Hawaii State Department of Accounting and General Services

Innovative Project Delivery Workshop – Day 1

August 14, 2017

Our Team

Jill Jamieson

Managing Director, Public-Private Partnerships Advisory Practice (JLL)

- Globally renowned leader in P3 and infrastructure finance
- 25+ years multi-sector P3 experience, including both program and project development for federal, statel and local authorities (including foreign governments)
- Total capital investment portfolio over $15 billion
- 3+ years experience with state and local authorities in Hawaii on innovative project delivery

Tami Lin

Associate, Public-Private Partnerships Practice (JLL)

- Nearly 10 years of experience in management of P3 projects, infrastructure improvements, and municipal government operations from the City of New York
- Multi-sector experience in: energy, water, wastewater, greenhouse gas management, and public spaces

About Jones Lang LaSalle

JLL | Achieve Ambitions

- Jones Lang LaSalle (NYSE: JLL) is a Fortune 500 professional services and investment management firm specializing in commercial real estate, finance and Public-Private Partnership (P3).
- With over two decades of experience, JLL is national leader in P3 advisory services to public sector clients.
- Our Public Institutions Practice focuses exclusively on advisory services to government authorities and has successfully advised over 260 public entities on P3 at the federal, state, and local level.

Recent Relevant Past Performance:

US Army Corps of Engineers®		The Army's Residential Communities Initiative	The Port Authority of NY & NJ	Smithsonian	U.S. Air Force
Lead alternative finance and delivery advisor for civil works	Billion dollar mixed-use campus DBFOM	$13.2 billion in P3 housing development	World Trade Center Redevelopment	National Zoo Central Garage P3	Air Force Energy Utility Privatization

P3 and Innovative Project Delivery Life-Cycle

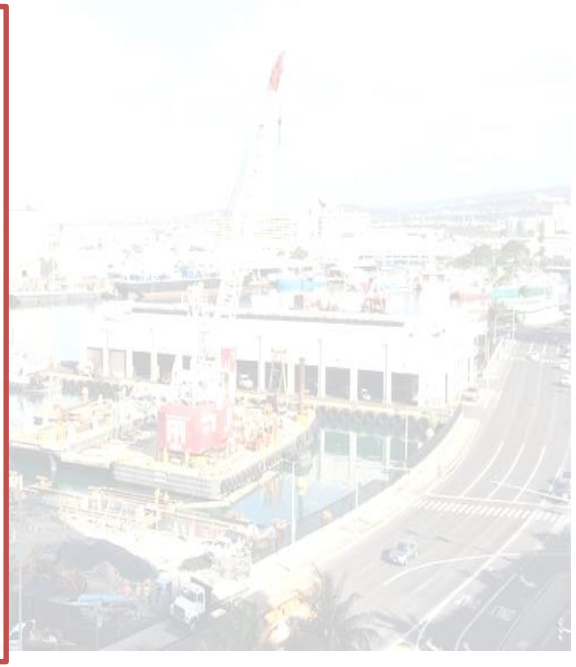
Workshop Objective

Objective:

- To provide public agency participants with an overview and understanding of key public sector considerations when contemplating and/or implementing non-traditional finance and delivery projects and programs.

Framework for Discussion:

- Present an honest assessment of Innovative Project Delivery options (we do not proselytize P3 or other modalities)
- Focus on public sector considerations (risks and opportunities)
- Given the diversity of audience, we will seek to address a broad array of issues and sector-specific considerations, but are also happy to adjust the agenda and refine the discussion as needed.
- Case studies provided to give you an idea of possible structures and solutions, but remember that every transaction is tailored to the specific needs and objectives of a project.



Agenda

	Topic
Day 1	
Module 1:	Overview of Innovative Project Delivery
Module 2:	Sector-Specific Case Studies
Day 2	
Module 3:	Best Practices and Requirements for Establishing an Appropriate Enabling Framework
Module 4:	Key Public Sector Considerations
	General Discussion and Q&A

Module 1: Overview of Innovative Project Delivery

Bridging the Infrastructure Gap

- ***$94 trillion*** in global infrastructure investment needed by 2040 (at least 20% unfunded)
- US infrastructure needs are estimated at over **$7.7 Trillion** by 2030 **($4.7T by 2025)** just to keep pace with GDP (OECD/WEF)
- (ASCE) 2017 report card assigns an **overall grade of D+** to the Nation's major infrastructure.

Source: ASCE Infrastructure Report Card 2017

- Facing debt ceilings and budget constraints, federal, state and local authorities have limited resources to devote to capital and operational expenditures, while users are increasingly facing affordability and capacity-to-pay issues.
- Hawaii, like most other states, is exploring innovative finance and delivery modalities in order to deliver critical infrastructure in a timelier and more cost-effective manner.

Hawaii's Infrastructure Needs

- Hawaii faces significant infrastructure challenges :
  - For example, driving on roads in need of repair in Hawaii costs each driver $708 per year
  - 5.7% of bridges are rated structurally deficient.
  - Drinking water needs in Hawaii are an estimated $1.05 billion, and wastewater needs total $2.16 billion.
  - 123 dams are considered to be high-hazard potential.
  - Of the state's 15 public-use airports, many are in need of major modernization and expansion
  - Nearly $2 billion required to finish Honolulu Area Rail Transit system
  - Nearly $1.9 billion required for TOD infrastructure developments
  - The state's schools have an estimated capital expenditure gap of $88 million.
- Delaying these and other investments only escalates the cost and risks of an aging infrastructure system, an option that the country, Hawaii, and families can no longer afford.

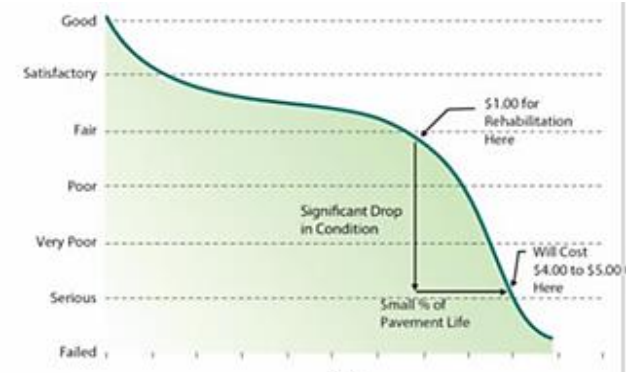
But challenges go well beyond funding…

Infrastructure delivery system is flawed

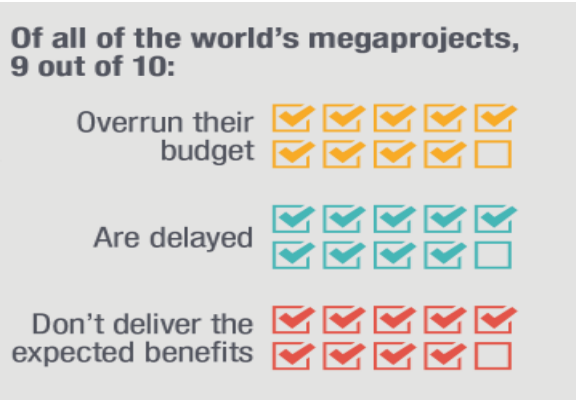
- Public confidence gap in infrastructure delivery
- Limited life-cycle asset consideration (fix-as-fails approach)
- Public sector retaining excessive delivery and performance risk (to the detriment of the public)
- General lack of incentivized performance
- Excessive regulatory and administrative burdens unnecessarily increase costs

Taxpayers and ratepayers deserve a better deal

- Use of alternative finance and delivery modalities to optimize risk allocation and performance incentives
- Linking funding (and financing) to infrastructure delivery and performance
- Growing focus on optimizing the return on public investment in infrastructure



Deterioration of infrastructure over time. (FHWA)



Source: *Bent Flyvbjerg, University of Oxford Saïd Business School*

Value proposition in alternative finance and delivery structures lies not in the financing of infrastructure (although that can be helpful), but in aligning incentives and optimizing risk transfer to deliver infrastructure in a timelier and more cost-effective manner.

Key Drivers of Innovative Project Delivery

- *Public authorities have limited financial resources to devote to capital and operational expenditures*
- *Addressing growing backlog of deferred maintenance is diverting resources from modernization and expansion*
- *Intense competition for scarce federal funding, while protracted appropriations delay delivery and exponentially increase costs*
- *Need to address life-cycle asset management*
- *Public authorities seek to extract value from existing assets and control costs*

Key Drivers

- *Access to new sources of financing / accelerated delivery of Infrastructure*
- *Monetization opportunities*
- *Life-cycle cost reduction / Operational efficiencies*
- *Risk allocation and incentivized performance*

Public authorities are increasingly turning to innovative delivery structures (such as P3) to address public infrastructure and service needs (the "New Normal")

Innovative Project Delivery structures can allow the public sector to accelerate infrastructure delivery, but more importantly, improve the efficiency with which projects are delivered.

Another driver: the Federal Infrastructure Plan

P3 is the cornerstone of Trump Trillion Dollar Infrastructure Plan…

Key Infrastructure Plan Parameters

- **Combination of direct funding and P3**
  - Public funding increasingly linked to leveraging private capital and expertise
  - *Recent examples*: FTA is proposing **Private Investment Project Procedures (PIPP)** to streamline P3 for transit projects (offering administrative and funding benefits to applicants leveraging private capital and expertise through P3)
- **Tax Credits** (≈$167 billion)
  - Lowering required return on equity, thereby incentivizing use of private capital (balancing the playing field)
- **Accelerated delivery of infrastructure**
  - Streamlining approval processes
  - Reducing regulations
- **New and expanded financing tools**
  - Enhancing federal credit programs
  - Linking federal funding and credit programs to private delivery and/or VFM
- **Incentivizing divestiture and asset recycling (monetization)**
- **Innovative Project Delivery is expanding dramatically across U.S.**

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INFRASTRUCTURE

Chao Says Trump Plans to Remove Obstacles to P3s

By Jim Watts
January 11, 2017

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DALLAS – President-elect Donald Trump will unleash the potential of private investments and use innovative financing tools to rebuild the nation's transportation networks, Transportation Secretary-designate Elaine Chao told lawmakers at her Senate confirmation hearing on Wednesday.

"As we work together to develop the details of President Trump's infrastructure plan, it is important to note the significant difference between traditional program funding and other innovative financing tools, such as public-private

Image: Bloomberg News

Chao tells lawmakers that innovative financing tools will propel Trump's $1 trillion infrastructure plan.

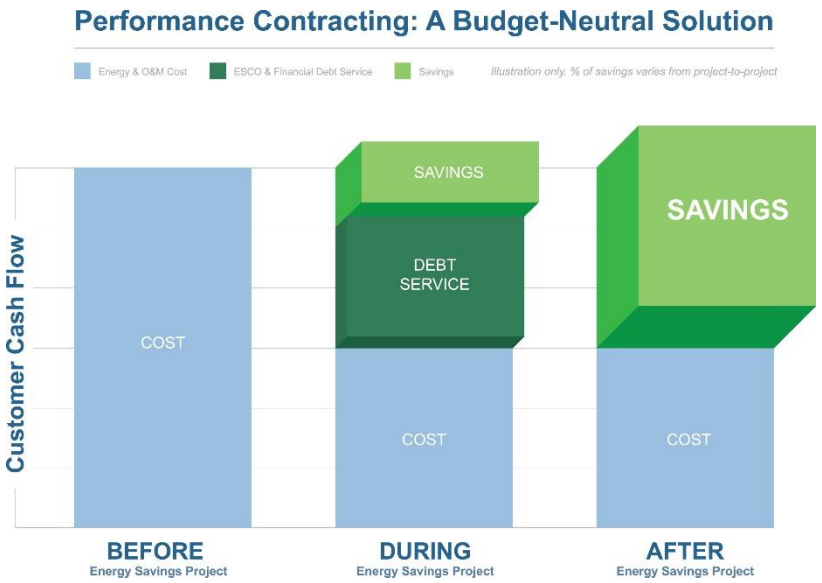
What is Innovative Project Delivery?

- No universal definition, which can cause confusion.
- Innovative Project Delivery refer to a wide range of contracting modalities, but generally refer to long-term forms of cooperation between public authorities and the private sector to ensure the **financing, design, construction, renovation, management, operation and/or maintenance** of a public infrastructure facility.
- Typically involve the provision of **bundled** services and life-cycle elements.
- Financed on a "**non-recourse**" or "**limited recourse**" basis (based on project-specific cash flows)
- **Often involve life-cycle asset management** (not just construction, but also maintenance and operation over the life of asset).
- **Output and performance based**, allowing for innovation in meeting performance targets.
- **Not "free money"** - investments and risks need to be compensated (through user fees, budget payments and/or commercial revenues)
- **Do not achieve full risk transfe**r (public sector retains some risks and assumes contingent liabilities)
- **Broad spectrum of contracting options**, each distinguished by the level of risk allocation:

What is Innovative Project Delivery?

Performance Contracts:

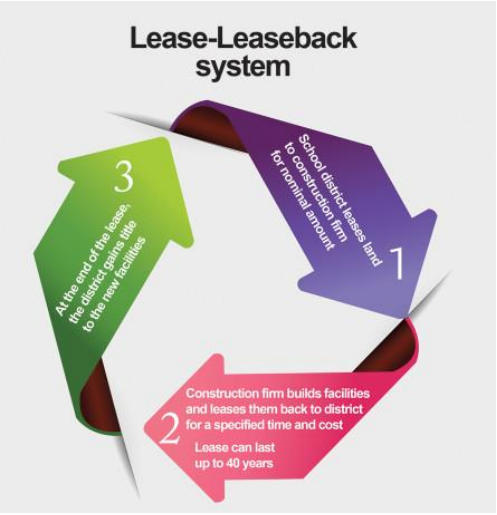
- ***Savings-based contracts***:
  - Private partner compensation derived primarily from realized savings and performance improvements
  - Drivers include capitalizing savings and improving operating performance of assets
  - Term and conditions will vary (may or may not involve capital investments)
  - Examples include:
    - ***Energy Savings Performance Contracts***
    - ***O&M concessions***
    - ***Performance-based management contracts*** (including “peer partnering”, etc.)
  - Private partner provides financing for capital improvements (if any) and is paid via a percentage of realized savings.
  - Key requirement: Baseline metrics and objective performance measures



What is Innovative Project Delivery?

Lease-like Arrangements:

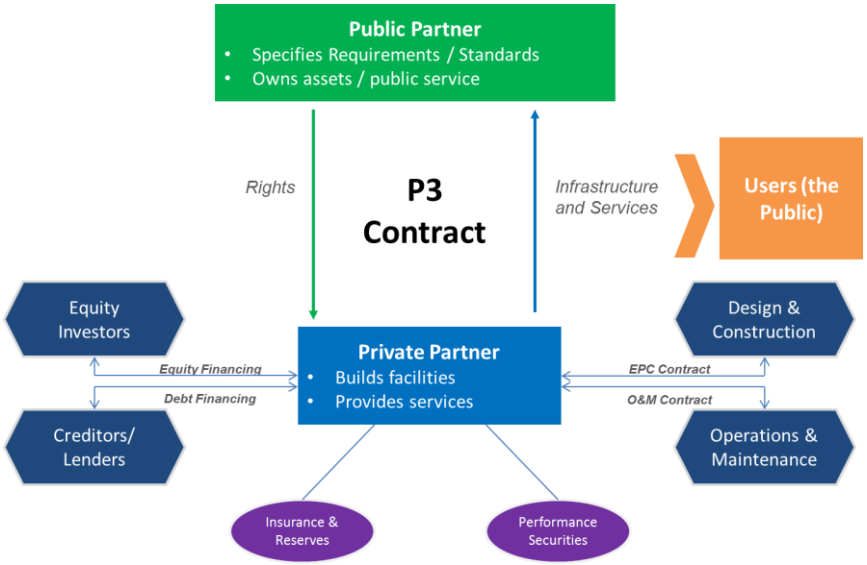
- Lease-like agreements vary greatly in form and substance.
- Typically involve a capital lease purchase (which is essentially public debt in the form of a long-term mortgage) which can have a credit impact
- Examples include:
  - ***Affermage***: Lease arrangement where private partner has limited capital investment requirements but shares performance risk.
  - ***Lease-Develop-Operate***: the private party leases an existing facility from a public agency; invests its own capital to renovate, modernize, and/or expand the facility; and then operates it under a lease contract with the public agency.
  - ***Lease Lease-backs***: Public agency leases real property to a private partner for a stipulated price and the private partner then must design, build, finance and/or maintain improvements on the property, for which the public partner will make ongoing lease payments (capital lease purchase).
  - ***Design-Build-Finance-Operate-Maintain***: With the Design-Build-Finance-Operate-Maintain (DBFOM) approach, responsibilities for designing, building, financing, operating and maintaining are bundled together and transferred to private sector partners. Repayment is typically in the form of an availability payment.
  - ***Others***



What is Innovative Project Delivery?

Concessions:

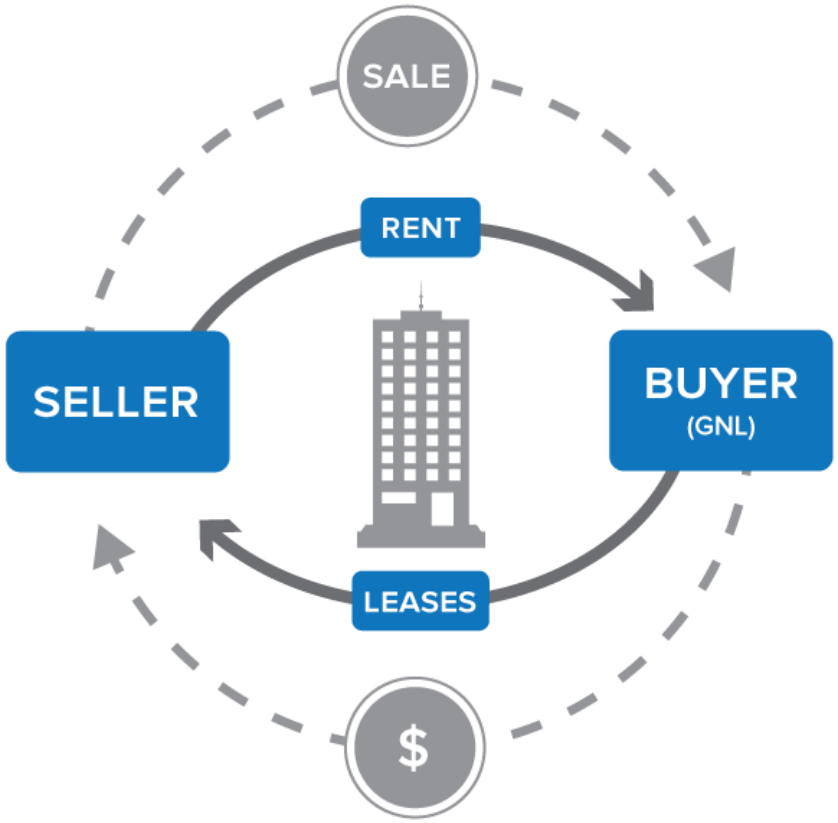
- Concession arrangements can vary and may also include a lease. May be applied to both greenfield and existing facilities.
- Examples include:
  - ***DBFM***: A single contract is awarded for the design, construction and maintenance of a capital improvement. Title to the facility remains with the public sector
  - ***DBFO***: A single contract is awarded for the design, construction, and operation of a capital improvement. Title to the facility remains with the public sector
  - ***Design-Build-Finance-Operate-Maintain***: A single contract is awarded for the design, construction, financing, operation and maintenance of a capital improvement. Title usually remains with the public sector. Repayment is in the form of an availability payment or on the basis of user fees.
  - ***Others***



What is Innovative Project Delivery?

Divestitures:

- Divestiture involves the sale of public assets and is used primarily for purposes of ***monetization*** (generating cash) and achieving ***off-balance sheet financing***.
- Examples include:
  - ***Privatization***: Sale of asset
  - ***Sale Leaseback***: A financial arrangement in which the owner of a facility sells it to another entity, and subsequently leases it back from the new owner.
    - Can be similar to long-term lease-leaseback and concessions if assets revert to public sector at end of term.
    - An innovative application of the sale/leaseback technique is the sale of a public facility to a public or private holding company for the purposes of limiting governmental liability under certain statues. Under this arrangement, the government that sold the facility leases it back and continues to operate it.
    - Tax and depreciation issues are key determinants



Innovative Project Delivery Overview

Benefits of IPD and P3

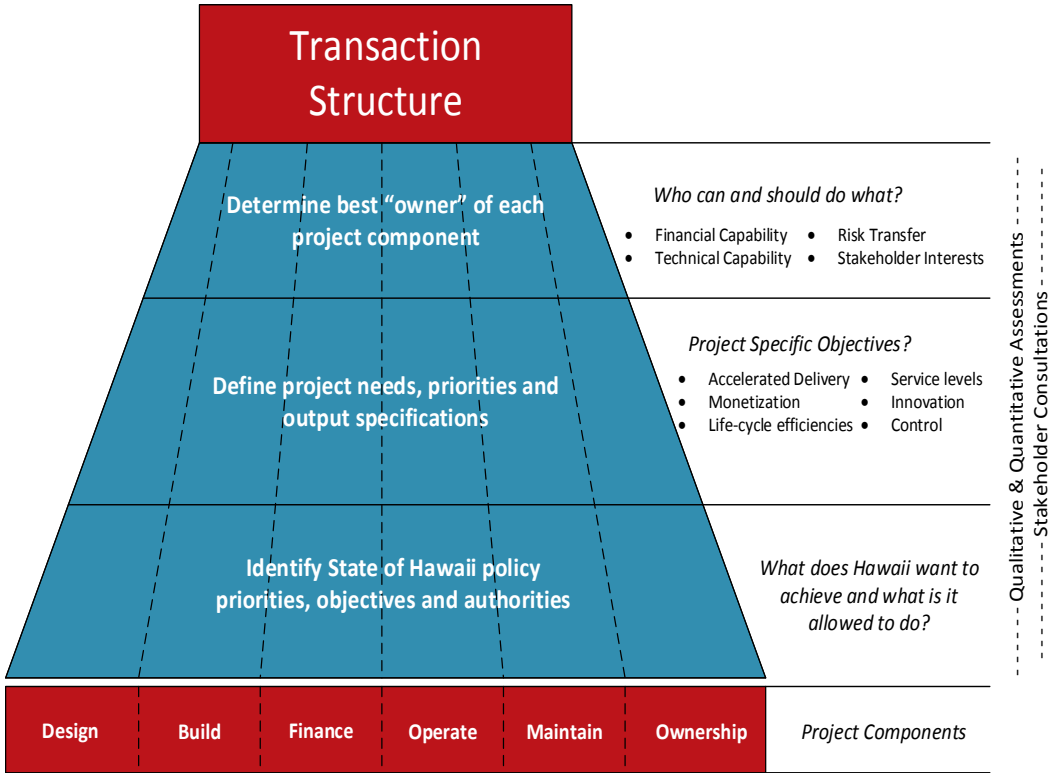
- **ACCELERATED DELIVERY OF INFRASTRUCTURE**
- **ADDITIVITY & ADDITIONAL CAPITAL**: Private financing and extended repayment periods allow public authorities to deliver more infrastructure in shorter period;
- **LIFE-CYCLE COST SAVINGS**: An average of 15%-25% savings in long-term "life-cycle" costs of the assets;
- **NO DELIVERY, NO PAYMENT**: Performance-based payments mean governments only pay for services that are delivered to satisfaction;
- **INCENTIVE-DRIVEN MANAGEMENT**: results in better service provision
- **OPTIMIZED RISK TRANSFER**
- **MONETIZATION & ASSET OPTIMIZATION**

Disadvantages of IPD and P3

- **COMPLEX, LONG-TERM AND RELATIVELY INFLEXIBLE ARRANGEMENTS**
- **PRIVATE SECTOR TYPICALLY HAS A HIGHER COST OF FINANCE**
- **TRANSACTION LAUNCH AND PROCUREMENT CAN BE LENGTHY AND COSTLY**
- **PUBLIC SECTOR LOSES DAY-TO-DAY MANAGEMENT CONTROL**
- **P3 DO NOT ACHIEVE *ABSOLUTE* RISK TRANSFER (PUBLIC RETAINS KEY RISKS)**
- **WHEN DONE INCORRECTLY, P3 CAN BE COSTLY AND PROBLEMATIC.**
- **NOT ALL PROJECTS ARE SUITED FOR P3**

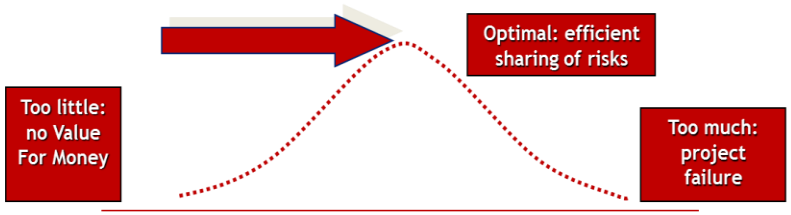
Innovative Project Delivery

- Innovative Project Delivery & P3 are fundamentally about the allocation of specific rights, obligations and risks to a private partner for the deliver of public infrastructure and services
- No one-size-fits-all approach. Solutions must be tailored to meet the specific needs and objectives of a given project.
- IPD and P3 are ***NOT***:
  - A simple outsourcing of functions or services. To the contrary, in a P3, significant, if not full, responsibility is transferred to the private partner(s) for financing, designing, constructing, and operating infrastructure projects;
  - A donation by a private party for public good.
  - A simple ground lease of public land for private purposes. IPD and P3 must involve risk sharing and the delivery of public assets and/or public services
  - Free money



Risk & Return

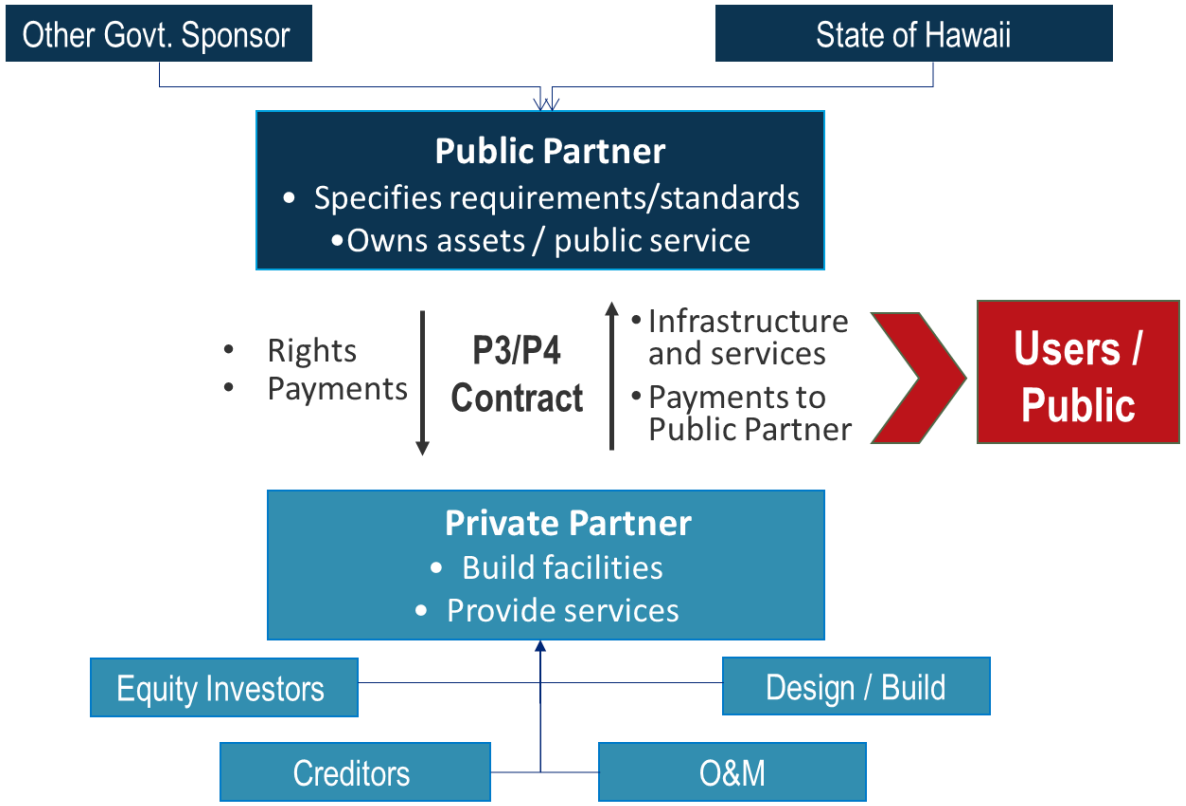
- Risk allocation is key characteristic of a P3 or IPD
- Objective is to optimize risk allocation, assigning risks to the party best positioned to manage those risks.
  - Risk should be allocated to the party best able to manage it (some risks are also assigned to third parties):



  - Risk mitigation mechanisms are the key to a successful and sustainable PPP transaction.
- The greater the risk transfer to private partner, the greater the required return

Standard DBFOM Risk Allocation		
Risk	Transferred to Private Partner	Retained by HART
Design	•	
Construction	•	
Functionality of design	•	
Ground conditions	•	
Traffic management during construction	•	
Utilities – foreseen	•	
Utilities - unforeseen	•	•
Contamination – known (removal and disposal)	•	
Contamination – unknown		•
Systems installation and integration	•	
Testing and commissioning	•	
Proof of performance	•	
Private Financing	•	
Property acquisition		•
Owner scope changes		•
O&M performance standards	•	
Compensation events		•
Force Majeure / relief events	•	•
Schedule	•	
Handback Conditions	•	

P3/P4 Baseline Structure



Funding and Financing Considerations

Funding versus Financing

Talk about P3 and IPD should not be confused with infrastructure funding. P3 does not equate to free money. Infrastructure needs to be paid for one way or the other.

- Funding refers to the source of money to pay for the infrastructure assets, whether through taxes, user payments (such as tolls) or asset recycling (monetization).
- Basic sources of funding for infrastructure:
  - User/usage fees
  - Taxes and assessments
  - Asset monetization and value capture
  - Capitalized savings
- Financing is about how to structure cashflows, through debt for instance, to deliver that infrastructure in a timely and efficient manner.
- A source of funding must always be there to support financing activities, as the availability of finance or capital doesn't eliminate the need to fund our infrastructure.

Standard P3/P4 Funding & Financing Sources

Funding Sources

Compensation & Revenue Sources

- Usage fees [tolls, tariffs, etc.]
- Tax proceeds and assessments
  - Property Tax Assessments
  - Special Developer Assessments
  - Tax Increment Funding
  - Hypothecated/Dedicated Taxes
- License fees
- Value capture revenues
- Commercial / ancillary revenues

Public Subsidies & Support

- Upfront capital contributions
- Public grants
- Tax Credits
- In-kind contributions

Financing Tools

Standard Credit Facilities

- Bonds (taxable and tax-exempt)
- Bank Debt
- Special Assessment Bonds
- Mezzanine Financing / Quasi-Equity

Concessionary and Alt. Finance

- Federal Credit Programs (WIFIA/TIFIA)
- State Infrastructure Banks / State Revovling funds
- Tax-exempt Private Activity Bonds
- Other (i.e., EB-5 financing)

Equity

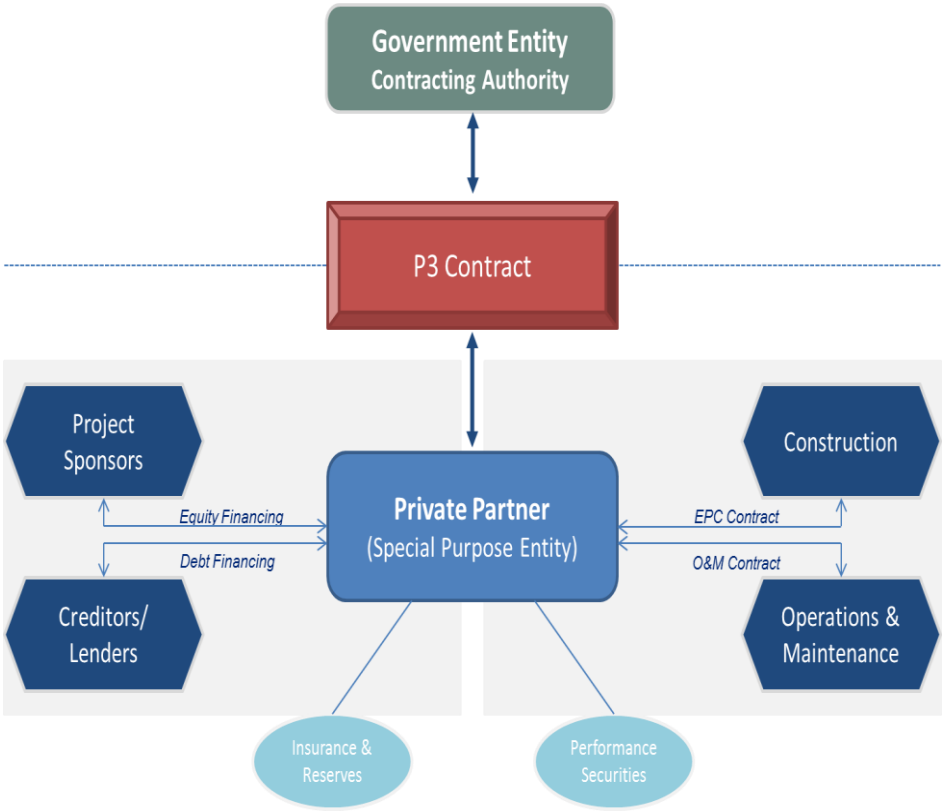
- Sponsor / Operator Equity
- Non-Sponsor Private Equity
- Public Equity

Funding and Financing Considerations

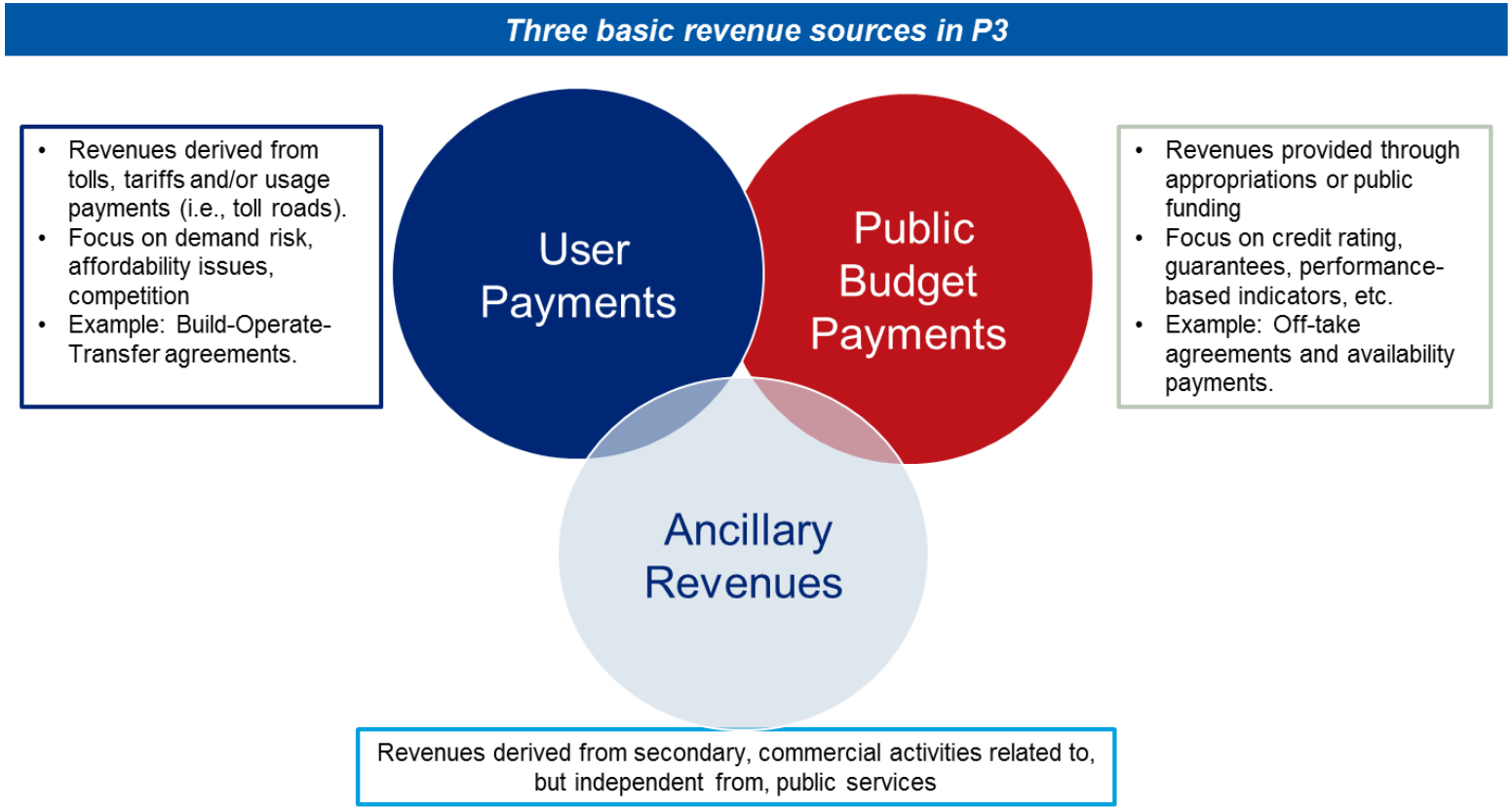
FUNDING

Non-Recourse Finance

- IPD are typically financed on a "***non-recourse***" basis, whereby the repayment of financing (project debt and equity) are secured *only* by future cash flows generated by the object of the P3.
- Non-recourse versus corporate finance
- Generally, a ***Special Purpose Entity*** is created for each project, thereby shielding other assets owned by a project sponsor from the detrimental effects of a project failure. As a ***SPE***, the project company has no assets other than the project.
- In non-recourse finance, **dedicated project cash flows** are the key to "***bankability***".



Funding: Compensation Structures



Challenge: To identify revenue sources that create "bankable" and financially viable projects

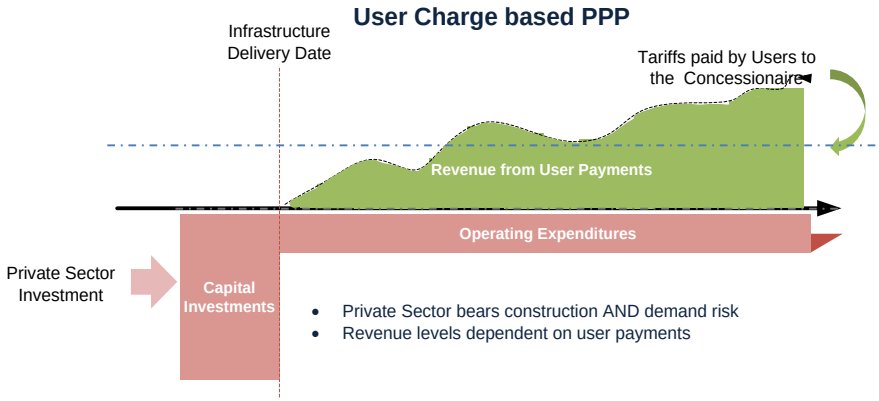
Funding: P3 Compensation Models Summary

Type	User	Application	Risk Considerations	Comment
User Charges	Customers	Toll roads, ports, airports, water, electricity, etc.	Demand risk, affordability issues, collection risks, enforceability, cost-recovery	• Need for clear economic regulation. • Risks can be mitigated with guarantee structures.
Usage Payments	Public entity	Shadow tolls	Demand risk, performance risk, credit risk of paying agent.	• Need for usage, availability, and performance monitoring
Off-take payments	Utility	Utilities (energy, water, etc.)	Availability and performance risks, credit risk of payment agent	• Need for detailed off-take contracts • Price regulations
Availability Payments	Public entity	PFI, infrastructure assets	Availability risk, credit risk of paying agent.	• Need for detailed availability criteria.
Performance Payments	Public entity	PFI, infrastructure assets, facilities management	Performance risk, credit risk of paying agent	• Need for detailed availability criteria
Grants & Guarantees	Public entity	All infrastructure asset	Mechanisms to mitigate risks and enhance affordability	• Government capital payments or contributions • Minimum revenue guarantees
Ancillary Revenue	Customers	Commercial activities	Commercial risks	• Typically subject to minimal or no regulation

Funding: P3 Compensation Models

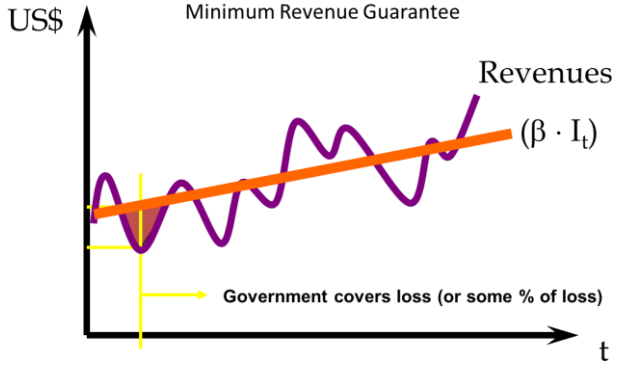
Minimum Revenue Guarantee

User Charge based PPP



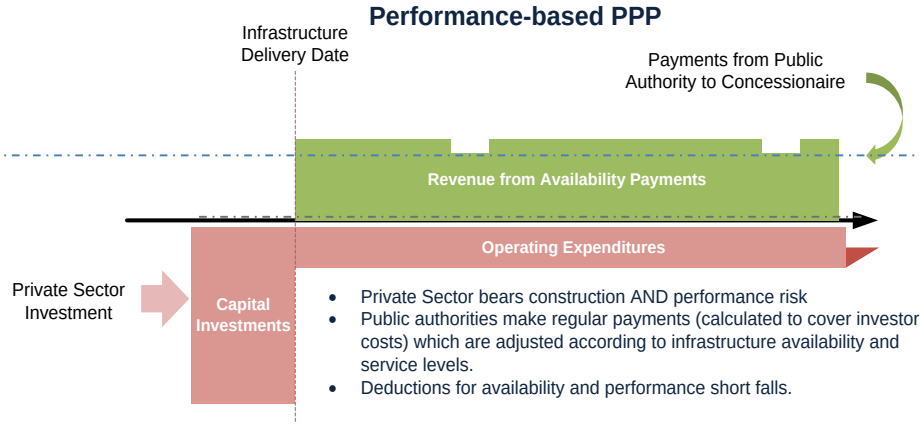
- Private Sector bears construction AND demand risk
- Revenue levels dependent on user payments

Strategies to reduce revenue risk and/or address affordability issues:

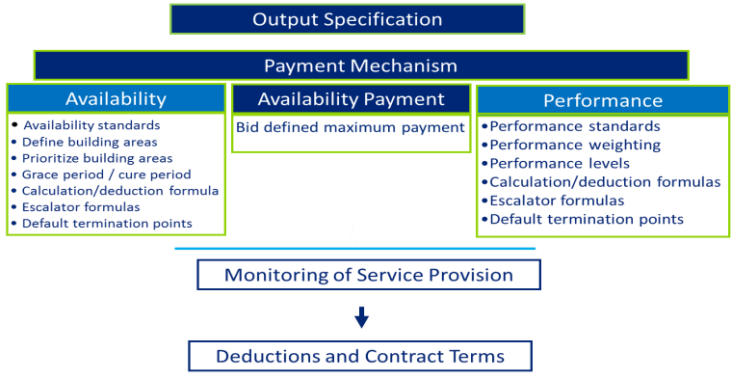


Availability Payment

Performance-based PPP



- Private Sector bears construction AND performance risk
- Public authorities make regular payments (calculated to cover investor costs) which are adjusted according to infrastructure availability and service levels.
- Deductions for availability and performance short falls.



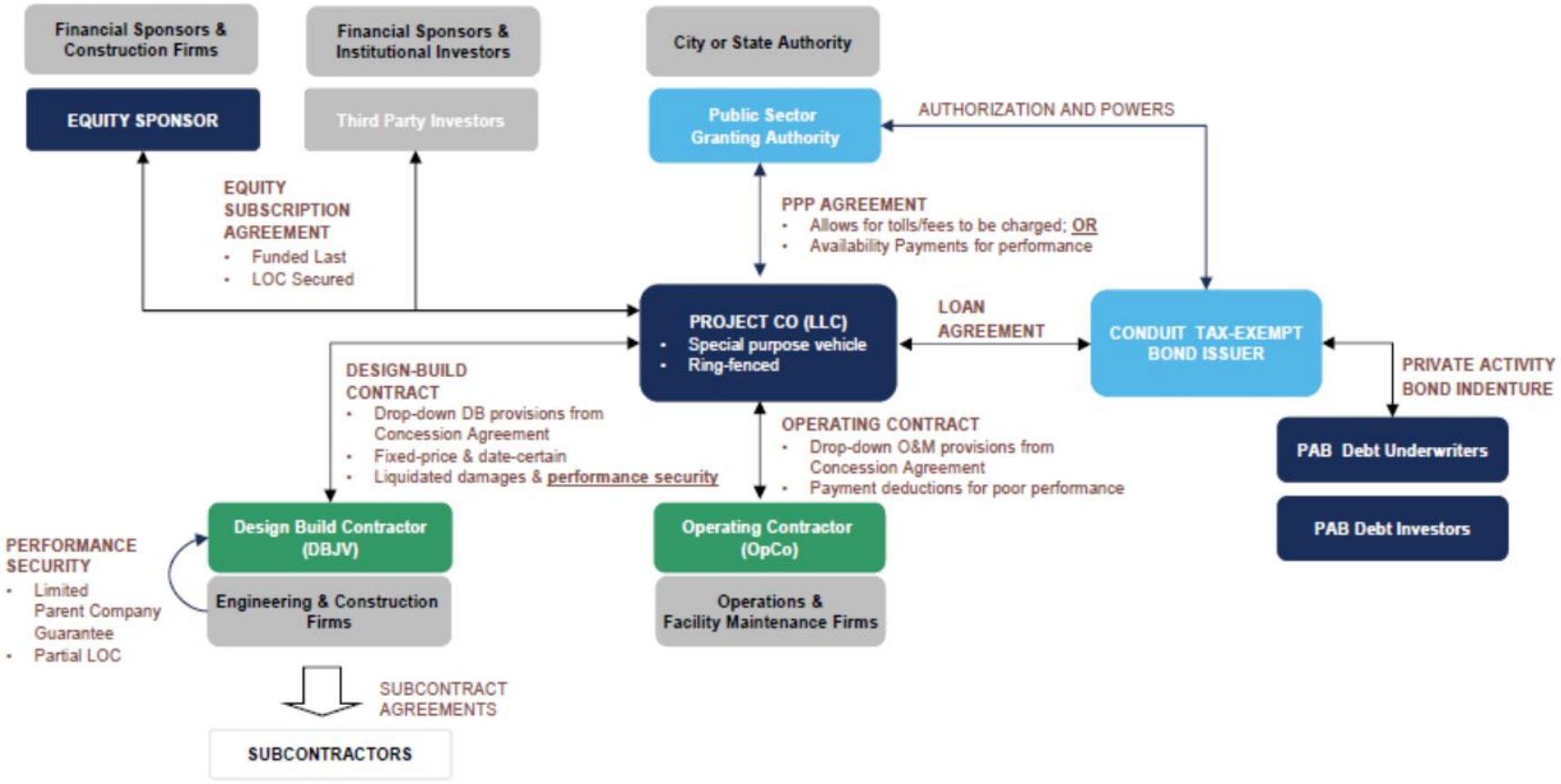
Funding Considerations

- Revenue generation and ring-fencing are some of the most challenging aspects of most projects
- Growing emphasis on “monetization” and innovative compensation structures (i.e., land swaps, ancillary rights, etc.) to relieve taxpayers and rate payers
- Payment mechanism and funding source will greatly influence credit rating of P3 projects (and therefore, the project’s cost of capital)
- Risk mitigation measures exist to address payment mechanism risks (i.e., minimum revenue guarantees, etc.)
- ***Availability and off-take arrangements***: key credit factors include credit-worthiness of public partner (including multi-year appropriation risk)
- ***User payments***: key credit factors include demand risk, market risk, and willingness to pay.
- Monetization and asset recycling are quickly growing in importance as federal, state and local authorities search for new ways to fund infrastructure.

Funding and Financing Considerations

FINANCING

Non-Recourse Finance (tax-exempt)



Financing Considerations

- ***Capital stacks*** (debt/equity structures) vary greatly amongst projects. Revenue risk deals generally requires higher equity investment, with availability and lease payments allowing for higher debt levels
- Credit impact of debt on public sector principally depends on funding sources (although "effective ownership" can also influence).
- Private debt is more expensive than public debt, but the incremental cost of private finance in a P3, at least in part, is a guarantee against the risks of poor design, budget and schedule overruns, and deferred or inadequate maintenance. It also serves as a warranty on overall asset performance.
- The actual cost of this risk transfer—the financial premium paid—must be right. According to a recent report by McKinsey, the ***private finance premium ranges from 130 to 220 basis points*** relative to pure public financing. The amount depends largely on the transaction structure of the project structure and state of the private-debt markets.
- Private investors have broad access to financial markets. This includes products such as general obligation bonds; private activity bonds (PABs); certificates of participation; 63-20 financing, for not-for-profit corporations; and federal credit-assistance programs, such as the TIFIA and WIFIA.

Financing: Equity

- Equity refers to long-term capital provided by an investor in exchange for ownership rights in the project company.
- Given that equity rights are subordinated to debt, investor risk is higher. For this reason, investors require higher rates of return.
- Nevertheless, equity represents investor "skin in the game" and is a critical part of incentive structure.
- Equity can derive from project sponsors, third party investors, government sources, or retained earnings

Forms of Equity:

- Common equity
- Preferred equity
- Convertible debt (i.e., mezzanine financing)
- Yield-based preferred shares.
- Other

Typical Equity Investors

Strategic buyers / Concessionaires

- Traditionally, sector operators, developers or contractors
- Benefit from sector expertise, which can enhance the VfM
- Long-term investment strategy
- Always take part in consortium (to control results)

Infrastructure Funds

- Equity funds focused on infrastructure investments
- Strong liquidity awaiting investment opportunities
- Lower equity returns than for financial sponsors
- Typically look to take part in a Consortium
- Medium to long-term investment
- Smaller investments than financial sponsors

Financial Sponsors

- Equity firms with short exit strategies
- High equity returns may limit value-for-money
- Normally look for short-term investments with clear exit strategies
- Typically take part in a consortium

Key Issue in Equity Finance:

- Timing and Distribution of Dividend Payments
- Novation and Substitution

Financing: Debt

- Debt is money borrowed to finance a project. Investment return for debt holders is limited to the interest earned on the principal.
- Due to extended pay-back period, infrastructure projects generally rely on long-term financing.
- Short term debt can serve as "bridge" financing, until longer-term debt or equity is secured

Types of Debt
• Commercial loans • Bridge Financing • Bonds (taxable / tax-exempt) • Subordinated Debt • Hybrid Debt • Concessionary finance (i.e., federal credit programs) • Other

Sources of Debt Financing
• Financial Institutions • Banks and Bank Syndicates • Infrastructure Funds • Bond Markets • Public Sector (i.e., State infrastructure banks, federal credit programs, etc.) • Other

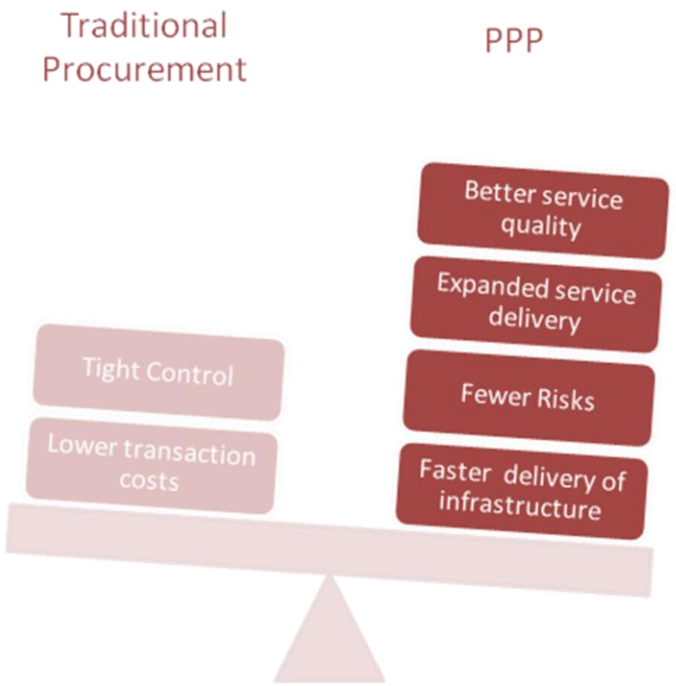
Key Debt Considerations			
• Maturity • Repayment Provisions	• Seniority • Security	• Rates structures • Coverage Ratios	• CP's • Lender rights

- While debt is cheaper than equity, it comes with strict conditions.
- Creditors will impose conditions on the borrower (environmental, dividend distribution, DSCR, etc.)
- Increasingly, creditors will require the public authorities to sign a subordinate agreement (**Direct Agreement**) relating to the project.
- Key creditor concerns include:
  - Termination clauses
  - Step-in rights
  - Security rights
  - Project risks
- Credit enhancements to reduce risks and cost of debt
- US P3 market differs from rest of world in that relies more heavily on "blended" financing, leveraging public and/or quasi-governmental debt

Value for Money

Value-for-Money

- When compared to a public sector approach, incremental benefits of PPP may accrue from:
  - Speedier implementation of infrastructure projects;
  - Better service and coverage;
  - Life-cycle focus of service delivery / reduced life-cycle (long-term) costs;
  - Improved efficiency and innovation; and
  - Risk sharing designed to create incentives to succeed.
- VfM analyses are done on potential P3 structures to help determine their value and to help inform selection of the optimal structure for a specific project.



MYTH BUSTER: Financing costs are NOT the only (or even a key) factor in determining Value-for-Money

Value-for-Money

Public authorities conduct VfM analysis to select delivery model

Value for money analysis needs to consider both costs and benefits of multiple delivery mechanisms

Costs

- Planning, design, and capital costs, as well as in operations, and maintenance (P3 advantage)
- Financing, transaction, and oversight costs (public delivery advantage)

Benefits

- Life-cycle cost savings due to bundling of design, build, finance, operate , and maintain project phases (P3 advantage)
- Accelerated delivery (P3 advantage)
- Innovative revenue sources (P3)
- Technological upgrades (P3)
- Sometimes only option for delivery

Outcome of value for money analysis typically depends on a number of factors

- Size of capital expenditure involved
- Project size relative to transaction costs
- Design/implementation expertise of the private sector
- Feasibility of risk identification, allocation, and mitigation
- Specification of service levels as outputs
- Possibility to estimate long-term asset costs
- Stability of technological aspects

Possible options include public, P3, and private delivery

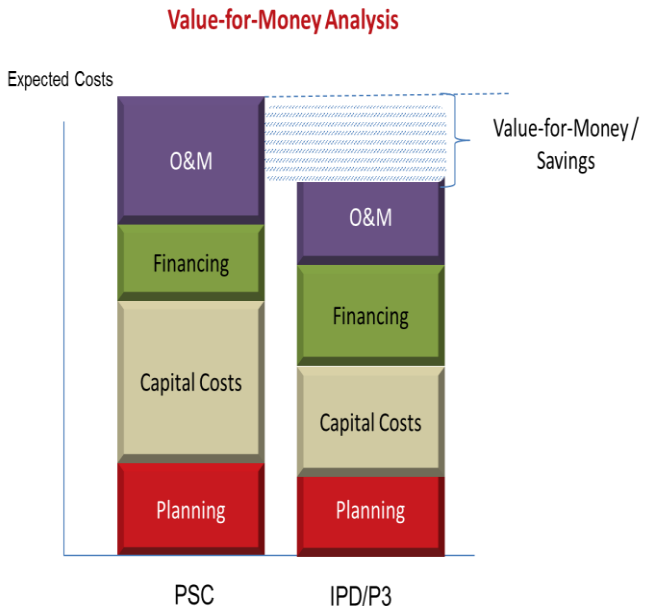
1. **Public**
   - Civil works contracts (DBB & DB)
   - Service contracts
2. **PPP**
   - Management contracts
   - Lease agreements
   - Concessions, BOT, DBO, DBFOM, etc.
3. **Privatization**
   - Regulated privatization
   - Liberalization and full divestiture

MYTH BUSTER: Financing costs are NOT the only (or even a key) factor in determining Value-for-Money

Value-for-Money

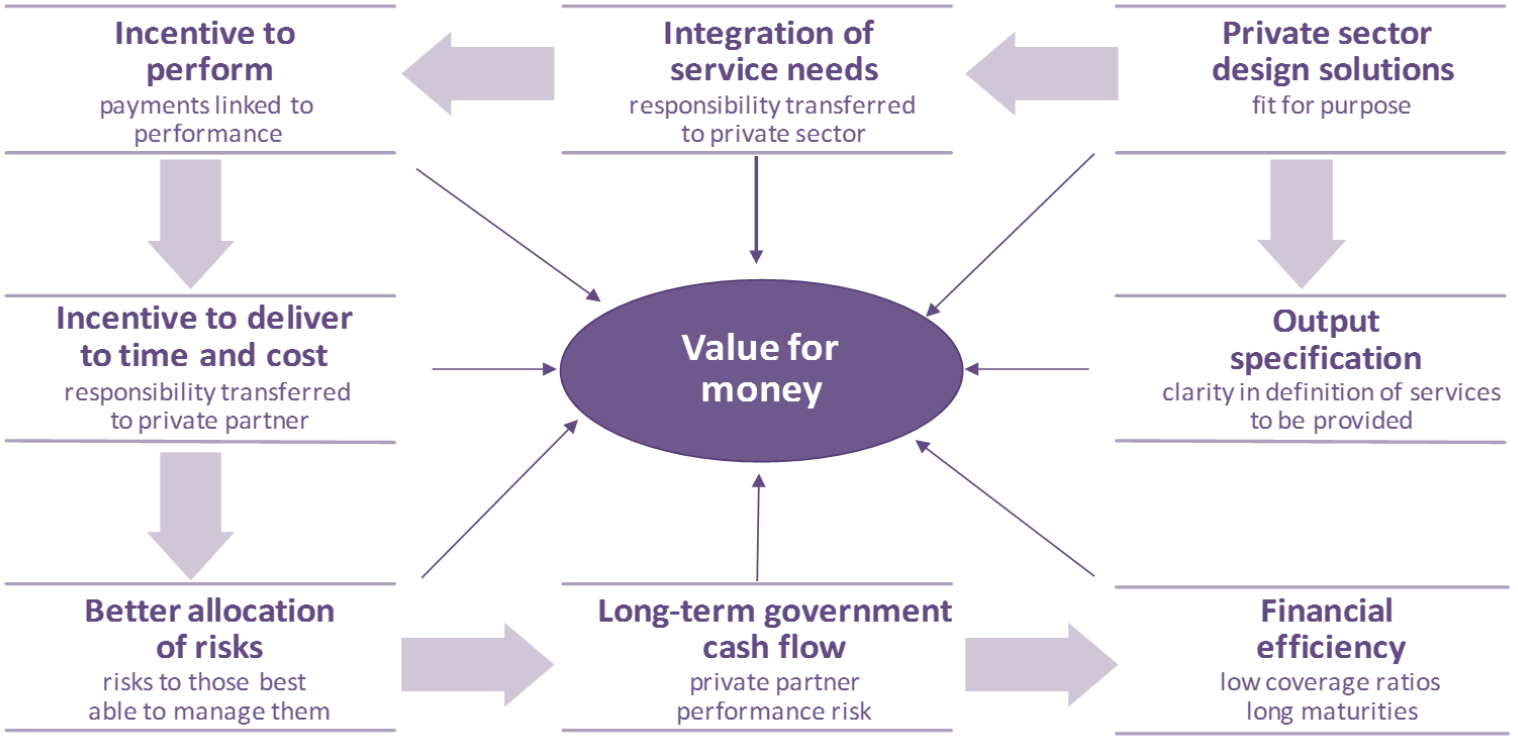
- Planning
- Procurement
- Contracting
- Finance
- Construction
- Operations
- Technology
- Maintenance
- Wrap-Up
- Operating Income / Revenues

- Not all projects are suitable for IPD and P3.
- P3 and IPD should only be pursued if they achieve equivalent or better value for money than a 100% public sector approach.
- **Value for Money (VfM) analysis** is a process used to compare the financial impacts of a P3 project against those for the traditional public delivery alternative.
- The methodology for carrying out a VfM analysis involves:
  1. Creating a Public Sector Comparator (PSC), which estimates the whole-life cost of carrying out the project through a traditional approach.
  2. Estimating the whole-life cost of the P3 alternative (either as proposed by a private bidder or a hypothetical "shadow bid" at the pre-procurement stage).
  3. Completing an "apples-to-apples" comparison of the costs of the two approaches.



Value-for-Money

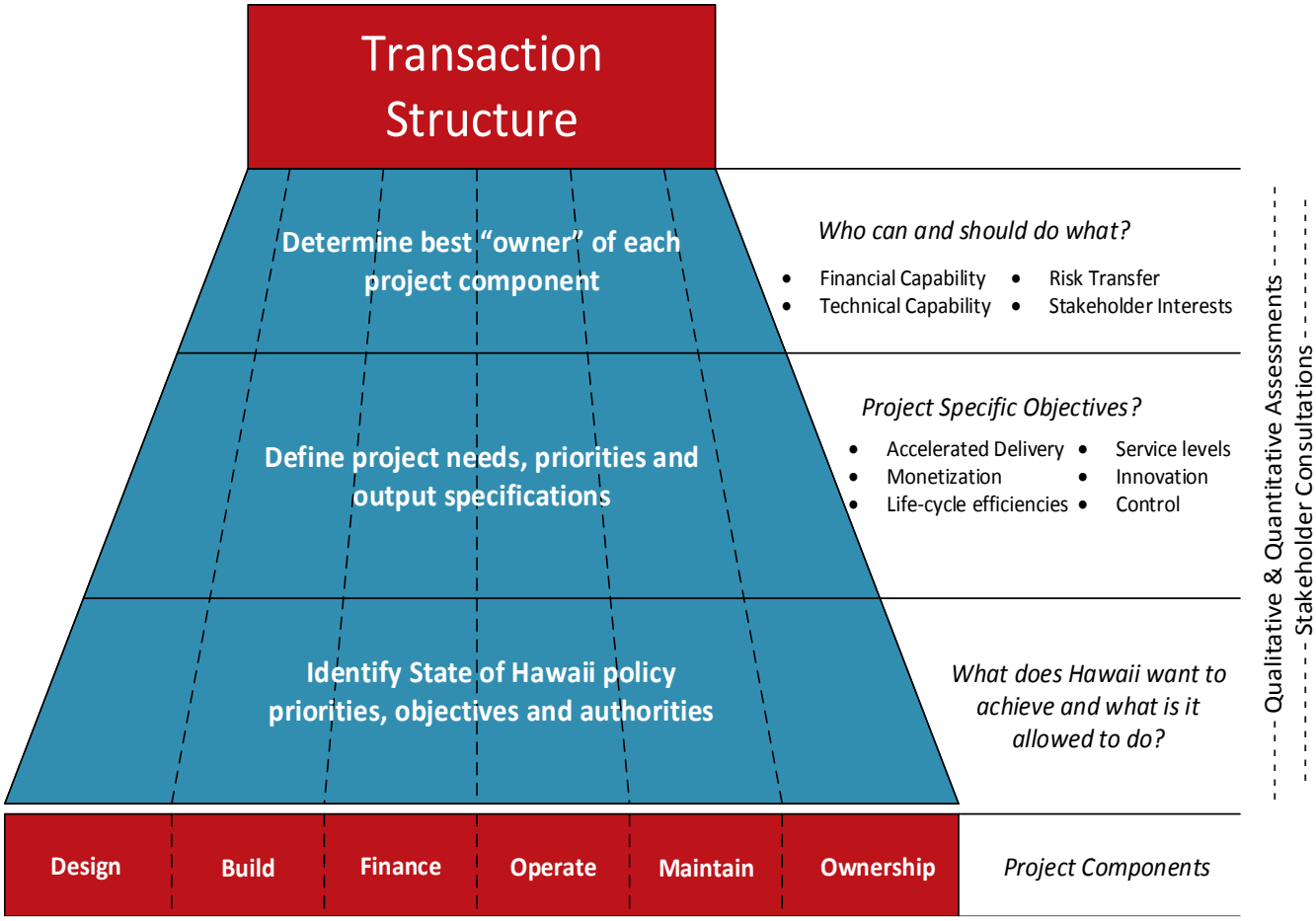
Optimal risk management contributes to better value for money for the public sector



Project Screening and Transaction Tailoring

Transaction Structuring

- Transaction structuring should respond to a systematic process designed at ensuring that the sources of value generation are identified and maximized for each individual project

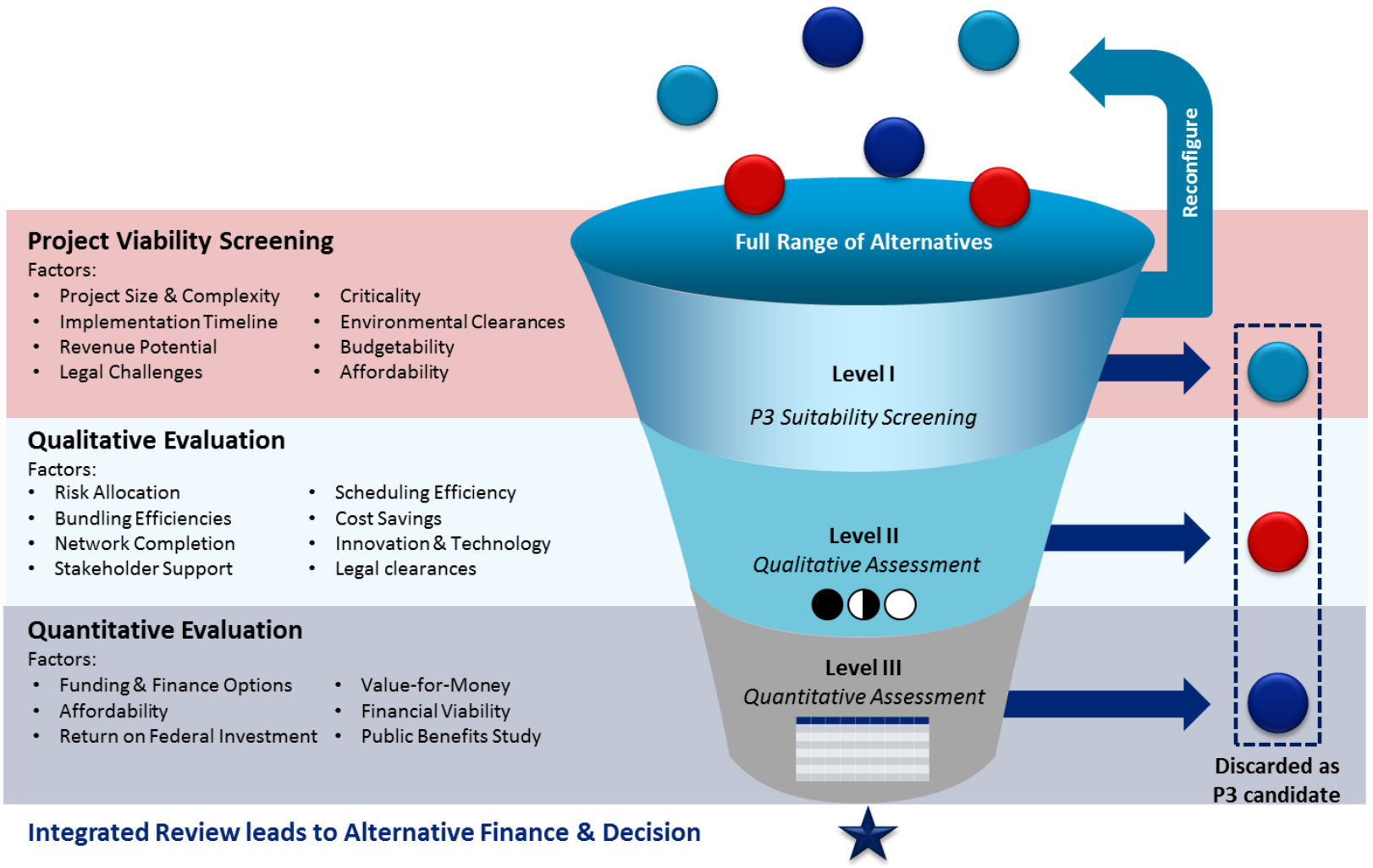


Key Transaction Considerations

Project Considerations

- Project size and complexity
- Project size relative to transaction cost
- Ability to ring-fence project risks
- Feasibility of risk identification, allocation and mitigation
- Opportunities for efficiencies through bundling
- Benefits from innovation
- Stakeholder support
- Ability to specify output standards
- Clear regulatory framework
- Legal and environmental clearances
- Market interest and expertise
- Project criticality

Project Screening



Key Transaction Considerations

Policy Issues

- Deal term
- Control of rate escalation, operations and enforcement
- Caps and floors (guarantees and profit sharing)
- Capital requirements and operating standards
- Stakeholder buy-in

Market Issues

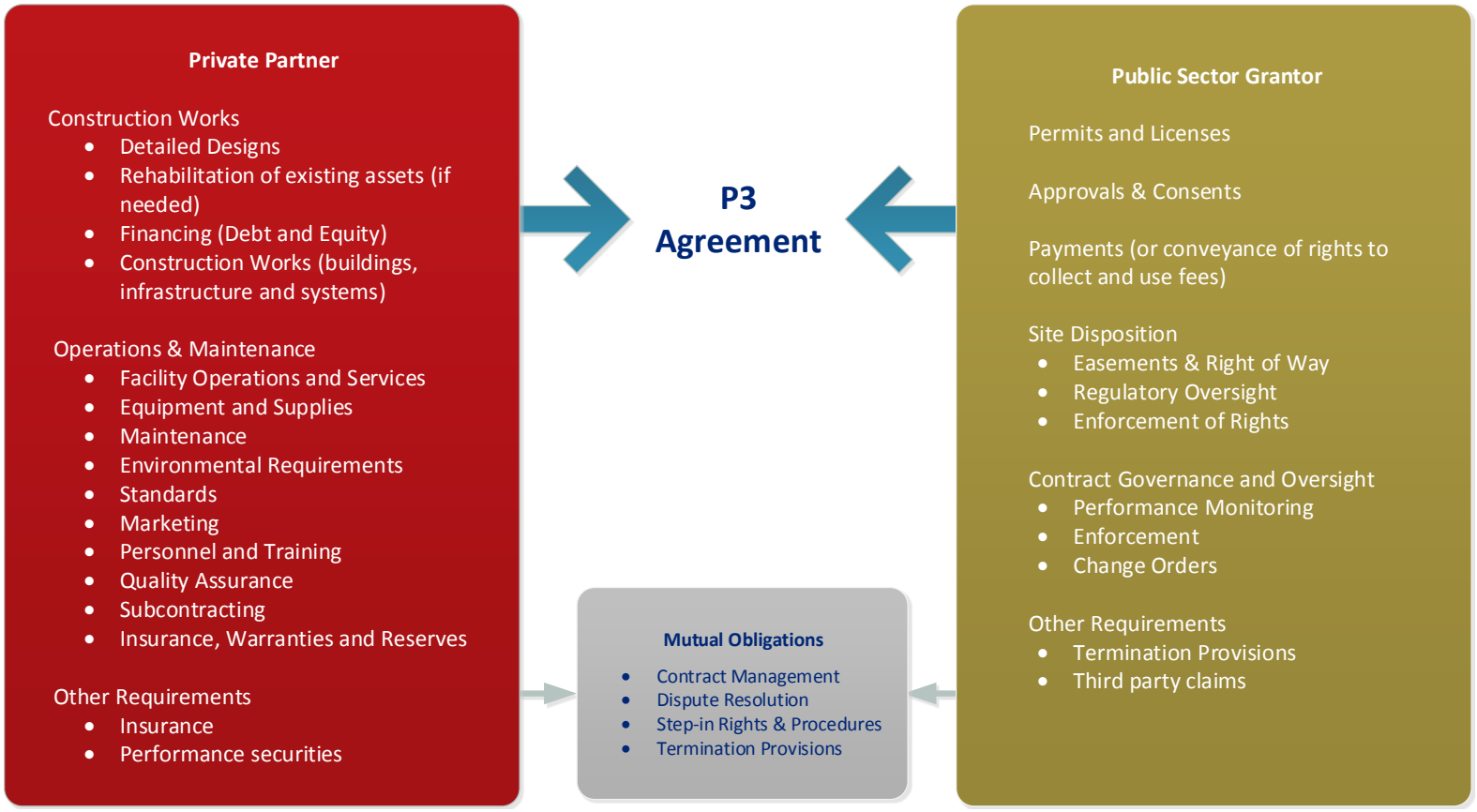
- Project valuation, market sounding and competition
- Procurement process and achieving financial close
- Tax implications
- Business and commercial structure

Legal Issues

- Property development rights
- Contractual terms, including:
  - Exercise of certain reserved powers
  - Protection of operation and maintenance standards
  - Changes in law and adverse government action
  - Competing facilities
  - Secured lender protections in the event of default (step-in rights)
  - Termination and compensation events

Transaction Structuring

- An infinite number of finance and delivery options exist to address the needs of every project
- Structuring is an art and a science, requiring an understanding of sponsor objectives and market risk-reward considerations
- A good place to start is with the allocation of basic rights and responsibilities:



Transaction Structuring

- There is no one-size-fits-all solution to projects, nor is there a “perfect” structure. Every project must be carefully structured to meet its unique needs and requirements
- IPD can convey contingent liabilities to the public sponsor, so public authority must proceed with great care
- IPD/P3 is not an end in itself, but a procurement/delivery tool
- IPD/P3 is not free money
- Success and credibility of the alternative finance program depend on successful and sustainable projects what are well balanced and that achieve real value-for-money
- Be aware and wary of the tendency for others to try to revert risks back to the public authority
- Role of public authority in the partnership will need to be defined for every project

Module 1: Overview of Innovative Project Delivery

QUESTIONS AND DISCUSSION

Module 2: Sector-Specific Considerations and Case Studies

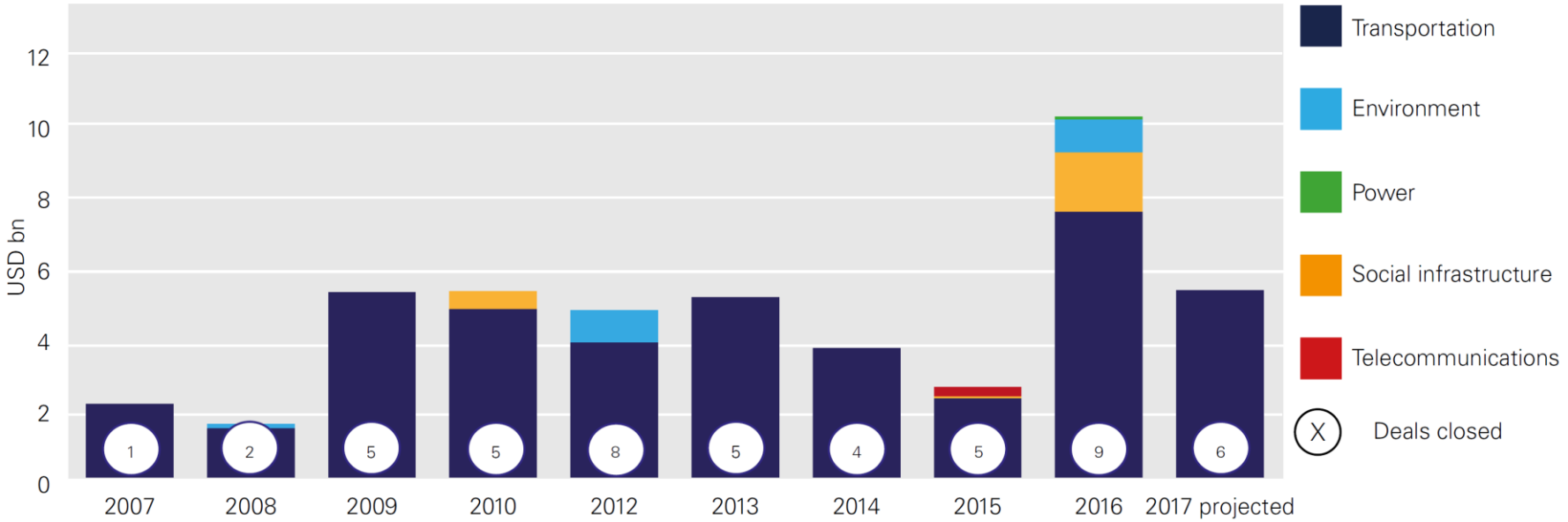
IPD Application to Infrastructure Sectors

IPD and P3s have been successfully leveraged across almost all sectors

Sector	Infrastructure Type
Social	Civic Buildings
	Correctional facilities
	University student housing
	Public schools
	Affordable Housing
	Enhanced Use Leases / Ground Lease arrangements
Water	Drinking and Wastewater
	Flood Risk Management
	Stormwater management
	Irrigation/Agriculture
Transportation	Airports
	Ports and harbors
	Urban Transit
	Parking
	Transit-Oriented Development (TOD)
	Bridges
Energy	Central Utilities
	Generation
Other	Stadiums
	Broadband

Recent P3 Trends in U.S.

Although data bases only track larger deals (which reflect the minority of performance-based infrastructure, growth trends in IPD are unquestionable:



Source: InfraDeals, "US P3 State of the Market" (June 2017)

Social Sector

Social Sector IPD

- While energy and transportation remain leaders, the use of IPD in the social sector is fastest growing sector in US;
- Social sector IPD typically involve the design, construction, financing, operation and maintenance of an infrastructure facility.
- Generally structured in the form of a P3 (DBFOM or DBFM) or as a lease-back arrangement.
- Compensation to the private partner is usually on the basis of rent-like performance-based payments or "*availability payments*" whereby the public sector compensates the private partner for infrastructure services over the life of the contract;
- Social sector P3 may allow for some ancillary revenue generation, but this depends on the structure of the arrangement.
- Financing arrangements vary greatly, from fully private to fully public, with a wide diversity of tax-exempt opportunities.
- Social sector IPD are not new and can reflect a wide variety of innovative structures, like lease-backs, land-swaps, etc.

Social sector includes:

- Public Buildings
- Schools
- Hospitals
- Prisons
- Affordable housing
- Other

Social Sector IPD

- No one-size-fits-all formula
- Use of IPD and P3 has been driven by:
  1. Access to new sources of capital
  2. Risk Transfer
  3. Life-cycle cost savings
  4. Monetization / asset recycling
- Recent social sector deals include:
  - Long Beach Courthouse
  - Long Beach Civic Center DBFOM
  - University of California Merced DBFOM
  - Indianapolis Courthouse
  - Napa Courthouse
  - Georgia University System Housing
  - California Lease-Leaseback for K-12 public schools
  - Other

Key Considerations:

- Appropriation Risk
- Shared financial risk
- O&M becomes an obligatory public expense (as part of AP)
- Recent public-sector reversals on social sector P3 have placed additional emphasis on clear decision making and approval process
- Credit impact ("on" or "off-balance sheet")
- Incentive structures
- Protracted and often expensive procurement process for public agencies due to need to specify output standards over term of asset (need for advisors and market expectation of stipends)
- Questions regarding value-for-money
- Need for structured risk analysis

Social Sector

PUBLIC BUILDINGS

Public Buildings

Deukmejian State Superior Courthouse *(Long Beach Courthouse)*

Financial Close: 2010

- Delivery model: Lease-Leaseback DBFOM
- Duration: 35 years
- Capex: $495 million
- New 531,000 sq. ft multi-story facility that includes: 31 courtrooms, court administrative space, detention facilities, offices of related county justice agencies, and compatible retail space.
- 2 year procurement, but project completed under budget and ahead of schedule
- Payment mechanism: Availability Payments
- Credit back-stop: Public payments to Concessionaire
- Grantor: California Administrative Office of the Courts
- Concessionaire: Meridiam
- Project status:
  - Built and operational
  - Multiple awards
  - Some criticism and questioning of VFM

Long Beach Civic Center

Financial Close: 2016

- Delivery model: DBFOM
- Duration: 50 years
- Capex: $513 million
- Works include:
  - 11 story 270,000 sqft City Hall
  - 11 story 237,000 sqft Port HQ Building
  - A two story 92,000 sqft Main Library
  - A 73,000 sqft Civic Plaza
  - New underground parking with 469 spaces
  - Central utility plant
  - 3 rooftop solar array system to provide up to 25% of the Civic Center energy needs
  - Revitalized City park of 4.9 acres.
  - Plans for future mixed use development
- Payment mechanism: Availability Payments
- Credit back-stop: Public payments to Concessionaire
- Concessionaire: Plenary
- Project status: *ongoing*
  - Refinancing to taxable bonds

Public Buildings

Indianapolis Courthouse

Failed in Procurement: 2015

- Delivery model: DBFOM
- Duration: 35 years
- Capex: $1.75 Billion
- New facility was to include a 3,000 bed detention facility, on-site medical facility, a criminal court with 28 court-rooms and 10 hearing rooms, 960 bed minimum security facility, space for the county sheriff's office, parking for the public and employees, and prosecutor and public defender offices.
- 2 year procurement, but project completed under budget and ahead of schedule
- Payment: AP (based on capitalized savings)
- Deal failure: due to questions regarding affordability and accuracy of estimated savings.
- Lessons Learned:
    - Political Risk
    - VFM and Affordability issues

Napa City Hall

In Procurement…

- Delivery model: Hybrid
- Duration: 50 years
- Capex: $54.5 million
- New 100,000-square-foot building with room for city offices, council chamber, police and possibly the fire department, as well as a 200-room hotel, with a parking garage in the middle.
- Procurement in process
- Payment: Developer rights related to hotel and housing to help pay for facilities. Rest to be paid as Availability Payment
- Lease-leaseback

Social Sector

CORRECTIONAL FACILITIES

Correctional Facilities

- Structuring of P3 for correctional facilities typically begins with identifying which rights and obligations will be transferred to private partner and which will be retained by public sector.

Traditional Prison Services

- **Infrastructure Delivery**
  - Designs
  - Engineering, Procurement and Construction
  - FF&E
- **Project Finance**
  - Debt and Equity
  - Insurance and Reserves
- **Facilities Management**
  - Maintenance and repairs
  - Utilities management
  - Cleaning
  - Security
  - Waste management and disposal
  - Pest control
  - Minor works
  - Etc.
- **Food and Accommodation**
  - Catering / food services
  - Clothing
  - Accommodation
- **Work Programs and Social Services**
  - Work Opportunities
  - Education
  - Social and Recreational Services
- **Administration**
  - Admissions and release
  - Executions
  - Staffing
  - Employee training
- **Surveillance**
  - Building safety
  - Transportation
  - Guard and entrance controls

Globally, only about 20% of these services are transferred to the private partner. Infrastructure, finance, and facilities management are most commonly assigned to the private sector, with the state maintaining other services.

CORRECTIONAL FACILITIES

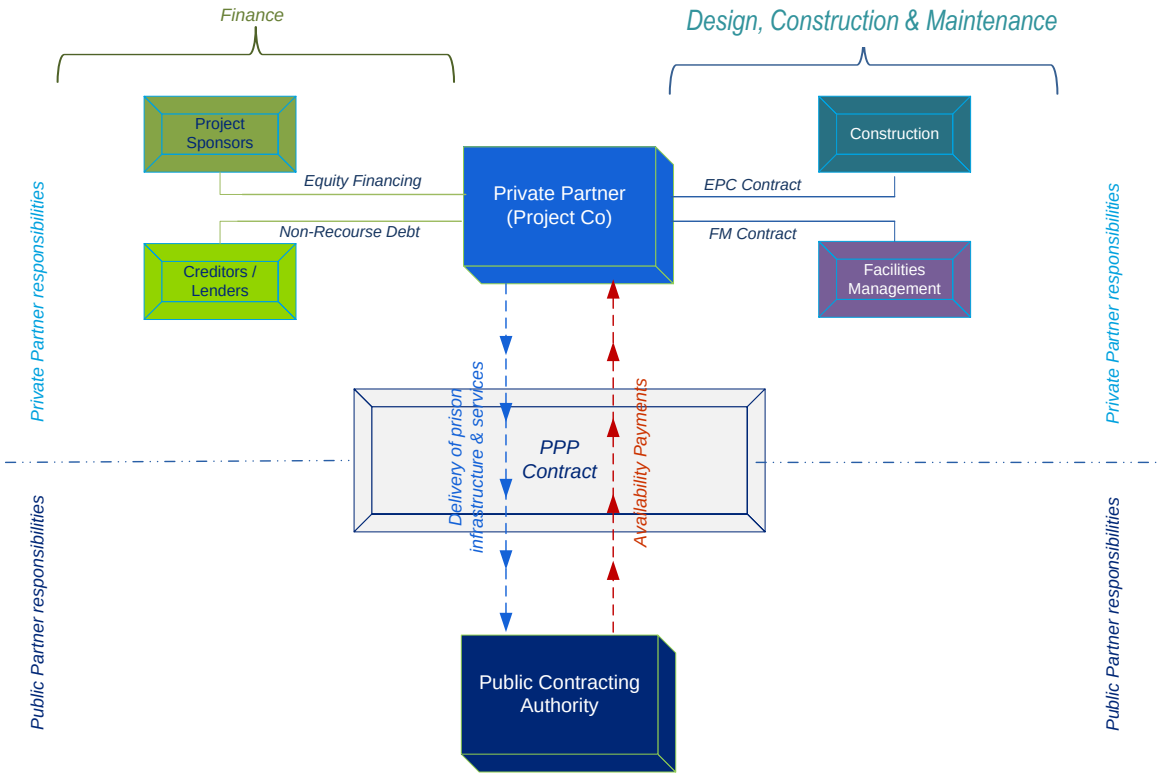
Privatization versus P3 in prison delivery

DBFM (Design-Build-Finance-Maintain) amongst the most common **contractual modality** for prisons, with public authority retaining ownership and operations responsibility. Average savings (versus traditional delivery) is 15%-25%

DBF is also a common structure, with average savings of 10% - 15% versus traditional delivery.

“Privatized” prisons may involve private sector operations, but can be politically polemic (particularly when based on occupancy and processing fees)

Common IPD / P3 structure for correctional facilities



CORRECTIONAL FACILITIES

DESIGN-BUILD-FINANCE MODELS

With DBF, design-builder assumes responsibility for the majority of design work, all construction activities, short-term financing, and the risk of providing these services for a fixed fee.

- Single contract for the design, construction, and full or partial financing of a facility.
- Responsibility for the long-term maintenance and operation of the facility remains with project sponsor (State).
- Defer financing during the construction phase of the project.

MOTIVATIONS FOR DBF

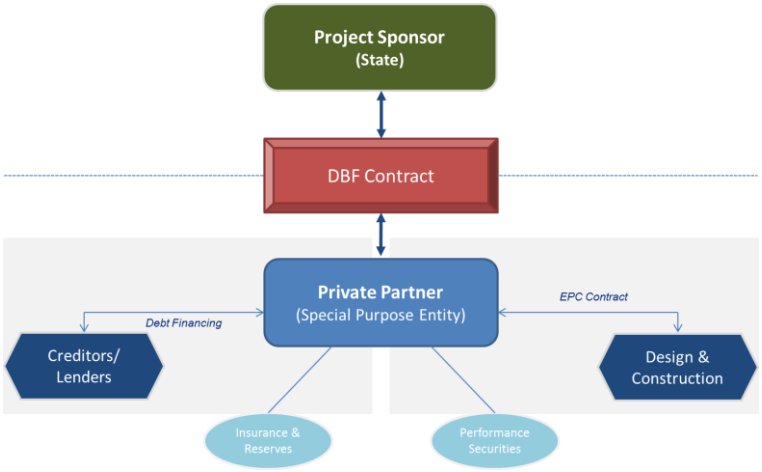
There are two primary reasons that project sponsors use DBF:

- **Owner cash flow constraints**
- **Desire to defer payment**

DBF partner assumes additional risks beyond those of a traditional DB contract, including the risk associated with future appropriations expected to make project funding available.

PRIVATE SECTOR FINANCING OPTIONS

Private design-builders may use different approaches to finance their DBF costs. This includes the potential to access tax-exempt debt issued through a nonprofit public benefit corporation pursuant to IRS Revenue Ruling 63-20.



DBF ADVANTAGES

- DBF advantages are similar to DB approach. With DBF financing, however, project sponsors ***can advance construction prior to assembling all the funding*** required for the project. DBF model is particularly beneficial when short-term gap financing provided by design-builder allows sponsor to expedite Project implementation.
- Typically yields savings of 10%-15% versus traditional delivery

DEFERRED PAYMENT, NOT DEBT

A DBF arrangement is a deferred payment and is generally not considered debt under usury law.

Correctional Facilities: Okanagan Correctional Centre

- Okanagan Correctional Centre (British Columbia, Canada) consists of 378-cell high secure units on 36 acres. Opened in 2016, it is the largest provincial correctional center in British Columbia.
- The new facility is constructed on First Nation land, owned by the Osoyoos Indian Band.
  - Osoyoos Indian Band signed a 60-year, $10.8 million land lease and utilities service agreement, with an option to extend for an additional 20 years.

OVERVIEW

- Status: Financial Close (2014)
- Capex: USD 175.64m (CAD 200M)
- Payment mechanism: Availability-Based Payments by the provincial government
- Delivery model: DBFM
- Duration: ~2.5-year construction period; 30-year operating period
- Grantor: Partnerships BC

Source: Inframation

Social Sector

EDUCATION

Education Sector

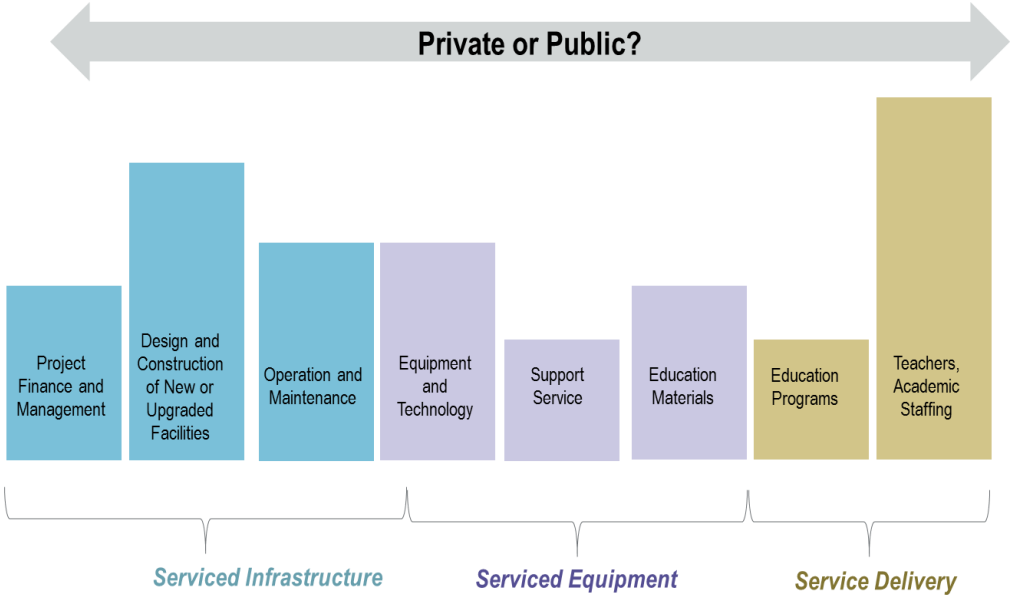
- Long track record in the U.S. and across the globe of leveraging IPD for both public schools and higher education
- Key drivers:
  - Access to new sources of capital / Accelerated delivery
  - Risk allocation
  - Monetization
- Typical Compensation Structure: Availability and/or Performance Payments, although in higher-education, may involve usage-payments (for instance for student housing, parking, etc.)
- Key Risks:
  - Availability and Performance levels
  - Credit-worthiness of contracting authority
  - Contract and political risks
- Key factors include detailed definition of performance and availability standards, as well as deduction formulas.
- May require specialized oversight and regulation
- Increasing number of specialized service providers

Education Sector

- Public Schools
- Higher Education

Public Schools

- IPD and P3 primarily used to modernize and upgrade school infrastructure
- Often combined with portfolio assessments and property optimization initiatives
- Bundling efficiencies have produced significant savings for school systems, but fear of transferring responsibilities for O&M can often deter school districts from pursuing performance based contracting solutions.
- Most common contract structures include:
  - Design-Build-Finance
  - Lease-leaseback
  - Design-Build-Finance-Maintain
- Transaction structuring is principally by deciding which services to retain and which to transfer to private partner:



Public Schools: California K-12

- Over past decade there have been thousands of lease-leaseback projects across California, including 70 in Los Angeles worth at least $2.7 billion.
- Lease-leaseback projects constructed pursuant to ***Education Code Section 17406***, authorizing school districts to lease property to a private partner for a minimum of $1 per year as long as such lease requires the private partner to design, build and finance educational facilities upon the property and that title to the facilities vest with District.
- Lease-leaseback approach is realized by having a school district enter into two leases with private partner:
  - ***Site Lease*** is document in which the school district will lease the real property to the builder for $1 per year.
  - ***Facilities Lease*** is document the school district will utilize to lease back the real property and completed facilities, and will also set the price to be paid by the district for the completion of the Project.
- Maximum Term: 40 years
- In 2017, new legislation put in place to ensure competition and enhance value-for-money

San Antonio School - Alum Rock Union Elementary School District
San Jose, CA

Lease-leaseback of a new 46,000 s.f. campus. Features a new two-story classroom building, new multi-purpose building with exterior stage, new administration building and a new kindergarten building. In addition, project's scope included two new soccer fields, basketball courts and new playgrounds.

Total capital expenditure: $179 million.

As a result of leveraging the lease-leaseback delivery method, the construction schedule was reduced and the project realized significant savings versus estimates under traditional delivery.

Public Schools

DC Oyster School (DBF)
Washington, DC

- Design-Build-Finance an $11m, 47,512 square foot state-of-the-art school. Facility turned over to the DC Public Schools upon completion; operational in 2000.
- The District deeded excess land to the developer, who built a 211-unit apartment building on site.
- The private developer financed, designed (with DCPS and community input), and built a new school on the site of the old Oyster School. The new school includes a computer lab, gym, library, and underground parking garage.
- The developer financed the school through a 35-year tax-exempt bond issue, which is being retired by payments in lieu of taxes by the apartment building owner.
- New James F. Oyster School constructed without public financing or direct funding

P3 Schools Project
Alberta (Canada)

- The Government of Alberta has undertaken an extensive P3 Program for Public Schools (120 schools, both new and renovations)
- Under this project, a private-sector partner is responsible for the design, construction, finance and maintenance of schools for 30-32 years
- Once infrastructure is delivered, government makes availability payments to the partner for 30 years. The government is guaranteed a fixed price and delivery date.
- Risks such as construction and completion risks are assumed by the private contractor, as are performance standards.
- Recent questioning of value-for-money (particularly where there were limited number of bidders)

Higher Education

- With 1 in 10 colleges and universities in fiscal distress, intense competition for enrollments
  - State funding is expected to remain below historical levels;
  - Revenue growth is expected to decline, while expense pressures intensify; and
  - Price sensitivity is expected to increase and constrain net tuition growth, especially for public universities.
- In the face of fiscal and funding challenges, universities are facing high amounts of deferred maintenance, aging infrastructure, and significant need for new infrastructure to support core mission.
- In order to address these infrastructure needs, universities and colleges are increasingly leveraging IPD.
- Universities are entering into these partnerships as part of an effort to accomplish a wide variety of goals, including:
  - Modernizing the campus with amenities that students demand;
  - Focusing institutional investment on improvement of state-of-the art facilities for instruction and research;
  - Achieving environmental and sustainability objectives, while reducing costs;
  - Keeping new construction projects credit rating neutral; and
  - Generating revenue.

Representative University P3 Asset Classes

- Student housing
- Student recreation and wellness centers
- Dining facilities
- Academic and administrative buildings
- Research Parks
- Medical Facilities
- Energy and Utilities (energy, water, campus lighting, sewerage, sustainability initiatives)
- Parking facilities
- Gateway developments
- Retail and mixed-use development
- Technology/Data Centers
- Other (i.e., child-care, aerodromes, etc.)

Universities

University of Kentucky – Student Housing

Financial Close: 2015

- Delivery model: DBFOM
- Duration: 75 years
- Capex: $422 million
- Used private financing for construction of 14 new residence halls (up to 9,000 beds) over 5 years
- UK retains ownership of all buildings and manages residence life services
- Payment mechanism: Management fee and revenue share of collected rent
- Grantor: University of Kentucky trustees
- Concessionaire: EdR (Education Realty Trust)
- Project status:
  - Construction completed for 6,850 new beds
  - Demand for on-campus housing, especially the newer dorms, continues to outpace supply

UC Merced 2020 Campus Expansion Project

Financial Close: 2016

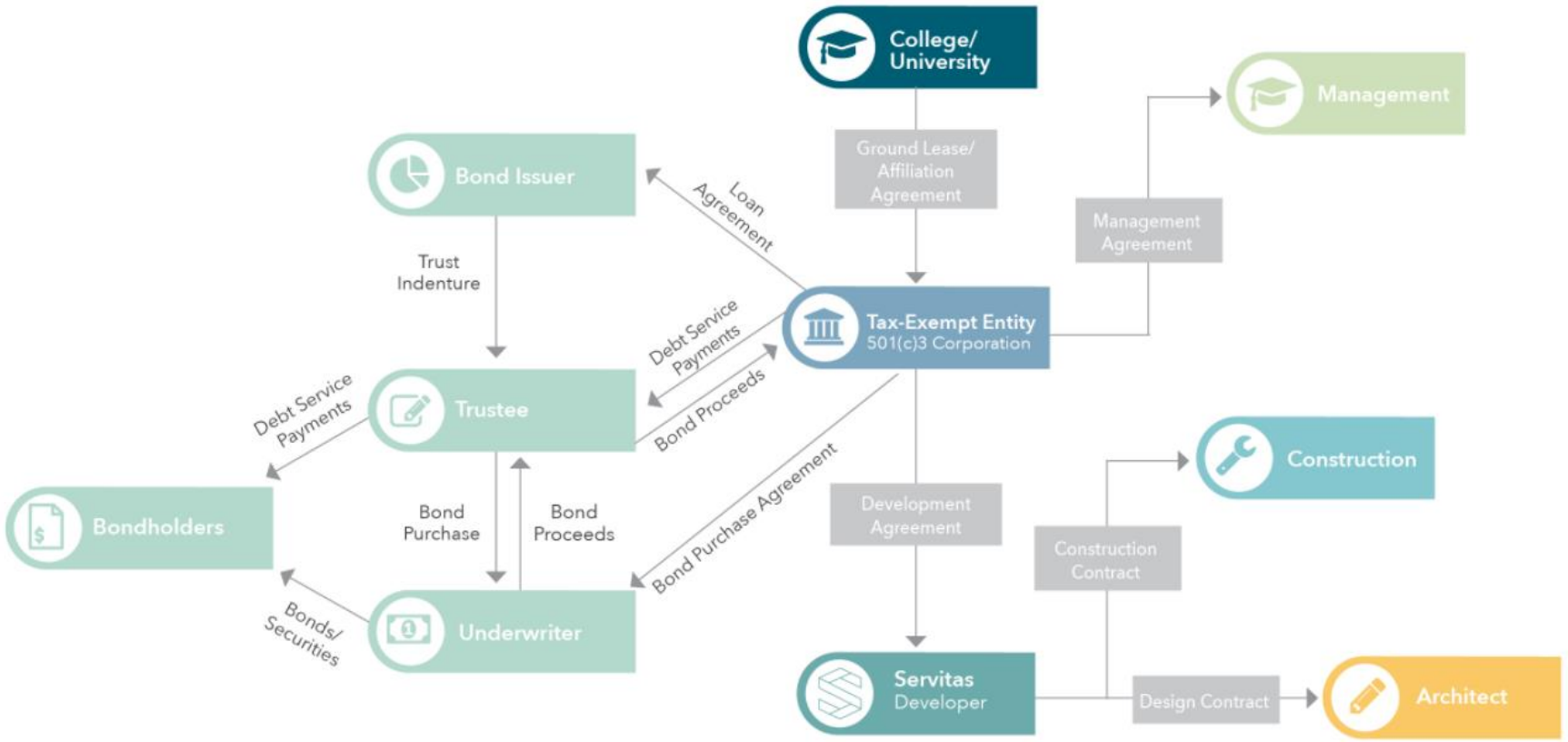
- Delivery model: DBFOM
- Duration: 39 years
- Capex: $1.3 billion
- Project will nearly double the size of the campus over 4 years of construction and expand capacity to accommodate 10,000 more students
- Driven by risk transfer and desire to bundle multiple responsibilities into a single contract
- Procurement process considerations
- Financing is a mix of public financing (UC Board of Regents-issued revenue bonds, UC Merced's own funds, private equity, and private debt)
- Payment mechanism: Availability-based payments (with deduction regime), but "on-balance sheet" for UC
- Grantor: University of California Board of Regents
- Concessionaire: Plenary Properties Merced
- Project status:
  - Construction started in 2017 and first buildings will be available in 2018

Universities

University of California
System-wide housing DBM/DBOM

- University of California (UC) system-wide student housing initiative targeting the addition of approximately 14,000 affordable student housing beds across 10 campuses by 2020
- Goals: student to support enrollment growth and keep housing affordable for students
- Project scopes at individual campuses may also include mixed-use student housing projects, dining facilities and other supporting facilities
- Transaction Structure: Mostly quasi-public finance (through **Financing Trust Structure**) with DBM/DBOM
- On-balance sheet
- Project Status
  - Project began in 2016
  - UC Riverside and UC Santa Cruz campuses identified for potential P3s

Student Housing:
Tax-Exempt Trust Structure

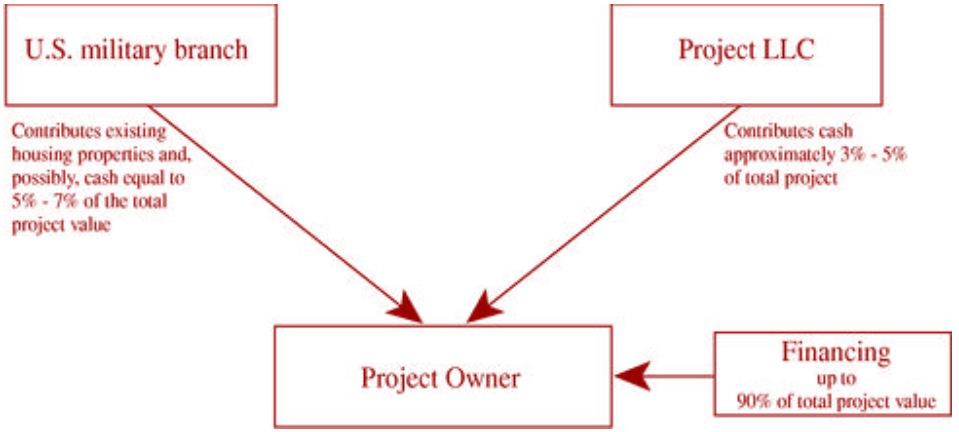


Social Sector

AFFORDABLE HOUSING

Affordable Housing: Military Housing Privatization Initiative

- $13.2 billion in development through ***institutional P3 arrangement***
- Key transaction terms:
  - Out lease of land for 50 years with 25-year option
  - DBFOM (Operation, management, repair, construction (deficit, replacement, renovation) by private partner)
  - Title transfer of housing / improvements to government
  - Compensation Mechanism:
    - User fees = Collection of rents equivalent to Soldier's Basic Allowance for Housing (BAH)
    - Government contribution required to bridge the funding gap in some projects
  - Government in partnerships with private partner as joint equity owners in special purpose entity



Affordable Housing

- Affordable housing is generally delivered by private developers leveraging public sector incentives, such as tax credits, payments-in-lieu-of-taxes, land swaps, etc.
- LIHTC (low-income housing tax credit), HOPE VI, CDBG (community development block grant), HOME funds and HUD programs represent the bulk of federal funding at the federal level. States, counties, cities, and towns also offer financing and incentive programs.
- Affordable housing developers are often constrained on several levels by both lending and program requirements.

Benedict Commons
Aspen Colorado.

- Communities can incentivize affordable housing in other ways.
  - Surplus schools or school land can be redeveloped for affordable housing.
  - Provide the rezoning or variances required for converting old buildings to affordable housing.
  - Public land or property can be conveyed to affordable housing developers under land grants or long-term leases.
  - Re-zoning to create value in land
  - Affordable housing can be incorporated into new public uses including libraries, public parking garages, and municipal buildings.
  - A number of communities sponsor affordable housing developments on remediated brownfields (removing blight, creating property tax revenue, and providing much-needed affordable housing).

Affordable Housing

Franklin Street Family Apartments
(Mountain View, CA)

Completed: 2013

- Delivery model: DBFOOM (privately owned and developed by ROEM Development Corporation)
- Capex: $23.4 million
- 51-unit multi-family affordable housing units (earning up to 50% of the area median income) developed using mix of public and private financing:
  - City provided $3.2 m loan for a 65-year ground lease and $12.5 million for development costs
  - Google provided $6.3 million in Low-Income Housing Tax Credit (LIHTC) equity and $82,000 for computer equipment and free internet access for residents
  - Citi Community Capital provide $4.2 million in LIHTC equity
- Project status:
  - Project broke ground in 2011 and building opened in 2013
- **Key Takeaway:**
  - The **Low-Income Housing Tax Credit** is a key way to provide much-needed equity to enable affordable housing developments.
    - Major corporations have increasingly been willing to buy these credits from housing developers (e.g. Verizon, insurance companies such as Liberty Mutual and Allstate). Google has invested over $100 million in housing projects in California and the Midwest.
    - Banks buy the credits to fulfill their obligations under the Community Reinvestment Act that requires investment in poorer neighborhoods

Affordable Housing

U.S. Department of Housing and Urban Development's "Choice Neighborhood Initiative"

- Three core goals:

  1. Housing: Replace distressed public and assisted housing with high-quality mixed-income housing that is well-managed and responsive to the needs of the surrounding neighborhood;

  2. People: Improve educational outcomes and intergenerational mobility for youth with services and supports delivered directly to youth and their families; and

  3. Neighborhood: Create the conditions necessary for public and private reinvestment in distressed neighborhoods to offer the kinds of amenities and assets, including safety, good schools, and commercial activity, that are important to families' choices about their community.

- Communities must develop comprehensive neighborhood revitalization strategy ("Transformation Plan") in order to receive HUD grants. Plan takes into account strategy for education improvement, job creation, crime reduction, etc.
  - Available: Planning Grants (to support development of plans) and Implementation Grants.

- Comprehensive approach unlocks additional grants:
  - DOJ Byne Grants – for crime, safety, and reentry
  - DOE Promise Neighborhoods – encourages school choice and school infrastructure
  - Treasury New Markets Tax Credits – supports economic development and job creation
  - DOT and EPA grants – for rehabilitating deteriorating infrastructure and public services

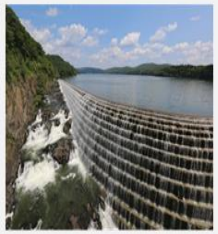
- Estimated to secure a 3:1 ratio of local and private investment for every HUD dollar spent.

- Drawbacks: application process (development of plan) and waiting period for award may be lengthy; contingent on available federal funding; cap of $30 m per project may be insufficient in some cases.

Water Sector

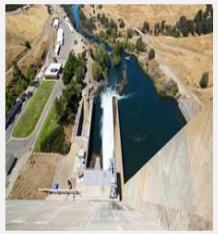
Water sector reflects diverse infrastructure assets and services

WATER RESOURCES


Drinking Water


Wastewater


Stormwater


Irrigation


Dams and Levees


Navigation


Ecosystem Restoration

SECTOR CHALLENGES AND CONSIDERATIONS

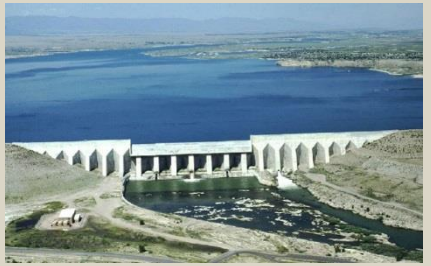
- Funding sources
- ***Affordability issues***
- Aging infrastructure / deferred maintenance
- Resiliency
- Operational efficiency
- Asset optimization
- Diverse multi-jurisdictional issues
- Regulatory requirements
- Life-cycle asset management
- New technologies and green infrastructure
- Population and urbanization
- Resource Sourcing, Recovery, and Reuse
- Security
- Financing and delivery constraints

3

Water Sector Market Trends

P3 Tailwinds

- *Financial close on major P3 projects*
  - San Antonio Water System (SAWS) Vista Ridge Water Supply Project ($923M)
  - Scranton Water and Sewerage ($195M)
- *New market entrants expanding potential project pipeline*
  - New sectors are turning to P3 (i.e., flood risk management (Fargo), irrigation, rural infrastructure, etc.)
  - Federal exploration of P3 (USACE, USBR, USDA, etc.)
  - Trump infrastructure plan predicated on P3 for all sectors (including water)
- *Other*
  - Continued public financial distress
  - Growing investment requirements and urgency of implementation
  - Federal credit programs (WIFIA) help lower private sector capital cost
  - State and local legislative initiatives to enable P3 for water projects



P3 Headwinds

- *Distressed and terminated P3 projects (Santa Paula, Allentown, etc.)*
- *Public perception and embedded biases against P3 (education)*
- *Historically low interest rates and easy access to subsidized credit*
- *Market missteps (attempts at risk reversion / excessive transaction costs / overly complex deals)*

Water and Wastewater

San Antonio Water System (SAWS) Vista Ridge Water Supply Project

Financial Close: 2014

- Delivery model: DBFOM
- Duration: 30 years
- Capex: $923 million (total value: $3.4 billion)
- Private partner to secure land and DBFOM a 142-mile water pipeline and well field, pump station, and treatment and storage facilities. They would provide water transportation and sell 50,000 ac-ft/yr or 45 mgd of imported and treated groundwater that will provide 20% more water to San Antonio.
- Payment mechanism: Fixed-price water purchase agreement and some payments for O&M and repairs
- Project built entirely off balance sheet
- Grantor: City of San Antonio, TX
- Concessionaire: Originally Abenoga; contract then transferred to Garney Companies
- Project status:
  - Construction started in 2017

Rialto Water Services

Financial Close: 2014

- Delivery model: O&M Concession
- Duration: 30 years
- Value: $300 million (in addition to $62.4 m payment to Rialto to settle some debts and as upfront payments)
- State revolving loan funds and municipal bond financing was insufficient to meeting utility's needs and had outstanding, large debts
- Rialto contracted Veolia Water to operate the water and sewer system (O&M responsibilities, fee collection, and invest $41 m in capital improvements in first 5 years)
- Payment mechanism: Water and sewer rates
- Grantor: City of Rialto, CA
- Concessionaire: Veolia Water
- Project status:
  - Improvements in customer service and work order management
  - Rate increases, pre-determined and approved by City (previous rates were low and barely covering operational costs)

Water and Wastewater

Carlsbad Seawater Desalination Plant

Financial Close: 2012

- Delivery model: DBFOOM (privately-owned plant)
- Duration: 30 years
- Capex: $922 million
- San Diego County Water Authority to purchase 12.5% of its water directly the largest seawater desalination plant in America (54 MGD). Access to this plant provides an insurance against future droughts.
- Poseidon also had to DBF a water pipeline, but SDCWA will own, operate, and maintain pipeline
- Financing came from: tax-exempt private activity bonds tax-exempt governmental purpose bonds, and private equity.
- Payment mechanism: Water Purchase Agreement (Take or Pay agreement)
- Grantor: San Diego County Water Authority (SDCWA)
- Concessionaire: Brookfield (acquired Poseidon Resources)
- Project status:
    - Operational in 2015

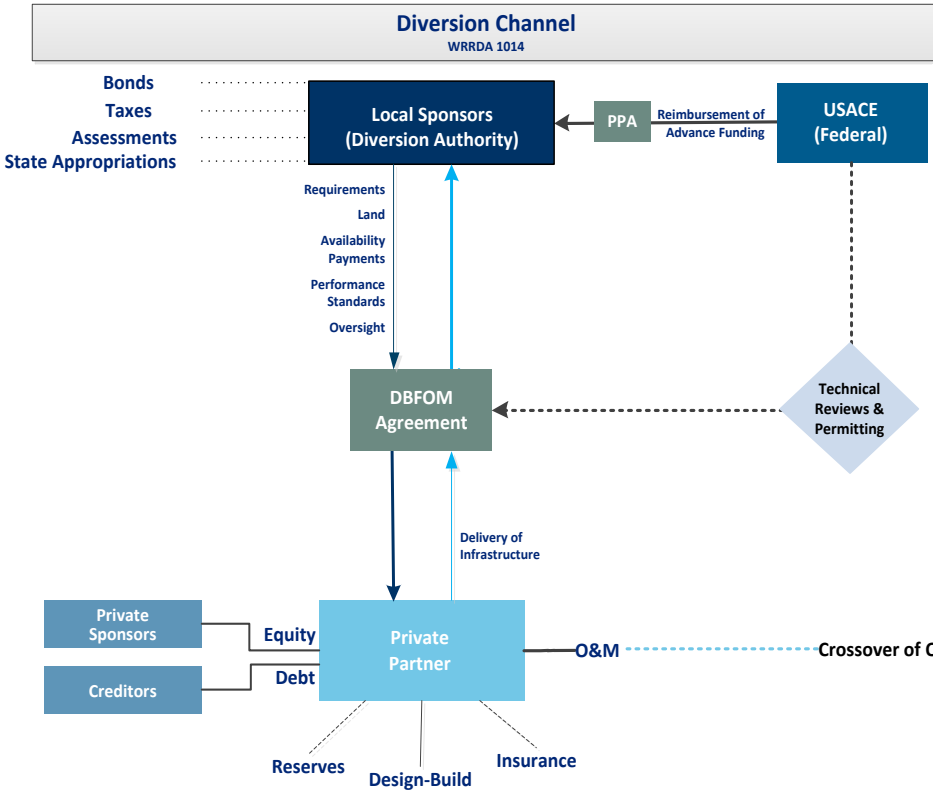
Bayonne Concession for Water and Wastewater Operations

Financial Close: 2012

- Delivery model: O&M Concession (Franchise Agreement); City retains ownership
- Duration: 40 years
- Value: $175 million
- Bayonne, a city of 60,000, had outstanding capital needs and $100m+ in debts from its water and sewer operations, which were impacting city's credit rating.
- United Water's $150 m upfront payment helped eliminate $130m of outstanding debt and improve the City's credit rating.
- United Water will also invest $157 m into the water systems
- Payment mechanism: Water and sewer rates
- Grantor: Bayonne Municipal Utilities Authority (BMUA)
- Concessionaire: United Water
- Status:
    - Rates increase at fixed-rate on a pre-determined schedule over 40 years
    - P3 estimated to save BMUA $35 m over life of contract than if city retained O&M

Flood Risk Management:

Fargo Moorhead Flood Risk Management DBFOM
In procurement



- Nation's first flood risk management P3
- Fargo Moorhead Diversion Authority is contracting a private partner to design-build-finance-operate-and-maintain diversion channel and associated works over contract term.
- ***Compensation mechanism***: Availability payments (and milestones)
- Transaction aims to secure best Value-for-Money, reducing total cost by some $400 million while increasing public benefits by $1.9B.
- Accelerates delivery by at least 8 years
- Achieves important risk transfer
- May be model for other federal and quasi-federal projects (Ala Wai?)

IPD will safeguard 225,000 people, save $400 million, and accelerate delivery public benefits

Stormwater Management

Clean Water Partnership
Prince Georges, Maryland

- Purpose is to address regulatory requirements in a timelier and more cost-effective manner
- Scope: Address EPA and other regulatory mandates by retrofitting 15,000 acres of pavement and buildings into green infrastructure to capture stormwater runoff, helping to reduce pollution of Chesapeake Bay, by 2025 and maintain stormwater controls for 30 years.
- Performance Contract: Compensated on basis of ability to address regulatory requirements
- Compensation: Performance-based payments
- Financial Close: early 2016
- Value: $600 million - $1 billion

Community Based Partnership
Chester, PA

- P3 aims to help the city meet federally mandated sewer system improvements while also creating jobs for local contractors and spurring economic development.
- DBFOM
- Private Partner will plan and implement 350 acres of green stormwater infrastructure, and manage that system for the next 20 to 30 years.
- Payment through user fees with some performance considerations
- Chester is in bankruptcy protection and could not otherwise meet federal environmental mandates (unable to access bond market to finance improvements)

Agriculture/Irrigation: *Grand Prairie Irrigation Project*

Contracting Authority: Arkansas Natural Resource Commission (in coordination with White River Irrigation District and USACE)

Transaction Structure: Design-Build-Finance-Operate-Maintain (DBFOM) :

- Design-Build Criteria
- Financing
- O&M (including existing assets)

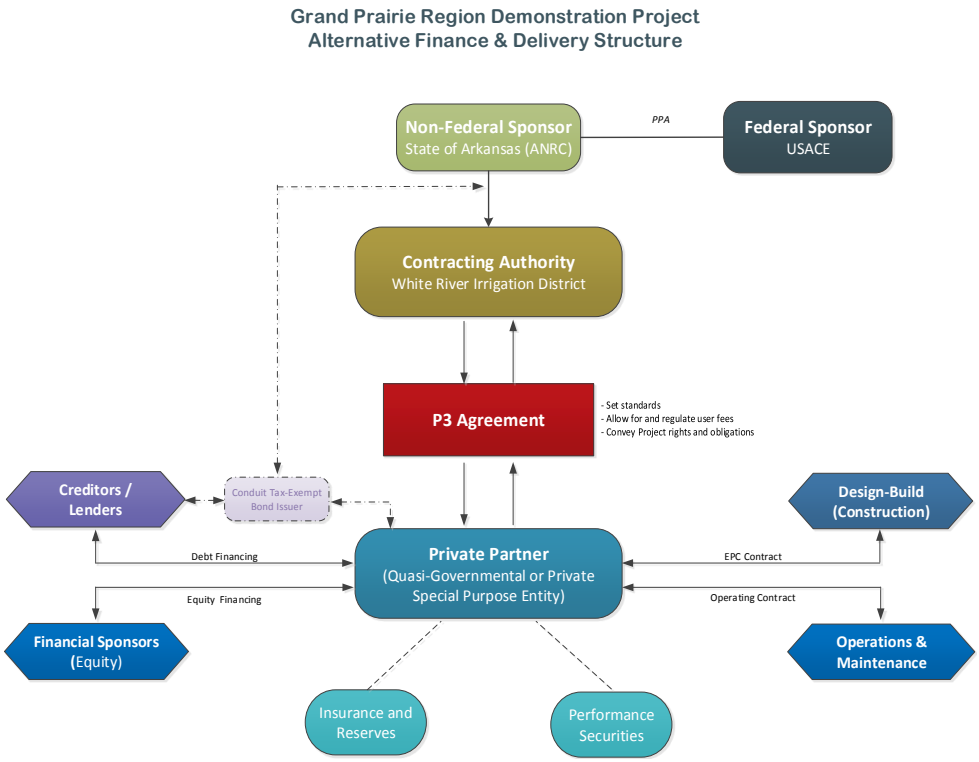
Scope of Services: Private Partner to finance and complete off-farm system and provide for its continual operation at prescribed service levels over term of contract.

Payment Mechanism: Water usage revenues with a state-backed Minimum Revenue Guarantee

Water pricing and adjustments: Bid criteria / regulation by contract

Anticipated Term: 42 years

Asset ownership: With public sponsors



Water Sector Conclusions

- Broad application of P3 across the entire spectrum of options within the water sector (from management contracts to privatization)
- Affordability issues remain a key consideration in all structures

Transportation Sector

Transportation Sector

TRANSPORTATION INFRASTRUCTURE


Airports


Ports & Harbors


Urban Transit


Parking


TOD


Navigation


Other

SECTOR CHALLENGES AND CONSIDERATIONS

- Congestion
- Market demand and affordability
- Aging infrastructure / deferred maintenance
- Operational efficiency
- Asset optimization
- Population and urbanization
- Regulatory requirements
- Life-cycle asset management
- New technologies and green infrastructure
- Financing and delivery constraints

Airport Sector

- Extremely common candidate for P3 across the globe.
- To date, U.S. has focused principally on landside infrastructure due to FAA privatization program
- Arguably one of the most dynamic sectors for IPD at present, with multiple airports exploring P3 for terminal upgrades
- Wide variety of models exist, from DBF to DBFOM
- Compensation mechanism can vary, but typically involve revenue generated from airport operations

Airports

LaGuardia Airport Central Terminal

New York

Financial Close: 2016

- $2.4 billion DBFOM
- Term: 30 year term
- 1.3 million sf, 35-gate terminal building, new aeronautical ramp, frontage roads to serve the new terminal, new central heating and refrigeration plant, and other utilities and site improvements.
- Compensation mechanism: user fees (e.g. airline terminal rentals, ramp fees and charges, in addition to food, beverage, retail, advertising, telecom and duty free concessions)
- Accelerated project schedule

Luis Muñoz International Airport

San Juan, Puerto Rico

Financial Close: 2013

- Leasehold Concessions / DBFOM
- Term: 40 years
- $2.6 billion transaction involved a $615 million up-front lease payment, and was the first successful privatization of a large commercial airport under the FAA Pilot Program for Airport Privatization
- Concessionaire will make annual concession payments of $2.5 million to the P3 Authority during the first five years, five percent of gross revenues over the next 25 years, and 10 percent of gross revenues for the remaining years.
- Capex: concessionaire to invest $1.4 billion in capital improvements over term, including $200 million in the first five years
- Compensation: airport revenues

Ports and Harbors: Seagirt Marine Terminal (MD)

- To attend post-Panamex vessels, the Port of Baltimore needed to enlarge the terminal (i.e. develop a 50' deep berth) to handle mega ships.
- Private partner provides $1.3b+ in value to the State:
  - $140m in upfront payment to the Maryland Transportation Authority for highway, bridge and tunnel projects near the Port of Baltimore.
  - $100m for development of a new berth and acquisition of new cranes
  - ~$500m in additional capital investments over the life of the lease for replacement/expansion works and expenses (including technology upgrades) and capital maintenance work
  - ~$600m+ in revenues to State over the life of the lease
  - ~$16m /yr in new taxes
  - 5,700 jobs
  - Transfer of operations, volume, construction, and cost risks away from State

OVERVIEW

- Status: Financial Close (2010)
- Value: USD 1.3b
- Payment mechanism: Port Revenues
- Delivery model: Leasehold concession (DBFOM)
- Duration: 50 years
- Grantor: Maryland Port Administration
- Result: Delivered 2 years ahead of schedule

- New berth became fully operational in 2013, ahead of schedule and under budget. Baltimore is now only one of only 4 U.S. East Coast ports with a 50 foot-deep berth to handle the new super-post-Panamax cargo ships.
- Project benefited from having State P3 legislation (HB 560, Session 2013) for private investment in infrastructure.

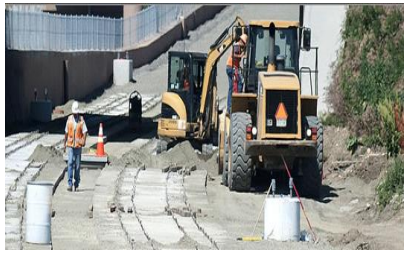
Source: Inframation

Urban Transit

Evergreen Line
Vancouver, Canada

- Design-Build-Finance
- Capex: $ 1.43 billion
- Term: 3.5 years
- Payment Mechanism: Milestone payments
- 6.83 mi extension of existing SkyTrain system (driverless and automated); 28 new SkyTrain Vehicles; 6 stations and provision for 2 potential future stations; Vehicle storage facility
- Total Project Cost Savings of **15-16%**
    - DBF option reduced project costs by 10% ($134 million) versus DB option
    - Concessionaire achieved additional 5-6% in cost savings ($70-85 million)

Eagle P3 Project
Denver, Colorado



- Design-Build-Finance-Operate-Maintain
- Capex: $ 2.2b
- Term: 34 years
- Payment: Milestone and Availability Payments
- 40.2 miles across 3 lines; 16 stations, including Union Station; 54 commuter rail cars; 1 Commuter Rail Maintenance Facility
- Construction of 29 miles of rail completed in 7 years.
- Winning P3 bid came in $300 million (27%) below public sector budget estimates
- Additional O&M cost savings

Bridges

Goethals Bridge Replacement (NY and NJ)

Financial Close: 2013

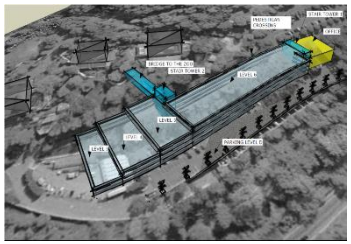
- Delivery model: DBFM
- Duration: 40 years
- Value: $1.4 billion
- Connects Staten Island, NY to Elizabeth, NJ on I-278 over Arthur Kill with a six-lane cable-stayed bridge direct south of existing 85-year old bridge
- Technology and other innovations
- Payment mechanism: Availability-based
- Grantor: Port Authority of New York and New Jersey
- Concessionaire: NYNJ Link Partnership
- Status:
  - In construction (expected to be completed in 4 years (2018))

Pennsylvania Rapid Bridge Replacement Project

Financial Close: 2014

- Delivery model: DBFM
- Duration: 28 years (3 year construction + 25 year maintenance)
- Value: $899 million
- Scope: Replace 558 aging bridges (mostly crossings on smaller state highways in rural areas than interstate bridges or large river crossings) in 3 years
  - Rapid schedule possible due to standardized designs and prefabrication of components off-site
- Project meant to address State's 4,200 structurally deficient bridges.
- Payment mechanism: Availability-based
- Grantor: Pennsylvania Department of Transportation
- Concessionaire: Plenary Walsh Keystone Partners
- Status:
  - Construction started in 2015 and will be completed in 2018

Parking



Smithsonian National Zoo
Washington, DC

Transaction Structure: Design-Build-Finance-Operate-Maintain (DBFOM).

Term: Construction + 32 years.

Capex: Estimated at $100 million

Scope of works: New central parking facility ("Green Garage Standards), pedestrian bridge and ancillary works.

Compensation Structure: User payments, with rates and charges regulated by NZP.

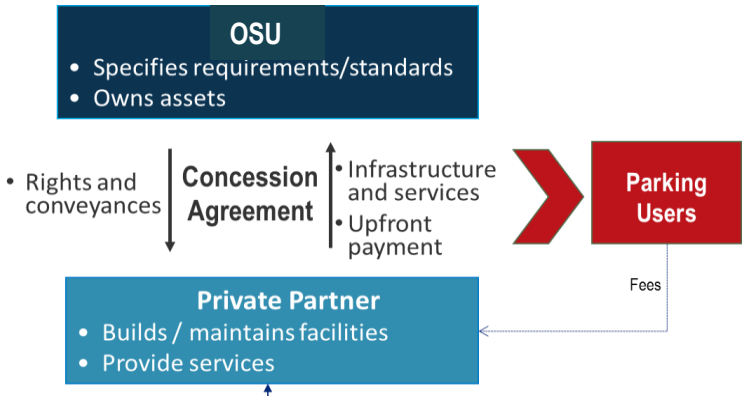
Ownership: Smithsonian

Concession Fee: Upfront payment and annual concession fee (% of gross revenues).

Other: National landmark site

Ohio State University
Columbus, Ohio

- **Transaction Structure**: Leasehold Concession
- **Term**: 50 years
- **Scope**: Exclusive rights to operate and maintain OSU 35,920 space parking system (including some future capital investments)
- **Concession Fee**: $483 million upfront payment ($3.1 billion for OSU over 50-year term)



Transit-Oriented Development

- TOD refers to the creation of compact, walkable, pedestrian-oriented, mixed-use communities centered around high quality transit systems
- Represent a cross-section of infrastructure sectors and services, so strategies depend on bundling approach.
- Facilitate TOD opportunities that increase ridership or enhance transit investments through station design and close coordination with local jurisdictions and developers.

Funding and Financing sources for TOD

DEBT
- Private debt
- Publicly issued debt (Bonds)
  - General obligation bonds
  - Revenue bonds
  - Private activity bonds
  - Certificates of participation and lease revenue bonds
- Specialized debt (from federal and state – usually loans to fund roads/transit and can free up project funds for other uses)
  - Revolving loan funds
  - State infrastructure banks
  - Grant anticipation revenue vehicle (GARVEE) bonds
  - Railroad rehabilitation and improvement financing (RRIF)

VALUE CAPTURE
- Developer fees and exactions (usually one-time payments)
- Special districts
- TIF
- Joint development (usually for real estate around stations)

EQUITY
- P3s
- Infrastructure investment funds

CREDIT ASSISTANCE
- Credit assistance tools
- TIFIA (to fund roads/transit and free up project funds for TOD)

DIRECT FEES
- User fees and transportation utility fees
- Congestion pricing

FEDERAL GRANTS
- Transportation
  - Congestion mitigation and air quality improvement program
  - Transportation alternatives program
  - Urbanized area formula funding program
- Community and economic development
  - Community development block grant
  - Economic development administration grants

ANCHOR INSTITUTIONS
- Anchor institution partnerships with nonprofit or private entities such as universities, hospitals, and corporations that are inextricably tied to their locations

Emerging tools, including structured funds, land banks, redfields to greenfields, and a national infrastructure bank.

Transit-Oriented Development

Quincy Transit Center
Quincy, Massachusetts

- Design-Build-Finance for TOD infrastructure
- New Quincy Center is a transit-oriented, master-planned, mixed-use development that includes the redevelopment of approximately 50 acres of downtown Quincy (over 2.7 million square feet)
- Public improvements include utilities renovation, roads, sidewalks, street trees, landscaping, and public parking.
- Initial cost estimate was $277 million, of which $50 million will be financed by the city through state and federal funds, with the rest financed by the developer.
- **Compensation**: City reimburses developer through taxes captured by a special assessment district on new development. However, the city pay reimbursements *only* when an occupancy threshold has been achieved to ensure that income from property taxes from new development will be enough to reimburse the developer.
- Model allocates financing risk during the construction of the public improvements to the private partner, its lenders, and investment partners. In addition, the private partner assumes "***occupancy risk***".
- By establishing a minimum occupancy threshold that needs to be met before the city purchases the public infrastructure, the city ensures that the new development will generate enough property tax revenue to pay the debt service of the tax-exempt general obligation bonds issued to finance the purchase.

Energy/Central Utilities Sector

Energy Sector

- Energy sector has strong IPD pedigree
- Applied across multiples subsectors:
  - Generation
  - Central Plants
  - Distribution
  - Energy efficiency
  - Others
- Compensation mechanisms can vary, but typically involve an off-take or take-or-pay contract.
- Key Risks and considerations:
  - Environment
  - Regulatory risk
  - Market risk
  - Contract Risk
- Key factors include the fuel supply agreement and the power-purchase-agreement.
- New transaction structures emerging on the market for renewable energy and energy efficiency

Central Utilities

- **Ohio State University Energy Concession**
- **Scope**
  - *Service Area*: 485 buildings, across 24 million square feet
  - *Term*: 50 years
  - *Scope*:
    - **Upgrade, operate, and maintain** all of the university's energy assets (i.e. electric substations, chilled water plant, steam boilers, geothermal systems and water wells, and natural gas pipelines).
    - The private partner will also invest $250 million in energy conservation measures and other capital projects, as well as a new $50 million energy research and development center.
- **Contract Value**
  - OSU will receive a total of $1.165 billion ($1.015B upfront and $150 million over 3 phases in direct academic support i.e. $50 million for research center, philanthropy, student financial aid, internships, faculty salary, staff development, and sustainability curriculum and initiatives)
  - OSU will compensate the private partner via a power purchase agreement (PPA) to cover ENGIE-Axiom's operating costs, as well as interest on debt for capital expenditures for energy improvements.

University Goals Supported/P3 Drivers

- Increase energy efficiency of the campus
- Ensure maintenance and upgrades will be done on utility assets
- Preserve borrowing capacity for other University projects

Central Utilities

University	P3 Scope	University Goals Supported/P3 Drivers	Contract Value
 **University of Pennsylvania** (2010)	Service Area: 300-acre campus with 218 buildings Term: 20 years Scope: **lease, operate, and maintain** the 11-mile campus steam distribution network and implement energy efficiency initiatives. The private partner also upgraded older, inefficient boilers.	• Reduce campus carbon footprint • Increase energy efficiency • Increase use of renewable energy	Unknown if there was an upfront payment; Private Partner invested $60 million to replace older, oil-fired boilers with more efficient gas-fired boilers
 **Thomas Jefferson University** (2005)	Service Area: 1.7 million square feet across 6 buildings Term: 30 years Scope: **design, build, finance, own, operate, and maintain** a new chilled water plant that produces 7,000 tons of chilled water, as well as and 2,750 feet of piping.	• Addition of critical infrastructure while eliminating impact on university capital budget	Financed $24 million for a new chiller plant and piping
 **University of Oklahoma** (2010)	Service Area: 7.5 million square feet Term: 50 years Scope: **operate and manage** all of its utilities: heating, cooling, electricity, natural gas, water and sewer assets. The private partner will also be responsible for designing, building, and financing all new capital replacement and upgrades during the contract.	• Ensure maintenance and upgrades of aging and inefficient utility infrastructure, given limited financial resources	Upfront Payment of $118 million

Natural Gas

Pennsylvania Compressed Natural Gas (CNG) Fueling Stations

Overview

- DBFOM for 29 new CNG fueling stations at local public transit agency sites across the state, as well as upgrades to maintenance and storage facilities to make them compatible with CNG buses.
- When construction of all sites is completed in 5 years, stations will supply gas to more than 1,600 CNG transit buses.
- General public will have access to fueling stations at 7 sites; more may be added in the future
- PennDOT is responsible for procuring/supplying natural gas to each station for use by transit buses

Compensation

- PennDOT will receive a 15% royalty for each gallon of fuel sold to the public, excluding taxes, which will be used to support the cost of the project. (Minimum guarantee of $2.1m over 20 years.)

Benefits

- Transit agencies are converting fleet from diesel to CNG, which reduces fuel costs (est. $10 m/yr) and GHG (est. 20 million CO_2).
- P3 approach estimated to yield savings of $46m over traditional procurement mechanism, due to the ability to accelerate station construction.

OVERVIEW

- Status: Financial Close (2016)
- Capex: USD 84.5m
- Payment mechanism: Revenue-based
- Delivery model: DBFOM
- Duration: 20 years
- Grantor: Pennsylvania Department of Transportation (PennDOT)

Source: Inframation

Other Sectors

Stadiums

Mosaic Stadium (Canada)

- The new Mosaic Stadium houses the Saskatchewan Roughriders Canadian football team, with a capacity of 33,000 and a retractable roof.
- The new stadium was the first of three phases of the Regina Revitalization Initiative.
- City retained operations and maintenance responsibility
  - During market sounding process, private sector expressed lack of interest in long-term O&M responsibility due to high financial risk
- Consortium used short-term construction loan and was responsible for financing the project.

Multiple Funding sources:

- Province of Saskatchewan Grant (CAD 80M)
- City of Regina contribution (CAD 73M)
- Saskatchewan Roughriders Football Club contribution (CAD 25M)
- Province of Saskatchewan loan to City of Regina (CAD100M) - 31.5 year term
- User fees: facility fee
- Small increase in property taxes for Regina citizens

OVERVIEW

- Status: Financial Close (2014)
- Capex: USD 270m (CAD 278m)
- Payment mechanism: milestone and final payments
- Delivery model: DBF (city retains ownership)
- Duration: 3 years
- Grantor: City of Regina

Source: Inframation

Broadband

KentuckyWired (KY)

Project Need

- 16% of Kentucky residents (700,000 people) lack broadband access (i.e. internet speeds of 25 megabits per second for downloads and 3 Mbps for uploads)
- 34 % of all rural Kentuckians can't access broadband service.

Project Scope

- Kentucky contracted a private partner to DBFOM a 3,000 mile network of major fiber lines throughout the state. The State will own the network.
- The "open access" network will allow Internet and cell phone providers will lease the lines to provide connections to homes and cell phone networks.
- The first components are scheduled to be operational in less than two years and will ultimately be available in all 120 counties.
- More than 100 key facilities will be connected, including universities, state government buildings and community and technical colleges.

OVERVIEW

- Status: Financial Close (2015)
- Capex: USD 350 m
- Payment mechanism: Availability-Based
- Delivery model: DBFOM
- Duration: 30 years (3-year construction period; 27-year operating period)
- Grantor: State of Kentucky

Source: Inframation

Monetization: *Digital and Traditional Advertising*

- **Commercialization and monetization** are helpful to generate revenues.

LinkNYC (New York City)

- **Scope:** 7,500 kiosks that replaces 6,000 pay phones. Kiosks offer free Wi-Fi hotspot, phone and video calls, emergency and civic services, internet-enabled tablet, power charging station, digital advertising space.
- **Revenues to Public Entity:** $500 million over 12 years, or the greater of 50% of generated revenues
- **Cost**: $200 m (funded by Private Partner) to build fiber optic network and install and maintain kiosks
- **Compensation Mechanism:** The private partner pays the City the greater of $500 million over 12 years or 50% of generated revenues.

JLL | Achieve Ambitions

Module 2: Sector-Specific Considerations and Case Studies

QUESTIONS AND DISCUSSION