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EXECUTIVE MANAGEMENT COMMITTEE
JULY 18, 2024

SUBJECT: SOUTHEAST GATEWAY LINE P3 ASSESSMENT UPDATE

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE report on the Southeast Gateway Line P3 Assessment Business Case (Attachment A).

ISSUE

Metro conducted a Public-Private Partnership (P3) Assessment of the Southeast Gateway Line (SGL) (formerly West Santa Ana Branch) Project (Project) to determine if Metro can benefit from advancing a P3 delivery model for the Project. A qualitative assessment, risk analysis, and Value for Money (VfM) were developed to form the overall P3 Business Case. The P3 Business Case is a comprehensive approach utilized as a best practice worldwide by public agencies for major capital investments to identify, assess, and make a determination on the appropriate procurement option for a project that aligns with project objectives. The P3 Business Case has concluded a P3 delivery is not the right approach for the Project based on the relatively low Value for Money (VfM) cost savings opportunity compared to the added risks, interfaces, and challenges that would be introduced under a P3 model.

BACKGROUND

In 2016, Metro received two Unsolicited Proposals suggesting P3 delivery approaches were viable for the Project. In seeking to improve service to advance innovative delivery alternatives for the 19+ miles from DTLA to the Los Angeles/Orange County line, Metro decided to further explore options for project delivery, including the potential for a P3 delivery. Metro issued a P3 Technical Bench contract task order in February 2018 and a follow-up one in March 2022 to a team led by Sperry Capital to assess the potential benefits of advancing a P3 delivery model for the Project.

In January 2022, the Board selected the Locally Preferred Alternative (LPA) for the Project. This led to the advancement of a 14.5-mile LRT line with nine (9) stations, from a northern terminus at the Slauson/A Line Station located in the City of Los Angeles/Florence-Firestone unincorporated area of LA County to a southern terminus at the Pioneer Station located in the City of Artesia, and a new C Line infill station at the I-105 Freeway.

The Project will connect the ten cities and communities of Artesia, Cerritos, Bellflower, Paramount, Downey, South Gate, Cudahy, Bell, Huntington Park, Vernon, unincorporated Florence-Firestone, and downtown Los Angeles. The Project will also connect this area to Metro's emerging rail network, including the C Line to LAX, the A-Line to Los Angeles Union Station (LAUS), Pasadena, and Azusa through the Regional Connector. The Project will provide alternatives to driving and create more access to regional opportunities. The Project also includes five parking facilities and a Maintenance and Storage Facility (MSF) in the City of Bellflower.

The Board also selected LAUS as the northern terminus for the full 19+ mile corridor project. Metro staff is conducting a separate study to evaluate options for connecting from Slauson/A Line to LAUS.

DISCUSSION

Metro has been exploring innovative solutions to project delivery across its portfolio. This due diligence has resulted in assessing alternative delivery models, including P3. This initiative, along with the Unsolicited Proposals, led Metro to look at P3 as a potential delivery model for the Project.

Early in the process, Metro reached out to the industry via 3 market soundings (in June 2018, October 2018, and September 2021) with over 15 private firms, including contractors, equity investors, operators, and rolling stock suppliers to discuss key questions related to a P3 procurement and commercial structuring. The goals of the market sounding sessions were to gauge industry interest in the Project and to identify elements for potential evaluation as part of the Project Agreement / procurement development processes. The results of the market soundings showed strong interest in the Project and support of a P3 delivery, so Metro decided to further pursue the potential benefits of a P3 model for the delivery of the Project.

In addition to the market soundings, Metro conducted internal workshops to evaluate potential P3 delivery approaches to consider how a P3 could support Metro's objectives for the Project. Metro and its consultants first assessed options for P3 contracts to determine the one that best fits the Project. Three options were considered: Design-Build-Finance (DBF), Design-Build-Finance-Maintain (DBFM) and Design-Build-Finance-Operate-Maintain (DBFOM).

Under a DBF delivery model, Metro would retain responsibility for Operations and Maintenance (O&M) and major maintenance including capital renewal. This is similar to a Design Build (DB) delivery method but includes private sector financing of certain project costs. Under this approach, the potential for risk transfer benefits beyond Metro's current DB approach may be limited as the underlying DB component is the same. In addition, Metro has significant debt capacity and can access the capital markets at lower costs of finance than a private developer incurs. The benefit of risk transfer was unlikely to outweigh the cost of financing in this approach which would mean that value for money was also unlikely. As a result, the DBF option was not taken further in this analysis.

Under a typical DBFM delivery model, Metro would retain responsibility for operations and routine maintenance. The P3 developer would be responsible for designing the system, constructing it, procuring LRT vehicles, performing major maintenance and providing private financing. When exploring the option of DBFM, the need to divide out preventative maintenance and repair of assets

during the Project life presented challenges that could result in contractual disputes. Metro determined that an all or nothing approach to the O&M would reduce complexity, reduce the risk of finger pointing, and reduce the potential for breakdowns in the partnership intention of a P3 delivery. As a result, a DBFM was determined to be less desirable than a DBFOM delivery model and was not taken further in this analysis.

Finally, for a DBFOM delivery model, Metro would transfer all O&M and major maintenance responsibilities to the P3 developer. The P3 developer would be responsible for designing the system, constructing it, procuring LRT vehicles, performing all operations and major maintenance and raising financing. To assess the maximum potential benefits of a P3 delivery model, it was determined DBFOM was the appropriate model to use in the progression of the P3 assessment.

Both quantitative and qualitative work were advanced to then compare DBFOM with a more traditional Design-Build (DB) delivery method. This work is described in more detail below and within Attachment A - SGL P3 Assessment Business Case.

Quantitative Analysis:

The quantitative effort included development of cost data sets for both DB and DBFOM, performing risk assessments and incorporating risk-based contingency, and performing financial modeling to determine total transaction costs and a VfM by comparing life-cycle costs for DBFOM and DB delivery methods.

Risk Assessment

The risk assessment for the Project included the identification, consideration and quantification of risks based on the process outlined in Attachment A - SGL P3 Assessment Business Case.

Approximately 30 workshops were held with subject matter experts from Metro departments over a period of 5 years. Most of the workshops were conducted during 2018 and 2019, with a refresh occurring via 7 workshops in April-June 2024 after the certification of the FEIR by the Metro Board in April 2024. This refresh allowed for a refinement of risks for the Project based on a number of factors, including scope refinements, updated market conditions, consideration of the Advanced Works Package being procured separately, and accounting for updated practices resulting from previous lessons learned on other major projects at Metro.

This quantitative risk assessment resulted in the identification of key specific risk drivers for the Project. Tables 1 and 2 show the top cost and schedule risks that were identified for the DB and DBFOM delivery models, independently.

Table 1 - Top Cost Impact Risks

Top Cost Risks – DB
DEV-165: Lifecycle Capital Maintenance Not Performed / Deferred - Excluding Facilities, Stations, Rolling Stock
DEV-162: Latent Defects (during operations)
DEV-116: Operational and Regular Maintenance Performance
DEV-005: Metro Scope Changes During D&C
DEV-019: Interface between Systems

Top Cost Risks – P3
DEV-005: Metro Scope Changes During Design and Construction Phase
DEV-217: Deterioration in financial situation of the contractor (construction phase)
DEV-165: Lifecycle Capital Maintenance Not Performed / Deferred - Excluding Facilities, Stations, Rolling Stock
DEV-171: Asset Residual Condition
DEV-212: Third Party Property Damage / Claims

The top cost risks associated with a DB execution of the Project are related to long-term state of good repair. DBFOM contracts are structured to incentivize a developer to perform lifecycle / long-term capital maintenance. However, this requires a commitment of dedicated funding for the contractual O&M term up-front to make Availability Payments which lead to challenges on other agency assets outside of the Project as less funding would be available for potentially more urgent and critical maintenance of agency operated and maintained systems during times of budgetary constraint.

The top cost risk for a DBFOM delivery model is identified as Metro-initiated scope changes. In a DBFOM, any delays caused by the public agency will have a much greater cost impact compared to a DB. This is because in a DBFOM, the private partner takes on more financial risk, including financing a portion of the project, making the penalty of delays much more significant.

Table 2 - Top Schedule Impact Risks

Top Schedule Risks – DB
DEV-252: Early Works/LRT Interface
DEV-217: Deterioration in financial situation of the contractor (construction phase)
DEV-019: Interface between Systems
DEV-003: City Approvals (LA City)
DEV-005: Metro Scope Changes During Design and Construction Phase

Top Schedule Risks – P3
DEV-252: Early Works/LRT Interface
DEV-003: City Approvals (LA City)
DEV-004: City Approvals (non LA City)
DEV-005: Metro Scope Changes During Design and Construction Phase
DEV-234: Geotechnical Risks – Below Grade (Known)

The top schedule risk for DB and DBFOM is related to interfaces. Under any delivery method, interfaces will exist, and proper management and mitigation need to be in place to ensure the on-time delivery of a project. Table 3 below shows the quantified results of the potential schedule delay in months for DB and DBFOM, as well as the associated cost impact.

Table 3 - Schedule Risk

Schedule Risk (in months)

	DB 70th Percentile	P3 70th Percentile
Total Schedule Delay	24.79	15.37
Metro Average Delay Cost	$15 million	$20 million
Schedule Delay Cost ($M)	$372	$307

It's important to note that the quantitative risk assessment did not factor in any mitigation strategies that could lower probabilities and impacts due to the timing of this assessment in conjunction with the level of completion of project development. As the development of the Project progresses and throughout its life cycle, the project team will continue to develop these strategies as an ongoing effort to reduce or eliminate potential risks and optimize execution efficiency.

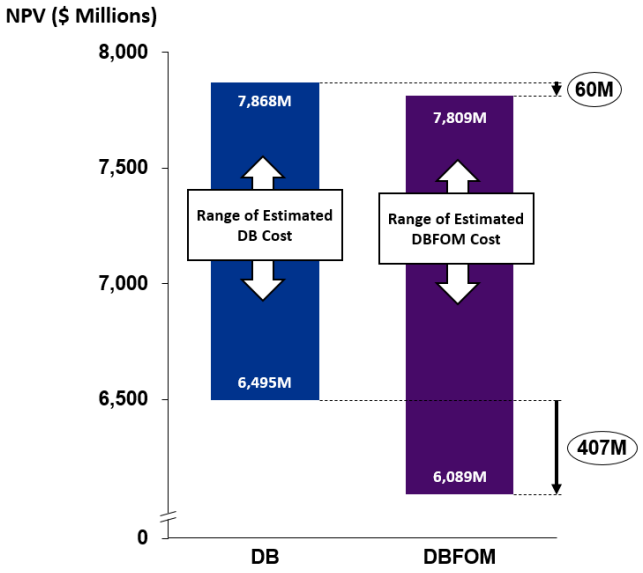
Value for Money

The identified risks were quantified for DBFOM and DB deliveries to calculate unmitigated risk-adjusted contingencies. These contingencies were added to the base cost estimates for each

delivery method, along with financial modeling, to determine total transaction costs. The VfM was calculated by comparing the transaction costs of the DBFOM and DB models.

The VfM analysis for the Project indicated that there is a range of potential life-cycle savings if pursuing a DBFOM model for the Project of between 0.77% to 6.69% (or between $60 million to $407 million in total in Net Present Value), which is shown in Figure 1 below.

Figure 1 - Range of Estimated Costs and VfM Results



A range of potential savings is provided because of the variability of the factors that can influence a realized outcome. Some of those factors are:

- Changes in inflation between today's analysis and commercial/financial close
- Competition and market appetite for either delivery method that can impact the number of bids and corresponding cost of bids received
- Key risk outcomes and potential mitigations not included in the analysis
- External factors outside of the analysis scope that can impact the VfM, such as:
    - Progress under the Advanced Works Package impacting schedule and funding available
    - Changes in Project scope
    - Programmatic considerations such as changes in allocation of resources and labor terms

Based on an available range of results from other North American public agencies that have conducted VfM analyses as part of their decision-making process for project delivery, the VfM range presented for the Project is at the lower end of the results for other projects that have proceeded as a DBFOM. While each agency and project will have its own unique set of circumstances, this would suggest that the case for DBFOM delivery for the Project based on the VfM result is much less

robust.

Affordability Analysis

Upon completion of the VfM, an affordability analysis was performed for the DBFOM scenario. However, given the relatively low VfM over the life of the Project, and Metro's capacity to finance the necessary portions of the design and construction phase, the affordability of the DBFOM is similar to the DB scenario. Metro staff is in the process of securing needed funding sources in the overall Project funding plan.

Budget certainty can be an advantage to a DBFOM due to the structure of predictable Availability Payments throughout the O&M phase. However, as stated earlier, committed funding during the O&M phase for the Project under a DBFOM could present challenges to the flexibility of performing maintenance needs on Metro's systemwide assets during times of budgetary constraint.

Qualitative Assessment

Qualitative assessments complement the quantitative analyses by providing insights into non-financial aspects that contribute to the overall success and viability of a project. Metro used this qualitative assessment to balance financial considerations with broader strategic goals, risk management, stakeholder engagement and long-term sustainability. Below are a few of the qualitative considerations Metro examined as part of the comprehensive assessment, which are discussed in more detail within Attachment A - SGL P3 Assessment Business Case.

Schedule: A main factor in the schedule benefit projected for a DBFOM is centered on the contractual incentives of the private partner to achieve construction completion as efficiently as possible. The incentive to complete construction expeditiously to provide mobility to the residents along this corridor already exists, and through early identification and mitigation of risks, similar schedule certainty can be achieved via either a DBFOM or DB delivery model.

Future Extension to Union Station: If Metro opts for a DB delivery model for the Project, a new design and construction contract would be needed for the extension to LAUS. Metro's Operations would then extend service to the northern terminus after the extension is completed. Alternatively, under a DBFOM approach, Metro could include in the Project Agreement a framework where the DBFOM developer would be given Right of First Refusal to collaborate with Metro to define and implement the extension while maintaining operational continuity, akin to progressive contracting elements in P3s.

However, if Metro proceeds with a DBFOM for the Project, but chooses to procure the extension to LAUS with a different delivery method, complexities arise in managing the Project Key Performance Indicators (KPIs) related to operations and maintenance, and ensuring developer performance becomes more challenging.

Innovation: DBFOMs can be structured to encourage innovation as they often involve risk sharing and incentives for achieving project goals efficiently and innovatively. Technology constantly evolves and the private sector is naturally incentivized to find cost savings and opportunities for greater efficiencies. In addition to assessing P3 models, Metro has recently advanced other alternative

delivery methods (e.g., progressive design build, and construction manager/general contractor) vs. traditional DB that also provide opportunities to tap into private sector innovation.

Labor: When the Metro team conducted market soundings with contractors, developers and private operators, it was indicated that such parties would be willing to employ unionized labor. If Metro were to implement the Project utilizing the DBFOM method, then Metro would meet and confer with its affected unions to negotiate agreements on how operation and maintenance of the Project would be transferred to the DBFOM developer based on a set of baseline key terms offering 'aggregate equivalency' in terms of pay and benefits. The labor resources needed to operate and maintain the Project would be substantially the same regardless of whether it's operated by a contractor through a DBFOM agreement or by Metro.

Roles and Responsibilities: To ensure Metro's objectives around public safety and customer experience are maintained, Metro must maintain direct operational control over significant parts of safety and security, fare collection, and customer service, which would dilute the benefits under a DBFOM. With this maintained responsibility, interfaces with the DBFOM partner would exist throughout the O&M term. Interfaces between the public and private partners have proven to be a main source of contractual contention on DBFOMs in the U.S. Additionally, a DBFOM would span several decades, in which changes to needs and priorities to support overall customer experience could occur. The long-term commitment could limit flexibility in responding to these changing needs and priorities.

P3 Assessment Conclusion:

At the completion of the P3 Assessment, Metro reviewed the quantitative and qualitative results. This resulted in agreement that the analysis did not show enough potential cost savings to overcome the risks and challenges that would exist, and therefore concluded a DBFOM delivery model is not the right solution for the Project. Some of the most significant risks and challenges identified during the P3 Assessment are:

- Funds committed to the Project through Availability Payments could limit Metro's flexibility of systemwide maintenance expenditures
- Safety and security roles and responsibilities assigned to Metro and a developer will create interfaces that could impact proper incident response and lead to future disputes
- A long-term commitment from both Metro and a developer can limit flexibility in responding to changing needs or priorities for customer service

However, there are positive takeaways from the P3 Assessment effort that will support the next phases of development and execution of the Project. Some of the benefits are listed below:

- Consensus and support from the private sector that the Advanced Works Package would help de-risk the Project
- Early understanding of Project risks and the advancement of discussions to develop innovative mitigation strategies that will reduce potential cost and schedule impacts

EQUITY PLATFORM

The Project is consistent with the goals and objectives outlined in the Metro Equity Platform Framework that identified the Project traverses through Equity Focus Communities (EFCs) in Southeast Los Angeles County, where access to premium transit service is limited. The Project is also comprised largely of Environmental Justice (EJ) communities, which are defined from the demographic and socioeconomic data of the U.S. Census. Black, Indigenous, and other People of Color (BIPOC) are 65% of the total study area population, and Hispanic/Latino groups alone account for 51% of the study area population. In addition, 44% of study area residents live below the poverty level, compared with the county average of 33%. The Project will benefit communities through the addition of a new high-quality reliable transit service that will increase mobility and connectivity for the historically underserved communities in the corridor and helps to address mobility disparities and provide residents with increased access to employment, health, and education opportunities, which otherwise would be difficult to reach by transit.

The P3 Assessment for the Project did not take into account any additional equity considerations since the requirements would be similar whether the Project is executed as a DB or DBFOM. Under the procurement of a DBFOM, Metro would make it clear to value a potential partner that would highlight inclusivity initiatives that are consistent with Metro's Diversity & Economic Opportunity Department (DEOD) programs (e.g., small business engagement and workforce initiatives).

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The Project supports the following strategic plan goals identified in Vision 2028:

- Goal 1: Provide high-quality mobility options that enable people to spend less time traveling;
- Goal 3: Enhance communities and lives through mobility and access to opportunity; and
- Goal 5: Provide responsive, accountable, and trustworthy governance within the Metro organization.

NEXT STEPS

Based on the results of the P3 Assessment, Metro determined a DBFOM delivery is not appropriate for the Project. A parallel effort to study non-P3 delivery methods is currently ongoing and is slated to be completed in 3Q 2024.

ATTACHMENTS

Attachment A - SGL P3 Assessment Business Case

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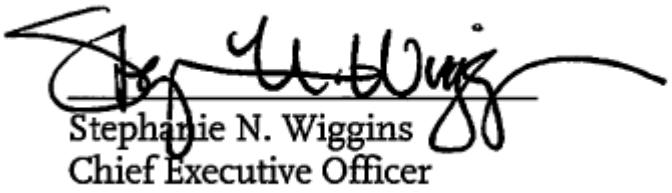

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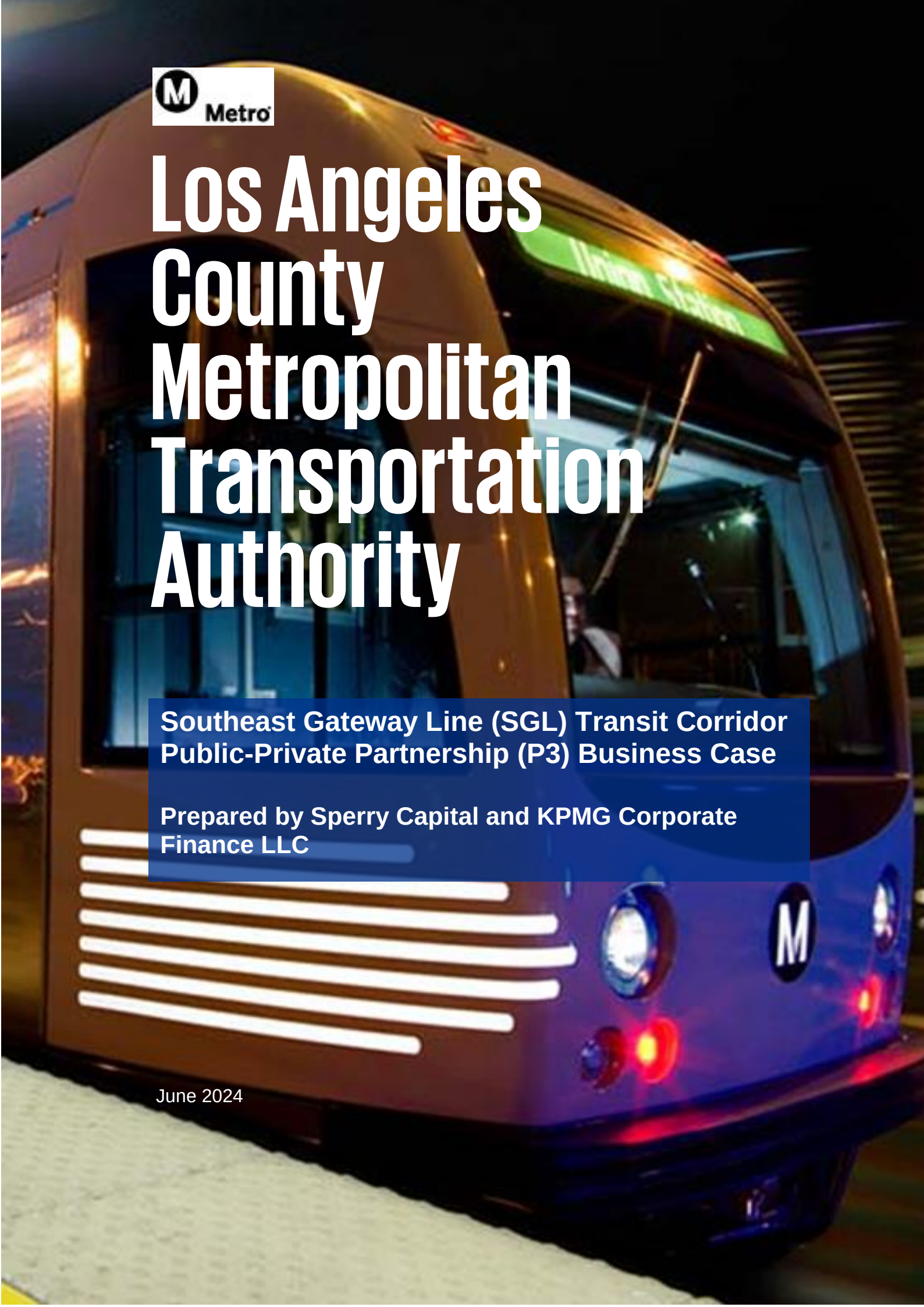

Los Angeles County Metropolitan Transportation Authority

Southeast Gateway Line (SGL) Transit Corridor Public-Private Partnership (P3) Business Case

Prepared by Sperry Capital and KPMG Corporate Finance LLC

June 2024

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Foreword

Foreword

The Southeast Gateway Line (SGL) – previously known as the West Santa Ana Branch (WSAB) – is an approximately 19-mile light rail transit (LRT) corridor between Downtown Los Angeles (DTLA) and the Gateway Cities region of Southeast Los Angeles County. The Los Angeles County Metropolitan Transportation Authority (Metro) is currently undertaking a detailed review of potential procurement, delivery, and contracting approaches for this corridor. Included in this evaluation is consideration of private sector involvement in the delivery of the potential system through Public-Private Partnership (P3) delivery approaches which could involve private sector delivery, financing, and operations of the system for a set period of time.

At Metro Board's direction, this P3 Business Case report documents an assessment of public and private delivery options for a subset of the full SGL corridor – the 14.5-mile Locally Preferred Alternative (LPA) LRT system between the current Slauson Station and new Pioneer Station in Artesia. Metro intends to deliver the Southeast Gateway Line LPA under a number of scope and contract packages including: (1) an Advanced Works package under a CM/GC contract for utility relocation and grade crossings, site clearance, hazardous soil abatement, and other advanced works elements that are being advanced as part of Metro's risk management strategy; and (2) the remaining scope required to complete and operate the LRT system itself (LRT Components).

This business case considers both a traditional delivery approach (DB – design-build) for Metro as well as alternative approaches involving a private sector entity – a P3 developer – for the design, build, finance, operation, and / or maintenance of the LRT Components. Metro compared the various delivery approaches to evaluate the benefits of different procurement models within the constraints of Metro's funding plan.

This P3 Business Case provides a summary of the following:

- A summary of the SGL project and what is included in the LPA;
- Procurement and contracting approaches considered;
- A review of qualitative considerations to be taken into account and what key benefits/tradeoffs are most likely to exist if choosing to deliver the project with a P3 partner;
- Risk assessment undertaken by Metro to quantify major project-related risks under selected procurement approaches;
- Value for Money analysis undertaken to compare total risk-adjusted costs of selected delivery approaches;
- Funding and affordability considerations for the Project delivery; and
- A discussion on potential procurement and implementation next steps.

Inputs, analyses, and other materials for this P3 Business Case were provided by:

- The Metro Project Team for the Project consisting of over 10 departments across the Metro organization;
- Sperry Capital Inc. and KPMG Corporate Finance LLC, the commercial and financial advisors (FA) for the SGL Project;
- Ashurst LLP, the legal advisor for the SGL Project; and
- Jacobs Engineering, Metro's technical, engineering, and planning advisor for the SGL Project.

It should be noted that the analysis conducted herein assumes consistent labor and wage assumptions between public and P3 delivery approaches.

At Metro's request and direction, external benchmarking and review of the assumptions and methodologies for risk analysis contained in this report were undertaken by the Association for the Improvement of American Infrastructure (AIAI), an industry group consisting of leading construction, operations, and maintenance developers, and banking, private equity, and infrastructure management firms.

Disclaimer

This report has been prepared for the sole purpose of assisting Metro with analyzing potential procurement approaches for the SGL LRT system. It should not be copied or distributed in whole or in part or disclosed to any person outside Metro without the written consent of Metro.

The analyses contained in this report were completed after the release of Metro's Final Environmental Impact Statement (FEIS) / Final Environmental Impact Report (FEIR) and certification of the FEIR for the LPA but prior to issuance of the Record of Decision (ROD) for the LPA.

This document is based on information and data directly provided to Sperry Capital Inc. and KPMG Corporate Finance LLC by Metro and its other advisors. Cost estimate data for this report is as of Spring 2024. As such, this report may be subsequently revised to reflect new estimates and forecasts, once available.

In preparing this document, Sperry Capital Inc. and KPMG Corporate Finance LLC are in no way validating the accuracy or reasonableness of any information provided. Sperry Capital Inc. and KPMG Corporate Finance LLC have relied upon the accuracy and completeness of all information made available to us and available from public sources.

The information included in this report is meant for the exclusive use of Metro. All analysis contained herein is based on estimations and forecasts about future conditions of the Project that are subject to change due to underlying macroeconomic factors and other events. Sperry Capital Inc. and KPMG Corporate Finance LLC do not assume any liability associated with any person's use of this document. Any decisions made by Metro or other parties predicated on this analysis will be at their own risk.

Future results are impossible to predict. These results are based on forward-looking inputs provided from various sources that may not be realized. It is believed the information provided herein is reliable, as of the date hereof, but does not warrant its accuracy or completeness.

Executive Summary

Executive Summary

Introduction

This report is intended to summarize, at a point in time, the ongoing analysis Metro is conducting as it explores financial and commercial benefits, costs, and risk considerations of pursuing the SGL LRT Project under a variety of delivery approaches, including a traditional public sector project delivery (design-build) and P3 delivery involving a potential partnership between Metro and the private sector.

The assessment included comprehensive market, commercial, and financial analyses which focus on a variety of considerations tied to delivery options under consideration – including financial, cost, technical achievability, procurement, risk management, governance, and capital delivery / schedule factors.

Project Overview

In 2018, Metro received two Unsolicited Proposals suggesting P3 delivery approaches were viable to expanding transit access in the SGL corridor and broader Southeast Los Angeles region. In seeking to improve service to the 19+ miles from DTLA to the Los Angeles/Orange County line, the decision was made to further explore options for Project delivery.

Two alignment options were initially evaluated for delivery – a full scope system between DTLA and Pioneer Station in Artesia and an alignment between Slauson and Artesia. Early analysis indicated that while the full scope system could deliver potential savings, a projected funding shortfall of $10 billion to $14 billion in year-of-expenditure (YOE) dollars led Metro to explore a phased delivery approach to the Project. A phased approach to the Project could fast-track delivery and mitigate program-wide risks. The Initial Operating Segment (IOS) (approved by the Metro Board in the Final Environment Impact Statement this year) includes an Advanced Works Package (AWP), for which Metro is responsible, in addition to the LRT scope in which different delivery methods are being analyzed, including a potential partnership with a private developer via a P3.

Project Goals and Procurement Objectives

Project Goals

Metro developed goals for the Project over multiple years based on extensive stakeholder outreach and peer agency analysis. Goals for the SGL Project include:

1. Supporting local and regional land use plans and policies;
2. Providing mobility improvements;
3. Ensuring cost effectiveness and financial feasibility;
4. Minimizing environmental impacts; and
5. Ensuring transit equity.

Procurement Objectives

Objectives for the Project were developed by through an assessment of the project delivery market and collection of input from participating stakeholders across the organization and broader transit industry. Delivery approaches were evaluated against the procurement objectives for the Project to arrive at a recommended procurement approach for the SGL Transit Corridor.

To develop a recommended procurement approach, Metro and its consultants undertook a detailed procurement analysis process which included market soundings with private industry participants and a qualitative assessment of procurement options. The procurement strategy process ultimately identified potential P3 delivery through a Design Build Finance Operate Maintain (DBFOM) as the selected alternative approach to further analyze if Metro can benefit from a P3 delivery method for SGL. DBFOM was selected due to its potential to deliver on Metro's Project objectives including a stronger incentive to manage schedule risk, greater whole of life cost certainty and innovation due to a higher amount of private partner capital-at-risk, an increased ability to optimize asset management approach, a higher degree of integration between project components, fewer interface risks, and the potential for a more efficient allocation of risk.

To further assess and quantify the benefits of DBFOM, as compared with Metro's traditional DB (design-build) model, risk workshops were conducted during which key risk drivers to Project delivery were identified by Metro staff. These risk drivers included lifecycle and long-term capital maintenance risks, sustained achievement of operational performance, and integration of LRT elements. In addition to the risk workshops, a more detailed analysis was conducted of the most impactful risks that could be transferred or reduced under a P3. The most significant risks transferred under a P3 helped to reduce impacts around underperformance by the developer pertained to O&M and lifecycle, infrastructure / asset interface risks, as well as financial risks (e.g., inflation or developer default) which would normally be retained by Metro. A P3 delivery approach demonstrated risk transfer opportunity that would then be further evaluated to determine if Metro could benefit from a long-term partnership.

This Business Case, including Value for Money (VfM) assessment, has been conducted for the SGL LPA Project to quantitatively and qualitatively assess and outline the benefits, risks, and rationale for DBFOM, versus Metro's public sector delivery processes.

Summary Results of Financial Analysis

An initial VfM assessment was conducted to develop an understanding of the potential range of savings that one project procurement approach may deliver compared to another. Refer to Chapter 5 for the full VfM analysis. For the SGL LRT scope, a traditional DB approach was selected to represent Metro's standard approach to Project delivery, the public sector delivery approach. Costs under this public sector delivery model were then compared to a P3 / DBFOM approach to ascertain potential VfM savings.

After performing a VfM assessment to identify which delivery model may offer potential long-term savings to Metro, an assessment of affordability options and strategies was conducted, recognizing that funding for the Project is constrained. This subsequent assessment

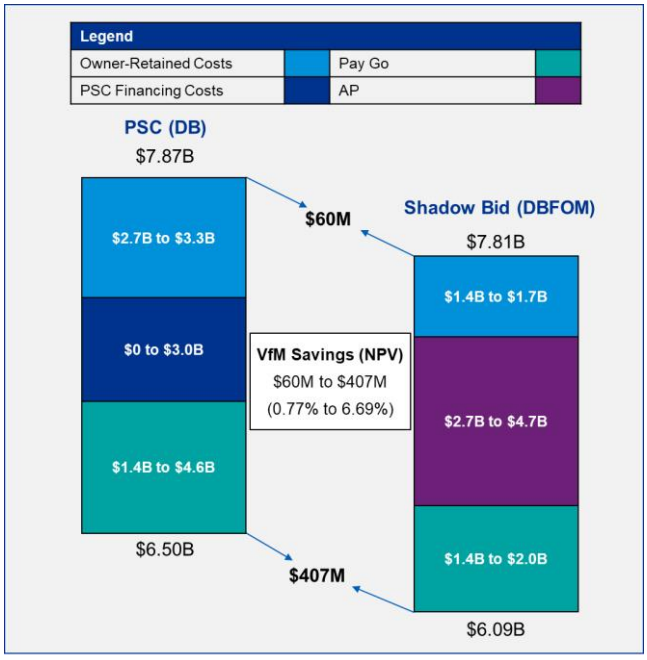
compared the full cost of the SGL project, which includes both the LRT scope performed by a private partner and the AWP costs with the funding sources for SGL outlined in Metro's Draft 2024 Long-Range Transportation Plan (LRTP). This profile includes the design and construction period, plus an operating period that terminates in 2060.

VfM Assessment Financial Results

The VfM analysis concluded that delivery of the SGL LPA Project under a P3 / DBFOM approach could result in potential savings of $60 million to $407 million, or 0.77% to 6.69% of SGL LRT costs, in net present value (NPV) terms, and based on an analysis of future risks, as opposed to Metro's traditional model for project delivery.

These potential savings, and Metro's contractual obligation to pay for preventive maintenance in advance of more costly repairs are driven by greater incentives in the P3 contract for a developer to integrate design with delivery, proactively manage operations, maintenance, and interface considerations, and deliver system assets and elements to Metro's stringent requirements. For the purposes of this analysis, labor and wages were assumed to be consistent between the DB and P3 delivery approaches.

Figure ES-1 – VfM LPA Results (Present Value Dollars)



Key Legend Terms: PSC – Public Sector Comparator; AP – Availability Payments

Affordability Assessment Financial Results

An assessment of the funding plan, based primarily on the February 2024 Long-Range Transportation Plan (LRTP) programmed funds for the project indicated that the full SGL project (AWP and LRT scope including construction and operations over a 30-year term) has a potential total funding gap of up to $1.4 billion. However, Metro noted that several opportunities exist to reduce this gap. At this time, Metro is planning for FTA New Starts funding for the project. Metro is also revising the cost estimate and funding plan for the SGL project.

Conclusion

Based on the work completed to date, there are several key takeaways for Metro with regards to the development of the Project. Following the receipt of several unsolicited proposals and then several rounds of market outreach, Metro has been able to structure and initiate an AWP strategy to de-risk the Project corridor and advance the Project.

A key concept for any alternative delivery approach is allocating risk to the party best able to manage those risks. Metro has conducted a thorough risk review and an assessment of qualitative considerations for the Project delivery and has identified key areas for Metro with regards to how an alternative delivery approach could provide benefit to Metro. The process has also allowed Metro to identify focus areas, such as customer service, security and elements of internal approaches to design specifications, which may be best retained by Metro.

A quantitative VfM has been developed and has indicated potential value for money of 0.77% to 6.69% ($60 million to $407 million) indicating that were Metro to pursue the project as a P3 there is a potential financial benefit in doing so. However, this needs to be considered with qualitative considerations examined and project funding availability. A typical benefit of a P3 availability payment approach is budget-certainty that it offers. The availability payments are a single annual cost inflating in a defined way over the contract term, changed downwards only for poor performance. In the case of the SGL Project, Metro may be able to derive similar benefits for the Project in pursuing a P3 AP approach. However, Metro's Operating and State of Good Repair budgets are constrained and the dedication of funding to a single project in the program, regardless of delivery approach, can result in programmatic impacts to budget and resources beyond the scope of the SGL project.

In the selection of the delivery approach for the SGL Project, it appears that from a quantitative perspective Metro could derive benefit from pursuing a P3 for the Project. However, this value appears lower than other P3 projects that have undergone VfM assessments and may be further impacted by mitigation strategies not considered in this analysis. In addition, several qualitative considerations noted in the report, such as interfaces in core Metro areas of operations and wider potential impacts to Metro's program should be taken into account by Metro in the selection of a delivery approach.

Chapter 1: Project Background and Description

1 Project Overview

The Southeast Gateway Line (SGL), previously known as West Santa Ana Branch (WSAB), Transit Corridor is a ~19-mile corridor with limits extending from Pioneer Station in Artesia to Union Station in downtown Los Angeles (DTLA) at Union Station. In January 2022, the Board selected the Project as the LPA, a 14.5 miles LRT line with nine (9) stations from a northern LPA terminus at the Slauson/A Line Station located in the City of Los Angeles / Florence-Firestone unincorporated area of LA County to a southern terminus at the Pioneer Station located in the City of Artesia and a new C Line infill station at the I-105 Freeway. The Metro Board identified Union Station (LAUS) as the ultimate northern terminus for the full corridor and directed staff to conduct a study to evaluate cost-effective alignment solutions.

1.1 Project Need

The need for improvements within the SGL corridor is driven by high population and employment densities and limited transportation systems currently available. Per Metro's 2024 Final EIS/EIR, the Project area is home to 1.4 million residents and serves as a job center to ~618,500 employees. Projections show the resident population increasing to ~1.6 million and jobs increasing to ~746,000 by 2042. The Project will enhance connectivity within the region, improve connectivity to Metro's network, as well as provide safety benefits. The Project will provide additional transit capacity and enhance reliability/efficiency for the area and will also support cities in their effort to plan for transit-oriented land uses.

1.2 Project Map

In April 2024, the Metro Board approved the previously Board-identified LPA as the Southeast Gateway Line (formerly the West Santa Ana Branch) LRT Project (Project), which is a 14.5 miles LRT line with nine (9) stations and includes a new C Line infill station at the I-105 Freeway.

Figure 1-1 – SGL LPA Map

Source: Metro

This Business Case assesses the LPA (the Project) from Slauson Station/A Line in Huntington Park to Pioneer Station in Artesia (see map).

1.3 Project Scope

Major scope elements of the LPA include 14.5 miles of at-grade and elevated double track, six at-grade and three elevated stations for a total of nine stations, a new C Line infill station

at the I-105 Freeway, 8.7 miles of freight track relocation, acquisition of light rail vehicles, five (5) parking facilities, ancillary facilities and a Maintenance and Storage Facility (MSF) in the City of Bellflower.

As described below, Metro is considering two contractual development approaches for the project.

1.3.1 Advanced Works Scope Package

Important Note: The Advanced Works CM/GC is currently in procurement blackout. Therefore, only a high-level summary has been included.

As described in earlier chapters and in Chapter 7, the first portion of the Project is the AWP, which is intended to be delivered through a design contract (awarded in November 2023), a Construction Manager / General Contractor (CM/GC) contract (in procurement), and through ROW acquisition by Metro and self-performed work by utilities, UPRR, and other third parties. This AWP approach is designed to mitigate project risks in ROW and third-party coordination that would be most effectively handled by the Project owner (Metro).

During the development of the Project data set and risk analysis, Metro determined that disaggregating certain project scope elements from the P3 or DB contract scope would support a more efficient allocation and management of overall Project risk. Key potential risks managed through the AWP include third party approvals (including California Public Utilities Commission (CPUC), Caltrans, UPRR), utility adjustments, and freight railroad relocations, which typically have long lead times. The pursuit of an AWP strategy aligned with Metro's key objectives of allocating risk to the party best able to manage that risk, managing schedule risk of construction delivery and reducing costs (by reducing contingencies held within the P3 or DB contract).

Key elements of Metro's strategy for the AWP include:

- **Managing schedule risk** for Metro commencing critical site preparation activities (including those requiring third party approvals) prior to P3 developer or DB contractor selection.
- **Improve affordability** through (i) earlier construction schedule to help reduce cost escalation (e.g., for construction materials); (ii) optimizing the design and delivery of the core light rail scope; and (iii) retaining risks that Metro is better positioned to manage leading to lower pricing (less contingency in fixed price cost proposals under a DB or P3).
- **Allocate risk efficiently to the party best able to manage it**, thereby reducing the likelihood of inefficiently calculated risk premiums or contingencies in fixed price cost proposals under a DB or P3.
- **Enhance opportunities for innovation/performance**, by allowing the DB or P3 developer to focus on those scope elements where it has the most to offer in terms of innovation, performance and quality of service.

As described in Chapter 7, the defined AWP scope to meet these objectives includes:

- Under the design contract, geotechnical investigations and other site investigations, final design and engineering work for the freight relocation and grade crossings work and the utility adjustments work to be performed by the Advanced Works CM/GC contractor and preliminary design and engineering of the LRT Components (performed only at Metro's direction subject to and after issuance of, the ROD);

- Under the Advanced Works CM/GC:
  - Preconstruction services including constructability reviews;
  - Site clearance and demolition works;
  - Hazardous soil abatement work;
  - Utility adjustments work;
  - Freight track and system relocation to allow the future construction of the LPA within the corridor;
  - At-grade roadway crossings for the relocated freight tracks and future S LPA tracks;
  - Construction of a new Firestone Station vehicle access structure below the UPRR freight rail;
  - Construction of a new pedestrian overhead bridge near Paramount High School over UPRR track;
  - Construction of retaining walls, sound walls, fencing and other general civil works for the relocated freight tracks; and
  - If directed by Metro, all or part of optional scope including I-105 interface work, C Line LRT track and system reconstruction/relocation to allow the construction of the new C Line infill station; UPRR bridge demolition and re-construction; bridge for the SGL LRT over the I-105; and C Line infill station platform, vertical circulation elements, trackwork and systems ductbank;

- Any work that is to be self-performed by UPRR under the agreements to be negotiated with UPRR (refer to Chapter 7);

- Under utility cooperative agreements currently under negotiation, utility relocations that are to be self-performed by the applicable utility owner; and

- ROW acquisition and relocations by Metro for entire alignment (its anticipated that ROW acquisition will begin at FTA issuance of the Record of Decision (ROD).

1.4 Light Rail Transit Scope

The remaining portion of the LPA is the scope for the design and construction of the LRT Components and the long-term operations and maintenance (O&M), and asset management of the SGL LRT system. **This Business Case analysis focuses on analyzing potential delivery methods for this SGL LRT scope.**

The SGL LRT scope will include design and construction of all LRT Components, including a maintenance facility required to operate the line. Listed below are the major items:

- Final design of the LRT Components;
- Construction of the LRT Components including all infrastructure required to operate the light-rail system including a maintenance facility;
- Construction of all improvements at the A-line (formerly Blue Line) Slauson cross-platform terminal station including improvements to Metro's existing station;
- Improvements at all intersections not impacted by the enabling-works freight railroad relocation;
- Relocation of utilities impacted by the LRT Component construction (to the extent not relocated under the Advanced Works CM/GC or by the utilities themselves);
- Design, construction, testing and delivery of 47 light rail vehicles;
- Design and construction of a Maintenance and Storage Facility;
- Operations and staffing of all LRT vehicles, stations and customer services, scheduling, administration, and other operating functions for a 30-year period beginning at construction completion;
- All associated major maintenance and replacement responsibilities related to the constructed assets for a 30-year operating period, excluding replacement of rolling stock and LRT systems[1]; and
- Consistent labor and wage assumptions utilized for all proposed delivery methods.

The following table provides key details and specifications of the proposed LPA.

Table 1-1 – Key Elements of the SGL LRT Project

Key Elements of Project	
LRT Line	▪ 14.5 miles of LRT line from Slauson Station to Pioneer Station (12.1 miles at-grade and 2.4 miles aerial)
Maintenance and Storage Facility	▪ Located at Bellflower
Stations	▪ 9 stations (6 at-grade / 3 aerial), 1 new infill C Line Station at the I-105
Crossings	▪ 30 at-grade crossings / 15 elevated street crossings / 4 freeway crossings / 3 river crossings
Park & Ride Facilities	▪ 5 new facilities (4 surface lots / 1 parking structure)

Source: Metro

[1] Metro has determined that these would represent future capital projects and should not be included in this project scope.

1.5 Summary of Project Costs

Metro's consultant, Jacobs, provided two base cost data sets for the proposed whole of Project life (construction plus 30-year of operations) representing a traditional Metro DB approach and a proposed P3 approach to the delivery of the LPA. These costs exclude the risk-adjustment values discussed in chapter 4 and are summarized in **Tables 1-2** and **1-3** below. A detailed report of the estimating methodology can be found in the appendix to this report.

Differences between DB and P3 delivery costs during the operating period reflect the potential difference between the two with respect to long-term efficiencies. Under a P3, the developer is incentivized both contractually and financially to perform routine O&M work and efficiently plan for major maintenance lifecycle costs over the life of the Project. A predicative approach to asset management and proactive performance of regular and major maintenance helps to ensure the asset remains in good condition through the lifecycle of the project, which helps in reducing overall operating and lifecycle costs.

Table 1-2 – Summary Estimates of Project Capital Costs (With Contingency)

Summary Estimates (2023 $ Millions)	DB Costs	P3 Costs
AWP Costs	$2,355	$2,355
D&C Costs	$3,586	$3,586
Total Costs	**$5,942**	**$5,942**

Source: Jacobs

Table 1-3 – Summary Estimates of Project Operating and Lifecycle Costs

Summary Estimates (2023 $ Millions)	DB Costs	P3 Costs
O&M Costs	$3,298	$3,088
Lifecycle Costs	$902	$827
Total Costs	**$4,200**	**$3,915**

Source: Jacobs

Metro intends to fund the Project costs through a combination of Measure R 35%, Measure M 35%, Operating sources, and State, Local, and Federal funds. A key challenge for the affordability of the program remains that the timing of funds may not coincide with required expenditures. In addition, there remains the potential to increase funding capacity through extension of the LRTP planning horizon to achieve program affordability.

The combination of funds available for the Project as outlined in Metro's 2020 LRTP totals $10.8 billion. A discussion of affordability considerations is presented in Chapter 6.

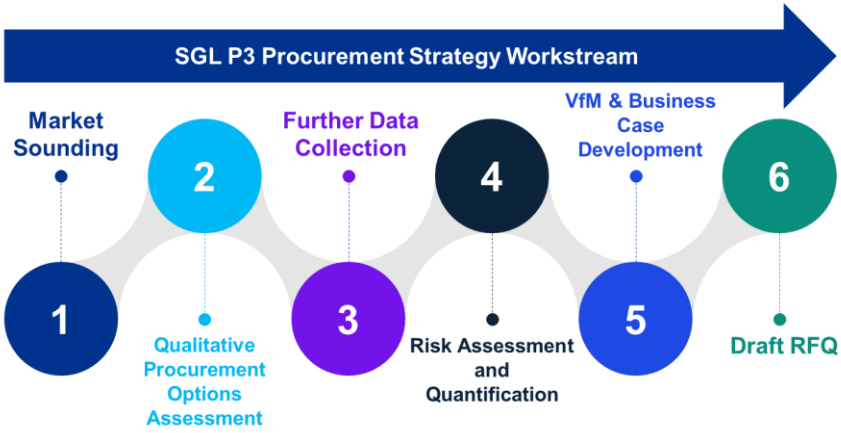
Chapter 2: Procurement Decision and Objectives

2 Procurement Decision and Objectives

2.1 Metro's Delivery Approach Assessment Process

Metro utilized the procurement strategy workstream process shown in Figure 2-1 below to identify potential delivery approaches that align with Metro's identified goals for the Project. Metro's process incorporates industry best practices from the United States Department of Transportation (USDOT), vetted through the AIAI, for the evaluation, design, and implementation of a P3 project. The current step is the business case development as indicated below.

Figure 2-1 - Procurement Strategy Work Stream Process



2.2 Summary of Delivery Approaches

2.2.1 Traditional Approach

A traditional delivery approach is a common industry reference to a project delivery model in which the procuring authority / public project owner self-manages design, construction, operations, and maintenance of an infrastructure asset with the potential assistance of various contractors. For many public transit agencies, this has been either a DB or a DBB approach – mainly for design and construction.

The main difference between DB and DBB is that DB contracts with a single entity to provide both design and construction, while DBB contracts separately with a designer and a contractor/developer for the construction. In addition, the public agency retains responsibility for the long-term O&M of the asset. DBB is generally considered to take longer to deliver because of the staged approach and is generally more suitable for projects of limited complexity.

Metro also has awarded projects under alternative delivery approaches including PDB and as planned for the construction of the AWP scope of the SGL Project, CM/GC. For the purposes of this analysis, these delivery models are similar to DB and DBB in that Metro retains responsibility for financing the design and construction costs and for the operations and maintenance following substantial completion.

Metro's traditional approach to capital project delivery is the use of Design Build. Under this approach, Metro progresses project design to a point (typically 30% to 50%

completion but can be more depending on the project element and the requirements of the Metro Rail Design Criteria) and then selects a DB contractor to complete the remaining design work and construct the project. Under the DB approach, Metro transfers key risks associated with constructability of the final design and may benefit from schedule risk management as construction elements progress while elements of final design remain under development.

Traditional DB project delivery for Metro has included:

- **Design:** Following initial design, Metro selects a DB contractor through a best value procurement process to complete design work and construction of the project.
- **Construction:** The DB contractor performs design and construction work under a single contract. This allows design experts to continuously provide input throughout the construction of the project as well as allowing constructability review of design to ensure efficient progress and where possible accelerate construction of elements of the project while design is ongoing for other areas.
- **Financing:** Metro is solely responsible for securing the project's funding and financing from existing programmed sales tax revenues and state and federal programs.
- **Operations and Routine Maintenance:** Metro is solely responsible for operations and maintenance for all asset types.
- **Major Maintenance:** Metro is solely responsible for capital renewal and keeping the system in a State of Good Repair.
- **Fare Box Collection:** Metro collects fares and manages associated back-office systems. This includes both physical and fare-less / hands-free collection of ticket fares.

Beyond Metro's traditional delivery under DBB and DB and alternative delivery under PDB and CM/GC, P3 delivery approaches are being evaluated to consider if more optimal allocation of certain project risks between Metro and a private partner can be achieved. For the purposes of the analysis set out in this business case, P3 delivery approaches have been compared to traditional delivery under DBB and DB. The first two procurement approaches in the lighter blue in Figure 2-2 on the following page represent traditional delivery (DBB and DB) while the remainder represent P3 forms of delivery (DBOM through DBFOM). The ticks and X's in the table identify where key project risks do not (ticks) and do (X's) reside for Metro.

Figure 2-2 – Delivery Model Risk Allocation

Delivery Method	Project Risks						
	Design risk	Construction risk	Short-term financing risk/ responsibility	Long-term financing risk/ responsibility	O&M risk	Major Maintenance risk	Conveyance of ownership
Design-bid-build (DBB)	×	×	×	×	×	×	×
Design-build (DB)	✓	✓	×	×	×	×	×
Design-build-operate-maintain (DBOM)	✓	✓	×	×	✓	×	×
Design-build-finance (DBF)	✓	✓	✓	×	×	×	×
Design-build-finance-operate-maintain (DBFM)	✓	✓	✓	✓	×	✓	×
Design-build-finance-operate-maintain (DBFOM)	✓	✓	✓	✓	✓	✓	×

Traditional P3

2.2.2 P3 Procurement Approaches

A P3 is an alternative project delivery model and contractual arrangement between a public sector (procuring) authority and a private sector entity (a P3 developer) that typically includes the components of design, build, finance, operate and/or maintain for the delivery of a public project. Under P3 delivery, the procuring authority will transfer certain project risks to a P3 developer by entering into a performance-based Project Agreement (or P3 Agreement). This agreement governs each parties' rights and obligations during the term of the project and outlines project-specific technical requirements and performance standards. Payment mechanisms in P3 Agreements are typically structured, broadly, with one of two types of compensation to the private sector entity:

- **Revenue Risk:** Under a revenue risk P3, the developer is entitled to some portion or all of the revenues generated by the project during operations. Should revenues be less than anticipated, the developer would own the downside impact (i.e., lower revenue receipts).
- **Availability Payment (AP):** Under an AP P3, public sector (procuring) authority provides a periodic (typically monthly) payment to the P3 developer based on the performance services performed and the repayment of capital invested, including a financial rate of return. This AP can be reduced should the developer fail to meet ongoing performance specifications, or increased, partially due to cost inflation and should Metro decide on incentives for extraordinary services. To the extent the project is a revenue generating project (e.g., fares, other user fees), the public sector retains that risk.

To carry out a P3 project, the P3 developer generally establishes a special purpose vehicle (SPV), which is an entity formed specifically to carry out the project. The SPV structure can provide for a non-recourse financing whereby lender security is limited to the SPV's rights to receive payments (e.g., APs) and other provisions of the P3 Agreement and other project documents, and unless specifically provided under the agreements, lenders do not have direct recourse to the public sector authority. Under the traditional procurement approach

(e.g., DB or DBB) debt would typically be secured via other public sector funds, such as sales tax revenue or other specific revenue pledges. Debt financing under the traditional approach is generally governed by the terms of the public authority's indenture, which may include covenants, such as required debt service coverage ratios or additional bond limitations that can have more broad impacts on an agency's capital plan.

The public sector might pursue a P3 approach for reasons including:

- The potential to lower all-in project cost compared to standard in-house public sector sourcing and oversight;
- Schedule risk mitigation and operational efficiencies driven by a single entity having ultimate responsibility for design, construction and operating phases of the project;
- The potential for lower whole of life costs (where it might be the case that incremental higher cost of private financing in the P3 case may be more than offset by its more efficient pricing and risk management) over the long-term, including asset handback conditions;
- Enhanced forecasting and budgeting predictability for public sector through contractual fixed pricing;
- Ability to increase investment in public infrastructure by leveraging future funding streams and private capital investment through the P3 structure;
- Private sector involvement can introduce innovative technologies, construction methods, and management practices, potentially leading to cost savings and faster project delivery;
- Collaboration with private sector partners can provide access to specialized skills and expertise not readily available in the public sector; and
- Potential to enhance innovation in the delivery approach by taking a lifecycle view of asset delivery, O&M and major maintenance.

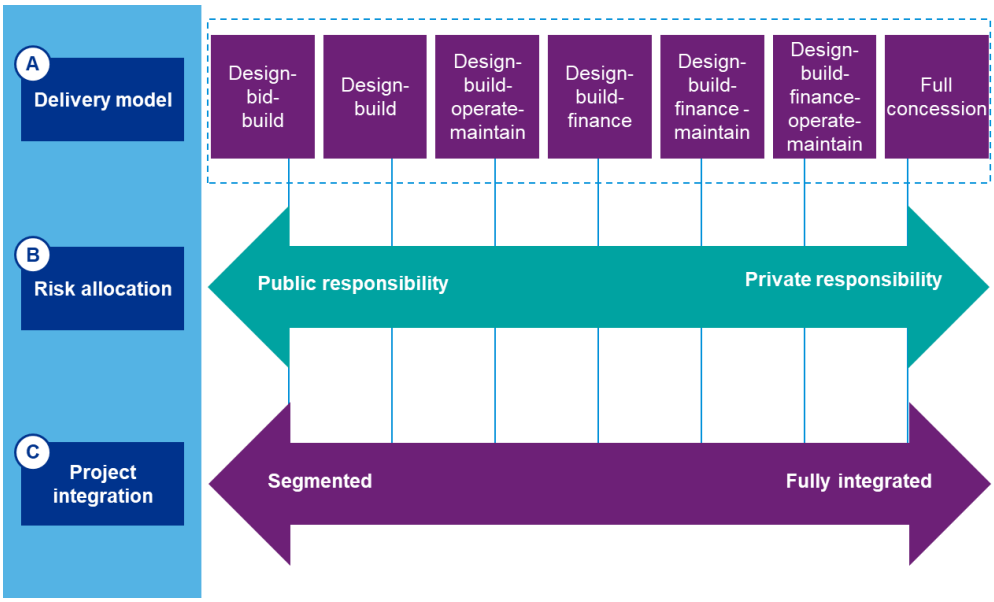
A P3, however, presents certain challenges and concerns which the public sector must also consider. Several of these considerations include:

- P3 contracts typically can span several decades, requiring long-term commitments, which can limit flexibility on future expenditures and in responding to changing needs or priorities;
- Private financing typically has higher cost compared to public financing, and private equity investment will be included, potentially increasing the overall cost of capital for the project;
- Public entities may relinquish more control over project management and decision-making to private partners, which could lead to conflicts of interest or deviations from public objectives;
- Differences in objectives or risk perceptions, changes in design or other requirements, or unforeseen circumstances can lead to claims or disputes between public and private partners, potentially resulting in project delays and increased costs;
- The time and effort requirements to establish a proper project governance and contracting structure can be increased;
- Striking a balance in risk allocation among parties can increase cost and timeline;

- With respect to revenue risk projects, revenue risks are unpredictable given uncertain demand forecasts; and
- Limited P3 implementation experience on the part of the public sector requires it to rely more heavily on advisors and may increase time to implement.

Through proper planning, the public sector can overcome some of the challenges of pursuing a P3. Key factors to consider when planning a successful P3 may include the public policy and regulatory environment, establishment of an organized governance structure, development of a detailed business plan, strong stakeholder support and communication, and a balanced risk allocation. Figure 2-3 further illustrates, very broadly, some of the tradeoffs involved for risk allocation and project integration for different delivery approaches.

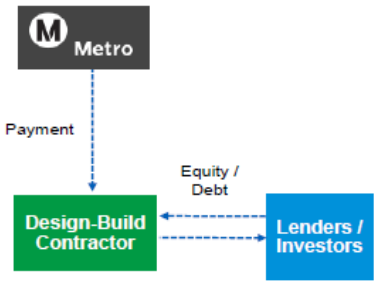
Figure 2-3 – Delivery Approaches, Risk Allocation, and Project Integration



For the LRT portion of the SGL Project, Metro selected three P3 delivery approaches for evaluation as part of its P3 analysis:

- **Design Build Finance (DBF)**
- **Design Build Finance Maintain (DBFM)**
- **Design Build Finance Operate Maintain (DBFOM)**

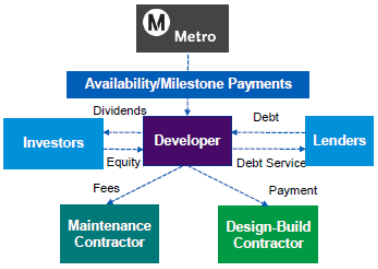
Design Build Finance



Under a typical DBF delivery model, **Metro would retain responsibility for O&M and major maintenance including capital renewal**. The private sector's responsibility includes financing of some or all of project costs. Private financing can be provided by the DB developer or separately through lenders/investors. These are typically short-term financing arrangements with maturities 5-7 years after construction. A DBF structure is often used when there is a misalignment of planned funding sources and the timing of the project delivery with uses of funds needed on an accelerated basis, but funding (and public financing sources) is limited or unavailable. Potential benefits of a P3 (such as fixed price date certain) may still be realized with the addition of private financing repayment tied to the risk transfer.Jacobs included in the project review. In addition, in environments of growing or uncertain inflation, a DBF approach may allow for public agencies to manage this risk by fixing pricing in today's market, if beneficial. Overall, the benefit of a DBF approach lies in the opportunity for risk transfer to outweigh the cost of private finance (value for money – as with all P3 delivery approaches).

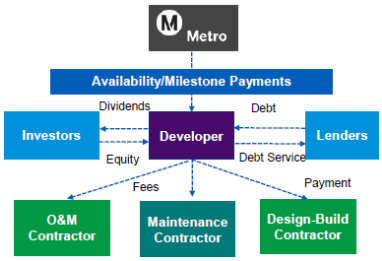
Under a DBF approach, the potential for risk transfer benefits beyond Metro's current DB approach may be limited as the underlying DB component is the same. In addition, Metro has significant debt capacity and can access the capital markets at lower costs of finance than a private developer incurs. As a result, the benefit of risk transfer is unlikely to outweigh the cost of financing in this approach which would mean that value for money would be unlikely. As a result, the DBF option was not taken further in this analysis.

Design Build Finance Maintain



Under a typical DBFM delivery model, **Metro retains responsibility for operations and routine maintenance**. The P3 developer is responsible for designing the system, constructing it, possibly procuring LRT vehicles, performing major maintenance and providing private financing. Payments to the DBFM developer are typically in the form of APs which are amounts paid by Metro to the P3 developer for maintaining the project, subject to deductions in accordance with performance standards set out in the Project Agreement. Further, the Project Agreement will require the asset to be in a certain condition with a specific remaining useful life when handed back to Metro at the end of the project term.

Design Build Finance Operate Maintain



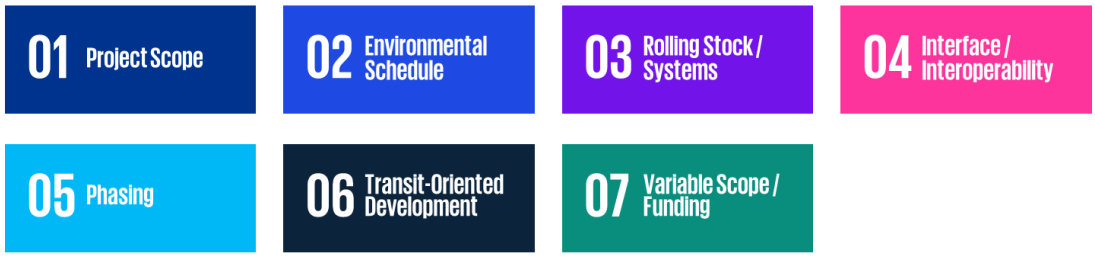
Under a typical DBFOM delivery model, **Metro transfers construction, financing, O&M and major maintenance responsibilities to the P3 developer**. The P3 developer is responsible for designing the system, constructing it, possibly procuring LRT vehicles, performing operations, routine and major maintenance and raising financing. Project revenues can be in the form of APs, paid by Metro to the P3 developer for constructing, operating and maintaining the project, subject to deductions in accordance with performance standards set out in the Project Agreement. Further, the Project Agreement will require the asset to be in a certain condition with a specific remaining useful life when handed back to Metro at the end of the project term. The handback provision generally helps align the incentives of the P3 developer to transfer an asset at an acceptable condition, and it balances the need for adequate design and maintenance standards to produce whole of life cost savings for the asset owner.

2.3 Market Soundings

As part of its evaluation of the P3 delivery approaches mentioned above (DBF, DBFM, DBFOM), Metro conducted market soundings with a number of leading market developer contractors, developer equity investors, operators and rolling stock suppliers to discuss key questions related to a P3 procurement and commercial structuring. The goals of the market sounding sessions were to gauge industry interest in the Project and identify elements for potential evaluation as part of the Project Agreement / procurement development processes.

These market sounding sessions were held pre-COVID. Participants were broadly supportive of a DBFOM delivery model for the Project.

A shortlist of private sector participants was developed, with a focus on developers, operators, and equity investors active in the North American transit P3 market. Participants were asked a series of questions covering major topic areas as follows:



Key outcomes of the market sounding sessions are described in the following table. The suggestions and themes heard from market sounding participants helped inform this Business Case document and the underlying Value for Money, financial, and risks analyses conducted on various delivery approaches.

Table 2-1 – Initial market sounding key insights:

Strong interest in Project / DBFOM	Significant interest in the Project with broad support for a DBFOM. Enhanced value in DBFOM through scope integration.
Support for AWP	Participants identified expected key risks, such as property acquisition, community engagement, third-party approvals, railroad relocation, utility investigation and relocation, among others, and they . supported use of an AWP package to mitigate these risks.
Operator interface risks	Interfaces with existing lines, stations, and railroad owners may present challenges but are considered manageable if transferred to single, fully integrated developer. Single operator for the full Project is recommended, regardless of whether Metro-retained or transferred to the P3 developer.
Vehicle (rolling stock) supplier	Most developers felt the inclusion of rolling stock within the P3 scope could lead to efficiencies, because of reduced interface risk, provided there are no significant economies of scale in Metro procuring rolling stock for multiple projects.
Environmental approvals / procurement process	Metro's proposed issuance of a final Request for Proposals (RFP) prior to ROD was not a major concern by most participants so long as adequate time is permitted for proposers to consider and accommodate any changes to their proposals based on the ROD prior to proposal submission. Participants generally indicated that Metro's procurement schedule is acceptable/achievable.

2.4 Qualitative Assessment

At the same time and building on the market sounding sessions, a high-level internal workshop was held to evaluate potential P3 delivery approaches using qualitative criteria to gauge which delivery model might offer best align with Metro's objectives for the Project, as shown on the following page:

Figure 2-4 – Evaluation Criteria

Figure 2-5 below summarizes the outcomes from the Qualitative Assessment for the three P3 delivery approaches.

Figure 2-5 – Qualitative Assessment Outcomes

Objective	Evaluation Criteria	Description	DBF	DBFM	DBFOM
1. Project Schedule (Certainty and Acceleration)	1.1 Schedule Certainty	Provides certainty of overall Project schedule.	Likely	Likely	Very Likely
	1.2 Schedule Acceleration	Expedites the overall Project schedule compared to currently planned delivery.	Very Unlikely	Likely	Very Likely
	1.3 Procurement Execution	Facilitates speed and ease of procurement execution.	Likely	Unlikely	Very Unlikely
2. Whole of Life Cost Control and Reduction	2.1 Whole-of-life cost certainty	Demonstrates the ability to achieve whole-of-life cost certainty.	Unlikely/ Likely	Likely	Very Likely
	2.2 Whole-of-life cost efficiency	Demonstrates the ability to achieve whole-of-life cost efficiencies for LA Metro.	Unlikely	Likely	Very Likely
3. Long-Term Asset Performance	3.1 Incentivizes Long Term O&M Performance	Incentivizes the responsible party to achieve desired long- term performance outcomes.	Unlikely / Likely	Likely	Very Likely
	3.2 Asset Quality	Delivers a Project which will remain fit for purpose over its life.	Unlikely / Likely	Likely	Very Likely
4. Optimal Risk Allocation	4.1 D&C Risk	Allocates construction risk to the party best able to manage in a cost-effective manner.	Very Likely	Very Likely	Very Likely
	4.2 Operations and Maintenance Risk	Allocates operations and maintenance risk to the party best able to manage it in a cost effective manner.	Unlikely / Likely	Unlikely	Very Likely
	4.3 Interface and Integration Risk	Allows for integration of design, construction, O&M, lifecycle and vehicles.	Likely	Unlikely	Very Likely
5. Optimize Benefits for Stakeholders	5.1 Stakeholder Management, Federal and Local Approvals	Enables stakeholder issues to be met through the life of the project including federal and local organizations.	Very Likely	Likely	Likely
	5.2 Integration with existing transit and highway Infrastructure	Achieves integration with existing transit and highway infrastructure.	Likely	Likely	Likely
	5.3 Small Business Enterprise ("SBE") SBE / Disadvantaged Business Enterprise ("DBE") Adherence and Local Workforce Development	Adheres to LA Metro's SBE and DBE and local workforce development requirements.	Very Likely	Very Likely	Very Likely

The results of the workshop session held at the time indicated a potential DBFOM approach could be expected to have equal or greater opportunity to enhance project schedule certainty, optimize whole of life costs, incentivize long-term asset management, assign risks to the parties most effectively able to manage them, and deliver long-term value to stakeholders.

These benefits were thought to accrue from the DBFOM model because whole of life project elements are centralized among one P3 developer team that is incentivized to integrate design with delivery, operations, and maintenance considerations, and ensure that Metro's performance specifications are met at all periods of the project life.

Subsequently, additional workshops were conducted on qualitative topics for P3 implementation which are the subject of the next chapter.

2.5 Procurement Approach Summary

Metro's traditional approach to capital project delivery is the use of DB, where Metro will progress project design to a point (typically 30% to 50% completion) and then select a DB contractor to complete the remaining design work and construct the project.

Metro has also traditionally utilized DBB and has recently awarded (or has under procurement) contracts utilizing the alternative delivery methods PDB and CM/GC. DB (fixed price rather than PDB) was identified as the comparator delivery method to be utilized for the analysis under this business case.

As part of its overall assessment of the most appropriate delivery model for the LRT Components, Metro is assessing if the Agency can benefit from an alternative delivery approach for the Project. Based on the Qualitative Assessment, as well as the results of the preceding market sounding sessions, **DBFOM was identified as the preferred P3 delivery model for the Project amongst DBF, DBFM and DBFOM**. This was due to multiple factors including stronger incentive to manage schedule risk and deliver the Project on-time, greater whole of life cost certainty, a higher degree of integration between Project components, fewer interface risks (within the project – not necessarily with the existing operating structure of Metro), and greater ability to achieve an efficient allocation of risk among all of the different P3 delivery options.

Key elements of the DB and DBFOM models are described in Table 2-2, including information on financing structure, commercial structure, and other contractual elements. Both models were then further assessed through a variety of means as described in later chapters:

- Chapter 3 presents additional qualitative discussions on P3;
- Chapter 4 presents a Risk Assessment comparing the DB and DBFOM delivery approaches; and
- Chapter 5 presents a Value for Money analysis comparing the total Project delivery costs for DB and DBFOM.

Table 2-2 – Scope Comparison: DB versus DBFOM Delivery

Delivery Model	Traditional Approach: Design, Build (DB)	P3 Approach: Design, Build, Finance, Operate and Maintain (DBFOM)
Funding and Financing Structure	Metro will seek funding from sources programmed in the 2024 LRTP. These sources include: ▪ Prop A and Prop C; ▪ Measure M; ▪ Measure R; and ▪ TIRCP allocations. Funding sources including other State and Local sources to be identified, additional TICRP and an FTA New Starts grant will be considered as Metro continues to work with Federal and State funding partners. In addition, Metro may use financing to accelerate certain of these sources, such as through sales tax backed bonds and grant anticipation notes.	The P3 developer will be responsible for obtaining the necessary financing to fulfill its obligations under the Project Agreement. Financing for similar U.S. P3 projects has typically included: TIFIA loans; Private Activity Bonds (PABs); taxable debt (bonds or bank); and equity. For the Project, it is assumed that the financing would include: ▪ TIFIA loan; ▪ PABs; and ▪ Equity. Metro's payment obligations to the developer (set out below) would be funded from Federal, State and Local sources included in the 2024 LRTP plan (see DB column).

Delivery Model	Traditional Approach: Design, Build (DB)	P3 Approach: Design, Build, Finance, Operate and Maintain (DBFOM)
LRT Scope	▪ Under traditional DB delivery, Metro retains responsibility over LRT scope elements, including vehicle procurement and - operation of the fleet, and other items not traditionally transferred to the DB contractor for the D&C work.	Responsibilities would generally be divided as follows. **Developer** ▪ **D&C Work:** design and construct all elements of the LRT Components, other than AWP, in accordance with the technical requirements and applicable law. Technical requirements will be output-based. ▪ **O&M and Major Maintenance Work:** operation and staffing of all vehicles, stations, customer services, scheduling, administration and other operating functions and all routine and major asset and lifecycle maintenance for the SGL LRT. ▪ **Vehicles:** procurement of vehicles based on output specifications (no interoperability requirement as above). P3 developer will be responsible for determining the number of vehicles required to satisfy the baseline service and performance requirements. **Metro Retained** ▪ Oversight of the P3 Agreement and governance responsibilities ▪ ROW acquisition ▪ Advance utility relocation, railroad/freight work and site condition investigation and abatement work (as part of a separate AWP package) ▪ All fare collection activities ▪ Security and enforcement activities, with limited exceptions (such as at maintenance storage facilities) ▪ Some customer services roles, such as branding strategy and the setting of customer service standards and procedures ▪ Metro-initiated scope changes ▪ Traction power connection and energy price risks ▪ Litigation risks ▪ Federal funding risks ▪ Unknown geotechnical risks
Term	30-years following substantial completion of construction work	

Delivery Model	Traditional Approach: Design, Build (DB)	P3 Approach: Design, Build, Finance, Operate and Maintain (DBFOM)
Payment Mechanism	▪ Under traditional DB delivery, Metro will fund the Project through a combination of LRTP funds and Sales Tax Revenue Bonds. Metro pays the Capex through monthly payment applications.	▪ Payments by Metro during the construction period are used to fund a portion of Project construction costs ▪ APs during operating period, used to fund Project O&M and lifecycle costs, debt service and provide a return to equity – the P3 developer would be paid at specific milestones.

Chapter 3: Qualitative Discussions

3 Qualitative Evaluation of P3 Delivery

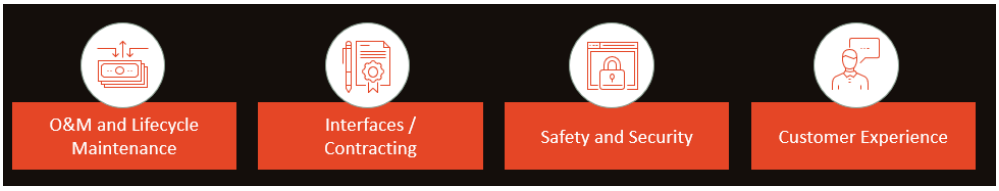
This section outlines the approach taken to assess non-quantitative considerations if Metro were to use a P3 delivery for the SGL Project.

3.1 Purpose

Metro staff attended a series of meetings and a workshop with members of the Senior Leadership Team (SLT) to explore qualitative considerations in using a P3 delivery approach for the Project. The purpose of this assessment was to explore the suitability and identify any practical considerations of a P3 approach for the project and to document any constraints, opportunities or issues that might impact Metro's ability to use P3 as a delivery approach, such considerations that may not be captured or identified in a purely quantitative assessment.

3.2 Approach

This assessment focused on developing an understanding of and alignment among SLT members on which roles and responsibilities have the potential to be transferred to a private developer and the associated benefits and disadvantages of transfer versus retention by Metro of those responsibilities. The discussion also addressed what Metro oversight and coverage (including potential co-location such as in the Developer Rail Operations Center) would be warranted if roles and responsibilities were transferred to a private developer.
Over several months, Metro staff held a series of meetings and a workshop with SLT on key areas of the Project scope as outlined below.



Representatives from Metro's Deputy CEO Office, Safety, Security, & Law Enforcement, Chief People Office, Customer Experience, Operations & Maintenance, and the Planning and Program Management teams joined pre-meetings to discuss both the potential benefits and risks of delivering the SGL LRT Project as a P3. County Counsel and Vendor Contract Management joined the meetings to respond to questions and provide legal advice as needed. Feedback from these pre-meetings was incorporated into the slides presented during the SLT workshop.

By design, financial aspects of potential P3 delivery were not included in the SLT workshop agenda. The focus of the SLT workshop was to discuss opportunities and challenges of a P3 delivery model within each of the five key areas described above. Financial/quantitative evaluation is addressed under the Quantitative Value for Money Analysis and Affordability sections of this report (Chapters 5 and 6).

The key question attendees were asked to consider was whether Metro could benefit from a long-term partnership with a private entity on the Southeast Gateway Line and any

limitations on those benefits or other impacts to Metro. To aid in answering this, attendees of the SLT workshop were asked to consider the following:

- Can the Agency benefit from a long-term partnership on the SGL Project?
- What opportunities or challenges for Metro are anticipated if the SGL LRT Project were to be developed under a P3 delivery model (e.g., related to cost and schedule certainty, schedule, flexibility and innovation, risk transfer, operational control)?
- How does a P3 help or hinder the eventual SGL Phase 2 extension to Union Station?

For each area, discussions were held focusing on a proposed allocation of risks and responsibilities under a P3 delivery approach and how such allocation might work in the Metro context. The question of which P3 approach – DBFM or DBFOM– was also discussed, in terms of how each model would impact the pros and cons of a P3 choice for Metro. Potential constraints and opportunities were then noted for inclusion in the overall consideration for pursuing P3. Lastly, selected follow-up meetings were then conducted to explore some of the considerations raised in more depth.

3.3 Qualitative Considerations

Below is a summary of the key considerations discussed during this process with Metro staff. The comments represent feedback received both during the SLT workshop held in February 2024, as well as discussions with individual departments leading up to, and shortly following, the SLT workshop.

As Metro assesses the use of alternative delivery for projects, it is acknowledged that other transportation agencies in the United States have had varying levels of success and challenges in the utilization of P3s, but that simply translating the results of other, non-Metro projects would not work for Metro due to the uniqueness of Metro's capabilities, the complexity of projects, and location in Los Angeles County, California. In addition, Metro would have to be diligent on which responsibilities to retain versus transfer to the developer. To achieve a benefit, or value for money, from an alternative approach, Metro would only transfer those activities, roles and responsibilities for which a private developer would be able to bring a greater level of efficiency or certainty to the project delivery and operation for a price that was competitive, or that would not create additional interfaces that could negatively impact Metro's ability to maintain effective systemwide safety, security and positive customer experience. The efficient transfer of risk also requires the transfer of the requisite level of control to be able to effectively manage the risk in question. Therefore, if Metro could manage certain aspects of the project with greater certainty and at lower whole of life cost than the private sector, the agency should retain those responsibilities. In addition, responsibilities for which Metro, as the ultimate responsible party, will always bear some or all the risk and/or will always need to maintain a high degree of control, may not be effectively transferred to a private developer.

Comparing alternative delivery approach decisions for Metro with other transportation agencies in the U.S., Canada and overseas has its challenges due to nuances in labor practices, regional governance, and market conditions. Fourteen (14) case studies are

presented in Appendix A.3, representing seven (7) Canadian projects, five (5) American projects, and two (2) from Europe. These experiences reflect both successes with respect to the objectives pursued as well as challenges. The successes related to achieving VfM benefits, improved long-term performance (e.g., construction payments), and lifecycle cost savings. However, several P3 implementations experienced some challenges such as scope changes, design difficulties, cost overruns, and overall program delays. The case studies include two (2) DBF projects, seven (7) DBFM projects, two (2) DBOM projects, and three (3) DBFOM projects.

Following input from the market and Metro's assessment of Project delivery risks, Metro made a deliberate decision to advance certain high-risk elements (including utility adjustments, freight relocation and hazardous material remediation) of the SGL LRT Project through an AWP CM/GC, irrespective of a future P3 decision with the objectives of enabling Metro to retain responsibility and control for scope elements with a high reliance on third parties under this progressive delivery approach and to support the schedule through early commencement of these scope elements. The reduction in overall risk to project delivery through this risk management strategy has been borne out in the quantitative risk assessment results.

Operations and Maintenance and State of Good Repair Considerations

Several questions arise when considering the practical implications for operations and State of Good Repair if using a P3. Meetings and workshops were held by the team with Metro Operations to discuss and identify any key areas where Metro may have additional opportunities from pursuing a P3 or where the approach would not be able to achieve any expected benefits over the Project life, due to issues which may not be quantifiable from a risk analysis.

The risk section identifies some of the risk transfer benefits, and some potential shortfalls, that relate to P3 delivery. Key areas include the regular performance of operations, maintenance and State of Good Repair work where under a P3 the contract defines the output specification and key performance indicators that a private partner must meet to receive payment.

The assumed P3 delivery allocation of risk and responsibility is summarized below and with key activities retained by Metro for fare collection, inspection and enforcement and the maintenance of those systems.

Risk / Responsibility	DBFOM	
	LACMTA	P3 Developer
Operations – Operation of regular passenger rail service (s1)		X
Operations – Operation of the Developer ROC (DROC) (s1.4)		X
Operations – Service disruptions / closures (s1.4)		X
Operations/Administration of Universal Fare System Equipment, collection of Fare Revenue, Fare inspection and Enforcement (Art. 21)	X	
Maintenance – Rolling stock (PMs, running repair and corrective maintenance, heavy repair, wheel truing, car washing) – according to Rolling Stock Maintenance Plan (s3.3)		X
Maintenance – Guideway Elements / Track (s3.4)		X
Maintenance – Administrative and Maintenance Facilities (e.g., MSF) (s3.4)		X
Maintenance – Stations (including station cleaning) (s3.4)		X
Maintenance – Systems (e.g., Train Control, Traction Power, IT Systems) (s3.4, 3.5)		X
Maintenance – Systems (Universal Fare System Equipment) – Metro responsible for maintaining and servicing the equipment; Developer responsible for exterior cleaning/graffiti (s3.12)	X	X
Maintenance – Systems (Security Systems/CCTV) (s7) – Developer maintains DROC/ROC CCTV/inputs (Lighting, intrusion detection systems, fencing, radio)		X
Specialty Maintenance (Landscaping, elevators/escalators, graffiti, garage door maintenance, etc.) (s3.5)		X

In addition, all State of Good Repair activities would be transferred to a private partner, except for the ultimate replacement of systems and rolling stock assets at the end of the contract.

Risk / Responsibility	DBFOM	
	LACMTA	P3 Developer
SGR – LRV midlife overhaul		X
SGR – Component overhaul		X
SGR Reporting to FTA (Asset Management / Performance Specifications)		X
Handback (Handback Procedures / Performance Specifications) (Part H)		X
Other: Technology and Innovation		X
Other: Long Term Performance		X

The Project Team met with staff and leadership and held several workshops to discuss considerations with regard to the implementation of a P3 approach and whether benefits could be achieved within the Metro setting.

The main discussion items are:

- Attendees sought to explore the potential for partial transfer of responsibilities under a DBFM approach model. Under a DBFM delivery model, Metro would retain responsibilities for regular O&M while a developer would take responsibility for capital maintenance required during the contract. It was noted that such an approach could be of benefit to Metro for responsibilities that require ramping up of resources for periods of time during the asset life before then reducing (the private sector is able to ramp up and wind down workforces more easily than Metro). However, when exploring the option of DBFM, the need to divide out preventative maintenance and repair of assets during the Project life presented challenges that could result in contractual disputes. The group determined that an all or nothing approach to the O&M/major maintenance would reduce complexity, reduce the risk of finger pointing, and reduce the potential for breakdowns

in the partnership intention of a P3 delivery. As a result, a DBFM would likely be more challenging than DBFOM and was discounted from further analysis.

- Metro faces a growing imbalance in budgeting for capital renewal and State of Good Repair needs. As new extensions come online such as Crenshaw and the Regional Connector, that asset base also expands. The SGL LRT Project would continue to expand Metro's asset base. State of Good Repair was identified as one key area where a P3 delivery model could have real advantages over Metro operations. By holding a developer to consistent KPIs, and structuring the APs appropriately, it is expected the developer (taking advantage of a more flexible maintenance and lifecycle budget) would not only make State of Good Repair replacements in accordance with a predictive asset management approach, but they may also find it more efficient to replace some items sooner than the expected life (example: elevators/escalators).
- For a P3 approach to work for Metro, it is important for both sides of the table, Metro and a potential developer, to maintain a true partnership mindset in the delivery and operation of the project.

Interface Considerations

Areas where the project scope meets the remaining system and/or where responsibilities between Metro and a potential P3 developer/operator would overlap with respect to interfaces were also discussed.

There is currently no requirement for the SGL to be interlined or interoperable with the rest of the Metro system. The SGL LRT Project will essentially be a standalone line with no rail-to-rail connection; however, the Project will share a key platform at Slauson and ultimately connect into Union Station. Importantly, the Project will also have an infill passenger connecting station at the intersection of the I-105 and the Green Line (C-Line).
Contractual interfaces occur where risks and responsibilities are shared as noted in the table below and these were discussed within the workshop with Metro staff and leadership.

Risk / Responsibility	DBFOM	
	LACMTA	P3 Developer
Interfaces with respect to train operations and Dispatch (DROC versus Metro ROC)	X	X
Interfaces with respect to Security (ESOC)	X	X
Interfaces with respect special situations (special events, etc.)	X	X
Interfaces with respect to train derailment / service disruption / line closure – Concept of Operations	X	X
Interfaces with respect to Maintenance activities		X
Interfaces with respect to Lifecycle/State of Good Repair		X
Interfaces with respect to New Technology	X	X
Interfaces with respect to Performance Metrics	X	X
Interface for Customer Care – Developer interface with Metro Customer Centers, Call Centers, and Ambassador Program	X	X
Performance Management	X	
Interface Between Initial Operating Segment (IOS) and Final Phase Of Project (DTLA)	X	X

Overall, reputational risk was identified as a key issue and ultimately Metro's responsibility and is discussed under Customer Experience and Safety and Security below. Under a P3 approach, Metro would maintain control of the project leveraging the contract terms and the performance regime (i.e., KPIs). To achieve the potential P3 benefits, attendees to the workshop agreed that a key to success would be through a clearly drafted contract and KPIs (especially those that can lead to deductions in the payment) that leave no room for misinterpretation or misunderstanding.

Safety and Security

Metro staff identified Safety and Security as a critical area where control would be a key issue and ultimate responsibility for incidents on the SGL would fall to Metro whether self-performed or transferred to a P3 developer.

As a result, consideration was given to whether efficiencies of scale and/or customer service benefits would be realized if Metro managed safety and security across all lines and whether an approach that limits responsibility for safety and security to the DROC and MSF would sufficiently incentivize a private partner to design and construct the project sufficiently to mitigate safety and security issues.

Based on the proposed allocation of risk and responsibilities for the P3 approach, this was considered an operational consideration as the roles and responsibilities during design and construction are broadly equivalent to the allocation under a traditional design-build approach for Metro. The proposed main allocation of risks and responsibilities is summarized below.

Allocation of risk and responsibilities during operations phase - approach under 85% Draft P3 Agreement (early 2020)		
Risk / Responsibility	LACMTA	P3 Developer
Continuous safety and security of the Developer Rail Operations Center and Maintenance and Storage Facility (s1.4, 6.2.1)		X
Physical security and systems monitoring for all other project components (other than DROC and MSF), passengers and general public (s6.2.2)	X	
Continuous system monitoring of Project security systems (e.g., CCTV) (s6.2.2)		X
Preparation and implementation of Security Plan and Procedures for DROC and MSF (s6.2.1)		X
Security staff for DROC and MSF (s6.4)		X
Maintenance of space and equipment within DROC for LACMA Security Staff to operate a Security Command Center (s6.5)		X
Fare inspection and enforcement (Project Agreement)	X	
Graffiti cleaning responsibilities (s3.2)		X
Risk of vandalism caused by a third party if P3 Developer took reasonable preventive action (table A.3-3)	X	
Risk of trespass if reported to law enforcement (table A.3-3)	X	
Risk of unruly passenger if police notified (table A.3-3)	X	
Risk of obstruction if caused by a third party not directed by P3 Developer (table A.3-3)	X	

During the meetings and workshop held with Metro staff, concerns were raised that Metro already has a system in place for safety and security and that the transferring of safety and security responsibilities could pose more risks for Metro due to the splitting of those

responsibilities. Furthermore, meeting and workshop participants raised concerns about the assignment of certain responsibilities and the impact on compliance consistent with established guidelines to maintain a unified approach across the system.

If safety and security were transferred, the P3 developer's performance would be subject to the terms of the contract which include KPIs linked to payment.

Depending on the type of incident, the P3 developer would have to report and remedy the incident within a specified period. Several areas were highlighted during the discussions.

- Physical security: surveillance, security personnel, passenger safety, emergency response
- Cyber security: network, data, incidents
- Operational security: vehicles and other assets, routes

Metro has an existing ROC and a unified command multi-layered approach. Metro team members raised concerns about whether the developer would abide by these guidelines or prioritized their own interests, and it was noted, as above, that a P3 developer would be managed directly through the contract and where there are concerns of a significant security or safety incident related to SGL, which could jeopardize Metro's reputation, those areas would need to be defined clearly upfront which may be challenging to accomplish as effectively under a P3 arrangement.

Emergency responses are a specific area of concern including potential complications in responding to service disruptions and security incidents. Metro already has controls in place based on unified command protocols, but with the inclusion of the P3 developer, there is the potential for more risk related to insufficient communication leading to delayed response.

Cybersecurity, the interface with DROC, could potentially be effectively transferred to a P3 developer while ensuring Metro's cybersecurity system remains aligned with DROC and the Maintenance and Storage Facility (MSF) to maintain consistency. This is an area that would need to be clearly addressed in the P3 Agreement.

There would be benefits in transferring several specified responsibilities to the P3 developer to hold them accountable for risks such as vandalism caused by third parties (assuming the P3 developer took reasonable preventive action), trespassing if reported to law enforcement, unruly passengers, and obstructions caused by third parties (not directed by P3 developer).

Customer Experience

Customer experience and interfacing with customers was identified as another key Metro retained role and responsibility. The allocation of risk, roles and responsibilities in a proposed P3 approach is summarized below.

Risk / Responsibility	DBFOM	
	LACMTA	P3 Developer
Public Information and Customer Relations (Art. 21)	X	
Customer Service Standards – Defined in Rule Book (s1.4). Intended to ensure that passengers benefit from the high-quality customer service and available means of communication with customers are utilized appropriately. [professional conduct; personal appearance; dress code; nametag and identification requirements; on-boar and station announcements; lost and found policy; etc.]		X
Passenger Complaints and Communications – Coordination and distribution of service complaints and communications, travel planning services and printed materials related to SGL (s4.5)	X	
Passenger Complaints and Communications – Maintain a dedicated point(s) of contact for LACMTA for issues that require immediate or escalated priority resolution (s4.5)		X
Branding (Implementation- not strategy) – Project name, station names as set out in Performance Specifications. Developer must display wayfinding, signage and other information, public art and branding at all times during the Term as required with the Performance Specifications (Part E O&M, Article 25)		X
Management of the Art Installations (Art. 21)	X	

As shown, a P3 developer would be required to maintain standards, ensure dedicated points of contact, and ensure branding implementation (not the branding strategy, which would remain with Metro).

Metro staff confirmed that the establishment of a unified approach to streamline customer experience across Metro's system is a key objective. In addition, understanding how to integrate data into Metro's system for enhancing customer experience is a requirement deemed essential by staff and would therefore be expected to be an explicit inclusion in any procurement documents for a P3 approach. Metro has existing operating contracts for bus operations, bike sharing, and micro-transit which include approaches for data integration that could be leveraged into a P3 solution for the Project.

Clear and effective communication would be required under a P3 approach to mitigate reputational risk concerns raised during the assessment. As Metro is the ultimate responsible party for the operations of the SGL, agreeing to KPIs and a contractual structure that ensures incentives align would be a key requirement.

3.4 Key Takeaways

Area	Key Takeaway
O&M	Splitting preventive/routine maintenance with heavy repair would be complex (e.g., poor daily maintenance is likely to lead to more heavy repair interventions) and it was determined that a DBFM approach should not be further considered. Fully transferring O&M would present other challenges but would reduce interfaces and provide clearer lines of risk allocation. Metro has experience of such arrangements, such as under contracted bus services that were put in place after the consent decree.

	Metro, as a large agency, is adept at prescribing specifications and following specifications. However, it was admitted that the private sector may be more incentivized to introduce innovation. P3 developers can leverage lessons learned from around the country (and globally) and due to more budget flexibility are better able to employ efficiencies in implementing preventative and predictive maintenance. Technology constantly evolves and the private sector is naturally incentivized to find cost savings and opportunities for greater efficiencies. Metro faces a growing budget imbalance for capital renewal. With the proper KPIs and availability payment structure, this is one area where a P3 delivery model could have advantages with asset replacement occurring on or prior to the lifecycle date.
Interfaces	The project team identified 11 potential interface areas, most of which would involve both Metro and a P3 developer. Reputational risk was identified as a key issue and Metro's ultimate responsibility. A clearly drafted P3 with KPIs (especially those that can lead to deductions in the contractor payment) that leave no room for misinterpretation or misunderstanding is critical to successful P3 implementation.
Safety and Security	Safety and Security as a critical area where control would be a key issue and ultimate responsibility for incidents on the SGL would fall to Metro whether self-performed or transferred to a P3 developer. Metro already has controls in place based on unified command protocols, but with the inclusion of the developer, potential risk may be higher for insufficient communication leading to delayed response. The P3 Developer would be managed by the terms of the contract which include KPIs linked to payment. Depending on the type of incident, the P3 developer would have to report and remedy the incident within a specified period. With respect to cybersecurity, the interface with DROC could potentially be effectively transferred to a P3 developer while ensuring Metro's cybersecurity system remains aligned with DROC and this would need to be clearly addressed in the P3 Agreement.
Customer Experience	Concerns about P3 developer communication failures leading to Metro reputational impacts would be addressed through the contract and KPIs. Metro has experience in other projects with data integration and would leverage that in this situation. Furthermore, Metro would make key system

	and data integration elements clear in procurement documents for the selection of a potential private partner.

3.5 Overall Assessment

Overall, the use of a P3 DBFOM approach offers the potential for risk transfer and long-term benefits through innovation but would also present several challenges for Metro during implementation.

In qualitatively assessing the pros and cons of considering a P3 delivery model approach, Metro considered the questions as introduced in the approach above and summarized below:

- What benefits can a private partner provide to Metro for the SGL LRT Project?
- To what extent would Metro need to adapt current processes to pursue a P3 procurement and then manage a P3 contract? Are these changes reasonably manageable?
- How can Metro maintain flexibility on changing factors such as innovation under a P3?
- Are there areas of operational control where Metro must retain the direct responsibility, which would make the use of a P3 less efficient and therefore limit the value for money achievable under a P3?
- How does a P3 help or hinder the eventual SGL Phase 2 extension to Union Station?

Each one of these questions is addressed below:

- **Benefits**: Metro made a deliberate decision to advance elements of the Project through an AWP CM/GC contract structure (irrespective of a future P3 decision) to reduce risk in the corridor and allow Metro to better manage key delivery risks, especially those arising from third party interfaces. For the design and construction of the remaining core LRT scope elements for the Project, both a P3 delivery model and a fixed price design-build model bring similar opportunities in terms of the integration of design and construction scopes and obtaining a firm fixed price under a competitive RFP, and similar challenges in terms of a lack of flexibility to deal with changes in scope and the occurrence of risks with respect to unknowns (with the cost impacts potentially being higher under a P3 due to the financing costs). However, due to the private developer under a DBFOM P3 model also being responsible for the long-term operations and maintenance of the LRT and to the pressure from the financing parties to deliver the project, the private developer under a P3 developer may be more incentivized than a contractor under a typical fixed price design build to manage schedule and cost, mitigate risks, to deliver on time and to budget, and to design and construct the LRT taking into account operational performance and whole of life considerations. The magnitude of the benefits arising from moving ahead with a P3 decision will depend on clear and proper allocation of risks in the P3 Agreement, the management of Metro-retained risks, and the setting and enforcement of KPIs. The qualitative discussions concluded it would be reasonable to expect other benefits, especially around capital renewal decisions, but also potentially in terms of the incorporation of innovation, especially where innovation

can result in more effective operations for the P3 developer and ultimately better service at a more efficient whole of life cost to Metro.

- **Current Processes**: If implemented as a P3, the SGL LRT Project would be the first major capital rail project Metro has developed and managed under this delivery model and this will require the building of experience and expertise within Metro. Metro does have existing operating contracts for bus operations, bike sharing, and micro-transit that could be a good source of lessons learned and provide processes and procedures that could be leveraged in implementing a P3 delivery model for the Project. Metro's alternative delivery program also provides a good example of capacity building to implement new delivery models within the agency. It would require review and further refinement; however, this could serve as the starting point for any procurement under a P3 delivery approach.
- **Flexibility and Innovation**: Concerns around control and ultimate ownership of the Project outcomes were raised in several areas. For the implementation of the Project as a P3, and the realization of that model's benefits (e.g., innovation, optimal risk transfer, and pricing) Metro may need to cede direct control in several areas and change the way it manages and oversees risks (i.e., through true partnership with the private sector under a contract that, ideally, aligns both parties' incentives for success).
- **Operational Control**: Metro staff clearly expressed that regardless of delivery model, Metro must maintain direct operational control over significant parts of safety and security, fare collection, and customer service. The VfM benefits would be diluted as a result of the additional staff count required to account for both sides where Metro is retaining this direct control.
- **Impact on Phase 2 Extension to Union Station**: The Metro Board has selected LAUS as the northern terminus for the full corridor project. Metro staff are conducting a separate study to evaluate options for connecting from Slauson/A Line to Union Station. The delivery option choice will require consideration of the eventual work needed to construct the downtown segment with a continuity with respect to the operation of the existing line and the operator. If a traditional fixed price DB model is selected for the SGL LRT Project, then this would involve procuring a new design-builder at the time on the extension, with Metro's Operations team then extending the service to the northern terminus when the extension is complete. Drawing on precedents in highway projects in the U.S. and in transit projects in Canada and Australia, frameworks do exist for successfully accommodate this situation. One approach may be for Metro to include in the Project Agreement a framework under which Metro and the P3 developer agree to collaborate to define and implement the extension and maintain operational continuity. This is similar to inclusion of a progressive element of contracting within the P3. However, if Metro proceeds with a P3 for the SGL LRT Project but chooses to execute the extension to the northern terminus utilizing a non-P3 delivery approach, the KPIs associated with the Project's operations and maintenance become complex as the ability to ringfence developer performance becomes more challenging.

Chapter 4: Risk Assessment

4 Risk Assessment

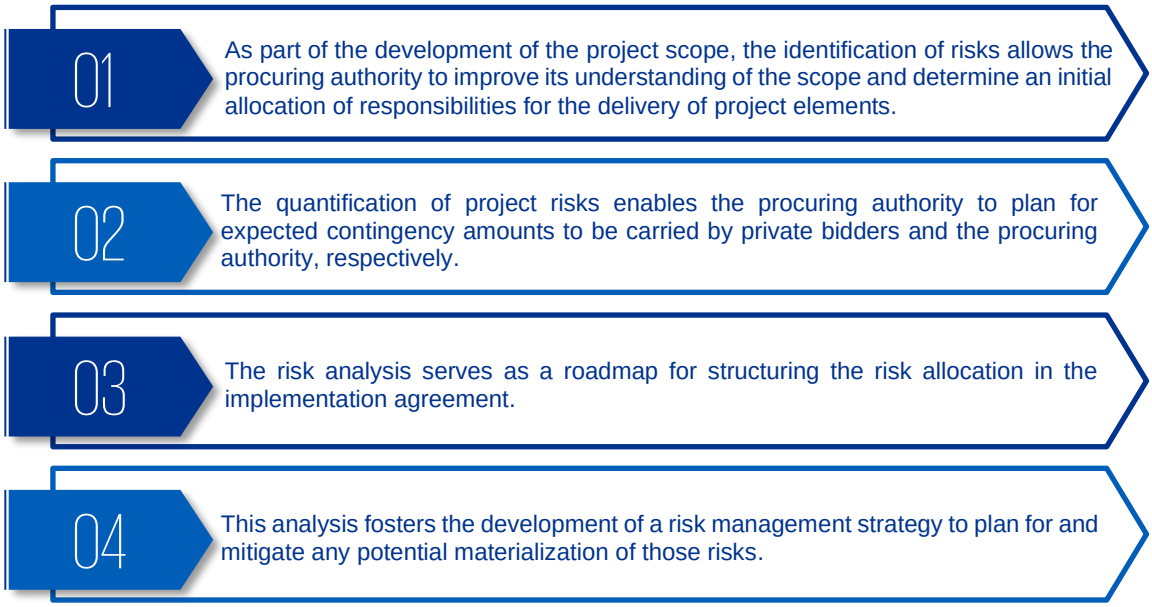
4.1 Risk Assessment Overview

Two quantitative analyses were undertaken to assess the value of P3 DBFOM delivery and traditional DB procurement. The first of these analyses is a quantitative risk assessment (described in this chapter), which calculates the cost and schedule impact of risk events (i.e., integration failures, construction delays, operational interruptions). The outputs from the quantitative risk assessment (in the form of projected risk contingency costs) are then used as an input to the second analysis – VfM financial analysis, that is described in the following chapter.

Risks impact every infrastructure project and the assessment and optimal management, and allocation of project risks helps ensure unexpected events are effectively and efficiently mitigated and managed. Undertaking a quantitative risk analysis is a key step in determining the value of one delivery model against another.

The risk assessment builds on previous stages of project development and includes the identification, allocation, assessment, and quantification of programmatic and project-specific risks associated with the delivery approaches being considered. The risk assessment process informs the commercial structuring of the transaction and the development of the Project Agreement/other documents. A fundamental benefit of P3 is the ability for the public sector to transfer the responsibility for certain project risks to the private sector, particularly those that the private sector is best able to control and manage.

Project risk analysis, including identifying and quantifying risk, is standard practice in capital budgeting and project management. In P3 delivery, risk analysis serves several purposes:



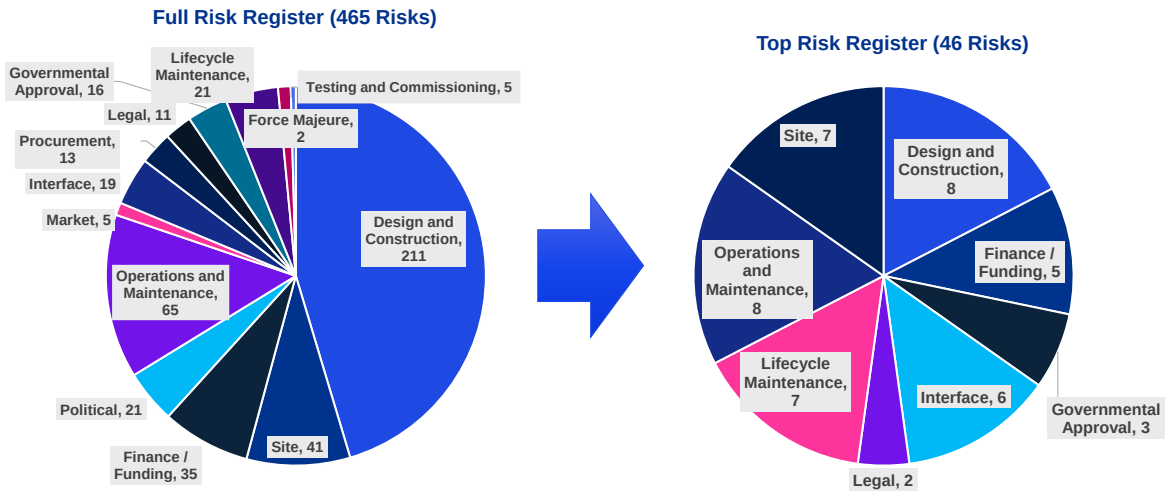
4.2 Risk Methodology

Metro's risk assessment methodology for the Project included the identification, consideration, and quantification of risks to arrive at a cost for those risks ("risk costs" `both for risk impact on actual cost and on schedule, where both are translated to dollar amounts, as further described below) based on the methodology outlined below:

- Generate a risk register by identifying risks associated with each component of the Project;
- Triage the risk register for top program risks and gain concurrence from an independent expert panel;
- Make extensive use of workshops with the appropriate Metro departments to ensure that subject matter experts weigh in and concur on the risk identification, and where appropriate, allocation and quantification;
- Determine the cost basis for each risk using FTA Standard Cost Category (SCC) and an independent project cost estimate;
- Determine allocation of risks for each delivery model (e.g., retained, shared, transferred);
- Determine the likelihood of occurrence for each risk;
- Define the cost and/or schedule impact of each risk if it was to materialize; and
- Finalize the risk register including any relevant workshop notes.

As mentioned, the risk assessment resulted in the identification of 465 risks that were catalogued in the comprehensive risk register. Of these 465 risks, over 55% were generated from Design & Construction, with other major areas being Operations & Maintenance (14%), Finance and Funding (9%), and Lifecycle (5%). Metro shortlisted 46 top risks in the top risk register for quantitative risk assessment and prioritized the monitoring and evaluation as shown below in Figure 4-1.

Figure 4-1 – Full and Top Risk Registers for SGL Project



In total, Metro convened approximately 30 dedicated risk workshops over a period of five years. Most of the workshops were conducted during 2018 and 2019. Following the Board's adoption of the Final EIR and the LPA for the Project, and refinement of Metro's strategy for the AWP, seven additional risk workshops in April 2024 were held with Metro staff. The risk results presented in this chapter reflect the most up to date information.

Note that the risk results presented in this chapter are all presented as unmitigated risks. Regardless of delivery method, the Metro project team will be putting in place mitigation strategies to help reduce probabilities or impact. The completed risk register, risk analysis results, and the VfM analysis are all tools that will be used for mitigation planning as well as to develop commercial and technical contract terms. This methodology is described in further detail in the Appendix A-5. A complete version of the SGL risk register is available upon request.

4.2.1 Risk Assessment Workshop with Industry

Metro's risk assessment included an external industry review of the process and risk register. Metro sought general benchmarking information from AIAI, an independent non-profit organization started to create more equitable and effective partnerships across the infrastructure space. Key members of AIAI include most of the major civil construction firms involved in North American LRT projects, as well as leading private-equity funds, lenders, transit operators, and maintenance / asset management firms.

AIAI members were invited to review methodologies used for the Project risk assessment, and provided input on a generic risk register, including revisions to probabilities and scoring figures to reflect changes in the North American P3 market.

AIAI confirmed Metro's approach and methodology to risk assessment with respect to the top risk register. AIAI also validated key assumptions related to the treatment of risks under DB and P3 and the likely benefits of an early-stage AWP package.

4.2.2 Key Risk Drivers

The quantitative risk assessment resulted in the identification of key risk drivers specific to the SGL LRT Project. Risks with the greatest cost and schedule impacts are listed below in Tables 4-1 and 4-2.

Table 4-1 – Cost Impact Risk Drivers

Top Cost Risks – DB	Type	Probability
DEV-165: Lifecycle Capital Maintenance Not Performed / Deferred - Excluding Facilities, Stations, Rolling Stock	Lifecycle	50%
DEV-162: Latent Defects (during operations)	Lifecycle	35%
DEV-116: Operational and Regular Maintenance Performance	O&M	30%
DEV-005: Metro Scope Changes During D&C	D&C	50%
DEV-019: Interface between Systems	D&C	75%

Top Cost Risks – P3	Type	Probability
DEV-005: Metro Scope Changes During Design and Construction Phase	D&C	20%
DEV-217: Deterioration in financial situation of the contractor (construction phase)	Finance	10%
DEV-165: Lifecycle Capital Maintenance Not Performed / Deferred - Excluding Facilities, Stations, Rolling Stock	Lifecycle	10%
DEV-171: Asset Residual Condition	Lifecycle	10%
DEV-212: Third Party Property Damage / Claims	D&C	15%

Table 4-2 – Schedule Impact Risk Drivers

Top Schedule Risks – DB	Type	Probability
DEV-252: Early Works/LRT Interface	Interface	40%
DEV-217: Deterioration in financial situation of the contractor (construction phase)	Finance	5%
DEV-019: Interface between Systems	Interface	75%
DEV-003: City Approvals (LA City)	Government	15%
DEV-005: Metro Scope Changes During Design and Construction Phase	D&C	50%

Top Schedule Risks – P3	Type	Probability
DEV-252: Early Works/LRT Interface	Interface	40%
DEV-003: City Approvals (LA City)	Government	15%
DEV-004: City Approvals (non LA City)	Government	25%
DEV-005: Metro Scope Changes During Design and Construction Phase	D&C	20%
DEV-234: Geotechnical Risks – Below Grade (Known)	Site	35%

Heat maps were developed to analyze the probability of risks occurring against potential risk impacts for the different delivery approaches. The heat maps presented on the following pages plot those risks from the risk register that feature the biggest differences between the DB and P3 delivery models. They demonstrate the relative benefits of using a P3 model, relative to DB, for these key risk drivers.

- The first heat map shown in Figure 4-2 shows DB delivery model risks (risks with high probability of occurrence and high-cost impact are in the top right-hand corner).
- The second heat map shown in Figure 4-3 shows those same risks for a P3 delivery model using the same scale on the axes.

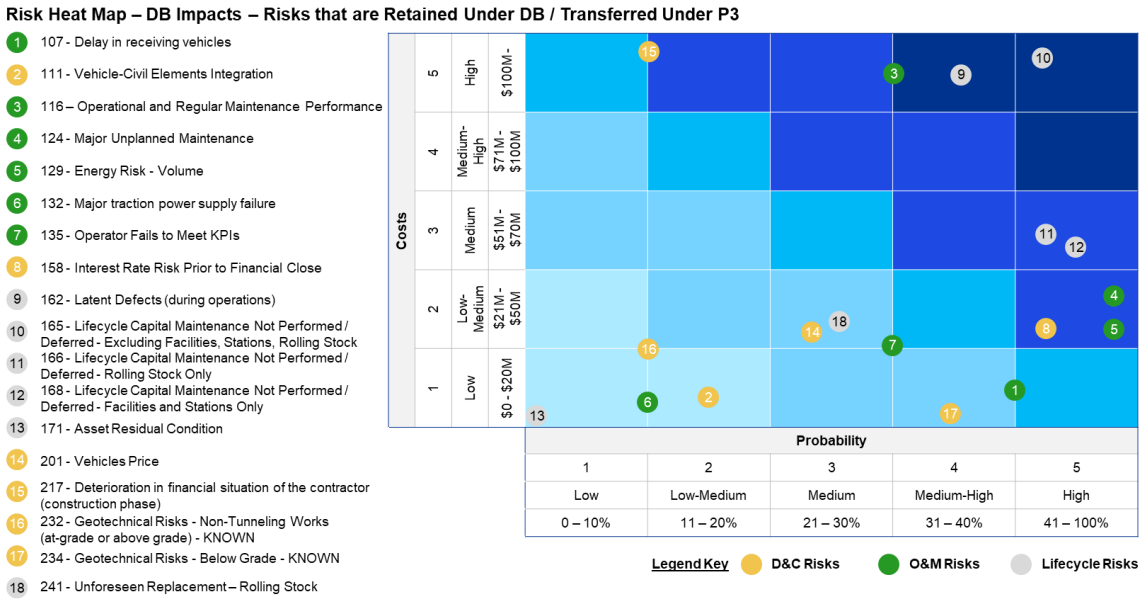
The risks in the second map skew considerably more to the lower ends of the probability of occurrence, or the cost impact, or both. Both the P3 and DB arrangements consider the same hourly rates for labor, but lower P3 costs may result from the following:

- **Long-Term State of Good Repair:** A common challenge for public agencies is the availability and timing of funding for long-term capital maintenance. These often lead

to deferral of major maintenance projects. Since P3 contracts are structured to incentivize a developer to perform lifecycle / long-term capital maintenance and has more flexibility on funding availability, a P3 typically results in better State of Good Repair outcomes for the assets associated with the project scope. However, dedicated funding for the contractual O&M term to make APs for the P3 limits the public agency's flexibility for systemwide maintenance expenditures given the aforementioned common challenge of availability of funding.

- **Achievement of Operational Requirements:** Under a DB arrangement, Metro self-performs operations and achievement of operational metrics is based on internal policies. Since a P3 arrangement is a set contract that includes non-performance penalties, a P3 developer would typically be expected to meet all operational metrics.
- **Integration of LRT Elements:** Under a DB arrangement, Metro may have multiple contractors under separate contracts. This can result in infrastructure, systems, and equipment interface challenges. A P3 could also have multiple design and construction contractors, but they contract with the private partner entity (e.g., the SPV set up to carry out the project), thereby presenting an opportunity for interface issues to be proactively addressed.

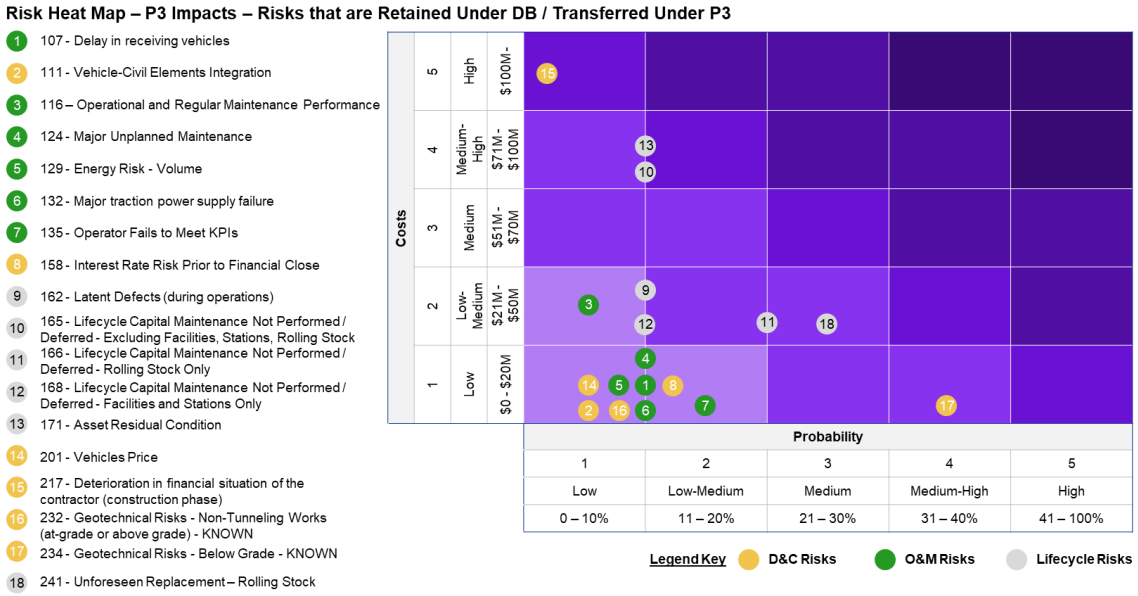
Figure 4-2 –Traditional DB Risk Heat Map



DB Heat Map Interpretation: Under a traditional DB delivery, the highest impact and probability risks are associated with long-term lifecycle. This is illustrated by the number of risks located in the top right quadrant of the DB Heat Map (representing those with the highest cost and highest probability).

Under DB delivery, lifecycle risks display the highest probability and cost impact combinations. Most lifecycle risks have an occurrence probability of over 41% with expected costs per risk ranging from $51 million ($2023) to over $100 million ($2023). Some of the D&C risks and O&M risks also exhibit significant probability and impact.

Figure 4-3 – DBFOM P3 Risk Heat Map



P3 Heat Map Interpretation: Under a P3 delivery, lifecycle, O&M, latent defect, and asset residual condition risks are allocated to the P3 developer. Risks that were in the top right quadrant in the first map have the potential to be managed more effectively under a P3 due to the nature of the contractually required dedicated funding for maintenance activities and the incentive by the P3 developer to meet its KPIs. Because of this, they are now located in the bottom left quadrant (representing risks with lower cost and lower probability).

Under P3 delivery, over 70 percent of the risks are between 0 and 20% probability and between $0 and $50 million ($2023). This is driven by the specification-based nature of the P3 – i.e., the P3 developer must meet certain criteria for it to receive full payment from Metro. As such, the P3 developer will proactively manage project risks through design and planning integration to reduce the probability of occurrence and scale of cost / schedule impacts.

4.3 Most Impactful Risks for Monitoring and Control

In addition to providing a quantitative assessment of potential risk impacts under the DB and P3 delivery approaches as demonstrated in the heat maps above, the risks exhibiting the highest level of range and variability in terms of projected costs and schedule delays were further analyzed. This analysis serves as a vital input to facilitate informed risk management practices and future decision-making.

Metro intends to prioritize these risks and develop appropriate mitigation measures and define the performance responsibilities associated with them during the drafting of the

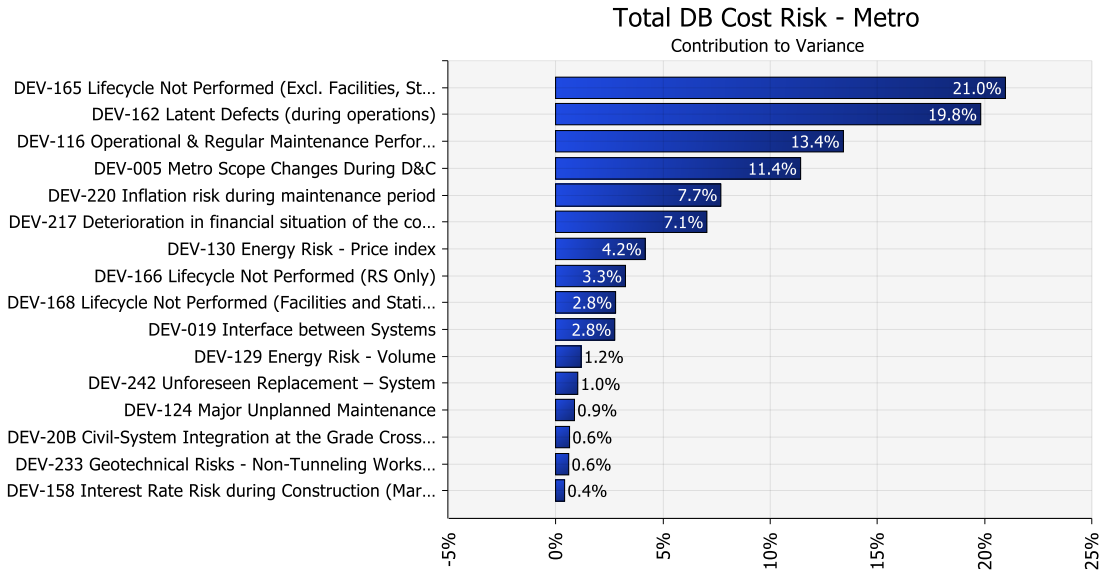
Project's technical specifications. By focusing on these risks, Metro aims to implement proactive measures to mitigate and address potential challenges, thereby ensuring the successful execution of the Project in alignment with its defined objectives.

These risks were identified through a deterministic sensitivity approach used to analyze and evaluate the impact of uncertain variables or risks on the outcome of a project, process, or decision (this approach is also commonly referred to as tornado chart analysis and is described in Appendix A-5). This method involves systematically varying the values or assumptions of individual variables or risks within predefined ranges to assess the effect on the overall outcome.

Two sets of charts are presented below in Figures 4-4 and 4-5:

- Figure 4-4 presents the contribution to variance for the DB cost risks – first those retained by Metro and then those transferred.
- Figure 4-5 presents the contribution to variance for the P3 cost risks – first those retained by Metro and then those transferred.

Figure 4-4 – Contribution to Variance – DB Cost Risks



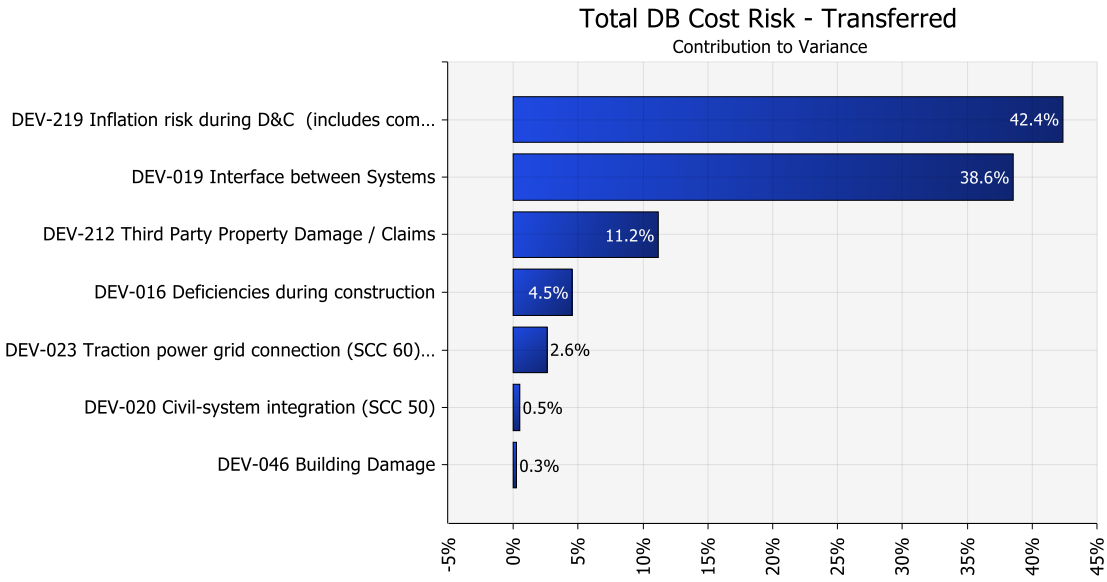
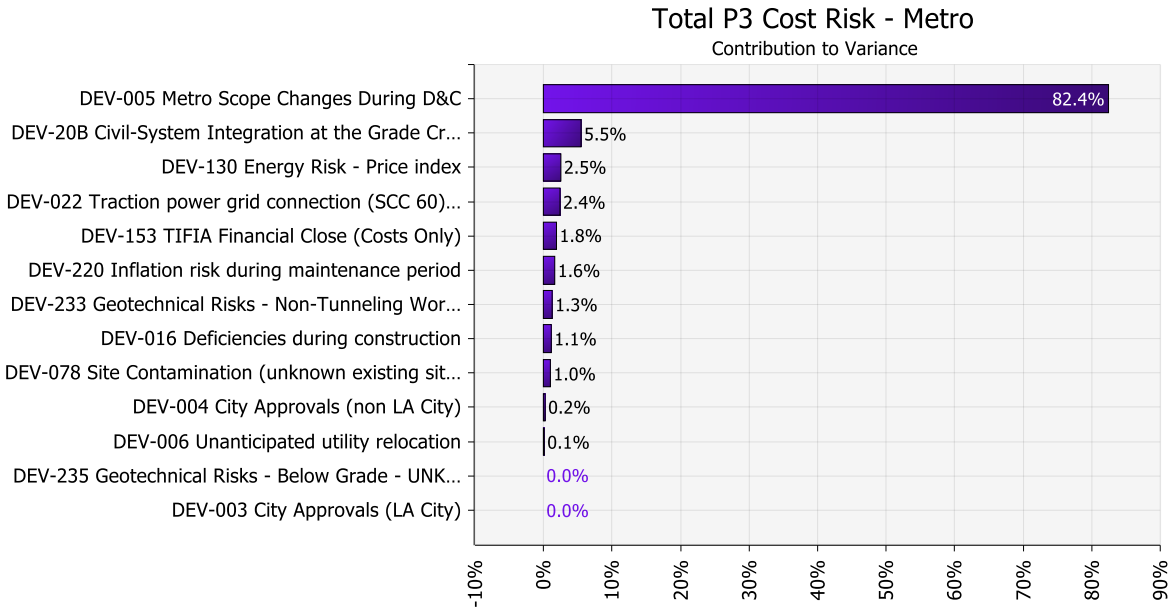
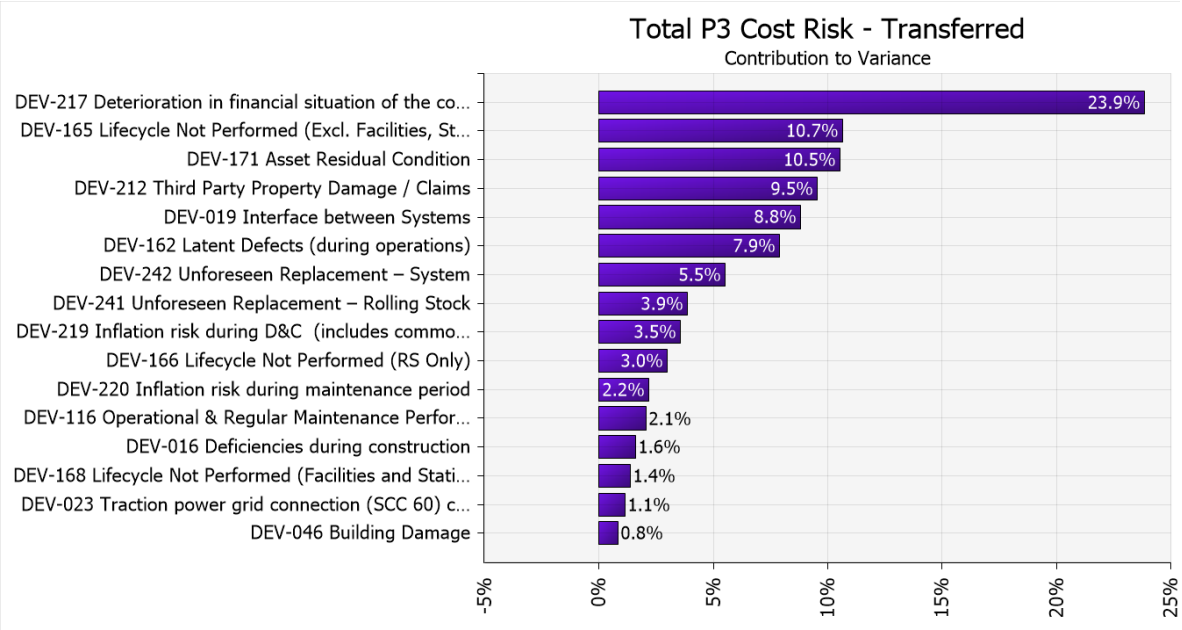


Figure 4-5 – Contribution to Variance – P3 Cost Risks





With respect to risks, the analysis revealed a significant reduction in cost impact for the P3 delivery model. Within the scope of identified Project risks, the P3 delivery model exhibited cost savings ranging from approximately 50% to 95% for specific risks as compared to the DB approach, depending on the specific risk being assessed. A detailed explanation of potential risk reduction or benefits that can be achieved through the implementation of the P3 delivery model is provided in the following tables (4-3 through 4-5).

The magnitude of these risk transfer opportunities is assessed to determine the VfM proposition, as it currently does not include the consideration of the cost of risk transfer and private finance. Furthermore, it is important to note that the analysis provided in this section does not make any presumptions on the magnitude of the risk transfer opportunity. Rather, it highlights the potential benefits of the P3 delivery model based on the identified cost risks and the associated cost savings as compared to the DB approach.

Potential P3 benefits are derived from the Project-specific inputs collaboratively developed through a series of risk workshops. These workshops entailed a thorough comparison of the existing Metro processes with the envisioned future-state processes under both the DB and P3 delivery models.

Table 4-3 – Most Impactful Design and Construction Cost Risk Impacts Reduced and/or Transferred Under a P3 Delivery Model

Risk	Definition and Impact	Potential Risk Reduction Under P3
DEV-217: Deterioration in Financial Situation of the Contractor	The risk that the contractor would experience financial difficulties during the construction phase, including contractor credit rating downgrades to contractor default.	Whereas under a DB delivery model, Metro would be required to step in to identify and procure a new D&C contractor, under a P3 model this risk is held by the P3 contractor, with certain step in rights held by the project

Risk	Definition and Impact	Potential Risk Reduction Under P3
	Example events: Construction partner goes insolvent, and Metro needs to find new contractor.	lenders, who would be responsible for finding a new D&C contractor in the case of default. AIAI identified this as a key P3 value driver as the project sponsor (Metro) can avoid the costs associated with contractor re-procurement.
DEV-212: Third Party Property Damage/Claims	The risk is that the construction of the project results in legal claims / lawsuits from neighboring landowners and users. Example events: Local community sues Metro due to impacts of the system during construction	It is observed that the owner faces a lower risk when the P3 delivery method is employed, as opposed to the -DB delivery model. This can be attributed to several factors such as the shared responsibilities and liabilities between the private partner and the public owner inherent in the P3 model, as well as the rigorous risk allocation mechanisms established within P3 contracts.
DEV-019: Interface between Systems	Risk that the lack of coordination of communications, SCADA, OCS, corrosion control and other interface issues will cause integration failures. This also includes Vehicle to Systems integration issues. Example events: Trainsets do not communicate with Metro Operations Center systems	There is a significant risk that a lack of coordination can lead to systems integration issues, including vehicles to systems interfaces. Under a P3 performance driven approach, risks are transferred to the P3 developer who has incentive, as a result, to invest more during design to pre-empt these risks. The P3 developer also has greater incentive to reach revenue service date due to financial impacts of delay in reaching that date.
DEV-219: Inflation risk during construction period (includes changes in commodities and labor pricing)	Risk that inflation is different than base case assumptions because of market volatility. Example events: Construction costs are higher than expected due to inflation.	This risk is transferred in both cases. The workshop team discussed that under DB, contractor prices are set at a certain inflation rate. Under P3, there is still an opportunity to negotiate with the P3 developer. Most steel purchases would be subject to Buy America policies, which would at least partially offset the effect of tariffs.

Table 4-4 – Most Impactful O&M Cost Risk Impacts Reduced and/or Transferred Under a P3 Delivery Model

Risk	Definition and Impact	Potential Risk Reduction Under P3
DEV-220: Inflation Risk during Maintenance Period	The risk that inflation is different than base case assumptions during maintenance period because of inflation volatility and that inflation is different than base case assumptions resulting in higher than budgeted costs. Example events: Price increase in vehicle overhauls because of higher material / labor costs	P3 developer could manage this risk through structuring an operating AP linked to an inflation index. This helps mitigate the impact on project cash flows due to changes in inflation. This mechanism is common to P3 transactions and is important to equity investors and debt providers/rating agencies (resilient coverage ratios). This contrasts with DB delivery where increases to inflation over long-term planning estimates can have a significant impact year over year.
DEV-116: Operational and Regular Maintenance Performance	The risk that O&M activities are not performed to maintain functionality of the asset. Example events: • Deferral of escalator maintenance • Deferral of station canopy repairs	Under a P3 contract, a developer has clear output specifications for not only O&M activity, but lifecycle works, which are aligned with financial incentives such that the P3 developer must regularly perform O&M in accordance with the standards or face deductions to the payments it will receive. This is a key P3 value-driver. This contrasts with DB delivery of O&M, which typically is done on a pay-go basis.
DEV-129: Energy Risk (Volume)	Risk realized during revenue service period of higher than expected energy costs due to the higher utilization of the facility based on forecasted usage trends Example events: Board approves additional service hours on lines, thereby requiring additional energy	
DEV-124: Major Unplanned Maintenance	Risk that major unplanned maintenance is required that affects the operation of the transit system Example events: • Cost of bus bridges due to ops disruption • Windstorm impacts OCS wires	There are strong incentives for a P3 developer to reduce the likelihood of this risk occurring as the impact of this risk would result in significant loss of payment. Therefore, P3 developers take a highly active approach to management of O&M and lifecycle works during the contract term. This contrasts with DB delivery where unplanned maintenance costs may be deferred depending on budget availability.

Table 4-5 – Most Impactful Lifecycle Cost Risk Impacts Reduced and/or Transferred Under a P3 Delivery Model

Risk	Definition and Impact	Potential Risk Reduction Under P3
DEV-165: Lifecycle Not Performed (Excl. Facilities, Stations, RS)	The risk that major capital repair and replacement is not performed on assets other than buildings, stations, and trainsets when it should be. Example events: Deferred rehabilitation / replacement of signaling system elements	This is one of the largest value drivers for a P3. While public agencies have historically under-invested in lifecycle works (due to many factors including budget limitations), the private sector will pro-actively manage this risk under a P3. This is because the P3 contractor must meet performance specifications and handback requirements and has greater short-term budget flexibility to aggressively mitigate long-term costs. If the contractor fails to meet these requirements or due to inaction costs escalate, its equity return is at risk. The AIAI confirmed that the probability of this risk occurring under P3 is significantly lower than under DB delivery.
DEV-171: Asset Residual Condition	The risk is that upon handback, SGL assets that have not been replaced do not have the value originally estimated at which the developer agreed to transfer it to Metro. Example events: Early replacement of viaduct structures needed in year 30 (when asset may have a 50–75-year lifespan)	The P3 developer would adhere to stringent lifecycle and asset management practices to meet the requirements of the technical specifications and Federal Transit Administration (FTA) state-of-good repair guidelines. This robust program of lifecycle would enable asset condition to meet minimum useful life requirements at hand back. This contrasts with DB where lifecycle activities may be deferred due to budget availability and other agency priorities.
DEV-162: Latent Defects	The risk that latent defects post-warranty results in operational difficulties / impacts or additional maintenance requirements Example events: • Poorly installed OCS • PV systems not hooked up	Under P3, the risk of latent defects impacting operations is lower in probability and cost, when compared to DB. This is because the P3 developer would have incentive approach the Design, Build, Finance, Operations, and Maintenance (DBFOM) of the project from an

Risk	Definition and Impact	Potential Risk Reduction Under P3
		integrated perspective. Design and construction would be integrated with operational considerations to minimize this risk. The P3 civil contractor may also be an equity partner and is incentivized to manage latent defects if it has financial capital at risk.
DEV-242: Unforeseen Replacement – System	The risk is that system components and elements require early replacement. Example events: Early replacement could be caused by obsolescence, deterioration of technological elements, incidents causing damage to elements such as pantographs, and maintenance regime causing accelerated deterioration.	The P3 delivery model involves a more comprehensive planning and design phase and a longer-term perspective on system performance and maintenance. P3 developers are incentivized to prioritize long-term durability and adopt innovative engineering solutions, resulting in a reduced risk of unforeseen replacements and costly system failures over the project's life cycle.
DEV-241: Unforeseen Replacement – Rolling Stock	The risk is that rolling stock / vehicle fleet requires earlier than expected replacement due to incidents and other events that damage vehicles beyond repair. Example events: Damage to the vehicle is so severe that regular rehabilitation and maintenance work cannot extend the useful life. Vehicle then needs to be replaced.	The P3 delivery model involves a more comprehensive planning and design phase and a longer-term perspective on system performance and maintenance. P3 developers are incentivized to prioritize long-term durability and adopt innovative engineering solutions, resulting in a reduced risk of unforeseen replacements and costly system failures over the project's life cycle.
DEV-166: Lifecycle Capital Maintenance Not Performed / Deferred - Rolling Stock Only	The risk is that major capital repair and replacement is not performed on rolling stock / vehicles. Example events: Deferred mid-life overhauls on trains, resulting in system reliability issues, failures	The P3 delivery model incorporates a comprehensive lifecycle regime, where the contractor is obligated to maintain the asset to a predetermined standard. This significantly reduces the risk of deferred or neglected capital maintenance, ensuring that the asset remains in optimal condition throughout its lifecycle. In contrast, the DB model may not have the same level of explicit requirements and enforcement mechanisms, which can lead to a higher risk of deferred maintenance under the ownership of the owner.

Risk	Definition and Impact	Potential Risk Reduction Under P3
DEV-168 Lifecycle Capital Maintenance Not Performed / Deferred - Facilities and Stations Only	The risk that major capital repair and replacement is not performed on building and station assets. Example events: Deferred rehabilitation / replacement of elevators, escalators, station roof	Overall, the P3 delivery model offers a reduced risk of major capital repair and replacement not being performed on building and station assets in comparison to the DB approach. The allocation of maintenance responsibilities to the private partner, combined with performance-based requirements and penalties, provides a greater likelihood of timely and proper maintenance, improving the overall safety, functionality, and quality of the project.

The analysis revealed additional risks that held relative importance in the overall risk cost impact. However, because the following risks are retained by Metro under both DB and P3, they are not considered impactful:

- **Metro Scope Changes During Design and Construction Phase:** Under a P3 there is a lower probability of change orders due to the output-specified nature of the contract, and built-in provisions that dis-incentivize change orders. However, the overall impacts of a Metro change could have a higher cost impact under a P3 due to the potential delay to the completion of construction and start of availability payments to the developer which are used as revenue to pay debt financing and private equity. Metro would be liable for agency-initiated change order costs, as existing budgets are priced towards Metro's original scope.

- **Energy Risk (Price Index):** P3 contractors often will not accept price risk for energy, so this risk is assumed to be retained by Metro under both delivery models.

4.4 Risk Assessment Outcomes

Building on the heat map and deterministic sensitivity approach described in preceding sections, the last stage of the quantitative risk assessment involved an advanced Monte Carlo statistical model, developed per specifications outlined by the Federal Transit Administration. This was used to analyze scenarios through hundreds of thousands of simulations of potential outcomes. The results quantified significant risk management benefits under P3 delivery.

A **Monte Carlo model** simulates real-life events across hundreds of thousands of simulations in order to derive a high-confidence range of projected cost and schedule outcomes.

Table 4-4 – SGL Risk Assessment Results (70th Percentile Confidence Level)

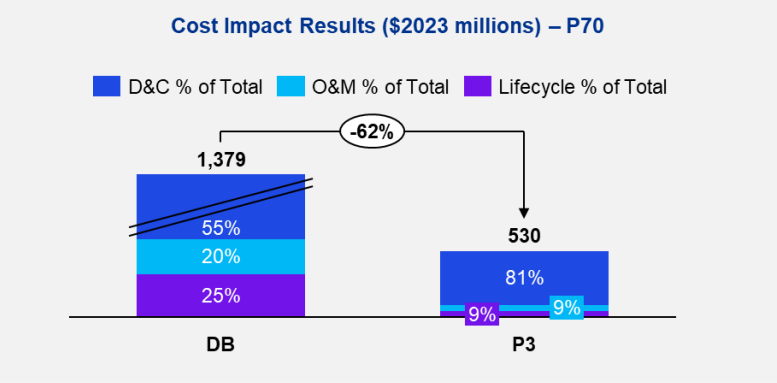
Cost Risk ($2023 millions)

	DB 70th Percentile	P3 70th Percentile
Design & Construction (D&C)	$753	$430
Cost impacts	$381	$123
Schedule impacts	$372	$307
Operations & Maintenance (O&M)	$280	$49
Lifecycle	$345	$50
Total Cost Risk	**$1,379**	**$530**

Schedule Risk (in months)

	DB 70th Percentile	P3 70th Percentile
Total Schedule Delay	24.79	15.37
Metro Average Delay Cost	$15 million	$20 million
Schedule Delay Cost ($M)	$372	$307

Figure 4-4 – Cost Impact Results Summary ($2023 millions) – P70

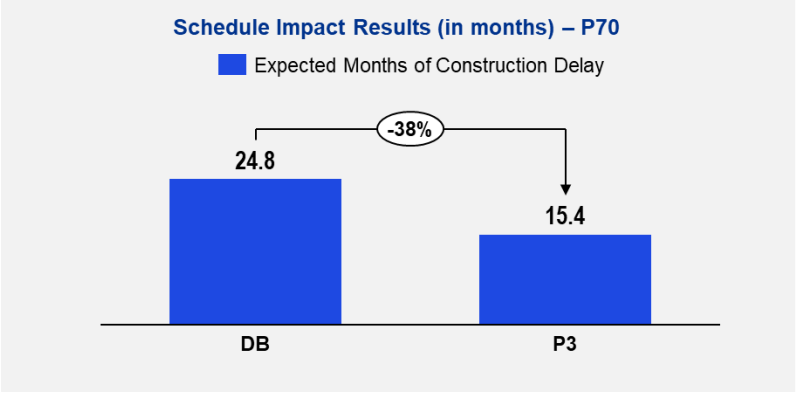


~$849 million in Risk Savings under P3

- Under a DB the total expected impact of risks over the project life is **$1.38 billion** in $2023, considering direct cost and schedule risk impacts
- Under a P3, the equivalent assessment estimates the impact to be **$530 million** in $2023.

Note: D&C risk results graphic includes $372M in DB schedule risk and $307M in P3 schedule risk

Figure 4-5 – Schedule Impact Results Summary ($2023 millions) – P70



9.4 months of
Schedule Improvement under P3

- Under a DB, estimated construction delays may total **over two years**
- Under a P3, estimated delays are calculated to be **15.37 months** as risks, such as key interfaces, are transferred to the P3 Developer

- **Risk-adjusted cost: $530 million under P3 vs. $1.4 billion under a traditional DB** (due to lower risk adjustments for a P3 delivery resulting from contractual incentives for a P3 developer to proactively mitigate risks):
  - Key P3 value drivers include more effective and proactive implementation of lifecycle, maintenance, and operational activities under P3.
  - Translated to costs, savings from the P3 delivery model's enhanced management and integration of lifecycle and O&M risks is up to ~$526 million as shown in the following Cost Impact Results Summary graphic and in Appendix A-5.
- **Potential schedule delay impacts under P3 estimated to be reduced to ~15 months vs. ~25 months for a traditional DB**
  - Key P3 value drivers include:
    - More efficient management of asset, systems, and infrastructure interface risks under P3 resulting in fewer D&C schedule delays
    - Fewer Metro change orders under a P3 (due to the detailed upfront specification-based nature of a P3 contract).
    - Strong adherence to testing / commissioning schedules (these are typically payment milestones in the P3 contract and a P3 is an integrated contract, with design is optimized to facilitate faster testing and commissioning as there are significant financial consequences to the P3 developer if these are delayed).
  - Translated to costs, these schedule savings are up to ~$64 million as described above and shown in the Appendix A-5. DB totals have been calculated based on Metro's historic cost of construction delay (averaging $15 million per month), while P3 totals are translated using $20 million per month to account for Metro-caused risks that cost relatively more under a P3 due in part to incremental financing costs and the likely result in larger claims from the private partner as their revenue stream, often APs, could be impacted.

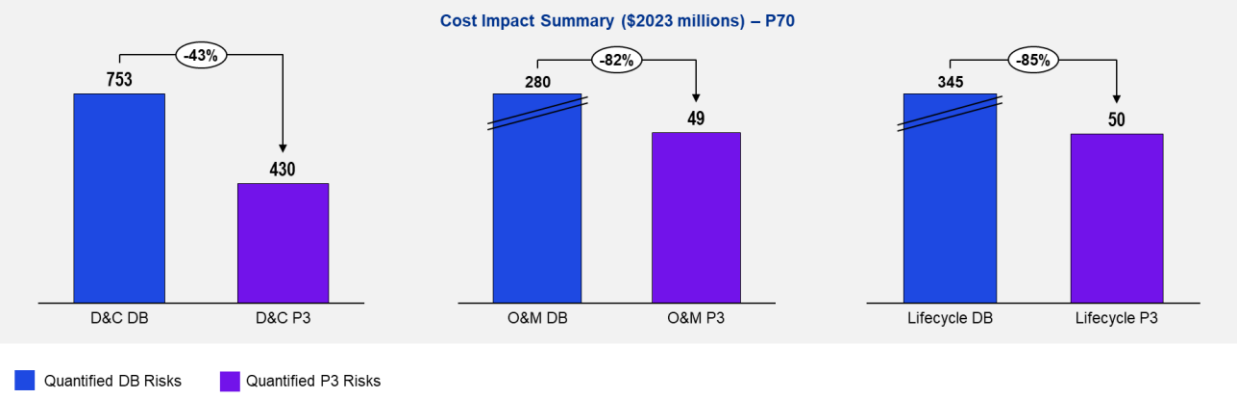
A **Confidence Level / Interval** is a statistical measure that gives the probability that an estimated result will fall within the provided interval.

For example, at a 70% (P70) confidence interval, this means that there is a 70% chance results are lower than the estimate. A P50 confidence interval means there is a 50% chance results are lower than the estimate.

These risk assessment results indicate that DBFOM potentially performs better at managing risk events and schedule impacts, relative to DB delivery. Detailed results are presented in the following figures at FTA-recommended confidence levels / intervals.

DBFOM risk costs, when compared to DB, are 61% lower in total due to the prescriptiveness contained in the P3 Agreement and the ability to transfer risks that Metro is less efficient at managing to a private sector partner under P3 than can better manage those risks.

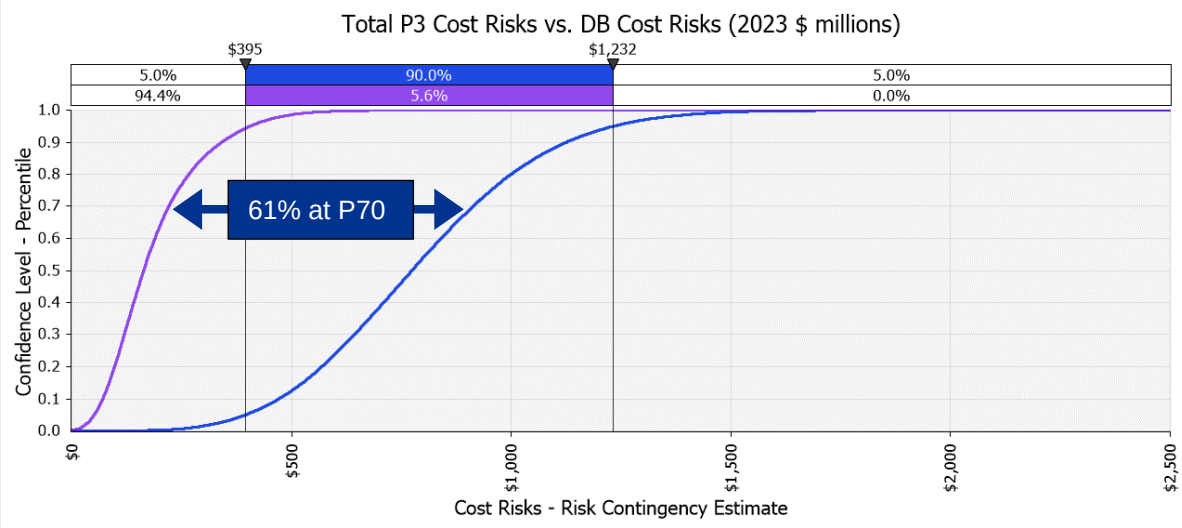
Figure 4-6 – Cost Impact Summary ($2023 millions) – P70



Note: D&C risk results graphic includes $383M in costs related to DB schedule risk and $319M in cost related to P3 schedule risk

Beyond the FTA-recommended estimate at the 70th percentile, the P3 delivery shows significant risk cost benefits at all statistical confidence levels. Figure 4-7 presents cumulative expected risk results (not including the monetized value of schedule risks) at various percentile levels for both P3 and DB delivery. The P3 cost curve **(in purple),** located to the left of the DB curve **(in blue)**, shows that the P3 model has lower costs of risk impacts than DB delivery at every percentile / statistical confidence level. However, as stated earlier, these figures represent unmitigated risk exposure to the Agency. Metro will be able to use this assessment to develop mitigation strategies, regardless of the delivery method, to reduce overall risk probabilities and impacts.

Figure 4-7 – SGL Cost Risk Impacts at Various Percentile Levels



4.5 Summary

In summary, Metro's risk assessment concluded that a P3 delivery approach for the SGL project has the potential for significant risk reduction, and as a result, costs associated with those risks. This applies to all phases of the LRT scope, particularly with the lifecycle.

The risk cost outputs described above from the risk assessment are then added to total LRT scope cost in the table below in place of contingency amounts developed by Jacobs. The resulting risk-adjusted cost estimates for the LRT scope in the last line of the table below are then used in the VfM analysis described in the following chapter. The VfM analysis then calculates the overall costs of each delivery model and any associated savings.

Table 4-6 – Final Risk-Adjusted Costs Under P3 versus Traditional DB Delivery

Risk Adjustment Components	Dollar Year	DB			P3		
		D&C	O&M	LCC	D&C	O&M	LCC
Base Cost Estimate (AWP +LRT) w/ Contingency	2023 $ Millions	5,941[1]	3,298	902	5,941[1]	3,088	827
Step 1a: Remove Non-LRT Scope	2023 $ Millions	-2,355	N/A	N/A	-2,355	N/A	N/A
Step 1b: Remove Contingency	2023 $ Millions	-1,024	-299	-243	-1,024	-238	-222
Step 2: Add Risk Assessment Results	2023 $ Millions	753	280	345	430	49	50
Step 3: Add PSC Risk Premium[2]	2023 $ Millions	271	19	N/A	271	19	N/A
Total: LRT Scope Risk-Adjusted Cost Inputs to Models[3]	2023 $ Millions	3,586	3,299	1,005	3,263	2,918	655

1. *AWP costs are included in D&C*
2. *Risk premium only applies if assessment results are less than Jacobs' contingency*
3. *Numbers may not foot due to rounding*

Chapter 5: Value for Money

5 Value for Money

5.1 VfM Overview

A VfM analysis is a globally accepted approach to assess the potential benefits (or drawbacks) that alternative delivery / P3 approaches can offer to public agencies when compared to traditional procurement approaches for a particular project. It is also required by the Build America Bureau for projects with an estimated cost above $750 million applying for federal credit under the TIFIA and RRIF programs[2]. A financial analysis is developed for each of the respective delivery options described below. Financial models help facilitate this analysis by quantifying the periodic cash flows over the proposed contract life. This approach estimates the whole of life risk-adjusted Project costs for each delivery option. Each project delivery model is then compared on a like-for-like basis using present value dollars. Present value allows for the comparison of two sets of cashflows on a similar basis by adjusting them for inflation and the opportunity cost of capital with the use of a discount rate.

Scenarios were developed to quantify Metro's costs under a traditional procurement approach (DB) and a P3 delivery (DBFOM).

- **Public Sector Comparator (PSC):** The PSC represents total whole of life costs to deliver the Project under a DB delivery option. Under the DB approach, Metro generally completes approximately 30% design for the Project before a contractor is procured to complete design and construction. Metro is responsible for funding, financing, operations & maintenance, and lifecycle costs.
- **Shadow Bid:** The Shadow Bid analysis represents the total whole of life costs to deliver the Project under a DBFOM / P3. Under this model, Metro retains an oversight role and is the Project owner. The P3 developer assumes some of the risks traditionally held by Metro, and is compensated for completing design and construction, operations & maintenance, and lifecycle through performance-based payments known as APs.

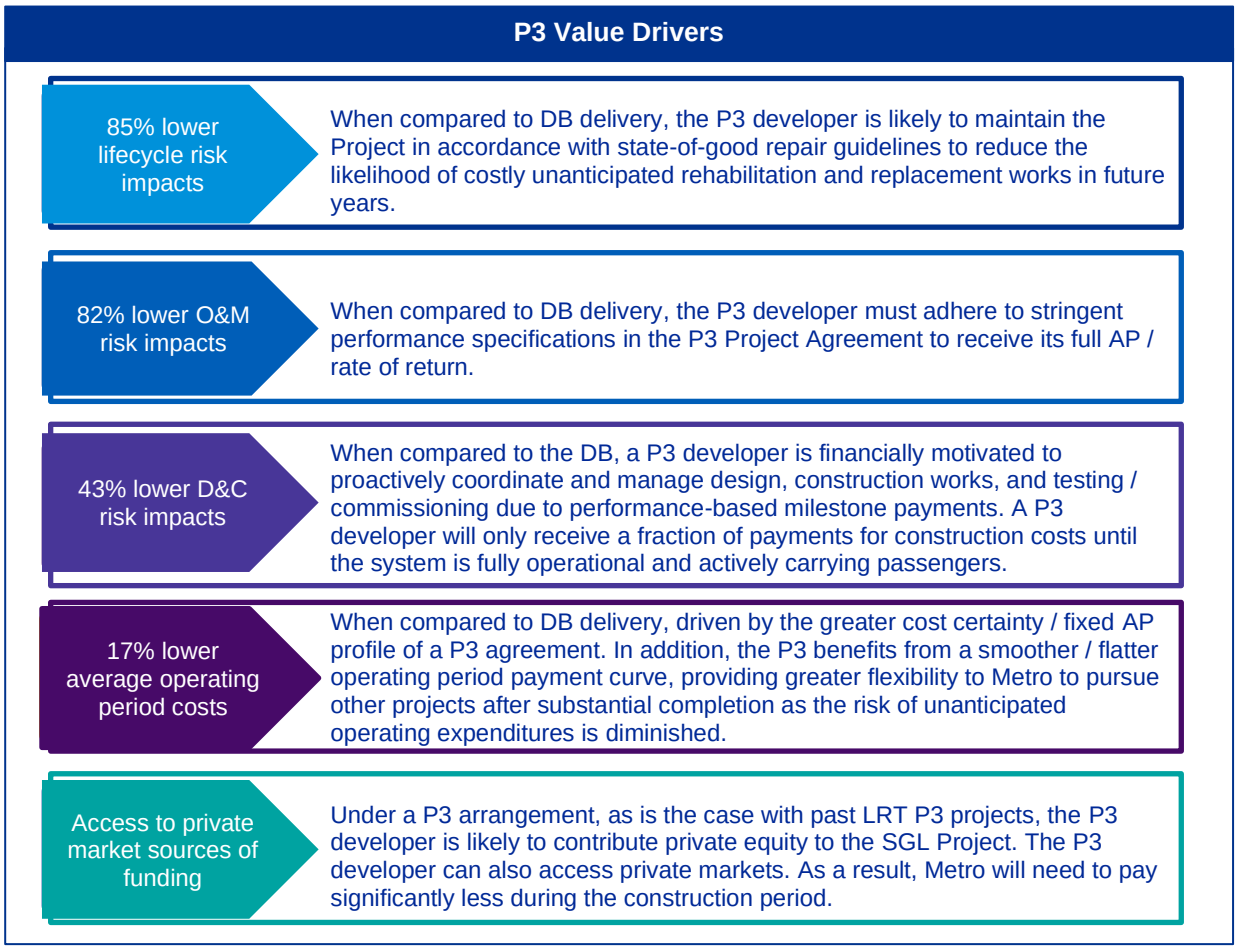
Based on the analysis and the underlying assumptions described herein, it is estimated that Metro may achieve between $60 million (0.77%) to $407 million (6.69%) of VfM in NPV terms by pursuing the Project as a DBFOM P3, as compared to a DB. This is due to additional costs that Metro would incur associated with identified risks. These numbers represent results determined under a range of assumptions considered for each scenario.

For additional information concerning the assumptions for the analysis, refer to Appendix A.6 on Cost Inputs and Financial Assumptions.

The VfM savings are driven by the reduced costs resulting from P3 delivery and more efficient pricing of transferred risks. These value drivers are listed in Figure 5-1 below and include:

[2] Section 70701 of the Infrastructure Investment and Jobs Act

Figure 5-1 – P3 value drivers



The following sections and data inputs included in the Appendix provide further detail on how key P3 value drivers impact overall whole of life Project delivery cost.

5.2 Preliminary VfM

5.2.1 PSC Assumptions and Approach

The PSC is intended to represent Metro's own approach to Project delivery. Cost inputs to the analysis were developed by Jacobs and are included in the appendices to this report. Following adjustments for risk, as described in chapter 4, the total risk-adjusted PSC costs for the Project are then evaluated against the proposed Shadow Bid (P3) delivery approach.

The PSC model includes only costs for the LPA component of the Project and assumes that Metro funding is first applied to the AWP contract and ROW acquisition. The remaining funding available is then assumed to be used for the construction completion of the LPA Project, conducted from FY2027 to FY2036. Financing has been assumed in the

PSC (see appendix 1.5.3 for summary term sheet) for scenarios where funding during construction is not available in any period.

O&M and Lifecycle costs are included in the analysis from FY2036 to FY2066 (i.e., the assumed expiration of the proposed P3 Project Agreement). Costs developed by Jacobs are adjusted for risk, as described in chapter 4, and then included in the PSC financial analysis.

Recognizing the range of possible approaches to estimating inputs, scenarios for the PSC were developed to illustrate the range of potential outcomes that could occur based on the inputs assumed.

Table 5-1 – PSC Basic Inputs

Input	Description	Notes
Costs	• D&C, O&M, and Lifecycle	• Provided by Jacobs. • AWP is not included in VfM, but is taken into account for the calculation of net funding available
Risk Adjustment	• P70 outputs per Monte Carlo model	• Risk adjusted costs as described in chapter 4, using P70 outputs
Funding	• LRTP (Feb-24): $7.167 billion	• Metro's LRTP (see Chapter 6) includes both secured and unsecured sources of funding • Scenarios included: all CapEx funding; secured sources only; and secured sources only with assuming additional New Starts funding
Financing	• Sales Tax backed Bonds (refer to Appendix 1.5.3)	• For Scenarios where funding was insufficient to cover AWP, funding based on owner-retained costs and LPA CapEx • Assumes GANs financing per the LRTP (February 2024)
Macroeconomic Assumptions	• Inflation assumptions	• To illustrate the impact of changes in macroeconomic conditions, inflation was tested under base case and high inflation assumptions:

Input	Description	Notes
		• 3.5% CapEx; 2.5% O&M; and 3.0% Lifecycle (base case) • 5.8% CapEx; 3.2% O&M; and 3.6% Lifecycle (high inflation)

5.2.2 PSC Scenario Results

Using the base costs provided by Jacobs, a base case along with a range of sensitivities for public sector delivery was developed. The PSC scenarios assume Metro pay-go funding available of between $2.791 billion (YOE) to $7.167 billion (YOE), depending on the source and commitment, through the 2036 opening year. As noted above, for scenarios where funding is insufficient, Metro financing is assumed in the form of sales tax revenue bonds, to pay for additional needs. Table 5-2 below presents the PSC scenario highlights while Table 5-3 presents the PSC cost profile.

Table 5-2 – PSC Scenario Highlights

Total Cost	Funding Sources	Other Highlights
▪ $6.5 billion to $7.9 billion (NPV) ▪ $14.1 billion to $18.2 billion (YOE)	▪ Metro pay-go: $2.791 billion to $7.167 billion (YOE) inclusive of unsecured and secured federal grant / state / local sources ▪ Sales Tax Revenue Bonds: To cover remaining needs after pay-go has been exhausted	▪ Wide projected range of annual expenditures during operations ($154M to $642M in YOE) in base case ▪ 30-years annual average operations payment: $308 million (YOE) in base case

Table 5-3 – PSC Cost Profile (NPV and YOE $ Millions)

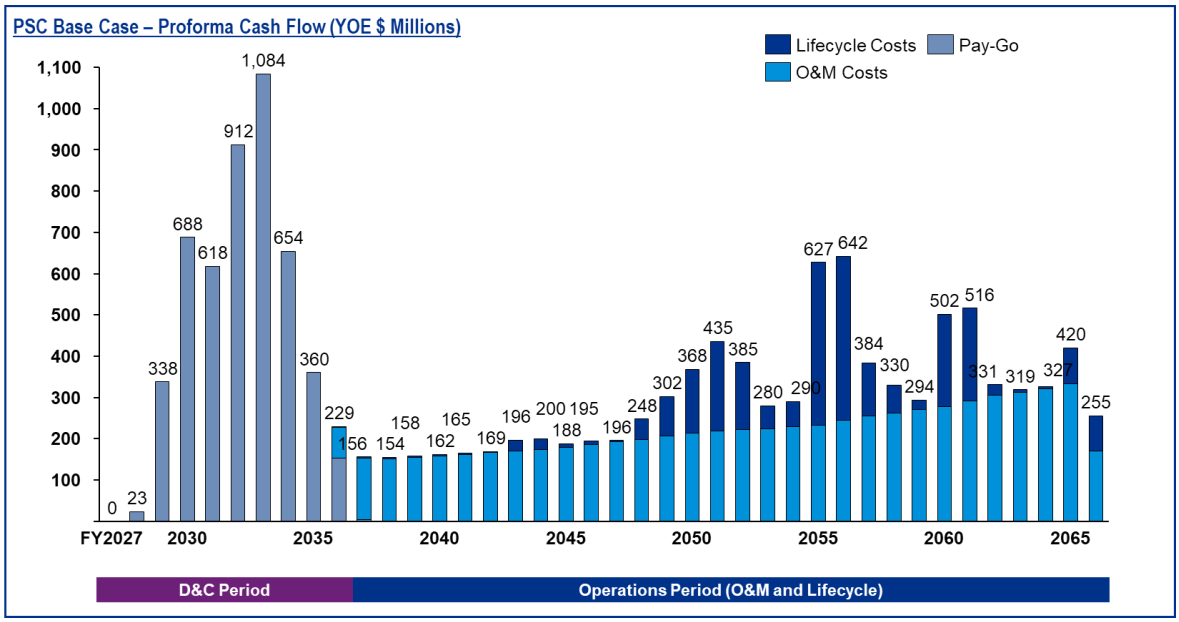
PSC Cost Profile		
	NPV	YOE
D&C Cost (Pay-Go)	$1,390 to $4,599	$1,908 to $5,861

PSC Cost Profile		
Debt Service	$0 to $2,994	$0 to $6,628
O&M Costs	$2,070 to $2,475	$6,708 to $8,223
Lifecycle Costs	$664 to $795	$2,556 to $3,079
Total Costs[1,2,3]	**$6,496 to $7,868**	**$14,098 to $18,192**

1. VFM analysis excluded AWP and ROW. NPV figures were discounted to 2027 $.
2. Competitive neutrality, unique to PSC delivery costs, has been excluded. These costs may be added to the PSC cost profile to account for items not typically charged to the public sector (i.e., taxation and insurance).
3. Total costs are presented for sensitivities considered individually. Totals may not sum as sub-cost categories are presented for the range of sensitivities considered holistically.

Figure 5-2 illustrates the proforma cash flow for the PSC base case over a period spanning the design and construction and the 30-year operations period.

Figure 5-2 – PSC Base Case Proforma Cash Flow (YOE $ Millions)



5.2.3 Shadow Bid Assumptions and Approach

The Shadow Bid is intended to represent the risk-adjusted cost of the Project delivered by P3 developer under a DBFOM. Using Jacobs' base costs and assumptions about current and anticipated market conditions, a base case along with a range of sensitivities for P3 delivery were developed and compared to PSC scenario results.

The Shadow Bid model only includes costs associated with the LRT scope to be delivered under the P3 Project Agreement. It is assumed that a portion of the Project construction costs are paid using Metro capital funds identified in the February 2024 LRTP funding plan during construction. The remainder of the construction cost is assumed to be financed by the P3 developer through a combination of TIFIA, PABs, and equity contributions and the P3 developer is assumed to be paid certain milestone payments and APs, which it then uses to cover O&M, major maintenance and repay debt and achieve a return on its equity investment. For additional detail on financing assumptions, refer to appendix 1.5.3 for summary term sheets.

Once the Project becomes operational in FY2036, the P3 developer, is paid the APs in accordance with the terms of the P3 Project Agreement, as performance-based payments through FY2066 (i.e., a 30-year operating term for the proposed P3 Project Agreement).

APs made to the P3 developer are assumed to include both an indexed portion (i.e., variable AP), which is linked to inflation, and an unindexed component (i.e., fixed AP). The variable portion of the AP is structured to compensate the P3 developer for O&M and lifecycle costs which increase over time due to inflation. The fixed portion of the AP is designed to compensate a P3 developer for costs which follow a pre-determined schedule, such as financing costs borne by the P3 developer. The split between variable and fixed

AP often depends upon unique Project attributes, including the magnitude of operating costs once inflated to YOE dollars.

Recognizing the range of possible approaches to estimating inputs, scenarios for the Shadow Bid were developed to illustrate the range of potential outcomes that could occur based on the inputs assumed.

Table 5-4 – Shadow Bid Assumptions

Input	Description	Notes
Subsidy Payment	• Metro-provided compensation to the P3 developer to fund initial Project CapEx	• Metro's LRTP includes both Secured and Unsecured sources of funding which will be used to fund subsidy payments made to the P3 developer • To account for this uncertainty, scenarios considered a range of subsidy payments sized between 50% to 70% of CapEx (YOE dollars)
Lifecycle Costs	• Profile of Lifecycle costs over the operating period	• Using Jacobs' lifecycle cost estimates, these base lifecycle cost estimates (in 2023 dollars) between 2043 and 2065 are assumed to be spread (through smoothing, as opposed to lumpy intermittent payments)
AP Indexation Split	• Assumed allocation between variable and fixed AP	• Due to the magnitude of the O&M and lifecycle costs and prolonged duration over which they are incurred, a significant portion of the AP is assumed to be indexed to account for inflation associated with these costs • Scenarios considered the proportion of variable AP to comprise between 50% to 65%
Financing	• Amount of Federal financing	• TIFIA financing typically provides financing for up to 33% of eligible Project costs, however, financing can be provided up to 49% for transit projects selected for award through the TIFIA 49 initiative • Scenarios considered a range of TIFIA financing award between 33% to 49% for eligible Project costs

Input	Description	Notes
Macroeconomic Assumptions	• Inflation assumptions	• To illustrate the impact of changes in macroeconomic conditions, inflation was tested under base case and high inflation assumptions, scenarios included: • 3.5% CapEx; 2.5% O&M; and 3.0% Lifecycle (base case) • 5.8% CapEx; 3.2% O&M; and 3.6% Lifecycle (high inflation)

5.2.4 Shadow Bid Scenario Results

Using Jacobs' base costs and assumptions for current and anticipated market conditions, a base case along with a range of sensitivities for P3 delivery were developed. The P3 scenario assumes between $1.715 billion (YOE) to $2.401 billion (YOE) in available Metro pay-go to fund subsidy payments during construction.

The following tables and figures contain more information on the Shadow Bid (P3) scenario.

Table 5-5 – P3 Scenario Highlights

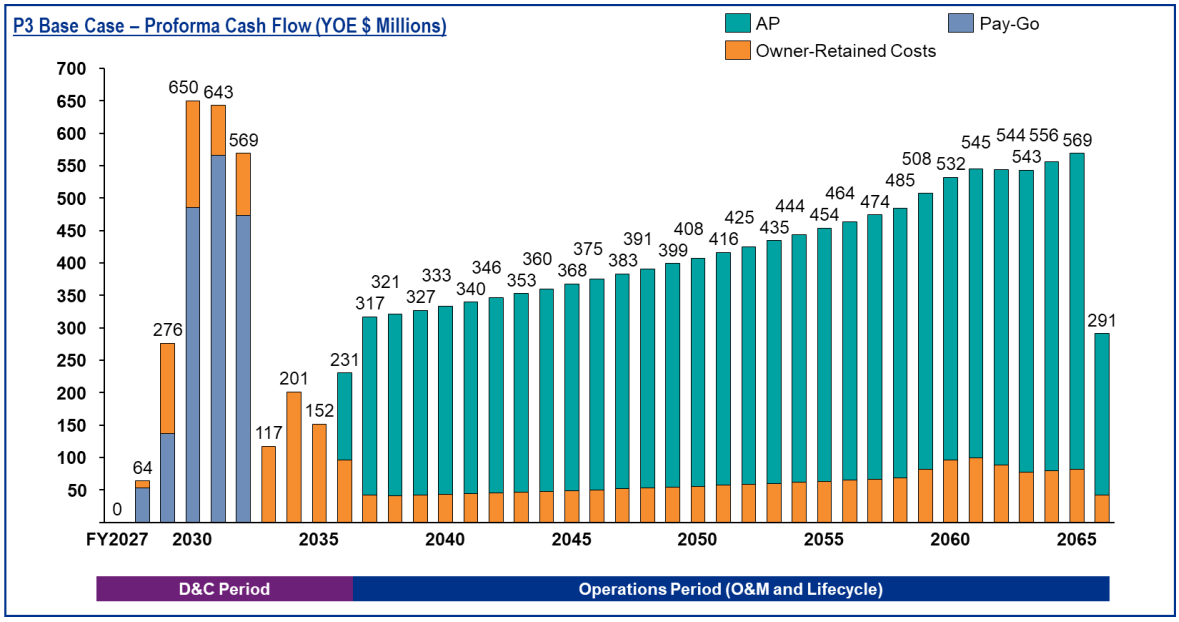
Total Cost	Funding Sources	Other Highlights
▪ $6.1 billion to $7.8 billion (NPV) ▪ $14.0 billion to $19.9 billion (YOE)	▪ Metro pay-go: $1.715 billion to $2.401 billion (YOE) inclusive of available tax receipts and potential state / federal grant sources ▪ TIFIA, PABs, and developer equity to fund the remaining portion of the LRT scope of the Project costs ▪ 90 /10 debt / equity split, with 12% projected developer rate of return	▪ Annual expenditures during operations range from $317M to $569M (YOE) in base case ▪ 30-years annual average AP: $363 million (YOE) in base case

Table 5-6 – P3 Scenario Cost Profile

P3 Cost Profile		
	NPV	**YOE**
D&C Cost (pay-go)	$1,439 to $1,996	$1,715 to $2,401
AP: CapEx, O&M, and Lifecycle	$2,747 to $4,671	$8,711 to $14,707
Owner Retained Costs	$1,375 to $1,667	$2,871 to $3,516
Total Costs[1,2]	**$6,089 to $7,809**	**$13,983 to $19,938**

1. VFM analysis excluded AWP, ROW, and owner-retained costs prior to 2023. NPV figures were discounted to 2027 $.
2. Total costs are presented for sensitivities considered individually. Totals may not sum as sub-cost categories are presented for the range of sensitivities considered holistically.

Figure 5-3 – P3 Base Case Proforma Cash Flow (YOE $ Millions)



5.3 VfM Summary

A VfM analysis considers the whole of life cost of delivery of a project under different delivery approaches and then compares the total risk-adjusted cost of delivery of each in net present value dollars. The table and figures below show a comparison of a range of NPV totals under scenarios for both the PSC and DBFOM and the resulting potential VfM. Where the NPV of a cost of delivery for one is lower than another, it represents value for money compared to the other delivery approach.

The VfM analysis indicates that there is a range of potential savings from pursuing a P3 (DBFOM) model for the Project of between 0.77% to 6.69% (or between $60 million to $407 million in total in NPV).

The savings potential under a P3 can be attributed to increased alignment of incentives and more efficient allocation of risks between Metro and the developer. Financially, the developer is incentivized to deliver on Metro's contractual specifications and perform regular routine maintenance along with major lifecycle repairs – or it risks deductions in the APs it receives. The developer is also motivated to better integrate design with delivery resulting in better interface, rolling stock, and systems management to increase operational efficiency and improve its bottom line. Recurring APs and potentially higher profitability can in turn reduce the risk of developer default and shield Metro from adverse financial impacts.

Table 5-7 – VfM Results (NPV)

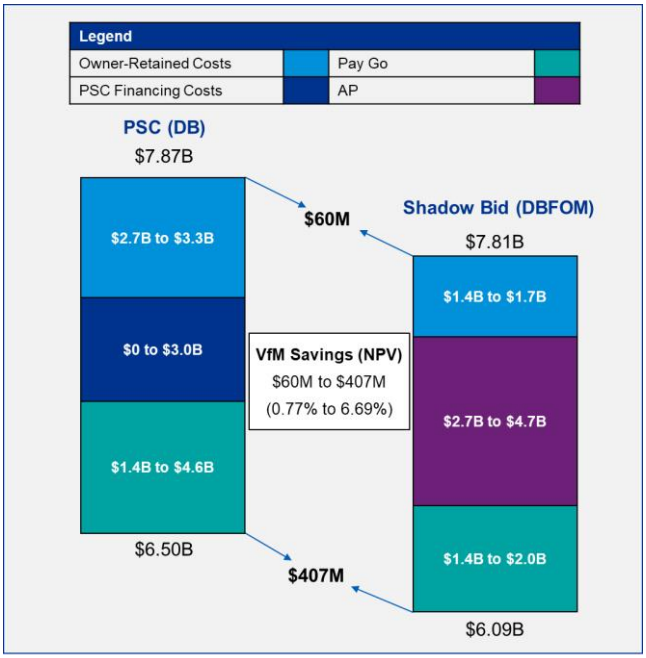
NPV ($)	PSC	Shadow Bid (P3)
Pay-Go (Both)	$1,390M to $4,599M	$1,439M to $1,996M
O&M (PSC)	$2,070M to $2,475M	
Debt Service (PSC)	$0 to $2,994M	
AP: CapEx, O&M, and Lifecycle (P3) [1]		$2,747M to $4,671M
Lifecycle (PSC)	$664M to $795M	
Owner-Retained Costs (P3)		$1,375M to $1,667M
Total Cost of Delivery[2,3]	**$6,495M to $7,868M**	**$6,089M to $7,809M**
Cost Differential	**$60M to $407M**	
Percentage Savings	**0.77% to 6.69%**	

1. P3 financing costs are assumed to be embedded within AP costs. This is because compensation for financing costs is typically captured within periodic APs paid to the P3 developer.
2. VFM analysis excluded AWP, ROW, and owner-retained costs prior to 2023. NPV figures were discounted to 2027 $.
3. Total costs are presented for sensitivities considered individually. Totals may not sum as sub-cost categories are presented for the range of sensitivities considered holistically.

The graphic below in Figure 5-4 illustrates the cost components of each delivery approach.

Figure 5-4 – VfM Results (Net Present Value Dollars)

In this Figure: VfM analysis conducted for the Project estimated between **0.77% to 6.69% in VfM savings ($60M to $407M in NPV)** from delivering the Project under a P3 delivery approach compared to Metro's traditional DB approach.



Note: P3 financing costs are assumed to be embedded within AP costs. This is because compensation for financing costs is typically captured within periodic APs paid to the P3 developer.

The VfM analysis has therefore bracketed the range of potential savings expected from delivering the LRT Components of the Project using a P3 approach.

Based on available results from other North American public agencies, who have conducted value for money analyses as part of their decision-making process for project delivery, the VfM range presented for SGL appears at the lower end of the range. While each agency and project will have its own unique set of circumstances, broadly this would suggest that while the analysis indicates the potential for value for money in pursuing a P3 for the Project the argument for P3 delivery for the SGL may be less robust as compared to those other agencies.

The next Chapter 6 on Funding and Affordability puts this VfM in the broader context of how the project can be funded.

Chapter 6: Project Funding and Affordability

6 Project Funding and Affordability

6.1 Introduction

Following the evaluation of VfM for the LRT Components of the SGL Project, an assessment of affordability of the entire SGL program was explored, including the cost of the AWP scope. To assess affordability, Metro funding sources identified for the Project were compared to total costs to identify funding shortfalls and surpluses over the proposed life of the project (i.e., including operating costs and State of Good Repair costs).

6.2 Uses of Funds

The total cost of the Project delivery includes several components and the timing of funding required by each will influence the affordability profile of the Project. Metro will require funding for several components before and during the construction period (pre-FY2035), including right of way purchases and advanced preliminary engineering.

Pre-Construction and Construction period activities and uses of funds:

- Advanced Works Package as described in previous chapters: elements of the SGL program are to be expedited in an advanced works package or geotechnical, utility, grade crossing, permitting and other elements that Metro will deliver for the project (regardless of the delivery option for the LRT component). This approach is intended to reduce the overall project cost as an acceleration of these items reduces total project risk and allows for more efficient pricing of the construction elements. Metro is pursuing a CM/GC approach for these elements, which would likely include the agreement to a guaranteed maximum price (GMP), limiting potential for cost overrun during construction.

- Right of Way: the project corridor includes several ROW acquisitions including publicly owned parcels and railroad owned parcels.

- Milestone payments: the payments for the DBFOM delivery are assumed to include payments to be made by Metro during construction for as construction completion progresses for the Project. These payments will be used by the P3 developer to fund a portion of the Project construction costs.

- Metro retained costs: these costs refer to Metro internal costs for oversight of the AWP and P3 contracts during construction.

A key incentive for a P3 developer to achieve construction completion and operations start is that APs for the project will not commence until contractual obligations are satisfied with respect to construction completion and operations commencement. The APs then commence payment for operations, major maintenance, and private finance (e.g., debt and equity), invested during the construction period.

Operating period activities and uses of funds:

- Availability Payments: Metro will make APs to the P3 developer over the 30-year operating period. A portion of APs will be subject to deductions for non-performance and unavailability events, as defined in the Project Agreement. The AP is comprised of two components:

    - **Fixed AP – Capital Component:** Fixed dollar amount per year to cover debt service (principal and interest) and provide a return to equity.

    - **Variable AP – Operating Component:** Fixed dollar amount per year, with adjustments for inflation (inflation adjustment typically applied annually, based on pre-defined inflation index in the Project Agreement). Intended to pay for operating costs. This operating component would also include potential penalties for missed KPIs.

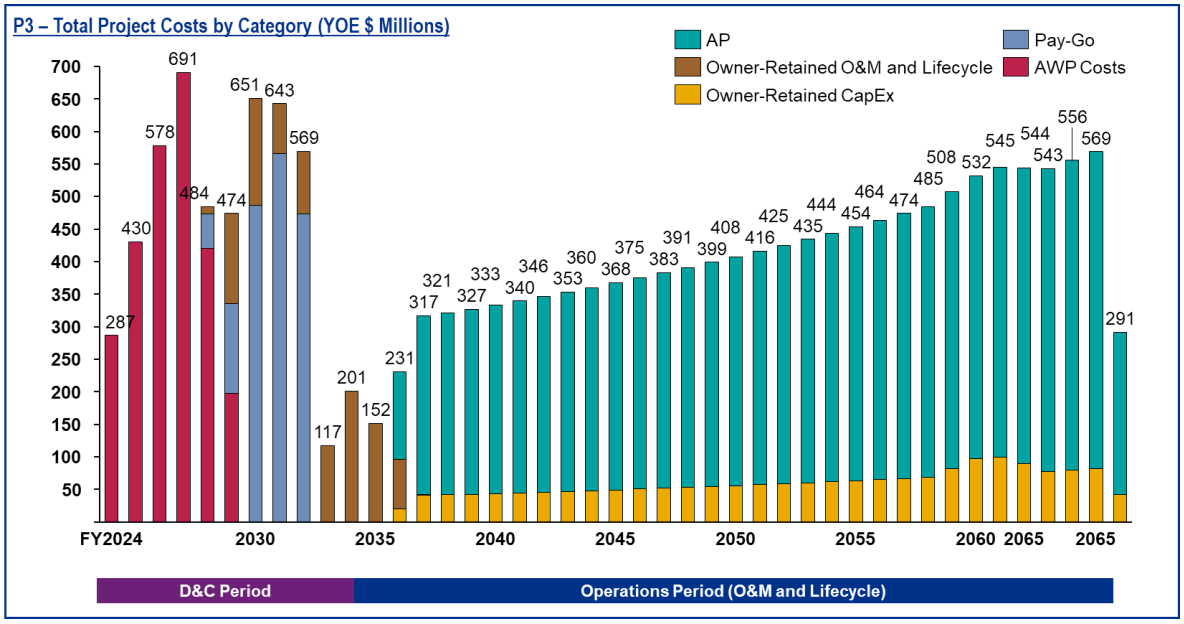
Table 6-1 – P3 Base Case Total Project Costs by Category (YOE $ Millions)

Costs by Category		
	50% Scenario	70% Scenario
Advanced Works and ROW	$2,605	$2,605
Metro Retained Construction Costs	$1,036	$1,036
Milestone Payments	$1,715	$2,401
Total Capital Costs (A)	**$5,356**	**$6,042**
Metro Retained Operating and Lifecycle Costs	$1,835	$1,835
Availability Payments*	$11,024	$8,710
Total Operating Costs (B)	**$12,859**	**$10,545**
Total Project Costs (A+B)	**$18,215**	**$16,587**

*P3 financing costs are assumed to be embedded within AP costs. This is because compensation for financing costs is typically captured within periodic APs paid to the P3 developer

As shown in Figure 6-1 below, the program requires a large investment in the early years, including significant right-of-way costs. Following construction completion, the P3 developer is then compensated for operations, major maintenance, lifecycle and payments to private finance over the operating period. These payments are further governed by a mechanism that ensures a pre-defined level of service, and payments to the P3 developer are reduced to the extent that poor service is encountered through the use of clearly defined KPIs in the P3 Agreement.

Figure 6-1 – P3 Total Project Costs by Category – 50% scenario (YOE $ Millions)



The intention would be to structure APs such that they do not impact Metro's existing flow of funds. As with other P3 projects, the APs will be contractual obligations between Metro and the P3 developer. It is unclear at the moment how the capital portion would be treated; the operating portion would likely not be included within Metro's debt obligations. This approach may provide greater flexibility to Metro for structuring long term projects where capital constraints exist in the early planning years and ordinance and debt policy constraints limit the ability to access capital. A portion of APs is tied directly to the success of the Project performance under the P3 Agreement and the P3 Developer's incentives are aligned with Metro for Project completion and long-term operations and maintenance performance.

6.3 Sources of Funds

Metro is currently revising the cost estimate and funding plan for the SGL Project, however, major funding sources and the most recent LRTP funding plan are discussed below.

Metro's planning department manages the allocation and tracking of funds within the LRTP which matches Metro's proposed capital projects with the various sources of available funding. Metro's treasury department is responsible for managing Metro's financing activities. To date, most of the Metro's long-term debt has been issued to fund the construction costs of the light and heavy rail lines. Debt is secured primarily by three of its sales taxes (Proposition A, Proposition C and Measure R). Currently, there is no debt secured by the fourth sales tax, Measure M. Each of the four measures are currently 0.5% of sales taxes in Los Angeles County.

Measure M, Metro's most recent voter approved sales tax, came into effect in 2016 and included allocations for the Project.

As shown below, Metro's most recent LRTP (February 2024) has a total construction cost funding allocation of $7.167 billion for the Project. The amount and schedule of availability of Measure R and Measure M transit funding is specified in the respective sales tax ordinances. Metro has received a $300 million grant through the state's Transit and Intercity Rail Capital Program (TIRCP), $18.5 million in funding from the Local Partnership Program, and an $11 million Community Project Funding grant from the FTA. All other state and federal grant funding are planned but not yet committed.

Metro has the following planned and committed funding sources for the Project, included in the table below.

Table 6-2 – Construction Funding Sources (YOE $)

	Construction Funding Sources	($ millions)	
Federal	FTA Community Project Funding	11.0	Committed
Local	Prop A - Rail Development Account (35%)	460.9	Committed
Local	Prop A - Rail Development Account (35%) Bonds	50.0	Committed
Local	Measure R - Transit Capital (35%)	145.5	Committed
Local	Measure R - Transit Capital (35%) Bonds	94.5	Committed
Local	Measure R - Highway Projects (20%)	108.4	Committed
Local	Prop C - Transit-Related Highway (25%)	1.4	Committed
Local	Local Agency Transit Project Contributions	215.7	Committed
Local	Measure M -Transit Construction (35%)	272.0	Committed
Local	Measure M -Transit Construction (35%) Bonds	1,111.0	Committed
Local	Measure R - Admin (1.5%)	0.5	Committed
State	Transit and Intercity Rail Capital Program (TIRCP)	300.0	Committed
State	SB1 - Local Partnership Program	18.5	Committed
Total Committed		**2,789.4**	
Federal	Section 5309 New Starts	2,975.7	Planned
Federal	Other Federal Funds	302.0	Planned
Local	Other Local Revenues	500.0	Planned
State	Transit and Intercity Rail Capital Program (TIRCP)	200.0	Planned
State	Other State Funds	400.0	Planned

Total Planned	**4,377.7**
Total	**$7,167.0**

6.3.1 Measure R

The Measure R ordinance was approved by voters in November 2008 and includes an allocation of $240 million of sales tax revenue for the Project capital costs.

In addition, funding relating to surplus funds on the Interstate 5 Capacity Enhancement from I-605 to Orange County Line highway project (the surplus created due to the passage of the ordinance), currently estimated at $108 million, is also to be expended on the Project. The Measure R sales tax ends in 2039.

6.3.2 Measure M

This measure was approved in November 2016 and allocated funds to the Project in two tranches. Funds available prior to 2028 and funds programmed after 2041. The ordinance requires that no less than $535 million of Measure M sales tax revenue be spent on transit capital costs of the FY28 segment and $900 million on the FY41 segment. Measure M sales tax revenue is currently eligible for construction spending and can be increased for inflation if a sufficient amount is expended after FY 2026. Measure M sales tax does not have an end date.

The Project was allocated $1.435 billion in $2015 from Measure M, with access beginning in 2022. The 2024 LRTP (subject to change) includes $1.38 billion of Measure M funds, $1.11 billion of which will come from bond proceeds.

6.3.3 State Funding Sources

Metro applied for and was granted $300 million from the State of California through the TIRCP for SGL in 2018. The grant will be used for construction of the Locally Preferred Alternative. The State has also awarded the project $23.9 million from the Local Partnership Program and $18.5 million of these funds are being used for pre-construction and planning activities.

6.3.4 Other Committed Federal, State and Local Funding

Other committed funding includes local sales tax that is eligible for transit capital ($1.4 million of Proposition C 25% Transit Related Streets and Highways and $510.9 million of Proposition A 35% Rail Development). In addition, $11 million of Community Project Funding grants from the FTA is also committed.

6.3.5 Other Planned Federal, State and Local Funding

As noted in the table above, Metro has planned amounts of $2.975 billion in New Starts and $302 million in Other Federal funding which are not committed at this time. The largest potential source of funding is a New Starts Grant which Metro has been pursuing for the Project. The current approach and scope, contained in the FEIS has been scored by Metro, based on FTA criteria, to be a good candidate for FTA grant funding.

Additional uncommitted funding amounts from State and Local sources include proposed State Revenue of $400 million and other local revenue of $500 million. These uncommitted funds would cover a significant funding gap for the Project, and if not secured, however not sufficient enough that their lack would stop the Project from proceeding to the next phase of the New Starts process, the Engineering Phase. However, entering this phase would require a resolution of this funding gap to be identified within a 3-year time period.

6.3.6 Operating Funds

Metro receives transit operations-eligible funding from a range of longstanding local, State, and federal sources and plans to use these funds for operating costs of the Project.

Primary local sources are the percentage allocation of each of Metro's sales tax ordinances that are to be used for operations-eligible costs: Proposition A 35% Rail Development, Proposition C 40% Discretionary, Measure R 5% Rail Operations, and Measure M 20% Transit Operations and 5% Rail Operations. Metro also receives rail operating revenue from fares, advertising, and other miscellaneous sources. State funding includes the State Transit Assistance and Low Carbon Transit Operations Program that are allocated to Metro by formula. Federal funding for Metro rail operations is primarily comprised of FTA Section 5337 State of Good Repair and CMAQ grants, which are also allocated to Metro by formula.

Total operating and State of Good Repair funding allocated to the Project within the LRTP are summarized in the table below.

Table 6-3 – O&M and SOGR Committed vs Funding ($ millions)

Total Project Cost vs. Available Funding		
O&M – Committed	$1,851.1	59%
SOGR - Committed	$1,279.4	41%
Total Committed	**$3,130.5**	
O&M – Funding - Planned	$700.2	52%
SOGR – Funding - Planned	$658.3	48%
Total Planned	**$1,358.5**	
Total Committed and Funding - Planned	**$4,489.0**	

6.4 Affordability Assessment

This section lays out the initial funding gap for the Project based on the profile of funding sources provided in the Feb 2024 LRTP (subject to change) compared against Project costs.

6.4.1 Affordability Gap based on Feb 2024 LRTP

The net funding gap for the total program delivery, based on the sources and uses described above is shown below:

Table 6-4 – Net Project Funding Gap (YOE $ Millions)

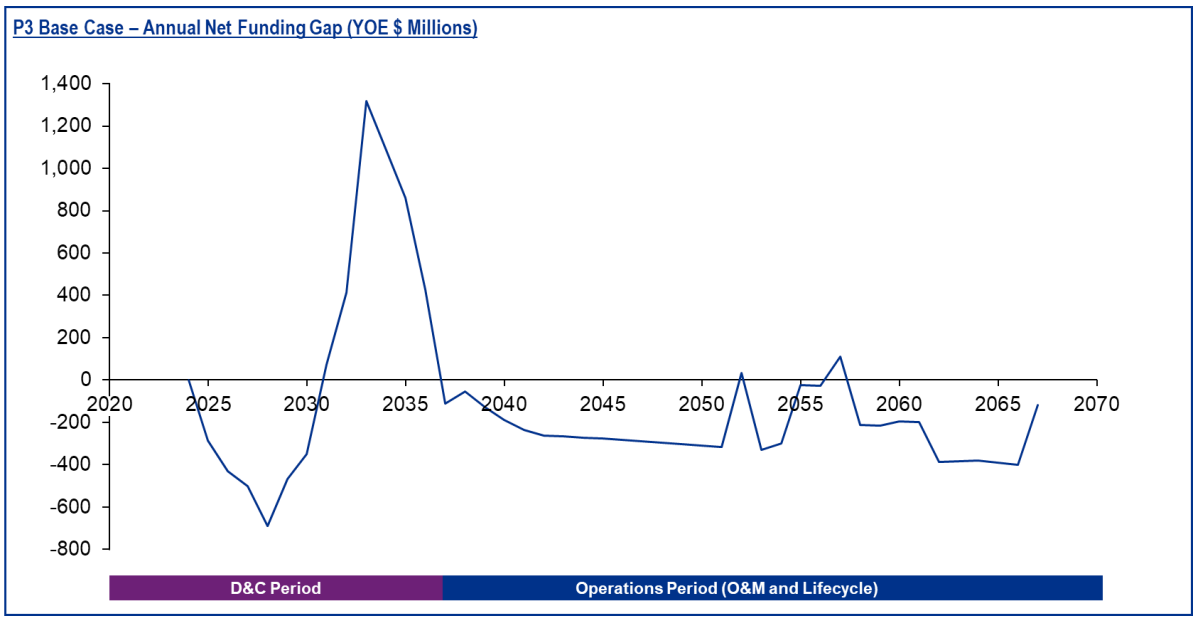
Total Project Cost vs. Available Funding		
	50%	70%
Total Project Capital Costs (see Table 6-1 above)*	$5,356	$6,042
Total Capital Funding Available - Secured*	$2,791	$2,791
Assumed New Starts	$2,975	$2,975
Net Construction Period Funding (Shortfall)/ Surplus	**($411)**	**$276**
Total Capital Funding Available – Unsecured*	$1,400	$1,400
Net Construction Period Funding (Shortfall)/ Surplus	**$989**	**$1,676**
Total Project Operating Costs (see Table 6-1 above)*	$12,859	$10,545
Total Operating Funding Available *	$5,471	$5,471
Net Operating Period Funding Shortfall	**($7,388)**	**($5,074)**
Total SGL Project Funding Gap	**($6,399)**	**($3,398)**

** A P3 is structured such that APs are made to compensate the developer for capital, O&M, lifecycle, and financing costs. The Capital portion of the AP includes D&C costs, while the Operating portion includes O&M and lifecycle costs.*

*** Based on Feb 2024 LRTP (subject to change), does not include sub funds or adjustments from recent changes in Project funding.*

As noted in the table above and illustrated below, the Project has significant shortfalls in some years and surplus funding in other years. The overall funding gap range for the P3 Project delivery, depending on the size of payments to be made by Metro during construction, is approximately $3.4 billion to $6.4 billion.

Figure 6-2 – Annual Net Funding Gap (YOE $ Millions)



6.4.2 Summary

Based on the Project costs and assumptions included in the assessment, Metro likely faces a funding shortfall for the Project. Project affordability is impacted by several elements, including:

- Additional Capital Funding: The ability to secure additional sources of Federal, State and Local capital funding currently shown as uncommitted in the plan will be critical if Metro is to pay for the Project with upfront capital. If Metro chooses to finance additional elements, either using private finance under a P3 or with additional municipal finance, longer term funding sources of repayment will need to be identified. As noted in the FEIS, Metro is exploring different strategies to identify such funds.

- Cost inflation: the Project timeline has moved back, resulting in an increase in the year of expenditure costs. This increase is now in excess of the cost used in February 2024 as estimated construction and the difference will further drive the affordability gap.

- While reducing the overall scope to the 14.5 mile corridor project (versus 19 miles for the entire corridor) has helped enhance initial capital cost affordability, additional costs for operations and maintenance have meant that overall project costs have increased significantly beyond the available planned funding. The addition of Ambassador programs and additional cleaning-related costs, while necessary, may require a revision in the funding plan currently used for the Project.

P3 approaches can offer benefits to Metro from a budgeting perspective. Risks transferred, as outlined in Chapter 4, for price and schedule can allow for more certainty in

the budgeting process. In addition, based on the Feb 2024 LRTP Metro has uncommitted sources of $1.4 billion for Federal, State and Local funds (excluding the proposed New Starts). A P3 DBFOM approach includes private financing as tool to manage and drive performance. This reduces the capital required upfront and spreads the cost over time, linking the repayment of these costs to the performance of the asset. This will reduce the capital requirement upfront, but Metro would need to identify long term capital funding to meet the payments over the operating period.

Public-Private Partnership (P3) Assessment Report

SOUTHEAST GATEWAY LINE

Executive Management Committee

July 18, 2024

Metro

Southeast Gateway Line P3 Assessment Overview

- Metro received two Unsolicited Proposals (UPs) in 2016 presenting a potential for P3 delivery of the project, which led to the decision to explore potential benefits of this delivery structure.
- Market soundings were conducted in 2018 and 2021 with private firms to confirm interest in the project and gain feedback on potential P3 delivery.
- Based upon industry feedback and an early assessment of higher-risk critical activities, key work streams were then progressed in parallel:
  - Final Environmental Clearance
  - Advanced Preliminary Engineering Works
  - LRT Project Delivery Evaluation

Project Development and P3 Industry Changes

Project Development

- The Southeast Gateway Line has progressed critical path activities:
  - Environmental process
  - Site investigation
  - 3rd party discussions
- Advancement of an Early Works Package has led to a reduction of overall risk to the project

P3 Industry Changes

Market conditions have been changing over the last several years:

- Reduction of risk appetite from the private sector leading to less bidders and higher cost of risk transfer
- Contractor preference has shifted towards collaborative contracting methods
- Adversarial relationships between public agencies and contractors, leading to disputes over risk allocation, scope changes and quality of work which have resulted in public agencies not seeing the anticipated benefits of P3 delivery

P3 Assessment Steps & Outcome

P3 Assessment Steps

- Confirmation of P3 Structure:
  - Metro evaluated different P3 delivery model(s) and determined a Design-Build-Finance-Operate-Maintain (DBFOM) was the best option for the full analysis
- Cross-department workshops were conducted to refine the structure and inform key components of the P3 assessment:
  - Roles & Responsibilities
  - Risk Assessment
- Quantitative and qualitative analyses was performed which compared DBFOM and Design-Build (DB) delivery models

P3 Assessment Outcome

At the conclusion of the P3 Assessment, Metro has determined a P3 model is not the right project delivery structure for the Southeast Gateway Line.

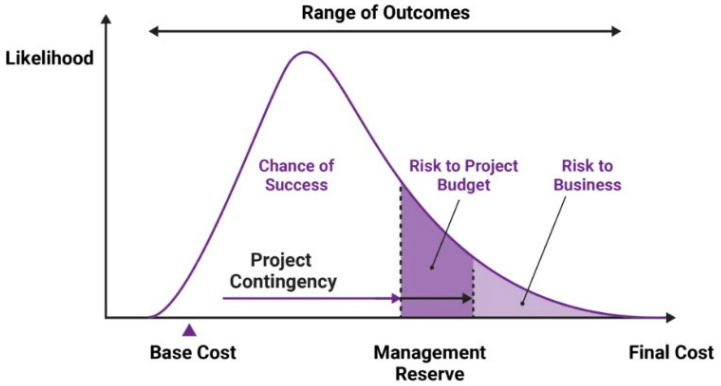
Quantitative Analysis – Risk Assessment

Risk Assessment Workshop Steps

- Identification of risks and allocation under each delivery model
- Determination of likelihood of occurrence and cost and/or schedule impacts
- Quantification of cost and schedule impacts

Risk Assessment Workshop Benefits

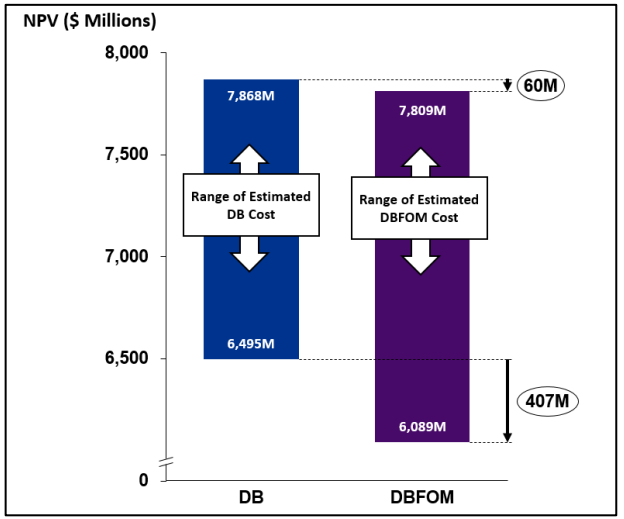
- Early identification of project risks
- Cross-department collaboration
- Development of initial mitigation strategies



Quantitative Analysis – Value for Money and Affordability

Value for Money (VfM)

- Risk-adjusted Costs + Financial Modeling = Total Transaction Costs for DB and DBFOM
- VfM calculated by comparing the Total Transaction Costs of the two delivery methods
- Range of potential life-cycle savings of between 0.77% to 6.69% if pursuing a DBFOM model
- **VfM is lower than other North American projects that have proceeded as a P3 in more favorable market environments**



Affordability Assessment

- Affordability of DBFOM vs DB is not materially different due to similar funding sources and comparable total costs
- DBFOM debt and equity does not create additional funding stream to the project

Qualitative Analysis

Qualitative assessment used to complement the quantitative analysis by evaluating non-financial aspects that contribute to the overall success and viability of the project.

Schedule Certainty

- DBFOMs are structured to incentivize efficient completion of design and construction
- A level of schedule certainty has already been realized through the advancement of schedule mitigation strategies

Innovation

- DBFOM structures can encourage innovation through risk sharing and private sector incentives
- Other alternative delivery models also provide opportunities to tap into private sector innovation

Roles and Responsibilities

- Under a DBFOM, Metro would maintain operational control over aspects of safety and security, fare collection, and customer service creating interfaces with the private partner during operations

Benefits of the Southeast Gateway Line P3 Assessment

Based on the results of the P3 Assessment and accounting for market trends, Metro determined a P3 is not the right solution for the project. However, Metro and the project have been able to achieve significant benefits due to the rigor of the assessment.

Agency Benefits

- Cross-department dialogue identified roles and responsibilities between Metro and a private partner to establish a framework for potential P3 execution
- Knowledge and understanding of P3s and the latest market trends gives Metro the ability to look for targeted opportunities for potential P3 execution

Project Benefits

- Early engagement and collaboration led to the decision to execute the Advanced Works Package which helps address project risks and reduces complex third-party coordination during later phases of construction
- Workshopping of project risks and opportunities has promoted early engagement across all departments