Watershed Restoration Project Management Training

201

Chesapeake Bay Trust Watershed Restoration Project Management Training 201 – A Deeper Dive

April 25, 2019

Chesapeake Bay Trust Large Scale Watershed Restoration Project Management Training 201- A Deeper Dive, Day 1

8:00AM – 8:45AM	**Settle-in, Breakfast & Coffee | Introduction** *Welcome & Course Overview* Sadie Drescher, Chesapeake Bay Trust
8:45AM – 10:00AM	**Module 1 – What is Project Management.** *A recap & open discussion on what defines a successful Project Manager* Presented by Andrew Birmingham, PE & Jeremy Koser, PE
10:15AM – 12:00PM	**Module 2 – Organizational Readiness & Risk Management** *How to honestly assess your organization's strengths and weaknesses* Presented by Jeremy Koser, PE & Andrew Birmingham, PE
12:00PM – 1:00PM	**Lunch**
1:00PM – 3:00PM	**Module 3 – Project Design & Construction Management** *Discussions on the PM's Role throughout the project life cycle* Presented by Matthew Smith, PE & Safa Eslambolchi, Ph.D, PE, PMP
3:15PM – 4:15PM	**Bioretention Field Visit – JMT Campus** *Join us for a tour of the SWM facilities installed around JMT's campus* Led by Mike Galvin, PE & Jeremy Koser, PE
4:30PM – 5:00PM	**Group Discussion - Q&A** *An open discussion for participants to ask our panel any and all questions they may have from the Day 1 Modules* Presented by Andrew Birmingham, PE & Matthew Smith, PE
5:30PM – 7:30PM	**Happy Hour / Networking** *Following the training sessions, we hope you can join us for happy hour and networking time at a local restaurant*

Additional Information:

There will be a 15-minute break between each training module.

Day 1 – Facilitator Bios

Mr. Andrew Birmingham, PE

Andrew is a Senior Water Resources Engineer, Vice President and Section Manager for JMT's York, PA, office. He also serves as Regional Water Resources Lead for JMT's PA offices including York, Harrisburg, Philadelphia, Pittsburgh, and Allentown. Andrew has more than 15 years of experience developing environmental and engineering studies, designs and reports for various stormwater and watershed restoration projects in the Mid-Atlantic Region including stream and stormwater management water-quality initiatives. Andrew received his Bachelor's degree in Bioresources Engineering Technology from the University of Delaware and a Master's degree in Environmental Engineering from Johns Hopkins University. He has also attended advanced Project Management and Leadership Development Training and is a recurring presenter in JMT's Project Management Training Program, where he trains and mentors future Project Manager's within JMT's organization.

Mr. Jeremy Koser, PE

Jeremy is a Senior Water Resources Engineer that leads the Environmental Markets Group and is the corporate-wide Water Resources Practice Leader for JMT. He has nearly 20 years of experience in civil and environmental engineering with special expertise in design and management of watershed restoration projects including stream and wetland restoration and other various green stormwater infrastructure projects. He has primarily worked on projects throughout the Chesapeake Bay Watershed States including Maryland, Pennsylvania, Virginia, Delaware and the District of Columbia. He has participated in technical, project management and leadership training for JMT's Internal Training Programs as well as for various state and local organizations. Jeremy is a watershed protection advocate and mostly enjoys crabbing, fishing, walking through wetlands and turning over rocks in small streams with his family.

Mr. Matthew Smith, PE

Matthew is a Senior Water Resources Engineer, in JMT's York, PA, office. He serves as the Lead Technical Water Resources Engineer for several JMT projects located throughout York, Harrisburg, Pittsburgh, Maryland, and Texas. Matthew has more than 13 years of experience developing hydrologic and hydraulic studies, as well as final construction documents and reports for various stormwater and watershed restoration projects throughout the Mid-Atlantic Region. Matthew received his Bachelor's degree in Civil Engineering from Pennsylvania State University. He has attended multiple Project Management and Leadership Development training seminars and has developed and led several training modules for Stormwater Management and Erosion and Sediment Control permitting and design processes for various state and local agencies throughout Maryland.

Dr. Safa Eslambolchi, Ph.D, PE, PMP

Safa is a licensed Professional Engineer in Maryland and Pennsylvania with more than 13 years of experience in with a diverse set of skills in Construction Engineering and Management, Project Controls, Project Management, Operations Research, and Data Analytics. He is an experienced project manager and has been involved in design/construction/management of several multi-million-dollar projects in municipality facilities, higher education facilities, commercial buildings, and wastewater treatment plant. He has worked on several government projects with clients such as Department of State, Department of Energy, City of Philadelphia, City of Baltimore, and Anne Arundel County. He is proficient in scheduling software programs, Primavera P6 and MS Project. Dr. Eslambolchi has a B.Sc. in Civil Engineering as well as two master's degrees in Civil Engineering (Civil Infrastructure Management) and Architectural Engineering (Construction Management), and a dual doctorate degree in Energy Engineering and Operations Research from The Pennsylvania State University.

April 25, 2019

Chesapeake Bay Trust Large Scale Watershed Restoration Project Management Training 201- A Deeper Dive, Day 2

8:00AM – 8:30AM	**Settle-in, Breakfast & Coffee | Day 1 Recap** Led by Andrew Birmingham, PE & Matthew Smith, PE
8:30AM – 10:30AM	**Module 4 – Individual Project Permitting** *Guidance on implementing successful permitting techniques* Presented by Kristin Aiosa, QP & Leyla Lange, QP
10:45AM – 12:00PM	**Module 5 – Bidding and Contracting** *Discussions on successfully implementing projects following design* Presented by Prad Maraj, PE, PSP, CCM
12:00PM – 1:00PM	**Lunch**
1:00PM – 2:30PM	**Small Group Activity – Project Scheduling & PM Controls** *An activity designed to draw on several key aspects covered in the training modules. You will be presented with a sample project and be asked to develop a project schedule and determine critical project management-related items. Work will be performed in small groups, with brief presentation and discussion with the class and facilitators.* Green Stormwater Infrastructure (GSI) – Stormwater Retrofit Project
2:45PM – 3:45PM	**Module 6 – Liability, Insurance & Bonds** *An overview of what your organization needs to know about the legal aspects of the contractual process.* Presented by Jim Morris, PE & Matthew Smith, PE
4:00PM – 5:00PM	**Training Recap - Q&A** *Open Panel Discussion - All Facilitators*

Additional Information:

There will be a 15-minute break between each training module.

Day 2 – Facilitator Bios

Ms. Kristin Aiosa, QP

Kristin is a Senior Environmental Scientist for JMT's York, PA, office. She also serves as the Regional Natural Resources Lead for JMT's DE offices including Newark and Dover. Kristin has more than 20 years of experience in environmental science in the Mid-Atlantic Region, including NEPA, environmental resource permitting, development of sustainable and resilient solutions, environmental compliance, environmental field investigations, resource impact assessment, and avoidance/minimization/mitigation analysis. Kristin received a Bachelor of Arts in Environmental Studies, a Bachelor of Science in Geology, and her Master's degree in Geography, Physical Environmental Systems from the University of Binghamton. She has also attended Project Management Training and is registered as a MD DNR Forest Conservation Qualified Professional and certified as an MDE Responsible Personnel for erosion and sediment control.

Ms. Leyla Lange, QP

Leyla has more than 25 years of experience and is an expert in numerous environmental science disciplines, regulations, permitting, and avoidance/minimization/mitigation analysis. She is an expert in environmental delineations, including wetland and forest stands, as well as COE and MDE permitting, forest conservation plans, rare/ threatened/endangered species investigations, NEPA, aquatic ecology, ecological restoration, mitigation site monitoring, and ecological restoration construction inspection. Leyla is a Qualified Professional (QP) under the Maryland Forest Conservation Act and was also invited to be a member of the prestigious Mid-Atlantic Hydric Soils Committee. She has participated in numerous environmental evaluations and has assisted clients and agencies in developing creative avoidance, minimization, and mitigation solutions for unavoidable impacts to achieve project objectives while protecting resources.

Mr. Prad Maraj, PE, PSP, CCM

Prad is a Senior Vice President and leads JMT'S Project Controls practice and brings over 35 years of construction management experience, including 18 years of experience working with an international construction contractor and 17 years with JMT as an agency owner CM representative. He has extensive experience in construction claims analysis, with demonstrated expertise in providing testimony, in defense of contractor claims. He has been called as an expert witness for CPM scheduling to testify before the Maryland State Board of Contract Appeals during construction claims hearings and before the Maryland Attorney General's Office's Contract Litigation Unit for case preparation. Prad has also developed and conducted training courses on CPM scheduling, claims analysis and prevention for various Maryland public agencies. He is computer proficient with all versions of Oracle Primavera® scheduling and Document Control software. Prad is the former President of the Baltimore Chapter of AACE International.

Mr. Jim Morris, PE

Jim is the Director of Restoration Design and Policy in JMT's Environmental Markets Group, focusing on turnkey projects. He has extensive experience in the planning, design, and oversight of large habitat restoration projects, including large-scale river restoration in support of contaminated sediment remediation and environmental dredging projects. He has experience in the development, design, and negotiation of stream, wetland and forest mitigation for a variety of private and municipal clients, as well as the monitoring, adaptive management, modeling and nutrient and sediment credit accounting associated with ecosystem restoration stewardship and mitigation projects. He performs watershed assessments and fluvial geomorphology assessments of stream reaches utilizing U.S. Environmental Protection Agency WARSSS (2006) and Function-Based Framework for Stream Assessment and Restoration (2012) methodologies, prepares engineering calculations, plans, specifications, and cost estimates for a variety of civil and environmental engineering projects. He serves the design lead for JMT's turnkey project efforts, working closely with a team of engineers, scientists, surveyors, and real property specialists.

Chesapeake Bay Trust – Grant maker, Barrier buster, Capacity builder, and more!

The **MISSION** of the Chesapeake Bay Trust is to promote public awareness and public participation in the protection and restoration of the Chesapeake Bay and its rivers and streams.

Our **GOAL** is to increase stewardship through grant programs, special initiatives, and partnerships that support environmental education, demonstration based restoration, and community engagement activities.

More online at https://cbtrust.org/

Chesapeake Bay Trust

Chesapeake Bay Trust, National Fish, Wildlife Foundation & Our Funding Partners Fund the Following:

- Conceptual site planning
    - Contextual planning - Where does your project fit in the larger picture?
- Best Management Practice (BMP) Engineering Design
- Implementation
- Maintenance
- Staff time and contractors to do the work
- Capacity Building

Our deliverables and the RFP are driven by the funding source(s), e.g., restricted sources such as federal, state, county or unrestricted

We are Here to Learn from You

- What are your common obstacles?
- How can we help?
- Where is more training needed?
- What issues does your organization commonly see when trying to implement these larger (>$100,000) projects?
- What else?
- Be **very** open during this training so we all learn together and have some new tools going forward with this work together.

Common Obstacles that we see

- Permit delays
  - Did the grantee discuss the idea with the permitting agency?
  - Did the grantee and permitting agency understand the process?
- Scope of work and/or expertise for project do not match (e.g., trying to do too much, overpromising)
- Costs and timelines are unrealistic
  - e.g., project can't move forward due to insufficient funds OR >10% difference from proposed or
- Grantee and subcontractors need stronger contracts/scopes of work with their subcontractors to ensure cost and performance standards are met and reduce risk
  - Contractor does not deliver the product promised
  - No contract to back up the work completed
  - Contract not enforced to correct poor work
  - Poor work not detected and BMP failure occurs later
- BMPs - Wrong place, wrong time, wrong size, etc.

What Does Success Mean?

- Projects that are realistic in their cost, timeline, and scope.
- Grantees that are confident in their skills to contract and manage the work.
- BMPs that are designed, built, and maintained to clean water and look good for the public.
- Grant funders spend funds allotted and report awesome projects with awesome results
  - Helps justify need for more $ in these areas

Introduction

Class Outcome/Objective:
To educate, inform, and ultimately increase grantee capacity to successfully implement watershed restoration projects at the $100,000 scale and above.

Class Organization:

- Agenda
- Format
- Participation

Introductions:
A little about yourself.

Why are you here?

What do **you** want to achieve through this class?

Notes

Notes

MODULE 1 -
WHAT IS PROJECT MANAGEMENT? A RECAP & OPEN DISCUSSION

Presenters: Andrew Birmingham, PE & Jeremy Koser, PE

What is Project Management?

Learning Objectives

- Understanding the basic principles of managing a project
- Provide an overview of a typical design, construction and operation project lifecycle
- Reinforce your role as a Project Manager

Project Management – Open Discussion

What are your experiences with project management?

Q1: Why do projects fail?

Q2: Why do projects succeed?

Q3: What qualities/characteristics does a project manager need to meet success?

Q4: Provide a specific example of how you were able to mitigate a project related issue by using project management techniques.

Notes

What is Project Management?

Project Management is:

- Developing and managing the project's **scope, schedule, cost**
- Project team and stakeholders
- Quality and risk
- **Managing** the work/getting work done through the project team

What is Project Management?

Project Management is NOT:

- Performing design and engineering activities
- Construction oversight and inspection
- Operations and maintenance activities
- Doing the work

What is Project Management?

Key Terms and Definitions

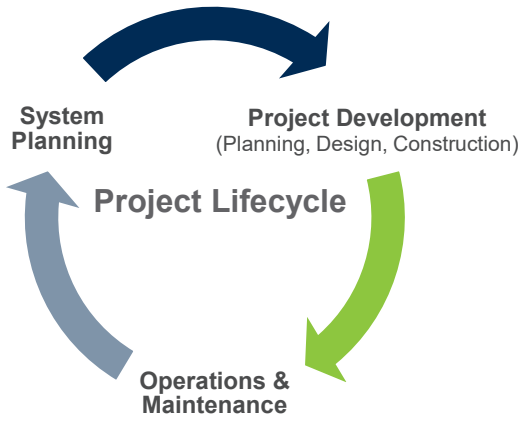
- Scope
  - Scope of deliverable
  - Scope of project
- Schedule
  - Format
  - Level of detail
  - Critical path
- Cost
  - Your cost (administration, procurement)
  - Design cost
  - Permit fees
  - Land cost
  - Construction costs
  - Maintenance and operating costs of facility

What is Project Management?

Key Terms and Definitions

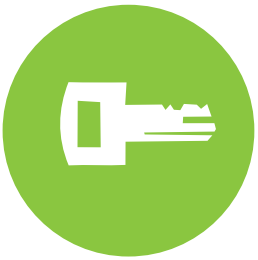
- Stakeholders
  - You and your staff
  - Land owners
  - Owner
  - Regulatory agencies
  - Engineers
  - Contractors
  - Public
- Quality Assurance/Quality Control Risk
  - Unknowns/mitigation strategies/assumptions
- Project Management Plan

What is Project Management?



- Project selection/charter/project purpose/need/justification: What problem are we trying to solve?
- Design phase
- Construction phase
- Maintenance and Operations
- Your role is to MANAGE scope, schedule and cost for each phase. What does manage mean?
- Develop baseline (project plan)
- Monitor against baseline
- Minimize and manage changes, revise baseline when needed

What is Project Management?



Key Takeaways

- Your role is as a **manager** first; not a key technical resource
- You may have to fill in gaps in your technical knowledge to succeed as a manager.
- Understand the resources available to you (on your staff or procured)
- Project planning is a team effort and continues throughout the project

Notes

MODULE 2 - ORGANIZATIONAL READINESS

Organizational Readiness Form
Risk Register Form

Presenters: Andrew Birmingham, PE & Jeremy Koser, PE

Organizational Readiness

Exercise

Organizational Readiness Evaluation Form

Q: What are your organization's strengths?

Q: What are your organization's weaknesses?

Organizational Readiness

Learning Objectives

Explore how my organization needs to prepare to take on large watershed restoration projects.

Identifying and Managing Risk.

Organizational Readiness Form

Does your organization have the following which are consistent with implementing large scale watershed restoration projects?

Check a value from 1-5, 1 being the least consistent and 5 being the most consistent. Check zero (0) if it does not apply.

	0	1	2	3	4	5	Comments
Mission Statement							
Strategic Plan							
Relationships							
Staff Capabilities / Technical Skills							

How would you rate your organization on the following project administration items?

Check a value from 1-5, 1 being the least prepared and 5 being the most prepared. Check zero (0) if it does not apply.

	0	1	2	3	4	5	Comments
Contracting/Procurement Process							
Accounting Procedures							
Legal Advice/Representation							
Insurance Carrier/Advice							
Owner/Developer Agreements							
Project Management Procedures							
QA /QC Process							

How would you rate your organization on the below technical skills?

Check a value from 1-5, 1 being the least capable and 5 being the most capable. Check zero (0) if it does not apply.

	0	1	2	3	4	5	Comments
Stakeholder Coordination							
Public Outreach							
Project Planning							
Natural resources inventories/ delineation							
Topographic & boundary survey							
Utility locating							
Soil boring drilling/infiltration testing							
Laboratory analysis							
Hydrologic / hydraulic analysis							
Water resource engineering							
Geotechnical engineering / analysis							
Structural engineering / analysis							
Traffic control design							
Computer aided design drafting (CADD)							
Geographical information systems (GIS)							
Permitting/approvals							

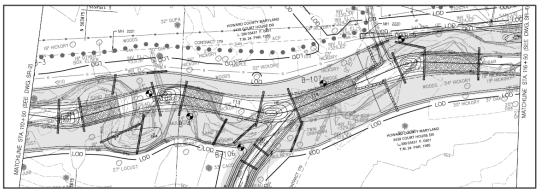
Does your organization have the following tools required for implementing large scale watershed restoration projects?

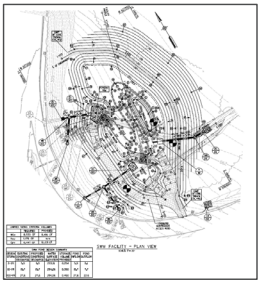
Check a value from 1-5, 1 being the least capable and 5 being the most capable. Check zero (0) if it does not apply.

	0	1	2	3	4	5	Comments
Accounting Software							
Scheduling Software							
CADD Software							
GIS Software							
Hydrologic / Hydraulic Design Software							
Hand Augers/Drilling Equipment							
Survey Equipment							
Utility Locating Equipment							

Organizational Readiness

What is needed to plan and execute a large Watershed Restoration Project?





Organizational Readiness

Are these types of projects consistent with your organizations?

- Mission Statement
- Strategic Plan
- Relationships
- Staff Capabilities/Technical Skills

Do we need assistance from outside our organization?

Organizational Readiness

What are the project administration requirements?

- Contracting/Procurement Process & Documents
- Accounting Procedures
- Legal Advice/Representation
- Insurance Carrier/Advice
- Owner/Developer Agreements
- Project Management Procedures
- QA /QC Process

Organizational Readiness

What technical skills are required?

- Stakeholder coordination
- Public outreach
- Project planning
- Natural resources inventories/delineation
- Topographic & boundary survey
- Utility locating
- Soil boring drilling/infiltration testing
- Laboratory analysis
- Hydrologic / hydraulic analysis
- Water resource engineering
- Geotechnical engineering / analysis

Organizational Readiness

What technical skills are required?

- Structural engineering/analysis
- Traffic control design
- Computer Aided Design Drafting (CADD)
- Geographical Information Systems (GIS)

- Permitting/approvals
  - NPDES permitting
  - Stormwater management
  - Erosion and sediment control
  - Wetlands/waterways/floodplain impacts
  - Forest impacts
  - Critical Area
  - Grading permit/building permit
  - Right-of-way permit

Organizational Readiness

What data collection, design and management tools are required?

- Accounting Software
- Scheduling Software
- CADD Software
- GIS Software
- Water Resources Design Software
  - Hydrology
  - Hydraulics

- Hand Augers/Drilling Equipment
- Survey Equipment
  - GPS
  - Laser Level
  - Total Station
  - 3D Scanner
- Utility Locating Equipment
  - Test hole vacuum truck
  - Backhoe

Notes

Organizational Readiness

What to consider for hiring contractors (design/construction) outside of my organization?

- Proof of Insurance
  - Professional Liability
  - General Liability
  - Workers Compensation
- Proof of Licensure
  - Business
  - Professional Engineer
  - Registered Landscape Architect
  - Professional Licensed Surveyor
- Bonding Capacity
- References
- Certifications

Organizational Readiness

How can I mitigate risks for Design and Construction Contracts?

- Risk Identification
- Risk Avoidance
- Risk Allocation
- Risk Reduction

Risk Identification

- Financial/Budget
- Scope
- Schedule
- Design
- Permitting
- Liability
  - Bodily Injury
  - Property Damage
  - Economic Damages
  - Direct vs Indirect Damages
- Other Project-specific risks

Risk Avoidance

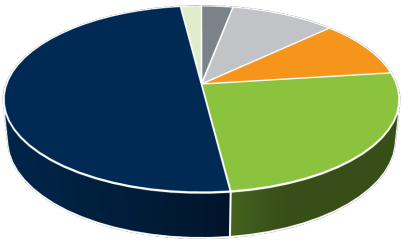
- All projects carry a certain amount of risk.
- Recognize and avoid **unacceptable** risks.
- Review project requirements and contract terms and conditions with appropriate consultants (insurance, legal, etc.) **before signing a contract** or committing to a project.
  - Avoid terms and conditions that create unreasonable and uninsurable risks.
  - Avoid responsibility for risks or factors outside of your reasonable control

Risk Avoidance

Avoid taking on projects with a scope beyond your capabilities and/or qualifications. Don't over-commit!

- **Knowledge and experience:**
  Make sure the project team is competent and appropriately staffed.
- **Personnel:**
  Make sure that adequate personnel will be available to do the work and meet deadlines.

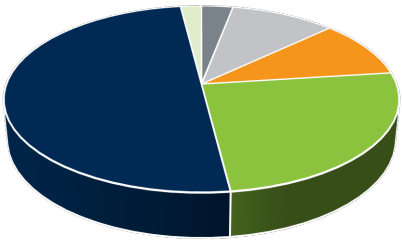
Risk Allocation



Allocate risks to the appropriate party:

- Beware of contracts that shift all risk to one party.
- Be sure that the contract allocates specific risks to the party with the best ability to manage them.
- Use flow-down and indemnification provisions to allocate risks to the appropriate party.

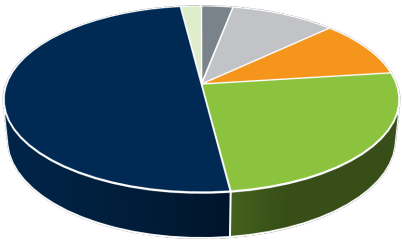
Risk Allocation



Seek limitations of liability:

- Caps on damages (amounts/types)
- Mutual waivers of consequential, special, punitive damages and other types of indirect damages that may be too remotely connected to the project or services to properly control.

Risk Allocation



Obtain/require adequate insurance policies and policy limits to protect against potential losses/claims:

- General Liability
- Workers Compensation and Employer Liability
- Automobile Liability
- Professional Liability
- Builder Risk
- Other policies based on the nature of the project or services

Risk Reduction

- Reduce Risks by taking preventative actions to decrease the likelihood, frequency, and severity of the losses.
- Be proactive - prepare a risk response plan for foreseeable risks so that the project team knows what to do when a manageable risk is encountered.
    - Details and steps will depend on the nature of the project, location and the specific risks involved.

Risk Reduction

Communicate clearly and document all communications between the parties.

- **Written documentation is best.**
  Documentation and records to demonstrate that you met all contractual requirements, notice requirements, obtained timely approvals, and provided sufficient information to allow others to make informed decisions.

Notes

Risk Reduction

Communicate clearly and document all communications between the parties

- **Oral communication will occur often throughout a project**, but all key details should be reduced to writing as soon as possible (meeting minutes, memoranda, notes, correspondence, email confirmation, etc.)

Risk Reduction

Communicate clearly and document all communications between the parties.

- **Keeping and organizing good written records** are vital to the success of presenting or defending against claims

Activity: Project Design Risk Assessment

You are applying for a grant to design and permit multiple bioretention facilities on a local school property. You have applied for and been awarded grants in the past to install rain gardens on behalf of individual residences. This is your first time working with a school and you only have verbal approval from the principal to proceed with the project. You have identified several locations where bioretention seems feasible based on reviewing Google Earth images and a site visit with you and your staff. These include areas adjacent to the school building in the parking lot and at the corner of an athletic field very near an existing eroding stream channel. You do not have time or resources to perform any field data collection efforts prior to submitting the grant application. You engage a local engineer to review and price the design efforts but only have a verbal commitment on scope and fee. You do not know a contractor that can build this type of project and do not engage one prior to grant application submittal since this is only for the design and permitting stage.

Evaluate the major risk items in this scenario and develop a mitigation plan using the Risk Register Template. Keep in mind who is best equipped to "own" the risk.

Notes

Risk Register Form

Risk Level	Risk Category	Risk Description	Risk Mitigation	Responsible Party	Comments

Risk Levels	Risk Categories
Low	Financial
Medium	Scope
High	Schedule
	Design
	Permitting

MODULE 3 -
PROJECT DESIGN & CM

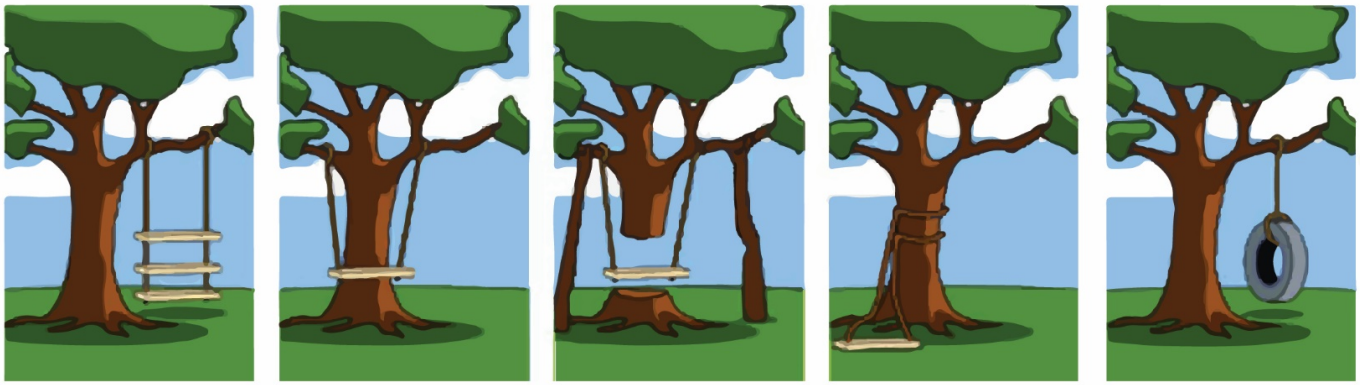
Presenters: Matt Smith, PE & Safa Eslambolchi, PhD, PE, PMP

Learning Objectives

- How to effectively plan and scope your projects
- The role of the Project Manager throughout Project Design and during Construction
- Selecting and working with Construction Contractors
- How to avoid cost over-runs and delays

Project Planning

Ask yourself….what are the requirements/objectives?



How the client explained it

How the project manager understood it

How the engineer designed it

How the technician built it

How the Client really wanted it

Project Planning

I. Scope of Work - READ THE CONTRACT

Scope of Work for Contract No. HT 2823 – 000-0006
(Substructure and Superstructure Rehabilitation to Various Bridges on I-895, from I-95 to I-695)

1. Perform a field investigation / inspection of each bridge within the contract. The purpose will be to locate, verify and obtain the necessary field measurements for the proposed repairs which were identified during the Phase I Preliminary Study. The field investigation will also ensure that the proposed repairs will correct the root cause of the bridge defect. All P1 and P2 defects will be addressed along with any P3 or M defects which may worsen and lead to future P1's or P2's. Those P3 or M defects which are superficial in nature or of a maintenance concern are to be either left as-is or to be repaired by MDTA forces. The intent of the repairs is that the bridge will be upgraded and remain in a satisfactory condition for the next 10 years. Direct costs for bridge access equipment during the field work will include the use of buckets trucks and/or snoopers as required.

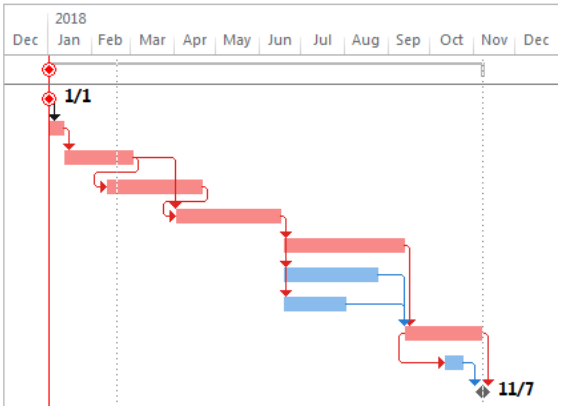
2. Develop contract plans for the necessary repairs. The bridge plans are anticipated to consist of the following drawings:

   - **General Plan and Elevation** of each Bridge with General Notes and List of Proposed Work.
   - A **Site/Access plan** will show the Right of Way / Property Lines and any environmental features beneath the bridge where the Contractor's access may be limited.
   - Relevant **Substructure Elevation** drawings to depict the locations and areas of the proposed repairs.

Project Planning

II. Schedule

Task Name	Duration	Start	Finish	Free Slack
Building Project XXX	**222 days**	**Jan 1 '18**	**Nov 7 '18**	**0 days**
Notice to Proceed (NTP)	0 days	Jan 1 '18	Jan 1 '18	0 days
Mobilize	8 days	Jan 2 '18	Jan 11 '18	0 days
Support of Excavation	36 days	Jan 12 '18	Mar 2 '18	0 days
Substructure	50 days	Feb 12 '18	Apr 20 '18	0 days
Superstructure	55 days	Apr 2 '18	Jun 15 '18	0 days
Electrical Rough-ins	63 days	Jun 18 '18	Sep 12 '18	0 days
Mechanical Rough-ins	50 days	Jun 18 '18	Aug 24 '18	13 days
Building Envelope	33 days	Jun 18 '18	Aug 1 '18	30 days
Interior Finishes	40 days	Sep 13 '18	Nov 7 '18	0 days
Final Site Work/Signage	10 days	Oct 11 '18	Oct 24 '18	10 days
Substantial Completion	0 days	Nov 7 '18	Nov 7 '18	0 days



Project Planning

III. Budget/Cost

TOTAL				
COST SUMMARY FORMAT				
PART I - GENERAL				
1. PROJECT TITLE:			2. Task	
3. NAME OF CONSULTANT: **Johnson, Mirmiran and Thompson**			4. PROPOSAL DATE	1/0/1900
40 Wight Avenue, Hunt Valley, MD 21030				
PART II - COST SUMMARY				
6. DIRECT LABOR (Specify labor categories)	HOURS	HOURLY RATE	ESTIMATED COST	TOTALS
Total Hours	0		$ -	
ESCALATION	RATE	X DIRECT LABOR TOTAL =	ESTIMATED COST	
Escalation	0.00%	$ -	$ -	
DIRECT LABOR SUBTOTAL:				$ -
7. INDIRECT COSTS (Specify)	RATE	X DIRECT LABOR TOTAL =	ESTIMATED	
OVERHEAD AND PAYROLL BURDEN	0.000%	$ -	$ -	
INDIRECT COSTS SUBTOTAL			$ -	
8. TOTAL OF DIRECT LABOR & INDIRECT COSTS (Combined Sum of Items 6&7)				$ -
9. PROFIT				$ -
10. TOTAL PROFESSIONAL FEE (Combined Sum of Items 8 and 9)				$ -
11. OTHER DIRECT COSTS (refer to attached itemization)				
a. DIRECT COSTS	QTY.	COST	ESTIMATED COST	
DIRECT COSTS SUBTOTAL			$ -	
b. TASK PRICING (UNIT-BASED)	QTY.	COST	ESTIMATED COST	
TASK PRICING SUBTOTAL			$ -	
c. SUBCONSULTANT(S)			ESTIMATED COST	
SUBCONSULTANT(S) - SUBTOTAL:			$ -	
d. OTHER DIRECT COSTS TOTAL: (Combined Sum of Items a,b,c)				$ -

Project Planning

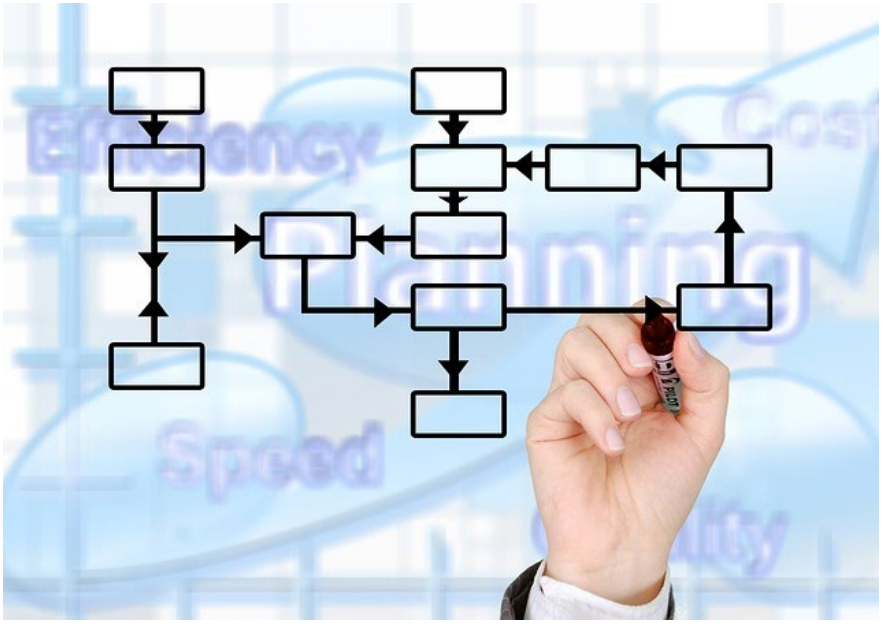
IV. Project Team Members (Internal and External) / Worksharing

Project Planning

V. Communication and Meetings

Project Planning

VI. Quality Control



Project Planning

VII. Document Management

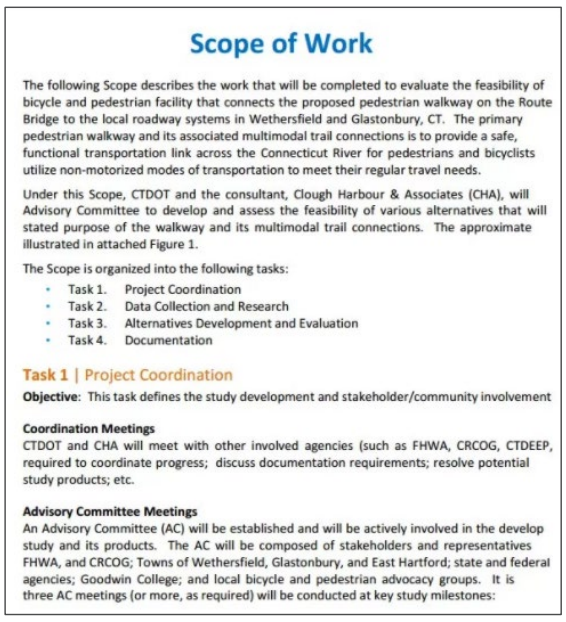
Project Planning

VIII. Safety

Project Planning

IX. Risk Management

Open Discussion



Scope of Work

The following Scope describes the work that will be completed to evaluate the feasibility of bicycle and pedestrian facility that connects the proposed pedestrian walkway on the Route Bridge to the local roadway systems in Wethersfield and Glastonbury, CT. The primary pedestrian walkway and its associated multimodal trail connections is to provide a safe, functional transportation link across the Connecticut River for pedestrians and bicyclists utilize non-motorized modes of transportation to meet their regular travel needs.

Under this Scope, CTDOT and the consultant, Clough Harbour & Associates (CHA), will Advisory Committee to develop and assess the feasibility of various alternatives that will stated purpose of the walkway and its multimodal trail connections. The approximate illustrated in attached Figure 1.

The Scope is organized into the following tasks:

- Task 1. Project Coordination
- Task 2. Data Collection and Research
- Task 3. Alternatives Development and Evaluation
- Task 4. Documentation

Task 1 | Project Coordination

Objective: This task defines the study development and stakeholder/community involvement

Coordination Meetings
CTDOT and CHA will meet with other involved agencies (such as FHWA, CRCOG, CTDEEP, required to coordinate progress; discuss documentation requirements; resolve potential study products; etc.

Advisory Committee Meetings
An Advisory Committee (AC) will be established and will be actively involved in the develop study and its products. The AC will be composed of stakeholders and representatives FHWA, and CRCOG; Towns of Wethersfield, Glastonbury, and East Hartford; state and federal agencies; Goodwin College; and local bicycle and pedestrian advocacy groups. It is three AC meetings (or more, as required) will be conducted at key study milestones:

How many of you have managed a project (or portion of a project) that the scope was prepared by someone else?

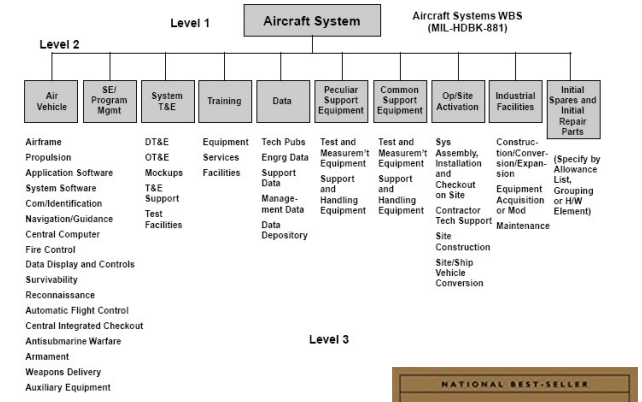
How many of you have written a scope of work?

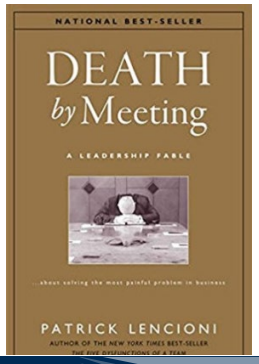
Who has written a scope of work and then executed and managed the same scope of work to completion?

Scope Planning

Learn Project and Client Requirements

- Scoping meeting
- Field meeting
- Develop scope outline (Work Breakdown Structure or WBS) to match client and project requirements



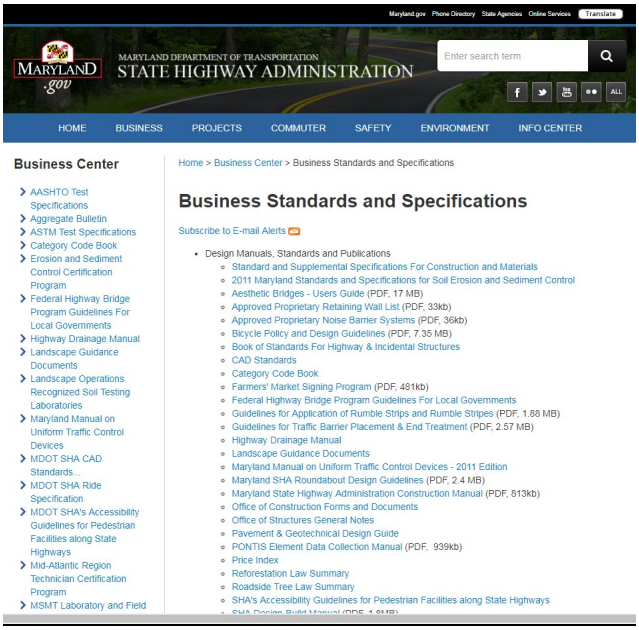


Scope Planning

Know client standards and standard operating procedures

Procedures are different for each client

- Design manual, permitting, milestones, etc.
- Submittals
- Documentation (such as design reports)
- Addressing different stakeholder requests and requirements
- How often will you meet?
- Review requirements



Scope of Work

General Parts of a Scope of Work

- Detailed list of work activities that will be performed
- Identify work to be performed by each discipline
- Identify who the individuals are that will be performing the work
- Identify any assumptions made that could affect how work is performed
- Identify the project limits
- Identify information or work to be performed or provided by others
- What are the client's responsibilities?
- Exclusions (when appropriate?)
- Avoid guarantees or implied warranties

Scope Writing: What to Use

DO NOT USE	EXAMPLE REPLACEMENTS
At all times	Will be done once per…
Insure, ensure, assure	Reasonable effort will be made
Periodically	Every Thursday…
Supervise, inspect	Observe and report
Certify, warranty, guarantee	Statement as to our judgement based on…
All existing information will be gathered	Readily available information will be reviewed and collected as needed…
Will complete all project services	Will prepare and submit for review and approval normal engineering drawings suitable for construction…

Notes

Activity: What's Wrong?

"Existing and future land use will be reviewed with city staff to reach a consensus on the conditions that will be used to evaluate storm water impacts"

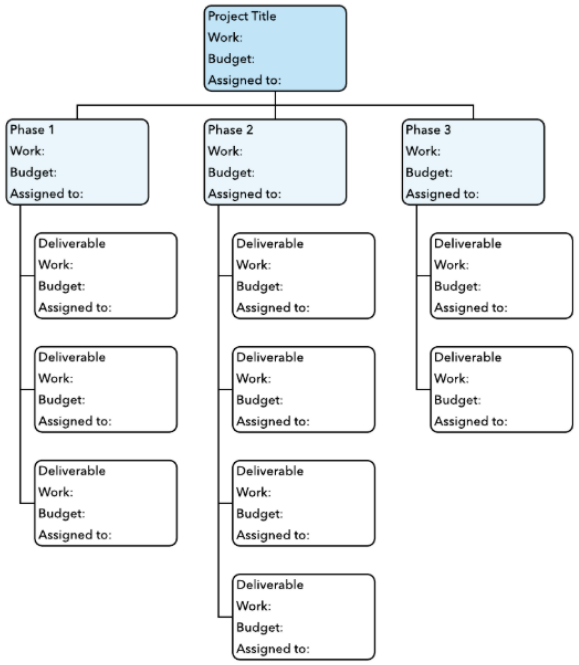
Q: What do can we do to fix this?

Developing a WBS

- Define and sequence activities
- Determine what resources will complete the work
- Estimate activity durations
- Other direct costs

Developing a WBS

- Account for 100% of the work
- Do not duplicate sub-tasks
- Hierarchical
- Focus on deliverables and outcomes instead of actions



Compare your WBS Against your Scope

…and make sure they are the same!

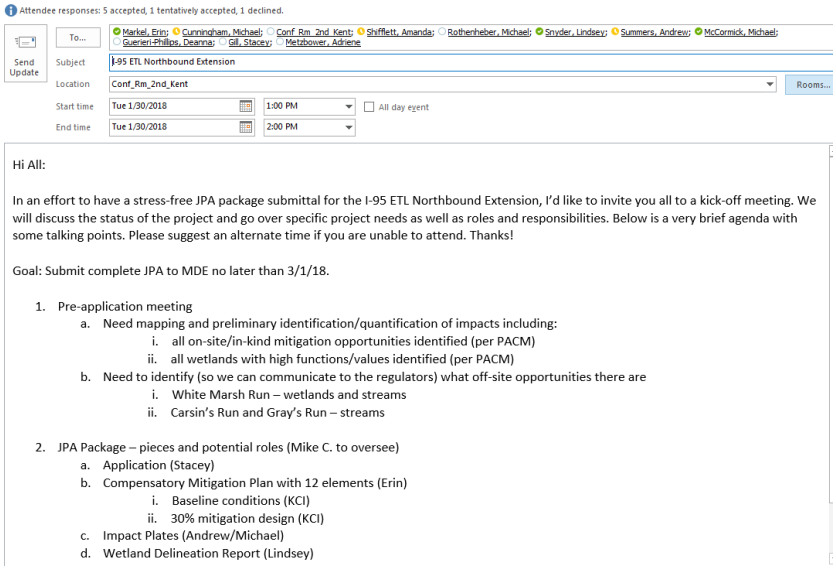
Project or Task Award

- Notify project team
- Develop Project Management Plan (PMP)
- Baseline project schedule
- Schedule Project Kick-Off Meetings
    - Internal Kick-Off Meeting
    - External Kick-Off Meeting

Internal Kick-Off Meeting

- Review PMP with project team
- Scope of work
- Schedule
- Budget
- Project team responsibilities
- Meetings and communication
- Quality control
- Safety
- Project risks and mitigation

External Kick-Off Meeting



Attendee responses: 5 accepted, 1 tentatively accepted, 1 declined.

To... Markel, Erin; Cunningham, Michael; Conf_Rm_2nd_Kent; Shifflett, Amanda; Rothenheber, Michael; Snyder, Lindsey; Summers, Andrew; McCormick, Michael; Guerieri-Phillips, Deanna; Gill, Stacey; Metzbower, Adriene

Send Update

Subject: I-95 ETL Northbound Extension

Location: Conf_Rm_2nd_Kent Rooms...

Start time: Tue 1/30/2018 1:00 PM All day event

End time: Tue 1/30/2018 2:00 PM

Hi All:

In an effort to have a stress-free JPA package submittal for the I-95 ETL Northbound Extension, I'd like to invite you all to a kick-off meeting. We will discuss the status of the project and go over specific project needs as well as roles and responsibilities. Below is a very brief agenda with some talking points. Please suggest an alternate time if you are unable to attend. Thanks!

Goal: Submit complete JPA to MDE no later than 3/1/18.

1. Pre-application meeting
   a. Need mapping and preliminary identification/quantification of impacts including:
      i. all on-site/in-kind mitigation opportunities identified (per PACM)
      ii. all wetlands with high functions/values identified (per PACM)
   b. Need to identify (so we can communicate to the regulators) what off-site opportunities there are
      i. White Marsh Run – wetlands and streams
      ii. Carsin's Run and Gray's Run – streams

2. JPA Package – pieces and potential roles (Mike C. to oversee)
   a. Application (Stacey)
   b. Compensatory Mitigation Plan with 12 elements (Erin)
      i. Baseline conditions (KCI)
      ii. 30% mitigation design (KCI)
   c. Impact Plates (Andrew/Michael)
   d. Wetland Delineation Report (Lindsey)

- Who should be there?
- What topics should be discussed?

Monitor and Control Project Work

- Meet regularly with project team to discuss progress, issues, and risks
- Review and update PMP and project schedule
- Monitor project budget against scope and WBS
- Compare project actuals against WBS
- Determine cost to complete
- Report progress to client and **identify and document change requests**

Construction Management - Overview

- Evaluating Qualifications/Experiences
- Material Costs
- Request for Information (RFIs)
- Schedule Restrictions
- Permits During Construction
- Inspection and Documentation
  - Construction Oversight
  - Utilization of Proper Equipment
- OSHA
- Miss Utility

Construction Management

The Construction Phase

- Most activity occurs in this phase (and most risk for cost overruns!)
- Your role?
  - Make timely and decisive decisions
  - Defined communication plan and levels of authority
- Construction Manager
  - Expertise and experience
  - Inspects work and recommends payment
  - Day-to-day point of contact

Construction Management

The Construction Phase

- Role of the Designer during construction
  - Respond to Requests for Information (RFIs)
  - Review and recommend approval of shop drawings and material specifications
  - Review change requests
  - Site visits as required by regulatory agencies
  - Bid justifications

Construction Management

STATE HIGHWAY ADMINISTRATION OF MARYLAND

Price Index _____ 07/01/2015 Page 168

ITEM 390650 **UNITS** CY
DESCRIPTION COARSE SAND FOR STORMWATER MANAGEMENT FACILITIES

CONTRACT	QUANTITY	UNIT PRICE	TOTAL AMOUNT	AWARDED DATE
FR5715170R	2,761	86.00	237,446.00	04/14/2015
HA4265177	7	145.00	1,015.00	05/26/2015
CL3695130	26	85.00	2,210.00	06/03/2015
AL4275130	46	136.00	6,256.00	06/10/2015
CE2885176	28	95.00	2,660.00	06/16/2015

ITEM 390660 **UNITS** CY
DESCRIPTION BIORETENTION SOIL MIX

CONTRACT	QUANTITY	UNIT PRICE	TOTAL AMOUNT	AWARDED DATE
AA4915130	617	90.00	55,530.00	07/02/2014
CA3825176	315	135.00	42,525.00	07/02/2014
FR2255181	220	84.70	18,634.00	07/30/2014
PG5435174	264	80.00	21,120.00	08/12/2014
TA3925171	102	60.00	6,120.00	08/14/2014
QA2655170	290	95.00	27,550.00	09/16/2014
AA2705130	279	102.00	28,458.00	10/07/2014
BA3665170	717	85.00	60,945.00	10/23/2014
HA3485370	72	80.00	5,760.00	12/18/2014
PG7805270	1,006	42.00	42,252.00	01/07/2015
WA3785176	27	90.00	2,430.00	01/20/2015
CA3055184	89	106.31	9,461.59	02/19/2015
CH2005179	22	100.00	2,200.00	02/19/2015
AA2695130	512	94.00	48,128.00	03/19/2015
CE3875176	240	105.00	25,200.00	03/31/2015
CE4495176	180	90.00	16,200.00	04/07/2015
CL2135176	2,400	76.00	182,400.00	04/07/2015
CL4565130	47	100.00	4,700.00	04/07/2015
BA6435130	210	85.00	17,850.00	04/13/2015
FR5715170R	16,562	95.35	1,579,186.70	04/14/2015
FR6505187	60	120.00	7,200.00	04/29/2015
HA4265177	39	120.00	4,680.00	05/26/2015
CL3695130	360	82.50	29,700.00	06/03/2015
AL4275130	276	117.00	32,292.00	06/10/2015
CE2885176	350	92.00	32,200.00	06/16/2015

Bid Justifications

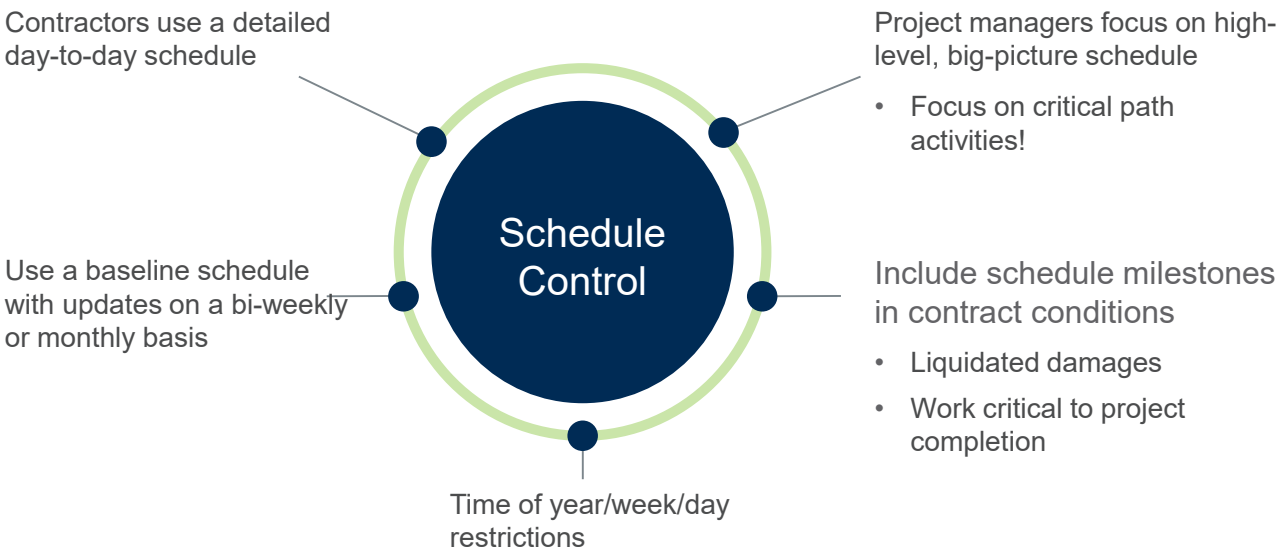
- Material costs vary due to:
  - Availability
  - Quantity needed
  - Location
- Search for information that is applicable to your project
  - Price indexes
  - Cost estimating manuals

Construction Management

Selecting a Contractor

- Procurement by sealed bids/invitation for bid
  - Lump sum or unit price
- Low bid vs. weighted selection (cost + schedule)
- Qualifications and similar experience
- References
- Equipment and supplies
- DBE Requirements

Construction Management



Construction Management

Change Orders

- Establish communication process up front for Requests for Change (RFCs)
- Quick and decisive responses to avoid delays and claims
- **Remember**…can be avoided with clear PSE deliverable and a constructability review
- Documenting and tracking changes
- Update project documents

Construction Management

Change Orders

Type of Change	Description	Contractor Compensation
Agency Action	• Changing the plans and specifications • Altering the time to complete the work • Changing the contractor's means and methods • Regulatory changes • Third party delays where the agency is responsible for coordinating the third party work	• Contractor is compensated. If another contractor's non-performance causes the change, the other contractor should be back charged
Differing Site Conditions	• Subsurface conditions differ from those represented by the construction documents • Unusual conditions occur that could not reasonably be anticipated	• Contractor is compensated
Errors or Omissions	• Errors or omissions in the design plans and specifications	• Contractor is compensated. The designer should be back charged
VE	• Contractor proposes a change that will reduce the project costs	• Agency and contractor share the cost savings
Contractor Action	• Contractor changes means and methods and/or delays project due to their own non-performance • Third party delays where the contractor is responsible for coordinating the third party work	• Contractor is not compensated but may be given additional time for third party delays

http://www.fta.dot.gov/documents/Construct_Proj_Mangmnt_CD.pdf

Construction Management

Permitting

- Contractor responsible for permits related to the contractor's work
  - OSHA
  - Miss Utility
- Communicate clearly the requirements of regulatory agencies to contractor
  - When to contact inspectors
  - As-built requirements
  - Explanation of project function may help explain sequence of construction, materials selection, etc.

Construction Management

Inspection and Documentation

1. Inspector - Daily

- There on behalf of the owner
- Documents materials and durations for contractor payment

2. Inspector (Other): As Specified

- Erosion and sediment control, utilities, proprietary items, etc.

3. Designated Specialist: As Specified

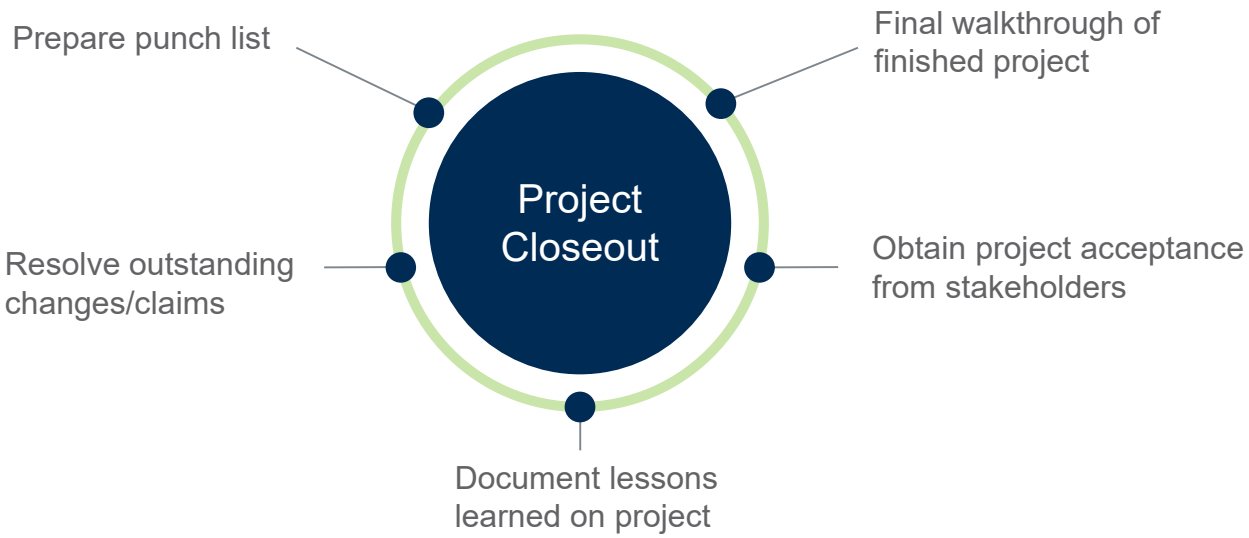
- Familiar with design and construction process to facilitate adjustments and questions in the field
- Same authority as an inspector

Construction Management

“Third Party” Work

- Existing facilities impacted by the project
  - Utilities
  - Infrastructure
- Complete early to avoid delaying the contractor
- Negotiate the timing and duration
- Costs for betterment should be paid by the third party

Construction Management



Construction Management

Exercise:

Construction Photos/Lessons Learned

Notes

MODULE 4 - PERMITTING

Presenters: Kristin Aiosa and Leyla Lange

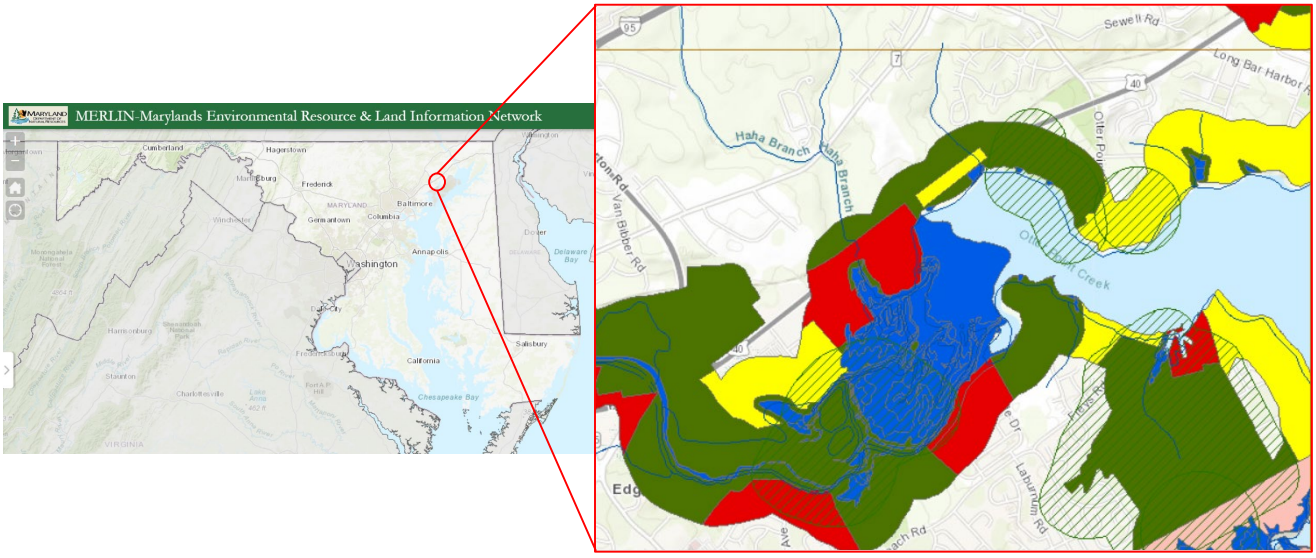
Learning Objectives

- Determine what permits you need for your project/Project specific requirements
- Schedule - when to engage in the process
- Post-authorization/Permit conditions (general and special)

Remember: ***One size does not fit all!***

Step 1 – Define your Project & Review Online Resources

Determine what permits you need for your project/Project specific requirements



Step 2 – Pare Down the List

Determining what permits you need for your project/Project specific requirements

Don’t count on on-line screening!

- Wetland and Waterways Permitting (Joint Permit Applications)
- Critical Areas (Tidal Zones)
- Endangered Species (State/Federal)
- Cultural Resources
- Forest Conservation Plans (FCPs)
- NPDES/GP for Construction Activities (NOI)
- Erosion & Sediment Control
- Stormwater Management (if applicable)
- Additional State/Local Permits (e.g., Grading, Access)

Examples of Additional State/Local Permits

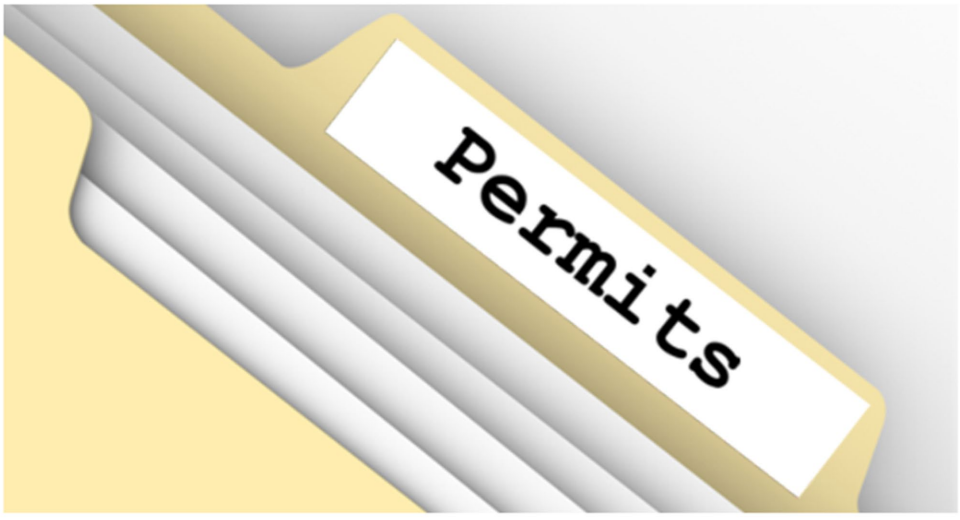
Permits

- Four Easy Steps
- Approval Process
- Find the Right Permit
- Approval Fact Sheets
- Permit Applications and Other Forms
- Approval Resources
- Permit Application Database Search
- Permits Home

Programs

- Air & Radiation Permits
- Land Permits
- Water Permits

Environmental Permits and Approvals



Step 3 – Conduct Agency Coordination

What are the project administration requirements?

- Early and often
- Pre-application meeting (walk-through)
- Identify potential avoidance and minimization measures to consider
- Refine concept designs
- Document **everything**
- Follow up as necessary – don't assume the loop is closed, especially with on-line coordination

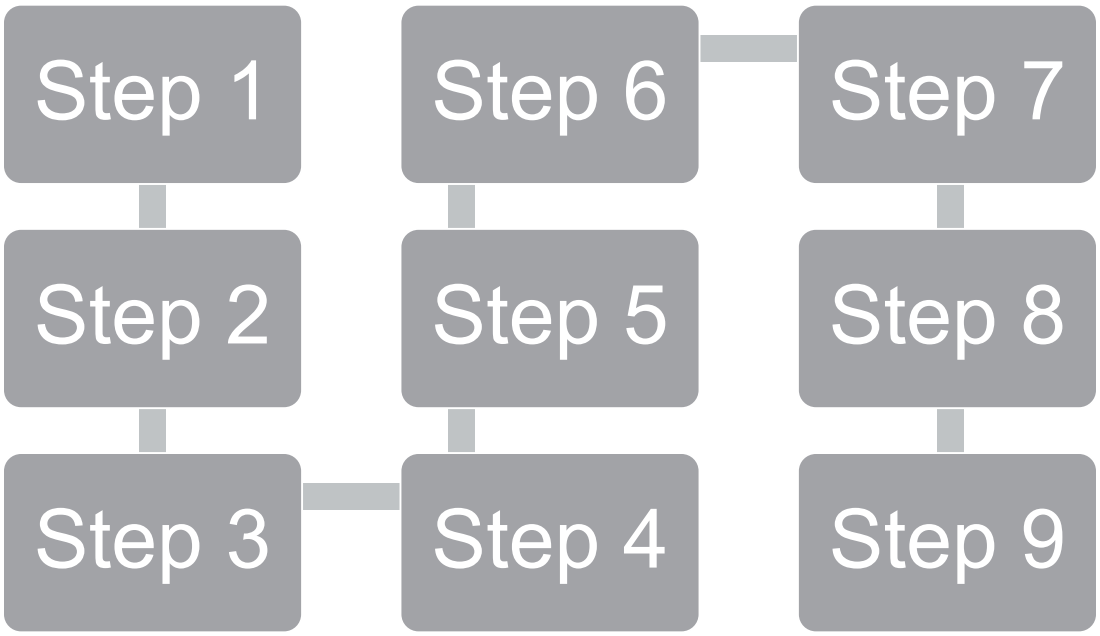
Pre-application meetings often resolve many issues early in the process.

Step 4 – Perform Field Delineations

Identify natural and cultural resources **early** in the process to address potential impacts with the appropriate agencies.

- Wetlands and waterways
- Forest resources
- Cultural resources
- RTE species

Sample Flowchart – Identifying your Necessary Permits



Activity - Sample Workflow

Sample Flowchart Exercise

You are working on a stream restoration project. You have developed your concept design, which will result in an area of disturbance of approximately 2.23 acres. You have reviewed available online mapping and identified that the project will impact one perennial stream, two adjacent wetlands, a FEMA mapped 100-year floodplain, and a forest. The project construction will require utility relocations and access from a private property owner. Using the steps we have reviewed so far, take 10 minutes and go through the process in your groups to identify all necessary agency coordination, fieldwork, and permits.

Step 5 – Prepare Permit Application(s)

- ✓ Have a robust project description
- ✓ Determine completeness of plans necessary to support application (30%, 60%, 90% or 100%)
- ✓ Accurately prepare impact plates (if necessary)
- ✓ Document avoidance and minimization efforts
- ✓ Ask questions of your reviewer if any pop up
- ✓ Perform a **thorough** QA/QC review
- ✓ Include necessary fees

REMEMBER: Follow all Checklists

Step 6 – Address Comments (Group Activity)

How to facilitate the approval process…

- **Be proactive** - follow up with reviewer after submission
- **Never assume comment understanding –** Ask the reviewer for clarification
- **Address comments in a timely manner** - control the portion of schedule that you can control
- **Provide detailed response to every comment** - reviewers are not mind readers
- **Remember that permit approvals follow a process**

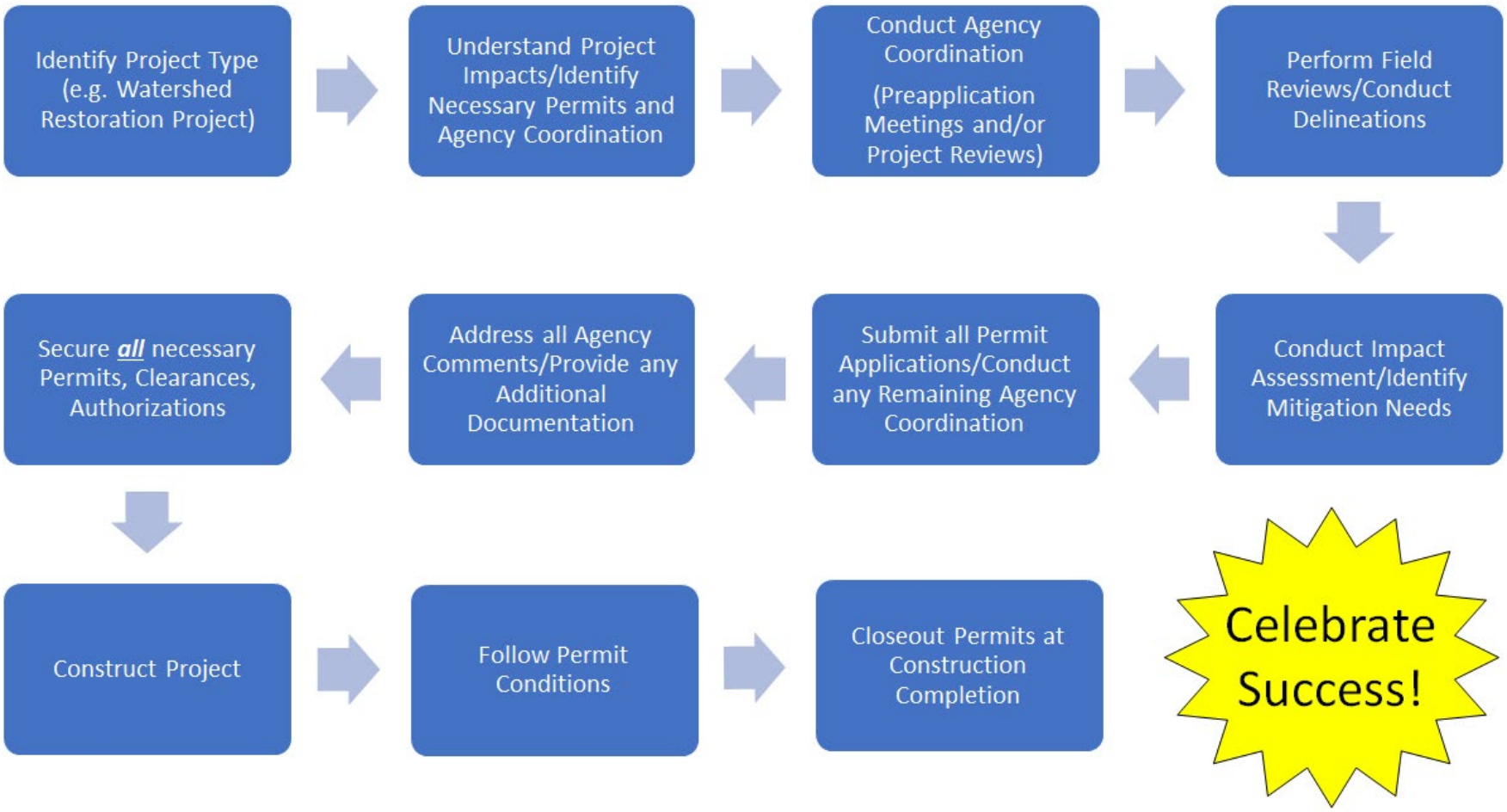
Tips to Managing Expectations

- Don’t overpromise!

  Applies to both agencies and stakeholders
- Realistic when establishing schedule
- Factor in response to comments (lather, rinse, repeat)
- Effectively and efficiently address comments – don’t anticipate the agencies will read between the lines
- Understand what will be required after authorization has been granted (permit conditions)
- Be prepared to mitigate for your project’s impacts

Notes

Permitting Flowchart



Case Study 1: Governor Harry W. Nice Bridge Replacement Project

- Two USACE Districts (Baltimore and Norfolk)
- Maryland and Virginia State and Local Permits
- US Coast Guard
- Essential Fish Habitat
- Biological Assessment (Atlantic and shortnose sturgeon and Designated Critical Habitat)
- Cultural Resources (Maryland, Virginia and underwater)
- USFWS Bald Eagle and Northern Long-eared Bat
- National Park Service
- NEPA Re-evaluation
- Complex Mitigation

Case Study 2: Shipley's Choice Dam Removal

Case Study 3: East Prospect Streambank Stabilization

Case Study 4: Audience Participation Required!

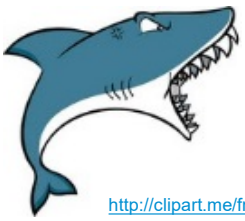
Q: What is a project that you have worked on that has gone very poorly or very well with respect to permitting?

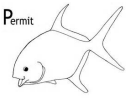
Permitting Pitfalls (Group Activity)

Q: What are common permitting pitfalls?

Risks that can de-rail your project…

- Not engaging project stakeholders
- Project Manager's understanding of:
  - Permitting requirements and process
  - Scheduling implications, durations, lead time, etc.
    - Time of year restrictions
- Permit Conditions (post-authorization)





printablecolouringpages.co.uk

http://clipart.me/free-vector/whale-shark

Coordination – Project Success!

Permitting Quiz

Exercise

Permitting Quiz

Notes

MODULE 5 -
BIDDING & CONTRACTING

Presenter: Prad Maraj, CCM, PE, PSP

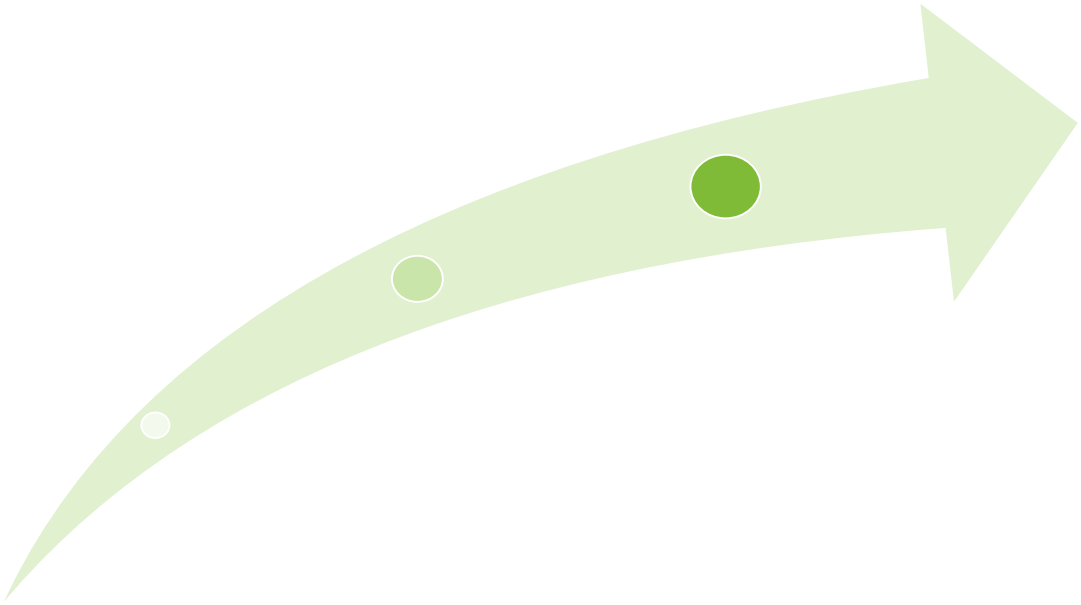
Learning Objectives

- What is Construction Management?
- Understand how to use and interpret Construction Contracts, Drawings, and Specifications
- How to avoid cost over-runs, delays and prevent Claims

Overview of Construction Management

- Evaluating Qualifications/Experiences
- Material Costs
- Request for Information (RFIs)
- Schedule Restrictions
- Permits During Construction
- Inspection and Documentation
  - Construction Oversight
  - Utilization of Proper Equipment
- OSHA
- Miss Utility

Construction Steps and Tasks

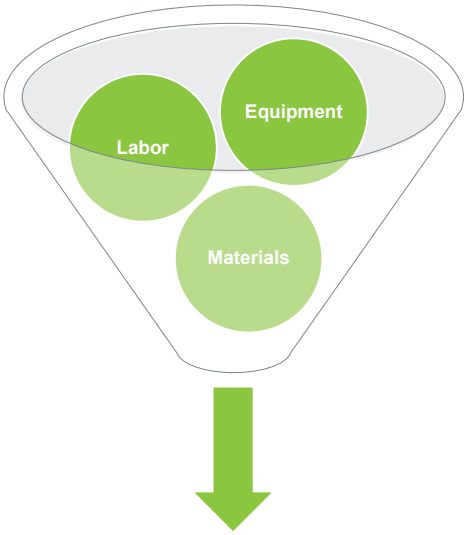


Designer Perspective – Construction Phase

Role of the Designer during construction

- Respond to Requests for Information (RFIs)
- Review and recommend approval of shop drawings and material specifications
- Review change requests
- Site visits as required by regulatory agencies
- Bid justifications

Contractors Perspective – Construction Management



Managing the Construction Process

Goal:

To complete the project on time, within budget and of good quality

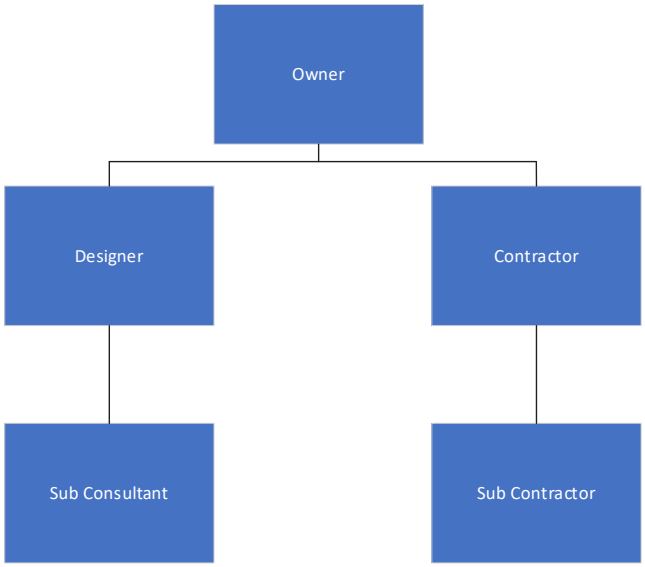
Considerations for Selecting a Contractor

Q: What consideration should you think about when selecting a contractor?

- Procurement by sealed bids/invitation for bid
  - Lump sum or unit price
- Low bid vs. weighted selection (cost + schedule)
- Qualifications and similar experience
- References
- Equipment and supplies
- DBE Requirements

Methods for Delivering a Construction Project

- Owners Construction Forces
- Owner's management of a contractor
- Design Build
- Construction Management Contract



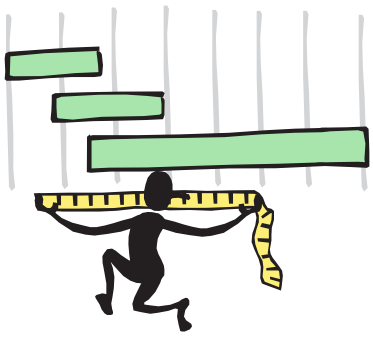
What is a Contract?

A legally enforceable agreement between two or more parties. It may be oral or written. A contract is essentially a set of promises. Typically, each party promises to do something for the other in exchange for a benefit.

Five characteristics

- Legal Purpose - within the law
- Mutual Agreement - meeting of the minds offer & acceptance
- Consideration - value in exchange for benefit
- Competent Parties - sound Mind Legal age
- Free Engagement - free will

What makes a Construction Contract different?



Time - it's of the essence

A construction contract provides a legal binding agreement, **for both the owner and the contractor,** that the executed job will receive the specific amount of compensation or how the compensation will be distributed.

Contract Definitions

Agreement - The entire arrangement between the owner and the contract or detailing bidding, bonds, liabilities, construction services, legal and financial rights and responsibilities, quality of workmanship and numerous other items is packaged into the set of contract documents.

Conditions of contract - Q: What conditions have you seen in your contracts?

Procedures For Problems	Legal Aspects	Rights and Responsibilities	Guidelines for Administering
Address the procedures for dealing with situations and problems that may occur with the contractor.	Addresses the legal aspects of the arrangement between the contractor and owner.	Details the rights and responsibilities of those involved in the contract	Provide guidelines for administering the contract, define the legal relationship, and among the parties affected by the contract (e.g., subcontractors, the engineer, construction manager, etc.).

Contract Definitions Continued

Contract Drawings:

- Drawings prepared by A/E used for bidding become contract drawings.
- **Specifications** - standard and special

Contractor Definitions Continued

Bid – A statement of price, terms of sale, and description of the supplies, services, construction or construction-related services offered by a bidder to the State in response to an Invitation for Bids.

Change Order – A written order, signed by the owner, that amends the Contract by adding, deleting, or modifying price, time, work and/or conditions that was not originally addressed in the Contract.

Claim – A request, demand, or assertion of rights by a Contractor, for consideration, compensation, or payment under the terms of the Contract, such as for a disputed change, adverse action or inaction of the owner, or any other adverse impact to the Contractor's work not attributable to the Contractor. A construction claim consists of two major parts:

Entitlement (Merit) – A detailed description of the impact, its cause, and basis for which relief is sought.

Damages (Quantum) – Detailed outline, calculations, and support documentation for the compensation (Time and/or money) requested.

Contract Definitions Continued

Delay – Any failure to complete a construction activity (or series of activities) within the time planned. There are two basic categories of delays:

Excusable – Unforeseen and beyond the control of the Contractor. These are two types:

- **Compensable** – A delay for which the Contractor is entitled to compensation (delay damages) as well as an extension of Contract Time.
- **Non-compensable** – A delay for which the Contractor is entitled to time, but not additional compensation. Any concurrent delay falls under this category.

Non-excusable – A delay for which the Contractor has responsibility and as such is entitled to neither time nor compensation.

Dispute – Any conflict or disagreement between the owner and the contractor. This may be regarding a question of fact, or the interpretation of the contract.

Contract Definitions Continued

Liquidated Damages – The additional costs incurred by either the owner or the owner on the behalf of the public as a result of the Contractor failing to meet time related provisions of the Contract.

Liquidated Damages are not penalties, but actual or estimated compensation for the additional cost incurred by the Owner.

Notes

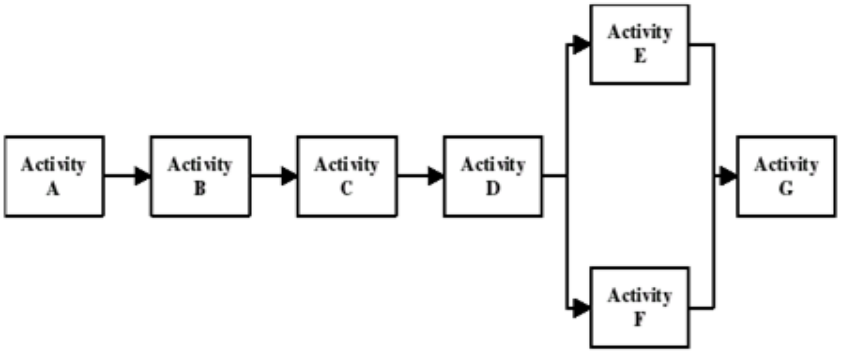
Scheduling & Planning

Q: Why is it important to schedule and plan?

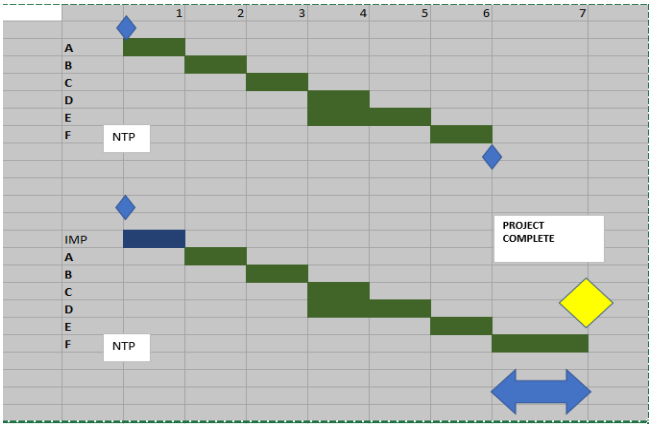
- Planning and scheduling are distinct but inseparable
- The process of **planning** primarily deals with selecting the appropriate policies and procedures in order to achieve the objectives of the project.
- **Scheduling** converts the project action plans for scope, time cost and quality into an operating timetable

Two Types of Schedules

- Bar Chart -simple timeline done graphically on a timescale typically in Excel
- CPM (Critical Path Method)-Network of activities with logical relationships



Bar Chart Schedule



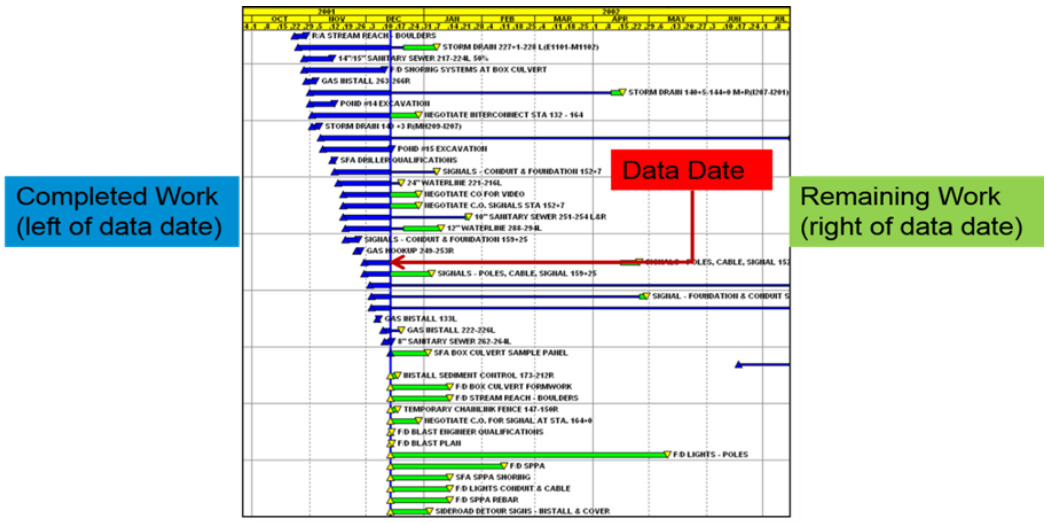
Components:

- Activity Description
- Activity Duration (in calendar days)

- Most common type of schedule required by project specifications.
- No relationship ties.
- Very Subjective, hard to determine if Project is delayed and identifying delaying activity.

Critical Path Method Schedule

Step-by-step project management technique for process planning that defines critical and non-critical tasks with the goal of preventing time-frame problems and process bottlenecks.

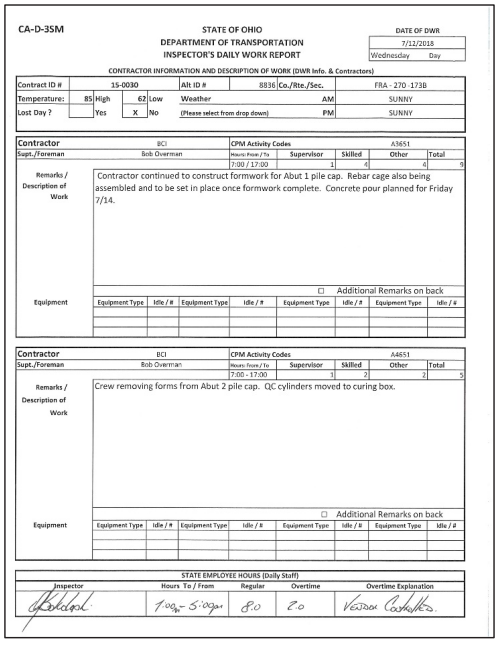


Bar Chart vs. Critical Path Method

Bar Chart		CPM
No Relationships between activities	⟷	**Defined** Relationships between activities
No algorithm, “variables” are assigned by scheduler	⟷	Algorithm calculates variables, Total Float, Early/Late Dates
More Subjective	⟷	More Objective

Action to take: Include the requirement for CPM in your specifications

Document Control



CA-D-3SM

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
INSPECTOR'S DAILY WORK REPORT

DATE OF DWR: 7/12/2018 Wednesday Day

CONTRACTOR INFORMATION AND DESCRIPTION OF WORK (DWR Info. & Contractors)

Contract ID #	15-0030	Alt ID #	8836	Co./Rte./Sec.	FRA - 270 -17.38
Temperature:	85 High / 62 Low	Weather		AM	SUNNY
Lost Day ?	Yes / X No	(Please select from drop down)		PM	SUNNY

Contractor	BCI	CPM Activity Codes			A3651	
Supt./Foreman	Bob Overman	Hours From / To	Supervisor	Skilled	Other	Total
		7:00 / 17:00	1	4	4	9

Remarks / Description of Work: Contractor continued to construct formwork for Abut 1 pile cap. Rebar cage also being assembled and to be set in place once formwork complete. Concrete pour planned for Friday 7/14.

☐ Additional Remarks on back

Equipment

Equipment Type	Idle / #	Equipment Type	Idle / #	Equipment Type	Idle / #	Equipment Type	Idle / #

Contractor	BCI	CPM Activity Codes			A4651	
Supt./Foreman	Bob Overman	Hours From / To	Supervisor	Skilled	Other	Total
		7:00 - 17:00	1	2	2	5

Remarks / Description of Work: Crew removing forms from Abut 2 pile cap. QC cylinders moved to curing box.

☐ Additional Remarks on back

Equipment

Equipment Type	Idle / #	Equipment Type	Idle / #	Equipment Type	Idle / #	Equipment Type	Idle / #

STATE EMPLOYEE HOURS (Daily Staff)

Inspector	Hours To / From	Regular	Overtime	Overtime Explanation
[signature]	7:00a - 5:00p	8.0	2.0	Verizon Cathodic

Written records required for construction

- Application for payments
- Daily Reports
- Change Control
- Special Inspection Reports
- Claims Analysis
- Meeting Minutes
- Request for Information
- Submittals

Q: Which is the most important?

Document Control- Inspector Daily Reports

Q: What is missing?

OOC75 12/14/11
CM 7210.100.14

MARYLAND STATE HIGHWAY ADMINISTRATION
INSPECTOR'S DAILY REPORT

IDR Number: (Field Office Use Only)

NTP Date: 5/15/15 MCMS assigned Letter F
Contract No: [redacted] Day: FRIDAY Date: [redacted]
Sky: Wind: Precipitation:
Soil or Grade Condition:
Stream or Tide Stage:

TEMP °F Min Max

Delays: RW Utility Material Other
Details: Pg 2 of 4

Item Number & Description 1. 2. 3.

Classification of Labor & Equipment Used / *Idle — KEY — 1 (No, Hrs, Idle) — 2 (No, Hrs, Idle) — 3 (No, Hrs, Idle) — Totals (No, Hrs)

Location and Quantity of Work Completed (1, 2, 3)

ITEM # 2007.01A
CLASS I Excav
[redacted]
WORKED ON GRADING
& Moving topsoil Small
PILE TO ANOTHER location
AS STATIONS 42+50+/-RT
TO 44+50RT +/- OF Monocacy
BLVD BL 20' OF ℄ RR, SEE
PLAN SHEET ES-06 in PLANS.
NO PAY / Incomplete

*Worked On Sketches &
IDR For previous Day.

* Indicate (A) Standby,(B) Not Needed,(C) Broken down, or (D)
Materials: Note Approval Status
Visitors & SHA ...

Document Control- Inspector Daily Reports

OOC75 12/14/11
CM 7210.100.14

MARYLAND STATE HIGHWAY ADMINISTRATION
INSPECTOR'S DAILY REPORT

IDR Number: 109-O (Field Office Use Only)

NTP Date: 5/15/15 MCMS assigned Letter O
Contract No: [redacted] Day: MONDAY Date: 8/31/15
Sky: Wind: Precipitation:
Soil or Grade Condition:
Stream or Tide Stage:

TEMP °F Min Max

Delays: RW Utility Material Other
Details:

Item Number & Description 1. 2. 3. [redacted]

Classification of Labor & Equipment Used / *Idle	KEY	1 No	1 Hrs	1 Idle	2 No	2 Hrs	2 Idle	3 No	3 Hrs	3 Idle	Totals No	Totals Hrs
Excavator/operator		1	10	.5								
Truck Drivers					13	124					1	10.5
D56 Dozer/operator		1	10	.5							13	124
Compactor/operator		1	2	8.5							1	10.5
Back dump		1	10	.5							1	10.5
											1	10.5
Dump Trucks					13	124						
Excavator		1	10	.5							13	124
DSG Dozer		1	10	.5							1	10.5
Compactor		1	2	8.5							1	10.5
											1	10.5

Location and Quantity of Work Completed (1, 2, 3)

ITEM# 2010.01A
COMMON BORROW
[redacted] HAULED
BORROW FROM FREDERICK
HIGH SCHOOL TO TEMPORARY
MONOCACY AT STATIONS
41+00 - 43+00 Q
SEE ATTACHED TRUCK
SHEETS FOR INFORMATION
~~PAY 2448.8 cy~~
PAY 2449.39 CY
CAME IN ½ HOUR EARLY
TO COMPLETE PAPERWORK
TICKETS 1900 - 2057

2010.01A Common Borrow
See IDR 271-T for
Corrected Payment

Change Orders

To Manage

- Establish communication process up front for Requests for Change (RFCs)
- Quick and decisive responses to avoid delays and claims

To Avoid – Key Takeaways

- Clear PSE deliverable
- Constructability review
- Documenting and tracking changes
- Update project documents

Change Orders

Avoid the rubber dinghy turning into a yacht!

Utilities

- Existing facilities impacted by the project
  - Utilities
  - Infrastructure
- Complete early to avoid delaying the contractor
- Negotiate the timing and duration
- Costs for betterment should be paid by the third party

Key Takeaways:

- Identify which utilities are affected (U/G or Overhead)
- Locate prior to excavation
- Timely notice for re-location

Utilities

Permitting

- Contractor responsible for permits related to the contractor's work
  - OSHA
  - Miss Utility
- Communicate clearly the requirements of regulatory agencies to contractor
  - When to contact inspectors
  - As-built requirements
  - Explanation of project function may help explain sequence of construction, materials selection, etc.

Key Takeaways:

Different agencies than environmental permitting

How to Deal with Delays

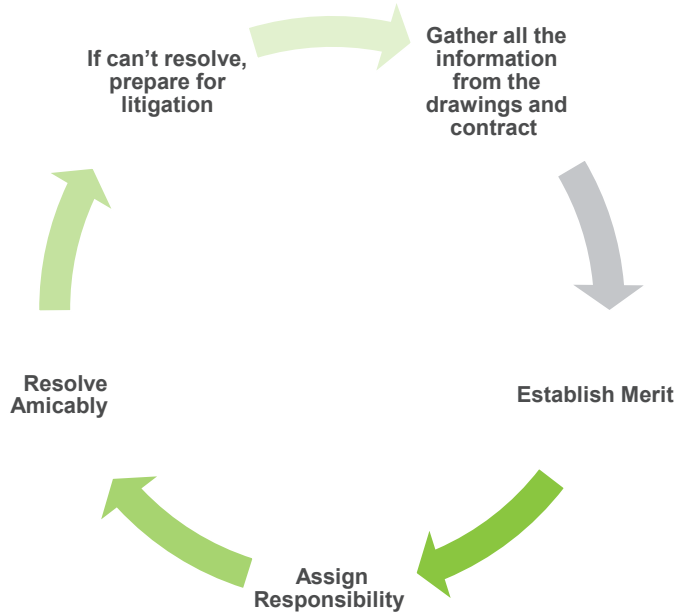
Delays can be categorized into two areas:

- Excusable Delays
- Non-Excusable Delays

- **Excusable** delays occur when the affected party is entitled to claim for a **time extension, compensation or both** as established by contract documents.

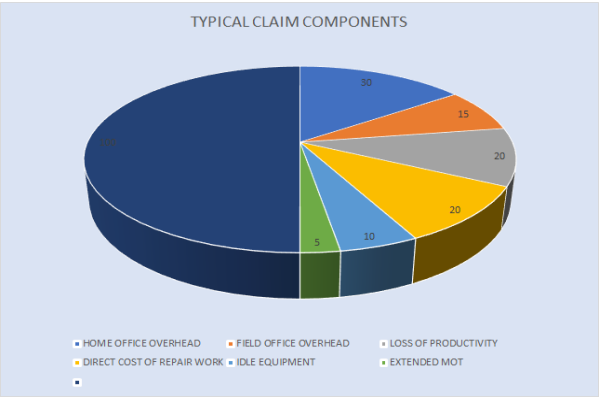
- **Non-excusable** delays are contract related issues that the contractor or party affected will need to bear the responsibility that could be but not limited to cost and time.

How to Deal with Delays



Claims Case Study: Edmondson Avenue

Claim Summary



COMPONENT	%	AMOUNT
HOME OFFICE OVERHEAD	30	3.4
FIELD OFFICE OVERHEAD	15	0.8
LOSS OF PRODUCTIVITY	20	0.75
DIRECT COST OF REPAIR WORK	20	1.2
IDLE EQUIPMENT	10	0.75
EXTENDED MOT	5	0.45
	100	7.35

Key Takeaways for Proposals

1. Be specific - not indefinite or vague and by all means avoid ambiguity
2. Be brief - state only the necessary facts; avoid unnecessary words, phrases and avoid repetition
3. Use correct grammar and short sentences
4. Specify standard sizes and patterns when possible
5. Do not specify both methods and results
6. Do not specify requirements that conflict with each other
7. Do not justify a requirement
8. When inserting a national standard (e.g., ASTM), read the standard to be sure that it does not conflict with job requirements

Key Takeaways for Construction

1. Read the contract, study the drawings
2. Understand the contractor's plan
3. Enforce the specifications
4. Keep proper records
5. Partner with the contractor
6. Watch for red flags
7. Safety is priority

Notes

MODULE 6 - INSURANCE, LIABILITY & BONDS

Presenters: Matt Smith, PE & Jim Morris, PE

Learning Objectives

- Understanding the basic principles of insurance and surety for a project
- How this translates to your project
- Discussing real world experiences

Insurance

It's for when things go wrong!

- Manage Risk of Monetary Loss
- Manage Risk for Project Viability / Ability to Complete
- Compensate for Legal Defense
- Varies by State

Liability

- Responsible or Answerable in Law
- Civil vs. Criminal
- Breaking the law isn't covered by liability insurance!
- Personal / Organizational Liability Insurance
- Umbrellas

It is best to talk to your agent, carrier, and/or attorney to understand what you need!

Example Project – Stormwater

For a stormwater project, you may be liable for:

- Property Damage
- Accidents
- Contractor / Other Injury
- Errors and Omissions
- Negligence

Managing Risk – Bonding and Safety

Bonding and Other Surety/Assurances

- Bid Bond
- Performance Bond for Project
- Bonding required for Permit
- Retainage
- Liquidated Damages

Example Project – Stormwater

What level of insurance or Surety is needed for a project?

- Bid Bonds typically are 20% of bid value
- Performance bonds should cover the entire project and typically cost 3%
- Retainage on planting often 20% and held for two years
- Liquidated damages vary
- You and your attorney/carrier should consult what needs are required on a project by project basis.

Budget

Planning for Costs of Insurance and Surety

- You need insurance and surety to ensure project is completed and everyone is made whole.
- Non-profit organizations are not specially exempt from liability
- If something goes wrong, everyone is getting sued
- Duration of project can impact costs of these items
- These are not “unnecessary administrating costs”
- You do not want to waive any of these requirements

Activity

What have you been involved with?

- Who has used insurance and had a claim for their organization?
- Were you properly insured?
- Who has had a contractor fail to perform? How was it reconciled?
- Have you ever been sued over a project?

Notes

Notes