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**2024**



Project Management Training

**Revised December 6, 2017**

Participants 2024-2025



|  |  |  |
| --- | --- | --- |
| Department | Name | Title |
| Administration | Jenny Lee | HR Generalist |
|  | Mishel Miller | Deputy City Clerk |
|  | Jonathan Copsey | Communications Specialist |
|  |  |  |
| Community Development | Angela Rambeau | Planner III |
|  |  |  |
| Environmental/  Public Works | Michael McKeithen | Construction Inspector |
|  | Corey Bagby | Water Distribution Foreman |
|  |  |  |
| Finance | Nikki Armstrong | Accountant |
|  |  |  |
| Fire | Antwain Hughes | Administrative Assistant |
|  | Ryan Knetchel | Captain |
|  | Doug Smith | Captain |
|  |  |  |
|  |  |  |
| Recreation & Parks | Taylor Davis | Area Coordinator Athletics |
|  | Will Erdmanczyk | Supervisor |
|  | Jonathan King | Special Events Coordinator |
|  | Jay Reisinger | Landscape Architect |
|  | Branon Carder | Crew Supervisor |
|  |  |  |
| Transportation | Gehan Evans | Street/Highway Inspector |
|  |  |  |

**Table of Contents**

**Project Management Training 4.0 Schedule**

**Project Management Training 4.0 Participants**

**Background and Acknowledgements**

**Sections**

1. **Foundations of Project Management**
2. **Initiation**
3. **Planning 1**
4. **Planning 2**
5. **Finance Workshop**
6. **Execution 1**
7. **Execution 2**
8. **Project Close Out**
9. **Resources**

* **Appendix A: Glossary of Project Management Terms**
* **Appendix B: Project Management Tools and Templates**

**Project Management Training**

**2024-2025 Schedule**

|  |  |  |
| --- | --- | --- |
| **Date** | **Session #** | **Topic** |
| Thursday,  August 15, 2024 | 1 | Introductions, Expectations, Timeline, Foundations of Project Management  Group Breakout: Establishing Groups & Discussing Projects |
| Friday,  August 30, 2024 | 2 | Initiation – Defining Goals, Scope, and Success Criteria; Utilizing Resources and Tools  Case Study: Project Charter  Group Breakout: Work on Project Charter, P.1 |
| Friday  September 13, 2024 | 3 | Planning 1 – Work Breakdown Structure and Responsibilities  Case Study: RACI Matrix  Group Breakout: Begin RACI Matrix |
| Thursday,  October 3, 2024 | 4 | Planning 2 – Risk, Budget, Procurement, Communications Plan  Case Study: Risk Register  Group Breakout: Begin Risk Register (Project Charter, P.3) and Communications Plan |
| Thursday,  October 17, 2024 | 5 | Finance Workshop: Budgets, Estimating, Authority, and Contracts  Case Study - Project Charter, P.2: Accounting  Group Breakout: Begin Project Charter P.2, Accounting |
| Thursday,  October 31, 2024 | 6 | Execution 1 – Staffing, Status Meetings, Reports, Reviews  Case Study: Kickoff Meeting/Status Reports  Group Breakout: Project Kickoff Meeting Agenda and Status Reports |
| Friday,  November 8, 2024 | 7 | Execution 2 - Monitoring & Control (Earned Value Analysis, Change Requests/Log, Risk Mitigation)  Case Study: Change Order  Group Breakout: Work on Presentation |
| Friday,  November 22, 2024 | 8 | Project Close Out - Acceptance, Warranty, Close Out Report  Case Study: Close Out Report & Files  Group Breakout: Close Out Documents; Prepare for Presentations |
| Friday,  December 6, 2024 | 9 | Class Project / Deliverable Briefing |

# **Background**

The City of Roswell identified a need for a uniform project management process for the City as a whole in July 2016. Dan Skalsky (Environmental/Public Works Director) and James Major (Employment/Staffing Manager) conferred with Kay Love (City Administrator) to further develop the idea. They drafted a request for Proposal to identify an external resource to provide project management training for City staff.

The city awarded the contract to Axiom Corporation to conduct project management training. Axiom’s technical expertise and experience with government entities along with its ability to combine project management principles with practical applications made Axiom the best choice to help Roswell. To finalize Axiom’s scope of work and identify potential training participants, the City created the following team to support the project management training:

|  |  |
| --- | --- |
| Kay Love, City Administrator | Michael Fischer, Deputy City Administrator |
| Dan Skalsky, E/PW Director  James Harner, Human Resources Director | Keith Lee, Finance Director  Michelle Hunter, Employee Relations Manager |

Participants were selected based on their level of involvement in City projects with emphasis on those actively involved in implementation. The expectation is that participants will not only apply concepts learned to their own projects but also actively teach project management to other City staff to expand the benefit of training.

The project management training began by looking at past projects and applying the concepts discussed. As the training continued, the project management participants showed interest in documenting the process as it relates specifically to the City of Roswell. With support from Dan Skalsky, the participants created the City of Roswell’s project management guidelines as their class project. Sharon Izzo was the project manager for the creation of this document actively applying the concepts discussed to develop this guideline.

# **Acknowledgements**

Special thanks to the City of Roswell’s project management class participants who together drafted these City of Roswell’s project management guidelines.

|  |  |
| --- | --- |
| Name | Job Title |
| Julie Brechbill | Community Relations Manager |
| Patrick Baber | GIS Manager |
| Sam Bennett | Stormwater Construction Specialist |
| Noah Caplan | Police Lieutenant |
| Brandon Crawford | Police Sergeant |
| Mark Dana | Transportation Planner III |
| Lee Dyer | Streets & Highway Inspector |
| Charise Glass | Contract Manager |
| Sharon Izzo | Support Services Division Manager |
| Danelle Murray | Sr. Technical Analyst |
| Nick Pezzello | Stormwater Utility Manager |
| John Potrzebowski | Communications Supervisor |
| Rusty Pruitt | Park Services Manager |
| Robert Rogers | Deputy Fire Chief |
| Taylor Smith | Project Coordinator |
| Pabel Troche | Fire Captain |
| Matthew Zaki | Plans Reviewer |

Project Management Guidelines

# **Section 1. Project Management Overview**

This manual guides project managers through the City of Roswell’s methodology for project management. The project life cycle consists of five major phases: initiation, planning, execution, monitoring & control, and close out. A glossary (Appendix A) of common project management terms is included to help standardize terminology throughout the city. Forms and templates supporting the project management process comprise a “basic project management toolkit” included in (Appendix B) and referenced throughout this manual.

This manual presents a framework for managing projects using basic tools needed for success. The framework should be modified for each individual project as it applies to the given effort. This model provides a methodical approach to conducting projects to meet the needs of the City of Roswell successfully and consistently.

## **1.1 City of Roswell PM Philosophy and Mission**

Roswell’s process illustrates a systematic approach using standard methodology to create a culture where project management is a valued competency embedded in the city, and where project leaders and their teams embrace project management processes to ensure that city projects meet quality objectives and regulatory goals. These processes aid in fulfilling the City of Roswell’s mission to assure high-quality services in a fiscally sound manner and to ensure Roswell continues to be a vibrant community.

## **1.2 What is a Project?**

A project is a temporary endeavor undertaken to create a unique product, service, or result. Projects must have a clear, definitive goal or objective. A project usually involves varied activities, which produce measurable deliverables that when added together accomplish the overall objective.

## **1.3 What is Project Management?**

Project management is the process of achieving project objectives (schedule, budget and performance) through a set of activities that start and end at certain points in time and produce measurable deliverables.

Successful project management is the bringing together of the tasks, resources and people necessary to accomplish the City goals and objectives within the specified time frame and within the established project budget.

## **1.4 Who is a Project Owner?**

The Mayor and the City Council are the project owners for projects completed for the City of Roswell. The project owner is responsible for approving projects and allocating funds.

## **1.5 Who is a Project Sponsor?**

The project sponsor should be a director or high-level member of the city who is the largest stakeholder in the project or who will receive the greatest benefit from successful completion of the project. This person assumes the overall responsibility for the entire project. This person will appoint the project manager. He or she will provide the project manager with project expectations, the minimum success criteria, and the level of interface expected during the project. The sponsor is responsible for the following:

* Champion the project.
* Maintain enough involvement with the project to ensure the desired outcome.
* Grant sufficient authority to the project manager for the project success.
* Provide or negotiate support when the project manager is unable to resolve problems at a lower level.
* Provide ongoing performance feedback to the project manager.
* Communicate with the project owner.

The project manager keeps the project sponsor updated on project progress and seeks the assistance and counsel of the project sponsor in the event of roadblocks or obstructions that prevent the project from progressing within the constraints of scope, schedule, and budget.

## **1.6 Who is a Project Manager?**

The project sponsor assigns the project manager to achieve the project objectives. The project manager has the responsibility of managing the project and acting as the project sponsor’s point of contact for services delivered within the scope of the project. The project manager controls planning and execution of the project scope of activities and resources towards meeting established cost, timetable, and quality goals.

The project manager is responsible for managing the project scope, schedule, and budget to support the successful completion of the project. Typical duties include:

* Managing the development of the scope definition and project plans.
* Providing team leadership for problem resolution by working with the lowest organizational levels possible and ascending as necessary.
* Monitoring schedule and cost versus project progress to identify problems that could extend the schedule or increase the cost.
* Taking, directing, or recommending corrective actions when scope, schedule, or cost variances threaten the project.
* Serving as the central point of contact for the project, and communicating project status to the project sponsor and other stakeholders.
* Proffering resolutions to team member resource conflicts with their functional managers.

While the project manager is responsible for applying the correct tools and techniques to ensure success of the project, effective project management requires that the project manager possesses the following characteristics:

* Knowledge – project management skills and understanding of city processes
* Performance – ability to guide the project team while achieving project objectives and balancing project constraints
* Personal – leadership skills, problem solving skills, attitude, communication skills

## **1.7 What are Process Groups?**

During the life cycle of any project; proven and tested project management processes are applied. The types and duration of these processes depend on the nature of the project. Every project has a life cycle, with a beginning, an implementation, and an end. The following defines a typical project life cycle according to the Project Management Book of Knowledge (PMBOK) prepared by the Project Management Institute, as applied to the City of Roswell:

* **Initiation**—The initiation defines objectives, scope, purpose, and deliverables. Identifying and engaging stakeholders begins during initiation.
* **Planning**—The planning process creates plans that will guide the team throughout all project phases. The plans created during these phases will be used to manage time, cost, quality, change, risk, and conflicts.
* **Execution**—The execution process works toward completing the project deliverables.
* **Monitoring & Control**—Monitoring and control is the process of observing the project progress throughout the entire life cycle of the project, from initiation to close out in order to identify and mitigate threats to the project.
* **Close Out**—Close out is the process during which:
* The project is formally brought to an end
* The overall success is reported to the project sponsor
* All project data are archived, and
* The review of the project and lessons learned are documented.

A more detailed description of each process group may be found in the corresponding section later in this document.

## **1.8 What are Knowledge Areas?**

There are ten major knowledge areas of project management that PMBOK describes as the required expertise for all project managers. They are:

* Integration Management
* Scope Management
* Time Management
* Cost Management
* Quality Management
* Human Resources Management
* Communications Management
* Risk Management
* Procurement Management
* Stakeholder Management

Each of these management areas consists of processes, tools and techniques that are produced and/or applied to some degree during the course of any project. The following set of illustrations depicts the project management life cycle, knowledge areas, and processes used.

The workflow of a **Project Life Cycle** is available on the following page:

# **Section 2 Project Management Step-by-Step Guide**

# **2.1 Initiation**

## **2.1.1 Purpose**

The purpose of this phase is to develop a high-level plan and risk assessment for a proposed project and to provide information for assessing the need and viability of the project. Emphasis is placed on analyzing the project owner/sponsor’s requirements as well as immediate needs. Several high-level project management deliverables will be produced during this phase. These high-level deliverables will provide a foundation for estimates and for the Project Charter.

## **2.1.2 Project Manager’s Role**

The project manager should be assigned and work with the project sponsor to determine a proper solution and create an accurate scope of the project. The project manager will assist the project sponsor with:

* Formulating a solution
* Identifying deliverables needed to complete the project
* Developing a high-level cost estimate
* Determining the project scope and developing a Work Breakdown Structure (WBS).
* Identifying outside resources

## **2.1.3 Inputs**

* Interviews with stakeholders

## **2.1.4 Outputs**

* High-Level WBS
* Pre-project Budget Worksheet
* Project Charter

## **2.1.5 Step-By-Step Process**

### **1. Interview Stakeholders**

* Understand the vision for the city, and stakeholders’ objectives for achieving the vision.
* Determine the basic problem or need by asking open-ended questions that probe to get to the real problem or need.
* Review the proposed solution and determine what other solutions should be considered.
* Ask “why” often. Ask questions to verify the basic scope of what the stakeholders are seeking.
* Obtain any documentation and literature that might be pertinent to the request.

### **2. Conduct Internal Research**

* Interview other staff from the group. Review documentation. Develop process charts to study the “current state” of the organization, function or process.

### **3. Develop Solution and Requirements**

* Assist in developing a solution, consulting with subject matter and technical experts as needed. During this phase, the project manager should primarily focus on understanding what the project is trying to achieve. If the project is highly technical, the use of subject matter experts is recommended.

### **4. Review Lessons Learned**

* If available, review lessons learned from other completed projects in the city.

### **5. Review Requirements**

* The project manager is responsible for identifying and understanding the requirements of the project. By reviewing any existing requirements or proposal documents, the project manager should be able to determine the expectations and purpose of the project. It is important in this phase to identify all requirements that are unclear, incomplete, unfeasible, contradictory, or that in some way may prevent the successful completion of the project.

### **6. Assemble Core Project Team**

* The project manager must be able to determine the skills needed to successfully complete the project. Information gathered from reviewing the proposed project and identifying the requirements is used to determine the composition of the project team. Once these skill sets have been identified, staffing the project team may begin. When building the team, it is important to consider the following:

1. Does the individual have the necessary skills, or is additional training needed?
2. Does the individual or group have previous relevant experience?
3. Is the individual or group interested in working on the project?
4. Will the project team members work well together?
5. Will the individual or group be available when needed?

The project manager may conclude that it will be necessary to procure outside resources to complete a project. The project manager should schedule a meeting with the purchasing manager to initiate this procurement process.

### **7. Develop a High-Level Work Breakdown Structure (WBS)**

* A High-Level WBS should be developed by the project manager to begin defining the scope of the project. The WBS should be created from information gathered from the project sponsor. The WBS is a product-oriented division of project elements that organizes, defines, and establishes the total scope of the project. The WBS will identify all of the major deliverables of the project. During the detailed planning, and work sessions held during the planning phase of the project, the project manager will review the High-Level WBS with the project team and further organize the project deliverables into manageable work packages prior to developing tasks and building the schedule.
* If available from previous city projects, obtain a WBS that closely models the project being developed. Use only the top two or three levels to develop the High-Level WBS. This step will assist in developing a High-Level WBS, identifying major divisions of the project. This will be attached to the Project Charter.
* **[High-Level WBS](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\WBS (High-Level).pdf)**

### **8. Develop Cost Estimates**

* + - A large number of projects fail because initial cost estimates are too low. It is important that project managers accurately estimate project costs. Be sure to document costs in a spreadsheet, which will later be validated when the final project plan has been approved and set as the baseline. The initial estimates will help prevent cost issues from arising once the total project costs have been determined.
* **[Pre-Project Budget Worksheet](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Pre-Project Budget Worksheet.xlsx)**

### **9. Develop a Project Charter**

* + - The purpose of the Project Charter is to provide a clear and consistent definition of the project vision/mission, scope and objectives. The Project Charter is developed early during the project work. It contains the vision/mission, owner/sponsor’s name, scope, objectives, assumptions, constraints, time/milestones, cost/budget, quality requirements, and major project risks. During the planning process, the project team members will review the Project Charter in order to obtain buy-in. This step is required for a full understanding and acceptance of the project by the project team. After the project team accepts the charter, the project manager will submit it to the sponsor for approval. The Project Charter acceptance is an agreement between the owner/sponsor and the project team.
    - During the initiation phase of the project, the project manager needs to include probable risks in the Project Charter. However, a detailed analysis of the risks is not needed at this time since risk will be further analyzed during the team’s risk management meeting.
* **[Project Charter](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Project Charter Template.xlsx)**

### **10. Review the Project with the City’s Community Relations Manager**

The project manager will meet with the City’s Community Relations Manager to determine the level of communication needed for the public and internal stakeholders. Based on the complexity of the project, the community relations manager and the project manager will decide how comprehensive the Communication Plans for the project will be.

### **11. Review with the Sponsor for Approval**

* The project manager will meet with the sponsor to review the Project Charter, the High-Level WBS, and the Pre-Project Budget Worksheet. The project sponsor will give the go ahead to the project manager to progress to the planning phase.

# **2.2 Planning**

## **2.2.1 Purpose**

The purpose of the project planning phase is to kick-off a new project and establish a proposed plan and schedule. The infrastructure established during the planning phase is critical to effectively manage the project success. At no other time during the life of the project is the success of the project more vulnerable. During this phase, responsibilities are assigned, communications and reporting expectations are developed and tracking systems are established.

The project team will organize the high level Work Breakdown Structure into measurable tasks. This will form the basis of the project plan and schedule. Once the project team has determined the scope of the project, a Risk Management Plan can be developed. The effort taken during the project planning phase is directly reflective of the project ability to reach a successful completion.

## **2.2.2 Project Manager’s Roles**

* Obtain staff and procure resources
* Assign roles & responsibilities
* Develop the organization chart
* Prepare the project notebook and project files
* Develop a detailed WBS
* Develop a Communication Plan
* Develop a Risk Management Plan
* Establish reporting frequencies

## **2.2.3 Inputs**

* High-Level WBS
* Pre-project Budget Worksheet
* Project Charter

## **2.2.4 Outputs**

* RACI Matrix
* Project WBS
* Communications Matrix
* Communications Plan
* Project Schedule
* Project Charter
* Budget Worksheet
* Risk Management Plan
* Meeting Minutes
* Procurement Checklist

## **2.2.5 Step-By-Step Process**

### **1. Conduct a Project Team Detailed Planning Meeting and Work Session**

The project manager will hold a project detailed planning meeting once the project team is established. The purpose of the detailed planning meeting is to introduce the project and solicit “buy-in” via the Project Charter. The project sponsor should be present to communicate expectations, goals, and success criteria. Other agenda items should include team member responsibilities, time and/or budgetary constraints, and the Project Schedule

### **2. Develop the Detailed Work Breakdown Structure**

The high level Work Breakdown Structure for a project occurs within the initiation phase. A more detailed Work Breakdown Structure (WBS) is required for the execution of the project.

A detailed WBS organizes the project objectives into the required deliverables to successfully accomplish the project. These deliverables are measurable in the hours and cost required to produce them. The purpose of the WBS and the benefits it provides include:

* Facilitating detailed planning by subdividing the project scope into smaller, manageable work efforts. These work efforts are mapped to individual responsibilities.
* Establishing the “owner” of each deliverable is achieved, and “ownership” becomes part of the Project Charter.
* Identifying tasks to produce each deliverable. The responsibility for each task is established, that individual is then responsible for the schedule of the task.
* Estimating costs and budgets for each WBS element, and facilitating bottom-up estimation.

Once the WBS has been established and owners assigned, the individual deliverable can be broken down into specific tasks. These tasks should take no more than 40 hours to complete. Taking the deliverables to the tasks level enables the project manager to establish a Project Schedule.

* **[Project WBS](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Work Breakdown Structure.pdf)**

### **3. Develop RACI Matrix**

The RACI Matrix describes the roles in completing tasks or deliverables for a project. RACI is an acronym that stands for:

* + **Responsible**—Those who ensure that all the tasks are completed on time, within budget, and met performance requirements.
  + **Accountable**—Those who are ultimately accountable for the accurate and thorough completion of the deliverables or tasks.
  + **Consulted**—Those whose opinions are sought, typically subject matter experts.
  + **Informed**—Those who are kept up-to-date on the progress of the project.

The RACI Matrix enables the project team to understand the responsibility structure for each deliverable in the project. Another purpose of the RACI Matrix is to ensure that all deliverables are assigned, which helps to eliminate any duplication of efforts. It creates accountability and ownership of the deliverables assigned. The project manager should distribute a copy of this report to any person named on the matrix and resolve any conflicts that may arise

* [**RACI Matrix Template**](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\RACI%20Matrix%20Template.doc)

### **4. Develop Communication Plans**

Making a Communication Plan is a process often neglected or taken for granted by the project manager and the project team. This part of the planning phase is critical for implementing a structure for tracking and controlling the project during the entire project life cycle. Three separate Communication Plans should be developed for projects, based on the project complexity. A project team Communication Matrix will outline all internal communications for the project, a Stakeholder Communication Plan will be developed to communicate about the project to our residents, and a Mayor & Council Communication Plan will update Roswell’s elected officials about the project. The project manager should be the central point of communications for all project related information exchange.

**Project Team Communication Matrix**

The purpose of this Communication Matrix is to ensure a timely dissemination of accurate and appropriate information. It contains in detail the information recipients and the intended methods of communication, either through (letters, verbal, e-mail, or meetings, etc.) as developed by the project manager. The Communication Matrix contains the names of the individuals or groups involved in the project work and the types of information meant for them, as well as the frequency and manner of project communication.

**Stakeholders Communication Plan**

The purpose of this Communication Plan is to communicate the project milestones to the City’s constituents. The plan will be developed by the community relations officer for the project manager. The project team will develop a Communication Plan to define the techniques for engaging stakeholders based on an analysis of their needs, interests, and abilities to affect the project. The following should be achievable from the plan:

* **Identify Stakeholders**—Identify by name and title the people, groups, and organizations that have significant influence on project direction and its success, or who are significantly impacted by the project.
* **Plan Stakeholder Management**—Identify the strategies and mechanisms that will be used to achieve the greatest support of stakeholders and minimize resistance.
* **Manage Stakeholder Engagement**—Outline the processes and steps that will be undertaken to carry out the planned strategies.
* **Control Stakeholder Engagement**—Describe the methods that will be used to monitor stakeholder engagement and alert the project team if problems are surfacing.

**Mayor and Council Communications**

Mayor and Council communications will be overseen by the project sponsor. Communication with the Mayor and the Council will be at the discretion of the project sponsor. The project sponsor will decide the method of communication.

* **[Communications Plan Template](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Communication Plan Template.doc)**
* **[Project Communications Matrix](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Communications Matrix.xlsx)**

### **5. Develop Team Organizational Structure and Project Directory**

The project team’s organizational structure can be represented in an organizational chart of the project. An input for this chart is the RACI Matrix. The organizational structure chart is prepared by the functional managers, and it names the project manager, project team, project sponsor, city administration, M&CC, and the stakeholders.

The project directory is used for establishing communications between the project team and the project stakeholders, and allowing new team members to be able to identify the necessary contact information for project efficiency. Once the project team has been assigned, the project manager will develop the project directory.

### **6. Meeting Management**

The project manager should:

* hold regular purposeful meetings to update team members as the project dictates.
* draft agenda to keep meetings on track.
* distribute Meeting Minutes to attendees, team members, and other stakeholders within 48 hours as indicated in the Communication Matrix.
* store Meeting Minutes in the project file.
* **[Meeting Minutes](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Meeting Minutes.docx)**

### **7. Prepare the Project Documentation**

The project documentation system must be created and actively managed by the project manager as a repository for the various documentation generated during the project life cycle. The project manager will set up the project files according to the needs of the project. Much of the project documentation will be stored on a shared network drive.

### **8. Risk Assessment and Risk Management Planning; Developing a Risk Register**

Identifying, assessing and mitigating threats to a project is an important part of the planning process. Risk identification involves brain storming the possible threats to the project.

The project team, led by the project manager, is responsible for identifying these risks. The project team should attend a risk planning meeting where team members can list possible risks to the project. Some common potential risks include:

* Changes in project requirements and/or scope.
* Unrealistic schedules and/or budgets.
* Misinterpretations or misunderstandings.
* Unclear roles and responsibilities.
* Unskilled staff.
* Availability of staff.
* Undefined success criteria.

After risks are identified, the probability that various events or effects will occur is assessed. For each risk that is identified, there must be a determination of how likely it is that the risk will happen. A cardinal (1-low to 10-high) or ordinal (high, medium, low) scale may be used to determine such tendency. The potential severity of impact or consequence determines the significance of the risk. This is an assessment of how great of an impact the event will have if it happens. Quantitative methods might include cost or time estimates that can be associated with the impact. Qualitative methods may be simply high, medium, or low estimates.

The risks are ranked numerically with those risks most likely to occur and with the highest consequences at the top of the list. This ranked list is the risk registry. Not all risk warrants a mitigation strategy. Whether a strategy is warranted depends upon the probability of the occurrence and the potential losses. The project manager and team members will decide if the mitigation strategy is necessary.

The prioritized risk list is used as an input into developing a risk strategy. There are four basic risk strategies:

* **Risk avoidance**—Eliminating the risk threat.
* **Risk mitigation**—Determining how to decrease the probability of the risk or to reduce its impact. Risk mitigation involves lessening or reducing the probability of a risky event, its impact, or both.
* **Risk acceptance**—Understanding the risk and accepting the consequences should the risk occur.
* **Risk transfer**—Shifting the risk to someone else.

The Risk Management Plan is a written plan to propose mitigation strategies and contingency plans focusing on the highest priority risks. A contingency plan for a risky event is the identification of steps that will be accomplished if the risk strategy is implemented. The steps will be included in the Project Schedule and cost baselines. The project manager is responsible for reviewing the Risk Management Plan with the sponsor and obtaining the sponsor’s approval. During this meeting, the project manager must be clear on what risks are associated with the project and the impact if they occur. The project sponsor must understand the costs in terms of dollars, quality, and timeliness that risks have on the project. Reviewing the Risk Register is an ongoing process; risks may be added or deleted throughout the project.

* **[Risk Management Plan Template & Guide](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\RACI Matrix Template.doc)**

### **9. Human Resources Planning**

Projects vary greatly in terms of budget, scope, and outside resource utilization. An important skill for the project manager is to understand where the team members for a project will originate (in-house, out of house) and who will be responsible for specific deliverables.

To accomplish projects in the City of Roswell, the project manager will often need outside resources. Some examples of outside resources are consultants, vendors, designers/engineers, architects, and specialty trades. A project manager may also have team members from other departments within the City of Roswell.

Some questions which should be considered include:

* Who should be a member of the project team?
* Will individuals outside of the project sponsor’s department be part of the project team?
* Will outside consultants be part of the project team?

After determining the preferred project staff, negotiation skills are essential in acquiring the desired project staff. The project manager will negotiate with functional managers for the use and availability of their employees. Changes in resource requirements will occur during the project and may cause availability problems. The project manager will have to negotiate with the functional managers/management for extended resource availability based upon the project priorities.

### **10. Schedule Preparation**

Preparing a schedule is a critical task for the project manager. When the majority of the work will be accomplished by an outside resource (vendor, consultant or contractor), the project manager will be managing the schedule at a higher level using milestones to mark deliverables. The project manager will need to thoroughly review the proposed schedule of the outside resource to confirm it meets the constraints and expectations of the sponsor. Once the Project Schedule is accepted, the project manager’s ability to compress the schedule will be limited to managing the time allotted for city review and approval. In this situation, it is critical that the project manager communicate effectively with the vendor, consultant or contractor to manage the schedule, track deliverables, and meet the city’s timeline and expectations. Requiring that the outside resource submit a project progress update that shows work completed vs. work planned, percent completed vs. percent billed, and an updated Project Schedule with the monthly invoice allows the project manager to request corrective actions prior to approving payment each month if the work appears to have fallen behind schedule.

If all work will be completed using the City staff and resources, a detailed schedule must take into account a number of factors further described below:

# **Determine Calendars and Time Constraints**

The project manager is responsible for determining the project calendar and time constraints that exist. The project calendar is used to specify both working and non-working days including holidays and weekends. The project calendar is used for the overall project. Time constraints include any predetermined milestone or completion date, resource time constraints, and resource availability. The project manager must determine the calendar and time constraints before the schedule can be developed.

# **Develop Task List**

Once all of the deliverables are entered into the scheduling tool, the tasks are then entered. Note, there are a number of project planning templates provided in Appendix B as well as practical steps for managing Project Schedules. Each of the deliverable owners develops detailed tasks lists for each of the deliverables they own as a part of the detailed project planning meeting.

# **Task Estimates**

One of the most important processes involved in project planning is the estimation of the time needed to complete each task, which should consider the following:

* **Effort**—the total number of hours that will be expended on a task. For example, if two people work 5 hours each, then the total effort for that task is 10 hours.
* **Duration**—the total number of calendar days that it takes to complete a task. For example, if the same two people spend 10 total hours working on a task that they started on Monday and ended on Friday, then the total duration for that task is 5 days. Duration is affected by resource availability, waiting time for deliveries, or other interruptions in a constant flow of work hours to complete a task. Never assume that eight working hours is equal to one duration day.
* **Resource Requirements**—the project team will determine what types of resources are needed and how much of each one is required to complete the activities defined in the WBS. The duration of any task is usually influenced by the amount of resources assigned to it.
* **Resource Capabilities**—theduration of most projects will be influenced by the quality of the resources assigned to them. Individuals who have worked on several similar projects previously would generally be expected to complete an assignment in less time than new personnel with less experience would require.

# **Sequence Tasks**

In order to develop a schedule for the project, the project manager must determine the inter-task relationships. Determining the sequence in which the tasks must be performed, identifying the number of tasks that can be underway at the same time (called parallel paths), and identifying the dependencies, is called task sequencing. Task sequencing and inter-task relationships should be developed during planning meetings with the team members responsible for each area of work.

# **Determine Task Resources**

The project manager, with the assistance of the project team, will determine which resources will be ideal for completing each task as follows:

* Responsibility assignments must be made to all tasks.
* The project team member(s) assigned must accept the responsibility.
* The assigned project team member will provide the project manager with all time, resource and cost estimates, as well as provide update information.

# **Develop Schedule**

Once the project calendar, task list, resources, durations, and sequence are determined, the project manager can develop the schedule. The project manager will enter the start date for the project and the scheduling tool will calculate the duration of the project, based on the information entered. The project manager should level the resources to ensure they are not over allocated for any particular day.

The calculation of the schedule, the critical path, major milestones, and date of completion must be verified that they are logical and within the time constraints of the project. A critical path is the path(s) throughout a project with the longest duration or the one(s) with the least amount of float. Float is the amount of time an activity may be delayed from its early start without delaying the project completion date. The critical path tasks must be verified. Does it make sense for certain tasks to be on the critical path? This is a reality check. In addition, the dates on major milestones and project completion date must be checked to see if they are within the constraints from the sponsor.

The project manager, with the consensus of the project team, will coordinate all changes to the schedule. All schedule changes that are affected by scope change will be documented through scope change control. The Gantt Charts in the scheduling tool will compare the actual dates to the established baseline dates. The project manager will develop the exact control procedures for all schedule change.

* [**Practical Steps in Managing Project Schedules**](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\Practical%20Steps%20in%20Managing%20Project%20Schedules.pdf)
* **[Sample Project Schedule: Project Timeline](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Timeline.pdf)**

### **11. Develop Cost Management Plan**

The project manager is responsible for monitoring cost versus project progress to assure the project is completed within budget or to identify problems that may prevent satisfactory completion within budget. At the beginning of the project, the following items need to be addressed by the project manager to determine the status of the project from a cost perspective:

* Is the project budgeted?
* Are purchase orders in place for the project?
* Will the budget, if one exists, support the project scope?
* Have funds already been expended on the project?
* What types of reports are available for the project?

The categories of project costs are:

* **Professional Services**—consulting or design services to be paid to an outside firm or vendor
* **Construction**—cost paid to an outside construction company for constructing a project
* **Materials**—charges resulting from the purchase of materials for a project.

The project manager should set up the Budget Worksheet to track total costs for the project as well a project budget versus work completed. If the project utilizes outside resources, which require payment, the following items should be covered in the cost management plan:

* Describe the process for submitting payment applications/invoices including submittal frequency.
* Identify the person who approves payment applications/invoices for payment.
* Identify a process for comparing the project budget percent expended versus the project percent completion. The frequency of this comparison should be identified (i.e., weekly, monthly, quarterly) based on the project size and scope.
* Identify a process for revising the scope, schedule or budget if the need arises.
* [**Project Budget Worksheet**](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\Pre-Project%20Budget%20Worksheet.xlsx)

### 

### **12. Quality Management**

Quality is an important aspect of project management. It should be inherent in everything that is produced. If the project manager waits until the end of a project to determine if the quality was met, then it is too late to make corrections that could have been identified earlier. Quality is measured in a variety of ways. Phase sign-off at the end of critical deliverables helps to ensure quality before progressing to the next phase or deliverable. The project manager must require that the team preparing deliverables have a quality management plan. The project manager provides quality assurance by confirming the work is done according to a quality management plan.

The quality of the product must meet or exceed all of the project objectives as stated in the Project Charter. If the objectives are met, the quality of the product is achieved and the sponsor will be satisfied.

### **13. Preparing a Change Log**

The project manager will monitor project statistics including time, cost, and resources and compare them to the baseline. Actual start and finish dates will be compared to the baseline dates to determine schedule variances and task on-time statistics. Actual costs versus budgeted costs will be compared and the cost variance will be determined. By comparing the statistics with the baseline figures, the project manager can gauge how the project is doing in accordance with the project plan. The project manager will monitor all changes to ensure that the change control processes are being followed and that the project plan is being updated accordingly. A change log should be used to catalogue revisions to scope, budget and schedule of the project.

### **14. Procurement Planning**

The City of Roswell has a procurement process for projects which utilize outside resources. It is important that the project manager understands and participates in this procurement process. The project manager’s role is to interact with the procurement staff, and that can include the following:

* Provide a statement of work or request for a proposal.
* Provide inputs on invitations to bid documents.
* Provide information for bidding.
* Conduct/Attend pre-bid meeting.
* Provide input on contractor/vendor selection.
* Confirm that contract documents are signed prior to work beginning.

The project manager should meet with the City of Roswell's Procurement Staff during the planning of the project so that the project manager can incorporate the procurement process timeline into the Project Schedule. The Procurement Checklist and flow chart can assist the project manager in working through the procurement process.

* [**Procurement Checklist**](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\Procurement%20Checklist.pdf)

# **2.3 Execution**

## **2.3.1 Purpose**

The purpose of the execution processing group is to ensure that the deliverable achieves the desired results, in the designated period, within the designated cost, and using the specified allocated resources. To ensure the accomplishment of that goal, continuous supervision of the project is required. The project manager must ensure that all the plans leading up to this phase are in place, current and can be implemented as soon as the situation warrants.

## **Project Manager’s Role**

During execution, the project manager is responsible for

* scope management and the oversight of the production of deliverables
* quality assurance and deliverable signoff
* executing the Risk Management Plan and ensuring that risks have little or no unexpected impact on the project.

## **2.3.3 Inputs**

* RACI Matrix
* Project WBS
* Communications Matrix
* Communications Plan
* Project Schedule
* Project Charter
* Budget Worksheet
* Risk Management Plan
* Meeting Minutes
* Procurement Checklist

## **2.3.4 Outputs**

* Change request form
* Change Request Log
* Project status report

## **2.3.5 Step-By-Step Process**

### **Tracking**

Once the project has begun, the project manager must effectively monitor the progress against the baseline. Many activities may be occurring simultaneously and may be difficult to control. In order to stay involved with all phases of the project, the project manager will establish a routine project review strategy and Communications Plan to ensure current, accurate and consistent progress feedback. As the project draws to a close, the frequency of communications should increase.

### **Status Meeting**

Project status meetings should be held by the project manager, as needed, to review the schedule and budget variances, focus on short term milestones, address any issues and assign action items, review the Risk Register, and gain support for the required scope or strategy changes. The frequency of the status meetings is dependent on the expectations of the project sponsor and the progress of the project.

* **[Project Status Report](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Status Report.docx)**

### **Project Documentation**

Throughout the project, the project manager will develop lessons learned. The lessons learned will address any issues or problems encountered in the quality of the project and the associated resolutions. The project manager should follow the Communications Plan developed in the planning phase. It details the recipients, communication methods, and the number of copies required for project correspondence. Reports to be produced by the project manager include:

* + - Project status reports
    - Deliverable, task or milestone reports

1. **Complete the Phase Sign-off**

Project sponsors may require that large projects be broken down into phases or very specific milestones. Where this exists, use a phase sign-off to gain complete approval and acceptance before proceeding to the next phase or milestone.

### **Conduct Interim Project Review with Sponsor**

Periodically arrange a meeting with the project sponsor to review the Project Schedule and other tracking documents and reports in detail, it is important to assure the project is progressing according to plan. If the project sponsor wants to change the scope, demonstrate to him/her the impact of the change through the scope change process and gain his/her concurrence before proceeding.

### **Project Owner Briefings**

At the direction of the project sponsor, the project manager may be asked to brief the project owner at a committee meeting on the status of the project particularly if a change in scope alters the schedule or budget significantly.

# **2.4 Monitoring and Control**

## **2.4.1 Purpose**

It is said that project management is 20% planning and 80% monitoring and control. The project manager must monitor the project team at all times. Monitoring and controlling project progress is important for detecting issues, problems and developing solutions early enough to quickly get the project back on schedule so the objectives could still be met. While it is impossible to foresee and plan for every issue, project managers can regulate work as the project progresses, and still deliver a finished product that meets the objectives and requirements laid out during initiation and planning.

## **2.4.2 Project Manager’s Role**

The project manager is responsible for controlling the project. He or she implements tracking and reporting processes, tracks the plan as it progresses and reschedules when needed to keep the project on track. During this process, the project manager implements the change control process and manages the change control log. The project manager is also responsible for executing the Risk Management Plan and ensuring that risks have little or no unexpected impact on the project.

## **2.4.3 Inputs**

* RACI Matrix
* Project WBS
* Communications Matrix
* Communications Plan
* Project Schedule
* Project Charter
* Budget Worksheet
* Risk Management Plan
* Meeting Minutes
* Procurement checklist

## **2.4.4 Outputs**

* Change request form
* Change Request Log
* Updated Risk Management Plan

## **Step-By-Step Process**

### **Issues and Action Item Management**

The project manager should introduce the issues and action items process to the team. Issues are defined as any problem that will impact the team’s ability to deliver a solution on time and within budget. Issues will be tracked and managed through an issues log. The action item log is used to document any administrative tasks that must be completed but that do not qualify as issues or tasks to the project plan. Examples of action items include reserving meeting rooms, or having reports printed for a meeting.

### **Status Reporting**

Reporting provides project stakeholders with information regarding how resources are being utilized to accomplish the project objectives. The project manager will provide regular status reports, progress reports, and forecasts (additional resource requirements, estimates to complete, etc.). The project manager must ensure that the team members are aware of what information is needed, in what format, and by when. This will facilitate the accurate and timely production of reports.

### **Change Management**

Issues arise throughout the project that could cause a change in scope to occur. Once a change has been requested, the project manager or the change originator will complete the Change Request Form. The project manager will keep the Change Request Log in the project notebook.

* 1. Evaluate Scope Change Requests

An assessment of the impact of the scope change will be performed to examine the tasks, schedule, cost, and quality that may be affected by the change. A solution will be recommended based on the impacts assessed.

* 1. Assess Scope Change Impact

The project manager and core team members should scrutinize each Change Request Form for its benefit and schedule/cost impact. The results should be communicated to the project sponsor for final approval. Each member of the core team should make a careful review of the impact of changes in scope before the change is approved.

* 1. Take Corrective Action

Revisit the Planning Process: The methods used to put a project back on a successful course are the same as those used to develop the original project execution plan. The ultimate goal is continuous schedule, resource and budget optimization.

Minimize Float Usage: A healthy amount of pressure should be maintained by the project manager to keep float usage at a minimum.

Crash the Schedule: If a scope change is causing the end date of the project to be extended, the project manager should evaluate all tasks along the critical path to see if adding resources or re-evaluating the duration estimate could shorten durations.

Expand Work Breakdown: Breaking large activities down into smaller pieces is a good way to enhance control, especially when more information is available than when initial planning was performed.

* 1. Review Status with the Sponsor

The project manager will meet with the project sponsor and have the completed Change Request Form and a recommendation for the project sponsor. Based on the impacts associated with the change and input from the project manager, the project owner will decide whether to approve or reject the request or to review it with the project owner.

* 1. Update Project Plans and Schedule

Typically, scope changing requires changes to the project plans and the Project Schedule. In order for any project plan or schedule to be changed, the project sponsor must have acknowledged his approval of such changes by signing the Change Order Request Form.

* **[Purchase Order: Change Order Request Form](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Purchase Order-Change Order Request Form.xlsx)**
* **[Change Request Log](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Change Request Log.xlsx)**

### **Manage & Resolve HR Conflicts**

During any project, issues/conflicts may arise. Due to the temporary nature of the project itself, team members may experience conflicts within their functional organizations for their time and personality conflicts among the team, the project manager should proactively work with the project team in an attempt to avoid any conflict. Many conflicts can be either reduced or eliminated by constant communication of the project objectives to the team members.

### **Adjust Schedules**

There are several ways to update the schedule. Some of the most frequently used methods are: percentage completed, remaining duration, future estimated completion date, actual start, and actual finish. If the schedule is resource loaded, actual work periods completed or estimated work periods remaining should be reported. The goal is to provide enough information to accurately compare the present project status to the planned target. Project managers should update their scheduling tool and project plans at least weekly

### **Update Project Plans and Schedule**

Typically, scope changing requires changes to the project plans and the Project Schedule. In order for any project plan or schedule to change, the project sponsor must have acknowledged his/her approval of such changes by signing the Change Request Form.

Usually not all project plans will require changes. The project manager must determine which project plans will be affected, and update them accordingly. When schedule changes are made, the project manager must ensure project stakeholders, especially project team members, are aware of the revisions.

### **Monitor and Control Project Risk**

Risk control is an act of continually sensing the condition of a program, and developing options and fallback positions to proffer alternative lower-risk solutions. Continuously updating the Risk Management Plan is an important step toward risk avoidance and control. This component of risk management forms a part of the day-to-day management of a project. It entails the following steps:

* **Implement risk avoidance actions** in accordance with the Risk Management Plan.
* I**mplement risk contingency actions** in accordance with the Risk Management Plan, if risk avoidance is not feasible.
* **Report all risky situations** during progress report (including those that could only affect the project or/and the management). Develop corrective actions toward the project costs, schedule, quality, technical and/or performance as needed.
* **Monitor and analyze the effectiveness** of all risk control actions. Modify or replace any actions that are ineffective.
* **Periodically update the list of managed risks** by “dropping” risky events that have been avoided or no longer pose a real threat to the project. Add new risky instances as they surface during the project. Review the risk probability periodically, and impart current and accurate information. Re-assess the priority list to ensure risks are being managed appropriately. This list will change as the project progresses, and what was initially a low priority risk may become one of the top priority risks. If needed, develop a Risk Management Plan for any new risks in the top priority list.
* **Update Risk Management Plan**: It is important that the risk management strategy is established early for a project and that risk is continually addressed throughout the project life cycle. Updating the Risk Management Plan is essential as it helps to manage risks effectively.
* **[Risk Management Plan Template & Guide](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Risk Management Plan.docx)**

# **2.5 Close Out**

## **2.5.1. Purpose**

During the close-out phase, all project activities are completed and all deliverables are finalized. Final reviews are conducted by the sponsor at this point, documentations are also completed, and stakeholders accept final project deliverable(s). The activities of this phase also ensure that best practices are captured and can be shared.

## **2.5.2. Project Manager’s Role**

The project manager is responsible for archiving project documentation, obtaining deliverable sign-off, assessing customer satisfaction, capturing lessons learned, and debriefing team members.

## **2.5.3. Inputs**

• All project documentation

• Budget/payout completion

## **2.5.4. Outputs**

• Close out report

• Project data archived

## **2.5.5. Step-By-Step Process**

### **Administrative Closure**

The project manager is responsible for the administrative closure at the end of the project. This includes closing out all procurement contracts, working with the finance department to match supplier invoices with final payments, conducting performance reviews for contractors/consultants, and obtaining appropriate signatures to confirm completion of the project.

### **Conduct Post Implementation Review**

Post implementation meetings and/or case study documentations are important for capturing the lessons learned to help steer future projects from pitfalls. Customer input as well as team member impressions can be valuable resources for understanding and improving the project management process. These meetings also allow the project team to get together and discuss the project successes and failures while bringing the project to closure.

A post implementation meeting with an open-discussion format might be conducted as follows:

* An agenda outlining the items to be discussed is routed to the attendees in advance.
* The meeting facilitator records the following in a scorecard:
  + What went well?
  + What did not go so well?
  + Ranking each item from the most important to the least.
  + List possible solutions to avoid repetition of mistakes in the future.
* Develop a team report from the information and the solutions inputted by the attendees. Report should include the project scorecard.

Attendees should be encouraged to speak candidly about their experiences during the project life cycle.

### **Develop Lessons Learned**

The project manager is responsible for developing the lessons learned for the project with the assistance of the project team and the sponsor. A complete summary from all closing activities should go into developing a comprehensive lessons learned summary. Lessons can be learned from every project, even if the project is a failure. It is not necessary to assign blame for failures/shortcomings. Many employees learn from their own mistakes but repeat the mistakes made by others due to lack of documentation.

* [**Project Closeout Report**](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\Project%20Close%20out%20Report.docx)

### **Send Documentation to Archives**

Once the project manager has completed the administrative closure and developed the lessons learned from the project, all project information should be sent to the department’s archives for future reference, if needed. Project information includes project notes (with all project plans, schedules, and Meeting Minutes) and the lessons learned. This information will be used for future projects to assist other project managers and team members create expectations that are more accurate as well as avoid previously encountered problems.

### **Hold Project Celebration**

Depending on the scope and success of the project, the project manager should consider a celebration for the project team. A team celebration provides excellent opportunity to publicly and professionally acknowledge individual and/or team contributions and to present awards that may have been earned. The celebration will bring closure to the project for all project team members. Celebrations serve to foster a team-oriented culture that ultimately achieves success on future projects.

# **Appendix A – Glossary of Project Management Terms**

**A**

**Activity**: An element of work performed during the course of a project. An activity normally has an expected: duration, cost and resource requirements. Activities are often subdivided into tasks.

**Activity Description (AD)**: A short phrase or label used in a project network diagram. The activity description normally describes the scope of the activity.

**Activity Duration**: The best estimate of time (hours, days, weeks, and months) necessary to accomplish the work involved in an activity, considering the nature of the work and resources needed to complete it.

**Actual Cost of Work Performed (ACWP)**: The direct costs actually incurred and the indirect costs it requires to accomplish the work performed within the given time period.

**Actual Finish Date**: The calendar date when work actually ended on an activity. The remaining duration after an activity has been achieved is considered zero.

**Actual Start Date**: The calendar date when work actually begins on an activity.

**B**

**Backward Pass**: The calculation of the late finish dates and the late start dates for the uncompleted portions of all network activities, determined by working backward through the network logic from the project end date.

**Bar Chart**: A graphic presentation of work tasks shown by a time-scaled bar line, (sometimes referred to as a[Gantt Chart](#GanttChart)).

**Baseline:** A management plan or scope document fixed at a specific point in time during the project lifecycle, and used to measure the progress of the project.

**Bottom-Up Estimating**: The process of developing an estimate in which the total estimate is the sum of the estimates of all work packages.

**Budget**:

1. When unqualified, an estimate of funds planned to complete an ongoing work during a fiscal period.
2. A planned allocation of resources

**Budget Cost:** The conversion of work estimates into hourly rates, quantity units of production, and so on. Budget costs can be compared to actual costs and variances developed to highlight performance, and used to alert those responsible to implement corrective actions if necessary.

**Budget Estimate (-10 +25%):** The combination of quantitative firm and unit prices for labor, material, and equipment used in order to establish the required funds and obtain approval for the project. Estimates are prepared from flow sheets, layouts, and equipment details.

**Budgeted Cost of Work Performed (BCWP):** The sum of the budgets for completed portions of in-process work, plus the appropriate portions of both the budgets for a level of effort and the apportioned effort for a relevant period of time. BCWP is commonly referred to as earned value.

**Budgeted Cost of Work Scheduled (BCWS):** The sum of the budgets for work scheduled to be accomplished (including in-process work), plus the appropriate portions of both the budgets for a level of effort and the apportioned effort for a relevant period of time.

**C**

**Calendar:** A system for identifying the project workdays needed to develop a project plan. It can be altered so that weekends, holidays, and so on are not included.

**Calendar Unit:** The smallest unit of time spent on scheduling a project. Calendar units are generally in hours, days, or weeks, but can also be in shifts or even in minutes. Used primarily in relation to a project management software.

**Change in Scope:** A change in the objectives, work plan, or schedule that results into a material difference from that stated in the terms of an approval to proceed, previously granted by the higher authority. Under certain conditions (normally stated in the approval document), a change in resources application may constitute a change in scope.

**Change Request:** A formal written statement asking for modification to a deliverable.

**Close out Phase**: The fifth phase of a project management process, during which the project documentation is completed and archived in the project library, and the project team is disbanded.

**Communication Management:**

1. The proper organization and control of information transmitted by whatever means to satisfy the needs of the project. It includes the processes of transmitting, filtering, receiving, and interpreting or understanding of information, using skills appropriate in the project environment.
2. The supervision of exchange of information.

**Completed Activity:** An activity with an actual finish date, but without any duration remaining.

**Conflict Resolution**: The process of seeking solution to a problem. Five methods in particular have proven effective, these include:

1. **Compromise**—To consent to agree; generally, each side wins or loses a few points.
2. **Confrontation**—To work together toward getting a solution to a problem.
3. **Forcing**—Use of power to direct a solution. This is a type of win-lose agreement in which one side gets what it wants and the other does not.
4. **Smoothing**—To play down the differences between two groups, and give the points of agreement a strong attention.
5. **Withdrawal**—To remove oneself from a conflict.

**Contingency Allowance**: A specific provision for unpredictable elements of cost within the defined project scope; particularly important where a previous experience in relating estimates and actual costs has shown that unpredictable events that will increase costs are likely to occur. If an allowance for cost escalation is included in the contingency allowance, it should be a separate item determined to fit the expected escalation conditions for the project.

**Contingency Planning**: The development of a management plan that identifies alternative strategies to be used to ensure a project success if specified risky events occur.

**Contract:** A binding agreement between a customer and a supplier in which the supplier agrees to provide goods and/or services in exchange for a specific compensation from the customer.

**Contract Administration**: To monitor and control the performance, review progress, make payments, recommend modifications, and approve supplier’s actions to ensure compliance with contractual terms during contract execution.

**Contract Closeout**: The activities that ensure that the contractor has fulfilled all contractual obligations and has released all claims and liens in connection with the work performed.

**Contract Documentation**: The documents included in the formal agreement between a customer and a supplier: the contract, letter of intent, agreements, task orders, memoranda of understanding, specifications, statement of work, and other relevant materials.

**Contract Guarantee**: A legal document assuring the performance of a contract by a contractor.

**Control**: The process of comparing an actual performance with a planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective actions as needed.

**Cost/Benefit Analysis**: A survey or computation of the quantifiable features of a project that will provide the customer additional information, with which he/she will be able to make a wise choice.

**Cost Control:** The process of collecting, gathering, analyzing, reporting, and managing costs on an ongoing basis.

**Cost Estimating**: The process of assembling and predicting the cost of a project. Cost estimating comes before the economic evaluation, project investment cost, and predicting or forecasting of future trends and cost.

**Cost Performance Index**: The measurement of a project cost performance till date:

CPI =

CPI<1 means the project is over running.

**Cost Variance**: The difference between the actual and the budgeted cost for the work performed till date:

CV = BCWP - ACWP

CV<0 means the project is over running.

**Crashing**: An action undertaken to decrease the duration of an activity on the critical path by increasing the expenditure of resources.

**Critical Path**: A series of interdependent activities of a project, connected end to end, which determines the shortest total length of the project. The critical path of a project may change from time to time as activities are completed ahead of or behind schedule.

**Critical Path Method (CPM)**: A scheduling technique using the precedence diagramming method to achieve a graphic display of work plan. CPM is the method used to determine the length of a project, and identify the activities that are critical to the completion of the project.

**Current Finish Date**: The estimated calendar date when an activity will be completed.

**Current Start Date:** The estimated calendar date when an activity will begin.

**D**

**Definitive Estimate (-5 + 10%)**: An estimate prepared from well-defined data, specifications, drawings, and so on. This category covers all estimates ranging from a minimum to maximum definitive type. These estimates are used for proposals, bid evaluations, contract changes, extra work, legal claims, permits, and government approvals. Other terms associated with a definitive estimate include check, lump sum, tender, post contract changes, and others.

**Deliverable:** Any measurable, tangible, verifiable outcome, result, or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an external deliverable, which is a deliverable that is subjected to an approval by the project sponsor or the customer.

**Detailed Schedule**: A schedule used to communicate day-to-day activities to the personnel working on the project.

**Direct Project Cost**: The costs directly attributable to a project, including all personnel, goods, and services, together with all their associated costs, aside from indirect project costs.

**E**

**Early Finish Date (EF)**: In the critical path method, the earliest possible point in time at which the uncompleted portions of an activity (or a project) can be finished based on the network logic and any schedule constraints. Early finish dates can change as the project progresses, and as changes are made to the project plan.

**Early Start Date (ES)**: In the critical path method, the earliest possible point in time at which the uncompleted portions of an activity (or a project) can be started, based on the network logic and any schedule constraints. Early start dates can change as the project progresses, and as changes are made to the project plan.

**Earned Value (EV)**: A method for measuring project performance. It compares the amount of work that was planned with what has been actually accomplished in order to determine if cost and schedule performance is as planned.

**Estimate**: An evaluation of all the costs of the elements of a project, or effort as defined by an agreed-upon scope.

**Estimate At Completion (EAC)**: The expected total cost of an activity, a group of activities, or the project when the defined scope of work has been completed.

**Estimated To Complete (ETC)**: The remaining costs to be incurred in order to satisfy the complete scope of a project at a specific date. ECC is the difference between the cost till date and the forecasted final cost.

**Execution**: The third process in project management during which the project is performed and delivered to the customer.

**F**

**Facilitator**: A person who is not part of a group but helps the group work progress more effectively.

**Fast Tracking**: Compressing the Project Schedule by overlapping activities that would normally be done in sequence.

**Feasibility Studies**: The methods and techniques used in examining technical and cost data so as to determine the economic potential and the practicality of project applications. They involve the use of various techniques, such as calculating the time value of money. So that projects may be evaluated and compared on an equivalent basis. Interest rates, present worth factors, capitalization costs, operating costs, depreciation, and so on, are all considered.

**Float**: The amount of time that an activity may be delayed from its early start without delaying the project finish date.

**Forecast**: An estimate and prediction of future conditions and events based on the information and knowledge available at the time of the forecast.

**Forward Pass**: The calculation of the early start and early finish dates for the uncompleted portions of all network activities.

**Free Float (FF)**: The amount of time an activity can be delayed without delaying the

early start of any immediately following activities.

**Function Point Analysis (FPA):** An approach to estimating software costs. It involves examining the project initial high level requirement statements, identifying specific functions, and estimating total costs based on the number of times each function is performed.

**Functional Organization**: An organizational structure in which people are grouped because they perform similar functions, such as engineering, administrative, or marketing.

**G**

**Gantt Chart**: A timeline chart showing when certain processes will take place and whether any of the processes will overlap.

**H**

**Hammock**: An aggregate or summary activity. All related activities and tasks are tied as one summary activity and reported at the summary level.

**Hanger**: A break in a network path.

**Histogram**: A timeline chart illustrating the utilization of resources over time.

**Human Resources Managemen**t: The function of directing and coordinating human resources throughout the life span of a project by applying the art and science of behavioral and administrative knowledge to achieve pre-determined project objectives such as scope, cost, time, quality, and participant satisfaction.

**I**

**Indirect Project Cost**: The costs that indirectly contribute to project deliverables, but that are nonetheless required for the orderly completion of the project. They may include, but are not necessarily limited to, overhead and office costs, field administration, direct supervision, incidental tools and equipment, start-up costs, contractors’ fees, insurance, and taxes.

**Inflation/Escalation**: The factor in cost evaluation and cost comparison that must be predicted as an allowance to account for the price changes that can occur with time, and over which the project manager has no control (for example, cost-of-living index, Interest rates, and other cost indices).

**Initiation**: The first of five sequential project management processes, during which the initial idea for the project is approved for preliminary planning efforts.

**Integrated Cost/Schedule Reporting**: The development of reports that measure the actual versus escalated budget, BCWS, BCWP, and ACWP.

**ISO9000:** A methodology by which an organization documents and conducts its quality-related processes and requirements. A set of standards that helps an organization ensure that its quality system meets a certain minimal level of performance.

**L**

**Lag Relationship**: The four basic types of lag relationships between the start and/or finish of a work item, and the start and/or finish of another work item, they include: from finish to start, start to finish, finish to finish, and start to start.

**Late Finish Date (LF):** The latest time an activity may be completed without delaying the project finish date.

**Leg**: The modification of a logical relationship that directs a delay in the succeeding task. For example, in a finish-to-start dependency with a 10-day lag, the succeeding activity cannot start until 10 days after the preceding one has been completed.

**Lessons Learned Reviews**: The audits carried out by the project team to learn from successes and the mistakes in the project just completed, and the use of that knowledge in future projects to repeat the successes and avoid the mistakes just experienced

**Life Cycle**: The entire life of a system, product or project, including its conception, design, development, construction, operation, maintenance, repair, and decommissioning.

**M**

**Management Reserve**: A fund withheld by the project manager to address unforeseen events or circumstances; separate from contingency allowances.

**Master Schedule**: An executive summary-level schedule that identifies the major components of a project and usually also identifies the major milestones.

**Matrix Organization**: Any organizational structure in which the project manager shares responsibilities with the functional managers, such as: assigning priorities and directing the work of individuals assigned to the project.

**Milestone**: A significant event in the project; usually the completion of the major deliverable.

**Mission**: A goal, end, or target that all or part of the enterprise is dedicated to achieving.

**Monitoring**: The capturing, analysis, and reporting of project performance, usually as compared to planning.

**N**

**Near-Critical Activity**: An activity that has a low total float.

**Network Analysis**: The process of identifying both the early (start and finish) & late (start and finish) dates for uncompleted portions of project activities.

**Network Logic:** A collection of activity dependencies that makes up a project network diagram.

**Network Path**: Any continuous series of connected activities in a project network diagram.

**Node:** One of the defining points of a network; a junction point connected to some or all of the other dependency lines.

**Nondisclosure Agreement**: A legally binding document in which an organization promises to use another’s proprietary data only for specific purposes and not to reveal or disclose that data to any other organization or individual.

**O**

**Objective**: A desired result or outcome; the end toward which effort is directed.

**Order of Magnitude Estimate (-25 + 75%)**: An approximate estimation made without detailed data, that is usually produced from appropriately escalated cost capacity curves, scale up or down factors, and approximate cost capacity ratios. This type of estimate is used during the formative stages of an expenditure program for initial evaluation of the project. Other terms commonly used to identify an order of magnitude estimate are preliminary, conceptual, factored, quickie, and feasibility.

**Organizational Breakdown Structure (OBS)**: A hierarchical chart showing the relationships of human and material resources.

**P**

**Percentage Completion (PC)**: An estimate, expressed in form of percentage, of the amount of work which has been completed on an activity or group of activities.

**Phase:** The division of a project time frame (or project lifecycle) into the largest logical collection of related activities.

**Precedence Diagramming Method (PDM)**: A network diagramming technique in which activities are represented by boxes (or nodes). Activities are linked by precedence relationships to show the sequence in which the activities are to be performed.

**Predecessor Activity:** Any activity that exists on a common path, after the activity in question.

**Program Evaluation and Review Technique (PERT)**: An event-oriented network analysis technique used to estimate project duration when there is a high degree of uncertainty with the individual activity duration estimate. PERT applies the critical path method to a weighted average duration estimate. Also given as program evaluation and review technique.

**Project Charter**: The primary document used to state the project mission, goals and objectives in consistence with the approved business plan. It defines the business opportunity, contains the scope statement, and summarizes project impacts and estimates in relation to the business plan.

**Project Communications Management**: A subset of project management that includes the processes required to ensure proper collection and dissemination of project information. It consists of communications planning, information distribution, performance reporting, and administrative closure.

**Project Cost Management**: A subset of project management that includes the processes required to ensure that the project is completed within the approved budget. It consists of resource planning, cost estimating, cost budgeting, and cost control.

**Project Human Resource Management**: A subset of project management that includes the processes required in making the most effective use of the people involved in the project work. It consists of organizational planning, staff acquisition, and team development.

**Project Integration Management**: A subset of project management that includes the processes required in ensuring that the various elements of the project are properly coordinated. It consists of project plan development, project plan execution, and overall change control.

**Project Library**: The physical location of all project-specific documentation, including the project plan, contract, status reports, and other significant documents.

**Project Life Cycle**: The five sequential phases in time through which any project passes: Concept, Planning, Initiation, Implementation, and Closeout. These phases comprise activities, tasks, and subtasks.

**Project Management Body of Knowledge (PMBOK)**: The codification of all topics, subject areas, and intellectual processes involved in applying sound management principles to facilitate collective accomplishment of any undertaking definable as a project. PMBOK is published and maintained by the Project Management Institute.

**Project Management Professional (PMP)**: A certification of project management skill awarded by the Project Management Institute (PMI).

**Project Management Software**: A class of computer applications specifically designed to help with planning and controlling project costs and schedules.

**Project Manager**: An individual assigned to carry out the responsibility of managing a project, and acting

as the customers’ single point of contact for services delivered within the scope of that project. This individual also controls the planning and the execution of the project scope of activities, and resources toward meeting the established cost, time table, and quality goals.

**Project Plan**: A ratified document used to guide both the project execution and control. The primary uses of the project plan include the documentation of:

* planning assumptions and decisions, (in order to facilitate communication among stakeholders), and
* the approved scope, cost, and schedule baselines.

A project plan maybe summary or detailed.

**Project Procurement Management**: A subset of project management that includes the processes required for acquiring goods and services outside of the performing organization. It consists of procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout.

**Project Quality Management**: A subset of project management that includes the processes required in ensuring that the project will satisfy the needs for which it was undertaken. It consists of quality planning, quality assurance, and quality control.

**Project Risk Management**: A subset of project management that includes the processes concerned with identifying, analyzing, and responding to project risks. It consists of risk identification, risk quantification, risk response development, and risk response control.

**Project Scope Management**: A subset of project management that includes the processes involved in ensuring that the project includes all of the work required, and only the work required, to complete the project successfully. It consists of initiation, scope planning, scope definition, scope verification, and scope change control.

**Project Steering Committee**: A consolidated oversight group that reviews the progress of a project, provides assistance when required, and assesses the overall success.

**Project Time Management**: A subset of project management that includes the processes required in ensuring a timely completion of the project. It consists of activity definition, activity sequencing, activity duration estimating, schedule development, and schedule control.

**Q**

**Quality Assurance (QA)**: The process of evaluating the overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.

**Quality Control (QC)**: The process of monitoring specific project results to determine if they comply with relevant quality standards, and identifying ways to eliminate causes of unsatisfactory performance.

**R**

**Recovery Schedule**: A specific schedule showing special efforts to recover the time lost compared with the master schedule.

**Remaining Duration (RDU):** The time needed to complete an activity.

**Request for Information (RFI)**: A formal invitation containing a scope of work that seeks information regarding products or services from vendors, without creating a basis for a contract.

**Request for Proposals (RFP)**: A formal invitation containing a scope of work that seeks a formal response (proposal) describing both methodology and compensation, to form the basis of a contract.

**Request for Quotations (RFQ)**: A formal invitation containing a scope of work that seeks a cost or price quotation to perform the work or provide the product specified as the basis for a contract.

**Resource**:

1. A factor, except time, required or consumed to accomplish an activity.
2. Any substantive requirement of an activity that can be quantified and defined, such as manpower equipment or material.

**Resource Allocation Process**: The scheduling of activities in a network with the knowledge of certain resource constraints and requirements. This process adjusts activity level start and finish dates in order to conform to resource availability and use.

**Resource Leveling**: Any form of network analysis in which scheduling decisions (start and finish dates) are driven by resource management concerns (e.g., limited resource availability or difficult-to-manage changes in resource levels).

**Retainage**: A portion of a contract payment that is held until contract completion in order to ensure full abidance of the contract terms.

**Risk Assessment**: The identification and analysis of project risks in order to ensure that they are understood and prioritized.

**Risky Event:** A discrete occurrence that may affect the project for better or worse.

**Risk Mitigation:** The act of revising a project technical approach, scope, budget, schedule, or quality, preferably without materially affecting the project objectives, in order to reduce risk.

**S**

**Schedule Performance Index**: The comparison of a project time performance to its

schedule:

SPI =

SPI<1 indicates the project is behind schedule.

**Schedule Variance**: The difference between the projected duration for an activity and the actual duration of the activity:

SV= BCWP - BCWS

SV = (–ve ) indicates the project is behind schedule.

**S-Curve**: Graphic display of cumulative costs, labor hours, or other quantities, plotted against time. The name is derived from the S-like shape of the curve (flatter at the beginning and the end, steeper in the middle) produced by a project that starts slowly, accelerates, and then tails off.

**Scope**: The work content and products of a project or component of a project. Scope is fully described by naming all activities performed, the resources consumed, and the resulting end products, including quality standards. A brief background of the project or component and its general objective(s) should introduce a scope statement.

**Scope of Work**: A narrative description of the work to be accomplished or resources to be supplied under a contract.

**Substantial Completion**: The point in time when the work is ready for use, or is being used for the purpose intended, and is so certified.

**Successor Activity**: In the arrow diagramming method, the activity which departs a node. In the precedence diagramming method, the “to” activity.

**Summary Level**: The elements of a project Work Breakdown Structure at the major sub-system level.

**T**

**Team Building:** The process of influencing a group of diverse individuals, each with individualized goals, needs, and perspectives, to work together effectively for the good of the project such that their team will accomplish more than the sum of their individual efforts could otherwise achieve.

**Total Quality Management(TQM)**: A common approach to implementing a quality improvement program within an organization.

**Trend Analysis**: A mathematical method for establishing tendencies based on past project history and allowing for adjustment, refinement, or revision to predict cost. Regression analysis techniques can be used for predicting cost/schedule trends using data from historical projects.

**U**

**Update**: To revise a schedule in order to reflect the most current information about the project.

**User Requirements**: A statement that functionally describes the software, hardware, or other business need as well as the general business need it is intended to meet.

**V**

**Variance Analysis**: An analysis of the difference between planned and actual performance:

Y Cost Variance = BCWP – ACWP

Y %Over / Under = (ACWP – BCWP)/BCWP x 100

Y Unit Variance Analysis

• Labor Rate

• Labor Hours/Units of Work Accomplished

• Material Rate

• Material Usage

• Schedule/Performance – BCWP – BCWS

**W**

**Work Breakdown Structure (WBS)**: A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services.

**Work Package**: A deliverable at the lowest level of the Work Breakdown Structure. A work package may be divided into activities.

# **Appendix B – Basic Tool Kit of Project Management Tools and Templates**

The following list of forms and templates comprises the basic tool kit suggested for use in project management. Each form is located in this appendix.

|  |  |
| --- | --- |
|  |  |
| Initiation | **Execution** |
| [High-Level WBS](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\WBS (High-Level).pdf)  [Pre Project Budget Worksheet](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Pre-Project Budget Worksheet.xlsx)  [Project Charter](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Project Charter Template.xlsx) | [Project Status Report](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Status Report.docx)  [Change Request Log](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Change Request Log.xlsx) |
| Planning | **Close Out** |
| [Work Breakdown Structure (List)](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\Work%20Breakdown%20Structure%20(List).pdf)  [RACI Matrix Template](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\RACI Matrix Template.doc)  [Communications Plan Template](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Communication Plan Template.doc)  [Communications Matrix](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Communications Matrix.xlsx)  [Meeting Minutes](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Meeting Minutes.docx)  [Risk Management Plan](file:///\\roswell\files\AD\Human%20Resources\Roswell%20University\Project%20Management\Fall%202024\Binder%202024\Templates\Part%203%20Risk%20Management%20Plan.docx)  [Project Schedule](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Practical Steps in Managing Project Schedules.pdf)   * [Practical Steps](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Practical Steps in Managing Project Schedules.pdf) * [Sample: Project Timeline](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Timeline.pdf)   [Procurement Checklist](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Procurement Checklist.pdf) | [Project Closeout Report](\\\\roswell\\files\\AD\\Human Resources\\Roswell University\\Project Management\\Fall 2024\\Binder 2024\\Templates\\Project Close out Report.docx) |