



Association for the Improvement
of American Infrastructure

Together, we move P3s forward.

Payment Mechanisms in Public-Private Partnerships

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Speakers



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What is a P3?

P3 Defined

- *A Public-Private Partnership (P3) is a contractual agreement between a public agency and a private entity that allows for greater private sector participation in the delivery and financing of a project.*

...but, why?

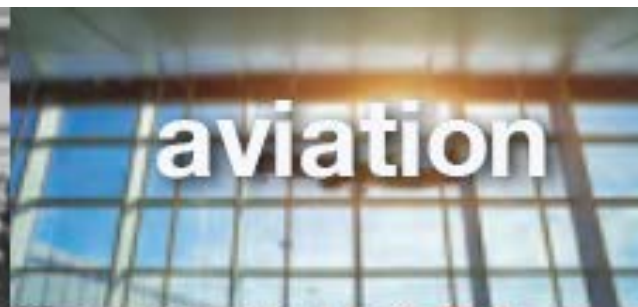
- **Greater certainty in cost and schedule**
- **Greater flexibility in contract structures and financing**
- **Focused on performance-based outcomes**

P3: Potential Areas of Benefits

Areas of Benefit	
Schedule Discipline Accelerated Delivery Payment for Performance	<ul style="list-style-type: none">■ Project delivery schedule independent of the timing constraints of public bond issuances and availability of public funds in capital improvement plans■ Robust security packages ensure delivery and performance■ Private sector partner receives limited or no payment until construction complete => incentive to deliver on time■ Client can influence construction schedule in accordance with project objectives
Greater Budget Certainty	<ul style="list-style-type: none">■ Fixed price design-build contract■ O&M and life-cycle costs are locked in for the entire contract period
Cost Savings	<ul style="list-style-type: none">■ Competitive bidding process drives down project costs■ Integrated approach leads to optimized costs over the entire life-cycle■ Long-term operational discipline avoids costs caused by deferred maintenance
Greater Innovation	<ul style="list-style-type: none">■ Functional specification approach allows design freedom■ Integrated design/construction and operations approach
Effective Risk Transfer	<ul style="list-style-type: none">■ Allocation of risk to parties best able to mitigate and manage risk■ Leverages established investment structures for institutional investors to invest in local projects■ Gives public sector option to aggregate demand, supplement revenues or assume volume risk

Public Asset Types Delivered via P3

Asset Classes with Potential P3 Applicability



Payment Mechanism


- In a P3, private equity assumes significant risk and consequently performs a level of due diligence and management of operations that exceed most traditional municipal projects.
- The P3 model has been successfully deployed for years in Australia, Canada, Latin America, and Europe. Increasingly used in US for a variety of assets.
- P3s are based in the principle that the private sector partner will assume the responsibility and risk for integrated project delivery for the long-term in exchange for the right to collect contracted revenue over such term.
- Similar to traditionally financed municipal projects, such revenue streams, or payment mechanisms of a P3 can take many forms.

Considerations

- Aspects to be considered when structuring the payment mechanism of a particular project include:
 - (i) the project's ability to directly generate revenues itself;
 - (ii) the certainty of any such revenues;
 - (iii) the revenue amounts in comparison to the project costs;
 - (iv) the public-sector client's objectives for the project and possibly its policy for the wider regional network of similar infrastructure; and
 - (v) the political environment with respect to revenue collection and retention by a private sector entity.
- When analyzing all these aspects, public officials should consider the best interests of the public as well as the financing feasibility of a particular project to make such a determination.
- In both Availability and Demand-based P3s, the public-sector client maintains ultimate control and ownership of the asset

Availability Based P3s

- Availability Payment P3s are paid for by contractually-set payments from the public-sector owner to its P3 partner for the design, construction, finance, operations and maintenance of a project over the life of the concession term (typically terms from 25-35+ years).
- This model includes a hand-back of the project at a prescribed minimum condition which is achieved by implementing regularly scheduled maintenance and life cycle replacements.
- Availability Payments are performance-based and are not directly subject to usage levels or customer demand. Availability Payments are distinct amounts stated in the project agreement and, critically, can be reduced for penalties for not achieving defined performance levels as set forth in the project agreement.
- Upon completion of construction and acceptance of the project will the public-sector client commence making Availability Payments. Similar to demand-based P3s, a public entity may decide to contribute public funds to the construction of a project (in the form of Progress payments and/or Milestone Payments).
- While such payments reduce the amount of private capital that would be outstanding during the asset's operational phase and consequently reduce the overall cost of capital for the life of the project, an oversized public-sector contribution undermines the overall objective of long-term risk transfer to the private sector partner.



AVAILABILITY RISK	EXAMPLE	DESCRIPTION	RISKS & CONTROL
MILESTONE PAYMENTS FOR REACHING AGREED UPON DESIGN, PRE-CONSTRUCTION OR CONSTRUCTION GOALS.	Design drawings completed to specified level to initiate construction.	Payments to the construction company and/or sponsor come due once a bridge is complete. The public sector takes minimal construction risk, but if project is completed as agreed, payments are made.	<p>In availability projects, the construction, and at times performance risk of an asset is shifted to private sector.</p> <p>Public funds are only paid when construction is complete or services are delivered. Controls typically transfer to public entity once construction requirements are met. Ownership ALWAYS remains with public entity.</p>

Hybrid Model P3s

- There are hybrid models where a combination of demand risk and availability risk are shared by the partnership; with risks taken by the party considered best suited to assume those risks and payments determined proportionately and appropriately.
- Hybrid structures can enhance the financial feasibility of a project or allow a public entity to monetize an unused asset to contribute funding to a new project.
- In addition to “traditional” infrastructure Hybrid P3 models can also be used to effectively monetize air rights, mineral rights, advertising, sponsorship, concessions or tax increment financing opportunities.
- Popular models have included projects where the public entity makes a minimum payment to protect the private sector partner against severe downside risks, while also sharing upside potential.

HYBRID MODELS	EXAMPLE	DESCRIPTION	RISKS & CONTROL
LAND VALUE EXCHANGE (AIR RIGHTS, FAR OR DEVELOPMENT RIGHTS, TAX INCREMENT FINANCING (TIF)).	Off balance sheet transaction value to provide capital cash offset.	Sale of excess city land parcels to accommodate a consolidation of municipal facilities.	The public entity typically has greater control of toll setting and shares in the project's upside potential.
MINIMUM REVENUE GUARANTY	Used to support financing of toll roads.	Public entity guarantees an annual minimum revenue payment sufficient to cover debt service and allow for some level of equity return.	

Demand Based | Revenue Risk P3s

- Revenue risk or demand based P3s projects are paid through user fees to offset the capital investment made to build the project.
- This model is often utilized for toll roads, managed lanes, bridges, water/waste projects, gas and even electricity P3s.
- Pure “greenfield” projects without any historic data on demand and usage patterns bear the highest risk, will therefore have the highest cost of capital and likely attract a lower level of interest from the industry.
- For some projects, the revenues generated by the project itself will not be sufficient to pay for the entire project costs; in such cases, the public sector can subsidize the construction of the project with public funds, which may maintain both, the financial viability and the effective overall project risk allocation of a revenue risk structure.
- Even when the public-sector client transfers demand risk, there may be the possibility to limit the rate setting authority of the private sector partner.

REVENUE DEMAND RISK	EXAMPLE	DESCRIPTION	RISKS & CONTROL
FIXED-USE CHARGE FOR UTILIZATION OF ASSET	Fees, Fares, Taxes or Tolls	<ul style="list-style-type: none"> - A ship is charged for the use of a port. - A car is charged a toll for using a bridge or tunnel. 	Demand risk can be taken by the public or private entity or both. Typically, risks are borne by the private sector as this is how investment returns are achieved.
AGREED UPON FEES FOR SERVICES PROVIDED	Campus Housing	Students pay for their room and board, “fee for service” is collected and directed to offset capital investments made to restore or modernize or build new housing.	
VARIABLE USAGE FEES (MILEAGE-BASED, TIME-OF-USE BASIS)	Managed Lanes	Access to converted HOV (High occupancy Vehicle) lanes to ease congestion or provide alternative lanes for travelers, where a car is charged according to predetermined amounts, based on length of segment or time of day usage on managed lanes	Functional daily control of the asset can be outsourced to experts if desired. Ownership ALWAYS remains with the public entity.

Examples of P3 in North America



East Rail Maintenance Facility

Project Name	East Rail Maintenance Facility (ERMF)	
Public Partners	<p>Province of Ontario (owner) through Metrolinx / Infrastructure Ontario (procurement) / PPP Canada (federal)</p> <p>Metrolinx is an agency of the Government of Ontario created to improve the coordination and integration of all modes of transportation in the Greater Toronto and Hamilton Area. GO Transit, a division of Metrolinx, is the regional public transit service for the Greater Toronto and Hamilton Area.</p>	
Private Partners	<p>Plenary Infrastructure ERMF:</p> <ul style="list-style-type: none"> • Plenary Group (Canada) Ltd., Kiewit Canada Development Corp. and Bird Capital Limited Partnership (Developer) • Bird Design-Build Construction Inc., Peter Kiewit Infrastructure Co. (Construction) & Stantec Consulting, Arup Canada Inc. (Design) • Honeywell Limited, Toronto Terminals Railway (Facilities Management) 	
Location	Whitby, Ontario, Canada	
Project Type	Design-Build-Finance-Maintain: substantial completion payment and monthly service availability payments over a 30 year operating period	
Project Description	<p>A LEED Gold Certified maintenance facility which provides maintenance, repair, and additional storage for GO Transit trains. The facility is critical, enabling expanded GO service to increase ridership and revenue, and support the anticipated population growth in the Greater Toronto and Hamilton Area. The facility:</p> <ul style="list-style-type: none"> • was designed to accommodate future electrification with 500,000 square feet, including shops, a maintenance facility, as well as offices and parking for staff • has sufficient tracks for storage and daily maintenance of up to twenty two - 12 car passenger trains (13 at substantial completion and remaining in the future) • serves as a secondary rail maintenance facility to provide operational flexibility and redundancy under emergency situations 	
Timeline	<ul style="list-style-type: none"> • Sept 24, 2012 – RFQ Issued • Mar 7, 2013 – Shortlist Announced / RFP Issued • Nov 14, 2013 – Proposal Submission • Jun 30, 2014 – Revised RFP Issued • Oct 30, 2014 – Revised Proposal Submission 	<ul style="list-style-type: none"> • Jan 22, 2015 – Preferred Proponent Announcement • Mar 27, 2015 – Contract Execution & Financial Close • Mar 14, 2018 – Substantial Completion & facility operations • Fall 2018 – Final Completion • Feb 2048 – Contract termination and project handback
Financing & Funding	<p><u>Private Partner Financing</u></p> <ul style="list-style-type: none"> • CAD\$137 million short-term bank loan • CAD\$112 million short-term bonds • CAD\$183 million long-term bonds • CAD\$23 million private equity 	<p><u>Public Partner Funding</u></p> <ul style="list-style-type: none"> • CAD\$309.7 million substantial completion payment from Metrolinx & PPP Canada • CAD\$1.7 million average monthly service payment from Metrolinx over a 30-year period for the maintenance, lifecycle repair and renewal of the facility, as well as project financing

East Rail Maintenance Facility



The facility is designed to provide mechanical maintenance capabilities, body repair and day-to-day cleaning and operational services for GO Transit trains. Highlights Include:

- 500,000 sq. ft of maintenance buildings with over 21 km of track and 68 switches designed to accommodate future electrification of the facility
- Storage capability for 22 12-car train consists (13 tracks for substantial completion and capacity for 9 additional tracks in the future)
- 300 staff and visitor parking spaces, with capacity for 150 additional in the future
- Services and facility components
- Two progressive maintenance bays
- Heavy maintenance and coach overhaul shops
- Paint booth and wheel shops
- Locomotive and train consist wash buildings
- Coach and locomotive light maintenance and heavy maintenance shops
- Supervisory and maintenance staff offices, crew quarters
- Train wayside power, fueling, sanding

East Rail Maintenance Facility

- Construction Period Payment paid at Substantial Completion
- Operating Period Payments paid monthly over 30 years and calculated in accordance with a formula
 - Composed of 3 major components:
 - capital costs, including scheduled interest and principal payments as well as equity distributions
 - operating costs and
 - lifecycle repair and replacement costs.
 - Subject to adjustments and deductions

East Rail Maintenance Facility

- **Operating Period Service Payment Adjustments**

- Changes in insurance costs
- Changes in inflation rate
- Gainshare /painshare on certain energy costs

- **Operating Period Service Payment Deductions**

- Service Failures or Quality Failures – assessed if the private partner fails to provide services in accordance with performance indicators
- Availability Failure Deductions – assessed if parts of the facility remain unavailable or are not in compliance
- Incentivizes the private partner to maintain pre-agreed and pre-determined levels of service.

Eagle P3

Project Name	Eagle P3	
Public Partners	<p>Regional Transportation District (owner & procurement) / Federal Transit Administration (federal)</p> <p>RTD is a subdivision of the State of Colorado responsible for developing, maintaining and operating a mass transportation system within the Denver metro counties.</p>	
Private Partners	<p>Denver Transit Partners:</p> <ul style="list-style-type: none"> • Fluor Enterprises, Inc., Aberdeen Infrastructure Investments (No 4) USA LLC and John Laing Investments Ltd. (Developer) • Fluor Enterprises, Inc. and Balfour Beatty Rail Inc. (Construction) & Fluor Enterprises, Inc. & HDR Global Design Consultants, LLC (Design) • Fluor Enterprises, Inc., Balfour Beatty Rail Inc. and Alternative Concepts Inc. (Operator) • Hyundai Rotem USA Corp. (Vehicle Supplier) 	
Location	Denver, Colorado	
Project Type	Design-Build-Finance-Operate-Maintain: monthly construction period payments and monthly service availability payments over a 27 year operating period	
Project Description	<p>35 miles of new commuter rail transit line, including a new line connecting Denver International Airport to Denver Union Station. Part of a regional mass transit expansion plan, the project is an essential part to reduce congestion and support economic development in Denver metropolitan area. The project:</p> <ul style="list-style-type: none"> • consists of the East Corridor, commuter rail maintenance facility (CRMF), connection between CMRF and Denver Union Station, procurement of commuter rail vehicles, together Phase 1 • also includes as Phase 2, the Gold Line Corridor and the initial (south eastern) section of the Northwest Corridor 	
Timeline	<ul style="list-style-type: none"> • Aug 6, 2008 – RFQ Issued • Nov 28, 2008 –Shortlist Announced / RFP Issued • May 14, 2010 – Proposal Submission • Jun 15, 2010 – Preferred Proponent Announcement 	<ul style="list-style-type: none"> • Jul 9, 2010 – Contract Execution • Aug 12, 2010 – Financial Close • 2016 to 2018 – Phased Substantial Completion and Service Commencement • Summer 2018 – Final Completion • Dec 2044 – Contract termination and project handback
Financing & Funding	<p><u>Private Partner Financing</u></p> <ul style="list-style-type: none"> • \$396 million long-term bonds • \$54 million private equity 	<p><u>Public Partner Funding</u></p> <ul style="list-style-type: none"> • \$1,139 million construction payments from RTD & FTA • \$44 million construction period service payment from RTD • \$12.4 million average monthly service payment from RTD over a 27-year period for the operations, maintenance, lifecycle repair and renewal of the project, as well as project financing

Eagle P3



Project components include:

- East Rail Line (A Line): a 22.8-mile electric commuter rail corridor between Denver's Union Station and Denver International Airport. This line opened on April 22, 2016.
- Gold Line (G Line): an 11.2-mile electric commuter rail corridor between Union Station and Ward Road in Wheat Ridge. The line is expected to be opened in 2018.
- Northwest Rail Line (B Line): a 6.2-mile first segment running between Union Station and Westminster Station. This line opened July 25, 2016.
- Commuter Rail Maintenance Facility (CRMF): located at 5151 Fox St., where vehicles will be repaired, cleaned and stored.
- Procurement of 56 commuter rail cars



Eagle P3

- **Construction Period Payments paid monthly throughout construction plus monthly service payments for lines that are open**
 - Phase 1 payments not to exceed pre-determined annual cumulative amounts
 - Phase 2 payments partially adjusted by inflation and not to exceed pre-determined annual cumulative amounts
- **Operating Period Payments paid monthly over 27 years and calculated in accordance with a formula**
 - Each corridor has a separate payment composed of 2 components:
 - Non-indexed costs, those not subject to indexation and
 - Indexed costs.
 - Subject to adjustments and deductions

Eagle P3

- **Operating Period Service Payment Adjustments**

- Changes in insurance costs
- Changes in inflation rate (Labor, Materials, and CPI)
- Special Event Services
- Gainshare / painshare on traction power costs compared to an annual allowable amount

- **Operating Period Service Payment Deductions**

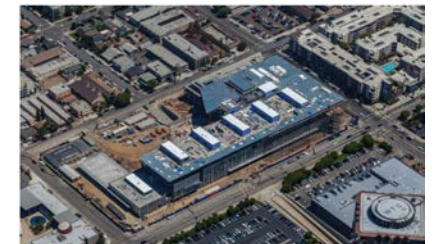
- Performance deductions assessed if the private partner fails to provide services in accordance with performance indicators
- Availability deductions based on vehicle and station availability and on time performance
- Incentivizes the private partner to maintain pre-agreed and pre-determined levels of service

Governor George Deukmejian Courthouse, Long Beach, California

- Courtrooms: 31 (+ 6 future expansion)
- Five-Story, Overall Square Footage: 545,000 SF
- 415,000 SF Court, 5,500 SF Retail
- 100,000 SF County Lease
- Construction cost: \$340,000,000 (Design and Engineering, Parking Structure upgrades and remodel)
- Financial Close: 12/20/2010, Occupancy Date: 8/30/2013
- 35 Year Agreement
- First social infrastructure project in the U.S. procured under the principles of Performance-Based Infrastructure (PBI) contracting.
- The PBI delivery method leverages the private sector's access to financing, technological expertise and management efficiency to quickly provide a premium facility to serve the Superior Court of Los Angeles County.

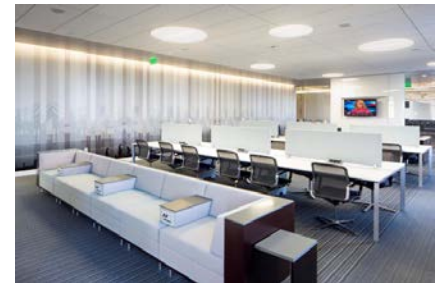
Solicitation Process:

- 11 Consortiums submitted qualifications
- 5 teams shortlisted for interview, 3 selected for final competition
- 6 month competition with multiple proprietary meetings
- Long Beach Judicial Partners Selected June 2010



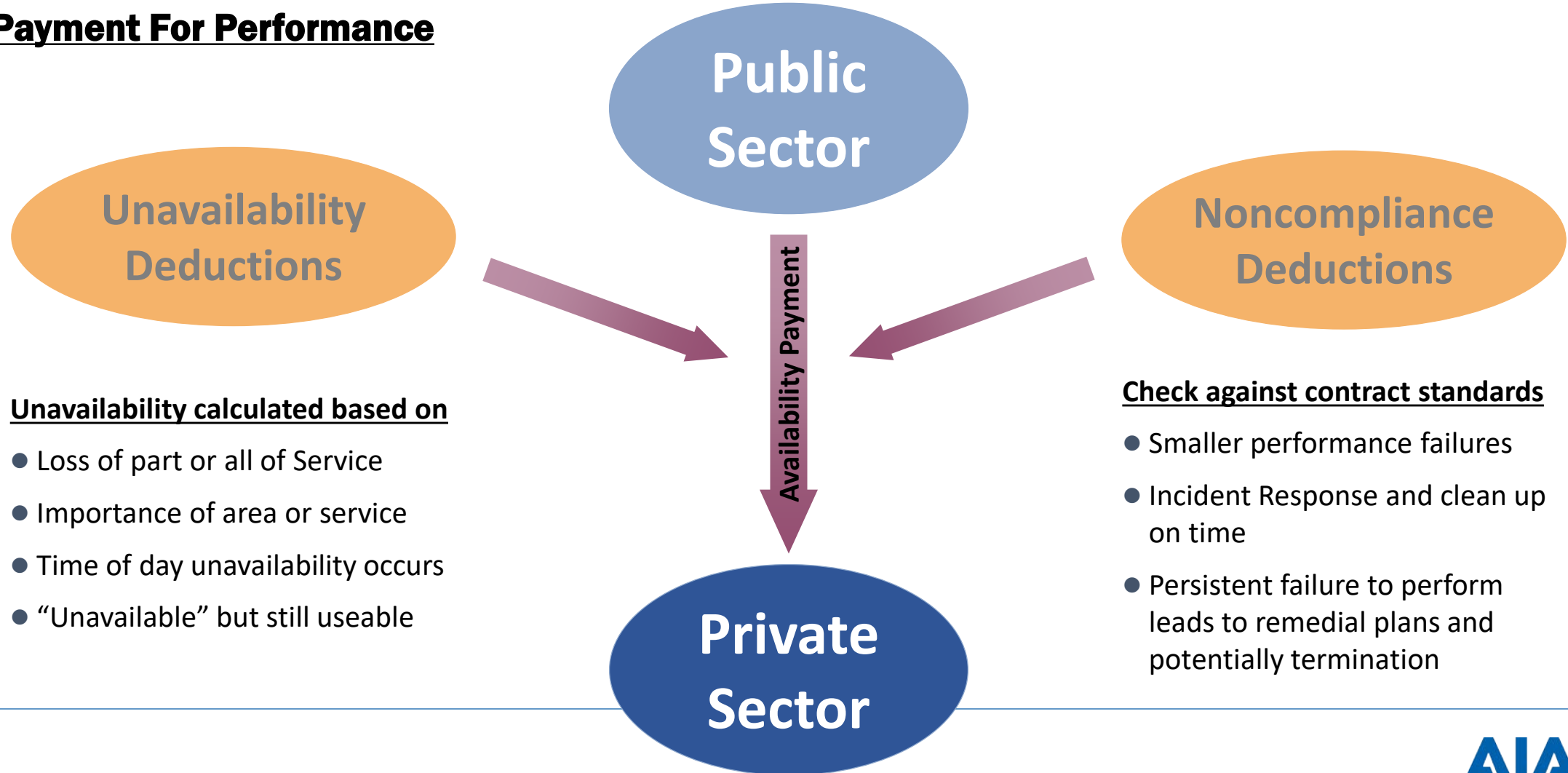
Governor George Deukmejian Courthouse, Long Beach, California

- Governor George Deukmejian Courthouse open since September 2013
- Seamless move by Courthouse staff over one weekend from old facility
- Management Requirements for Operations are stringent and aggressively short for penalties, requiring a prompt response and correction time
- Outstanding work relations in true partnership with JCC
- High Level of Stakeholder Satisfaction
- Outstanding Performance
 - 99/100% Response and Completion Times for Service Work Orders
 - Availability 100%
 - (Atypical of other courthouse facilities)



Governor George Deukmejian Courthouse, Long Beach, California

Payment For Performance



Governor George Deukmejian Courthouse, Long Beach, California

Key Findings of the Judicial Branch to the Legislature: Evaluation of the Long Beach Courthouse in comparison with 3 other courthouses, more directly with the San Bernardino Justice Center (SBJC)

	Long Beach Courthouse	San Bernardino Justice Center	Summary of Findings
Delivery Method	P3	Traditional CMR	
Project Schedule Duration	51 months	74 months	LBCH design and construction 2 years faster: 1. Bond sales delayed start of SBJC 9 months. LBCH private financing is faster. 2. LBCH PBI method: design approvals and construction phases overlapped or fast tracked; SBJC CMR Method required sequential approvals
Project Construction Duration	28 months	38 months	
Construction costs	\$279,280,431	\$257,233,486	LBCH cost 0.15% more per SF – but for upgraded functionalities: 1. Future courtroom expansion infrastructure 2. More holding cells 3. MEP equipment configuration to alleviate unavailability
Hard construction costs per sq. ft.	\$671	\$670	
Risk transfer and allocation	Highly favorable	Moderately favorable	Under traditional CMR delivery, life-cycle replacements are not included in annual budget requests and are addressed reactively vs. long-term commitment under performance-based delivery model.

Judicial Council of California Cost Effectiveness Report (2014)

North Tarrant Express, Fort Worth, Dallas

Location: Dallas-Fort Worth Metroplex (pop.6.1mm), Major thoroughfares between Fort Worth and Dallas

Overview: DBFOM of Managed Lanes and other improvements along IH 820, and SH 183 in Tarrant County, Texas over two segments.

CDA: TxDOT awarded the CDA contract to NTEMP for the development of Segment 1 and Segment 2 West

Construction Layout (in each direction):

- Segment 1 (6.4 miles): 2 managed lanes, 2 general purpose lanes (existing), 2 frontage road lanes
- Segment 2 West (6.86 miles): 2 managed lanes, 3 general purpose lanes (ex), 2 frontage road lanes

Toll Regime: Open Road Tolling System, Managed Lanes with dynamic pricing

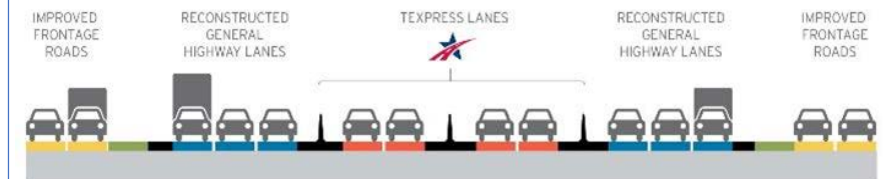
Concession Period: 52 years from contract execution

The innovation or success:

- Increased access during the construction of the project by adding ramps and connectivity to final configuration.
- Completed construction and opened facility almost 9 months ahead of schedule.



13.3 miles of reconstruction to incorporate managed lanes in North Fort Worth as a revenue risk concession for 52 years.

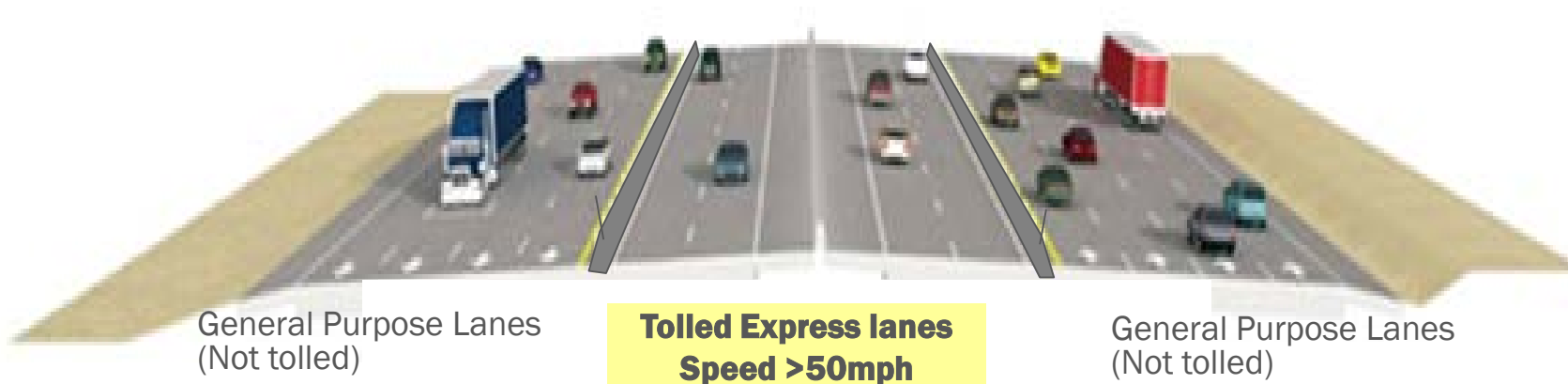


2 additional managed lanes per direction, completed Oct 2014, 9 months ahead of schedule

North Tarrant Express, Fort Worth, Dallas

Managed Lanes build on existing proven demand in a congested traffic corridor

- As a solution to congestion, tolled lanes are added within existing congested traffic corridor to provide extra capacity and efficiently handle more traffic volume
- They are separated from the free lanes and have controlled access (on-off ramps at selected locations).
- The Toll lanes are operated under a dynamic tolling regime for an improved level of service; For example: **guaranteeing speeds greater than 50mph at all times.**
- The main objectives is to provide users with **faster, reliable, and predictable travel times** in return for toll payments. **Tolls can be modified to control speeds** on the new lanes as demand grows and capacity becomes scarce, tolls increase to ensure a non congested traffic flow option.



North Tarrant Express, Fort Worth, Dallas



NTE EXPRESS

- 13.3 miles
- \$2.1 billion investment:
 - 20% equity
 - 52% debt (PABs and TIFIA)
 - 28% public subsidy

NTE Payment Mechanism:

- **Toll Revenues:** Project Funding consists of toll revenues which are the responsibility of the Developer
 - Toll rates are adjusted dynamically throughout the day depending on traffic conditions
 - Dynamic Toll Rate Signs are designed to inform drivers of the current toll rate allowing them to easily and safely choose if they wish to enter the Managed Lanes.
 - Drivers choose their itinerary taking into account the current toll rate:
 - either drive free on the (congested) GP Lanes
 - or pay for a faster, more reliable commute on the Managed Lanes
- **Public Subsidy:** \$570 million of Public Subsidy was provided by TxDOT
- **Non-Compliance Points:** noncompliance points and penalties may be assessed under the contract for breaches or failures in performance. Failure in performance can be a result of items such as lane closures, failure to meet safety measures, failure to submit timely reports, or other items that are noncompliant with the technical specifications.

Questions & Answers



Run by public sector P3 experts, P3Direct is a program implemented by AIAI for the public sector as a means to create a connection between experienced P3 professionals and those looking to gain more information on the P3 procurement model across agencies at every level.

P3Direct provides an opportunity for public officials to both engage with P3 experts and share their experiences.

The program encourages an understanding of the model, and collaboration of agencies to promote best practices and share lessons learned and success stories around P3s. sales-free environment.

For more information please get in touch:

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