Project Planning for Resilient Cities

PRESENTED BY
THE PROJECT MANAGEMENT INSTITUTE
DELAWARE VALLEY CHAPTER &

THE FUTURE CITY COMPETITION
PHILADELPHIA REGION
Project Plan Deliverable - 10 Points

• Set Goals
• Develop a schedule
• Check-in and Report
• Reflect and share what you have learned
• More important! Plan how you will earn the other points

What You Will Learn
➢ How to score the 10 project management points
➢ Setting project goals
➢ Deciding which goals are worth your effort - prioritizing
➢ How to plan ahead
➢ How to break big jobs into smaller objectives
➢ How to follow a plan
➢ How to deal with unknowns
➢ How to adapt to changes
➢ How to make the best use of time and money

Apply the time-tested principles of project management to reach your goals.
Goals and Objectives - “Why?”

- Win the competition?
- Do better than last year?
- Learn about careers?
- Have fun?
- Learn something new?
- Meet other people?
- Travel to the Nationals?
- Add an activity to your resume?
- Collaborate with a group?

Prioritize this list for the Goal section of the Project Plan form

Why are you participating in Future Cities Competition?
Initiating a Project

1. Think about it
2. Write it down
3. Reach agreement

Make sure your project is worth doing.
Plan: Determine How to Do It

A plan fits the pieces of your project together
Plan Scope “What?”

Define the project’s output in detail

- What are the deliverables?:
  - Virtual City Design (48 points)
  - City Essay (60 points)
  - City Model (70 points)
  - City Presentation (70 points)
  - Project Plan (10 Points)
- Get input from your stakeholders
- “Collect requirements”

Assumptions

- Natural disasters are the only problems
- Includes Power Generation and Transmission
- Sustainable power sources are included

Fill-in the assumption section of your plan.
Example Requirements

– Functional Requirements
  • Resilient Power for a City
  • Able to survive natural disasters
  • Quick recovery from problems
  • Other types of disasters (???)

– Constraints on how the work must be done
  • The team will work after school
  • Meetings must be at the school with mentors
  • Drafts/prototypes must be reviewed by 12/4/2018
  • Final design must be done by 12/18/2018

Put the constraints and assumptions into the Project Plan form

Fill-in the constraint section of your plan.
Define the high-level work to be done.

Work Breakdown Structure

- Resilient City
  - Virtual City Design
    - Create
    - Review
    - Update
  - City Essay
    - Research
    - Write
    - Review
  - City Model
    - Brainstorm
    - Create a Prototype
    - Develop Final
    - Test
  - City Presentation
    - Review Requirements
    - Create Outline
    - Final Review
  - Project Plan
    - Review Handbook
    - Interview Stakeholders
    - Create Baseline
Plan Time - “When?”

- Define the detailed activities for each deliverable
- Put the activities in sequence
- Estimate the calendar time (days or weeks) for each activity
- Create a schedule

Fill-in the schedule part of the Project Plan form

Determine the order and duration of activities.
### Example Activity List

**Activities for the “City Essay Research” WBS Element**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Labor</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read the rubric</td>
<td>1 hour</td>
<td>First Cities Handbook</td>
</tr>
<tr>
<td>Brainstorm</td>
<td>3 hour</td>
<td>Project team</td>
</tr>
<tr>
<td>Organize the ideas</td>
<td>2 hours</td>
<td>Brainstorm notes</td>
</tr>
<tr>
<td>Create an outline</td>
<td>2 hours</td>
<td>Ideas, author</td>
</tr>
</tbody>
</table>
• Estimate how much each activity will cost

• Include the cost for
  – Labor ← Volunteers/students so $0
  – Supplies ← Provided by the school, parents $0
  – Overhead (like office space and equipment)

• Add the estimates to determine the total cost of your project

Estimate the cost of your project
## Plan Cost: Example

<table>
<thead>
<tr>
<th>Activity</th>
<th>Labor</th>
<th>Resources</th>
<th>Labor Cost</th>
<th>Supplies Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sim City model</td>
<td>80 hours</td>
<td>Students, software</td>
<td>$0</td>
<td>$98</td>
</tr>
<tr>
<td>Virtual City design</td>
<td>40 hours</td>
<td>Students, material</td>
<td>$0</td>
<td>none</td>
</tr>
<tr>
<td>Presentation</td>
<td>20 hours</td>
<td>Students, software</td>
<td>$0</td>
<td>none</td>
</tr>
<tr>
<td>Essay</td>
<td>15 hours</td>
<td>Students, software</td>
<td>$0</td>
<td>none</td>
</tr>
</tbody>
</table>

Roll-up the cost of each activity, to the elements, and project.
Plan Quality - “How?”

- Determine what quality means for your project

- Determine how you will ensure quality

**Examples**

- Quality means:
  - No spelling/language errors
  - SimCity model works
  - The presentation is 7 minutes and free of defects
  - Workmanship of model

- How we will ensure quality:
  - Independent document reviews
  - SimCity model testing
  - Review documents and products for consistency

Ensure your project produces quality outputs.
• Risks are uncertain future events that can affect your project

• There are two types of risks
  – Threats have a negative impact on your project
  – Opportunities have a positive impact on your project

If you know about a risk, you can manage it.
Take initiative to reduce threats and increase opportunities!

**Identify**
- Talk to others
- Make a list

**Assess**
- Probability – How likely is it to happen?
- Impact – How big of an effect will it have?

**Plan**
- Include activities to change probability
- Include activities to change impact
- Include cost or time buffers
### Plan Risk: Example

<table>
<thead>
<tr>
<th>Risk</th>
<th>Probability</th>
<th>Impact</th>
<th>Owner</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimCity does not work</td>
<td>Medium</td>
<td>High</td>
<td>Bob</td>
<td>Obtain and expert</td>
</tr>
<tr>
<td>Content for Presentation</td>
<td>High</td>
<td>Med</td>
<td>Joe</td>
<td>Review a prototype</td>
</tr>
<tr>
<td>City design is not practical</td>
<td>Medium</td>
<td>Med</td>
<td>Bob</td>
<td>Review existing technology</td>
</tr>
<tr>
<td>Mentor busy in work</td>
<td>Medium</td>
<td>Med</td>
<td>Jane</td>
<td>Identify additional mentors, talk to other teams</td>
</tr>
<tr>
<td>Judges do not like deliverables</td>
<td>Low</td>
<td>High</td>
<td>Joe</td>
<td>Discuss approach with other team leaders</td>
</tr>
</tbody>
</table>

Be proactive – stop problems before they happen!
Plan Purchasing

- Determine what goods and services you need
- Determine how you will acquire them

Examples

- What you need:
  - Model material
  - Computers
  - Software
  - Experts
- How to acquire:
  - Stores
  - On-line
  - School
  - Volunteer

Have what you need at the time that you need it.
Plan People - “Who?”

- Acquire your project team
- Assign your project team members to roles
- Assign your project team members to activities
- Train your project team
- Determine how you will motivate and reward your team

Your project needs a trained, organized, motivated team.
### Responsibility Assignment Matrix

<table>
<thead>
<tr>
<th>Activity</th>
<th>Team Members</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Joe</td>
<td>Bob</td>
</tr>
<tr>
<td>Essay</td>
<td>P</td>
<td>S</td>
</tr>
<tr>
<td>Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>S</td>
<td>P</td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td>P</td>
</tr>
</tbody>
</table>

P=Primary Responsibility
S=Secondary Responsibility

Organize your team for roles and activities.
• Communication is essential for project success

• Poor communication can cause:
  – Misunderstandings
  – Wasted time and effort
  – Low project team morale

90% of a project manager’s time is spent communicating.
# Purpose vs. Skill

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hear what others are really saying</td>
<td>Active listening</td>
</tr>
<tr>
<td>Understand and uncover deeper meaning</td>
<td>Questioning and probing</td>
</tr>
<tr>
<td>Tell others what they can expect</td>
<td>Setting and managing expectations</td>
</tr>
<tr>
<td>Increase knowledge</td>
<td>Educating</td>
</tr>
<tr>
<td>Improve performance</td>
<td>Coaching</td>
</tr>
<tr>
<td>Convince others to act</td>
<td>Persuading</td>
</tr>
<tr>
<td>Encourage the team</td>
<td>Motivating</td>
</tr>
<tr>
<td>Minimize disruption due to conflicts</td>
<td>Resolving conflict</td>
</tr>
</tbody>
</table>

Use the skill to achieve the results you want
Plan Communication: Example

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Frequency</th>
<th>Type</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judge</td>
<td>Once</td>
<td>Written</td>
<td>The essay provides a description of how the power supply is resilient</td>
</tr>
<tr>
<td>Team</td>
<td>Daily</td>
<td>Oral</td>
<td>Overall plan for the project and daily updates as project progresses</td>
</tr>
<tr>
<td>Team</td>
<td>Once</td>
<td>Demonstration</td>
<td>Instruct team on the design for power generation and distribution</td>
</tr>
<tr>
<td>Mentor</td>
<td>Daily</td>
<td>Oral</td>
<td>Provide updates on the progress of the project at the end of each day and if there are any issues with completion</td>
</tr>
</tbody>
</table>

Plan to communicate – who, when, how, and why.
More About Plans

- Write down your plan
- Compare your plan to your Project Objectives and address differences
- Get agreement from stakeholders
  - Sponsor
  - Mentors
  - Project Manager
  - Project Team
- Measure your project progress against your plan
- Know that your plan will change

Your plan is an agreement of how to accomplish your goal.
An integrated plan shows you how to reach your goal.
Execute

Monitor and Control

- Adapt to change
- Decide to do it
- Determine how to do it

Plan

Execute

- Do it

Close

Wrap it up

Now that you have a plan, follow it.
Execute – Project Manager’s Role

The Project Manager has overall responsibility for the project.

- Carry out your plan
- Organize and train the project team
- Assign work to the project team
- Direct and manage the team’s activities
- Communicate with stakeholders
- Measure your progress against your plan
- Measure quality against your plan
Execute – Other Roles

- **Project Team**
  - Does the work

- **Sponsor**
  - Funds the project
  - Promotes the project

- **Stakeholders**
  - Stay informed and engaged

**People are the key to success!**
Execute

- Scope
- Time
- Cost
- Quality

- Product
- Service
- Result

A good plan makes executing easier.
Update the report section of the project plan.
Recognize Change

1. Recognize that change is happening
2. Uncover the cause of the change
3. Decide what to do
4. Adjust your plan
5. Execute your adjusted plan

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Recognize Change
Making a Decision

Control the change – don’t let it control you.

Recommend action
- Corrective action
- Preventative action
- Defect repair

Get agreement
- Talk to the people who are affected

Accept or reject the change
- Write down the decision
Adjust Your Plan

• Determine how your decision affects each aspect of your plan.

• Adjust your plan to reflect the change.

• Involve stakeholders in the process.

Keep your plan up-to-date with your decisions.
Close

Cross the finish line!
## Close: Wrap It Up

1. **Confirm that the project is finished**
   - Make sure that the plan’s scope is complete
   - Make sure that the plan’s activities are complete
   - Make sure that the plan’s outputs are produced and accepted

2. **Collect records**
   - Save records that can help a future project
   - Gather lessons learned and save them for the future

3. **Satisfy stakeholders**
   - Turn over the project’s output to whoever will use it
   - Make sure deliverables and supplies are inventoried
   - Get agreement that everything is finished
   - Celebrate and thank everyone!
Close: Lessons Learned

• Talk to everyone involved and get honest feedback
  – What went well
  – What you could improve next time
  – What you achieved

• Write it down so you remember it for the next project

“Those who cannot remember the past are condemned to repeat it”
- George Santayana
The Importance of Planning

• From the Handbook, p. 24:

“We created an awesome city because we took the time to think about our goals and came up with a clear plan.”

-Student Participant
Who We Are

• **Project Management Institute**
  • The PMI is an international organization founded to:
    • Promote professional project management principles and techniques;
    • Create and deliver an educational program that strengthens local project management professionals' skills;
    • Provide world-class PMI certification and training

• **Delaware Valley Chapter**
  • The local PMI chapter serving the Greater Philadelphia area, South Jersey, Delaware, Eastern Shore Maryland.
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