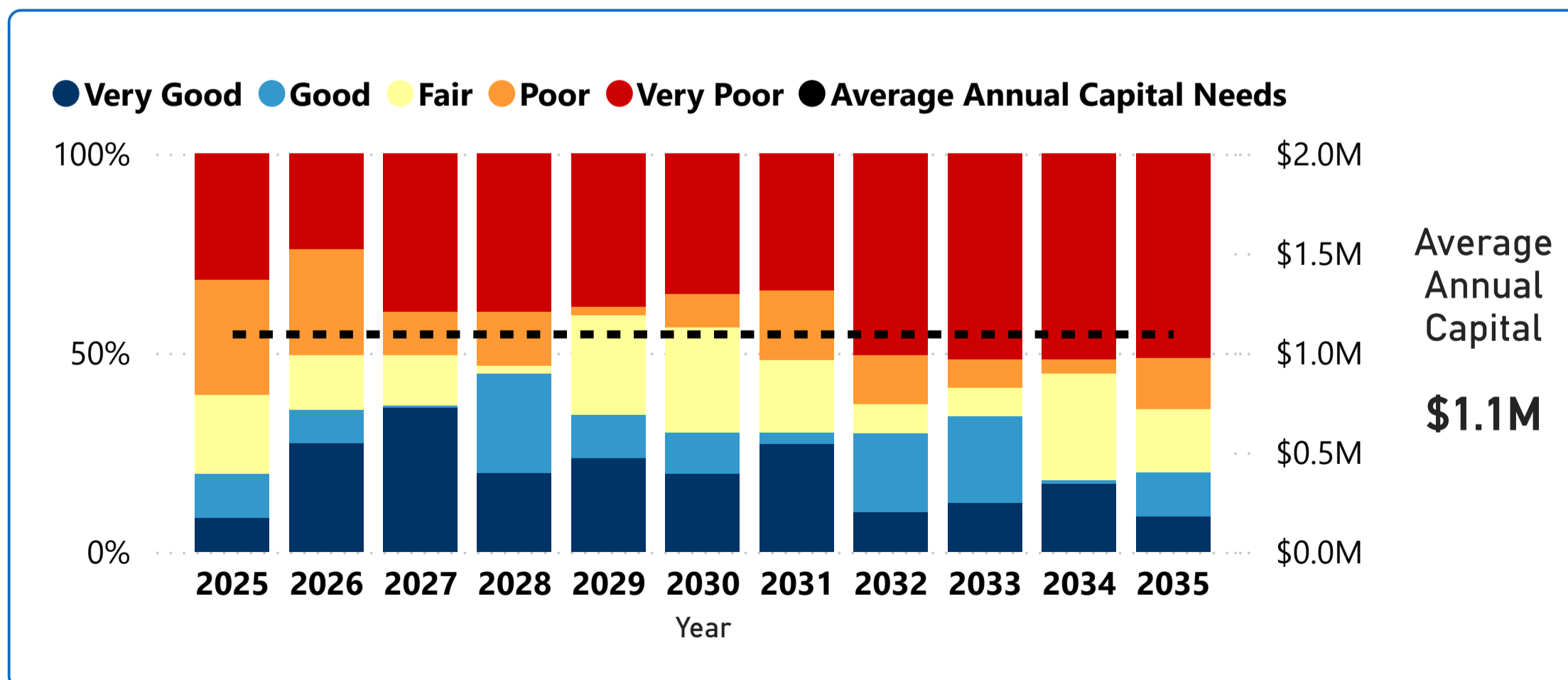
Average Network Condition (% Remaining Service Life)



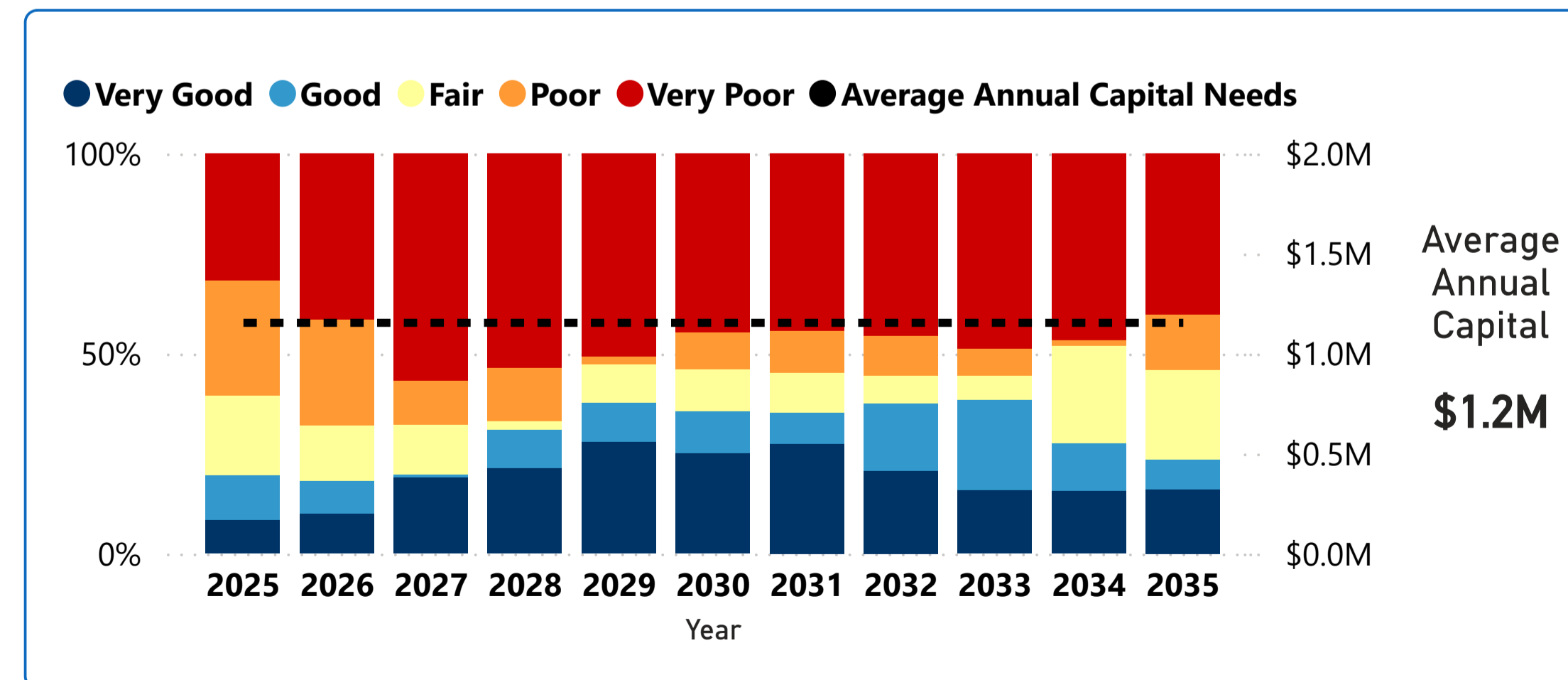
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: The current condition score is reflective of the combination of an age-based and life to date utilization calculation and does not reflect any condition assessment information.



Scenario Summary Card

Level of Service Modelling

Service Area

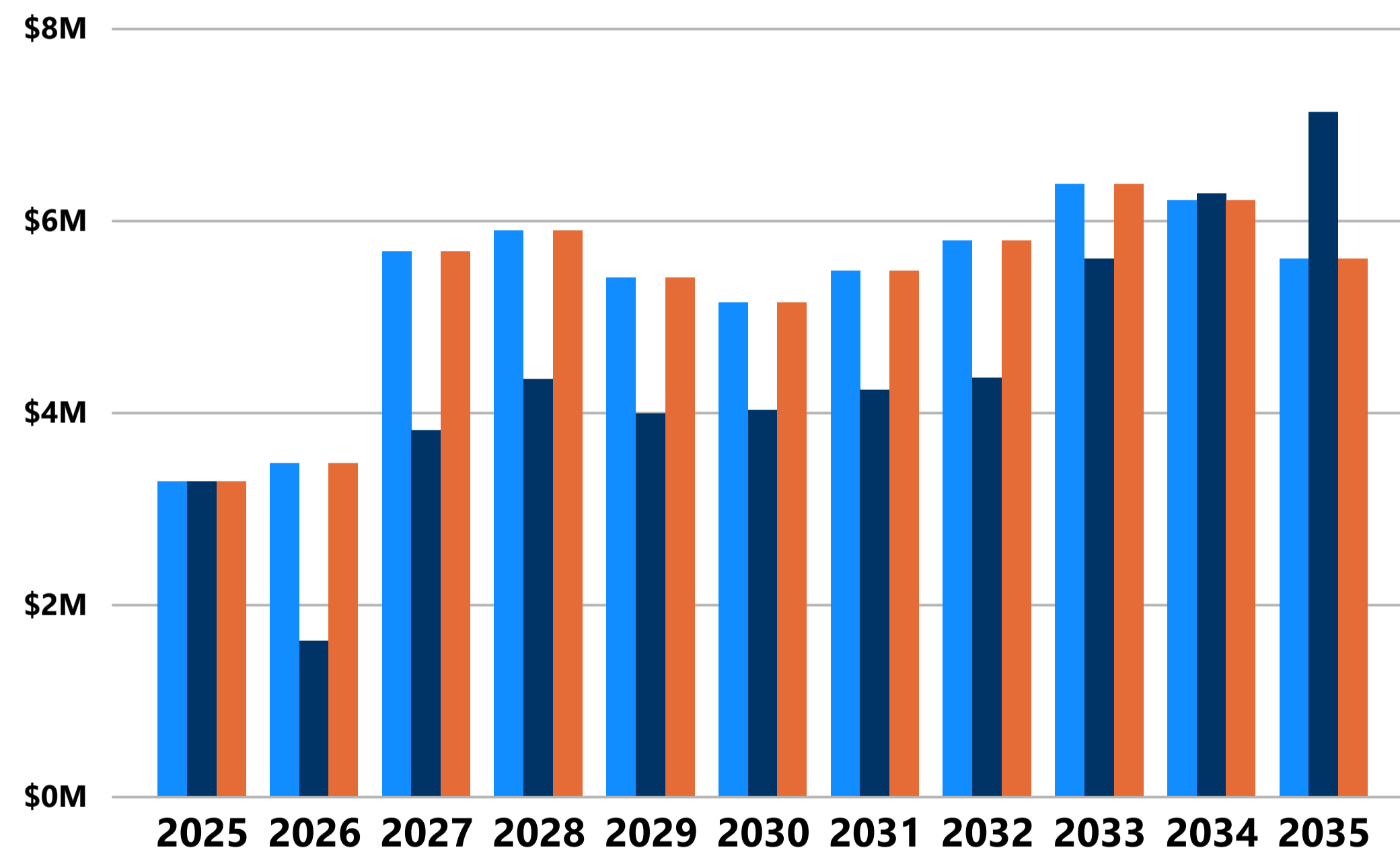
Police Services

Asset Classes/Types

Fleet

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget Scenario #2: Maintain LOS Scenario #3: Proposed LOS

\$5.6M

\$7.1M

\$5.6M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$1.2M ✓
Targeted Annual Investment:
\$1.1M
(+4.84%)

\$1.1M !
Targeted Annual Investment:
\$1.1M
(-0.81%)

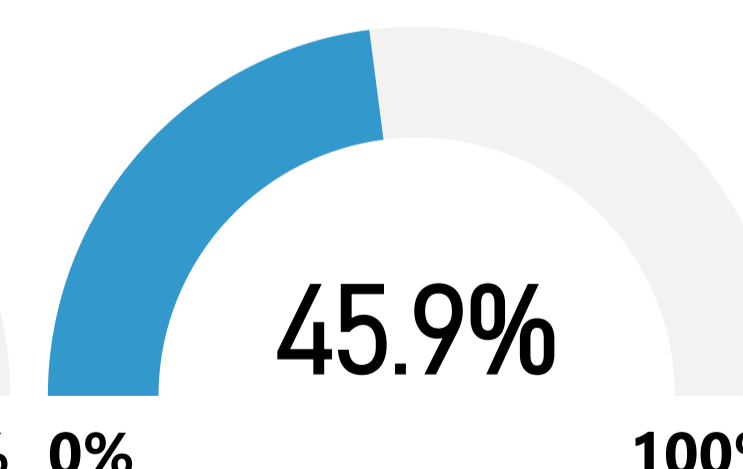
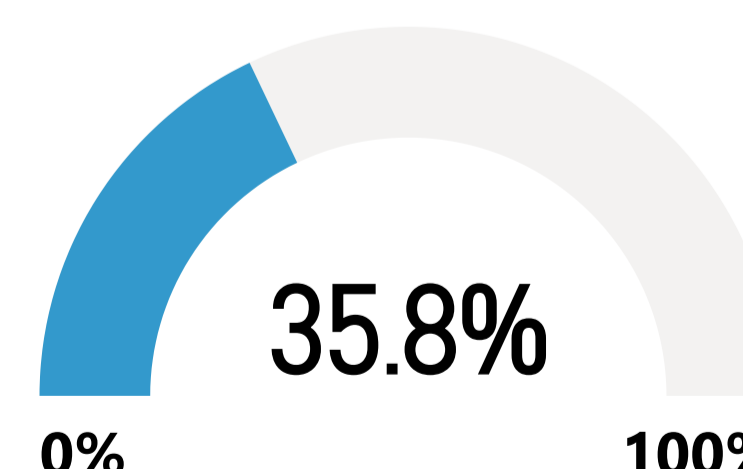
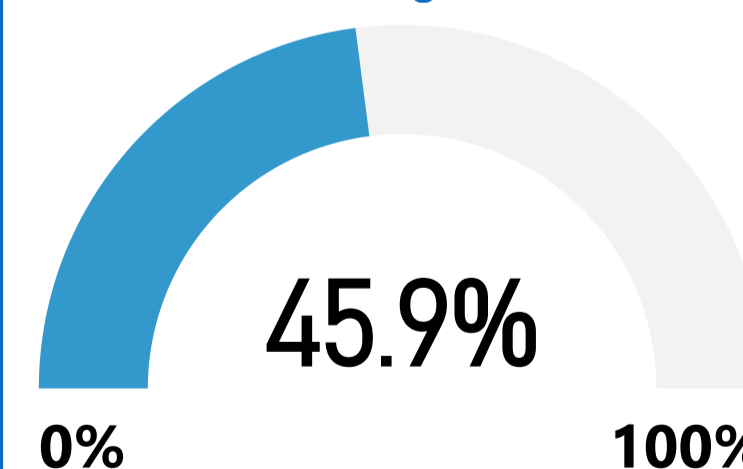
\$1.2M ✓
Targeted Annual Investment:
\$1.1M
(+4.84%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS





Scenario Summary Card

Level of Service Modelling

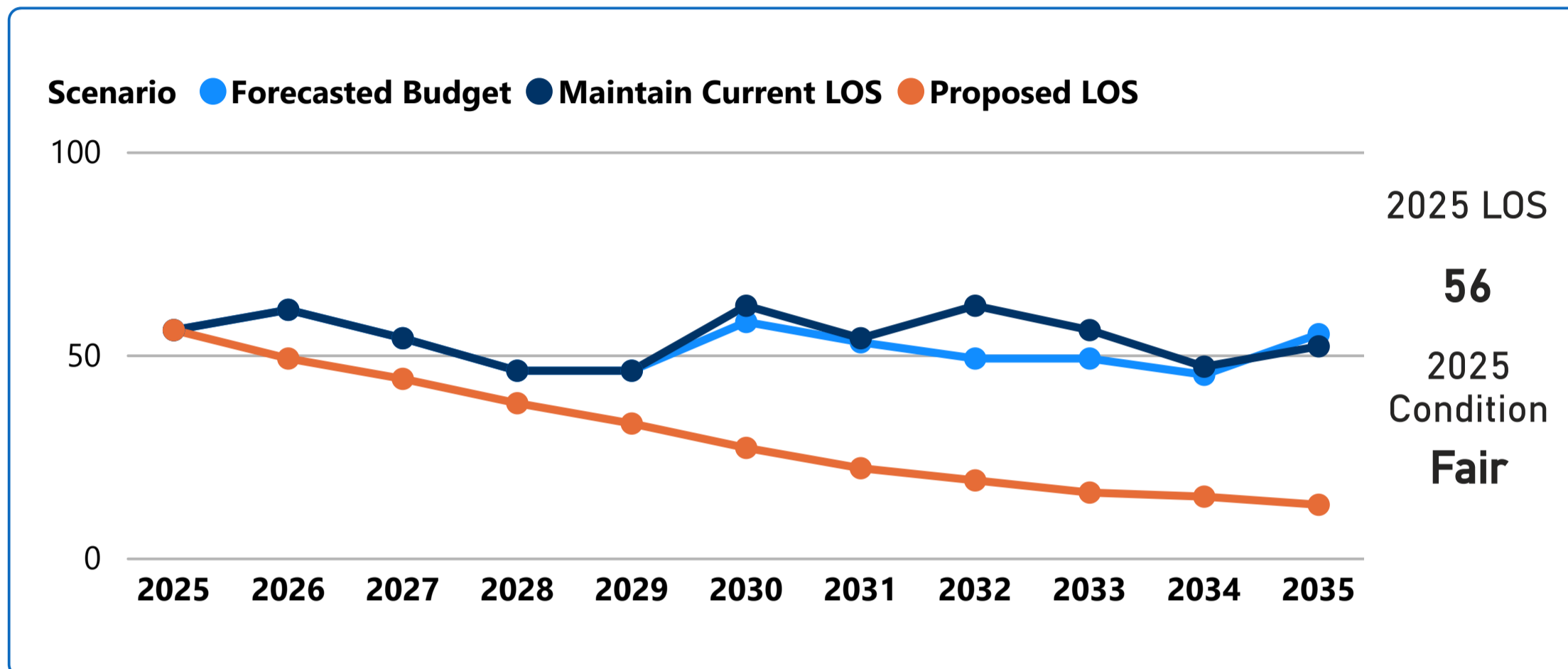
Service Area

Asset Classes/Types

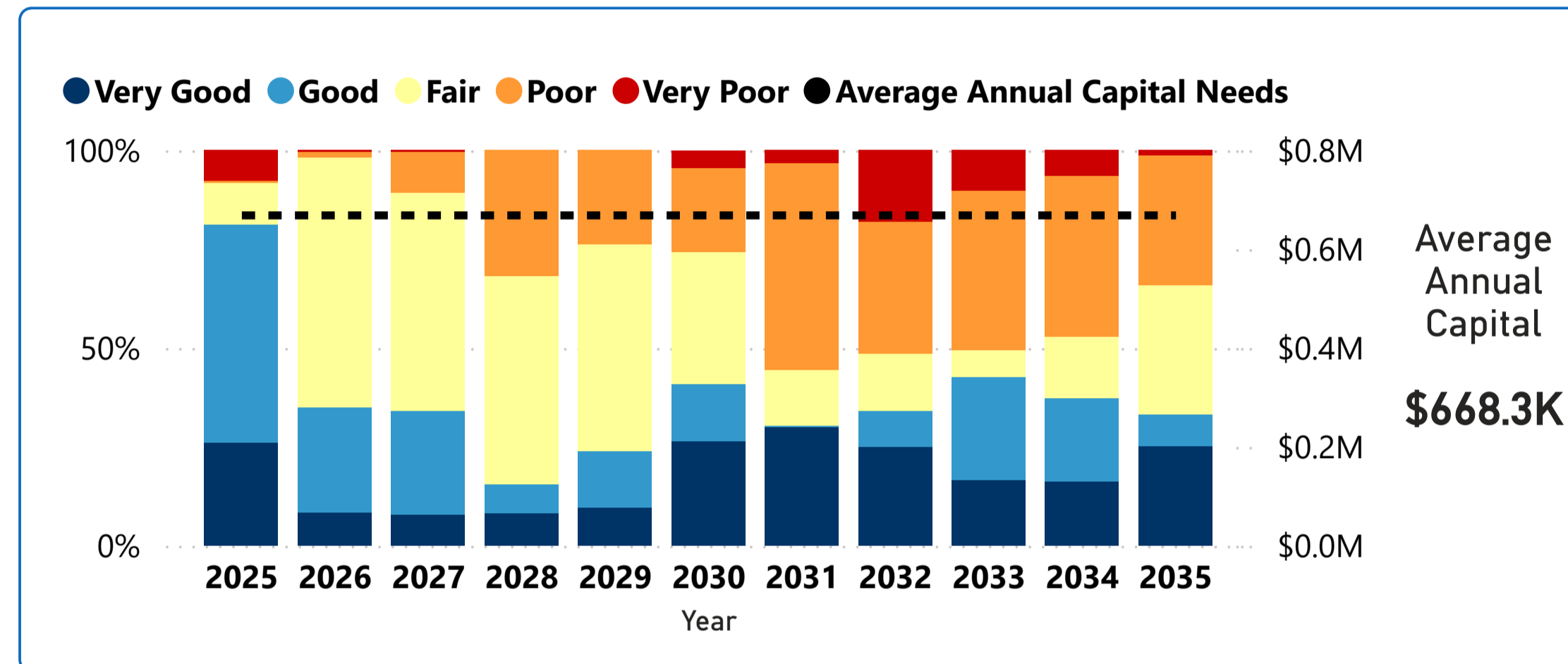
Transit

Bus Shelters & On-Board Equipment

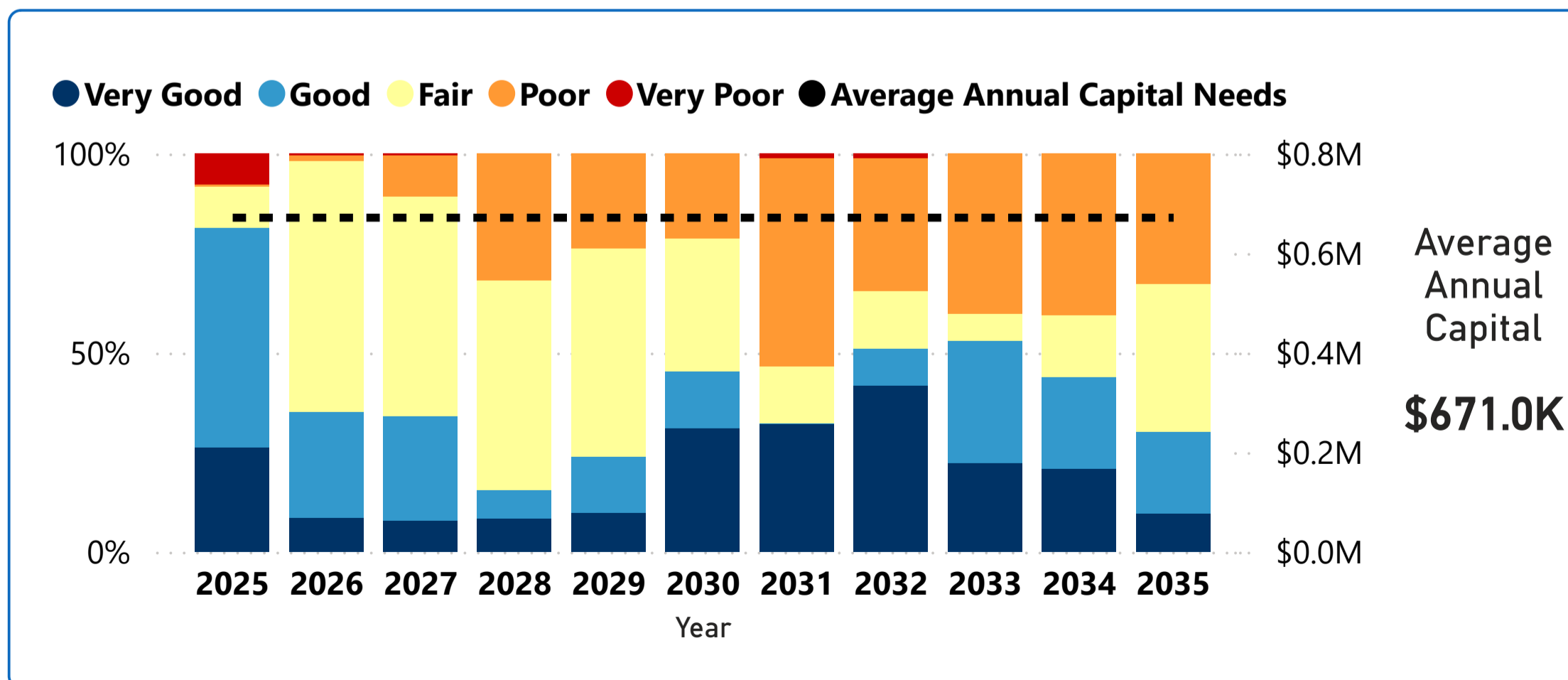
Average Network Condition (% Remaining Service Life)



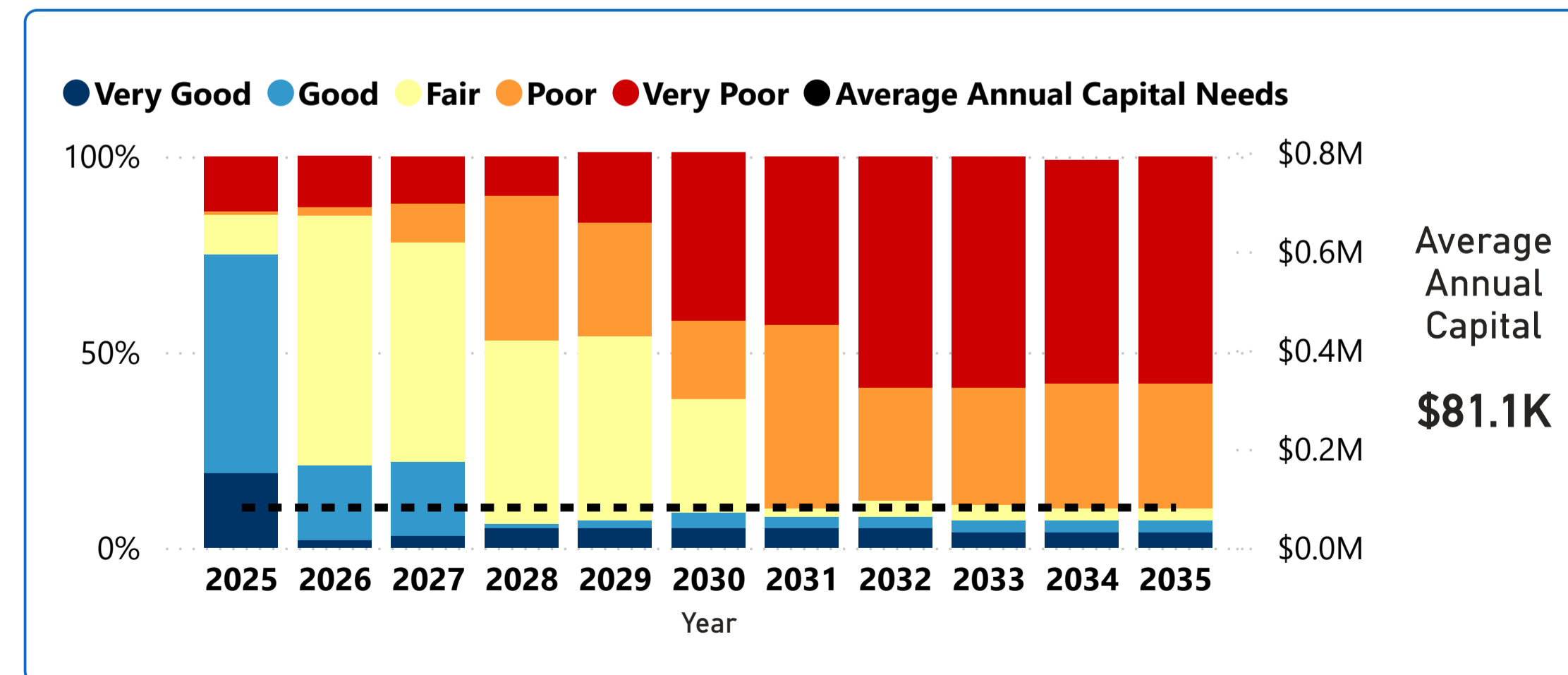
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS



Note: Due to the financial constraints outlined in for the Proposed LOS scenario, there were limited funds available to allocate to Transit On Street Infrastructure and Miscellaneous Equipment thereby reducing current LOS. This would be a case where additional grant funding would need to be secured from Federal / Provincial programs.



Scenario Summary Card

Level of Service Modelling

Service Area

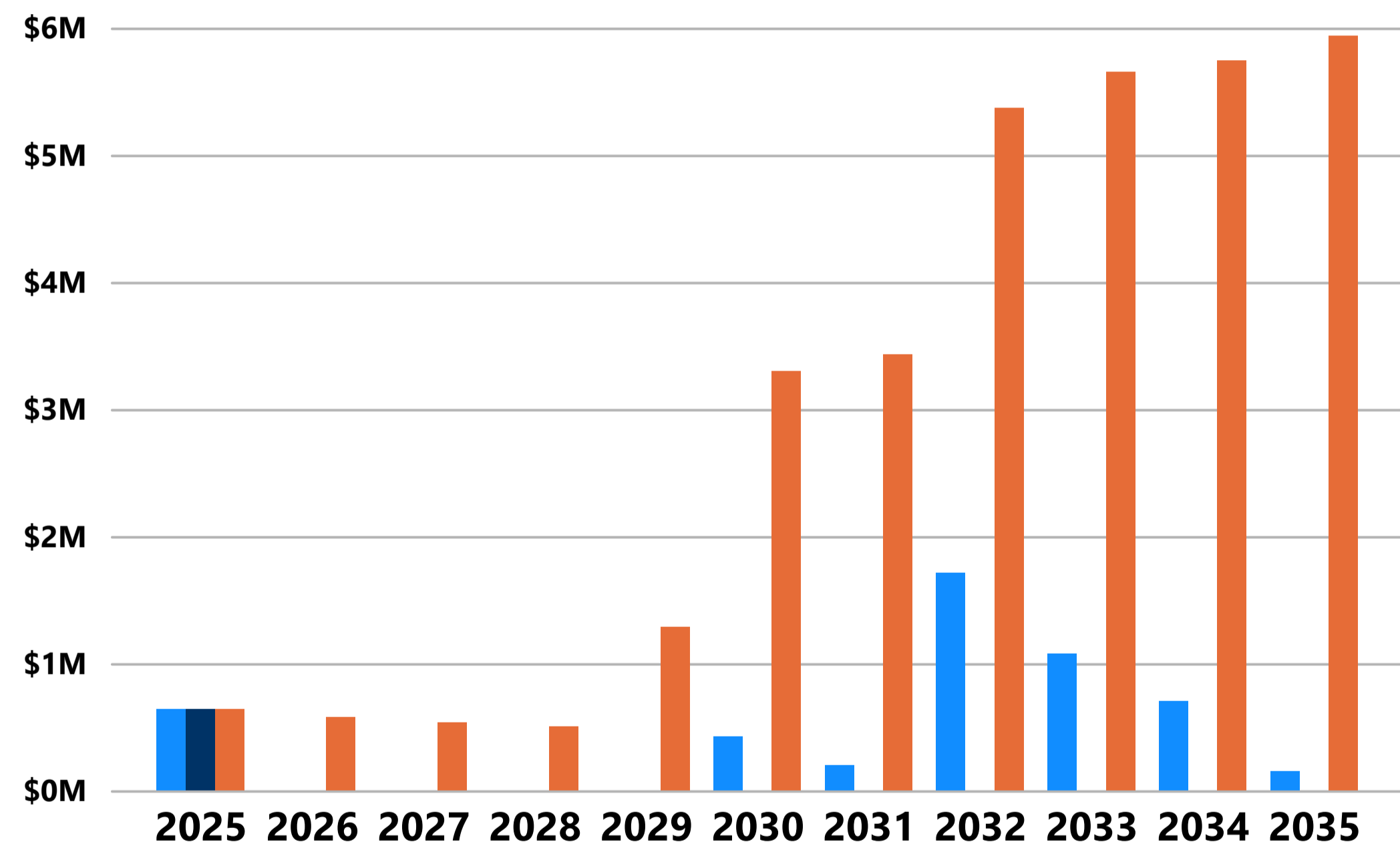
Transit

Asset Classes/Types

Bus Shelters & On-Board Equipment

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget Scenario #2: Maintain LOS Scenario #3: Proposed LOS

\$150.5K

\$0.0

\$5.9M

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

\$668.3K ✓
Targeted Annual Investment:
\$166.4K
(+301.7%)

Scenario #2: Maintain LOS

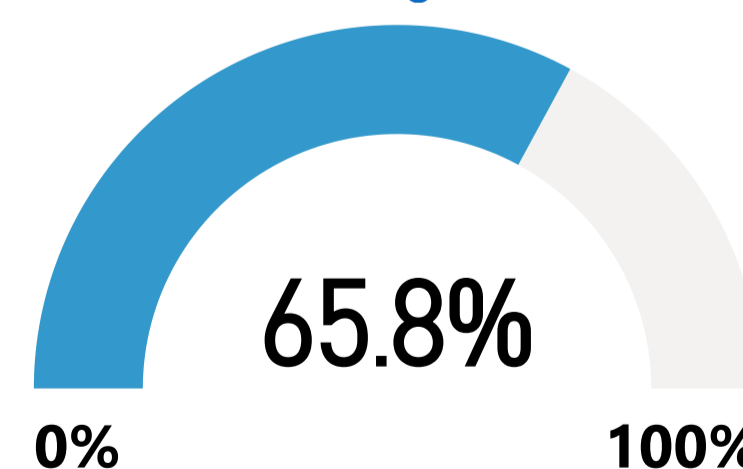
\$671.0K ✓
Targeted Annual Investment:
\$166.4K
(+303.35%)

Scenario #3: Proposed LOS

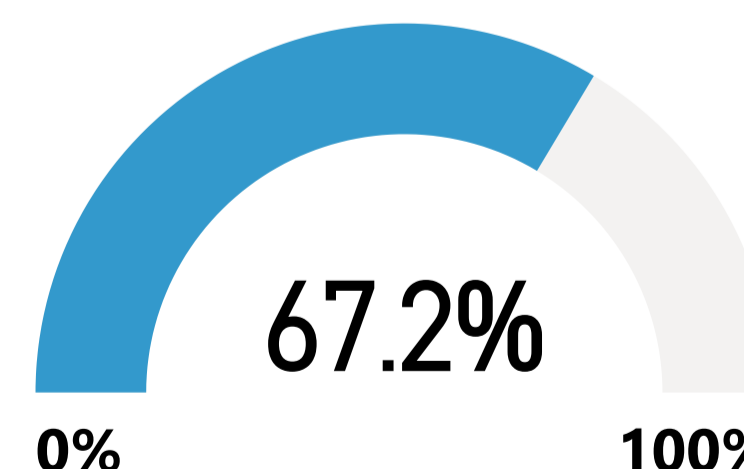
\$81.1K !
Targeted Annual Investment:
\$166.4K
(-51.23%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

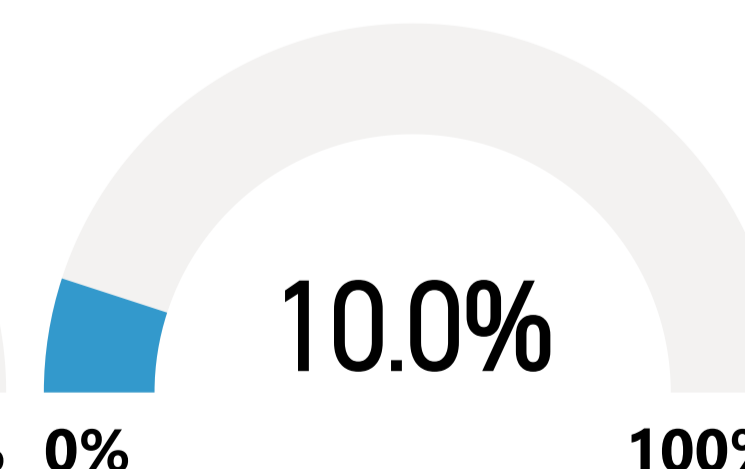
Scenario #1: Forecasted Budget



Scenario #2: Maintain LOS



Scenario #3: Proposed LOS





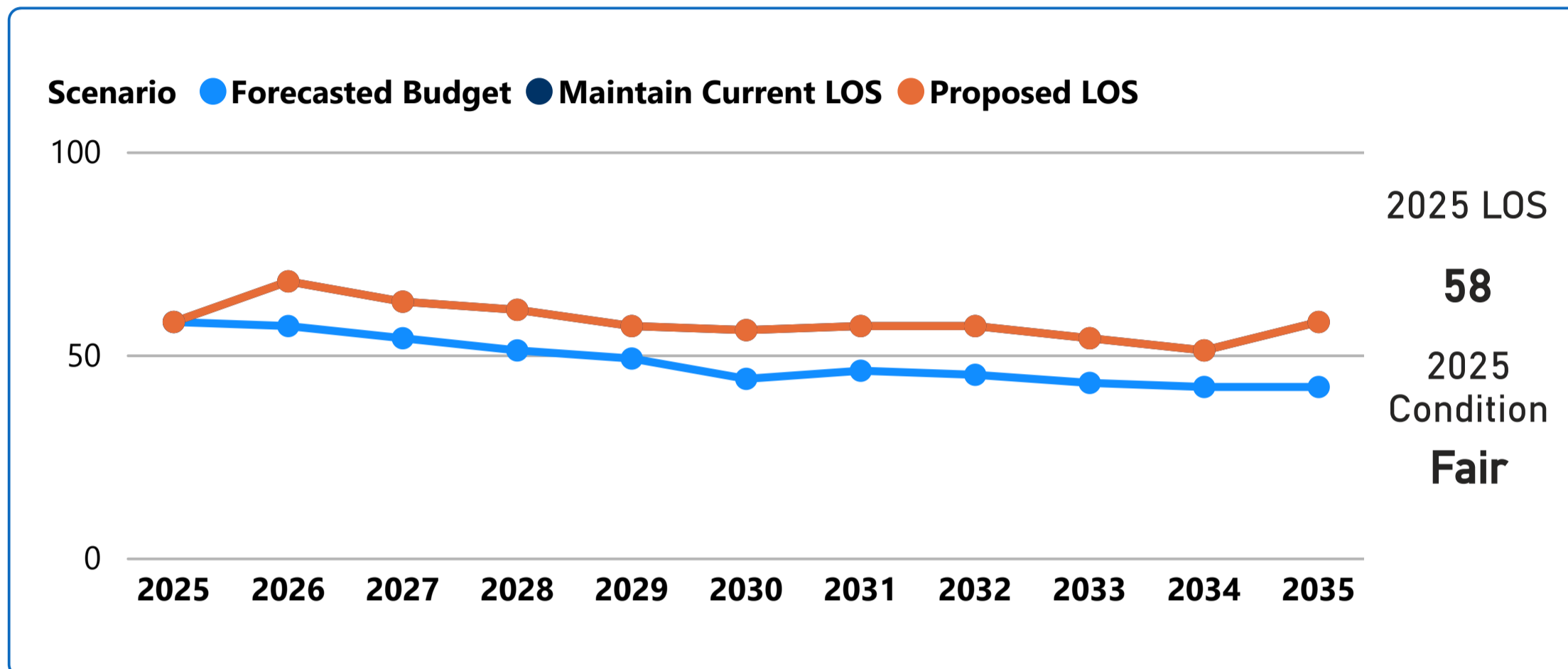
Scenario Summary Card

Level of Service Modelling

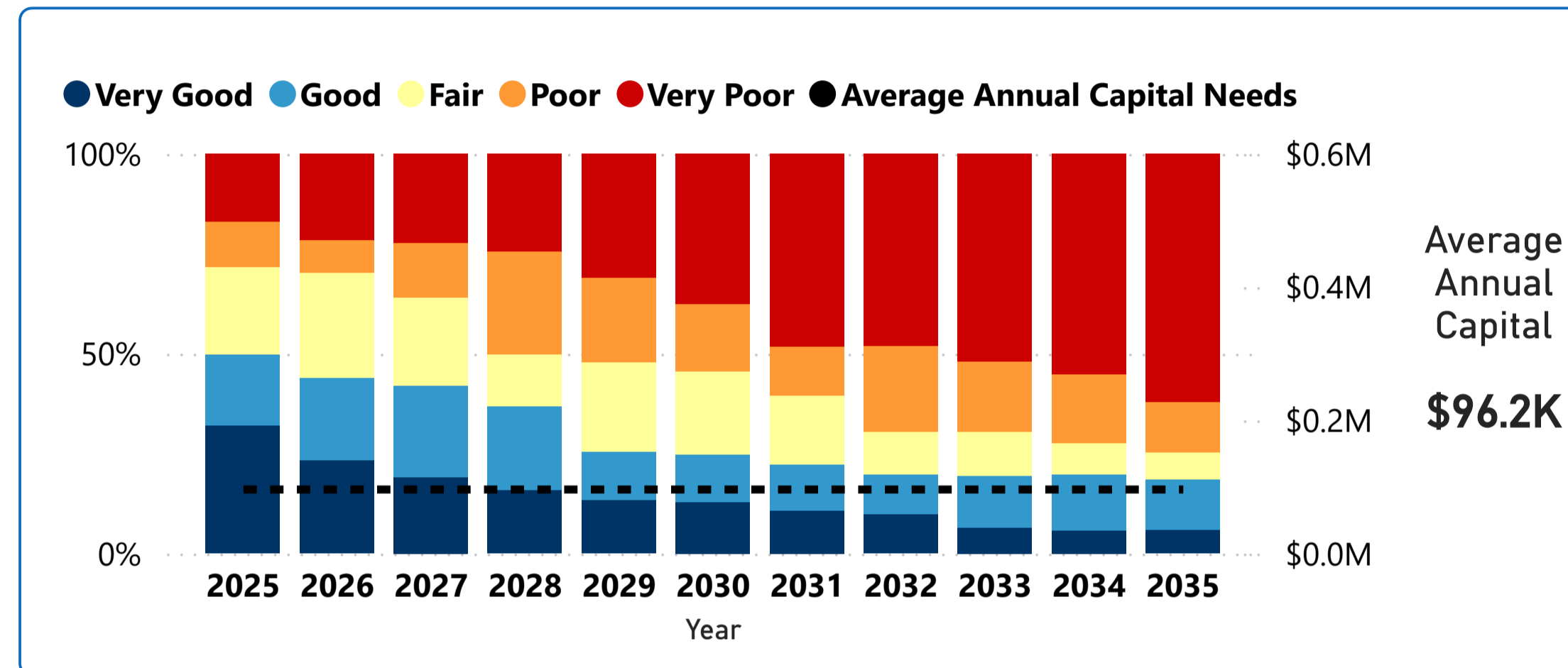
Service Area
Residential Long-Term
Care

Asset Classes/Types
Functional Capital

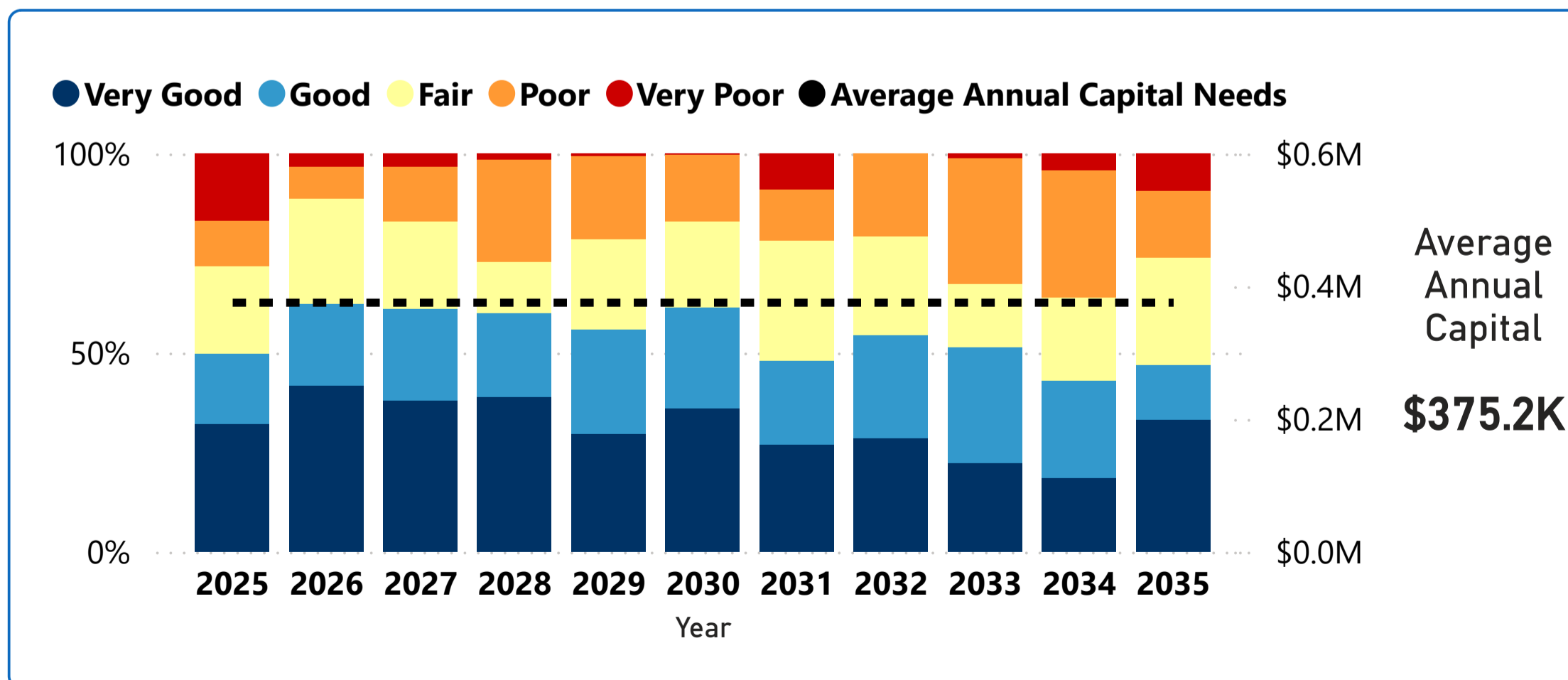
Average Network Condition (% Remaining Service Life)



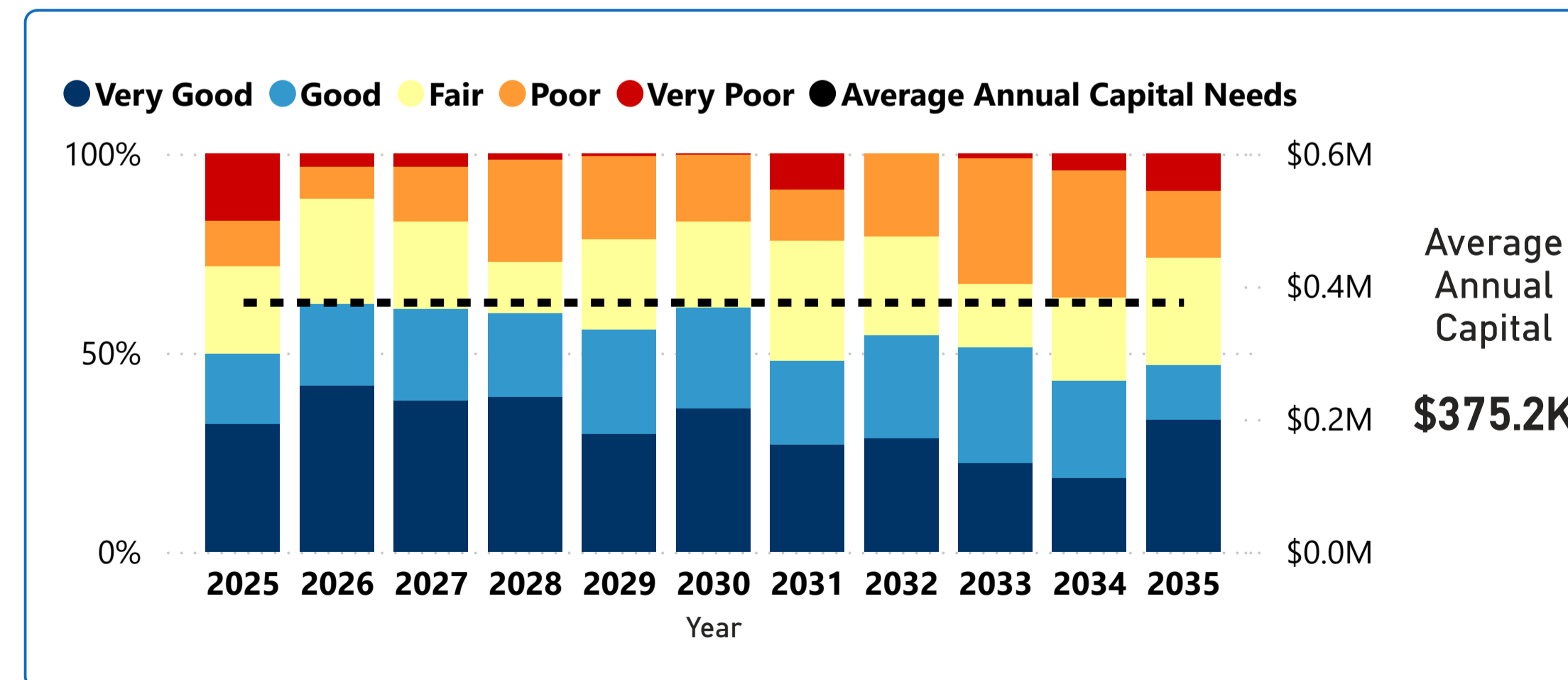
Condition Distribution by CRV - Forecasted Budget



Condition Distribution by CRV - Maintain LOS



Condition Distribution by CRV - Proposed LOS





Scenario Summary Card

Level of Service Modelling

Service Area

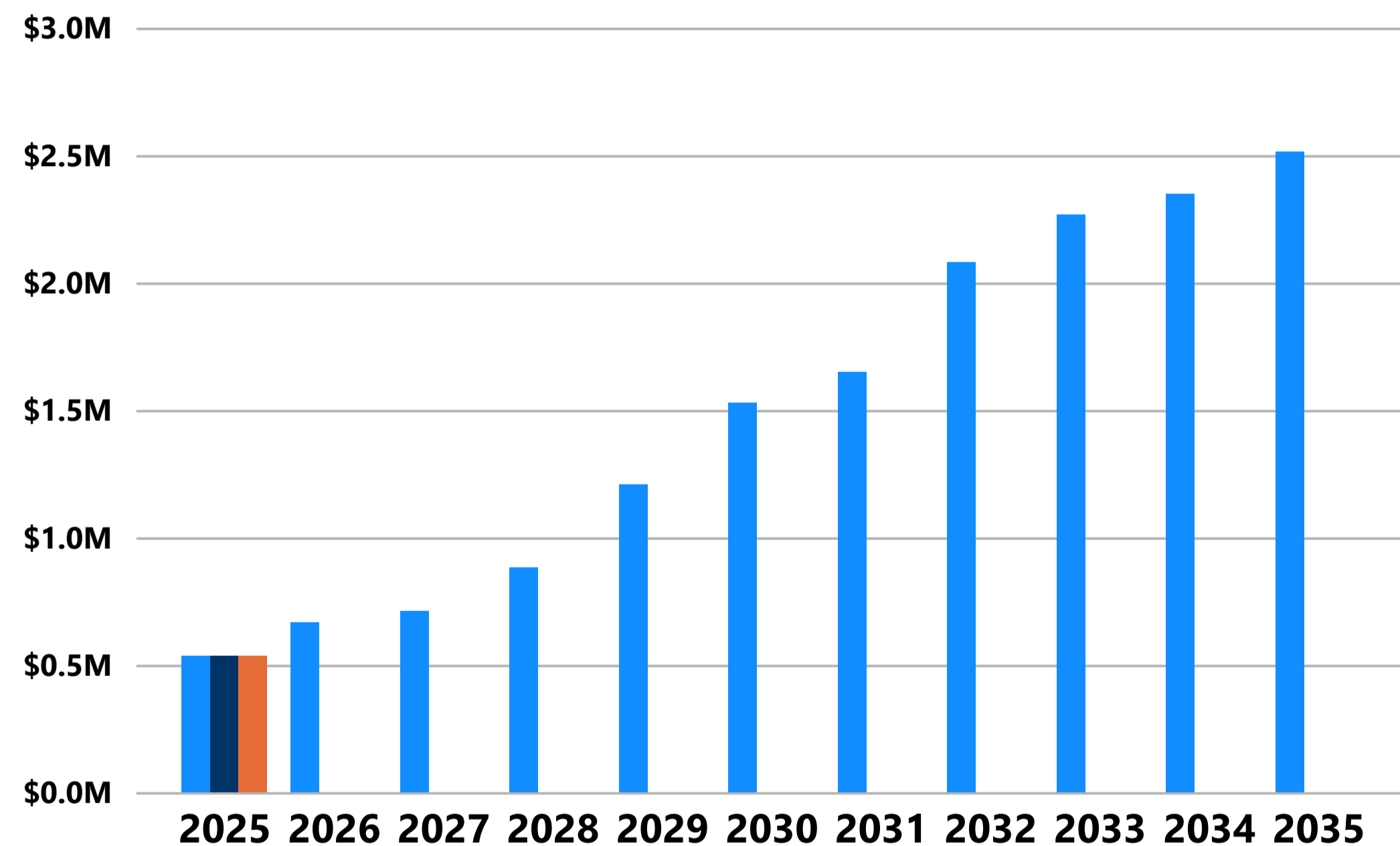
Residential Long-Term Care

Asset Classes/Types

Functional Capital

Metric #1 - 10-Year State of Good Repair Backlog

Scenario ● Forecasted Budget ● Maintain Current LOS ● Proposed LOS



Year 10 Total Backlog (2035)

Scenario #1: Forecasted Budget Scenario #2: Maintain LOS Scenario #3: Proposed LOS

\$2.5M

\$0.0

\$0.0

Metric #2 - Average Annual Asset Reinvestment Rate

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS

\$96.2K!
Targeted Annual Investment:
\$352.4K
(-72.71%)

\$375.2K✓
Targeted Annual Investment:
\$352.4K
(+6.47%)

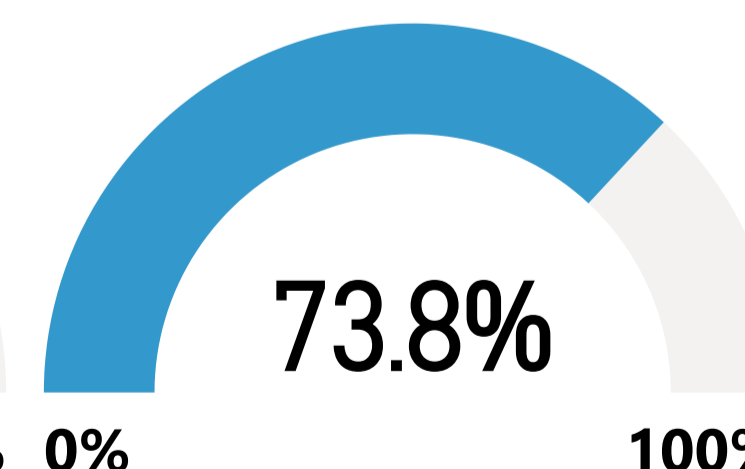
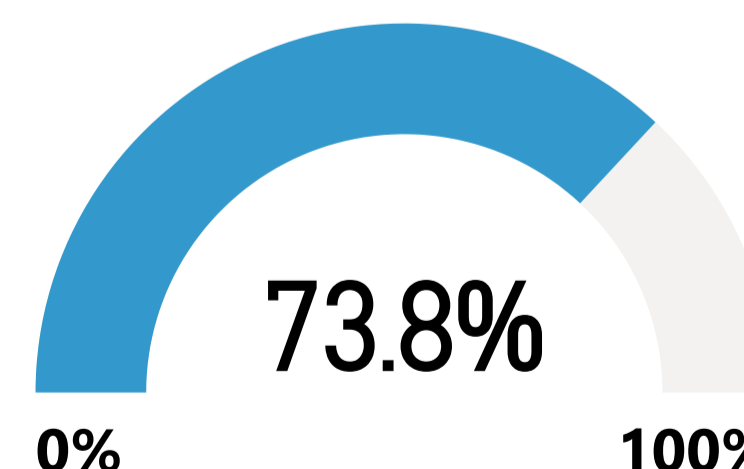
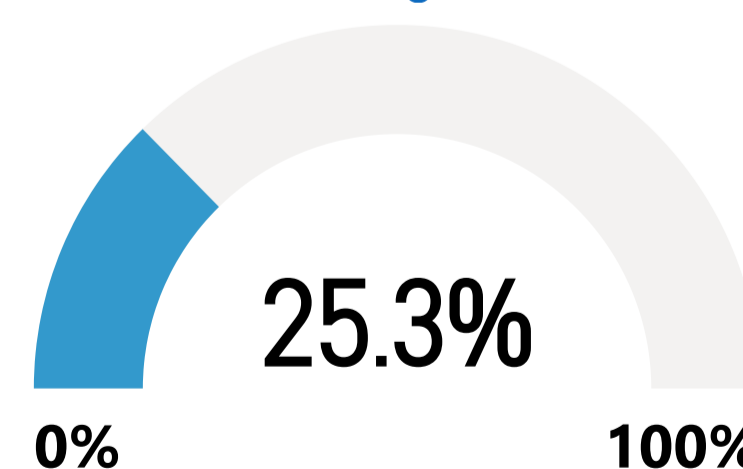
\$375.2K✓
Targeted Annual Investment:
\$352.4K
(+6.47%)

Metric #3 - % of Assets in Fair or Better Condition by CRV (2035)

Scenario #1: Forecasted Budget

Scenario #2: Maintain LOS

Scenario #3: Proposed LOS



Appendix B

10-Year Projected Growth Projects

Growth Summary

Service Area	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
City Real Estate & Environment	\$ 325,000	\$ 4,325,000	\$ 1,925,000	\$ 2,325,000	\$ 4,825,000	\$ 1,425,000	\$ 1,825,000	\$ 1,325,000	\$ 2,425,000	\$ 1,325,000
Corporate Fleet	\$ 662,831	\$ 1,252,000	\$ -	\$ 1,800,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ -	\$ 1,000,000
Facility	\$ 29,285,000	\$ 5,210,000	\$ 53,110,000	\$ 6,400,000	\$ 147,590,000	\$ 10,630,000	\$ 9,460,000	\$ 4,150,000	\$ 4,350,000	\$ 1,250,000
Fire & Emergency Services	\$ 878,652	\$ 419,102	\$ -	\$ 93,679	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Information System & Technology	\$ -	\$ 2,550,000	\$ 1,500,000	\$ 750,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Park Amenities	\$ 2,099,014	\$ 3,006,271	\$ 3,750,017	\$ 5,181,626	\$ 5,194,366	\$ 3,367,259	\$ 6,806,696	\$ 4,283,229	\$ 4,425,055	\$ 3,080,219
Parks Linear	\$ 3,324,447	\$ 3,124,746	\$ 2,541,731	\$ 2,490,027	\$ 1,616,173	\$ 1,696,982	\$ 1,781,831	\$ 1,870,922	\$ 1,964,469	\$ 2,062,692
Soild Waste	\$ 2,300,000	\$ 400,000	\$ 1,200,000	\$ 1,200,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -	\$ -
Traffic Control & Safety	\$ -	\$ -	\$ 5,141,109	\$ 1,000,000	\$ 3,141,109	\$ -	\$ -	\$ -	\$ -	\$ -
Transit	\$ 828,500	\$ 1,452,196	\$ 4,106,647	\$ 1,777,196	\$ 777,196	\$ 366,500	\$ 366,500	\$ 366,500	\$ 366,500	\$ 270,000
Transportation	\$ 9,502,398	\$ 2,082,000	\$ 7,986,660	\$ 29,354,730	\$ 31,101,395	\$ 6,380,590	\$ 7,679,505	\$ 13,303,481	\$ 9,589,649	\$ 10,059,131
TOTAL	\$ 49,205,842	\$ 23,821,315	\$ 81,261,163	\$ 52,372,257	\$ 195,645,239	\$ 24,866,330	\$ 28,919,532	\$ 26,299,132	\$ 23,120,672	\$ 19,047,043



City of Kingston

Asset Management Plan

Volume **6 of 6**: Natural Assets

2025



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- A. Natural Asset Inventory Memo
- B. Risk Variables

Acronyms

Acronyms

Acronym	Definition
AMP	Asset Management Plan
City	City of Kingston
cm	Centimetre
CSA	Canadian Standards Association
CRCA	Cataraqui Regional Conservation Authority
ELC	Ecological Land Classification
FMS	Forest Management Strategy
GHG	Greenhouse Gas
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectare
ID	Identification
ISO	International Standard for Asset Management
km	Kilometre
LOS	Levels of Service
m	Metre

Acronyms

Acronym	Definition
m ²	Square Metre
MNAI	Municipal Natural Assets Initiative
NA	Natural Assets
N/A	Not Applicable
NHS	Natural Heritage Study
ROW	Road Right-of-Way
RUF	Rural and Urban Forest

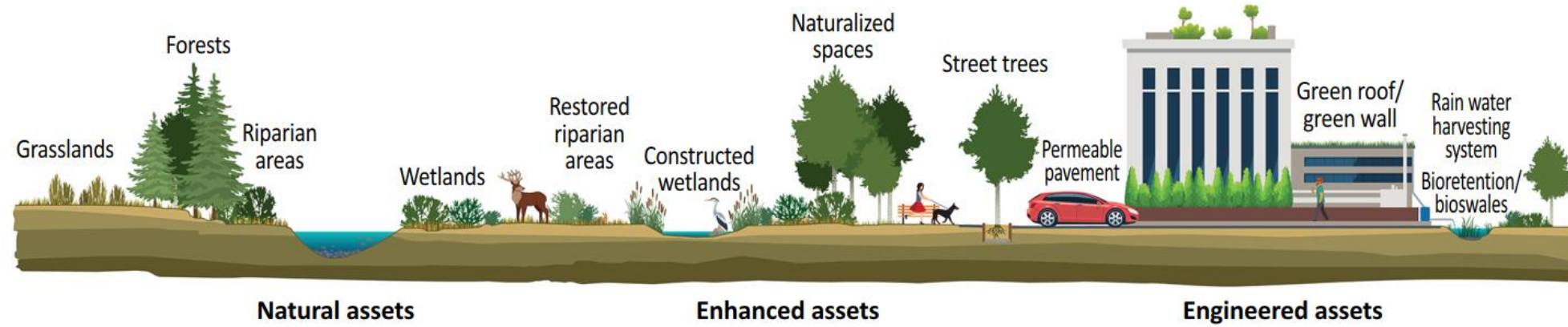


1.0 Natural Assets

The City of Kingston (City) recognizes and manages a wide array of natural assets that are integral to the community's well-being and environmental health. These assets are not traditional "built" infrastructure like roads, pipes, and buildings, but rather naturally occurring systems that provide essential services, like their engineered counterparts as shown in **Figure 1-1**. Examples of natural assets include forests, grasslands, riparian areas, and wetlands. Enhanced assets encompass features such as constructed wetlands, naturalized spaces, and street trees, while engineered assets include green roofs, rain gardens, and permeable pavement.

Natural Assets

Figure 1-1: Relationship between Natural Assets, Enhanced Assets and Engineered Assets (CSA W218:23)



Natural Assets

Recognizing and valuing these natural systems as critical infrastructure is vital for sustainable asset management. The addition of green infrastructure aligns with the requirements of Ontario Regulation (O.Reg.) 588/17, promoting a comprehensive and holistic approach to managing all municipal assets for the long-term well-being of residents and the environment. The definition of green infrastructure from O.Reg. 588/17 is:

“Green infrastructure asset, means an infrastructure asset consisting of natural or human-made elements that provide ecological and hydrological functions and processes and includes natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces and green roofs.”

The development of this chapter was guided by the following resources:

- Beacon Environmental Limited with Green Analytics and Associated Engineering, Life Cycle Costing of Restoration and Environmental Management Actions: Costing Natural Assets in Peel Region (December 2020).
- Canadian Council of Ministers of the Environment: Natural Infrastructure Framework: Key Concepts, Definitions, and Terms (2021).
- Government of Ontario, Building Together – Guide for Municipal Asset Management Plans (February 2024).
- International Standard for Asset Management: ISO 55000.
- National Standard of Canada: CSA W218:23 (Specifications for natural asset inventories).
- Natural Assets Initiative: A Guidebook for Local Governments (2024).
- Natural Assets Initiative: A Guidebook for Local Governments: Developing Levels of Service (LOS) for Natural Assets (2022).

Natural Assets

1.1 State of the Local Infrastructure

The City owns and maintains a diverse variety of natural assets across its properties. A natural asset inventory was developed using methodologies of the *National Standard of Canada – Specification for Natural Asset Inventories; Canadian Standards Association – CSA W218:23* (CSA, 2023).

It should be noted that the asset inventory excludes those owned and managed by the Cataraqui Regional Conservation Authority (CRCA). The CRCA maintains a partnership with the City of Kingston and other municipalities, which includes representation on the Authority's board, a shared mandate for natural resource management and flood protection, and financial support through a municipal levy. The Authority works with the city to manage watersheds, conserve lands, protect water resources, and review development proposals to ensure public safety and environmental protection.

Partnership structure

As a conservation authority, its core mission is to partner with municipalities like Kingston to conserve, restore, and manage natural resources.

The CRCA is responsible for creating its own Natural Asset Management Plans for owned assets and follow O. Reg 688/21 CA Mandatory Programs and Services 5(2). This regulation indirectly supports natural asset management by focusing on the health and management of natural systems that provide critical services.

An outline of the natural asset inventory methods and results is provided in **Appendix A**. A summary of the inventory results is provided in the following subsection.

1.1.1 Asset Inventory and Valuation

The natural asset inventory was created in a Geographic Information System (GIS) workspace using property parcel files provided by the City in February 2025. This inventory covered the lands within the 1,834 City-owned parcels. The types of assets included in the inventory are described in **Table 1-1**.

Natural Assets

Table 1-1: Asset Types included in Inventory

Natural Asset	Description / Criteria
Woodlands, Forests, Plantations	<ul style="list-style-type: none"> • Woodlands: Semi-closed treed communities with tree cover between 35% and 60%. Mineral soil is greater than 15 centimetres (cm) deep. • Forest: Treed communities with tree cover greater than 60%; site conditions and substrate are variable. • Plantations: Treed areas with tree cover greater than 60% where trees are actively managed and arranged in a uniform, systematic pattern (e.g., rows, uniform age).
Constructed Green Lands	<ul style="list-style-type: none"> • Cemeteries, golf courses, parks, and playgrounds, plus small, passively managed tree clusters and large (1/4 hectare [ha]+) municipally managed lawns. Although they are constructed and actively managed, they are counted as natural assets due to the services they provide.
Meadows & Thickets	<ul style="list-style-type: none"> • Meadows: Open herbaceous communities with tree and shrub cover less than 25%. Mineral soil is greater than 30 cm deep. Includes areas with unique natural flora (e.g., Tallgrass Prairie) or cultural legacy. • Thickets: Shrub-dominated areas with shrub cover greater than 25% and tree cover less than 25%. Mineral soil is typically greater than 30 cm deep. Often associated with drier wetland verges.
Marshes	<ul style="list-style-type: none"> • Wetland dominated by emergent aquatic plants (macrophytes) with tree and shrub cover less than 25%. Water depth is less than 2 metre (m).
Swamps	<ul style="list-style-type: none"> • Wetland dominated by hydrophytic trees or shrubs with cover greater than 25%. Water depth is less than 2 m and standing water or vernal pooling is greater than 20% of ground coverage.

Natural Assets

Natural Asset	Description / Criteria
Agriculture & Fencerows	<ul style="list-style-type: none"> • Agriculture: Non-natural landscapes (e.g., annual crops, pastures, orchards) due to active management regimes, but are included for natural asset service valuation. • Fencerows: Linear treed areas along property boundaries or roadways, treated as an agricultural feature for management considerations.
Watercourses & Rivers	<ul style="list-style-type: none"> • Used to delineate and characterize watercourses (creeks, streams, etc.) which are too narrow to be delineated as Open Aquatic or Shallow Aquatic features.
Lakes & Shorelines	<ul style="list-style-type: none"> • Lakes (Open Aquatic): Open water communities with no vegetation, typically due to excessive depths (e.g., lakes, large rivers, ponds). • Shorelines: Narrow, linear communities adjacent to permanent or ephemeral water, subject to active shoreline processes (e.g., erosion, wave energy). Located above the high-water mark.
Constructed Storm Water Management Ponds	<ul style="list-style-type: none"> • Non-natural, constructed features used to manage storm water, included for natural asset service valuation despite active management.
Rock Barrens	<ul style="list-style-type: none"> • Areas with bedrock-controlled topography and patchy vegetation. Characterized by patchy soil development with substrate depth less than 15 cm; subject to extremes in moisture and temperature.

Natural Assets

Note: While Utilities Kingston parcels were included in the initial dataset, they were excluded from the final inventory. This decision was made because Utilities Kingston manages its own land assets and completes its Asset Management Plans independently from the City.

The inventory was developed collaboratively through a detailed desktop analysis and boundary delineation process. Dillon ecologists and natural asset specialists created discrete mapping units (polygons) and classified them to identify different natural assets.

In total, 2,508 natural asset polygons were classified and delineated, representing 32 different natural asset types across approximately 3,031 hectares. An additional 1,211 polygons, totaling about 739 hectares, were also delineated but classified as "Constructed" asset types.

"Constructed" polygons (Ecological Land Classification [ELC] code CV) are communities that are highly anthropogenically managed and have limited to no natural features or characteristics. This includes municipal buildings and other built infrastructure, as well as private lawns, actively managed hydro corridors, and small lawns (smaller than approximately ¼ ha).

Note that the designation of "Constructed" for hydro corridors in this inventory specifically refers to small areas associated with utility poles found within the road right-of-way (ROW) or neighborhood utility areas. These areas are quite limited in size and ecological restoration potential due to their location within the road shoulder or ROW. Large-scale hydro corridors, such as those with significant natural asset creation potential, were not included in this inventory as they are managed by either Kingston Hydro or Utilities Kingston, and not part of this inventory.

As such, the small, City-related "Constructed" polygons were not identified as natural assets and do not have significant potential to be used or managed as a natural asset in the future; therefore, they were not assigned a Natural Asset identification (ID) number. "Constructed" polygons were delineated and classified to ensure a complete representation of all City-owned land parcels in the Natural Assets mapping.

Natural Assets

Note: The Natural Assets Inventory excludes the Tree Canopy asset class, which covers street and park trees. These specific assets were already included in Volume 1 of the 2024 AMP under the Urban Forestry chapter. This report includes the City's Woodlands and Forests assets.

Following best practices to facilitate asset management planning, the 32 natural asset types were consolidated into 10 Natural Asset Categories, which are outlined in **Table 1-2**.

Table 1-2: Summary of Natural Assets

Natural Asset Category	Total Count	Total Area (ha)
Woodlands, Forests, Plantations	672	901.9
Constructed Green Lands	565	730.3
Meadows & Thickets	435	516.6
Marshes	242	292.6
Swamps	199	261.0
Agriculture & Fencerows	138	184.2
Watercourses & Rivers	168	100.0
Lakes & Shorelines	47	22.6
Constructed Storm Water Management Ponds	28	18.0
Rock Barrens	14	4.2
Natural Asset Total	2508	3031.4

Natural Assets

To estimate the replacement costs of the City's natural assets, the costing framework developed for the Region of Peel (Beacon Environmental, December 2020) was utilized. This well-researched framework provides lifecycle cost estimates for a range of proposed natural asset sub-types. The framework shared sub-asset category and project type (e.g., creation, acquisition, softscape, hardscape) and shared the cost according to project complexity. Low estimates for simple projects, moderate cost estimates for average project and high-cost estimates involve complex projects.

The City has adopted a balanced methodology using the average of moderate-level acquisition and creation costs per hectare for each of the natural asset categories. This reflects the realistic assumption that future replacement efforts may involve both restoration and land acquisition, depending on local opportunities and development constraints. For example, the moderate cost per hectare estimate for a deciduous forest is \$475,959 (creation) and \$223,200 (acquisition); thus, we used the average of the two (\$349,580) to develop a fair and balanced unit rate.

To calculate and convert 2020 replacement values up to current, an annual inflation rate of 2.5% over five years, compounding annually was utilized. This adjustment ensures that the Asset Management Plan (AMP) reflects current market conditions and allows for informed, forward-looking financial planning.

The resulting unit rates, applied to the mapped areas (in hectares) of each natural asset type, have been used to calculate total replacement costs.

The replacement cost for the Constructed Storm Water Management Ponds was included in the 2022 Core AMP. The total replacement value is \$14,846,040 (in 2022 dollars), but it has not been included in the table below.

The replacement cost summary is provided in **Table 1-3** below. The table values are sorted by highest to lowest in total area and rounded up to the nearest \$1,000.

Natural Assets

Table 1-3: Total Estimated Replacement Cost of Natural Assets

Asset Category	Total Area (ha)	Unit Rate (\$/ha)	Total Estimated Cost
Woodlands, Forests, Plantations	902.0	\$396,000	\$357,176,000
Constructed Green Lands	730.3	\$1,106,000	\$807,679,000
Meadows & Thickets	516.6	\$294,000	\$151,869,000
Marshes	292.6	\$568,000	\$166,220,000
Swamps	261.0	\$421,000	\$109,881,000
Agriculture & Fencerows	184.2	\$294,000	\$54,146,000
Watercourses & Rivers	100.0	\$1,139,000	\$113,889,000
Lakes & Shorelines	22.6	\$570,000	\$12,899,000
Rock Barrens	4.2	\$198,000	\$832,000
Total	3013.5	Not Applicable (N/A)	\$1,774,581,000

Table 1-3 presents the total area, unit rate, and total estimated replacement cost for each natural asset category within the lands of City-owned property parcels. The values reflect 2025-dollar estimates, calculated as described above.

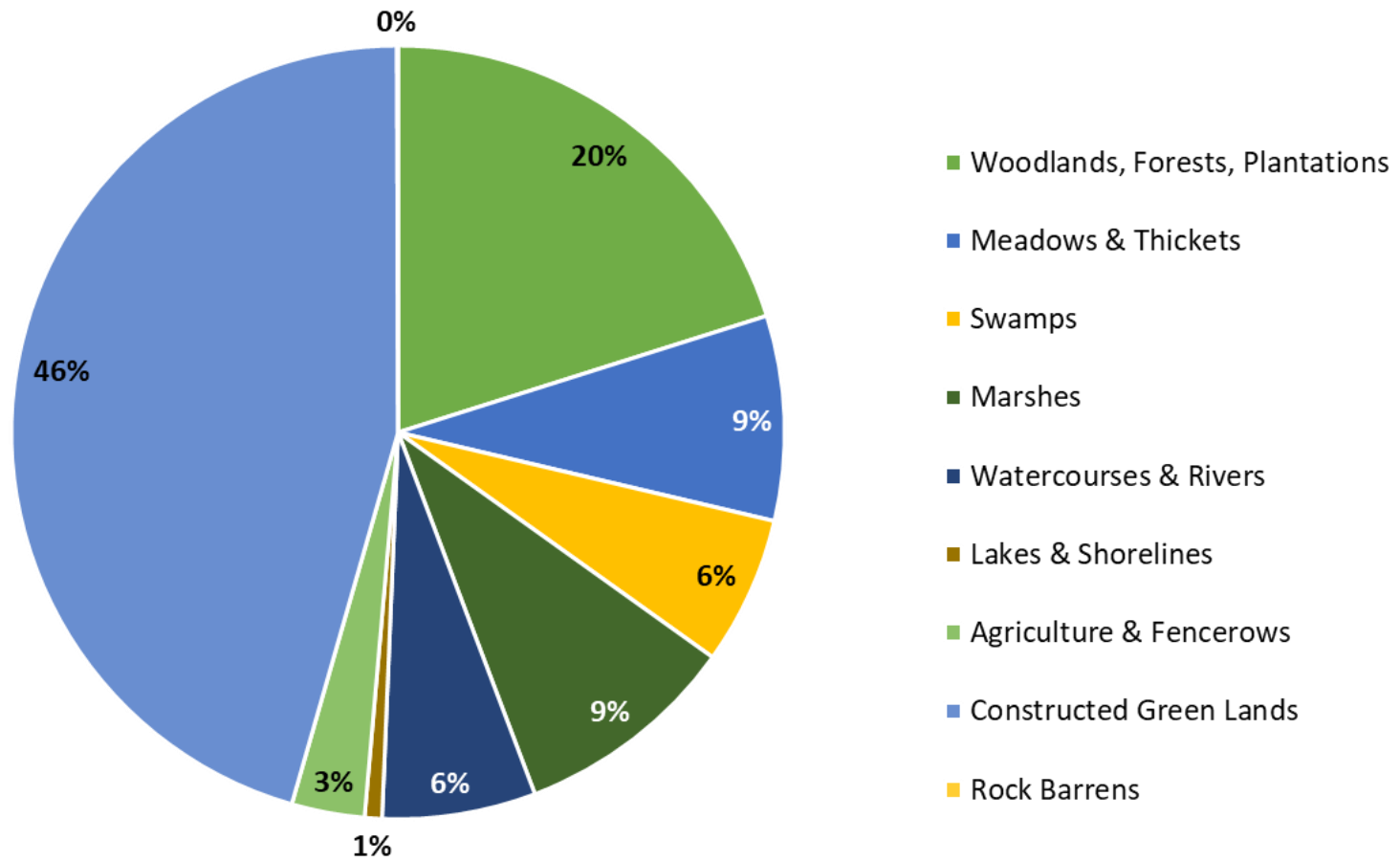
Constructed Green Lands form the largest portion of the total value, contributing approximately 45% of the total value (\$807.7M) whereas Woodlands, Forests & Plantations follow, comprising about 20% (\$357.2M) of the total value as the second largest in the category.

The total estimated replacement cost for Municipality's natural assets amounts to \$1.774 billion.

Figure 1-2 shows the distribution of total replacement cost in asset categories.

Natural Assets

Figure 1-2: Distribution of Total Replacement Cost per Natural Asset Category



Natural Assets

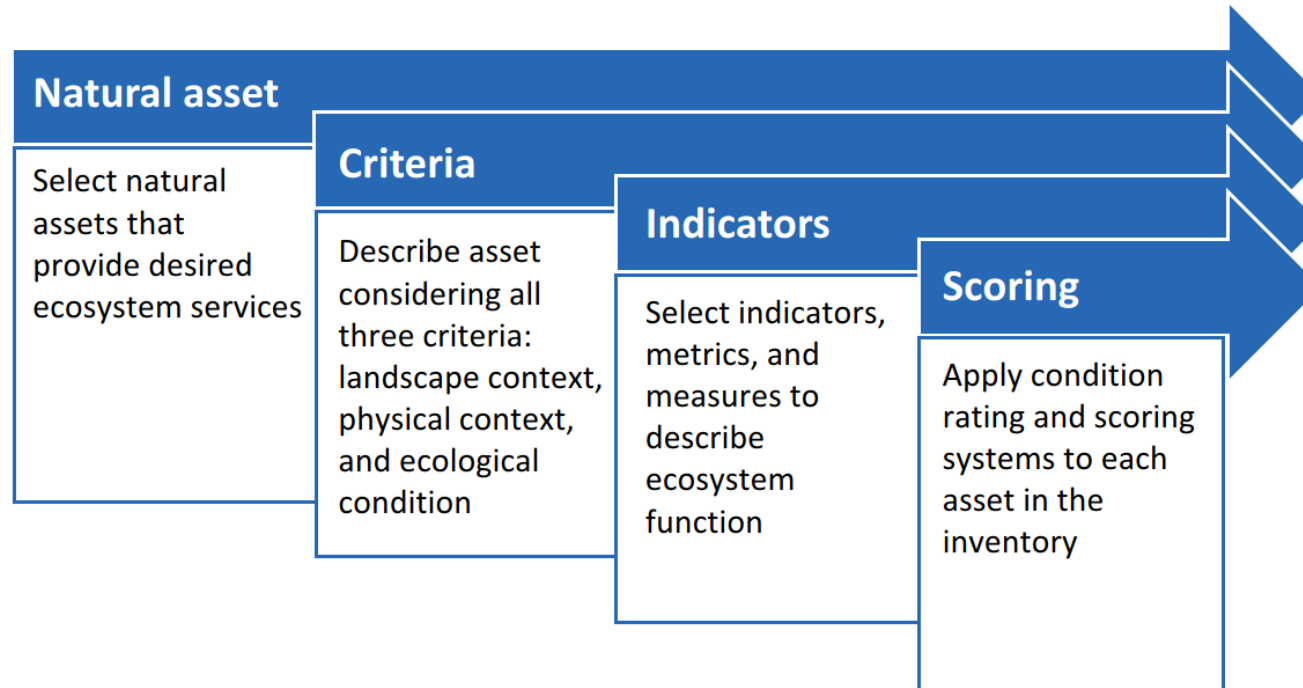
1.1.2 Asset Condition

Note: The condition assessment for natural assets was not completed for this version of the AMP. The following section outlines the approach to evaluating the condition of natural assets and should be incorporated into the next update of the AMP.

Documenting and identifying the condition of natural assets is a key aspect of understanding their overall state. Unlike built assets, natural assets do not have expected useful life values that can be used to forecast replacement years. Therefore, alternative approaches must be generated and developed to ensure consistent condition assessments are completed in future iterations of this AMP. A process and methodology should be outlined for conducting these assessments through either desktop analysis or field identification. As outlined in the CSA, a recommended condition assessment process includes selecting the natural asset, describing asset criteria, selecting indicators to measure ecosystem function, and applying condition rating score. See **Figure 1-3**.

Natural Assets

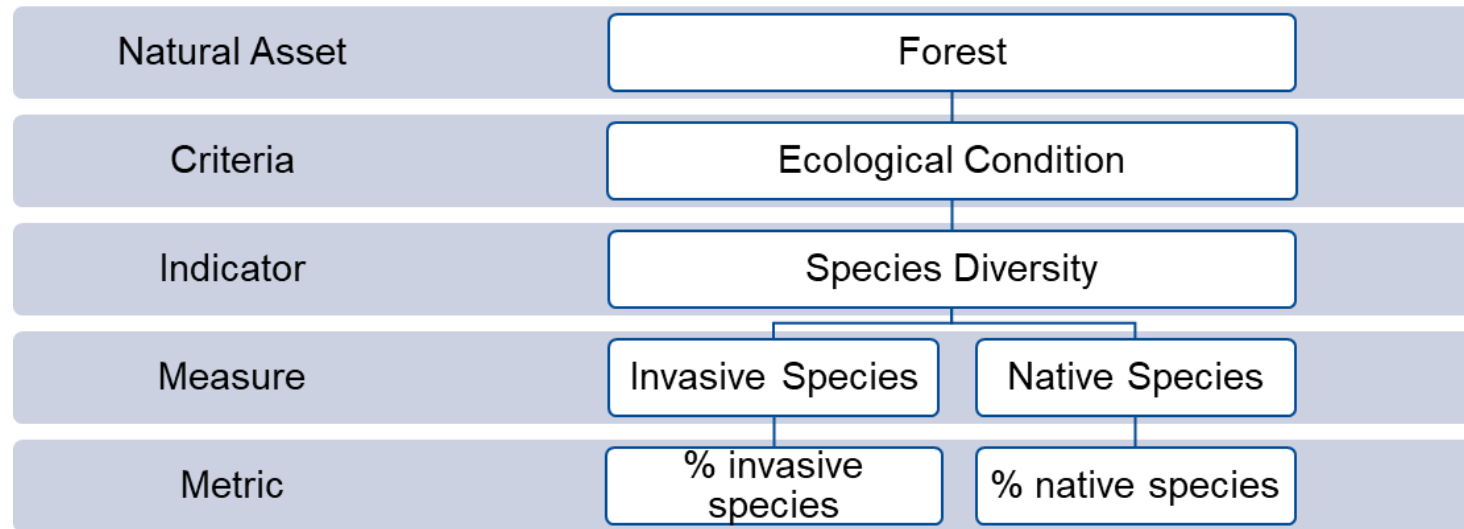
Figure 1-3: Recommended Condition Assessment Process (CSA)



Based on this initial process, a methodology that includes indicators, measures, and metrics can be developed for each natural asset type. As the City further develops its asset inventory, a comprehensive condition assessment framework can then be generated.

Natural Assets

Figure 1-4: Example of Condition Assessment Scoring



It is recommended to use a five-point rating scale (Very Good, Good, Fair, Poor, and Very Poor) to ensure a consistent approach with the other assets that are included in previous AMPs.

1.1.3 Data Sources and Confidence

The natural asset inventory was created in a GIS workspace using property parcel files provided by the City in February 2025. Data confidence can be estimated based on the confidence level of various qualifiers and can be presented on a scale from 0% (low) to 100% (high), as shown in **Table 1-4**. The qualifiers chosen for evaluation are specifically targeted for estimating overall confidence of the natural asset inventory data.

Natural Assets

Table 1-4: Data Confidence Scale

Qualifier	Low	Low/ Moderate	Moderate	Moderate/ High	High
Age of Satellite Imagery	10+ Years	5 to 10 Years	3 to 5 Years	1 to 2 Years	< 1 Year
Resolution of Satellite Imagery	> 30 metres per pixel	10 to 30 metres per pixel	5 to 10 metres per pixel	1 to 5 metres per pixel	< 1 metre per pixel
Ground-Truthing (Random Sampling)	None	< 3% of total inventory	3 to 5% of total inventory	5 to 10% of total inventory	> 10% of total inventory

As summarized in **Table 1-4**, the age of the satellite imagery used to delineate the natural asset inventory was 1 to 2 years old (moderate/high confidence), the resolution of the satellite imagery was < 1 metre per pixel (high confidence), and there has currently been no ground-truthing of the natural asset inventory results (low confidence). The satellite imagery referenced while delineating the natural asset inventory was from 2024 and according to ESRI's World Imagery, Hybrid basemap achieves < 1 metre per pixel resolution in the geographical area of the City. The overall data confidence, in consideration of all three qualifiers, is estimated to be **Moderate**.

Natural Assets

The absence of ground-truthing suggests the inventory should be considered a preliminary estimate. The inventory, while a useful starting point, is unverified and relies solely on the interpretation of satellite imagery, which may introduce errors in classification and boundary delineation for natural assets. To improve data confidence, it is recommended that a phased ground-truthing approach be adopted by the City. Using a phased approach, ground-truthing should prioritize assets identified as high risk (outlined in Section 1.3), beginning with a limited systematic sampling procedure to verify a small, random subset of natural assets (e.g., 1 to 3% of total inventory). This will provide a quantifiable measure of accuracy and identify the most common classification errors. Based on these findings, a more robust statistically significant ground-truthing effort can be planned for future updates to this AMP.

1.1.4 Related Plans and Studies

This Natural Assets AMP is grounded within the context of the City's broader environmental initiatives. Specifically, the Natural Heritage Study and Forest Management Strategy are two key initiatives that provide established frameworks related to the management of local natural assets. **Figure 1-5** illustrates how these key initiatives related to the AMP and a summary of these initiatives is as follows:

- **Forest Management Strategy (FMS):** The FMS establishes a 24-year plan to Sustain, Grow, Communicate, Involve and Recognize Kingston's Rural and Urban Forest (RUF) as the critical community resource it is. The FMS has been created in the City recognizing the value the RUF provides. The FMS provides a review of the current state of Kingston's RUF and RUF management program and then sets clear direction for how the urban forest will be managed moving forward. Rooted in community values, the FMS positions the RUF as essential community infrastructure—supporting climate resilience, biodiversity, and our current well-being, while shaping a greener, healthier Kingston for future generations.

Natural Assets

- **Natural Heritage Study (NHS):** The City is currently preparing the NHS to support the new Official Plan. The NHS will identify and map the key natural heritage features, such as wetlands, woodlands and watercourses, found across Kingston, as well as corridors linking these features together. The project will provide a series of policy recommendations relating to the identification and protection of these features for implementation within the Official Plan.

Natural Assets

Figure 1-5: Natural Assets AMP - Related Plans and Studies

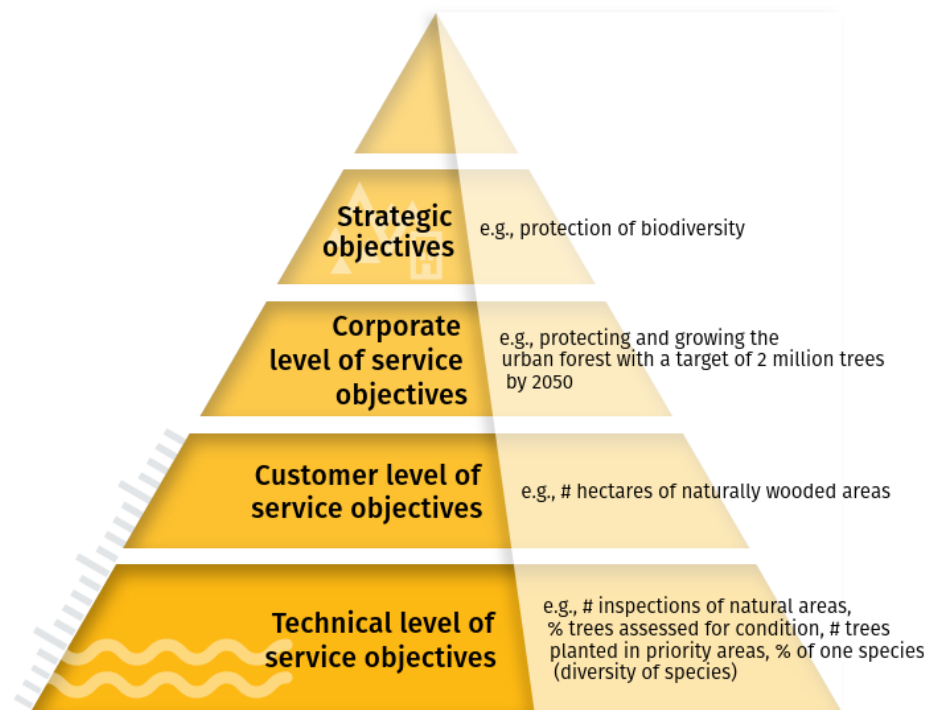


Natural Assets

1.2 Levels of Service

The levels of service (LOS) are a combination of parameters that reflect the social, political, environmental, and economic outcomes an organization delivers. The LOS for natural assets encompass everything from stormwater management and water filtration to recreational opportunities and biodiversity support. This involves outlining both the community's desired qualitative outcomes and the measurable technical indicators that gauge the natural assets' performance, ultimately guiding proactive management, minimizing risk and investment strategies. **Figure 1-6** is the recommended LOS framework from the Municipal Natural Assets Initiative (MNAI).

Figure 1-6: LOS Hierarchy (MNAI)



Natural Assets

The reasons for establishing LOS for natural assets include:

- **Recognizing Natural Assets:** Acknowledging their role in providing essential services.
- **Accountable Management:** Establishing clear responsibilities for effective management.
- **Lifecycle Budgeting:** Incorporating monitoring, maintenance, and restoration into financial plans.
- **Adaptive Management:** Using progress to inform updates to strategic plans and land use policies.

1.2.1 Contribution of Natural Assets to Service Delivery

Natural assets are inherently "multi-taskers," providing a wide array of services and benefits to both human communities and the broader ecosystem. Unlike grey infrastructure, which typically serves a singular purpose, natural assets often contribute simultaneously to multiple service objectives. Recognizing this holistic value is critical to avoid under-estimating and under-valuing their contribution, which could lead to suboptimal land-use decisions.

Table 1-5: Potential Natural Service Areas

Service Areas	Services Related to Natural Assets
Stormwater	Natural assets offer cost-effective solutions for water storage, flood control, groundwater recharge, and erosion prevention, improving water quality and ecosystem health by reducing runoff.
Drinking Water	Protecting natural source water is crucial for cost-effective and safe drinking water provision. Natural assets like forests support aquifer recharge, and demand management helps conserve supply, especially with increasing drought risks.
Wastewater	While generally not for wastewater treatment (except for supplementary constructed wetlands), natural assets play a role in water purification. Constructed wetlands offer an efficient and environmentally friendly method for treating various wastewaters.

Natural Assets

Service Areas	Services Related to Natural Assets
Transportation	While not direct transportation, natural assets create connected green networks that enhance experiences for walking, biking, and other forms of active transportation. Their degradation can also impede transportation.
Recreation	Natural assets like parks and green infrastructure offer vital recreation opportunities, contributing to healthy and socially connected communities. Recognizing these assets in planning is important.
Health	Natural assets provide services that promote both physical and mental well-being in communities.
Biodiversity Support	Biodiversity is essential for healthy, functioning ecosystems, and changes in natural assets directly impact this diversity. Natural assets serve as critical living laboratories for ecological research and monitoring, which in turn affects ecosystem services.
Climate Resilience	Natural assets are vital for carbon storage, regulating the water cycle, and maintaining biodiversity, thus playing a key role in the climate system. They also buffer against climate change impacts like flooding and urban heat islands. Understanding their complex responses to climate change requires long-term monitoring and adaptive management, often driven by research and study conducted within these areas.
Culture & Heritage	Nature plays a significant role in community culture and heritage, with cultural landscapes holding special meaning and supporting overall well-being.
Economic Benefits	Natural assets underpin local economies through provisioning services for agriculture, forestry, fishing, and resource extraction. They also support nature-based tourism, recreation, and can enhance property values.

To understand which natural assets within the City boundary may impact service delivery, a mapping exercise was completed. This exercise is shown in **Table 1-6** below and outlines the interplay between these natural assets and the services they provide, thereby establishing a foundational understanding of how our natural environment underpins community well-being and service delivery.

Natural Assets

Table 1-6: Mapping of Natural Assets to Services

Natural Service Areas	Stormwater	Drinking Water	Wastewater	Transportation	Recreation	Physical Health	Biodiversity Support	Climate Resilience	Culture & Heritage	Economic Benefits
Woodlands, Forests, Plantations	✓	✓				✓	✓	✓	✓	✓
Constructed Green Lands				✓	✓	✓		✓	✓	✓
Meadows & Thickets	✓				✓	✓	✓	✓	✓	✓
Marshes	✓	✓	✓		✓	✓	✓	✓	✓	
Swamps	✓	✓	✓		✓	✓	✓	✓	✓	✓
Agriculture & Fencerows	✓						✓	✓	✓	✓
Watercourses & Rivers	✓			✓	✓	✓	✓	✓	✓	✓
Lakes & Shorelines	✓	✓		✓	✓	✓	✓	✓	✓	✓
Constructed Storm Water Management Ponds	✓							✓		
Rock Barrens						✓	✓			✓

Natural Assets

Table 1-7 and **Table 1-8** outline the City's current levels of service for natural assets.

Table 1-7: Community LOS – Natural Assets

LOS Parameter	LOS Statement	Performance Measure	Current LOS (2024)
Scope	Understand the existing location of natural assets within the City boundary.	Availability of maps of natural asset locations.	The locations of natural assets throughout the City are stored in a separate layer within the GIS.
Quality	Build community resilience to flooding with natural assets.	# of residents affected by flooding with the past 5 years.	Data currently unknown - To be included in next AMP.
Quality	Build community resilience to flooding with natural assets.	# of Green Infrastructure features included in plans or projects	Data currently unknown - To be included in next AMP.
Sustainability	Provide opportunities to build community awareness of and engagement in nature-based solutions that build resilience to climate impacts	# of stewardship programs in place supporting nature-based solutions to Climate Change	Data currently unknown - To be included in next AMP.
Sustainability	Provide opportunities to build community awareness of and engagement in nature-based solutions that build resilience to climate impacts.	# of partnerships supporting nature-based solutions to climate change	Data currently unknown - To be included in next AMP.
Sustainability	Maintain and enhance the natural resource base for future generations.	# of trees planted in rural managed forests	Data currently unknown - To be included in next AMP.

Natural Assets

Table 1-8: Technical LOS – Natural Assets

LOS Parameter	LOS Statement	Performance Measure	Current LOS (2024)
Scope	Availability of natural assets to the community, contributing to general well-being and ecological resilience.	Area of natural assets per Population.	Table 1-9 identifies the area of natural assets per population.
Quality	Proactively manage tree health and hazards to minimize risk across natural assets.	# of tree hazard assessments completed annually.	Data currently unknown - To be included in next AMP.
Quality	Implement a comprehensive program to minimize ecological impacts during projects and operations on City-owned property.	# of City staff receiving specialized ecological training each year.	Data currently unknown - To be included in next AMP.

Natural Assets

Table 1-9: Technical Level of Service – Natural Assets per Resident

Table 1-9 Notes:

¹ Uses Kingston population of 154,100 residents, as per the 2024 AMP.

Asset Category	Area (ha)	Asset Area (square metre [m²]) per Resident¹
Woodlands, Forests, Plantations	902.0	58.6
Constructed Green Lands	730.3	47.4
Meadows & Thickets	516.6	33.5
Marshes	292.6	19.0
Swamps	261.0	16.9
Agriculture & Fencerows	184.2	12.0
Watercourses & Rivers	100.0	6.5
Lakes & Shorelines	22.6	1.5
Constructed Storm Water Management Ponds	18.0	1.2
Rock Barrens	4.2	0.3
Total	3031.5	196.9

1.3 Risk Assessment

This section examines the vital aspects of risk and criticality assessment for natural assets, which are paramount for prioritizing investments and ensuring sustainable service delivery.

Risk is the likelihood and magnitude of a negative scenario (hazard) occurring that limit the ability of the asset to deliver the service. Risk is the consideration of asset failure (or under performance) and the consequence of the failure.

$$\text{RISK} = \text{LIKELIHOOD} \times \text{CONSEQUENCE}$$

Natural Assets

Consequence considers the severity of the impact, vulnerability of the asset and exposure to the negative scenario.

Applying the methodology of a score of 1 to 5 for the likelihood and the consequence, the maximum risk rating is 25 (high). Based on the available information for natural assets, a threat-based approach was taken to estimate the risk of the assets.

1.3.1 Threat-Based Approach

This approach assesses the range of threats to which natural assets are exposed. It recognizes that natural assets are also vulnerable to cumulative effects and can reach critical points under sustained pressure.

Step 1: Identify Threats

The assessment begins by identifying threats that could negatively impact natural assets and, consequently, their ability to deliver services. There were two types of threats identified: cumulative which are impacts that build up over time due to repeated exposures, and event-driven threats which have a more immediate impact and are tied to a specific event. The list of threats identified for this version of the AMP are included in **Table 1-10**.

Table 1-10: Identified Threats

Cumulative Threats	Event-Driven Threats
<ul style="list-style-type: none"> • Invasive Species • Pests & Disease • Encroachments/ Disturbances • Overuse/ Inappropriate Use • Contamination • Drought 	<ul style="list-style-type: none"> • Construction Impacts • Flooding • Erosion & Sedimentation • Extreme Wind • Ice Storms • Extreme Heat • Fire

Natural Assets

Step 2: Identify Likelihood of Failure

Based on the identified threats, an iteration matrix was developed to generate a likelihood of failure rating allocated to each threat, also typically on a 1 to 5 scale, from Improbable to Certain. The likelihood of failure ratings was determined in discussion with City staff at a workshop held in May of 2025. This rating corresponds to the annual probability of occurrence or a return period.

Table 1-11: Likelihood of Failure

Rating	Qualitative	Description
1	Improbable	1 every 50 to 100 years
2	Unlikely	1 every 10 to 50 years
3	Possible	1 every 5 to 10 years
4	Likely	1 every 2 to 5 years
5	Certain	More than 1 in every 2 years

Step 3: Review Consequence of Failure

A relative consequence of failure rating was assigned to each asset category, which was a low (1), moderate (3), or high (5). This rating represented the consequence of losing the service of those natural assets. The consequence of failure ratings was determined in discussion with City staff at a workshop in May of 2025.

Step 4: Calculate Risk Score

The overall risk score for each threat is derived by multiplying its assigned impact rating by its likelihood rating. A risk score between 1 to 9 was rated a Low risk, a score of 10 to 15 was a Moderate risk and a score of 16 to 25 was a High risk.

Natural Assets

1.3.2 Results

Based on the approach outlined above, **Table 1-12** outlines the risk scores and ratings for each of the different asset categories. The inputs for the steps can be found in **Appendix B**.

Table 1-12: Risk Ratings

Asset Category	Likelihood of Failure	Consequence of Failure	Risk Score	Risk Rating
Lakes & Shorelines	5	5	25	High
Constructed Green Lands	4	5	20	High
Marshes	4	5	20	High
Swamps	4	5	20	High
Watercourses & Rivers	4	5	20	High
Constructed Storm Water Management Ponds	4	5	20	High
Agriculture & Fencerows	5	3	15	Moderate
Woodlands, Forests, Plantations	5	3	15	Moderate
Rock Barrens	2	5	10	Moderate
Meadows & Thickets	3	1	3	Low

Natural Assets

1.4 Asset Management Strategy

1.4.1 Lifecycle Activities

Based on the “Building Together – Guide for Municipal Asset Management Plans” (Ministry of Infrastructure), the lifecycle activities for built assets are categorized in the following categories: non-infrastructure solutions, maintenance activities, renewal/rehabilitation activities, replacement, disposal and expansion activities. For natural assets, these activities are adjusted to focus on prolonging the asset's useful life. The recommended adapted lifecycle activities are:

- **Construct and Secure:** This typically refers to new assets or acquiring assets that already exist.
- **Monitor and Manage:** This includes maintenance activities to help assets be more resilient and monitoring if the assets are performing as intended. Focusing on preserving the assets.
- **Rehabilitate and Restore:** This involves significant repairs to extend the life and enhance the performance of existing assets.

The City maintains its natural assets through a variety of programs and initiatives, including:

Urban Forestry and Tree Management

- **Urban Forestry Management Plan:** A guiding document that directs the care and maintenance of city-owned trees.
- **Tree Bylaw and Permits:** Regulations are in place to protect trees by requiring permits for removal or injury on municipal property or in environmentally sensitive areas.
- **Planting Programs:** The city has programs like the Neighbourhood Tree Planting Program and the Community Trees in Trust Program to increase urban canopy cover.
- **Horticultural Care:** Dedicated teams manage public gardens and urban forests with a focus on using native species and low-maintenance plants.

Natural Assets

Biodiversity and Invasive Species Management

- **Monitoring and Management:** Staff survey natural areas and manage priority invasive species like wild parsnip and giant hogweed.
- **Public Education:** The City provides information to residents on how to identify and safely manage invasive plants on private property.
- **Pest Control:** They monitor for and manage pests that threaten trees, such as the spongy moth and emerald ash borer.

Water and Environmental Quality (in partnership with Utilities Kingston)

- **Wastewater Management:** Programs are in place to reduce sewer overflows to protect local waterways like Lake Ontario.
- **Stormwater Management:** The City encourages practices that reduce runoff and pollutants from entering the stormwater system and local waterways.
- **Environmental Monitoring:** The City responds to and evaluates environmental incidents, such as spills or algae blooms, and work with provincial agencies to monitor air and water quality.
- **Shoreline Protection:** The City monitors and implements capital projects to protect its waterfront from present and future erosion and flood conditions (example – An Gorta Mor Park).

1.4.2 Recommendations for Managing and Monitoring Natural Assets

Based on the City's programs and initiatives, the following recommendations are provided for managing and monitoring assets.

- **Urban Forestry and Data Management:** When staff perform ecological surveys, forest management treatments, or forest health assessments (such as looking for invasive species or disease), they could use a tablet or mobile device to input data directly into the system. This collected data could include a stand ID or plot location (using Global Positioning System [GPS]), dominant species composition, overall canopy health and biomass estimates, and a record of any interventions or management history. This approach would allow the City to move beyond simple treatment counts and support detailed long-term analysis. Staff could analyze the survival and success rates of different restoration efforts, monitor the

Natural Assets

ecosystem health of specific forest stands, and use this robust data to effectively justify future management, conservation, and maintenance budgets.

- **Biodiversity and Invasive Species Management:** While continuous public reporting of invasive species (such as buckthorn, phragmites, and wild parsnip) remains valuable, a recommendation could be to evolve towards a coordinated removal and management. The system could be used to facilitate an action scenario by:
 - Mapping High-Priority Removal Zones: Staff would identify and map specific municipal lands (especially in highly used parks like Butternut Creek Nature Park or Greenwood Park Trail) where targeted invasive species removal would have the greatest ecological and community benefit.
 - Organizing Volunteer Stewardship: The platform could be used to municipally organize and deploy community volunteer efforts in these priority zones. This would transform invasive species management into a community-wide network, directing volunteer labor to areas where residents are most willing to contribute and where the need is greatest.
- **Water and Environmental Quality:** The City could establish a clear data link between stormwater runoff and natural assets. For key stormwater management ponds and constructed green spaces, the City could install sensors to measure water flow and quality. The data could be logged and paired with data on precipitation events. This would allow for measurement of a specific amount of runoff and pollutants that the natural asset is managing and supporting.
- **Natural Heritage Study:** The City is currently preparing a Natural Heritage Study (NHS) to support the new Official Plan. The NHS will identify and map the key natural heritage features, such as wetlands, woodlands and watercourses, found across Kingston, as well as corridors linking these features together. The project will provide a series of policy recommendations relating to the identification and protection of these features for implementation within the Official Plan. The City should consider the findings of the NHS as part of the management of their natural assets, especially in relation to: enhancement areas to grow the overall natural heritage system; the current or potential role municipal natural assets can provide within linkages and corridors; contributions towards significant wildlife habitat or habitat for species at risk; and opportunities to expand public access to natural areas for education, recreation and cultural purposes.

Natural Assets

- **Restoration and Enhancement on Municipal Lands:** The system could track natural asset restoration and enhancement strategies on municipal properties (including parks) to meet public consultation requests and expand the Natural Heritage System. This involves staff inputting data on targeted projects, such as intensive woodland replanting to transition thicket areas into mature forest and converting maintained grass areas into meadows or other naturalized habitats with greater ecological value.

1.5 Roadmap with Next Steps

This section focuses on recommendations identified through the development of the Natural Asset AMP. These recommendations are based on experience with limited or outdated data, gaps or barriers to reporting on levels of service and performance, or the desire to apply global best practices to advance asset management at the City. The recommendations have been summarized in the table below with specific recommendations for the Natural Asset Inventory data and reporting.

Table 1-13: Recommendation – Natural Assets (NA)

Item	Type	Recommendation
NA-1	Asset Data	Create a process, budget, and methodology for conducting condition assessments for natural assets through either desktop analysis or field identification.
NA-2	Asset Data	It is recommended that a phased ground-truthing approach be adopted by the City to verify the natural asset inventory. Using a phased approach, ground-truthing may begin with a limited systematic sampling procedure to verify a small, random subset of natural assets (e.g., 1 to 3% of total inventory). This will provide a quantifiable measure of accuracy and identify the most common classification errors. Based on these findings, a more robust statistically significant ground-truthing effort can be planned for future updates to this AMP.

Natural Assets

Item	Type	Recommendation
NA-3	Asset Data	Establish and develop an Asset Data Management Strategy to help standardize the collection and reporting of asset and condition information.
NA-4	Asset Data	It is recommended that City natural assets abutting or in proximity to major development applications be prioritized for ground-truthing to verify the natural asset inventory in relation to the natural heritage system. These assessments may assist the City when assessing potential environmental impacts of the development applications, identifying areas of enhancement, identifying significant wildlife habitat, understanding linkages and corridors, and evaluating potential parkland contributions.
NA-5	Performance	Expand the collection of performance data to be able to track and report how the assets are performing and to assist the City in establishing targets for proposed LOS.

Natural Assets

1.6 References

Beacon Environmental Limited with Green Analytics and Associated Engineering, *Life Cycle Costing of Restoration and Environmental Management Actions: Costing Natural Assets in Peel Region* (December 2020)

https://files.cvc.ca/cvc/uploads/2023/12/rpt_NatAssetLifeCycleCosting_f_ACCESSIBLE_20231016_a.pdf

Canadian Council of Ministers of the Environment, *Natural Infrastructure Framework: Key Concepts, Definitions, and Terms* (2021)

Government of Ontario, *Building Together – Guide for Municipal Asset Management Plans* (February 2024)
<https://www.ontario.ca/page/building-together-guide-municipal-asset-management-plans>

International Standard for Asset Management: ISO 55000

Natural Assets Initiative, *A Guidebook for Local Governments* (2024)

Natural Assets Initiative, *A Guidebook for Local Governments: Developing Levels of Service (LOS) for Natural Assets* (2022)

National Standard of Canada, *Specification for Natural Asset Inventories; Canadian Standards Association – CSA W218:23* (2023)



City of Kingston
**Asset Management
Policy**

Policy Title: **Strategic Asset Management Policy**

Policy Number: POL-XX

1.0 Policy Statement

The City of Kingston is committed to managing its assets in a manner that supports sustainable service delivery, financial responsibility, and community well-being. Through effective asset management practices, the City will ensure that assets are planned, acquired, operated, maintained, renewed, and disposed of in a way that maximizes value, manages risk, and aligns with the City's strategic priorities and legislative requirements under O. Reg. 588/17.

2.0 Background

The City of Kingston oversees a wide range of assets that provide essential services to the community. The City continually balances expenditure, services, and risk across diversified portfolios to provide the level and quality of services expected by residents, institutions, and businesses of Kingston. In response to the *Infrastructure for Jobs and Prosperity Act, 2015* ("IJP Act") Section 6(2) that sets out principles for the provincial government to regulate asset management planning for municipalities in Ontario, the City of Kingston has developed an Asset Management Policy to govern the assets in its portfolio. The subsequent Ontario Regulation, O.Reg. 588/17, "Asset Management Planning for Municipal Infrastructure" prescribes the requirements to be met and/or satisfied by municipalities when undertaking asset management.

Clause 3(1) of the regulation states, "*Every municipality shall prepare a strategic asset management policy*" and Clause 4. states, "*Every municipality shall prepare its first strategic asset management policy by July 1, 2019, and shall review and, if necessary, update it at least every five years.*"

Asset Management is a critical process used in decision-making. It helps municipalities care for the infrastructure that delivers valuable services to the community in a way that considers the service needs of the community, manages risks and opportunities, and utilizes resources wisely. Supported by the City's Corporate Asset Management Department and Asset Management Steering Committee, the City is committed to documenting this approach and defining this management system with the required asset management strategy to guide processes, meet regulatory requirements, improve efficiency, and provide strong governance and accountability.

This Asset Management Policy is specific to those assets managed and owned by the City of Kingston. It should also be read in conjunction with the Utilities Kingston Asset Management Policy for City owned assets that are operated and maintained by Utilities Kingston.

3.0 Purpose

The asset management policy aims to:

- Set expectations with Council, the Public, and other stakeholders.
- Provide leadership and commitment to asset management.
- Establish responsible governance for the practice of asset management.
- Document commitments to asset management and the continuous improvement of asset management practices.
- Provide transparency and demonstrate to stakeholders the legitimacy of decision-making processes by combining strategic plans, budgets, service levels, and risks.
- Define a set of principles that guide the City's development of an asset management program and to formally link asset management to organizational strategic objectives and plans.

4.0 Vision and Objectives

3.1 Asset Management Vision

To manage municipal infrastructure assets through a systematic, evidence-based, and financially sustainable approach that delivers Council-approved service levels efficiently and proactively while aligning with community priorities, climate resilience, and the requirements of O. Reg. 588/17 to support long-term planning and sustainable growth.

3.2 Asset Management Objectives

Asset Management allows the City to:

- Comply with legislation and regulations – including O. Reg. 588/17 and the Ontario Infrastructure for Jobs and Prosperity Act, 2015 (IJP Act).
- Deliver Council-approved service levels that balance community expectations, risk, and financial capacity.
- Optimize asset lifecycles through proactive maintenance, renewal, and replacement strategies.
- Integrate planning and decision-making across budgeting, risk management, and service delivery.
- Incorporate climate resilience and natural asset management into long-term planning.
- Enhance transparency, accountability, and stakeholder engagement in asset-related decisions.
- Support continuous improvement of asset data, tools, and organizational knowledge.

5.0 Scope

This Asset Management Policy will be applied to all physical assets owned by the City of Kingston that provide services to residents, businesses, institutions and visitors.

City of Kingston Asset Management Policy

The City of Kingston is responsible for delivering a diverse range of critical municipal services through the support of over \$8.3 billion in assets. These assets include transportation infrastructure such as roads, bridges, sidewalks, traffic control systems, bus shelters, and buses; City parks and recreational facilities; municipal buildings; natural assets; fleet; information technology systems and many more. Assets related to agencies and boards such as the Kingston Frontenac Public Library and Kingston Police Services are also included within the City's Asset Management plans. Together, these assets enable the City to provide essential services that enhance the safety, livability, and sustainability of the community. Compiling, confirming, and maintaining the asset register is a significant component of the resulting Asset Management Plan.

As noted in the Context section of this document, Utilities Kingston operates and maintains multiple city-owned assets such as water and sewage systems, natural gas assets, street lighting, traffic signals, and hot water tanks, including related facilities and its supporting infrastructure (such as valves, hydrants, and service connections). In this capacity, they have developed an independent Asset Management Policy that was adopted by Council on July 11, 2023. The City works in conjunction with Utilities Kingston to ensure a coordinated approach to asset management planning which prioritizes investment in assets while minimizing risk and complying with regulations. The asset management plans report on those assets meeting the capitalization threshold identified in the Tangible Capital Assets Policy.

The City will collaborate where possible with adjacent municipalities to operate and maintain boundary roads and promote the principles outlined in this policy.

6.0 Complementary Processes

The asset management process is designed to align with and complement existing corporate processes such as budgeting and strategic planning. The intent of the process is to provide a long-term perspective, focused on the integral challenges associated with the assets that support the achievement of the City's strategies and objectives.

City of Kingston Corporate Asset Management Framework



6.0 Strategic Direction

6.1 Governance

- Create and maintain an asset management governance structure to lead the development of asset management tools and practices and oversee their application across the organization.
- Assign clear roles and responsibilities, including Council and executive leadership.
- Promote cross-departmental collaboration and oversight.

6.2 Asset Management Strategy

Adopt an asset management strategy to:

- Ensure compliance with O Reg 588/17: Asset Management Planning for Municipal Infrastructure.
- Implement industry-recognized asset management protocols, document and consistently adhere to them.
- Define levels of service that balance customer expectations with risks, affordability, and time constraints.
- Establish standardized criteria for assessing asset condition and performance, using a rating scale from 1 to 5: 1 – Very Good, 2 – Good, 3 – Fair, 4 – Poor, 5 – Very Poor.
- Ensure asset management recognizes and adapts to changes in the City’s demographics that may alter customer expectations and needs.
- Link asset management decisions to budget and financial planning to optimize resource use and maintain service levels.
- Adopt risk-based decision-making processes that consider the likelihood of asset failure and the associated consequences to safety and service levels.

City of Kingston Asset Management Policy

- Acquire knowledge and skills in asset management in accordance with recognized competency frameworks.
- Integrate and adopt the evaluation of total lifecycle costs within the decision-making process for the allocation of investments across assets.
- Monitor asset performance and the effectiveness of asset management practices with a perspective of continuous improvement.

6.3 Climate Resilience

- Strive, wherever possible, to exceed minimum legislated solutions to improve asset resilience to social, environmental, and economic changes.
- Integrate climate vulnerability assessments and adaptation strategies.
- Apply climate change mitigation and resiliency lenses to lifecycle activities.
- Incorporate climate impacts and growth projections into planning.

6.4 Financial Integration

- Remain focused on obtaining external grant funding and service delivery opportunities to meet infrastructure investment needs.
- Integrate asset management into annual budgets and long-term financial plans.
- Leverage asset condition data to highlight funding gaps and inform financial strategies.
- Link infrastructure investment decisions to service delivery goals.

6.5 Innovation and Technology

- Remain informed of asset management best practices.
- Explore technology/solutions that help integrate data across the City.
- Define scope of Request for Proposal (RFPs) to include requirements that data be uploaded into City asset databases for planning purposes with the goal of optimizing life expectancy i.e. manufacturers recommended general maintenance, lifecycle maintenance requirements, and estimated replacement date based on industry standards.
- Use performance-based planning tools and cross-disciplinary approaches.

6.6 Public Engagement and Transparency

- Inform Council of the state of the infrastructure and expected trends as part of long-term financial plan submissions.
- Provide opportunities for public input into asset management planning.
- Enhance transparency through clear reporting and performance tracking.
- Conduct annual reviews to ensure alignment with strategic goals.

6.7 Strategic Alignment

- Align asset management with strategic plans, official plans, and climate action goals.
- Ensure decisions to support broader municipal objectives and growth management.
- Coordinate planning with upper-tier and neighboring municipalities.

7.0 Commitment and Accountability

The policy requires commitment from all stakeholders. The following provides the roles of the various stakeholders as it relates to Asset Management planning for the City of Kingston.

7.1 Council

Council is responsible for:

- Adoption and periodic review of the Asset Management policy and plans.
- Setting the vision, service mandates, and management policies.
- Ensuring commitment to a financial strategy that enables the asset management plan to deliver service mandates that balance customer expectations with risk, affordability, and time constraints.
- Fostering informed dialogue with the public to enhance transparency.
- Approving Levels of Service (LOS) for all Asset categories except those that are governed by regulations like the National Fire Protection Agency (NFPA) Standards for Fire Apparatus and Equipment, etc.
- Approving funding for both capital and operating budgets associated with Asset Management through the annual budget.

7.2 Corporate Management Team

The Corporate Management Team will:

- Champion the asset management strategy within the organization.
- Ensure department resources are available along with necessary capabilities to support the elements and practices of the asset management system.
- Provide executive sponsorship and support for the development and implementation of asset management initiatives.

7.3 Executive Lead: Director, Corporate Asset Management and Fleet

The Director will assume the role of Executive Lead. The Executive Lead will:

- Coordinate and advise on asset management initiatives within the organization.
- Maintain support for asset management through annual updates to CMT on progress in the implementation of the asset management policy and strategy across the organization.
- Coordinate the development of an asset management charter to ensure consistency in asset management practices throughout all departments of the City of Kingston.
- Review and revise the charter as necessary with department leads.
- Provide directions to the Asset Management team in developing the Asset Management Policy, plans, and strategies.

City of Kingston Asset Management Policy

- Chair and lead the Asset Management Steering Committee.
- Support education and training to build capability and promote continuous improvement in asset management processes.

7.4 Directors

The Directors of the City of Kingston will:

- Support the Executive Lead by ensuring human capital is made available to implement the asset management system by building resources into operating budgets.
- Support the Executive Lead in the process of developing a consistent corporate asset management system and process across the City of Kingston.
- Adopt an asset management strategy specific to their department which aligns with the established asset management charter.
- Align with the financial strategies of the City of Kingston and those directed by Council.
- Support Asset Management education and training required to build competency within the respective department.

7.5 Service Area Leads

The service area leads will:

- Adhere to the asset management system by providing data and information on assets and services, participating in risk management and complete the required analyses to ensure an up-to-date asset management system.

7.6 Asset Management Steering Committee

The Asset Management Steering Committee members will:

- Provide strategic oversight and guidance for the development, implementation, and continuous improvement of the corporate asset management system.
- Being Asset Management ambassadors.
- Monitor progress on asset management initiatives and ensure accountability for deliverables across departments.
- Review and endorse updates to the asset management policy, strategy, and charter before submission to Council.
- Support resource planning by identifying organizational needs for training, tools, and systems to enhance asset management capabilities.
- Evaluate risks and opportunities related to asset performance, lifecycle costs, and service delivery to inform decision-making.
- Provide technology solution recommendations and make decisions related to

Asset Management systems and tools.

7.7 Corporate Asset Management Team

The Asset Management Team will:

- Guide departments on asset management principles, practices, and standards.
- Develop and maintain asset management policies, strategies, and plans under the guidance of the executive lead.
- Help achieve asset management goals and objectives through collaboration, training, and technical expertise throughout the organization.
- Facilitate interdepartmental collaboration to manage shared assets and ensure consistent practices.
- Promote continuous improvement and innovation in asset management.
- Support the Steering Committee, Executive Lead, and Directors with technical input and progress updates.
- Stay current with industry trends, standards, and technologies to enhance the City's asset management maturity.
- Lead pilot projects and innovation initiatives to test and refine asset management approaches.
- Oversee the management and continuous improvement of the Enterprise Asset Management (EAM) system, Open Gov (formerly Cartegraph), and support corporate users in achieving asset management objectives.

7.8 City Staff

City Staff will:

- Embrace new business processes and technology tools required for effective asset management.
- Participate where required in teams and meetings as part of Corporate Asset Management process.
- Update Asset Register data records where applicable including inspection records and data.
- Ensure compliance with corporate asset management policies, standards, and practices.

8.0 Key Asset Management Principles

To effectively use asset management to support the achievement of the City's organizational goals, administration should ensure the following principles are applied within the Asset Management System:

Holistic – Deploy a comprehensive and coordinated approach that looks at the “big picture” (i.e. the combined implications of managing all aspects rather than a compartmental approach). This includes the functional interdependencies and contributions of assets within asset systems and the different management of assets across all lifecycle phases.

Systematic – Implement a methodical approach (i.e. formal, repeatable, and consistent) to the management of assets.

Systemic – Generate asset investment decisions in an asset system context, not just to optimize the individual asset itself.

Risk-based – Manage asset risk associated with attaining levels of service and focusing resources, expenditures, and priorities based on risk and associated cost/benefit.

Optimal – Make asset investment decisions based on trade-offs between competing factors of service level (including asset performance), risk and cost.

Sustainable – Take a long-term, lifecycle-based approach in estimating asset investment and activities, thus developing effective asset management strategies for the long term.

Integrated – Coordinate the above principles to ensure the delivery of justified services and well-defined outcomes.

Aligned – Ensure that the asset management system complements the strategic objectives of the City, as well as other key business systems, legislation, and regulation.

9.0 Asset Management Plans

9.1 Asset Management Plans will be developed for all infrastructure assets owned and or controlled by the City of Kingston. These plans will be developed in accordance with O. Reg 588/17 - Asset Management Planning for Municipal Infrastructure.

9.2 Asset Management plans will incorporate all assets that meet the capitalization threshold as outlined in the City’s Tangible Capital Asset Policy as well as certain assets that may fall below the capitalization threshold, that based upon professional judgement are critical to service delivery.

9.3 Asset Management plans will be updated in accordance with dates outlined in the Regulation, and at least every five years thereafter.

10.0 Continuous Improvement and Reporting Requirements

City of Kingston Asset Management Policy

10.1 The City will implement continuous improvement protocols and seek to adopt best practices regarding asset management planning including:

- I) Comprehensive and up-to-date Asset Register data
- II) Condition Assessment Standards and Policies
- III) Risk models
- IV) Lifecycle Management strategies and procedures
- V) Financial Strategy Development
- VI) Service Level and Performance Monitoring

10.2 The City will develop and implement appropriate performance metrics and reporting tools to report and communicate the current state of asset management to Council and the community.

10.3 Asset management plans will be integrated into the City's annual budget process.

11.0 Benefits of Compliance

The benefits of compliance with the policy include but are not limited to:

- Maintaining alignment with the City's strategic objectives.
- Maintaining service area investment priorities, the coordination of delivery of services, corporate efficiencies, and expenditure optimization.
- Capital planning that is consistent with the needs identified in the asset management plans maintains the alignment of financial, infrastructure, and land use goals and objectives.
- Optimal planning for growth, maintenance, and replacement of existing assets as well as the development of new assets, maintains the ability to meet expected levels of service.
- Timely investment in assets maintains the optimal lifecycle, reliability, safety, security of the assets, and service delivery.
- Minimize risks to users associated with asset failure.

12.0 Definitions

In the policy the following definitions are used:

“Asset” – An item, thing or entity that has potential or actual value to an organization. The value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities.

“Asset Management” – Planned actions and coordinated activities of an organization to optimally and sustainably manage its assets that will enable the assets to provide the desired level of service in sustainable way, while managing the risk at the lowest lifecycle cost. It encompasses all asset types, tangible or intangible, individual components or complex systems, and all activities involved in the assets lifecycle form

acquisition/creation, through maintenance to renewal or disposition.

“Asset Management Plan” – Strategic document (long term) that states how a group of assets are to be managed over time. The plan describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions.

“Asset Management System” – A management system or framework for asset management. It is a standard management approach outlining the linkages between key elements and practices of an effective asset management program. It is a set of interrelated or interacting practices and techniques of an organization enabling the management of assets at various levels from the operational level up to where integration across asset systems and networks is required.

“Asset Management Strategy” – A high level action plan that gives effect to an organization’s Asset Management Policy.

“Capitalization Threshold” – The value of the infrastructure asset at or above which the City of Kingston will capitalize the value of it and below which it will expense the value of it.

“Condition” – The physical state of an asset.

“Infrastructure” – The network of physical assets (and natural assets) developed and/or used by the City to support its social, cultural, and economic activities and services.

“Level of Service” – The parameters or combination of parameters that reflect the social, political, economic, and environmental outcomes the organization delivers. Service statements describe the outputs or objectives of the organization’s activities that are intended to be delivered to customers.

“Lifecycle” – The time interval that commences with the identification of the need for an asset and terminates with the disposal of the asset.

“Performance Monitoring” – Continuous or periodic quantitative and qualitative assessments of the actual performance compared to specific objectives, targets or standards.

“Risk” – The effect of uncertainty on objectives. Risk events are events which may compromise the delivery of the organization’s strategic objectives.

“Service/Useful Life” – The period over which an asset or component is expected to be available for use.

13.0 Review Period

This policy will be reviewed at a minimum every five (5) years from its effective date.

14.0 Revision History

Version	Year	Status	Approved By
1.0	2019	Approved	Council
2.0	2025	Draft – Pending Approval	