



Delivering Transit Projects and Managing Risk: Mega Projects 101



METROPOLITAN TRANSPORTATION COMMISSION

Agenda

1. Introductions
2. Overview/ Background
3. Types of Delivery Methods
4. Suitability, Advantages, and Risks of Each Delivery Method
5. Alternative Delivery Determination
6. Questions



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Introductions

Overview/Background

Common Challenges/ Missteps with Infrastructure Project Delivery:

- ✎ Entity Serving as Executive Sponsor
- ✎ Project Definition/ Project Goals
- ✎ Full Understanding of Project Risks (Authority Having Jurisdiction(AHJ), Right of Way (ROW), Memorandum of Understandings (MOUs), Permits, etc.)
- ✎ Public Outreach/ Coordination
- ✎ Political Speed
- ✎ Funding
- ✎ Financing
- ✎ Operational Costs

Project Delivery Methods

Traditional Delivery Method

- Design-Bid-Build

Alternative Delivery Method

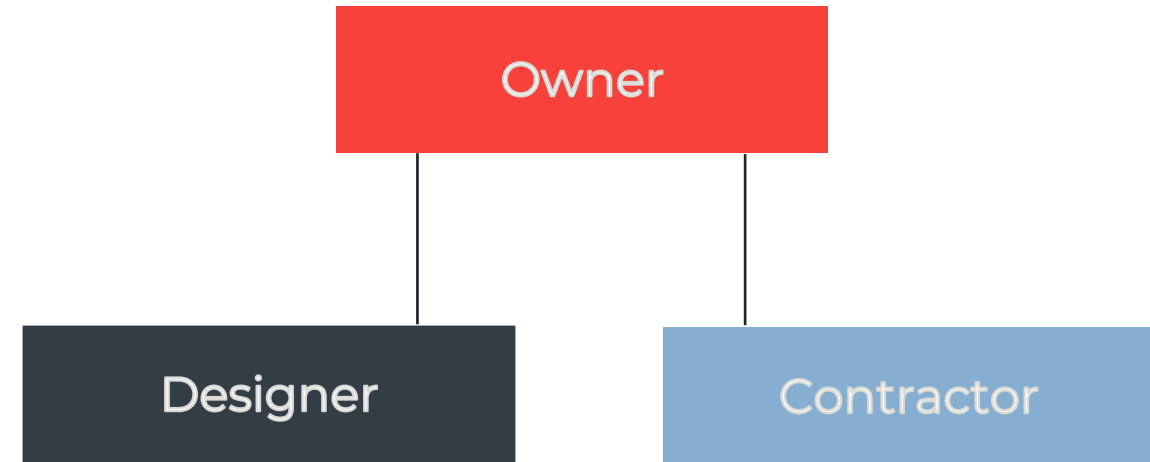
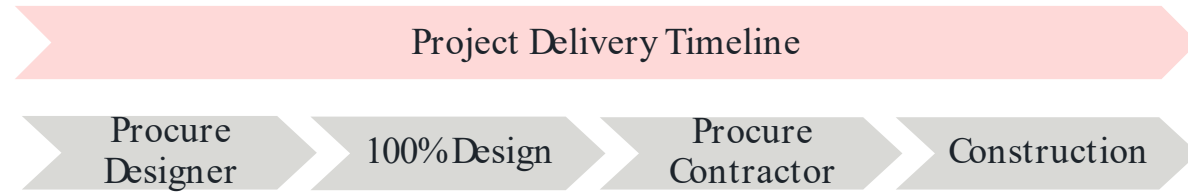
- Design-Build
- Construction Manager / General Contractor (CM/GC) / Construction Manager at Risk (CMaR)
- Progressive Design-Build (PDB)
- Public-Private Partnerships (P3)

Traditional Delivery Method: Design-Bid-Build (DBB)

Procurement process: owner contracts separately for design and construction services

- **Designer selection** based on designer qualifications, experience, strategic approach and possibly price elements
- **Contractor award** based on lowest bid on complete (100%) plans and specifications

Note: Project delivery steps occur in series. Owner retains design control and risk.



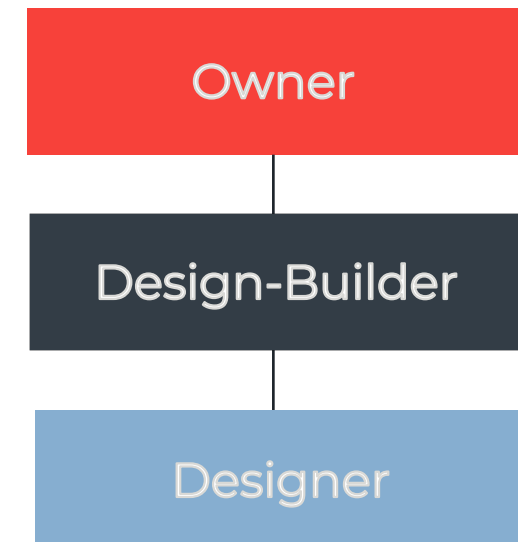
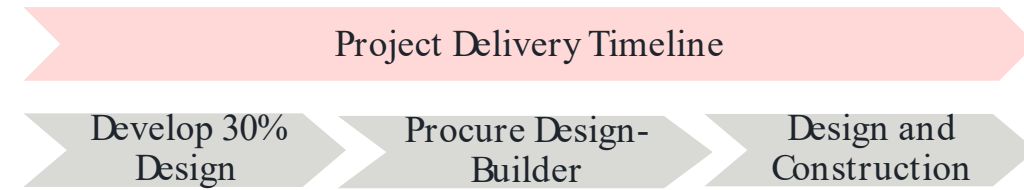
Alternative Delivery Method: Design-Build (DB)

Procurement process: based on a conceptual set of design plans & specifications, the owner contracts for combined delivery of design and construction under a single contract

↘ **Design-Builder selection** based on two-step process:

- **First-step:** Request for Qualifications (RFQ): evaluation of qualifications, experience, strategic approach
- **Second step:** Request for proposals (RFP): evaluation of both a price proposal and technical proposal (ATCs, 30-50% plan set, schedule, etc.)

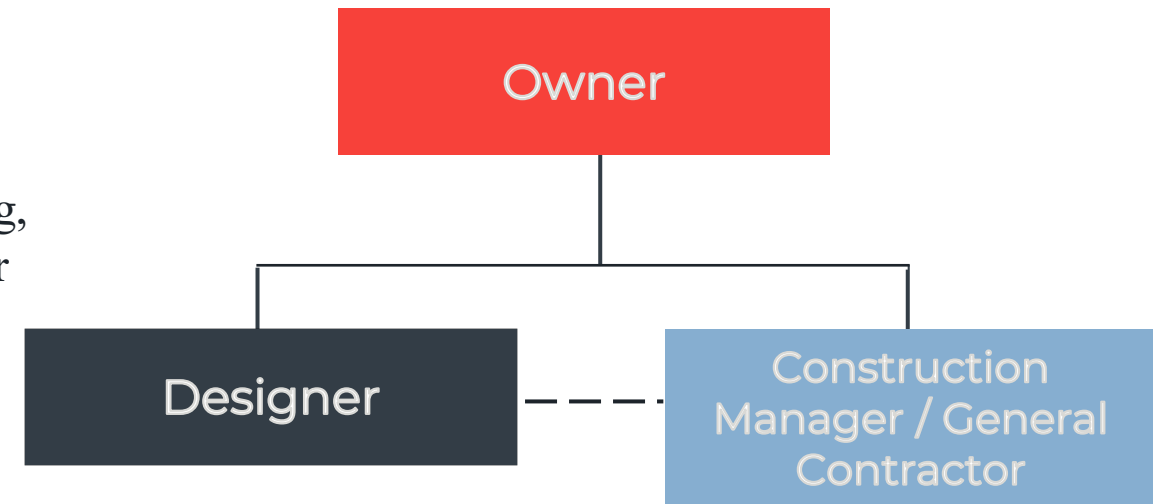
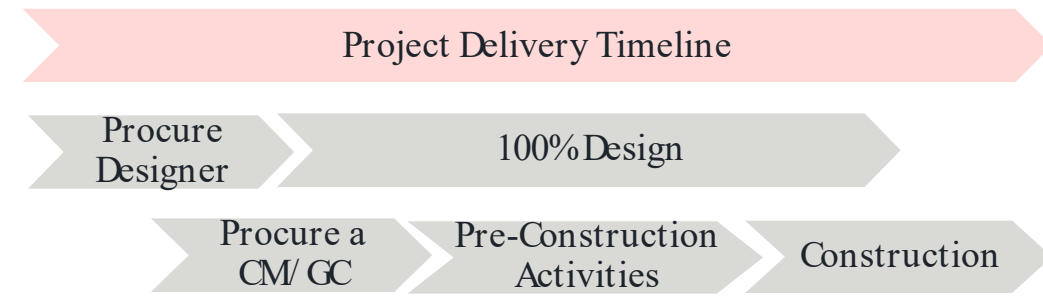
Note: Reallocation of risks between Owner and Design-Builder with significant risk transferred to Design-Builder



Alternative Delivery Method: Construction Management / General Contractor (CM/GC) or Construction Manager at Risk (CMaR)

Procurement process: owner contracts separately for (1) design and (2) Construction Management / General Contractor (CM/ GC). **CM provides pre-construction services** (risk management, constructability reviews, estimating, scheduling, etc.) during design phase. Once owner and CM negotiate and agree to a firm fixed price for the designed project, **GC constructs the project.**

- **Designer selection** based on designer qualifications, experience, strategic approach and possibly price elements
- **CM/GC selection** based on qualifications, experience, strategic approach and possibly price elements



Note: (1) Objective is to use the collaborative procurement process to determine how best to allocate risk (2) CM/ GC and owner negotiate firm fixed price; however, there is an off-ramp option for the owner should they fail to agree on a firm fixed price.

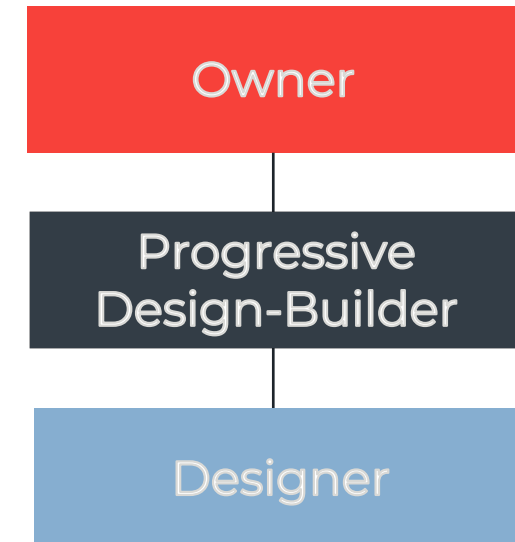
Alternative Delivery Method: Progressive Design-Build (PDB)



Procurement process: owner contracts combined delivery of design and construction under a single contract, without a conceptual set of plans or specifications. Design-Builder seeks owner input to design the project and perform pre-construction services (similar to CM/ GC in that respect). Once owner and Design-Builder negotiate and agree to a firm fixed price for the project, Design-Builder performs remaining design & construction.

- **Progressive Design-Builder selection** based on qualifications, experience, strategic approach and possibly price elements

Note: (1) Objective is to use the progressive procurement phase to determine how best to allocate risk while shifting design risk to the Design-Builder. (2) Design-Builder and owner negotiate firm fixed price; however, there is an off-ramp option for the owner should they fail to agree on a firm fixed price.



Alternative Delivery Method: Public Private Partnership (P3)

Project Delivery Timeline

30% Design

Procure
Design-Builder

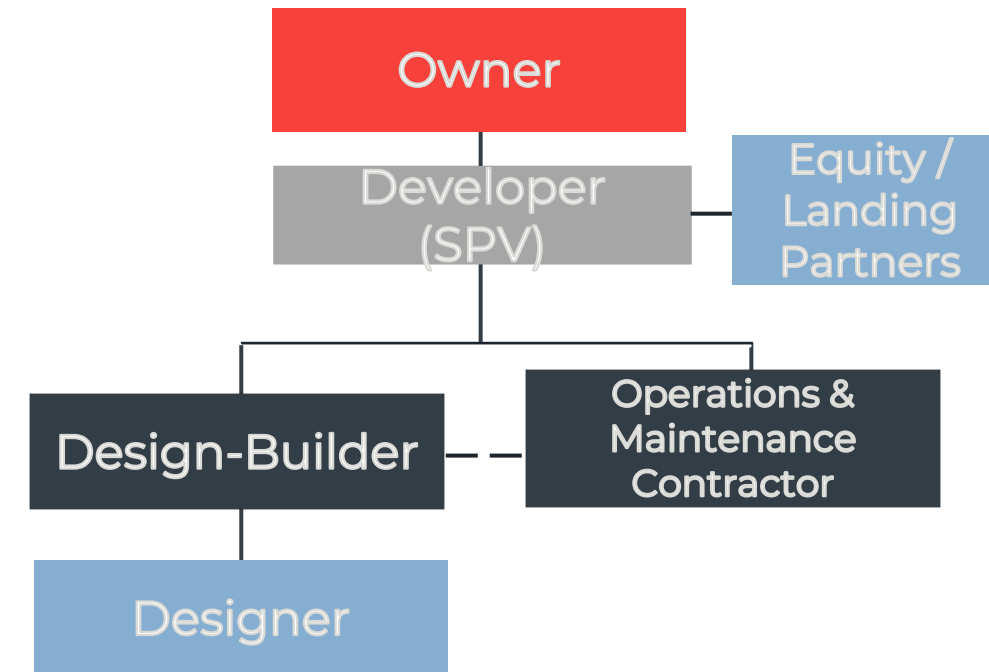
Design and
Construction

Financing, Operating
& Maintaining

Procurement process: based on a conceptual set of design plans & specifications, the owner enters into a single contract with a Developer special purpose vehicle (SPV) (legal entity comprised of corporate joint-ventures or partnerships including equity/ lending partners which have been established for a limited task) for project delivery consisting of design and construction plus one or more of: financing, operations, and/ or maintenance

➤ **Developer selection** based on two-step process:

- **First-step:** Request for Qualifications (RFQ): evaluation of qualifications, financial capacity, experience, strategic approach
- **Second step:** Request for proposals (RFP): evaluation of both a price proposal (which includes cost of design, construction, financing, operations, and maintenance) and technical proposal (ATCs, 30-50% plan set, schedule, etc.)



Note: (1) Each risk transferred to entity best able to manage it. (2) Could be a lengthy financing, maintenance, and operations term (typically about 30 years) - maximizes opportunity for project lifecycle cost savings. (3) Flexibility to also use progressive approach.

A photograph of two San Francisco cable cars traveling down a city street. The cable cars are yellow and red, with "Van Ness Ave., California" and "59 Streets" visible on the front of the lead car. The street is lined with tall buildings and trees, and the scene is captured during the "golden hour" of late afternoon, with warm sunlight filtering through the trees and buildings.

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Application of Each Delivery Method

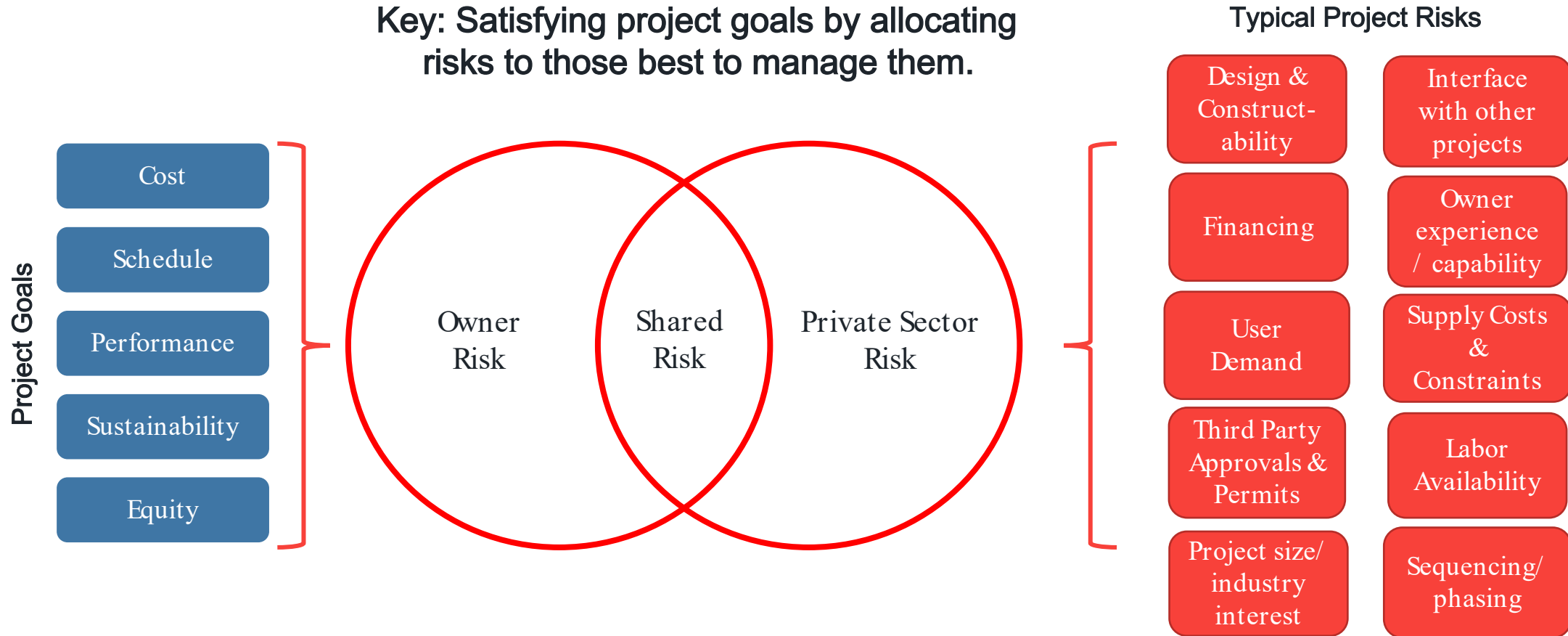
When Delivery Methods Most Suitable

a. Advantages

b. Risks/Limitations

Alternative Delivery Method: Assessing Project Goals and Risks

Key: Satisfying project goals by allocating risks to those best to manage them.



Alternative Delivery Method Summary: Delivery Method Typically Used When...

Topic	Design-Bid-Build	Design-Build	CM/GC	PDB	P3
Project Scope	Owner desires design control	Well-defined scope & performance specifications	Owner desires design control	Very conceptual level (back of the napkin)	Well-defined scope & performance specifications
Dollar Value	Smaller	Significant	Significant - incorporates iterative private-sector cost estimating	Significant - incorporates iterative private-sector cost estimating	Significant
Reasonably manageable or allocatable risks and Third-Party Issues	No	Yes	Yes	Yes	Yes
Room for Design & Construction Optimization	Limited	Yes	Yes, more from construction aspect than design	Yes	Yes, including lifecycle maintenance and operations optimization
Project Delivery Considerations	Not used for packaging purposes	Not used for packaging purposes	Work can be packaged into multiple projects	Work can be packaged into multiple projects	Useful if owner lacks experience in asset delivery, operations, and/ or maintenance

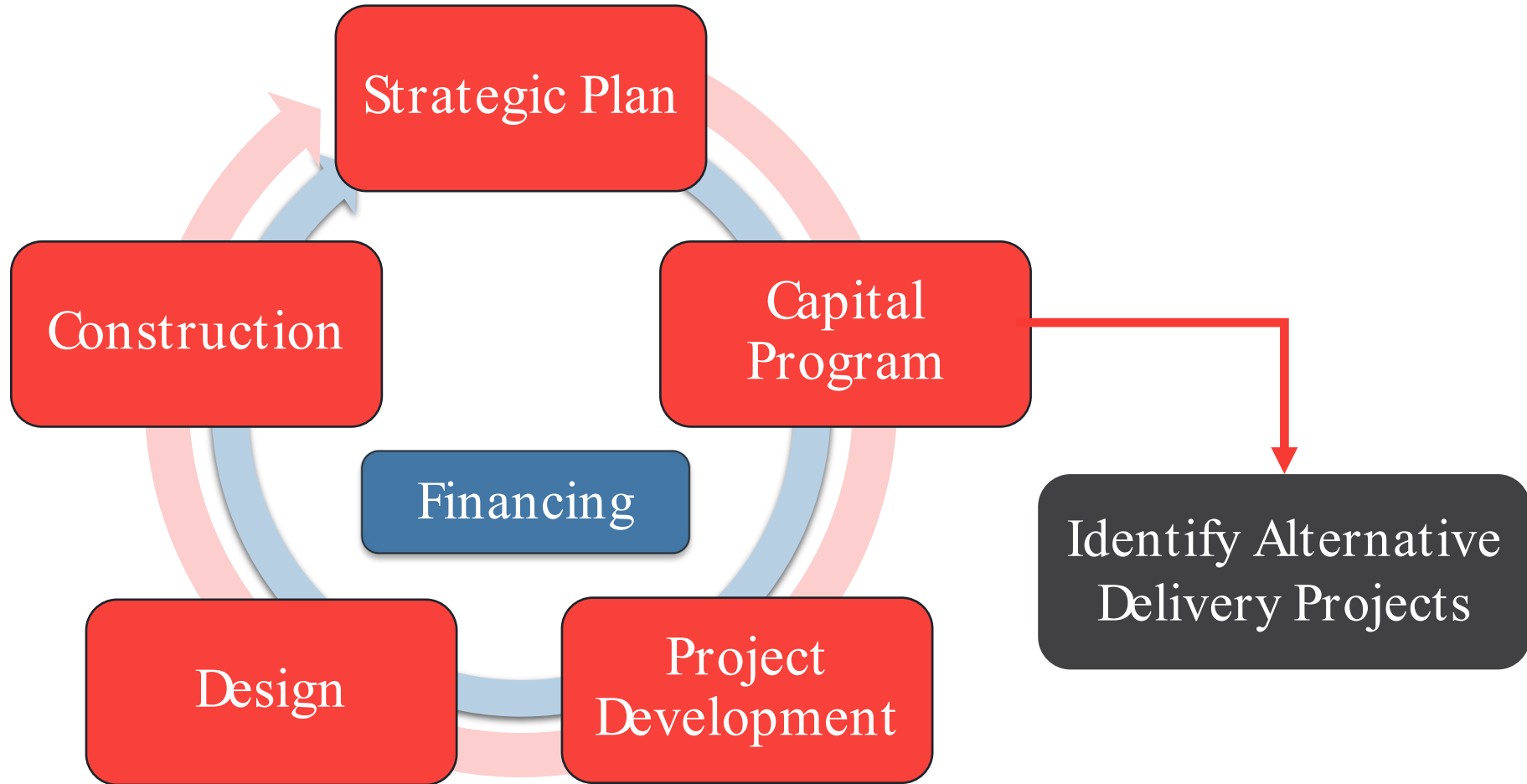


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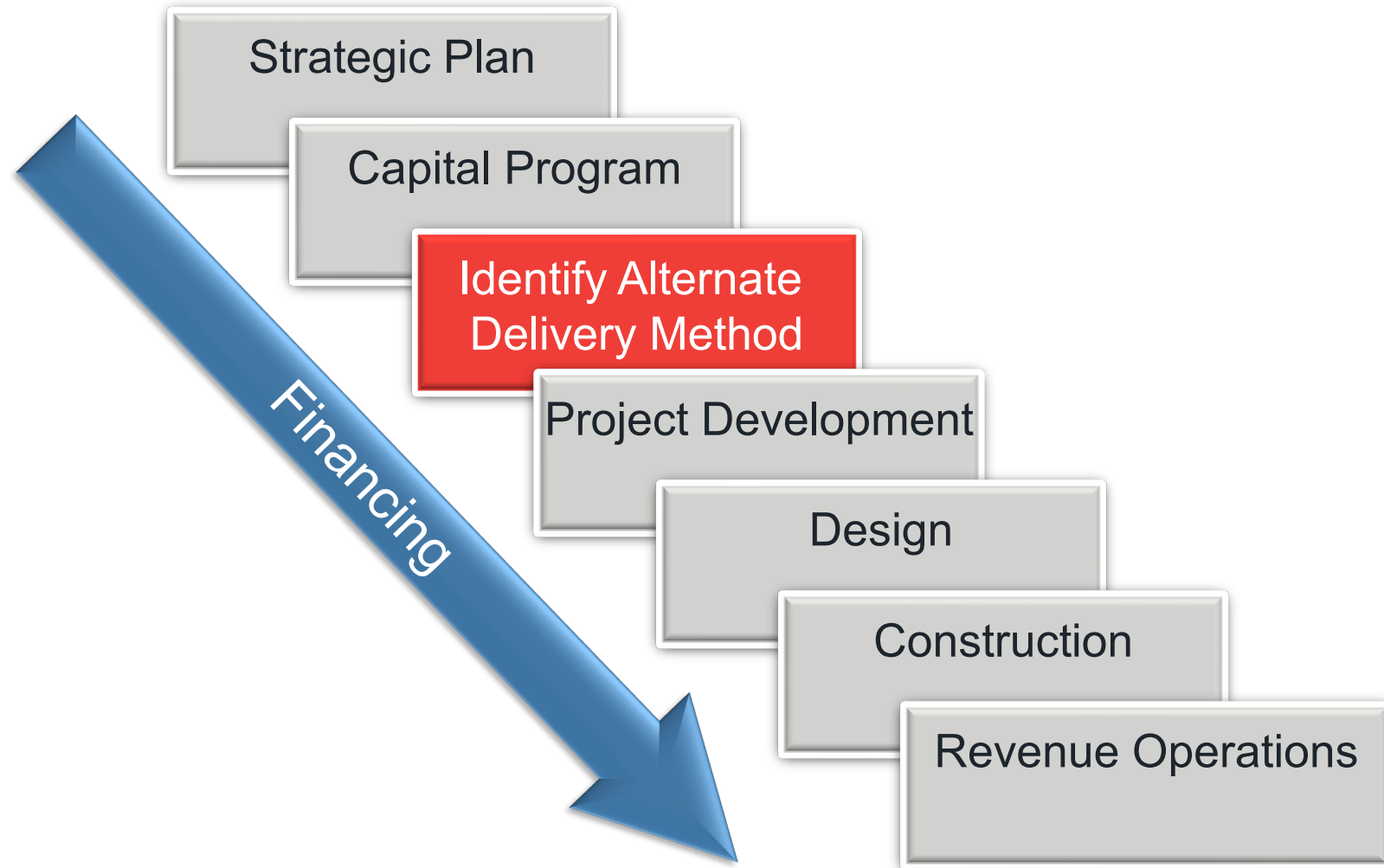
Alternative Delivery Method Determination

- a. Timing
- b. Decision Steps
- c. Proactive Next Steps

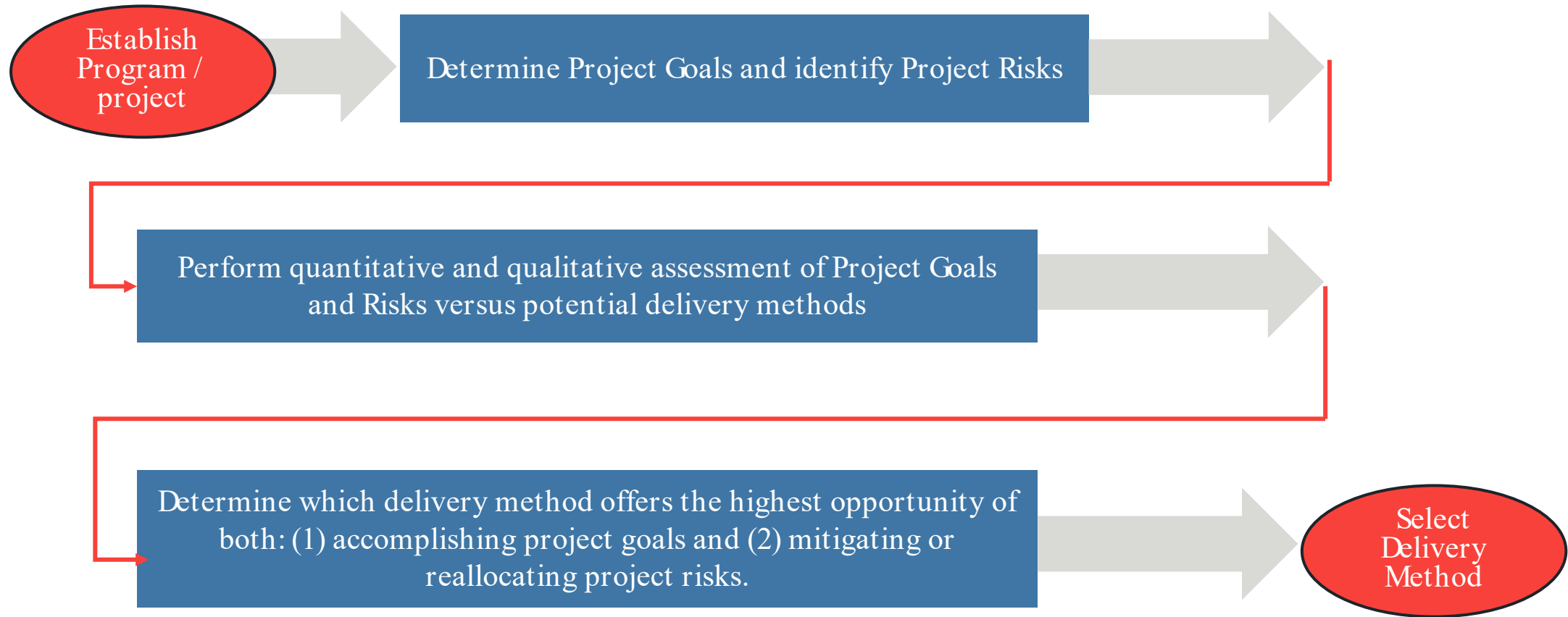
Alternative Delivery Method Determination: Timing



Alternative Delivery Method Determination: Timing



Alternative Delivery Method Determination: Decision Steps



Alternative Delivery Method: Some Proactive Steps for Implementation

1. Review legislative abilities – can the agency deliver projects using alternative delivery?
2. Establish an internal Alternative Delivery Method task force within the agency who will be tasked with delivering alternative delivery projects.
3. Cultivate local support for and knowledge of alternative delivery
4. Procure an Alternative Delivery consultant to guide agency through Alternative Delivery legislative reviews, trainings, procurement document development, and procurement planning
5. Collaboratively identify projects within capital program that could be delivered through alternative delivery methods and select which method
6. Adopt template alternative delivery procurement documents and confirm agency-wide acceptance of such documents
7. Ensure design and construction standards are applicable to alternative delivery methods
8. Conduct agency-wide training and preparation
9. Procure an alternative delivery project

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Questions



Contacts for Additional Follow-up



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Thank You



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Appendix



Traditional Delivery Method: Design-Bid-Build (DBB)

Advantages	Risks/Limitations
Well established and easily understood by all entities.	Tends to yield base level quality.
Owner retains design control	Higher level of inspection/ testing by the agency.
Provides the lowest initial price that responsible, competitive bidders can offer.	Initial low bid might not result in ultimate lowest cost or final best value.
No legal barriers in procurement and licensing.	Agency bears design risk & constructability risk
Well established legal precedents.	

Alternative Delivery Method: Design-Build (DB)

Advantages	Risks/Limitations
Streamlines and enhances coordination through single point of responsibility for design and construction	Existing laws may prohibit owner from using this form of project delivery
Allows for competitive innovation , quality and constructability optimization between designers & contractors	Less owner control over final design
Constructability risk is shifted to private sector	Higher procurement costs and stipends for proposers
Allows for accelerated delivery by fast-tracking design and construction in phased packages	Traditional funding may not support fast-tracking construction or may require accelerated cash flow
Relatively early schedule and cost certainty	Considerable time needed for RFP creation
Can reduce owner risks by reallocating to Design-Builder	

Alternative Delivery Method: Construction Management / General Contractor (CM/GC) or CMaR

Advantages	Risks/Limitations
Early designer/ contractor collaboration in the identification and reduction/ mitigation of risks	Potential for failure to agree on firm fixed price
Possible implementation of early procurement & work projects	Fair market price - not “lowest price”
Open-book cost estimating allowing for greater transparency in project costs	Forced “marriage” of Designer and Contractor
Relatively early schedule and cost certainty	Existing laws may prohibit owner from using this form of project delivery
Value engineering / constructability optimization between designers & contractors	Agency bears design risk & some constructability risk
Owner retains control over design	

Alternative Delivery Method: Progressive Design Build (PDB)

Advantages	Risks/Limitations
Early designer/ contractor collaboration in the identification and reduction/ mitigation of risks	Potential for failure to agree on firm fixed price with less desirable off-ramp option
Possible implementation of early procurement & work projects to optimize schedule	Fair market price - not “lowest price”
Open-book cost estimating allowing for greater transparency in project costs	Existing laws may prohibit owner from using this form of project delivery
Relatively early schedule and cost certainty	Less owner control on final design
Value engineering / constructability optimization between designers & contractors	Traditional funding may not support fast-tracking construction or may require accelerated cash flow
Owner retains design control during pre-construction phase	

Alternative Delivery Method: Public Private Partnership (P3)

Advantages	Risks/Limitations
Single point responsibility for design, construction, finance, operations, and maintenance	More complex
All advantages of Design-Build	Less owner control over design
Lifecycle costs/ considerations are optimized	Higher procurement costs & longer procurement timeline
Competitive maintenance & operations innovation	Traditional funding may not support fast- tracking construction or may require accelerated cash flow
Can push revenue & asset availability risk to private sector	Existing laws may prohibit owner from using this form of project delivery
Relatively early schedule and cost certainty	Delivery method may give the impression of “ <i>Privatization</i> ” of public assets