

# The Pilot Angels App



Info 461 001  
Information Systems Planning  
And  
Project Management

By

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# Project Description (What We Did)

Info 461: Information Systems Planning and Project Management is the follow-up to Info 361: Systems Analysis and Design. This semester, our class was divided into teams of three people, and, whereas Info 361 primarily focused on completing assignments centered around the Systems Development Lifecycle deliverables, the focus for this course was to create deliverables along the Project Life Cycle. These assignments were generally much more top-level, and mostly shifted our focus away from using Microsoft Visio to create diagrams, and instead created more of a hands-on environment for developing our skills and understanding in working with Microsoft Project. We were also able to practice learning cycles, analyze alternative project options, and simulate real-world obstacles, such as budget cuts or changed schedule constraints, in order to allow us to understand what challenges Project Managers might face on a regular basis.

The coursework was split up into eight assignments. Those assignments, along with a brief description of each were as follows:

- **Assignment 1: The Team Charter**

- o This assignment was designed to assist with the team's "Forming" stage of existence. We decided on the policies by which we would operate, got to know each member's strengths and opportunities, and came away with a general agreement and understanding about how each assignment would be completed.

- **Assignment 2: Learning Cycle and Business Case**

- o Here, it was time for us to learn how to develop a Business Case, as if we were presenting it to a potential Project Sponsor. We analyzed alternative ideas (do nothing, commercial off-the-shelf, and build in-house), calculated Total Cost of Ownership and Total Benefits of Ownership, and made our recommendations based on the research that we completed. We also simulated our first Learning Cycle iteration. This is also where we developed the most important measure of the product's success, the Measurable Organization Value, which would guide the rest of our assignments.

- **Assignment 3: Infrastructure**

- o In this assignment, we looked at all of the resources that we would need to do a complete in-house build of the Pilot Angels App, in the areas of People, Technical, Facilities and Other. We calculated the cost of all of these resources, and generated purchase orders for the equipment that would need to be purchased. We followed up with our second Learning Cycle iteration.

- **Assignment 4: Scope Management Plan**

- o The Scope Management Plan helped us to better understand how to define, verify and manage a project's scope, to make sure that user requirements are met but scope creep is monitored and controlled. We created a Deliverables Structure Chart, a top-level Use Case Diagram, and put together the initial Task List for the Work Breakdown Structure, in Microsoft Project.

- **Assignment 5: Project Plan (Schedule and Budget)**

- o Assignment 5 brought us deeper into utilizing and understanding the Microsoft Project tools. We created the initial project plan, decided where time could be saved by running tasks in parallel, decided where our labor resources would be used and what players would need to be involved in each task, created the Gantt Chart to match our task list (including deliverables and milestones), and

analyzed the project's Critical Path. We finished up by answering a series of summary questions about the baseline budget and schedule for the project.

- **Assignment 6: Risk Management Plan**

- o The Risk Management Plan included several parts. In the first phase of the assignment, we were told that the Project Sponsor asked us to reduce our original baseline schedule by 10 percent and budget by 20 percent. This presented a challenge, because we had tried to create our initial baseline with all possible parallel tasks considered. We also knew that, historically, teams in Info 461 would meet the budget cut demand with the response, "we'll do the project pro bono." We wanted to be more creative and realistic with the way we met the new budget constraint. The next part of the assignment had us revisit the schedule and budget summary questions. Part 3 gave us the opportunity to utilize the Risk Management Framework to do a detailed analysis of one potential risk for each Project Life Cycle phase, and create a chart for who would own each risk and the strategy for ownership.

- **Assignment 7: Earned Value and Quality Management Plan**

- o In this assignment, we were told that we had outsourced the product testing to a company, named Bug Busters. We created the WBS for this testing, along with a baseline for the testing, then analyzed it based on a completion scenario given by our textbook. We completed a detailed Earned Value Analysis, using several different Microsoft Project reports, decided on the realistic time and budget for completion, and "presented" our findings to the Project Sponsor. We finished up by looking at the verification and validation activities and metrics that could be implemented to best ensure project and product quality.

- **Assignment 8: The Project Charter**

- o In this document, you will find the artifacts created in all of the previous assignments, as well as an Executive Summary of the project and recommendations for moving forward.

## **Executive Summary and Recommendations**

### **What Has Been Completed**

At the moment of this Project Charter's acceptance by the Project Sponsor, Phase 1 (Conceptualize and Initialize) and Phase 2 (Develop a Project Charter and Plan) will have been completed. This includes the initial Business Case and the verification of the project's Measurable Organizational Value, as well as the Project's Baseline and Work Breakdown Structure.

### **What Still Needs to Be Done**

It is now time to move into Phase 3 (Execute and Control) of the project, including the Analysis, Design, Construction, Testing and Implementation phases of the System Development Life Cycle. We will need to ensure that the requirements gathering is detailed and thorough, in order to allow the project to have the greatest chance of success, despite the lean schedule and budget requirements. Then, it will be time to bring in the development team to design the system, including the user interface, the database, the LAN, and the website. The team will follow this by building what they have designed, complete all of the necessary testing, train the Husky Air team on all of the new processes, and closeout the project by deploying our Pilot Angels App. The MOV will be evaluated periodically over the course of the next 24 months, to ensure that expectations were met or exceeded. It is imperative that the scope management process is followed throughout the rest of the App's development, in order to maintain the baseline for the project.

### **Suggestions for Enhancements**

Once the system has been implemented and the initial user requirements have been met, it will be time to analyze further improvements to the system. Perhaps the most important consideration will be to continually update the product's security, as patient information as well as sensitive company information, including tax records, will be kept in the database. Husky Air should also consider how the infrastructure that was built for the Pilot Angels App can be utilized to further automate Husky Air's commercial business. There are many smaller projects that can be implemented with minimal cost and great benefit to the company, using parts of the Pilot Angels App information system to impact Husky Air in various ways, including: scheduling of flights or employees, building a customer app, creating an automated payroll system, further improving company record's keeping, and so on. Further, it continues to be our recommendation that, especially as Husky Air and Pilot Angles operations grow, the company considers moving away from an onsite Server for its system. Utilizing a cloud service, such as Amazon Web Services, will allow for increased security, scalability, and create a more "fail-safe" system, that won't be affected by potential onsite issues, such as power outages.

### **Recommendation for an Implementation Strategy**

As there is currently no existing information system for Husky Air or Pilot Angels, a direct cutover implementation strategy will pose no foreseeable risk. This will also allow employees the maximum amount of time to become accustomed to the system, while the development team will still be available to answer their questions and work out any bugs in the system. It is further recommended that one of the original developers be kept on retainer for any future technical support needs.

# **Original Case Study Scenario and System Request**

\*Taken from the Marchewka Information Systems Planning and Project Management textbook.

## **Husky Air – Pilot Angels**

### **Background**

Husky Air opened for business in January 2008 when L.T. Scully and several other investors pooled their life savings and secured a rather large loan from a Chicago bank.

Located at DeKalb Taylor Municipal Airport (DKB) in DeKalb, Illinois, Husky Air is a fixed base operator (FBO) facility that offers a full range of services to the growing demands for business and private aviation. Currently, the company has 23 employees composed of pilots, mechanics, and office staff.

As a FBO, Husky Air provides:

- Business jet, propjet, helicopter, and propeller aircraft charter
- Refueling
- Airframe, engine, propeller, and avionics maintenance
- Aircraft rental
- Flight instruction
- Pilot supplies

Although FBOs at other airports offer similar services, Husky Air has been receiving increased attention throughout the Midwest for its charter service, maintenance, and flight instruction.

### **Pilot Angels**

In addition, Husky Air coordinates a charitable service called Pilot Angels. Working with hospitals, health-care agencies, and organ banks, Husky Air matches volunteer private pilots, willing to donate their time and aircraft, with needy people whose health-care problems require them to travel to receive diagnostic or treatment services. In addition, Pilot Angels also provides transportation for donor organs, supplies, and medical personnel. All flights are free of charge, and the costs are paid for by the volunteer pilots who use their own aircraft.

The pilots who volunteer for the Pilot Angels program need no medical training and offer no medical assistance. The planes do not carry any medical equipment and do not have to accommodate any stretchers. Patients, however, must be medically stable and able to enter and exit the aircraft with little or no assistance. The Pilot Angels passengers typically travel to or from a hospital or clinic for diagnosis, surgery, or some other treatment. Travel companions, such as a relative, friend, or nurse, are common.

Currently, a pool of pilot volunteers is kept in a file-folder. If a hospital or person with a medical or financial hardship contacts Husky Air, the name of the traveler, the destination, dates/times, and the number of travel companions are requested. Because of limited weight restrictions in small aircraft, the weights of the passengers and their luggage are needed as well.

After the initial information is provided, Husky Air contacts the volunteer pilots to determine their availability. Although a volunteer pilot may be willing and available for a Pilot Angels flight, the plane may not have the range or weight-carrying requirements. This may be an inefficient use of time since many pilots may have to be contacted until a pilot and suitable plan can be found.

## **The Project Description**

Husky Air would like to have a computer-based system to keep track of all its Pilot Angels volunteers. Basic information about the pilots may include their name, address, phone number, and so forth, as well as their total hours, certifications, and ratings. Moreover, specific information about a volunteer's aircraft would be useful. Such information should include the type of plane, aircraft identification number (called the N number), whether single or multi-engine, and its capacity for carrying passengers and cargo. Some pilots own more than one plane.

Husky Air also wants to know more about the people, hospitals, clinics, and organ banks that request the Pilot Angels service. In addition, they also would like basic information about the patients, their passengers, and specific needs to help match volunteers with the request for transport. Finally, Husky Air wants a list of all the Pilot Angels flights in order to recognize specific volunteers for their contributions. This would include:

- The pilot who flew the flight
- The passengers onboard
- The plane that was used
- The total time of the flight
- The distance and destination of the flight
- The date and time of the flight
- The total fuel used

## **Project Description (Summary)**

Husky Air is a business that was established in January 2008 by L.T. Scully and many other investors. The company prides itself in services such as aircraft rental, supplies and flight instruction for both business and private aviation. Another service that is provided is a charitable service called Pilot Angels. This program coordinates pilots with those in need to medical transportation in regards to moving the patient from one hospital to another as well as medical supplies.

Husky Air will have a computer-based system that keeps an account of their volunteers name, address, phone number etc. as well as total hour flown, certifications, ratings, type of plane, aircraft ID, single or multi-engine and size of plane for carrying passengers and cargo. They also will have information on the types of users that are requesting the Pilot Angles services and lists of resources used for such things as accounting and tax purposes.

The goal of the project is to create a system that matches a user's need for transport quickly and accurately. This will be done by matching a user's request with an available pilot whose plane has the necessary weight specifications. It will also be able to keep track of expenses that are incurred as a result of these flights for tax and accounting purposes.

# Team Charter

**Team Name:** CGR IT Consulting Partners

## **Purpose Statement and Team Objectives**

CGR Consulting Partners team has been formed to complete a 5 week long project as part of the INFO 461: Information Systems Planning and Projects Management course. The purpose of the team is to combine time, effort, common knowledge or even add value to the skills and abilities of the other participants while successfully completing an outstanding final report and presentation. The team members are committed to the university's Honor Code and to the effective use of resources by assuring that their contribution is original and meets all the instructor's requirements.

## **Team Members:**

|                  |                |                     |
|------------------|----------------|---------------------|
| Charles Harrill  | (804) 387-5934 | harrillcj@vcu.edu   |
| Gregory Eskridge | (804) 539-1847 | eskridgegc2@vcu.edu |
| Ruxandra Zait    | (804) 356-4101 | zaitrm@vcu.edu      |

## **Designated Team Leader**

Charles Harrill will be the leader at the inception of CGR IT Consulting Partners, however all members of CGR Consulting Partners will spend some time in this role and have opportunities to lead the team. The Team Leader position will be assigned at the beginning of each new task, based on individual strengths in performing specific assignments.

## **Team strengths and developmental needs:**

All team members have experience utilizing Microsoft Project and Visio to create SDLC artifacts. The team also has achieved Dean's List on multiple occasion as a result of taking academics seriously as well as previous leadership experience, both in and out of class, including taking on the leader role during the INFO 361 course. One developmental challenge, due to conflicting schedules, will be the ability to meet face-to-face, but this will be resolved using virtual meeting tools, including Skype and Google Drive. Another challenge will be the quick turn-around time for assignment deadlines, due to the condensed 5-week semester schedule. The team plans to overcome this, through strong time management and organization, including utilizing Fridays (day off from class) to proactively complete assignments efficiently and effectively.

## **Roles and responsibilities**

*Charles Harrill-* will be responsible for integrating, formatting and submitting all of the individual pieces of each assignment.

*Gregory Eskridge-* will be responsible for creating all Microsoft Project artifacts. He will also be responsible for conducting any in-class presentations.

*Ruxandra Zait-* will be responsible for creating all Visio diagrams. She will also be in charge of quality assurance, ensuring that the highest quality work has been created before the assignments are submitted.

*The Team-* All artifacts will be created through a team collaboration process. Roles may be adjusted based on the scope of each individual assignment, in order to divide the workload

evenly. Depending on the individual assignment, any written summaries, descriptions and early storyboarding of artifacts will be assigned based on the shared workload.

### **Agreement upon meeting times**

We will communicate in many different ways when needed. First, the most beneficial way that we will communicate and get work done is by face-to-face discussions either before class or in the evening when everyone is available. When that is not possible, we will use Google Docs, text messages, and Skype to help to get the work done.

### **Rules and expectations**

- By the end of each class session, in which a new assignment is assigned, each team member will receive his/ her tasks to complete the assignment. All tasks are to be completed and uploaded to Google Docs (or sent to each member's email, in the event of a Microsoft Project assignment) no later than 8pm on the night prior to the assignment's due date.
- Each team member will contribute approximately one third of the total work needed to complete each of the team assignments, unless otherwise decided upon by a unanimous vote when tasks are assigned. Any reason for a lack of equal involvement will be deemed acceptable or unacceptable by a unanimous vote of the team.
- Group text messaging will be the primary form of communication between group members when not in a scheduled meeting or class time. Responses to any text communication is expected within 4 hours of the time a message is sent.
- Aside from Google Docs and Google Drive, files may be sent between group members via their VCU email accounts. All team members are expected to follow VCU policy, and check their inboxes on a daily basis.
- Previous levels of team member contribution will be discussed at each team meeting. If a team member has a “light” workload for one assignment, due to the inability of the team to split the assignment evenly, that team member will be expected to take on a heavier load on the next assignment. Conversely, if a team member has a heavier workload, relative to the other members, for a particular assignment, that team member will be assigned a “lighter” task on the next assignment.
- Once meeting times, and the method of meeting, are decided upon before the end of each class, all team members are expected to honor those meeting times. Any reasons for missing a meeting are subject to a unanimous approval/ disapproval vote by the other two team members.
- Every team member is expected to turn in work that meets all criteria to achieve an “A” on each assignment. Repeatedly underperforming and failing to meet assignment requirements will be deemed unprofessional and disrespectful to each team member.
- If a team member fails to meet the expectations herein, or if a team member violates the code of ethics at any time, disciplinary action will occur as follows:
  - First Offense: documented verbal warning, explaining the violation and future expectations.
  - Second Offense: written documentation, explaining the violation, future expectations and the repercussions of not meeting future expectations.
  - Third Offense: expulsion from CGR IT Consulting Partners.

- At any time and by unanimous vote of the other two team members, it may be deemed necessary to accelerate the disciplinary process due to a particularly egregious violation. In the event that this leads to expulsion, the two voting team members are expected to meet with the course instructor to receive mentoring on the issue and disciplinary action before final steps are taken.
- Team member may decide that this set of Rules and Expectations needs to be amended. In the case of amendments, a two-thirds vote will be needed to add any new rules to the team charter, while a unanimous vote will be necessary to amend or remove any existing rule or expectation.

### **Code of Ethics**

- Open communication is expected and treated as a vital tool to allow all team members to have complete understanding of progress throughout each assignment.
- All communication shall be delivered and received with professionalism and respect.
- Sarcasm, judgement, negativity and condescension is to be avoided during the communication process.
- In order to achieve the strongest results, constructive feedback is expected among team members. Feedback is to be delivered in a courteous manner, and respectful and courteous feedback is to be received in a professional manner that reflects a high level of emotional maturity.
- All group members are expected to contribute wherever extra help may be needed, and to strive to carry one-third of the workload at all times.
- Discrimination, based on race, gender, sexual-orientation, religion, age, national origin, political affiliation or creed, will not be tolerated.
- “A” level work is an expectation for all members of CGR IT Consulting Partners on all assignments. It is our view that regularly turning in work behind schedule or turning in work that is below-standard is disrespectful to the other members of the team and a violation of the team’s ethics policy.
- The VCU honor code shall be adhered to on all assignments.
- This Code of Ethics may be amended at any time. A two-thirds vote is necessary to add any new entries to this code. A unanimous vote is necessary to remove or amend any of the items herein.

### **Short Bios:**

**Ruxandra Zait** is a rising senior studying Information Systems at VCU. She works as a Computer Help Desk Technician at Reynolds Community College, and has another part time job at Virginia Oral and Facial Surgery as a Records Management Specialist. Tangential with her love for computers and math is a love for International Business. She knows three languages and is experienced in project management and leading organizations. Ruxandra is an appointed representative to the VCU Student Technology Advisory Committee, the Assistant Director of the Intercultural Festival at VCU and the Community Engagement Chair of the International Business Club. She is definitely a high achiever who loves to travel and discover new cultures in her spare time.

**Charles Harrill** is from Richmond, VA and is an Information Systems major. This is not his first degree that he is seeking. Currently, he has a bachelor's degree in Elementary Education. After college, Charles taught second grade in a rural, low-socioeconomic area for a few years. By

the end of his teaching career, he decided that he was really interested in technology and how systems are run. The decision was made to enroll at VCU and learn more about these topics. He is goal oriented and works hard at providing the very best work. Charles is also Vice-President of AITP@VCU.

**Gregory Eskridge** is currently working to achieve a Bachelor of Science Degree in Information Systems, from the VCU School of Business. Before entering VCU in Fall of 2015, Gregory earned an Associate's Degree of Applied Science in Business Administration from Reynolds Community College, earning a 3.95 GPA in his time at the school. He previously had a successful career as a Retail Store Manager, developing high performance teams that range in size from 5 employees to 115 employees, and working for companies including GNC, Cracker Barrel and Bed Bath & Beyond. When not focusing his energy on coursework, Gregory spends his time exploring Richmond with his wife, Aileen, his now 18-month old son, Wyatt, and his devoted rescue dog, Basil.

### **Signatures of agreement**

All CGR IT Consulting Partners team members have thoroughly read the Team Charter, including the Rules and Expectations, Code of Ethics, and Agreed Upon Meeting Times. All team members understand this document and agree to all rules, responsibilities and ethics outlined in this charter. Submitting this assignment for grading signifies that Charles Harrill, Gregory Eskridge and Ruxandra Zait agree to this Team Charter.

## **Business Case**

### **Team Learning Record**

| <b>What We Know<br/>(facts)</b>  | <b>What We Think We Know<br/>(assumptions)</b>  | <b>What We Don't Know<br/>(questions to be<br/>answered)</b>  |
|--|---|---|
| The current physical file system for the Pilot Angels program is inefficient.  | A new information system may help to make the program operate more efficiently.   | What user interface will be the easiest for the individual pilots, the patients and the company employees to navigate?  |
| The turnaround time for pairing a pilot with a customer in need of service is slow.  | Keeping a current record of pilot availabilities in a database will allow a quick way to cross-reference them with customer scheduling needs.   | What method is best to use in order to create an incentive for volunteer pilots to keep their schedules current?  |
|  | Keeping a comprehensive database about planes will allow Pilot Angels to quickly eliminate pilots who do not meet weight-carrying requirements for a particular customer.                       | Will customer weight requirements remain consistent enough for regular customers to become a part of a customer's profile in the database?  |
| Keeping a log of flights, including date and time, flight time, total fuel used, and distance of flight will help Husky Air and the individual volunteers to keep tax records more easily. |   | Would the total flight time be more easily collected through a website "check-in" style application or would compliance be stronger if pilots needed to call someone from Husky Air to enter in flight information? |
|  | Parts of the system could be automated as schedules are made and flights are completed.   | How much of the total flight information could be automated by a "check-in" system once a flight is scheduled?  |
| Records used for tax purposes need to be accurate.   | A system of checks can be programmed into the system in order to validate that flight time, distance logged and fuel costs match a database of flight take-off points paired with destinations. | How will entries be audited internally in order to keep tax records accurate?   |

## Action Plan

| Who?     | Does What?   | By When?      |
|----------|--|---------------|
| Gregory  | Interview Husky Air employees and a sample of customers in order to assess user interface requirements   | June 3, 2016  |
| Gregory  | Interview pilots in order to assess user interface requirements and to understand ways to incentivize pilots to regularly log on to a system to keep schedules up to date. | June 10, 2016 |
| Charles  | Research previous flight records for customers who have taken three or more flights to assess whether changes in weight requirements occurred.                             | June 3, 2016  |
| Charles  | Research the methods and costs that could be used to automate flight times.  | June 10, 2016 |
| Ruxandra | Create a data model for the system in order to assess which information could be automated through scheduling and a “check-in” system.                                     | June 3, 2016  |
| Ruxandra | Speak with other charitable organizations with similar systems in order to create benchmarks for automated internal auditing.  | June 10, 2016 |

## **Measurable Organizational Value (MOV)**

### **Desired area of impact**

The development of a new computer-based system at Husky Air Pilot Angels to better process and record information regarding the volunteers and flights is a step in the right direction towards streamlining and making the business run efficiently. The MOV table below lists the potential areas that this project will address and summarizes its impact once the company embraces the new system.

| Organizational Impact | Value   | Metric   | Time Frame   |
|-----------------------|---|--|--|
| <b>Operational</b>    | <ul style="list-style-type: none"><li>• Increase operational effectiveness</li><li>• Reduce number of inquiries and call times</li><li>• Improve the scheduling time</li><li>• Record pilots' contribution</li></ul>      | <ul style="list-style-type: none"><li>• Respond to service requests in less than 24 h</li><li>• Reduce number of calls by 50%</li><li>• Reduce scheduling time from 9 h to 3 h per month</li><li>• Increase the accuracy of the pilot's volunteer hours by 97%</li></ul> | <p>12 months</p> <p>6 months</p> <p>18 months</p> <p>24 months</p> |
| <b>Financial</b>      | <ul style="list-style-type: none"><li>• Lower expenses in salary and phone calls due to streamlined operations</li><li>• Increase revenue due to better coordination of flights, aircrafts and cargo's location</li></ul> | <ul style="list-style-type: none"><li>• Reduce administrative costs from \$45,000 to \$33,500</li><li>• Reduce fuel expenses by 35%.</li></ul>   | <p>12 months</p> <p>60 months</p>                                  |
| <b>Customer</b>       | <ul style="list-style-type: none"><li>• Provide faster customer services and flight quotes</li><li>• Increase availability of matching volunteers</li><li>• Reduce number of stopovers</li></ul>                          | <ul style="list-style-type: none"><li>• Decrease waiting time by 2 hours</li><li>• Increased probability of pairing by 40 %</li><li>• Reduced number of stopovers per 1000 flight miles from 3 to 1</li></ul>  | <p>3 months</p> <p>6 months</p> <p>12 months</p>                   |

|                  |   |  |   |
|------------------|---|--|---|
| <b>Social</b>    | <ul style="list-style-type: none"> <li>• Increase number of service missions</li> </ul>                             | <ul style="list-style-type: none"> <li>• Increase the number of patients served from 100 to 130.</li> </ul>  | 12 months                                   |
| <b>Strategic</b> | <ul style="list-style-type: none"> <li>• Increase scheduling flexibility</li> <li>• Increase brand image</li> </ul> | <ul style="list-style-type: none"> <li>• Increased requests of services by 20%</li> <li>• Reduce refusals due to non-availability of pilots from 35% to 20%</li> <li>• Reduced schedule changes by 25 %</li> </ul> | 12 months<br><br>18 months<br><br>18 months |

### **Measurable Organizational Value Summary**

Pilot Angels serves an average of 100 patients per year according to the recent records. As Husky Air wants to advance on the list of top charitable aviation transport services, the management is eager to implement the newly designed system which promises to facilitate the scheduling processes, eliminate a large amount of the human error and better coordinate flights with patients' needs.

- The business will be able to provide faster customer service and flight quotes, thus decreasing the patient's waiting time by 2 hours and reducing the number of calls received by 50 % within only 3 months from the system's implementation.

Improvements in the operational area will create a lowered cost and overall benefits for the company and its customers.

- The administrative costs would be reduced from \$45,000 to \$33,500 in the first year due to the streamlined operations which lower expenses with salary and phone calls.
- Pilot Angels will continue to improve their financial area as a revenue increase is predicted in the next 5 years due to the better coordination of flights, aircrafts, and cargo's location/destination that helps to reduce the fuel expenses by 35%.

Finally, by creating the system, Husky Air will be able to keep track of their costs that have been incurred as a result of transporting patients and equipment for accounting and tax purposes.

Potential improvements will be visible in the social and customer area as well due to having a better scheduling method for its pilots.

- The new system will increase the probability of pairing by 40% during its first 6 months.

- As a result, the number of patients served is envisioned to increase from 100 to 130.
- The quality of the flight would be improved as well as the number of stopover per 1000 flight miles will decrease from 3 to 1.

With a better flexibility in scheduling than other competitors the brand image and the market share of the Husky Air Pilot Angels will increase. Moreover, the new system will make the company more socially responsible by reducing pollution emitted by better coordinating the travel needs.

- The brand image and market share of the Husky Air Pilot Angels will increase by 10 % in the following two years.

Lastly, the impact of the project will increase the accuracy of the pilot records. These combined with the recognition program which honors the contributions of the volunteer pilots serves as an incentive and will increase the company's ability to fly more patients.

- The new system will increase the accuracy of the pilot's volunteer records by 97% within 24 months.
- As a result, it will reduce the downtime due to non-availability of pilots within 24 months.

## **Desired Value of the IT project**

- Better- Husky Air would like to improve their system to match a patient's needs with a pilot's schedule and aircraft more efficiently.
- Faster- Husky Air would like to improve the response time of their system when a request is submitted for transportation. In case of emergencies volunteers should be notified without any further delays.

## **Appropriate Metric**

By implementing the new system, scheduling a flight will be 99% more accurate at responding to user's transportation needs.

## **Time Frame for Achieving MOV**

CRG IT Consulting Partners estimates that MOV goals would be achieved by at least 6 months after the software is fully installed and implemented.

## **Summarization**

Increase the accuracy of a user's request for transport with 99% accuracy within 6 months of implementation.

## Comparison of Alternatives

### Alternative #1: Status Quo

Maintain the current paper-based system.

*Advantages:* no extra cost; no need to pay for equipment, software licenses, hardware, maintenance, transition costs.

*Disadvantages:* issues persist regarding accuracy and maintenance of records.

*Estimated costs:* sunk costs due to inefficient use of resources and lack of coordination.

*Expected benefits:* no development costs for user training, no associated hardware or software costs.

### Alternative #2: Purchase a software solution/package-Flight Schedule Pro

The screenshot shows the Flight Schedule PRO website. At the top, there's a navigation bar with links for Home, Tour, Customers, Blog, Pricing, Contact Us, and Login. A green button for a 'Free 30 Day Trial' is also visible. Below the navigation, the page title 'Flight Schedule PRO™' is displayed above a section titled 'Simple Pricing Plans'. A sub-section titled '# of Aircraft + Flight Instructors + Simulators' provides a breakdown of pricing based on the number of users. The table shows the following rates:

| 1          | up to 10   | up to 30   | up to 50    | up to 100   | up to 150   |
|------------|------------|------------|-------------|-------------|-------------|
| \$19/month | \$49/month | \$74/month | \$149/month | \$199/month | \$249/month |

Below the table, two sections are shown: 'Included in Base Package' (listing features like Online Scheduling, Pilot Currency Tracking, Basic Maintenance Tracking, and Flight Recording w/Dispatching) and 'New Billing & Point of Sale Coming June 2016! (Optional Add-On)' (listing benefits like Unlimited customers and members!, One flat fee makes your life easy, No need to purchase licenses for additional users: have 1 or 10,000 users at no additional cost, No costly installations: Flight Schedule Pro is a hosted solution and is available via the Internet 24/7, and 10% annual discount).

*Advantages:* facilitate data input and keep track of paperwork that might otherwise become lost or incorrect. Improve management and better scheduling of pilots flights and availability. Usable with any web-enabled device (e.g. smartphones, tablets, computers). It will be a remarkable tool for pilots as it provides easy self-check-in. Further, customers will be able to set a profile and select their preferences. The newly created records and software interface means no maintenance required from staff.

*Disadvantages:* limited support from CGR IT Consulting Partners due to the fact that our company doesn't own the software. Several customization restrictions will apply as well.

*Estimated cost:* a monthly service fee of \$149/month, which is very probable to increase over the years.

*Expected benefits:* reduce customers' dependency on Husky Air's staff. Improved customer service due to the self-service using the company app. More accurate record-keeping for business operations.

### Alternative #3: Custom Database System

Contract CGR IT Consulting Partners for a customized record system. This includes: designed database, employee interface, customer portals, and pilots sign in.

*Advantages:* The system can be built with the specifics Husky Air Pilot Angels business model in mind. The Husky Air management will be able to contact CGR IT Consulting Partners for technical support if any issues arise.

*Disadvantages:* The duration of a custom system is greater and the system is more expensive than than a prebuilt solution.

*Estimated Cost:* The developed system will be the most expensive to install and maintain. Because the system requires to be updated every year due to the new security issues which arise, the costs will increase each year as well.

| Pilot Angels App Cost Analysis       |                |   |               |               |               |                |
|--------------------------------------|----------------|---|---------------|---------------|---------------|----------------|
|                                      | Year 1         | Year 2  | Year 3        | Year 4        | Year 5        | Total          |
| <b>Development Costs</b>             |                |   |               |               |               |                |
| Management & Planning Workflows      | 12,000         | 120 h @ \$100/h   | -             | -             | -             | 12,000         |
| Analysis Workflows                   | 14,400         | Detailed system specifications; 160 h @ \$90/h  | -             | -             | -             | 14,400         |
| Design Workflows                     | 11,000         | 2 months: 200 h @ \$55/h  | -             | -             | -             | 11,000         |
| Implementation Workflows             | 17,600         | 2 months: 160 h @ \$55/h  | -             | -             | -             | 17,600         |
| Testing & Operations Workflows       | 9,900          | 180h @ \$55/hour  | -             | -             | -             | 9,900          |
| Training                             | 3,200          |   | -             | -             | -             | 3,200          |
| Hardware                             | 30,000         | New CPUs, Printer, Network devices, 3 workstations; plus new server & backup storage                                  |               |               |               | 30,000         |
| Software                             | 5,300          |   |               |               |               | 5,300          |
| Office Space and Equipment           | 7,500          | New network operating system, firewall software, anti virus, office product software, utilities, new client software. |               |               |               | 7,500          |
| Website Development                  | 4,500          |   |               |               |               | 4,500          |
| <b>Total Development Costs</b>       | <b>115,400</b> |   |               |               |               | <b>115,400</b> |
| <b>Operational Costs</b>             |                |   |               |               |               |                |
| User Training                        | 1,000          | 1,000   | 1,000         | 1,000         | 1,000         | 5,000          |
| Online Marketing                     | 1,000          | 1,000   | 1,000         | 1,000         | 1,000         | 5,000          |
| Software Upgrades                    | 5,000          | 3,000   | 3,000         | 3,000         | 3,000         | 17,000         |
| Software licensing (network, os etc) | 1,500          | 1,500   | 1,500         | 1,500         | 1,500         | 7,500          |
| Hardware upgrades                    | 5,000          | 5,000   | 5,000         | 5,000         | 5,000         | 25,000         |
| Web Services Fees                    | 250            | 250   | 250           | 250           | 250           | 1,250          |
| Website advertising                  | 1,000          | 1,000   | 1,000         | 1,000         | 1,000         | 5,000          |
| <b>Total Operational Costs</b>       | <b>14,750</b>  | <b>12,750</b>   | <b>12,750</b> | <b>12,750</b> | <b>12,750</b> | <b>65,750</b>  |
| <b>Total Costs</b>                   | <b>130,150</b> | <b>12,750</b>   | <b>12,750</b> | <b>12,750</b> | <b>12,750</b> | <b>181,150</b> |

*Expected benefits:* The system can be tailored to the Pilot Angels specific needs and can be modified as the business grows and evolves. However, the value of benefits will increase over time and will be higher compared with the packaged systems performance.

## Analysis of Alternatives

The following section will analyze the alternatives presented above based on the Total Cost of Ownership (TCO) and The Total Benefit of Ownership (TBO).

### Total Cost of Ownership

| Criterion             | Description               | Weight | Alternative #1- Status Quo | Alternative #2 Out of Box | Alternative #3 Build |
|-----------------------|---------------------------|--------|----------------------------|---------------------------|----------------------|
| <b>Financial</b>      | ROI                       | 15%    | 2                          | 6                         | 10                   |
|                       | Payback                   | 10%    | 3                          | 3                         | 10                   |
|                       | NPV                       | 15%    | 3                          | 4                         | 10                   |
| <b>Strategic</b>      | Align Obj.                | 10%    | 4                          | 4                         | 9                    |
|                       | Inc. Market Share         | 10%    | 3                          | 4                         | 7                    |
| <b>Organizational</b> | Likelihood to achieve MOV | 10%    | 4                          | 4                         | 5                    |
|                       | Available Skilled members | 5%     | 6                          | 5                         | 4                    |
| <b>Project</b>        | Cost                      | 5%     | 4                          | 5                         | 6                    |
|                       | Time to Develop           | 3%     | 5                          | 2                         | 6                    |
|                       | Reliability               | 2%     | 2                          | 5                         | 4                    |
|                       | Risk                      | 5%     | 7                          | 5                         | 5                    |
| <b>Customer</b>       | Customer Satisfaction     | 10%    | 3                          | 5                         | 8                    |
| <b>Total Score</b>    |                           | 100%   | 3.49                       | 4.41                      | 7.91                 |

## Total Benefits of Ownership (TBO)

### *Direct*

- Increased speed at which all patient and hospital requests are processed.
- Increased efficiency of the filing system for all patient, hospital, pilot and plane information.
- Automated and accurate tax records for both Husky Air and the volunteer pilots.
- The ability for pilots to directly enter their availability into the database via a mobile app, instead of needing the assistance of a Husky Air employee to keep the pilot file up to date.
- The ability for customers to input requests directly into the app instead of needing the assistance of a Husky Air employee to manually process the request.
- A large decrease in administrative costs, since the app and database will be able to automate most of the tasks that were previously executed by a Husky Air employee.
- Most of all, by greatly improving the response time for an organ transport, more lives will be saved!

### *Indirect*

- An increase in organ transport success rate in the Pilot Angels Program will provide Husky Air will improve public relations as a socially responsible company, in turn driving sales increases on the commercial side.
- The app can be integrated into Husky Air's commercial operations, and improve administrative efficiency throughout areas of the business beyond the Pilot Angels
- The system can be used for all of the company's planes, in order to keep improved maintenance records, and alert Husky Air when new maintenance is due.
- The database will allow Husky Air to keep more easily searchable records of all Pilot certifications and due dates of re-certifications.
- Keeping all of the tax records for Pilot Angels in the database will decrease the time needed to processes end-of-period paperwork, decreasing accounting costs overall.

*\*All of the listed benefits will have an ongoing positive impact on Husky Air and its Pilot Angel operations.*

## Recommendation

Based on our analysis, we recommend building the system in house. Husky Air's newly customized flight planning and tracking solution appears to deliver more value as the system will meet the organization's specified demands. The system will cover several of the mandatory requirements which include secure login/access controls, centralized database, notification systems, search features and report run. For a relatively small fee, supplementary functions such as real time chat connectivity can be added. Moreover, the programming costs were estimated to be relatively reduced, more specifically \$55 per hour. Additionally, the company will have the benefit of 24/7 technical support from the CGR IT Consulting Partners. In summary, this effective alternative has been identified by comparing the TCO and the TBO scores. Despite the fact that building the system in house has a high cost during its start-up, it's long term benefits prove to be cost effective.

## **Defining the Project Infrastructure**

### **List of Resources Needed**

#### **People**

*Database Engineer*- Will design and build a normalized database, to support the Pilot Angels app.

*Network Administrator*- We would need this person to set up the LAN.

*App Developers*- The developer will create the layout of the mobile application.

*Telecommunications Wiring Company*- Initial telecommunication wiring will be done by Verizon Fios with a monthly fee for internet service.

*Electrician*- We will need this person to make sure that the fuse box has enough power to handle the needs of multiple computers plus any networking equipment.

*Programmer*- This person will have some expertise in the technical development of the system.

*Husky Air President*- The president will be able to give the team any needed information regarding the system needs.

*Secretary*- The secretary will help in giving information on the current processes of scheduling a flight.

*Temporary Employees*- We will need these individuals to help upload all the physical files into the system as well as test to make sure it meets the requirements of the user.

*Project Manager*- This person will oversee that the scope is followed and that the project is completed within the agreed upon budget and schedule. This person will also be a link between Husky Air and the project team as well as overseeing the WBS is completed as planned.

#### **Technology**

- In-Office Technology**

*Cat5 cables*- This will be used to hardwire all computers to connect to the LAN.

*Printer*- We would recommend a basic all in one printer that will do copying and scanning. Therefore, we would recommend an HP Officejet 7110 color all-in-one printer.

*Desktop Computers*- We would recommend that any office personnel need to have a working desktop computer. We would recommend a basic Dell Inspiron with 4GB of memory and 1TB hard drive. We also recommend a 23" LCD monitor. (Telecommunication connections at each computer as well.)

*Switch*- We would need this with enough ports to connect all desktop computer, printers, etc. to the LAN.

*Router*- We would need this for the LAN with a speed of 150Mbps.

*Licenses*- This would be needed for various software that needs to be installed such Microsoft Suite.

*UPS/PCU*- The system will require one per computer, to provide temporary power backup in the event of an outage, as well as power conditioning, since Husky Air is an older site with potentially “dirty” power.

*Internet Usage/ Amazon Web Services*- This would be a monthly recurring fee.

*Backup System*- This would be needed for periodic system backups in case of system loss. A tape drive, tapes and a tape pick up service/offsite storage to provide maximum security.

- **Mobile App Technology**

*Mobile Devices*- This will be used for office staff to use for communication as well as to test the mobile application as it is being developed. They should be divided between Android and Apple products to make certain that the application is successful across all platforms.

*Amazon Web Services*- This will be used for the application and databases where they will live so that it can be as secure and accessible as possible.

*Security Audits*- A security audit company will be needed from time to time to make sure that things are kept secured.

## **Facilities**

*Office Space*- A small office location, with high-speed wireless internet access will be needed as a work location for the development team. Preferably, this will be located close to the Husky Air site.

## **Other**

*Training*- Husky Air employees will need to be trained on using the new system, as well as being able to answer any customer or volunteer-pilot questions about using the Pilot Angels app.

*Travel*- This is important for commuting to Husky Air since most work will be done off campus.

*Meal and lodging expenses*- This is needed for any meals incurred during business meetings. Lodging will be used for any outside consultants that will need to be brought in from out of town.

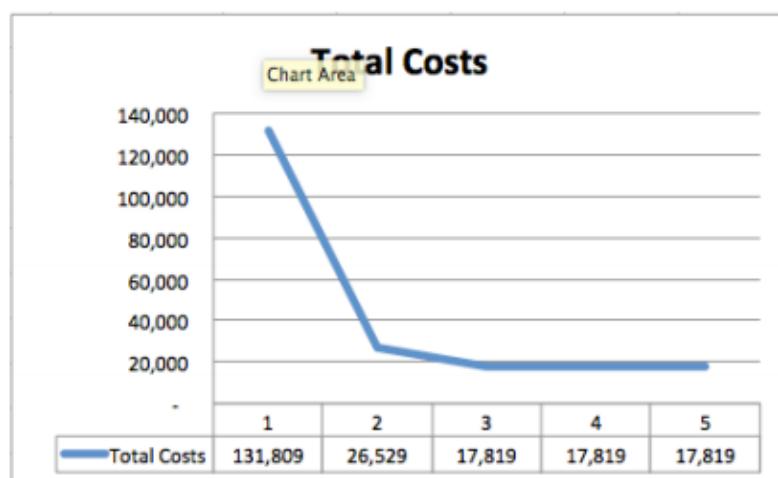
*Maintenance/Tech Support*- There will be on-going cost for retaining engineers for various tech support and maintenance of the system throughout its life.

*Furniture*- This is needed to support the new information system such as the desktop computers, printers, etc.

## Cost Estimates

### Pilot Angels App Cost Analysis - estimate of costs for each resource

| Pilot Angels App Cost Analysis        |                |   |   |               |               |                |
|---------------------------------------|----------------|---|---|---------------|---------------|----------------|
|                                       | Year 1         | Year 2  | Year 3  | Year 4        | Year 5        | Total          |
| <b>Development Costs</b>              |                |   |   |               |               |                |
| Management & Planning Workflows       | 12,000         | 120 h @ \$100/h   | -   | -             | -             | 12,000         |
| Analysis Workflows                    | 14,400         | Detailed system specifications; 160 h @ \$90/h  | -   | -             | -             | 14,400         |
| Design Workflows                      | 11,000         | 2 months: 200 h @ \$55/h  | -   | -             | -             | 11,000         |
| Implementation Workflows              | 8,800          | 2 months: 160 h @ \$55/h  | -   | -             | -             | 8,800          |
| Testing & Operations Workflows        | 9,900          | 180h @ \$55/hour  | -   | -             | -             | 9,900          |
| Training                              | 3,200          | -   | -   | -             | -             | 3,200          |
| Hardware                              | 14,655         | New CPUs, Printer, Network devices, 3 workstations; plus new server & backup storage                                  | -   | -             | -             | 14,655         |
| Software                              | 5,300          | New network operating system, firewall software, anti virus, office product software, utilities, new client software. | -   | -             | -             | 5,300          |
| Office Space and Equipment            | 7,500          | -   | -   | -             | -             | 7,500          |
| Website Development and App Developer | 4,500          | App Developer: 90 h @ \$50/h  | -   | -             | -             | 4,500          |
| Development Team - employee benefits  | 14,025         | Total Salary paid to the development team * 25%   | -   | -             | -             |                |
| <b>Total Development Costs</b>        | <b>105,280</b> |   |   |               |               | <b>105,280</b> |
| <b>Operational Costs</b>              |                |   |   |               |               |                |
| Temporary Worker Salary               | 9,360          | 9,360   | 1 part-time temporary worker paid at \$9/h; no benefits | -             | -             | 18,720         |
| Verizon Fios - Internet Services      | 1,500          | 1,500   | 1,500   | 1,500         | 1,500         | 7,500          |
| Amazon Web Services                   | 369            | 369   | 369   | 369           | 369           | 369            |
| User Training                         | 1,000          | 1,000   | 1,000   | 1,000         | 1,000         | 5,000          |
| Meal and Lodging expenses             | 1,000          | 1,000   | 1,000   | 1,000         | 1,000         | 5,000          |
| Software Upgrades                     | 1,350          | 1,350   | 2,000   | 2,000         | 2,000         | 8,700          |
| Software licensing (network, os etc)  | 1,500          | 1,500   | 1,500   | 1,500         | 1,500         | 7,500          |
| Hardware upgrades                     | 3,500          | 3,500   | 3,500   | 3,500         | 3,500         | 17,500         |
| United Security Tape pickup/drop off  | 5,700          | 5,700   | 5,700   | 5,700         | 5,700         | 28,500         |
| Web Services Fees                     | 250            | 250   | 250   | 250           | 250           | 1,250          |
| Website advertising                   | 1,000          | 1,000   | 1,000   | 1,000         | 1,000         | 5,000          |
| <b>Total Operational Costs</b>        | <b>26,529</b>  | <b>26,529</b>   | <b>17,819</b>   | <b>17,819</b> | <b>17,819</b> | <b>105,039</b> |
| <b>Total Costs</b>                    | <b>131,809</b> | <b>26,529</b>   | <b>17,819</b>   | <b>17,819</b> | <b>17,819</b> | <b>210,319</b> |



# Purchase Order

Date 6/03/2016  
PO # 105

|   |               |   |                |   |
|---|---------------|---|----------------|---|
| CGR IT Consulting<br>Partners<br>1308 Grove Avenue<br>Richmond, VA 23220<br>Phone 804-387-2424<br>Fax 804-387-2425<br>cgrit@cgr.com | <b>VENDOR</b> | Newegg.com<br>16839 East Gale<br>Avenue<br>City of Industry, CA<br>91745<br>Phone 800-390-1119<br>Customer ID<br>10857777 | <b>SHIP TO</b> | Charles Harrill<br>CGR Consulting<br>Partners<br>1308 Grove Avenue<br>Richmond, VA 23220<br>Phone 804-387-2424<br>Customer ID<br>10857777 |
|---|---------------|---|----------------|---|

| Shipping Method | Shipping Terms | Delivery Date |
|-----------------|----------------|---------------|
| UPS Ground      |                |               |

| Qty | Item #        | Description   | Job                            | Unit Price | Line total |
|-----|---------------|---|--------------------------------|------------|------------|
| 3   | I3650-3111SLV | Dell Desktop Computer<br>Inspiron 3650 Intel Core i3 6 <sup>th</sup> Gen 6100 (3.70 GHz) 6 GB DDR3L 1 TB HDD Windows 10 Home... | Manager,<br>CSRs,<br>Secretary | 399.99     | 1199.97    |
| 3   | E2316Hr       | Dell Black 23" 5ms Widescreen LED Backlight LCD Monitor   | Manager,<br>CSRs,<br>Secretary | 139.99     | 419.97     |
| 1   | J9983A#ABA    | HP 1820-24G-PoE (185W) Switch   | Server                         | 373.99     | 373.99     |
| 1   | TL-SG108      | TP-Link Unmanaged 10/100/1000 8-port Gigabit Desktop Switch, Metal Case, Power Saving   | Shipping Desk                  | 24.90      | 24.90      |
| 1   | 7110          | HP Officejet 7110 Up to 15 ppm (ISO, laser comparable) Up to 33 ppm (draft) Black Print Speed 4800 x 1200 dpi                   | Ad Desk                        | 199.00     | 199.00     |

|           |                |   |                  |        |             |
|-----------|----------------|---|------------------|--------|-------------|
| 4         | BCPERS300      | Color Print ...<br>Tripp Lite BC Personal<br>300 VA 180 Watts 3<br>Outlets Standby Tower<br>UPS for PCs | All<br>Computers | 82.99  | 331.96      |
| 1         | CT1000N        | 1000 Ft Cat6e Ethernet<br>Patch Cable - Standard<br>Boot - Blue Patch Cords                             | Office           | 59.18  | 59.18       |
| 1         | OED-0005-00051 | Ubiquiti AR-HP, AirRouter HP<br>11g/n AirOS 5X10/100 USB<br>150Mbps 200+ Meters PoE                     | All<br>Computers | 58.99  | 58.99       |
| 12        |                | Quantum Data<br>Cartridge LTO Ultrium 6<br>20-Pack Library Pack<br>for LTO-6 Tape Drive                 | Server           | 637.35 | 7,648.20    |
| Subtotal  |                |   |                  |        | \$10,316.16 |
| Sales Tax |                |   |                  |        | \$ 546.77   |
| Total     |                |   |                  |        | \$10,862.92 |

1. Please send two copies of your invoice.
2. Enter this order in accordance with the prices, terms, delivery method, and specifications listed above.
3. Please notify us immediately if you are unable to ship as specified.
4. Send all correspondence to:

Charles Harrill – CGR IT Consulting Partners  
1308 Grove Avenue  
Richmond, VA 23220

Phone 804-387-2424  
Fax 804-387-2425

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Date



## PowerEdge T430 Tower Server

Starting Price \$5,503.00  
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Evalue Code PE\_T430\_1454WS

| Catalog Number / Description   | Product Code | Qty | SKU                      | Id   |
|--|--------------|-----|--------------------------|------|
| PowerEdge T430:<br>PowerEdge T430 Server   | T43X         | 1   | [210-ADLR]<br>[384-BBMX] | 1    |
| Trusted Platform Module (TPM):<br>No Trusted Platform Module   | NTPM         | 1   | [461-AADZ]               | 1574 |
| Chassis Configuration:<br>Chassis with up to 8, 3.5" Hot Plug Hard Drives and Embedded SATA, Tower Configuration         | 8HPES        | 1   | [321-BBOT]               | 1530 |
| Shipping:<br>PowerEdge T430 Shipping   | DSHIP        | 1   | [340-AMPV]               | 1500 |
| Processor:<br>Intel® Xeon® E5-2603 v3 1.6GHz,15M Cache,6.40GT/s QPI,No Turbo,No HT,6C/6T (85W) Max Mem 1600MHz           | 8516         | 1   | [338-BGGB]               | 1550 |
| Additional Processor:<br>Upgrade to Two Intel® Xeon® E5-2603 v3 1.6GHz,15M Cache,6.40GT/s QPI,No Turbo,No HT,6C/6T (85W) | A8516        | 1   | [374-BBIN]               | 1551 |
| Processor Thermal Configuration:<br>2 CPU Standard   | 2CPU         | 1   | [412-AAFE]<br>[412-AAFE] | 1697 |
| Memory DIMM Type and Speed:<br>2133MT/s RDIMMs   | R2133        | 1   | [370-ABUF]               | 1561 |
| Memory Configuration Type:<br>Performance Optimized  | PEOPT        | 1   | [370-AAIP]               | 1562 |

|   |        |   |                          |      |
|---|--------|---|--------------------------|------|
| <b>Memory Capacity:</b><br>8GB RDIMM, 2133MT/s, Dual Rank, x8 Data Width  | 8G2R   | 4 | [370-ABUJ]               | 1560 |
| <b>RAID Configuration:</b><br>Diskless Configuration (No RAID, No Controller)   | NRNCTL | 1 | [780-BBMT]               | 1540 |
| <b>RAID Controller:</b><br>Embedded SATA  | NCTRLR | 1 | [405-AACD]               | 1541 |
| <b>Hard Drives:</b><br>200GB Solid State Drive SATA Write Intensive 6Gbps 2.5in Hot-plug Drive, 3.5in HYB CARR, S3710 | 20WH6Y | 4 | [400-AKJP]               | 1570 |
| <b>Network Adapter:</b><br>On-Board Broadcom 5720 Dual Port 1Gb LOM   | OBNIC  | 1 | [542-BBBP]               | 1514 |
| <b>Network Adapter:</b><br>Intel Ethernet I350 DP 1Gb Server Adapter  | I350DP | 1 | [540-BBDH]               | 1514 |
| <b>Embedded Systems Management:</b><br>iDRAC8 Express, integrated Dell Remote Access Controller, Express              | I8EXP  | 1 | [385-BBIK]               | 1520 |
| <b>Internal Optical Drive:</b><br>No Internal Optical Drive   | NODVD  | 1 | [429-AAIQ]<br>[429-AAQS] | 1600 |
| <b>Bezel:</b><br>No Bezel Option  | NOBEZL | 1 | [350-BBBW]               | 1532 |
| <b>Rack Rails:</b><br>No Rack Rails, No Cable Management Arm, No Casters  | NRCMCS | 1 | [770-BBCR]               | 1610 |
| <b>Power Management BIOS Settings:</b><br>Power Saving Dell Active Power Controller                                   | DAPC   | 1 | [750-AABF]               | 1533 |
| <b>Power Supply:</b><br>Single, Cabled Power Supply , 450W  | SC450  | 1 | [450-AEGO]               | 1620 |
| <b>Power Cords:</b><br>NEMA 5-15P to C13 Wall Plug, 125 Volt, 15 AMP, 10 Feet (3m), Power Cord, North America         | 125V10 | 1 | [450-AALV]               | 1621 |
| <b>Server Accessories:</b><br>Keyboard and Optical Mouse, USB, Black, English   | KMENG  | 1 | [570-AAAJ]<br>[580-AADG] | 1630 |
| <b>System Documentation:</b><br>Electronic System Documentation and OpenManage DVD Kit for T430                       | EDOCS  | 1 | [343-BBDS]               | 1590 |

|  |         |   |  |      |
|--|---------|---|--|------|
| <b>Operating System:</b><br>Windows Server® 2012R2,Standard Ed,Factory Inst,No MED,2SKT,2VM,NO CAL         | WS2012R | 1 | [618-BBDS]                             | 1650 |
| <b>OS Media Kits:</b><br>Windows Server® 2012R2,STD Ed,Media Kit w/Factory Inst ENT DGRD Images            | WINENT  | 1 | [634-BBPB]                             | 1652 |
| <b>Canada Ship Options:</b><br>US No Canada Ship Charge  | USNONE  | 1 | [332-1286]                             | 111  |
| <b>Hardware Support Services:</b><br>3 Year Basic Hardware Warranty Repair, 5X10 HW-Only, 5x10 NBD On-site | U3OS    | 1 | [978-9505]<br>[978-9564]<br>[996-8029] | 29   |
| <b>Deployment Services:</b><br>No Installation   | NOINSTL | 1 | [900-9997]                             | 714  |

The Dell Online Store: Build Your System

[http://configure.us.dell.com/dellstore/print\\_summary\\_details\\_popup...](http://configure.us.dell.com/dellstore/print_summary_details_popup...)

|  |       |   |            |     |
|--|-------|---|------------|-----|
| <b>Remote Consulting Services:</b><br>Declined Remote Consulting Service             | NORCS | 1 | [973-2426] | 735 |
| <b>Proactive Systems Management:</b><br>Dell Proactive Systems Management - Declined | NOPSM | 1 | [909-0259] | 30  |

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## Type of Payment

CGR IT Consulting Partners will be paid by Husky Air for the services rendered via a Cost-plus-fixed fee contract. This form of payment was chosen because any necessary materials (hardware and software) will be reimbursed to CGR IT Consulting Partners by Husky Air. In addition, a fixed fee that has been agreed upon by both companies, based on an estimation of production hours according to the defined project scope, will be guaranteed at the completion of the project. This fee is subject to change in the event of an increase in project scope, but will remain firm in the event of a mid-project termination by Husky Air.

## Learning Cycle Iteration

### Team Learning Record

| <b>What We Know<br/>(facts)</b>  | <b>What We Think We<br/>Know (assumptions)</b>   | <b>What We Don't Know<br/>(questions to be answered)</b>  |
|--|--|---|
| Husky Air has requested an in-house, custom-built system.  |  | Does Husky Air have a useable LAN currently onsite?   |
| Husky Air is located on a fairly old site.   | Much of the wiring will need to be upgraded, and issues such as “dirty” power will need to be addressed. | What companies will need to be contracted and what prices will need to be paid in order to upgrade all of Husky Air’s current wiring?   |
| The Husky Air staff will need to be trained on the new system and will need to be capable of helping customers and volunteer-pilots to utilize the Pilot Angels app. | The staff has been at Husky Air for several years and is not tech-savvy.                                 | How long should training last once the system is built and will the project manager be capable of training a novice team? What follow-up training plan will be needed?              |
| The database will need to “live” on an off-site, fail-safe server, in order to maintain accessibility at all times.  |  | Which server company will offer the best value for Pilot Angels and will any be willing to offer discounted rates to a charitable service?  |
| Patient information is sensitive and security will need to be a priority.  |  | What backup system, server security companies and security audit companies will offer Husky Air the best value, while also providing top-level protection of sensitive information? |
| Most of the development work will need to be done at an offsite location, due to Husky Air’s limited office space.   | There should be several office buildings, with temporary office space available near the Husky Air site. | What will be the cost of an off-site office that will meet the space, equipment and internet speed needs of the development team?   |

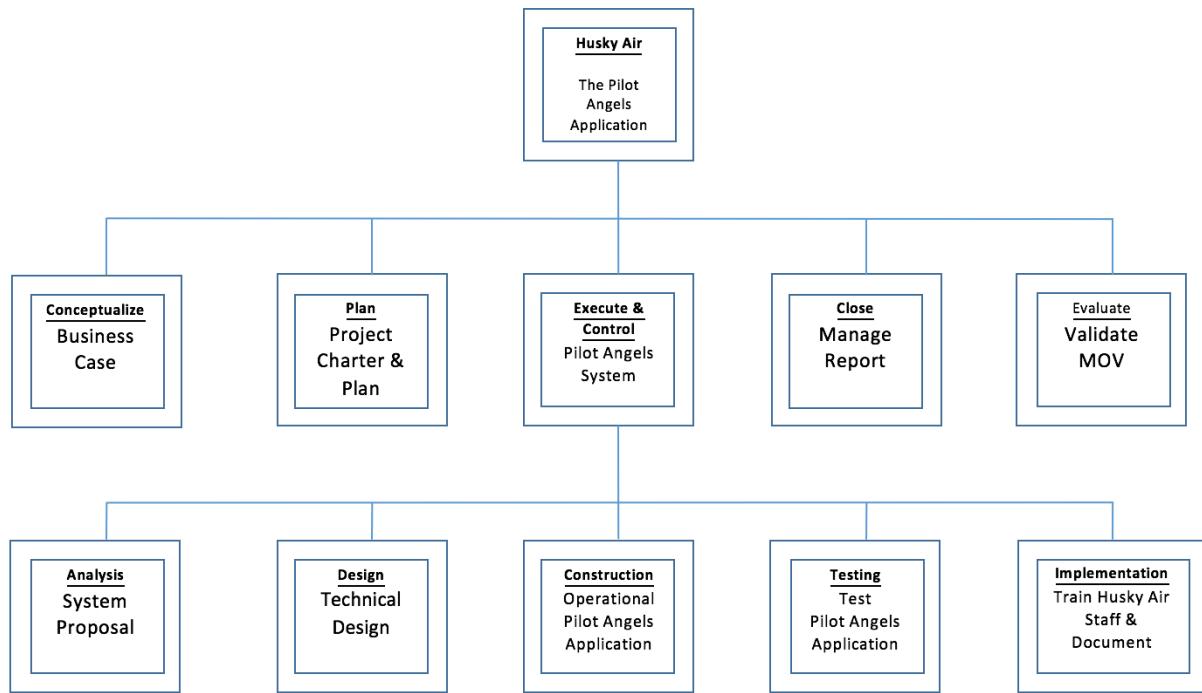
|   |   |  |
|---|---|--|
| Tech support and periodic maintenance will be needed on the system.               | The preferred choice for this service is an original development team member(s).    | How would Husky Air like to move forward with this plan? Which of the team will be available to offer this service?  |
| The physical files will all need to be converted to digital form in the database. | Husky Air does not have enough man-power in order to perform this function quickly. | What temporary employment services are available in the area, and how many employees will be needed in order to deliver a database with fully converted files within the project schedule? How much will these employees cost? |
| The database will need to be fully normalized for data access speed.              |   | What information, along with Primary and Foreign keys will need to be a part of the database, and how should this be designed to include and integrate all of the necessary information.                                       |

## **Action Plan**

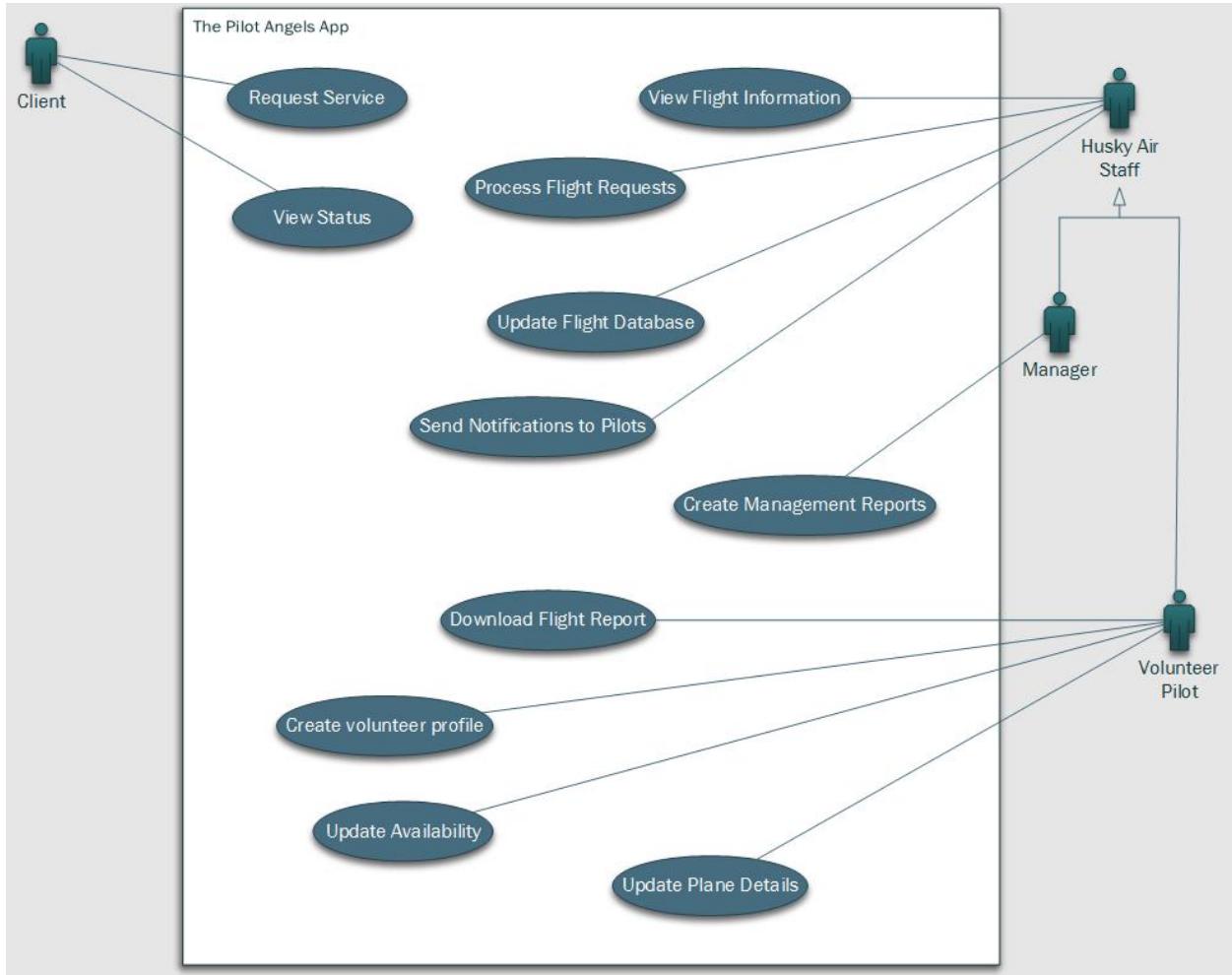
| <b>Who?</b> | <b>Does What?</b>  | <b>By When?</b> |
|-------------|--|-----------------|
| Gregory     | Assesses the current Husky Air LAN.  | June 6, 2016    |
| Gregory     | Research local electricians and telecom companies for pricing, including upgrade-services and monthly internet costs.  | June 8, 2016    |
| Gregory     | Assess the Husky Air team's tech knowledge and determine the level of training that will be needed for the new Information System.   | June 10, 2016   |
| Charles     | Research server company rates and inquire about discounts for charitable organizations.  | June 6, 2016    |
| Charles     | Assess backup system needs for a system that will include patient information, and research security company options, services and pricing.  | June 8, 2016    |
| Charles     | Contact a commercial real estate company, that serves the area around Husky Air, to inquire about options for temporary office space.  | June 10, 2016   |
| Ruxandra    | Interview the Husky Air president to learn maintenance/ support expectations, and add those expectations to considerations that will be used in choosing the development team.             | June 6, 2016    |
| Ruxandra    | Research local temp services, calculate the amount of time that will be needed to fully convert the physical files, and determine the cost that will be involved in staffing this project. | June 8, 2016    |
| Ruxandra    | Create a fully normalized data model, that meets the user requirements for all data that will need to be included in the system.   | June 10, 2016   |

# Scope Management Report

## Deliverable Structure Chart



## Use Case Diagram



## Work Breakdown Structure

*See Appendix A: Original Work Breakdown Structure for detail.*

## Scope Change Process

The following steps are to be followed when any request for a scope change is made, after the project scope has been formally accepted and the project has entered the “Execute and Control” phase:

- Identify changes that are “must haves”.
- Complete Scope Change Request Form in it’s entirety.
- Scope Change Request is logged in the Scope Change Request Log.
- Request is reviewed by Project manager and submitted to Husky Air President (Project Sponsor) for approval.
- If approved, the plan is adjusted.
- If the request is denied, the person who made the request will receive feedback about the result from the Project Manager.

The following forms will be used in the Scope Change Process:

*Scope Change Request Log*

| Request Number | Request Title | Date of Request | Requested by | Priority (Low, Medium, High) | Husky Air President Approval | Expected Response Date | Scope Change Approved? (Yes/No) |
|----------------|---------------|-----------------|--------------|------------------------------|------------------------------|------------------------|---------------------------------|
|                |               |                 |              |                              |                              |                        |                                 |
|                |               |                 |              |                              |                              |                        |                                 |
|                |               |                 |              |                              |                              |                        |                                 |
|                |               |                 |              |                              |                              |                        |                                 |
|                |               |                 |              |                              |                              |                        |                                 |
|                |               |                 |              |                              |                              |                        |                                 |
|                |               |                 |              |                              |                              |                        |                                 |

## Scope Change Request Form

| <b>The Pilot Angels App</b>   |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
|---|----------------|----------------------|---------------|---------------|---------------|---------------|-------|--|--|--|----------|--|--|--|--------------------|--|--|--|------|--|--|--|
| <b>Scope Change Request Form</b>  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| Change Request Number   | Requestor name | Request date:        |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Request title:</b>   |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Request Description:</b><br><i>( include impacted objectives, deliverables and any new objectives and deliverables)</i>  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Justification:</b>   |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Priority</b><br><input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Possible alternatives:</b>   |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d3d3d3; text-align: left; padding: 2px;">Impacts</th> <th style="background-color: #d3d3d3; text-align: left; padding: 2px;">Alternative 1</th> <th style="background-color: #d3d3d3; text-align: left; padding: 2px;">Alternative 2</th> <th style="background-color: #d3d3d3; text-align: left; padding: 2px;">Alternative 3</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">Scope</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Schedule</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Resources Required</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Cost</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table> |                |                      | Impacts       | Alternative 1 | Alternative 2 | Alternative 3 | Scope |  |  |  | Schedule |  |  |  | Resources Required |  |  |  | Cost |  |  |  |
| Impacts   | Alternative 1  | Alternative 2        | Alternative 3 |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| Scope   |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| Schedule  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| Resources Required  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| Cost  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Recommendation:</b>  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Scope Change Request Resolution</b>  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Change Request Decision</b><br><input checked="" type="checkbox"/> Approved <input type="checkbox"/> On Hold <input type="checkbox"/> Denied   |                | <b>Decision Date</b> |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Decision Made By</b><br><input checked="" type="checkbox"/> Project Manager <input type="checkbox"/> Project Sponsor <input type="checkbox"/> Executive Sponsor <input type="checkbox"/> Other (please specify): _____   |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| <b>Reason for Decision</b>  |                |                      |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |
| Authorized by<br>Husky Air Manager  |                | <b>Date</b>          |               |               |               |               |       |  |  |  |          |  |  |  |                    |  |  |  |      |  |  |  |

# **Project Plan, Schedule, and Budget**

## **Detailed Project Plan**

*See Appendix B: Original Detailed Project Plan*

## **Project Summary Questions**

### **Beginning and End of project**

The Husky Air Pilot Angels App project started on May 23,2016 and will be completed on August 23,2016. The project is scheduled to take 64 days for completion. In order to finish the project by the earliest possible date, several tasks have been scheduled to be completed in parallel.

### **Critical path**

This project has one critical path. It is important that the project manager stays mindful of the progress of all critical path tasks, since there is no built-in slack or lag time anywhere on the path. If these tasks do not come in on time, the project will finish late, unless the team is able to make up the time at another point in the critical path.

### **Initial Total Project Baseline Cost**

The cost of the project is based solely on employee salaries. Those employees include the CGR IT Consulting Partners team, a Software Developer, an App Developer, a Network Engineer, and a Database Engineer. The total Project Baseline Cost, based on those salaries, is \$54,568.00.

### **Over-allocated**

The project does not have any over-allocated resources. All resources have been properly leveled by our designated project manager.

## Info461 Work Breakdown Structure

as of Wed 6/8/16

Dates

|                 |             |                  |             |
|-----------------|-------------|------------------|-------------|
| Start:          | Mon 5/23/16 | Finish:          | Tue 8/23/16 |
| Baseline Start: | NA          | Baseline Finish: | NA          |
| Actual Start:   | NA          | Actual Finish:   | NA          |
| Start Variance: | 0 days      | Finish Variance: | 0 days      |

Duration

|            |         |                   |         |
|------------|---------|-------------------|---------|
| Scheduled: | 64 days | Remaining:        | 64 days |
| Baseline:  | 0 days  | Actual:           | 0 days  |
| Variance:  | 64 days | Percent Complete: | 0%      |

Work

|            |           |                   |           |
|------------|-----------|-------------------|-----------|
| Scheduled: | 1,336 hrs | Remaining:        | 1,336 hrs |
| Baseline:  | 0 hrs     | Actual:           | 0 hrs     |
| Variance:  | 1,336 hrs | Percent Complete: | 0%        |

Costs

|            |             |            |             |
|------------|-------------|------------|-------------|
| Scheduled: | \$54,568.00 | Remaining: | \$54,568.00 |
| Baseline:  | \$0.00      | Actual:    | \$0.00      |
| Variance:  | \$54,568.00 |            |             |

Task Status

|                        |     |
|------------------------|-----|
| Tasks not yet started: | 117 |
| Tasks in progress:     | 0   |
| Tasks completed:       | 0   |
| Total Tasks:           | 117 |

Resource Status

|                             |    |
|-----------------------------|----|
| Work Resources:             | 12 |
| Overallocated Work Resource | 0  |
| Material Resources:         | 0  |
| Total Resources:            | 12 |

# **Risk Management Plan**

## **Original Detailed Project Plan**

*See Appendix B: Original Detailed Project Plan*

## **Revised Detailed Project Plan**

*See Appendix C: Revised Detailed Project Plan*

## **Revised Summary Questions**

- Beginning and End of project**

The Husky Air Pilot Angels App revised project plant started on May 23,2016 and will be completed on August 5, 2016. The project is scheduled to take 52 days for completion. This decrease from 64 days will shorten the schedule by 12 days, or 18.75%.

- Critical path**

This project has one critical path. It is important that the project manager stays mindful of the progress of all critical path tasks, since there is no built-in slack or lag time anywhere on the path. If these tasks do not come in on time, the project will finish late, unless the team is able to make up the time at another point in the critical path.

- Initial Total Project Baseline Cost**

The total revised Project Baseline Cost is \$43,448. This is a decrease of \$11,120 from the original baseline cost of \$54,568, allowing the revised cost to achieve a 20.38% decrease from the original budget.

- Over-allocated**

The project doesn't have any overallocated resources. All the resources have been properly allocated and leveled by our designated project manager.

- Summary of Revisions (also available in Appendix C: Revised Detailed Project Plan)**

**Line 7** – “Research a Comparison of Alternatives” reduced from 2 days to 1 day.

**Line 15** – “Create a Project Schedule” reduced from 2 days to 1 day.

**Line 16** – “Draft the Project Charter” reduced from 3 days to 1 day.

**Line 17** – “Create a Work Breakdown Structure” reduced from 3 days to 1 day.

**Line 28** – “Interview Volunteer Pilots” reduced from 5 days to 2 days, by adding an Interview Consultant as an assistant, for \$20 per hour.

**Line 29** – “Interview Regular Patients/ Hospitals” reduced from 7 days to 2 days. An Interview Consultant was added to assist with this task.

**Line 30** – “Observe the Current Process” reduced from 5 days to 2 days.

**Line 31** – “Understand Technology on Site” reduced from 2 days to 1 day.

**Line 32** – “Assess Organizational, Technical and Economic Feasibility” reduced from 2 days to 1 day.

**Line 53** – “Build the LAN” reduced from 5 days to 3 days.

**Line 79** – “Train Husky Air Employees” reduced from 5 days to 4 days.

**Line 89** – “Document Lessons Learned for Future Projects” reduced from 2 days to 1 day.

## Info481 Work Breakdown Structure

as of Sat 6/11/16

Dates

|                 |             |                  |            |
|-----------------|-------------|------------------|------------|
| Start:          | Mon 5/23/16 | Finish:          | Fri 8/5/16 |
| Baseline Start: | NA          | Baseline Finish: | NA         |
| Actual Start:   | NA          | Actual Finish:   | NA         |
| Start Variance: | 0 days      | Finish Variance: | 0 days     |

Duration

|            |         |                   |         |
|------------|---------|-------------------|---------|
| Scheduled: | 52 days | Remaining:        | 52 days |
| Baseline:  | 0 days  | Actual:           | 0 days  |
| Variance:  | 52 days | Percent Complete: | 0%      |

Work

|            |           |                   |           |
|------------|-----------|-------------------|-----------|
| Scheduled: | 1,088 hrs | Remaining:        | 1,088 hrs |
| Baseline:  | 0 hrs     | Actual:           | 0 hrs     |
| Variance:  | 1,088 hrs | Percent Complete: | 0%        |

Costs

|            |             |            |             |
|------------|-------------|------------|-------------|
| Scheduled: | \$43,448.00 | Remaining: | \$43,448.00 |
| Baseline:  | \$0.00      | Actual:    | \$0.00      |
| Variance:  | \$43,448.00 |            |             |

Task Status

|                        |     |
|------------------------|-----|
| Tasks not yet started: | 117 |
| Tasks in progress:     | 0   |
| Tasks completed:       | 0   |
| Total Tasks:           | 117 |

Resource Status

|                             |    |
|-----------------------------|----|
| Work Resources:             | 12 |
| Overallocated Work Resource | 0  |
| Material Resources:         | 0  |
| Total Resources:            | 12 |

## Project Risk Analysis and Risk Management Plan

### Layer 6 Phase: Conceptualize and Initialize

#### *Potential Risk*

When comparing alternatives, and when determining total benefits of ownership, there is a risk that the comparison was weighted incorrectly, leading to a non-optimal decision being made on which development path to take and that the TBO was overestimated.

#### *Layer 5*

**Known-** Husky Air does not have any significant digitally-completed processes in place, so it was likely more difficult for the project sponsor to determine the project “wants” versus “must-haves,” which is likely to create scope issues once user interface testing and evaluation begins.

**Known-Unknown-** There was COTS (Commercial Off the Shelf) software available as an option, instead of developing the entire system in-house. We don’t know if the in-house system will provide the long-term cost savings that would make it more valuable to Husky Air than the potentially more refined COTS option.

**Unknown-Unknown-** We don’t know whether the project sponsor understood the risks of developing an information system, based on user requirements that were gathered from a company that is new to running a digitized office and we don’t know if the project sponsor will need to increase the project scope or cancel the project based on the results that he sees.

#### *Layer 4*

**Internal-** The project sponsor may not be fully aware of the full spectrum of functionality that the system will need to have and may have made their decision on which alternative to pursue based on false, embellished or absent information.

**External-** The developers that we bring in to work on the system may not be able to deliver the system that the project sponsor envisioned when he made their decision in the slim timeframe in which they are expected to complete their tasks.

#### *Layer 3*

**People-** The project sponsor may not be tech-savvy and this may have lead them to make the wrong decision when weighing alternatives by not fully understanding the scope of building the entire system in-house.

**Process-** As the project continues, the project sponsor is likely to make changes to the scope of the project, leading to a project that is over-due and over-budget as a result of the project sponsor not initially understanding the full scope of their “must-haves” for the system.

**Technology-** Husky Air currently has very little technology on-site, which means that the project is very much a “from the ground up” build. This may not have been considered and weighted heavily enough in the original alternatives comparison.

**Organization-** As a whole, the Husky Air company is behind the current technological landscape. This may not have been considered in comparing alternatives and could lead to difficulties in the requirements gathering process. How does an organization without technology know what it needs and doesn’t need in an information system.

**Product-** The lack of technical savvy may lead to the final product being a result of poor requirements gathering and inferior to the COTS alternative.

#### *Layer 2*

**Budget-** If the alternatives were not carefully considered, and if the requirements gathering process is not strong, the budget could inflate due to added development requirements later. The COTS option may have been the strongest alternative to prevent this.

**Scope-** There is a strong possibility that the project sponsor did not consider the total scope of building a new information system from the ground up and in-house, which could lead to future difficulties in the project.

**Schedule-** The project sponsor has cut the original schedule by 10%, increasing concerns that they may have not fully considered each alternative before deciding to build the system in-house. The Project Manager will have to watch the critical path closely to make sure the project stays on schedule.

**Quality-** If requirements gathering is not strong and if the development team is unable to meet all of the requirements within the thin schedule that they have been given, it is likely that the COTS option will have been the better choice to deliver the most value to Pilot Angels.

#### ***Layer 1***

**MOV-** If the wrong choice was made based on an incorrect understanding of the scope, improperly weighted alternative analysis or a lack of initial understanding about the product requirements, the MOV may not be realized due to a project-restart or a low-quality product. The MOV may have been better met with a more efficient and effective COTS alternative.

### **Layer 6 Phase: Develop Project Charter and Plan**

#### ***Potential Risk***

Work was potentially underestimated when initially creating the Work Breakdown Structure, and the project may have been further jeopardized when the budget was cut by 20% and the schedule was cut by 10%.

#### ***Layer 5***

**Known-** The project will need to be completed by the given date, and the budget and schedule adjustments led to the allotment towards some tasks being cut back substantially.

**Known-Unknown-** When the WBS was revised to reflect new schedule and budget constraints, the team does not know whether the estimates were cut back too far and this could mean that tasks were not given enough time to complete with expected quality.

**Unknown-unknown-** Until the team reaches each different phase of the project, they will not know whether vital tasks were forgotten and left off of the WBS.

#### ***Layer 4***

**Internal-** The team may have omitted necessary tasks from the WBS and may need to further constrain allotted task times, when these omissions become evident.

**External-** With the new schedule and budget constraints, the team may not be able to hire experienced developers with the skills and ability to meet project requirements within the allotted timeframes.

#### ***Layer 3***

**People-** If the project sponsor increases the scope after the project is under construction, the project is likely to finish over-budget and overdue.

**Product-** The added time and budget constraints in the Work Breakdown Structure could lead to tasks ending before achieving optimal results, and the final product may fail to fully meet requirements.

**Process-** Due to the new schedule and budget cuts, any instances of scope creep could greatly jeopardize the critical path and lead to the project finishing past the deadline.

#### ***Layer 2***

**Budget-** Any added tasks are likely to lead to “must-haves” being cut out of the final product, or will cause the project to go over budget.

**Scope**- If new tasks are added after the project is underway, the requirements of the final product and the scope of the project will need to be reevaluated.

**Schedule**-Any added tasks could jeopardize the completion dates for tasks on the Critical Path of the project. If this happens, and the Project Manager is unable to cut time elsewhere on the critical path, the project will miss its deadline.

**Quality**- If the tasks are added during the project and other tasks need to be cut or shortened in order to remain within schedule or budget, the overall quality of the final product may be low.

#### ***Layer 1***

**MOV**- If tasks are added after the project is underway and other tasks need to be shortened or omitted in order to come within schedule or budget, it is likely that not all requirements will be met and the MOV will not be fully realized.

### **Layer 6 Phase: Execute and Control**

#### ***Potential Risk***

There is the potential for scope creep to occur, if the Project Sponsor presents new requirements after the project is underway and the project could finish late or over budget as a result.

#### ***Layer 5***

**Known** - Execution will be delayed to accommodate the changes needed to be made.

**Known-Unknown**- The times needed to complete the newly added requirements are unknown.

**Unknown-unknown** - Any over allocation of resources will create further delays. These are not identifiable as they depend strictly on the actual context.

#### ***Layer 4***

**Internal** - The team will have to consider the installation of new software or the addition of several other hardware equipment. All these actions will implicitly add more time to the actual schedule.

**External** - Husky Air will receive a late product compared with the initial estimation as the system will require more time to be completed.

#### ***Layer 3***

**Product/Technology**- The system will not have all the expected functionalities by the expected due date.

#### ***Layer 2***

**Budget** - The project will cost more the longer it takes to be completed.

**Scope** - The scope can't be fully determined/completed unless the requirements are not identified and fully accepted by all stakeholders.

**Schedule** - More time will be required to handle the newly added requirements.

**Quality** - Quality of the system depends on the flexibility of all the team members to accommodate the user requirements on the system functionalities list.

#### ***Layer 1***

**MOV** - Will not be achieved until the scope is completed. It is an assumed risk due to the closed interdependency between the two of them.

### **Layer 6 Phase: Close Project**

#### ***Potential Risk***

Insufficient testing leads to the project being closed out prematurely and causes the development team to move on before all requirements have been met.

#### ***Layer 5***

**Known** - A flawed system will not assure the proper functionality.

**Known-Unknown** - If the system is closed prematurely and has a lot of bugs in, it will further impact the schedule and budget of the project.

**Unknown-unknown** - Further funds availability and willingness of the stakeholders to cooperate for resolving part of the system's flaws. Users are not always inclined toward change and they can easily lose faith on the project team who released a system that doesn't meet expectations or provide the promised value.

#### *Layer 4*

**Internal** - A new team needs to be contracted as the previous team members have been already assigned or continued on to the next phase of the project.

**External** - Lack of stakeholder cooperation and unavailability contacting the old team.

#### *Layer 3*

**Organization** - Organizationally, many aspects will have to be recreated.

**People** - Will lose faith in the system's value and project success.

**Process** - New resources will need to be acquired and new plans written up.

#### *Layer 2*

**Budget** - Costs will increase as the team tries to remedy the system's flaws.

**Scope** - The scope remains unfulfilled and more resources are needed.

**Schedule** - In the event of a non-functional system, the end date of the project will be pushed back.

**Quality** - If the system will not provide at least 85% of the functionality desired by users, than the quality of the project may be heavily questioned.

#### *Layer 1*

**MOV** - A system with a lot of bugs will have a limited impact on the Husky Air business activities and will not provide the expected value thus falling outside the MOV.

### **Layer 6 Phase: Evaluate Project Success**

#### **Potential Risk**

The company's goals and objectives could have changed, resulting in the MOV project success metrics not being met.

#### *Layer 5*

**Known-** The project was accepted and agreed upon to bring value to the organization.

**Known-Unknown-** When the project was accepted, the team may not have considered the changing external environment such as new technology.

**Unknown-unknown-** Until the project is completed, the stakeholders will not know if the MOV has been met.

#### *Layer 4*

**Internal-** The team could create a system that is flexible with the changing environment.

**External-** The team should not be held responsible for the changing goals and objectives.

#### *Layer 3*

**Environment-** The environment may establish new modes of transportation that make air travel no longer the fastest way to transport.

**Product-** It may not be what Husky Air was expecting.

**Technology-** At the end of the project, the new system could be no longer "top of the line".

#### *Layer 2*

**Budget-** Due to the potential of different goals and objectives, the project could become more costly.

**Scope-** With new potential goals and objectives, more work will need to be done in order to align with what the company will need.

**Schedule-** The increase in work and budget will increase the length of time needed to complete the project.

**Quality-** The change in goals and objectives may mean that the finished product will not be what was expected.

#### *Layer 1*

**MOV-** The system that has been created may not bring value to the organization as it was originally expected.

### Risk Strategy and Ownership

| Phase Risk  | Charles   | Gregory | Ruxandra   |
|---|---|---------|--|
| <b>Conceptualize &amp; Initialize</b><br>Alternatives were not weighted correctly and the wrong choice was made.                  | <b>Strategy:</b> Charles will need to check in regularly with the project sponsor to evaluate the project's progress. He will need to monitor the requirements gathering process closely and use existing software as a benchmark to make sure that the right alternative was chosen and the MOV is realized. | N/A     | N/A  |
| <b>Develop Project Charter and Plan</b><br>The schedule and budget cuts jeopardized the ability to meet the product requirements. | <b>Strategy:</b> Charles will make sure that the Scope Change Request procedures are followed and documented accordingly. He will make sure that all stakeholders are in agreement about what work, if any, needs to be added or changed.   | N/A     | N/A  |
| <b>Execute &amp; Control</b><br>Scope creep jeopardizes the project schedule and budget.  | N/A   | N/A     | <b>Strategy:</b> Ruxandra will make sure that the Scope Change Request Process is being enforced, and that all requests are handled in |

|   |     |   |   |
|---|-----|---|---|
|   |     |   | a timely manner, making sure that potential areas of impact are clearly communicated to the Project Sponsor. Ruxandra will also keep in contact with the project development team to ensure that they stay on schedule and their progress meets the expectations agreed upon. |
| <b>Close project</b><br>Insufficient testing and premature closing of the project                                   | N/A | N/A   | <b>Strategy:</b> Ruxandra will maintain control of scheduling, progress, critical path, requirements, and changing conditions to ensure that The Pilot Angels App is completed within the set project timeframe.  |
| <b>Evaluate</b><br>Changing requirements during the project may result in invalidation of part of the original MOV. | N/A | <b>Strategy:</b> Gregory will need to ensure that all developers understand the MOV and will need to re-emphasize the MOV throughout every phase of the project. This will ensure that the team understands the reasoning behind each task and will set a metric for measuring each task's success level. | N/A   |

# Earned Value Analysis and Quality Management Plan

## Bug Busters Part 1

*See Appendix D: Bug Busters MS Project Screenshots*

## Bug Busters Part 2

*See Appendix D: Bug Busters MS Project Screenshots*

## Bug Busters Part 3

### **Earned Value Analysis**

*Actual Performance to Baseline Plan*

| Earned Value Metrics             | Description   | Amount/Formula                          | Value        | Analysis   |
|----------------------------------|---|---|--------------|--|
| Budget at Completion (BAC)       | Total Planned budget  | Given                                   | \$14,040.00  |  |
| Planned Value (PV)               | Amount authorized to spend  | Given                                   | \$12,720.00  |  |
| Actual Cost (AC)                 | Actual cost of work performed   | Given                                   | \$12,060.00  |  |
| Earned Value (EV)                | Amount that should have been spent on the work completed                    | Given                                   | \$9,290.00   |  |
| Schedule Variance (SV)           | Amount ahead or behind schedule   | $SV = EV - PV$<br>$SV = 9,290 - 12,720$ | (\$3,430.00) | This negative SV indicates that the project has fallen behind schedule |
| Cost Variance (CV)               | Budget surplus or deficit   | $CV = EV - AC$<br>$CV = 9,290 - 12,060$ | (\$2,770.00) | This negative CV indicates that the project has gone over budget       |
| Schedule Performance Index (SPI) | Efficiency indicator of how well team is using the planned schedule         | $SPI = EV/PV$<br>$SPI = 9,290 / 12,720$ | 0.73         | The SPI $0.73 < 1$ , indicating that the project is behind schedule    |
| Cost Performance Index (CPI)     | Efficiency indicator of how well project resources are consuming the budget | $CPI = EV/AC$<br>$CPI = 9,290 / 12,060$ | 0.77         | The CPI $0.77 < 1$ , indicating that the project has gone over budget  |

*Projected Performance Based on Actual Performance*

| Earned Value Metrics                       | Description   | Amount/Formula  | Value        | Analysis   |
|--|---|---|--------------|--|
| Estimate at Completion (EAC) (CPI only)    | The projected total cost of the project if CPI remains the same                 | $EAC = AC + (BAC - EV) / CPI$<br>$EAC = 12060 + (14040 - 9290) / 0.77$                  | \$18,228.83  | If the current CPI trend continues, the project will cost \$18,228.83                              |
| Estimate at Completion (EAC) (CPI and SPI) | A worst case that considers the efficiency of both the schedule and the budget  | $EAC = AC + (BAC - EV) / (CPI * SPI)$<br>$EAC = 12060 + (14040 - 9290) / (0.77 * 0.73)$ | \$20,510.45  | If both the SPI and CPI trends continue to impact the project, the project will cost \$20,510.45   |
| Estimate to Complete (ETC)                 | The projected cost to complete the remaining work of the project. (CPI only)    | $ETC = EAC - AC$<br>$ETC = 18228.83 - 12060$  | \$6,168.83   | If the current CPI trend continues, \$6,168.83 will be needed to complete the project              |
|  | The projected cost to complete the remaining work of the project. (SPI and CPI) | $ETC = EAC - AC$<br>$ETC = 20510.45 - 12060$  | \$8,450.45   | If both the current SPI and CPI trends continue, \$8,450.45 will be needed to complete the project |
| Variance at Completion (VAC)               | The projected budget surplus or budget (CPI only)                               | $VAC = BAC - EAC$<br>$VAC = 14040 - 18228.83$   | (\$4,188.83) | If the current CPI trend continues, the project will go over budget by \$4,188.83                  |
|  | The projected budget surplus or budget (CPI and SPI)                            | $VAC = BAC - EAC$<br>$VAC = 14040 - 20510.45$   | (\$6,470.45) | If the current SPI and CPI trends continue, the project will go over budget by \$6,470.45          |

|                                      |  |  |      |  |
|--------------------------------------|--|--|------|--|
| To Complete Performance Index (TCPI) | An efficiency measure that compares the work remaining (BAC-EV) to the remaining funds (BAC-AC) based on the BAC               | $TCPI = (BAC-EV)/(BAC-AC)$<br>$TCPI = (14040 - 9290) / (14040 - 12060)$    | 2.40 | The TCPI 2.40 is much greater than 1, so the project will be very difficult to complete, using the remaining budget.                           |
|                                      | An efficiency measure that compares the work remaining (BAC-EV) to the remaining funds (EAC-AC) based on the EAC (CPI only)    | $TCPI = (BAC-EV)/(EAC-AC)$<br>$TCPI = (14040 - 9290) / (18228.83 - 12060)$ | 0.77 | The TCPI 0.75<1 so the project will be easier to complete with the new EAC (CPI only), considering the current CPI trend.                      |
|                                      | An efficiency measure that compares the work remaining (BAC-EV) to the remaining funds (EAC-AC) based on the EAC (SPI and CPI) | $TCPI = (BAC-EV)/(EAC-AC)$<br>$TCPI = (14040 - 9290) / (20510.45 - 12060)$ | 0.56 | The TCPI 0.56<1 so the project will be easier to complete with the new EAC (SPI and CPI), considering the current SPI and CPI trends together. |

## Summary of the Earned Value Analysis and Recommendations

The original project baseline, as presented by Bug Busters, is insufficient. There is currently a \$2,770 Cost Variance deficit when comparing the earned value of completed or partially completed tasks versus the expected value. There is still a larger deficit in the Schedule Variance area at a total of \$3,430 down. What this means is that with one week left in the original baseline schedule and against an original planned budget of \$14,040, if all remaining tasks were actually completed in their originally scheduled amount of days, the testing by Bug Busters would still come in late and almost 25% over budget.

However, current trends need to be taken into account for the remainder of the tests and the Bug Busters team has proven to be unlikely to complete the rest of the tasks in the originally planned amount of days. This trend, of being both over budget and behind schedule, needs to be considered when making a prediction about the actual total cost and completion date of the project. When considering both the CPI and SPI metrics, the Estimated at Completion cost of the testing phase is now \$20,510, which is \$6,470 (or 46%) over the initial Baseline budget.

We at CGR IT Consulting Partners understand that this is never what you want to hear as the sponsor of the project. The choice to go with Bug Busters was a miscalculation made by us and in an effort to stick to the revised budget and timeframe that you submitted to us for this project, our baseline budget and schedule for the project as a whole has been jeopardized.

However, we ask that you take into consideration that after submitting our initial plan that we eliminated \$11,120 when constructing the revised work breakdown. As we have achieved all other task deadlines and budgets, we still anticipate that the project will be completed at \$4,650 under the first baseline that we submitted to you.

We have reviewed the work that Bug Buster has completed thus far and while many of the tasks have lasted for more time than expected, their results were thorough and met our quality standards. It is of the utmost importance to have a fully tested system before going live and could mean the difference between a system that meets our MOV and a system that falls short of expectations.

It is our recommendation that you allow Bug Busters the extra 2 weeks and extra \$6,470 that they need to finish their phase of the project. We assure you that we will be monitoring them closely until completion. To give you a better understanding of where we are in our Earned Value, we have attached several reports, as appendices for your reference: Earned Value, Earned Value Detail Chart, Task Overview, Late Task Charts, Resource Overview, and an overall Project Summary Report. You will also find, as an attachment to this document, the Microsoft Project Document for the Bug Busters Work Breakdown Structure and Gantt Chart.

## **Quality Management Plan**

### **Quality System Objective**

CGR IT Consulting Partners will create a system that meets Husky Air's requirements with minimal to no faults in the system. This will be done through constant analysis when developing the system and running tests to ensure that the system is bug free.

### **Quality Based Metrics**

| Type           | Metric   | Description   |
|----------------|--|---|
| <b>Process</b> | <ul style="list-style-type: none"> <li>• Defect Testing</li> <li>• Defect Records Input</li> </ul>                 | <ul style="list-style-type: none"> <li>• The number of defects found during testing</li> <li>• The number of defects found when putting in records.</li> </ul>  |
| <b>Product</b> | <ul style="list-style-type: none"> <li>• Database Request Process Speed</li> <li>• Defect Vulnerability</li> </ul> | <ul style="list-style-type: none"> <li>• Testing the database for full normalization while monitoring that the speed of processing is significant.</li> <li>• The number of times that you are able to break into the system. Make notes of the methods used to get into the system.</li> </ul> |
| <b>Project</b> | <ul style="list-style-type: none"> <li>• Interviewing Hours</li> <li>• Over Scheduled Tasks</li> </ul>             | <ul style="list-style-type: none"> <li>• The number of employees interviewed to collect requirements of the system.</li> <li>• The amount of time it takes to complete each task took longer than expected.</li> </ul>  |

Verification and validation activities are extremely important for the success of a project or a plan. Verification ensures that the quality of the product meets all the stakeholders' requirements, and validation ensures that the product provides lasting value to the stakeholders.

## **Verification**

Upon system completion, CGR IT Consulting Partners will implement a series of verification activities. The team will verify that all system requirements are met, and products as well as deliverables comply with the stakeholders' expectations. All these have to achieve what the initial project was set out to accomplish.

- A *technical review* will be conducted through walkthroughs and on the approach of an inspection to ensure that the system have all the functionalities asked for by the Husky Air Management. During this step, the project sponsor is expected to test the user interface and system's features, so any questions that might arise would be clarified.
- The *business review* will verify each deliverable to ensure that the newly implemented system provides the required functionalities - stated in the project's scope.
- The *management review* involves a comparison between the project's baseline plan and the actual progress of the project. The main goal of this verification activity is to identify if any changes need to be made to the project's scope in order to ensure that all goals and quality objectives are met.

## **Validation**

The Pilot Angels App will be tested to validate if the reported features meet all of Husky Air's needs. The system will be validated several times throughout the installation process.

- The system will be audited for functionality and ease of use to be sure it constitutes a good fit for the company. Theoretically, The Pilots Angels App should provide all the features they need in order to run their business digitally.
- The system will also be tested for stability and scalability. It is preferable that someone who isn't involved in the project to conduct this process as he/she can be objective about the interface and system's performance.
- Tests will be performed throughout all the development phase. For instance, the database will be at least partially populated with pilots and clients records. Any inconsistencies about the way records are stored and retrieved, or about how the information is transferred from the old to the new system should be caught at this stage. The identified problems should be addressed before the full installation takes place.
- Periodically, the CGR IT Consulting Partners will be in touch with the Husky Air's project sponsor to ensure that the transition to the new system goes as planned. Technical issues or product concerns that arise during all this time should can be brought up to the team's attention.

## **Supporting Documentation**

*See Appendix E: Bug Busters Supporting Documentation*

## Appendix A: Original Work Breakdown Structure

|    |  | Task Mode | Task Name  |
|----|--|-----------|--|
| 1  |  |           | <b>▲ The Pilot Angels App</b>                                      |
| 2  |  |           | <b>▲ Phase 1: Conceptualize and Initialize</b>                     |
| 3  |  |           | <b>▲ Deliverable: Business Case</b>                                |
| 4  |  |           | Define the Project Goals/ Purpose                                  |
| 5  |  |           | Define the Project MOV   |
| 6  |  |           | Define the Desired area of Impact                                  |
| 7  |  |           | Research a Comparison of Alternatives                              |
| 8  |  |           | Determine the Total Benefits of Ownership                          |
| 9  |  |           | Milestone: Business Case is Approved                               |
| 10 |  |           | <b>▲ Phase 2: Planning</b>   |
| 11 |  |           | <b>▲ Deliverable: Project Charter and Plan</b>                     |
| 12 |  |           | <b>▲ SDLC Phase 1: Planning</b>                                    |
| 13 |  |           | <b>▲ Deliverable: WBS and Schedule</b>                             |
| 14 |  |           | Create a Project Schedule  |
| 15 |  |           | Draft the Project Charter  |
| 16 |  |           | Create a Project Work Breakdown Structure                          |
| 17 |  |           | Milestone: Husky Air President Signs off on WBS and Schedule       |
| 18 |  |           | Update the Project MOV   |
| 19 |  |           | Milestone: System Design and Scope Approved by Husky Air President |
| 20 |  |           | <b>▲ Phase 3: Execute and Control</b>                              |

|    |    |   |
|----|----|---|
| 21 |    | ☛ <b>Deliverable: Operational Pilot Angels System</b>       |
| 22 |    | ☛ <b>SDLC Phase 2: Analysis</b>                             |
| 23 |    | ☛ <b>Deliverable: System Proposal</b>                       |
| 24 |    | ☛ <b>Complete Requirements Gathering</b>                    |
| 25 | ✳? | Interview Husky Air Employees                               |
| 26 | ✳? | Interview Volunteer Pilots                                  |
| 27 | ✳? | Interview Regular Patients/ Hospitals                       |
| 28 | ✳? | Observe the Current Process                                 |
| 29 | ✳? | Understand Current Technology on Site                       |
| 30 | ✳? | Assess Organizational, Technical and Economic Feasibility   |
| 31 | ☛  | ☛ <b>System Modeling</b>                                    |
| 32 | ✳? | Create Functional Models                                    |
| 33 | ✳? | Create Structural Models                                    |
| 34 | ✳? | Create Behavioral Models                                    |
| 35 | ✳? | Create Project Budget                                       |
| 36 | ✳? | Milestone: Husky Air President Signs off on System Proposal |
| 37 | ☛  | ☛ <b>SDLC Phase 3: Design</b>                               |
| 38 | ☛  | ☛ <b>Deliverable: Logical and Technical Prototypes</b>      |
| 39 | ✳? | Design Pilot Angels App User Interface                      |
| 40 | ✳? | Design Normalized Database                                  |
| 41 | ✳? | Design System Output Forms                                  |
| 42 | ✳? | Design Pilot Angels Website                                 |
| 43 | ✳? | Design the Husky Air LAN                                    |
| 44 | ✳? | Define Project Scope  |
| 45 | ✳? | Milestone: Husky Air President Signs off on Prototypes      |
| 46 | ☛  | ☛ <b>SDLC Phase 4: Construction</b>                         |
| 47 | ☛  | ☛ <b>Deliverable: Preliminary System for Testing</b>        |
| 48 | ✳? | Build the Database  |
| 49 | ✳? | Build the Website   |
| 50 | ✳? | Build the LAN   |
| 51 | ✳? | Build the Pilot Angels App                                  |
| 52 | ☛  | Milestone: System Created                                   |
| 53 | ☛  | ☛ <b>SDLC Phase 5: Testing</b>                              |
| 54 | ☛  | ☛ <b>Deliverable: Test Plan/ Test Results Documentation</b> |
| 55 | ✳? | Create Test Plan  |
| 56 | ☛  | ☛ <b>Database Testing</b>                                   |
| 57 | ✳? | Test Patient Records  |
| 58 | ✳? | Test Hospital Records                                       |
| 59 | ✳? | Test Pilot Records  |
| 60 | ✳? | Test Aircraft Records                                       |

|     |  |   |  |
|-----|--|---|--|
| 61  |  | ? | Test Accounting Records  |
| 62  |  | ? | Test Output Forms  |
| 63  |  | ? | Test Patient Request Automation  |
| 64  |  | ? | Stress Test the LAN Server   |
| 65  |  | ➡ | <b>▪ User Interface Testing</b>  |
| 66  |  | ? | Husky Air Employees  |
| 67  |  | ? | Pilots   |
| 68  |  | ? | Patients   |
| 69  |  | ? | Medical Facilities   |
| 70  |  | ? | Evaluate Test Results  |
| 71  |  | ? | Approve Test Results   |
| 72  |  | ? | Milestone: All Test Results Analyzed and Adjustments Made              |
| 73  |  | ➡ | <b>▪ SDLC Phase 6: Implementation</b>                                  |
| 74  |  | ➡ | <b>▪ Deliverable: Documentation, Training Program, Conversion Plan</b> |
| 75  |  | ? | Develop a Training Plan  |
| 76  |  | ? | Train Husky Air Employees  |
| 77  |  | ? | Training Completion Signed Off by Husky Air President                  |
| 78  |  | ? | Conversion Plan Created  |
| 79  |  | ? | Conversion Plan Approved by Husky Air President                        |
| 80  |  | ? | Milestone: Training Completed/ Ready to Install System                 |
| 81  |  | ? | Milestone: System Approved by Husky Air President/ System Installed    |
| 82  |  | ➡ | <b>▪ Phase 4: Closeout</b>   |
| 83  |  | ➡ | <b>▪ Deliverable: Final Reports/ Formal Acceptance by Husky Air</b>    |
| 84  |  | ? | Finalize Formal Acceptance Paperwork                                   |
| 85  |  | ? | Document Lessons Learned for Future Projects                           |
| 86  |  | ? | Milestone: Final Contracts/ Paperwork Signed by Husky Air President    |
| 87  |  | ➡ | <b>▪ Phase 5: Evaluate</b>   |
| 88  |  | ➡ | <b>▪ Deliverable: Evaluation Paperwork/ Validation of the MOV</b>      |
| 89  |  | ➡ | <b>▪ Upon Implementation</b>   |
| 90  |  | ? | Processed Request Generates Pilot List in 10 Seconds                   |
| 91  |  | ➡ | <b>▪ 3 Months After Closeout</b>                                       |
| 92  |  | ? | Customer Waiting Time Decreased by 2 Hours                             |
| 93  |  | ➡ | <b>▪ 6 Months After Closeout</b>                                       |
| 94  |  | ? | Number of Calls Reduced by 50%   |
| 95  |  | ? | Increased Probability of Pairing by 40%                                |
| 96  |  | ➡ | <b>▪ 12 Months After Closeout</b>                                      |
| 97  |  | ? | Average Service Request Response in Under 24 Hours                     |
| 98  |  | ? | Administrative Costs Reduced From \$45,000 to \$33,500 per year        |
| 99  |  | ? | Reduced Number of Stopovers per 1000 Flight Miles from 3 to 1          |
| 100 |  | ? | Increased the Number of Clients Served from 100 to 130                 |

|     |  |  |
|-----|--|--|
| 101 |  | Increased Service Requests by 20%                                      |
| 102 |  | <b>▲ 18 Months After Closeout</b>                                      |
| 103 |  | Reduced Scheduling Time from 9 Hours to 3 Hours per Month              |
| 104 |  | Reduced "Insufficient Availability" Refusals from 35% to 20%           |
| 105 |  | Reduced Schedule Change by 25%   |
| 106 |  | <b>▲ 24 Months After Closeout</b>                                      |
| 107 |  | Increased the Accuracy of Pilot's Volunteer Records by 97%             |
| 108 |  | <b>▲ 60 Months After Closeout</b>                                      |
| 109 |  | Reduce Fuel Expenses by 35%  |
| 110 |  | Milestone: Husky Air President Signs off on Final Evaluation Paperwork |
| 111 |  | Milestone: The Pilot Angels App Project Completed                      |

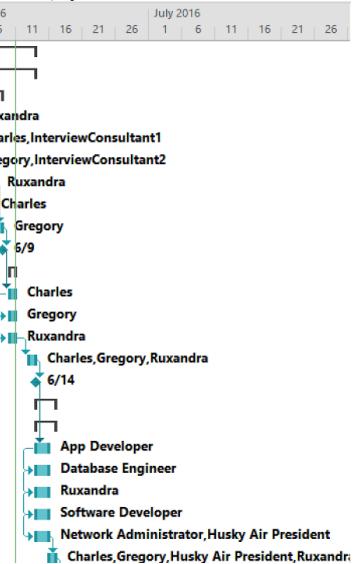
## Appendix B: Original Detailed Project Plan

|    | Task Mode | Task Name  | Duration | Start       | Finish      | Pr | June 2016 | July 2016 |
|----|-----------|--|----------|-------------|-------------|----|-----------|-----------|
| 1  |           | ► The Pilot Angels App   | 64 days  | Mon 5/23/16 | Tue 8/23/16 |    |           |           |
| 2  |           | ► Phase 1: Conceptualize and Initialize                            | 4 days   | Mon 5/23/16 | Thu 5/26/16 |    |           |           |
| 3  |           | ► Deliverable: Business Case                                       | 4 days   | Mon 5/23/16 | Thu 5/26/16 |    |           |           |
| 4  |           | Define the Project Goals/ Purpose                                  | 1 day    | Mon 5/23/16 | Mon 5/23/16 |    |           |           |
| 5  |           | Define the Project MOV   | 1 day    | Tue 5/24/16 | Tue 5/24/16 | 4  |           |           |
| 6  |           | Define the Desired area of Impact                                  | 1 day    | Wed 5/25/16 | Wed 5/25/16 | 5  |           |           |
| 7  |           | Research a Comparison of Alternatives                              | 2 days   | Wed 5/25/16 | Thu 5/26/16 | 65 |           |           |
| 8  |           | Determine the Total Benefits of Ownership                          | 1 day    | Wed 5/25/16 | Wed 5/25/16 | 75 |           |           |
| 9  |           | Milestone: Business Case is Approved                               | 0 days   | Thu 5/26/16 | Thu 5/26/16 | 8  |           |           |
| 10 |           | Milestone: Conceptualize and Initialize complete                   | 0 days   | Thu 5/26/16 | Thu 5/26/16 | 9  |           |           |
| 11 |           | ► Phase 2: Planning  | 9 days   | Fri 5/27/16 | Fri 6/0/16  |    |           |           |
| 12 |           | ► Deliverable: Project Charter and Plan                            | 9 days   | Fri 5/27/16 | Fri 6/0/16  |    |           |           |
| 13 |           | ► SDLC Phase 1: Planning   | 9 days   | Fri 5/27/16 | Fri 6/0/16  |    |           |           |
| 14 |           | ► Deliverable: WBS and Schedule                                    | 9 days   | Fri 5/27/16 | Thu 6/9/16  |    |           |           |
| 15 |           | Create a Project Schedule  | 2 days   | Fri 5/27/16 | Tue 5/31/16 | 10 |           |           |
| 16 |           | Draft the Project Charter  | 3 days   | Wed 6/1/16  | Fri 6/3/16  | 15 |           |           |
| 17 |           | Create a Project Work Breakdown Structure                          | 3 days   | Mon 6/6/16  | Wed 6/8/16  | 16 |           |           |
| 18 |           | Update the Project MOV   | 1 day    | Thu 6/9/16  | Thu 6/9/16  | 17 |           |           |
| 19 |           | Milestone: Husky Air President Signs off on WBS and Schedule       | 0 days   | Fri 6/10/16 | Fri 6/10/16 | 18 |           |           |
| 20 |           | Milestone: System Design and Scope Approved by Husky Air President | 0 days   | Fri 6/10/16 | Fri 6/10/16 | 19 |           |           |
| 21 |           | Milestone: Planning complete                                       | 0 days   | Fri 6/10/16 | Fri 6/10/16 | 20 |           |           |
| 22 |           | ► Phase 3: Execute and Control                                     | 48 days  | Fri 6/10/16 | Thu 8/18/16 |    |           |           |
| 23 |           | ► Deliverable: Operational Pilot Angels System                     | 48 days  | Fri 6/10/16 | Thu 8/18/16 |    |           |           |
| 24 |           | ► SDLC Phase 2: Analysis   | 11 days  | Fri 6/10/16 | Fri 6/24/16 |    |           |           |
| 25 |           | ► Deliverable: System Proposal                                     | 11 days  | Fri 6/10/16 | Fri 6/24/16 |    |           |           |
| 26 |           | ► Complete Requirements Gathering                                  | 9 days   | Fri 6/10/16 | Wed 6/22/16 |    |           |           |
| 27 |           | Interview Husky Air Employees                                      | 2 days   | Fri 6/10/16 | Mon 6/13/16 | 21 |           |           |
| 28 |           | Interview Volunteer Pilots   | 5 days   | Fri 6/10/16 | Thu 6/16/16 | 27 |           |           |
| 29 |           | Interview Regular Patients/ Hospitals                              | 7 days   | Fri 6/10/16 | Mon 6/20/16 | 28 |           |           |
| 30 |           | Observe the Current Process  | 5 days   | Tue 6/14/16 | Mon 6/20/16 | 27 |           |           |
| 31 |           | Understand Current Technology on Site                              | 2 days   | Fri 6/17/16 | Mon 6/20/16 | 28 |           |           |
| 32 |           | Assess Organizational, Technical and Economic Feasibility          | 2 days   | Tue 6/21/16 | Wed 6/22/16 | 29 |           |           |
| 33 |           | Milestone: Requirements Gathering complete                         | 0 days   | Wed 6/22/16 | Wed 6/22/16 | 32 |           |           |
| 34 |           | ► System Modeling  | 1 day    | Thu 6/23/16 | Thu 6/23/16 |    |           |           |
| 35 |           | Create Functional Models   | 1 day    | Thu 6/23/16 | Thu 6/23/16 | 33 |           |           |
| 36 |           | Create Structural Models   | 1 day    | Thu 6/23/16 | Thu 6/23/16 | 35 |           |           |
| 37 |           | Create Behavioral Models   | 1 day    | Thu 6/23/16 | Thu 6/23/16 | 36 |           |           |
| 38 |           | Create Project Budget  | 1 day    | Fri 6/24/16 | Fri 6/24/16 | 37 |           |           |
| 39 |           | Milestone: Husky Air President Signs off on System Proposal        | 0 days   | Mon 6/27/16 | Mon 6/27/16 | 38 |           |           |
| 40 |           | ► SDLC Phase 3: Design   | 3 days   | Mon 6/27/16 | Thu 6/30/16 |    |           |           |
| 41 |           | ► Deliverable: Logical and Technical Prototypes                    | 3 days   | Mon 6/27/16 | Wed 6/29/16 |    |           |           |
| 42 |           | Design Pilot Angels App User Interface                             | 2 days   | Mon 6/27/16 | Tue 6/28/16 | 39 |           |           |
| 43 |           | Design Normalized Database   | 2 days   | Mon 6/27/16 | Tue 6/28/16 | 42 |           |           |
| 44 |           | Design System Output Forms   | 2 days   | Mon 6/27/16 | Tue 6/28/16 | 43 |           |           |
| 45 |           | Design Pilot Angels Website  | 2 days   | Mon 6/27/16 | Tue 6/28/16 | 44 |           |           |
| 46 |           | Design the Husky Air LAN   | 2 days   | Mon 6/27/16 | Tue 6/28/16 | 45 |           |           |
| 47 |           | Define Project Scope   | 1 day    | Wed 6/29/16 | Wed 6/29/16 | 46 |           |           |
| 48 |           | Milestone: Husky Air President Signs off on Prototypes             | 0 days   | Thu 6/30/16 | Thu 6/30/16 | 47 |           |           |
| 49 |           | ► SDLC Phase 4: Construction                                       | 5 days   | Fri 7/1/16  | Fri 7/8/16  |    |           |           |
| 50 |           | ► Deliverable: Preliminary System for Testing                      | 5 days   | Fri 7/1/16  | Fri 7/8/16  |    |           |           |
| 51 |           | Build the Database   | 5 days   | Fri 7/1/16  | Fri 7/8/16  | 48 |           |           |
| 52 |           | Build the Website  | 5 days   | Fri 7/1/16  | Fri 7/8/16  | 51 |           |           |
| 53 |           | Build the LAN  | 5 days   | Fri 7/1/16  | Fri 7/8/16  | 52 |           |           |
| 54 |           | Build the Pilot Angels App   | 5 days   | Fri 7/1/16  | Fri 7/8/16  | 53 |           |           |
| 55 |           | Milestone: System Created  | 0 days   | Fri 7/8/16  | Fri 7/8/16  | 54 |           |           |
| 56 |           | ► SDLC Phase 5: Testing  | 19 days  | Mon 7/11/16 | Fri 8/5/16  |    |           |           |
| 57 |           | ► Deliverable: Test Plan/ Test Results Documentation               | 19 days  | Mon 7/11/16 | Thu 8/4/16  |    |           |           |
| 58 |           | Create Test Plan   | 1 day    | Mon 7/11/16 | Mon 7/11/16 | 55 |           |           |
| 59 |           | ► Database Testing   | 8 days   | Tue 7/12/16 | Thu 7/21/16 |    |           |           |
| 60 |           | Test Patient Records   | 2 days   | Tue 7/12/16 | Wed 7/13/16 | 58 |           |           |
| 61 |           | Test Hospital Records  | 2 days   | Tue 7/12/16 | Wed 7/13/16 | 60 |           |           |
| 62 |           | Test Pilot Records   | 2 days   | Tue 7/12/16 | Wed 7/13/16 | 61 |           |           |
| 63 |           | Test Aircraft Records  | 2 days   | Thu 7/14/16 | Fri 7/15/16 | 60 |           |           |
| 64 |           | Test Accounting Records  | 2 days   | Thu 7/14/16 | Fri 7/15/16 | 61 |           |           |
| 65 |           | Test Output Forms  | 2 days   | Thu 7/14/16 | Fri 7/15/16 | 62 |           |           |
| 66 |           | Stress Test the LAN Server   | 2 days   | Mon 7/18/16 | Tue 7/19/16 | 65 |           |           |
| 67 |           | Test Patient Request Automation                                    | 2 days   | Wed 7/20/16 | Thu 7/21/16 | 66 |           |           |
| 68 |           | ► User Interface Testing   | 8 days   | Fri 7/22/16 | Tue 8/2/16  |    |           |           |
| 69 |           | Husky Air Employees  | 2 days   | Fri 7/22/16 | Mon 7/25/16 | 67 |           |           |
| 70 |           | pilots   | 2 days   | Tue 7/26/16 | Wed 7/27/16 | 69 |           |           |

|     | Task Mode | Task Name  | Duration | Start       | Finish      | Pr | 11 | 16 | 21 | 26 | 31 | August 2016                | September 2016 |
|-----|-----------|--|----------|-------------|-------------|----|----|----|----|----|----|----------------------------|----------------|
| 71  |           | Patients   | 2 days   | Thu 7/28/16 | Fri 7/29/16 | 70 |    |    |    |    |    | Husky Air President        |                |
| 72  |           | Medical Facilities   | 2 days   | Mon 8/1/16  | Tue 8/2/16  | 71 |    |    |    |    |    | Husky Air President        |                |
| 73  |           | Evaluate Test Results  | 1 day    | Wed 8/3/16  | Wed 8/3/16  | 72 |    |    |    |    |    | Charles, Gregory, Ruxandra |                |
| 74  |           | Approve Test Results   | 1 day    | Thu 8/4/16  | Thu 8/4/16  | 73 |    |    |    |    |    | Husky Air President        |                |
| 75  |           | Milestone: All Test Results Analyzed and Adjustments Made              | 0 days   | Fri 8/5/16  | Fri 8/5/16  | 74 |    |    |    |    |    | 8/5                        |                |
| 76  | ☛         | SDLC Phase 6: Implementation   | 9 days   | Fri 8/5/16  | Thu 8/18/16 |    |    |    |    |    |    | Gregory                    |                |
| 77  | ☛         | Deliverable: Documentation, Training Program, Conversion Plan          | 9 days   | Fri 8/5/16  | Wed 8/17/16 |    |    |    |    |    |    | Husky Air President        |                |
| 78  |           | Develop a Training Plan  | 1 day    | Fri 8/5/16  | Fri 8/5/16  | 75 |    |    |    |    |    | 8/13                       |                |
| 79  |           | Train Husky Air Employees  | 5 days   | Mon 8/8/16  | Fri 8/12/16 | 78 |    |    |    |    |    | 8/13                       |                |
| 80  |           | Training Completion Signed Off by Husky Air President                  | 1 day    | Mon 8/15/16 | Mon 8/15/16 | 75 |    |    |    |    |    | 8/13                       |                |
| 81  |           | Conversion Plan Created  | 1 day    | Tue 8/16/16 | Tue 8/16/16 | 79 |    |    |    |    |    | 8/13                       |                |
| 82  |           | Conversion Plan Approved by Husky Air President                        | 1 day    | Wed 8/17/16 | Wed 8/17/16 | 80 |    |    |    |    |    | 8/13                       |                |
| 83  |           | Milestone: Training Completed/ Ready to Install System                 | 0 days   | Thu 8/18/16 | Thu 8/18/16 | 82 |    |    |    |    |    | 8/13                       |                |
| 84  |           | Milestone: System Approved by Husky Air President/ System Installed    | 0 days   | Thu 8/18/16 | Thu 8/18/16 | 83 |    |    |    |    |    | 8/13                       |                |
| 85  |           | Milestone: Execute and Control complete                                | 0 days   | Thu 8/18/16 | Thu 8/18/16 | 84 |    |    |    |    |    | 8/13                       |                |
| 86  | ☛         | Phase 4: Closeout  | 3 days   | Thu 8/18/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/13                       |                |
| 87  | ☛         | Deliverable: Final Reports/ Formal Acceptance by Husky Air             | 3 days   | Thu 8/18/16 | Mon 8/22/16 |    |    |    |    |    |    | 8/13                       |                |
| 88  |           | Finalize Formal Acceptance Paperwork                                   | 1 day    | Thu 8/18/16 | Thu 8/18/16 | 85 |    |    |    |    |    | 8/13                       |                |
| 89  |           | Document Lessons Learned for Future Projects                           | 2 days   | Fri 8/19/16 | Mon 8/22/16 | 88 |    |    |    |    |    | 8/13                       |                |
| 90  |           | Milestone: Final Contracts/ Paperwork Signed by Husky Air President    | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 89 |    |    |    |    |    | 8/13                       |                |
| 91  |           | Milestone: Closeout complete   | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 90 |    |    |    |    |    | 8/13                       |                |
| 92  | ☛         | Phase 5: Evaluate  | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 93  | ☛         | Deliverable: Evaluation Paperwork/ Validation of the MOV               | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
|     | Task Mode | Task Name  | Duration | Start       | Finish      | Pr | 11 | 16 | 21 | 26 | 31 | August 2016                | September 2016 |
| 94  | ☛         | Upon Implementation  | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 95  |           | Processed Request Generates Pilot List in 10 Seconds                   | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 91 |    |    |    |    |    | 8/23                       |                |
| 96  | ☛         | 3 Months After Closeout  | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 97  |           | Customer Waiting Time Decreased by 2 Hours                             | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 95 |    |    |    |    |    | 8/23                       |                |
| 98  | ☛         | 6 Months After Closeout  | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 99  |           | Number of Calls Reduced by 50%   | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 97 |    |    |    |    |    | 8/23                       |                |
| 100 |           | Increased Probability of Pairing by 40%                                | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 99 |    |    |    |    |    | 8/23                       |                |
| 101 | ☛         | 12 Months After Closeout   | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 102 |           | Average Service Request Response in Under 24 Hours                     | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 103 |           | Administrative Costs Reduced From \$45,000 to \$33,500 per year        | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 104 |           | Reduced Number of Stopovers per 1000 Flight Miles from 3 to 1          | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 105 |           | Increased the Number of Clients Served from 100 to 130                 | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 106 |           | Increased Service Requests by 20%                                      | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 107 | ☛         | 18 Months After Closeout   | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 108 |           | Reduced Scheduling Time from 9 Hours to 3 Hours per Month              | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 109 |           | Reduced "Insufficient Availability" Refusals from 35% to 20%           | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 110 |           | Reduced Schedule Change by 25%   | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 10 |    |    |    |    |    | 8/23                       |                |
| 111 | ☛         | 24 Months After Closeout   | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 112 |           | Increased the Accuracy of Pilot's Volunteer Records by 97%             | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 11 |    |    |    |    |    | 8/23                       |                |
| 113 | ☛         | 60 Months After Closeout   | 0 days   | Tue 8/23/16 | Tue 8/23/16 |    |    |    |    |    |    | 8/23                       |                |
| 114 |           | Reduce Fuel Expenses by 35%  | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 11 |    |    |    |    |    | 8/23                       |                |
| 115 |           | Milestone: Husky Air President Signs off on Final Evaluation Paperwork | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 11 |    |    |    |    |    | 8/23                       |                |
| 116 |           | Milestone: Evaluate complete   | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 11 |    |    |    |    |    | 8/23                       |                |
| 117 |           | Milestone: The Pilot Angels App Project Completed                      | 0 days   | Tue 8/23/16 | Tue 8/23/16 | 11 |    |    |    |    |    | 8/23                       |                |

## Appendix C: Revised Detailed Project Plan

| Row ID | Task Mode | Task Name  | Duration | Start           | Finish | June 2016 |    |   |   |    |    | July 2016 |    |   |   |    |    |    |
|--------|-----------|--|----------|-----------------|--------|-----------|----|---|---|----|----|-----------|----|---|---|----|----|----|
|        |           |  |          |                 |        | 22        | 27 | 1 | 6 | 11 | 16 | 21        | 26 | 1 | 6 | 11 | 16 | 21 |
| 1      | →         | ► The Pilot Angels App   | 52 days  | Mon 5/23/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 2      | →         | ► Phase 1: Conceptualize and Initialize                            | 3 days   | Mon 5/23/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 3      | →         | ► Deliverable: Business Case                                       | 3 days   | Mon 5/23/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 4      | →         | Define the Project Goals/ Purpose                                  | 1 day    | Mon 5/23/16 Mon |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 5      | →         | Define the Project MOV   | 1 day    | Tue 5/24/16 Tue |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 6      | →         | Define the Desired are of Impact                                   | 1 day    | Wed 5/25/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 7      | →         | Research a Comparison of Alternatives                              | 1 day    | Wed 5/25/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 8      | →         | Determine the Total Benefits of Ownership                          | 1 day    | Wed 5/25/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 9      | →         | Milestone: Business Case is Approved                               | 0 days   | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 10     | →         | Milestone: Conceptualize and Initialize complete                   | 0 days   | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 11     | →         | ► Phase 2: Develop Project Charter and Plan                        | 4 days   | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 12     | →         | ► Deliverable: Project Charter and Plan                            | 4 days   | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 13     | →         | ► SDLC Phase 1: Planning   | 4 days   | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 14     | →         | ► Deliverable: WBS and Schedule                                    | 4 days   | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 15     | →         | Create a Project Schedule  | 1 day    | Thu 5/26/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 16     | →         | Draft the Project Charter  | 1 day    | Fri 5/27/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 17     | →         | Create a Project Work Breakdown Structure                          | 1 day    | Tue 5/31/16 Tue |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 18     | →         | Update the Project MOV   | 1 day    | Wed 6/1/16 Wed  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 19     | →         | Milestone: Husky Air President Signs off on WBS and Schedule       | 0 days   | Thu 6/2/16 Thu  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 20     | →         | Milestone: System Design and Scope Approved by Husky Air President | 0 days   | Thu 6/2/16 Thu  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 21     | →         | Milestone: Planning complete                                       | 0 days   | Thu 6/2/16 Thu  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 22     | →         | ► Phase 3: Execute and Control                                     | 43 days  | Thu 6/2/16 Wed  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 23     | →         | ► Deliverable: Operational Pilot Angels System                     | 43 days  | Thu 6/2/16 Wed  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 24     | →         | ► SDLC Phase 2: Analysis   | 8 days   | Thu 6/2/16 Mon  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 25     | →         | ► Deliverable: System Proposal                                     | 8 days   | Thu 6/2/16 Mon  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 26     | →         | ► Complete Requirements Gathering                                  | 5 days   | Thu 6/2/16 Wed  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 27     | →         | Interview Husky Air Employees                                      | 2 days   | Thu 6/2/16 Fri  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 28     | →         | Interview Volunteer Pilots   | 2 days   | Thu 6/2/16 Fri  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 29     | →         | Interview Regular Patients/ Hospitals                              | 2 days   | Thu 6/2/16 Fri  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 30     | →         | Observe the Current Process  | 2 days   | Mon 6/6/16 Tue  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 31     | →         | Understand Current Technology on Site                              | 1 day    | Mon 6/6/16 Mon  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 32     | →         | Assess Organizational, Technical and Economic Feasibility          | 1 day    | Wed 6/8/16 Wed  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 33     | →         | Milestone: Requirements Gathering complete                         | 0 days   | Thu 6/9/16 Thu  |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 34     | →         | ► System Modeling  | 1 day    | Fri 6/10/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 35     | →         | Create Functional Models   | 1 day    | Fri 6/10/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 36     | →         | Create Structural Models   | 1 day    | Fri 6/10/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 37     | →         | Create Behavioral Models   | 1 day    | Fri 6/10/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 38     | →         | Create Project Budget  | 1 day    | Mon 6/13/16 Mon |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 39     | →         | Milestone: Husky Air President Signs off on System Proposal        | 0 days   | Tue 6/14/16 Tue |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 40     | →         | ► SDLC Phase 3: Design   | 3 days   | Tue 6/14/16 Fri |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 41     | →         | ► Deliverable: Logical and Technical Prototypes                    | 3 days   | Tue 6/14/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 42     | →         | Design Pilot Angels App User Interface                             | 2 days   | Tue 6/14/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 43     | →         | Design Normalized Database   | 2 days   | Tue 6/14/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 44     | →         | Design System Output Forms   | 2 days   | Tue 6/14/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 45     | →         | Design Pilot Angels Website  | 2 days   | Tue 6/14/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 46     | →         | Design the Husky Air LAN   | 2 days   | Tue 6/14/16 Wed |        |           |    |   |   |    |    |           |    |   |   |    |    |    |
| 47     | →         | Define Project Scope   | 1 day    | Thu 6/16/16 Thu |        |           |    |   |   |    |    |           |    |   |   |    |    |    |



|     | Task Mode | Task Name  | Duration | Start       | Finish | July 2016 | August 2016 |    |    |    |   |    |    |    |    |    |   |    |  |
|-----|-----------|--|----------|-------------|--------|-----------|-------------|----|----|----|---|----|----|----|----|----|---|----|--|
|     | Task Mode | Task Name  | Duration | Start       | Finish | 11        | 16          | 21 | 26 | 1  | 6 | 11 | 16 | 21 | 26 | 31 | 5 | 10 |  |
| 47  |           | Define Project Scope   | 1 day    | Thu 6/16/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 48  |           | Milestone: Husky Air President Signs off on Prototypes                 | 0 days   | Fri 6/17/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 49  | ➡         | SDLC Phase 4: Construction   | 5 days   | Fri 6/17/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 50  | ➡         | Deliverable: Preliminary System for Testing                            | 5 days   | Fri 6/17/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 51  |           | Build the Database   | 5 days   | Fri 6/17/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 52  |           | Build the Website  | 5 days   | Fri 6/17/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 53  |           | Build the LAN  | 3 days   | Fri 6/17/16 | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 54  |           | Build the Pilot Angels App   | 5 days   | Fri 6/17/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 55  |           | Milestone: System Created  | 0 days   | Fri 6/24/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 56  | ➡         | SDLC Phase 5: Testing  | 19 days  | Fri 6/24/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 57  | ➡         | Deliverable: Test Plan/ Test Results Documentation                     | 19 days  | Fri 6/24/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 58  |           | Create Test Plan   | 1 day    | Fri 6/24/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 59  | ➡         | Database Testing   | 8 days   | Mon 6/27/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 60  |           | Test Patient Records   | 2 days   | Mon 6/27/16 | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 61  |           | Test Hospital Records  | 2 days   | Mon 6/27/16 | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 62  |           | Test Pilot Records   | 2 days   | Mon 6/27/16 | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 63  |           | Test Aircraft Records  | 2 days   | Wed 6/29/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 64  |           | Test Accounting Records  | 2 days   | Wed 6/29/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 65  |           | Test Output Forms  | 2 days   | Wed 6/29/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 66  |           | Stress Test the LAN Server   | 2 days   | Fri 7/1/16  | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 67  |           | Test Patient Request Automation  | 2 days   | Fri 7/6/16  | Thu    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 68  | ➡         | User Interface Testing   | 8 days   | Fri 7/8/16  | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 69  | ➡         | Husky Air Employees  | 2 days   | Fri 7/8/16  | Mon    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 70  |           | Pilots   | 2 days   | Tue 7/12/16 | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
|     | Task Mode | Task Name  | Duration | Start       | Finish | 11        | 16          | 21 | 26 | 31 | 5 | 10 | 15 | 20 | 25 | 30 | 4 | 9  |  |
| 70  |           | Pilots   | 2 days   | Tue 7/12/16 | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 71  |           | Patients   | 2 days   | Thu 7/14/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 72  |           | Medical Facilities   | 2 days   | Mon 7/18/16 | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 73  |           | Evaluate Test Results  | 1 day    | Wed 7/20/16 | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 74  |           | Approve Test Results   | 1 day    | Thu 7/21/16 | Thu    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 75  |           | Milestone: All Test Results Analyzed and Adjustments Made              | 0 days   | Fri 7/22/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 76  | ➡         | SDLC Phase 6: Implementation   | 8 days   | Fri 7/22/16 | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 77  | ➡         | Deliverable: Documentation, Training Program, Conversion Plan          | 8 days   | Fri 7/22/16 | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 78  |           | Develop a Training Plan  | 1 day    | Fri 7/22/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 79  |           | Train Husky Air Employees  | 4 days   | Mon 7/25/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 80  |           | Training Completion Signed Off by Husky Air President                  | 1 day    | Fri 7/29/16 | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 81  |           | Conversion Plan Created  | 1 day    | Mon 8/1/16  | Mon    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 82  |           | Conversion Plan Approved by Husky Air President                        | 1 day    | Tue 8/2/16  | Tue    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 83  |           | Milestone: Training Completed/ Ready to Install System                 | 0 days   | Wed 8/3/16  | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 84  |           | Milestone: System Approved by Husky Air President/ System Installed    | 0 days   | Wed 8/3/16  | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 85  |           | Milestone: Execute and Control complete                                | 0 days   | Wed 8/3/16  | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 86  | ➡         | Phase 4: Close Project   | 2 days   | Wed 8/3/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 87  | ➡         | Deliverable: Final Reports/ Formal Acceptance by Husky Air             | 2 days   | Wed 8/3/16  | Thu    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 88  |           | Finalize Formal Acceptance Paperwork                                   | 1 day    | Wed 8/3/16  | Wed    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 89  |           | Document Lessons Learned for Future Projects                           | 1 day    | Thu 8/4/16  | Thu    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 90  |           | Milestone: Final Contracts/ Paperwork Signed by Husky Air President    | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 91  |           | Milestone: Closeout complete   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 92  | ➡         | Phase 5: Evaluate Project Success                                      | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 93  | ➡         | Deliverable: Evaluation Paperwork/ Validation of the MOV               | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
|     | Task Mode | Task Name  | Duration | Start       | Finish | 11        | 16          | 21 | 26 | 31 | 5 | 10 | 15 | 20 | 25 | 30 | 4 | 9  |  |
| 94  |           | Upon Implementation  | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 95  |           | Processed Request Generates Pilot List in 10 Seconds                   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 96  | ➡         | 3 Months After Closeout  | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 97  |           | Customer Waiting Time Decreased by 2 Hours                             | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 98  | ➡         | 6 Months After Closeout  | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 99  |           | Number of Calls Reduced by 50%   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 100 |           | Increased Probability of Pairing by 40%                                | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 101 | ➡         | 12 Months After Closeout   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 102 |           | Average Service Request Response in Under 24 Hours                     | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 103 |           | Administrative Costs Reduced From \$45,000 to \$33,500 per year        | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 104 |           | Reduced Number of Stopovers per 1000 Flight Miles from 3 to 1          | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 105 |           | Increased the Number of Clients Served from 100 to 130                 | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 106 |           | Increased Service Requests by 20%                                      | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 107 | ➡         | 18 Months After Closeout   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 108 |           | Reduced Scheduling Time from 9 Hours to 3 Hours per Month              | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 109 |           | Reduced "Insufficient Availability" Refusals from 35% to 20%           | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 110 |           | Reduced Schedule Change by 25%   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 111 | ➡         | 24 Months After Closeout   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 112 |           | Increased the Accuracy of Pilot's Volunteer Records by 97%             | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 113 | ➡         | 60 Months After Closeout   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 114 |           | Reduce Fuel Expenses by 35%  | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 115 |           | Milestone: Husky Air President Signs off on Final Evaluation Paperwork | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 116 |           | Milestone: Evaluate complete   | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |
| 117 |           | Milestone: The Pilot Angels App Project Completed                      | 0 days   | Fri 8/5/16  | Fri    |           |             |    |    |    |   |    |    |    |    |    |   |    |  |

## **Line-by-Line Revisions Summary**

**Line 7** – “Research a Comparison of Alternatives” reduced from 2 days to 1 day.

**Line 15** – “Create a Project Schedule” reduced from 2 days to 1 day.

**Line 16** – “Draft the Project Charter” reduced from 3 days to 1 day.

**Line 17** – “Create a Work Breakdown Structure” reduced from 3 days to 1 day.

**Line 28** – “Interview Volunteer Pilots” reduced from 5 days to 2 days, by adding an Interview Consultant as an assistant, for \$20 per hour.

**Line 29** – “Interview Regular Patients/ Hospitals” reduced from 7 days to 2 days. An Interview Consultant was added to assist with this task.

**Line 30** – “Observe the Current Process” reduced from 5 days to 2 days.

**Line 31** – “Understand Technology on Site” reduced from 2 days to 1 day.

**Line 32** – “Assess Organizational, Technical and Economic Feasibility” reduced from 2 days to 1 day.

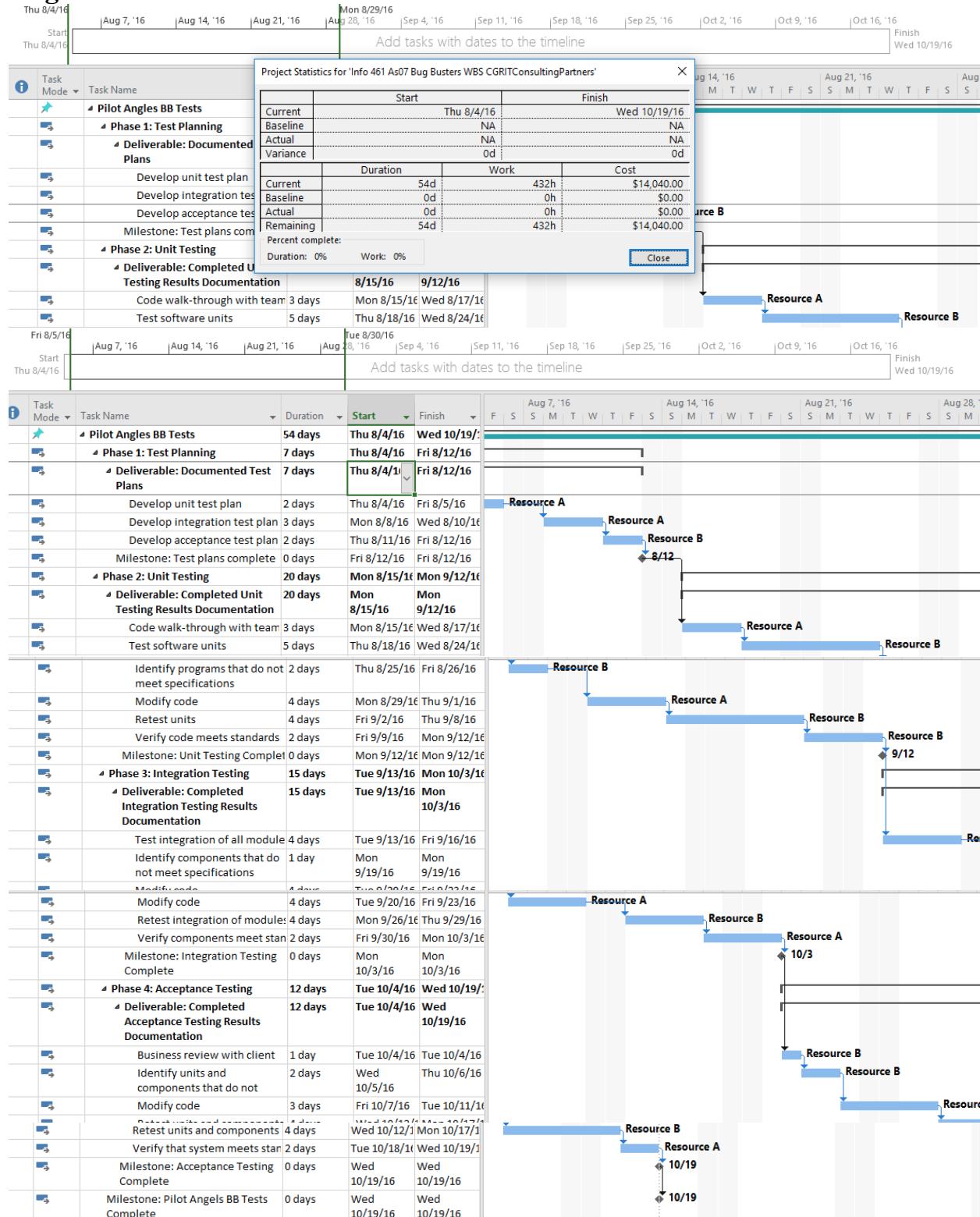
**Line 53** – “Build the LAN” reduced from 5 days to 3 days.

**Line 79** – “Train Husky Air Employees” reduced from 5 days to 4 days.

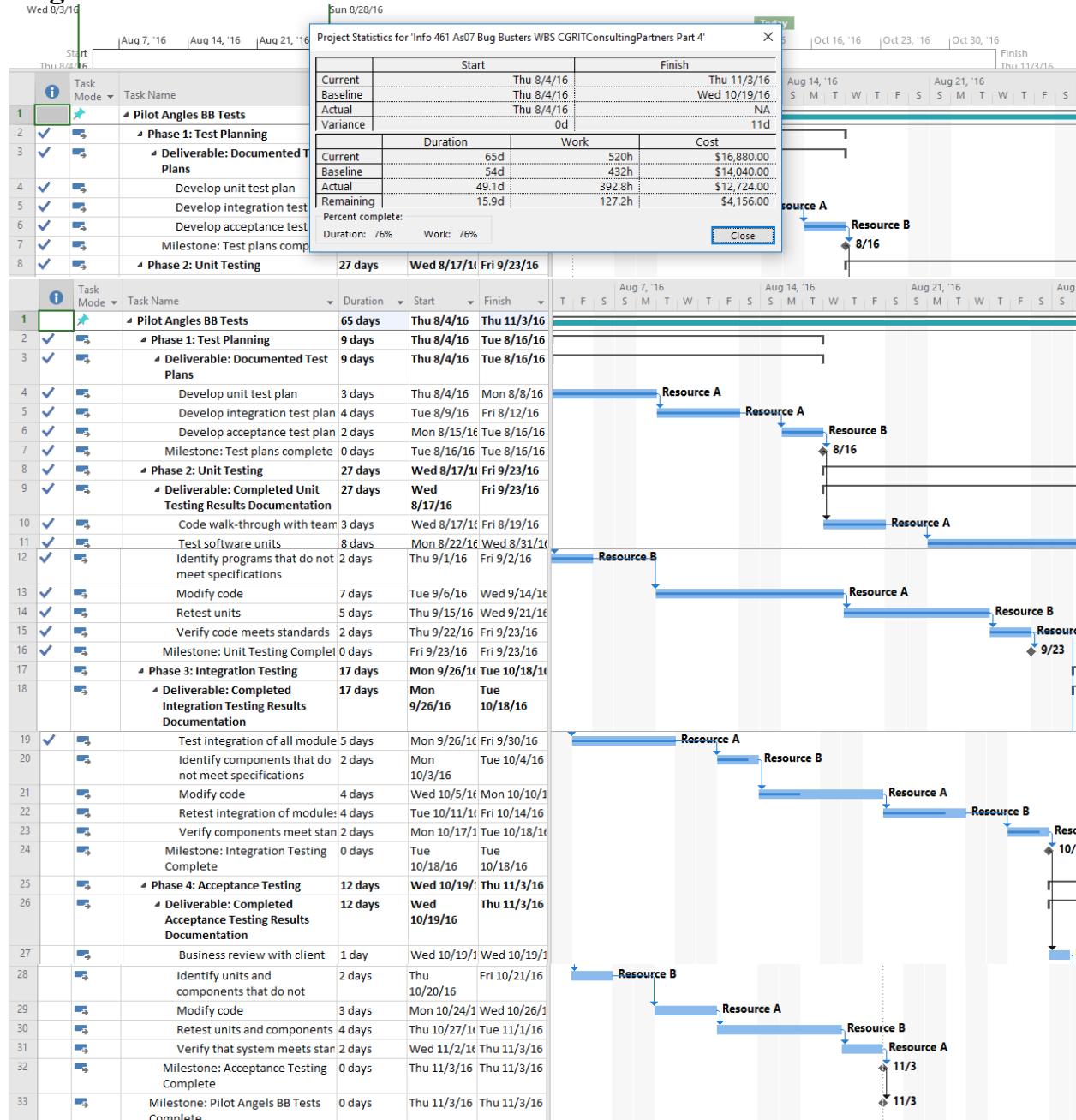
**Line 89** – “Document Lessons Learned for Future Projects” reduced from 2 days to 1 day.

## Appendix D: Bug Busters MS Project Screenshots

### Bug Busters Part 1



## Bug Busters Part 2



## Appendix E: Bug Busters Supporting Documentation

### Earned Value Report

| ID | Task Name                        | Planned Value - PV (BOWS) | Earned Value - EV (BCWP) | AC (ACWP)   | SV           | CV           |
|----|----------------------------------|---------------------------|--------------------------|-------------|--------------|--------------|
| 4  | Develop unit test plan           | \$480.00                  | \$480.00                 | \$720.00    | \$0.00       | (\$240.00)   |
| 5  | Develop integration test plan    | \$720.00                  | \$720.00                 | \$960.00    | \$0.00       | (\$240.00)   |
| 6  | Develop acceptance test plan     | \$560.00                  | \$560.00                 | \$560.00    | \$0.00       | \$0.00       |
| 7  | Milestone: Test plans complete   | \$0.00                    | \$0.00                   | \$0.00      | \$0.00       | \$0.00       |
| 10 | Code walk-through with team      | \$720.00                  | \$720.00                 | \$720.00    | \$0.00       | \$0.00       |
| 11 | Test software units              | \$1,400.00                | \$1,400.00               | \$2,240.00  | \$0.00       | (\$840.00)   |
| 12 | Identify programs that do not m  | \$560.00                  | \$560.00                 | \$560.00    | \$0.00       | \$0.00       |
| 13 | Modify code                      | \$960.00                  | \$960.00                 | \$1,680.00  | \$0.00       | (\$720.00)   |
| 14 | Retest units                     | \$1,120.00                | \$1,120.00               | \$1,400.00  | \$0.00       | (\$280.00)   |
| 15 | Verify code meets standards      | \$560.00                  | \$560.00                 | \$560.00    | \$0.00       | \$0.00       |
| 16 | Milestone: Unit Testing Complet  | \$0.00                    | \$0.00                   | \$0.00      | \$0.00       | \$0.00       |
| 19 | Test integration of all modules  | \$960.00                  | \$960.00                 | \$1,200.00  | \$0.00       | (\$240.00)   |
| 20 | Identify components that do not  | \$280.00                  | \$210.00                 | \$420.00    | (\$70.00)    | (\$210.00)   |
| 21 | Modify code                      | \$960.00                  | \$480.00                 | \$480.00    | (\$480.00)   | \$0.00       |
| 22 | Retest integration of modules    | \$1,120.00                | \$560.00                 | \$560.00    | (\$560.00)   | \$0.00       |
| 23 | Verify components meet standar   | \$480.00                  | \$0.00                   | \$0.00      | (\$480.00)   | \$0.00       |
| 24 | Milestone: Integration Testing C | \$0.00                    | \$0.00                   | \$0.00      | \$0.00       | \$0.00       |
| 27 | Business review with client      | \$280.00                  | \$0.00                   | \$0.00      | (\$280.00)   | \$0.00       |
| 28 | Identify units and components th | \$560.00                  | \$0.00                   | \$0.00      | (\$560.00)   | \$0.00       |
| 29 | Modify code                      | \$720.00                  | \$0.00                   | \$0.00      | (\$720.00)   | \$0.00       |
| 30 | Retest units and components      | \$280.00                  | \$0.00                   | \$0.00      | (\$280.00)   | \$0.00       |
| 31 | Verify that system meets standa  | \$0.00                    | \$0.00                   | \$0.00      | \$0.00       | \$0.00       |
| 32 | Milestone: Acceptance Testing C  | \$0.00                    | \$0.00                   | \$0.00      | \$0.00       | \$0.00       |
| 33 | Milestone: Pilot Angels BB Tests | \$0.00                    | \$0.00                   | \$0.00      | \$0.00       | \$0.00       |
|    |                                  | \$12,720.00               | \$8,290.00               | \$12,060.00 | (\$3,430.00) | (\$2,770.00) |

## Earned Value Detail Chart

|    | Name   | BCWS: Current | BCWP: Current | CV: Current  | CV%: Current | CPI: Current | TCPI: Current |  |
|----|--|---------------|---------------|--------------|--------------|--------------|---------------|--|
| 1  | Pilot Angels BB Tests                          | \$12,720.00   | \$9,290.00    | (\$2,770.00) | -30          | 0.77         | 2.4           |  |
| 2  | Phase 1: Test Planning                         | \$1,760.00    | \$1,760.00    | (\$480.00)   | -27          | 0.79         | -0            |  |
| 3  | Deliverable: Documented Test Plan              | \$1,760.00    | \$1,760.00    | (\$480.00)   | -27          | 0.79         | -0            |  |
| 4  | Develop unit test plan                         | \$480.00      | \$480.00      | (\$240.00)   | -50          | 0.67         | -0            |  |
| 5  | Develop integration test plan                  | \$720.00      | \$720.00      | (\$240.00)   | -33          | 0.75         | -0            |  |
| 6  | Develop acceptance test plan                   | \$560.00      | \$560.00      | \$0.00       | 0            | 1            | 1             |  |
| 7  | Milestone: Test plans completed                | \$0.00        | \$0.00        | \$0.00       | 0            | 0            | 0             |  |
| 8  | Phase 2: Unit Testing                          | \$5,320.00    | \$5,320.00    | (\$1,840.00) | -35          | 0.74         | -0            |  |
| 9  | Deliverable: Completed Unit Testing            | \$5,320.00    | \$5,320.00    | (\$1,840.00) | -35          | 0.74         | -0            |  |
| 10 | Code walk-through with team                    | \$720.00      | \$720.00      | \$0.00       | 0            | 1            | 1             |  |
| 11 | Test software units                            | \$1,400.00    | \$1,400.00    | (\$840.00)   | -60          | 0.63         | -0            |  |
| 12 | Identify programs that do not work             | \$560.00      | \$560.00      | \$0.00       | 0            | 1            | 1             |  |
| 13 | Modify code                                    | \$960.00      | \$960.00      | (\$720.00)   | -75          | 0.57         | -0            |  |
| 14 | Retest units                                   | \$1,120.00    | \$1,120.00    | (\$280.00)   | -25          | 0.8          | -0            |  |
| 15 | Verify code meets standards                    | \$560.00      | \$560.00      | \$0.00       | 0            | 1            | 1             |  |
| 16 | Milestone: Unit Testing Complete               | \$0.00        | \$0.00        | \$0.00       | 0            | 0            | 0             |  |
| 17 | Phase 3: Integration Testing                   | \$3,800.00    | \$2,210.00    | (\$450.00)   | -20          | 0.83         | 1.39          |  |
| 18 | Deliverable: Completed Integration Testing     | \$3,800.00    | \$2,210.00    | (\$450.00)   | -20          | 0.83         | 1.39          |  |
| 19 | Test integration of all modules                | \$960.00      | \$960.00      | (\$240.00)   | -25          | 0.8          | -0            |  |
| 20 | Identify components that need modification     | \$280.00      | \$210.00      | (\$210.00)   | -100         | 0.5          | -0.5          |  |
| 21 | Modify code                                    | \$960.00      | \$480.00      | \$0.00       | 0            | 1            | 1             |  |
| 22 | Retest integration of modules                  | \$1,120.00    | \$560.00      | \$0.00       | 0            | 1            | 1             |  |
| 23 | Verify components meet standards               | \$480.00      | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 24 | Milestone: Integration Testing Complete        | \$0.00        | \$0.00        | \$0.00       | 0            | 0            | 0             |  |
| 25 | Phase 4: Acceptance Testing                    | \$1,840.00    | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 26 | Deliverable: Completed Acceptance Testing      | \$1,840.00    | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 27 | Business review with client                    | \$280.00      | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 28 | Identify units and components for final review | \$560.00      | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 29 | Modify code                                    | \$720.00      | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 30 | Retest units and components                    | \$280.00      | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 31 | Verify that system meets standards             | \$0.00        | \$0.00        | \$0.00       | 0            | 0            | 1             |  |
| 32 | Milestone: Acceptance Testing Complete         | \$0.00        | \$0.00        | \$0.00       | 0            | 0            | 0             |  |
| 33 | Milestone: Pilot Angels BB Test Complete       | \$0.00        | \$0.00        | \$0.00       | 0            | 0            | 0             |  |

# Task Overview Report

|  | 7/31/16      | 8/7/16       | 8/14/16      | 8/21/16      | 8/28/16      | 9/4/16       | 9/11/16      | 9/18/1 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------|
| Pilot Angles BB Tests  |              |              |              |              |              |              |              |        |
| Phase 1: Test Planning   |              |              |              |              |              |              |              |        |
| Deliverable: Documented Test Plans                               |              |              |              |              |              |              |              |        |
| Develop unit test plan<br>Resource A                             | 16 hrs<br>16 | 8 hrs<br>8   |              |              |              |              |              |        |
| Develop integration test plan<br>Resource A                      |              | 32 hrs<br>32 |              |              |              |              |              |        |
| Develop acceptance test plan<br>Resource B                       |              |              | 16 hrs<br>16 |              |              |              |              |        |
| Milestone: Test plans complete                                   |              |              |              |              |              |              |              |        |
| Phase 2: Unit Testing  |              |              |              |              |              |              |              |        |
| Deliverable: Completed Unit Testing Results Documentation        |              |              |              |              |              |              |              |        |
| Code walk-through with team<br>Resource A                        |              |              | 24 hrs<br>24 |              |              |              |              |        |
| Test software units<br>Resource B                                |              |              |              | 40 hrs<br>40 | 24 hrs<br>24 |              |              |        |
| Identify programs that do not meet specifications<br>Resource B  |              |              |              |              | 16 hrs<br>16 |              |              |        |
| Modify code<br>Resource A  |              |              |              |              |              | 32 hrs<br>32 | 24 hrs<br>24 |        |
| Retest units<br>Resource B                                       |              |              |              |              |              |              | 16 hrs<br>16 |        |
| Verify code meets standards<br>Resource B                        |              |              |              |              |              |              |              |        |
| Milestone: Unit Testing Complete                                 |              |              |              |              |              |              |              |        |
| Phase 3: Integration Testing                                     |              |              |              |              |              |              |              |        |
| Deliverable: Completed Integration Testing Results Documentation |              |              |              |              |              |              |              |        |
| Test integration of all modules                                  |              |              |              |              |              |              |              |        |

|   | 7/31/16 | 8/7/16 | 8/14/16 | 8/21/16 | 8/28/16 | 9/4/16 | 9/11/16 | 9/18/1 |
|---|---------|--------|---------|---------|---------|--------|---------|--------|
| Resource A  |         |        |         |         |         |        |         |        |
| Identify components that do not meet specifications<br>Resource B           |         |        |         |         |         |        |         |        |
| Modify code<br>Resource A   |         |        |         |         |         |        |         |        |
| Retest integration of modules<br>Resource B                                 |         |        |         |         |         |        |         |        |
| Verify components meet standards<br>Resource A                              |         |        |         |         |         |        |         |        |
| Milestone: Integration Testing Complete                                     |         |        |         |         |         |        |         |        |
| Phase 4: Acceptance Testing   |         |        |         |         |         |        |         |        |
| Deliverable: Completed Acceptance Testing Results Documentation             |         |        |         |         |         |        |         |        |
| Business review with client<br>Resource B                                   |         |        |         |         |         |        |         |        |
| Identify units and components that do not meet specifications<br>Resource B |         |        |         |         |         |        |         |        |
| Modify code<br>Resource A   |         |        |         |         |         |        |         |        |
| Retest units and components<br>Resource B                                   |         |        |         |         |         |        |         |        |
| Verify that system meets standards<br>Resource A                            |         |        |         |         |         |        |         |        |
| Milestone: Acceptance Testing Complete                                      |         |        |         |         |         |        |         |        |
| Milestone: Pilot Angels BB Tests Complete                                   |         |        |         |         |         |        |         |        |
| Total   | 16 hrs  | 40 hrs | 40 hrs  | 40 hrs  | 40 hrs  | 32 hrs | 40 hrs  |        |

|  | 9/18/16 | 9/25/16 | 10/2/16 | 10/9/16 | 10/16/16 | 10/23/16 | 10/30/16 | 11/6/1 |
|--|---------|---------|---------|---------|----------|----------|----------|--------|
| Pilot Angels BB Tests  |         |         |         |         |          |          |          |        |
| Phase 1: Test Planning   |         |         |         |         |          |          |          |        |
| Deliverable: Documented Test Plans                               |         |         |         |         |          |          |          |        |
| Develop unit test plan<br>Resource A                             |         |         |         |         |          |          |          |        |
| Develop integration test plan<br>Resource A                      |         |         |         |         |          |          |          |        |
| Develop acceptance test plan<br>Resource B                       |         |         |         |         |          |          |          |        |
| Milestone: Test plans complete                                   |         |         |         |         |          |          |          |        |
| Phase 2: Unit Testing  |         |         |         |         |          |          |          |        |
| Deliverable: Completed Unit Testing Results Documentation        |         |         |         |         |          |          |          |        |
| Code walk-through with team<br>Resource A                        |         |         |         |         |          |          |          |        |
| Test software units<br>Resource B                                |         |         |         |         |          |          |          |        |
| Identify programs that do not meet specifications<br>Resource B  |         |         |         |         |          |          |          |        |
| Modify code<br>Resource A  |         |         |         |         |          |          |          |        |
| Retest units<br>Resource B                                       | 24 hrs  | 24      |         |         |          |          |          |        |
| Verify code meets standards<br>Resource B                        | 16 hrs  | 16      |         |         |          |          |          |        |
| Milestone: Unit Testing Complete                                 |         |         |         |         |          |          |          |        |
| Phase 3: Integration Testing                                     |         |         |         |         |          |          |          |        |
| Deliverable: Completed Integration Testing Results Documentation |         |         |         |         |          |          |          |        |
| Test integration of all modules                                  |         | 40 hrs  |         |         |          |          |          |        |

|   | 9/18/16 | 9/25/16 | 10/2/16 | 10/9/16 | 10/16/16 | 10/23/16 | 10/30/16 | 11/6/1 |
|---|---------|---------|---------|---------|----------|----------|----------|--------|
| Resource A  |         | 40      |         |         |          |          |          |        |
| Identify components that do not meet specifications<br>Resource B           |         |         | 16 hrs  |         |          |          |          |        |
| Modify code<br>Resource A   |         |         | 24 hrs  | 8 hrs   |          |          |          |        |
| Retest integration of modules<br>Resource B                                 |         |         | 24      | 8       |          |          |          |        |
| Verify components meet standards<br>Resource A                              |         |         |         |         | 32 hrs   |          |          |        |
| Verify components meet standards<br>Resource A                              |         |         |         |         | 32       |          |          |        |
| Milestone: Integration Testing Complete                                     |         |         |         |         |          |          |          |        |
| Phase 4: Acceptance Testing   |         |         |         |         |          |          |          |        |
| Deliverable: Completed Acceptance Testing Results Documentation             |         |         |         |         |          |          |          |        |
| Business review with client<br>Resource B                                   |         |         |         |         | 8 hrs    |          |          |        |
| Identify units and components that do not meet specifications<br>Resource B |         |         |         |         | 8        |          |          |        |
| Identify units and components that do not meet specifications<br>Resource B |         |         |         |         |          | 16 hrs   |          |        |
| Modify code<br>Resource A   |         |         |         |         |          | 16       |          |        |
| Retest units and components<br>Resource B                                   |         |         |         |         |          |          | 16 hrs   |        |
| Verify that system meets standards<br>Resource A                            |         |         |         |         |          |          | 16       |        |
| Milestone: Acceptance Testing Complete                                      |         |         |         |         |          |          |          |        |
| Milestone: Pilot Angels BB Tests Complete                                   |         |         |         |         |          |          |          |        |
| Total   | 40 hrs   | 40 hrs   | 32 hrs   |        |

|  | Total  |
|--|--------|
| Pilot Angles BB Tests  |        |
| Phase 1: Test Planning   |        |
| Deliverable: Documented Test Plans                               |        |
| Develop unit test plan   | 24 hrs |
| Resource A   | 24     |
| Develop integration test plan                                    | 32 hrs |
| Resource A   | 32     |
| Develop acceptance test plan                                     | 16 hrs |
| Resource B   | 16     |
| Milestone: Test plans complete                                   |        |
| Phase 2: Unit Testing  |        |
| Deliverable: Completed Unit Testing Results Documentation        |        |
| Code walk-through with team                                      | 24 hrs |
| Resource A   | 24     |
| Test software units  | 64 hrs |
| Resource B   | 64     |
| Identify programs that do not meet specifications                | 16 hrs |
| Resource B   | 16     |
| Modify code  | 56 hrs |
| Resource A   | 56     |
| Retest units   | 40 hrs |
| Resource B   | 40     |
| Verify code meets standards                                      | 16 hrs |
| Resource B   | 16     |
| Milestone: Unit Testing Complete                                 |        |
| Phase 3: Integration Testing                                     |        |
| Deliverable: Completed Integration Testing Results Documentation |        |
| Test integration of all modules                                  | 40 hrs |

|   | Total   |
|---|---------|
| Resource A  | 40      |
| Identify components that do not meet specifications             | 16 hrs  |
| Resource B  | 16      |
| Modify code   | 32 hrs  |
| Resource A  | 32      |
| Retest integration of modules                                   | 32 hrs  |
| Resource B  | 32      |
| Verify components meet standards                                | 16 hrs  |
| Resource A  | 16      |
| Milestone: Integration Testing Complete                         |         |
| Phase 4: Acceptance Testing                                     |         |
| Deliverable: Completed Acceptance Testing Results Documentation |         |
| Business review with client                                     | 8 hrs   |
| Resource B  | 8       |
| Identify units and components that do not meet specifications   | 16 hrs  |
| Resource B  | 16      |
| Modify code   | 24 hrs  |
| Resource A  | 24      |
| Retest units and components                                     | 32 hrs  |
| Resource B  | 32      |
| Verify that system meets standards                              | 16 hrs  |
| Resource A  | 16      |
| Milestone: Acceptance Testing Complete                          |         |
| Milestone: Pilot Angels BB Tests Complete                       |         |
| Total   | 520 hrs |

# Late Task Charts

**TIMELINE**

| Start      | Aug 7, '16 | Aug 14, '16 | Aug 21, '16 | Aug 28, '16 | Sep 4, '16 | Sep 11, '16 | Sep 18, '16 | Sep 25, '16 | Oct 2, '16 | Oct 9, '16 | Oct 16, '16 | Oct 23, '16 | Oct 30, '16 | Finish      |
|------------|------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|------------|------------|-------------|-------------|-------------|-------------|
| Thu 8/4/16 |            |             |             |             |            |             |             |             |            |            |             |             |             | Thu 11/3/16 |

Add tasks with dates to the timeline

---

**LATE TASKS**

Tasks that are late as compared to the status date. A task is late if its finish date has passed or it is not progressing as planned.

| Name  | Start       | Finish       | % Complete | Remaining Work | Resource Names |
|---|-------------|--------------|------------|----------------|----------------|
| Identify components that do not meet specifications | Mon 10/3/16 | Tue 10/4/16  | 75%        | 4 hrs          | Resource B     |
| Modify code   | Wed 10/5/16 | Mon 10/10/16 | 50%        | 16 hrs         | Resource A     |

Legend: Status: Complete (Blue), Status: On Schedule (Orange), Status: Late (Grey), Status: Future Task (Yellow)

**COST STATUS**  
Cost status for top-level tasks.

| Cost Type      | Amount      |
|----------------|-------------|
| Actual Cost    | \$12,724.00 |
| Remaining Cost | \$4,156.00  |
| Baseline Cost  | \$0.00      |

Pilot Angles BB Tests

Legend: Actual Cost (Blue), Remaining Cost (Orange), Baseline Cost (Grey)

**COST DISTRIBUTION**  
How costs are spread out amongst tasks based on their status.

| Status              | Cost        |
|---------------------|-------------|
| Status: Complete    | \$10,600.00 |
| Status: On Schedule | \$1,120.00  |
| Status: Late        | \$1,520.00  |
| Status: Future Task | \$3,640.00  |

Legend: Status: Complete (Blue), Status: On Schedule (Orange), Status: Late (Grey), Status: Future Task (Yellow)

**COST DETAILS**  
Cost details for all top-level tasks.

| Name                  | Fixed Cost | Actual Cost | Remaining Cost | Cost        | Baseline Cost | Cost Variance |
|-----------------------|------------|-------------|----------------|-------------|---------------|---------------|
| Pilot Angles BB Tests | \$0.00     | \$12,724.00 | \$4,156.00     | \$16,880.00 | \$14,040.00   | \$2,840.00    |

## Resource Overview

|   | 7/31/16 | 8/7/16 | 8/14/16 | 8/21/16 | 8/28/16 | 9/4/16 | 9/11/16 | 9/18/16 | 9/25/ |
|---|---------|--------|---------|---------|---------|--------|---------|---------|-------|
| Resource A  |         |        |         |         |         | 32 hrs | 24 hrs  |         |       |
| Develop unit test plan  | 16 hrs  | 40 hrs | 24 hrs  |         |         |        |         |         |       |
| Develop integration test plan                                 | 16 hrs  | 8 hrs  |         |         |         |        |         |         |       |
| Code walk-through with team                                   |         | 32 hrs |         | 24 hrs  |         |        |         |         |       |
| Modify code   |         |        |         |         |         | 32 hrs | 24 hrs  |         |       |
| Test integration of all modules                               |         |        |         |         |         |        |         |         |       |
| Modify code   |         |        |         |         |         |        |         |         |       |
| Verify components meet standards                              |         |        |         |         |         |        |         |         |       |
| Modify code   |         |        |         |         |         |        |         |         |       |
| Verify that system meets standards                            |         |        |         |         |         |        |         |         |       |
| Resource B  |         |        | 16 hrs  | 40 hrs  | 40 hrs  |        | 16 hrs  | 40 hrs  |       |
| Develop acceptance test plan                                  |         |        | 16 hrs  |         |         |        |         |         |       |
| Test software units   |         |        | 16 hrs  |         |         |        |         |         |       |
| Identify programs that do not meet specifications             |         |        |         | 40 hrs  | 24 hrs  |        |         |         |       |
| Retest units  |         |        |         |         | 16 hrs  |        |         |         |       |
| Verify code meets standards                                   |         |        |         |         |         |        |         |         |       |
| Identify components that do not meet specifications           |         |        |         |         |         |        |         |         |       |
| Retest integration of modules                                 |         |        |         |         |         |        |         |         |       |
| Business review with client                                   |         |        |         |         |         |        |         |         |       |
| Identify units and components that do not meet specifications |         |        |         |         |         |        |         |         |       |
| Retest units and components                                   |         |        |         |         |         |        |         |         |       |
| Total   | 16 hrs  | 40 hrs | 40 hrs  | 40 hrs  | 40 hrs  | 32 hrs | 40 hrs  | 40 hrs  |       |

|   | 9/25/16 | 10/2/16 | 10/9/16 | 10/16/16 | 10/23/16 | 10/30/16 | 11/6/16 | Total   |
|---|---------|---------|---------|----------|----------|----------|---------|---------|
| Resource A  |         |         |         |          |          |          |         |         |
| Develop unit test plan  | 40 hrs  | 24 hrs  | 8 hrs   | 16 hrs   | 24 hrs   | 16 hrs   |         | 264 hrs |
| Develop integration test plan                                 |         |         |         |          |          |          |         | 24 hrs  |
| Code walk-through with team                                   |         |         |         |          |          |          |         | 32 hrs  |
| Modify code   |         |         |         |          |          |          |         | 24 hrs  |
| Test integration of all modules                               | 40 hrs  | 24 hrs  | 8 hrs   | 16 hrs   |          |          |         | 56 hrs  |
| Modify code   |         |         |         |          |          |          |         | 40 hrs  |
| Verify components meet standards                              |         |         |         |          |          |          |         | 32 hrs  |
| Modify code   |         |         |         |          |          |          |         | 16 hrs  |
| Verify that system meets standards                            |         |         |         |          |          |          |         | 24 hrs  |
| Total   | 40 hrs  | 40 hrs  | 40 hrs  | 40 hrs   | 40 hrs   | 32 hrs   |         | 520 hrs |
| Resource B  |         |         |         |          |          |          |         |         |
| Develop acceptance test plan                                  |         |         | 16 hrs  | 32 hrs   | 24 hrs   | 16 hrs   | 16 hrs  | 256 hrs |
| Test software units   |         |         |         |          |          |          |         | 16 hrs  |
| Identify programs that do not meet specifications             |         |         | 16 hrs  | 32 hrs   | 8 hrs    | 16 hrs   |         | 64 hrs  |
| Retest units  |         |         |         |          | 16 hrs   |          |         | 16 hrs  |
| Verify code meets standards                                   |         |         |         |          |          |          |         | 40 hrs  |
| Identify components that do not meet specifications           |         |         |         |          |          |          |         | 16 hrs  |
| Retest integration of modules                                 |         |         |         |          |          |          |         | 16 hrs  |
| Business review with client                                   |         |         |         |          |          |          |         | 32 hrs  |
| Identify units and components that do not meet specifications |         |         |         |          |          |          |         | 8 hrs   |
| Retest units and components                                   |         |         |         |          |          |          |         | 16 hrs  |
| Total   | 40 hrs  | 40 hrs  | 40 hrs  | 40 hrs   | 40 hrs   | 32 hrs   |         | 32 hrs  |

# Summary Report

Info 461 As07 Bug Busters WBS CGRITConsultingPartners Part 3

as of Wed 10/12/16

## Dates

|                 |            |                  |              |
|-----------------|------------|------------------|--------------|
| Start:          | Thu 8/4/16 | Finish:          | Thu 11/3/16  |
| Baseline Start: | Thu 8/4/16 | Baseline Finish: | Wed 10/19/16 |
| Actual Start:   | Thu 8/4/16 | Actual Finish:   | NA           |
| Start Variance: | 0 days     | Finish Variance: | 11 days      |

## Duration

|            |         |                   |           |
|------------|---------|-------------------|-----------|
| Scheduled: | 65 days | Remaining:        | 15.9 days |
| Baseline:  | 54 days | Actual:           | 49.1 days |
| Variance:  | 11 days | Percent Complete: | 76%       |

## Work

|            |         |                   |           |
|------------|---------|-------------------|-----------|
| Scheduled: | 520 hrs | Remaining:        | 127.2 hrs |
| Baseline:  | 432 hrs | Actual:           | 392.8 hrs |
| Variance:  | 88 hrs  | Percent Complete: | 76%       |

## Costs

|            |             |            |             |
|------------|-------------|------------|-------------|
| Scheduled: | \$16,880.00 | Remaining: | \$4,156.00  |
| Baseline:  | \$14,040.00 | Actual:    | \$12,724.00 |
| Variance:  | \$2,840.00  |            |             |

## Task Status

|                        |    |
|------------------------|----|
| Tasks not yet started: | 10 |
| Tasks in progress:     | 7  |
| Tasks completed:       | 16 |
| Total Tasks:           | 33 |

## Resource Status

|                             |   |
|-----------------------------|---|
| Work Resources:             | 2 |
| Overallocated Work Resource | 0 |
| Material Resources:         | 0 |
| Total Resources:            | 2 |

## Appendix F: MS Project Tutorial I

### Initial Setup

| ID | Task Mode | Task Name                                    | Duration | May 29, '16<br>S M T W T F S | Jun 5, '16<br>S M T W T F S | Jun 12, '16<br>S M T W T F S | Jun 19, '16<br>S M T W T F S | Jun 26,<br>S M |
|----|-----------|--|----------|------------------------------|-----------------------------|------------------------------|------------------------------|----------------|
| 1  |           | EC Project                                   |          |                              |                             |                              |                              |                |
| 2  |           | Testing                                      |          |                              |                             |                              |                              |                |
| 3  |           | Test Plan                                    |          |                              |                             |                              |                              |                |
| 4  |           | Define features and functionality to test    |          |                              |                             |                              |                              |                |
| 5  |           | Define test methodology                      |          |                              |                             |                              |                              |                |
| 6  |           | Design test cases                            |          |                              |                             |                              |                              |                |
| 7  |           | Develop responsibility matrix                |          |                              |                             |                              |                              |                |
| 8  |           | Develop test schedule                        |          |                              |                             |                              |                              |                |
| 9  |           | Milestone: PM signs off on test plan         |          |                              |                             |                              |                              |                |
| 10 |           | Test Results Report                          |          |                              |                             |                              |                              |                |
| 11 |           | Review test plan with client                 |          |                              |                             |                              |                              |                |
| 12 |           | Carry out test plan                          |          |                              |                             |                              |                              |                |
| 13 |           | Analyze results                              |          |                              |                             |                              |                              |                |
| 14 |           | Prepare test results report and presentation |          |                              |                             |                              |                              |                |
| 15 |           | Present test results to client               |          |                              |                             |                              |                              |                |
| 16 |           | Address any software issues or problems      |          |                              |                             |                              |                              |                |
| 17 |           | Milestone: Client signs off on test results  |          |                              |                             |                              |                              |                |
| 18 |           | Milestone: Testing Completed                 |          |                              |                             |                              |                              |                |

### After Inserting a forgotten task.

| ID | Task Mode | Task Name                                    | Duration | May 29, '16<br>S M T W T F S | Jun 5, '16<br>S M T W T F S | Jun 12, '16<br>S M T W T F S | Jun 19, '16<br>S M T W T F S | Jun 26,<br>S M |
|----|-----------|--|----------|------------------------------|-----------------------------|------------------------------|------------------------------|----------------|
| 1  |           | EC Project                                   |          |                              |                             |                              |                              |                |
| 2  |           | Testing                                      |          |                              |                             |                              |                              |                |
| 3  |           | Test Plan                                    |          |                              |                             |                              |                              |                |
| 4  |           | Define features and functionality to test    |          |                              |                             |                              |                              |                |
| 5  |           | Define test methodology                      |          |                              |                             |                              |                              |                |
| 6  |           | Design test cases                            |          |                              |                             |                              |                              |                |
| 7  |           | Develop responsibility matrix                |          |                              |                             |                              |                              |                |
| 8  |           | Develop test schedule                        |          |                              |                             |                              |                              |                |
| 9  |           | Review plan with developer                   |          |                              |                             |                              |                              |                |
| 10 |           | Milestone: PM signs off on test plan         |          |                              |                             |                              |                              |                |
| 11 |           | Test Results Report                          |          |                              |                             |                              |                              |                |
| 12 |           | Review test plan with client                 |          |                              |                             |                              |                              |                |
| 13 |           | Carry out test plan                          |          |                              |                             |                              |                              |                |
| 14 |           | Analyze results                              |          |                              |                             |                              |                              |                |
| 15 |           | Prepare test results report and presentation |          |                              |                             |                              |                              |                |
| 16 |           | Present test results to client               |          |                              |                             |                              |                              |                |
| 17 |           | Address any software issues or problems      |          |                              |                             |                              |                              |                |
| 18 |           | Milestone: Client signs off on test results  |          |                              |                             |                              |                              |                |
| 19 |           | Milestone: Testing Completed                 |          |                              |                             |                              |                              |                |

### After indenting tasks

| ID | Task Mode | Task Name                                    | Duration | May 29, '16<br>S M T W T F S | Jun 5, '16<br>S M T W T F S | Jun 12, '16<br>S M T W T F S | Jun 19, '16<br>S M T W T F S | Jun 26,<br>S M |
|----|-----------|--|----------|------------------------------|-----------------------------|------------------------------|------------------------------|----------------|
| 1  | ■         | EC Project                                   | 0 days   |                              |                             |                              |                              |                |
| 2  | ■         | Testing                                      | 0 days   |                              |                             |                              |                              |                |
| 3  | ■         | Test Plan                                    | 0 days   |                              |                             |                              |                              |                |
| 4  | ■         | Define features and functionality to test    |          |                              |                             |                              |                              |                |
| 5  | ■         | Define test methodology                      |          |                              |                             |                              |                              |                |
| 6  | ■         | Design test cases                            |          |                              |                             |                              |                              |                |
| 7  | ■         | Develop responsibility matrix                |          |                              |                             |                              |                              |                |
| 8  | ■         | Develop test schedule                        |          |                              |                             |                              |                              |                |
| 9  | ■         | Review plan with developer                   |          |                              |                             |                              |                              |                |
| 10 | ■         | Milestone: PM signs off on test plan         |          |                              |                             |                              |                              |                |
| 11 | ■         | Test Results Report                          | 0 days   |                              |                             |                              |                              |                |
| 12 | ■         | Review test plan with client                 |          |                              |                             |                              |                              |                |
| 13 | ■         | Carry out test plan                          |          |                              |                             |                              |                              |                |
| 14 | ■         | Analyze results                              |          |                              |                             |                              |                              |                |
| 15 | ■         | Prepare test results report and presentation |          |                              |                             |                              |                              |                |
| 16 | ■         | Present test results to client               |          |                              |                             |                              |                              |                |
| 17 | ■         | Address any software issues or problems      |          |                              |                             |                              |                              |                |
| 18 | ■         | Milestone: Client signs off on test results  |          |                              |                             |                              |                              |                |
| 19 | ■         | Milestone: Testing Completed                 |          |                              |                             |                              |                              |                |

## Practicing rolling up a task.

| ID | Task Mode           | Task Name                                    | Duration | Start | Finish |
|----|---------------------|--|----------|-------|--------|
| 1  | EC Project          |  | 0 days   |       |        |
| 2  | Testing             |  | 0 days   |       |        |
| 3  | Test Plan           |  | 0 days   |       |        |
| 11 | Test Results Report |  | 0 days   |       |        |
| 12 |                     | Review test plan with client                 |          |       |        |
| 13 |                     | Carry out test plan                          |          |       |        |
| 14 |                     | Analyze results                              |          |       |        |
| 15 |                     | Prepare test results report and presentation |          |       |        |
| 16 |                     | Present test results to client               |          |       |        |
| 17 |                     | Address any software issues or problems      |          |       |        |
| 18 |                     | Milestone: Client signs off on test results  |          |       |        |
| 19 |                     | Milestone: Testing Completed                 |          |       |        |

After entering durations.

| ID | Task Mode           | Task Name                                    | Duration | Start      | Finish     | Start | Finish | Start | Finish | Start | Finish |
|----|---------------------|--|----------|------------|------------|-------|--------|-------|--------|-------|--------|
| 1  | EC Project          |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |       |        |       |        |       |        |
| 2  | Testing             |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |       |        |       |        |       |        |
| 3  | Test Plan           |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |       |        |       |        |       |        |
| 4  |                     | Define features and functionality to test    | 4 days   |            |            |       |        |       |        |       |        |
| 5  |                     | Define test methodology                      | 3 days   |            |            |       |        |       |        |       |        |
| 6  |                     | Design test cases                            | 2 days   |            |            |       |        |       |        |       |        |
| 7  |                     | Develop responsibility matrix                | 1 day    |            |            |       |        |       |        |       |        |
| 8  |                     | Develop test schedule                        | 5 days   |            |            |       |        |       |        |       |        |
| 9  |                     | Review plan with developer                   | 1 day    |            |            |       |        |       |        |       |        |
| 10 |                     | Milestone: PM signs off on test plan         | 0 days   |            |            |       |        |       |        |       |        |
| 11 | Test Results Report |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |       |        |       |        |       |        |
| 12 |                     | Review test plan with client                 | 1 day    |            |            |       |        |       |        |       |        |
| 13 |                     | Carry out test plan                          | 5 days   |            |            |       |        |       |        |       |        |
| 14 |                     | Analyze results                              | 4 days   |            |            |       |        |       |        |       |        |
| 15 |                     | Prepare test results report and presentation | 5 days   |            |            |       |        |       |        |       |        |
| 16 |                     | Present test results to client               | 1 day    |            |            |       |        |       |        |       |        |
| 17 |                     | Address any software issues or problems      | 3 days   |            |            |       |        |       |        |       |        |
| 18 |                     | Milestone: Client signs off on test results  | 0 days   |            |            |       |        |       |        |       |        |
| 19 |                     | Milestone: Testing Completed                 | 0 days   |            |            |       |        |       |        |       |        |

After assigning resources.

| ID | Task Mode           | Task Name                                    | Duration | Start      | Finish     | Predecessors | Start | Finish | Start | Finish | Start | Finish |
|----|---------------------|--|----------|------------|------------|--------------|-------|--------|-------|--------|-------|--------|
| 1  | EC Project          |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |              |       |        |       |        |       |        |
| 2  | Testing             |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |              |       |        |       |        |       |        |
| 3  | Test Plan           |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |              |       |        |       |        |       |        |
| 4  |                     | Define features and functionality to test    | 4 days   |            |            |              |       |        |       |        |       |        |
| 5  |                     | Define test methodology                      | 3 days   |            |            |              |       |        |       |        |       |        |
| 6  |                     | Design test cases                            | 2 days   |            |            |              |       |        |       |        |       |        |
| 7  |                     | Develop responsibility matrix                | 1 day    |            |            |              |       |        |       |        |       |        |
| 8  |                     | Develop test schedule                        | 5 days   |            |            |              |       |        |       |        |       |        |
| 9  |                     | Review plan with developer                   | 1 day    |            |            |              |       |        |       |        |       |        |
| 10 |                     | Milestone: PM signs off on test plan         | 0 days   |            |            |              |       |        |       |        |       |        |
| 11 | Test Results Report |  | 4 days   | Sat 6/4/16 | Thu 6/9/16 |              |       |        |       |        |       |        |
| 12 |                     | Review test plan with client                 | 1 day    |            |            |              |       |        |       |        |       |        |
| 13 |                     | Carry out test plan                          | 5 days   |            |            |              |       |        |       |        |       |        |
| 14 |                     | Analyze results                              | 4 days   |            |            |              |       |        |       |        |       |        |
| 15 |                     | Prepare test results report and presentation | 5 days   |            |            |              |       |        |       |        |       |        |
| 16 |                     | Present test results to client               | 1 day    |            |            |              |       |        |       |        |       |        |
| 17 |                     | Address any software issues or problems      | 3 days   |            |            |              |       |        |       |        |       |        |
| 18 |                     | Milestone: Client signs off on test results  | 0 days   |            |            |              |       |        |       |        |       |        |
| 19 |                     | Milestone: Testing Completed                 | 0 days   |            |            |              |       |        |       |        |       |        |

Here is the end result, after reviewing (but not checking) the “effort-driven” box.

| ID | Task Mode | Task Name                                    | Duration | Start      | Finish     | '16<br>T   W   T   F   S   Jun 5, '16   S   M   T   W   T   F   S   Jun 12, '16   S   M   T   W   T   F   S   Jun 19, '16   S   M   T |
|----|-----------|--|----------|------------|------------|---|
| 1  | 💻         | EC Project                                   | 4 days   | Sat 6/4/16 | Thu 6/9/16 |   |
| 2  | 💻         | Testing                                      | 4 days   | Sat 6/4/16 | Thu 6/9/16 |   |
| 3  | 💻         | Test Plan                                    | 4 days   | Sat 6/4/16 | Thu 6/9/16 |   |
| 4  | ⭐         | Define features and functionality to test    | 4 days   |            |            | Kevin   |
| 5  | ⭐         | Define test methodology                      | 3 days   |            |            | Kevin,Pat   |
| 6  | ⭐         | Design test cases                            | 2 days   |            |            | Pat   |
| 7  | ⭐         | Develop responsibility matrix                | 1 day    |            |            | Kevin   |
| 8  | ⭐         | Develop test schedule                        | 5 days   |            |            | Pat   |
| 9  | ⭐         | Review plan with developer                   | 1 day    |            |            | Kevin,Pat   |
| 10 | ⭐         | Milestone: PM signs off on test plan         | 0 days   |            |            | 6/4   |
| 11 | 💻         | Test Results Report                          | 4 days   | Sat 6/4/16 | Thu 6/9/16 |   |
| 12 | ⭐         | Review test plan with client                 | 1 day    |            |            | Kevin,Pat   |
| 13 | ⭐         | Carry out test plan                          | 5 days   |            |            | Kevin   |
| 14 | ⭐         | Analyze results                              | 4 days   |            |            | Pat   |
| 15 | ⭐         | Prepare test results report and presentation | 5 days   |            |            | Kevin   |
| 16 | ⭐         | Present test results to client               | 1 day    |            |            | Kevin,Pat   |
| 17 | ⭐         | Address any software issues or problems      | 3 days   |            |            | Kevin,Pat   |
| 18 | ⭐         | Milestone: Client signs off on test results  | 0 days   |            |            | 6/4   |
| 19 | ⭐         | Milestone: Testing Completed                 | 0 days   |            |            | 6/4   |

## Appendix G: MS Project Tutorial II

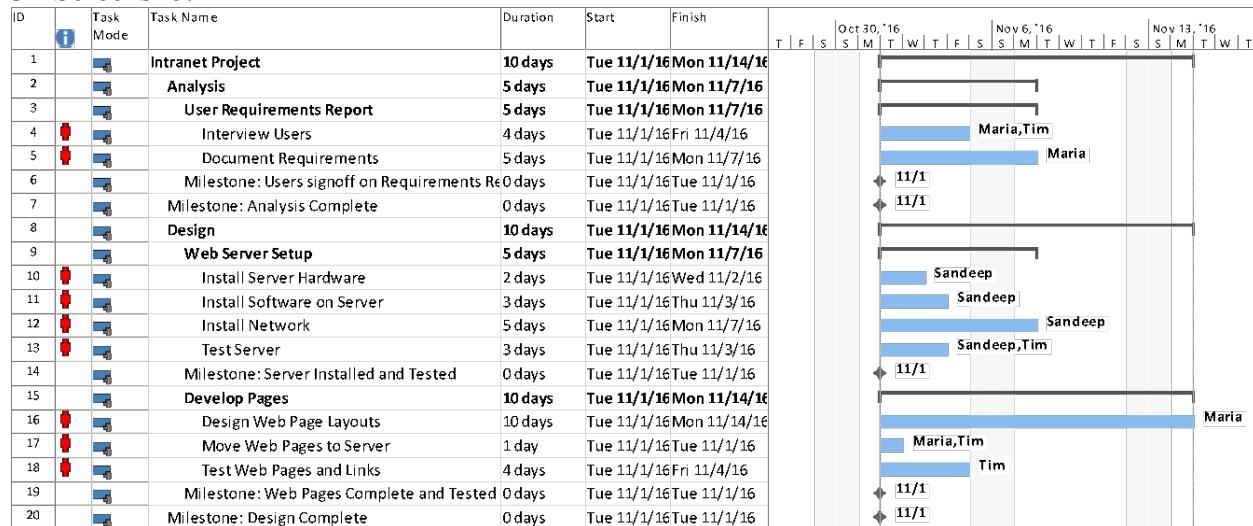
**1<sup>st</sup> Screen Shot**

| ID | Task Mode | Task Name                                   | Duration | Start      | Finish      | Timeline  |
|----|-----------|---|----------|------------|-------------|---|
| 1  |           | Intranet Project                            | 10 days  | Tue 6/7/16 | Mon 6/20/16 | 5, '16<br>M T W T F S Jun 12, '16 S M T W T F S Jun 19, '16 S M T W T F S Jun 26, '16 M |
| 2  |           | Analysis                                    | 5 days   | Tue 6/7/16 | Mon 6/13/16 |   |
| 3  |           | User Requirements Report                    | 5 days   | Tue 6/7/16 | Mon 6/13/16 |   |
| 4  |           | Interview Users                             | 4 days   | Tue 6/7/16 | Fri 6/10/16 |   |
| 5  |           | Document Requirements                       | 5 days   | Tue 6/7/16 | Mon 6/13/16 |   |
| 6  |           | Milestone: Users signoff on Requirements Re | 0 days   | Tue 6/7/16 | Tue 6/7/16  | 6/7   |
| 7  |           | Milestone: Analysis Complete                | 0 days   | Tue 6/7/16 | Tue 6/7/16  | 6/7   |
| 8  |           | Design                                      | 10 days  | Tue 6/7/16 | Mon 6/20/16 |   |
| 9  |           | Web Server Setup                            | 5 days   | Tue 6/7/16 | Mon 6/13/16 |   |
| 10 |           | Install Server Hardware                     | 2 days   | Tue 6/7/16 | Wed 6/8/16  |   |
| 11 |           | Install Software on Server                  | 3 days   | Tue 6/7/16 | Thu 6/9/16  |   |
| 12 |           | Install Network                             | 5 days   | Tue 6/7/16 | Mon 6/13/16 |   |
| 13 |           | Test Server                                 | 3 days   | Tue 6/7/16 | Thu 6/9/16  |   |
| 14 |           | Milestone: Server Installed and Tested      | 0 days   | Tue 6/7/16 | Tue 6/7/16  | 6/7   |
| 15 |           | Develop Pages                               | 10 days  | Tue 6/7/16 | Mon 6/20/16 |   |
| 16 |           | Design Web Page Layouts                     | 10 days  | Tue 6/7/16 | Mon 6/20/16 |   |
| 17 |           | Move Web Pages to Server                    | 1 day    | Tue 6/7/16 | Tue 6/7/16  |   |
| 18 |           | Test Web Pages and Links                    | 4 days   | Tue 6/7/16 | Fri 6/10/16 |   |
| 19 |           | Milestone: Web Pages Complete and Tested    | 0 days   | Tue 6/7/16 | Tue 6/7/16  | 6/7   |
| 20 |           | Milestone: Design Complete                  | 0 days   | Tue 6/7/16 | Tue 6/7/16  | 6/7   |

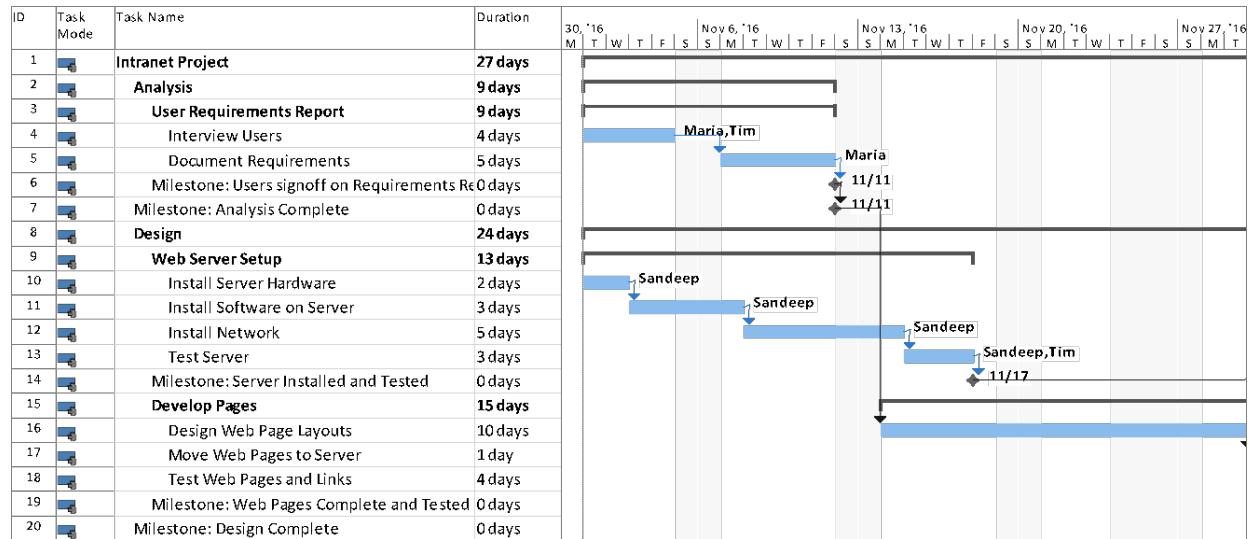
**2<sup>nd</sup> Screenshot**

| ID | Task Mode | Task Name                                   | Duration | Start       | Finish       | Timeline  |
|----|-----------|---|----------|-------------|--------------|---|
| 1  |           | Intranet Project                            | 10 days  | Tue 11/1/16 | Mon 11/14/16 | Oct 30, '16<br>T F S S M T W T F S Nov 6, '16 S M T W T F S Nov 13, '16 S M T W T |
| 2  |           | Analysis                                    | 5 days   | Tue 11/1/16 | Mon 11/7/16  |   |
| 3  |           | User Requirements Report                    | 5 days   | Tue 11/1/16 | Mon 11/7/16  |   |
| 4  |           | Interview Users                             | 4 days   | Tue 11/1/16 | Fri 11/4/16  |   |
| 5  |           | Document Requirements                       | 5 days   | Tue 11/1/16 | Mon 11/7/16  |   |
| 6  |           | Milestone: Users signoff on Requirements Re | 0 days   | Tue 11/1/16 | Tue 11/1/16  | 11/1  |
| 7  |           | Milestone: Analysis Complete                | 0 days   | Tue 11/1/16 | Tue 11/1/16  | 11/1  |
| 8  |           | Design                                      | 10 days  | Tue 11/1/16 | Mon 11/14/16 |   |
| 9  |           | Web Server Setup                            | 5 days   | Tue 11/1/16 | Mon 11/7/16  |   |
| 10 |           | Install Server Hardware                     | 2 days   | Tue 11/1/16 | Wed 11/2/16  |   |
| 11 |           | Install Software on Server                  | 3 days   | Tue 11/1/16 | Thu 11/3/16  |   |
| 12 |           | Install Network                             | 5 days   | Tue 11/1/16 | Mon 11/7/16  |   |
| 13 |           | Test Server                                 | 3 days   | Tue 11/1/16 | Thu 11/3/16  |   |
| 14 |           | Milestone: Server Installed and Tested      | 0 days   | Tue 11/1/16 | Tue 11/1/16  | 11/1  |
| 15 |           | Develop Pages                               | 10 days  | Tue 11/1/16 | Mon 11/14/16 |   |
| 16 |           | Design Web Page Layouts                     | 10 days  | Tue 11/1/16 | Mon 11/14/16 |   |
| 17 |           | Move Web Pages to Server                    | 1 day    | Tue 11/1/16 | Tue 11/1/16  |   |
| 18 |           | Test Web Pages and Links                    | 4 days   | Tue 11/1/16 | Fri 11/4/16  |   |
| 19 |           | Milestone: Web Pages Complete and Tested    | 0 days   | Tue 11/1/16 | Tue 11/1/16  | 11/1  |
| 20 |           | Milestone: Design Complete                  | 0 days   | Tue 11/1/16 | Tue 11/1/16  | 11/1  |

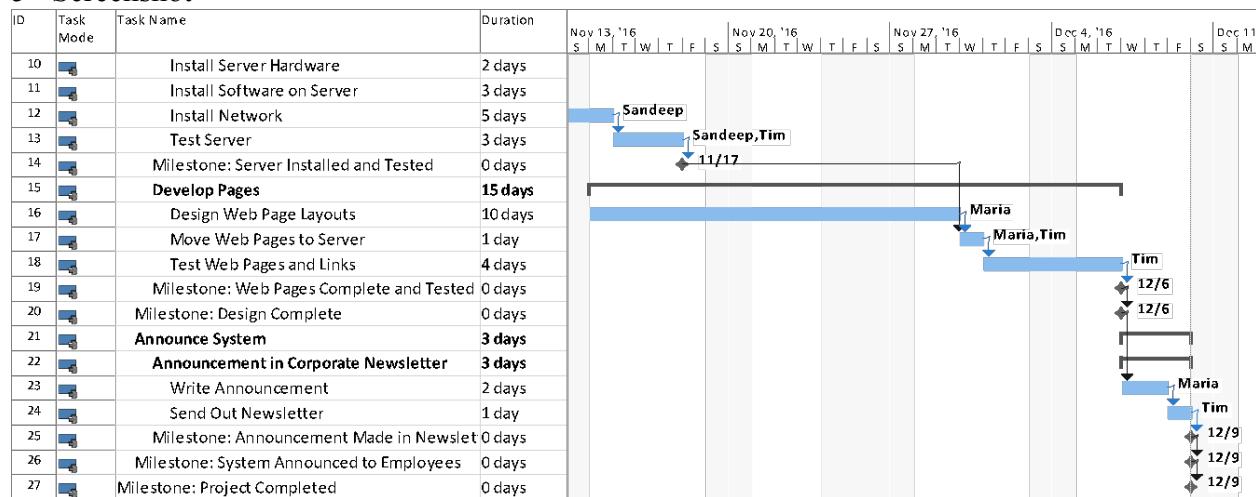
### 3<sup>rd</sup> Screenshot



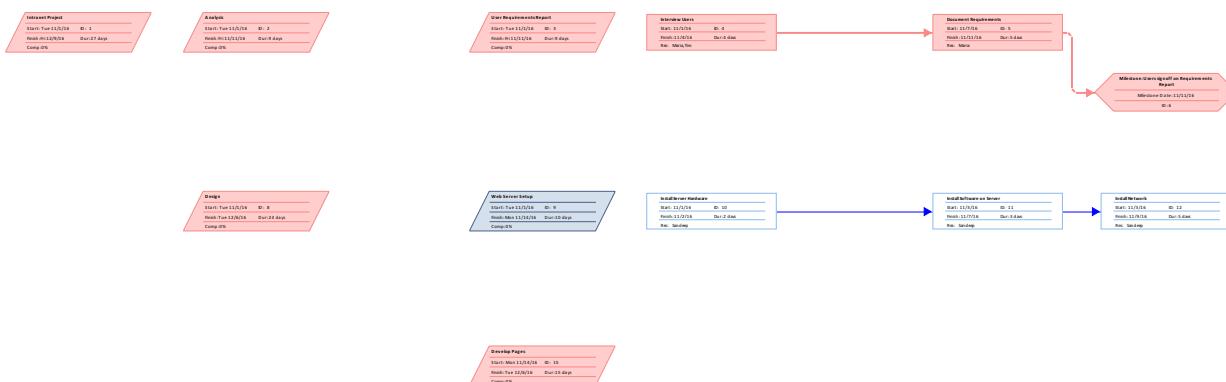
### 4<sup>th</sup> Screenshot



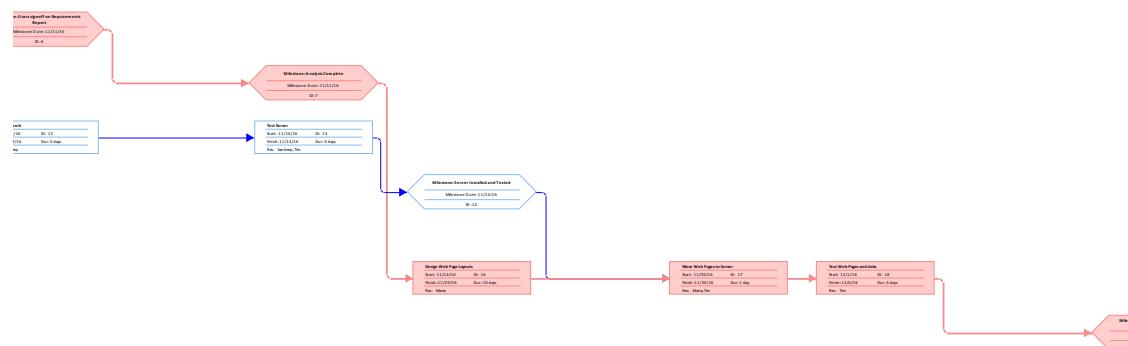
### 5<sup>th</sup> Screenshot



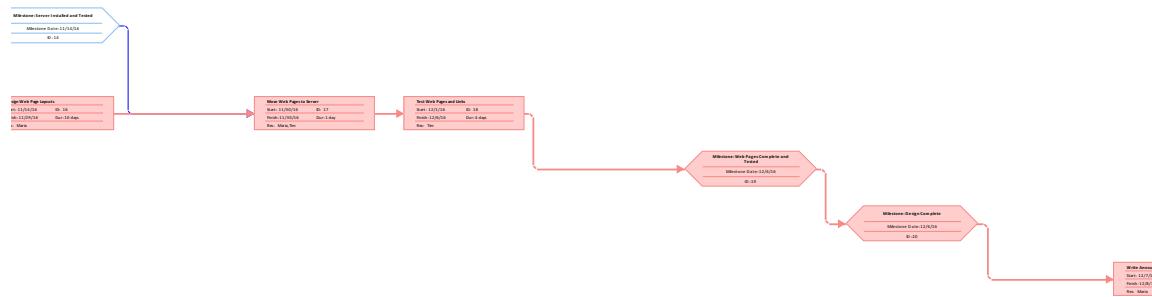
## 6<sup>th</sup> Screenshot



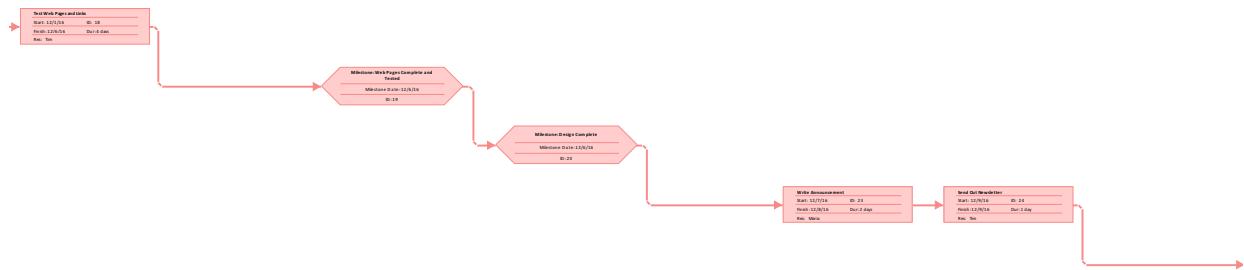
## 7<sup>th</sup> Screenshot



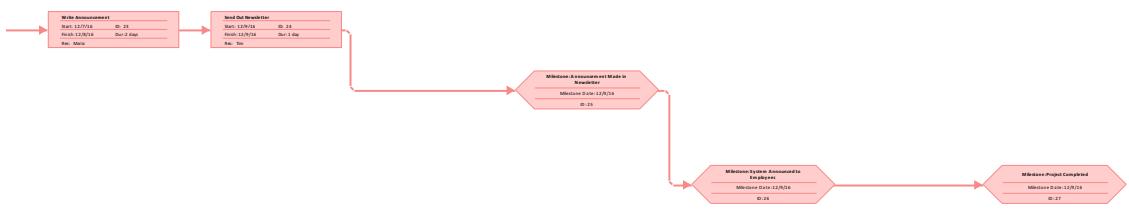
## 8<sup>th</sup> Screenshot



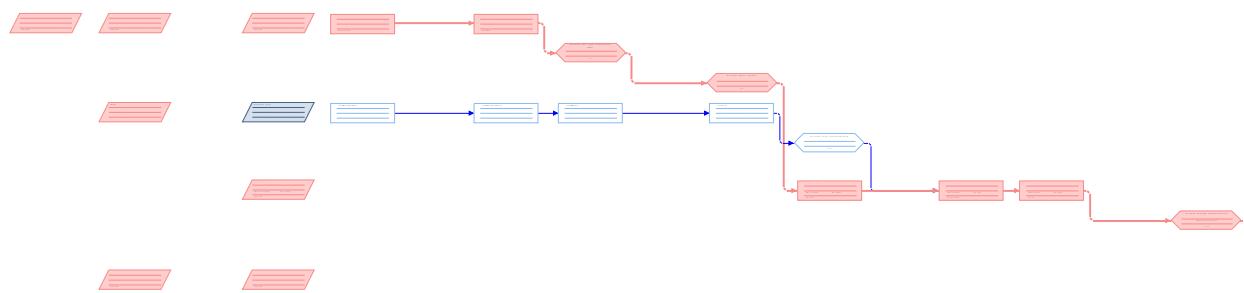
## 9<sup>th</sup> Screenshot



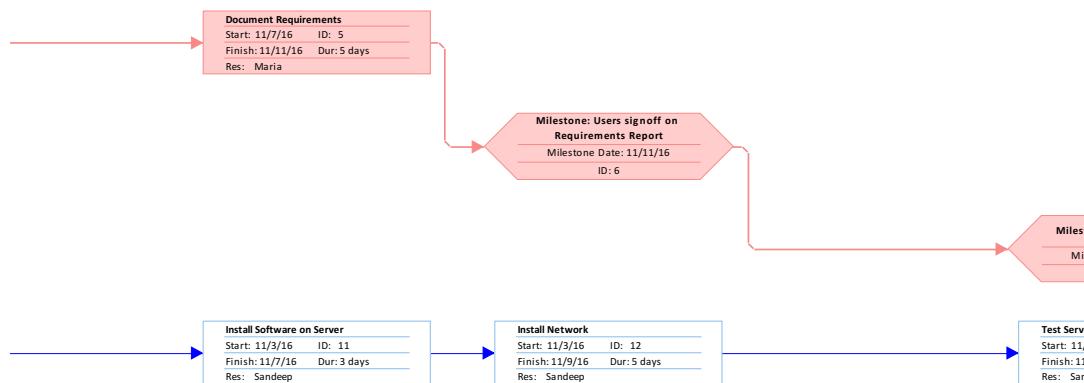
## 10<sup>th</sup> Screenshot



## 11<sup>th</sup> Screenshot



## 12<sup>th</sup> Screenshot



## 13<sup>th</sup> Screenshot

| ID |  | Resource Name | Type | Material Label | Initials | Group | Max. Units | Std. Rate  | Ovt. Rate | Cost/Use | Accrue At | Base Calendar | Code |
|----|--|---------------|------|----------------|----------|-------|------------|------------|-----------|----------|-----------|---------------|------|
| 1  |  | Maria         | Work |                | M        |       | 100%       | \$35.00/hr | \$0.00/hr | \$0.00   | Prorated  | Standard      |      |
| 2  |  | Sandeep       | Work |                | S        |       | 100%       | \$25.00/hr | \$0.00/hr | \$0.00   | Prorated  | Standard      |      |
| 3  |  | Tim           | Work |                | T        |       | 100%       | \$12.00/hr | \$0.00/hr | \$0.00   | Prorated  | Standard      |      |

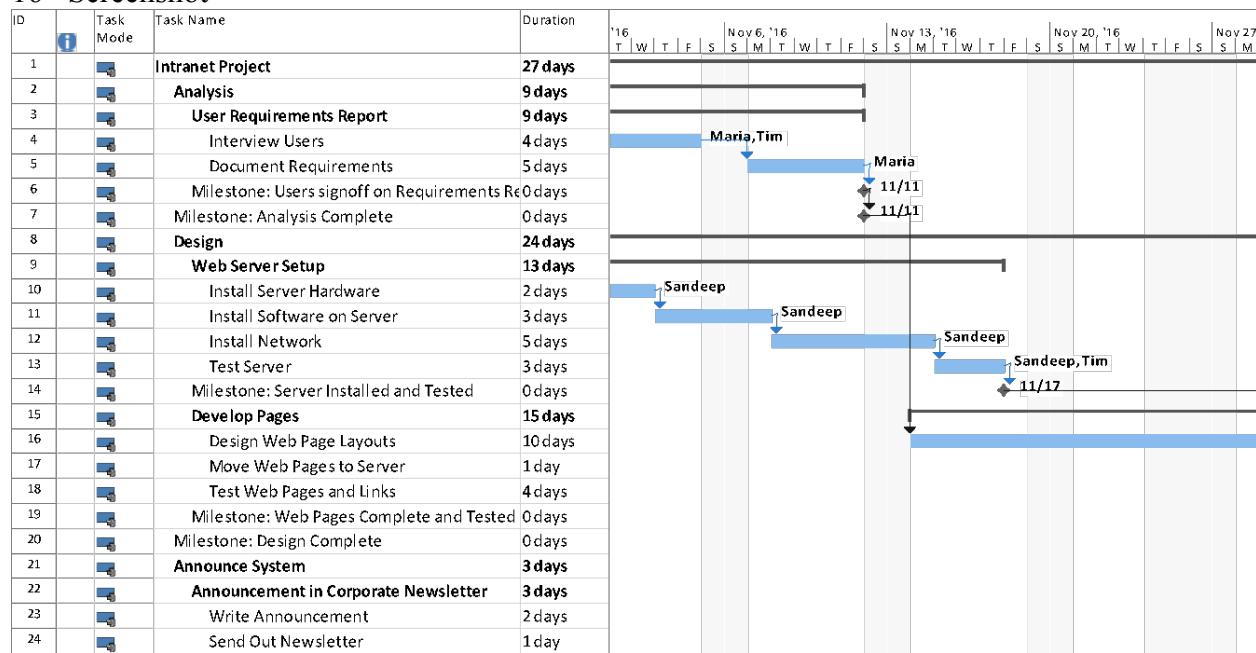
## 14<sup>th</sup> Screenshot

| ID |  | Resource Name | Work                    | Details | W    | T   | F   | S  | Nov 6, '16 |     |    |    |    | Nov 13, '16 |    |    |    |  |
|----|--|---------------|-------------------------|---------|------|-----|-----|----|------------|-----|----|----|----|-------------|----|----|----|--|
|    |  |               |                         |         |      |     |     |    | S          | M   | T  | W  | T  | F           | S  | M  |    |  |
| 1  |  | Maria         | 176 hrs                 | Work    | 8h   | 8h  | 8h  | S  |            | 8h  | 8h | 8h | 8h | 8h          | S  | 8h |    |  |
|    |  |               | Interview Users         | 32 hrs  | Work | 8h  | 8h  | 8h |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Document Requirements   | 40 hrs  | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Design Web Page         | 80 hrs  | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Move Web Page           | 8 hrs   | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Write Announcement      | 16 hrs  | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
| 2  |  | Sandeep       | 104 hrs                 | Work    | 8h   | 16h | 16h |    |            | 16h | 8h | 8h | 8h | 8h          | 8h | S  | 8h |  |
|    |  |               | Install Server Hardware | 16 hrs  | Work | 8h  |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Install Software        | 24 hrs  | Work |     | 8h  | 8h |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Install Network         | 40 hrs  | Work | 8h  | 8h  |    |            |     | 8h | 8h | 8h |             |    |    |    |  |
|    |  |               | Test Server             | 24 hrs  | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
| 3  |  | Tim           | 104 hrs                 | Work    | 8h   | 8h  | 8h  |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Interview Users         | 32 hrs  | Work | 8h  | 8h  | 8h |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Test Server             | 24 hrs  | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Move Web Page           | 8 hrs   | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Test Web Pages          | 32 hrs  | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |
|    |  |               | Send Out News           | 8 hrs   | Work |     |     |    |            |     |    |    |    |             |    |    |    |  |

## 15<sup>th</sup> Screenshot

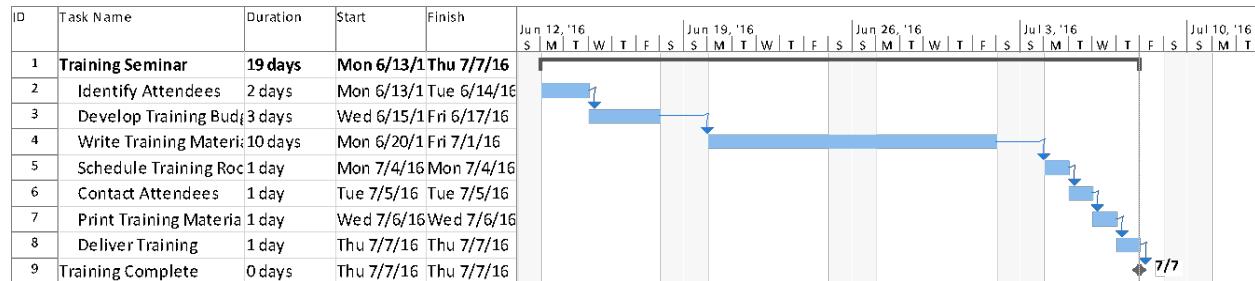
The Project Summary Report is unavailable in Microsoft Project 2016.

## 16<sup>th</sup> Screenshot

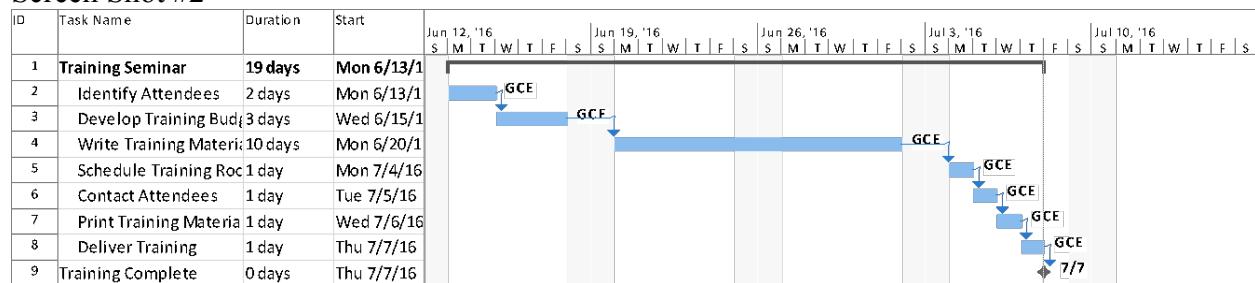


## Appendix H: MS Project Tutorial III

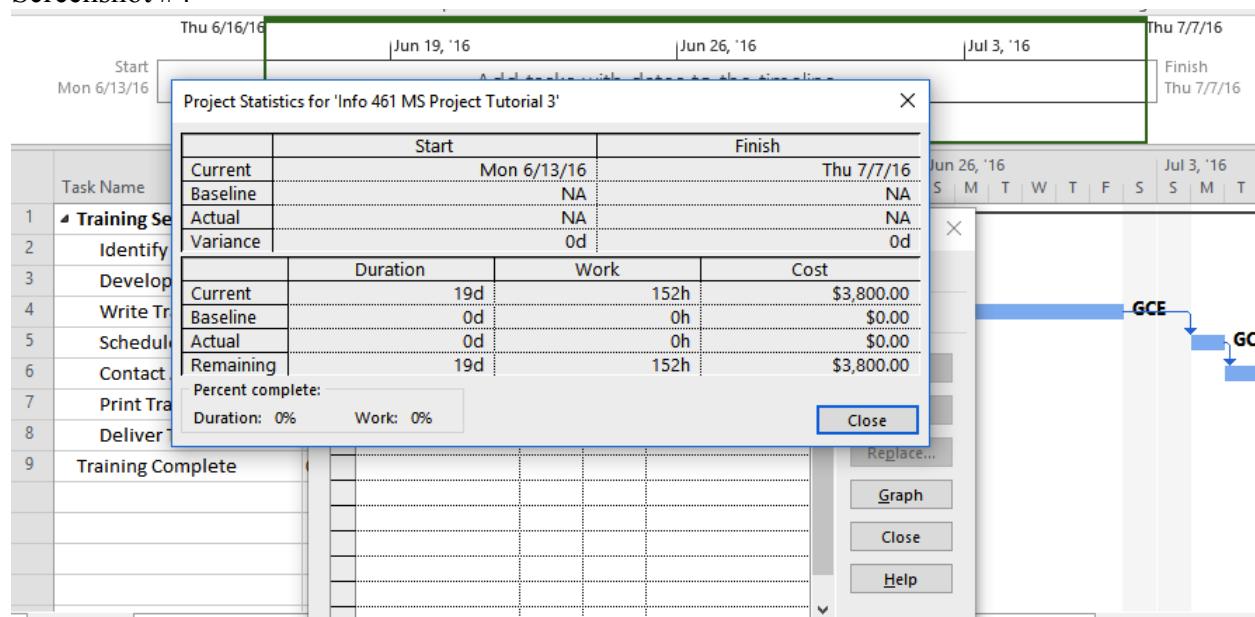
Screen Shot #1



Screen Shot #2



Screenshot #4



Screenshot #5

The screenshot shows the Microsoft Project ribbon with the 'Project' tab selected. A context menu is open over a task in the Gantt chart, showing options like 'Set Baseline', 'Change Working Time', 'Calculate Project Baseline', and 'Move Project'. The 'Set Baseline' option is highlighted. A 'Set Baseline' dialog box is displayed, showing the 'Baseline' radio button selected under 'Set baseline'. The 'Copy' dropdown is set to 'Scheduled Start/Finish' and the 'Info' dropdown is set to 'Start1/Finish1'. Below this, the 'For' section has the 'Entire project' radio button selected. Under 'Roll up baselines', there are two checkboxes: 'To all summary tasks' (unchecked) and 'From subtasks into selected summary task(s)' (unchecked). At the bottom right of the dialog are 'OK', 'Cancel', and 'Help' buttons.

| Task Name                  | Duration |
|----------------------------|----------|
| 1 Training Seminar         | 19 days  |
| 2 Identify Attendees       | 2 days   |
| 3 Develop Training Budget  | 3 days   |
| 4 Write Training Material  | 10 days  |
| 5 Schedule Training Room   | 1 day    |
| 6 Contact Attendees        | 1 day    |
| 7 Print Training Materials | 1 day    |
| 8 Deliver Training         | 1 day    |
| 9 Training Complete        | 0 days   |

The Gantt chart shows tasks from June 13 to July 7. Task 1 (Training Seminar) starts on Mon 6/13/16 and ends on Thu 6/16/16. Task 2 (Identify Attendees) follows. Task 3 (Develop Training Budget) starts on Wed 6/15/16. Task 4 (Write Training Material) starts on Mon 6/20/16. Task 5 (Schedule Training Room) starts on Mon 7/4/16. Task 6 (Contact Attendees) starts on Tue 7/5/16. Task 7 (Print Training Materials) starts on Wed 7/6/16. Task 8 (Deliver Training) starts on Thu 7/7/16. Task 9 (Training Complete) is a 0-day task starting on Mon 7/11/16. Arrows indicate dependencies between tasks, labeled 'GCE' (General Completion Event).

Screenshot #6

The screenshot shows the Microsoft Project ribbon with the 'Timeline' tab selected. A context menu is open over a task in the Gantt chart, showing options like 'Set Baseline', 'Change Working Time', 'Calculate Project Baseline', and 'Move Project'. The 'Set Baseline' option is highlighted. A 'Set Baseline' dialog box is displayed, showing the 'Baseline' radio button selected under 'Set baseline'. The 'Copy' dropdown is set to 'Scheduled Start/Finish' and the 'Info' dropdown is set to 'Start1/Finish1'. Below this, the 'For' section has the 'Entire project' radio button selected. Under 'Roll up baselines', there are two checkboxes: 'To all summary tasks' (unchecked) and 'From subtasks into selected summary task(s)' (unchecked). At the bottom right of the dialog are 'OK', 'Cancel', and 'Help' buttons.

| Task Name                  | Duration | Start       | Finish      |
|----------------------------|----------|-------------|-------------|
| 1 Training Seminar         | 19 days  | Mon 6/13/16 | Thu 7/7/16  |
| 2 Identify Attendees       | 2 days   | Mon 6/13/16 | Tue 6/14/16 |
| 3 Develop Training Budget  | 3 days   | Wed 6/15/16 | Fri 6/17/16 |
| 4 Write Training Material  | 10 days  | Mon 6/20/16 | Fri 7/1/16  |
| 5 Schedule Training Room   | 1 day    | Mon 7/4/16  | Mon 7/4/16  |
| 6 Contact Attendees        | 1 day    | Tue 7/5/16  | Tue 7/5/16  |
| 7 Print Training Materials | 1 day    | Wed 7/6/16  | Wed 7/6/16  |
| 8 Deliver Training         | 1 day    | Thu 7/7/16  | Thu 7/7/16  |
| 9 Training Complete        | 0 days   | Thu 7/7/16  | Thu 7/7/16  |

The Gantt chart shows tasks from June 12 to July 7. Task 1 (Training Seminar) starts on Mon 6/13/16 and ends on Thu 6/16/16. Task 2 (Identify Attendees) follows. Task 3 (Develop Training Budget) starts on Wed 6/15/16. Task 4 (Write Training Material) starts on Mon 6/20/16. Task 5 (Schedule Training Room) starts on Mon 7/4/16. Task 6 (Contact Attendees) starts on Tue 7/5/16. Task 7 (Print Training Materials) starts on Wed 7/6/16. Task 8 (Deliver Training) starts on Thu 7/7/16. Task 9 (Training Complete) is a 0-day task starting on Mon 7/11/16. Arrows indicate dependencies between tasks, labeled 'GCE' (General Completion Event).

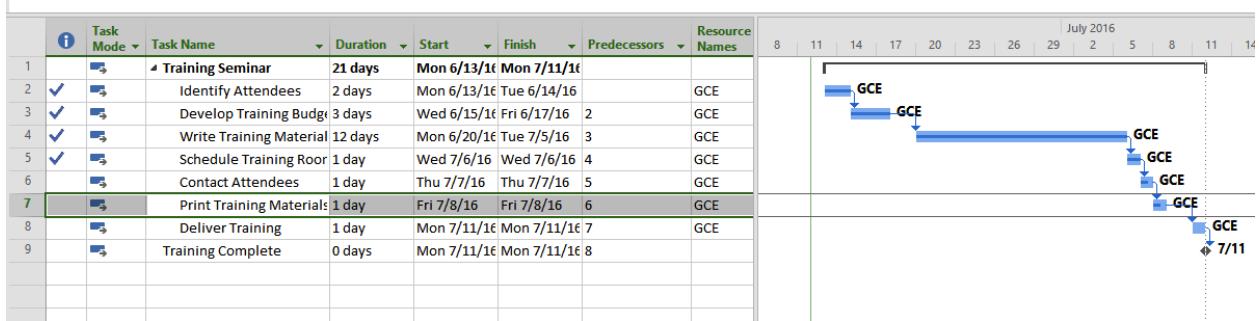
Screenshot #7

The screenshot shows the Microsoft Project ribbon with the 'Timeline' tab selected. A context menu is open over a task in the Gantt chart, showing options like 'Set Baseline', 'Change Working Time', 'Calculate Project Baseline', and 'Move Project'. The 'Set Baseline' option is highlighted. A 'Set Baseline' dialog box is displayed, showing the 'Baseline' radio button selected under 'Set baseline'. The 'Copy' dropdown is set to 'Scheduled Start/Finish' and the 'Info' dropdown is set to 'Start1/Finish1'. Below this, the 'For' section has the 'Entire project' radio button selected. Under 'Roll up baselines', there are two checkboxes: 'To all summary tasks' (unchecked) and 'From subtasks into selected summary task(s)' (unchecked). At the bottom right of the dialog are 'OK', 'Cancel', and 'Help' buttons.

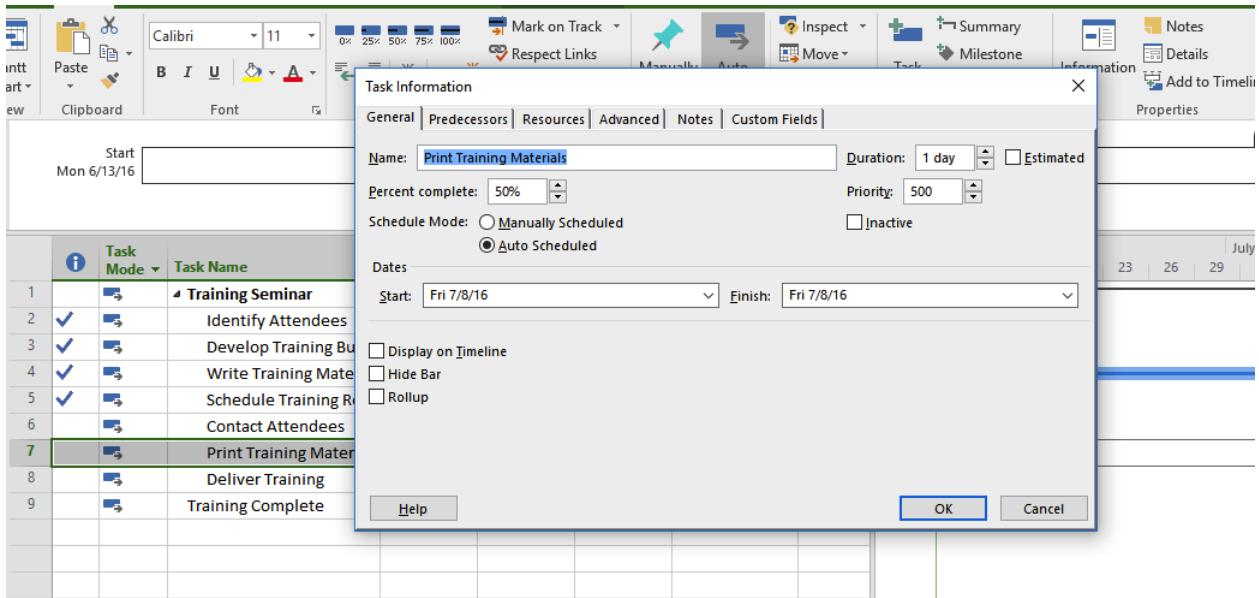
| Task Mode | Task Name                  | Duration | Start       |
|-----------|----------------------------|----------|-------------|
| Normal    | 1 Training Seminar         | 21 days  | Mon 6/13/16 |
| Normal    | 2 Identify Attendees       | 2 days   | Mon 6/13/16 |
| Normal    | 3 Develop Training Budget  | 3 days   | Wed 6/15/16 |
| Normal    | 4 Write Training Material  | 12 days  | Mon 6/20/16 |
| Normal    | 5 Schedule Training Room   | 1 day    | Wed 7/6/16  |
| Normal    | 6 Contact Attendees        | 1 day    | Thu 7/7/16  |
| Normal    | 7 Print Training Materials | 1 day    | Fri 7/8/16  |
| Normal    | 8 Deliver Training         | 1 day    | Mon 7/11/16 |
| Normal    | 9 Training Complete        | 0 days   | Mon 7/11/16 |

The Gantt chart shows tasks from June 12 to July 11. Task 1 (Training Seminar) starts on Mon 6/13/16 and ends on Thu 6/16/16. Task 2 (Identify Attendees) follows. Task 3 (Develop Training Budget) starts on Wed 6/15/16. Task 4 (Write Training Material) starts on Mon 6/20/16. Task 5 (Schedule Training Room) starts on Wed 7/6/16. Task 6 (Contact Attendees) starts on Thu 7/7/16. Task 7 (Print Training Materials) starts on Fri 7/8/16. Task 8 (Deliver Training) starts on Mon 7/11/16. Task 9 (Training Complete) is a 0-day task starting on Mon 7/11/16. Arrows indicate dependencies between tasks, labeled 'GCE' (General Completion Event).

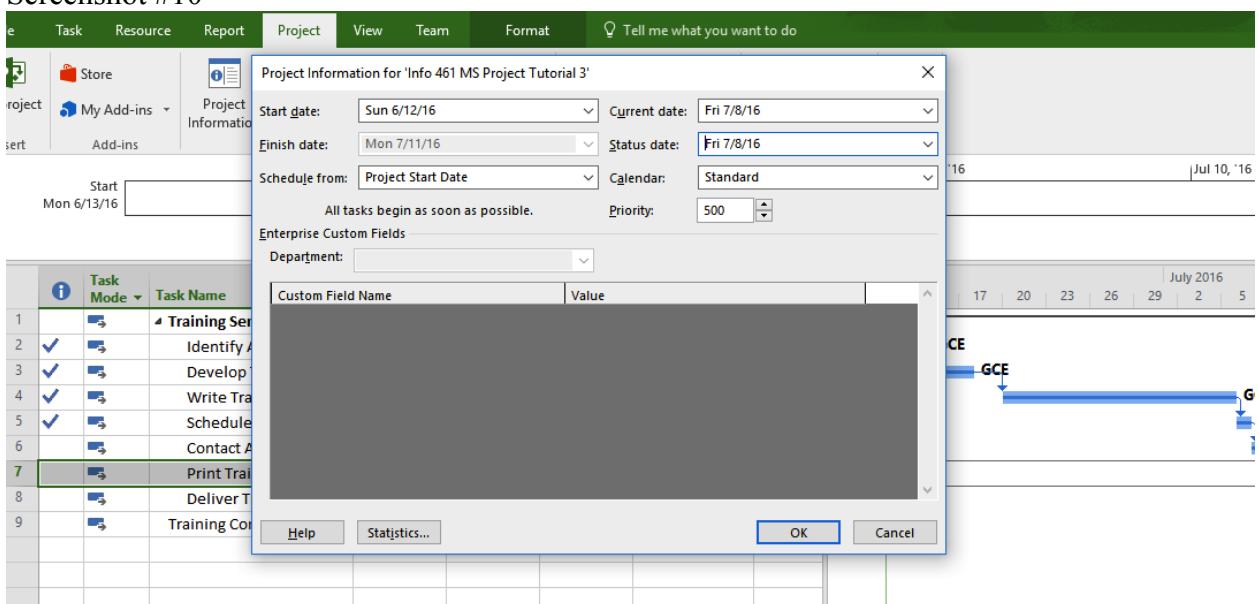
Screenshot #8



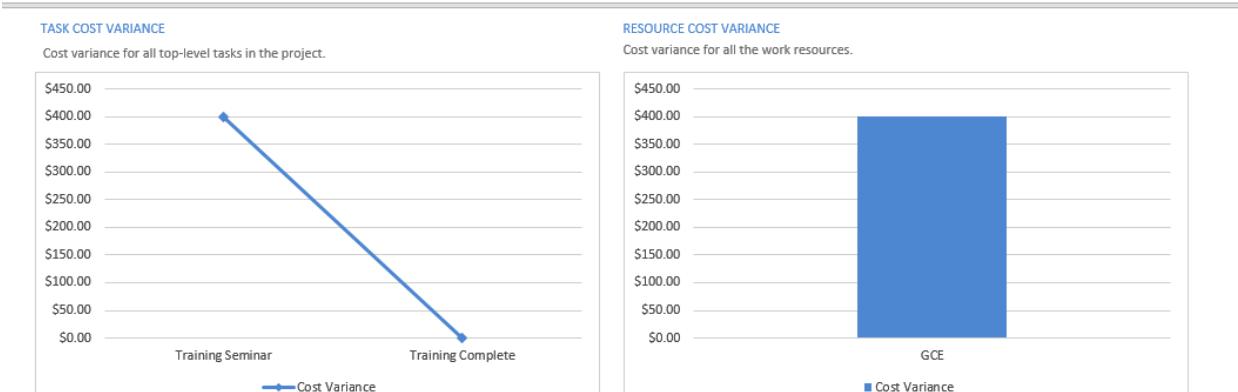
Screenshot #9



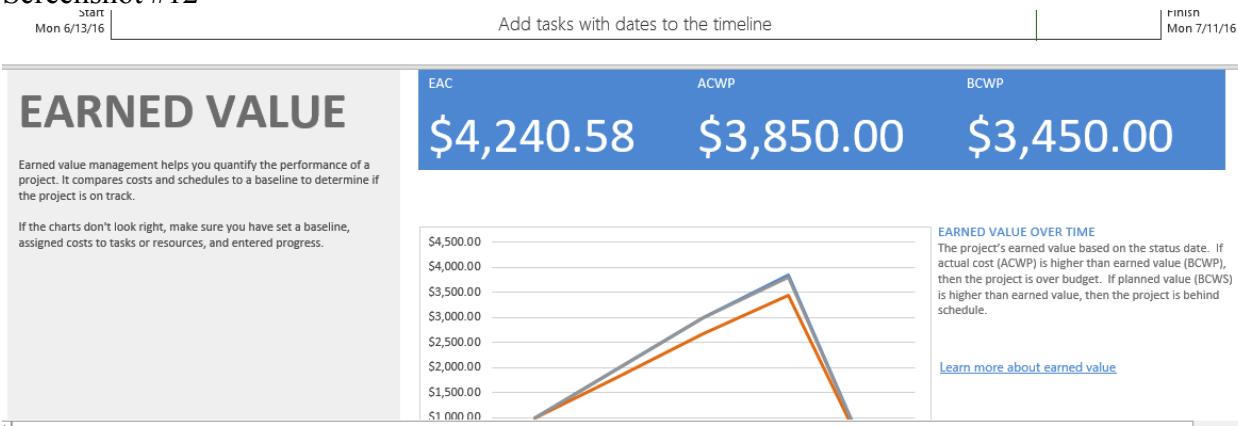
Screenshot #10



## Screenshot #11 (some reports are different in MS Project 2016)



## Screenshot #12



Screenshot #13

