WASHINGTON STATE UNIVERSITY

2022

Introduction to Public Works

Training Plan Overview

1. Project Identification
2. Budget Management
3. Consultant Procurement
4. Design A/E Liability, E&O, How to Manage Consultant
5. Bid Documents
6. Bidding
7. Pre-Bid Meeting
8. Pre-Construction Meeting
9. Construction Oversight/QA
10. Schedules
11. Billing
12. Change Orders
13. Disputes/Protests
14. Closeout

Project Identification

Assess the project first with your Lead PM and determine best fit projects to assign. Final project assignment is ultimately granted by the AVP Facilities Services, Capital.

All projects will be documented in AiM.

Project and Contract Setup:

fs.accounting@wsu.edu; contracts@wsu.edu

Find materials in: Facilities Services Capital SharePoint, Master Forms Library

Understand

Delegation of Authority / Project Charters/Agreements

Handouts/Reference Material:

- New Project Request Email Template
- Funding Request Form
- Project Charter Template

Project Initiation Roles and Responsibilities

Know the playing field of people who need to be aware of the project as it is being born:

- Project Managers/Lead Project Managers
- Construction Managers/Lead Construction Manager
- Liaisons
- Interior Designers
- Client Finance / FS Finance
- Executive Group
- Project Decision Makers

Budget Management

Initial Budget Development
- Do a thorough review of all potential costs
- Assign cost to each potential item
- Use budget template as a starting point
- Include items such as permits, tax, special consultants, WSU costs

Budget Management
- Update budget numbers with committed cost as early as possible
- Manage anticipated costs
- Track potential unforeseen items
- Know where your cost are at so decisions can be made quickly

Handouts/Reference Material:

Budget Template

Procurement Types

- We look at procurement types as a toolbelt. Full of tools and it is our job to pick the best one for the job.

  Talk with the Lead PMs and Contract Manager to determine best fit for the project.

  Knowing the intended procurement model will likely influence what services you need from a consultant.

Handouts/Reference Material:
PW and Consult Contracting Cheat Sheet

Consultant Procurement

- When consultant services are needed to successfully bid a project a consultant may be selected by one of two following methods:
  1. Via a Master Agreement
  2. Off the Roster (\\fais007\CAPITAL\Admin)

  Remember! – Select based upon qualifications, negotiate a proposal, then award. DO NOT price shop – it is against the law.

  Upon successful proposal email contracts@wsu.edu to request the contract.

Handouts/Reference Material:

Schedule of Master Agreements
Consultant Roster Selection
Consultant Roster Registration Form
Sample Consultant Agreement
Selection Memo
Attachment A – Schedule of Services

Design A/E, E&O and How to Manage a Consultant

- **Once you've selected a Consultant -**
- Request Proposal for services
  - Define the Scope and Schedule
  - Negotiate fee – 10% of construction estimate is a good rule of thumb for a/e fee
  - Proposal is the basis for their contract

- **Managing a Consultant**
  - Understanding the deliverables – detailed expectations
  - Enforcing the Schedule – a good consultant would keep you up to date
  - How to get their attention - $$ talks
  - Managing the Design Review process

Handouts/Reference Material:
Design Process Review
Review Comments Log Template

Design A/E Liability

Agreements vs Purchase Orders (the Consultant agreement includes specific insurance requirements of a designer)

E&O (errors and omissions) expectations

- A/E is responsible for **redesign** if they were at fault
- Additional work by contractor or A/E is not considered E&O
- Some level of E&O is expected as no design is perfect

Design A/E, E&O Con't

Handouts/Reference Material:
Procurement Matrix

Be aware:
You must have funding available to meet the estimated project amount to bid a project!

Bid Documents

- **Small Works Roster:**
  - Project Construction Estimate must be under 300K.
  - Request a Front End from Contract Admin
    - Mark up the Front End per the examples.
    - Return to Contract Admin for typing with specs and drawings to go with the bid.
  - Contract Admin will send out to the roster in the Area the work is to be performed.

  JOC:
  - Construction estimate must be under 500K. Full drawings and specifications may not be required.
  - JOC Contractor – Burton Construction Inc. (BCI)
  - To use : request a Work Order Number from contracts@wsu.edu
    fill out the template Work Order Request and send in excel form to the JOC Contractor.
  - Upon acceptable proposal submit to Contract Admin for execution, include the LD Calculator and Summary Sheet.

Handouts/Reference Material:
PW Contract Cheat sheet
Specification Process Overview
Liquidated Damages Calculator
SWR Manual
SWR Solicitation Sample
JOC Contract Document
JOC Work Order Template

Bid Documents Cont'd

Informal Bid:

- Construction Estimate must be under 45K single trade, under 90K multiple trade
- Pick 3-5 construction firms (local and diverse business inclusion is highly encouraged)
- To bid:
  - Front End editing process.
  - Right size drawings and specs for fair bidding.
  - Provide contract info (email) for the firms being invited to bid.
- Contract Admin will send out to the invited firms.
- Bids will be received and recorded but not publicly opened.
- Lowest responsible and responsive bidder is awarded the contract.

Traditional Bid:

- Any value of construction estimate is allowable.
- Request bid documents (front end) from Contract Admin, noting the construction estimate.
- Full drawings and specifications will be required.

Handouts/Reference Material:
Informal Bid Policy
Informal Bid Documents

Bidding - Advertisement

Small Works Roster Basics:

- The roster is renewed annually, Contractor's must submit new evidence of insurance and bonding capacity to remain on the roster each year.
- Each Contractor on the roster must respond to the solicitations. Failure to respond 5 times removes them from the roster for the year.
- The Roster is set up by physical location not by type of work.

Small Works Roster/Informal Bid advertisements are handled via email.

- Contract Admin sends out the bid documents electronically.
- PM should not forward to anyone without confirming with Contract Admin.
- Timeline of the bid shall be scheduled by Contract Admin and coordinated with the Instructions to Bidder Section.

Bidding - Advertisement

- Advertising PW Basics:
  - Traditionally bid projects must advertise twice, one week apart prior to the pre-bid meeting.
  - Advertisements are places in newspapers and publications near to the project site and in online publications like OMWBE website.
  - Advertising handled by Contract Admin.

Handouts/Reference Material:
Public Works Bidding Timeline

Bidding

- Between advertisement and bid open:

  1. Any question received must be considered for possible Addendum.

  2. Fair and clear communication to the bidding community is an absolute must! Preferential treatment whether real or perceived is unacceptable.

  3. Any communication to the bidders must be handled by Contract Admin in the form of an Addendum.

Handouts/Reference Material:
Addendum Template

Pre-Bid Meeting

Handouts/Reference Material:

Pre-Bid Meeting Minutes Sample

Pre-Bid Meeting = held a reasonable amount of time after bid documents are published and project is advertised.

Items discussed in the meeting are captured in the meeting notes which are issued in an addendum a minimum of 3 Days prior to the bid date.

This meeting can be mandatory or suggested depending to the project needs. The sign in sheet needs to be accurate especially if the pre-bid meeting is mandatory. Items discussed in the meeting need to comply with the contract documents.

Individuals that should be in attendance:

- WSU PM & CM
- Project Architect
- Engineer of Record
- WSU User Group.

Bidding - Openings

- Bids will typically be received at Facilities Services, Pullman. Small Works Roster Bids are not sealed bids and therefore able to be submitted via fax or email. However, hard copy bids need to be stamped and recorded, regardless of no requirement for sealed bids.

- **When attending a Bid Opening, it is a great time to listen and observe without comment during the preceding's of the opening.**

- Bid opening are always held at 2:00 for SWR projects, and typically held on a Tuesday through Thursday, Friday's can sometimes be an option when necessary. Please be aware that Monday bid openings are discouraged.

Bidding - Award

- After the bid opening: PM shall review and confirm budget for projects allows acceptance of the low responsive and responsible bidder:
  - Responsive bidder – meets all of the minimum requirements, turns in and fills in completely all bid forms.
  - Responsible Bidder – Meeting the RCW Criterion, as well as the owner criterion listed in the Instructions to Bidder Section.

  Contract Admin will publish and distribute the bid results.

  When ready to award: PM shall communicate the accepted bid by filling out and submitting the Contract Summary form and Responsibility Review form to Contract Admin.

Handouts/Reference Material:
- **Bid Tab**
- **Summary Sheet Template**
- **Responsibility Review**
- **Construction Contract Terms and Dates**

Pre-Construction Meeting

- Typically Conducted by the Construction Manager assigned to the project.

  - Know the project needs and contract requirements; discuss with PM and Contract Manager. Know the TEAM and be a partner and team player in the Project.

  - Review deliverables with contractor prior to the Pre-Construction meeting.

  - Determine NTP Date, make sure it is referenced in the base line schedule. Refer to the base line schedule for duration of project

Handouts/Reference Material:

Pre-Construction Meeting Minutes Template

Pre-Construction Meeting Minutes Example

Pre-Construction Meeting

- **Contractor Deliverables Reviewed in Meeting;**
  - Status of the contract: review with PM and Contract Manager.
  - Schedule of Values: Break down costs into easily identifiable scopes of work.
  - Base Line Construction Schedule.
  - Storm Water Permit including transfer to contractor.
  - Emergency Contact List: General Contractor, and key Sub Contractor Contacts, CM, PM for general use and emergency contacts. Distribute to dispatch and Whitcom.
  - Site Logistics Plan that provides pedestrian detours and routes during construction, site fencing, and any vehicle detours. This is best produced on an aerial photo of the project site.
  - Health & Safety Plan specific to the project, shall be on site at all times.
  - Quality Control Plan: promotes quality, coordination and thoroughness of completion between trades

Construction Oversight / Quality Assurance

Quality Assurance (QA) – The standardized process that is established to ensure activities are in place and followed to prevent unwanted defects from occurring. A good QA program includes sound metrics that can be measured and improved upon.

Goal: Prevent defects from arising in the first place.

Quality Control (QC) – The individual activities that are in place to identify defects in the actual production or construction activities.

Goal: Identity defects in the product or construction activity.

Question – would you rather fix it after the fact or prevent it from occurring in the first place?

Contract Documents Quality Control Requirement

- Within 15 days the Contractor Must Submit their QC Plan.
  - a. Question: Is the QC plan the right deliverable?
  - b. Do we CM's read and understand before we "approve" this Submittal?
  - c. Do we following up to ensure the contractor is following their plan after construction begins?

- Key Requirements of our contracting documents:
  - a. Record Keeping of all QC activities and inspections.
  - b. Identifies who the QC manager is for the contractor.
  - c. Description of QCM activities that need to be inspected.
  - d. Weekly Submittal Log of all not compliance activities.

- We require contractor to identify non-conforming activities (re-active) vice requiring the contractor to develop program to prevent (pro-active) re-work.

Way-Ahead

CM Responsibilities:

- Conduct a full review of the contractors QC Plan and provide feedback where appropriate and don't be afraid to require contractor to change certain elements. Ask the contractor to incorporate a QA portion into their plan.

- Ensure contractor is following their own plan. Make this check part of your daily/weekly site visit check – i.e. incorporate a QC check into your daily report.

- As part of pre-install meetings – go over the QC / "QA" process they will use during that phase of work.

- Check contractor Log to ensure both the Sub contractor and QC manager are both signing off on the construction activities as they occur.

- CM should randomly check 5-10% of construction activities to ensure compliance.

Sample QC Log

- Contractor should outline all major activities prior to construction beginning that documents the individual activities that must be signed off by the Sub-contractor and QC manager before acceptance.

- Our CM should periodically check the log and randomly inspect 5-15% of activities and document this in the daily report.

Minor Activities	Sub-Contractor	QA/QC Manager	WSU – CM Comments
Drywall	Bob Jones – 2June 14 //signed//	Sally Smith – 2 June 2014 //signed//	
Sound Insulation	Bob Jones – 2June 14 //signed//	Sally Smith – 2 June 2014 //signed//	Conducted Random Inspection on North facing wall – insulation met requirements. Joe Ramsey – 5 June 2014 //signed//
Painting	Bob Jones – 5 June 2014 //signed//	Sally Smith – 8 June 2014 //signed//	

Schedules

- The Project Schedule should reflect the complexity of the project.
- The Progress Schedule will describe what work is involved to for the project completion and the interrelationship of the individual tasks or activities necessary.
- A simple, single craft job may need only a 10 line bar chart to describe the project adequately.
- A complex job in a difficult brownfield site with no laydown area will require much more detailed and coordinated description of the project work. This may include a time-scaled logic diagram, a narrative description of complex portions of the work and a tabular report identifying planned construction activities.

Handouts/Reference Material:
Schedule Example

Pre & Post-Contract Progress Schedule Basics

The Project complexity, will determine the extent of Progress Schedule requirements described in the Division 01 32 13 Specifications. The PM should adapt the Progress Schedule specifications as appropriate to the project scope .

The CM should understand the project, the contract requirements as the project goes out to bid; staying up to date with the PM and Project Stakeholders.

Review deliverables with successful responsible and responsive contractor prior to the Pre-Construction meeting, including the preliminary Progress Schedule, discuss the minimum expectations for the Preliminary Schedule. Narrative description is included to describe complex job issues.

Discuss / determine NTP Date, make sure it is referenced in the Preliminary Schedule.

Preliminary Schedule Review

- Review the Preliminary Schedule for appropriate detail for the work. See schedule specification section 1.03 and 1.04 Review that there is adequate information to understand how contractor will execute the work. If some phase of the work is not clear ask the contractor for more detail in additional tasks or have more details provided in a narrative describing how the that portion of the work.

- Forward comments about the preliminary schedule to the contractor within the contract submittal review time.

Construction Schedule Basics

- This schedule shall be the Contractor's as-planned schedule and shall be used to plan, organize and execute the Work, record and report actual performance and progress through updates, as well as show how the Contractor plans to complete all remaining Work. The accepted Contractors Progress Schedule and subsequent updates shall be the basis for consideration and analysis for time extensions.

- The Construction Schedule shall be acceptable to WSU with sufficient detail to show the Contractor's as-planned schedule for completing the Work

- The Contractor shall prepare an update of the current Progress Schedule to reflect Work progress achieved since the previous update. Progress updating shall be performed without changes to the schedule logic or the original duration of activities. Monthly or agreed upon updates.

Contemporaneous Period Analysis

- Notice from Contractor to Owner describing in writing what constituted delay of the progress of the work. This notice shall describe the effect of the delay on the subsequent activities. Contractor shall also provide a schedule showing the delay and the effect upon the Progress Schedule.

- Entitlement The CPA will be reviewed with Owner at the monthly or separate meeting. The Progress Schedule is not adjusted until accepted by Owner.

- The Progress Schedule discussion and any Cost discussion related to the delay are separate, any time and money changes are documented in a change order.

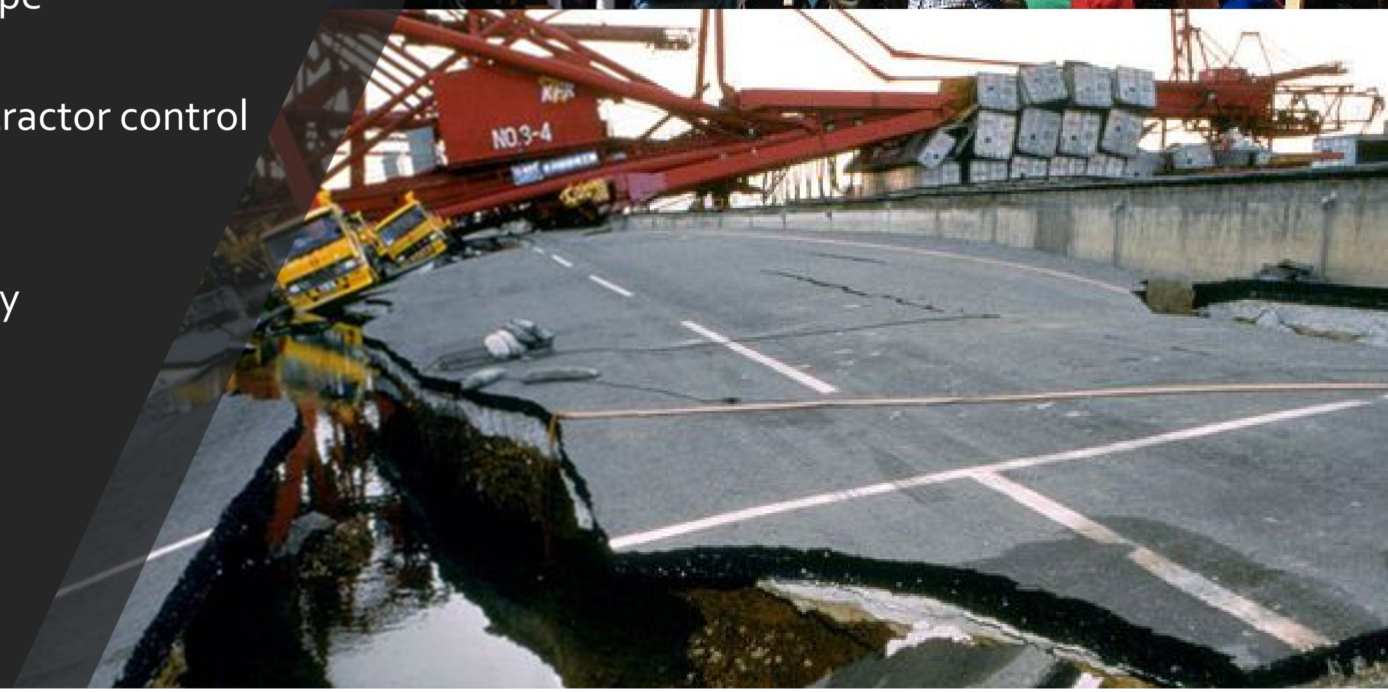
Non-excusable	**Non-compensable**	**Compensable**
-Caused by Contractor	-Weather	- Delay caused by owner or owner representative
-No time extension allowed	-Labor Disputes	
	-Time with no added cost	- Additional time and cost

Examples of Non-Excused Delays

- Under estimate of production rate
- Construction Re-work or mistakes
- Equipment Issues
- Bad Luck
- Supplier delays **
- Shipping delays
- Inadequate schedule management – failure to follow the schedule
- It Rained / Snowed – too hot or too cold (must be out of the ordinary)
- Construction is a Risky Business
- Risk and Reward (profit) are linked

Examples of Excusable Delays

- Unusually Sever Weather – i.e. Buffalo New York last month
- Changes or added work and scope
- Differing Site Conditions
- Unforeseen causes beyond contractor control
- Labor Disputes
- Utility Outages
- Customer / Owner Created Delay
- Natural Disaster



Burden of Proof (Time and Money)

- - Contractor Performance was delayed
- - affected critical path for time
- - was not concurrent for time
- - Delay was excusable
- Contractor did incur additional expenses

- Delay Costs must be traced directly to the delay claim and show and clear cause and effect relationship
- <u>Concurrent Delay</u>: Both Owner and Contractor are contributing to the time delay
- - Neither party can recover damages
- - Time may be extended but no money

Billing

- Progress Payments require the following;
  1. Draft Application for Payment sent to the CM & PM monthly to review for acceptance prior to final application being submitted.
  2. Submitted Schedule of Values checked against the project schedule
  3. Updated monthly project schedule – inclusive of a CPA if applicable.
  4. Contractor Q/A - Q/C Report
  5. Their previous months daily reports
  6. Project Record Drawings shall be made available for review.

Retention Options: 1. By agency; 2. Bond in Lieu; or 3. Escrow

RCW allowance: When the contract is $150K or less, Contractor may be given the option to increase the retention by an additional 10% in lieu of providing Payment and Performance Bonds.

Handouts/Reference Material:

Cheatsheet - Application for Payment Form
Application for Payment Form
Retention Sample Forms

Change Orders

- Contractor is responsible to maintain a log of issues, which includes, scope, time impact, amount, date first included on long, identification of Owner-initiated or Contractor-initiated and action status.

  Life of Change:

  Issues Log → CCP → Bi-Lateral Change Order Or Unilateral Change Order

Handouts/Reference Material:

- Contract Modifications and Change Orders
- Negotiations and Fair and Reasonability Determinations
- CCP Form
- CCP Submittal Form
- CCP Yellow Top Form
- Sample Change Order
- Work Directive Form

Disputes / Protests

- **How to avoid Disputes and Protests**
  - Make decisions promptly – don't give them the opportunity for delay
  - Make payments on schedule – pay undisputed portions
  - Return Submittals promptly
  - Don't play favorites
  - Be as clear as possible in all documentation
  - Change Orders to include all impacts
  - Follow contract requirements
  - Avoid T&M changes – difficult to negotiate

- **Notice**
- From Contractor – what do you do when you receive a Notice? **Act on it.**
- if it's an Owner issue, must mitigate. Allows Owner to be part of the solution.
- From WSU – when do you send a Notice? Do not give direction.

Handouts/Reference Material:
Dispute Free Project Training
Correspondence Training

Closeout

Closeout begins from day one. The Contractor should be maintaining their project record and all documentation in a way that facilitates a clean closeout process.

Phases of closeout :

- Substantial Completion – LD's apply; occupancy, draft O&Ms, punch Ect.
- Final Completion – LD's apply; basically everything done.
- Final Acceptance – Administrative closeout; NOC, 45 Day Lien Period Begins
- Retention Release – Agency Releases and Lien Period past
- 6 Year Document Retention
- Archival

Handouts/Reference Material:

- WSU Closeout Checklist
- Project Closeout Spec Section
- Substantial Completion Template
- Final Completion Sample
- Performance Eval Training
- Performance Eval Spreadsheet
- FIRM Info