Campus Improvement CM460 Manual to Improve Project Based Success

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This Senior project research will critically assess the process for campus improvement on the Cal Poly Campus. The purpose of this research is providing a final deliverable that is a usable document for future students with the intention of creating a campus improvement project. The project includes the necessary resources such as campus facility contacts, permitting process explanation, the documentation process for preconstruction, funding opportunities and the expected delays to create a realistic plan. The document is created as a manual for Construction Management undergraduates in hopes of encouraging future students to create a project-based campus-improvement plan that is more efficient and effective. This document contains a breakdown of the physical project steps and planning, aside from the basic criteria for project-based completion. It uses and analyzes the actual documents provided from the graduate on the key players and their roles in the process so students can improve their understanding for their campus project. This project contains problems mitigated for future students to recognize and apply to their own project, so the history and procedure becomes smoother.

Key Words: Campus-Improvement, Cal Poly, Project Based, CM460, Campus Facility

Introduction

Background/problem

The problem begins with the original investigation and effort of remodeling a space in engineering west, specifically the hallway connecting to building 187(the construction innovation center). The original idea was aimed at the process for campus improvement in the engineering west building 21, 133A in aim of making a more interactive and welcoming space. The proposed improvements were to include new flooring, seating, and walls where students could post information, study, etc. The research portion involved creating a design, pre-construction estimate, tentative schedule and included recording the methodology in a chronological step-by-step guide for future students. During this time-consuming investigation to navigate the process there was an intensive search regarding the people to contact, the documents used, and other Cal Poly campus-specific details improving an existing
campus design. After creating a model, a rough take-off, and finding key players to make the process flow, the project fell through due to a lack of understanding in the fundamental steps and procedures.

This discovery of finding the correct flow of process is critical in seeing how other students are successful. This process follows a successful project to create an outline for future students to follow that may further aid the success of campus improvement project-based projects. In addition, the original project was not practical due to other limitations including high cost, campus facilities performing the work, time constraints and the impact of the Covid-19 pandemic. By implementing this outline into the construction management curriculum and making these steps more accessible for future students who are interested in improving our campus, this project seeks to make their process more effective and efficient.

In addition to the struggle in attaining a current campus project with a successful result, there is no readily available guide for peers to follow if they had similar ambitions. This may cause most construction management students to create a research-based project rather than a campus-improvement or project-based project due to lack of understanding. The current CM460 class offers an abundance of topics such as topic selection, methodology, literature, and paper format, among others. However, there is not a single area explaining the campus-improvement process comparatively through the modules and is only briefly touched upon in the project-based studies.

Proposed Solution

The proposed solution to this problem of lack of resources for construction management undergraduates is creating a manual based on a successful campus-improvement project. This could only be done so by following the procedure of one that is completed recently to understand the current limitation for student work. In addition, the project selected needs to be able to adapt to a manual structure and requires significant aid from the graduate who performed the project. With these conditions, the selected person proposed by my Subject Matter Expert (SME) and Cal Poly faculty member Thomas Kommer J.D., was graduate Isidoro Amalfitano (Graduate of Spring’21) and his project of refinishing the Simpson Strong Tie building’s wood panels on its bi-parting doors.

Methodology

The Methodology for this study was using a detailed analysis of a previous campus improvement project located in building 187 on the Simpson Strong tie doors. During the collection of both quantitative and qualitative data discovery in the successful completion, the project recorded an efficient series of steps and resources for future students to follow. The Manual is to be delivered as a pdf potentially in the CM460 class or for students to access on the digital commons website. The pdf is arranged to cover the following topics:

1. Introduction
2. Process Map Example
3. Roles and Expectations
4. Permitting
5. Funding Opportunities
6. Campus Facilities
7. Purpose
8. Citations
For each topic, all necessary materials for campus improvement success are used to record the problems faced by conducting an interview with the previous graduate, Isidoro Amalfitano. In addition to the interview, other outside resources that may help identify campus facility members for aid are used, as well as other funding opportunities applicable to campus improvement.

Deliverable

This paper along with the manual is intended to be made accessible on the Cal Poly Digital Commons website. The deliverable outlines each of the above subjects in a eleven page document with information on the following:

1. Introduction: This section explains the usage of the document and its intended purpose. It advises students on how to properly use the following steps and will introduce the study of the most known recent campus improvement project completed by graduate Isidoro Amalfitano.

   This introduction is used to guide the student on the following ideas and explains what a campus improvement project is and is not. The key questions to consider from this area after the initial discovery are:

   - What part of campus needs improvement?
     “The Part of Campus Selected for improving was the SST doors (Amalfitano, 2021).”
   - Identifying the location of this improvement?
     “Specifically, the wood panels on the SST doors needed refurbishing (Amalfitano, 2021).”
   - What foreseen problems to mitigate and what risks may be accepted?
     “The greatest problems were in the preconstruction phase and communicating with my team on the jobsite layout, documents needed, and the permitting application (Amalfitano, 2021).”

   This introduction transitions towards the specific example used throughout the manual of the Simpson Strong Tie doors.

2. Process Map/Workflow: This outlines the Simpson Strong Tie campus improvement project’s process using a diagram and its chronological relationship to other steps. The projects process map discovery uses the procedure by creating a rough outline of steps using the Isidoro Amalfitano’s submission to digital commons. Once complete, a scheduled interview with the student to make any corrections in the scope layout and had several small errors. Once these fixes are made, the document is returned for his approval. The process map is created using a free software on lucid chart (https://lucid.app/lucidchart) and has several platforms for students intending to build a process map for planning their project. Below is the process map for the manual using the example of the SST door refurbishing project (Amalfitano, 2021):
3. Roles/expectations: This section gives the student an understanding on the communication and responsibilities needed by all participating persons within the team to create an effective line of completion. The purpose of gathering this information is to lay out the expectations in their campus-improvement project differing from faculty, or campus facilities and the architect that made the original structure. The intended use is for students to see the heavy lifting that Isidoro Almafinto needed to do. Specifically, as the acting Project manager there were the expectations of assembling documents, permit(s) needed, completing a comprehensive plan for refurbishment, budgeting/estimating, and acquiring materials for construction. Differing from the expectation of the SME who is responsible for overseeing the students work and gives approval on the proposal document. Campus facilities acts as the owner representative, to provide the original permit documentation and other required specific submissions for their approval. These key players outline the concise team, whereas someone may have the false conception that adding more players is the best plan of action. Thus, the document provides a link to key resources such as the campus facilities map of workers to contact that can be searched by any student in the campus directory portal. The key questions for students are:
• What key persons will be required for you to contact for your location/project selected?
  “There are several figures to involve including the architect of the original structure due to the plans being a major component in the permitting process. The Architect is difficult and varies from project to project but in the sake of my project delayed the permit approval due to communication difficulties. Other key persons are the campus facility department that connects to the project, I was able to navigate these persons by contacting Sarah Hunter who put me in touch with the right people (Amalfitano, 2021).”

• How can you assure successful communication within your team?
  “Communication is the greatest hurdle in my experience with a campus improvement project and the best way to mitigate this risk is to begin your process of discovery early on. This means finding the necessary persons who can give you permission and the right resources of aid to complete your project in an efficient way (Amalfitano, 2021).”

4. Permitting: This section shows the permit in the Simpson Strong tie door refurbishment process and outlines what each section should contain within the permit. In addition, this section explains the other documents necessary for this specific piece and outlines the chain of approval. The permit section contains links to additional information with campus facilities for students to access, and a link to the permit to complete.

To begin, the process collects the documentation that the students will use for their project sand outlines the areas required to be filled out and the attachments for approval. This clarifies a sample on the expectations for the project description, as well as the detailed information on the panels that is required along with current site photos. All of which a current student, such may need to communicate and find within their own discovery. This example expands upon the previous roles and expectations outline and provides the links for students to access and complete their own permit. The key questions to make the manual interactive in this section are:

• What specific permits will be required for my scope of work?
  “Fortunately, the project selected only required one permit which made it practical to complete during my time at Cal Poly for graduation purposes. However, a more complicated project with electrical components or other categories will require several permits, this is crucial in understanding when completing the preconstruction process of creating a contact list (Amalfitano, 2021).”

• Which department of campus facilities will be necessary to approve of my document?
  “The department of the campus facilities that aided my process was the Construction Renovation design department (Amalfitano, 2021).”

• What documentation of details on the area and specs will be required to attach and complete a rough cost estimate?
  “The documentation that best gave me my cost were the specs and the plans due to the material and the area of application. Though I did not need to make an organized takeoff and used the back of the container to give a rough idea, it may be helpful for future students to do in acquiring the correct amount of materials (Amalfitano, 2021).”
Below is the example of the permit marked up (Polytechnic, C. (n.d.). Building permits. Retrieved November 21, 2021):

![Building Permit Application Form]

Figure 2: Permit Guidelines for Student Application

5. Funding Opportunities: This section outlines funding ideas for the student with links for additional information on funding. Other funding sources are listed such as interdisciplinary funding, grant funding, a list of companies, and local places to contact.

The student in the example uses individual funding that is reimbursed but requires the student to keep their receipts for the purchased tools such as brushes and finishing materials. However, it would be beneficial to include the construction management funding content on the Cal Poly construction page as a link, with more information on interdisciplinary funding and consider the thought of donations from local businesses/campus. The funding itself is a huge concern when planning a student’s own campus improvement project. If these resources are available a student may elect to not use personal funding with reimbursement. It makes the entire process smoother in understanding players to involve and their financial benefit (interdisciplinary). The key questions to consider in this section are:

- What will be the specific/realistic cost of my project?
  “After finding the specs and consulting with Thomas Kommer and campus facilities on the necessary materials, the estimate was $500. The actual amount of money spent by the end was roughly a little over $300. This over estimate was helpful for hidden costs endured (Amalfitano, 2021).”

- Can these items be donated and what is the lead time of these funds/items to be received?
  “I did not take advantage of items donated and there was no lead time on my items due to me picking them up directly and performing the labor myself (Amalfitano, 2021).”

- What costs can be eliminated?
  “The cost of the labor may be eliminated if you can self-perform the work, this will reduce the time of completion if the student is ambitious (Amalfitano, 2021).”
• Is the cost of my project realistic and applicable for funding and completion for expected graduation time?
  “Cost and the scope of work will be helpful in recognizing your completion time and a campus improvement project may begin earlier on in the undergraduates academic career. My project idea began months before and the actual preconstruction took the longest, with my physical labor on the project only taking around 9 days (Amalfitano, 2021).”

6. Campus Facilities: This portion of the deliverable explains the role campus facilities has as both the operating owner for approval and subcontracting work. This section outlines contacts within campus facilities that are currently available, and the contacts needed such as in the project for the door refurbishing to have the permit approved. This completed area has me reach out to the campus facilities person responsible for interacting with the student Isidoro Amalfitato and ask question on their role in the process of completion. The person interviewed was , . This interview is productive in the sense of finding a common grounds and gave answers such as the following:

• What role did campus facilities play in your project?
  “Campus facilities made the project possible to begin. They were extremely helpful in answering any questions I had pertaining to my project and acted as an owner representative in a sense on the school’s behalf. (Amalfitano, 2021)”

7. Purpose: The purpose section gives a summary of the project’s application to improve campus in enhancing the space. This purpose section is helpful in identifying the space conditions before the project is complete. By using Isidoro Amalfitano’s before and after photos it is apparent how the ‘Learn by Doing’ mentality is crucial in promoting critical thinking to refurbish our campus. Specifically, this project directly serves the construction management department and the students participating in work in and around the Simpson Strong Tie building 187. After seeing the amount of work required by all roles to complete the project, someone is more appreciative of the result. In addition, this portion makes it more realistic of what a student’s expectation for their own campus improvement senior project is and the actual product that can be completed. In the original endeavor of redoing a hallway that most previously was completed by Nick Watry and several other students, Nick Watry explains how some projects take several different graduating classes to complete. This project completed by Isidoro Amalfitano was helpful to see how one student can complete something within their time at Cal Poly and the project size did not need to be much more extravagant or expensive comparatively the $20,000 remodel to the $500 refurbishment. The Key question to consider after completing this research for the manual are:

• What purpose will my project place in the Campus enhancement?
  “The purpose of my project was improving the aesthetically displeasing panels on the Simpson Strong Tie building and refurbishing their appearing to a newer state(Amalfitano, 2021).”

• Who will my project serve and what benefits will it bring with its effort for construction?
  “Enhancing a piece of campus that was a place for students in my major as well as other individuals who are involved in the area was a highly fulfilling result(Amalfitano, 2021).”

8. Citation: The citations portion is a list of the resources collected and documented throughout the manual. These include my interview with Isidoro Amalfitano, Isidoro’s digital commons
submission used for the process map, campus facilities resource for the permit, and funding opportunities. Though much of these resources are hyperlinked for students to have quick access to within the manual, there is a list for purposes of plagiarism and other recognition due where it is needed.

**Conclusion**

This project created a campus improvement manual to bridge the gap in the knowledge barrier that currently exists in the construction management undergraduate program, with respect to the process required to complete a project-based senior project. The final deliverable breaks down the project and references guide to help outline the fundamental steps for future construction management senior projects that are based on campus improvement.

A future document could further expand on other successful senior projects or failed attempts and improve the guidelines and role of each student to make a continuous realistic deliverable to follow. This deliverable could compare other projects, expand on problems faced in communication or express other conditions specific to the growth of influence with campus facilities. As campus facilities continue to take on new roles and the process adapts a student could change the document to contain the most current changes. In addition, students who chose to use this document in their campus improvement could identify the most useful material and compact it into a single page handout to be a briefer document for class. Lastly, there could be more content on project selection and finding the appropriate content for campus areas that are becoming outdated and could use student help.
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