The Annual William O. Lipinski Symposium on Transportation Policy

High Speed Rail Costs, Finance and Economic Development Potential

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Overview of Private Investment in U.S. Infrastructure

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Private Infrastructure Investing

- Private investment in U.S. infrastructure continues to grow through both the monetization of existing assets and the development of new facilities.
- Successful Canadian, European and Asian models; catalyst American transactions for "trophy" assets.
- Substantial private equity capital has been committed by pension and sovereign wealth funds and other institutional investors seeking stable returns over a long-term.
- The market for private infrastructure investment remains immature with mostly "one-off" transactions.
- Political risk remains a major concern.
- Transaction structures typically involve long-term agreements or "concessions" of up to 99 years and are frequently referred to as "public-private partnerships" or "P3s."
- P3s involve a contractual arrangement between public and private sector entities to:
  - Design, build, finance and operate/maintain a capital project
  - Monetize an existing public infrastructure asset or service
  - Transfer risks to the entity best able to retain and manage them.

Public Private Partnerships ("P3s")

Overview

- An **alternate delivery method** of financing and procuring public infrastructure assets:
  - Different from the historic pay-as-you-go approach and traditional bond financings
  - Increased value for money due to increased efficiency and risk transfer to the private operator

- A **contractual agreement** between a public agency and private partners to achieve:
  - Design, construction, financing and/or operation and maintenance of a capital project
  - Monetization of an existing or to-be-built public infrastructure asset
  - Transfer of various risks traditionally assumed by the public agency (such as revenue, operations, permitting, capital maintenance, construction)

Sectors	Revenue Generating Assets	Social Assets
▪ Transportation ▪ Transit ▪ Water ▪ Power ▪ Healthcare ▪ Education	▪ Toll roads and bridges ▪ Water and sewer systems ▪ Airports ▪ Ports ▪ Solid Waste ▪ Other self-sustaining assets	• Schools • Courthouses • Roads • Other assets that do not generate self-sustaining, or any, fees

P3 Models

Dynamics of a P3 are specific to the asset and the public agency

- Tailored to meet the *public agency's* specific financial, policy and operational goals

Two Broad Categories

Asset Monetization

- The public asset's future revenues are monetized by the private party.
- The public entity receives and upfront payment, annuities, and/or a revenue sharing arrangement.
- The private partner enhances, operates and maintains the asset based on contracted terms.
- Financial, operational, and maintenance risks are shifted to the private partner.

Availability Payment

- The public entity pays the private partner rent-like "availability payments" that are based upon the availability of the asset to the public.
- Budget certainty for the public agency over the life of the contract.
- The private partner designs, builds (or rehabilitates), finances, operates and maintains the asset based on strict delivery and performance requirements.
- The public agency's payments may be reduced for underperformance or bonuses for exceptional performance.

Prospective Private Investors in HSR

Infrastructure Equity Funds

- Attracted to the stable cash-flows of a public infrastructure asset
- Can be a stand-alone fund, or part of a larger investing entity
- Provides capital

Developers/Operators

- Attracted to the possibility of creating value by optimizing O&M
- Experienced with similar asset class
- Critical in project delivery and ongoing operation

Construction/Engineering Firms

- Attracted to the possibility of generating incremental value by optimizing construction/ rehabilitation phases
- Potential equity participation

Availability Payments

Application & Suitability

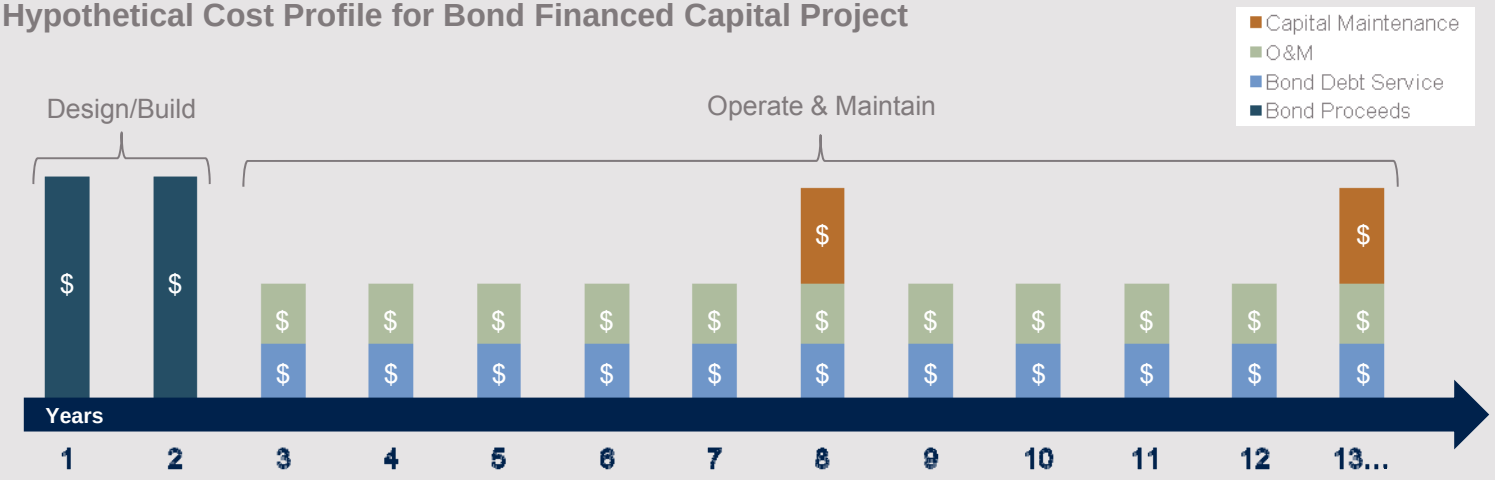
- Infrastructure asset that generates inadequate revenue to cover its costs
- A comprehensive solution to design, build, operate and maintain an asset for a set period of years
- Infrastructure assets that have been built around the globe using Availability Payment P3's:
  - High speed rail
  - Courthouses and public buildings
  - Roads and bridges
  - Schools
  - Police and fire stations
  - Transit facilities
  - Hospitals and health facilities
  - Libraries
  - Water and wastewater treatment facilities
  - Streetlights

The Payments

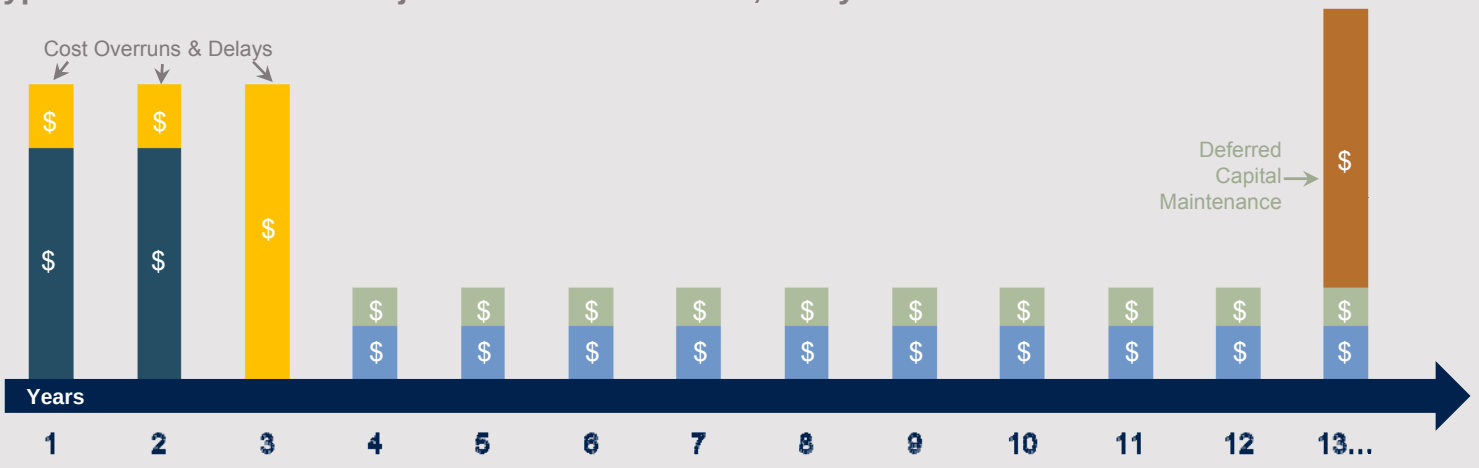
- Can combine the design, construction, financing, operation and maintenance of a public facility into a single agreement and payment stream
- Pre-defined, performance-based payments from a public agency to a private partner
- Typically begin once asset is delivered and "available" for use
- Performance, quality and safety standards must be satisfied for the continuation of payments
- Payment frequency and profile can be tailored to meet public agency's parameters: level, escalating , milestones, etc.
- Subject to appropriation, typically not classified as debt, subordinated to bond and other debt obligations

Cost Profiles of Traditional Public Capital Projects

Hypothetical Cost Profile for Bond Financed Capital Project



Typical Bond-Financed Project with cost Overruns, Delays and Deferred Maintenance



Note: Payments and costs are not drawn to scale

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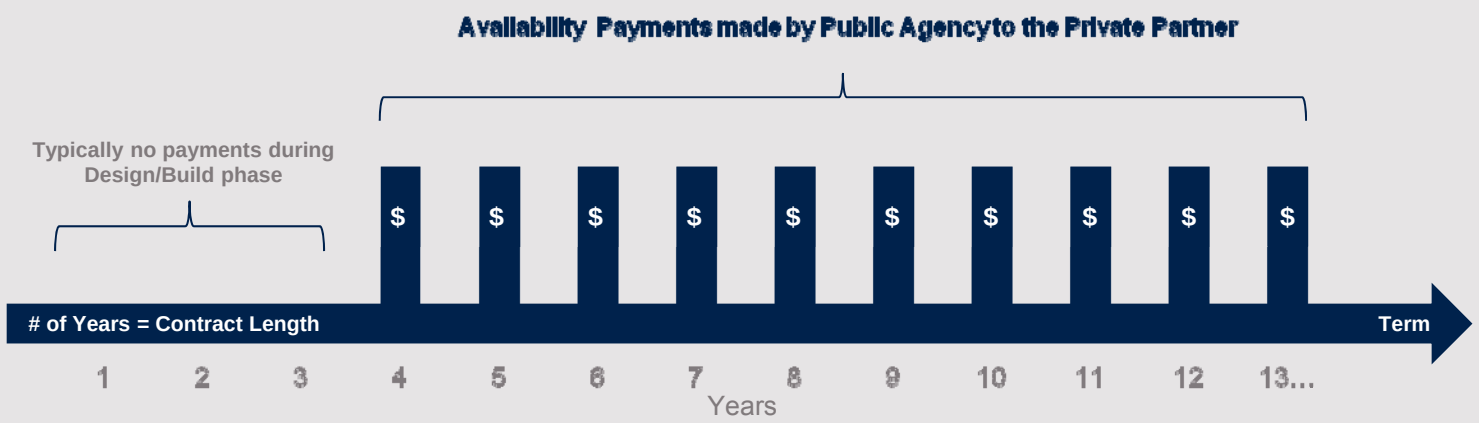
Cost Profile of Availability Payments Structure

Private partner designs, builds, operates and maintains asset



Note: Payments and costs are not drawn to scale

- By combining the design, construction, financing, operation and maintenance into a single agreement with a private partner, the public agency can potentially obtain "Value for Money" and the faster delivery of well-constructed and maintained infrastructure projects.
- This approach can overcome not only delays and cost overruns, but meet the ongoing capital maintenance costs required for infrastructure assets over time.

Case Study
Denver FasTracks Eagle Rail Project

Funding sources include:

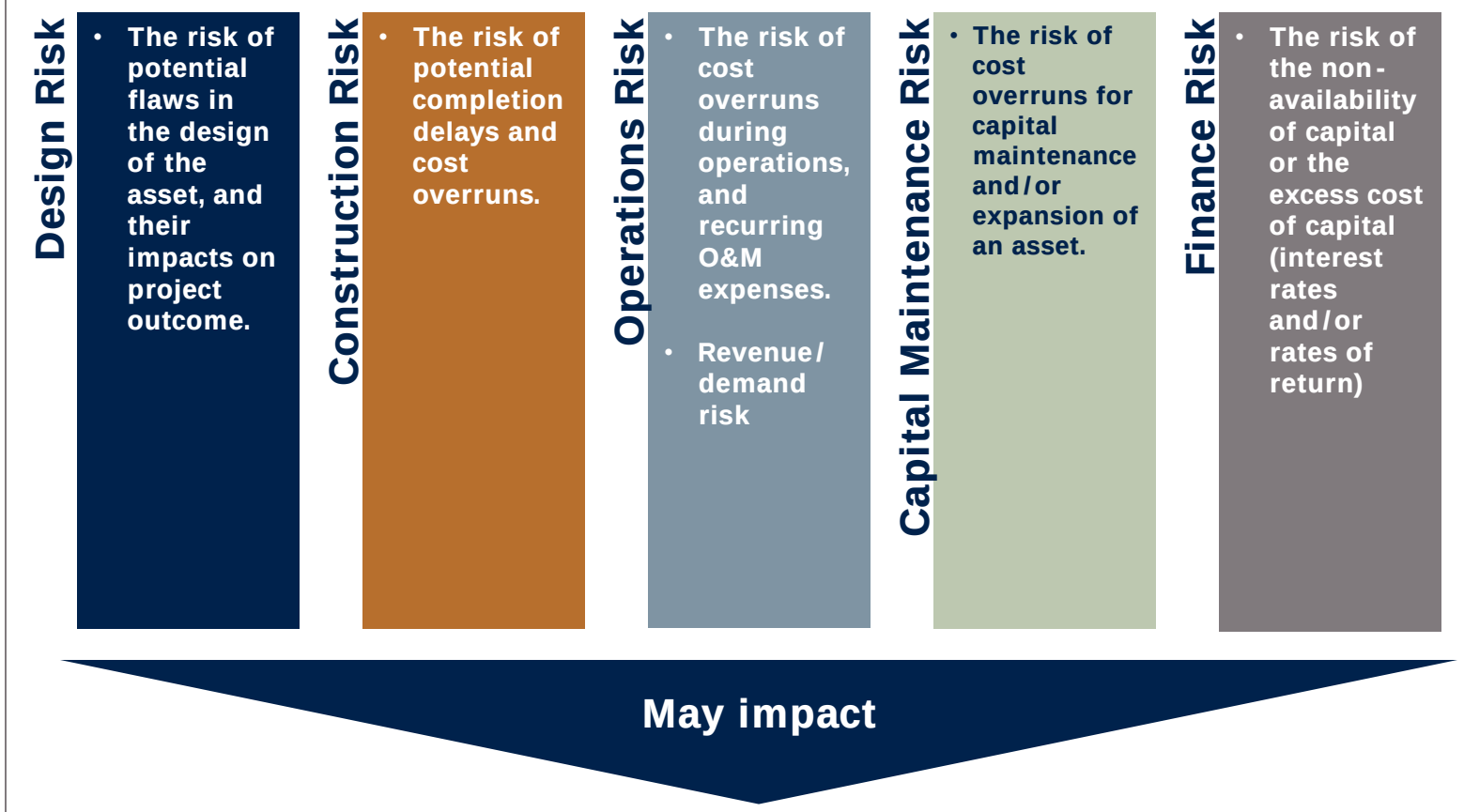
- ✓ $1.139 billion in public sector construction payments
- ✓ $396 million in private activity bonds
- ✓ $54 million private equity investment
- ✓ $44 million in public sector service payments

- The Denver Regional Transportation District (RTD) achieved financial closing in August 2010 on the first transit project to use an availability payment structure in the United States.
- The RTD explored a P3 structure for the Eagle section as a way to close a nearly $2 billion gap in the overall $6.5 billion FasTracks project.
- The $1.64 billion Eagle project will create approximately 35.2 miles of electrified commuter rail connecting downtown Denver with both the western suburbs and Denver International Airport at a cost savings of 30%.
- Monthly availability payments will be made to the project company over the course of 30 years. ***Payments will commence only upon satisfactory completion of the project.***
- Significant safeguards have been built into the contract, including the right to terminate the service contract if the project significantly falls behind schedule or if several non-performance contingencies are met.
- RTD retains ridership/revenue risk.

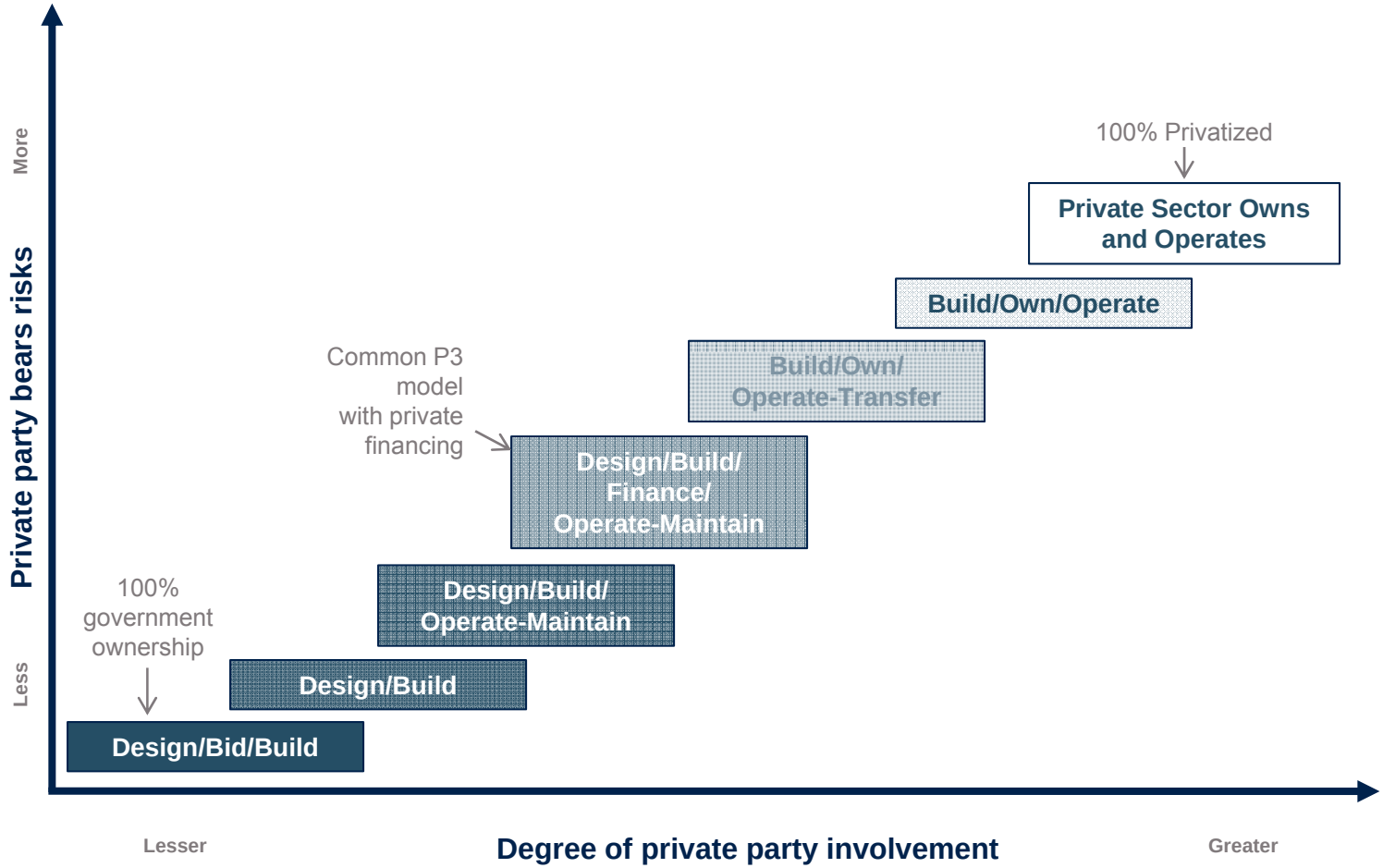
Case Study
Los Angeles Metro

- Beginning in late 2007, the Los Angeles County Metropolitan Transportation Authority (Metro) implemented a program to consider all future projects for P3 delivery.
- Of 85 projects listed in Metro's long range construction plan, 14 have been identified as having P3 marketability. 3 mass transit projects are currently being targeted for a P3 structure. These are:
  - Westside Subway Extension – A new heavy rail line that will connect downtown Los Angeles to the ocean and Westside.
  - Crenshaw/LAX Transit Corridor – An extension of the existing light rail system that will link LAX Airport to current and future rail lines.
  - Regional Connector Transit Corridor – a 2 mile long link between three existing light rail lines to be located in Downtown Los Angeles.
- Business cases and procurement plans are currently being developed for each of these three projects.

Undertaking a HSR Project Involves Multiple Risks

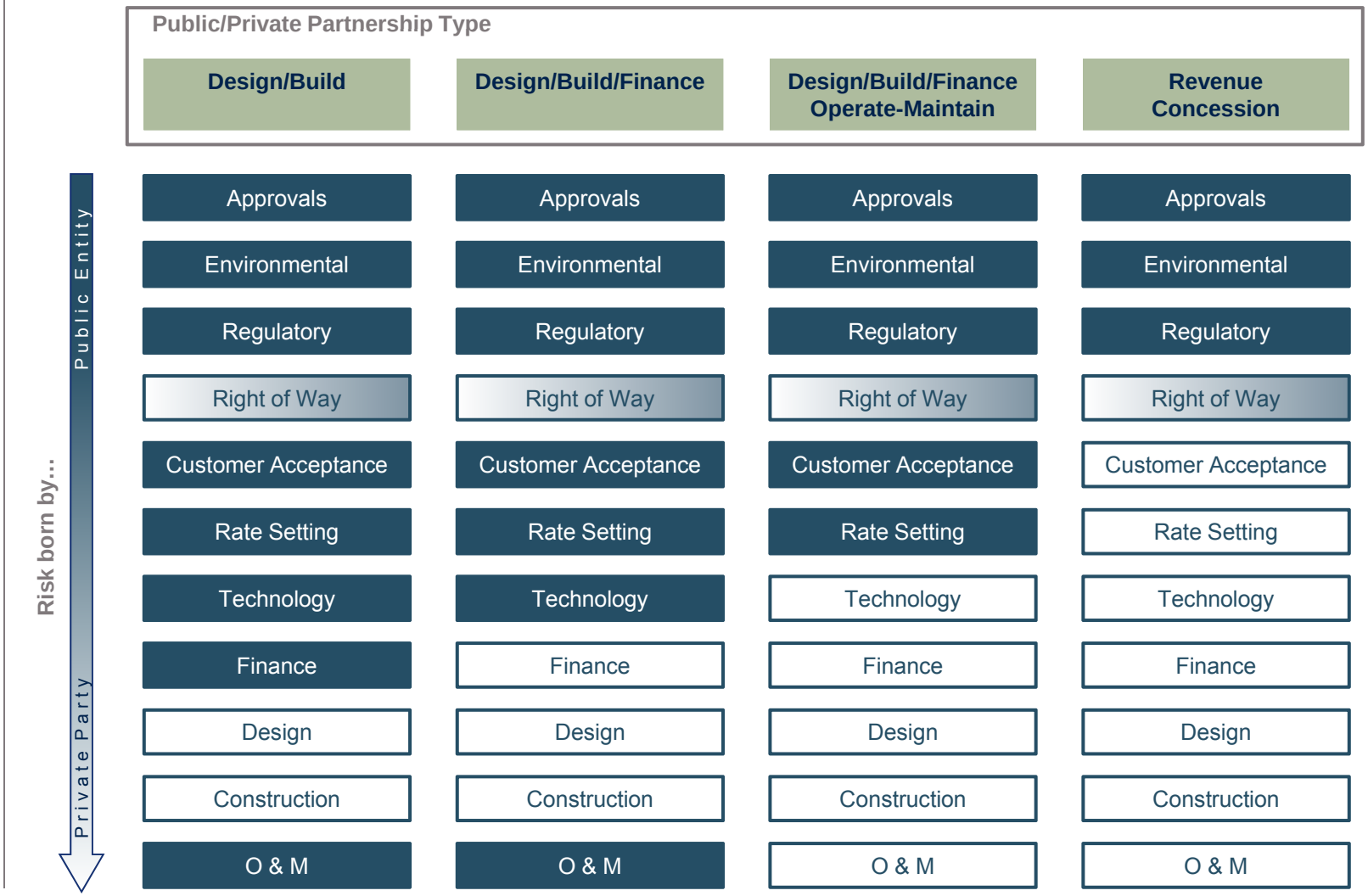


The Private Investor Can Assume Varying Degrees of Risks and Involvement with the HSR Project



Various Risks Associated with a HSR Project Can Be Transferred to a Private Investor

Risk Transfer Profiles



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Case Study – California High-Speed Rail Authority
Draft Business Plan – Funding and Financing

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Background

- Californians voted in 2008 to develop a HSR program.
- $9.5 billion of general obligation bond funding approved – subject to conditions.
- Draft Business Plan issued November 1, 2011.
- Headline cost number increased to $98.5 billion from $43 billion.
- Most advanced HSR program in U.S.
- Contemplates significant private sector engagement.
- Reflects investor outreach.
- Program will take longer and cost more than originally projected.
- State Treasurer Lockyer commended a "more honest discussion with the public and policy makers about the costs, benefits and feasibility of the project."

Order of Magnitude Capital Costs

Section[1]	Length (approx)	Endpoints	Service Description	Incremental Cost (billions 2010$)[2]	Cumulative Cost (billions 2010$)[2]
Initial Construction Section	130 miles	Fresno-Bakersfield	Provides track and structures to support system spine	5.2	5.2
IOS-North	290 miles	Bakersfield to Merced and San Jose	Supports 220 mph HSR service; includes trains and systems. ***Ridership and revenues sufficient to attract private participation***. Connects with regional/local rail for blended operations.	19.4 to 26.4	24.6 to 31.7
IOS – South	300 miles	Merced to the San Fernando Valley	Supports 220 mph HSR service; includes trains and systems. ***Ridership and revenues sufficient to attract private participation***. Connects with regional/local rail for blended operations.	21.4 to 25.8	26.6 to 31.0
Bay to Basin	410 miles	San Jose and Merced to the San Fernando Valley	First HSR service to connect the San Francisco Bay area with the Los Angeles Basin.	14.2 to 17.3	40.8 to 48.3
Phase I Blended	520 miles	San Francisco to Los Angeles/Anaheim	Builds on Bay to Basin with blended operations with existing commuter/intercity rail, and additional improvements for a one-seat ride, connecting downtown San Francisco and Los Angeles/Anaheim. Caltrain corridor electrified for HSR, and new dedicated lines into Los Angeles and Anaheim.	14.1 to 18.0	54.9 to 66.3
Full Phase 1	520 miles	San Francisco to Los Angeles/Anaheim	Continues dedicated high-speed alignment in full from San Jose to San Francisco and into Los Angeles/Anaheim.	8.2 to 10.5	65.4 to 74.5

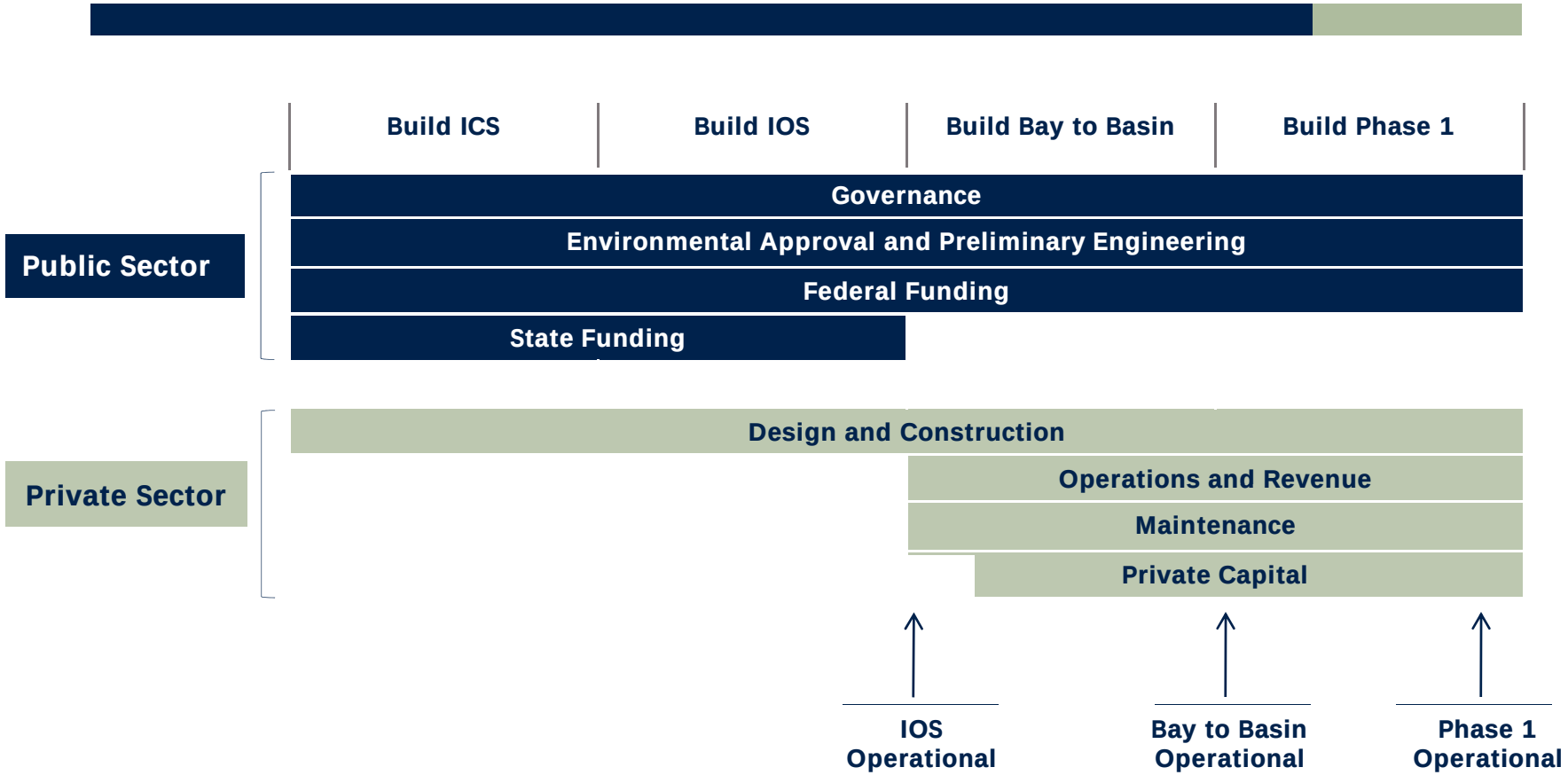
1 Decision on which IOS to advance will be made at a future date, as described in Chapter 2, A Phased Implementation Strategy.
2 Ranges reflect the difference between the combination of lowest cost feasible options and the combination of highest cost feasible options.
Source: California High Speed Rail Authority Draft 2012 Business Plan

Business Model

Governance	Infrastructure Delivery	Infrastructure Operations	Train Operations
Public	**Private**	**Private**	**Private**
▪ Ownership ▪ Safety standards ▪ Contract supervision ▪ Other government agreements ▪ Right of way ▪ Environmental approvals	▪ Signals and system integration ▪ Superstructure construction ▪ Substructure construction ▪ Build stations and depots	▪ Train dispatch/ signaling ▪ Infrastructure maintenance and renewal ▪ Power provision ▪ Station O&M	▪ Passenger service ▪ Vehicle maintenance ▪ Vehicle procurement

Source: California High Speed Rail Authority Draft 2012 Business Plan

Business Model



Source: California High Speed Rail Authority Draft 2012 Business Plan

Business Model

Contracting Option	Finance Based on Cash Flow	Cost Control	Key Constraints	International Precedents
Train operation franchise	Vehicles and train operator startup costs	▪ Control train O&M costs	▪ Can only have one TOC for length of franchise	Some U.K. rail franchises
Infrastructure O&M concession	Limited – via track access charge	▪ Contain infrastructure costs ▪ Would include capital maintenance	▪ Interface with TOC and infrastructure construction company ▪ Need non-"subsidy" payment street	U.K. HS1 (Channel Tunnel Rail Link)
Infrastructure DBFO	Limited – via track access charge	▪ All infrastructure costs ▪ Can be segment or subsection (e.g. tunnel) ▪ Can have several sequential DBFOs	▪ Scale – capped at $10 to $12 billion by bonding/construction market capacity ▪ Need continuing appropriation to pay	▪ Perpignan-Figueras $2 billion ▪ Tours-Bordeaux $11 billion ▪ Dutch HSL $10 billion
Full System DBFO	All costs to extent revenues allow	▪ Most costs controlled ▪ Integration risk transferred ▪ Can assume O&M of DB segments	▪ Scale – limits to $10 - $12 billion of construction ▪ Can only have one contract	▪ Arlanda Airport Link ▪ Taiwan HSR

Source: California High Speed Rail Authority Draft 2012 Business Plan

Funding and Financing - Overview

- Program to be implemented in phases to match available funding.
- Some significant assumptions:
  - No operating subsidies
  - Private sector involvement is feasible because each of the operating sections is projected to generate a net operating profit
  - Based on projected cash flows, nearly $11 billion in private sector capital is anticipated once operations begin
  - Federal funding will continue to be available
  - A new tax credit bond program will be authorized by Congress

Funding Sources

- Sufficient funding ($6 billion) is available to finance the "Initial Construction Section (ICS) Merced to Bakersfield:
  - Federal grants authorized under ARRA and HSIPR (FY 2010)
  - State general obligation bonds (appropriation required)
- Ridership revenues are projected to cover operating costs and attract private capital for construction of future phases.

Funding Sources

Future capital costs are assumed to be funded from:

Federal Programs	State	Local	Private
▪ Existing transportation programs ▪ Dedicated HSR Trust Fund ▪ Availability Payments ▪ Qualified Tax Credit Bonds	▪ State bond funds	▪ Cost sharing ▪ ROW ▪ Innovative use of ROW ▪ Rentals/parking fees ▪ Naming rights/ sponsorships ▪ "Incremental" tax revenues from development activity	▪ Equity ▪ Conventional project finance debt ▪ Private activity bonds ▪ TIFIA ▪ RRIF

Observations

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Observations

- First mover advantage may have some value
- Notwithstanding the appropriate focus on private sector engagement, an unprecedented amount of public sector funding will be required.
- Business Plan also recognizes that the projected private sector investment is also without precedent and will require federal assistance – PAB, TIFIA, RRIF etc.
- While the California High Speed Rail Business Plan reflects improved and more conservative analysis, many assumptions remain optimistic and speculative.
  - Federal support vaporizing (at least in short-term).
  - Heavy burden of proof on ridership and revenue assumptions.
  - No operating subsidies.
  - Build it and they will come.

Observations

- Spirited Opposition.
  - The Wall Street Journal editorial Saturday, November 12, 2011 – "Train to Neverland."
  - Congressman McCarthy/route of initial project
  - Public opinion
  - California State Legislative Analyst
  - Credible project skepticism
- Often a disconnect between public and private sector.
- Political risk
- Steep uphill climb