Alternative Delivery Methods

Past, Present & Future

Presented Tuesday, August 23, 2011
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

- 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

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Alternative Delivery Methods - Past, Present & Future

Structure of Common Alternative Delivery Teams
Construction Management @ Risk Structure

- **Owner**
- **Owner’s Oversight**
- **Contractor**
- **Designer**
Design/Build/Finance Project Structure

**Owner**
- Project Criteria Package

**Contractor**
- Sub-Contractor Agreement

**Financial Lenders**

**Designer**

**Owner’s Oversight**
Design/Build/Operate/Maintain/Finance Structure

**OWNER**
- Project Criteria Package
- Concession Agreement

**OWNER’S OVERSIGHT**

**CONCESSIONNAIRE**
- Sub-Contractor Agreement

**FINANCIAL LENDERS**

**INDEPENDENT ENGINEER**

**CONSTRUCTION JOINT VENTURE**
- Sub-Contractor Agreement

**OPERATIONS & MAINTENANCE**

**DESIGNER**
Alternative Delivery Methods - Past, Present & Future

PUBLIC PRIVATE PARTNERSHIPS
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

- 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

SAASHTO States Have Overwhelmingly Adopted P3
Implementing Public-Private Partnerships

- **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
Alternative Delivery Methods - Past, Present & Future

Examples of Alternative Delivery Projects
Port of Miami Tunnel PPP

- **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

**Owner**
- Florida Department of Transportation

**Contractor**
- Cone & Graham

**Architect/Engineer**
- Reynolds, Smith & Hills

**Primary Benefit**
- Reduced Total Delivery Time
Jolley Bridge Design-Build

- **Owner**
  - Florida Department of Transportation

- **Contractor**
  - Johnson Brothers

- **Engineers**
  - Figg Bridge
  - Stantec

- **Primary Innovation**
  - Maximize Spans & Pier Arrangements
IN CONCLUSION.....
A New Idea!

State & Local Municipalities

Private Entities, Including Developers

Partnership

Provide Guarantee

Long-Term Debt Service

Private Entity Implements Infrastructure

Design/Build/Operate/Maintain/Finance
Conclusions for Alternative Delivery

- 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
Past, Present & Future

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## Long Term Lease Risk Matrix

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*X = Risk Assignment        S=Shared Risk*
# Direct User Fee - Toll Risk Matrix

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### Availability Risk Matrix

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**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)
### 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.

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

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- Prepares Criteria Package
- Short Lists Teams
- Scores Proposals
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OWNER ISSUES NTP TO DESIGN/BUILD TEAM
How Leases Work

Upfront Payment = Total Future Revenue – Total O&M Costs – Profit

Private Sector Profits from Revenue Generated Over Lease Term Minus O&M Costs

Upfront Payment to Public Sector to Account for Loss of Long Term Revenue Stream
Typical Project Finance Cash Flow

**Project Constructed**
- Private Entity Constructs Project
- Private Entity Finances Construction

**Project Open to Traffic (Concurrency Conditions Met)**
- No Construction
- Financing Costs Grow at Planned Rate
- Financial Payback By Public Entity

**Debt Curve**