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*Executive Summary*

**Public-Private Partnership Program**  
Los Angeles County Metropolitan Transportation Authority

**Public-Private Partnership Delivery Options:  
Initial Six Measure R Projects**

*DRAFT*

*Metro Contract PS4370-2316  
Task 3C Interim Report*

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## **Executive Summary**

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## **Introduction**

This Executive Summary describes the work to date in assessing the suitability of the six Metro Measure R projects identified in previous work as potential candidates for development in partnership with the private sector. These highway and transit projects, all included in Metro's Long-Range Transportation Plan, are:

- High Desert Corridor Highway Project
- SR 710 North Tunnel Project
- I-710 South Freight Corridor Project
- Crenshaw Light Rail Transit Project
- Regional Connector Project
- Westside Subway Extension Project

As an interim deliverable, this draft Executive Summary sets forth all data inputs utilized for the P3 delivery assessment and lays out the analytical framework established for preparation of business plans for each project. The full qualitative and quantitative analyses and recommendations for public-private partnership project delivery will be included in the final Task 3 Report. The draft Report and full Appendices are available upon request from Metro staff.

Much of the focus of this phase of the work has been to define the projects in light of their respective stage of development. The primary methodological undertaking has been to further refine these consensus-based project definitions in order to facilitate development of a series of working options for both "traditional" project delivery (i.e., "design-bid-build," or the "public delivery option") and delivery programs based on active and collaborative private sector participation

in project development, delivery, and/or maintenance and operation. Once these P3 options were defined, each was assessed with respect to its risks under a variety of delivery options, and compared to the traditional design-bid-build (DBB), or “public delivery” structure. A cash flow-based financial analysis was performed for each in order to identify funding gaps/surpluses using previously identified funding sources and/or project revenues available under the P3 option.

It is important to note that much of the work in this phase of the P3 program is based on concepts and estimates developed for use in the environmental assessment processes for each of the six projects. Thus, such concepts and estimates are preliminary, and in some cases premature, particularly for those projects which have not reached the Locally Preferred Alternative (LPA) stage. Furthermore, reference to and analysis of a particular alternative alignment or configuration is in no way meant to presage the environmental process, but is purely for the purpose of illustrating how various options might play out under different delivery mechanisms. In order to prepare any of the projects for potential participation by a private partner and to accelerate the procurement, design and construction process, such work is necessary at an early stage of project development.

### **Project Descriptions**

The definitions of the projects’ scope, schedule, cost and phasing were accomplished previously and endorsed by Metro. Using these consensus definitions as a baseline, the InfraConsult team began the interactive

and iterative process of defining and assessing a variety of delivery options for each project.

The work provides a clear and definable distinction between the nominal “public option” and one or more public-private partnership delivery options. In virtually all cases, the public option represents the probable configuration and delivery approach for each project assuming it is to be procured, designed, constructed, operated and maintained in the so-called “traditional” manner; that is, conceptualized, designed, engineered and built in a sequential and discrete manner, with full design of all civil and other elements completed by public sector staff and/or engineering consultants prior to normal construction bidding, followed by public sector operations and maintenance assumed for the life of the project. As is evident, this early distinction will provide a pathway for each project to be assessed in future phases through a “public sector comparator” process well accepted in such analyses.

The public option and P3 definitions were refined and optimized to result in project parameters that would be accepted in the construction and commercial marketplace. In some cases, that involved rethinking the project’s phasing and timeline; in others, it meant addressing critical path issues and funding challenges.

The level of the definition is, in all cases, limited by the preliminary nature of the data available. The team brought in reference information and market data to round out the Metro-supplied data.

Each project and its options is briefly described below, and extensively detailed in the relevant Appendices available upon request from Metro staff.

### **High Desert Corridor**

#### Public Option Overview

The High Desert Corridor (HDC) is defined as an east-west, 50-mile, 4 to 8 lane freeway/expressway from SR-14 in Palmdale to I-15 in Victorville. For the purpose of this analysis, the public project also includes an alternative 13-mile expressway connecting the HDC East of I-15 to SR-18 (the Apple Valley By-Pass). Total development, design, land acquisition and construction cost is estimated at 3.4 B\$: 2.92 B\$ for HDC (including 80 M\$ for a potential toll system), and 0.47 B\$ for the Apple Valley By-Pass. Initial operation could begin in 2020 on the West and East segments, with the Central Segment open to traffic in 2024. However, that schedule is almost entirely dependent on assumptions about the timing and amount of project funding available, as only \$50 M of the total amount needed is currently committed.

#### Reasoning for Selecting P3 Options

In strategizing about possible P3 options for the HDC, the team focused on those elements that would either deliver the project sooner or create additional funding and/or financing possibilities. Introducing private sector involvement under a design-build-finance-operate-maintain structure would also potentially reduce overall costs, project delivery time, and public sector risk, as well as improving project scoping and project quality.

Tolling the project was analyzed as the optimal way to bring new revenues into

the project. Initially, tolling the entire HDC was considered, as it could potentially maximize project revenues and minimize the amount of public funding. However, after initial assessment the concept of tolling the Apple Valley expressway segment was not pursued further, as its lower potential traffic and urban characteristics with a high number of at-grade intersections serving essentially local traffic are not conducive to tolling. Even though that segment would therefore have no revenue generating potential, it could nevertheless be included in a larger private concession or DB contract with other segments if public funding were available for it, but would be phased in after the East, West and Central segments.

In looking to optimize the project phasing, construction of the West and East sections would take priority under either public or P3 delivery, as these sections each have independent utility for local traffic and are essential to connect the HDC at both ends to SR 14, US 395 and I-15. However, due to their urban setting, their cost of construction is high relatively to the potential revenues they could generate. Moreover, they will carry a significant proportion of short distance traffic with local and commuter users who are typically more averse to paying tolls.

Subject to further analysis during the next phase of this study, the team concluded that excluding tolls on the East and West segments and focusing on providing a revenue stream to a private investor through tolling on the central segment would be the optimal P3 structure, reinforcing both political

momentum and public support for this project.

#### P3 Option Overview

Under the initially preferred DBFOM alternative, a private consortium would be selected after completion of preliminary engineering to design and build the HDC project in its entirety (three segments), and finance, operate and maintain the Central Segment while the West and East Segments would be funded publicly and handed over to Caltrans at the end of construction. A modified option would be to have the private consortium operate the East and West Segments for a fee to be paid from public funds. The analysis confirms that tolling under any configuration could cover only a portion of the cost to construct, maintain and operate the facility, signaling that supplemental funding source(s) are required in addition to identified public funding and toll revenues generated.

#### **SR 710 North Tunnel**

##### Public Option Overview

This project is to close a 4.5 mile gap in the I-710 Long Beach freeway system running from just north of the Interstate 10 (I-10) “San Bernardino” freeway near Alhambra until the freeway resumes at Del Mar Boulevard, in the City of Pasadena, where it extends 0.6 miles to the north to its junction with the Interstate 210 (I-210) “Foothill” freeway. Given that there are numerous options being considered in the alternatives assessment, the team’s analysis at this stage is route-neutral; thus, any distances used for calculating revenues and risks are considered to be working assumptions.

#### Reasoning for Selecting P3 Options

P3 project definitions were prepared for a total of four possible structures for a project to build a tunnel to close the SR 710 gap. These four project definitions do not represent the full universe of possible delivery structures but do represent a good cross section of possible approaches that would appeal to the private sector, given that they all seek to avoid surface interface issues, minimize disruption of existing structures and traffic, and present opportunities for technological innovation and revenue generation.

#### P3 Options Overview

The basic P3 alternative is referred to as the DBFOM alternative and represents a full concession: design, build, finance, operate and maintain. The concessionaire, under this scenario, would assume all traffic revenue risk.

A variation to this alternative is the DBF (design-build- finance) option, where the private partner would finance a portion of the construction of the project and be repaid on an annual payment, but operations, maintenance, and revenue risk would fall to the public sector.

Another variation to DBFOM is to begin the concessionaire in the project early through a pre-development agreement (PDA). The public sector would be responsible for environmental studies and documentation and obtaining a record of decision, but during the process, the concessionaire would be selected based on specific criteria and subject to clear terms and conditions, including cost rates, but final price would not be negotiated and set until the ROD was in hand. This process accelerates the construction completion

and insures that the contractor's means and methods are addressed properly in the environmental review process thus reducing the possibility of amendments to the final environmental document and ROD being required. It also abbreviates the design period necessary between the ROD and the start of construction.

A final variation on the base DBFOM alternative is to initially commit to a single 57' bore which would initially be configured in two lanes in each direction in a stacked arrangement. Achievement of specific traffic targets would be established to trigger construction of a second bore and the simultaneous restriping of the first tunnel temporarily into three lanes in each direction, interim to the completion of the second bore and the ultimate configuration of twin tunnels with a total of four lanes in each direction. This approach minimizes traffic revenue risk for the concessionaire and therefore would result in more aggressive bidding and perhaps a higher number of competitors.

### ***I-710 South Freight Corridor***

#### **Public Option Overview**

The project description for the purposes of the P3 analysis essentially comprises freeway and freight corridor improvements in EIR/EIS Alternative 6A/B including: widening I-710 to ten lanes from Long Beach to SR-60, constructing a four-lane freight corridor for heavy-duty trucks from Long Beach to north of Washington Boulevard (16 miles), improving four freeway-to-freeway interchanges and 16 arterial interchanges in the corridor, constructing one new arterial interchange, and improving/reconstructing bridges to match the needs of the overall design concept.

#### **Reasoning for Selecting P3 Options**

Design-Build for the full project has been selected as one option for this corridor because it is likely that DB could advance the project opening by several years and reduce costs by helping to identify cost-effective solutions to the utility issues, identifying more cost-effective design concepts, reducing the level of coordination that would be involved (compared to the coordination required with the public option's approach of 6-8 separate construction projects), and utilizing alternative construction methods.

DBFOM for the full project has been selected as a second option to evaluate the viability of a full-project P3 that includes revenue risk.

DBFOM for the Freight Corridor Only is a third P3 alternative based on the fact that the Freight Corridor can be built as a separate stand-alone improvement and can achieve the main project objective of separating truck traffic from passenger cars, bring substantial traffic relief to the corridor sooner than implementation of the full project. In addition, the lower capital cost of constructing initially just the Freight Corridor may move the project closer to financial viability. In addition, it will facilitate the widening of the general purpose lanes to be implemented when Measure R and other public funding sources become available while reducing the traffic impacts during construction.

InfraConsult is also exploring the benefits of using a pre-development agreement (PDA) as an option for the full-project DBFOM and the Freight Corridor Only DBFOM because the I-710 improvement project is highly

complex and involvement of the concessionaire earlier in the project development process could help shape the project in ways that save additional time and money.

### **Crenshaw LRT**

#### Public Option Overview

The publically delivered Crenshaw Corridor Rail project is the Locally Preferred Alternative adopted by the Metro Board in Dec. 2009. The FEIS/FEIR is currently underway and a Record of Decision (environmental clearance) is expected during spring 2011.

The Crenshaw/LAX LRT will provide a connection between the Exposition line in the north to the Metro Green line in the south, and allow continuing direct rides onto the Metro Green line (south or east). This line will have a stop with a connection to the Los Angeles International Airport (LAX) via a proposed Automated People Mover. Connection to the LAX People Mover (a project currently proposed by Los Angeles World Airports) has not been included in this scope.

From a northern terminal at the Exposition/Crenshaw LRT station (reconstructed at-grade), the alignment follows Crenshaw Boulevard south to the Harbor Subdivision and then follows the Harbor Subdivision to a connection at the Metro Green Line Aviation/LAX station. The alignment is a combination of at-grade and below-grade along the Crenshaw Boulevard portion of the line. Along the Harbor Subdivision, the alignment is off-street in a dedicated right-of-way that is currently used infrequently by freight trains. The line

includes seven stations along 8.5 miles of above, below, and at-grade alignment.

This project will require the development of a Maintenance Facility at a location to be determined. Four sites are being considered in an EA/Revised Draft EIR.

#### Reasoning for Selecting P3 Options

The P3 options selected for study include DBFM and DBFOM. The physical project does not change between the public and P3 delivery methods; however, there is a significant difference between the delivery method options.

DBFM was identified as Option 1 in order to expedite the schedule to meet the 30-10 plan operating dates. The key difference between the two Crenshaw options is the inclusion of operations and maintenance of both the Green and Crenshaw Lines in Option 2. This was included as Option 2 because of the potential for increased interest in private equity investment, life cycle benefits, increased flexibility for Metro's funding streams, increased incentives for operating and capital expenditures, and cost certainty. It also may allow for greater innovation in design, maintenance, and operation. Option 2 would require agreements with several labor unions.

#### P3 Options Overview

The physical description of both the P3 projects is the same as the public project. It would be designed and constructed as one large project, and cut-and-cover construction of the below-grade sections is assumed. The utilities relocation design and construction package would be separately procured by Metro. All

required rights-of-way would be acquired by Metro.

Metro would continue all environmental clearance work efforts, conduct PE (minimum 30% level), and obtain FTA and Metro approval for the method of project delivery described below. The DB procurement officially would proceed after environmental clearance (ROD), but RFQs and other activities can be ahead of that time.

The delivery method proposed for Option 1 would be a single design-build-finance-maintain contract with the DBFM contractor acting as the single point of responsibility for integration between civil/stations/systems, overall final design responsibility, and testing/commissioning. The contractor would be responsible for the maintenance of tunnels, lining to underside of rail, stations, civil structures, etc., to 2039. It does not include procurement, delivery, and acceptance of the needed LRT vehicles. Metro's design of the TBM and lining would be novated to the DB contractor for final design and construction. The finance portion of the delivery method would be optional, depending on the availability of Measure R and other funding. This would be a large contract, approximately \$900 million in 2009 dollars.

Option 2 would be delivered via a single design-build-finance-operate-maintain contract and would include operations of the existing Metro Green Line and the Crenshaw Line once completed, as well as maintenance of the LRT vehicles used on these lines.

### ***Regional Connector LRT***

What is described below is the most probable LPA based on the current technical studies, community inputs, and project cost. It is important to note that this P3 analysis will focus on a single alternative described herein. The identification of the project for the purposes of this P3 study is in no way intended to circumvent the environmental process nor is it intended to indicate that this project will be selected as the locally preferred alternative. Rather, the Regional Connector project studied herein is representative of the type of project which may be ultimately selected by the Metro Board as the LPA and which then may be designed and constructed. After the environmental process has progressed to the point where the Metro Board has selected a LPA, it will be necessary to take another look at the project assumptions made for the express purposes of this study, and make the appropriate adjustments to bring this study into line with the LPA.

#### Public Option Overview

The Regional Connector Transit Corridor Project would connect the Gold Line (Pasadena) to the Blue Line (Long Beach) (called the North-South line, approximately 50 miles) forming one operating line and also connecting the Eastside Gold Line to the Exposition Line (called the East-West line, approximately 25 miles). These two lines would each operate at 5-minute peak headways and provide four station stops in Downtown Los Angeles.

The project defined for the purposes of this study is the Fully Underground LRT Alternative – Little Tokyo Variation 1. This is a 1.6-mile, 4-station alternative

connecting the 7<sup>th</sup> St/Metro Center Station to the existing Metro Gold Line tracks to the north and east of 1<sup>st</sup> and Alameda Streets.

The public project would be delivered using traditional design-bid-build construction, and would use a combination of cut and cover construction as well as the possible use of a tunnel boring machine (twin bore similar to recently completed Eastside Gold Line project) in some reaches. All stations and cross-overs would be done by cut-and-cover construction. It is possible that a portion of the cut-and-cover construction would be delivered via Design-Build.

Because of the small number of additional light rail vehicles there will be no need for a new maintenance and operations facility.

The Draft EIR/EIS is under development and will be released during summer 2010, an LPA is expected to be selected in October 2010, with a ROD expected in August 2011.

#### Reasoning for Selecting P3 Options

The complex tunneling and coordination required on many levels for the Regional Connector project led the team to identify Design-Build-Maintain with concurrence as a viable P3 option. The single point of responsibility shifts the risk to the contractor and minimizes the extent to which Metro would need to staff the project.

#### P3 Option Overview

The physical description of the P3 project is the same as the public project. The utilities relocation design and construction package would be separately procured by Metro. All

required rights-of-way would be acquired by Metro.

The delivery method proposed for the P3 project would be a single design-build-maintain contract (with concurrence) (DBM(c)) with the DBM contractor acting as the single point of responsibility for integration between civil/stations/systems, overall final design responsibility (non-tunnel components), and testing/commissioning. This would be similar to the Metro Gold Line Eastside Extension construction contract. The DBM(c) contractor would be responsible for the maintenance of tunnels, lining to underside of rail, stations, civil structures, etc., – to 2039. It does not include procurement, delivery, and acceptance of the needed LRT vehicles.

Metro would continue all environmental clearance work efforts, conduct PE (minimum 30% level but more likely to be close to 50%) and Final Design (as needed), and obtain FTA and Metro approval for the DBM(c) method of project delivery. The procurement officially would proceed after environmental clearance (ROD), but RFQs and other activities can be ahead of that time.

Metro would do the final design of the TBM and lining and it would be novated to the DBM(c) contractor for procurement of the TBM and for tunnel construction (bored tunnel component would then be DBB). The cut and cover sections along with the stations would be design-build and would be part of the DBM(c) contract. This would possibly be a very large contract, approximately \$1.0 billion in 2009 dollars.

### **Westside Subway Extension**

It should be noted that the Metro Board has not yet adopted a LPA for this project. A number of alternatives are still being evaluated in the Draft EIS/EIR. The Metro Board is scheduled to consider a LPA in September 2010. The scenario described herein is for study purposes only.

#### Public Option Overview

The Westside Subway Extension Project is defined as extending Metro Rail Service to Westwood. The public project as defined for the purposes of this study is Alternative 2C, a 9.36-mile extension of the Metro Purple Line from Wilshire/Western to a terminus at the Westwood/VA Hospital. The technology is heavy rail transit and compatible to the current Metro Rail operations for the Metro Red and Purple Lines. The project would currently have eight stations and no parking will be provided.

The project is underground and would utilize a twin tunnel bore construction process with cut-and-cover construction at all stations and cross-overs. The project includes an expansion of the current Metro Red Line maintenance yard to accommodate the needed vehicles and operating and maintenance services.

Using design-bid-build delivery, this project would be constructed in three segments: Segment 1 (Wilshire/Western to Wilshire/Fairfax) by 2019; Segment 2 (Wilshire/Fairfax to Constellation/Century City) by 2026; and Segment 3 (Constellation/Century City to Westwood/VA Hospital) by 2036.

#### Reasoning for Selecting P3 Options

The 30-10 Plan proposes accelerating the construction of the Westside Subway with revenue operations to Westwood beginning in October 2022. The P3 options were identified in order to meet this schedule, and two options were selected to allow differing degrees of Metro involvement and oversight.

#### P3 Options Overview

The physical description of the P3 projects is the same as the public project except that would not be built in phases. It would be designed and constructed as one large project. The utilities relocation design and construction package would be separately procured by Metro. All required rights-of-way would be acquired by Metro.

Metro would continue all environmental clearance work efforts, conduct PE (minimum 30% level), and obtain FTA and Metro approval for the method of project delivery described below. The DB procurement officially would proceed after environmental clearance (ROD), but RFQs and other activities can be ahead of that time.

#### *Option 1*

The delivery method proposed for the P3 project would be a single design-build-finance-maintain contract with the DBFM contractor acting as the single point of responsibility for integration between civil/stations/systems, overall final design responsibility, and testing/commissioning. The contractor would be responsible for the maintenance of tunnels, lining to underside of rail, stations, civil structures, etc., – to 2039. It does not

include procurement, delivery, and acceptance of the needed HRT vehicles.

Metro's design of the TBM and lining would be novated to the DB contractor for final design and construction. This would possibly be a very large contract, approximately \$2.3 billion in 2009 dollars.

### *Option 2*

While the physical project would remain the same as in Option 1, Option 2 would be delivered slightly differently. The delivery method proposed for Option 2 would entail the use of:

- (1) a super Program Manager responsible (transfers risk to this single point contractor) to procure, oversee, and manage all interface and integration requirements between guideway/track, civil/stations, systems, overall design responsibility, and testing/commissioning;
- (2) Design-build contractors would be procured with the use of the Program Manager for the following packages:
  - (a) Guideway/track/tunnel (\$950 million),
  - (b) Stations (\$1.1 billion), and
  - (c) Rail Systems (\$250 million);
- (3) An optional DB contract would be for Utilities but this would probably be managed by the Program Manager for Metro through 3rd party force account work with the utility companies (\$350 million).

As with Option 1, the contractor would be responsible for the maintenance of tunnels, lining to underside of rail, stations, civil structures, etc., to 2039.

## **Review of Existing Data**

### ***Highway Projects***

This section describes a review and assessment of the available reference data relating to the estimates and schedules for each of the three highway projects. The three highway projects that were reviewed are:

- High Desert Corridor
- SR-710 North Extension
- I-710 South Corridor

These three projects are each at different stages of definition and development so the scope of the review and analysis varied accordingly.

#### **Purpose**

The primary purpose of data review and assessment was to refine the project definitions as part of Task #3B and preliminary financial analysis as part of Task #3C. The technical team focused on two key criteria: project costs through each phase of design, construction, operations and maintenance; and schedule for design, construction and subsequent major maintenance or reinforcement interventions during the operations phase.

#### **Data Review and Assessment**

A review and qualitative assessment of the available data was undertaken for reasonableness of the assumptions and the methodology applied. Available data was also reviewed for completeness so that it would provide a project life cycle overview from its current status through to a period of 50 years after completion of construction. Gaps were identified where further information was either missing or not developed. Where appropriate, further data was developed in order to fill the gaps and to enable a

life cycle overview for the qualitative assessment.

#### Project Optimization under Alternative Procurement Options

In order to optimize project viability the suitability of projects for alternative procurement delivery was considered including exploring the potential for re-scoping or phasing of the project or project elements where appropriate. For each project, cost estimates and schedules were reviewed, assessed and where appropriate, developed to enable assessment and comparison of alternative delivery methods against conventional public procurement for each of the selected alternative(s).

#### **High Desert Corridor**

This project is in the early stages of development, with extensive work still to be done on project scope, cost estimates, traffic and revenue forecasts, and operating alternatives. The current analysis possible is at the broad overview level because of the significant gaps in information detailed below.

- Traffic and Revenue
  - Updated Demographic and Land Use forecasts (SCAG)
  - Updated SCLA plans and Forecasts
  - Updated Palmdale LAWA plans and Forecasts
  - Toll Alternatives Traffic and Revenue forecasts (Full project tolled and Central Segment only tolled), 2020 and 2035. (Parsons)
- Cost Estimates
  - Refined Central Segment Construction and Soft Costs Estimates (Halcrow, Caltrans, Contractors)

- ROW Data Sheets for Central and Apple Valley Segments (Caltrans)
- Updated ROW Data Sheets for West, East and Apple Valley Segments (Caltrans)
- Refined O&M and Life Cycle Costs Estimates (IC, Halcrow)
- Risks
  - Legality of Environmental Document for ROW reservation for potential future High Speed Rail
- Other
  - Updated Desert Express Status: Environmental and Project Approvals, Location of Victorville Station, Ridership estimates

#### **SR 710 North Tunnel**

To further define the P3 option for this project, additional supporting data on the cost estimate, tunneling configuration and on possible operating scenarios including revenue forecasts need to be developed as described below.

While this analysis indicates a very strong potential for tolls on a new tunnel to close the 710N “gap”, further analysis to increase the level of confidence of the financial robustness of the 710N tunnel should be undertaken as part of the development of the business case. This further analysis should be in the following four areas:

- Construction Cost Estimate
  - A critical review of the back-up data that was used in developing the current cost estimate, including meeting with and holding a workshop with relevant staff and consultant advisors; or

- Development of a preliminary construction cost estimate in compliance with the Caltrans cost estimating guidelines, with a bottom up approach wherever possible based on a preliminary design developed to a greater level of detail than the currently available technical data.
- Refinement of 'soft' support costs for the project
- Operation, Maintenance and Life Cycle Cost Estimate
  - Development of planning / preliminary level assumptions on tunnel systems and infrastructure in order to advance to an estimate for operations, maintenance and life cycle cost to the next level of confidence from the current conceptual stage.
  - Obtain actual data of tunnel operations and practices in the state
  - Obtain actual data from toll operations in tunnels / bridges
- Schedule
  - Refinement of key project activities, milestones and durations. Most significant is the duration of the TBM activities in drilling the bore and the advancement rate that can be realistically achieved. In this phase of the analysis, observations on a few other tunnels, of smaller diameter, were evaluated to develop the schedule estimate. However, a more comprehensive evaluation should be completed as part of the development of the business case. Also significant is the determination of the amount of design time required between the completion of the ROD and the

start of the tunnel boring machine.

- Traffic & Revenue
  - Modeling to better estimate the revenue generated, focused on the 2030 link volume as dampened by various toll rates.

### ***I-710 South Freight Corridor***

In order to better assess the potential for a viable P3 project for the Freight Corridor, new work needs to be completed including traffic and revenue forecasts and more detailed cost estimates for specific project components under optimized construction scenarios. Specifically:

- Traffic and Revenue
  - Year 2035 traffic forecasts prepared with the 710 Corridor model
  - Project Opening Year traffic forecasts prepared with the 710 Corridor model
  - Improved toll revenue forecasts
- Cost Estimates & Schedules
  - Cost data and development schedule information for the northern (Caltrans) piece of the 710 South corridor (I-5 interchange and I-5 to SR-60 segment)
  - The updated design and cost estimates for the URS portion of the corridor improvements (expected to be available by July or August 2010)
  - Specific cost and construction schedule information about alternative construction methods (e.g., prefabricated segmental construction of structures)
  - More refined and substantiated schedules of pre-construction and construction activities

	Analysis Period (Yrs)		Construction Completion Date			Total	Projected Toll Revenues		Total	% of Total Funding Need	
	Start	End	Capital C	Operations & Maintenance	Major Maintenance		Measure R Funds	Break-even Discount Rate			
<b>High Desert Corridor</b>											
Public Option	35	2023	4,520	741	1,123	\$6,384	6,701	33	\$6,734	105%	0.48%
Alternative Option 1	35	2022	4,200	734	1,054	\$5,988	7,242	33	\$7,275	121%	1.57%
Alternative Option 2	50	2019	1,701	750	1,630	\$4,081	11,792	33	\$11,825	290%	7.50%
<b>SR 710 North</b>											
P3 Alternative	50	2022	4,093	2,137	1,505	\$7,735	29,677	1,049	\$30,726	397%	8.37%
<b>I-710 South</b>											
Public Option	35	2029	10,508	1,148	426	\$12,082	3,371	684	\$4,055	34%	<0%
Alternative Option 1	35	2022	8,226	1,148	698	\$10,072	4,505	684	\$5,189	52%	<0%
Alternative Option 2	50	2021	3,909	1,178	576	\$5,663	13,623	684	\$14,307	253%	4.34%

Figure 1. Highway Projects – Funding Need vs. Revenues

- Other
  - A clearer determination of how a PDA could benefit each of the two DBFOM alternatives, and at what point in the process/schedule the PDA would come.

### Transit Projects

This section describes a review and assessment of the available reference data relating to the estimates and schedules for each of the three transit projects. The three transit projects that were reviewed are:

- Crenshaw LRT
- Regional Connector LRT
- Westside Subway HRT

These three projects have each proceeded to advanced environmental documentation phase with Draft EIS/EIR documents either finalized or being reviewed by the Federal Transit Administration. This level of readiness had a significant influence on the level of review that was appropriate in this assessment of potential P3 options.

### Purpose

The primary purpose of data review and assessment was to refine the project definitions as part of Task 3B and preliminary financial analysis as part of Task 3C. The technical team focused on two key criteria: project costs through each phase of design, construction, operations and maintenance; and schedule for design, construction.

### Data Review and Assessment

An initial review of the available data was undertaken to understand what was available for strategic assessment and what gaps needed to be filled, for example project life cycle costs for a period of 50 years after completion of construction. This process was iterative while the project definitions were being refined. Gaps were identified where further information was either missing or not developed. Where appropriate, further data was developed in order to fill the gaps and to enable a life cycle overview for the qualitative assessment.

### Project Optimization under Alternative Procurement Options

In order to optimize project viability the suitability of projects for alternative procurement delivery was considered including exploring the potential for re-scoping or phasing of the project or project elements where appropriate. For each project, cost estimates and schedules were reviewed, assessed and where appropriate, developed to enable assessment and comparison of alternative delivery methods against conventional public procurement for each of the selected alternative(s).

As the three transit projects being studied in this analysis are all well into the environmental analysis process, there are fairly few significant information gaps remaining to be filled. All three projects are continuing with the federal environmental process: the Westside and Regional Connector projects are pursuing New Starts funding, while the Crenshaw project will pursue TIGER II grants and other federal funding. The Draft EIS/EIR has been released for the Crenshaw project and is expected for the Westside and Regional Connector projects by the end of the summer. The Final EIS/EIR documents will be released beginning in early 2011. As environmental work continues, the conceptual engineering work will advance into preliminary engineering and additional geotechnical, structural, and design will inform both the risk and financial elements of the PPP analysis. There are no specific information gaps identified at this time; any outstanding information needs are expected to be met by the release of the remaining environmental documents.

### Financial Analysis

Initial project level cash flow analyses were performed for each project to estimate potential funding gaps and surpluses using previously identified funding sources and cost assumptions provided by Metro and InfraConsult. The initial outputs from the analyses provide an indication of the project funding deficit/surplus.

For each project, the sum total of funding sources only includes revenues programmed in Metro's Long Range Plan FY 2010-2011 and beyond.

### Highway Projects

Project level cash flows were developed for both the public option and the P3 options identified by the InfraConsult team. Unless otherwise noted, the cash flow analysis covers the 35-year period from FY 2010 through FY 2044.

### High Desert Corridor (HDC)

#### Public Option

The total project capital cost is estimated at \$4.5 billion (YOE), with a completion date of 2023. Costs for O&M and major maintenance over the 35-year period are estimated at an additional \$741 million and \$1.12 billion, respectively.

Of the \$4.5 billion capital construction cost, Measure R provides \$33 million in committed funding.

Metro has identified an additional \$1.5 billion in "highway strategy revenues" or uncommitted funding for the Project's capital needs. Assuming the availability of these strategic revenues, approximately \$3.0 billion in additional funding is required to cover the construction cost.

Project toll revenues may be used to further reduce the net project capital funding requirement. Using the forecast provided by InfraConsult, toll revenues would generate \$6.7 billion (YOE) over the 35-year period. The forecast assumes a 2.6% annual growth in traffic volume pre-2035, 2.0% from 2035 to 2040, and 1.0% thereafter. It applies an initial per-mile toll rate of \$0.15 for autos and \$0.38 for trucks (2010 dollars), escalating at a rate of 3.0% per year.

The break-even discount rate, at which the net present value (NPV) of the Project cash flows equal zero, is 0.48% under the public option, indicating the likely need for additional public funding or other revenues, or a reduction in capital construction costs, to make the Project viable.

For the break-even discount rate to reach 5 percent, for example, the analysis indicates that Project revenues would need to increase by 69%, or costs would need to be reduced by 48%.

#### Alternative Option 1

The construction cost for the Project includes the full Corridor, estimated at \$4.2 billion (YOE), with completion scheduled in 2022.

Costs for O&M and major maintenance over the 35-year analysis period are estimated at an additional \$734 million and \$1.05 billion, respectively.

Under Option 1, the full 50-mile length of the Corridor would be tolled. Toll revenues would generate \$7.24 billion (YOE) over the 35 year period. The tolling forecast assumes the same toll rates per mile and escalation in traffic volume as the public option.

The break-even discount rate, at which the net present value (NPV) of the Project cash flow equals zero, is 1.57% over the 35-year period, indicating the likely need for additional public funding or other revenues, or a reduction in capital construction costs, to make the Project viable.

For the break-even discount rate to reach 5 percent, for example, the analysis indicates that Project overall revenues would need to increase by 54%, or costs would need to be reduced by 41%.

#### Alternative Option 2

The cash flow analysis for this option covers a 50-year period (FY 2010 through FY 2059), compared with a 35-year period for the public option.

The construction cost for the Project includes *only* the Central segment, estimated at \$1.7 billion (YOE), with completion scheduled in 2019. This assumes the East and West segments could be delivered on a schedule consistent with this completion date.

Costs for operations and asset replacement over the 50-year period are estimated at an additional \$750 million and \$1.63 billion, respectively.

Under Option 2, only the 31-mile Central segment would be tolled. Toll revenues would generate \$11.79 billion (YOE) over the 50-year period. The tolling forecast assumes the same toll rates per mile and escalation in traffic volume as the public option.

The break-even discount rate, at which the net present value (NPV) of the Project cash flow equals zero, is 7.5% under the alternative option over the 50-

year period (5.6% over a 35-year term), indicating the potential viability of the Project as a P3.

### **SR 710 North Tunnel**

#### P3 Alternative

The cash flow analysis for the P3 Alternative covers a 50-year period from FY 2010 through FY 2059.

The total Project capital cost is estimated at \$4.09 billion (YOE), with a completion date of 2022, four years earlier than the public option. Costs for O&M and major maintenance over the 50-year period are estimated at an additional \$2.14 billion and \$1.5 billion, respectively.

Of the \$4.09 billion capital construction cost, Measure R provides \$1.05 billion in committed funding. The majority of Measure R funds become available between 2034 and 2036, more than 10 years after the construction completion date.

Metro has identified an additional \$1.74 billion in “highway strategy revenues” or uncommitted funding for the Project’s capital needs. Assuming the availability of these strategic revenues, approximately \$1.3 billion in additional funding is still required to cover the construction cost.

Project toll revenues may be used to further reduce the net project capital funding requirement.

Using the forecast provided by InfraConsult, toll revenues would generate \$29.68 billion (YOE) over the 50-year period. This forecast is based on a 2030 base year traffic volume of 190,000 annual average daily traffic

(AADT) to which a diversion rate of 35% has been applied. An annual growth rate of 2.0% has been applied to traffic volumes. The starting toll rate is \$5.00 (2010 dollars), with a price escalation of 3.0% per year.

The break-even discount rate, at which the net present value (NPV) of the Project cash flow equals zero, is 8.37% over the 50-year period (7.73% if Measure R funding is excluded), indicating the potential viability of the Project as a P3.

### **I-710 South Freight Corridor**

#### Public Option

The total project capital cost is estimated at \$10.5 billion (YOE). Costs for O&M and major maintenance over the 35-year analysis period are estimated at an additional \$1.15 billion and \$426 million, respectively.

Of the \$10.5 billion capital construction cost, Measure R provides \$811 million in committed funding.

Metro has identified an additional \$3.38 billion in “highway strategy revenues” or uncommitted funding for the Project’s capital needs. Assuming the availability of these strategic revenues, approximately \$6.3 billion in additional funding is still required to cover the construction cost.

Project toll revenues may be used to further reduce the net project capital funding requirement.

Using the forecast provided by InfraConsult, toll revenues would generate \$3.37 billion (YOE) over the 35-year period. The forecast assumes full tolling of trucks on the freight

corridor and on the general purpose lanes, at the following rates:

- Zero emission trucks GP/FC lanes: Peak hours \$10.00 / \$5.00; Off peak hours \$2.50 / \$1.00
- Other trucks GP/FC lanes: Peak hours \$20.00 / \$10.00; Off peak hours \$10.00 / \$5.00

The break-even discount rate is less than zero for the public option, indicating the need for additional public funding or other revenues, or a reduction in capital construction costs, to make the Project viable.

For the break-even discount rate to reach 5 percent for example, the Team's analysis indicates that Project revenues would need to increase by 578%, or costs would need to be reduced by 89%.

#### Alternative Option 1

The total project capital cost is estimated at \$8.2 billion (YOE) or nearly 22% less than the public option, due to seven-year schedule acceleration (2022 vs. 2029 completion date) and cost reductions that were identified by InfraConsult.

Costs for O&M and major maintenance over the 35-year period are estimated at an additional \$1.15 billion and \$698 million, respectively.

Using the forecast provided by InfraConsult, toll revenues would generate \$4.5 billion (YOE), or about 34% higher than the public option due to an earlier start of operations in 2022. The forecast uses the same tolling rate structure as the public option.

The break-even discount rate is less than zero for the alternative option, indicating the likely need for additional public

funding or other revenues, or a reduction in capital construction costs, to make the Project viable.

For the break-even discount rate to reach 5 percent, for example, the Team's analysis indicates that Project revenues would need to increase by 326%, or costs would need to be reduced by 82%.

#### Alternative Option 2

The cash flow analysis for this option covers a 50-year period (FY 2010 through FY 2059), compared with a 35-year period for the public option.

The construction cost for the Project includes only the 16-mile Freight Corridor, estimated at \$3.9 billion (YOE), with a completion date of 2020.

Costs for O&M and major maintenance over the 50-year period are estimated at an additional \$1.18 billion and \$576 million, respectively.

Using the forecast provided by InfraConsult, toll revenues would generate \$13.6 billion (YOE), based on the tolling of the Freight Corridor only. The forecast assumes an initial per-mile toll rate of \$0.625 (2010 dollars), escalating at a rate of 3.0% per year. Over the 50-year period, traffic volumes increase at an annual growth rate of 1.69% from 2020 to 2029, 1.88% from 2030 to 2034, 5.84% from 2035 to 2050, and 1.0% thereafter. These growth rates take into account the impact of the GP lanes expansion in 2030.

	Committed			Uncommitted				Subtotal	All Funding
	Measure R	LONP Reimbursement Fund	High-Speed Rail Bonds	Measure R Local Matching Agency Funds	Section 5309 New Starts	Prop C (125%)	Regional Improvement Program		
Crenshaw	1,433			51	40	2	173	\$266	\$1,699
Westside Subway	4,075	44		169	1,706			\$1,875	\$5,994
Regional Connector	160	184	115	44	721		31	\$796	\$1,255

Figure 2. Transit Projects – Committed vs. Uncommitted Funding Sources

The break-even discount rate, at which the net present value (NPV) of the Project cash flow equals zero, is 4.34% over the 50-year period, indicating the likely need for additional public funding or other revenues, or a reduction in capital construction costs, to make the Project viable.

For the break-even discount rate to reach 5 percent for example, the Team’s analysis indicates that Project revenues would need to increase by 16%, or costs would need to be reduced by 14%. This indicates that some additional project development efforts could result in a project which might have viability as a P3.

### Transit Projects

The preliminary analysis of project level cash flows includes the following elements:

- Capital costs (non-vehicle);
- Capital maintenance (non-vehicle);
- Maintenance; and
- Operations (Crenshaw LRT only).

The cash flows do not include fare box revenue, rolling stock (including associated rolling stock capital maintenance) or rail line operations (with the exception of Crenshaw LRT).

### Crenshaw LRT

The Project has a total funding need estimated at \$3.5 billion (YOE), including capital construction, capital maintenance, maintenance and operating costs over a 35-year period.

With \$1.43 billion in committed Measure R funds, the Project requires just over \$2.0 billion in additional funding. If an additional \$266 million of proposed uncommitted funding becomes available, the remaining unfunded balance for the Project narrows to \$1.77 billion.

An additional \$2.0 billion of capital funds and operating revenues are required for the Project over the 35 years.

### Regional Connector LRT

The Project has a total funding need estimated at \$1.7 billion (YOE), including capital construction, capital

maintenance, maintenance costs over a 35-year period. Of this amount, \$459 million of committed funding has been identified for the Project's capital needs.

An additional \$1.3 billion of capital funds are therefore required for the Project over the 35 years.

Metro has identified \$796 million in additional uncommitted funding. Assuming these funds become available, the remaining unfunded balance for the Project is \$949 million.

### ***Westside Subway Extension***

#### **Public Option**

The Project has a total funding need of approximately \$6.9 billion (YOE) including capital construction, capital maintenance and maintenance over a 35-year period. Of this amount, approximately \$4.1 billion of committed funding has been identified for the Project's capital needs.

An additional \$2.8 billion in funds are therefore required for the Project over the 35 years.

Metro has identified \$1.9 billion in additional uncommitted funding. Assuming these funds become available, the remaining unfunded balance for the Project is \$949 million.

#### ***Accelerated Alternative Public Option***

Under this option, the Project has a total funding need of approximately \$5.8 billion (YOE), or nearly 16% less than the non-accelerated Public Option.

An additional \$1.7 billion of capital funds and operating revenues are required for the Project over the 35 years.

Assuming the availability of \$1.9 billion in additional uncommitted funding identified by Metro, \$200 million in excess funds may be available Project-related uses in the future.

### **Risk Analysis**

The final goal of Task 3C was to provide an initial qualitative view of risk transfer under various P3 options. To achieve this, a simple graphical representation of risk transfer was developed.

For each project, and for each of the six risk headings, the total number of risks that were analysed as 'unacceptable', 'undesirable', 'acceptable' and 'negligible' were presented in bar chart format for the baseline public project. All of these risks were assigned to the public sector so there were no 'shared' or 'private' risks.

The purpose of comparison is to show the difference in risks retained by Metro so next to this summary of the public project a similar chart was developed for each P3 option. Only those risks that would be retained by Metro under the P3 option or shared with the private party are shown on the chart. Risks that would be transferred to a private entity are not shown on the chart. A separate color / bar was used for shared risks.

At a glance this simple graphical view (Figure 3) shows the impact of each P3 option on the transfer of risk from Metro to a private party. A brief interpretation of the bar charts for each project is given below.

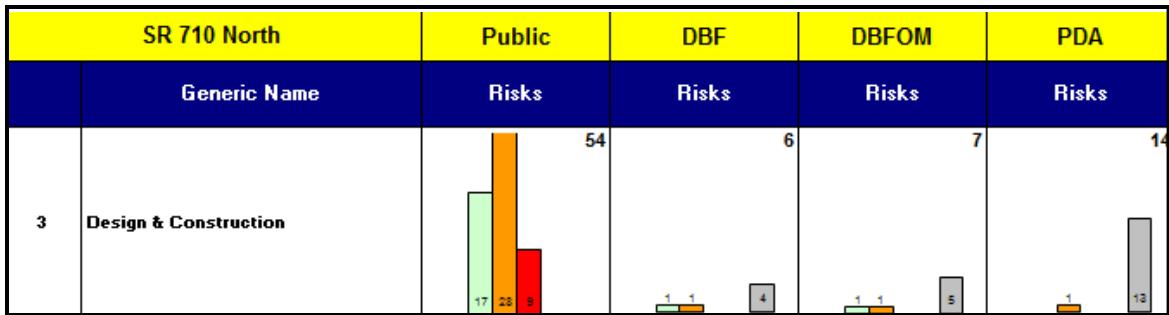


Figure 3: Sample Risk Transfer Chart

## Highway Projects

### SR-710 North

The risk transfer bar charts for the SR-710 North indicate that the overall risk retained by Metro is the highest for the Public option, as would be expected, with the PDA and DBFOM options presenting better risk allocation scenarios for Metro than the DBF option. An interpretation of the bar charts and risk allocation under each risk category for the different delivery methods is summarized as follows:

#### Planning, Permitting & Approvals

The charts show that neither of the two risks is fully transferred. The PDA option appears to present the best scenario where both risks are shared. Under the DBF and DBFOM options one risk is retained with the other shared.

#### Legislative / Policy

Two out of the nine risks are fully transferred under DBF and DBFOM, whereas only one is fully transferred under the PDA option. The PDA options appears to offer the best risk transfer scenario for Metro although the majority of the risks are shared.

#### Design & Construction

The main message derived from the charts is that a significant number of the design and construction risks are transferred under all three P3 options. Under the PDA option all but one of the risks are shared thus presenting a greater risk exposure for Metro than under the DBF or DBFOM options.

#### Operations Phase

The risks are fully retained under the DBF option, as would be expected because the contract has no operations related obligations. For the DBFOM and PDA options all but two of the risks are fully transferred.

#### Commercial / Financial

The bar charts indicate that the PDA option presents the best scenario for Metro under this risk category although two unacceptable risks are retained. More than half of the risks are fully transferred under all three P3 options.

#### Acceptance & Third Parties

One risk is transferred under DBFOM. No risk is fully transferred under the DBF or PDA options. Under the PDA option most of the risks (seven out of eight) are shared, therefore reducing but not transferring Metro's risk exposure.

### ***I-710 South***

The risk transfer bar charts for 710 South indicate that overall the least exposure to risk for Metro is under the DBFOM option. The DB option presents only a small improvement over the Public option. An interpretation of the bar charts and risk allocation under each risk category for the different delivery methods is summarized as follows:

#### **Planning, Permitting & Approvals**

All the planning and permitting risks are retained by Metro for all the delivery options considered.

#### **Legislative / Policy**

Three risks are transferred under the DB and DBFOM options. However, the unacceptable and undesirable risks are retained by Metro under both P3 options.

#### **Design & Construction**

As for the other projects, the majority of the design and construction risks are transferred under the DB and the DBFOM options however three undesirable risks are retained by Metro under both P3 options whereas all other risks are shared under P3.

#### **Operations Phase**

For the DB option all operational phase risks are retained as would be expected whereas all but three risks are transferred under the DBFOM option and two of the three retained risks are shared.

#### **Commercial / Financial**

The majority of commercial / financial risks are retained by Metro under. The DBFOM options present less risk exposure to Metro than the DB option.

#### **Acceptance & Third Parties**

Four of the eleven risks are fully transferred under the DBFOM option

with another four shared. None of the risks are fully transferred under the DB option, although one is shared thus representing only a minor improvement over the Public option.

### ***High Desert Corridor***

The risk transfer bar charts for the High Desert Corridor indicate that there will be a significant reduction in the risks retained by Metro under the P3 (DBFOM) option when compared to the risks under the Public option. An interpretation of the bar charts and risk allocation under each risk category for the different delivery methods is summarized as follows:

#### **Planning, Permitting & Approvals**

The charts show that neither of the two risks is transferred however the acceptable risk is shared.

#### **Legislative / Policy**

One risk is transferred and four of the eight risks are shared under the DBFOM option. However, Metro remains responsible for the undesirable risks.

#### **Design & Construction**

The bar charts show that most of the design and construction risks are transferred under the DBFOM option. Only one risk is retained outright although a further seven risks are shared.

#### **Operations Phase**

For the DBFOM option all but two of the risks are fully transferred and the remaining two risks are shared.

#### **Commercial / Financial**

Although more than half of the risks are transferred under the DBFOM option, Metro still retains one unacceptable risk and two undesirable risks. One risk is shared.

#### Acceptance & Third Parties

One risk is transferred and four of the eight risks are shared under the DBFOM option. Retained acceptable risks are reduced from seven to three.

### **Transit Projects**

#### **Crenshaw LRT**

Two P3 options have been considered for Crenshaw Corridor:

- DBFM
- DBFOM

(In general the “M” refers to the assumption that the contractor would be responsible for the maintenance of tunnels, lining to underside of rail, stations, and critical civil structures to 2039.)

In the DBFOM option, the operations portion of this contract would include operations of the existing Green Line as well as the Crenshaw Line, and would include maintenance of the existing and future LRT vehicles procured by Metro.

#### Guideway and Track

The charts below show that the majority of risks in this category are transferred to the private sector (7 out total of 9), with one “undesirable” risk being retained (regarding objections by community at grade guide way).

#### Stations, Stops, Terminals, Intermodal

While two thirds of the risks in this category are retained, the two transferred are “unacceptable” rating.

#### Support Facilities Yards, Adm. Bldg

A limited number of risks have been identified for this category at this stage, both having been retained by public sector (undesirable) due to potential public opposition to the location of the depot.

#### Site work and Special Conditions

While just under a third of the risks can be transferred or shared (some of these “undesirable”), the public retains the other 60% due to risks of unknown utilities and/or agreements with utility companies.

#### Systems

In this case the vast majority of risks can be transferred under DBFOM arrangement, with a single “undesirable” risk retained (potential changes in traffic patterns).

#### ROW, Land, Existing Improvements

It is unlikely that these risks can be transferred under the DBFOM.

#### Rail Vehicles

Not considered in this analysis as these will be procured by the public sector. There could be some transfer of maintenance risk under the DBFOM contract if vehicle maintenance is part of the contract.

#### Professional Services – Design

More than half the risks will be transferred under DBFOM, with a limited number retained (scope change and late design changes)

#### Professional Services – Project Management, Construction Administration, Surveys and Testing

The majority of risks will be transferred under DBFOM, particularly a number of “undesirable” risks, with a few retained.

#### Professional Services – Insurance

Whilst there are a small number of risks in total, the majority of these will be transferred under DBFOM.

#### Professional Services – Legal / Permits / Approvals

The majority of these risks are likely to be retained, as they concern permits and approvals that the public will need to manage.

#### Unallocated Contingency – General

The majority of these risks are likely to be retained, as they concern public / stakeholder management and general risks of terrorism etc.

#### Unallocated Contingency – Operations

Assuming a full DBFOM contract is placed, the majority of these risks can be transferred but some limited risks will be retained regarding co-ordination with other services and unanticipated changes to service will remain.

#### Unallocated Contingency – Commercial

The charts indicate that the majority of these risks cannot be transferred under DBFOM, although the majority are rated “acceptable”.

### **Regional Connector LRT**

#### Guide way and Track

The majority of risks in this category are transferred to the private sector (21 out total of 25), with 4 shared risks retained but 4 “unacceptable” risk transferred.

#### Stations, Stops, Terminals, Intermodal

The majority of risks in this category are transferred to the private sector (10 out total of 14), again some “unacceptable” risks transferred but with two retained and a further two “shared”.

#### Support Facilities Yards, Adm. Bldg

There are no support facilities under this scheme.

#### Site work and Special Conditions

The majority of these risks have been assessed as “retained” by the public sector, but with 4 “unacceptable” risks transferred and 5 “shared” risks.

#### Systems

In this case all but one of the risks can be fully transferred under DBM arrangement but with one “shared” risk.

#### ROW, Land, Existing Improvements

Whilst there are a limited number of risks in this category, it is unlikely that these risks can be transferred under the P3 arrangement.

#### Rail Vehicles

Not considered in this analysis as these will be procured by the public sector.

#### Professional Services – Design

Majority of design risk would be transferred under P3.

#### Professional Services – Project Management, Construction Administration, Surveys and Testing

Majority of design risk would be transferred, with three risks being retained, one of which is shared.

#### Professional Services – Insurance

Majority of design risk would be transferred, with one risk being retained.

#### Professional Services – Legal / Permits / Approvals

The majority of these risks are likely to be retained, as they concern permits and approvals that the public will need to manage.

#### Unallocated Contingency – General

The majority of these risks are likely to be retained, as they concern public / stakeholder management and general risks of terrorism etc.

Unallocated Contingency – Operations  
As it is unlikely that Operations would be included, these risks are retained.

Unallocated Contingency – Commercial  
The majority of these risks cannot be transferred under P3, although the majority are rated “acceptable”.

### **Westside Subway Extension**

Two P3 options have been considered for Westside:

- a single contract DBFM
- multiple DBFM contract packages managed by a single “super” Program Manager

(In these options the “M” refers to the assumption that the contractor would be responsible for the maintenance of tunnels, lining to underside of rail, stations and key civil structures 2039.)

In both cases, the objective would be to transfer as much risk as is economically viable to the private sector. On the private side, the risk would be managed by either the single DBFM consortium or a combination of the “super” Program Manager and the specific package Contractor. In either case the risks identified below will be transferred from Metro to the “private” sector and there would a “single point of contact” in each option.

Further differentiation will be identified in later tasks when the individual risks are quantified and a QRA assessment is made. At that stage the effect of the two options above can be assessed in more detail.

#### **Guideway and Track**

The charts below show that the majority of risks in this category are transferred to the private sector (18 out total of 26),

with 4 shared risks retained but 4 “unacceptable” risk transferred. The P3 definition assumes that Metro’s design of the TBM and lining would be novated to the DB program manager and guide way/track/tunnel contractor for final design and construction. It is assumed that following appropriate “due diligence” the private contractor would adopt the design risk for these elements.

#### **Stations, Stops, Terminals, Intermodal**

The majority of risks in this category are transferred to the private sector (13 out total of 18), again some “unacceptable” risks transferred.

#### **Support Facilities Yards, Adm. Bldg**

A limited number of risks have been identified for this category at this stage; both can be transferred under P3.

#### **Site work and Special Conditions**

These risks have been assessed as “retained” by the public sector, but with 4 “unacceptable” risks transferred. In the “single” DBFM option, these risks would be directly managed, whereas in the “multiple” DBFM option, an optional DB contract would be for utilities, probably be managed by the program manager for Metro through third party force account work with the utility companies.

#### **Systems**

In this case the all risks can be transferred under DBFM arrangement.

#### **ROW, Land, Existing Improvements**

While there are a limited number of risks in this category, it is unlikely that these risks can be transferred under the P3.

#### **Rail Vehicles**

Not considered in this exercise as these will be procured by the public sector.

#### Professional Services – Design

Majority of design risks would be transferred.

#### Professional Services – Project Management, Construction Administration, Surveys and Testing

Majority of PM would be transferred, with one risk being retained. It is likely that there will be some program management required by Metro during the program but in both DBFM options, there will be a “single point of contact” between Metro and the private sector.

#### Professional Services – Insurance

Majority of design risk would be transferred, with one risk being retained.

#### Professional Services – Legal / Permits / Approvals

The majority of these risks are likely to be retained, as they concern permits and approvals that the public will need to manage.

#### Unallocated Contingency – General

The majority of these risks are likely to be retained, as they concern public / stakeholder management and general risks of terrorism etc.

#### Unallocated Contingency – Operations

As it is unlikely that Operations would be included, these risks are retained, with the exception of maintenance of tunnels and civil structures which is transferred.

#### Unallocated Contingency – Commercial

The majority of these risks cannot be transferred under P3, although the majority are rated “acceptable”.

### Summary/Next Steps

It is not a goal of this phase of the analysis to reach a conclusion or present a set of recommendations, but only to inform Metro of the work to date and to ensure that there is a consensus on the factual information provided. Over the next two months, the InfraConsult team will be using this data to complete its analyses of all six projects and present suggested P3 options for each.

To accomplish that, the team will be developing shadow bids for each project, representing how a private partner would bid it taking into account risk pricing, and will be completing the public sector comparator pricing to compare the shadow bids with. Those two calculations will allow the first iteration of the Value for Money assessments to be completed. Underpinning all of those analyses are more fulsome risk allocations, including calculating the financial value of the risks transferred away from Metro. As has been the case throughout this work, iterations of the analyses will be used to refine the initial P3 structures presented as part of this Executive Summary.

It is anticipated that the draft technical memorandum summarizing all of the Task 3 analyses and recommendations will be available to Metro in mid-September.