**Project Management I**

**ADM6260 B**

**Fall 2019**

**PENTAGON PHOENIX PROJECT**

**Group Members**

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1. **Project Charter:** 
   1. Part I: Project Overview

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| --- | --- | --- | --- | --- |
| **Project Name** | The Pentagon Phoenix Project | | | |
| **Project Charter Author** |  | | | |
| **Award Date** | September 24, 2001 | **Last Revision Date** | |  |
| **Project Requestor** | Department of Defense | **Project Manager** | |  |
| **Project Charter Status (Pending/Approve/Reject)** | Approved | | | |
| **Project Sponsor Signature** |  | | **Date of Project Approval** |  |
| **Proposed Project Start & End Date** | Start: September 11, 2001  End:  August 15, 2002 | |  | |

* 1. Part II: Project Details

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| **Project Description** | The Pentagon is the headquarters of the United States Department of Defense in Washington, DC.  It consists of five concentric pentagons of corridors and offices, with the designation of "rings" and labeled "A" through "E." These rings are interconnected and enable employees to walk to other sections without ever going outside. Twenty-three thousand military and civilian employees work in the Pentagon.  On September 11, 2001, the Pentagon Phoenix Project was initiated when hijacked American Airlines Flight 77 slammed into the west face of the Pentagon. At that moment, The Phoenix Project became a new project within the ongoing Pentagon Renovation Program (PenRen). The project covered the rebuilding of the sections of the Pentagon that were most severely damaged by the attack. The area of work extended from Corridor 4 to Corridor 5, and-rings C, D and E, which represented approximately 400,000 square feet of the Pentagon. The objective of the project was to reoccupy the E -ring at the point of impact by September 11, 2002. *(Sullivan &Sheakly, 2003)* |
| **Project Purpose** | The damage caused by American Airlines Flight 77 to the Pentagon building during the September 11, 2001 attacks has created a dire need to reconstruct areas in Wedge 1 and Wedge 2 encompassing 400,000 square feet of space that suffered structural damage This project aims to address these needs and result in reoccupying the outermost ring of the rebuilt section by September 11, 2002. |
| **Project Goals** | The goal of the project are as follows *(Sullivan &Sheakly, 2003)*   * To reoccupy the E -ring at the point of impact by September 11, 2002. * To completely restore all of the areas damaged by the terrorist attack by Spring of 2003. |
| **Project Scope** | The outcomes of this project will be: (*U.S. Department of State ,2002*)   * Complete demolition and reconstruction of the C, D, and E Rings in the area of the boundary between the recently renovated Wedge 1 and the unrenovated Wedge 2. * Rebuilding Wedge 1 * Re-building of building shell only for Wedge 2. |
| **Project Deliverables** | The main deliverable of this project will be the re-occupation of the E -ring at the point of impact by September 11, 2002. *(Sullivan &Sheakly, 2003)* |
| **Benefits** | The main benefit of this project is the re-occupation of the E -ring at the point of impact by September 11, 2002. *(Sullivan &Sheakly, 2003)* |
| **Stakeholders *(****Secretary of Defense,2003)* | * The Virginia Department of Transportation * Arlington County * Washington Metropolitan Area Transportation Authority * The National Capital Planning Commission * The Commission of Fine Arts * The Pentagon Building and its tenants |
| **Constraints/ Risks** *(Sullivan &Sheakly, 2003)* | * Differing interpretations of instructions among project members for the who, when, what, and where of executing activities * Failure to integrate project plans cohesively * Indecision / hasty decision / wrong decision * Poor cost and schedule estimating * Poor quality and rework * Customer dissatisfaction * Hazardous material at the point of removal of debris, transportation and storage * Bad weather conditions * Schedule delays due to tenant changes |
| **Project Team**  *(Sullivan &Sheakly, 2003)* | * Pentagon Renovation Program Manager * Program Renovation Deputy Program Manager * Project Managers * Deputy Project Manager * Structural Lead * Operations Manager * Legal Advisor * Project Engineer * Project Engineer * Project Engineer * Design Coordinator * Contracting Officer * Lead Quality Assurance Manager * Office Engineer, Joe Constantine * Scheduler, Edwin Pickens * Chief Estimator, Rock Viner * Administrative Staff, Misty Kelly * Information Management & Telecommunications, Gary Gunther * Defense Protective Service Rep, Tolly Prather * Safety, Flo Cleyman * Information and Communications, Brett Eaton |
| **Budget Requirements** *(U.S. Department of State,2002)* | Cost budgeting will be based on the scope of the project and the WBS activities. The building needs to be demolished and rebuilt to its original state. However, demolition will be required in not only the renovated space of Wedge 1, but also in the unrenovated space of Wedge 2 where there were asbestos and other hazardous materials from the original construction of the Pentagon. The Phoenix Project, therefore, requires using two different cost estimating models and two different WBS activity lists.   * It is estimated that it will cost upwards of $700 million to recover the entire two million square feet damaged by the attack. * Limestone quarried and cut in southern Indiana will be used on the exterior of the building. * 1,000 workers working three shifts, 24 hours a day, seven days a week are expected to undertake the project. |
| **Key Dependencies**  *(Sullivan &Sheakly, 2003)* | A challenge to the Phoenix Project was the need coordination with external projects. In other words, the activities and milestone on the schedule had dependencies and successors external to the Phoenix Project. For example, the Wedge 2 Renovation Project was adjacent to the Phoenix Project. Wedge 2 Renovation had to adjust its plans for core and shell construction in the demolished area. |
| **Communication Plan**  *(Sullivan &Sheakly, 2003)* | The Phoenix Project is born out of a catastrophic event. Due to the fluid nature of the situation and the immediate need for information, flexibility is a key to the communications planning process. Immediately following the attack the communications process has been facilitated by on-site command posts. It has been determined that PenRen would assist the FBI and Arlington County Rescue teams by supplying architectural drawings and first-hand knowledge of the impacted areas. PenRen will work out an agreement with a local printer to remain open 24-hours a day to supply any required documents. PenRen will establish 24-hour command centers, located at the attack site and PenRen offices, to provide timely support and information.  Communications planning is the responsibility of PenRen's Information and Communications (I&C) Integrated Product Team, which will be dedicated full-time to the Phoenix Project. All information prepared for an internal audience or public release will be reviewed by the I&C Team for accuracy and consistency. Security concerns will also taken into consideration and the I&C Team will serve as first line reviewers and will consult with the Pentagon Defense Protective Service before information will be approved for release.  Face-to-face and interpersonal communication strategies will be used due to the instantaneous need for information and the emotional nature of the subject matter. As the project will progress, use of the Internet and e-mail updates will become an essential part of the communications process. |
| **Project Timeline**  *(Sullivan &Sheakly, 2003)* | For the Phoenix Project, the Wedge 1 Renovation is still active, although it was about to close out. The Wedge 1 Renovation Project has become a very valuable source for input into creating the Phoenix Project schedule and plan. All the activities and soft dependencies have already been defined.  The primary project constraint in developing the schedule is the self-imposed deadline to have the point of impact reoccupied by the one-year anniversary.  Initially, the schedule will be informal because there is no access to Primavera or historical data. Estimates will have to be made quickly and then tracked. Once the FBI released the Wedge 1 trailer, the schedule will through more formal development.  To activate the Phoenix Project schedule, the existing renovation schedule will be utilized. The fragments will be reviewed to add new ones, delete old ones, or change them according to the unique conditions of the Phoenix Project. The decision for what adjustments to make will be mutual between the contractor and the government. Unique conditions to the Phoenix Project will have to be factored into the sequencing and duration. Once an agreement is reached, the contract will definitized and the schedule baselined.  The Phoenix Project schedule also will have to be integrated with two external projects: The Wedge 2 Renovation Project and the Wedge 1 Recovery Project which is to remove the collateral damage caused by fire, smoke, and water. Each of these projects have their own PM, funding, and schedule. Coordination among the projects will be enabled through the IPT process. Dependencies between the schedules will be identified for tracking, managing, and controlling the schedules. |

1. **Project Communication Management Plan** *(Sullivan &Sheakly, 2003)*
2. For this project, communication management plan is essential to ensure that project management personnel an all project stakeholders are accurately informed about day-to-day operations of the Phoenix Project.
3. PenRen's Information and Communications (I&C) Integrated Product Team is responsible for communications planning.
4. Due to the urgency of the situation, effective communication is extremely important to deliver a unified message when dealing with both internal and external audience.
5. The communications process will be immediately facilitated by on-site command posts due to the fluid nature of situation and immediate need for information. Thus, flexibility is a key to the communication planning process.
6. Due to the instantaneous need for information and urgency of situation, the face-to-face mechanism and interpersonal communication strategy would be used in the early stages of the project. Once the situation is under control, Internet and e-mail updates could also be used for communicating information internally and externally.
7. Accurate information is needed by PenRen personnel and Pentagon senior-level decision makers during the planning process. Therefore, daily meetings at 7 am and 5 pm should be held to share the most timely and accurate information. A representative from all the affected agencies and all the armed services should attend these daily meetings. Here are the required stakeholders to attend these daily meetings: Project Phoenix engineers, architects, schedulers, information technology specialists, contracting officers, and FBI and FEMA personnel. A summary of these meeting should be electronically shared with Pentagon personnel to update them about the recovery effort.
8. There also should be bi-weekly construction progress meetings and monthly Program Manager's Review meetings to facilitate internal communication between the Phoenix Project, PenRen Program Managers and other on-going construction projects. After each PenRen Program Managers meeting, a report that details Phoenix Project actions for the previous 30 days and action planned for the next 30 days should be generated and shared with senior Pentagon leaders and Pentagon project stakeholders
9. Any information that is going to be released to internal or external audience must be reviewed by the I&C Team for accuracy and consistency.
10. For confidential information, I&C Team would be the first line reviewers and must consult with the Pentagon Defense Protective Service get their authorization and approval.
11. A Local printing facility would be reserved to remain open 24-hours a day to supply any required document.
12. 24-hour command centers will be established both at the attack site and PenRen offices to provide timely support and information.
13. To improve the internal communication, a PenRen Intranet would be created for the collection and dissemination of project information. The PenRen website would be used to post weekly updates about the project. The I&C team is responsible to document the progress of the project and these summaries would be posted to the website.
14. Press days would be scheduled to allow access to the project site and also separate days would be set aside to specifically target the foreign press, which have an active interest in the project progress.
15. For each project milestone, a high-level ceremony would be held and would be covered by media and press.
16. Project Quality Management Plan *(Sullivan &Sheakly, 2003)*
    1. Quality Standards
17. The “code policy” used will be Building Official & Code Administrators (BOCA) manual. Other codes which would be used will be: NFPA 101 (life safety) and the Americans with Disabilities Act (ADA).
18. The specifications will be enhanced and will be deemed “Building Code plus” specifications
    1. Quality Objectives
19. The goal of quality planning for Project Phoenix will be to look at what went right in the renovation of wedge 1 prior to the attack
20. What areas needs improvement to further secure the building from potential future attacks?
    1. Quality Roles and Responsibilities

Project Managers as \_\_\_\_\_\_\_\_\_\_\_\_

Pentagon Renovation Program Manager as \_\_\_\_\_\_\_\_\_\_

Lead Quality Assurance Manager as \_\_\_\_\_\_\_\_\_

* 1. Project Deliverable sand Processes

In the end, quality would be achieved in building the shell only for Wedge 2 and the core and shell in Wedge 1. for example, Normal Power Supply System, Emergency Power Supply System, Standby Power Supply System, Life Safety Systems, Fuel Oil Leak Detection System, Waterproofing System, Heating, Ventilation, and Air Conditioning Systems, Direct Digital Controls Systems (Energy Management and Controls Systems), Fire Alarm/Fire Protection and Fire Suppression Systems, Electrical Distribution System , Building Envelope (including energy efficiency), Potable Water System (including cross connection control/backflow prevention).

The Core work will be considered as shared building infrastructure supporting the tenant and the shell will be limited to the concrete structure.

1. The quality process that will help us to achieve the quality standards for the quality management deliverables are Plan quality, Quality control and Quality Assurance. Quality assurance will be achieved through surveillance and audit while quality control will be achieved through surveillance.
2. Quality Control would be performed by the contractor and to a more limited extent by the government. The contractor will perform100% of the required inspections while the government will inspect a random sample of the work products to check the quality of the products they received.
3. Surveillance would be performed at three different points in the construction process:

* Prep Inspection – Code standards and submittals will be reviewed so all contractor inspectors were on the same page. This phase will be performed after all required plans, documents, materials would be approved and/or accepted and delivered to the work site prior to beginning work on any definable feature.
* Initial Inspection – A representative sample of a definable feature of work would be inspected. For example, the first 16 ft of carpet installed would be inspected before installing the remaining thousands of sq. ft.
* Follow up Inspection – Government representatives for the Phoenix Project would inspect the areas with the contractor QA/Qc managers daily while work was in progress. Defects were identified and documented on a rolling punch list by the contractor. Each day new inspections would be made while following up on old punch list items. This process would improve the speed of the QC process. Normally, inspections would entail a government inspection scheduled months in advance, a site inspection, followed up with a written report about 2 weeks later. Based on the report, the contractor would make the changes and the area would be re-inspected, which is crucial to continuous improvement.

1. Auditing supported Quality Assurance. The government would audit the quality records of the contractors to assure they performed all required quality activities. Records inspected would include quality control reports and redline drawings. Other audits include checking material as it was delivered on the trucks against the approved submittals (not the contractor's Purchase Order.
2. The QA function would be supported by Surveillance. Periodic and random checks would be made of the contractor's work products to assure they were performing required quality control activities.
   1. Tools and Techniques like inspection, process analysis and the type of contract will be used. Through root cause analysis, corrective actions would be taken to improve the overall quality of the products delivered. Some improvements that would be made include:

* Preventing cracked Terrazzo installation
* Converting stud firewalls to concrete masonry
* Increasing reinforcement of the stairwells

The type of contract awarded, and the clauses incorporated into the contract would establish the role and quality techniques to be employed by the customer and the contractor.

1. Project’s Success and Benefits it Delivered to the Stakeholders.

The project's primary goal was restoring the outermost ring of the Phoenix building by September 11, 2002, by restoring the building structure that was damaged, when American airlines flight 77 crashed into the building, during the September 11, 2001 attacks. Project scope included: complete demolition and reconstruction of the C, D, E Rings in the area of the boundary, fully rebuilding Wedge 1 and rebuilding only the shell of Wedge 2. *(Sullivan &Sheakly, 2003)*

As both the scope as well as the primary goal was satisfied, the project can be considered to be a success.

Following were intended benefits of the Phoenix Project, which were delivered successfully to stakeholders. *(Sullivan &Sheakly, 2003)*

1. The project was completed ahead of schedule. The E-ring was reoccupied on August 15, 2002, thus outpacing the goal by nearly a month.
2. The project was completed under the expected budget. Thus, displaying an efficient management of Cost control.
3. The project was completed with several design enhancements. The extent to which the E-ring was reoccupied by September 11, 2002 was greater than the plan specified. Tenants reoccupied the Phoenix section plus the section of the Pentagon damaged by fire, smoke, water, and mold.

Thus, the Phoenix Project not only delivered the intended benefits to stakeholders but also exceeded their expectations.

Following is a summary of delivery of intended benefits to Project stakeholders at various stages. *(Sullivan &Sheakly, 2003)*

1. Due to the encouraged team environment, Phoenix Project plans were well integrated. A collaborative framework for the functional representatives from the various contractors, tenants, building representatives, security, and PenRen, helped team members to share updates on plan development with all of the stakeholders and keep everyone informed about upcoming activities.
2. The development of the Ultra-Fast Track schedule enabled earlier installation of the exterior limestone and for multiple crews to work concurrently in the construction life cycle. Also, time was managed efficiently by issuing drawings while still under development to allow early material ordering and manpower planning.
3. A greater understanding and assessment of the cost activities was seen as time passed. The fragments from the Wedge 1 renovation were used to do a cost build-up of the project. Using this approach, the cost estimate decreased from the $720 million ROM to $501 million.
4. Single contracts were awarded at a Fixed Price to design and build the Phoenix Project. Procurement Management was done by using a Design-Build project lifecycle instead of a Design-Bid-Build lifecycle. Also, by using a Total Systems Performance Responsibility contract, contractors had the responsibility for meeting the objectives and functional requirements specified.
5. There was a successful implementation of a Fixed Price, Award Fee, Incentive Fee (FPAFIF) contract. Contractors were financially motivated to perform desired project management including completing the project on cost and on schedule.
6. An Integrated Product Team approach allowed faster formation of the team. Thus, enhancing project team communications, and improved integration of project plans.
7. Highlights and lowlights in the Planning, Executing, and Controlling processes of the project.

What went well:*(Sullivan &Sheakly, 2003)*

1. The project was completed successfully. Project exceeded customer expectations.
2. The project was completed ahead of schedule, under budget, with several design enhancements
3. The Phoenix project was complex, and it had to overcome several challenges and barrier which they successfully battled with various innovations in planning, executing and controlling process.
4. As the project had to be completed in a year’s span, resources were utilised effectively, it demanded overtime and unimaginable efforts from each member of the team along with the workers everyone was motivated to go above and beyond and put in the extra effort.
5. During planning and execution processes project team integrated with the product team which resulted in better integration of project plans, faster communication, and faster and better team formation.
6. They had efficient time management which enabled them to order material required and procure manpower on time. It also enabled them to put up the exterior limestone while consequently working on the other construction parts in the project construction life cycle
7. The reason for the success of the Pentagon Phoenix project can be contributed to the efficient and innovative planning and execution. The project exemplified commendable amalgamous execution. “If there was an overriding theme guiding the work on the Phoenix Project, it was that the success of the project was larger than any one task. Consequently, a visitor to the site would see electricians assisting plumbers or architects working side-by-side with carpenters and masons. Indeed, the whole team from the engineers and management staff to the over one thousand various carpenters and laborers on-site had the same picture in mind – a picture of triumph, rising from the ashes of tragedy”
8. Planning process assessed the risks associated with the project adeptly and proper methods and plans were implemented to overcome those risks.
9. The project adequately utilised Expert advice/help wherever required whether it be taking help of experts in field of crisis management or cost control and so on.

What went wrong: *(Sullivan &Sheakly, 2003)*

1. The project started immediately just after 9/11 attack on the pentagon amidst chaos. So, the scope of work was not well assessed or decided upon. Execution of the project had already begun before the scope or plan was adequately defined or decided upon due to constraint of time.
2. The project had no formal schedule plan. The schedule plan was more informal. The biggest constraint in developing a schedule was the self-imposed deadline of getting the project complete prior the one-year anniversary of 9/11 attack.
3. As there was no definitive schedule plan, if there was a float a change request was accommodated. “For the majority of the Phoenix project, changes were fast and frequent. The AMEC contract alone had $50 million in changes on a $205 million contract.” Chane management procedure or protocols were not initially included in the plan. During the execution process as multiple changes were hindering progress of the project, change management protocols and plans were implemented.
4. The overdrive of emotion and the self-imposed time constraint resulted in the need of extreme number of man-hours. There were workers working impossible number of hours almost 24 hours a day which is not a feasible way to work and maybe would have violated labour law norms under different circumstances or for a different project.
5. Controlling and updating schedule or documents was a challenge. The project was so fast paced, and status data was so new and frequent, they did not have time to update the schedule or relevant project documents when required.
6. **Four lessons learned from this project are as under:** *(Sullivan &Sheakly, 2003)*
7. First, we learned the art of the Integrated Project Management through the use of an Integrated Product Team. We learned that by forming a team which is highly Integrated allowed faster formation of the team, enhanced project team communications and tighter and more accurate integration of project plans.
8. Second, we learned Time Management. In this particular project Time was very aptly managed through the development of the Ultra-Fast Track schedule which enabled earlier installation of the exterior limestone and allowed multiple crews to work concurrently in the construction life cycle. Drawings were issued while the project was still under development to allow early material ordering and manpower panning showing us another great example of time management which can be used in any project.
9. Third, we learned that for this project everything was extra. The project was more emotional, more enthusiastic, more everything. Because of which any problems and challenges faced by the workers and managers was completed well before time. So, we can learn that emotions play a large role when it comes to planning and execution in this kind of a project. In the project we can see that it was very difficult to coordinate everything and moving around initially but as everyone working was emotionally attached and motivated to the project, every hurdle was handled with cooperation and they were able to complete it well before time. In PMBOK it is written that one should not be emotionally inclined but here we can see that since every individual was motivated with the patriotic emotion of rising from the ashes, the project was a dramatic success.
10. Fourth, we see how procurement management was implemented in various stages of this project which helped in saving a lot of money and a lesson learned to be used in future projects as well. In the project, the Procurement Management was done through:

* The use of a Design Build Lifecycle instead of a Design Bid Build Lifecycle. Single contracts were awarded at a fixed price to design and build the project.
* The use of a Total Systems Performance Responsibility contract. Contractors had responsibility for meeting the objectives and functional requirements specified.
* The implementation of a Fixed Price, Award Fee, Incentive Fee (FPAFIF) contract. Contractors were financially motivated to perform desired project management including completing the project on cost and on schedule

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