

AASHTO SCoC 2007



*Tools for Making Decisions in
Project Selection and Delivery*

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Hosted by MDOT
July 29 - August 2, 2007
Beau Rivage Resort, Biloxi, Mississippi



Overview



- **Trends**
- **Caltrans Innovative Procurement Program**
 - **Project Delivery Systems**
 - **Decision Drivers for Project Delivery**
 - **Selection Tools**
- **Lessons Learned**
- **Resources**

DOT Reality

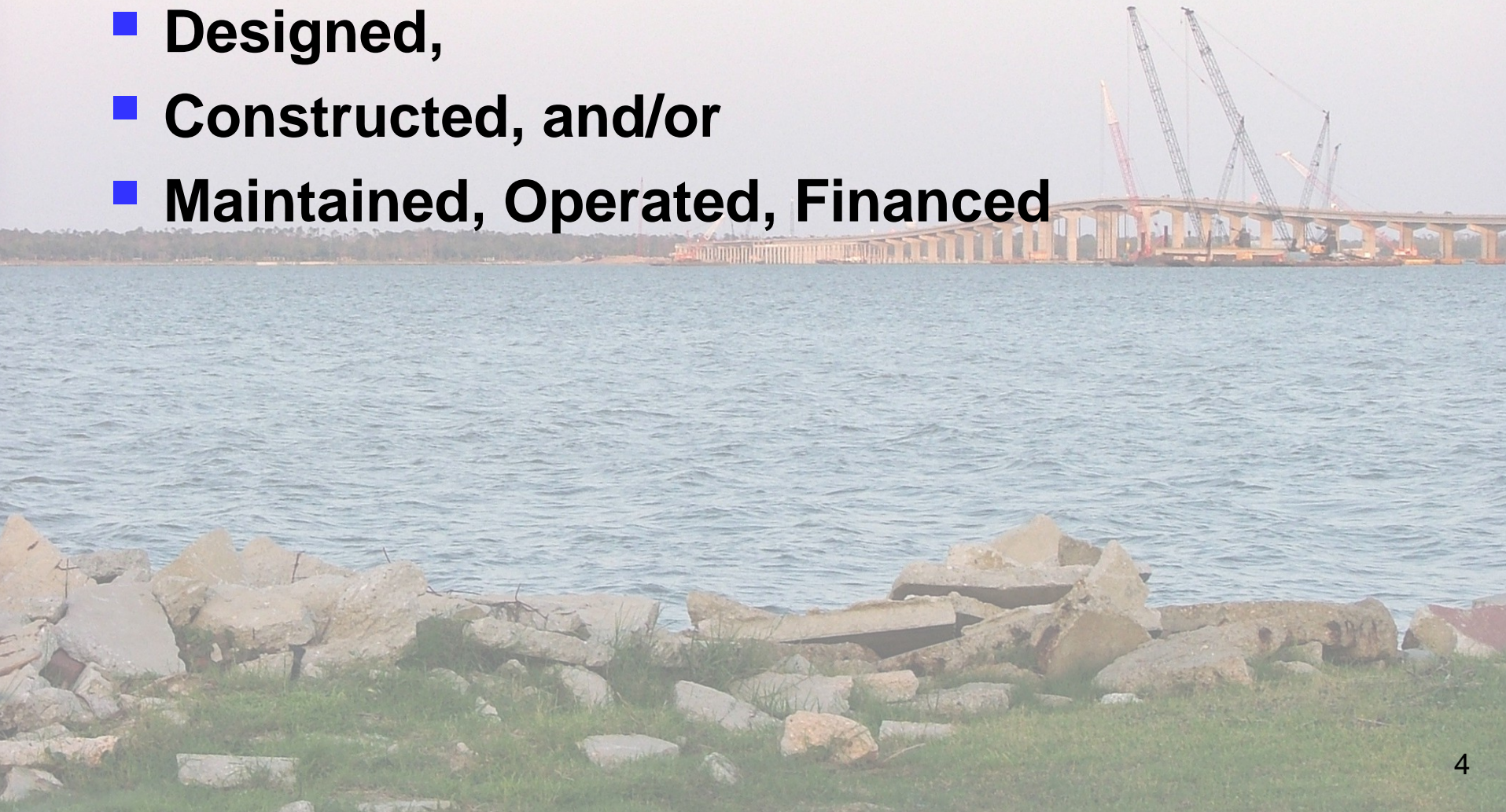
- **High attrition (loss of experience)**
- **Limited resources (changing environment)**
- **Growing funding gap**
- **Changing capital programs**
- **Public expectations**



Project Delivery

Overall process by which a project is:

- Designed,
- Constructed, and/or
- Maintained, Operated, Financed

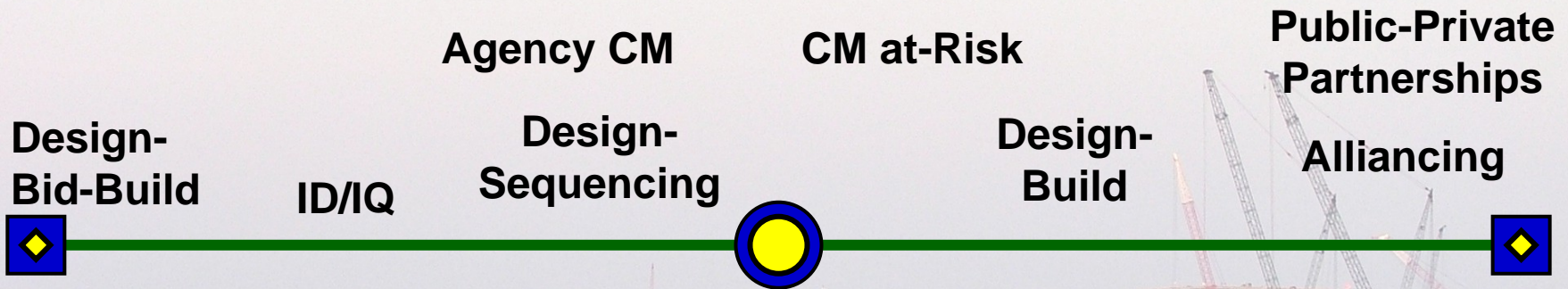


Project Delivery Systems

- **Design-Bid-Build (Traditional)**
- **Innovative Alternatives (Caltrans):**
 - **Design Sequencing**
 - **CM @ Risk**
 - **Design-Build**
 - **Low Bid**
 - **Best-Value**



Project Delivery Systems



Public Sector Model:

- Separation of Services for Design and Construction
- Owner retains risk of performance

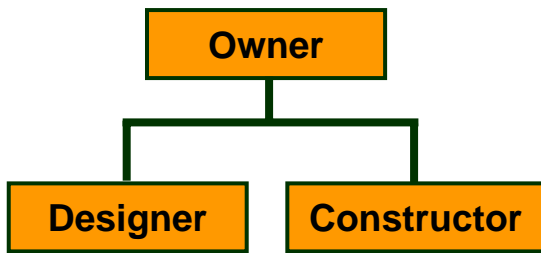
Private Sector Model:

- Single Entity provides Integrated Services
 - Design
 - Construct
 - Operate
 - Maintain
 - Finance
- Contractor assumes greater risk of performance

Decision Drivers for Alternative Project Delivery

- **Accelerate Delivery**
- **Single Point Responsibility**
- **Reduce Owner Staffing**
- **Early Cost Certainty**
- **Reallocate risk**
- **Minimize impacts to public**
- **Potential for lower costs or lower maintenance (Life Cycle Cost)**
- **Increase quality**
- **Innovate**

Design-Bid-Build



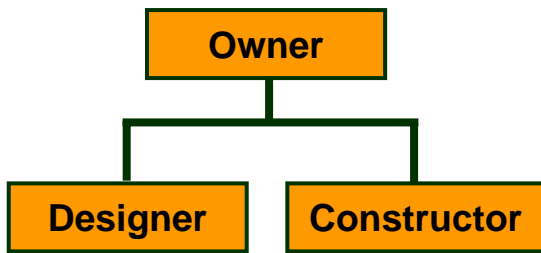
Project Criteria

- Design must be 100% complete to begin construction
- Owner can best manage risk (third party coordination, etc.)
- Prescriptive specifications

Advantages

- Well established and understood
- Clearly defined roles
- Suitable for competitive bidding
- No legal barriers in procurement

Design Sequencing



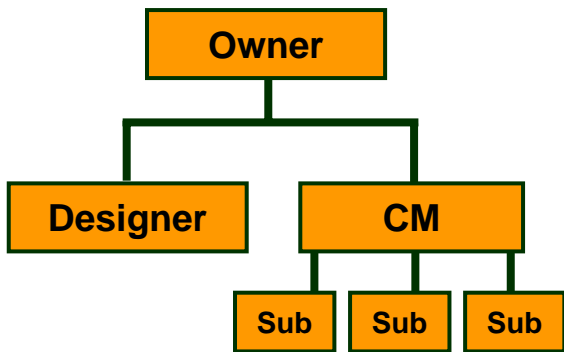
Project Criteria

- Linear projects or repetitive design features
- Concurrent design and construction possible
- Minimal third party issues

Advantages

- Fast-tracking (early construction)

CM at-Risk

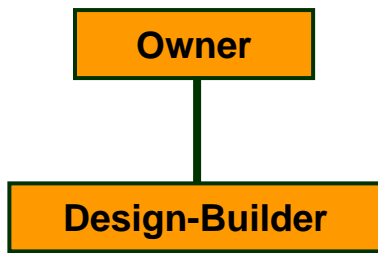


Project Criteria

- Complex projects with multiple phases
- Limited time or funding constraints
- Projects that are difficult to define or subject to change

Advantages

- Transfer construction cost/performance risks to CM (GC)
- Opportunity for fast-tracking
- GMP w/ shared savings provides incentive to control cost/time



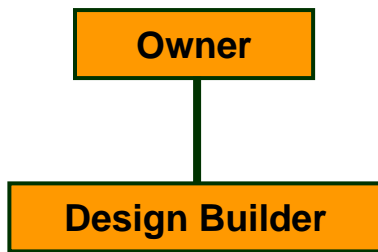
Design-Build (Low Bid)

Project Criteria

- Small to medium projects
- Minimal third party (ROW, utility) complications
- Time sensitive (user impacts)
- Greater design detail (more prescriptive specifications)

Advantages

- Accelerate (fast-track) delivery
- Single point responsibility for final design, construction, and other services



Design-Build (B-V)

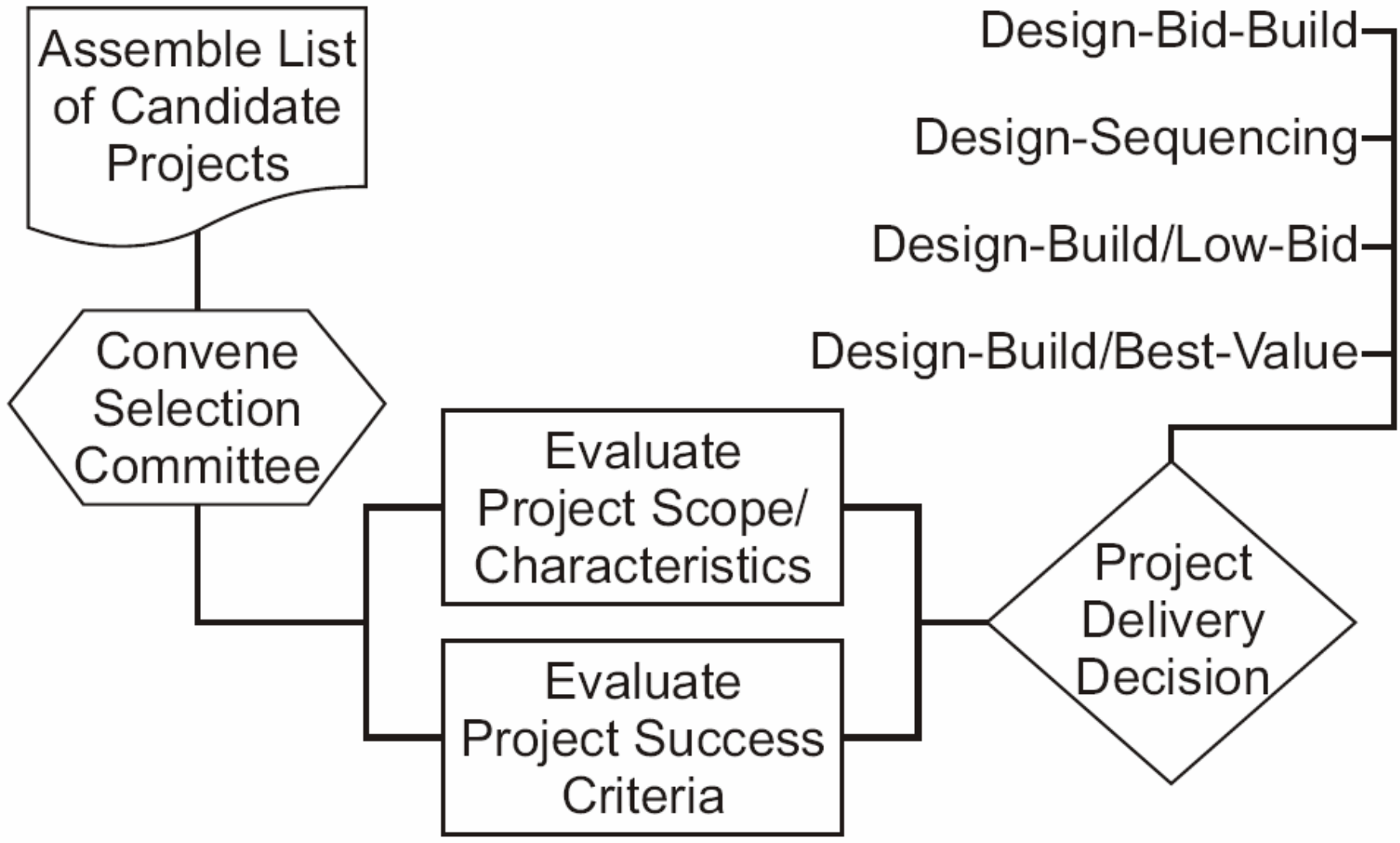
Project Criteria

- Medium to large projects
- Opportunity for innovation
- Time sensitive (user impacts)
- Less design detail (scope can be defined using performance requirements)
- More time/cost for procurement (two-step)

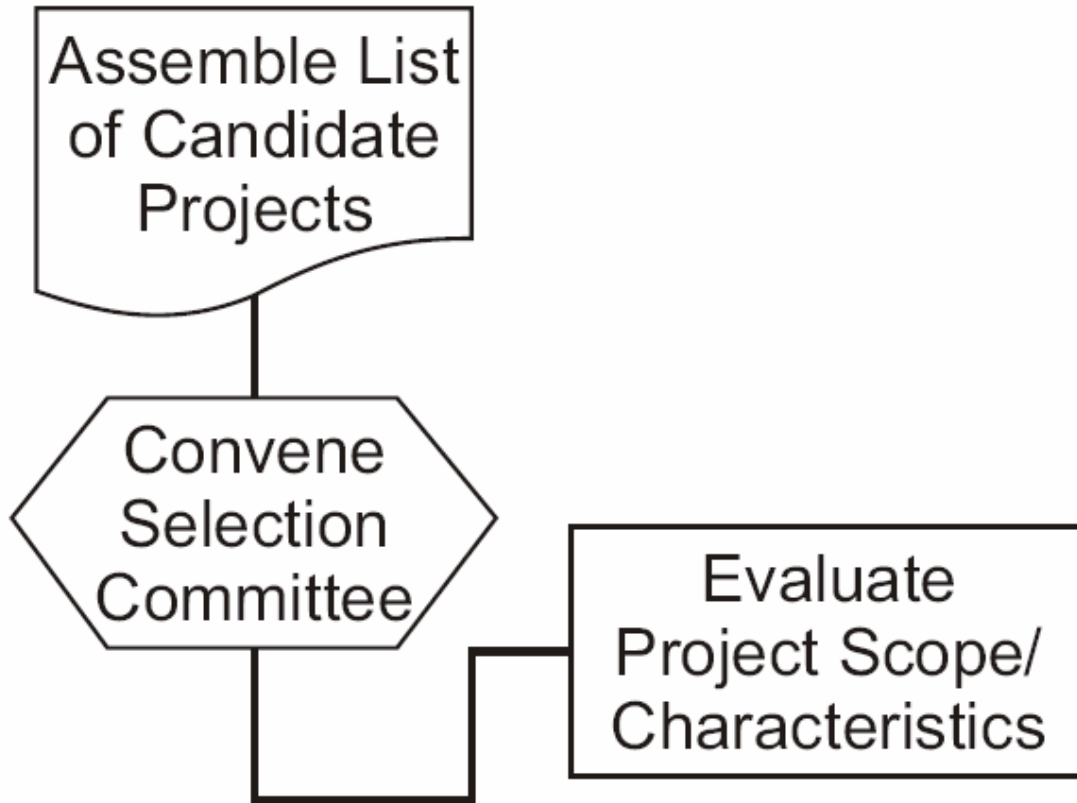
Advantages

- Accelerate (fast-track) delivery
- Earlier cost and schedule certainty
- Single point responsibility
- More risk allocated to D-Builder
- Potential for innovation and reduced life-cycle \$

Project Selection Decision Tool



Project Selection Decision Tool



Worksheet 1

Project Scope and Characteristic Criteria

1a) Where is the project in the project development process?





- A. Detailed or final engineering stage
- B. Preliminary design
- C. Conceptual engineering stage

Align project characteristics with project delivery objectives or drivers

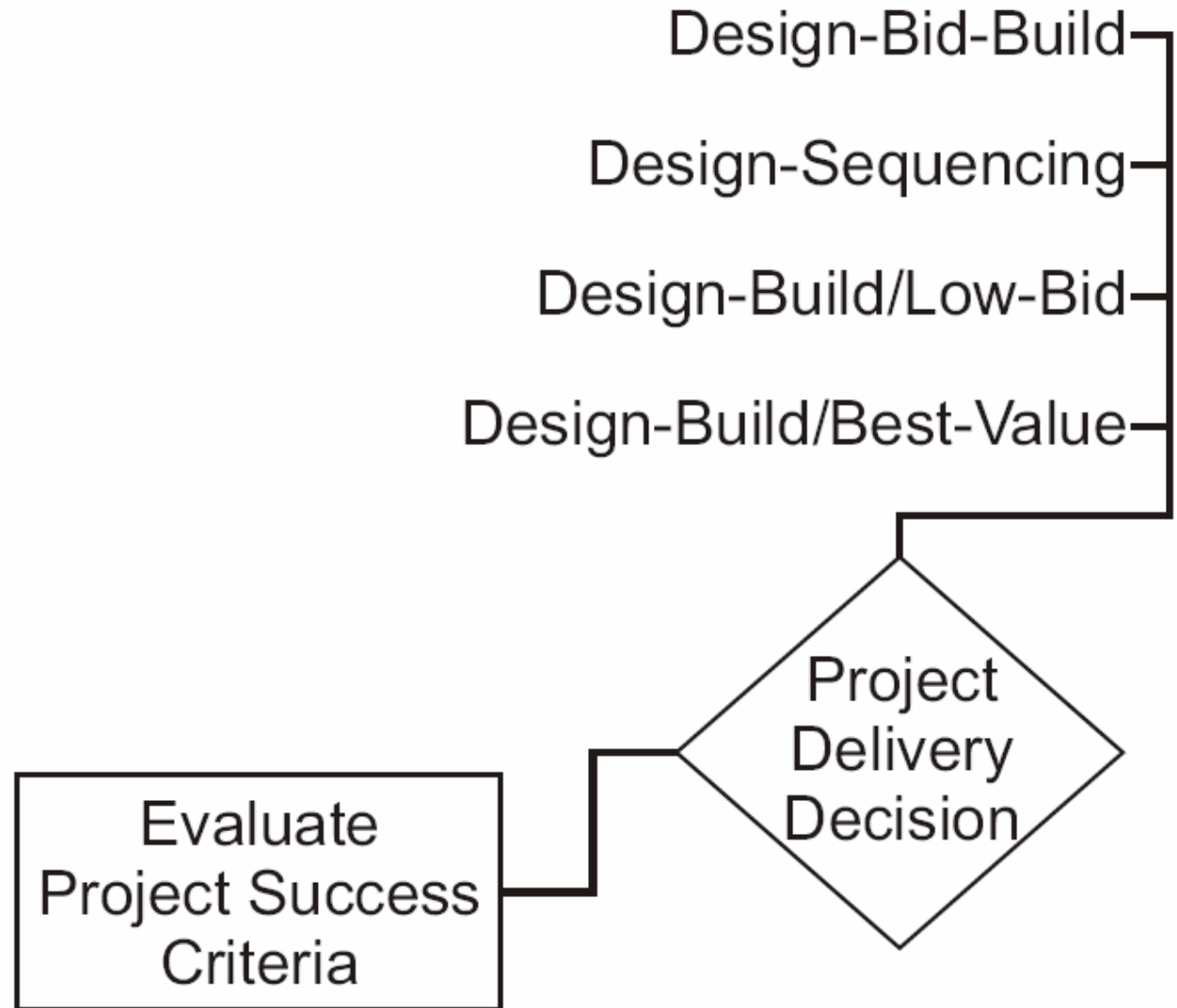
Project Scope Scorecard

Project Scope and Characteristics Scorecard

	Design-Bid-Build	Design-Sequencing	Design-Build/Low Bid	Design-Build/Best-Value
1a) Development Phase	Orange	Green	Green	Orange
1b) Size/Complexity	Yellow	Green	Yellow	Green
1c) User Impacts During Construction	Yellow	Orange	Orange	Green
1d) Right-of-Way Limitations	Yellow	Orange	Orange	Orange
1e) Environmental Permitting	Orange	Yellow	Yellow	Yellow
1f) Utility or Third-Party Issues	Yellow	Orange	Orange	Orange
1g) Work Restrictions/Traffic Requirements	Yellow	Orange	Orange	Orange
1h) Quality Standards/Benchmarks	Yellow	Orange	Orange	Orange

-  Delivery method is highly appropriate for characteristic or success criteria
-  Delivery method is appropriate for characteristic or success criteria
-  Delivery method is marginally appropriate for characteristic or success criteria
-  Delivery method should not be considered

Project Selection Decision Tool



Worksheet 2

Success Criteria

2a) Schedule Issues

1. *Can time savings be realized through concurrent design and construction activities (fast-tracking)?*

- A. No more than typical
- B. More than typical
- C. Much more than typical

2. *Can the schedule be compressed?*





- A. No more than typical
- B. More than typical
- C. Much more than typical

Align project success criteria with project delivery objectives or drivers

Success Criteria Scorecard

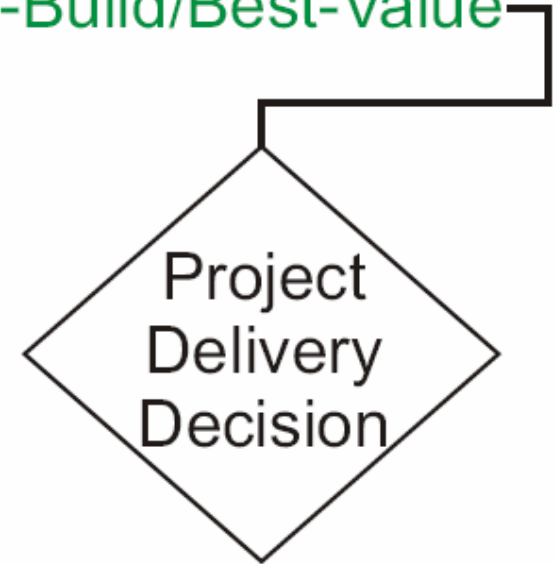
Success Criteria Scorecard

	Design-Bid-Build	Design-Sequencing	Design-Build/Low Bid	Design-Build/Best-Value
2a.1) Schedule: Concurrent Design/Construct	Yellow	Orange	Orange	Orange
2a.2) Schedule: Compression	Yellow	Orange	Orange	Green
2b.1) Innovation: Scope	Yellow	Orange	Orange	Orange
2b.2) Innovation: Performance Specifications	Yellow	Orange	Green	Green
2c.1) Quality: Materials and Methods	Yellow	Orange	Orange	Green
2c.2) Quality: Designs	Yellow	Orange	Orange	Green
2c.3) Quality: Warranties	Yellow	Yellow	Orange	Green
2d.1) Cost: Lower Costs	Yellow	Orange	Orange	Green
2d.2) Cost: Lifecycle Costs	Yellow	Orange	Orange	Green
2d.3) Cost: Funding Committed	Yellow	Orange	Orange	Green
2d.4) Cost: Cost of Procurement	Green	Yellow	Yellow	Yellow
2e.1) Staffing: Department Expertise	Yellow	Yellow	Orange	Orange
2e.2) Staffing: Design Oversight	Green	Green	Orange	Orange
2e.3) Staffing: Construction Oversight	Green	Green	Orange	Orange

	Delivery method is <u>highly appropriate</u> for characteristic or success criteria
	Delivery method is <u>appropriate</u> for characteristic or success criteria
	Delivery method is <u>marginally appropriate</u> for characteristic or success criteria
	Delivery method <u>should not be considered</u>

Project Selection Decision Tool

Design-Build/Best-Value



Lessons Learned

- 1. Alternative delivery methods not appropriate for every project**
- 2. If used for the right project, alternative delivery methods can help achieve project goals**
 - **Reduced Cost**
 - **Accelerated delivery**
 - **Innovation**
 - **Enhanced quality/performance**
- 3. Systematic decision making improves potential for success**

Additional Resources

- NHI Course No. 134058 – Alternative Contracting
- FHWA Websites:
 - Program Administration
 - <http://www.fhwa.dot.gov/programadmin/contracts/>
 - Alternative Contracting Community of Practice
 - <http://knowledge.fhwa.dot.gov/cops/hcx.nsf/home?openform&Group=Alternative%20Contracting>
 - National Highway Specification Website
 - <http://www.specs.fhwa.dot.gov>
- The Fifth Edition of the AASHTO Primer on Contracting for the 21st Century
 - <http://construction.transportation>
- AASHTO D-B Taskforce website
<http://designbuild.transportation.org/?siteid=63>

Additional Resources *(cont'd)*

- Caltrans Innovative Procurement project website
<http://construction.colorado.edu/Caltrans-lpp/Desktop.aspx?tabId=5>
- Representative alternative contracting websites
 - Florida DOT <http://www.dot.state.fl.us/construction/altcontract.htm>
 - North Carolina http://www.ncdot.org/doh/preconstruct/altern/design_build/default.html
 - Oregon DOT <http://www.oregon.gov/ODOT/HWY/OPD/DBprojects.shtml>
 - Virginia DOT <http://www.virginiadot.org/business/design-build.asp>
 - Washington State DOT <http://www.wsdot.wa.gov/Projects/delivery/alternative/>
 - Minnesota DOT www.dot.state.mn.us/const/tools/innovativecontract.html
 - Arizona DOT <http://www.azdot.gov/Highways/ConstGrp/DesignBuildGuide.asp>

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Questions?

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