



Capital Project Delivery Methods

Managing Risk to Optimize Success

Presented to

General Services Academy VI

Santa Barbara, California

October 9, 2008

Presentation Outline

- Presenters
- History of Project Delivery Methods
- Project Influences / Expectations
- Common Components in Project Delivery Methods
- Overview of Project Delivery Methods
- Selecting the Right Method for the Project Opportunity
- Educating Decision-Makers and Building Consensus for the Recommended Delivery Method
- Preparing Staff / Consultants to Implement New Methods
- Lessons Learned
- What's on the Horizon?
- Questions and Answers

Presenters

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 - Solano County, Department of General Services, Division of Architectural Services
- Gerald Loeper, Supervising Architect
 - County of Alameda, General Services Agency, Technical Services Department
- Robert Kambak, County Architect
 - County of Sonoma, General Services Department, Architecture Division

Project Roles

- Then
 - Owner/Benefactor
 - Master Architect
 - Master Builder
 - Guilds
 - Craftsmen/Artisans
 - Laborers
 - Focus on Providing Information to Successfully Construct



Project Roles (cont.)

- Now
 - Owner – Public/Private
 - Architect-of-Record
 - Contractor
 - Unions
 - Subcontractors
 - Suppliers
 - Manufacturers
 - Project/Construction Manager – New Player
 - Focus on Risk Management Approach to Project Delivery



Project Roles (cont.)

- Owner
 - Key Decision Maker
 - Provides/Controls Capital/Resources
 - Structures/Organizes Project Delivery Method
 - Establishes Front End Documents – ‘Rules of the Game’
- Architect-of-Record
 - Produces Construction Documents
 - Holds Design Liability
 - Creative/Aesthetic Project Control

Project Roles (cont.)

- Contractor
 - Builds Project
 - Holds Construction Liability
 - Construction Quality Control
 - Licensing Required
- Project/Construction Manager
 - Manages Project on Owner's Behalf
 - Liability Limited to Contracted Services
 - Project Controls / Team Management
 - No Licensing Required

History of Project Delivery Methods

- Evolution of Project Delivery Methods
 - “Master Builder” Concept of Building
 - “Industrial Revolution” – Speed & Standardization
 - New Technologies = New Methods
 - Borrowed Processes from Industrial Applications
 - Just-in-time Delivery of Materials
 - Prefabrication of Assemblies/Components
 - Size & Complexity of Projects has Moved from “Brick & Mortar” to a “Machine for Living”
 - From Simple “Builder” to Army of Specialists and Specialty Consultants, Manufacturers and Subcontractors

History of Project Delivery Methods (cont.)

- Use of Design-Bid-Build Process requires Public Entities to have "Perfect Documents"
 - Not Achievable & Results in 'Adversarial Relationships' = Claims, Time & Money
- Public Sector Procurement Focused on Competition (Objectivity) vs. Negotiation (Judgment)
- Public Sector Legislation to Enable Alternative Delivery Method Patterned after Private Sector Design – Build Delivery
 - PCC 20133 Provides for Design-Build Contracting
 - Initial Pilot Program – Limited to 8 Counties, 2000
 - SB 287 - Opened Up to 30 Counties & 11 Cities, 2005
 - SB 416 – Amended to Allow All 58 California Counties to Use, 2008

Private Sector vs. Public Sector

■ Private

- Profit Motive, Cost Driven
- Procurement Processes Relationship-Oriented
- Streamline Processes to Achieve End Result

■ Public

- No Profit Motive, Policy Driven
- Procurement Processes Based on Fairness
 - Professional Services – Qualifications Based Selection
 - Contractor – Competitive Bidding
 - Owner Sets Standards/Quality
 - Lowest Responsible Bidder Wins
 - Public Contract Law Centered on Traditional Method
- Unanticipated Consequence: Adverse Relationships
- Response: Alternative Delivery Methods

New Opportunities Pose Questions

- New Opportunities for Project Delivery
 - Evolving Concepts in Current Times
 - Synergy of Team Approach & Success
 - Trend Toward Integrated Services
- Questions to Consider?
 - How Do You Select the “Right” Delivery Method?
 - Who Is The Owner?
 - How Does the Owner Manage the Inherent Chaos of Complex Projects with Multiple Stakeholders?
 - How Does the Owner Make the Good Decisions During a Project and Still Maintain Control?

Project Influences

- Deliver More for Less in Less Time
- Project Value vs. Project Cost
- The “Green” Factor
- Project Labor Agreements
- Complex Building Systems
- Multi-functional Space
- Public/End User Process/Focus
- Public Policy / Local Dynamics

Better, Faster, Cheaper

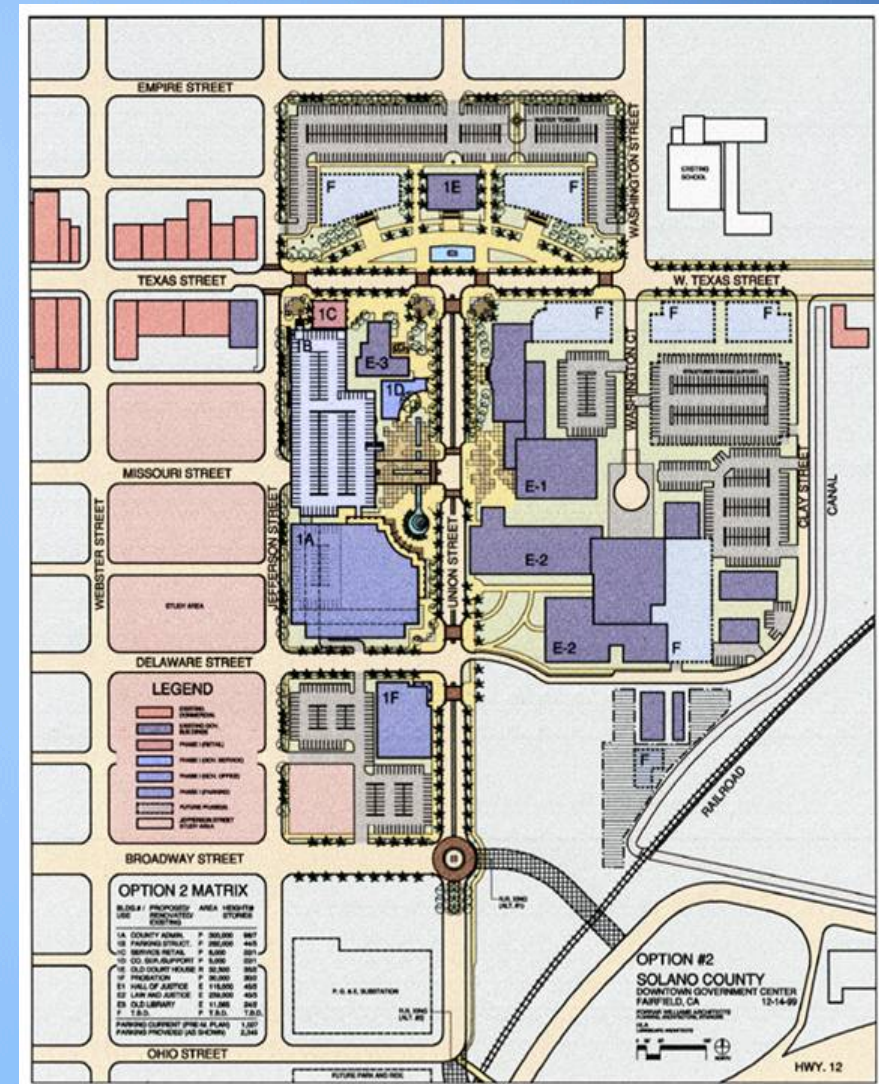
- Programmatic Responses to Industry-Wide Problems
 - Quality Assurance/Quality Control
 - Total Quality Management
 - Value Engineering
 - Partnering

Valuable Tools or Band-Aids® ?



Asset Management

- Continuum
- Cradle to Grave Approach
 - Real Estate Portfolio
 - Master Plan
 - Facility Condition Assessment
 - Real Asset Plan
 - Capital Improvement Plan
 - Design and Construct
 - Operations and Maintenance
 - Capital Renewal



Common Components in Project Delivery Methods

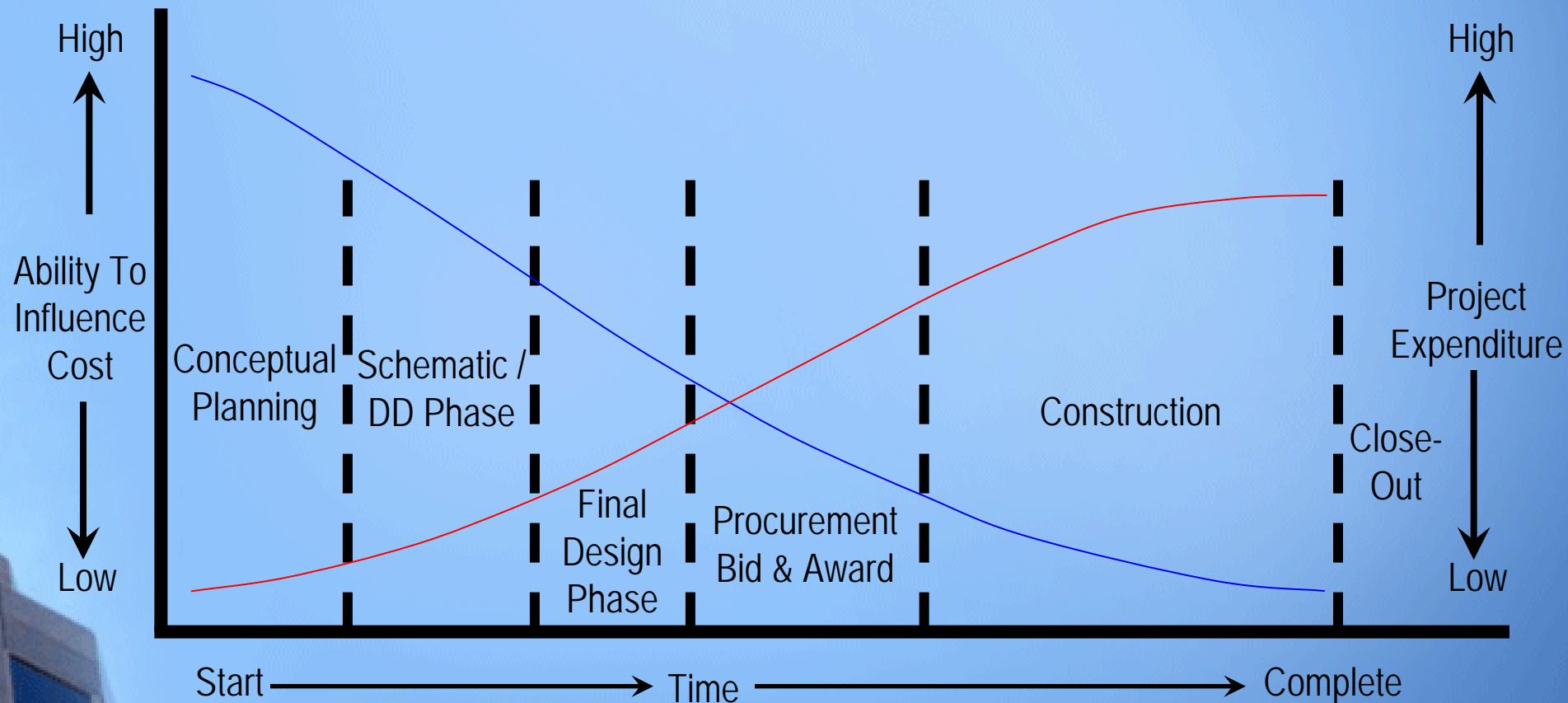
- All Projects
 - Scope – Programmatic and Operational Response to Needs
 - Cost – Resources Required to Complete Project
 - Schedule – Time to Plan, Design, Procure and Construct Project
- Owner is Control Central (“Drives the Bus”)
 - Key Decisions that Define Project / Resolve Issues
 - Resources to Produce Project
 - Who is the Owner on a Public Sector Project?
- Project Team
 - Architect – Design
 - Contractor – Construction
 - Subcontractors / Sub-subcontractors / Suppliers
 - Project / Construction Manager (PM/CM) – Consultant or Staff
 - Developer / Landlord (sometimes)

Common Components (cont.)

- Regulatory Framework
 - Plan Check / Permits
 - Inspections / Testing
 - Laws / Regulations for Design and Construction
 - Bonds / Insurance
- Contract Types
 - Purchase of Actual Construction Services
 - Lump Sum
 - Single Fixed Price
 - Unit Price
 - Price per Unit of the Different Elements of the Construction Project
 - Reimbursable
 - Cost plus Fixed Fee
 - Guaranteed Maximum Price (GMP)
 - Cost plus Percentage Fee

Common Components (cont.)

- How These Components are Organized
 - Defines Project Process and Contractual Relationships
 - Determines Timing / Involvement of Project Team Members
 - Differentiates Delivery Methods from Each Other
- Go Early or Go Home



Project Delivery Methods

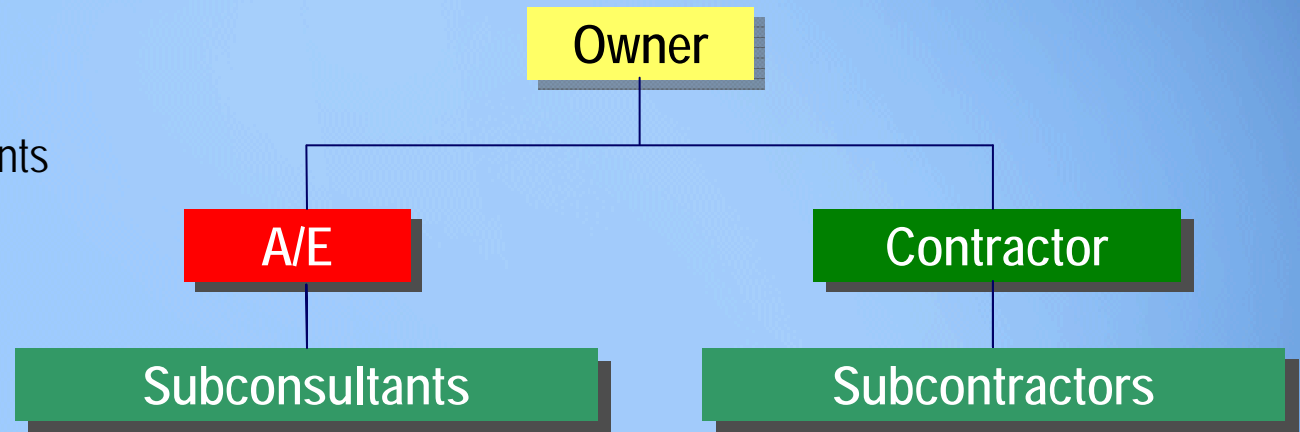
- Traditional (Design-Bid-Build)
 - Without Consultant PM/CM
 - With Consultant PM/CM
- Multiple Prime/Trade Contracting
- Job Order Contracting (JOC)
- CM at Risk
- Lease/Purchase
- Design/Build / Performance Contracting



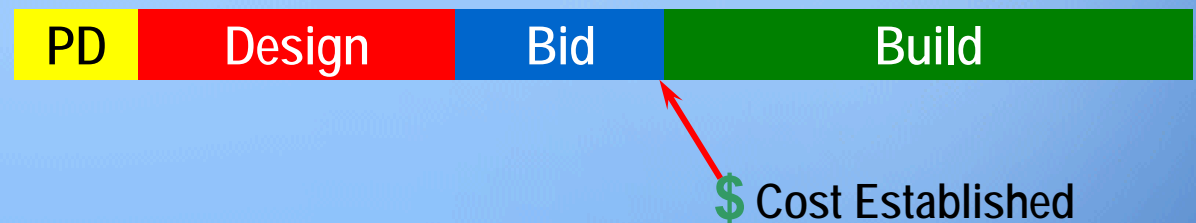
Traditional (Design-Bid-Build)

- Public Contract Code
- Design
 - Schematic
 - Design Development
 - Construction Documents
- Bid and Award
- Build
 - Construction
 - Close-out
 - Post Occupancy

Organizational Chart



Timeline



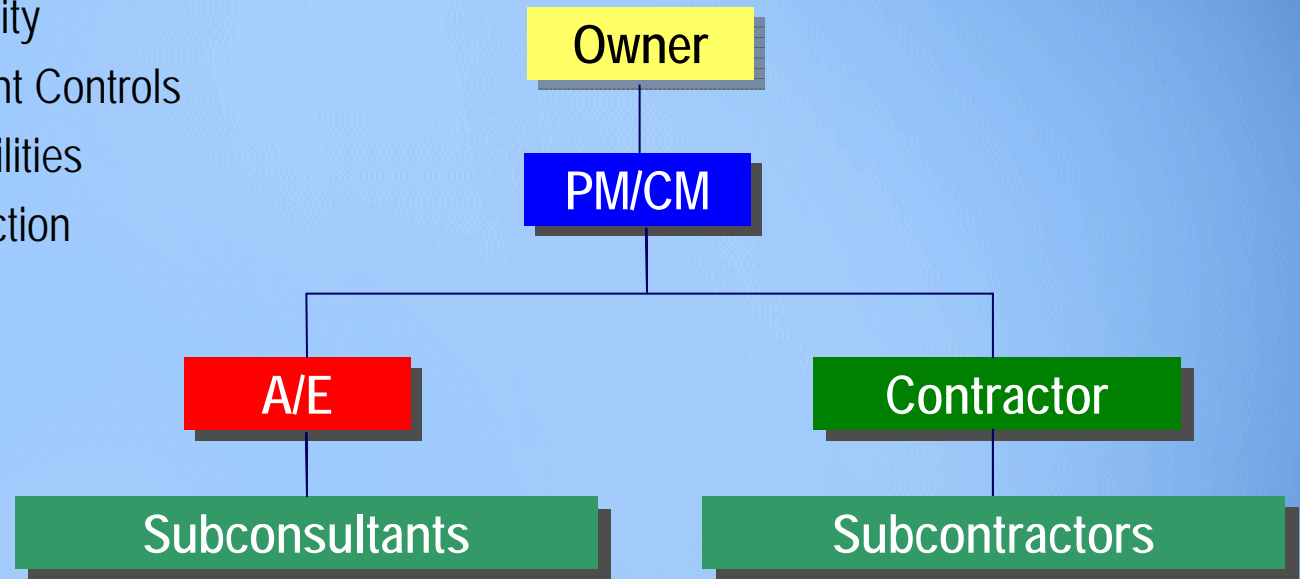
Traditional (cont.)

- Advantages
 - Familiar in Marketplace
 - Clear Roles Defined by Case Law
 - Easy Process to Manage
- Disadvantages
 - Construction Can't Start Until Design Complete
 - If Project Overbids, Time and Money are Lost
 - Design Does Not Have Contractor Input
 - Some of Design is "Wasted"

Traditional (cont.)

- Without Consultant PM/CM
- With Consultant PM/CM
 - Improve Constructability
 - Introduce Management Controls
 - Augment Staff Capabilities
 - Provide Claims Protection

Organizational Chart



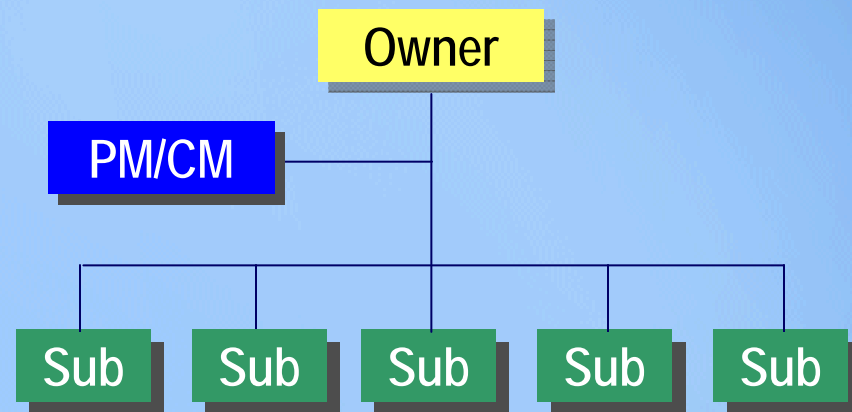
Timeline



Multiple Prime/Trade Contracting

- Public Contract Code
- Design - Same as Traditional
- Bid - Direct to Trades
- Build
 - CM as Agent
 - CM Acts in Role of General Contractor
 - Owner Holds Contract With Trades

Organizational Chart



Timeline



\$ Cost Established

Multiple Prime/Trade Contracting (cont.)

- Advantages
 - CM is on Owner's side - Minimizes Conflict
 - Design is Fixed
 - Costs are Definitive
- Disadvantages
 - Administratively Intensive
 - Bid Package Definition can be Difficult
 - Owner can Get Caught up in Delays
 - Act as Arbitrator

Job Order Contracting (JOC)

- Public Contract Code 20128.5
- Design – Same as Traditional but Geared Toward Obtaining Building Permit/Job Order Contracting Needs
- Bid – Based on Pre-Established Unit Pricing
 - Bid Competition Based on Contractor Mark-Up
 - Orders Initiated Based on Proposal Built from Unit Pricing
- Build – Contractor ‘On-Call’ Based on Project Need
 - Well Suited for “Major Maintenance”, Tenant Improvement and Demolition Projects
 - Small to Medium-Sized Capital Projects Due to Contract Cap of 4 Million

Job Order Contracting (JOC) (cont.)

■ Advantages

- Scope Jointly Developed by Owner and Contractor
- Proposal is Evaluated by Owner Based on Detailed Unit Pricing
- Eliminates Repetitive Bid Administration
- Potential Time and Cost Savings Overall
- Construction Input During Design
- Can Award Multiple, Simultaneous Contracts

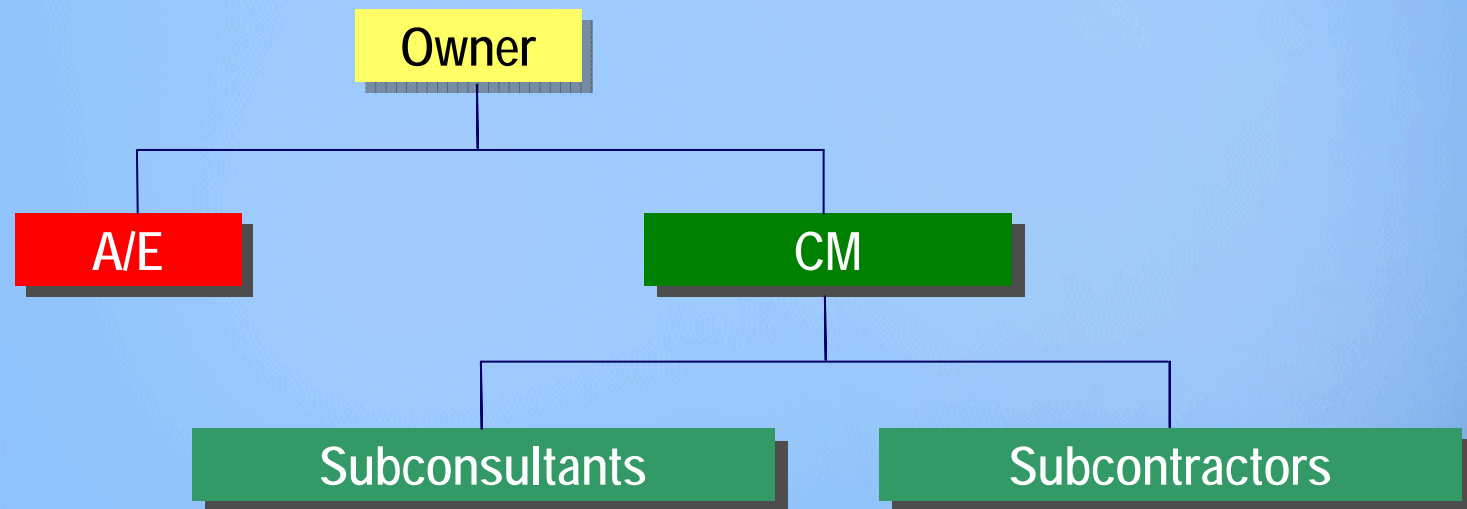
■ Disadvantages

- Staff Intensive Due to 'Short Burn' Projects
- Staff Training Tailored for JOC Administration
- Limited Consultants Available to Establish and Administer Programs
- Contractor Cap Limits Project Size

CM at Risk

- Public Contract Code – “Gray Areas”
- CM Holds Trade Contracts
- CM Guarantees Price
- CM Manages Construction but Typically Does not Self-Perform Work

Organizational Chart



CM at Risk (cont.)

- Advantages
 - Qualifications Based Selection
 - CM Provides Construction Input During Design
 - CM involved from Start of Project
 - CM and AE Collaborate
 - Price is Set After Bids are Taken
- Disadvantages
 - CM's Role Gravitates from Agent to Vendor
 - CM/Owner Relationship can be Adversarial
 - Experienced CM with Construction Background Required

Lease Purchase

- Lease Payments Applied to Purchase Real Property and Capital Improvements Over Time
- Price Pre-Negotiated or Based on Fair Market Value
- Buy-out Clauses
- Developer Led Process

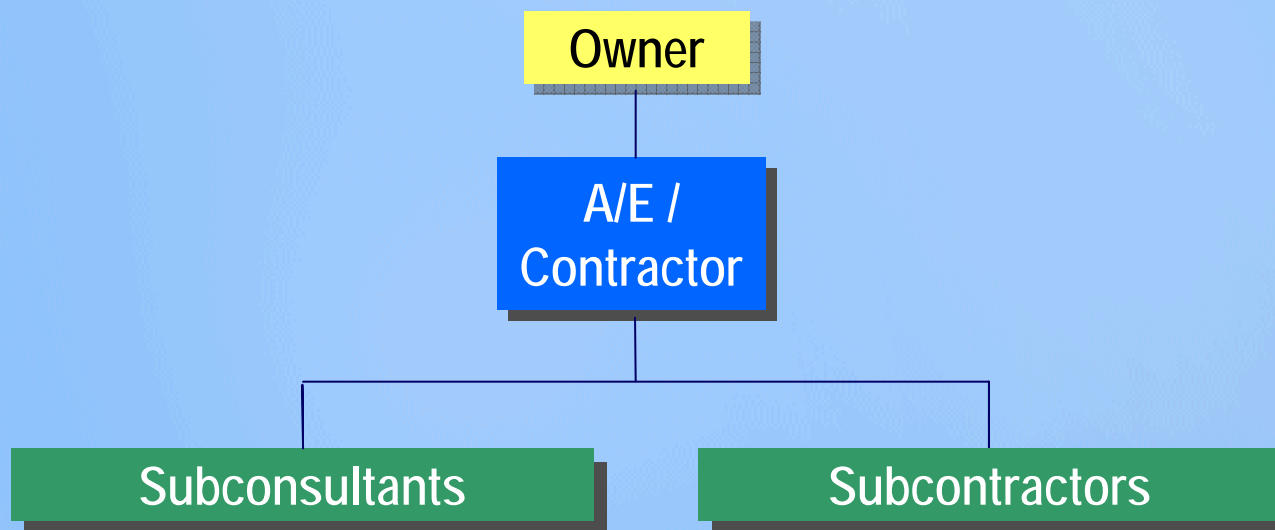
Lease Purchase (cont.)

- Advantages
 - Ownership Over Time
 - Good Fit for Programs that Favor Lease Reimbursement Over Equity Ownership
 - Owner can Walk Away at End of Lease
- Disadvantages
 - Owner Must Define Requirements Early in Process
 - Negotiations can be Complex
 - At End of Lease Term Building Systems are Ready for Renewal which Requires Capital Infusion

Design/Build and Performance Contracting

- PCC Section 20133 and Government Code Section 4217
- Procure Design and Construction Under Single Contract
- Performance Criteria Or Bridging
- New to Local Governments, Widely Used in Private Sector

Organizational Chart



Timeline

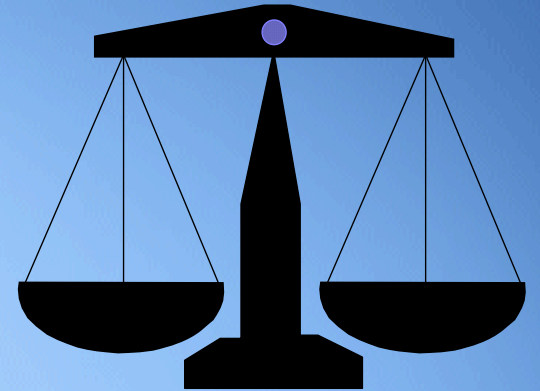


Design/Build (cont.)

- Advantages
 - Single Point of Responsibility
 - Construction Input During Design
 - Fixed Price for Owner
 - Potential to Fast Track
- Disadvantages
 - Difficult to Determine Price without Design
 - Requires Different Mindset by Owner
 - Unfamiliar to Most County Staff

Section 20133

- Available to All 58 Counties
- Award by Lowest Responsible Bid or Best Value
- Best Value is a Value Determined by Objective Criteria Related to Price Features, Functions and Life-Cycle Costs
- 4-Step Procurement Process
- Minimum Evaluation Factors Specified



Section 20133 (cont.)

- Legislation Effective through 12/31/2010
- Applies to Building Construction Projects Greater than \$2.5 Million
- Excludes Transportation Facilities
- Bonding and E & O Coverage Required
- Use of PM/CM Services Allowed
- Labor Compliance Program Required Unless Design/Build Entity has Entered into Collective Bargaining Agreements that Bind all Contractors

Selecting the Right Method for the Project Opportunity

- Consider:
 - Statutory Authority
 - Land Grant vs. Charter
 - Risk
 - Need/Scope of Project
 - Project "Design"
 - Resources
 - Identify and Resolve "Grey Areas" of Project
 - Contracting/Purchasing Policy

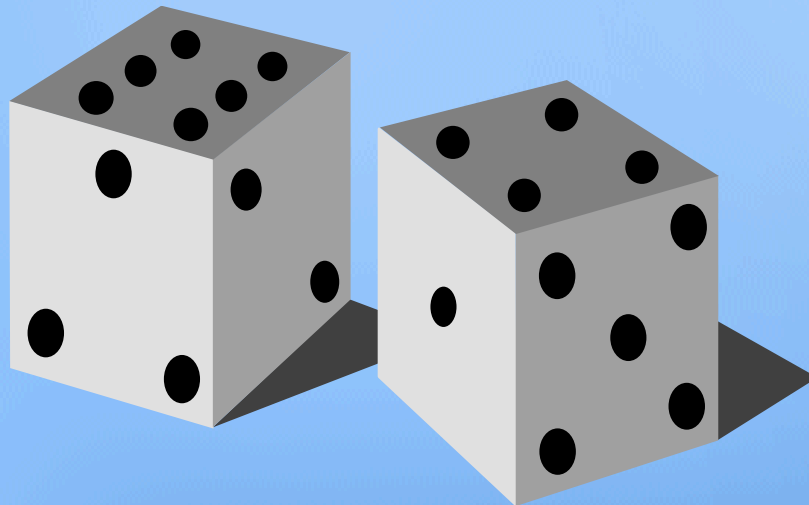


The Mantra

What's Right for the Project?

Selecting the Right Method (cont.)

- Risk Management 101
 - Each Delivery Method has Risks
 - Can't Eliminate Risks But Can Mitigate and Manage Risks
 - Early Decisions Shape Final Outcome
 - Final Risk Always Rests with Owner



Selecting the Right Method (cont.)

- Identify Project Type: “Government”, Yes, but....
 - Office? , Special Facility?, “Essential” Facility?, Multi-user/Multi-agency?
 - Gauge Complexity of Project in Relation to Time and Resources Available
 - Consider Current and Projected Marketplace Conditions



Selecting the Right Method (cont.)

- Strategically Manage Risk of True Unknowns
 - Geotechnical Conditions
 - Hidden/Site Conditions
 - Materials Cost Spikes
 - Inflation
 - Weather and Labor
 - Other Market Conditions
- Set Goals
 - Clarity re: Scope, Schedule, Budget
 - Establish Total Scope for Agreed Price
 - Implement County Outreach Program to Stimulate Competition
 - LEED® /Green Building Ordinance?
 - No Litigation/Claims
 - Safety – No Lost Time Incidents

Selecting the Right Method (cont.)

- “Design” the Project and Match Appropriate Delivery Method

Short Schedule, Clear Scope, Minimal Unknowns	Design/Bid/Build
Repetitive or Small Scale Projects, Quick Turn-Around, Known Elements (Especially Interiors/ Tenant Improvement or Maintenance)	Job Order Contract
Large (Approx \$3-5M and Up), Complex Project, Significant Risks or Unknowns, Long-Term Schedule	Alternative Delivery Method (Design/Build, CM @ Risk, etc)
Ownership of Facility not Essential	Design/Build/Lease or Lease/ Purchase

Low



Complexity



High

Selecting the Right Method (cont.)

- Consider Available Resources
 - Staff Experience
 - Appropriate Consultant Roles

Typical Project Team

A/E (Traditional or Bridging)	CM (Construction Manager)
Constructor and Subs	Construction Inspectors
Cx (Commissioning)	LEED/Energy
QC Inspectors	Geotechnical Outreach/Monitoring
FF& E Vendors	Communications Systems
Security Systems	Art Commission
State Board Agencies	County Departmental Clients

Go Team!

- Owner
- Architect/Engineer
- Contractor
- Project/Construction Manager (sometimes)
- Developer/Landlord (sometimes)

Educating Decision-Makers & Building Consensus

- Discussion opportunities:
 - Capital Program
 - Informational Workshops
 - Green Building, Retrocommissioning, Energy Projects
 - Major Maintenance, BER's, FCA's
 - Local Firm/Outreach Programs
 - Subvention and Other Creative Funding Opportunities
 - "Hallway" Conversations

Educating Decision-Makers & Building Consensus (cont.)

- Important Key Phrases.....
 - "One Size Does Not Fit All!!"
 - "County Retains Control From Start to Finish...."
 - "The Risks are (Here.....) and We Address Them by"
 - "The Owner is"
 - "The Project Will Finish on Time and in Budget"
 - "Come On In, Isn't it Beautiful?"
 - "(and There was No Litigation..)"

Preparing Staff/Consultants to Implement New Methods

- Who's Driving the Bus...?
 - Alternate Delivery Methods Require a Significant Culture Change and Revision of Thinking for Both Owners/Managers and Consultants
- But That's the Point...
- Analyze and Address Risks
- Involve Key Decision Makers and Responsible Staff from Outset

Preparing Staff/Consultants to Implement New Methods (cont.)

- Needed Skills and Abilities....
 - Learn How to Control Outcome When It's Not Prescribed in the Contract Docs
 - Why Fight When You Can Negotiate?
 - Best Value D/B, Other Alternative Methods
 - Professional Organizations Share Best Practices/Resources
 - CCAEA, CMAA, DBIA, AIA, etc.
 - Visit Similar Projects/Counties with Experience

Top 10 Lessons Learned

1. The Cost of Time is Driving Major Change in Construction Industry Delivery Methods.
2. Increasingly Project Delivery is All About the Process, Not Just the Building.
3. In a World of Increasing Market Volatility for Just About Everything Needed to Construct, the Old, Slow, Adversarial, Near Delivery Methods are Dead on Arrival.

Top 10 Lessons Learned (cont.)

4. The New Focus on “Greening” Projects Adds Emphasis to the Concept that Operations, not Completion of Construction is the Final Stage of Project Delivery.
5. Capital Project Delivery is a Highly Complex Process which Should be Intricately Choreographed Such that the Part with the Most Players (Design and Construction) is Only Done ONCE.
6. It’s Easier to Achieve County Goals on a Large Project when there’s a Team which has bought into All Those Goals and the Method to Achieve Them.
7. Incentives Work Better than Penalties in Motivating Performance, Especially Among Construction Contractors. Fairly Assigning Risk Responsibility Helps as Well.
 - Trust but Verify
 - Use Partnering Sessions: Develop Issue Escalation Process

Top 10 Lessons Learned (cont.)

8. County/Owner MUST be Able to Perform (and Timely) in Teaming Relationships.
 - You *Will* Need Support Services to Perform Adequately
 - You Will Need Strong County Counsel/Legal Support
 - OR Start on Smaller Projects Where Stakes are Lower
9. Design/Build (Bridging) is the Closest Thing to a Negotiated Contract Counties are Likely to Get.
10. If Using Design/Build, the Key to Success is Clear Scope Definition (Bridging Documents/Design Criteria) Coupled with Cost Estimate Congruence.
 - The Owner Must Define the Level of Detail in the Bridging Documents/Design Criteria; There is No Current Standard

What's on the Horizon?

- The End of "One Method Fits All"
- BIM, 4D Design
- Continued Evolution of "Integrated Project Delivery" Methods
- Increasing Impact of Sustainability Issues
- Evolution of Conflict in Public Sector, Desire for "Competition" in Procurement with Obvious Cost Benefits of Alternative Methods
- Diminished Labor Pool/Competition for Resources

Questions & Answers

Thank You!

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