Module 1: Project Management Fundamentals

BASELINE ACHIEVED

Learning Objectives

- At the end of this module, you will be able to:
  - Describe the difference between a project and operations
  - Define the characteristics of a project
  - Identify five critical project management processes
  - Identify the four primary goals/constraints of a project
  - Explain what a project schedule is and describe its purpose
  - Explain why it is important to identify project goals and objectives
  - Explain the importance of project requirements
  - Explain how the Work Breakdown Structure forms the structure of a schedule
  - Create a Work Breakdown Structure

Introduction to Project Management

Jason Grabowski, PMP
jgrabowski@bl-ach.com

Baseline Achieved, LLC

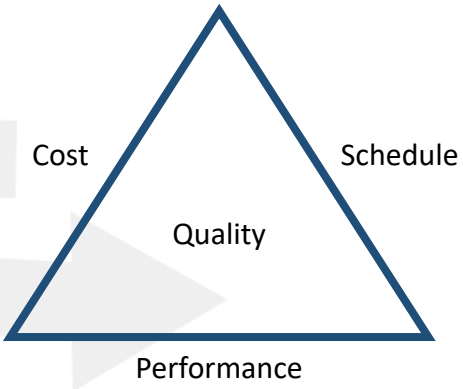
BASELINE ACHIEVED

Project Management Basics

- What is Project Management?
  - Application of tools, techniques, and knowledge to meet project goals and objectives
- What is a Project?
  - A temporary endeavor
  - Creates something unique
  - Has a clear start
  - Has a well defined end

Project Management Basics

- Projects have goals
  - Cost
  - Schedule
  - Performance/Scope
  - Quality



Project Management Basics

- A Project is different than Operations
  - Operations are repetitive in nature
- Projects and Operations can be intertwined…
- Projects can lead to Operations
  - Project: Stand up a Help Desk
  - Operations: The Help Desk starts handling trouble tickets
- Operations can lead to Projects
  - Operations: The Help Desk is spending too much time manually tracking trouble tickets
  - Project: Implement an electronic ticketing system
- Must understand the difference!
- We schedule Projects… not Operations

Critical Project Management Steps…

- Minimum steps you must do to management a project effectively:
  - Step 1: Identify project goals and objectives (Project Charter)
  - Step 2: Identify all of the project stakeholders
  - Step 3: Identify project requirements
  - Step 4: Develop the Work Breakdown Structure
  - Step 5: Develop the project schedule

Take-Aways

- It all starts with proper project planning
- Operations and Projects are different
- Project goals and objectives must be identified
  - These define the boundaries of the project
- Define the project before beginning
  - How will you define done
- Put it on paper and get it signed!

Introduction to the Project Schedule

Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

Project Scheduling Fundamentals

- What is a project schedule?
  - It is a model of the project
  - Forecasting tool
  - Identifies and sequences all of the project work
  - Dynamic rather than static
  - Allows a team to be proactive
  - Communications tool
  - The result of proper project planning

Planning to Schedule

- Hypothetical schedule development process…

Project Team 1

Gets assigned a project
Creates the schedule

Project Team 2

Gets assigned a project
Formally defines the project goals
Identifies stakeholders
Identifies requirements
Identifies products/deliverables
Creates the schedule

Project Scheduling Fundamentals

- A schedule is the result of proper project planning
- Must have a foundation in project management
- 5 processes that must be executed:
  - Identify goals and objectives (Project Charter)
  - Identify stakeholders
  - Identify requirements
  - Develop the Work Breakdown Structure
  - Develop the project schedule
- Only after these can you have an effective schedule!

Take-Aways

- Project schedule is a
  - A model of the project
  - Forward looking
  - A communications tool
  - Must be dynamic
- The schedule is the result of proper project planning
- We must define the project before we can schedule it!

Step 1: Identify the Goals and Objectives of the Project

Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

Why do we do this?

- Defines the boundaries of the project
- Gives a common understanding of done
  - Should be clear!
- Helps the team understand why we are doing the project
- Begins the project planning process

Project Goals and Objectives

- Identify the business case / purpose
- Identify the project manager and authority level
- Identify the high-level budget estimate
- List the initial project requirements
- Assign any roles and responsibilities
- Identify dependencies
- Determine the constraints
- Document the assumptions
- Identify high-level risks

Project Goals and Objectives

Project Charter

Project Title: *Insert title here*

High-Level Project Description: *Insert a high-level description of why this project is going to be conducted*

Project Manager: *Insert name of Project Manager*

Project Start Date: *Insert Date*
Deadline: *Insert Date*
Deadline Rationale: *Explain how the deadline date was determined*

Materials Cost Estimate: *Insert estimated materials cost*
Labor Cost Estimate: *Insert estimated labor cost (if labor tracked)*

Requirements/Description of Work:
- *Insert a list of high-level requirements in bullet form*
- *Discuss project phases and deliverables if known*
- *Discuss any project exclusions here as well*

Roles and Responsibilities
- *Insert a list of high-level roles and responsibilities in bullet form*

High-Level Risks
- *Insert a list of high-level risks that could impact the cost, schedule, or performance of the project*

Dependencies or Constraints
- *Insert a list of dependencies or constraints in bullet form*
- *Consider other projects or activities that are dependent on the project or what the project is dependent on to achieve success*

Assumptions
- *Insert a list of assumptions that the team identified that will be used through project planning*
- *Remember, you these will need to be validated*

Take-Aways

- It all starts with proper project planning
- Project goals and objectives must be identified
- Establishes the boundaries of the project
- Defines done
- Put it on paper and get it signed!

Step 2: Identify Project Stakeholders

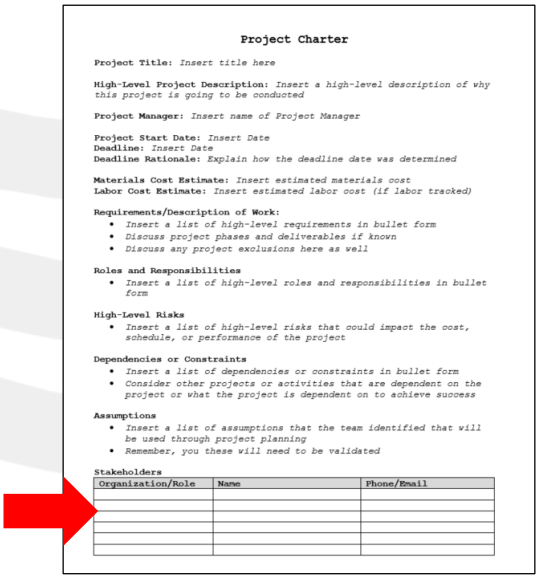
Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

Project Stakeholders

- Individuals, groups, and agencies that
  - Are impacted by the project
  - Have interest in the project
  - Will use products of the project, etc
- Treated as part of the project team
  - What role will each play?
  - How will you involve them?
- Participate in requirements definition

Project Stakeholders



Project Charter

Project Title: *Insert title here*

High-Level Project Description: *Insert a high-level description of why this project is going to be conducted*

Project Manager: *Insert name of Project Manager*

Project Start Date: *Insert Date*
Deadline: *Insert Date*
Deadline Rationale: *Explain how the deadline date was determined*

Materials Cost Estimate: *Insert estimated materials cost*
Labor Cost Estimate: *Insert estimated labor cost (if labor tracked)*

Requirements/Description of Work:
- *Insert a list of high-level requirements in bullet form*
- *Discuss project phases and deliverables if known*
- *Discuss any project exclusions here as well*

Roles and Responsibilities
- *Insert a list of high-level roles and responsibilities in bullet form*

High-Level Risks
- *Insert a list of high-level risks that could impact the cost, schedule, or performance of the project*

Dependencies or Constraints
- *Insert a list of dependencies or constraints in bullet form*
- *Consider other projects or activities that are dependent on the project or what the project is dependent on to achieve success*

Assumptions
- *Insert a list of assumptions that the team identified that will be used through project planning*
- *Remember, you these will need to be validated*

Stakeholders

Organization/Role	Name	Phone/Email

Take-Aways

- Include stakeholders in planning to ensure success
- Stakeholders assist in identifying requirements
- Miss a critical stakeholder and you will miss critical requirements
- Don’t plan in a vacuum!

Step 3: Identify Requirements

Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

Requirements

- Where do project requirements come from?
  - General Requirements
    - Identify events that must be supported
      - Host a design review
      - Perform a joint acceptance inspection
    - Identify deliverables at a high-level
      - Deliver a final design before work starts
      - Deliver a dog house
  - Product Requirements
    - Requirements that the deliverable must comply with
      - Must be water resistant
    - Design or capability specific
      - Entrance must be 36” high X 18” wide

Product Requirements

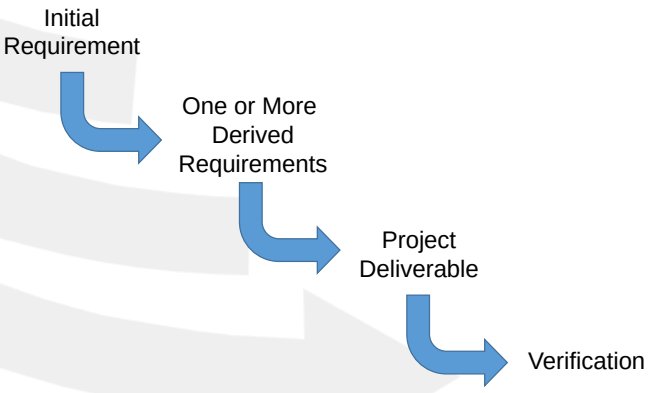
- Questions to ask when analyzing product requirements:
  - What is the requirement?
    - Must be specific and achievable
  - How will the requirement be verified?
    - Inspect
    - Analyze
    - Demonstrate
    - Test
  - When will the requirement be verified?
    - Inspection
    - Review
    - Test Event

Product Requirements

- Definition of what deliverable(s) must do
  - The product must…
  - The product shall…
- Requirements must be verifiable
  - If not, how can we verify success?
  - Specific enough that we have no partial pass or partial failure
- Avoid vague requirements such as
  - The minimum number of …
  - The maximum number of …
- Avoid compound, complex requirements such as
  - The system must do this AND that…
  - The system must do this OR that…

Product Requirements

- The life of a requirement…



Product Requirements

- The life of a requirement…

Initial Requirement
1) Construct a dog house for Fluffy

Derived Requirements
1) Must be water resistant
2) Entrance must be at least 36” high X 18” wide

Project Deliverables
1) Design
2) Material List
3) Dog House

Verification
1) Design Review
2) Material Inspection
3) Frame Inspection
4) Final Inspection

Product Requirements

- Requirements Traceability Matrix

Req #	Requirement	Verification Method	Verification Event	Responsibility
1	The dog house shall be constructed using treated wood	A E E	Design Review Material Inspection Final Inspection	Buyer Developer Buyer
2	The dog house entrance shall be at least 36 inches high X 18 inches wide	A E E	Design Review Frame Inspection Final Inspection	Buyer Developer Buyer
3	…	…	…	…
4	…	…	…	…

Verification Method
D = Demonstration
A = Analysis
T = Test
E = Examination

Take-Aways

- Requirements drive the deliverables
- Must be specific and achievable
- How are requirements going to be verified?
- Well written project requirements can avoid conflict

Step 4: Create The Work Breakdown Structure

Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

Work Breakdown Structure

- Develop the WBS
  - Identifies 100 percent of all the project and product deliverables
  - Traceable back to the requirements
    - Project requirements
    - Statement of Work
    - Specification Document
    - Stakeholder requirements
  - Product-oriented
  - Elements should all be nouns
  - Provides structure to the project
  - Standalone document

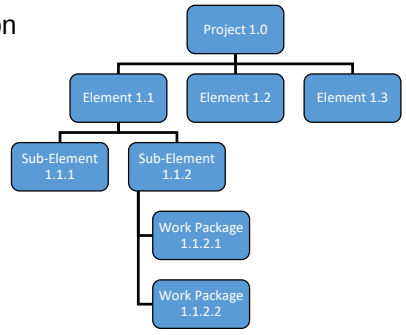
Work Breakdown Structure

- What is a deliverable?
  - Final product
  - Interim products, design models, test systems, prototypes
  - Spares
  - Project documentation
  - Training and training materials
  - Events
  - Conferences
  - Meetings
  - Reviews

  → Anything that will have resources, time, energy allocated to it

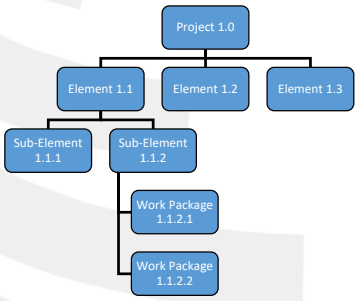
Work Breakdown Structure

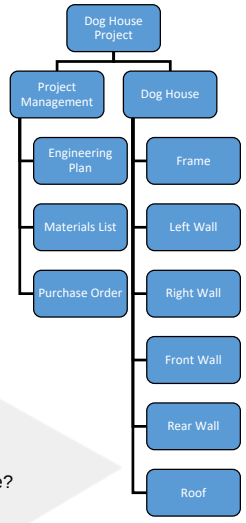
- How to create a WBS
  - Created through decomposition
  - Work packages found at the lowest level
    - Assignable to a person, team, or agency
  - 100% Rule
  - What's the right level of decomposition?
    - Must be able to make accurate cost and duration estimates



Work Breakdown Structure

- Decomposition further explained…





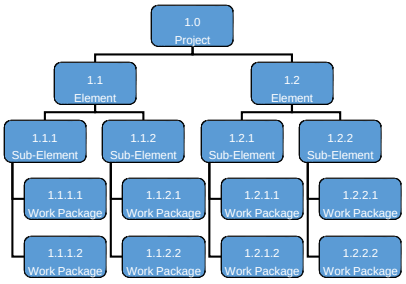
Does the Dog House have a floor?

Can you estimate cost and duration for these?

Work Breakdown Structure

- Formatting options…

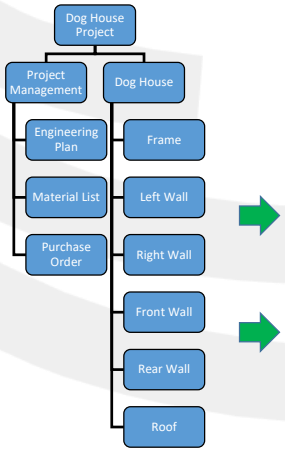
1.0 Project
1.1 Element
1.1.1 Sub-Element
1.1.1.1 Work Package
1.1.1.2 Work Package
1.1.2 Sub-Element
1.1.2.1 Work Package
1.1.2.2 Work Package
1.2 Element
1.2.1 Sub-Element
1.2.1.1 Work Package
1.2.1.2 Work Package
1.2.2 Sub-Element
1.2.2.1 Work Package
1.2.2.2 Work Package

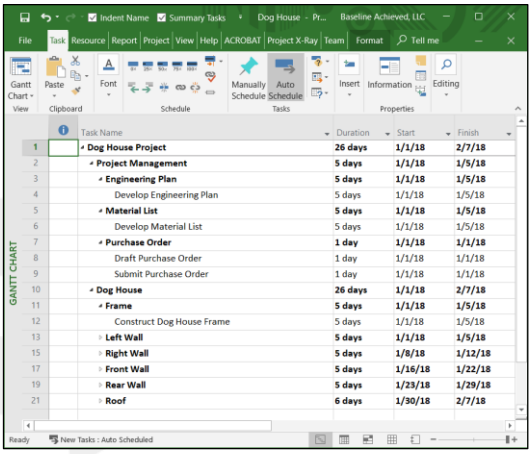


1.0	Project
1.1	Element
1.1.1	Sub-Element
1.1.1.1	Work Package
1.1.1.2	Work Package
1.1.2	Sub-Element
1.1.2.1	Work Package
1.1.2.2	Work Package
1.2	Element
1.2.1	Sub-Element
1.2.1.1	Work Package
1.2.1.2	Work Package
1.2.2	Sub-Element
1.2.2.1	Work Package
1.2.2.2	Work Package

And Then…

- Tasks are identified and sequenced to produce the elements of the WBS, structured around the WBS





Take-Aways

- The WBS is one of the most important products we develop
- Identifies the scope of the project
- Traceable back to the requirements
- Forms the structure of our project schedule
- Identify all the stuff then identify all the work to create the stuff
  - Miss something and you will miss work
  - Eventually you will realize it!

More on the WBS

Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

The Dog House WBS

- The first couple of levels are the most important
- Two common methods I use depending on the project and team
  - Method 1: Organize by Deliverables
  - Method 2: Organize by Phases

WBS Alternatives: Level 1

Option 1: Deliverable-Based

1.0	Dog House Project	
1.1		Project Management
1.2		Structure

In this method, documentation, reviews, events, etc would be under Project Management.

And the actual deliverable would be under the Structure

Option 2: Phase-Based

1.0	Dog House Project	
1.1		Design Phase
1.2		Construction Phase
1.3		Close-out Phase

In this method, deliverables would be listed under the phase that it is completed in

Both methods are acceptable
In the federal government, most WBS files are created using Option 1 (see MIL-STD 881C)

WBS Alternatives: Level 2

Option 1: Deliverable-Based

1.0	Dog House Project		
1.1		Project Management	
1.1.1			Drawing Package
1.1.2			Initial Design Review
1.1.3			Final Design Review
1.1.4			Material List
1.1.5			Shopping Event
1.1.6			Acceptance Inspection
1.2		Structure	
1.2.1			Concrete Pad
1.2.2			Dog House
1.2.3			Fence

Option 2: Phase-Based

1.0	Dog House Project		
1.1		Design Phase	
1.1.1			Drawing Package
1.1.2			Initial Design Review
1.1.3			Final Design Review
1.1.4			Material List
1.1.5			Shopping Event
1.2		Construction Phase	
1.2.1			Concrete Pad
1.2.2			Dog House
1.2.3			Fence
1.3		Close-out Phase	
1.3.1			Acceptance Inspection

All deliverables are captured, regardless of which structure we used

WBS Alternatives: Level 3

Option 1: Deliverable-Based

1.0	Dog House Project
1.1	Project Management
1.1.1	Drawing Package
1.1.2	Initial Design Review
1.1.3	Final Design Review
1.1.4	Material List
1.1.5	Shopping Event
1.1.6	Acceptance Inspection
1.2	Structure
1.2.1	Concrete Pad
1.2.2	Dog House
1.2.2.1	Frame
1.2.2.2	Left Wall
1.2.2.3	Right Wall
1.2.2.4	Front Wall
1.2.2.5	Rear Wall
1.2.2.6	Roof
1.2.2.7	Painting
1.2.3	Fence
1.2.3.1	Segment 1
1.2.3.2	Segment 2
1.2.3.3	Segment 3
1.2.3.4	Segment 4 (With Gate)

Option 2: Phase-Based

1.0	Dog House Project
1.1	Design Phase
1.1.1	Drawing Package
1.1.2	Initial Design Review
1.1.3	Final Design Review
1.1.4	Material List
1.1.5	Shopping Event
1.2	Construction Phase
1.2.1	Concrete Pad
1.2.2	Dog House
1.2.2.1	Framing
1.2.2.2	Construction
1.2.2.3	Painting
1.2.3	Fence
1.2.3.1	Posts
1.2.3.2	Gate
1.2.3.3	Fencing
1.3	Close-out Phase
1.3.1	Acceptance Inspection

Practical Application

Jason Grabowski, PMP
jgrabowski@bl-ach.com

Baseline Achieved, LLC

BASELINE ACHIEVED

Exercise 1-1

- Create a WBS that captures the deliverables listed below:
  - You are the project manager for a project which will deliver a Dog House, a Concrete Pad, and a Fence with a single gate. To support the construction effort, you will also need to develop a Drawing Package which will pass through an Initial Design Review and a Final Design Review. Once complete with the design reviews, you will develop a Material List and then host a Shopping Event. Once construction is complete, you will host an Acceptance Inspection to support project close-out.
- Hints:
  - Remember, deliverables are the nouns!
  - What will your major WBS elements be?
  - Can you decompose some of the elements into smaller pieces? Should you?

Module 1 Summary

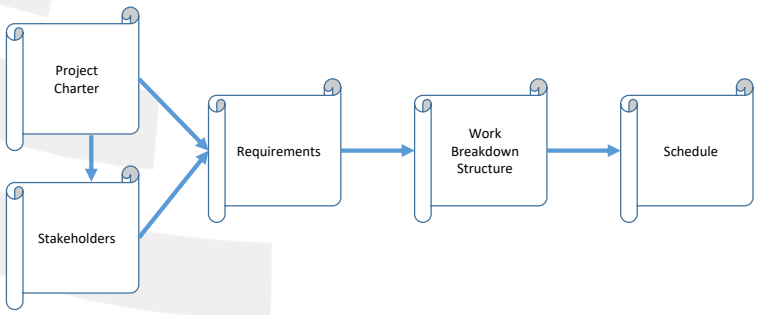
Jason Grabowski, PMP
jgrabowski@bl-ach.com
Baseline Achieved, LLC

BASELINE ACHIEVED

Module Summary

- During this module we covered:
  - The basics of project management
  - The difference between a project and operations
  - The project schedule and its purpose
  - The characteristics of a project
  - Four critical project management steps
  - They help us define the project

Module 1 Summary



All of our processes and products should be traceable back to the Project Charter or any other originating requirement document.

If they aren't traceable, then they are probably outside the scope of the project and we shouldn't be spending our organization's time or money on them…