UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE BUILDING OF A CONVENTION CENTER IN NASSAU, THE BAHAMAS.

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DEDICATION

This research project is dedicated to my children, Bethany, Aryelle and Dylan, for giving me more than one reason to continue to strive for excellence. To my parents, Casper and Sherol Johnson, for always pushing me to be a better woman. And to my best friend and husband to be Terrence Allen.

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Thanks to the following persons, Mr. E. B. Rolle for his invaluable assistance and technical support. To Mr. Robert Thomas and Nicole Fair, for their assistance in editing and making helpful comments about the research project.

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Last, but not least, I would like to thank God, my Lord and Savior, for giving me the opportunity to find project management and realize its importance in my life.

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ABBREVIATIONS AND ACRONYMS

- Chief Executive Officer (CEO)
- Enterprise Environmental Factors (EEF)
- Federal Aviation Administration (FAA)
- Final Graduation Project (FGP)
- Ministry of Works (MOW)
- Organizational Process Assets (OPA)
- Project Management Institute (PMI)
- Project Management Office (PMO)
- Requirements Management (RM)
- Work Breakdown Structure (WBS)
- Universidad para la Cooperación Internacional (UCI)
- Value Added Tax (VAT)

EXECUTIVE SUMMARY (ABSTRACT)

Design-Build construction is relatively new in the Bahamas, but it can be a very lucrative business due to the single one-stop responsibility of the design-build contractor. In fact, within the sector, there are only about five (5) companies using the design-build process in the city of Nassau. ABC Designs, one of the smallest design-build companies with only about 12 years of operational experience, was approached to design and build a Convention Center. The corresponding contract was signed on November 8, 2016.

In a highly competitive commercial construction industry, the company focused its product on the design-build process as a marketing strategy to capture market share. Although experienced in architecture and construction management guidelines, ABC Designs required the application of formal project management practices to successfully execute the project.

The Company used some project management tools with construction management guidelines. However, after the charter was signed, execution was set to begin without a formal project management plan to guide all of the critical aspects of the project's lifecycle. To successfully deliver the 59,800 square feet four-story multi-purpose convention center, measured at 120' x 120' x 4 on the main floor, 11' x 48' x 4 annex and 88 square feet of window extrusions, a comprehensive Project Management Plan had to be developed.

The general objective was to develop a Project Management Plan, framed within the standards of the Project Management Institute (PMI), to be used to manage the building of a convention center. The specific objectives were: to create a project charter to formally authorize the project and provide the Project Manager with the authority to apply organizational resources to the project in order to produce the Project Management Plan; to create a scope management plan that included all the work required to successfully complete the project; to create a schedule management plan which supported the development and management of a project schedule and ensured the project was completed within the time constraints; to create a cost management plan that defined the processes for developing and managing the project budget and ensured the project was completed within the budget constraints; to develop a quality management plan that identifed the quality requirements for the project which ensured that results meet expectations for approval within the time, cost and scope constraints; to create a human resource management plan that ensured that all human resources were identified and managed effectively to complete the project within time, cost and scope constraints; to develop a communication management plan which ensured the timely and effective communication of the project status and other key information; to create a risk management plan that identifed and examined risks for the successful completion of the project and developed plans to minimize the likelihood of the negative risks; to develop a procurement management plan that was used to obtain products, services or results required by the project, and to develop a

stakeholder management plan that identifed and supported all the project stakeholders and ensured effective stakeholder engagement.

The methodology used for the research was analytical or explanatory. The main sources used to gather information included A Guide to the Project Management Body of Knowledge (*PMBOK® Guide*) Fifth Edition and interviews which were held with members from the client and performing organization. The information was analyzed to create each subcomponent of the subsidiary plans used to develop the Project Management Plan for a Convention Center.

The Project Management Plan, developed using the *PMBOK® Guide* 5th Edition, provided a new methodology for the project team to build a more thorough project management plan for a project as important as the Convention Center, to improve the way the company would manage the project. It is recommended that the project team at ABC Designs consider the use of the planning process and documents developed during the development of the Project Management Plan for the Building of the Convention Center as a basis for implementing a methodology for similar projects in the future. Furthermore, the team at ABC Designs should also seek to utilize and document management and storage systems, to organize, store and create a central location for project planning documents and future Organizational Process Assets.

1. INTRODUCTION

1.1. Background

ABC Designs is the ‘new kid on the block’ compared to other commercial construction design-build companies existing in The Bahamas. ABC started about 12 years ago and is privately owned and operated by an experienced architect, contractor and entrepreneur. The company facilitates the design-build process for its clients. This process entails responsibility for all aspects of projects from conception to completion, including project management. Although the lead architect is an experienced professional, the use of project management guidelines in the company is limited.

The company has been contracted to produce a 59,800 square feet four-story multipurpose convention center, measuring 120’ x 120’ x 4 on the main floor, with an 11’ x 48’ x 4 annex and 88 square feet allocated for window extrusions. The feasibility study forecasts an estimated per floor cost of approximately 180,000 to 200,000 US dollars per day for Epic Designs, the client organization. It has been about one (1) month since project initiation. Since its inception, the client requirements have been collected, and the conceptual designs and the site investigation report have been completed. Currently, ABC designs has to produce the Project Management Plan that will be used to guide the execution, monitoring, controlling, and closing of the project.

This project is the largest that the company has acquired to date and by following the Project Management Plan created as a result of this research project, it is expected that the level of project success will improve significantly. If completed successfully, it can considerably improve the companies standing in the design build sector of the commercial construction market and hopefully increase business opportunities, allowing the company to capture a fair market share.

Currently, there are approximately five (5) commercial construction companies in Nassau, The Bahamas that specialize in design-build construction. It is expected that by combining professional project management with the construction guidelines being used, the company will further professionalize its services.

1.2. Statement of the problem

At ABC Designs there are construction guidelines and minor project management elements, specifically management tools, in use to deliver products. However, the project management approach in use is not sufficient to successfully deliver a product of this magnitude. Due to the size and complexity of the project, it is of great importance to produce an extensive management tool. Each element of the Project Management Plan will be created, along with all of the tools, techniques, and concepts used to justify each management decision selected for application.

1.3. Purpose

As in every area, including construction, projects fail for a number of reasons. According to Truman, one of the main reasons “cited during disputes [as a source of project failure is] the failure of the Project Management team to adequately plan the work…” (King, 2016, p. 5). In order to increase the successful building of the Convention Center, the Project Manager will seek to develop the Project Management Plan by detailing the management of all critical aspects of the project. Each step is to be coordinated strategically to develop all of the subsidiary documents which will be used as a guide during project execution. The research proposal will explore the Project Management Institute’s (PMI) guide to effectively create a Project Management Plan, providing justification for the decisions made while developing the project’s

integration, scope, time, cost, quality, human resources, communication, risk, procurement, and stakeholder management plans.

1.4. General objective

To develop a Project Management Plan, framed within the standards of the Project Management Institute, to manage the building of a convention center.

1.5. Specific objectives

1. To create a project charter that formally authorizes the project and provide the project manager with the authority to apply organizational resources to the project in order to produce the project management plan.
2. To create a scope management plan to ensures that all works required are included to successfully complete the project.
3. To create a schedule management plan to support the development and management of a project schedule that ensures the project is completed within the time constraints.
4. To create a cost management plan to define the processes for developing and managing the project budget that ensures the project is completed within the budget constraints.
5. To develop a quality management plan to identify the quality requirements for the project to ensure the results meet expectations for approval within the time, cost and scope constraints.
6. To create a human resource management plan to ensure that all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.

8. To create a risk management plan to identify and examine risks to the successful completion of the project and develop plans to minimize the likelihood of the risks.
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.
10. To develop a stakeholder management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.

2. THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

ABC Designs is a Real-Estate Development company that is committed to teamwork and open project leadership. From inception, ABC Designs has successfully completed many projects. However, this project is the largest contract the company has attained and it is the second design-build project to date. Therefore, in order to successfully complete the Convention Center, a more comprehensive strategy for project execution is required. With this in mind, the Managing Director has agreed that a more comprehensive project management plan must be produced. (E. B. Rolle, personal communication, September 7, 2016).

The company was contracted to work on this project because, it has the technical expertise and experience to complete the project and, it is in fact the most cost-effective. (CEO of Epic Enterprises, personal communication, September 9, 2016)

2.1.2 Mission and vision statements

Mission

ABC Designs is devoted to leading our clients through the design and construction process by providing an unsurpassed service, streamlined management and quality construction in a cost-effective manner (E. B. Rolle, personal communication, September 7, 2016).

The owner of the company strives to establish long-term relationships with his clients by providing a quality, safe, and timely service that will leave a legacy for generations to come.

From the conceptual phase of the Convention Center project, Mr. E. B. Rolle of ABC Designs has been meeting with Epic Enterprises in an effort to design a Convention Center that embodies the quality required. Beginning with the initial client meeting, ABC Designs was approached and later contracted as the lead practitioner. The relationship between the owner and the clients has since surpassed the mission of the company, in that, ABC Designs is now a consultant for Epic Enterprises' international development team.

Vision

Our vision is to establish and maintain a company of highly skilled construction professionals that serve our clients' needs with honesty and integrity; to provide an environment that provides personal growth and self-pride, and ultimately, to differentiate ourselves as architects, contractors, and project managers of choice to those seeking quality, personal service, and value. (E. B. Rolle, personal communication, September 7, 2016).

2.1.3 Organizational structure

Currently, ABC Designs is a relatively small company that was refitted, retooled and restructured to accommodate the acquisition of the Convention Center project. The company is currently staffed with eleven (11) full time employees, which can increase to twenty (20) operational and project management team members while executing the Convention Center project. The numbers identified do not include subcontracted and site workers (E. B. Rolle, personal communication, 7 September 2016)

Below in **figure 1** the company's organizational structure is depicted. The company is headed by Mr. Edward Brave Rolle - the managing director, lead architect and project manager. There are four main departments: Office Administration which consists of three (3) persons; Architecture consisting of three

(3) persons; Project Management which consists of four (4) persons; and a list of consultants that are contracted on a needs basis.

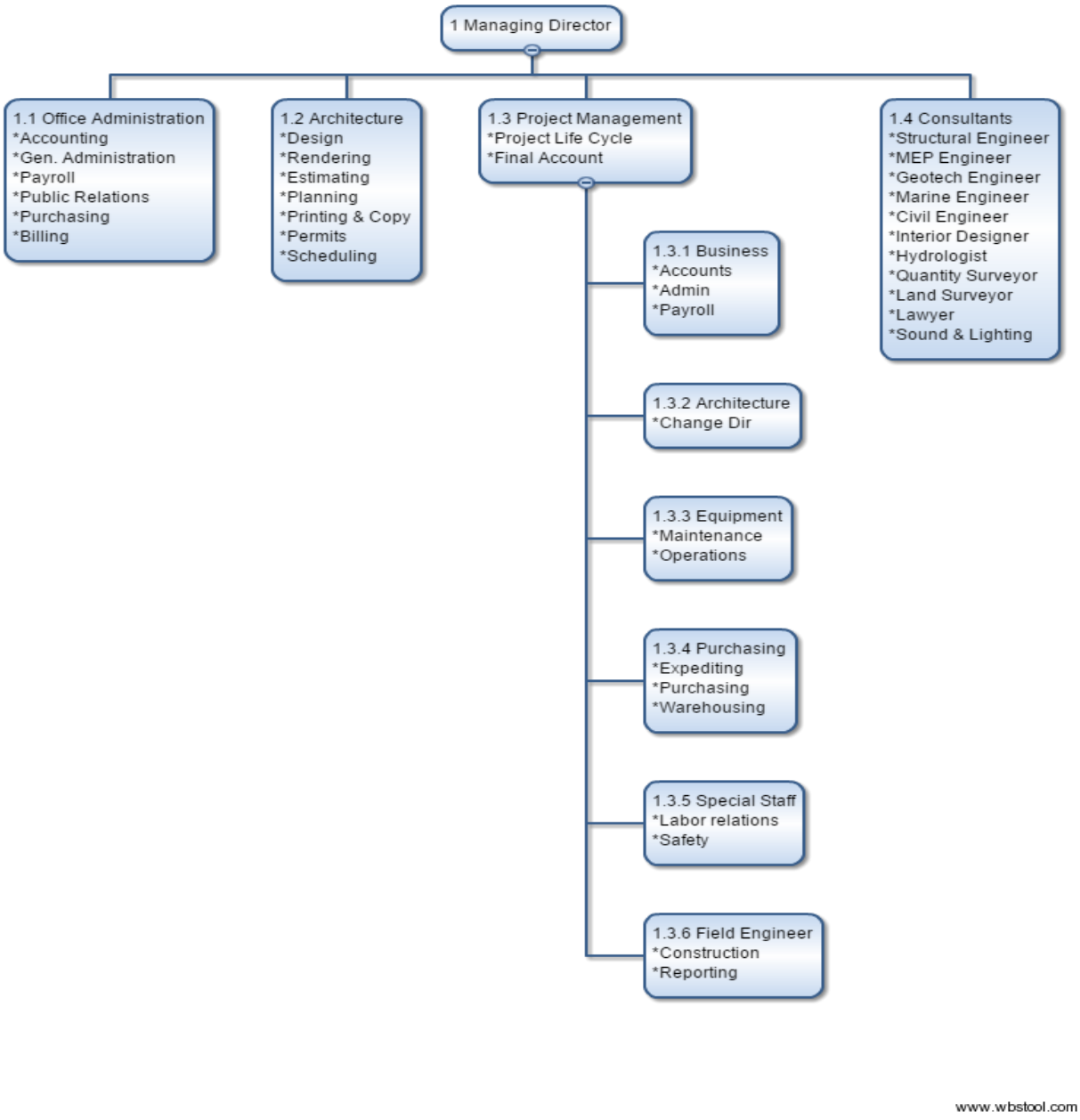

Figure 1 Organizational structure (Source: E. B. Rolle, Personal Communication, 7 September 2016)

2.1.4 Products offered

ABC Designs offers the following services: design-build, general construction, architecture and engineering services, project management, 3D illustrations and presentations, land development services, furniture and interior designs, project

feasibility studies and analysis, architectural surveying and as built drawings. (E. B. Rolle, personal communication, September 7, 2016)

2.2 Project Management concepts

2.2.1 Project

According to Wikipedia (as cited in Egenhofer and Mark, 2002), Egenhofer and Mark defined a building as a permanent structure constituting of a roof and walls. Every building structure and type satisfies a need created by human beings. In fact, some people see buildings as “an expression of values” or “the embodiment of our civic values” (Foster, N., personal communication, October 16, 2014). Whatever the purpose, the reality is that a building is created as a result of a project.

A project can be defined as “a temporary endeavour undertaken to create a unique product, service, or result” (Project Management Institute, 2016, p. 8). This is further emphasized because no two buildings are exactly the same, even if they were made using the same design elements, products and people.

In construction, many projects are completed using either project management, construction management or a combination of both. Project management and construction management are similar; however, unlike project management, construction management is more specific to the building of a tangible structure. According to Jackson (as cited in Patrick, 2004), “construction management entails the planning, scheduling, evaluation, and controlling of construction tasks or activities to accomplish specific objectives …” (Jackson, 2010, chapter 2). At the same time, it is known that project management not only applies to a specific product but it also can result in improved services and results that are tangible or intangible. In addition, unlike construction management, project management also applies to other fields such as information technology, education, health care and construction.

At ABC Designs, a project has two definitions. One is based on an architectural view-point and the other is based on the view-point of a contractor. As the company specializes in the design-build process, the owner explains both definitions of a project as follows:

a. As an architect, the owner defines a project as planned work that is finished to a desired result with cost, time, quality and aesthetic controls. (E. B. Rolle, personal communication, 9 September 2016)
b. As a contractor, the owner defines a project as an endeavour that involves planning, executing and closing with the delivery of product that adheres to the cost, time, quality and aesthetic controls agreed upon in the contract. (E. B. Rolle, personal communication, 9 September 2016)

2.2.2 Project management

“Project management has evolved into a business process” (Kerzner, 2013, xxiii) being used by companies all over the world to increase corporate value in many ways. For example, it can be used to efficiently deliver services, enhance customer satisfaction, and as a tool to embrace opportunities to expand services (Picariello, 2014). The approach has been used for “thousands of years dating back to the Egyptian epoch” (Appopardi, n.d.). However, the discipline was not formally recognized until the 1950’s (Project Management, n.d.). Within every sector, specifically construction, the discipline of project management is integral to success. According to PMI, “ninety percent of global senior executives ranked project management methods as either critical or somewhat important to their ability to deliver successful projects and remain competitive” (Project Management Institute, 2010, p. 2).

In the field of project management, different methodologies, like SCRUM, Agile, Waterfall, etc., “contain guiding processes for those who are doing project management” (Successful Projects, 2016). Although, each methodology has its advantages, they all agree that “every project management life cycle contains five

steps: initiating, planning, execution, monitoring, and controlling & closure" (Picariello, 2015). After initiating the project, planning is seen as "the all-important second step of any successful project management life cycle" (Picariello, 2015). A project's plan, depending on the project, can be simple or complex. However, in all cases, once completed, it results in a document that contains a fully developed project solution detailing the "steps necessary to meet the project's objectives" (Watt, 2014).

PMI's *PMBOK® Guide* is a globally recognized standard (Daley, 2013) that details how to initiate, plan, execute, monitor, and control and close a project. It can be used as a tool to ensure that all project management professionals are speaking the same language and understand the stages and role of the project. For this reason, the *PMBOK® Guide* will be used as the main source of reference to manage the development of the Project Management Plan, and subsequently the building of a Convention Center.

According to PMI, "project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (Project Management Institute, 2016, p. 8). The development of the Final Graduation Project (FGP) will consist of the creation of the Project Management Plan for the building of a Convention Center and will be managed as a project. After which, the construction of the Convention Center project will be managed as another project with six (6) phases. Each phase is identified below:

1. PHASE 1: Initiation Phase
2. PHASE 2: Design Phase
3. PHASE 3: Pre-Construction Phase
4. PHASE 4: Construction
5. PHASE 5: Post Construction Phase
6. PHASE 6: Project Closure

During the initiation phase of the project to develop the Project Management Plan for the Convention Center, the project will commence with the creation of the

project charter. Once the charter is reviewed, accepted and formally authorized by the sponsor, the formal identity of the Project Manager will be revealed, authorizing her to “apply organization resources to project activities” (Project Management Institute, 2013, p. 71).

The initiation, planning, execution, monitoring and controlling & and closing phases (stages) for the creation of the Project Management Plan will occur during the development of the FGP, in accordance with the sequential progression of each subsidiary seen in **figure 2** shown in the next subsection.

2.2.3 Project life-cycle

A project life-cycle is a “series of phases that a project passes through from its initiation to its closure” (Project Management Institute, 2016, p. 9). According to Wilson, the project life-cycle is a “natural progression” and the four main stages(phases) in a project life-cycle are concept and approval, planning and preparation, executing work activities, and closing all project activities (Wilson, 2014). However, the *PMBOK® Guide* states that within each phase of a project life cycle, there are five process groups that interact with one another and “could be conducted within a phase” (Project Management Institute, 2013, p. 419).

As can be seen in **Figure 2** below, at ABC Designs, the project life-cycle takes on a “natural progression” in that there are clearly defined phases, where one progresses into another. Moreover, at ABC Designs, each of the clearly defined progressive phases has a sequence of activities that are similar to the process groups seen in **figure 3** below. With this in mind, each project life-cycle phase, contains four or five phases that will result in the product offered by the company.

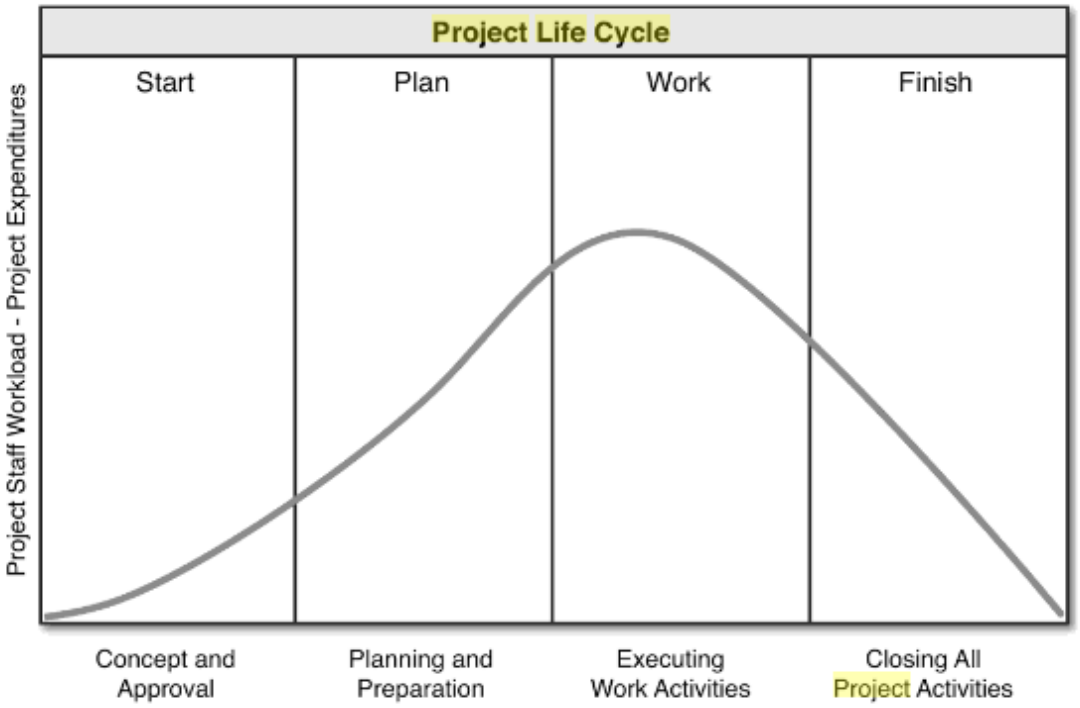

Figure 2 Project life cycle stages of progression. Reprinted from *Mastering Project Management Strategy and Processes* (p. 12), by R. Wilson, 2015, FT Press. Copyright 2015 by Randal Wilson.

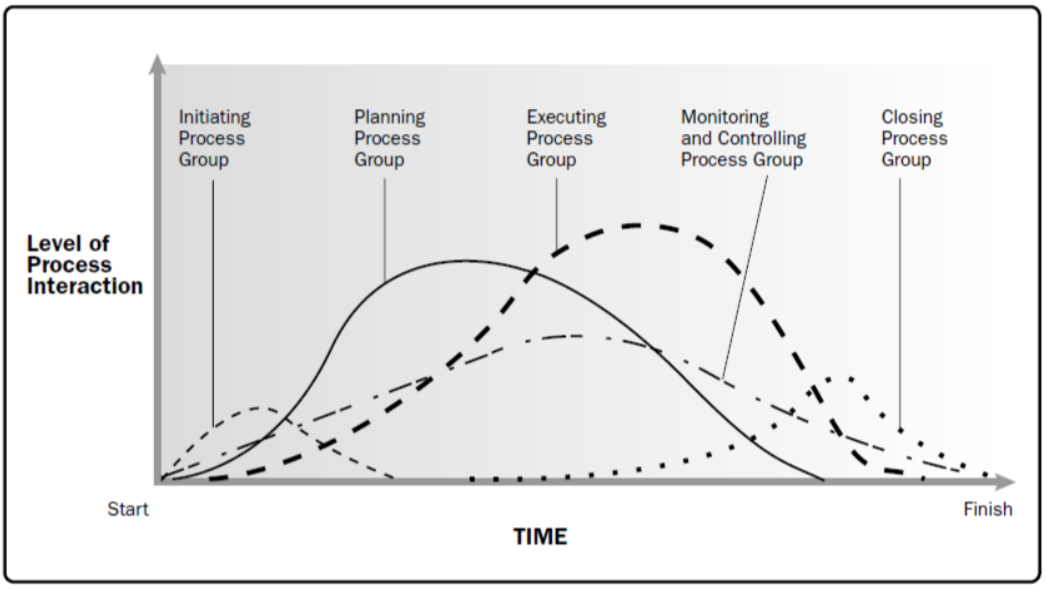

Figure 3 Process groups interact in a Phase or Project. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 51), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

2.2.4 Project management processes

Only the processes involved in initiating and planning a project will be used to develop the Project Management Plan for the building of a Convention Center. The Project Management Plan will be a compilation of subsidiary documents created as a result of each initiating and planning process activity. A subsidiary document is a document created to support the main document. *See* **figure 4** *below*, detailing the processes to be applied during this project.

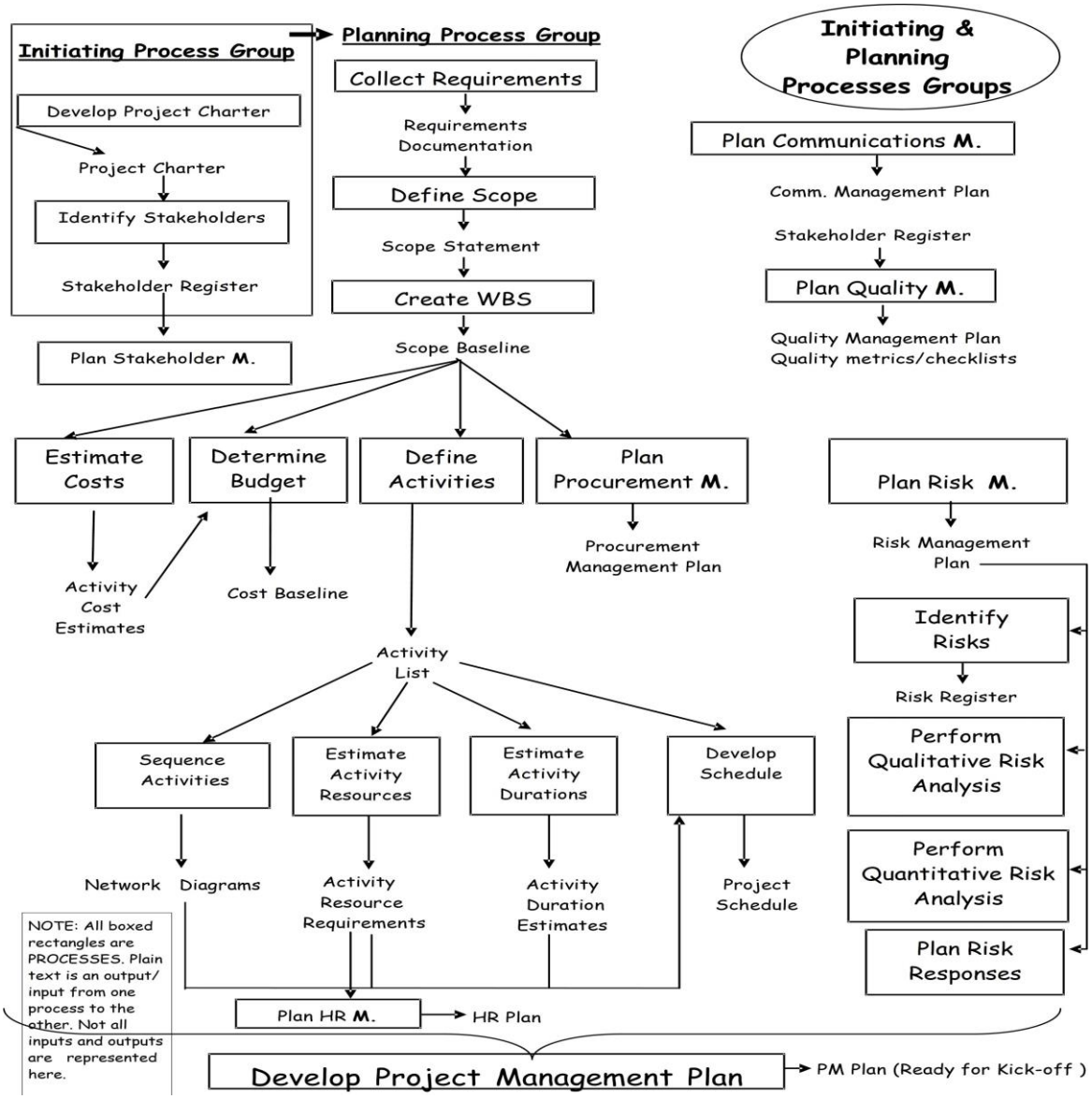

Figure 4 Initiating and Planning Processes. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 51), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

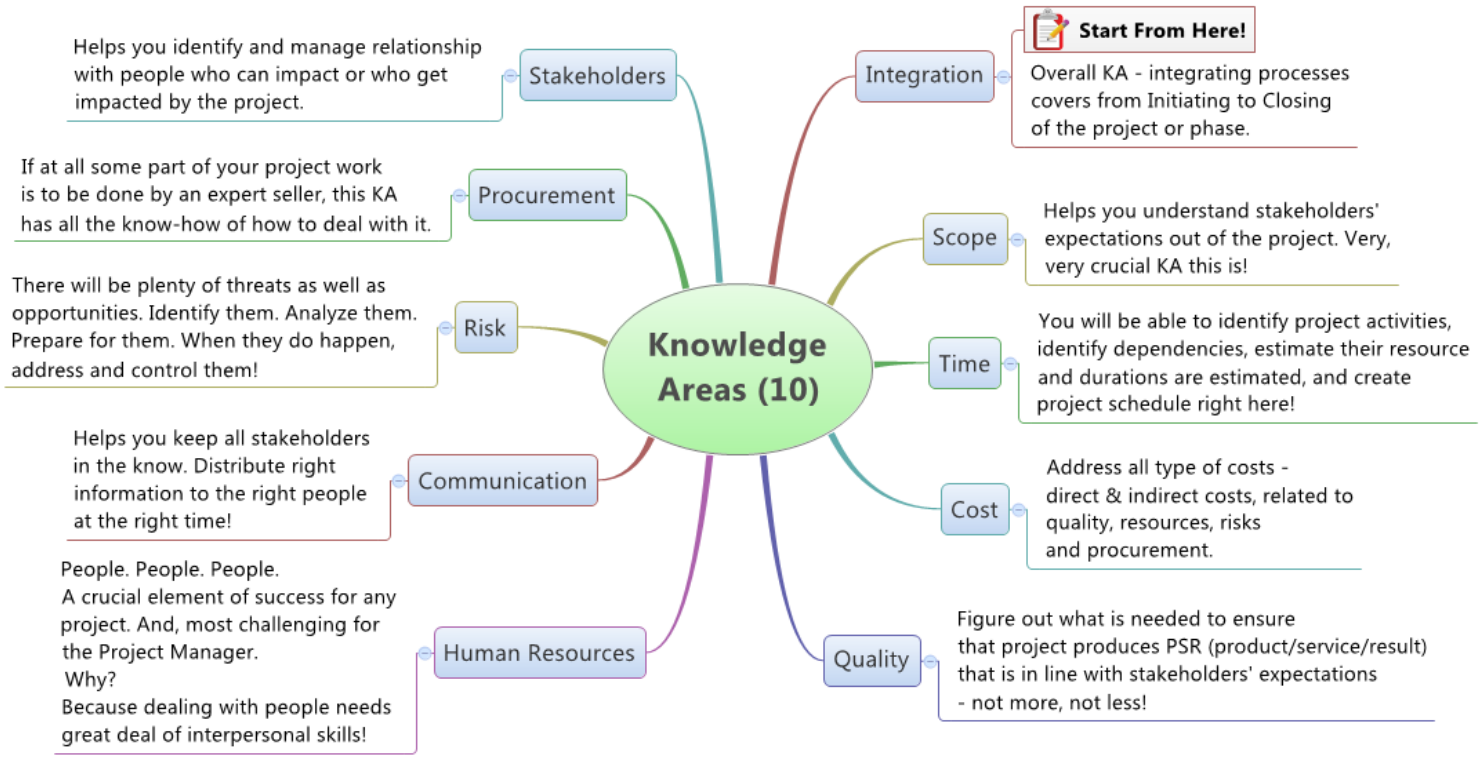

Figure 5 PMI's *PMBOK® Guide* 10 Knowledge Areas. Reprinted from *PM Exam Smartnotes*. By S. Shenoy, n.d., Retrieved from http://www.pmexamsmartnotes.com/project-management-body-of-knowledge/. Copyright 2016 by PMExamSmartNotes.com

2.2.5 Project management knowledge areas

There are "47 project management processes identified in the *PMBOK® Guide*, … [that have been] … grouped into ten separate knowledge areas (Project Management Institute, 2016, p. 422). All of which will be used during the lifecycle of the FGP.

The ten knowledge areas of project management (Project Management Institute, 2016), as defined in **figure 5** above, are as follows:

1. Integration management
2. Scope management
3. Time management
4. Cost management
5. Quality management

6. Human Resources management
7. Communication management
8. Risk management
9. Procurement management
10. Stakeholder management

1.2.5.1 Project Integration Management

“Project Integration Management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups” (Project Management Institute, 2013, p. 63). The processes involved in Project Integration Management are outlined in **figure 6** below.

Process 4.1 will be used to develop the project charter that will begin the development of the Project Management Plan for the Convention Center project. Whereas, Process 4.2 will be used as a guide throughout the development of the FGP results to develop the Project Management Plan.

Key terms that will be used during project integration management are:

a. Project statement of work or Statement of Work (SOW) is “a narrative description of products, services, or results to be delivered by the project”. (Project Management Institute, 2013, p. 564)
b. Business case is “a documented economic feasibility study used to establish validity of the benefits of a selected component lacking sufficient definition and that is used as a basis for the authorization of further project management activities”. (Project Management Institute, 2013, p. 530)
c. Agreements are “any document or communication that defines the initial intentions of a project”. (Project Management Institute, 2013, p. 528)

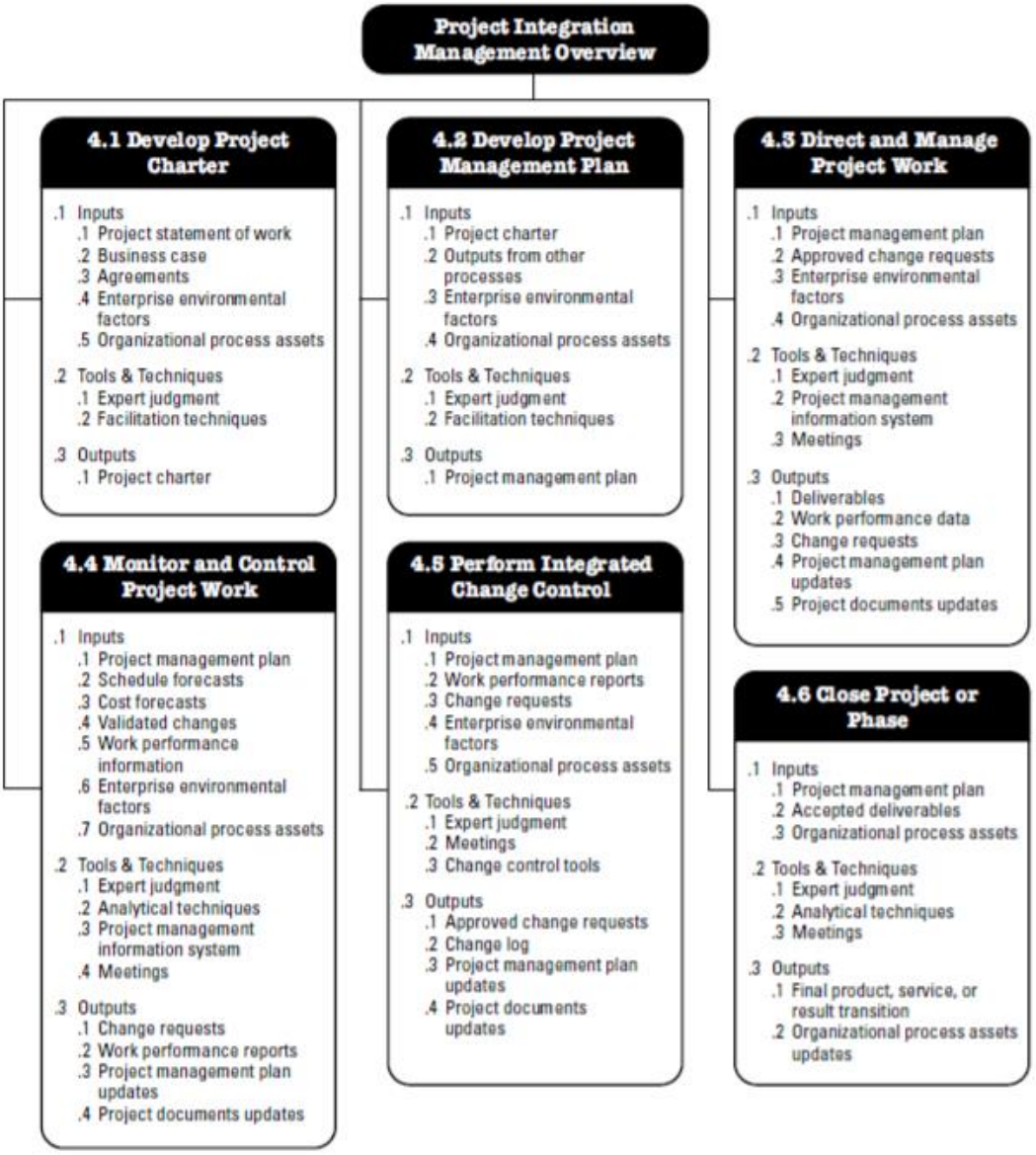

Figure 6 ***PMBOK® Guide*** **Project Integration Management Overview. Reprinted from** ***A Guide to the Project Management Body of Knowledge*** **(p. 65), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

1.2.5.2 Project Scope Management

Project Scope Management is defined as the knowledge area that "includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully" (Project Management Institute, 2013). However, according to Moustafaev "project scope management seems to be one of the most neglected domains in project management"

(Moustafaev, 2015, p. 3). In fact, he states that "a simple omission of just one of these scope components" can lead to project failure (2015, p. 3).

In an effort to accurately capture the necessary scope to successfully complete the building of the Convention Center project, processes 5.1, 5.2, 5.3, and 5.4 of **Figure 7,** will be applied when developing the Project Management Plan.

5.1 Plan Scope Management—The process of creating a scope management plan that documents how the project scope will be defined, validated, and controlled.

5.2 Collect Requirements—The process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives.

5.3 Define Scope—The process of developing a detailed description of the project and product.

5.4 Create WBS—The process of subdividing project deliverables and project work into smaller, more manageable components.

5.5 Validate Scope—The process of formalizing acceptance of the completed project deliverables.

5.6 Control Scope—The process of monitoring the status of the project and product scope and managing changes to the scope baseline.

Figure 7 *PMBOK® Guide* Project Scope Management Processes. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 105), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

1.2.5.3 Project Time Management

"Project Time Management includes the processes required to manage the timely completion of the project (Project Management Institute, 2013, p. 141). **Figure 8** below is an overview of the processes of this knowledge area.

Each of the seven (7) processes identified in the figure involve the strategic management of the time management plan which will guide the development of the project's required activities, and the sequence in which they are to occur.

Project scheduling involves a "scheduling method, scheduling tool, and outputs from the Project Time Management processes" (Project Management Institute, 2013, p. 142). Processes 6.1, 6.2, 6.3, 6.4, 6.5, and 6.6 will be applied to create

the Schedule Management Plan, Schedule Baseline, Project Schedule, and Project Calendars.

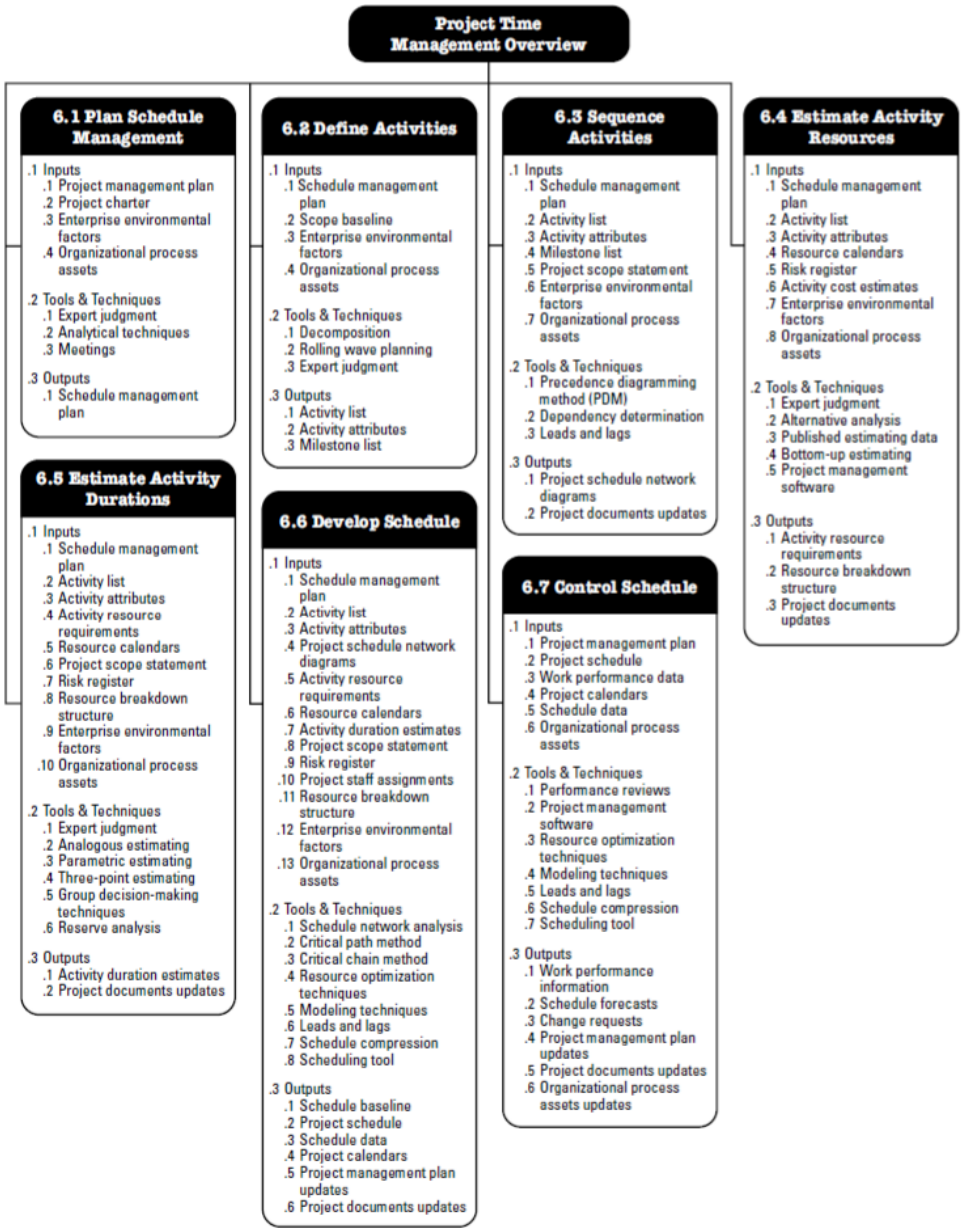

Figure 8 *PMBOK® Guide* Project Scope Management Processes. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 143), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

1.2.5.4 Project Cost Management

"Project Cost Management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project

can be completed within the approved budget" (Project Management Institute, 2013, p. 193). **Figure 9** below provides an overview of the PMI's Project Cost Management Processes.

7.1 Plan Cost Management—The process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs.

7.2 Estimate Costs—The process of developing an approximation of the monetary resources needed to complete project activities.

7.3 Determine Budget—The process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.

7.4 Control Costs—The process of monitoring the status of the project to update the project costs and managing changes to the cost baseline.

Figure 9 ***PMBOK® Guide*** **Project Scope Management Processes. Reprinted from** ***A Guide to the Project Management Body of Knowledge*** **(p. 143), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

To develop the Project Management Plan, processes 7.1 through 7.3 will be employed.

1.2.5.5 Project Quality Management

"Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken" (Project Management Institute, 2013, p. 227). According to PMI, the processes for the management of Quality are identified in **figure 10** below. Only process 8.1 will be used during project planning to produce the Quality Management Plan that will guide the project's Quality Assurance.

8.1 Plan Quality Management—The process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements and/or standards.

8.2 Perform Quality Assurance—The process of auditing the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used.

8.3 Control Quality—The process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.

Figure 10 ***PMBOK® Guide*** **Project Quality Management Processes. Reprinted from** ***A Guide to the Project Management Body of Knowledge*** **(p. 227), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

1.2.5.6 Project Human Resource Management

"Project Human Resource Management includes the processes that organize, manage, and lead the project team" (Project Management Institute, 2013, p. 255). **Figure 11** below outlines the processes for Project Human Resource Management according to PMI. Only process 9.1 will be used during project planning to develop the Human Resource Management Plan.

9.1 Plan Human Resource Management—The process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan.

9.2 Acquire Project Team—The process of confirming human resource availability and obtaining the team necessary to complete project activities.

9.3 Develop Project Team—The process of improving competencies, team member interaction, and overall team environment to enhance project performance.

9.4 Manage Project Team—The process of tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

Figure 11 ***PMBOK® Guide*** **Project Human Resource Management Processes. Reprinted from A Guide to the Project Management Body of Knowledge (p. 255), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

1.2.5.7 Project Communications Management

"Project Communications Management includes the processes that are required to ensure a timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information" (Project Management Institute, 2013). As such, only process 10.1 will be referenced during project planning to develop the project's Communication Plan.

Figure 12 below outlines the Project Communications Management processes as described in the *PMBOK® Guide.*

10.1 Plan Communications Management—The process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets.

10.2 Manage Communications—The process of creating, collecting, distributing, storing, retrieving and the ultimate disposition of project information in accordance with the communications management plan.

10.3 Control Communications—The process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met.

Figure 12 ***PMBOK® Guide*** **Project Communications Management Processes. Reprinted from** ***A Guide to the Project Management Body of Knowledge*** **(p. 287), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

1.2.5.8 Project Risk Management

According to PMI, "Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project" (Project Management Institute, 2013, p. 309). The description for each of PMI's Risk Management Processes can be seen in **figure 13** below. For the development of the Project Management Plan only processes 11.1, 11.2, 11.3 and 11.5 will be used during project planning.

11.1 Plan Risk Management—The process of defining how to conduct risk management activities for a project.

11.2 Identify Risks—The process of determining which risks may affect the project and documenting their characteristics.

11.3 Perform Qualitative Risk Analysis—The process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.

11.4 Perform Quantitative Risk Analysis—The process of numerically analyzing the effect of identified risks on overall project objectives.

11.5 Plan Risk Responses—The process of developing options and actions to enhance opportunities and to reduce threats to project objectives.

11.6 Control Risks—The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.

Figure 13 ***PMBOK® Guide*** **Project Risk Management Processes. Reprinted from** ***A Guide to the Project Management Body of Knowledge*** **(p. 287), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

1.2.5.9 Project Procurement Management

"Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team" (Project Management Institute, 2013, p. 355). **Figure 14** below outlines PMI's Procurement Management Processes. Only process 12.1 from the processes detailed below will be used to develop the Procurement Management Plan during project planning.

12.1 Plan Procurement Management—The process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.

12.2 Conduct Procurements—The process of obtaining seller responses, selecting a seller, and awarding a contract.

12.3 Control Procurements—The process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate.

12.4 Close Procurements—The process of completing each project procurement.

Figure 14 ***PMBOK® Guide*** **Project Risk Management Processes. Reprinted from** ***A Guide to the Project Management Body of Knowledge*** **(p. 287), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.**

1.2.5.10 Project Stakeholder Management

The Project Management Institute defines a stakeholder as "an individual, group, or organization that may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project, program, or portfolio" (Project Management Institute, 2016, p. 12).

Project Stakeholder Management involves four processes needed to identify, classify, plan and manage all project stakeholders and their expectations. Stakeholder Management was introduced as a separate knowledge area in *PMBOK® Guide* 5th edition. The Stakeholder Management Plan is a subsidiary of the Project Management Plan that may be used to help to ensure that project stakeholders are effectively involved in project decisions and its execution. By doing this, the project management team can anticipate the level of influence each

stakeholder may have over the project and plan remedies thereby increasing the likelihood of the project's successful completion. (Project Management Institute, 2013, p. 399).

The four Project Stakeholder Management processes are outlined in the *PMBOK® Guide* in **figure 15**. However, only the first two processes are required to develop the project management plan, which will in turn be used to manage and control stakeholder engagement during the project execution and monitoring and controlling processes.

Key terms that will be utilized to classify the stakeholders and their level of classification in the Stakeholder Management plan are:

a. Power: stakeholder's level of authority regarding project outcome (Project Management Institute, 2013, p. 396).
b. Interest: stakeholder's level of concern regarding project outcome (Project Management Institute, 2013, p. 396).
c. Influence: stakeholder's level of involvement in the project (Project Management Institute, 2013, p. 396).
d. Impact: stakeholder's ability to effect changes to the project's planning or execution (Project Management Institute, 2013, p. 396).
e. Communication – "connecting with people by sending information" (Articulous Communications, 2015).
f. Engagement – dialoguing with stakeholders to find out what matters most to them and incorporating their needs into the project (Articulous Communications, 2015).
g. One-way communication – information sent in a straight line from the sender to the receiver. In this case, feedback is not given or required.
h. Two-way engagement – communication between senders and receivers that involves listening by both parties. This dialogue occurs as a means of working together to solve a problem in a manner that both parties can benefit from.

13.1 Identify Stakeholders—The process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.

13.2 Plan Stakeholder Management—The process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success.

13.3 Manage Stakeholder Engagement—The process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.

13.4 Control Stakeholder Engagement—The process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

Figure 15 *PMBOK® Guide* Project Stakeholder Management Overview. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 392), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

3. METHODOLOGICAL FRAMEWORK

3.1 Information sources

According to the Concise Oxford English Dictionary, information is “facts or knowledge provided or learned” (Information, 2011, p. 729) and a source is “a place, person, or thing from which something originates” (Source, 2011, p. 1380). Therefore, it can be concluded that an information source is a place, person or thing from which facts or knowledge are provided or learned.

There are many places for information to be obtained. One can use library sources, internet sources, organizational sources, government agencies as sources, pictorial sources, sources from bibliographies, a colleague or sometimes even one’s personal account as a source. Information sources can be printed or presented in an electronic format. Basically, it can be taken from almost anywhere.

No matter where information originates from, there are *only* three **types** of information sources – primary, secondary, and tertiary (Schmidt, 2013). To develop the Final Graduation Project, primary and secondary sources will be used.

3.1.1 Primary sources

“A primary source is information taken directly from a person, event, location, or material at the point of the occurrence” (Schmidt, 2013, p. 62).

For the development of the Final Graduation Project, the primary information sources that will be used are meeting minutes, personal interviews with members of ABC Designs, interviews with other stakeholders, such as sellers, and research. Refer to **Chart 1**, for the specific primary information sources that will be used.

3.1.2 Secondary sources

"A secondary source is information that a person provides after he or she has gotten the information from a primary source" (Schmidt, 2013, p. 62). In this case, the person providing the information did not participate in or is not furnishing first-hand knowledge about the incident.

For the development of the Final Graduation Project, secondary sources such as the *PMBOK® Guide*, library databases, and the PMI database will be used. Refer to **Chart 1** for the list of secondary sources used for each specific objective.

Chart 1 Information sources (Source: C. Walker, The Author, August 2016)

Objectives	Information sources	
	Primary	**Secondary**
1. To create a project charter that formally authorizes the project and provide the project manager with the authority to apply organizational resources to the project in order to produce the project management plan.	Meeting minutes, personal interview with lead project manager (expert)	*PMBOK® Guide and PMI database*
2. To create a scope management plan that ensures that all the works required are included to successfully complete the project.	Meeting minutes and personal interview with lead project manager (expert)	*PMBOK® Guide*, PMI database, and the Internet
3. To create a schedule management plan to support the development and management of a project schedule that ensures the project	Personal interview with lead project manager (expert)	*PMBOK® Guide*, and the Internet

is completed within the time constraints.		
4. To create a cost management plan to define the processes for developing and managing the project budget that ensures the project is completed within the budget constraints.	Personal interview with lead project manager (expert) and meeting minutes	*PMBOK® Guide*, and PMI database
5. To develop a quality management plan to identify the quality requirements for the project in order that ensures the results meet expectations for approval within the time, cost and scope constraints.	Personal interview with lead project manager (expert)	*PMBOK® Guide*
6. To create a human resource management plan to ensure that all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.	Personal interview with lead project manager (expert)	*PMBOK® Guide* and the internet
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Personal interview with lead project manager (expert)	*PMBOK® Guide* and PMI database
8. To create a risk management plan to identify and examine risks to the successful completion of the project and develop plans to	Personal interview with lead project manager (expert)	*PMBOK® Guide* and PMI database

minimize the likelihood of the risks.		
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.	Purchasing institutions, personal interviews with lead project manager (expert)	*PMBOK® Guide*
10. To develop a stakeholder management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.	Interviews with lead project manager (expert)	*PMBOK® Guide* and textbook

3.2 Research methods

According to the Concise Oxford English Dictionary, research is defined as “the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions” (Research, 2011, p. 1222). The same source defines the word ‘method’ as “a particular procedure for accomplishing or approaching something” (Method, 2011, p. 899). Therefore, it is concluded that a research method is a particular procedure to establish facts and reach new conclusions.

3.2.1 Analytical method

The analytical research method sometimes referred to as the explanatory method “uses facts or information already available and analyse to make a critical evaluation” (Sridhar, 2008, slide 20). With this research method, information from multiple sources will be examined and used to develop the deliverables found in **Chart 5**.

The research method for each specific objective is indicated in Chart 2 below.

Chart 2 Research methods (Source: C. Walker, The Author, August 2016)

Objectives	Analytical Research Method
1. To create a project charter that formally authorizes the project and provide the project manager with the authority to apply organizational resources to the project in order to produce the project management plan.	The analytical method will be employed by using facts or information from the sources identified in Chart 1 objective 1 above, to drive decision making when creating the project charter.
2. To create a scope management plan that ensures that all the works required are included to successfully complete the project.	The analytical method will be employed by using facts or information from the sources identified in Chart 1 objective 2 above, to drive decision making when creating the documents which comprise the scope management plan.
3. To create a schedule management plan to support the development and management of a project schedule that ensures the project is completed within the time constraints.	The analytical method will be employed by using information from the sources identified in Chart 1 objective 3 above, to drive decision making when creating the documents that will comprise the time management plan.
4. To create a cost management plan to define the processes for developing and managing the project budget that ensures the project is completed within the budget constraints.	The analytical method will be employed by using information from the sources identified in Chart 1 objective 4 above, to drive decision making when creating the documents that will comprise the cost management plan.
5. To develop a quality management plan to	The analytical method will be employed by

identify the quality requirements for the project in order that ensures the results meet expectations for approval within the time, cost and scope constraints.	using information from the sources identified in Chart 1 objective 5 above, to drive decision making when creating the documents that will comprise the quality management plan.
6. To create a human resource management plan to ensure that all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 6 above, to drive decision making when creating the documents that will comprise the human resource management plan.
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 7 above, to drive decision making when creating the documents that will comprise the communications management plan.
8. To create a risk management plan to identify and examine risks to the successful completion of the project and develops plans to minimize the likelihood of the risks.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 8 above, to drive decision making when creating the documents that will comprise the risk management plan.
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.	The analytical method will be employed by using information derived from the sources identified in Chart 1 objective 9 above, to drive decision making when creating the documents that will comprise the procurement management plan.
10. To develop a stakeholder management plan to identify and support all the project	The analytical method will be employed by using information derived from the sources

stakeholders to ensure effective stakeholder engagement.	identified in Chart 1 objective 10 above, to drive decision making when creating the documents that will comprise the stakeholder management plan.

3.3 Tools

According to the *PMBOK® Guide,* a tool is defined as “something tangible, such as a template or software program, used in performing an activity to produce a product or result” (Project Management Institute, 2013, p. 565).

Each tool used in the Final Graduation Project is identified and explained below. In addition, the information is summarized in **Chart 3**.

a. Project charter template - guides the development of the project charter.

b. Requirements traceability matrix template - ensures that project requirements are necessary and will be met.

c. Work Breakdown Structure (WBS) online generator - breaks down the project into smaller components so it can be more easily managed.

d. Requirements Management Plan template – describes how the requirements will be analysed, documented and managed.

e. Requirements documentation template - captures the requirements documentation.

f. Scope Management Plan template - guides the development of the scope management plan and all of its subcomponents.

g. Project Management Plan template - guides the development and organization of the project management plan and all its subcomponents.

h. Schedule Management Plan template - guides the development of the project management plan and all its subcomponents.

i. Scheduling tool – developed in Microsoft Project 2016 to create the Project Schedule using Schedule network analysis.

j. Activity List template – captures the list of activities for the project.

k. Cost Management Plan template – develops the cost management plan that will guide the project team during the project’s lifecycle.

l. Project Budgeting template – created in Microsoft Excel 2016, develops the project budget and track financial transactions throughout the project's lifecycle.

m. Cost Baseline template – outlines the development of the cost baseline.

n. Quality Management Plan template – outlines the development of the Quality Management Plan.

o. Quality Management tools – examples include cause-and-effect diagrams, flowcharts, check sheets and control charts to be used throughout the project. The use of these tools will be outlined in the Quality Management plan.

p. Human Resource Management Plan template – guides the planning of human resource management.

q. Responsibility Assignment Matrix – identifies team members and assigns them responsibilities.

r. Communications Management Plan template – guides the development of the communications management plan.

s. Communication Matrix – created in Microsoft Excel 2016, plans communications between project team and stakeholder management.

t. Risk Management Plan and Risk Register template – developed in Microsoft Excel 2016, identifies and classifies risks, and plans risk responses.

u. Procurement Management Plan template – aids in identification of contracts and purchasing decisions.

v. Stakeholder Management Plan template – aids in identification and classification of stakeholders, and plans stakeholder management.

w. Stakeholder Analysis Chart – aids in analysis and classification of project stakeholders.

x. Stakeholder Register template – aids in identification of project stakeholders.

y. Stakeholder Engagement Assessment Matrix – details how each project stakeholder should be engaged based on their level of involvement in the project.

Chart 3 Tools (Source: C. Walker, The Author, August 2016

Objectives	Tools
1. To create a project charter that formally authorizes the project and provides the project manager with the authority to apply organizational resources to the project in order to produce the project management plan.	Project Charter template and Project Management Plan template
2. To create a scope management plan that ensures that all the works required are included to successfully complete the project.	Requirements traceability matrix template, Microsoft Vision Professional 2016, Requirements Documentation template, Requirements Management Plan template, Work Breakdown Structure generator, and Scope Management Plan template
3. To create a schedule management plan to support the development and management of a project schedule that ensures the project is completed within the time constraints.	Schedule Management Plan template, Microsoft Project 2016, Microsoft Visio Professional 2016, and Activity List template
4. To create a cost management plan to define the processes for developing and managing the project budget that ensures the project is completed within the budget constraints.	Cost Management Plan template, Microsoft Excel 2016 Project Budgeting template, and Cost Baseline template
5. To develop a quality management plan to identify the quality requirements for the project in order to ensure the results meet expectations for approval	Quality Management Plan template and Quality Management tools (Checksheets)

within the time, cost and scope constraints.	
6. To create a human resource management plan to ensure that all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.	Human Resource Management template and Responsibility Assignment Matrix
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Communications Management Plan template and Communications Matrix
8. To create a risk management plan to identify and examine risks to the successful completion of the project and develop plans to minimize the likelihood of risks.	Risk Management Plan template, and Risk Register template
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.	Procurement Management Plan template
10. To develop a stakeholder management plan to identify and support all the project stakeholders and to ensure effective stakeholder engagement.	Stakeholder Management Plan template, Stakeholder Analysis Chart, Microsoft Excel 2016, Stakeholder Register template, Stakeholder Engagement Assessment Matrix, Mindtools Online Stakeholder Power/Interest Grid Creator

3.4 Assumptions and constraints

PMI defines an assumption as “a factor in the planning process considered to be true, real, or uncertain, without proof or demonstration” (Project Management Institute, 2016, p. 1). It also defines a constraint as “a limiting factor that affects the execution of a project, program, portfolio, or process” (Project Management Institute, 2016, p. 2). The assumptions and constraints considered on the Final Graduation Project for each specific objective are set out in **Chart 4** below.

Chart 4 Assumptions and constraints (Source: C. Walker, The Author, August 2016)

Objectives	Assumptions	Constraints
1. To create a project charter that formally authorizes the project and provides the project manager with the authority to apply organizational resources to the project in order to produce the project management plan.	The charter will be created before all other subsidiary documents.	There are only three (3) days allocated to create the project charter. Also, stakeholder identification is scheduled to occur at the same time as the development of the project charter.
2. To create a scope management plan that ensures that all the works required are included to successfully complete the project.	The Clients have disclosed all of the information required to develop the scope. The scope management	The Clients are considering the reduction of the project scope by finishing only two

Objectives	Assumptions	Constraints
	plan will identify all the work required.	floors of the Convention Center.
3. To create a schedule management plan to support the development and management of a project schedule that ensures the project is completed within the time constraints.	The time allocated for the development of the Project Management Plan and the building of the Convention Center is sufficient.	The time allocated for the building of the Convention Center must not exceed 24 months.
4. To create a cost management plan to define the processes for developing and managing the project budget that ensures the project is completed within the budget constraints.	The budget created during planning will accurately depict the financial resources required to build the Convention Center.	The budget for the building of the Convention Center must not exceed $6 million dollars.
5. To develop a quality management plan to identify the quality requirements for the project in order to ensure results meet expectations for approval within the time, cost and scope constraints.	The quality management plan will identify all of the technical and managerial quality requirements of the project.	The quality constraints require that the structure is able to withstand a Category 5 hurricane and exhibit the luxury features associated with a world-class convention center.
6. To create a human resource management plan to ensure that	The organization has sufficient human resources	Only the human resources

Objectives	Assumptions	Constraints
all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.	to complete the project. The team development plans for the project team and subcontractors will be sufficient to begin the construction of the Convention Center on time.	identified and planned for will be included in the budget. The man hours and overtime hours are predetermined.
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	The organization has the technology required to suffice the communication needs of all stakeholders.	The availability of electricity and consistency of internet access must be dependable.
8. To create a risk management plan to identify and examine risks to the successful completion of the project and develop plans to minimize the likelihood of the risks.	There is sufficient information required to adequately identify most, if not all, project risks.	All of the project risks need to be identified within the planning phase (stage) or as early as possible.
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.	The company personnel have identified an initial list of suppliers.	The list of suppliers needs to be exhaustive. The use of international suppliers should not cause schedule delays.
10. To develop a stakeholder	The stakeholder	The information

Objectives	Assumptions	Constraints
management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.	management plan will include a complete list of all stakeholders involved and a plan as to how to properly manage each.	required to plan and manage stakeholders must be accurate.

3.5 Deliverables

A deliverable is defined as “any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project” (Project Management Institute, 2013, p. 537).

Chart 5 Deliverables (Source: C. Walker, The Author, August 2016)

Objectives	Deliverables
a) To create a project charter that formally authorizes the project and provide the project manager with the authority to apply organizational resources to the project in order to produce the project management plan	Project Charter
b) To create a scope management plan that ensures that all works required are included to successfully complete the project.	Scope Management Plan, Requirements Management Plan, Requirements Document and Requirements Traceability Matrix
c) To create a schedule management plan to support the development and management	Schedule Management Plan, Activity List, Schedule Network Diagram, Resource assignments and activity

of a project schedule that ensures the project is completed within the time constraints.	durations, and Schedule in Gantt chart
d) To create a cost management plan to define the processes for developing and managing the project budget that ensures the project is completed within the budget constraints.	Cost Management Plan, Cost Baseline and Project Funding Requirements
e) To develop a quality management plan to identify the quality requirements for the project in order that ensures the results meet expectations for approval within the time, cost and scope constraints.	Quality Management Plan
f) To create a human resource management plan to ensure that all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.	Human Resource Management Plan
g) To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.	Communication Management Plan and Communications Matrix
h) To create a risk management plan to identify and examine risks to the successful completion of	Risk Management Plan and Risk Register

the project and develop plans to minimize the likelihood of the risks.	
i) To develop a procurement management plan to be used to obtain products, services or results required by the project.	Procurement Management Plan
j) To develop a stakeholder management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.	Stakeholder Management Plan, Stakeholder Analysis Chart, and Stakeholder Register

4. RESULTS

4.1 Project Integration Management

In developing the Project Management Plan for the building of a Convention Center, a **Project Charter**, specific objective one (1), was the first process in the Project Integration Management knowledge area. This was accomplished using interviews, meeting minutes and the *PMBOK® Guide* as sources. These were then used as the decision making drivers together with the application of the analytical research methodology. A template from the PMI database was used as a tool to develop the Project Charter that formally authorized the project and provided the Project Manager with the authority to apply organizational resources to the project to produce the Project Management Plan.

The development of the **Project Management Plan** is the second process in the Project Integration Management Knowledge area comprised of the subsidiary plans developed during the Final Graduation Project. A template was used to guide the compilation of the plan.

The Project Charter consisted of the project's purpose, objectives, description, high level risks, stakeholder list, high-level requirements, assumptions and contraints, identification of deliverables, a summary milestone schedule, overall project budget, criteria necessary for project approval, the identification of the project manager, and the sponsor's authorization. (Project Management Institute, 2013, p. 72)

According to *PMBOK® Guide,* to develop the Project Charter the following inputs, and tools and techniques were required. See **figure 16** below. (Project Management Institute, 2013, p. 66).

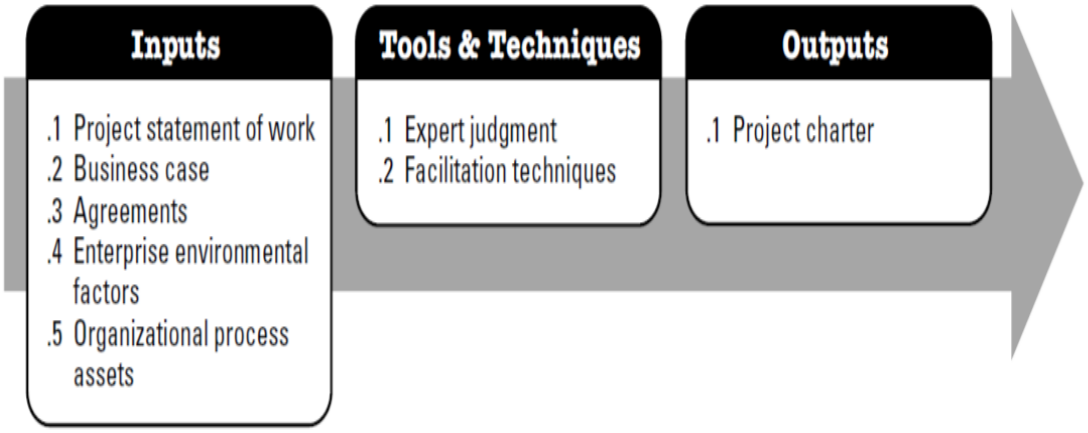

Figure 16 Develop Project Charter: Inputs, Tools & Techniques , and Outputs. Reprinted from A Guide to the Project Management Body of Knowledge (p. 66), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

Since ABC Designs did not have a developed project management approach to deliver the Convention Center, the Assistant Project Manager knew that although the project's statement of work, business case, agreements, enterprise environmental factors and organizational process assets were the recognized inputs for the development of the Project Charter, none of these documents would be made available for use by any of the representatives from the company. In fact, there were no organizational process assets (OPA) and due to the lack of a formal project management team or project management office (PMO) the enterprise environmental factors (EEF) were limited to understanding that the project was of the upmost importance to the company and that she, the Assistant Project Manager, would be the only person responsible for the development of the Project Management Plan.

In the absence of the inputs to this process, a review of the lead Project Manager's (Mr. E. B. Rolle) meeting minutes was conducted along with an interview to develop the Project Charter in **figure 17**.

PROJECT CHARTER
BUILDING OF THE CONVENTION CENTER

ABC DESIGNS
NASSAU, THE BAHAMAS

21 OCTOBER 2016

TABLE OF CONTENTS

Project Purpose/Justification

Business Need/Case

The building of the Convention Center arises from market demand to design and build a fully multi-faceted luxury structure. In addition, the Convention Center is also being pursued as the Clients as Epic Enterprises wish to expand their business portfolio.

Business Objectives

Currently, Epic Enterprises does not have an organizational strategic plan. However, the following business objectives have been established with respect to the Convention Center project:

a. To build a multi-faceted luxury structure that will house a multiplicity of events in order to create economic benefit for the business establishment.
b. To create a structure that is economically feasible to construct and maintain in an environment filled with salt-air and prone to hurricane winds and conditions.
c. To build a first-class convention center designed to be a hub for both locals and foreign clientele.
d. To create an aesthetically attractive facility that projects a positive image of The Bahamas.
e. To ensure that the project is self-sustainable and has growth potentials for now and the future.

Project Description

Stakeholders

Epic Enterprises (Client Organization and Sponsor)

- Owner
- Board of Directors
- Accountant

ABC Designs

- Designer/Architect
- Contractor
- Project Manager
- Assistant Project Manager
- Office Assistant
- Field Superintendent
- Foreman
- Gofer
- Draftsman

Subcontractors

- Electrical
- Plumbing
- Fire/Safety
- Roofing
- Tiling
- Pool
- Sound Engineering
- Acoustics
- Building Lighting
- Stage Lighting

- Faux Design & Installation
- Window and Doors
- Interior Designer

Suppliers

- Forest Products
- Al Homer
- Florida Building Supply
- Georgia Pacific
- Allied Steel

Consultants

- Quantity Surveyor
- Electrical Engineer
- Structural Engineer
- Mechanical Engineer
- Plumbing Engineer
- Geotechnical Engineer
- Hydrologist
- FAA
- Community Members

Environmental Agencies

- BEST Commission
- Bahamas National Trust
    - Government Agencies
    - Ministry of Works
    - Ministry of the Environment
    - Ministry of Health

Measurable Project Objectives and Success Criteria

Requirements

The Convention Center must be constructed out of materials that are structurally sound and are able to withstand a category 5 hurricane. In addition, the building should be outfitted with components and accessories that can remain intact in a salt air environment.

Constraints

The project should not exceed $6 million (USD). The project duration should not exceed twenty-four (24) months; with eighteen (18) months to substantial completion and an additional six (6) for the project to end.

Assumptions

- Weather:

    - It is assumed that it will rain; therefore, the building has to be weather proof
    - It is assumed that there will be hurricanes; therefore, concessions have been made to reinforce the building to withstand up to a category 5 or C rating hurricane
    - It is assumed that we will have high temperatures; therefore, this will determine the type of paint and cement finishes used.
    - It is assumed that there will be moisture, so a product called DensGlass® Gold will be used to mitigate moisture
- Finances
    - It is assumed that the client is funded sufficiently.
- Work force
    - It is assumed that we have sufficient quantities of skilled workers that are competent.
- Schedule
    - It is assumed that the project will be substantially completed in eighteen (18) months, with an additional six (6) allocated for the remaining work.
- Budget
    - It is assumed that the project can be accomplished for $6,000,000.00 US.
- Planning
    - It is assumed that the building regulators will approve all building components as indicated on the drawings and schedule

Preliminary Scope

The project includes the building of a four-storey multi-faceted luxury convention center housing the following floors and items excluded:

Floors & Storey Details

a. **Basement floor** – see Scope Management Plan for specifications
b. **First Floor** – see Scope Management Plan for specifications
c. **Second Floor** - see Scope Management Plan for specifications
d. **Roof Deck** – see Scope Management Plan for specifications
e. **Partial mansard and parapet roof framing** – see Scope Management Plan for specifications

Items Excluded

a. Concrete flooring, including hollow core slabs.
b. Stair railing
c. Infill walls
d. Pergolas

Risks

a. Financial
    a. Price increases on materials over time
    b. Damage to materials on site
    c. Accidents on site
    d. Underestimation of the project
b. Planning regulatory demands
    a. Demands are not consistent with approved drawings
c. Stakeholders
    a. Client unauthorized/misplaced involvement in the project
d. Scheduling delays
    a. Severe climate changes causing delays
    b. Shipping delays
    c. Production and fabrication delays
    d. Design delays

Project Deliverables

- Customer deliverables
    a. Project charter
    b. Architectural and Engineering Drawings
    c. Design documents
    d. Site investigation report
    e. Tender document
    f. Super structure delivered to New Providence
    g. Commencement of vertical construction
    h. Super structure erected
    i. Progress report to client
    j. Cladding and in walls complete
    k. Windows and doors installed
    l. Electrical and plumbing installation
    m. Air conditioning alarms and fire safety installation
    n. Miscellaneous works completed
    o. Completion of building
    p. Certificate of Occupancy

- Ministry of Works deliverables
    a. Structure drawings
    b. Mechanical drawings
    c. Plumbing and electrical drawings
    d. Fire and safety plan
    e. Site plan
    f. Parking layout
    g. Irrigation plan
    h. Stress calculations
    i. Building permit
    j. Inspection report
- Fabricators deliverables

a. 3D structural design
b. Architecture
c. Project requirement
d. Excerpts from Bahamas Building Control

Summary Milestone Schedule

1. Project Initiation/Kick-off	September 26, 2016
2. Conceptual Design Commence	October 1, 2016
3. Project Defined	October 3, 2016
4. Site Investigation Report Complete	October 10, 2016
5. Conceptual Design Complete	October 13, 2016
6. Initial Impact Assessment Complete	October 17, 2016
7. Feasibility Study Complete	October 26, 2016
8. Approval of Project Charter	November 8, 2016
9. Baseline Project Schedule	November 8, 2016
10. Design documents approved by client	November 10, 2016
11. Complete Design Documents & Submit to MOW for Permit	November 29, 2016
12. Project Management Plan Complete	December 5, 2016
13. Procurement and Sourcing Commence	December 6, 2016
14. Apply for Aviation Permit	December 6, 2016
15. Apply for Volatile Permit (kitchen fuels)	December 6, 2016
16. Steel Framework Ordered	December 13, 2016
17. Sub-Contractor Tendering Commence	December 14, 2016
18. Sub-Contractor Tendering Complete	December 27, 2016
19. Award Contracts	December 30, 2016
20. Building Permit Issued	January 6, 2017

21. Begin Work Drawings	January 9, 2017
22. Approval of Roles and Responsibilities	January 12, 2017
23. Working Drawing Complete	January 27, 2017
24. Mobilization Commencement	January 30, 2017
25. Mobilization Complete	February 3, 2017
26. Site works begin	February 8, 2017
27. Commencement of Vertical Construction	February 16, 2017
28. Auger drilling and piling Commence	February 20, 2017
29. 1st Floor Steel Superstructure components delivered	April 6, 2017
30. Commencement of 1st Floor Steel Superstructure erection	May 25, 2017
31. Steel Superstructure (2nd floor, primary and secondary roof decks) components delivered	April 27, 2017
32. Commencement of (2nd floor, primary and secondary roof decks) Superstructure erection	May 31, 2017
33. Erection of Steel Superstructure complete	July 11, 2017
34. Annex building and roof deck complete	July 28, 2017
35. Concrete flooring, decking and steel work complete	August 9, 2017
36. Cladding and in-walls complete	September 1, 2017
37. Electrical and plumbing roughing complete	September 4, 2017
38. Mansard around deck floor perimeter installed	September 5, 2017
39. Windows and doors installed	September 6, 2017
40. Stairs and elevator hoist-way complete	September 6, 2017
41. Air conditioning, alarms and fire safety commence	October 2, 2017

42. Misc. Work on Steel Superstructure complete	January 3, 2018
43. Apply for Final Building Inspection	January 8, 2018
44. Substantial Completion	January 22, 2018
45. Miscellaneous works complete	March 30, 2018
46. Apply for occupancy	April 2, 2018
47. Punch list complete	July 30, 2018
48. Final Building Inspection	
49. Final account	September 14, 2018
50. End of Project	October 8, 2018

Project Budget

Item	**Project Costs ($ USD)**
Construction & Administration	$ 5,392,200.00
Value Added Tax 7.5%	$ 417,840.00
Prints & Plots	$ 20,000.00
Permits	$ 15,000.00
Contingency (3%)	$ 143,910.00
GRAND TOTAL	**$5,988,950.00**

Project Approval
In order to gain project approval, a 59,800 square feet four-storey convention center must be delivered by October 8, 2018 with all of the details agreed upon in the Scope Statement.

Project Manager
The Project Manager is Mr. E. B. Rolle. The Assistant Project Manager, Ms. C. Walker, will act on his behalf in his absence.

Responsibilities include:

A. Production
B. Coordination
C. Quality Control
D. Procurement
E. Regulation Compliance
F. Architectural Engineering
G. Reporting
H. Project finances

Authorization

Approved by:

Date:

Representative of Epic Enterprises
Client

Figure 17 Convention Center Project Charter. Adapted from PMI Puget Sound Charter. Retrieved October 21, 2016 from http://pugetsoundpmi.org/images/downloads/Project_Management_document_templates/project_chartertemplate.doc

4.2 Project Scope Management

The planning of project scope management was conducted after the Stakeholder Management Plan was completed. It was the first of the planning process group processes to occur, following the development of the Project Charter, Stakeholder Register, and Procurement Management Plan, respectively.

To define the scope of the project, a scope management plan was produced. This document, seen in **figure 18**, was created using a modified template taken from an online source. The Scope Management Plan included the scope definition, project scope statement, the Work Breakdown Structure (WBS), WBS dictionary, scope verification and the scope control measures that would guide the project management team throughout the project (Project Management Institute, 2013, p. 109).

The Scope Management Plan included the outputs from the Scope Definition and Create WBS processes and would later be approved as the Scope Baseline. Although these processes were identified as occurring after the second process group in scope management, they were conducted concurrently with the development of the Scope Management Plan as the inputs required were developed.

To create the plan, as detailed in the *PMBOK® Guide* 5th edition, the Project Charter was used as an input, along with an interview which was conducted with the lead Project Manager and a review of his meeting minutes, which documented discussions between him and the project sponsor, collected during the clients' requirements meetings (Project Management Institute, 2013, p. 107). In addition, to the Scope Management Plan, the Requirements Management Plan seen in **figure 19** was created as the second output of the plan scope management process.

SCOPE MANAGEMENT PLAN

BUILDING OF THE CONVENTION CENTER

ABC DESIGNS
NASSAU
THE BAHAMAS

31 OCTOBER 2016

TABLE OF CONTENTS

Introduction

The Scope Management Plan provides the scope framework for this project. This plan documents the scope management approach; roles and responsibilities as they pertain to project scope; scope definition; verification and control measures; scope change control; and the project's work breakdown structure. Any project communication which pertains to the project's scope should adhere to the Scope Management Plan.

This project is for the building of the Convention Center. Market demand necessitated the construction and design of such a multi-faceted luxury structure. In addition, the Clients' (Epic Enterprises) pursuance of the Convention Centre aligns with their strategy to expand their business portfolio.

Scope Management Approach

For this project, scope management will be the sole responsibility of the Project Manager. The scope for this project is defined by the Scope Statement, Work Breakdown Structure (WBS) and WBS Dictionary. The Project Manager, Sponsor and Stakeholders will establish and approve documentation for measuring project scope which includes deliverable quality checklists and work performance measurements. Proposed scope changes may be initiated by the Project Manager, Stakeholders or any member of the project team. All change requests will be submitted as **change orders** to the Project Manager who will then evaluate the requested scope change. Upon acceptance of the scope change request, the Project Manager will submit the scope change request to the Sponsor, Stakeholder, Sub Consultants and/or Subcontractors. The Project Manager is responsible for the approval of scope changes that are strictly technical in nature. Whereas, the Project

Sponsor is responsible for the approval of scope changes affecting time and costs parameters. Upon approval of scope changes, the Project Manager will update all project documents and communicate the scope change to all stakeholders through a **change directive**. Based on feedback and input from the Project Manager and Stakeholders, the Project Sponsor is responsible for the acceptance of the final project deliverables and project scope.

Roles and Responsibilities

The Project Manager, Sponsor and Team will all play key roles in managing the scope of this project. As such, the project sponsor, manager, and team members must be aware of their responsibilities in order to ensure that work performed on the project is within the established scope throughout the duration of the project. The table below defines the roles and responsibilities for the scope management of this project.

Name	**Role**	**Responsibilities**
Epic Designs	Project Sponsor	a. Approve or deny scope change requests as appropriate b. Evaluate need for scope change requests c. Accept project deliverables
E. B. Rolle	Project Manager	a. Measure and verify project scope b. Facilitate scope change requests c. Facilitate impact assessments of scope change requests d. Organize and facilitate scheduled change control meetings e. Communicate outcomes of scope change requests f. Update project documents upon approval of all scope changes
Assistant Project And Project Team	Team Members	a. Participate in defining change resolutions b. Evaluate the need for scope changes and communicate them to the project manager as necessary
Stakeholders	Subcontractors/Sub Consultants/Site Workers	c. Can propose scope changes d. Will execute change directives issued by Project Manager

Table 1.1, *Scope Management Roles and Responsibilities*

Scope Definition

The scope for this project was defined through a comprehensive requirements collection process. First, a thorough analysis of all revised project contracts and meeting minutes, building codes, owners' requirements and documentation relative to industry standards were completed. From this information, the project manager and assistant project manager developed the requirements management plan, requirements documentation and the requirements traceability matrix for the building specifications.

The project deliverables were generated based on the requirements collection process and input from subject matter experts such as the Architect, Contractor, Sub consultants, Subcontractors, Environmental Agencies, Governmental Regulatory Agencies, and the Fabricators. This process of expert judgement provided feedback on the most effective, safe and cost efficient ways to meet the original requirements of building a luxury four-storey convention center that is structurally sound and able to withstand up to a category 5 hurricane. In addition, the company will be able to expand their business portfolio.

Project Scope Statement

The project scope statement provides a detailed description of the project, deliverables, constraints, exclusions, assumptions, and acceptance criteria. Additionally, the scope statement includes what work should not be performed in order to eliminate any implied but unnecessary work which falls outside the project's scope.

Scope Description, Product Acceptance Criteria and Project Deliverables

The project includes the building of a four-storey multi-faceted luxury convention center housing the following floors and storey details, (fabrication specifications and items excluded):

1. Floors & Storey Details
    a. **Basement floor** – to be used for storage and parking of motor vehicles and shall be 120' x 120' with a 10'- 8" extension to the rear of the building and shall have a finished floor to floor height of 14.00' (fourteen feet). Structural column grids as per architectural layout on 24' X 24' apart (see Figure 1: Layout)

Floor shall be a thickened concrete slab on compacted quarry fill as per grade levels (this floor by others)

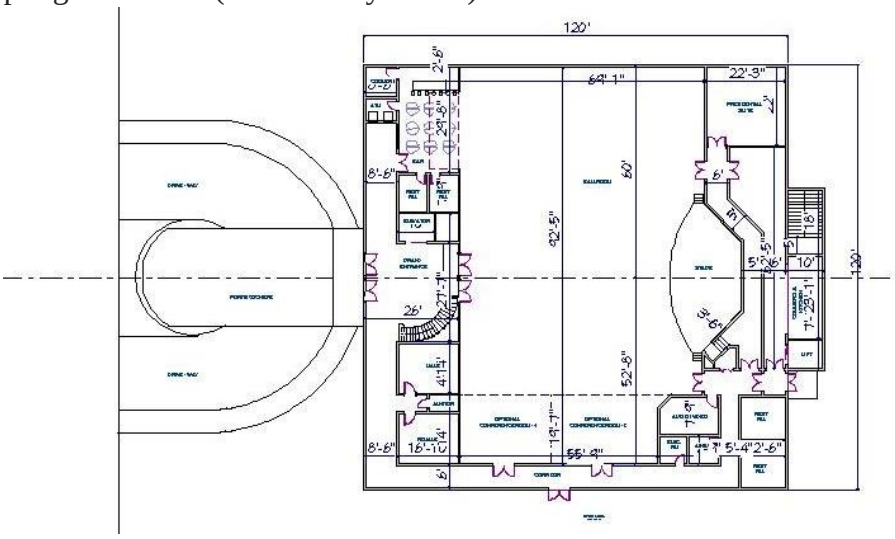

Figure 1: Architectural Layout

b. **First Floor** – Shall be 120' x 120' with a 10'- 8" extension to the rear of the building and shall have a finished floor to floor height of 18.00' (eighteen feet). See layout for structural column grids as per architectural drawings. This floor to be used for public gathering having a dining capacity of approximately 750 – 800 persons and an auditorium seating capacity of 1,000 – 1,200 *(one thousand to one thousand two hundred)* persons.

Allied Steel Building Inc.; shall provide web joist (painted) and sheeting as per code requirement. Finished Floor (by others) shall be "poured in place "reinforced concrete slab as per engineer's drawings.

c. **Second Floor** - Shall be 120' x 120' with a 10'- 8" extension to the rear of the building and shall have a finished floor to floor height of 22.00' (twenty-two feet). Structural columns on grid "3E" and "4E" (as per architectural layout) have been omitted. This floor shall also be used for public gatherings having a dining capacity of approximately 750 – 800 persons and an auditorium seating capacity of 1,000 – 1,200 *(one thousand to one thousand two hundred)* persons.

Allied Steel Building Inc.; shall provide web joist (painted) and sheeting as per code requirement. Finished Floor (by others) shall be "poured in place "reinforced concrete slab as per engineer's drawings.

d. **Roof Deck** - Shall also be used for public gatherings having an occupancy capacity of approximately 1,000 *(one thousand)* persons; and shall have a

finished floor to floor height of 22.00’ (twenty-two feet) and shall have the following:

A fiberglass pool, recessed into deck, pool approximately 50,000 gallons. Pool shall have a spa, steps, a planter system, a composite board arched bridge and a platform built with timber framing and metal lath and plastered with impervious cementous finishes.

“Primary roof deck” engineered by “Allied Steel” but purchased separately by owners. “Primary roof deck” shall be a pre-cast hollow core concrete slab (or equal or better) with reinforced concrete topping as per engineer’s drawings.

“Secondary roof deck” shall be a structural (exterior grade) cold-formed steel framing product manufactured from steel with a G90 galvanized coating for corrosion resistance. All fasteners are stainless steel screws. Metal sheeting over beams and poured-in-place concrete topping (by owners) engineered and fabricated by “Allied Steel”.

Partial mansard and parapet roof framing shall also be a structural (exterior grade) cold-formed steel framing product manufactured from steel with a G90 galvanized coating for corrosion resistance. All fasteners are stainless steel screws. Roofing covering to be a heavy duty gauge, standing seam roofing painted aluminium 24” raised panel engineered and fabricated by “Allied Steel”.

2. Fabrication Specifications
    a. Building shall be 120' x120' with a 10’-8” extension to the rear of the building.
    b. Building shall have the following floors: basement floor', first floor, second floor and roof deck... essentially four (4) floors.
    c. Area of ballroom on second floor (note: *floor changed*) shall have only two structural columns in open area so as not to obstruct visuals.
    d. Finish to flooring will be 4"-6" poured in place concrete; therefore, fabricator to provide steel sheeting with structure.
    e. Fabricator to provide complete framing for roof structural decking and sheeting.
    f. Fabricator to provide stairs as per architectural drawings.
    g. Porte-cochere at front to be included...Steel works and framing.
    h. Curved roof and decking on roof deck shall also be provided.
    i. Mansard roof and parapet framing on roof decking shall also be provided.
    j. Fabricator to provide shipping (Ocean Freight Cost) from Florida to Bahamas.
    k. Fabricator to also include a competent skilled and qualified erector to accompany and supervise the on-site erection of steel structure.

l. Fabricator to have all structural steel designs prepared and signed off by a structural engineer licensed in the state of Florida.
m. Structural steel shall be weatherized and protected from corrosion with best corrosion paints.
n. Shop drawings shall be provided to architect and local Bahamian structural engineer for approval prior to fabrication...
o. Product shall be inspected and signed off by design architect, design engineer and local structural engineer prior to shipping to the Bahamas.
p. All cost shall be included in quote; including insurances and sales tax.
q. Time line shall also be provided in quote along with payment schedules.
r. Shipping Insurances shall also be provided by fabricators.
s. Balconies included; railing by others.
t. Elevator and lift housing to be included.
u. Restroom and Elevator building on roof deck included.
v. All bracing, plates, bolts, hardware and miscellaneous for site erection included.
w. Gutter and downspout to be included at each bay around building.
x. Sub-structure steel and components to be warranted against structural defects.
y. Twenty-five-year warranty on fabrication work and life-time expectancy on structure.

Project Exclusions

3. Items Excluded
    a. Concrete flooring, including hollow core slabs.
    b. Stair railing
    c. Infill walls
    d. Pergolas

Project Constraints

The owners have requested that the project should not exceed 6 million US dollars. In addition, the project duration should not exceed eighteen (18) months to substantial completion and six (6) months to final completion.

Project Assumptions

- Weather:
    - It is assumed that it will rain therefore the building has to be weather proof
    - It is assumed that there will be hurricanes; therefore, concessions have been made to reinforce the building to withstand up to a category 5 or Crating hurricane
    - It is assumed that we will have high temperatures; therefore, this will determine the type of paint and cement finishes used
    - It is assumed that there will be moisture so a product called DensGlass® Gold will be used to mitigate moisture
- Finances

    - It is assumed that the client is funded sufficiently
- Work force
    - It is assumed that we have sufficient quantities of skilled workers that are competent
- Schedule
    - It is assumed that the project will be substantially completed in eighteen (18) months, with an additional six (6) allocated for the remaining work.
- Budget
    - It is assumed that the project can be accomplished using $6,000,000.00.
- Planning
    - It is assumed that the building regulators will approve all building components as indicated on the drawings and schedule

Work Breakdown Structure

In order to effectively manage the work required to complete this project, it will be subdivided into individual work packages which will not exceed 40 hours of work. This will allow the Project Manager to more effectively manage the project's scope as the project team works on the tasks necessary for project completion. The project is broken down into six phases: the initiation phase, the design phase, preconstruction phase, construction phase, the post construction phase and the project closure phase. Each of these phases is then subdivided further down to work packages which will require no more than 40 hours of work and no less than 4 hours of work (see WBS below).

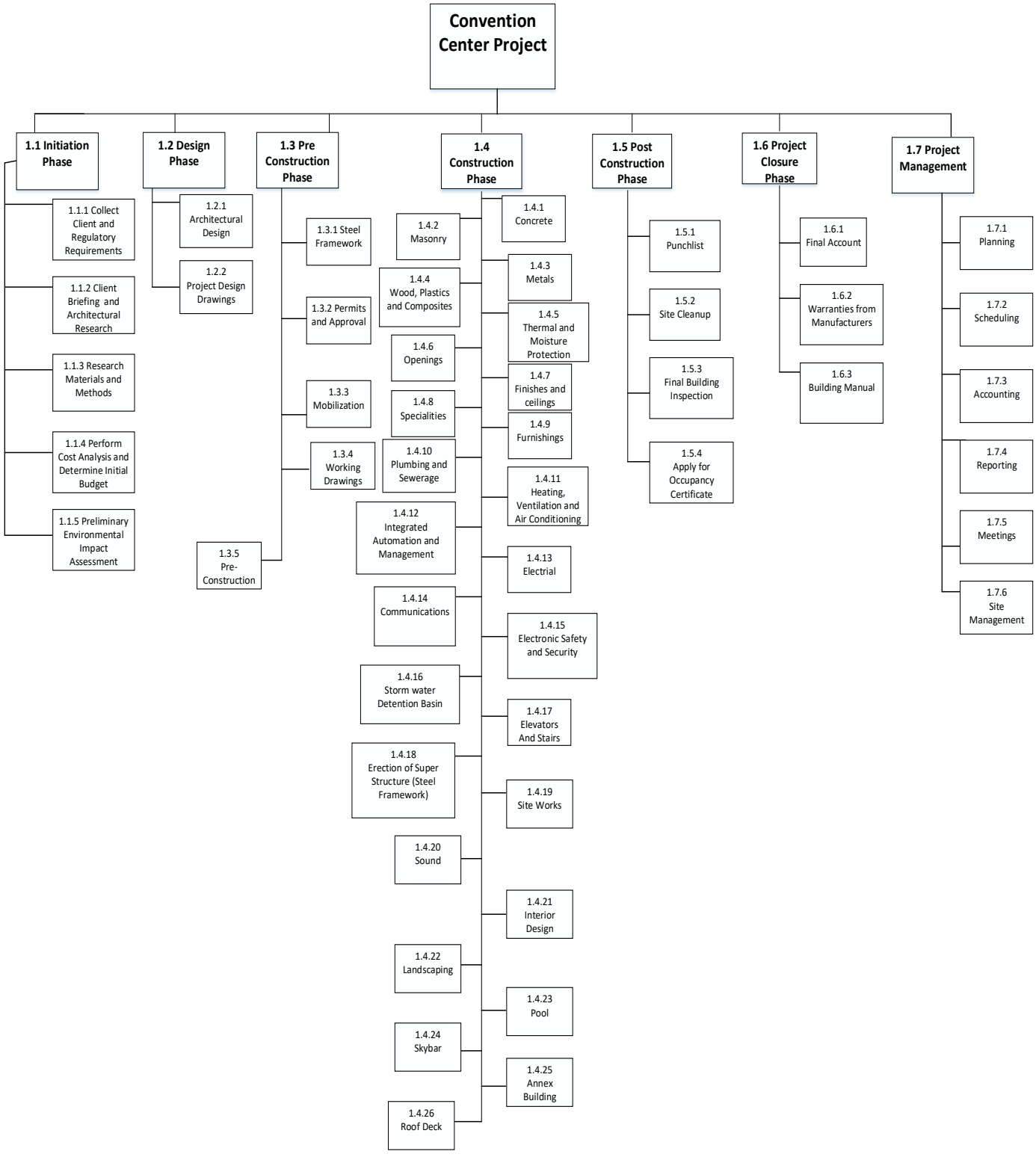

Figure 1.1, ***Work Breakdown Structure (WBS)***

In order to more clearly define the work necessary for project completion, the WBS Dictionary is used. The WBS Dictionary includes an entry for each WBS element. The WBS Dictionary includes a detailed description of work for each element and the deliverables, budget and resource needs for that element. The project team will use the WBS Dictionary as a statement of work for each WBS element.

Level	WBS Code	Element Name	Description of Work	Deliverables	Budget	Resources
1	**1.1**	**Initiation Phase**	**Commencement of Conceptualization**		**$44,200**	
2	1.1.1	Collect Client and Regulatory Requirements	Meetings held to ascertain client and regulatory needs for the project	Initial Requirements Documentation	$10,000	Laptop Computer Internet Relevant Literature
2	1.1.2	Client briefing and Architectural Research	Architectural briefing describing the understanding of the project with the Architect, Hydrologist, and Sub consultants	Client Directive	$15,000	Laptop Computer Internet Relevant Literature
2	1.1.3	Research Materials and Methods	Research materials, methodologies and architectural standards that can be used for the project	Project Documentation	$7,200	Laptop Internet Standards Books
2	1.1.4	Determine Initial Budget and Perform Cost Analysis	Calculating the type of financial commitment needed based on the requirements from the client to complete the project	Cost Evaluation	$4,000	Project Scope
2	1.1.5	Preliminary Environmental Impact Assessment	Environmental Engineer will perform assessment of the project	Environmental Assessment Study	$8,000	Architectural Drawings/Sketches and Project Scope
1	**1.2**	**Design Phase**	**Collaborative Effort of Consultations**		**$130,000**	
2	1.2.1	Architectural Design	Graphical visualization of project	Architectural drawings	$15,000	CAD Software

2	1.2.2	Project Design Drawings	Sub consultant's drawings such as; *Geotechnical engineer *Structural engineer/Structural Steel Fabricators *MEP engineer *Fire Suppression Engineer *Sound Engineering *Hydrologist (data and partial drawings) *Land Surveyor (topographical layout with elevation points)	Engineering Drawings	$115,000	
1	**1.3**	**Pre-Construction Phase**	**Contract Phase where design development, consultant identification and agreements with necessary stakeholder(s) are established**		**$1,599,000**	
2	1.3.1	Steel Framework (Steel Superstructure Fabrication)	Allied Steel is identified and contracted to produce Steel Superstructure based on requirements	Steel Superstructure and Client-Supplier Agreement	$1,434,000 *only structure	Requirements, Architectural and Structural Drawings
2	1.3.2	Permits and Approval	The process of making an application for the following permits; *Town planning permit *Aviation permit *Environmental permit *Ministry of Works permit *Ministry of Health Permit	Permits to Proceed	$15,000	Requirements, Architectural and Structural Drawings

2	1.3.3	Mobilization	Process of preparing the project site for works to begin	Site preparation complete including; *site surveying *site layout *hoardings *fencing *site office *toilets *temporary electricity *water *signs	$30,000	Backhoe, dump truck, cement mixer, light weight crane, wheel barrows, jackhammers
2	1.3.4	Working Drawings	A set of graphical documents that instructs the contractors how to build the building		$60,000	
2	1.3.5	Pre-Construction	Drilling, piling, forming & shoring, capping & levelling stilts		$60,000	
1	**1.4**	**Construction Phase**	**Phase where project execution occurs**		**$3,321,000**	
2	1.4.1	Concrete	Entails all structural cementers work	Stills, pilings and floors	$180,000	Masons, concrete workers, crane, concrete truck, and formwork
2	1.4.2	Masonry	Cementers material used to clad cement block units or other materials	Used as substrate for DensGlass Gold and to plaster other concrete components	$120,000	Suppliers Quotes and In house labour
2	1.4.3	Metals	ClarkDietrich structural in wall system	Used for all exterior walls	$30,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.4	Wood, Plastics and Composites	Wood is used as a blocking for doors and windows.	Wood used in interior in walls (not exposed).	$150,000	Suppliers Quotes and Subcontractors installation quote

			Plastics will be used for eaves drips. Composites such as DensGlass gold and faux will be used.	Plastics will be used on the exterior. DensGlass gold used on exterior and interior. Faux used in interior.		
2	1.4.5	Thermal and Moisture Protection	Underlayment for the roofing system and any other bitchum	Underlayment for roofing system	$15,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.6	Openings	Void spaces for windows and doors	Window and door spaces	$230,000	Suppliers Quotes
2	1.4.7	Finishes and ceilings	Cement based stucco (exterior), Gypsum board with veneer plaster (interior), and ceilings will comprise of type X Gypsum board	Cement finished on walls (interior and exterior) and ceilings	$180,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.8	Specialties	Includes balcony and stair railings, and other architectural components	Specialty items	$116,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.9	Furnishings	Includes chairs, tables, desks, lights, lamps, daybeds and other items indicated in the scope	Used throughout the building per design drawings	$250,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.10	Plumbing and Sewerage	Installation of all waste and supply lines, water closets and lavatory	Throughout the building per building specifications	$250,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.11	Heat, Ventilation, and Air Conditioning	Forced air air-conditioning system	Air conditioning and ventilation system	$280,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.12	Integrated Automation and	System that controls the building from a remote location,	Integrated Automation and	$30,000	Suppliers Quotes and Subcontractors

		Management	includes the control of: *telephones *alarms *lighting *sound *air-conditioning *security camera *irrigation *pool system	Management System		installation quote
2	1.4.13	Electrical	Electrical power to building and equipment (including generator)	Electricity	$250,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.14	Communications	Installation of conduits and telecommunications system	Communications Systems	$90,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.15	Electronic Safety and Security	Installation of door buzzers, security cameras and systems, emergency lighting, and elevator alarms and phone	Electronic safety and security systems	$20,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.16	Storm Water Detention Basin	Man-made pond developed on site to retain the runoff	Man-made pond	$30,000	Subcontractor
2	1.4.17	Elevators and Stairs	Installation of mechanical airlift for transporting people, materials and goods from floor to floor	Elevators (2)	$280,000	Suppliers Quotes and Subcontractors installation quote
2	1.4.18	Erection of Super Structure	Install Super Structure	Steel Super Structure Framework for building	$230,000	Subcontractor installation quote
2	1.4.19	Site Works	Works pertaining to exterior elements of the project such as parking layout, lighting and landscape	Parking lot, exterior lighting and landscaping	$333,000	
2	1.4.20	Sound	Works pertaining to the reduction and control of sound transmission throughout the	Sound reduction and control	$13,000	

			building			
2	1.4.21	Interior Design	The placement of furnishings, and finishings (walls, floors and ceilings) and other interior components required for maximum use of the building	Interior Design	$12,000	
2.	1.4.22	Landscaping	The physical placement of shrubs, trees, grass and other organic items	Landscaping	$47,000	
2	1.4.23	Pool	Bean-shaped pool located on the roof deck	Pool	$50,000	
2	1.4.24	Sky bar	Circular bar with translucent top designed with an Art Architecture style	Sky bar	$15,000	
2	1.4.25	Annex building	A support building that houses the restrooms and kitchen holding area	Annex building	$30,000	
2	1.4.26	Roof deck	Simulative deck that mimics a ship	Roof deck	$90,000	
1	**1.5**	**Post-Construction Phase**	**Phase that occurs after substantial completion**		**$143,910**	
2	1.5.1	Punch list (Budgeted as Contingency)	To fix defective works	Checklist	$143,910	Project Manager/Architect
2	1.5.2	Site Clean-up	To clean up the site	Cleaned site	NA	
2	1.5.3	Final Building Inspection	Building inspection performed by the Ministry of Works, Project Manager and Architect	Quality checklist Requirements document	NA	
2	1.5.4	Apply for Occupancy Certificate	Submit application to the regulatory agencies	Occupancy certificate	NA	
1	**1.6**	**Project Closure Phase**	**Phase that signifies completion of project and handover of convention center**		**NA**	
2	1.6.1	Final Account	The accumulation of		NA	

			all the project's costs			
2	1.6.2	Warranties from Manufacturers	Manufacturers' guarantee that if products are defective, they will be fixed or replaced within a certain period of time	Warranties	NA	
1	**1.7**	**Project Management**	**The management of the planning, execution, monitoring & controlling and closure of the project**		**$313,000**	
2	1.7.1	Planning	Planning and updating project activities throughout project lifecycle	Project Management Plan Quantity Surveyor (report)	$60,000	
2	1.7.2	Scheduling	Planning of project activities, assigning timeline and dates to determine and control project duration	Schedule	$30,000	
2	1.7.3	Accounting	Monitoring the financial expenditures of the project throughout the project lifecycle	Financial Reports	$35,000	
2	1.7.4	Reporting	Documenting project activities, preparing reports and presenting to the appropriate stakeholders	Project Management Reports and Memos	$48,000	
2	1.7.5	Meetings (Progress)	Engine for the management of the project	Progress Meetings	$15,000	
2	1.7.6	Site Management	Management of the day-to-day on site running of a construction project	Site Management	$125,000	

Table 1.2, *WBS Dictionary*

Scope Verification

As this project progresses, the Project Manager will verify interim project deliverables against the original scope as defined in the scope statement, WBS and WBS Dictionary. Once the Project Manager verifies that the scope meets the requirements defined in the project plan, the Project Manager and Sponsor will meet for formal acceptance of the deliverable. During this meeting, the Project Manager will present the deliverable to the Project Sponsor for formal acceptance. The Project Sponsor will accept the deliverable by signing a project deliverable acceptance document. This will ensure that project work remains within the scope of the project on a consistent basis throughout the life of the project.

Scope Control

The Project Manager and the project team will work together to control the scope of the project. The project team will leverage the WBS Dictionary by using it as a statement of work for each WBS element. The project team will ensure that they perform only the work described in the WBS dictionary and generate the defined deliverables for each WBS element. The Project Manager will oversee the project team and the progression of the project to ensure that the scope control process is followed.

If a change to the project scope is needed, the process for recommending changes to the scope of the project must be carried out. Any project team member or sponsor can request changes to the project scope. All change requests must be submitted to the Project Manager in the form of a project **change order**. The Project Manager will then review the suggested change to the scope of the project. The Project Manager will then either deny the change request if it does not apply to the intent of the project or convene a change control meeting between the project team and Sponsor to review the change request further and perform an impact assessment of the change. If the change request receives approval by the Project Manager and Sponsor, the Project Manager will then formally submit the change request to the Project Sponsor who will then formally accept the change by signing the **change order**. Upon acceptance of the scope change by the Project Manager and Project Sponsor, the Project Manager will update all project documents and communicate the **scope directive** to all project team members and stakeholders.

SPONSOR ACCEPTANCE

Approved by:

_____ Date: _____

Representation of Epic Enterprises
Client

Figure 18 Convention Center Scope Management Plan. Adapted from Project Management Docs. Retrieved October 31, 2016 from http://www.projectmanagementdocs.com/project-planning-templates/scope-management-plan.html#axzz4Oi4tBOkP

REQUIREMENTS MANAGEMENT PLAN

CONTENTS

EXHIBITS

REVISION HISTORY

DATE	Version	Description	Author

OVERVIEW

The project to build a Convention Center is being undertaken by Epic Designs as a means of expanding their business portfolio. The luxury multi-facet four-storey building will host a series of public and private events. The building will be composed of a structural steel frame, and a proprietary composite fiberglass material called DenseGlass Gold. Building will be finished with a cement based stucco. The roof will be built using a standing seam system. The center will be maintained and operated by Epic Designs once the project is complete.

Purpose

The purpose of requirement management is to establish a common understanding of the technical and non-technical requirements that will be addressed by the project or organization between the customer and project or organization, within the project or organization, and throughout the lifecycle. The goals of requirements management are to ensure that requirements are controlled to establish a baseline for development, acquisition, or management; and to ensure plans, work products, and activities are consistent with the requirements.

The RM plan establishes an orderly method by which the goals of requirements management will be achieved. The plan also communicates essential information to project participants and helps newcomers get up to speed. Consequently, the plan is a living document, which needs to be updated and supplemented throughout its life.

Scope

The scope of the plan includes the building of four-storeys with the following specification:

1. Floors & Storey Details
    a. **Basement floor** – to be used for storage and parking of motor vehicles and shall be 120' x 120' with a 10’- 8” extension to the rear of the building and shall have a finished floor to floor height of 14.00’ (fourteen feet). Structural column grids as per architectural layout on 24’ X 24’ apart (see Figure 1: Layout)

        Floor shall be a thickened concrete slab on quarry grade as per grade levels (this floor by others)

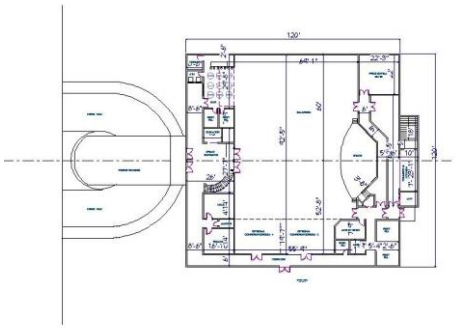

Figure 1: Architectural Layout

b. **First Floor** – Shall be 120' x 120' with a 10'- 8" extension to the rear of the building and shall have a finished floor to floor height of 18.00' (eighteen feet). See layout for structural column grids as per architectural drawings. This floor to be used for public gatherings, having a dining capacity of approximately 750 – 800 persons and an auditorium seating capacity of 1,000 – 1,200 *(one thousand to one thousand two hundred)* persons.

Allied Steel Building Inc.; shall provide web joist (painted) and sheeting as per code requirement. Finished Floor (by others) shall be "poured in place" reinforced concrete slab as per engineer's drawings.

c. **Second Floor** - Shall be 120' x 120' with a 10'- 8" extension to the rear of the building and shall have a finished floor to floor height of 22.00' (twenty-two feet). Structural columns on grid "3E" and "4E" as per architectural layout have been omitted. This floor shall also be used for public gatherings, having a dining capacity of approximately 750 – 800 persons and an auditorium seating capacity of 1,000 – 1,200 *(one thousand to one thousand two hundred)* persons.

Allied Steel Building Inc.; shall provide web joist (painted) and sheeting as per code requirement. Finished Floor (by others) shall be "poured in place" reinforced concrete slab as per engineer's drawings.

d. **Roof Deck** - Shall also be used for public gatherings having an occupancy capacity of approximately 1,000 *(one thousand)* persons; and shall have a finished floor to floor height of 22.00' (twenty-two feet) and shall have the following:

A fiberglass pool, recessed into deck, pool approximately 50,000 gallons. Pool shall have a spa, steps, a planter system, a composite board arched bridge and a platform built with timber framing and metal lath and plastered with impervious cementous finishes.

"Primary roof deck" engineered by "Allied Steel" but purchased separately by owners. "Primary roof deck" shall be a pre-cast hollow core concrete slab (or equal or better) with reinforced concrete topping as per engineer's drawings.

"Secondary roof deck" shall be a structural (exterior grade) cold-formed steel framing product manufactured from steel with a G90 galvanized coating for corrosion resistance. All fasteners are stainless steel screws. Metal sheeting over beams and poured-in-place concrete topping (by owners) engineered and fabricated by "Allied Steel".

Partial mansard and parapet roof framing shall also be a structural (exterior grade) cold-formed steel framing product manufactured from steel with a G90 galvanized coating for corrosion resistance. All fasteners are stainless steel screws. Roofing covering to be a heavy duty gauge, standing seam roofing painted aluminium 24" raised panel engineered and fabricated by "Allied Steel".

2. Fabrication Specifications
    a. Building shall be 120' x120' with a 10'-8" extension to the rear of the building.
    b. Building shall have the following floors; Basement floor', first floor, second floor and roof deck... essentially four (4) floors.
    c. Area of ballroom on second floor (note: *floor changed*) shall have only two structural columns in open area so as not to obstruct visuals.
    d. Finish to flooring will be 4"-6" poured in place concrete; therefore, fabricator to provide steel sheeting with structure.
    e. Fabricator to provide complete framing for roof structural decking and sheeting.
    f. Fabricator to provide stairs as per architectural drawings.
    g. Porte-cochere at front to be included...Steel works and framing.
    h. Curved roof and decking on roof deck shall also be provided.
    i. Mansard roof and parapet framing on roof decking shall also be provided.
    j. Fabricator to provide shipping (Ocean Freight Cost) from Florida to Bahamas.
    k. Fabricator to also include a competent skilled and qualified erector to accompany and supervise the on-site erection of steel structure.
    l. Fabricator to have all structural steel designs prepared and signed off by a structural engineer licensed in the state of Florida.
    m. Structural steel shall be weatherized and protected from corrosion with best corrosion paints.
    n. Shop drawings shall be provided to architect and local Bahamian structural engineer for approval prior to fabrication...
    o. Product shall be inspected and signed off by design architect, design engineer and local structural engineer prior to shipping to the Bahamas.
    p. All cost shall be included in quote; including insurances and sales tax.

q. Time line shall also be provided in quote along with payment schedules.
r. Shipping Insurances shall also be provided by fabricators.
s. Balconies included; railing by others.
t. Elevator and lift housing to be included.
u. Restroom and Elevator building on roof deck included.
v. All bracing, plates, bolts, hardware and miscellaneous for site erection included.
w. Gutter and downspout to be included at each bay around building.
x. Sub-structure steel and components to be warranted against structural defects.
y. Twenty-five-year warranty on fabrication work and life-time expectancy on structure.

Activity	Responsible
Project Management	ABC Designs
Architecture and Design	ABC Designs
Construction	ABC Design
Permits, etc.	ABC Design
Financier	Epic Designs
Allied Steel Building Inc.	Steel Superstructure
Supplies	Suppliers
Technical Requirements	Sub consultants

Applicability
The project management and construction management teams will be most affected by the plan as they will have to ensure that all other subsidiary documents, including the scope management plan, the requirements traceability matrix and the project management plan, all adhere to the processes that guide requirements management.

Applicable Documents
The project management plan, the project charter, the scope management plan, the requirements documentation, the requirements traceability matrix, and the approved construction documents are all applicable to this process.

Changes and Revisions
The Project Manager of ABC Designs is responsible for controlling all changes to the RM plan and related information.

Issue(s)
The issue that may affect the implementation of the requirements management plan can be a lack of information due to assumptions made by fabricators as a result of geographic distribution.

ROLES AND RESPONSIBILLITIES
Organization Overview

ROLE	NAME	ORGANIZATION
Project Manager	E. B. Rolle	ABC Designs
Project Sponsor	CEO & Board of Directors	Epic Designs
Fabricator (Supplier)	Representative	Allied Steel Building Inc.
Project Team	Team	ABC Designs
Sub consultants	Team	Contracted by ABC Designs

I. Roles and Organization

Role A

The project manager is responsible for collecting, reviewing and developing project requirements. He is also responsible for approving technical, building and project requirements.

Role B

The project sponsor is responsible for providing client requirements, reviewing technical and building requirements and approving requirements.

Role C

The fabricators are responsible for providing any variations in the technical requirements related to the steel framework that they will be producing for the project.

Role D

The project team members are responsible for reviewing requirements to ensure that details are specific and accurate.

Role E

The sub-consultants are responsible for providing technical requirements and specialty consultation for the project.

REQUIREMENTS PROCESSES

Overview

To identify, develop, maintain, and manage the requirements, the *PMBOK® Guide's* Project Scope Management processes will be used. Therefore, the following processes will guide requirements management:

Process A

Collect requirements: the process of determining, documenting and managing the stakeholder needs, regulatory requirements, and industry standards as it applies to the project objectives.

Process B

Define scope: this is the process that will involve the development of a detailed description of the projects product that is driven by the stakeholder needs, regulatory requirements, and industry standards.

Process C

Create WBS: this process involves the subdivision of project deliverables and work into smaller, more manageable components.

Process D

Validate scope: this process involves the formal acceptance of the completed project deliverables developed from the stakeholder requirements.

Process E

Control scope: this is the process of monitoring the status of the project and product scope and managing changes to the scope baseline.

TOOLS

Tool	Version	Use
WBS Tool	2016	Microsoft Visio
Stakeholder Management Plan template (Created in Microsoft Word)	2016	Used to create Stakeholder Management Plan
Requirements Documentation template (Created in Microsoft Word)	2016	Used to create Requirements Documentation
Microsoft Project	2016	Used to manage WBS elements
Requirements Traceability Matrix (Created in Microsoft Excel)	2016	Used to identify and manage the requirements

J. List of Tools

REQUIREMENTS DOCUMENTATION AND ORGANIZATION

Requirements Documentation

WORK BREAKDOWN STRUCTURES

Provides a graphical hierarchical decomposition of the total scope of work to be completed for the project.

REQUIREMENTS TRACEABILITY MATRIX

Provides documentation of each requirement including how they will be implemented and tested.

REQUIREMENTS DOCUMENT

Details the design, structural and functional requirements for the Convention Center.

SCOPE MANAGEMENT PLAN

Lays out details as to how the scope will be developed, managed and maintained throughout the project lifecycle.

MEASURES

Measures will be used for managing requirements, details of which will be included in the appendix.

To measure requirements, the site manager will be given Work Orders (Directives) on a weekly basis, preferably Monday mornings before site work begins, to carry out the work based on the schedule.

Daily, the site manager will collect data and compile a report that will be sent to the Project Management Office (PMO) for the Project Manager or Assistant Project Manager to compile a report that will result in the Work Orders (Directives) to be issued the following Monday as per the project requirements.

Requirements Evaluation Checklists

Enter the unique ID of the problem requirement(s). Explain in Remarks the reason if "No" is checked. Attach additional sheets if needed.

Evaluation Criteria	Yes	No	ID	Remarks
Customer/User Needs				
• Safety				
• Aesthetics				
• Ease of Use/Comfort				
• Flow of traffic (parking and pedestrian walk ways)				
Functional Requirements				
• Proper cooling and ventilation systems				
• Barrier free design (handicap access)				
• Proper site drainage				
• Proper lighting				
• Emergency exits				
• Fire control				
• Elevator access from floors				
• Proper seating				
• Adequate restroom facilities				
Technical/Structural Requirements				
• Building must adhere to local building code requirements and industry standards				
• Building and building components must be built to withstand natural catastrophic occurrences				
• Building heights and enclosures must be at a minimum height to ensure proper functioning of the forced air systems				
• Building must have or consist of all necessary utilities such as electrical, plumbing, air-conditioning, etc.				

K. Checklist for Individual Requirements

Quality Standards
Describe the characteristics of requirements of good quality.

Customer or user needs of good quality are:

- Safety: adequate security personnel on location and infrared alarm systems that are internet ready
- Aesthetics: top of the line integrated cement and colour finishes
- Ease of use/comfort: designed ergonomically
- Flow of traffic (for cars and pedestrians): proper access points and non-congestible exits

Functional requirements;

- Proper cooling and ventilation systems: a high seer (energy efficient) level water chill air-conditioning system
- Barrier free design (handicap access): all floor levels (entrances and exits) and rest rooms must be unobstructed to allow wheel chair access. Restrooms are designed to ensure handicap ease of use.
- Proper site drainage: project site must have catch basins and drainage systems
- Proper site lighting: project site must be well lit around perimeter to ensure safety of pedestrians and vehicular traffic
- Emergency exits: must be clearly marked and defined and must have stand by energy source in the event of electrical failure
- Fire control: extinguishers must be placed within reach in the event of small fire and water sprinklers controlled by management center will cover the entire ceiling, as per industry standard. In addition, fire detectors must be placed in accordance with industry requirements.
- Elevator access from floors: elevator must be high efficient, low energy, smooth operating, have a running capacity of about 5 – 10 seconds per floor, and able to hold up to 2,500 pounds.
- Proper seating: is designed to maximize comfort and to have the best visual line of sight
- Adequate restroom facilities: building is designed to ensure a restroom capacity of 1 toilet to every 20 persons

Technical/Structural Requirements:

- Building must adhere to local building code requirements and industry standards
- Building and building components must be built to withstand natural catastrophic occurrences: all building components and structure are designed to meet or exceed prevailing hurricane-gust winds

Figure 19 Convention Center Requirements Management Plan. Adapted from the Managing Requirements. Retrieved November 1, 2016 from http://www.jiludwig.com/templates/RM_Plan.doc

Following the planning of scope management, the requirements were collected as the final planning process for project scope management. As detailed in the *PMBOK® Guide* 5th edition, the Requirements Management Plan, Scope Management Plan, Stakeholder Management Plan, Project Charter and Stakeholder Register were used as inputs to this process. For this process, about five meetings were conducted with the lead project manager to gather information from his meetings with various stakeholders. In addition to analysing project documents to produce the Requirements documentation seen in **figure 20,** the Requirements traceability matrix seen in **figure 21** was also generated (Project Management Institute, 2013, p. 111).

Building of the Convention Center: Requirements Document (1.0)

Project: Building of the Convention Center
Date(s): 30 October 2016
Prepared by: C. Walker (Assistant Project Manager)

Document status: __ Draft __ Proposed __ Validated __ Approved

1. Introduction

This document contains the design, structural, and functional requirements for ***the Building of the Convention Center***. These requirements have been derived from several sources, including the Sponsor, the Architect and Contractor, the Subcontractors and Sub consultant, and Industry Standards from the Ministry of Health, the Ministry of Works, the Ministry of the Environment.

1.1 Purpose of This Document

This document is intended to guide development of ***the Building of the Convention Center***. It will go through several stages during the course of the project:

1. **Draft:** The first version, or draft version is compiled after requirements have been discovered, recorded, classified, and prioritized.
2. **Proposed:** The draft document is then proposed as a potential requirements specification for the project. The proposed document should be reviewed by several parties who may comment on any requirements and any priorities, either to agree, to disagree, or to identify missing requirements. Readers include the project manager, assistant project manager, suppliers, subcontractors and the project sponsor. The document may be amended and re-proposed several times before moving to the next stage.
3. **Validated:** Once the various stakeholders have agreed to the requirements in the document, it is considered validated.
4. **Approved:** The validated document is accepted by representatives of each party of stakeholders as an appropriate statement of requirements for the project. The project manager/contractor will then use the requirements document as a guide to implementation, and to check the progress of the project as it develops.

1.2 How to Use This Document

We expect that this document will be used by people with different skill sets. This section explains which parts of this document should be reviewed by various types of readers.

Types of Reader

The sections of this document that will be read by each reader are detailed in the chart below.

Type of Reader	Sections Most Pertinent to Reader
Project Manager and Assistant Project Manager	All
Project Sponsor	1.3, 1.4, 1.5, 2, 3, 4, 5
Suppliers	1.5, 2.1, 2.2,
Subcontractor	2 and 3

Technical Background Required

Readers must have a level of proficiency that will allow them to understand architectural design, engineering, construction and procurement specifications detailed in the document.

1.3 Business Case for the Product

The building of the Convention Center is the result of market demand to design and build a multi-faceted luxury structure. In addition, the Convention Center is also being pursued as the Clients, (Epic Enterprises), want to expand their business portfolio.

2. General Description

This section will give the reader an overview of the project, including why it was conceived, what it will do when complete, and the types of people we expect will use it. We also list constraints that were faced during development and assumptions we made about how we would proceed.

The project is being undertaken to build a four-storey luxury convention center for Epic Designs, the sponsoring company that wishes to expand their business portfolio.

2.1 Project Perspective

Epic Designs chose to develop the Convention Center because with the opening of the luxury resort, Bahamar, there will be a need for a multi-purpose center to host a number of events. This provided a unique opportunity for the company to expand their business portfolio as there was a market demand.

The primary stakeholders for the project are the CEO and Board of Directors (the clients) of Epic Designs. The project is being developed by ABC Designs, an architectural and construction company that designed the building, and will build and manage the construction of the project.

Epic Enterprises will be the sole beneficiary of this product. However, as a result of the building of the convention center, it is expected that there will be approximately five (5) persons employed to maintain the center. To operate the center, an additional four (4) persons will be employed by the company.

2.2 Building Functions

The Convention Center will;

- Have a basement floor for parking motor vehicles and to be used as storage

- Have a first floor used for public events with a dining capacity of approximately 750 – 800 persons
- Have a first floor with an auditorium seating capacity of 1,000 – 1,200 persons
- Have a second floor with ballroom facilities used for public events with a dining capacity of approximately 750 – 800 persons
- Have a second floor with an auditorium seating capacity of 1,000 – 1,200 persons
- Have a roof deck to be used for public events having an occupancy capacity of 1,000 persons with the following amenities;
    - Fiberglass pool recessed into deck
        - with spa, steps and planter system
        - with a composite board arched bridge and platform
- Partial mansard and parapet roof framing
- Have fourteen (14) restrooms in total
- Have two (2) elevators
- Have three (3) stairwells

The Convention Center will serve to facilitate formal events

2.3 User Characteristics

Clients can be anyone requesting to rent an auditorium, ballroom, dining or open area space seating within the maximum seating capacity for each area. They must sign a contract agreeing to terms of usage and fees required.

Each contract will provide clients with different packages including the option to use the:

- In house chef catering service
- In house decorator
- In house event coordinators

2.4 General Constraints

The project should not exceed 6 million US dollars. The project duration should not exceed twenty-four (24) months, with eighteen (18) months assigned to substantial completion and an additional six (6) for miscellaneous works.

3. Specific Requirements

This section of the document lists specific requirements for ***the Building of the Convention Center***. Requirements are divided into the following sections:

- Customer Needs. These are requirements written from the point of view of end users, usually expressed in narrative form.
- Functional Requirements. These are detailed specifications describing the functions the system must be capable of doing.
- Technical/Structural Requirements. These are requirements about the user interface, which may be expressed as a list, as a narrative, or as images of screen mock-ups.

3.1 Customer/User Needs

- Safety
- Aesthetics
- Ease of Use/Comfort
- Flow of traffic (parking and pedestrian walk ways)

3. Functional Requirements

- Proper cooling and ventilation systems

- Barrier free design (handicap access)
- Proper site drainage
- Proper lighting
- Emergency exits
- Fire control
- Elevator access from floors
- Proper seating
- Adequate restroom facilities

3.3 Technical Requirements

- Building must adhere to local building code requirements and industry standards
- Building and building components must be built to withstand natural catastrophic occurrences
- Building heights and enclosures must be at a minimum height to ensure proper functioning of the forced air systems
- Building must have all necessary utilities such as electrical, plumbing, air-conditioning, etc.

Figure 20 Convention Center Requirements Document. Adapted from the Center for Distributed Learning. Retrieved September 18, 2016 from http://www.cdl.edu/uploads/Yf/tc/YftchVf1me0lxMBeQDjsHA/reqdoctemplate.doc

REQUIREMENTS TRACEABILITY MATRIX								
Project Name:				Building of the Convention Center				
Project Manager Name:				E. B. Rolle				
Project Description:				Project will result in the building of a four (4) storey multi-faceted luxury convention center				
ID	WBS ID	Customer Needs	Functional Requirements	Technical Assumption(s) Technical Requirements	Verification	Architectural/Design Document	Priority	Additional Comments
001	1.2.1	Use existing property	Surveyor to provide proper surveyor's drawings to Architect and Owner	Building must be within the commercial zoning area.		Location plan	High	
002	1.2.4	Building is laid out to obtain the maximum property use	Use surveyors plan to locate building on site. Use surveyor's plan to produce architectural	Site plan indicate location of building on proposed construction site		Site plan and site analysis	High	

			site plan.					
003	1.2.4	Building needs to be raised up 9' high to avoid any potential flood water	Use concrete stilts to lift building	Building will be built on concrete piles embedded into the ground at approximately 20 feet into existing bedrock		Foundation plan and piling layout	High	
	1.2.4	Structural steel frame to reduce building Cost	Find steel building fabricators to produce steel frame	Four (4) level structural steel framing as per architectural drawings and to conform to American Steel Association Standards		Structural drawings and layouts (including steel structure)	High	
004	1.2.4	Building is built with structural integrity	Enlist the services of a structural engineer	All structural engineering must confirm to the "Bahamas building code" and the AISC standards.		Complete structural drawings	High	
005	1.2.4	Must have electricity	Enlist the services of an electrical engineer	Electrical receptacles, switches, circuit breakers, size of wires, electrical fixtures, size of conduits and the amount of electrical demand load required to run the building		Electrical layout and schedules	High	
006	1.2.4	Must have running water and discharge waste water	Enlist the services of a plumbing engineer	Plumbing drawings to indicate all supply lines, water waste lines, ventilation and plumbing fixtures		Plumbing layout and schedules	High	
007	1.2.4	Must have a properly running air conditioning system	Enlist the services of an air conditioning engineer	Layout to indicate all ducting with CFM air flow for each space calculation		Air-conditioning layout and schedules	High	

008	1.2.1	Ergonomically planned spaces	Enlist the services of an Architect	Architectural floor plan indicates dimensions of walls and components		Architectural floor plans	High	
009	1.2.1	Modern / Colonial design	Enlist the services of an Architect	Modern / Colonial Architectural order, scaling and propositions to produce the desired aesthetics and placement of windows, doors and roofing system		Architectural elevations	High	
010	1.2.1	Window and door selection	Enlist the services of an Architect	Windows and doors will be impact resistant PVC with steel extrusions. Window glass will be double glazed with low-emissivity glass slightly tinted…Doors will be a Kavner high grade commercial entrance door with mechanical closures		Window and door schedules	High	
011	1.2.1	Quality detailed finishes, especially wood and interiors	Enlist the services of an Architect	Detail various building components and how they are constructed		Architectural details	High	
012	1.2.1	Quality detailed finishes, especially wood and interiors	Enlist the services of an Architect	Coincides with the floor plan		Room finishing schedules	High	
013	1.2.1	Modern morphic ceilings to depict theatre style ceilings	Enlist the services of an Architect	Refer to manufactures specification and product usage		Reflected ceiling plan	High	
014	1.2.4	Quality detail interior layout with material	Enlist the services of an Interior	Building must adhere to local building code		Interior design layouts	High	

		use and colour décor	designer	requirements and industry standards				

Figure 21 Convention Center Requirements Traceability Matrix. Adapted from *the Center of Disease Control and Prevention.* Retrieved September 18, 2016 from http://www.projectmanagementdocs.com/project-planning-templates/scope-management-plan.html#axzz4Oi4tBOkP

4.3 Project Time Management

The project time management planning processes were conducted after Project Scope and Cost Management. The first process in project time management involved developing the Schedule Management Plan that would be used to guide the lifecycle of the project's schedule. The Project Charter and the Scope Management Plan were used as inputs to this process to gather information regarding the Scope Baseline and the summary milestone schedule. The tools and techniques used were expert judgement, analytical techniques, and meetings in order to create the Schedule Management Plan in **figure 22** below. Since there were no OPA's, a Schedule Management Plan template was derived from another source and modified for this purpose (Project Management Institute, 2013, p. 143).

SCHEDULE MANAGEMENT PLAN

BUILDING OF THE CONVENTION CENTER

NASSAU, THE BAHAMAS
NOVEMBER 11, 2016

TABLE OF CONTENTS

Introduction

The project schedule is the guide for how the project will be completed and finished. The schedule is a critical part of this project because it provides the project team and sponsor with a visual picture of the project's standing at any given time. The schedule management plan is used to define the technique the project team will use in creating the project schedule. This plan also comprises how the team will review the project schedule and manages changes after the standard schedule has been approved. This includes identifying, analysing, documenting, prioritizing, approving or rejecting, and publishing all schedule-related changes.

Schedule Management Approach

Project schedules will be made using Microsoft Project 2016. Activity definition will identify the specific work packages which must be performed to complete each deliverable. Activity sequencing will be used to determine the order of work packages and assign relationships between project activities. Activity duration estimating will be used to calculate the number of work periods required to complete work packages. Resource estimating will be used to assign resources to work packages in order to complete schedule development.

Once an initial schedule has been developed, the project manager and assistant project manager will assess it cautiously to review assigned project tasks. The project team and resources must agree to the proposed work package assignments, durations, and schedule. Once this is achieved the project sponsor will review and approve the schedule and it will then be baselined.

The following are designated as milestones for the project schedule:

1. Project Initiation/Kick-off
2. Conceptual Design Commence
3. Project Defined
4. Site Investigation Report Complete
5. Conceptual Design Complete
6. Initial Impact Assessment Complete
7. Feasibility Study Complete
8. Approval of Project Charter
9. Baseline Project Schedule
10. Design documents approved by client

11. Complete Design Documents & Submit to MOW for Permit
12. Project Management Plan Complete
13. Procurement and Sourcing Commence
14. Apply for Aviation Permit
15. Apply for Volatile Permit (kitchen fuels)
16. Steel Framework Ordered
17. Sub-Contractor Tendering Commence
18. Sub- Contractor Tendering Complete
19. Award Contracts
20. Building Permit Issued
21. Begin Work Drawings
22. Approval of Roles and Responsibilities
23. Working Drawing Complete
24. Mobilization Commencement
25. Mobilization Complete
26. Site works begin
27. Commencement of Vertical Construction
28. Auger drilling and piling commence
29. 1st Floor Steel Superstructure components delivered
30. Commencement of 1st Floor Steel Superstructure erection
31. Steel Superstructure (2nd floor, primary and secondary roof decks) components delivered
32. Commencement of (2nd floor, primary and secondary roof decks) Superstructure erection

33. Erection of Steel Superstructure complete
34. Annex building and roof deck complete
35. Concrete flooring, decking and steel work complete
36. Cladding and in-walls complete
37. Electrical and plumbing roughing complete
38. Mansard around deck floor perimeter installed
39. Windows and doors installed
40. Stairs and elevator hoist-way complete
41. Air conditioning, alarms and fire-safety commence
42. Miscellaneous Work on Steel Superstructure complete
43. Apply for Final Building Inspection
44. Substantial Completion
45. Miscellaneous works complete
46. Apply for occupancy
47. Punch list complete
48. Final Building Inspection
49. Final account
50. End of Project

Roles and responsibilities for schedule development are as follows:

The project manager will be responsible for facilitating the breakdown of work packages into activities that provide a basis for sequencing, and estimating duration and resources with the project team. The project manager will also create the project schedule using MS Project 2016 and validate the schedule with the project team, and stakeholders. The project manager will obtain schedule approval from the stakeholders and baseline the schedule.

The project team is responsible for participating in work, and duration and resource estimating. The project team will also review and validate the proposed schedule and perform assigned activities once the schedule is approved.

The project stakeholders will participate in reviews of the proposed schedule, assist in its validation and approve the final schedule before it is baselined.

Schedule Control

The project schedule will be reviewed and updated as necessary when new or old information is added or deleted. It will include the actual start, finish and percentages of the completion.

The project manager is responsible for holding schedule updates or review meetings and determining of schedule modifications. Submitting schedule change requests and reporting schedule status in accordance with the project's communications plan will be left to the project manager.

The project team is responsible for participating in schedule updates or review meeting sessions. The team must communicate any changes of the actual start/finish dates to the project manager. Finally, the team will participate in schedule variance resolution activities as needed.

The project stakeholder(s) will maintain awareness of the project schedule status and review/approve any schedule change requests submitted by the project manager.

Schedule Changes and Thresholds

If any member of the project team determines that a modification to the schedule is essential, the project manager and team will meet to assess and evaluate the change. The project manager and project team must conclude which tasks will be impacted, any variance resulting from the potential change, and any alternatives or variance resolution activities they may employ to see how they would affect the scope, schedule, and resources. If, after this evaluation is complete, the project manager determines that any change will surpass the established schedule constraints, then a schedule change request must be submitted.

Submittal of a schedule change request to the project stakeholder(s) for approval is required if either of the two following conditions is true:

- The proposed change is estimated to reduce the duration of an individual work package by 2% or more, or increase the duration of an individual work package by 10% or more.
- The change is estimated to reduce the duration of the overall baseline schedule by 10% or more, or increase the duration of the overall baseline schedule by 2% or more.

Any change requests that would result in changes that are within or less than the percentages indicated in the above thresholds must be submitted to the project manager for approval.

Once the change request has been reviewed and approved the project manager is responsible for adjusting the schedule and communicating all changes and impacts to the project team and stakeholders. The project manager must also ensure that all change requests are stored for safety.

Scope Change

Any changes in the project scope, which have been approved by the project stakeholder, will require the project team to evaluate the outcome of the scope changes on the current schedule. If the project manager determines that the scope change will significantly affect the current project schedule, they may demand that the schedule be re-baselined in concern of any changes, which need to be made as part of the new project scope. The project stakeholder must review and approve this request before the schedule can be re-baselined.

SPONSOR ACCEPTANCE
Approved by:

_____ Date: _____

Representative of Epic Enterprises
Client

Figure 22 Convention Center Schedule Management Plan. Adapted from *Piazza.* Retrieved November 10, 2016 from https://piazza-resources.s3.amazonaws.com/h5vb38s3gz07mq/h5vbn5jvtyj2mu/Schedule%20Management%20PlanAJ.doc?AWSAccessKeyId=AKIAIEDNRLJ4AZKBW6HA&Expires=1478799884&Signature=WK5C%2FR%2FV7t%2BcTpUwOZsI4nCWXPA%3D

The second process in planning project schedule management, following the development of the Schedule Management Plan, was Activity Definition. The Schedule and Scope Management Plans containing the Scope Baseline comprised of the WBS, project deliverables, constraints and assumptions were inputs used specifically for activity definition. Of the techniques identified in the *PMBOK® Guide*, decomposition and expert judgement were the ones used during this process. The tool used to capture the information for this and the remaining processes required to develop the schedule was Microsoft Office Project 2016, identified as a scheduling software in the *PMBOK® Guide*. The Activity List seen in

figure 23 below is an output developed from this process and was compiled from the information in the schedule.

According to PMI, an activity list is a comprehensive list with an activity identifier and scope of work description of the schedule activities required to complete each work package (PMI, 2013, p. 152). Also, while defining activities, milestones were added and modified. Subsequently, after defining the activities, the milestone list found in the Project Charter and Schedule Management Plan were updated.

An Activity Attributes list was not developed as an output to this process, as indicated in the *PMBOK® Guide*, because the information detailed in the Activity Attributes, such as the activity ID, activity description, WBS number, activity responsibility, predecessor scheduling and dependency, activity predecessors and dependencies, and successor scheduling and dependencies were already captured in other plans or matrices included in the FGP (Project Management Institute, 2013, p. 149).

Activity ID Number	**Activity Name**	**Description of Work**	**Responsibility**
1.1	Initiation Phase	Request for proposal	Architect, Assistant Project Manager, Project Manager
1.1.1	Collect Client and Regulatory Requirements	Meetings held to ascertain client and regulatory needs for the project	Architect, Project Manager
1.1.2	Client briefing and Architectural Research	Architectural briefing with the Architect, Hydrologist, and Sub consultants	Architect, Project Manager
1.1.3	Research Materials and Methods	Research materials, methodologies and architectural standards that can be used for the project	Architect
1.1.4	Determine Initial Budget and Perform Cost Analysis	Calculating the type of financial commitment needed based on the requirements	Project Manager, Assistant Project Manager

		from the client to complete the project	
1.1.5	Preliminary Environmental Impact Assessment	Environmental Engineer will perform assessment of the project	Project Manager
1.2	Design Phase	Collaborative Effort of Consultants	Architect, Draftsman
1.2.1	Architectural Design	Graphical visualization of project	Architect, Draftsman
1.2.2	Project Design Drawings	Sub consultant's drawings such as; *Geotechnical engineer *Structural engineer/Structural Steel Fabricators *MEP engineer *Fire Suppression Engineer *Sound Engineering	Architect, Draftsman, Project Clerk/Office Assistant
1.3	Pre-Construction Phase	Contract Phase where design development, consultant identification and agreements with necessary stakeholders are established	Architect, Assistant Project Manager, Project Manager
1.3.1	Steel Framework (Steel Superstructure Fabrication)	Allied Steel is identified and contracted to produce Steel Superstructure based on requirements	Allied Steel (Fabricators), Assistant Project Manager, Project Manager
1.3.2	Permits and Approval	The process of making an application for the following permits: *Town planning permit *Aviation permit *Environmental permit *Ministry of Works permit *Ministry of Health Permit	Assistant Project Manager, Draftsman
1.3.3	Mobilization	Process of preparing the project site for works to begin	Assistant Project Manager, Field Superintendent, Project Manager, Site Foreman
1.3.4	Working Drawings	The preparation of a set of graphical documents that instructs the contractors how to build the building	Architect, Draftsman
1.3.5	Pre-Construction	Drilling, piling, forming &	Assistant Project Manager, Field

		shoring, capping & levelling stilts	Superintendent, Project Manager
1.4	Construction Phase	Phase where project execution occurs	Assistant Project Manager, Project Manager
1.4.1	Concrete	Entails all structural cementers work	Masonry Workers, Site labourer
1.4.2	Masonry	Cementers material used to clad cement block units or other materials	Field Superintendent, Masonry workers, Site Foreman
1.4.3	Metals	Work required to install ClarkDietrich structural in wall system	Field Superintendent
1.4.4	Wood, Plastics and Composites	All works requiring: - wood which will be used as a blocking for doors and windows. - plastics which will be used for eves drips. - composites such as DensGlass gold and faux will be used.	Skill site worker-2, Speciality services
1.4.5	Thermal and Moisture Protection	Underlayment for the roofing system and any other weather proofing materials	Carpenter, Site labourer
1.4.6	Openings	Works related to filling void spaces with windows and doors	Field Superintendent
1.4.7	Finishes and ceilings	Works requiring the use of cement based stucco (exterior), Gypsum board with veneer plaster (interior), and ceilings which will be comprised of type X Gypsum board	Speciality services, Dry wall subcontractor
1.4.8	Specialties	Works including the balcony and stair railings, and other architectural components	Speciality services
1.4.9	Furnishings	Works related to the purchasing and installation of chairs, tables, desks, lights, lamps, daybeds and other items indicated in the scope	Assistant Project Manager, Interior Designer, Owner, Owner rep. 1, Owner rep. 3, Owner rep.2
1.4.10	Plumbing and Sewerage	Installation of all waste and supply lines, water closets and lavatory	Plumbing subcontractor
1.4.11	Heat, Ventilation, and	Works related to installing and	AC subcontractor, Assistant

	Air Conditioning	ensuring the operations of the forced air air-conditioning system	Project manager
1.4.12	Integrated Automation and Management	The installation of the system that controls the building from a remote location, including the control of: *telephones *alarms *lighting *sound *air-conditioning *security camera *irrigation *pool system	Speciality services
1.4.13	Electrical	Works related to ensuring there is electrical power to building and installing the necessary equipment (including generator)	Electrician
1.4.14	Communications	Installation of conduits and telecommunications system	AV consultants, Speciality services
1.4.15	Electronic Safety and Security	Installation of door buzzers, security cameras and systems, emergency lighting, and elevator alarms and phone	Speciality services, Fire and Safety
1.4.16	Storm Water Detention Basin	The development of the man-made pond developed on site to retain runoff	Hydrologist
1.4.17	Elevators and Stairs	Installation of mechanical airlift for transports people, materials and goods from floor to floor	Assistant Project Manager, Field Superintendent
1.4.18	Erection of Super Structure	Install Super Structure	Assistant Project Manager, Field Superintendent, Project Manager
1.4.19	Site Works	Works pertaining to exterior elements of the project such as parking layout, lighting and landscape	Skill Site Worker-1, Skill Site Worker-2, Site Labourer
1.4.20	Sound	Works pertaining to the reduction and control of sound transmission throughout the building	Sound Engineer
1.4.21	Interior Design	The placement of furnishings,	Assistant Project Manager,

		and finishings (walls, floors and ceilings) and other interior components required for maximum use of the building	Interior Designer, Owner, Owner rep. 1, Owner rep. 3, Owner rep.2
1.4.22	Landscaping	The physical placement of shrubs, trees, grass and other organic items	Assistant project Manager, Landscape Architect, Owner, Owner rep. 1, Owner rep. 3, Owner rep.2
1.4.23	Pool	The construction and finishing of a bean shaped pool located on the roof deck	Carpenter, Pool Contractor, Speciality Services, Tile layer
1.4.24	Sky bar	The construction and finishing of a circular bar with translucent top designed with an Art Architecture style	Assistant Project Manager, Field Superintendent, Masonry Workers, Site Foreman, Site Labourer, Speciality Services
1.4.25	Annex building	The construction of a support building that houses the restrooms and kitchen holding area	Allied Steel (Fabricators), Steel Erectors
1.4.26	Roof deck		Carpenter, Field Superintendent, Masonry workers, Site Foreman, Erectors
1.5	Post-Construction Phase	Phase that occurs after substantial completion	Assistant Project Manager, Project Manager
1.5.1	Punch list	To fix defective works	Assistant Project Manager, Field Superintendent
1.5.2	Site Clean-up	To clean up the site	Assistant Project Manager, Field Superintendent, Site Labourer
1.5.3	Final Building Inspection	Building inspection performed by the Ministry of Works, Project Manager and Architect	Assistant Project Manager, Field Superintendent, Owner, Owner rep. 1, Owner rep. 2, Owner rep. 3, Project Manager
1.5.4	Apply for Occupancy Certificate	Submit application to the regulatory agencies	Architect, Project Manager
1.6	Project Closure Phase	Phase that signifies completion of project and handover of convention center	Assistant Project Manager, Project Manager
1.6.1	Final Account	The accumulation of all the project's costs	Accountant, Project Manager
1.6.2	Warranties from Manufacturers	The compilation and handover of all manufacturers guarantees	Assistant Project Manager, Architect

		that if products are defective they will be fixed or replaced within a certain period of time	
1.7	Project Management	The management of the planning, execution, monitoring & controlling and closure of the project	Assistant Project Manager, Project Manager
1.7.1	Planning	Planning and updating project activities throughout project lifecycle	Assistant Project Manager, Project Manager
1.7.2	Scheduling	Planning of project activities, assigning timeline and dates to determine and control project duration	Assistant Project Manager, Project Manager
1.7.3	Accounting	Monitoring the financial expenditures of the project throughout the project lifecycle	Accountant
1.7.4	Reporting	Documenting project activities, preparing reports and presenting to the appropriate stakeholders	Accountant, Assistant Project Manager, Field Superintendent, Project Manager
1.7.5	Meetings (Progress)	All meetings held to control the management of the project	Assistant Project Manager, Project Manager
1.7.6	Site Management	Management of the day-to-day on site running of a construction project	Field Superintendent

Figure 23 Convention Center Activity List. Adapted from *Project Management Docs.* Retrieved November 30, 2016 from http://www.projectmanagementdocs.com/template/Activity-List.doc

Once the activities were identified and defined, the third planning process of Project Schedule Management, they were sequenced "identifying and documenting relationships between project activities" (Project Management Institute, 2013, p. 153). The Schedule Management Plan, Activity list, Milestone list and Project Scope Statement found in Scope Management Plan were used as inputs to this process. The scheduling tool which utilizes the precedence diagramming method, dependency determination and leads and lags were used (Project Management Institute, 2013, p. 153). In addition, a few meetings were conducted with Mr. E. B. Rolle, the expert, to assist in confirming the correct arrangement of each activity. The output developed from this process was the Schedule Network Diagram, seen

in **figure 24**, which was developed using the tool Microsoft Visio Professional 2016.

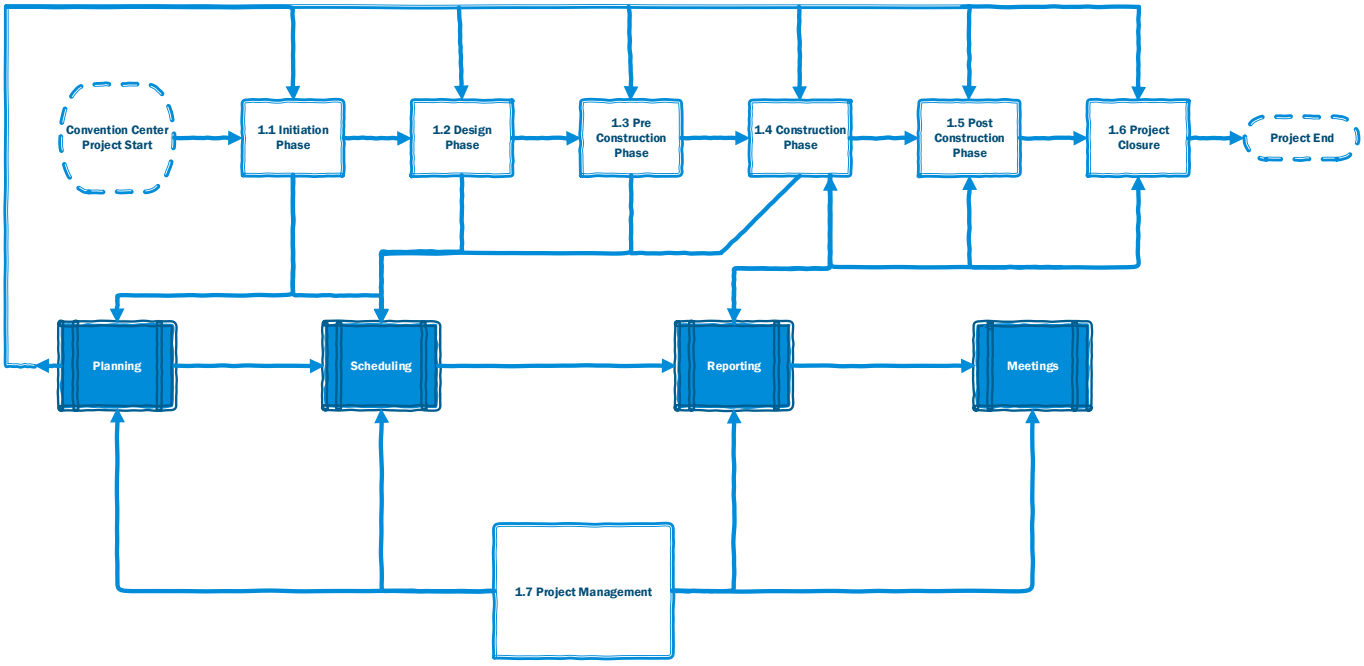

Figure 24 Schedule Network Diagram. (Created in Microsoft Visio Professional, December 2016)

Once the activities were identified and sequenced, Activity Resources, the fourth planning process of Project Schedule Management were assigned. Since, the majority of work is being subcontracted, only the human resources were assigned to each activity. As more information becomes available, all resources detailed in the *PMBOK® Guide* will be identified for each activity and compiled in a Resource Breakdown Structure.

The inputs used to assign Activity Resources were the Schedule Management Plan, Activity List, Resource Calendar, Risk Register and the Activity Cost Estimates detailed in the WBS Dictionary found in the Scope Management Plan. The tools and techniques used were the expert judgement of Mr. E. B. Rolle, and Microsoft Project 2016 scheduling tool, which was used to help plan, manage and

assign resources. The human resources assigned to each activity are outlined in the table below (Project Management Institute, 2013, p. 161).

Chart 6 Resource Assignment and Activity Durations (Source: C. Walker, The Author, December 2016)

Task Name	Duration	Resource Names
1.0 CONVENTION CENTER PROJECT	560 days	
1.1 INITIATION PHASE	16 days	Architect, Assistant Project Manager, Project Manager
Project Initiation/Kick-off	0 days	Project Manager, Architect, Assistant Project Manager
1.1.1 Collect client and regulatory requirements	4 days	Architect, Project Manager
1.1.1.1 Meeting client	1 day	Architect, Assistant Project Manager, Project Manager
1.1.1.2 Clients' requirements	1 wk.	Architect, Assistant Project Manager, Project Manager
1.1.1.3 Regulatory agencies requirements	1 day	Architect
1.1.2 Client briefing and architectural research	3 days	Architect, Project Manager
1.1.2.1 Building code research	0 days	Architect
1.1.2.2 Clients' Briefing defined	1 day	Architect
1.1.2.3 Design considerations and restrictions	0 days	Architect
Project Defined	0 days	Architect
1.1.3 Research materials and methods	6 days	Architect
1.1.3.1 Research	1 day	Architect
1.1.3.2 Schematic design	1 wk.	Architect
1.1.4 Perform cost analysis and determine initial budget	11 days	Project Manager
1.1.4.1 Preliminary costing 2	3 days	Architect, Assistant Project Manager, Project Manager
1.1.5 Preliminary environmental impact assessment	3 days	Project Manager
1.2 DESIGN PHASE	22 days	Architect, Draftsman
1.2.1 Architectural design	31 days	Architect, Draftsman
1.2.1.1 Conceptual	2 wks.	Architect
Conceptual Complete	0 days	Architect
1.2.1.2 Design documents	1 wk.	Architect
1.2.1.3 Design review by client	5 days	Architect, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3
Design approval by client	0 days	Architect, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3
1.2.2 Project Design drawings	22 days	Architect, Draftsman, Project Clerk/Office Assistant

1.2.2.1 Steel Superstructure Design and Quote	4 wks.	Allied Steel (Fabricators)
1.2.2.2 Structural Engineering/Structural Steel Fabricators	6 wks.	Allied Steel (Fabricators),Structural Engineer
1.2.2.3 MEP Engineer	2 wks.	M.E.P. Engineer
1.2.2.4 Geo-tech Engineer	1 wk.	Geo-technician
1.2.2.5Fire Suppression Engineer	3 days	Fire and Safety
1.2.2.6 3D Illustrations	2 wks.	Architect
1.2.2.7 Interior Design Drawings	2 wks.	Interior Designer
1.2.2.8 Alarm, Security, Data, etc.	3 days	AV Consultants
1.2.2.9 Landscape Design	2 wks.	Landscape architect
1.2.2.10 Civil Engineering	2 wks.	Civil engineer
1.2.2.11 Acoustics Engineering	1 wk.	Sound Engineer
1.2.2.12 Printing and Plotting	2 days	Project Clerk/Office Assistant
1.3 PRECONSTRUCTION PHASE	321 days	Architect, Assistant Project Manager, Project Manager
1.3.1 Steel framework	20 days	Allied Steel (Fabricators),Assistant Project Manager, Project Manager
1.3.1.1 1st floor steel components delivered to site	1 wk.	Assistant Project Manager
1.3.1.2 2nd floor steel components delivered to site	4 days	Assistant Project Manager
1.3.1.3 Primary roof deck steel components delivered to site	4 days	Assistant Project Manager

Task Name	Duration	Resource Names
1.3.1.4 Secondary roof deck steel components delivered to sit	4 days	Assistant Project Manager
1.3.2 Permits and approval: Submission of Documents to Regulatory Authorities	350 days	Assistant Project Manager, Draftsman
Submit Design Documents to MOW for Permit	6 wks.	Architect
Apply for Aviation Permit	0 days	Architect
Apply for Volatile Permit	0 days	Architect
Building Permit Issued	1 day	Architect
1.3.3 Mobilization	1 wk.	Assistant Project Manager, Field Superintendent, Project Manager, Site Foreman
1.3.4 Working drawings	3 wks.	Architect, Draftsman
1.3.5 Pre-Construction	35 days	Assistant Project Manager, Field Superintendent, Project Manager
Site Works begin	0 days	Assistant Project Manager, Field Superintendent, Project Manager, Site Foreman, skill site worker-1,skill site worker-2
1.3.5.1 Auger drilling and piling	27 days	Heavy Marine Fabricators (HMF),skill site worker-1
1.3.5.1.1 Surveying and layout	2 days	Architect, Land Surveyor
1.3.5.1.2 Drilling and Caging	4 wks.	Heavy Marine Fabricators (HMF)
1.3.5.1.3 MOW Inspection	2 days	Assistant Project Manager, Field Superintendent

MOW Approval	0 days	Assistant Project Manager, Site Foreman
1.3.5.1.4 Pouring Concrete	3 days	Heavy Marine Fabricators (HMF),Assistant Project Manager, Field Superintendent, Site Foreman
1.4 CONSTRUCTION PHASE	265.5 days	Assistant Project Manager, Project Manager
Vertical Construction begin	0 days	Assistant Project Manager, Field Superintendent, Site Foreman
1.4.1 Concrete	96 days	Masonry workers, Site labourer
1.4.1.1 Forming & Shoring for Concrete Stilts	21 days	Masonry workers, Site labourer
1.4.1.1.1 Steel column form	2 wks.	Assistant Project Manager, Field Superintendent, Site Foreman, skill site worker-1,skill site worker-2,Common labourers
1.4.1.1.2. Steel caging	1.4 wks.	Steel fabricators
1.4.1.1.3. Pouring concrete	4 days	Nassau Premix, Masonry workers
1.4.1.2 Capping & Levelling Stilts	75 days	Masonry workers, Site labourer
1.4.1.2.1 Levelling	3 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
1.4.1.2.2 Capping	2 wks.	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
STEEL SUPERSTRUCTURE 1ST FLOOR	12 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
Preparing concrete flooring	2 wks.	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
Pouring concrete flooring	2 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
STEEL SUPERSTRUCTURE 2ND FLOOR	12 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
Preparing concrete flooring	2 wks.	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
Pouring concrete flooring	2 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
STEEL SUPERSTRUCTURE - PRIMARY ROOF DECK	10 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
Preparing concrete flooring	2 wks.	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
Pouring concrete flooring	2 days	Architect, Draftsman, Field Superintendent, Masonry workers, Site Foreman
1.4.2 Masonry	64 days	Field Superintendent, Masonry workers, Site Foreman
1.4.3 Metals	50 days	Field Superintendent
1.4.3.1 Structural Exterior in-Wall	49 days	Field Superintendent
1.4.3.2 ClarkDietrich in-wall installation	10 wks.	Steel fabricators
1.4.3.3 Cladding and in-walls completed	0 days	Assistant Project Manager, Field Superintendent
1.4.3.4 DensGlass Sheathing	8 wks.	Field Superintendent, Site Foreman, Site labourer, skill site worker-1
1.4.4 Wood, Plastics and Composites	256 days	skill site worker-2,Speciality services

Task Name	Duration	Resource Names
1.4.5 Thermal and Moisture Protection	43 days	Carpenter, Site labourer
1.4.6 Openings	80 days	Field Superintendent
1.4.6.1 Installing windows	12 wks.	Carpenter, Site labourer
1.4.6.2 Installing doors	4 wks.	Carpenter, Site labourer, Speciality services
1.4.6.3 Caulking and beading	8 wks.	Carpenter, Site labourer, Speciality services
1.4.7 Finishes and ceilings	2 mons	Speciality services, Dry wall subcontractor
1.4.8 Specialities	1 mon	Speciality services
1.4.9 Furnishings	1 mon	Assistant Project Manager, Interior Designer, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3
1.4.10 Plumbing and Sewerage	101 days	Plumbing subcontractor
1.4.11 Heating, Ventilation and Air Conditioning	81 days	AC subcontractor, Assistant Project Manager
1.4.12 Integrated Automation and Management	4 wks.	Speciality services
1.4.13 Electrical	101 days	Electrician
1.4.14 Communications	1 day	AV Consultants, Speciality services
1.4.15 Electronic Safety and Security (alarms)	81 days	Speciality services, Fire and Safety
1.4.16 Storm Water Detention Basin	1 day	Hydrologist
1.4.17 Elevators and Stairs	30 days	Assistant Project Manager, Field Superintendent
1.4.17.1 Stairwells and stairways	6 wks.	Allied Steel (Fabricators),Carpenter, Speciality services, Assistant Project Manager
1.4.17.2 Elevator Hoist-Way	6 wks.	Elevator Mechanics
1.4.18 Erection of Super Structure	160 days	Assistant Project Manager, Field Superintendent, Project Manager
1.4.18.1 STEEL SUPERSTRUCTURE - 1st floor	2 wks.	Allied Steel (Fabricators),Steel Erectors
1.4.18.1.1 Steel Superstructure erection	2 wks.	Steel Erectors, Allied Steel (Fabricators),Assistant Project Manager
1.4.18.2 STEEL SUPERSTRUCTURE - 2nd floor	6 wks.	Allied Steel (Fabricators),Steel Erectors
1.4.18.2.1 Structural steel erection	6 wks.	Steel Erectors, Allied Steel (Fabricators),Assistant Project Manager
1.4.18.3 STEEL SUPERSTRUCTURE - PRIMARY ROOF DECK	6 wks.	Allied Steel (Fabricators),Steel Erectors
1.4.18.3.1 Structural Steel erection	6 wks.	Steel Erectors, Allied Steel (Fabricators),Assistant Project Manager
1.4.18.4 STEEL SUPERSTRUCTURE - SECONDARY ROOF DECK	6 wks.	Allied Steel (Fabricators),Steel Erectors, Assistant Project Manager
1.4.18.4.1 Structural Steel erection	6 wks.	Allied Steel (Fabricators),Steel Erectors
1.4.19 Site Works	46 days	skill site worker-1,skill site worker-2,Site labourer
1.4.20 Sound	17 days	Sound Engineer
1.4.21 Interior Design	63 days	Assistant Project Manager, Interior Designer, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3
1.4.22 Landscaping	111 days	Assistant Project Manager, Landscape architect, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3
1.4.23 Pool	45 days	Carpenter, Pool contractor, Speciality services, Tile layer

1.4.23.1 Building pool on-site	9 wks.	Nassau Premix, Pool contractor
1.4.24 Sky bar	52 days	Assistant Project Manager, Field Superintendent, Masonry workers, Site Foreman, Site labourer, Speciality services
1.4.25 Annex Building (On Roof Deck)	40 days	Allied Steel (Fabricators),Steel Erectors
1.4.25.1 Steel stud framing	8 wks.	Site Foreman, Steel Erectors
1.4.25.2 Roof framing for annex building	1.2 wks.	Site Foreman, Steel Erectors
1.4.25.3 Cladding for annex	1.4 wks.	Site Foreman, Steel Erectors, Carpenter
1.4.26 Roof deck	60 days	Carpenter, Field Superintendent, Masonry workers, Site Foreman, Steel Erectors
1.4.26.1 Mansard Roofing	41 days	Carpenter, Field Superintendent, Masonry workers, Site Foreman, Steel Erectors
1.4.26.1.1 Steel framing	4 wks.	Carpenter, Field Superintendent, Masonry workers, Site Foreman, Steel Erectors
1.4.26.1.2 Sheeting and finishes	2 wks.	Carpenter, Field Superintendent, Masonry workers, Site Foreman, Steel Erectors
1.4.26.2 Roof deck items	53 days	Carpenter, Field Superintendent, Masonry workers, Site Foreman, Steel Erectors

Task Name	Duration	Resource Names
1.4.26.2.1 Planters	2.4 wks.	Carpenter, Masonry workers, Site labourer, skill site worker-1
1.4.26.2.2 Pergolas	1 wk.	Carpenter, Roofing Contractor, Steel Erectors
1.4.26.2.3 Sky-bar	4.4 wks.	Carpenter, Field Superintendent, Masonry workers, Site Foreman, Speciality services
1.4.26.2.4 Deck Finishes	4.2 wks.	Masonry workers, Site labourer, skill site worker-2,Steel Erectors
1.4.26.2.5 Annex exterior walls	3 wks.	Carpenter, Masonry workers, Steel Erectors
General Conditions	312 days	Assistant Project Manager, Field Superintendent, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3,Project Manager
Misc. Work on Steel Superstructure completed	0 days	Assistant Project Manager, Field Superintendent
Misc. Works Completed	0 days	Assistant Project Manager, Field Superintendent
1.5 POST CONSTRUCTION PHASE	146 days	Assistant Project Manager, Project Manager
Substantial completion	0 days	Assistant Project Manager, Field Superintendent, Project Manager
1.5.1 Punch list	0 days	Assistant Project Manager, Field Superintendent
1.5.2 Site Clean-up	15 days	Assistant Project Manager, Field Superintendent, Site labourer
1.5.3 Final Building Inspection	0 days	Assistant Project Manager, Field Superintendent, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3,Project Manager
1.5.4 Apply for Occupancy Certificate	0 days	Architect, Project Manager
1.6 PROJECT CLOSURE	1 day	Assistant Project Manager, Project Manager
1.6.1 Final Account	0 days	Accountant, Project Manager

1.6.2 Warranties from Manufacturers	0 days	Assistant Project Manager, Architect
1.6.3 Building Manual	0 days	Architect
1.7 PROJECT MANAGEMENT	533 days	Assistant Project Manager, Project Manager
1.7.1 Planning	348 days	Assistant Project Manager, Project Manager
1.7.1.1 Initial Impact Assessment	1 mon	Architect, Project Manager
1.7.1.2 Site Investigation Report	3 days	Project Manager
1.7.1.3 Feasibility study	10 days	Project Manager, Quantity Surveyor
1.7.1.3.1 Quantity surveyor final costing	2 wks.	Quantity Surveyor
1.7.1.4 Project Charter commissioned	2 days	Assistant Project Manager, Project Manager
1.7.1.5 Approval of Project Charter	1 day	Assistant Project Manager, Project Manager, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3
1.7.1.6 Design sent to sub-consultants for fee proposals	0 days	Architect
1.7.1.7 Budget/Preliminary Costing 1	4 days	Project Manager, Quantity Surveyor
1.7.1.8 Project management team; revisions and adjustments to management document	315 days	Assistant Project Manager, Project Manager
1.7.1.9 Approval of Roles and Responsibilities	1 day	Assistant Project Manager, Project Manager
1.7.1.10 PM Plan	41 days	Assistant Project Manager, Project Manager
1.7.1.11 Procurements	348 days	Assistant Project Manager
1.7.1.11.1 Sub-Contractor Tendering	13 days	Assistant Project Manager, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3,Project Manager
1.7.1.11.1.1 Tender Meeting/Bid Documents	1 day	Assistant Project Manager, Project Manager, Subcontractors
1.7.1.11.1.2 Tender evaluation period	2 wks.	Assistant Project Manager, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3,Project Manager
1.7.1.11.1.3 Contract review	3 days	Assistant Project Manager, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3,Project Manager
Award contract	0 days	Assistant Project Manager, Owner, Owner rep. 1,Owner rep. 2,Owner rep. 3,Project Manager
1.7.1.11.2 Procurement and Contracts	348 days	Assistant Project Manager, Project Manager
1.7.1.11.2.1 Project management team in place	1 wk.	Assistant Project Manager, Project Manager
1.7.1.11.2.2 Scheduling baselined - confirmed/adjusted	1 day	Project Manager
1.7.1.11.2.3 Procurement and Sourcing	295 days	Assistant Project Manager
1.7.1.11.2.4 Long lead items sourced	2 days	Assistant Project Manager
1.7.2 Scheduling	440 days	Assistant Project Manager, Project Manager
1.7.3 Accounting	440 days	Accountant
1.7.4 Reporting	440 days	Accountant, Assistant Project Manager, Field Superintendent, Project Manager
1.7.5 Meetings	1 day	Assistant Project Manager, Project Manager
1.7.6 Site Management	428 days	Field Superintendent

The fifth planning process conducted for Project Schedule Management involved estimating Activity Durations as detailed in the *PMBOK® Guide*. The Schedule Management Plan, Activity List, Activity Resource Requirements, Resource Calendar, and the Project Scope Statement were used as inputs. The tools and techniques used were the expertise of the Project Manager, Mr. E. B. Rolle, and the scheduling tool. The output from this process is detailed above in **Chart 6.**

Finally, the sixth planning process conducted for Project Time Management, also detailed in the *PMBOK® Guide*, was the development of the Schedule. The schedule was created concurrently with the preceding time management processes. The inputs to this process were the Schedule Management Plan, Activity List, Project Schedule Network Diagram, Activity Resource Requirements, Resource calendar, Activity Durations, Project Scope Statement, Risk Register, and Resource Requirements. The tools and techniques used to develop the project schedule seen in **figure 25** below, were Schedule Network Analysis, Leads and Lags, and the Microsoft Project 2016 scheduling tool mentioned previously.

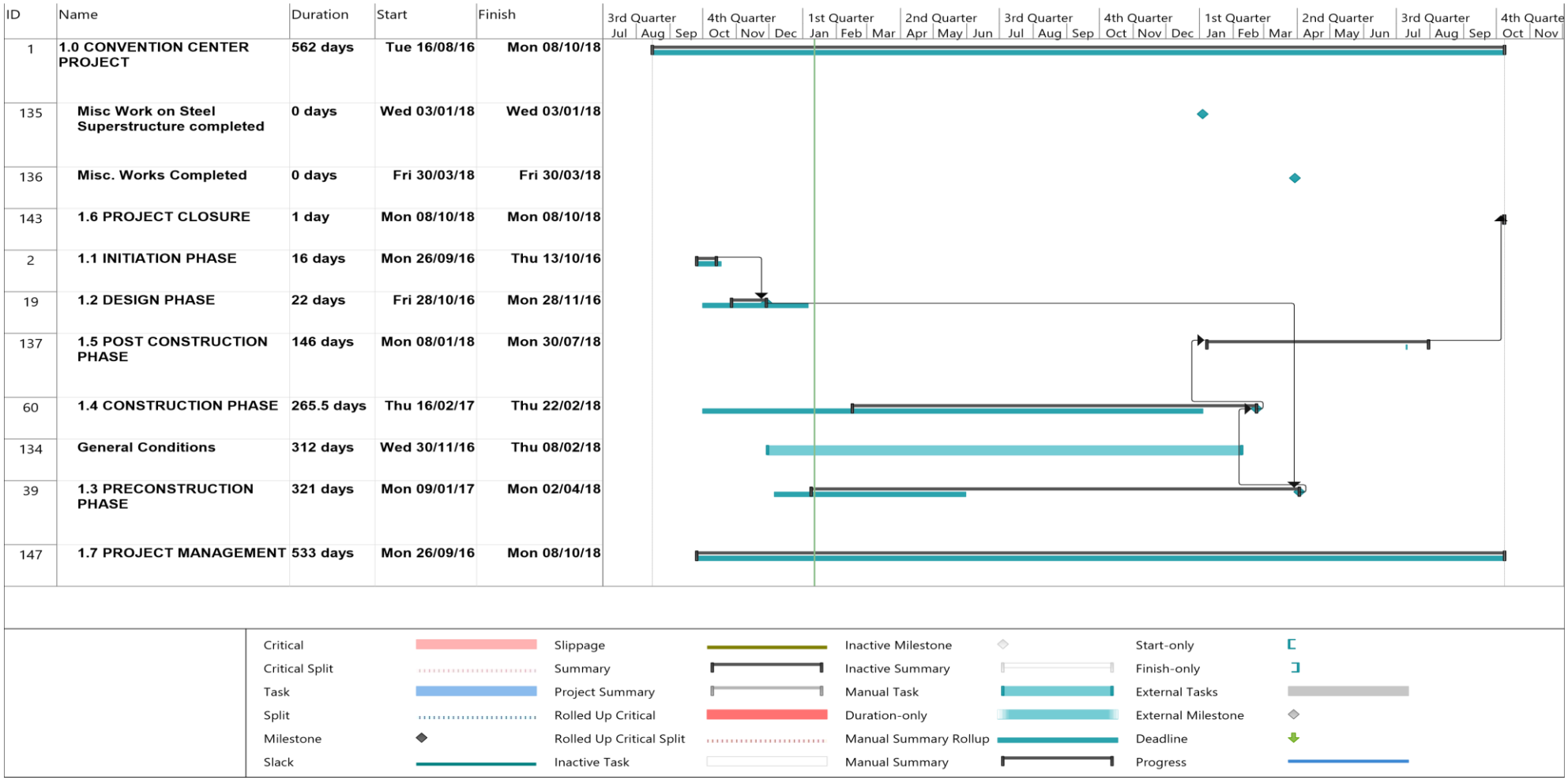

Figure 25 Convention Center Gantt Chart. (Created in Microsoft Project 2016, December 2016)

4.4 Project Cost Management

The first process of Project Cost Management, Plan Cost Management, was completed after the first process of Schedule Management, because the scope baseline, along with the Schedule Management Plan was used to develop the Cost Management Plan in **figure 27** below (Project Management Institute, 2013, p. 195)**.**

The tools and techniques used to develop the Cost Management Plan were expert judgement, analytical techniques, and meetings. Following this process, documents such as the Project Charter, Scope Management Plan, and Schedule Management Plan were updated in accordance with the *PMBOK® Guide.*

COST MANAGEMENT PLAN

BUILDING OF THE CONVENTION CENTER

ABC DESIGNS
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Introduction

The Project Manager will be responsible for managing and reporting on the project's cost throughout the duration of the project. The Project Manager will send out a weekly

financial report by E-mail to the Project Sponsor. During the bi-monthly project progress meeting, the Project Manager and Assistant Project Manager will meet with Project Sponsors to present and review the project's cost performance for the preceding month. Performance will be measured using earned value management or metrics. The Assistant Project Manager is responsible for preparing the Cost Management Plan and the Cost Baseline. The Project Manager is responsible for accounting for cost deviations and presenting the Project Sponsor with options for getting the project back on budget. The Project Sponsor has the authority to make changes to the project to bring it back within budget.

Cost Management Approach

Costs for this project will be managed at the second level of the Work Breakdown Structure (WBS). Control Accounts (CA) will be created at this level to track costs. Earned Value calculations for the CAs will measure and manage the financial performance of the project. Credit for work will be assigned at the work package level. The percentage (%) of credit granted to each work package will be calculated based on the amount of work completed at a point in time compared to the total costs required to complete the work package. Costs may be rounded to the nearest dollar and work hours rounded to the nearest whole hour.

Cost variances of +/- 0.1 in the cost and schedule performance indexes will change the status of the cost to cautionary; as such, those values will be changed to yellow in the project status reports. Cost variances of +/- 0.2 in the cost and schedule performance indexes will change the status of the cost to an alert stage; as such, those values will be highlighted in red in the project status reports. This will require corrective action from the Project Manager in order to bring the cost and/or schedule performance indexes below the alert level. Corrective actions will require a project change order and must be approved by the Project Sponsor before it can be included within the scope of the project.

Measuring Project Costs

Performance of the project will be measured using Earned Value Management. The following four Earned Value metrics will be used to measure the project's cost performance:

1. Schedule Variance (SV)
2. Cost Variance (CV)
3. Schedule Performance Index (SPI)
4. Cost Performance Index (CPI)

If the Schedule Performance Index or Cost Performance Index has a variance of between 0.1 and 0.2 the Project Manager must report the reason for the exception. If the SPI or CPI has a variance of greater than 0.2 the Project Manager must report the reason for the exception and provide management a detailed corrective plan to bring the project's performance back to acceptable levels.

Performance Measure	**Yellow**	**Red**

Schedule Performance Index (SPI)	Between 0.9 and 0.8 or Between 1.1 and 1.2	Less Than 0.8 or Greater than 1.2
Cost Performance Index (CPI)	Between 0.9 and 0.8 or Between 1.1 and 1.2	Less Than 0.8 or Greater than 1.2

Reporting Format
Reporting for cost management will be included in the bi-monthly project progress report. The Monthly Project Progress Report will include a section labelled, "Cost Management". This section will contain the Earned Value Metrics identified in the previous section. All cost variances outside of the thresholds identified in this Cost Management Plan will be reported on including any corrective actions which are planned. Change orders which are triggered based upon project cost overruns will be identified and tracked in this report.

Cost Variance Response Process
The Control Threshold for this project is a CPI or SPI of less than 0.95 or greater than 1.15. If the project reaches one of these Control Thresholds, a Cost Variance Corrective Action Plan is required. The Project Manager will present the Project Sponsor with options for corrective actions within five business days from when the cost variance is first reported. Within three business days from when the Project Sponsor selects a corrective action option, the Project Manager will present the Project Sponsor with a formal Cost Variance Corrective Action Plan. The Cost Variance Corrective Action Plan will detail the actions necessary to bring the project back within budget and the means by which the effectiveness of the actions in the plan will be measured. Upon acceptance of the Cost Variance Corrective Action Plan it will become a part of the project plan and the project will be updated to reflect the corrective actions.

Cost Change Control Process
The cost change control process will follow the established project change order process. Approvals for project budget/cost changes must be approved by the project sponsor.

Project Budget
The budget for this project is detailed below. Costs for this project are presented in various categories...

Item	**Project Costs ($00.00 USD)**
Construction & Administration	$ 5,392,200
Value Added Tax 7.5%	$ 417,840
Prints & Plots	$ 20,000

Permits	$ 15,000
Contingency (3%)	$ 143,910
GRAND TOTAL	**$5,988,950**

SPONSOR ACCEPTANCE

Approved by:

_____ Date: _____

Representative of Epic Enterprises
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Figure 26 Convention Center Cost Management Plan. Adapted from *Project Management Docs.* Retrieved September 18, 2016 from http://www.projectmanagementdocs.com/template/Cost-Management-Plan.doc

After developing the schedule, the costs were estimated for the project. The Cost Management Plan was used as an input to this process. The tools and techniques used were expert judgement, bottom-up, analogous, and parametric estimating, reserve analysis, vendor bid analysis, and a project management software. Meetings were conducted with Mr. E. B. Rolle, the expert, to determine the most effective means of estimating the budget for the project. The Assistant Project Manager was advised to estimate the costs for each component of work (bottom-up estimating) in a modified Microsoft Excel 2016 project budget spreadsheet (Project Management Institute, 2013, p. 200).

In order to determine the cost of each work package, costs were estimated for each related task required to complete the components of work identified during Activity Definition. To do this, analogous estimating and parametric estimating were utilized and the data was then compared to the vendors' bids to ensure that estimates were feasible. In addition, the cost estimate included a contingency reserve calculated at 3%. Expert judgement was used to identify the percentage allocated for the contingency reserve. The decision was made to calculate the

contingency at the low end of the range, as a result of the number of known-unknowns identified in the Project Charter and Risk Management Plan and past experience. The software used to calculate the estimated project costs was Microsoft Excel 2016, whereas Microsoft Word 2016 was used to capture the information. The Activity Cost Estimates can be seen in **Table 1.2., WBS Definition** in **figure 18:** Convention Center Scope Management Plan.

Using the information from the Activity Costs Estimates, Scope Baseline, Cost Management Plan, Project Schedule, Risk Register and Agreements, the budget was determined by aggregating the costs of each work package. During this process, expert judgement was used along with funding limit reconciliation to ensure that the planned expenditure did not exceed the funds committed to the project by the Project Sponsor. The Cost Baseline seen in **figure 27** below was developed using a template. It is followed by the Allocation of Funds seen in **figure 28**, which is a modification of the Project Funding Requirements, also known as the expected cash flow for the project. **Figure 28** details the amount of funds required at various intervals during the project lifecycle.

Convention Center Cost Baseline

Project Name: Building of the Convention Center

Project Manager: E. B. Rolle

Project Sponsor: Epic Designs

Prepared by: Assistant Project Manager

Date prepared: 16 December 2016

Submitted to: **Funding Source: Project Sponsor, Epic Designs**

Total Cost Authorization:

Date:

Expense	**Quantity**	**Unit Cost**	**Total Cost**		**Purpose**
Construction/Subcontracts					
In-house					
Skilled Site Workers	15		**$733,050**		Labour only
Carpenters	6	$25,000	$150,000		
Masons	5	$45,780	$228,900		
Metal Stud Installers	4	$15,000	$60,000		
Common Labourers (unskilled)	8	$24,512.50	$196,100		
Site Workers (unskilled)	4	$24,512.50	$98,050		
Sub Contracts			**$1,637,000**		
Contractor #1: Landscaping	1	$47,000	$ 47,000		Labour and materials
Contractor #2: Interior Design	1	$12,000	$ 12,000		Labour and materials
Contractor #3: Sound	1	$13,000	$ 13,000		Labour and materials
Contractor #4: Specialties	1	$80,000	$ 80,000		Labour only
Contractor #5: Plumbing and Sewerage	1	$250,000	$250,000		Labour and materials
Contractor #6: Heat, Ventilation and Air Conditioning	1	$280,000	$280,000		Labour and materials
Contractor #7: Integrated Automation and Management	1	$30,000	$30,000		Labour and materials
Contractor #8: Communications	1	$90,000	$ 90,000		Labour and materials
Contractor #9: Electrical	1	$250,000	$250,000		Labour and materials
Contractor #10: Electronic Safety and Security	1	$20,000	$ 20,000		Labour and materials
Contractor #11: Erection of Steel Superstructure	1	$230,000	$230,000		Labour only

Contractor #12: Pool	1	$50,000	$50,000		Labour and materials
Contractor #13: Sky bar	1	$15,000	$15,000		Labour and materials
Contractor #14: Openings (Window and Door Installation)	1	$45,000	$45,000		Labour only
Contractor #15: Thermal and Moisture Protection	1	$15,000	$15,000		Labour and materials
Contractor #16: Finishes and Ceilings	1	$110,000	$110,000		Labour only
Contractor #17: Storm Water Detention Basin	1	$30,000	$30,000		Labour and materials
Contractor #18: Elevators and Stairs – Hoist way (Installation)	1	$40,000	$40,000		Labour only
Contractor #19: Annex Building (Cladding and Finishes)	1	$30,000	$30,000		Labour only
Administrative/Professional			***$607,200***		Labour only
Architecture	**2**		**$107,200**		Labour only
Architect	**1**	$66,700			Labour only
Draftsman	1	$40,500			Labour only
Project Management	**16**		**$230,000**		Labour only
Project Manager	1	$88,000			Labour only
Assistant Project Manager	1	$60,800			Labour only
Accountant	1	$40,000			Labour only
Project Clerk	1	$15,600			Labour only
Office Operations (supplies, etc.)		$10,000			Labour only
Gofer	1	$15,600			Labour only
Land Surveying	**1**	**$5,000**	**$5,000**		Labour only
	1	**$40,000**	**$ 40,000**		Labour

Structural Engineering					only
MEP Engineering	**1**	**$25,000**	**$ 25,000**		Labour only
Geo-tech Engineering	**1**	**$8,000**	**$ 8,000**		Labour only
Sound Engineering	**1**	**$5,000**	**$ 5,000**		Labour only
Hydrologist	**1**	**$5,000**	**$ 5,000**		Labour only
Quantity Surveyor (Project Management Activity)	**1**	**$7,000**	**$ 7,000**		Labour only
Site Management	**2**		**$125,000**		Labour only
Field Superintendent	1	$73,000			Labour only
Foreman	1	$52,000			Labour only
Mobilization			$30,000		Labour and materials
Interior Design	**1**	$12,000	$ 12,000		Labour only
Landscaping	**1**		$8,000		Labour only
Landscape Architect		$8,000			Labour only
Vendors	**10**		**$2,414,950**		
Allied Steel (Steel Superstructure)	1	$1,434,000			Materials
Faux Fabricators	1	$40,950			Materials
Florida Building Supply (Metals)	1	$10,000			Materials
Florida Building Supply (Wood)	1	$45,000			Materials
Florida Building Supply (Finishes and Ceilings Materials)	1	$70,000			Materials
Heavy Marine Fabricators (Concrete Piles)	1	$60,000			Materials
Nassau Premix (Concrete)	1	$60,000			Materials
Furnishings	1	$250,000			Materials
Otis (Elevators and Hoist way)	1	$240,000			Materials

ClarkDietrich	**1**	$205,000			Materials
Openings (Windows and Doors)		$185,000			Materials
Metals		$20,000			Materials
Permits			**$15,000**		
Prints & Plots			**$20,000**		
Contingency (3%)			**$143,910**		
Value Added Tax (VAT) (7.5%)			**$417,840**		
TOTAL			**$5,988,950**		

Approvals

Printed Name: Title:	Printed Name: Title:

Figure 27 Convention Center Cost Baseline. Adapted from *Puget Sound PMI*. Retrieved December 14, 2016 from http://pugetsoundpmi.org/images/downloads/Project_Management_document_templates/cost_baseline_template.doc

Project Funding Requirements
Allocation of Project Funds: Building of the Convention Center Project

Project Phase	Funding Type	Sep. 23, 2016	October 21, 2016	November 18, 2016	December 9, 2016	January 27, 2017	February 10, 2017	March 10, 2017	June 30, 2017	October 20, 2017	February 9, 2018	June 1, 2018	August 24, 2018	September 21, 2018
Initiation	Manpower	44,200												
Design	Manpower			130,000	35,000									
Pre-Construction	Manpower					150,000								
	Equipment / Capital				1,434,000									

	Manpower & Equipment					37,500	440,100	405,266.	996,984	1,011,383	418,016	11,750		
Project Closure	Manpower													
	Equipment / Capital													
Project Management	Planning		5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	Scheduling				10,000		10,000	2,000	2,000	2,000	1,000	1,000	1,000	1,000
	Accounting						4,375	4,375	4,375	4,375	4,375	4,375	4,375	4,375

	Reporting						6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
	Meetings	1,153	1,153	1,153	1,153	1,153	1,153	1,153	1,153	1,153	1,153	1,153	1,153	1,164
	Site Management						15,625	15,625	15,625	15,625	15,625	15,625	15,625	15,625
V.A.T.														418,814
Contingency Reserve		11,070	11,070	11,070	11,070	11,070	11,070	11,070	11,070	11,070	11,070	11,070	11,070	11,070
Totals		**56,423**	**17,223**	**147,223**	**1,496,223**	**204,723**	**493,323**	**450,489**	**1,042,207**	**1,056,606**	**462,239**	**55,973**	**44,223**	**463,048**

*Contingency reserve to be evenly distributed over all pay periods

Figure 28 Convention Center Allocation of Funds. Adapted from *Project Management Docs.* Retrieved December 16, 2016 from http://www.projectmanagementdocs.com/template/Project-Funding-Requirements.doc

4.5 Project Quality Management

The Quality Management Plan was created after the Procurement Management Plan, to adequately plan and ensure that quality was built into the project's processes and the product. Plan Quality Management is the only Quality Management process used during project planning.

The inputs for this process identified in the *PMBOK® Guide* were used to develop the Quality Management Plan seen in **figure 28**. These inputs included the Stakeholder register, Risk register, and the Requirements documentation previously developed by the Assistant Project Manager. In addition, the Requirements Management Plan was used as an input, because it identified the requirements of good quality previously outlined by the project team. The tools and techniques that will be used are checksheets and meetings (Project Management Institute, 2013, p. 232).

As this project was unique, in that ABC Designs was responsible for designing and building the Convention Center, the company "increased [its] responsibility for the project beyond simply building to a predetermined set of contract documents" (Barlow, 2009, p. 7). Consequently, the Quality Management Plan was used as a guide to ensure that the design, processes used, materials and construction of the Convention Center met or in most cases exceeded industry standards in an effort to elevate the quality of the product.

QUALITY MANAGEMENT PLAN
BUILDING OF THE CONVENTION CENTER

ABC DESIGNS
NASSAU, THE BAHAMAS

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Introduction

The Quality Management Plan for the Building of the Convention Center project will establish the activities, processes, and procedures for ensuring a quality product upon the conclusion of the project. The purpose of this plan is to:

- Ensure quality is planned
- Define how quality will be managed
- Define quality assurance activities
- Define quality control activities
- Define acceptable quality standards

Quality Management Approach

The quality management approach for the Building of the Convention Center project will ensure quality is planned for both the product and process. In order to be successful, this project will meet its quality objectives by utilizing an integrated quality approach to define quality standards, measure quality and continuously improve quality.

Product quality for the Building of the Convention Center project will be defined by the company's current standards and criteria based on industry standards. The focus is on the project's deliverable and the standards and criteria being used will ensure the product meets established quality standards and client satisfaction.

Process quality for the Building of the Convention Center project will focus on the processes by which the project deliverable will be designed and constructed. Establishing process quality standards will ensure that all activities conform to organizational and regulatory standards which results in the successful delivery of the product.

The Project Manager/Architect will define and document all organizational and project specific quality standards for both product and processes. All quality documentation will become part of the Convention Center Project Management Plan and will be transitioned into a building operational management document upon the successful completion of the project.

Metrics will be established and used to measure quality throughout the project life-cycle for the product and processes. The Project Manager/Architect will be responsible for working

with the project team to define these metrics, conduct measurements, and analyse results. These product and process measurements will be used as one criterion in determining the success of the project and must be reviewed by the project sponsor/client. Metrics will include:

- Building Design
- Schedule
- Resources
- Cost
- Process performance
    - Fabrication
- Product performance
    - Attenuation
    - Tensile strength
    - Compression strength
- Customer Satisfaction

Quality improvements will be identified by any member of the project team. Each recommendation will be reviewed to determine the cost versus benefit of implementing the improvement and how the improvement will affect the product or processes. If an improvement is implemented, the Assistant Project Manager will update all project documentation to include the improvement.

Quality Requirements / Standards

Product Quality:

The product quality standards and requirements will be determined by the Project Manager/Architect. These standards will primarily be based on the company's documented standards. There may be product-specific quality standards identified that are not currently part of the documented organizational standards. In this case, the project Manager/Architect will review these newly identified standards and the Assistant Project Manager will incorporate them into organizational documentation if approved. The project team will also document any newly identified quality standards into the Building of the Convention Center Project Management plan and ensure communication with all stakeholders.

Process Quality:

The process quality standards and requirements will be determined by the Project Manager/Architect. Many of these standards will be based on existing company process standards. The Building of the Convention Center project team will work with the Project Manager/Architect to establish acceptable standards and document these standards for incorporation into both organizational process documents as well as the Building of the Convention Center Project Management plan. These standards will be communicated to all project stakeholders.

Quality Assurance

The quality assurance of the Building of the Convention Center focuses on the processes used in the construction of the building. In order to ensure quality, an iterative quality process will be used throughout the project life-cycle. This iterative process includes measuring process metrics, analysing process data, and continuously improving the processes.

The Project Manager/Architect and the project team will perform assessments at planned intervals throughout the project to ensure all processes are being correctly implemented and executed. The table below provides the key quality assurance metrics for the Project.

Process Action	Acceptable Process Standards	Process Phase	Assessment Interval
Steel strength testing	- Tensile and yield -	Onsite delivery	Per floor load
Concrete slump test	- Required psi strength	Slump cone	Batch of concrete
Compression testing of concrete cylinders	- 5000 psi compressive strength yield at 28 says	Steel cylinder	Factory tested

The Project Manager and the project team will provide day-to-day quality management and conduct process audits on a weekly basis, monitor process performance metrics, and assure all processes comply with project standards. If discrepancies are found, the Project Manager or Assistant Project Manager will meet with the Field Superintendent and review the identified discrepancies.

The Assistant Project Manager will schedule regularly occurring project, management, and document reviews. In these reviews, an agenda item will include a review of project processes, any discrepancies and/or audit findings, and a discussion on process improvement initiatives.

Process improvement is another aspect of quality assurance. Quality assurance reviews, findings, and assessments should always result in some form of process improvement and, as a result, product improvement. All process improvement efforts must be documented, implemented, and communicated to all stakeholders as changes are made.

Quality Control

The quality control of the Building of the Convention Center project focuses primarily on the design and construction of the building. The quality performance standards for the Building of the Convention Center Project are in accordance with the organizational standards. Additionally, all physical measurements will be conducted to ensure compliance with established quality standards.

The project team will perform all physical measurements on site and will ensure all physical and performance standards are met.

The Project Manager will schedule regularly occurring project, management, and document reviews. In these reviews, an agenda item will include a review of products, any discrepancies and/or audit findings from the Assistant Project Manager, and a discussion on product improvement initiatives.

It is imperative to the success of the project that all of the established physical and performance standards are met.

Quality Control Measurements

All Building of the Convention Center Project deliverables and processes must be measured and fall within the established standards and tolerances. The below logs will be used by the project team in conducting these measurements and will be maintained for use as supporting documentation for the project's acceptance.

Quality Assurance Log

Process Inspection # 1	Date	Process Measured	Required Value	Actual Measured	Acceptable? (Y/N)	Recommendation	Date Resolved

Quality Control Log

Deliverable # 1	Date	Item Measured	Required Value	Actual Measured	Acceptable? (Y/N)	Recommendation	Date Resolved

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Approved by:

_____ Date: _____

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Figure 29 Convention Center Quality Management Plan. **Adapted from *Project Management Docs.* Retrieved November 22, 2016 from http://www.projectmanagementdocs.com/template/Quality-Management-Plan.doc**

4.6 Project Human Resource Management

After creating the Communications Plan, the Human Resource Management Plan was produced as seen in **figure 29** below. The activity resource requirements derived from the work packages seen in *figure 1.1 Work Breakdown Structure* of the Scope Management Plan and the *Stakeholder Analysis Register* of the Stakeholder Management Plan were used as inputs to this process. In addition, expert judgement and meetings, in the form of a personal interview, were the tools and techniques utilized to identify the human resources required, the roles and responsibilities of each, and how they will be managed throughout the project lifecycle (Project Management Institute, 2013, p. 258).

Plan Human Resource Management is the only process from the Human Resource Management knowledge area that will be used during the planning process. The other three processes outlined in **figure 11** will be conducted during project execution.

HUMAN RESOURCE MANAGEMENT PLAN

BUILDING OF THE CONVENTION CENTER

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PROJECT ORGANIZATIONAL CHARTS
STAFFING MANAGEMENT

Introduction

Human resources management is an important part of the Building of the Convention Center. The human resources management plan is a tool which will aid in the management of this project's human resource activities throughout the project until closure. The human resources management plan includes:

- Roles and responsibilities of team members throughout the project
- Project organization charts
- Staffing management plan to include:
    a. How resources will be acquired
    b. Timeline for resources/skill sets
    c. Training required to develop skills
    d. How performance reviews will be conducted
    e. Recognition and rewards system

The purpose of the human resources management plan is to achieve project success by ensuring that the appropriate human resources are acquired with the necessary skills, resources are trained if any gaps in skills are identified, team building strategies are clearly defined, and team activities are effectively managed.

Roles and Responsibilities

The roles and responsibilities for the project team of the Building of the Convention Center are essential to project success. All team members must clearly understand their roles and responsibilities in order to successfully perform their portion of the project. For the Building of the Convention Center the following project team roles and responsibilities have been established:

Architect (A), (1 position): responsible for ensuring the building aesthetics, function, and use of space are adhered to. The Architect is also responsible for all of the various disciplines, excluding the project manager and production of project documents.

Project Manager (PM), (1 position): responsible for the overall success of the Project. The PM must authorize and approve all project expenditures. The PM is also responsible for ensuring that work activities meet established acceptability criteria and fall within acceptable variances. The PM will be responsible for reporting project status in accordance with the communications management plan. The PM will evaluate the performance of all project team members. The PM is also responsible for acquiring human resources for the project by skillset. The PM must possess the following skills: leadership/management, budgeting, scheduling, and effective communication.

Assistant Project Manager (APM), (1 position): responsible for creating project planning documents (i.e. Project Management Plan), taking meeting minutes, reporting to the PM on

changes and updates made to the project for approval, managing the procurement process, and collecting daily reports from the site management team. The Assistant Project Manager is also responsible for broadcasting daily site reports to relevant stakeholders as directed by the Project Manager.

Sound & Acoustics Engineer (SE), (1 position): responsible for determining the conductivity of the buildings sound and suggesting ways to create proper sound acoustics within an acceptable range. The SE is also responsible for documenting recommendations in a written document outlining various rooms and spaces to be issued to the Architect.

Accountant: responsible for all financial transactions and financial reporting pertaining to the project.

Electrical Engineer (EE), (1 position): responsible for ensuring that the building operates at an optimum and efficient electrical capacity. The EE is responsible for producing an electrical floorplan, lighting layout, switches, rises, etc. to be submitted to the Architect.

Structural Engineer (SE), (1 position): responsible for the structural integrity of the building and produces structural calculations and drawings to be issued to the Architect.

Mechanical Engineer (ME), (1 position): responsible for the air-conditioning systems, ensuring that they provide the necessary cooling capacity to maintain the CFM's and airflow in the building. The ME also produces an air-conditioning, ducting and supply line layout to be submitted to the Architect.

Plumbing Engineer (PE), (1 position): responsible for producing floor layouts showing the lavatories, water closets, urinals, supply lines, waste water lines and connections to the sewer system. The PE will also submit drawings to the Architect.

Geotechnical Engineer (GE), (1 position): responsible for determining the soil and site conditions, ensuring that the building is duly anchored in the allocated spaces. The GE produces a pile drawing locating the piles on a grid system and indicating the size, reinforcement and strength of each pile.

Hydrologist (H), (1 position): responsible for measuring water tables, water flow, and drainage. The Hydrologist is responsible for indicating the type of drainage system applicable for the building's functioning.

Quantity Surveyor (QS), (1 position): responsible for collecting data based on the construction specifications and drafting documents to come to a cost analysis for the proposed project.

Land Surveyor (LS), (1 position): responsible for topography and contour mapping.

Interior Designer (ID), (1 position): responsible for ensuring the design theme for interior spaces, furniture, ceiling-wall colours, fabric, materials, etc. The ID is also responsible for the proper placement of all building furniture to maximize space.

Gofer (G), (1 position): person available to run errands for the project

Field Superintendent (FS), (1 position): responsible for any and all production and business pertaining to the site works.

Foreman (F), (1 position): responsible for the technical requirements as per the specifications and drawings. The Foreman ensures that each skilled worker carries out the work per the specifications.

Draftsman (D), (1 position): responsible for all revisions, 2D and 3D drafting, designs and details based on change orders and addendums.

Electrical Subcontractor (ES), (1 position): responsible for reading and calculating electrical drawings and ensuring their correct placement in the building. In addition, the ES is responsible for installing all building and site lighting as per electrical and site layouts and schedules.

Plumbing Subcontractor (PS), (1 position): responsible for reading and calculating plumbing drawings and ensuring their correct placement in the building within schedule constraints.

Fire and Safety Subcontractor (FSS), (1 position): responsible for determining the necessary apparatus required to ensure fire safety. The FSS is also responsible for the installation of the necessary apparatus to ensure fire safety within schedule constraints.

Roofing Subcontractor (RS), (1 position): responsible for reading Architectural drawings pertaining to the roof layout and constructing the roof in accordance with the specifications and schedule constraints.

Tiling Subcontractor (TS), (1 position): responsible for reading the floor plan drawings and installing tiles as per layouts and in accordance with acceptable industry standards and within schedule constraints.

Pool Subcontractor (PS), (1 position): responsible for Architectural drawings and uses geometric calculations to lay out the pool on the deck and build in accordance to standards and within schedule constraints.

Faux Installation Subcontractor (FDIS), (1 position): responsible for installing all faux components within schedule constraints.

Windows and Doors Subcontractor (WDS), (1 position): responsible for ensuring that the window and door schedules and specifications are adhered to in the manufacturing of the windows and installation of same in accordance with the drawings and within schedule constraints.

Project Organizational Charts

The following RACI chart shows the relationship between project tasks and team members. Any proposed changes to project responsibilities must be reviewed and approved by the project manager. Changes will be proposed in accordance with the project's change control process. As changes are made all project documents will be updated and redistributed accordingly.

	Project Manager	Engineers	Subcontractors	Field Superintendent	Assistant Project Manager	Site Workers	Accountant	Forman
Requirements Gathering	A	R	I	R	R	I		I
Building Design	A	R						
Change Requests	A		I	I	R	I		I
Feasibility Study	A							
Contract Administration	A				R			
Site Management	A		I	R	R	I		I
Permits/Approvals	A			I	R			
Project Scope	A	I	I	I	R	I		I
Project Communications	A		I	I	R	I		I
Project Quality	A		I	I	R	I		I
Stakeholder Management	A			I	R	I		I
Accounting	A				R		R	
Status Reports	A		I	I	R	I		I
Manage Site Workers	A			R	I	I		
Procurements	A				R			I

Key:
R – Responsible for completing the work
A – Accountable for ensuring task completion/sign off
C – Consulted before any decisions are made
I – Informed of when an action/decision has been made

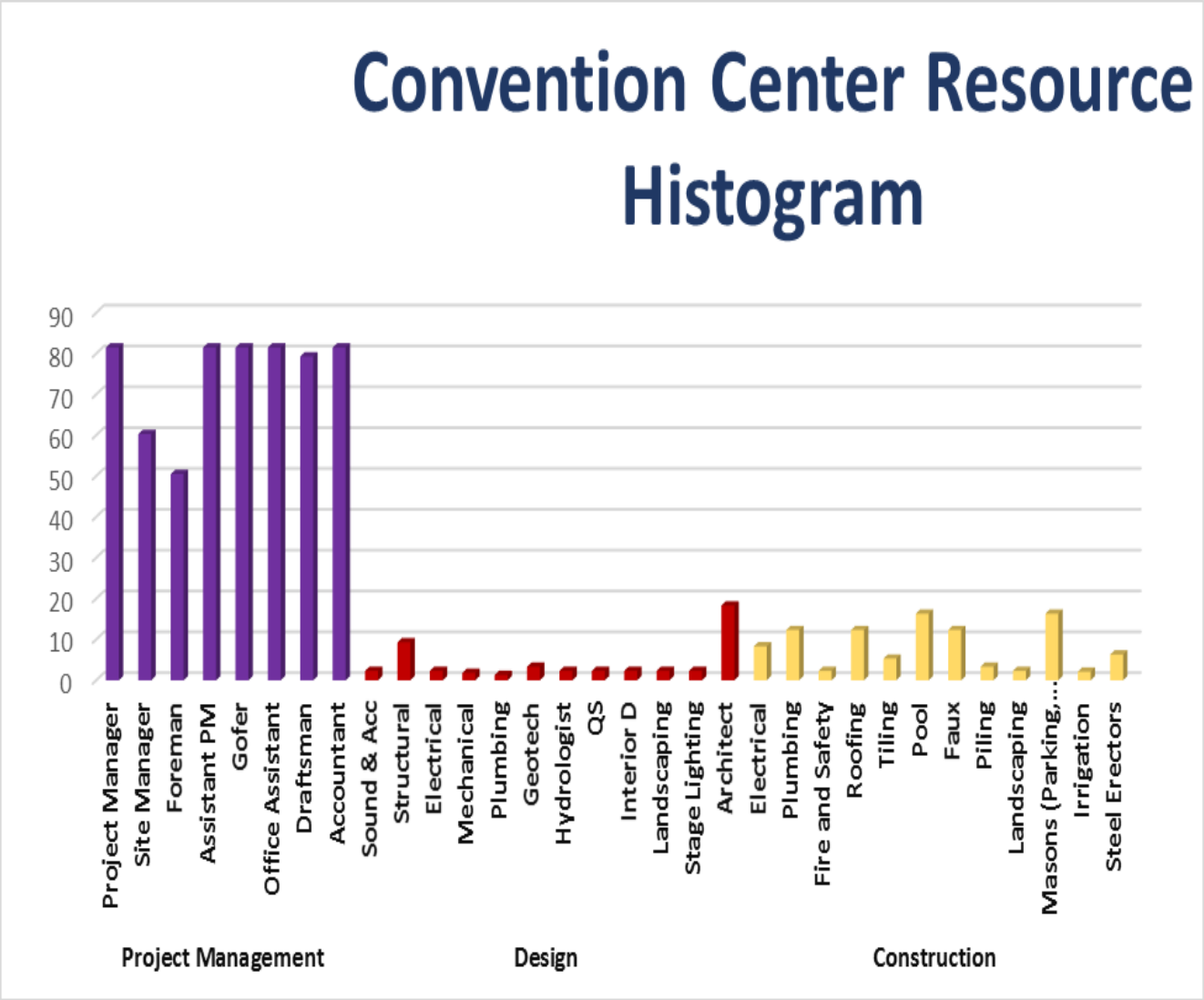
Staffing Management

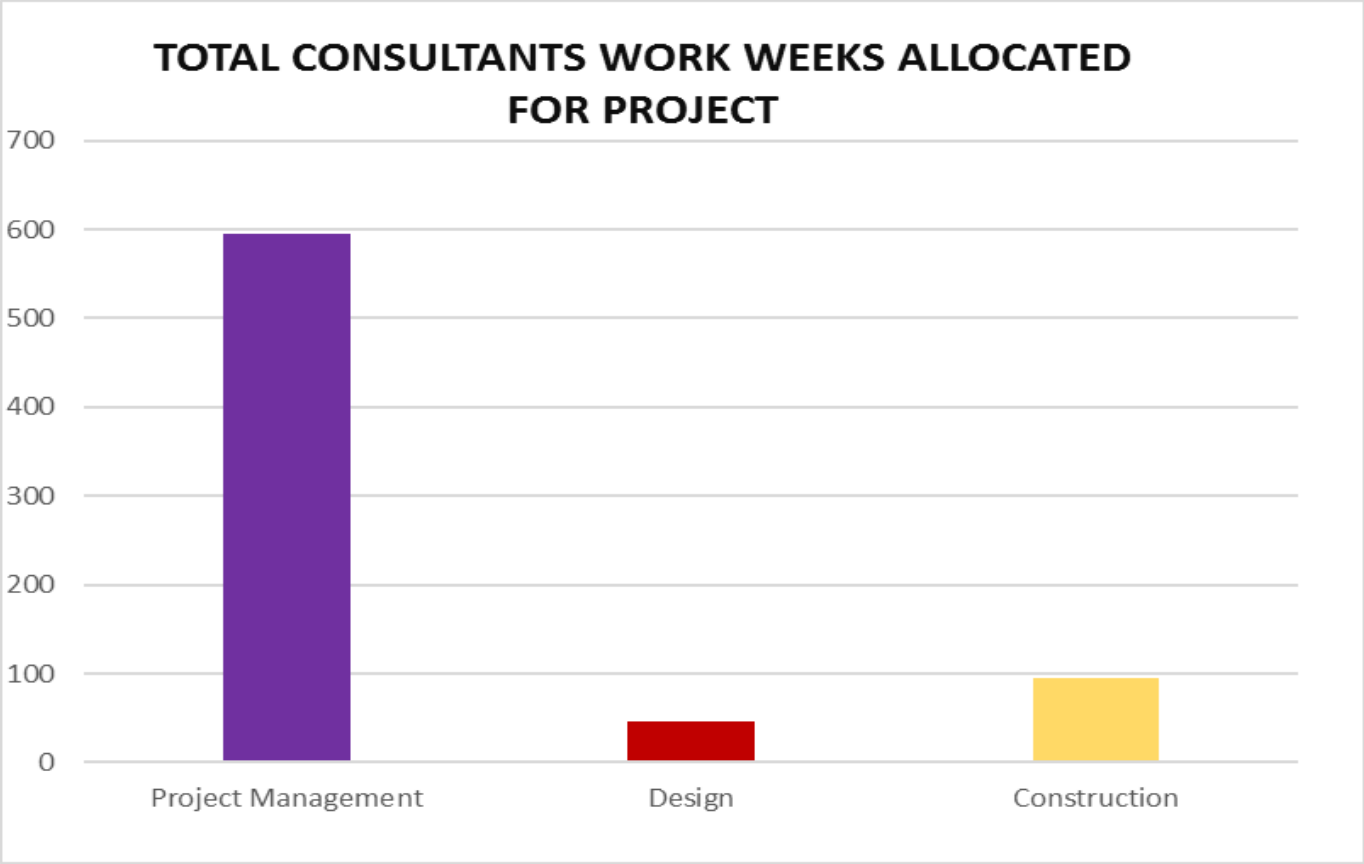
Staff Acquisition:
For the Building of the Convention Center Project, the project staff will consist of a few internal resources. However, much of the work will be subcontracted to external resources. There will be outsourcing/contracting performed within the scope of this project. The Project Manager will negotiate with various companies in order to identify and assign

resources for the project. All resources must sign a contract/agreement with the performing organization before the resource may begin any project work. The managerial staff and office workers will work at the office of ABC Designs and be required to visit the site daily. The subcontractors and site workers will work on site until contract completion.

Resource Calendars:

The Building of the Convention Center will last for a total of 81.2 weeks. All resources are required before the project can begin. The resource histograms below illustrate the number of weeks required to complete the project management, design and construction works for the Building of the Convention Center Project.





Training:
Training is required for the site construction workers employed directly by ABC Designs. This training will equip the workers with the necessary knowledge to install and erect the steel structure. To guide these sessions, a professional Structural Engineer from the Allied Steel (Steel Fabricators) will be contracted to guide and instruct the site workers.

With respect to the other employees and contracted workers, they are all fully capable of functioning in the capacity for which they have been hired.

Performance Reviews:
The project manager will review the overall performance of the project during the project lifecycle. At the onset of the project, the Project Manager will communicate with the Assistant Project Manager and Field Superintendent to inform them of all expectations of the work to be performed. Once the Assistant Project Manager turns over the weekly work order to the Field Superintendent, it is his responsibility to manage and evaluate each team member's performance and judge how effectively they are completing their assigned work. Concurrently, it is the Assistant Project Manager's responsibility to evaluate each of her team members, in the office, and judge how effectively they are completing the work assigned. Prior to releasing project resources, in accordance to the payment schedule, the Project Manager will meet with the Assistant Project Manager and provide feedback on employee project performance. In turn, the Assistant Project Manager will meet with the

Field Superintendent to review the formal performance reviews on each team member weekly.

Recognition and Rewards:
Although the scope of this project does not allow for ample time to provide cross-training or potential for monetary rewards, there are several planned recognition and reward items for project team members.

- Labour force is incentivized (bonuses) by early completion.

SPONSOR ACCEPTANCE

Approved by:

_____ Date: _____

Representative of Epic Enterprises
Client

Figure 30 Human Resource Plan. Adapted from *Project Management Docs.* Retrieved November 16, 2016 from http://www.projectmanagementdocs.com/template/Human-Resource-Plan.doc

4.7 Project Communications Management

To ensure that information communicated about the project during the project lifecycle will be disseminated to the appropriate parties at the correct time, the Communications Management Plan, seen in **figure 32,** was developed using the *PMBOK® Guide*. The plan details how each stakeholder would receive information from members of the project team, the frequency of communication, the information that would be communicated to them and the person responsible for ensuring that the correct information was received by the communication sent (Project Management Institute, 2013, p. 289).

An interview was conducted with Mr. E. B. Rolle, the Project Manager, to ascertain the communication types and delivery methods previously used by the company. The information gathered, along with a communications requirements analysis completed by the Assistant Project Manager, are included in the Communication Matrix, seen **in figure 31** below.

Project Name: Building of a Convention Center Project Objective: To build a convention center Prepared by: C. Walker (Assistant Project Manager) Submitted to: CEO, Epic Enterprises	Project Manager: E. B. Rolle Project Sponsor: CEO, Epic Enterprises Date Prepared: 27 October 2016 Possible Number of Communication Channels: 648

Project Team Communication Matrix

Communication Type	Deliverable	Description	Delivery Method	Frequency	Owner	Audience
Personal Communication	Project updates	Regular communication	Telephone Calls	Needs basis	Project Manager/Assistant Project Manager	CEO Board of Directors
	Project updates	Regular communication	Telephone Calls E-mail	Needs basis	Project Manager/Assistant Project Manager	Sub consultants Subcontractors
	Project updates	Regular communication	Telephone Calls E-mail Meetings	As needed	Project Manager	Assistant Project Manager
	Project updates	Regular communication	Telephone Calls E-mail	Daily	Assistant Project Manager	Field Superintendent
	Project updates	Regular communication	E-mail Conversation	Daily	Field Superintendent	Foreman
	Project updates	Regular communication	E-mail	Needs basis	Project Manager/Assistant Project Manager	Financial Advisor
	Procurement update	Update on status of products and shipping	E-mail Conversation Web conference	Weekly	Project Manager/Assistant Project Manager	Suppliers
	Project updates	Regular communication	Face to Face Communication	Daily	Foreman	Subcontractors
	Instructions and Issues	Regular communication	Face to Face Communication	Daily	Subcontractors	Site workers
Reports	Project status report (Project Process)	Regular update on critical project issues	E-mail	Weekly	Project Manager	Project Manager CEO Board of Directors Project Team
	Quality audit report	Regular updates on project quality performance	E-mail	Bi-monthly	Assistant Project Manager	Project Manager CEO Board of Directors Project Team

	Financial report	Regular updates on project finances	E-mail	Weekly - Friday	Project Manager	Quality Manager Project Manager CEO Board of Directors
	Compliance report	Regular updates on pending permits, extensions, deviations, request for information (RFI), etc.	E-mail	Weekly - Friday	Project Manager	Project Manager CEO Board of Directors
	Task report	Regular updates on critical project issues pertaining to the external team (sub consultants and subcontractors)	E-mail	Weekly - Every Monday morning after Team meeting	Assistant Project Manager	Project Manager Project Team Quality Team
Presentations	Project review	Project status updates	Meeting	Monthly	Project Manager	Project Manager Project Sponsor Project Team
	Final account	A complete audit of project finances from the project, done at the end of the project. In addition to operational costs' projections.	Meeting	Once	Project Manager and Assistant Project Manager	Project Manager Assistant Project Manager CEO Board of Directors
Project Announcements	Task reminders	Task owner schedule reminders	E-mail	Daily	Assistant Project Manager	Project Manager Project Team

	Change Request/Orders	Request to add or remove scope from the project.	Written (Standard Form)	Needs basis	Project Manager	Project Manager Project Team CEO Board of Directors Sub consultants Subcontractors
	Project updates	Project updates for Community Members	Written	Needs basis	Project Manager	Community Members
Reviews and Meetings	Team meeting	Meeting to review project status	Planning Meeting	Weekly First thing Monday Morning	Assistant Project Manager	Project Manager Project Team Assistant Project Manager
	Financial report	Regular updates on project finances	Progress Meeting	Bi-monthly	Project Manager	CEO Board of Directors Project Manager
	Project status meetings (Project Process)	Regular updates on critical project issues	Progress Meeting	Bi-monthly	Project Manager	Project Manager CEO Board of Directors Project Team
	Planning	Regular updates and project planning	Progress and Planning Meeting	Daily	Project Manager	Assistant Project Manager
	Consultant Meeting	Technical planning session to collaborate on work schedules, installations, delays, issues, etc.	Planning Meeting	By request	Project Manager	Assistant Project Manager Sub consultants
	Site Meeting	Regular updates and project planning	Progress/Planning Meeting	Monthly	Project Manager	Foreman Subcontractors Site Superintendent Assistant Project Manager
	External Regulatory Meeting	Meeting at the request of Governmental	Meeting	By request	Project Manager	Project Manager Assistant Project Manager Regulatory Governmental

		Regulatory Agencies				Agencies
Team Morale	Team event	Regularly schedule team morale events	Event	Quarterly	Assistant Project Manager	Project Manager Project Sponsor Project Team

Figure 31 Communications Matrix. Adapted from *PMI Puget Sound Chapter.* Retrieved October 27, 2016 from http://pugetsoundpmi.org/images/downloads/Project_Management_document_templates/communication_matrix.xls

Communications Management Plan

Project Name: Building of a Convention Center **Project Manager: E. B. Rolle**
Project Objective: To build a convention center **Project Sponsor: Epic Designs**
Prepared by: C. Walker **Date Prepared: 27/10/2016**
Submitted to: CEO and Board of Directors of Epic Designs

Introduction

The Communications Plan will serve as a guide to assist in communication between the stakeholders of the Building of the Convention Center Project. The Project Manager and Assistant Project Manager will take the primary role in ensuring effective communications on this project. The communications matrix is a major section of this plan. It documents the communications requirements, the information being communicated, the audience for each communication, the frequency of communication, and the individual responsible for the communication or dissemination of the information to the appropriate audience.

Audiences

The major audiences for this project are listed below.

Project Sponsors: CEO and Representative from the Board of Directors, Epic Designs

Project Manager
Assistant Project Manager
Project Team
Regulatory Governmental Agencies
Sub consultants
Subcontractors
Financial Advisor
Site workers

Communication Delivery Methods and Technologies
The primary communication vehicles are e-mail, phone, face-to-face (personal communication), meetings, reports, presentations and announcements.

Communications Matrix
See Building of the Convention Center Communications Matrix attached.

Communication Standards
There are currently no organizational communication standards.

Figure 32 Communications Management Plan. Adapted from *PMI Puget Sound Chapter*. Retrieved October 27, 2016 from http://pugetsoundpmi.org/images/downloads/Project_Management_document_templates/communications_management_plan_template.doc

4.8 Project Risk Management

Although Project Risks were identified during the development of the Project Charter, and taken into consideration while planning Project Time and Cost Management, Project Risk Management was the final knowledge area addressed during the planning for the building of the Convention Center.

As indicated in section 1.2.5.8, to adequately identify and plan for the project risks, risk management was planned, then the project risks were identified, qualitatively analysed and finally responses planned for each identified risk. Risks were not quantitatively analysed due to a lack of tools, for example simulation software, that would be required during the process.

Although, risk management was completed as the final planning activity in the development of the Project Management Plan, during the development of the plan, the Assistant Project Manager and Project Manager were actively managing the risks that were identified and arose during project management planning.

To plan risk management, in accordance with Project Risk Management described in the *PMBOK® Guide*, the previously developed subsidiary plans, including the

Project Charter and Stakeholder register, were used as inputs to the process. The tools and techniques used were analytical techniques, expert judgement, and meetings. The output developed was the Risk Management Plan seen below in **figure 33.** The plan speaks to how risks will be identified, analysed, planned for and monitored and controlled throughout the project lifecycle (Project Management Institute, 2013, p. 313).

Risk Management Plan

Project Name: Building of the Convention CenterProject Manager: E. B. Rolle
Submitted to: Owner, Epic EnterprisesProject Sponsor: Owner, Epic Enterprises
Prepared by: Carola Walker, Assistant PMDate prepared: December 16, 2016

INSTRUCTIONS: The Risk Management Plan briefly describes the purpose, terminology and process of risk management for this project. Use this document in conjunction with the Risk Log template.

BACKGROUND

- This document is intended for use by the Project Manager and Assistant Project Manager.
- Risks are positive or negative events or conditions that may or may not occur during the project lifecycle and can impact project objectives.
- Impact is defined as the ability to increase or decrease the probability of an event or condition.
- Trigger is defined as an event that marks the occurrence of a risk.
- A contingency plan is a plan designed to take account of a possible future event or circumstance.
- Risks are controlled by watching for triggering events of risks and executing the corresponding response plan.

IDENTIFYING RISKS

Initially, risks will be identified while developing the project charter. However, during creation of the subsidiary plans, a comprehensive risk register will be compiled. Finally, during risk identification, the risk register will be reviewed to include or remove any risks that may or may no longer be applicable to the project. The risk register will be created and maintained by the Assistant Project Manager, under the responsibility of the Project Manager. The categories of risks relevant to this project are; financial, planning, stakeholder, and scheduling.

ANALYZING RISKS
The impact and probability of risks will be evaluated using a probability impact matrix during qualitative risk analysis. There will be a response plan developed for all risks identified as having any impact on the project, positive or negative.

PLANNING RISK RESPONSES
The project management team, including consultants, vendors and contractors, will identify and assist with planning risk responses. However, the Project Manager will be in charge of planning risk responses with the Assistant Project Manager managing data collection and storage.

MONITORING AND CONTROLLING RISKS
The Assistant Project Manager will monitor the status of risks by comparing the data collected during project execution with the risk register and risk analysis summary. The risk register will be updated weekly and communicated to the Sponsors and project management team during project status meetings. The Project Manager is responsible for deciding when to execute a risk response.

Figure 33 Risk Management Plan. Adapted from *PMI Puget Sound Chapter*. Retrieved September 18, 2016 from http://pugetsoundpmi.org/images/downloads/Project_Management_document_templates/risk_management_plan_and_log.xls

To identify the project risks, the Risk Management Plan, Cost Management Plan, Schedule Management Plan, Quality Management Plan, Human Resource Management Plan, Scope baseline, Activity Cost and Duration Estimates, Stakeholder Register and Procurement documents were used as inputs to the process. The tools and techniques employed were documentation reviews, and expert judgement. The risk register below is the output from this process. However, there are a few elements that have been added to the chart below as it will be used during project execution to control risks. The risk register was compiled in Microsoft Excel 2016.

Chart 7 Risk Register (Source: C. Walker, The Author, December 2016)

Risk ID	Risk Description	Category	Date	Status	Responsible Individual	Probable Cause of Risk	Prevention Strategy	Trigger Event	Contingency Plan	Contingency Plan Activation Date	Planned Resolution Date	Risk Close Date	Comments
1	Price increase on materials over time	Financial	21-Oct-16	Open	Assistant Project Manager								
2	Damage to materials on site	Financial	21-Oct-16	Open	Site Foreman								
3	Accidents on site	Financial	21-Oct-16	Open	Site Foreman								
4	Underestimating of Project Cost	Financial	21-Oct-16	Open	Project Manager								
5	Regulatory demands not consistent with approved drawings	Planning	21-Oct-16	Open	Architect/ Project Manager								
6	Client unauthorized or misplaced involvement in the project	Stakeholder	21-Oct-16	Open	Project Manager								
7	Sever climate changes	Scheduling	21-Oct-16	Open	Assistant Project Manager								
8	Shipping delay	Scheduling	21-Oct-16	Open	Assistant Project Manager								
9	Production/Fabrication delay	Scheduling	21-Oct-16	Open	Project Manager								

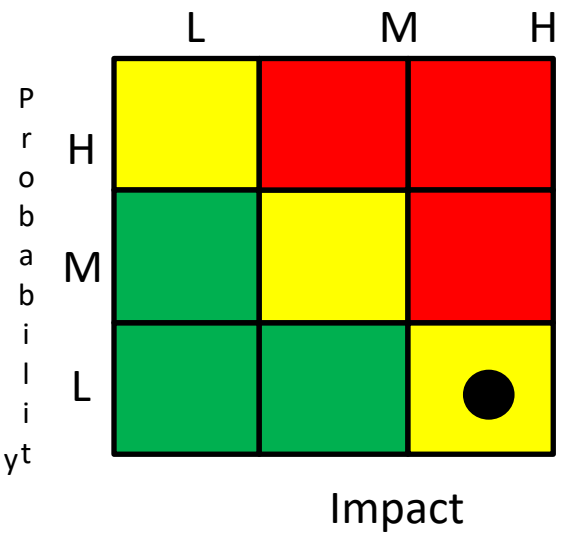
10	Design delay	Scheduling	21-Oct-16	Open	Architect								
11	Non-compliant contractor	Scheduling	20-Dec-16	Open	Project Manager								

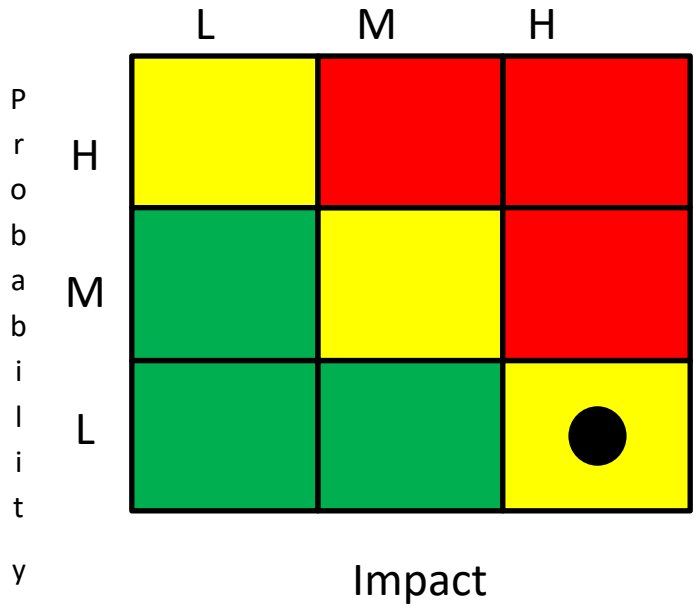
In addition, to detailing a list of identified risks and risk responses, the risk register will be used to capture information regarding how each risk is prioritized by combing its probability of occurrence and impact, which are both aspects of Qualitative Risk Analysis. To perform Qualitative Risk Analysis, the Risk Management Plan, Risk Register and Scope Baseline were used. Microsoft Excel 2016 was used as a tool to capture the information detailed in **Chart 7** above, and also used to produce **figure 34** below. The tools and techniques used during this process were risk probability and impact assessment, risk urgency assessment and expert judgement. In addition, a 3x3 probability and impact matrix was employed to prioritize each risk for planning risk responses.

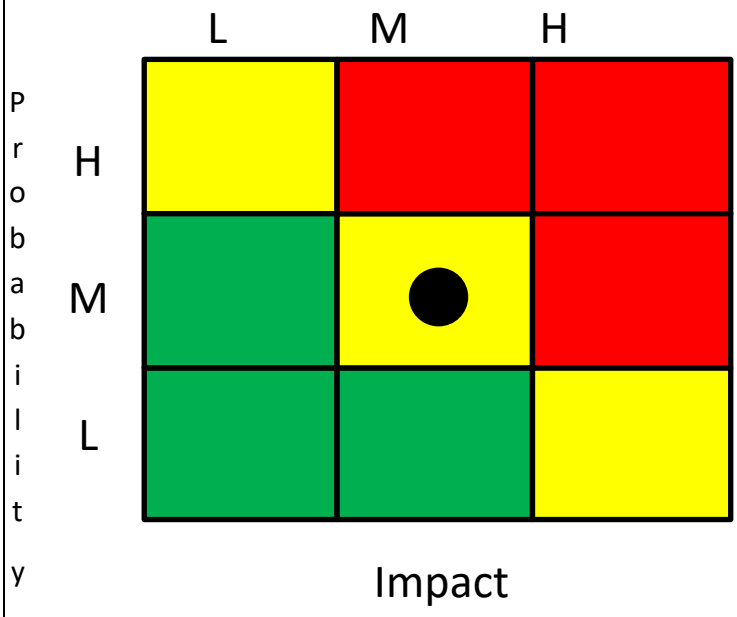
Based on the probability of each risk occurring and its possible impact on the project, a black circle is placed in the expected risk position. The red zone represents high risks, the yellow zone moderate risks and the green zone low risks. To determine which risks can be categorized as having a high, medium or low probability of occurrence and having a high, medium or low impact on the project, a meeting was conducted with Mr. E. B. Rolle, the expert in the field.

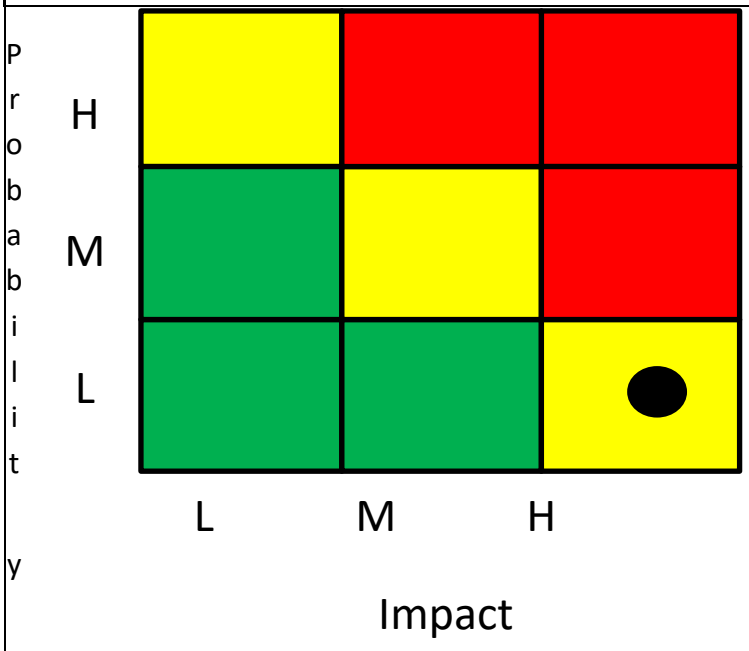
Project Name: Building of the Convention Center

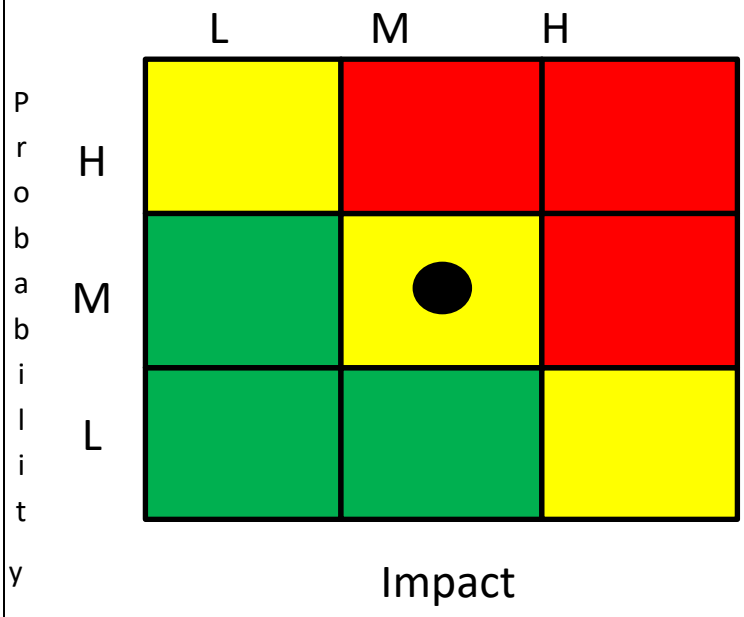
ID # 1. Price increase on materials over time

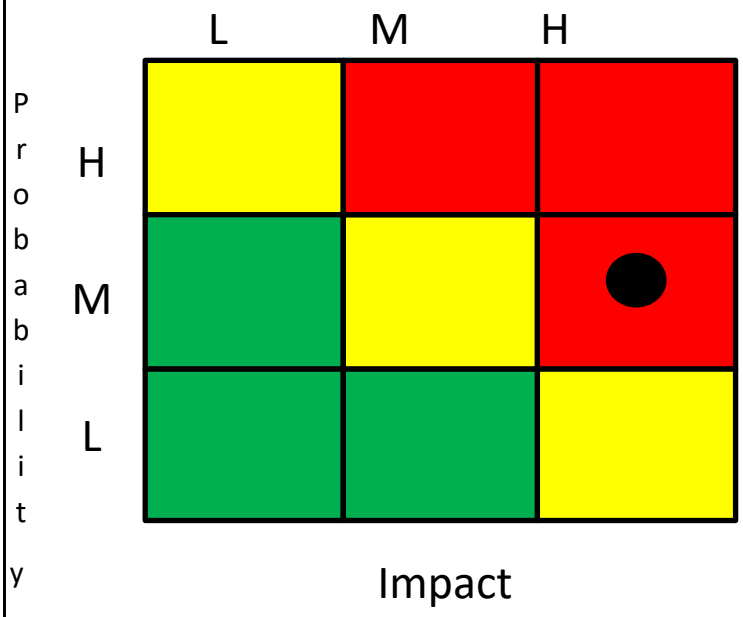
Description of Risk Event:	Prevention Strategies:
Price increases of materials being purchased as the project progresses.	Procurement contracts must be Firm Fixed Price (FFP)
Probable Causes:	**Risk Response/Contingency Plans:**
Inflation	Risk Response: Avoid/Mitigate Contingency Plan: Contact sellers and meet regarding contract terms and agreements
Risk Matrix:	**Triggers Events:**
	Increase in purchase price of items being procured

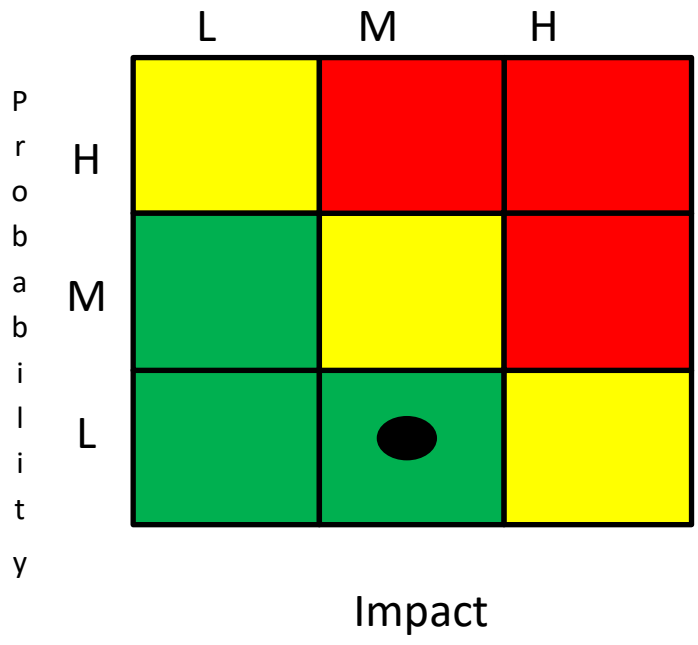
Risk ID # 2. Damage to Materials	
Description of Risk Event:	Prevention Strategies:
Materials damaged once in care of project team members	Ensure proper storage trailers, adequate site management and on-site supervision. Also, ensure that site supervisors train and enforce proper handling and care for project materials.
Probable Causes:	Risk Response/Contingency Plans:
Improper storage, handling, weather conditions or human error	Risk Response: Avoid/Transfer Contingency Plan: All risk builder's insurance
Risk Matrix:	Triggers Events:
	The occurrence of physical injuries, material waste or repurchasing materials

Risk ID # 3. Accidents on Site	
Description of Risk Event:	Prevention Strategies:
Incidents that can occur resulting in bodily injury or damaged project materials	Ensure proper site management and supervision. Plan for adequate site help and contract only experienced subcontractors or workers who are covered under all risk builder's insurance
Probable Causes:	Risk Response/Contingency Plans:
Weather conditions or human error	Risk Response: Avoid/Transfer Contingency Plan: Injury or waste to be at the expense of the subcontractors or contractors all risk builder's insurance.
Risk Matrix:	Triggers Events:
	Human injury and material damage

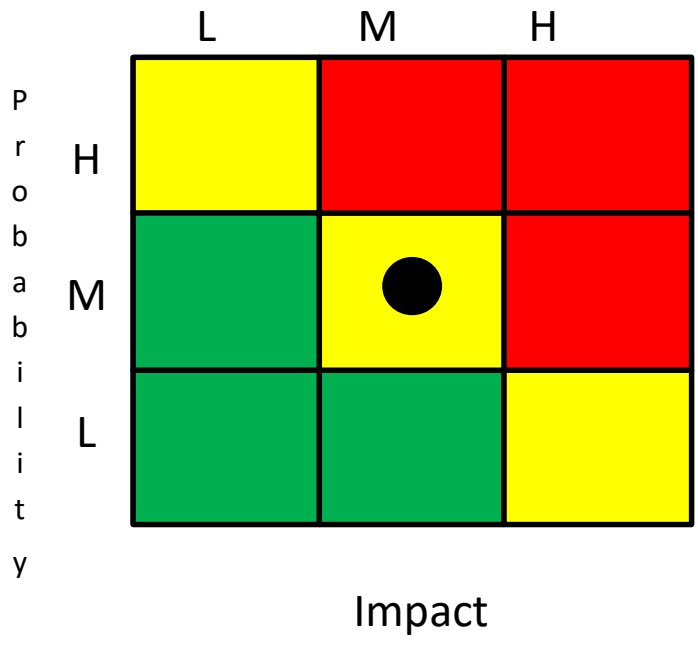
Risk ID # 4. Underestimation of Project Costs	
Description of Risk Event:	Prevention Strategies:
Project budget not accurately calculated, resulting in insufficient funds to complete project	Project Manager and Assistant Project Manager will both check budget more than 3 times to ensure accuracy
Probable Causes:	Risk Response/Contingency Plans:
Human error	Risk Response: Avoid Contingency Plan: Contingency added to budget
Risk Matrix:	Triggers Events:
	Data shows that there are cost deviations (increase)

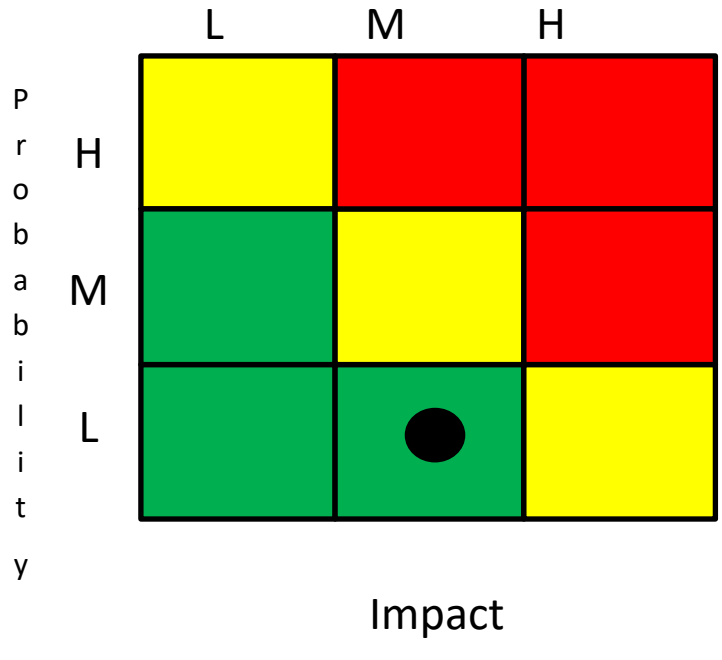
Risk ID # 5. Regulatory demands not consistent with approved drawings	
Description of Risk Event:	Prevention Strategies:
Regulatory bodies do not provide deliverable approvals even though the details in the drawings have been approved by their counterparts	Meet with representatives from the regulatory bodies more than once to review requirements and compare with deliverables before formal inspection
Probable Causes:	Risk Response/Contingency Plans:
Human error	Risk Response: Accept Contingency Plan: Contingency added to budget for rework or to complete works
Risk Matrix:	Triggers Events:
	Denied permits and/or inspections even though specifications were adhered to

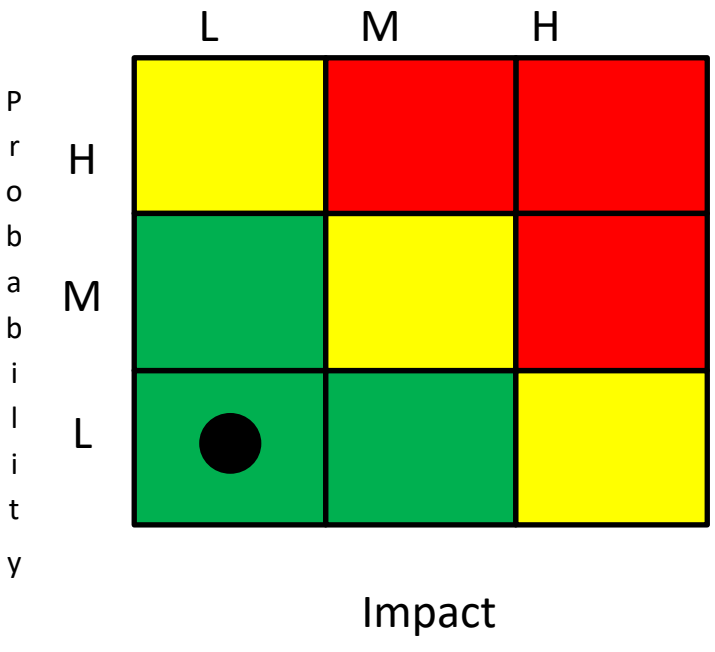
Risk ID # 6. Client unauthorized or misplaced involvement in project	
Description of Risk Event:	Prevention Strategies:
Client making or communicating project decisions without permission to do so	Discuss and include client expected involvement in project agreement, review often and detail consequences of non-conformance.
Probable Causes:	Risk Response/Contingency Plans:
Ineffective stakeholder management	Risk Response: Mitigation Contingency Plan: to review Client contract with Sponsors, and if damages or delays result from their actions, contract conditions will be reinforced
Risk Matrix:	Triggers Events:
	Client communicating with project personnel or making decisions that they are not authorized to do

Risk ID # 7. Severe Climate Changes	
Description of Risk Event:	Prevention Strategies:
Weather conditions persisting more than 2 days that cause scheduling delays	The only way to prevent this risk is to canopy the entire construction site. That would be out of budget; therefore, this risk will be accepted and dealt with if it arises.
Probable Causes:	Risk Response/Contingency Plans:
Act of Nature	Risk Response: to accept that acts of nature occur and in this case the funds allocated for the budget will not allow for the desired prevention strategy Contingency plan: a time contingency has been included
Risk Matrix:	Triggers Events:
	Weather reports on the news

<table>
<tr><td colspan="2">Risk ID # 8. Shipping delays</td></tr>
<tr><td>Description of Risk Event:</td><td>Prevention Strategies:</td></tr>
<tr><td>Schedule delays resulting from project materials missing shipping dates</td><td>Include consequences of delay in contract with fabricators and allocate two-week scheduling contingency</td></tr>
<tr><td>Probable Causes:</td><td>Risk Response/Contingency Plans:</td></tr>
<tr><td>Human error</td><td>Risk Response: to mitigate the likelihood of this risk occurring by having all items scheduled to be shipped no less than 5 weeks before use and communicating with all vendors daily to check the status of procured goods.

Contingency plan: to add lead time as schedule contingency</td></tr>
<tr><td>Risk Matrix:</td><td>Triggers Events:</td></tr>
<tr><td> 
</td><td>Shipping date of materials delayed</td></tr>
</table>

Risk ID # 9. Production/Fabrication delay	
Description of Risk Event:	Prevention Strategies:
Delayed production of goods, for example, steel superstructure	Select a fabricator that has the experience, technical expertise and work force to deliver the deliverable. Communicate daily to ensure production specifications are understood. Travel to ensure fabrication is on schedule and that technical and quality specifications are adhered to. Allocate scheduling contingency and ensure contract conditions speak to such circumstances.
Probable Causes:	Risk Response/Contingency Plans:
Human error in estimating fabrication timeline or payment delay from sponsor	Risk Response: to mitigate the likelihood of this risk occurring by having all items scheduled to be delivered no less than 3 weeks before use and communicating with all vendors daily to check the status of procured goods. Contingency plan: contract enforcement and time contingency included in schedule
Risk Matrix:	Triggers Events:
	Missed production/fabrication deadlines

Risk ID # 10. Design delay	
Description of Risk Event:	Prevention Strategies:
Delay in completed designs	Ensure that the Architect is experienced and available to complete the work
Probable Causes:	Risk Response/Contingency Plans:
Architect underestimated time required to complete activity	Risk Response: to avoid having a design delay by ensuring that there is enough planned time in the schedule. Contingency Plan: to have the draftsman assist the Architect and consultants to complete the designs by the deadline
Risk Matrix:	Triggers Events:
	Missed design deadline

<table>
<tr><td colspan="2">Risk ID # 11. Non-compliant contractor</td></tr>
<tr><td>Description of Risk Event:</td><td>Prevention Strategies:</td></tr>
<tr><td>The contractor does not perform according to the contract or defaults on the contract.</td><td>Ensure the selected contractor has the experience and financial resources to perform the task before selecting him or her.</td></tr>
<tr><td>Probable Causes:</td><td>Risk Response/Contingency Plans:</td></tr>
<tr><td>The contractor underestimated the task or project, unable to secure proper employees to perform the task or has unforeseen financial conditions that prevent the contractor from completing the project.</td><td>Risk Response: to avoid it by detailing specific criteria to ensure that subcontractor can perform and is financially prepared to complete the project.

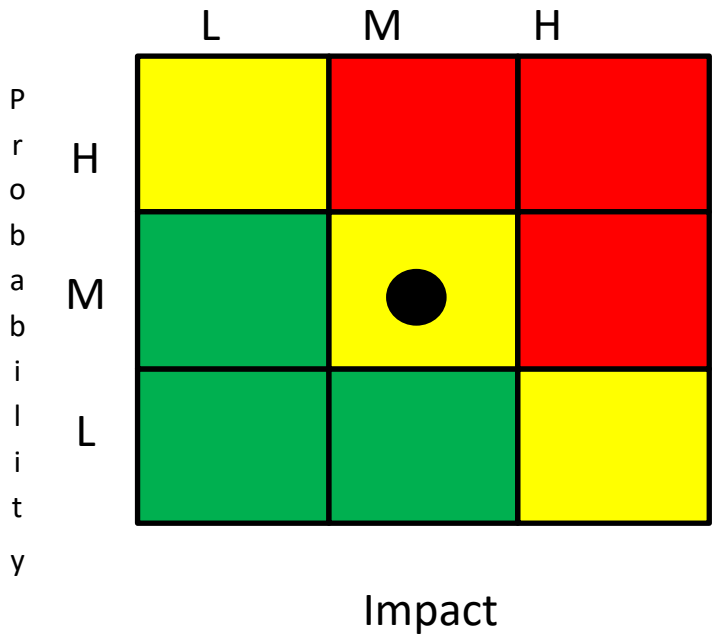
Contingency Plan: to use one of the qualified but unselected contractors to complete the task or project.</td></tr>
<tr><td>Risk Matrix:</td><td>Triggers Events:</td></tr>
<tr><td> 
</td><td>Our data shows the contractor is falling behind established limits or doesn’t have the resources to complete the project.</td></tr>
</table>

Figure 34 Qualitative Risk Analysis Summary. Adapted from *PMI Puget Sound Chapter*. Retrieved September 18, 2016 from http://pugetsoundpmi.org/images/downloads/Project_Management_document_templates/risk_management_plan_and_log.xls

Finally, Risk Responses were planned for each risk to reduce the threat to project objectives. The Risk Management Plan and Risk Register were used as inputs to this process. The tools and techniques used were strategies for negative risks or threats, contingent response strategies and expert judgement. The risk responses for each risk can be captured in the Risk Register, but were detailed in **figure 34** the Qualitative Risk Analysis Summary (Project Management Institute, 2013, p. 342).

4.9 Project Procurement Management

Project Procurement Management was conducted after Project Cost, Time and Human Resource Management. To develop a Procurement Management Plan, a template was used. As documented in the *PMBOK® Guide,* the Requirements Documentation, Risk Register, Stakeholder Register and Project Charter were the inputs used in the process. The tools and techniques were expert judgement and meetings, in the form of a personal interview with the lead Project Manager (Project Management Institute, 2013, p. 358).

The plan, in **figure 35**, detailed how procurement would be addressed by the project team throughout the lifecycle of the project. It detailed the procurement management approach, type of contracts to be used, identified procurement risks and procurement risk management, cost determination, procurement constraints, the contract approval process, decision criteria, vendor management approach and performance metrics.

As Procurement Management is integral to the success of the project, and subject to financial and scheduling constraints, it was imperative that all items being purchased by the project team were done efficiently and effectively, thus providing enough time for delivery, within budget and of an acceptable standard of quality. Since most of the materials for the project, including the fabrication of the Steel Superstructure, were to be purchased from international suppliers, it was important

that the Procurement Management Plan identified the items that would be outsourced and the date they were required as seen in the procurement definition, a subset of the plan.

For the purpose of this project, a procurement statement of work was not developed and the Source Selection Criteria was included in the Procurement Management Plan labelled as the Decision criteria. In addition, the Procurement Management Plan identified elements that the Procurement Documents and a sample Checksheet used to measure vendor performance.

PROCUREMENT MANAGEMENT PLAN

BUILDING OF THE CONVENTION CENTER

ABC DESIGNS
NASSAU, THE BAHAMAS

18 NOVEMBER 2016

TABLE OF CONTENTS

Introduction

This Procurement Management Plan sets the procurement framework for this project. It will serve as a guide for managing procurement throughout the life of the project and will be updated as acquisition needs change. A make or buy analysis will not be used for this project as some of this information already exists in the architectural specifications and requirements defined during project initiation, found in the project charter. In addition, due to the vast experience and technical expertise of the project management team, the items to be purchased, made or constructed on site are already known. This plan identifies and defines the items to be procured, the types of contracts to be used in support of this project, the contract approval process, and decision criteria. The importance of coordinating procurement activities, establishing firm contract deliverables, and utilizing metrics in measuring procurement activities is included. Other items included in the procurement management plan are: procurement risks and procurement risk management considerations; how costs will be determined; how standard procurement documentation will be used; and procurement constraints.

Procurement Management Approach

The project manager will provide oversight and management for all procurement activities under this project. The assistant project manager will work with the project manager to identify all items to be procured for the successful completion of the project. The project manager will then review the procurement list prior to purchasing which will be done by the assistant project manager. The project manager will review the procurement items, determine whether it is advantageous to make or buy the items, and begin the vendor selection, purchasing and the contracting process.

Procurement Definition

The following procurement items and/or services have been determined to be essential for project completion and success. The following list of items, justification, and timeline are pending project manager review for submission to the assistant project manager for purchasing to commence:

Item/Service	Justification	Needed By
Steel Superstructure	The skeleton for the building framework	1/6/2017
Reinforced Steel	Used to reinforce all concrete components	2/20/2017
Concrete	This is a mixture resulting from sand and aggregate bound by cement that has chemically reacted with water.	2/20/2017
Plywood	Will be used to produce formwork and in some instances as a substrate	2/20/2017
Timber	Will be used to produce formwork and to reinforce some aspects of the buildings	2/20/2071

Screws and Nails	Fasteners	2/20/2017
In-walls (ClarkDietrich)	Will be used as structural studding	6/5/2017
DensGlass Gold	Substrate for the exterior	6/5/2017
Bat Insulation	Used to maintain the temperature produced by the chill water air-conditioning system in the building	5/25/2017
Gypsum Board	Used as an interior finish for wall systems	5/18/2017
Windows and Doors	Used as a transparent barrier to eliminate water, etc.	5/18/2017
Interior Wall Systems	Used to separate the various rooms	5/18/2017
Faux Mouldings	Form moulding used to mimic known architectural profiles	6/5/2017
Ceilings	Used to separate floor levels	6/5/2017
Mansard Roof System	Mechanically fastened metal C-channel used to profile the roof system	7/12/2017
Standing Seam Roofing	Metal riveted used to protect the plywood and ice and water shield	7/12/2017
Gutter System	Metal system used to divert water into down leaders	6/5/2017
Cement finishes		6/5/2017
Concrete floor System	Structural component used to uphold the dead weight and live weight of a floor system	5/18/2017
Roof deck	Structural component used to uphold the dead weight and live weight of a floor system	7/12/2017
Annex Building (roof deck)	Used to house both restrooms (male and female) and the kitchen holding space	7/12/2017
Chill water air-conditioning system	Designed to provide forced air into the building and to regulate the temperature	7/13/2017
Electrical Transformers	Used to regulate the current into the building	7/13/2017
Telephone System and Equipment	Used to provide telephone communications into the building	7/13/2017
Pergolas	An architectural decorative item	6/5/2017
Deck finishes	Aesthetic feature that provides a non-slip resistance to surfaces	5/25/2017
Pool	Swimming and pleasure purposes	5/25/2017
Sky bar	Provides beverages	6/5/2017
Day beds	Used for massages	6/5/2017
Umbrella tables	For dining and lounge purposes	6/5/2017
Chairs	To sit	6/5/2017
Two elevators	Vertical transport	6/5/2017
Luxury entrance stairs	Entrance way	6/5/2017
Two exit stairs	Exit	6/5/2017

In addition to the above list of procurement items, the following individuals are authorized to approve purchases for the project team:

Name	**Role**
E. B. Rolle	Project Manager
C. Walker	Assistant Project Manager
Ms. Organizer	Office Assistant
Mr. Gofer	Gofer

Make/Buy Decisions

Make	**Buy**
Site Mortar (for laying concrete masonry unit –cmu)	Site concrete
Concrete forming (some)	8” and 12” cinder concrete blocks
Shoring (some)	Reinforced steel rods and ties
Walers (some)	Steel Superstructure
Brackets	Girders and beams
Formworks	Welded Wire Fabric (WWF) mesh
Site concrete (some)	Cement plaster and finishes
	Windows and doors
	Mansard roofing system
	Deck roughing and finishes
	Electrical systems
	Plumbing systems
	Air conditioning systems
	Sound system
	Furnishings
	Tiles
	Wall finishes
	Ceiling and support units
	Pergolas and parapet
	Pool
	Sky bar
	Annex building components
	Site works including: • Parking stops • Shrubs • Trees
	Railings
	Ramps
	Concrete forming (some)
	Shoring (some)
	Walers (some)
	Site concrete (some)

Type of Contract to be Used

Services required for work such as the fabrication of the Steel Superstructure, electrical, roofing, masonry, etc. to be procured for this project will be solicited under labour only contract. This is because in The Bahamas there is the Industrial Encouragement Act. Other services such as integration, automation and management, communications, elevators and sound systems are to be solicited under a firm fixed price contract. The project team will work with the assistant project manager to define the item types, quantities, services and required delivery dates. The assistant project manager will then solicit bids from various vendors. Once the vendor is selected procurement of the items within the required time frame and at a reasonable cost, based on contract conditions, will commence.

All additional items to be procured for this project will be solicited under a materials only contract.

Procurement Risks

All procurement activities carry some potential for risk which must be managed to ensure project success. While all risks will be managed in accordance with the project's risk management plan, there are specific risks which pertain specifically to procurement which must be considered:

- Unrealistic schedule and cost expectations for vendors
- Manufacturing capacity capabilities of vendors
- Conflicts with current contracts and vendor relationships
- Configuration management for upgrades and improvements of purchased technology
- Potential delays in shipping and impacts on cost and schedule
- Questionable past performance for vendors
- Potential that final product does not meet required specifications

These risks are not all-inclusive and the standard risk management process of identifying, documenting, analysing, mitigating, and managing risks will be used.

Procurement Risk Management

As previously stated, project risks will be managed in accordance with the project's risk management plan. However, for risks related specifically to procurement, there must be additional consideration and involvement. Project procurement efforts involve external organizations and potentially affect current and future business relationships as well as internal supply chain and vendor management operations. Because of the sensitivity of these relationships and operations, the project team will include the project sponsor/client and the project team in all project meetings and status reviews.

Additionally, any decisions regarding procurement actions must be approved by the project sponsor/client and project manager before implementation. Any issues concerning procurement actions or any newly identified risks will immediately be communicated to the project management team as well as the project sponsor.

Cost Determination

For this project we will issue a Request for Quote (RFQ) in order to solicit proposals from various vendors which describe how they will meet our requirements and the cost of doing so. All proposals will include vendor support for all items from the procurement definition paragraph as well as the base and out-year costs. The vendors will outline how the work will be accomplished, who will perform the work, vendors' experience in providing these goods, customer testimonials, backgrounds and resumes of employees performing the work, and a line-item breakdown of all costs involved. Additionally, the vendors will be required to submit work breakdown structures (WBSs) and work schedules to show their understanding of the work to be performed and their ability to meet the project schedule.

All information must be included in each proposal, as the proposals will be used as the foundation of our selection criteria. Proposals which omit solicited information or contain incomplete information will be discarded from consideration.

Standardized Procurement Documentation

The procurement management process consists of many steps as well as ongoing management of all procurement activities and contracts. In this dynamic and sensitive environment, our goal must be to simplify procurement management by all necessary means in order to facilitate successful completion of our contracts and project. To aid in simplifying these tasks, we will use standard documentation for all steps of the procurement management process. These standard documents will be developed and revised over a period of time in an effort to continually improve procurement efforts in the future. They should provide adequate levels of detail which allow for easier comparison of proposals, more accurate pricing, more detailed responses, and more effective management of contracts and vendors.

The Assistant Project Manager will develop and maintain a repository on the company's shared drive which will contain standard project management and procurement documentation that will be used for this project. The following standard documents will be used for project procurement activities:

- Standard Request for Proposal Template to include
    - Background
    - Proposal process and timelines
    - Proposal guidelines
    - Proposal formats and media
    - Source selection criteria

    - Pricing forms
    - Statement of work
    - Terms and Conditions
- Internal source selection evaluation forms
- Non-disclosure agreement
- Letter of intent
- Contract types
- Procurement audit form
- Procurement performance evaluation form
- Lessons learned form

Procurement Constraints

There are several constraints that must be considered as part of the project's procurement management plan. These constraints will be included in the RFQ and communicated to all vendors in order to determine their ability to operate within these constraints. These constraints apply to several areas which include schedule, cost, scope, resources, and technology:

Schedule:

- Project schedule is not flexible and the procurement activities, contract administration, and contract fulfilment must be completed within the established project schedule.

Cost:

- Project budget has a contingency reserve built in; however, the reserve may not be applied to procurement activities. Reserves are only to be used in the event of an approved change in project scope.

Scope:

- All procurement activities and contract awards must support the approved project scope statement. Any procurement activities or contract awards which specify work which is not in direct support of the project's scope statement will be considered out of scope and disapproved.

Resources:

- All procurement activities must be performed and managed with current personnel. No additional personnel will be hired or re-allocated to support the procurement activities on this project.

Technology:

- Parts specifications have already been determined and will be included in the statement of work as part of the RFQ. While proposals may include suggested alternative material or manufacturing processes, parts specifications must match those provided in the statement of work exactly.

Contract Approval Process

The first step in the contract approval process is to determine what items or services will require procurement from outside vendors. This will be determined by conducting a cost analysis on products or services which is provided internally and compared with purchase prices from vendors. Once cost analyses are complete and the list of items and services to be procured externally is finalized, the Assistant Project Manager will send out solicitations to outside vendors. Once solicitations are complete and proposals have been received by all vendors, the approval process begins. The first step of this process is to conduct a review of all vendor proposals to determine which meet the criteria established by the project team. Purchases less than $10,000 only require the approval of the Assistant Project Manager; whereas, purchases greater than $10,000 must be approved by the Project Manager and the Sponsor. For these larger purchases the Project Manager and Sponsor will meet to determine which contract will be accepted.

Decision Criteria

The criteria for the selection and award of procurement contracts under this project will be based on the following decision criteria:

1. Ability of the vendor to provide all items by the required delivery date
2. Quality
3. Cost
4. Expected delivery date
5. Comparison of outsourced cost versus in-sourcing
6. Past performance

These criteria will be measured by the Project Manager and Assistant Project Manager. The ultimate decision will be made based on these criteria as well as available resources.

Vendor Management

The Project Manager is ultimately responsible for managing vendors. In order to ensure the timely delivery and high quality of products from vendors the Project Manager, or the Assistant Project Manager will meet weekly with each vendor to discuss the progress for each procured item. The meetings can be in person or by teleconference. The purpose of these meetings will be to review all documented specifications for each product. This forum will provide an opportunity to review each item's development or the service provided in order to ensure it complies with the requirements established in the project specifications. It also serves as an opportunity to ask questions or modify contracts or requirements ahead of time in order to prevent delays in delivery and schedule. The Assistant Project Manager will be responsible for scheduling this meeting on a weekly basis until all items are delivered and are determined to be acceptable.

Performance Metrics for Procurement Activities

The following metrics are established for vendor performance for this project's procurement activities. Each metric is rated on a 1-3 scale as indicated below:

Vendor	Product Quality	On Time Delivery	Documentation Quality	Development Costs	Development Time	Cost per Unit	Transactional Efficiency
Vendor #1							
Vendor #2							

1 – Unsatisfactory
2 – Acceptable
3 - Exceptional

In addition to rating each vendor, actual values will be noted in order to build a past-performance data base for selecting vendors for future procurement activities.

SPONSOR ACCEPTANCE

Approved by:

_____ Date: _____

Representation of Epic Enterprises
Client

Figure 35 *PMBOK® Guide*: Procurement Management Plan. Adapted from *Project Management Docs.* Retrieved November 16, 2016 from http://www.projectmanagementdocs.com/template/Procurement-Management-Plan.doc

4.10 Project Stakeholder Management

Project Stakeholder Management was the last process to be conducted of the initiation process group. To conduct Project Stakeholder Management, the stakeholders involved with the construction of the Convention Center were identified using the inputs, and tools and techniques in **figure 36** taken from the

PMBOK® Guide. As such, the agreement between ABC Construction and Epic Enterprises, the agreement with the fabricators and the initial list of stakeholders outlined in the project charter were reviewed by the Assistant Project Manager and the expert, Mr. E. B. Rolle, to develop a more complete stakeholder register seen in **Chart 8** below entitled Convention Center Stakeholder Register (Project Management Institute, 2013, p. 393).

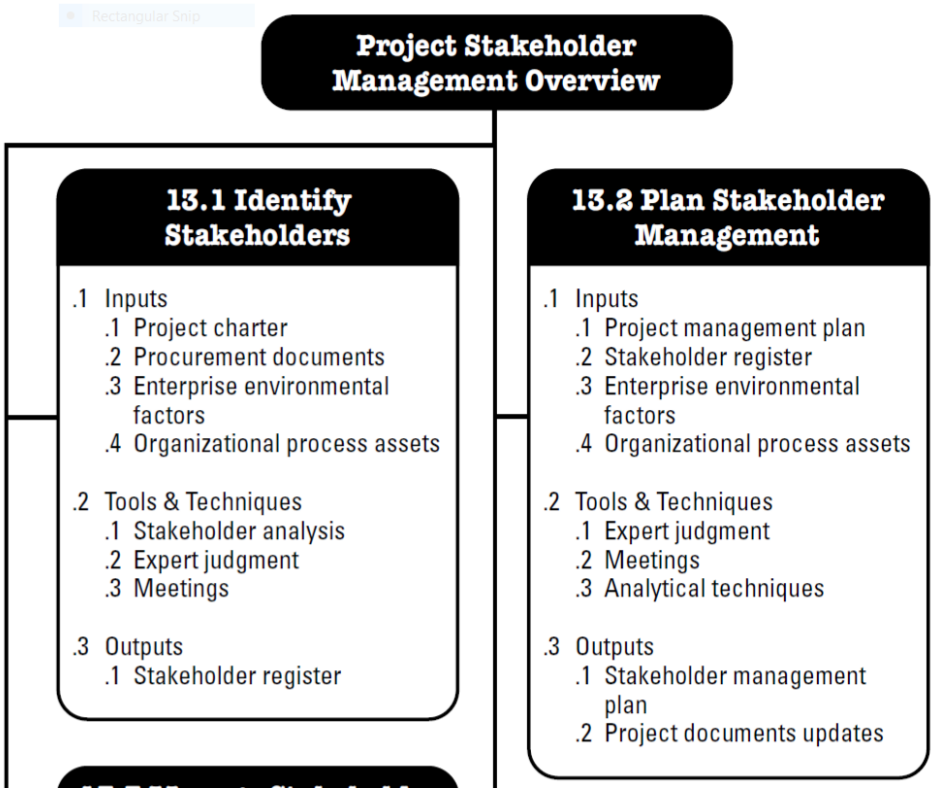


Figure 36 *PMBOK® Guide*: Stakeholder Management Planning Processes Overview. Reprinted from *A Guide to the Project Management Body of Knowledge* (p. 392), Project Management Institute, 2013, Project Management Institute. Copyright 2013 by Project Management Institute, Inc.

In the article *Importance of Stakeholder Analysis in Management Plans,* Kokemuller, an experienced college marketing professor and author, stated that "stakeholder analysis is the review and consideration of the impact stakeholders have on your business" (Kokemuller, 2016). Following the steps described in the *PMBOK Guide*® - outlined in **figure 36** above, after identifying the potential

stakeholders, the relevant information regarding “roles, departments, interests, expectations, and influence levels” (Project Management Institute, 2013, p. 396) were detailed as seen in **Chart 8** below.

Chart 8 Convention Center Stakeholder Register (Source: C. Walker, The Author, August 2016)

STAKEHOLDER REGISTER											
Project Name: Building of a Convention Center, Nassau, The Bahamas **Prepared by: C. Walker, Assistant Project Manager Project Manager: E. B. Rolle** **Project Sponsor: Epic Enterprises Date Prepared: October 21, 2016**											
ID	Name	Organization	Role	Title	Contact Information	Communication Types	Communication Vehicles	Stake In Project	Influence	Perspective Regarding Project	Comments
0	CEO	Epic Enterprises	Financier & Key Decision Maker	Owner	(242)361-8000 ceo@epic.com	Meetings Personal Communication Reports Presentation Announcements	E-Mail Telephone Face to Face	Has high interest in the project and is responsible for the funding of the project. Is most critical throughout enter project lifecycle.	High	Positive	Owns 51% of Company
1	Representative	Epic Enterprises Board of Directors	Key Decision Maker	Member	rep@epic.com	Meetings Personal Communication Reports Presentation Announcements	E-Mail Telephone Face to Face	Has high interest in the project and is highly involved in decision making. Is most critical throughout the project lifecycle.	High	Positive	Owns 49% of Company, represents the siblings of the Owner (7 sisters and 1 brother, all preferred share owners)
2	Mr. D. Money	Epic Enterprises	Financial Controller	Accountant	accountant@epic.com	Personal Communication	E-Mail	Has high interest in the project and is	Med	Positive	Wants to be a member of the Board of Directors and

								highly involved with the Owner and Board of Directors. Is critical throughout the project lifecycle.			is often in meetings that he should not be a part of. Has been giving advice to the Owner and Board as to how much he believes the project should cost which is below market cost.
3	E. B. Rolle	ABC Designs	Design	Architect	(242) 455-9800 ebr@abcdesigns.com	Meetings Personal Communication Reports Presentation Announcements	E-Mail Telephone Face to Face	Has high interest in the project and is responsible for designs. Is critical throughout the duration of the project.	High	Positive	Building design is revolutionary for the country and would bring the architect more business prospects. With such, he is highly involved in the successful completion of this project.
4	E. B. Rolle	ABC Designs	Construction	Contractor	(242) 455-9800 ebr@abcdesigns.com	Meetings Personal Communication Reports Presentation Announcements	E-Mail Telephone Face to Face	Has high interest in the project and has responsibility of managing subcontracts, and construction for entire duration of project.	High	Positive	Same person is also the Designer/Architect
5	E. B. Rolle	ABC Designs	Project Management	Senior Project Manager	(242) 455-9800 ebr@abcdesigns.com	Meetings Personal Communication	E-Mail Telephone Face to Face	Has high interest in the project and has	High	Positive	Same person is also the Designer/Archit

						Reports Presentation Announcements		responsibility for the management of the building of the convention center. Is critical throughout duration of project.			ect and Contractor
6	Ms. C. Walker	ABC Designs	Project Management	Assistant Project Manager	(242) 455-9801 cmw@abcdesigns.com	Meetings Personal Communication Reports Presentation Announcements	E-Mail Telephone Face to Face	Has high interest in the project and has responsibility for assisting in the project management reporting, procurement. Works along with Site Superintendent. Is critical through project duration.	High-Med	Positive	
7	Ms. Organizer	ABC Designs	Office Administration	Office Assistant	(242) ABC-DSGN org@abcdesigns.com	Meetings Personal Communication Reports Presentation Announcements Team Morale	E-Mail Telephone Face to Face	Has high interest in the project, has responsibility for managing in office communications, taking minutes, relaying messages, etc.	Low	Positive	Supporting role
8	Mr. Superintendent	ABC Designs	Construction	Field Superintendent	(242) ABC-DSGN super@abcdesigns.com	Meetings Personal Communication Reports Presentation	E-Mail Telephone Face to Face	Has high interest in the project, has responsibility of overseeing the	High-Med	Positive	

						Announcements Team Morale		foreman, monitors gate and check points. Is in charge of overseeing the day to day running of the project site, hosting site meetings and documenting progress.			
9	Mr. Foreman	ABC Designs	Construction	Foreman	(242) ABC-DSGN foreman@abcdesigns.com	Meetings Personal Communication Reports Presentation Announcements Team Morale	E-Mail Telephone Face to Face	Has high interest in the project and has responsibility for following technical specifications and industry standards on site. Also manages methods and production.	Med	Positive	
10	Mr. Gofer	ABC Designs	Office Administration	Gofer	(242) 455-9802	Meetings Personal Communication Announcements Team Morale	Telephone Face to Face	A moderate level of interest in the project and has responsibility for collecting miscellaneous materials from the hardware and lumberyard and minor cleaning.	Low	Neutral	
11	Mr. Draftsman	ABC Designs	Design	Draftsman	(242) 455-9803	Meetings Personal Communication	E-Mail Telepho ne	Has high interest in the project, has the	Low	Positive	

						Team Morale	Face to Face	responsibility of working alongside the architect			
12	Electrical	Subcontractor	Electrical	Electrician	(242) 455-elec electrical@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
13	Plumbing	Subcontractor	Plumbing	Plumber	(242) 455-plumb plumbing@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
14	Fire/Safety	Subcontractor	Fire	Fire/Safety Subcontractor	(242) 455-fire fire@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
15	Roofing	Subcontractor	Roofing	Roofing Subcontractor	(242) 455-roof roof@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
16	Tiling	Subcontractor	Tiling	Tiling Subcontractor	(242) 455-tile tile@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
17	Pool	Subcontractor	Pool	Pool Subcontractor	(242) 455-pool pool@company.com	Project Announcements	E-Mail Telephone	Has high level of interest in	Low	Positive	

						Personal Communication Meetings	Face to Face	the project and has responsibility as a subcontractor.			
18	Sound Engineering	Subcontractor	Sound Engineering	Sound Engineering Subcontractor	(242) 455-sund sound@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
19	Acoustics	Subcontractor	Acoustics	Acoustics Subcontractor	(242) 455-acou acoustics@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	

20	Building Lighting	Subcontractor	Building-Lighting	Building Lighting Subcontractor	(242) 455-buld lighting1@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
21	Stage Lighting	Subcontractor	Stage Lighting	Stage Lighting Subcontractor	(242) 455-stag lighting2@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
22	Faux Design & Installation	Subcontractor	Faux Specialist	Faux Design & Installation	(242) 455-faux fauxdesign@company.co	Project Announcements	E-Mail Telephone	Has high level of interest in	Low	Positive	

				Subcontractor	m	Personal Communication Meetings	Face to Face	the project and has responsibility as a subcontractor.			
23	Windows and Doors	Subcontractor	Finishings	Windows and Doors Subcontractor	(242) 455-wind windowsanddoors@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
24	Interior Designer	Subcontractor	Interior Design	Interior Designer Subcontractor	(242) 455-ides interiordesign@company.com	Project Announcements Personal Communication Meetings	E-Mail Telephone Face to Face	Has high level of interest in the project and has responsibility as a subcontractor.	Low	Positive	
25	Site Workers	Various	Various	Various	Responsibility of employer (subcontractor)	Personal Communication Meeting	Face to Face	Has a high level of interest in the project and has responsibilities to complete work on the project.	Low	Positive	
26	Representative	Forest Products	All Purpose Building Supplies	Supplier	rep@forestproducts.com	Personal Communication Meetings Written	E-Mail Telephone Web Conference	Has a high interest in the project as a supplier and is most critical during planning and project execution.	Low-Med	Positive	
27	Representative	AlHomer	All Purpose Building Supplies	Supplier	rep@alhomer.com	Personal Communication Meetings Written	E-Mail Telephone Web Conference	Has a high interest in the project as a supplier and is most critical during planning and execution	Low-Med	Positive	

28	Representative	Florida Building Supply	All Purpose Building Supplies	Supplier	rep@floridabuildingsupply.com	Personal Communication Meetings Written	E-Mail Telephone Web Conference	Has a high interest in the project as a supplier and is most critical during planning and execution	Low-Med	Positive	
29	Representative	Georgia Pacific	Supplies Proprietary Items	Supplier	rep@georgiapacific.com	Personal Communication Meetings Written	E-Mail Telephone Web Conference	Has a high interest in the project as a supplier and is most critical during planning and execution	Low-Med	Positive	
30	Representative	Allied Steel	Steel/Super Structure	Supplier	rep@alliedsteel.com	Personal Communication Meetings Written	E-Mail Telephone Web Conference	Has a high interest in the project as a supplier and is most critical during planning and execution	Low-Med	Positive	
31	Quantity Surveyor	Sub Consultant	Design	Quantity Surveyor	consultant@qs.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
32	Land Surveyor	Sub Consultant	Topography	Land Surveyor	consultant@ls.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
33	Electrical Engineer	Sub Consultant	Design	Electrical Engineer	consultant@ee.com	Personal Communication Meetings Project	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is	Low	Positive	

						Announcements		most critical during initiating and project planning.			
34	Structural Engineer	Sub Consultant	Design	Structural Engineer	consultant@se.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
35	Mechanical Engineer	Sub Consultant	Design	Mechanical Engineer	consultant@me.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
36	Plumbing Engineer	Sub Consultant	Design	Plumbing Engineer	consultant@pe.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
37	Geotechnical Engineer	Sub Consultant	Design	Geotechnical Engineer	consultant@ge.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
38	Hydrologist	Sub Consultant	Drainage and Dewater Site	Hydrologist	consultant@hydro.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating	Low	Positive	

								and project planning.			
39	Environmental Engineer	Sub Consultant	Impact Assessment	Environmental Engineer	consultant@environ.com	Personal Communication Meetings Project Announcements	E-Mail Telephone Face to Face	Has a high interest in the project as a consultant, is most critical during initiating and project planning.	Low	Positive	
40	Community Members	None	Neighbours	N/A	None	Project Announcements	Written	Has a low interest in the project and is most critical during project execution.	Low	Negative	
41	Ministry of Works Ministry of the Environment Ministry of Health	Government	Regulation	Regulation	(242)500-0000	Personal Communication Meetings	Face-to-Face E-Mail Written	Has a low interest in the project and is most critical during project initiating, execution and closure	Med	Neutral	
42	FAA	Government Bahamas Aviation Dept.	Regulation	Regulation	Faa@us.com	Personal Communication Meetings	Face-to-Face E-Mail Written	This group has a low interest in project and is most critical during project initiation.	Low	Neutral	
43	Environmental Agencies	Quasi Organization	BESS Commission Bahamas National Trust	Environmental Manager	ea@green.com	Personal Communication Meetings	Telephone Face-to-Face E-Mail Written	Has low interest in the project. Is interested in impact assessments.	Low	Neutral	

Chart 9 Stakeholder Analysis and Level of Engagement (Source: C. Walker, The Author, October 2016)

Project Name: Building of a Convention Center, Nassau, The Bahamas					
Stakeholder Name/Group:	**Key interests or stake in the change and degree of impact (H, M or L?)**	**Level of influence over the change (H, M or L?)**	**Present attitude to the change (in favour or opposed?)**	**Stakeholder management strategies**	**Key points for Stakeholder Engagement and Management Plan**
CEO, (Epic Enterprises)	*Interest High Impact High*	*H*	*Favour*	*Consult, involve and keep informed*	*Two-way engagement essential*
Representative, Board of Directors (Epic Enterprises)	*Interest High Impact High*	*H*	*Favour*	*Consult, involve and keep informed*	*Two-way engagement essential*
Financial Advisor, (Epic Enterprises	*Interest High Impact Medium*	*M*	*Favour*	*Keep informed and support*	*One-way communication and support essential*
E. B. Rolle, Architect/Contractor/Project Manager (ABC Designs)	*Interest High Impact High*	*H*	*Favour*	*Consult, involve and keep informed*	*Two-way engagement essential*
C. Walker, Assistant Project Manager (ABC Designs)	*Interest High Impact High-Medium*	*M*	*Favour*	*Involve and Keep informed*	*Two-way engagement essential*
ABC Designs Team	*Interest High Impact High*	*L*	*Favour*	*Involve and Keep informed*	*One-way communication*
Subcontractors	*Interest High Impact High*	*M*	*Favour*	*Consult, involve and keep informed*	*Two-way engagement essential*
Suppliers	*Interest High Impact High*	*M*	*Favour*	*Consult, involve and keep informed*	*Two-way engagement essential*

Sub Consultants	*Interest High Impact High*	*M*	*Favour*	*Consult and involve*	*Two-way engagement essential*
Regulatory Bodies	*Interest Low Impact High*	*M*	*Neutral*	*Consult and involve*	*Two-way engagement essential*
Community	*Interest Low Impact Low*	*L*	*Neutral*	*Keep informed*	*One-way communication*

Stakeholder Analysis involved the review of the data compiled in **Chart 8:** the Stakeholder Register, in order to identify the relevant information required to select the appropriate management strategies and level of engagement for each stakeholder (some are grouped by type) identified in **Chart 9:** Stakeholder Analysis and Level of Engagement.

There are many persons that will have varying degrees of power, influence, interest and level of impact on the building of the convention center project. Although the project will be executed and funded by a private company, the project manager realized that many of the suppliers are international companies. In addition, there are various national and international governmental agencies such as the Ministry of Works, Health and the Environment, and the Federal Aviation Administration (FAA) responsible for providing the permits and inspecting regulatory compliance. Both agencies and suppliers are potential sources of issues that can cause delays in project execution and completion, and, in fact, can increase the project budget if they are not managed effectively throughout the project lifecycle.

For the sake of time and financial constraints, and the success of the project, being proactive was important. Therefore, the Stakeholder Management Plan, as seen in **figure 37** below, was developed as an output to the second process of Stakeholder Management. Each stakeholder was identified along with detailed

information that explained how each would be engaged throughout the building of the Convention Center.

BUILDING OF THE CONVENTION CENTER, NASSAU, THE BAHAMAS STAKEHOLDER MANAGEMENT PLAN

Version 1.0

My signature indicates approval of this Stakeholder Management Plan.

Approved by:

CEO, Epic Enterprises

Prepared by:

Assistant Project Manager, C. Walker
Project Manager, E.B. Rolle

Revision History

Date	Version	Description	Author
<MM/DD/YYYY>	<0.00>	<Type brief description here>	<First and Last Name>

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PURPOSE

Stakeholder Management includes the processes required to identify the people, groups and organizations that could affect or be affected by the project, to analyse stakeholder expectations and their impact on the project, and to develop appropriate strategies and tactics for effectively engaging stakeholders in a manner appropriate to the stakeholders' interest and involvement in the project. The Stakeholder Management Plan helps ensure that stakeholders are effectively involved in project decisions and execution (PMBOK 5th Edition) throughout the lifecycle of the project, to gain support for the project and anticipate resistance, conflict, or competing objectives among the project's stakeholders. The Stakeholder Management Plan includes several sections:

- **Identify Stakeholders** – identify by name and title of 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** – outlines the processes and steps that will be undertaken to carry out the planned strategies.
- **Control Stakeholder Engagement** – describes the methods that will be used to monitor stakeholder engagement and alert the project team if problems are surfacing.

Identify Stakeholders

In order to develop an effective plan for managing stakeholders, they first need to be clearly identified and assessed. Stakeholders will be identified by performing a stakeholder analysis in which potential stakeholders and relevant information (interests, involvement, interdependencies, influence, and potential impact on project success) are gathered, documented and analysed. (PMBOK 5th Edition). To assist with stakeholder identification and analysis, the team has created and is completing a Stakeholder Analysis Register categorized by Stakeholder Group. The Stakeholder Analysis Register captures the following information

- Group Name
- Number of Stakeholders in the Group
- Description of the Group
- Level of Impact on the Project
- Level the Group is Impacted by Project
- Current Change Readiness State
- Desired Change Readiness State
- Issues, Opportunities and Risks associated with each group
- Strategies and Actions to address issues, risks and opportunities

A snapshot from the Stakeholder Analysis Register is provided below.

Please note: Impact is measured by High (H), Medium (M) or Low (L). State of change readiness is assessed using the measures from PMBOK as follows:

U – Unaware – this group has no information about the project

R – Resistant – aware of project and resistant to the changes and impacts the project may bring

N – Neutral – aware of the project and neither supportive nor resistant

S – Supportive – aware of the project and the potential changes and impacts and is supportive

L – Leading – aware of the project and actively engaged to ensure the project's success

Stakeholder Analysis Register:

Group Name	# in Group	Description & Key attributes	Impact on Project	Impacted by Project	Current State	Desired State	Issues, Opportunities and Risks	Mitigation Strategies and Actions
CEO/Board of Directors Organization (Epic Enterprises)	5	• Key decision makers • CEO and Sponsor	H	H	L	L	Issue: CEO takes project advice from financial advisor who is not an expert in the field	Mitigate through signed contracts of roles and responsibilities
ABC Designs	9+	• Consists of architect, contractor, project manager, assistant project manager (procurement officer), office staff	H	H	L	L	Risk: Varying levels of incompetence or low level of productivity	Incentivize (Human Resource Management)
Subcontractors	13	• Contracted professional	H	H	S	S	Risk: Inaccurate or inefficient designs, lack of concern, and tardiness	Checkpoints and independent check person (Project Manager)
Suppliers	5+	• Provide materials on a contract basis	H	M	S	S	Opportunity: International products	

							cheaper than local Risk: Schedule delays and faulty materials	Risk: Insurance
Sub Consultants	9	• Technical Expertise	H	M	S	S	Risk: Varying levels of incompetence or low level of productivity	Checkpoints and independent check person (Project Manager)
Regulatory Bodies	8	• Regulate and inforce building codes and standards	H	L	N	N	Risk: Additional non constitutional items to the agenda	Compliance or negotiation
Community	1	• Opinions	L	L	U	N	Risk: Nuisance	Ignore, meeting and/or legal cause of action

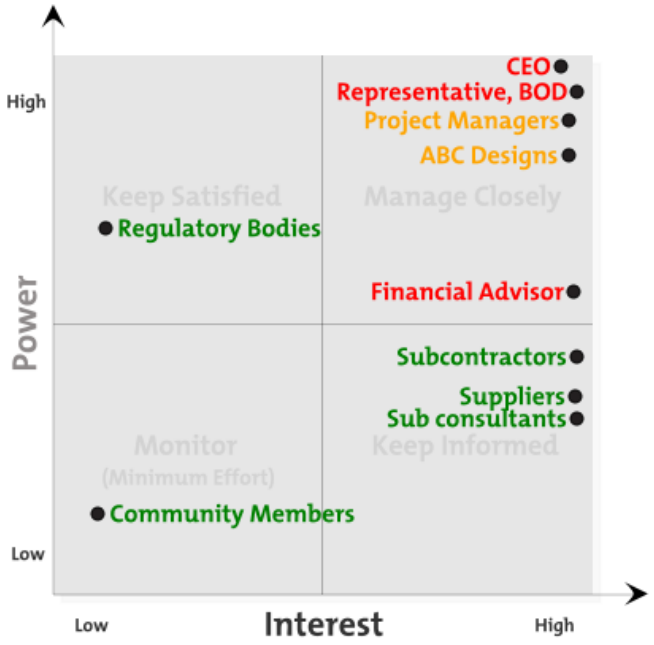
Power/Interest Classification

As mentioned above, the Building of a Convention Center Project is assessing each group's position, as well as their impact on the project and/or how they are impacted by the project. One purpose of this activity is to help identify and categorize groups so that appropriate attention can be given to each group according to the level of engagement needed. To help in this process, the project will use the PMBOK Power/Interest Grid to categorize each stakeholder group. The Power/Interest Grid analyses stakeholder groups in a visual manner to further establish stakeholders' level of interest or concern and their ability to influence the project outcomes.

An important outcome of the stakeholder identification and analysis work, including the Power/Interest Grid, is to identify the most influential and most impacted stakeholder groups so that a focused stakeholder management strategy and plan can be developed and executed.

Provided below is the Power/Interest Grid with the major stakeholders and stakeholder groups for the project.

Stakeholder Power/Interest



Grid:

Stakeholder Interviews

To confirm the Stakeholder Identification and Analysis process is accurate and complete, the Assistant Project Manager will conduct a series of reviews with the CEO and others. In addition, optional qualitative interviews may be performed for the Stakeholder Groups identified as most influential or most impacted by the project to validate that their issues and concerns have been captured accurately.

Plan Stakeholder Management

Plan Stakeholder Management is the process of developing appropriate management strategies to effectively engage stakeholders throughout the lifecycle of the project, based on the analysis of their needs, interests and potential impact on project success. The key benefit of this process is that it provides a clear, actionable plan to interact with project stakeholders to support the project's interests (PMBOK 5th Edition).

Based upon the information gathered in the Stakeholder Analysis Register and Communication Plan, the Project Manager will be responsible for engaging stakeholders throughout the lifecycle of the project. The level of engagement required for each stakeholder may vary over the course of the project. For example, during the beginning stages of the project, it might be necessary for the Project Manager to engage more highly with key stakeholders. Highly engaged key stakeholders in the early stages of the project are pivotal for project kick-off, achieving staff buy-in and clearing obstacles. As the project progresses, the level of engagement will shift from key stakeholders to the broader project team and end-users.

Stakeholder Engagement

To ensure the correct level of engagement is being achieved by each stakeholder, the Project Manager will analyse current levels of engagement by using the PMBOK Stakeholders Engagement Assessment Matrix. As noted above in the Stakeholder Analysis Register, each stakeholder group shall be assessed in terms of their current and desired level of engagement.

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
CEO, Epic Enterprises					C D
Representative, Board of Directors					C D
Project Managers					C D
ABC Designs					C D
Financial Advisor		C		D	
Regulatory Bodies			C D		
Subcontractors				C D	
Suppliers				C D	
Sub Consultants				C D	
Community Members	C		D		

Stakeholder Engagement Assessment Matrix. List stakeholders and place a "C" for their current level of engagement and "D" in the column of their desired level of engagement.

Manage Stakeholder Engagement

Stakeholder Engagement Management is the process of communicating and working with stakeholders to meet their needs and expectations, and to address issues as they occur. Stakeholder Engagement Management is the process to systematically foster appropriate stakeholder engagement in project activities throughout the life of the project. The key benefit of this process is that it allows the Project Manager to increase support and minimize resistance from stakeholders, significantly increasing the chances to achieve project success (PMBOK 5th Edition).

To effectively manage stakeholder engagement, the Building of a Convention Center Project will utilize the Communication Plan and strategies identified above to communicate the relevant project information to key stakeholders in a proactive and timely manner. Leveraging the information provided in the Communication Plan (i.e., stakeholder groups, communication items, purpose, method of communication, and frequency), the project will have the ability to increase support and minimize stakeholder resistance throughout the life of the project. Managing stakeholder engagement helps to increase the probability of project success by ensuring that stakeholders clearly understand the project goals, objectives, benefits, and risks.

In line with the analysis above, the project team will also be actively listening and soliciting input and feedback to make sure communications are being received and

understood, and also to capture important information to help make adjustments and to respond to problem areas.

Other project artefacts will factor into Stakeholder Management as well, including the list of Business Process Changes and the Change Control process, both of which consider the impact on stakeholders. The project Issues Log is another tool to collect, document, and address concerns raised by stakeholders and to identify and provide solutions for stakeholder management risks that have materialized into issues.

Monitor Stakeholder Engagement

Monitor Stakeholder Engagement is the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders. Monitor Stakeholder Engagement involves collecting data, assessing the level of engagement and using insights from the data collection to adjust strategies and tactics for engaging effectively with stakeholders.
As mentioned in the Communications Plan and the Risk Management Plan, the Building of a Convention Center Project will have mechanisms to receive ongoing direct feedback from key stakeholders, including email, personal communication, site meetings, status meetings and community meetings. Individual stakeholders will be encouraged to participate and to voice questions and concerns, with the most serious issues and concerns that are raised addressed in a formal, rigorous process through the Issues and Risk logs.

As described in the Scope Management Plan, the project will solicit broad participation in the collection and validation of requirements, which will uncover issues and concerns early on, so they can be addressed.

Stakeholders are critical to the project's success. The project team has planned for and will work to involve, engage and listen to all key stakeholders throughout the project lifecycle.

Stakeholder Plan Updates

Note that the Stakeholder Management Plan and associated documents are not static. The stakeholders identified and their information documented in the Stakeholder Analysis Register will be reviewed at least monthly to ensure the plan is meeting project expectations and to make modifications if required.

Figure 37 Stakeholder Management Plan. Adapted from the *Department of Information Technology, Maryland.* Retrieved October 19, 2016 from http://doit.maryland.gov/SDLC/FormServerTemplates/Stakeholder%20Management%20Plan.doc

5. CONCLUSIONS

1. The Project Management Plan was created using the analytical research method and the fifth edition of the *PMBOK® Guide,* to be used as a developmental tool for the Convention Center's Project Management team.
2. The Project Charter was the first subsidiary element of the Project Management Plan, created as the deliverable for specific objective number one. Using a template as a guide, to capture and organize the business needs and objectives, project description, preliminary scope statement, initial project risks, project deliverables, summary milestones, and project budget, the Project Charter also included identification of the project manager and the sponsor's authorization for the project to commence.
3. To define and specify the scope of the project, the Scope Management Plan, the deliverable created for specific objective number two, along with the WBS, WBS dictionary, Requirements Management Plan, Requirements Document, and Requirements Traceability Matrix, were developed from a table or template, capturing the information gathered during meetings with project stakeholders and from project document reviews.
4. The Schedule Management Plan, the output from specific objective number three, was created along with the Activity List, Schedule Network Diagram, Resource Assignments table and Project Gantt chart, in order to adequately identify and orchestrate each project activity to ensure the project's completion within the time constraints.
5. To create the Cost Management Plan, the output from specific objective number four, a template in Microsoft Excel was used to adequately develop the project budget, and a template was used to capture the Cost Management Plan which will guide the development of cost management performance measures and documents such as the Cost Baseline and the Project Funding Requirements.
6. To develop the Quality Management Plan, the output from specific objective number five, a template was used to identify the project's quality

management approach, quality requirements/standards, quality assurance, quality control, and the quality control measures that will be used throughout the project, in order to ensure that quality was built into the project's processes and product.

7. To address specific objective number six, the Human Resource Management Plan, all human resources required to complete the project were identified and classified in a comprehensive list based on their roles and responsibilities. In addition, the project organization chart, the staffing management approach, and details identifying how the human resources will be managed throughout the project are detailed in the plan.
8. To fulfil specific objective number seven, the Project Communications Plan, a template was used along with a list of all stakeholders and their roles and responsibilities. In addition, a Communications Matrix was developed, detailing all project stakeholders (names/titles, information, format) throughout the project lifecycle, and ensuring that the information disseminated during the project is done so at the right time, in the right format, to the right people and by the right person.
9. The deliverable for specific objective number eight, the Risk Management Plan, was created using a template. Additionally, to capture and classify project risks, so that effective risk responses could be planned, a Risk Register was developed along with a qualitative risk analysis. Quantitative Risk Analysis was not performed during this process as the tools were not available for use.
10. The Procurement Management Plan deliverable, created for specific objective nine, was developed using a template to identify the project's procurement management approach, types of contracts used and contract approval process. The plan is comprehensive in that it also details procurement risks and constraints, and how these issues, along with vendors, will be managed effectively.
11. The Stakeholder Management Plan, developed for specific objective ten, was also developed using a template. In addition to the plan, which details

how stakeholders will be identified, classified, managed and engaged throughout the project, the Stakeholder Register and Stakeholder Analysis and Level of Engagement were also developed to provide more information for effective stakeholder engagement.

12. As the project management team was limited in its human resource capacity, the writer, in her role as Assistant Project Manager, developed all subsidiary plans using templates, spreadsheets, tables and charts, conducting meetings with the key contact person - the Lead Project Manager, and reviewing meeting minutes and other project documents.
13. Although construction management has been used as a guide at ABC Designs for years, the *PMBOK® Guide* 5th Edition provided a set of good project management practices used by the project team to develop a more thorough project management plan, and to improve the way the company will manage a project as important as the building of the convention center.

6. RECOMMENDATIONS

1. ABC Designs should employ formal Project Management methods OR formal construction management to increase the likelihood of project success in the completion of building projects.
2. ABC Designs should develop standard project management initiation and planning documents prior to the execution of building projects.
3. All projects managed by ABC Designs should be headed by a project management team, using developed standard project planning documents tailored for the project.
4. ABC Designs should invest in the tools required to complete quantitative risk analyses for all projects.
5. ABC Designs should use a Project Management Guide or Framework to direct the development of all project management tools.
6. ABC Designs' project management team should exercise care and caution during the development of each subsidiary plan of the Project Management Plan to ensure that all planning subsets for each knowledge area or respective application area are thorough and accurate.
7. ABC Designs' project management team should utilize a document management and storage system, to organize and store all documents created for future use and review.
8. The Senior manager of ABC Designs should ensure that the project management team be hired and in place prior to the execution of any project and ensure that this team conduct all project planning related activities in order to enhance the proper management of the project during its lifecycle.
9. The project management team of ABC Designs should consider the use of the planning process and templates created during the development of the Project Management Plan for the Building of the Convention Center, as a basis for implementing a methodology to be used by the company for future projects of similar relevance.

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8. APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER Formalizes the project start and confers the project manager with the authority to assign company resources to the project activities. Benefits: it provides a clear start and well defined project boundaries.	
Date	**Project Name:**
22 August 2016	**Project Management Plan for the building of a Convention Center in Nasau, The Bahamas**
Knowledge Areas / Processes	**Applicacion Area (Sector / Activity)**
Knowledge areas: Project Integration Management, Project Scope Management, Project Time Mangmeent, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Risk Management, Project Procurement Management, Project Communications Management, Project Stakeholder Management **Process groups:** Initiating, Planning, Monitoring and Controlling	Planning/Construction/Commerical
Start date	**Finish date**
22 August 2016	13 March 2017

Project Objectives (general and specific)

General objective:
To create a Project Management Plan, framed within the standards of the Project Management Institute, to manage the building of a convention centre.

Specific objectives:

1. To create a project charter to formally authorize the project and provide the project manager with the authority to apply orgnaizational resources to the project and to produce the project management plan.
2. To create a scope management plan to ensure that it includes all the work required to successfully complete the project.
3. To create a time management plan to support the development and management of a project schedule to ensure the project is completed within the time constraints.
4. To create a cost management plan to define the processes for developing and managing the project budget to ensure the project is completed within the budget constraints.
5. To develop a quality management plan to identify the quality requirements for the project in order to ensure results meet expectations for approval within the time, cost and scope constraints.
6. To create a human resource management plan to ensure that all human resources are identified and managed effectively to complete the project within time, cost and scope constraints.
7. To develop a communication management plan to ensure the timely and effective communication of the project status and other key information.
8. To create a risk management plan to identify and examine risks to the successful completion of the project and develops plans to minimize the likelihood of the risks.
9. To develop a procurement management plan to be used to obtain products, services or results required by the project.
10. To develop a stakeholder management plan to identify and support all the project stakeholders to ensure effective stakeholder engagement.

Bolívar Solórzano

Project purpose or justification (merit and expected results)

The project to develop the project Management Plan for The Convention Centre is required to effectively create the documents that will be used by the Project Management Team during the executing, monitoring and controlling, and closing processes. Epic Enterprises has contracted ABC Designs to build a convention centre. The Convention Centre will be used to facilitate conventions, gala events and any public event requiring a multi-purpose building for large amounts of people. As the opening of the Bahamar Resort is near, there will be an influx of tourists. Business professionals looking to host conventions here in The Bahamas will be looking for a space to host conventions. The Bahamar Resort has a convention centre, however, it is already booked for the next few years. This presents a unique opportunity for Epic Designs as they already have a world class restaurant located on the site which is only feet away from a beautiful white sand beach.

The project manager and project management team understand the importance of the planning process and the project management plan, to the successful completion of the project. During this project, the project manager will plan to develop the subsidiaries of the project management plan for The Convention Center to meet time, cost, schedule and quality constraints.

Description of Product or Service to be generated by the Project – Project final deliverables

The Project Management Plan for the building of the Convention Center will be generated by tis project. This plan will consist of all of the subsidiary documents of a Project Management Plan.

Assumptions

Resources: The project can be completed in three (3) months
Resources: The project can be completed by one (1) person

Constraints

Time: Three (3) months
Resources: One (1) person (Project manager)

Preliminary risks

1. If the schedule for milestone completion is not adhered to, the project management plan may not be completed in three (3) months.
2. If support by the supervisor is not prompt, the project management plan by not be completed in a timely manner.

Budget

Budget will constitute of financial resources required to print, bind and ship Final Graduation Project to Costa Rica.

Milestones and dates

Milestone	Start date	End date
Project Start	22 August 2016	22 August 2016
Project Charter	22 August 2016	26 August 2016
WBS	22 August 2016	26 August 2016
Chapter I: Introduction Chapter	29 August 2016	2 September 2016
FGP Schedule	29 August 2016	2 September 2016
Chapter II: Theoretical Framework	5 September 2016	9 September 2016
Chapter III: Methodological Framework	12 September 2016	16 September 2016
Executive Summary	29 August 2016	16 September 2016
Annexes – Bibliography, Indexes	29 August 2016	16 September 2016
Signed Charter – Approval	19 September 2016	25 September 2016
Tutoring	10 October 2016	8 February 2017
Previous Chapters Adjustments	13 October 2016	19 October 2016
Chapter IV: Development (Results)	20 October 2016	17 January 2017
a. Charter	20 October 2016	24 October 2016
b. Scope management plan	27 October 2016	28 October 2016
c. Schedule management plan	10 November 2016	11 November 2016
d. Cost management plan	15 November 2016	16 November 2016

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e. Quality management plan	24 November 2016	28 November 2016
f. Human Resource management plan	14 November 2016	16 November 2016
g. Communications management plan	27 October 2016	28 October 2016
h. Stakeholder management plan	25 October 2016	26 October 2016
i. Procurement management plan	11 November 2016	14 November 2016
j. Risk management plan	20 December 2016	26 December 2016
k. Project integration: Project Mangement Plan	20 October 2016	6 January 2017
Chapter V: Conclusions	16 January 2017	20 January 2017
Chapter VI: Recommendations	9 January 2017	13 January 2017
Tutor Approval	8 February 2017	8 February 2017
FGP Submission to Reviewers	10 February 2017	10 February 2017
Review	13 February 2017	24 February 2017
Adjustments	14 February 2017	6 March 2017
Presentation to Board	7 March 2017	13 March 2017

Relevant historical information

Not applicable

Stakeholders

Direct stakeholders:
FGP Lecturer – Mr. Brenes
Tutor – Mr. Bolivar
Project Manager – Carola Walker

Indirect stakeholders:
Academic Assistant – A. Herrera
Reviewers

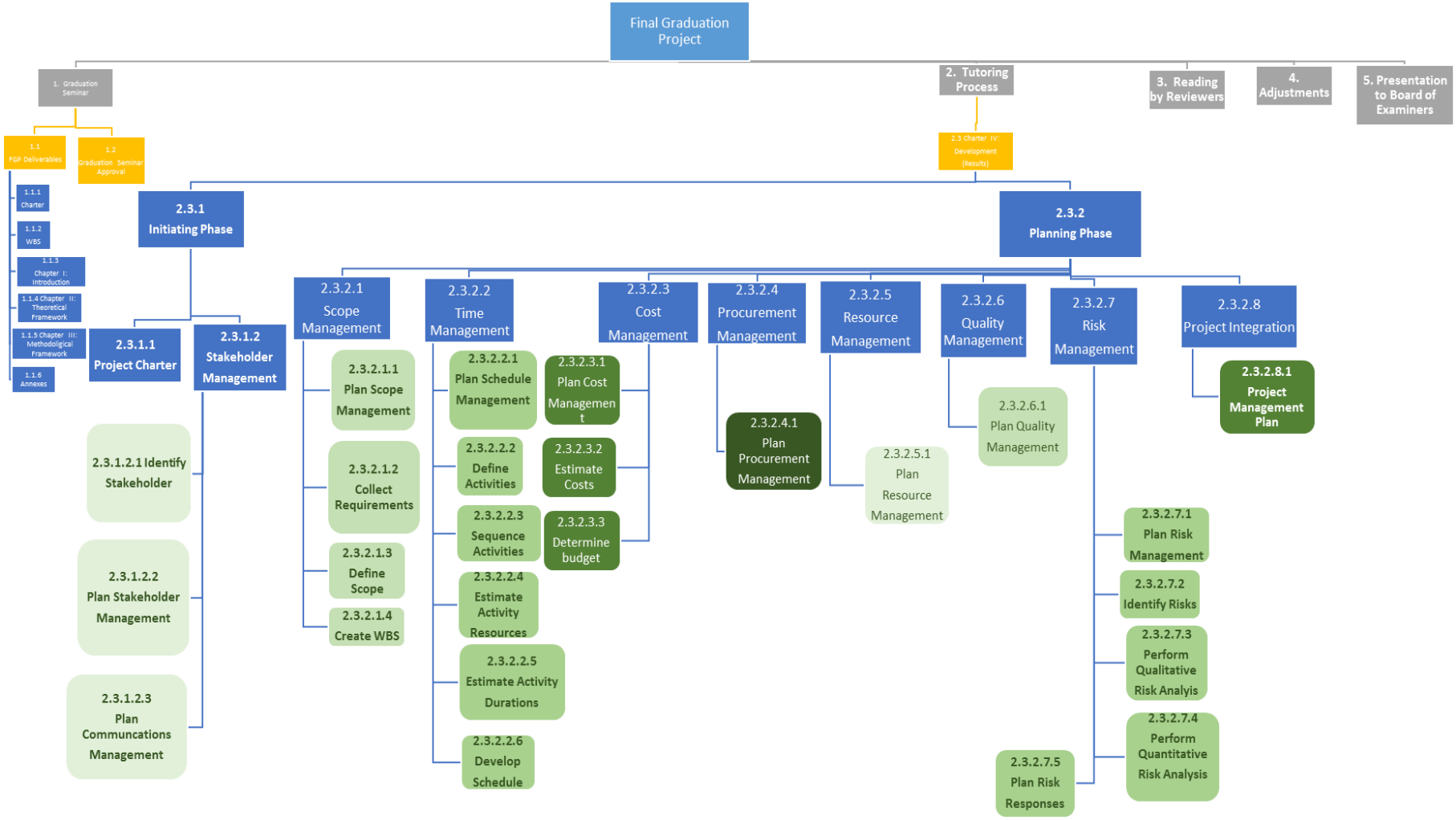
Project Manager: Carola Marie Walker	**Signature:**
Authorized by:	**Signature:** Bolívar Solórzano.

Appendix 2: Final Graduation Project WBS

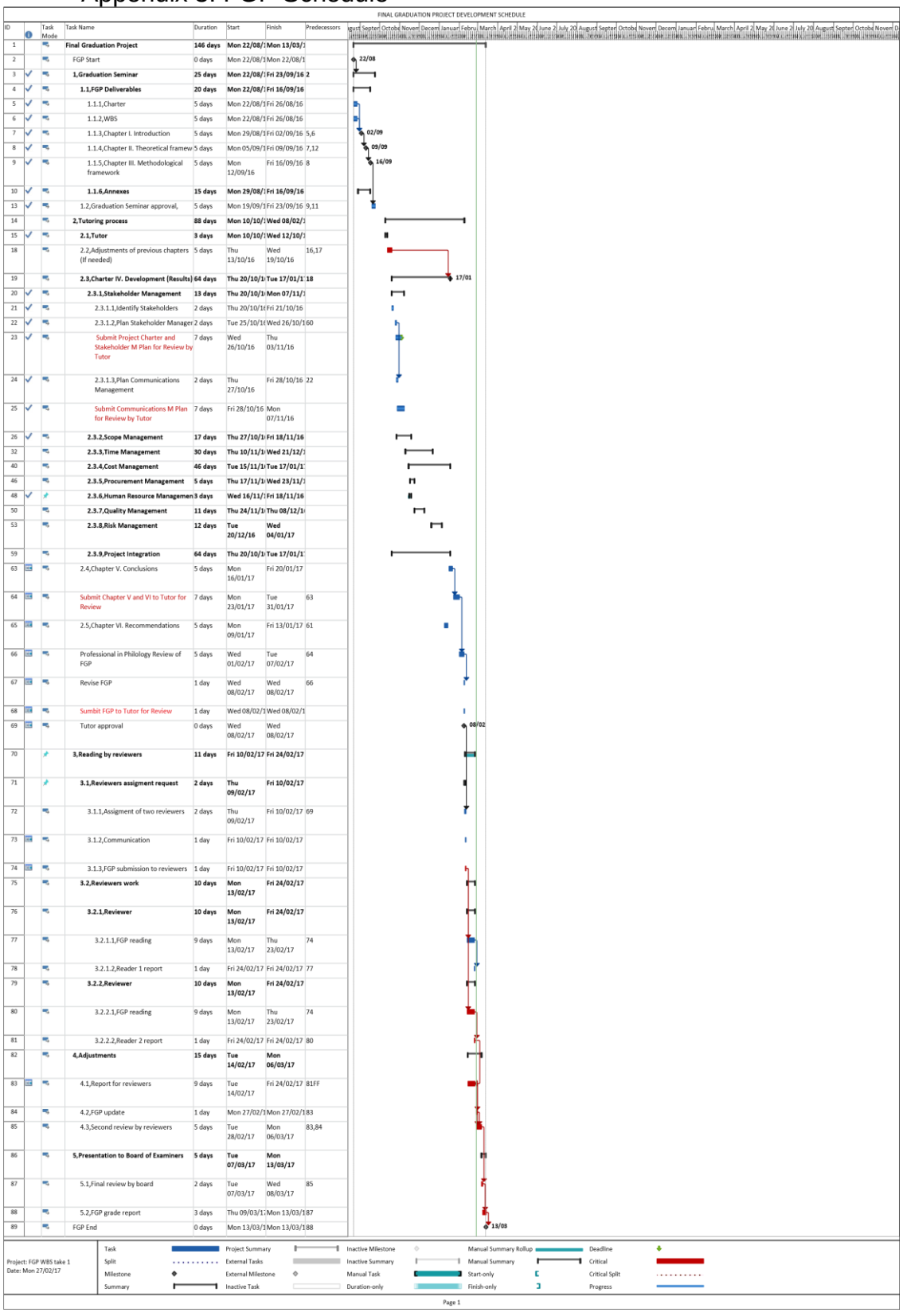
Final Graduation Project Work Breakdown Structure

Project Start
1,Graduation Seminar
1.1,Final Graduation Project (FGP) Deliverables
1.1.1,Project Charter
1.1.2,Work Breakdown Structure (WBS)
1.1.3,Chapter I: Introduction Chapter
FGP Schedule
1.1.4,Chapter II: Theoretical Framework
1.1.5,Chapter III: Methodological Framework
Executive Summary
1.1.6,Annexes – Bibliography, Indexes
1.2,Graduation Project Approval Signed Charter
2,Tutoring Process
2.1,Tutor
2.1.1,Tutor assignment
2.1.2,Communication
2.2,Previous Chapters Adjustments
2.3,Chapter IV: Development (Results)
2.3.1,Initiating Phase
2.3.1.1,Project Charter
2.3.1.2,Stakeholder management
2.3.2,Planning Phase
2.3.2.1,Scope management
2.3.2.2,Time management
2.3.2.3,Cost management
2.3.2.4,Procurement management
2.3.2.5,Resource management
2.3.2.6,Quality management
2.3.2.7,Risk management
2.3.2.8,Project integration
2.3.2.8.1,Project Management Plan

2.4,Chapter V: Conclusions
2.5,Chapter VI: Recommendations
3,Reading by reviewers 3.1,Reviewers assignment request 3.1.1,Assignment of two reviewers 3.1.2,Communication 3.1.3,FGP Submission to reviewers 3.2,Reviewers work 3.2.1,Reviewer 1 3.2.1.1,FGP reading 3.2.1.2,Reader 1 report 3.2.2,Reviewer 2 3.2.2.1,FGP reading 3.2.2.2,Reader 2 report
4,Adjustments 4.1,Report by reviewers 4.2,FGP update 4.3,Second review by reviewers
5,Presentation to board
5.1,Final review by board
5.2,FGP grade report


Final Graduation Project
1. Graduation Seminar
1.1 FGP Deliverables
1.2 Graduation Seminar Approval
1.1.1 Charter
1.1.2 WBS
1.1.3 Chapter I: Introduction
1.1.4 Chapter II: Theoretical Framework
1.1.5 Chapter III: Methodoligical Framework
1.1.6 Annexes
2. Tutoring Process
2.3 Charter IV: Development (Results)
3. Reading by Reviewers
4. Adjustments
5. Presentation to Board of Examiners
2.3.1 Initiating Phase
2.3.1.1 Project Charter
2.3.1.2 Stakeholder Management
2.3.1.2.1 Identify Stakeholder
2.3.1.2.2 Plan Stakeholder Management
2.3.1.2.3 Plan Communcations Management
2.3.2 Planning Phase
2.3.2.1 Scope Management
2.3.2.1.1 Plan Scope Management
2.3.2.1.2 Collect Requirements
2.3.2.1.3 Define Scope
2.3.2.1.4 Create WBS
2.3.2.2 Time Management
2.3.2.2.1 Plan Schedule Management
2.3.2.2.2 Define Activities
2.3.2.2.3 Sequence Activities
2.3.2.2.4 Estimate Activity Resources
2.3.2.2.5 Estimate Activity Durations
2.3.2.2.6 Develop Schedule
2.3.2.3 Cost Management
2.3.2.3.1 Plan Cost Management
2.3.2.3.2 Estimate Costs
2.3.2.3.3 Determine budget
2.3.2.4 Procurement Management
2.3.2.4.1 Plan Procurement Management
2.3.2.5 Resource Management
2.3.2.5.1 Plan Resource Management
2.3.2.6 Quality Management
2.3.2.6.1 Plan Quality Management
2.3.2.7 Risk Management
2.3.2.7.1 Plan Risk Management
2.3.2.7.2 Identify Risks
2.3.2.7.3 Perform Qualitative Risk Analyis
2.3.2.7.4 Perform Quantitative Risk Analysis
2.3.2.7.5 Plan Risk Responses
2.3.2.8 Project Integration
2.3.2.8.1 Project Management Plan

Appendix 3: FGP Schedule



Appendix 4: Convention Center Design Drawings and Floor Plan Layout

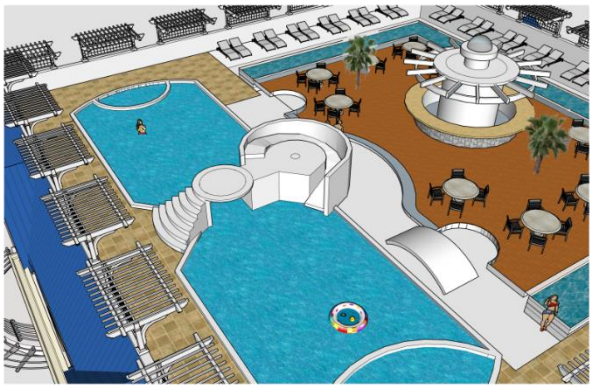
i. Birdseye View of Convention Center

j. Front Elevation View of Convention Center

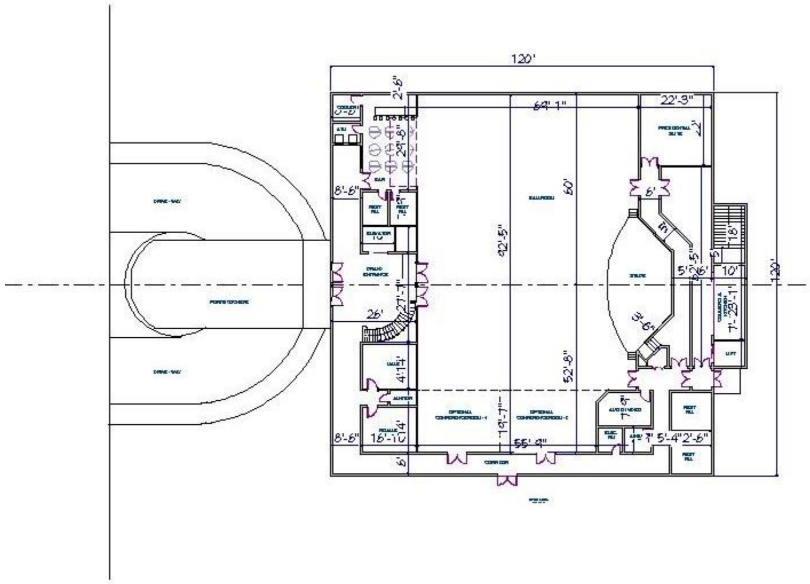
k. Perspective View of Convention Center

l. Right side elevation of Convention Center

m. Partial view of Deck on Convention Center



n. First and Second Floorplan of Convention Center


120'
22'-3"
50'
26'
10'
18'
120'
55'-9"
8'-6"
8'-6"

Appendix 5: Revision Dictum

Certificate of Review

For

Carola Marie Walker

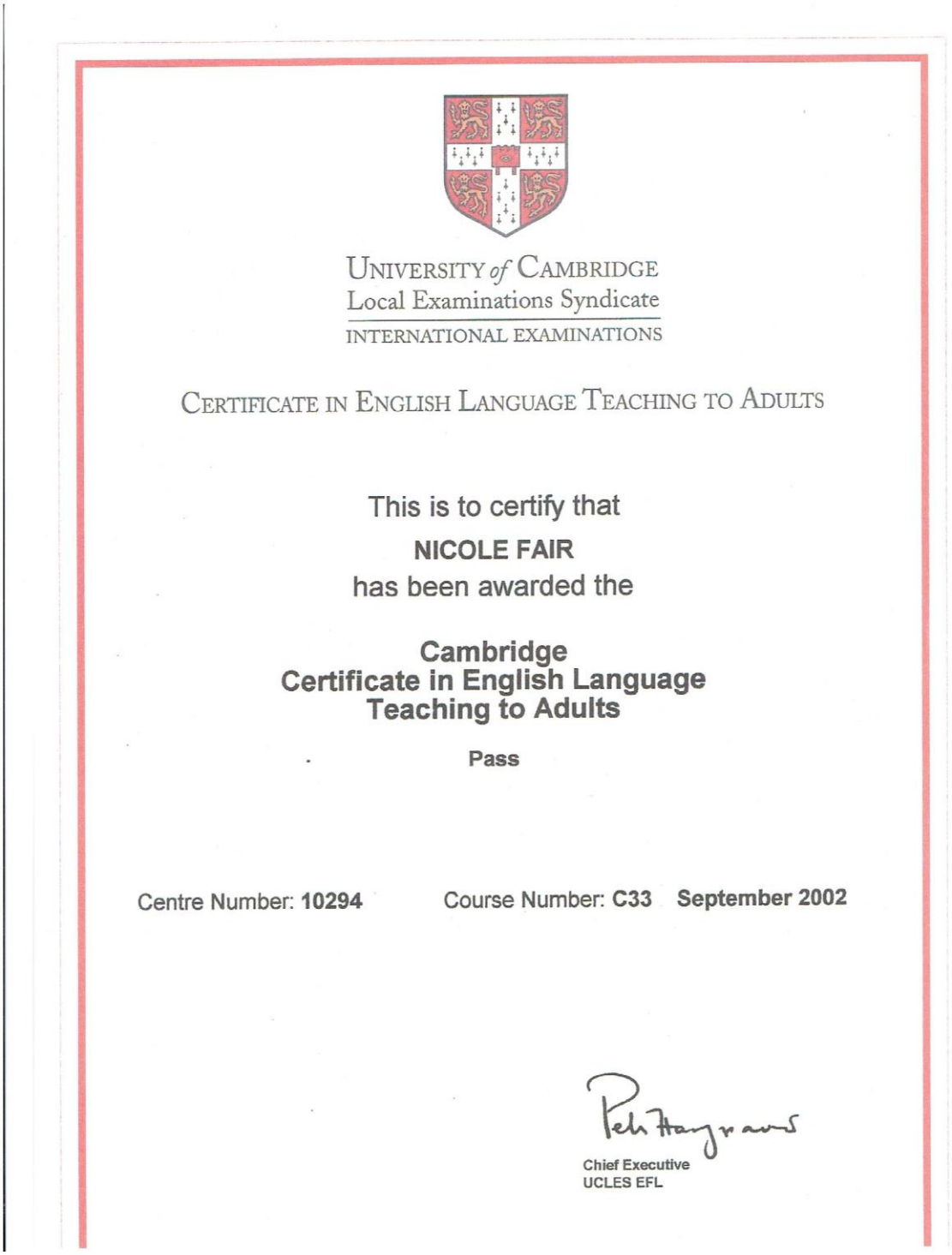
Final Graduation Project, Master in Project Management (MPM) Degree, 'Project Management Plan for the Building of a Convention Center in Nassau, Bahamas'

Comments: Grammatical, typographical corrections. Lengthy sentences were reconstructed to make the paper more fluent and some repetitious words were changed to create a more interesting read. Some comments were made in the margins. The paper's strength lie in its structure/outline and the writer's adherence to this outline largely throughout the paper. The paper's greatest weakness is its reliance upon certain oft-repeated phrases such as 'will be used' and some repetition of subject matter which has been addressed in more detail in the margins of the paper. Ultimately, the paper is convincing in its methodical approach and one is left with the impression that large projects should never be broached without the PMBOK Guide by one's side!

Nicole Fair, BA (Hons.), MA, CELTA

Nassau, Bahamas 6th February, 2017

Appendix 6: Linguist Credentials



UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate
INTERNATIONAL EXAMINATIONS

CERTIFICATE IN ENGLISH LANGUAGE TEACHING TO ADULTS

This is to certify that

NICOLE FAIR

has been awarded the

Cambridge
Certificate in English Language
Teaching to Adults

Pass

Centre Number: **10294** Course Number: **C33** **September 2002**

Chief Executive
UCLES EFL

200

GEORGETOWN UNIVERSITY

OFFICE OF THE UNIVERSITY REGISTRAR
WASHINGTON, D.C. 20057
(202) 687-4020

NAME: Nicole Emma Fair
STUDENT NUMBER: 999-09-1846
BIRTH: 06/26/73 Nassau BF
ADMITTED FROM: DANA HALL SCHOOL
WELLESLEY MA

COURSE NUMBER	TITLE	GRADE	SEM. HRS. EARN.	QUAL. PTS.
	Degrees Awarded: May 27, 1995			
	Bachelor of Arts			
	College of Arts and Sciences			
	Major: History			
	Rank: 33 of 643			
	Honors: Magna Cum Laude			
	Cum QPI: 3.838			
	HISTORY HONORS PROGRAM COMPLETED			
	Transfer Credit:			
	Advanced Placement			
	ENGLISH I		3	
	ENGLISH II		3	
	EUROPEAN CIV TO 1789		3	
	EUROPEAN CIV FROM 1789		3	
	U.S. HISTORY TO 1865		3	
	U.S. HISTORY SINCE 1865		3	
	School Total:		18	
	Entering Program:			
	School of Business			
	B.S. in Business Administration			
	Undeclared			
	----------Fall 1991----------			
ACCT 101	ACCOUNTING I	A	3	12.0
MATH 003	SHORT COURSE IN CALCULUS	B+	3	10.5
PSYC 001	GENERAL PSYCHOLOGY	A	3	12.0
SOCI 001	INTRODUCTION TO SOCIOLOGY	A	4	16.0
THEO 001	THE PROBLEM OF GOD	A	3	12.0
	First Honors			
	----------Spring 1992----------			
ACCT 102	ACCOUNTING II	A	3	12.0
ECON 002	ECON PRINCIPLES MACRO	A	3	12.0
FREN 202	ADV FREN II:CONTEMP CIVILZTN	B+	4	14.0
PHIL 001	INTRO TO PHILOSOPHY	A	3	12.0
THEO 076	RELIGIOUS ETHICS/MORAL ISSUES	B+	3	10.5
	Second Honors			
	----------Fall 1992----------			
ACCT 181	BUSINESS LAW I	A	3	12.0
DSCI 151	APPLIED STATISTICS I	B+	3	10.5
ECON 001	ECON PRINCIPLES MICRO	A	3	12.0
HIST 366	HIST OF THE ARAB-ISRAELI CNFCT	A	3	12.0
PHIL 100	ETHICS	B+	3	10.5
	Second Honors			
	Program Change:			
	International Business			
	----------Spring 1993----------			
DSCI 152	APPLIED STATISTICS II	A	3.0*	
HIST 308	INTERCULTURAL RLTNS IN 20C II	A	3	12.0
MARK 220	PRINCIPLES OF MARKETING	A	3	12.0
MARK 261	INTERNATIONAL BUSINESS	A	3	12.0
MGMT 201	MANAGEMENT & ORG BEHAVIOR	A	3	12.0
	First Honors			
	******* NO ENTRIES BELOW THIS LINE ********			

COURSE NUMBER	TITLE	GRADE	SEM. HRS. EARN.	QUAL. PTS.
	Transferred To:			
	College of Arts and Sciences			
	Bachelor of Arts			
	History			
	----------Fall 1993----------			
BIOL 016	FIELD ECOLOGY	A	4	16.0
ECON 101	MICROECONOMIC THEORY	W	(3)	
ECON 120	INTERNATIONAL ECONOMICS	B+	3	9.9
ENGL 164	RACE, GENDER, NATION	A	3	12.0
HIST 350	ANCIENT LAT AMER CULTURES	A	3	12.0
	Second Honors			
	----------Spring 1994----------			
FIAR 012	ART/ARCHITECT MONUMENTS TURKEY	A	3	12.0
HIST 204	ENVIRON HIST OF MEDITERRANEAN	B	3	9.0
HIST 205	GEOPOL OF ANATOLIA & BALKANS	A-	3	11.0
HIST 206	THE CRUSADES	A-	3	11.0
TURK 003	INTRODUCTORY TURKISH IA	A	3	12.0
	GU/Alanya, Turkey			
	Dean's List			
	----------Fall 1994----------			
HIST 400	SR COL: WOMEN'S HIST-MOD EURO	S	3	
HIST 408	SR SEM: HISTORY HONORS	A	4	16.0
PSYC 101	THEORIES OF PERSONALITY	A	3	12.0
WSTP 251	WOMEN AND THE LAW	A	3	12.0
	----------Spring 1995----------			
ENGL 273	INTL CULT & NEW WORLD ORDER	A	3	12.0
HIST 409	SENIOR HONORS SEMINAR	A-	4	14.6
THEO 173	CHRISTIANITY & WORLD RELIGIONS	A-	3	11.0
	Phi Beta Kappa			
	Degree Requirements completed for Bachelor of Arts			

	ERN	QHR	QPTS	QPI
Current	10	10	37.69	3.769
Cumulative	128	107	410.70	3.838

*Course not applied to current program
******* NO ENTRIES BELOW THIS LINE ********

MAY 27 1995

05/24/95
416

Nicole Emma Fair
1326 35th Street NW
Washington DC
20007

REGISTRAR

OFFICIAL TRANSCRIPTS BEAR SIGNATURE STAMP EMBOSSED WITH UNIVERSITY SEAL.

ISSUED DIRECTLY TO STUDENT

UNIVERSITY OF BRISTOL

Department of Law
Wills Memorial Building, Queens Road, Bristol BS8 1RJ
Telephone: (0117) 928 7452 Fax: 925 1870

TO WHOM IT MAY CONCERN

Nicole Emma FAIR

This is to confirm that the above-named was a full time registered student in the Faculty of Law at the University of Bristol from October 1996 until June 1998, reading for the degree of Master of Arts in Legal Studies. She sat the first year Part I examination in June 1997, and obtained the following marks:

Public Law	70%
Law of Tort	63%
Law & Policy of the EU I	53%
Law of Contract	56%
Property Law I	65%

Miss Fair sat the final year Part II examination in June 1998 in the following subjects and obtained the marks indicated:

Criminal Law	52%
Property Law II	52%
Property Law III	64%
Evidence	65%

Miss Fair also submitted a 15,000 word dissertation as part of the degree requirement, entitled "The role of legal principles in British Caribbean Slave law and the Abolitionist movement" and was awarded a mark of 65%.

The pass mark for the M.A. degree is 40% and the degree is not classified.

The degree of M.A. was conferred on her at a Degree Ceremony on 8 July 1998.

.....

Professor D. N. Clarke,
Head of the Department of Law

UNIVERSITY OF BRISTOL
DEPARTMENT OF LAW

7 October 1998

THE GENERAL COUNCIL OF THE BAR, 2-3 CURSITOR STREET, LONDON EC4A 1NE

CERTIFICATE OF COMPLETION OF THE ACADEMIC STAGE OF TRAINING FOR THE BAR OF ENGLAND AND WALES

I hereby certify that

Nicole Fair

of

2nd Floor Flat
34 West Mall
Clifton
Bristol
BS8 4BG

has fully completed the Academic Stage of Training for the Bar of England and Wales by passing the seven Foundations of Legal Knowledge comprising the Academic Stage, namely:

Obligations I
Obligations II
Criminal Law
Property Law
Public Law
Equity and the Law of Trusts
The Law of the European Union

Subjects affected by the Non-Repetition Rule:

(Please note the statement on the reverse side)

Signed:

on behalf of the ***Academic Stage Section***

Date: 10/07/98

THE GENERAL COUNCIL OF THE BAR FIAT JUSTITIA

NB *This Certificate is invalid unless endorsed with the official stamp of the General Council of the Bar*

STAFFORDSHIRE UNIVERSITY

Nicole Fair

has been awarded the degree of

Master of Arts
With Merit

having followed an approved programme of study in

International History
19th March 2014

Michael Wood
Pro-Chancellor

Vice-Chancellor