

Alternative Delivery Methods

Past, Present & Future



Presented Tuesday, August 23, 2011



One Team. Infinite Solutions

Stantec

Today's Presentation



■ Discuss Evolution of Alternative Delivery

- *Implementation*
- *Performance*

■ Focus On Types and Growing Use

■ Discuss Public-Private Partnerships

■ Project Examples of Alternative Delivery

- *Design/Build: Jolley Bridge, Marco Island, Florida*
- *CM@Risk: I-75 Rest Areas in Florida*
- *Public-Private Partnership: Port of Miami Tunnel*

Evolution of Modern Alternative Delivery



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- Long Track Record of Use in Europe since Early 1980's
- Transportation Applications Began Growing in United States in Late 1980's
 - *Virginia Unsolicited PPP Proposals for Public Purpose*
- Mid 1990's Florida Began Using Design-Build on Pilot Projects (Primary Use - Bridges)
- Construction Management @Risk Has Been Used Sparingly Over the Years
- Today DBIA says that 40% of Non-Residential Construction is Through Alternative Delivery



Alternative Delivery Methods - *Past, Present & Future*

ALTERNATIVE DELIVERY & RISK

Alternative Delivery Considerations



- **Do Current Laws Allow for AD?**
- **Do Opportunities for Innovation Exist?**
 - *Innovation Leads to Cost Savings?*
- **Is Schedule Performance A Must?**
- **Is Contracting Community Familiar with Executing Through Alternative Delivery?**
- **Will Owner Release Control?**
 - *Design*
 - *Construction*

Common Alternative Delivery Models



■ Design-Build

- *More and More Applications*

■ Construction Management @ Risk

- *Long Used Concept – New Applications in Transportation*

■ Design-Build-Operate-Maintain

- *Standard for Public-Private Partnerships*

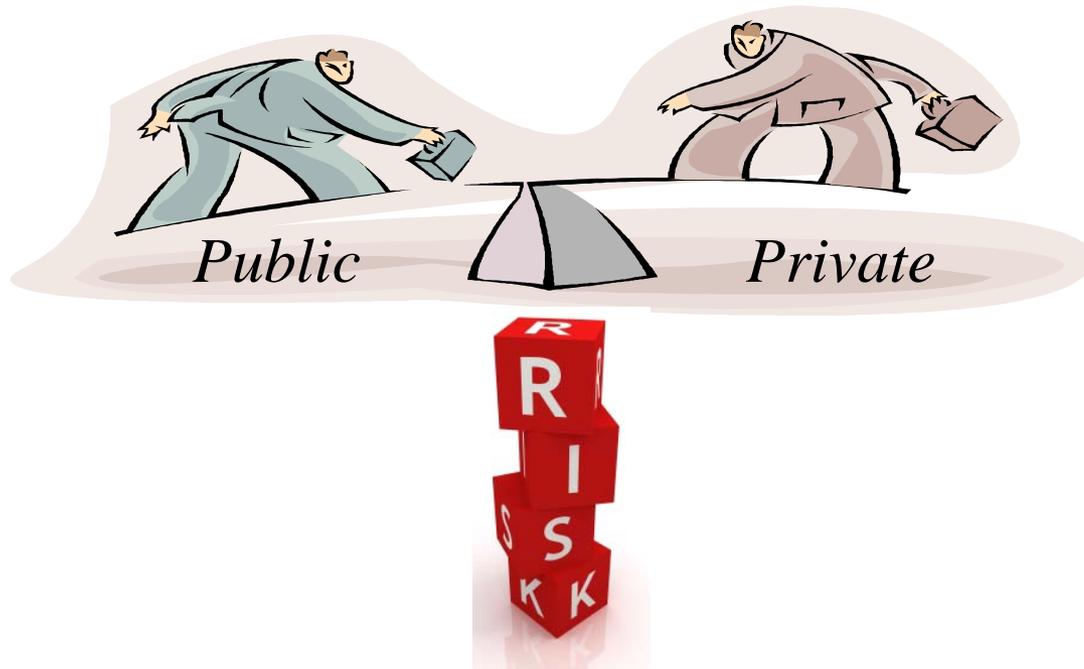
■ All Can Have Private Financing Component

- *Allows for Construction Today – Payment Tomorrow*

Success Through Proper Assignment of Risk



Key is to *Balance Risk* by assigning to those *best suited to managing it!*



Alternative Delivery & Risk



- **Alternative Delivery Requires Effective Partnering**
- **Identify Risks --- Share!**
 - *Agree on the Risk Areas*
 - *Decide What Party Can Best Manage the Risk*
 - *Put Risk Sharing in the Contract*
- **Risk Results in Contingency**
 - *Control Risk Through Contingency Arrangements*
 - *Don't Hide it --- Bring Contingencies Out in the Open*

Dealing with Risks in Alternative Delivery



■ Risks are Similar to Traditional Methods

- *Environmental*
- *Technical Criteria*
- *Design*
- *Construction*
- *Operations & Maintenance*

■ Concessions & Financing Risk Area

- *Ownership*
- *Revenue*
- *Toll Rate Increases*
- *Financing Costs and Repayment*

Design-Build Risk Matrix



Risk Element	Private	Public
Environmental Clearance		X
Revenue		X
Rate Increases to Public		X
Financing		X
Technical Criteria		X
Design	X	
Construction	X	
Operations & Maintenance		X
Ownership		X

Design-Build-Finance Risk Matrix



Risk Element	Private	Public
Environmental Clearance		X
Revenue		X
Rate Increases to Public		X
Financing	X	
Technical Criteria		X
Design	X	
Construction	X	
Operations & Maintenance		X
Ownership		X

Construction Mgmt. @Risk Risk Matrix



Risk Element	Private	Public
Environmental Clearance		X
Revenue		X
Rate Increases to Public		X
Financing	X	
Technical Criteria	S	S
Design		X
Construction	X	
Operations & Maintenance		X
Ownership		X

Design-Build-Operate-Maintain Risk Matrix



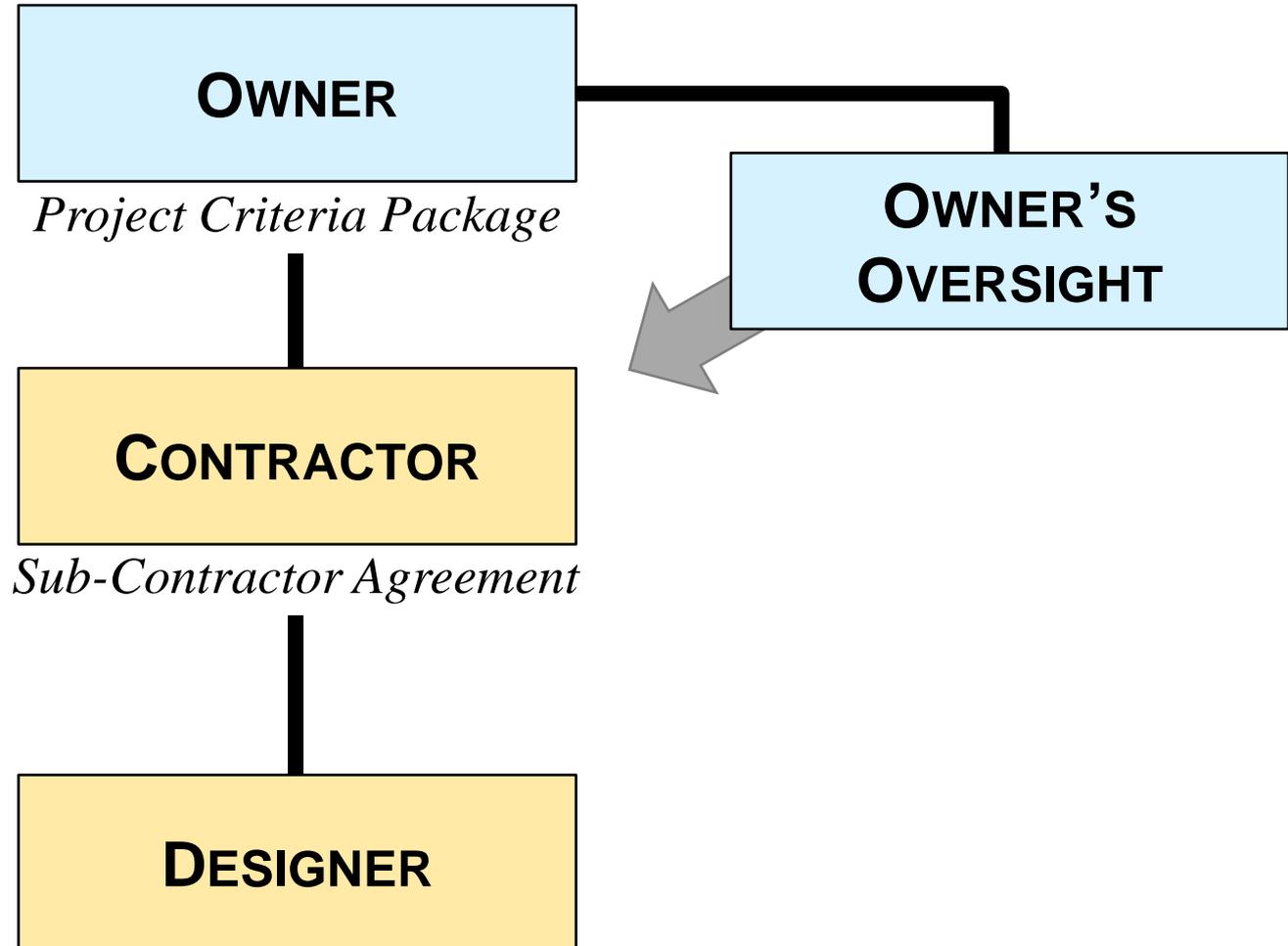
Risk Element	Private	Public
Environmental Clearance		X
Revenue	X	X
Rate Increases to Public		X
Financing	X	X
Technical Criteria		X
Design	X	
Construction	X	
Operations & Maintenance	X	
Ownership		X



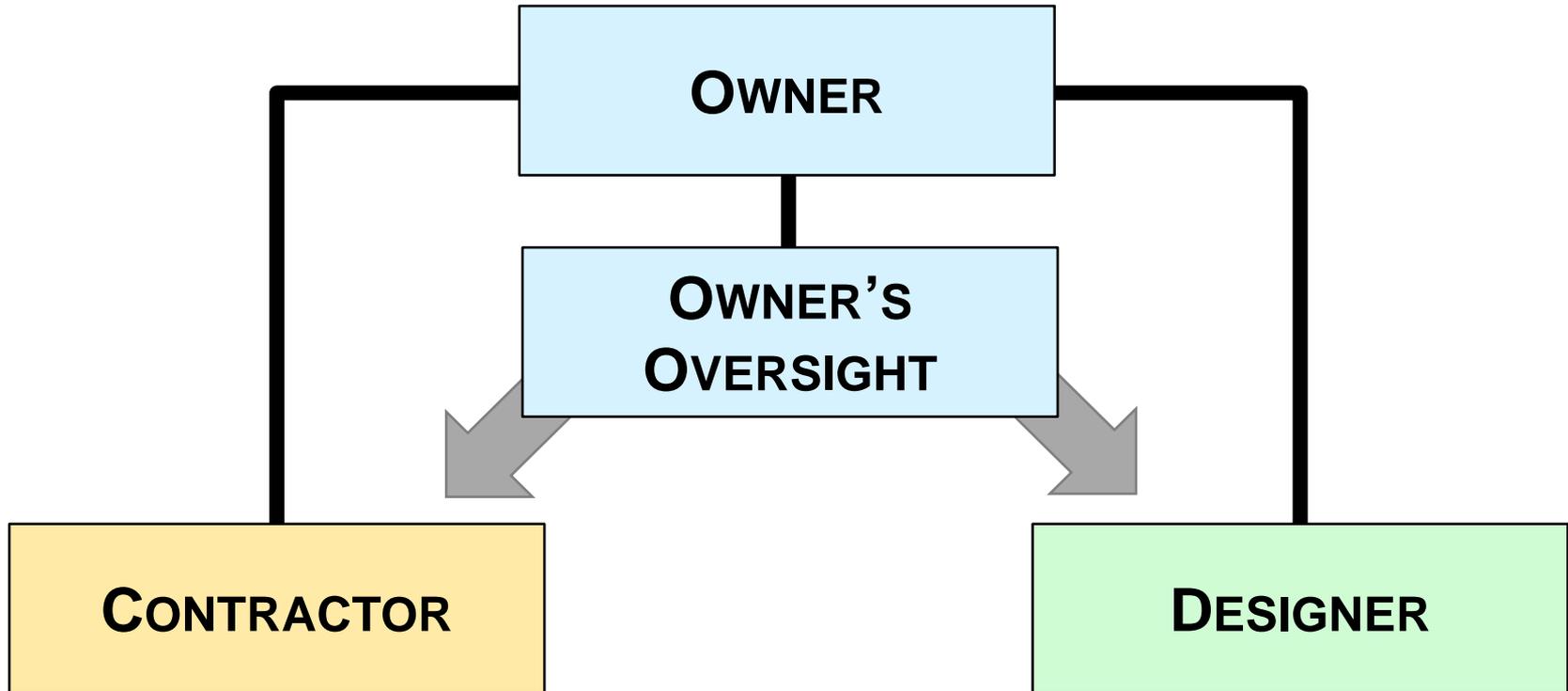
Alternative Delivery Methods - *Past, Present & Future*

STRUCTURE OF COMMON ALTERNATIVE DELIVERY TEAMS

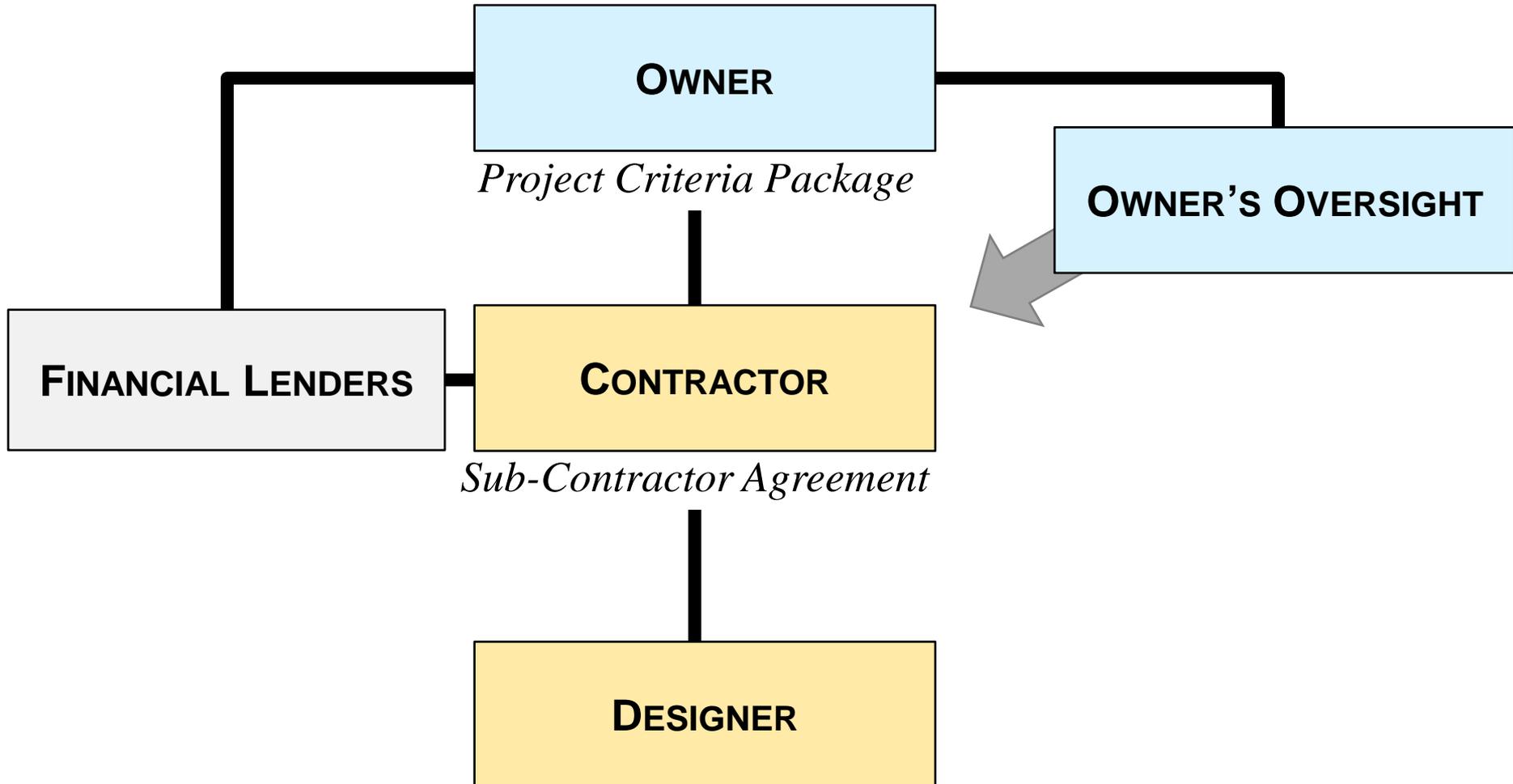
Design/Build Project Structure



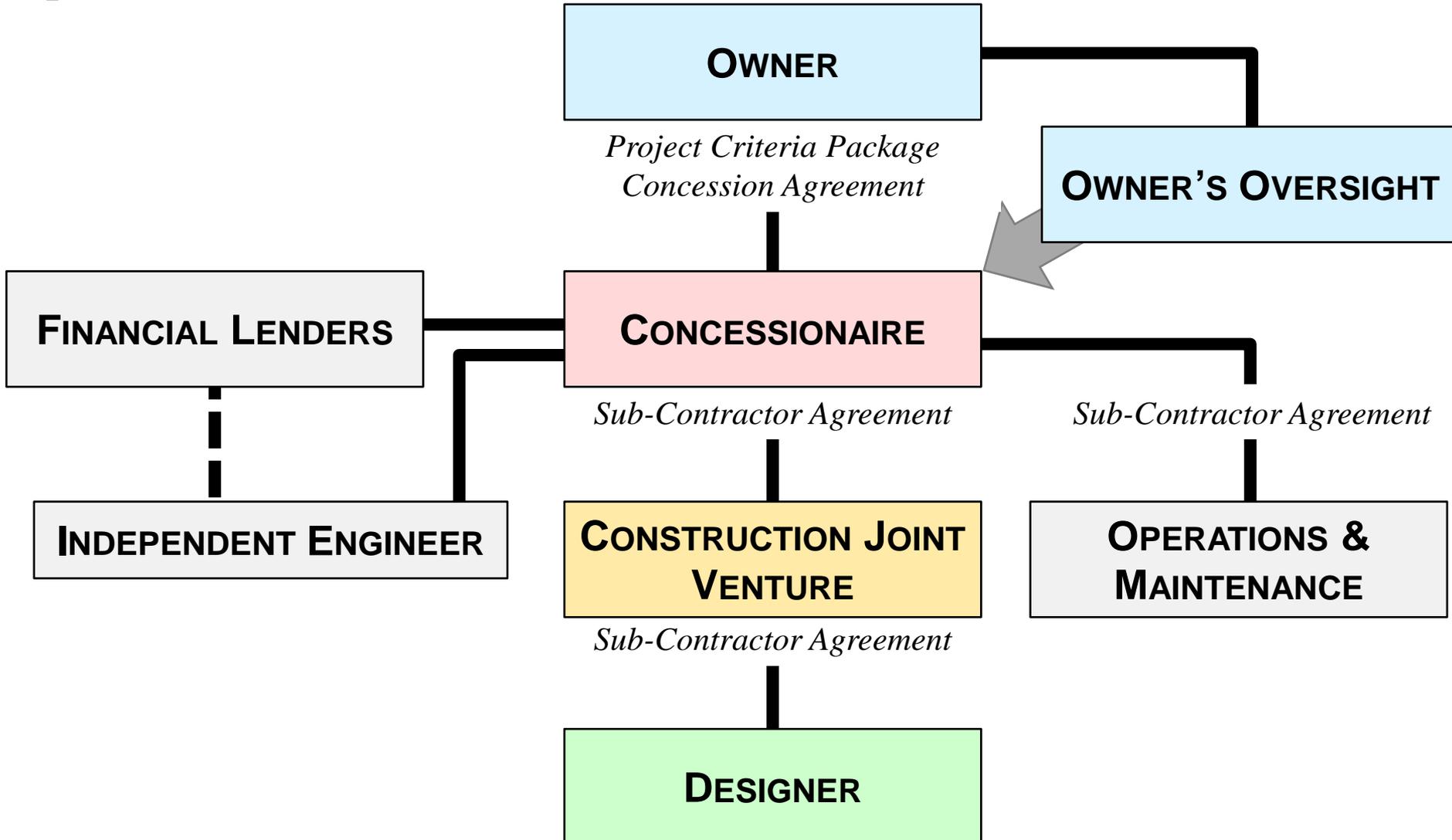
Construction Management @ Risk Structure



Design/Build/Finance Project Structure



Design/Build/Operate/Maintain/Finance Structure





Alternative Delivery Methods - *Past, Present & Future*

PUBLIC PRIVATE PARTNERSHIPS

Definition of Public-Private Partnerships



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- **Public-Private Partnerships (P3s) are contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and financing of transportation projects.**



Source: “Innovative Program Delivery, P3 Defined”; FHWA Web Site
www.fhwa.dot.gov/ipd/p3/defined/index.htm;

Why Have PPP's Become Popular



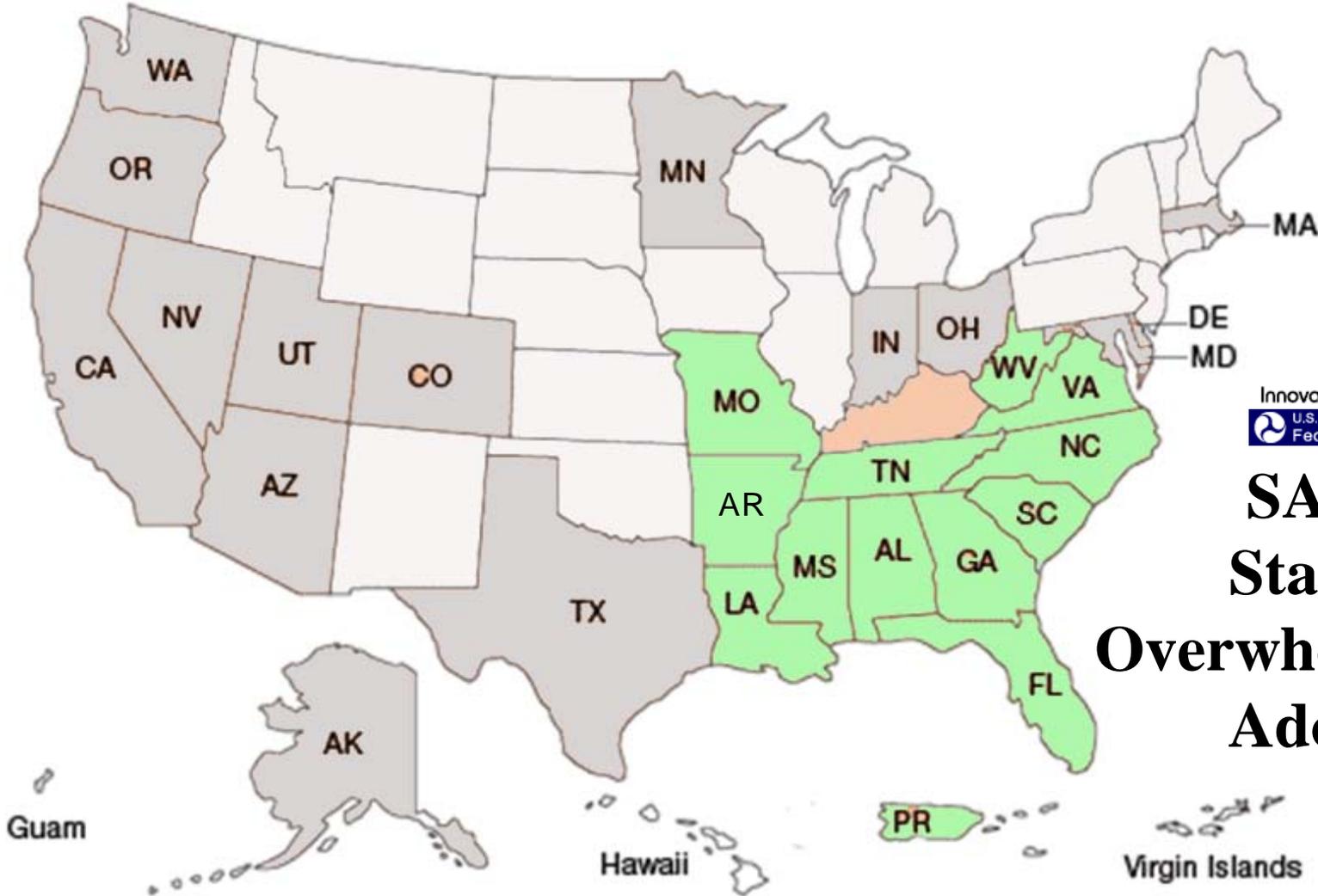
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- Transportation is the Nation's "*Life-Blood*"
- Transportation Needs Continue To Grow
- Gas Tax Funds Declining
- Public Wants Predictable Outcomes
- Private Funding Sources Available
- Private Sector Provides Efficient Delivery
- PPPs Tie Cost Directly To User Benefit

SAASHTO States with P3 Legislation



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**SAASHTO
States Have
Overwhelmingly
Adopted P3**

Implementing Public-Private Partnerships



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■ Owner Operations & Maintenance

- *Design/Build*
- *Construction Management @ Risk*
- *Design/Build/Finance*

■ Private Operations & Maintenance

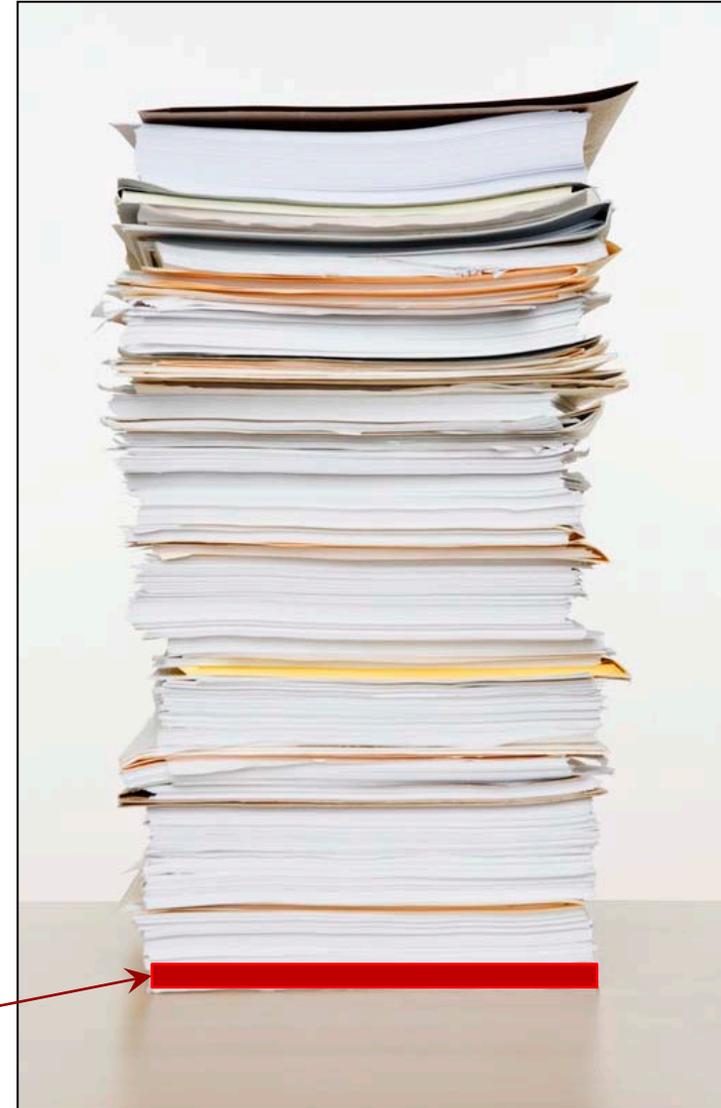
- *Long Term Lease*
- *Design/Build/Operate/Maintain*
- *Design/Build/Operate/Maintain/Finance*

Instruments of a Public Private Partnership



■ Documents Galore

- *Request for Proposals*
- *Technical Criteria*
- *Financial Criteria*
- *Liability/Insurance Requirements*



Engineering Documents



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EXAMPLES OF ALTERNATIVE DELIVERY PROJECTS

Port of Miami Tunnel PPP



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■ Owner

- *Florida Department of Transportation*

■ Concessionaire

- *Miami Access Tunnel*

■ Contractor

- *Bouygues Travaux Publics*

■ Primary Innovation

- *Soil Replacement to Facilitate Maximize Use of Tunnel Boring Machine (minimize cover)*



I-75 Rest Area Constr. Mgmt. @Risk



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■ Owner

- *Florida Department of Transportation*

■ Contractor

- *Cone & Graham*

■ Architect/Engineer

- *Reynolds, Smith & Hills*

■ Primary Benefit

- *Reduced Total Delivery Time*



Jolley Bridge Design-Build



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■ Owner

- *Florida Department of Transportation*

■ Contractor

- *Johnson Brothers*

■ Engineers

- *Figg Bridge*
- *Stantec*

■ Primary Innovation

- *Maximize Spans & Pier Arrangements*

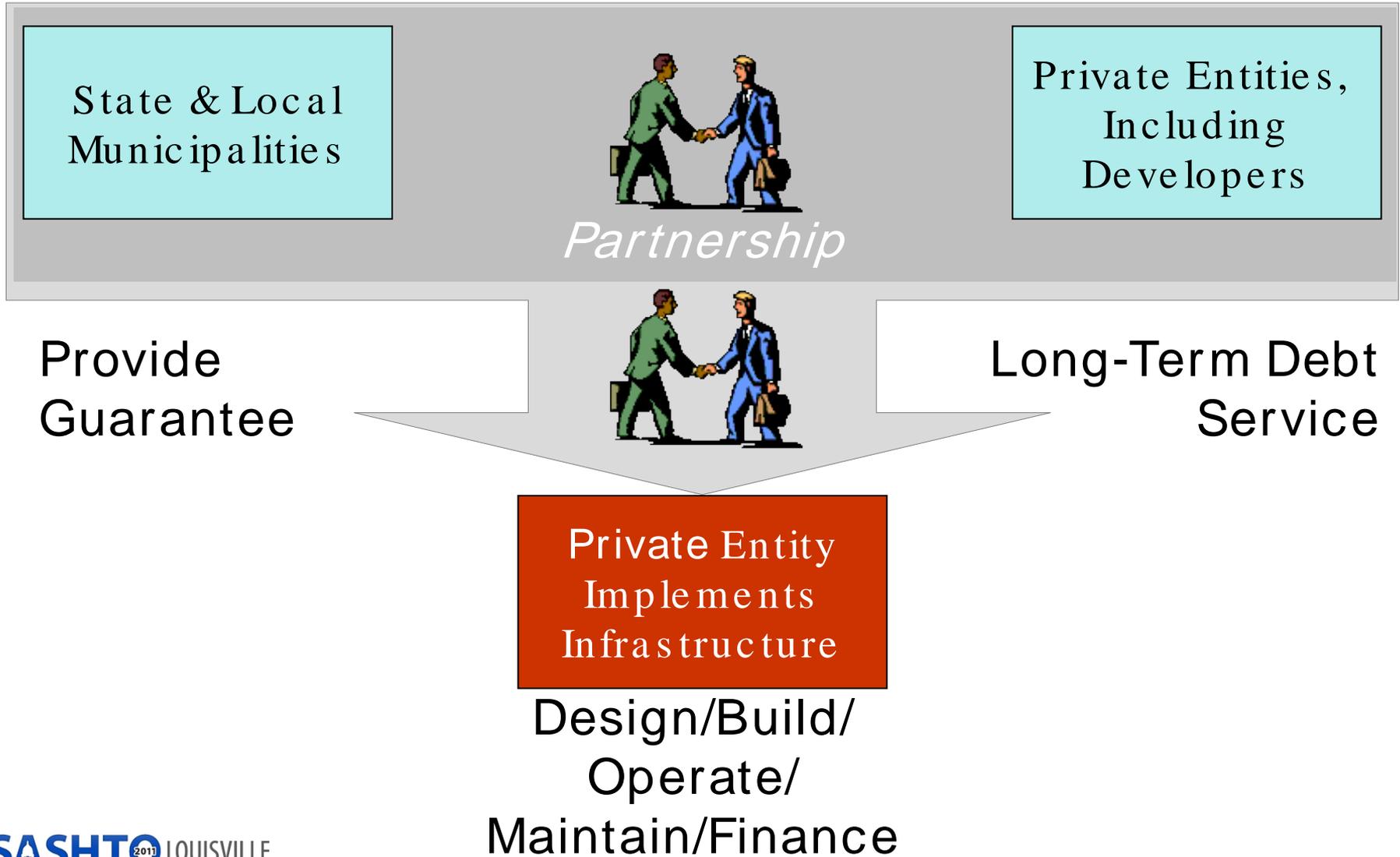




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IN CONCLUSION

A New Idea!



Conclusions for Alternative Delivery



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- **Beneficial in the Right Situation**
- **No One Method Suitable for Every Project**
- **Pros & Cons of Each Method Should be Evaluated**
- **Use & Acceptance will Expand with:**
 - *Industry Familiarity*
 - *Implementation experience*

Alternative Delivery Methods

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Long Term Lease Risk Matrix



Risk Element	Private	Public
Environmental Clearance		X
Revenue	X	
Rate Increases to Public	S	S
Financing	X	
Technical Criteria		X
Design	X	
Construction	X	
Operations & Maintenance	X	
Ownership		X



X = Risk Assignment

S=Shared Risk

Direct User Fee - Toll Risk Matrix



Risk Element	Private	Public
Environmental Clearance		X
Revenue	X	
Rate Increases to Public	S	S
Financing	X	
Technical Criteria		X
Design	X	
Construction	X	
Operations & Maintenance	X	
Ownership		X



X = Risk Assignment

S=Shared Risk

Availability Risk Matrix



99.999 %

99.99 %

99 %

99.9 %

99.9999 %

Risk Element

Private

Public

Environmental Clearance

X

Revenue

X

Rate Increases to Public

X

Financing

X

Technical Criteria

X

Design

X

Construction

X

Operations & Maintenance

X

Ownership

X



X = Risk Assignment

S=Shared Risk

Design/Build/Finance Process



Procurement

OWNER

- Prepares Criteria Package
- **Owner Specifies Repayment Structure**
- Short Lists Teams
- Scores Proposals
- Awards Contract

CONTRACTOR/DESIGNER

- Prepares Preliminary Design
- Prepares Schedule
- Prepares Construction Bid
- **Arranges Financing for Project**

Construction

OWNER

Oversees Design and Construction Activities

DESIGNER:

Prepares Design Packages Under Guidance of Contractor

CONTRACTOR:

Constructs Project in Accordance with Proposed Schedule, Bid and Design Packages

Debt Service

OWNER

Repayment to Contractor Based on Original Payout Curve

OWNER ISSUES NTP TO DESIGN/BUILD TEAM

Construction Management @ Risk Process



Procurement

OWNER

Selects Designer

OWNER

Selects Contractor

Design

DESIGNER:

Prepared With Input from Contractor

CONTRACTOR PROVIDES:

- *Constructibility*
- *Schedule*
- *Risks/Contingencies*
- *Long Lead Material Acquisition*
- *Prepares GMP*
- *Executes Const. Contract*

Construction

DESIGNER:

Responds to requests for information

CONTRACTOR:

Constructs Improvements Consistent with Design and within Guaranteed Maximum Price (GMP)

GUARANTEED MAXIMUM PRICE (GMP)

Availability PPP Model



Procurement

Public Entity

- Establishes requirements & criteria
- Designs & Conducts Procurement

Private Entity

Prepares
Financial &
Technical
Proposal

6 to 12 months

Implementation

Public Entity

*Inspects & reviews work
to assure compliance with
RFP & Proposal*

Private Entity

*Designs/Constructs
Infrastructure according to
requirements & criteria.*

Private Entity

*Provides Capital and
Finances Infrastructure
Construction*

3 to 5 years

Concession Term

Public Entity

*Makes payments to private entity
based on infrastructure availability*

Private Entity

*Operates & Maintains Infrastructure to
standards and criteria established in
Procurement Phase*

*Future repayment by PUBLIC
for PRIVATE investment based
on reliability and availability
of infrastructure.*

30 to 75 years

Design/Build Process



Procurement

OWNER

- *Prepares Criteria Package*
- *Short Lists Teams*
- *Scores Proposals*
- *Awards Contract*

CONTRACTOR/DESIGNER

- *Prepares Preliminary Design*
- *Prepares Schedule*
- *Prepares Construction Bid*

Construction

OWNER

Oversees Design and Construction Activities

DESIGNER:

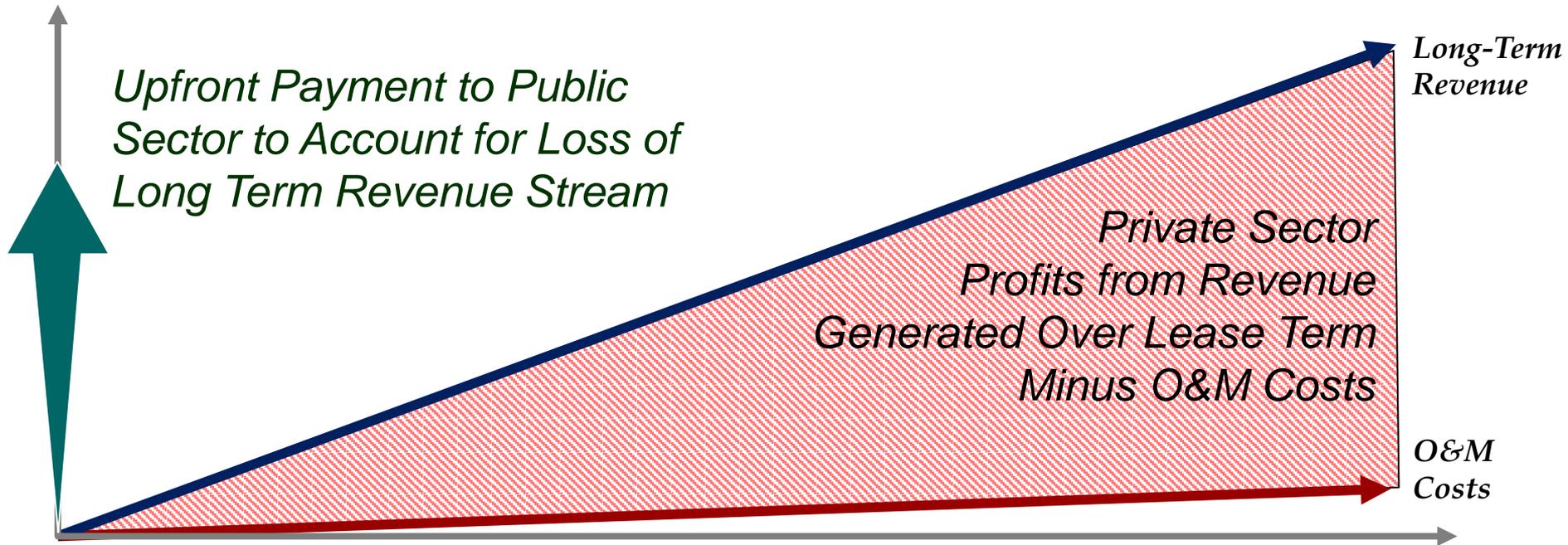
Prepares Design Packages Under Guidance of Contractor

CONTRACTOR:

Constructs Project in Accordance with Proposed Schedule, Bid and Design Packages

**OWNER ISSUES NTP TO
ESIGN/BUILD TEAM**

How Leases Work



Typical Project Finance Cash Flow

