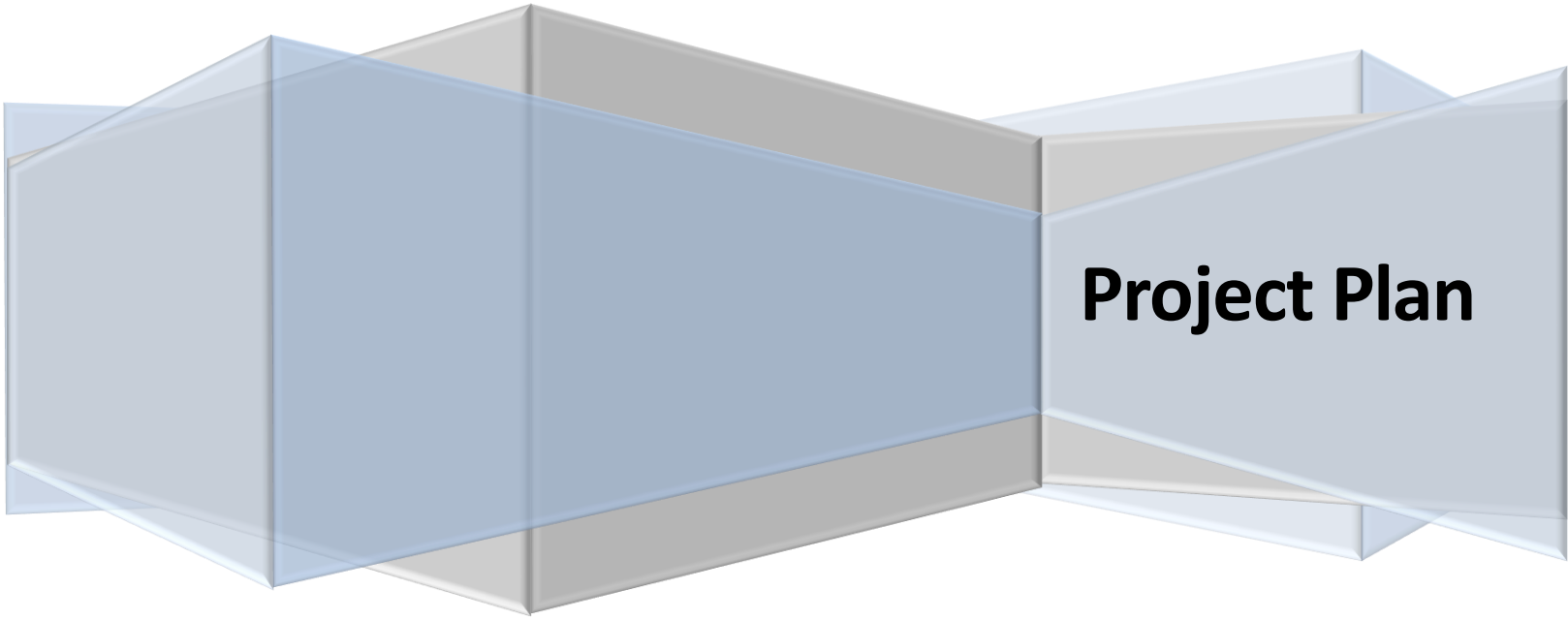
Cornerstones Unified Database Design Project (CUDDP)

SYST 699 – Fall 2014

Aisha Sikder

Abdul Azeem Khan

Daniel Kim



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1.0 Introduction

Cornerstones is a nonprofit organization that promotes self-sufficiency by providing support and advocacy for those in need of food, shelter, affordable housing, quality childcare, and other human services. To complete this mission, Cornerstones provides various programs that focus on aspects of these very specific needs. The programs are currently organized into the following four categories:

- Food, Financial, or Urgent Assistance
  - Emergency Shelter
  - Food & Basic Needs
  - Financial Assistance
  - Hypothermia Prevention
  - Eviction/Foreclosure Prevention Counseling
- Child Care & Youth Services
  - Affordable Child Care
  - Tutoring & Homework Assistance
  - Healthy Families Fairfax
- Housing
  - Emergency Shelter
  - Affordable Housing
  - Transitional & Supportive Housing
  - Eviction/Foreclosure Prevention Counseling
  - Housing Counseling
- Community & Family Strengthening
  - Connections for Hope Partnership
  - Community Resource Centers
  - Healthy Families Fairfax
  - Financial Literacy Classes
  - Housing Counseling

Information is gathered from the clients who visit and receive assistance from the Cornerstones programs. This data is used for management, analysis, and tracking of the clients. Currently, this process involves data collection from the clients through pen & paper forms, entry of the data into an

Excel spreadsheet by the Cornerstones database front-end users, collection and processing of the entries, and analysis and report creation by the back-end users.

Because of a lack of a unified database, each of the key programs maintains their client records on a separate database. This has created some difficulties for Cornerstones in tracking their clients, managing records, and generating accurate reports for program metrics. The Cornerstones has approached GMU to find a solution to this problem.

This Project Plan document will outline the key systems engineering activities and project milestones for this Cornerstones Unified Database Design Project (CUDDP).

2.0 Project Management Approach

GMU has formed a formal project team to work on the CUDDP. The members of this team are Aisha Sikder, Abdul Azeem Khan, and Daniel Kim, and will be referred to as “The GMU Team” throughout all project materials. This team will perform systems engineering work for Cornerstones to bring them closer to a unified database solution this semester. The GMU team will develop a design to integrate the databases that Cornerstone uses in their programs.

The project management approach for this project will be to analyze and then design a system that will assist Cornerstone in working more efficiently with their data by integrating the databases from each key program. The complete implementation, verification, and deployment phases of the development life cycle will not be included as part of the scope of this semester’s project. However, the GMU Team plans to deliver a requirements document to which the design will be validated. Also, as part of the implementation, the GMU Team plans to deliver a working test version of the database, implemented in the selected tool(s).

3.0 Problem Statement

In order to complete their mission to provide support and advocacy for those in need of food, shelter, affordable housing, quality childcare, and other human services, Cornerstones relies on a

network of programs to focus on each unique service. The Cornerstones provides these services to their clients, and a key part of their operations is the tracking of client data and services rendered. The data is collected and entered into databases by front-end users. The problem with current Cornerstones database model is that in most cases, their databases function independently from one another. The use of multiple databases creates challenges for the Cornerstones back-ender users. The back-end users of the databases use the collected information to run analysis on the quantity and quality of the services provided. Some of the questions that the back-end users try to answer from their analysis are:

- How much services did we do?
- How well did we serve clients?
- Has anyone improved their livelihood?

Distributed, inconsistent, and insufficient data across all programs make it practically impossible for statistical based determination of these critical performance measures.

4.0 Project Scope

The Scope of this project is develop a robust data strategy and a unified database design for the Neighborhood Resources program division that can help track clients across programs to generate more effective and accurate reports. To do this, the GMU Team will review the forms used in the Neighborhood Resources program, analyze the data collected, review the current Excel spreadsheets, create a database design to unify all the intake forms in this program, and develop a test database to manage the client information.

The Neighborhood Resources program at Cornerstones is composed of two distinct operational entities: Assistance Services and Pantry Program (ASAPP) (a.k.a. Food Pantry) and Community Building Initiative (CBI). These programs are distributed in different geographical areas, and are located in multiple sites. The services provided in these programs are functionally unique. The programs provide services, host community events, and distribute goods (such as food assistance).

The scope of this project will be limited to developing a unified database design for the Neighborhood Resources program division and delivering the test database that can be used to manage the client data for these programs.

The unified database design deliverables will consist of two major components – the unified database design documents and the test database. The documents include all artifacts that will support the definition, design, development, and implementation of the database. They include requirements documents, design documents, conceptual/logical/physical database designs, and database user guide materials. The test database deliverable consists of the test database implementation in the Cornerstones computer workstation. The test database developed from the CUDDP database design will be hosted on the MySQL database server. The software will be accessible by Cornerstones staff, and can be used for basic data entry, queries, and client data tracking. The basic digital entry method is part of this deliverable.

5.0 Capability Roadmap

The capabilities roadmap for the Cornerstones Unified Database Design Project (CUDDP) shows the capabilities that the fully implemented database will achieve. This roadmap will be used by the GMU Team to drive the early design stages of the project. The roadmap will also be used to assist Cornerstones in visualizing the goals of the CUDDP. The roadmap is presented in Figure 1 below:

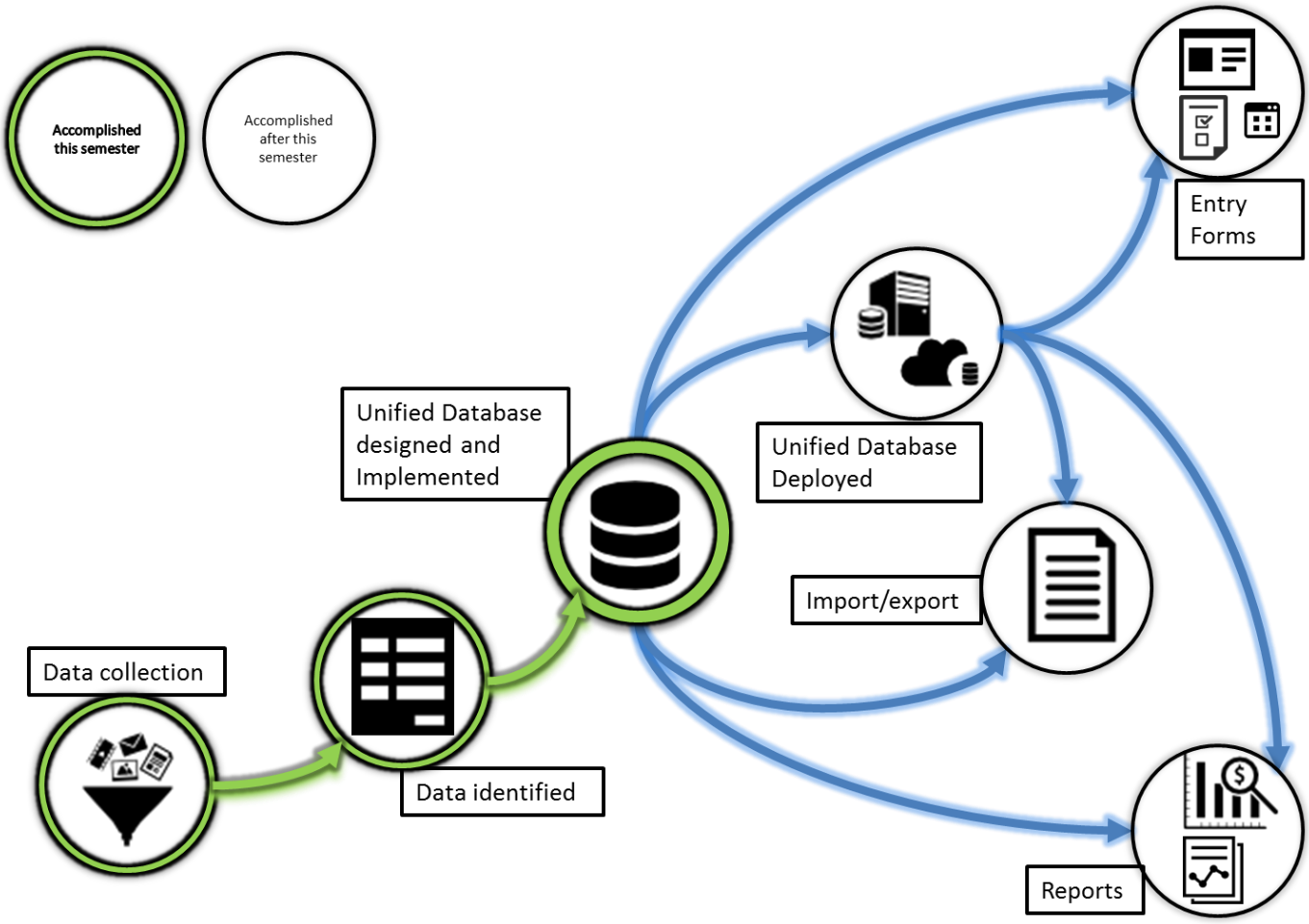

Figure 1: CUDDP Capabilities Roadmap

5.1 Data Collection

During this phase, the team learns about what data is collected, how data is collected, how collected data is processed, how data is utilized, how data is managed. This includes existing application forms used, processes utilized by stakeholders to help an applicant, reports used by stakeholder to show statistics and progress, existing data structure in databases, interfaces with other existing tool and database.

5.2 Data Identification

During this phase, the team analyses data collected in previous phase and identify which data needs to be captured in the database. For our scope, the GMU Team is relying on existing data collection forms. We will use the data fields that currently exist, perform analysis to see if these fields are enough to meet the customer's analytical objectives and if required, propose new fields to go through the customer's change management process to be included in the next version of their forms.

The customer will sign off the requirements document that we deliver. Their approval of the requirements document determines that the data is well-captured.

5.3 Unified Database Design and Implementation

During this phase, the team designs a unified database. This include selection of tools used for database design, conceptual database design, logical database design for relational database, physical database design, database normalization, database schema definition, and verify the schema. The database entities will be documented and the relationships between them will be established in this phase.

During this phase, the team will also implement, test, and deploys the unified test database using the MySQL database. The scope of the work done this semester includes installation of the test database software at the Cornerstones Reston office. A workstation will be provided by the customer for the GMU Team to install, test, and validate the test database. The software used for the test database implementation will be chosen based on factors such as availability, usability, and cost.

5.4 Unified Database Deployment

During this phase, the Cornerstones team should deploy and test the unified database in the selected database. This work is not included in this semester's project scope.

5.5 Import/Export

During this phase, the Cornerstones team should designs, tests, and implements import and export features in needed formats. It also involves automation of the data import process. All the data entry from existing spreadsheets into the new unified database should be completed in this phase. In addition, methods to export the data to other file types, such as CSV or Excel, will be reviewed in this phase. This work is not included in this semester's project scope.

5.6 Entry Forms

During this phase, the Cornerstones team should design, test, and implement application entry forms for the unified database. The work here should involve optimization of the entry forms, to make them comprehensive enough to include all the needed data fields while still being an efficient data collection process. The inclusion of data fields should be analyzed to determine which fields are most useful and necessary to support the back-end analysis of client data. The deployment method of the entry forms should also be reviewed in this phase. Alternatives to pen & paper forms should be reviewed, and if necessary, new data collection processes should be defined. This phase is not included in the scope of this semester's work.

5.7 Reports

During this phase, the Cornerstones team should design, test, and implement reports automatically generated from the unified database. The work here involves using the database to automate the creation of reports that Cornerstones uses, both to manage their clients, and to report their quantitative performance to investors and sponsors. Included in these reports are the various graphs and visual artifacts that Cornerstones uses to track their business performance. This work is not part of the scope of this semester's project.

6.0 Milestone List

The major milestones for the Fall 2014 semester portion of the CUDDP project are presented below:

Class Milestone	66 days	Thu 9/11/14	Fri 12/12/14
Problem Satement Presetation	0 days	Thu 9/11/14	Thu 9/11/14
Challenges Presentation	0 days	Thu 9/18/14	Thu 9/18/14
Draft Project Plan	0 days	Thu 9/25/14	Thu 9/25/14
Draft Final Presentation	0 days	Fri 11/21/14	Fri 11/21/14
Final Presentation	0 days	Fri 12/12/14	Fri 12/12/14
Status report 1	0 days	Thu 10/2/14	Thu 10/2/14
Status report 2	0 days	Thu 10/9/14	Thu 10/9/14
In Progress Reivew Presentation	0 days	Thu 10/16/14	Thu 10/16/14
Status report 3	0 days	Thu 10/23/14	Thu 10/23/14
Final Report	0 days	Fri 11/21/14	Fri 11/21/14
Website	0 days	Fri 12/12/14	Fri 12/12/14

Figure 2: Major Milestones

6.1 Schedule Baseline and Work Breakdown Structure

The Schedule Baseline and Work Breakdown Structure are attached as a separate file in this deliverable. A view of the high level WBS points is presented below:

Milestones, Meetings, and Deliverables	**68 days**	**Wed 9/10/14**	**Fri 12/12/14**
Class Milestone	**66 days**	**Thu 9/11/14**	**Fri 12/12/14**
Customer Meetings	**61.13 days**	**Wed 9/10/14**	**Thu 12/4/14**
Working Group Meeting	**7 days**	**Thu 10/2/14**	**Fri 10/10/14**
Deliverables	**46 days**	**Thu 10/9/14**	**Fri 12/12/14**
Problem Statement Development	6 days	Thu 9/4/14	Thu 9/11/14
Status Reports and Presentation	**63 days**	**Wed 9/17/14**	**Fri 12/12/14**
Website Development	1 day	Fri 12/12/14	Fri 12/12/14
Project Planning	**21 days**	**Thu 9/11/14**	**Thu 10/9/14**
Establish Working Group Meetings with End Users	1 day	Tue 9/30/14	Tue 9/30/14
Collect Data	**2 days**	**Thu 10/2/14**	**Fri 10/3/14**
Capture Originiting Requirements	**7 days**	**Thu 10/2/14**	**Fri 10/10/14**
Develop Requirements	**7 days**	**Mon 10/13/14**	**Tue 10/21/14**
Identity Data	**12 days**	**Mon 10/6/14**	**Tue 10/21/14**
Identify Reports and Their Purpose	**31 days**	**Mon 10/6/14**	**Mon 11/17/14**
Develop Unified Database Design	**29 days**	**Mon 10/20/14**	**Thu 11/27/14**
Trace Requirements to Design	1 day	Wed 11/26/14	Wed 11/26/14
Develop Test Database	**34 days**	**Wed 10/8/14**	**Mon 11/24/14**

Figure 3: High Level WBS Items

7.0 Change Management Plan

During the course of the project many decisions are made and artifacts are developed. Following the delivery of these formal decisions and documents and their acceptance by the customer, any changes to these project artifacts will be managed via a change control board (CCB). Members of the CCB are identified below in Table 7-1. The CCB will review the scope, schedule, and cost impact of the change and decide appropriate actions.

Table 7-1: CCB Members

Name	Organization
Abdul Azeem Khan	GMU
Aisha Sikder	GMU
Daniel Kim	GMU
Guy DeWeever	Cornerstones
Anne-Lise Quinn	Cornerstones

8.0 Communications Management Plan

The communications management plan for the CUDDP follows Table 8-1 below. Table 8-2 provides the contact information for each of the key members of the CUDDP project teams.

Table 8-1: Communications Management Activities

Communication Type	Description	Frequency	Format	Participants/ Distribution	Deliverable	Owner
Weekly Project Team Meeting	Meeting to review action register and status	Weekly	Google Hangout	GMU Team	Updated Action Register	GMU Team
Project Bi-Monthly Review	Present metrics and status to team and sponsor	Bi-Monthly	Teleconference	GMU Team & Stakeholders	Meeting Minutes	GMU Team
Project Gate Reviews	Present closeout of project phases and kickoff next phase	As Needed	Teleconference	Professor, Team, and Stakeholders	Verbal Report	GMU Team
Technical Design Review	Review of any technical designs or work associated with the project	As Needed	Google Hangout	Professor, Project Team	Notes	GMU Team

Table 8-2: Project Team Contact Information

Name	Organization	Email	Cell Phone
Aisha Sikder	GMU	aisha.sikder@gmail.com	703-863-5637
Daniel Kim	GMU	dgimpdeluxe@gmail.com	703-887-5050
Abdul Azeem Khan	GMU	khanx071@gmail.com	925-484-9295
Anne-Lise Quinn	Cornerstones	anne-lise.quinn@cornerstonesva.org	571-323-9561
Guy DeWeever	Cornerstones	guy.deweever@cornerstone.com	571-323-9582
Karla Hoffman	GMU	khoffman@gmu.edu	703-993-1679

9.0 Project Scope Management Plan

The project scope for the Cornerstones Unified Database Design Project (CUDDP) is defined in Section 4.0 of this document. In order to manage the project scope, and limit changes to the objectives of this semester's project, the GMU Team has defined a Project Scope Management Plan.

The key element in the Project Scope Management Plan is the Capability Roadmap presented above (Figure 1). By working closely with Cornerstones and receiving a customer acceptance of our intended project goals, the scope of this project can be managed. As the GMU Team completes the early stages of the project, the roadmap will serve as a way for the team to review the capabilities promised to the customer.

A second tool used in the Project Scope Management Plan is the CUDDP Requirements Document. This requirements document will be delivered to the customer and a customer acceptance will be pursued. Upon acceptance of the requirements document, any changes to the project scope will be addressed through the scope management process.

The GMU Team believes the scope of the project will remain fairly consistent, and the deliverables planned for this semester will allow Cornerstones to begin development of a database solution that meets their needs. If needed, the scope can become flexible as customer needs may change.

All changes to the scope will begin with a meeting between Cornerstones and the GMU Team CCB. The requested changes will be presented, and independently reviewed by both parties. If it is determined that a scope change is required, then this will be documented in the project plan. All project artifacts will be updated according to the change. This includes drafting new requirements to capture the scope change, updating the WBS and IMS with scheduled work, and review of the project roadmap to ensure that the scope change is addressed.

10.0 Schedule Management Plan

The project schedule will be created using MS Project 2010 starting with the deliverables identified in the Work Breakdown Structure (WBS). After the preliminary schedule has been developed, it will be reviewed by the keeper of the schedule. Azeem Khan is assigned to this role. The GMU team must agree to the proposed work package assignments, durations, and schedule. Once this is achieved the stakeholder will review and approve the schedule and it will then be base lined.

The keeper of the schedule will be responsible for facilitating the work package definition, sequencing, and estimating duration and resources with the project team. The schedule keeper will also create the project schedule using MS Project 2010 and will validate the schedule with the GMU team and stakeholders. The schedule keeper will obtain schedule approval from the stakeholders and baseline the schedule. The schedule will be looked at every week by the schedule keeper to make adjustments and discuss further actions to be taken.

11.0 Risk Management Plan

11.1 Purpose of the Risk Management Plan

The purpose of the Risk Management Plan (RMP) is to describe the risk management approach to developing the CUDDP. This RMP will describe in detail the process of identifying and responding to risks through the project lifecycle. It will also describe how risk management activities will be performed, recorded, and monitored. A preliminary set of risks has been identified and the analysis of these risks is presented in Section 11.3. This RMP has been created by the GMU Team and serves as a baseline for the complete risk management approach for this project.

11.2 Risk Management Plan Procedure

11.2.1 Process

A risk is an event or condition that may occur in the life of the project, and if it occurs, will have an effect on the project's objectives. The process of handling risk consists of identifying, analyzing, and

managing these events and conditions. Risk management is performed continuously throughout the entire life of the project, and all changes to this RMP will be made through the CM process identified in Section 7.0.

The GMU Team will work with Cornerstones to identify risks during the CUDDP lifecycle. All team members contribute to the ongoing identification of project risks. Team member Daniel Kim will be assigned as the formal Risk Manager for this project. The impact and likelihood of risks can change as the project progresses, so the Risk Manager will mitigate all risks as early as possible. The Risk Manager will implement the steps defined below as part of the risk management process.

1. Identify – collaborate with the project team and project stakeholders to identify project risks
2. Analyze – determine the risk's impact on project schedule, cost, or performance
3. Plan – assign a mitigation strategy to the risk
4. Track – monitor the status of risk triggers and measure necessary metrics
5. Control – track progress of risk mitigation plans, execute contingency plans, and communicate progress with team and stakeholders

11.3 Risk Identification

The GMU Team has identified the following list of project risks. Each risk is assigned an identification number that will be used throughout the project to track, manage, and control the risk. The risks, each given a unique identification number, are presented in Table 11-1 below.

Table 11-1: CUDDP Risk Identification

Risk ID	Risk Description
Performance/Scope Risks	
P-01	Stakeholder Expectations: If the customer expectations for the deliverables of this project are not in line with the scope of the GMU Team's Cornerstones Unified Database Design project, then the project will not be perceived as a success by the customer.

P-02	Resolve Different Objectives of Front-end and Back-end Users: If the GMU Team does not consider the interests of both the front-end and back-end users when determining which data fields are required to collect from Cornerstones clients, then the performance of the system will not capture the full scope.
P-03	Validation of Unified Database Design: If the final database delivered to Cornerstones is not validated thoroughly, then the objectives of the project will not have been met and future project groups may have to redo the work.
Schedule Risks	
S-01	GMU Team Activities Coordination: If the geographical and schedule conflicts amongst the GMU Team members are not resolved, then a successful schedule for project milestones will not be met and all team collaboration efforts will face delays.
S-02	Integration of Unified Database System: If the GMU Team fails to thoroughly plan the integration of the system, and all the factors required in transitioning the Cornerstones programs from their current data collection methods to the new system are not considered (e.g. training of front-end counselors, installation of required HW/SW, access to the Unified Database from all locations, web-based services, etc.), then the completed system will not meet its planned delivery date.
Cost Risks	
	*No cost risks have been identified for the Cornerstones Unified Database Design Project at this time

11.4 Risk Analysis

11.4.1 Qualitative Risk Analysis

For each of the risks identified in the table above, The GMU Team has assigned a probability and impact rating. The following approach was used to determine where each risk fell in the probability and impact scale:

Table 11-2: Risk Probability Scale

Probability	
Unlikely	0-20% chance of occurring
Seldom	21-40% change of occurring
Occasional	41-60% chance of occurring
Frequent	61-80% chance of occurring
Certain	81-100% chance of occurring

Table 11-3: Risk Impact Scale

Impact				
Scale	*Value*	*Effect on Performance*	*Effect on Schedule*	*Effect on Cost*
Negligible	1	Negligible to no change in functionality and usability	0-2% schedule slip	0-2% cost variance
Low	2	Minimal change in functionality and usability	2-5% schedule slip	2-5% cost variance
Moderate	3	Minor changes to functionality required; external coordination recommended	5-10% schedule slip	5-10% cost variance
Critical	4	Major changes required to meet specifications; no workarounds available;	10-15% schedule slip	10-15% cost variance
Catastrophic	5	Significant changes needed to meet specifications; no workarounds available; customer coordination required	>15% schedule slip	>15% cost variance

Along with the above qualitative probability and impact scales, a Risk Matrix will be used to determine the position of each identified risk. Each position in the Risk Matrix represents the

combination of one probability and one impact. The Risk Matrix is color coded to represent the effect of the combined impact and probability to the project performance, schedule, or cost. Figure 4 shows the Risk Matrix that will be used for the Cornerstones Unified Database Design Project.

Impact / Probability	Negligible 1	Low 2	Moderate 3	Critical 4	Catastrophic 5
Certain 0.8-1					
Frequent 0.6-0.8					
Occasional 0.4-0.6					
Seldom 0.2-0.4					
Unlikely 0-0.2					

Figure 4: Risk Matrix

11.4.2 Quantitative Risk Analysis

Quantitative analysis of the risks is performed by using the probability and impact scales defined above. This overall risk value can be used to rank and prioritize project risks. The quantitative analysis is performed by the Risk Manager, who also has the duty to track the risk through the stages of mitigation planning, controlling, and monitoring.

The risk value is calculated by multiplying the quantitative impact and probability values. A ranking of the risks is presented below:

Table 11-4: Risk Prioritization and Summary

Priority	Risk ID	Risk Title	Prob (%)		Impact		Risk Value	Risk Level
1	S-01	GMU Team Activities Coordination	Frequent	80	Critical	4	3.2	RED
2	P-01	Stakeholder Expectations	Frequent	70	Critical	4	2.8	RED
3	P-03	Validation of Unified Database Design	Seldom	40	Catastrophic	5	2.0	YELLOW
4	P-02	Resolve Different Objectives of Front-end and Back-end Users	Occasional	60	Moderate	3	1.8	YELLOW
5	S-02	Integration of Unified Database System	Unlikely	20	Low	2	0.4	GREEN

11.5 Risk Mitigation

11.5.1 Risk Response Planning

The GMU Team's approach to risk response planning is to use the form found in Appendix A: Risk Identification, Analysis, & Mitigation Form Template. The Risk Identification, Analysis, & Mitigation Form will be used for each risk. The form allows the Risk Manager to track each risk and manage the relevant details of each risk such as Risk ID, Title, Category, Risk Statement, Assessment, Owner, and Mitigation steps.

For each risk presented above, a Risk Identification, Analysis, & Mitigation form has been created. The mitigation strategies used are defined in

Table 11-5.

Table 11-5: Risk Mitigation Strategies

Mitigation Strategy	Description
Accept	Risk will be accepted; no action taken to avoid the risk.
Watch	The source/cause of the risk will be observed; if the source becomes a threat, then the risk will be moved to a different mitigation strategy.
Mitigate	Ways to reduce the probability or impact of the risk will be identified and implemented.
Transfer	The risk will be moved to become the responsibility of another party (e.g. by buying insurance, outsourcing, or re-negotiating customer requirements).

The detailed analyses of each risk are presented in form format in the following pages:

Project: Cornerstones Unified Database Design Project (CUDDP)

Risk ID number : P-01	**Date submitted:** 9/18/2014	**Owner:** GMU Team
Risk Title: Stakeholder Expectations	**Risk Category :** Performance	

Risk Overview:

The Cornerstones Unified Database Design Project holds many stakeholders – Cornerstones front-end user & back-end users, the GMU Team, and GMU at the very least. The goal of this semester is to provide the customer with a deliverable that will be immediately useful for them, and prepare them for future work to be done in implementation of the accepted final design. Given that the stakeholders hold different expectations from the system, it is vital to bring all parties together into a single, acceptable final deliverable.

Specific Risk Issue:

If the customer expectations for the deliverables of this project are not in line with the scope of the GMU Team's Cornerstones Unified Database Design project, then the project will not be perceived as a success by the customer.

Risk Timeframe: This issue or event could occur in which phase(s) of the program? (Check all that apply)

☒ Planning ☒ Design ☐ Fabrication /Procurement ☐ Assembly ☐ Installation ☐ Integration and Testing ☐ Operations

Critical Path: No

Risk Assessment

Probability		**Impact**		**Rationale for Impact or Probability**	**Risk Level**		**Current Status**
Frequent	70	Critical	4	With the differing interests of the stakeholders involved, this risk has very high likelihood. The impact is critical because the success of the GMU Team is marked by acceptance of the final deliverable.	2.8	RED	Mitigate

Responsible:
GMU Team

Risk Mitigation:	**Date:**
1. Identify the top objectives of the project, and create a capabilities roadmap for the semester. 2. Provide the roadmap to all stakeholders and present the work that GMU Team will complete this semester. 3. Form agreement on an acceptable final deliverable.	9/25/2014

Revision/Comments:

Project: Cornerstones Unified Database Design Project (CUDDP)

Risk ID number : S-01	**Date submitted:** 9/18/2014	**Owner:** GMU Team
Risk Title GMU Team Activities Coordination	**Risk Category :** Schedule	

Risk Overview:

The 3 members on the GMU Team have great difficulty in performing group activities. There are 2 distance learning students, with one in a different time zone, and 1 in-class student. It will be very difficult for the team to ever have in-person meetings to perform group activities and work collaboratively together.

Specific Risk Issue:

If the geographical and schedule conflicts amongst the GMU Team members are not resolved, then a successful schedule for project milestones will not be met and all team collaboration efforts will face delays.

Risk Timeframe: This issue or event could occur in which phase(s) of the program? (Check all that apply)

☒ Planning ☒ Design ☒ Fabrication /Procurement ☒ Assembly ☒ Installation ☒ Integration and Testing ☒ Operations

Critical Path: No

Risk Assessment

Probability		**Impact**		**Rationale for Impact or Probability**	**Risk Level**		**Current Status**
Frequent	80	Critical	4	Most of the final project is completed through group work, so this risk likelihood is almost certain. Without coordinated group activities, the impact on the project would be very high.	3.2	RED	Mitigate

Responsible:
GMU Team

Risk Mitigation:	**Date:**
1. Identify tools to facilitate coordinated group activities and to allow the group to work collaboratively on assignments. 2. Identify tools to allow the group to meet together through voice and video in order to encourage team building. 3. Develop a schedule for group meetings and set a recurring meeting time where the team members can reliably meet together.	9/18/2014

Revision/Comments:

Project: Cornerstones Unified Database Design Project (CUDDP)

Risk ID number : P-02	**Date submitted:** 9/18/2014	**Owner:** GMU Team
Risk Title: Resolve Different Objectives of Front-end and Back-end Users	**Risk Category :** Cost	

Risk Overview:

The front-end users of the Cornerstones programs are made up of the counselors who receive and process the clients/users of the Cornerstones programs. Their interests are to process clients efficiently and accurately, and most of all, provide clients with the help they need. The back-end users also want to provide clients with assistance, but also need to be able to run analysis on the amount of help they provided, the distribution of the help, the demographics of the clients they serviced, and accurately track unique clients and reduce the amount of duplicate records. The forms used to process clients must be designed in a way that addresses the needs of all users.

Specific Risk Issue:

If the GMU Team does not consider the interests of both the front-end and back-end users when determining which data fields are required to collect from Cornerstones clients, then the performance of the system will not capture the full scope.

Risk Timeframe: This issue or event could occur in which phase(s) of the program? (Check all that apply)

☐ Planning ☒ Design ☒ Fabrication /Procurement ☐ Assembly ☒ Installation ☐ Integration and Testing ☒ Operations

Critical Path: No

Risk Assessment

Probability		Impact		Rationale for Impact or Probability	Risk Level		Current Status
Occasional	60	Moderate	3	Though there are significant differences, the users still share a common objective – to help their clients; thus, the likelihood is occasional. The impact of not resolving the differences is moderate because acceptance of the design relies on meeting all user needs.	1.8	Yellow	Mitigate

Responsible:
GMU Team

Risk Mitigation:	Date:
1. Promote meetings with all users and the GMU Team together to quickly identify objectives and needs of the users. 2. Present early design ideas to both user types and integrate their feedback into the final design.	Ongoing

Revision/Comments:

Project: Cornerstones Unified Database Design Project (CUDDP)

Risk ID number : P-03	**Date submitted:** 9/18/2014	**Owner:** GMU Team
Risk Title: Validation of Unified Database Design	**Risk Category :** Performance	

Risk Overview:

Because the semester will is not sufficient time to complete the integration, test, validation, and O&M stages of this project, the final design that is created must be preliminarily validated in order to provide some level of confidence that the design is robust and meets the needs of the stakeholders..

Specific Risk Issue:

If the final database delivered to Cornerstones is not validated thoroughly, then the objectives of the project will not have been met and future project groups may have to redo the work.

Risk Timeframe: This issue or event could occur in which phase(s) of the program? (Check all that apply)

☒ Planning ☒ Design ☐ Fabrication /Procurement ☐ Assembly ☐ Installation ☒ Integration and Testing ☒ Operations

Critical Path: No

Risk Assessment

Probability		Impact		Rationale for Impact or Probability	Risk Level		Current Status
Seldom	40	Catastrophic	5	This risk has a low-high probability of occurring since the project does not go through the entire lifecycle. A design that lacks robust early validation could become a failure for future stages of the project.	2.0	Yellow	Mitigate

Responsible:
GMU Team

Risk Mitigation:	Date:
1. Create a thorough Requirements document for which to validate the design against. 2. Review requirements document with stakeholders and obtain an acceptance of the requirements. 3. Develop a Requirements Traceability Matrix to track the requirements and allocate them to the elements of the proposed final design.	Ongoing

Revision/Comments:

Project: Cornerstones Unified Database Design Project (CUDDP)

Risk ID number : S-02	**Date submitted:** 9/18/2014	**Owner:** GMU Team
Risk Title: Integration of Unified Database System	**Risk Category :** Cost	

Risk Overview:

The Cornerstones network of programs and organizations involves multiple locations, users, infrastructure, and existing processes. The success of the Unified Database Design relies on all branches of the Cornerstones organization to complete a successful integration, including the proper training for users, installation of required HW/SW, building out secure access to the database from all locations, etc.

Specific Risk Issue:

If the GMU Team fails to thoroughly plan the integration of the system, and all the factors required in transitioning the Cornerstones programs from their current data collection methods to the new system are not considered (e.g. training of front-end counselors, installation of required HW/SW, access to the Unified Database from all locations, web-based services, etc.), then the completed system will not meet its planned delivery date.

Risk Timeframe: This issue or event could occur in which phase(s) of the program? (Check all that apply)

☐ Planning ☐ Design ☐ Fabrication /Procurement ☐ Assembly ☒ Installation ☒ Integration and Testing ☒ Operations

Critical Path: no

Risk Assessment

Probability		Impact		Rationale for Impact or Probability	Risk Level		Current Status
Unlikely	20	Low	2	This project semester does not plan to complete any integration activities, other than a small prototype to the customer, so this risk is unlikely. The impact of this risk to this semester's activities is low.	0.4	Green	Transfer

Responsible:
GMU Team

Risk Mitigation: 1. Collect required information about Cornerstones locations and existing infrastructure to gain a high-level understanding of the integration activities involved. 2. Document the concerns and challenges of integration activities for future groups to utilize.	**Date:** Ongoing
Revision/Comments:	

To aid in Risk Response Planning, the project risks are put into the Risk Matrix. All the risks identified in the RED and YELLOW zones will be mitigated to reduce the probability and/or impact they may have on the project performance, schedule, or cost. This is presented in **Error! Reference source not found.** below:

Impact / Probability	Negligible 1	Low 2	Moderate 3	Critical 4	Catastrophic 5
Certain 0.8-1					
Frequent 0.6-0.8				S-01 (3.2) P-01 (2.8)	
Occasional 0.4-0.6			P-02 (1.8)		
Seldom 0.2-0.4					P-03 (2.0)
Unlikely 0-0.2		S-02 (0.4)			

Figure 5: CUDDP Risk Matrix with Risk IDs and Values

11.6 Risk Monitoring Plan

The risk monitoring plan for the CUDD Project consists of multiple strategies. First, the Risk Manager will perform a routine review of the list of identified risks. The Risk Manager will also track the progress of the risk mitigation steps through the identified forms and tools presented below. As risk mitigation actions are implemented, the Risk Manager will track these changes, link them to the existing documentation for the risk through CM tools, and meet with the project team to reevaluate the probability and impact values for that risk.

In addition, during the regular CUDDP status meeting (held every 2 weeks), the Risk Manager will lead a review period to identify additional risks or changes to existing risks as needed. At the transition of each project lifecycle phase, the Risk Manager will hold a review to discuss risks that could impact the key performance, schedule, and cost goals for that phase.

The combination of routine review and having a dedicated Risk Manager will improve the CUDD Project's ability to monitor risks and identify new risks throughout the project.

11.7 Risk Control Plan

The Risk Control Plan is assembled by the GMU Team. The team will develop a step-by-step response for each risk. The risk mitigation steps are captured in the forms above. These forms are managed by the Risk Manager, and any changes to them will be done through the CM process. The collection of the risk forms, along with the process to update them, is used as the Risk Control Plan for the CUDD Project.

11.8 Risk Reporting Plan

The CUDD Project does not have a separate Risk Reporting Plan. Instead, the risk reporting procedures are detailed in the Risk Control Plan. When risk event triggers occur, they will be captured by the Risk Manager, who can present these to the GMU Team and Cornerstones at the CUDDP status meetings. These events will be reported as they occur for YELLOW and RED risk level events. GREEN risk level events will be reported only to the GMU Team members.

12.0 Staffing/Team Management Plan

The staffing of the GMU Team remains fixed throughout this project. We do not anticipate the team to change, so there will be no formal Staffing Management Plan.

Appendix A: Risk Identification, Analysis, & Mitigation Form Template

Project: Cornerstones Unified Database Design Project (CUDDP)

Risk ID number : [risk ID number]	**Date submitted:** [date]	**Owner:** [owner name]
Risk Title: [risk title]	**Risk Category :** [schedule/cost/performance]	

Risk Overview:

[introduction/background/context of the risk]

Specific Risk Issue:

[risk statement]

Risk Timeframe: This issue or event could occur in which phase(s) of the program? (Check all that apply)

☐ Planning ☐ Design ☐ Fabrication /Procurement ☐ Assembly ☐ Installation ☐ Integration and Testing ☐ Operations

Critical Path: [yes/no]

Risk Assessment

Probability		Impact		Rationale for Impact or Probability	Risk Level		Current Status
[Unlikely, Seldom, Occasional, Frequent, Certainty]	[0-20, 20-40, 40-60, 60-80, 80-100%]	[Negligible, Low, Moderate, Critical, Catastrophic]	[0-20, 20-40, 40-60, 60-80, 80-100%]	[explain rationale]	[probability* impact]	[green, yellow, red]	[Accept, Watch, Mitigate, Transfer]

Responsible:
[risk assigned to team member

Risk Mitigation: 1. [step 1] 2. [step 2] 3. [step 3, etc…]	**Date:** [date]
Revision/Comments: [comments or additional material]	

Appendix B: Key Terms

Key Term	Description
Back-end users	The back-end users are generally seen as the program managing staff at the Cornerstones Reston office, who run analysis, measure client data, and generate reports.
CCB	Change Control Board
Clients	Cornerstones clients are the people in the community who receive goods and services through the Cornerstones programs.
Cornerstones	Cornerstones refers to Cornerstones, Inc. Also referred to as “the customer”.
CUDDP	“Cornerstones Unified Database Design Project” is the formal name of the project for this semester.
Front-end users	The front-end users are generally seen as the Cornerstones staff working in the program locations. They are also referred to as counselors for the clients.
GMU Team	The GMU Team consists of the team members (Aisha, Azeem, and Daniel) and the professor (Dr. Hoffman)
Project IMS/WBS	This refers to the Project Integrated Master Schedule and/or Work Breakdown Structure. This is a separate deliverable.
Requirements Document	This is a document that provides all of the requirements for the CUDDP. The Requirements Document is a separate deliverable from this Project Plan.