

TrackTravel™

System Proposal

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VISION™
Systems Development, LLC

Table of Contents

Executive Summary	4
1.0.0 Introduction and Overview	5
1.1.0 Problem Statement.....	5
1.2.0 Project Vision and Scope.....	6
1.2.1 Project Vision	6
1.2.2 Project Scope.....	6
1.3.0 Requirements Summary	6
1.3.1 Business Requirements	6
1.3.2 User Requirements.....	7
1.4.0 Stakeholders and Interests	7
1.5.0 Expected Costs and Benefits.....	8
1.5.1 Expected Costs	8
1.5.2 Expected Benefits.....	8
1.6.0 Constraints	9
1.7.0 Recommendation.....	9
1.8.0 Document Overview	10
2.0.0 System Initiation	11
2.1.0 System Request.....	11
2.2.0 Sales Letter.....	14
3.0.0 Feasibility Assessment	15
3.1.0 Introduction	15
3.2.0 Feasibility Analysis	16
3.2.1 Technical Feasibility	16
3.2.2 Resource Feasibility.....	17
3.2.3 Schedule Feasibility	18
3.2.4 Organizational Feasibility	19
3.2.5 Legal and Contractual Feasibility.....	20
3.3.0 Additional Comments	21
3.4.0 Conclusion.....	21

4.0.0 Requirements Definition	22
4.1.0 Introduction	22
4.2.0 Functional Requirements.....	22
4.2.1 Add New Trip.....	22
4.2.2 View Existing Trip.....	22
4.2.3 Enhance Existing Trip	22
4.2.4 Add New Entry	23
4.2.5 View Existing Entry.....	23
4.2.6 Enhance Existing Entries	23
4.2.7 Backup Existing Entries	23
4.2.8 Customize System Settings	23
4.2.9 Track User Location.....	23
4.3.0 Data Requirements	24
4.3.1 Trip Attributes	24
4.3.2 Entry Attributes.....	24
4.3.3 Settings.....	25
4.3.4 Backup.....	25
4.4.0 Nonfunctional Requirements.....	26
4.4.1 Project Development.....	26
4.4.2 Product Operation.....	26
4.4.3 Performance.....	26
4.4.4 Efficiency	26
4.4.5 Security and Control.....	27
4.4.6 Cultural, Political, and Legal	27
4.4.7 Service	27
5.0.0 Requirements Model.....	28
5.1.0 Introduction	28
5.2.0 Use-Case Diagram	29
5.3.0 Use-Case Descriptions.....	30
5.3.1 Add Entry.....	30

5.3.2 Select Entry.....	31
5.3.3 Edit Entry.....	32
5.3.4 Select Trip.....	33
5.3.5 Change Setting	34
5.3.6 Backup Data	35
5.3.7 Track Location	36
6.0.0 System Evolution.....	37
6.1.0 Requirements.....	37
6.2.0 Updates	37
6.3.0 Maintenance	38
6.4.0 Planned Editions	38
6.4.1 TrackTravel™ Trial – August 1 st , 2019.....	38
6.4.2 TrackTravel™ Free – December 1 st , 2019.....	38
6.4.3 TrackTravel™ Premium – June 1 st , 2020.....	39
6.4.4 TrackTravel™ Mobile – June 1 st , 2021.....	39
7.0.0 Conclusions and Recommendations	40
7.1.0 Conclusions	40
7.2.0 Recommendations	40
Appendices	41
Appendix A.....	41
Appendix B	42
Glossary	43
Bibliography	46

Executive Summary

Wanderers' Tools hired VISION™ Systems Development, LLC to design and develop a travel journal software application as the initial product of a traveler's toolkit. The application will offer travelers the convenience of easy, quick travel journaling. Travelers will no longer have to spend hours sorting through hundreds of pictures and papers only to give up out of feeling overwhelmed and frustrated. Travelers will only need to spend a few minutes each night of the trip uploading the pictures taken that day, and the application will automatically organize all the journal entries into a single integrated history. Beneficiaries of the application will include travelers embarking on any kind of trip, mission organizations, travel agents, trip planners, Wanderer's Tools, and VISION™ Systems Development, LLC.

This System Proposal for the application is an in-depth analysis of the following factors:

- Imperative action steps
- Estimated feasibility
- Associated risks
- Identified requirements
- Expected interactions
- Sustainability recommendations
- Planned progression

The requirements of the application include a user-friendly visual design, the capability to upload documents, pictures, videos, spreadsheets, and notes, the capability to backup data into a cloud storage database server, and the capability to utilize GPS location tracking. The application involves relatively low risk, but moderate risks exist in the areas of technical structure and legal concerns. A requirement of the application requires interaction with a licensed cloud storage server database, which will increase complexity and cost of the application. A critical requirement of the application is the protection of user information, which requires comprehensive examination of the application to avoid liability issues.

After a detailed assessment of the scope, requirements, and risks associated with the application, VISION™ Systems Development, LLC has concluded that the application can feasibly launch on time without excessive costs. Therefore, the application is ready to proceed into the comprehensive design phase in preparation for implementation.

1.0.0 Introduction and Overview

The sections of this System Proposal are ordered by a numerical prefix system of the form:

Section Title

The first number designates the major section, the second number designates the secondary section which is a subsection of the major section, and the third number designates the tertiary section which is a subsection of the secondary section.

Underlined text in a blue font color corresponds to a hyperlink to a webpage, which may be utilized by either clicking the text or by holding the “Ctrl” key on the computer keyboard and then clicking the text. An example hyperlink is provided here: www.techopedia.com/

Underlined text in a black font color corresponds to a link to a section within this System Proposal, which may be utilized by either clicking the text or by holding the “Ctrl” key on the computer keyboard and then clicking the text. This capability is especially useful when cross-referencing to a different section. An example section link is provided here: [2.0.0 System Initiation](#)

Wanderer’s Tools (also referred to as “the client” throughout this System Proposal) chose to hire VISION™ Systems Development, LLC (also referred to as “VISION™” throughout this System Proposal) to develop the TrackTravel™ app (also referred to as “TT,” “the system,” “the proposed system,” “the progressing system,” “the completed system,” “project,” “application,” “product,” or “software” throughout this System Proposal). The TrackTravel™ app will provide end-users (referred to as “end-user(s),” “user(s),” and “traveler(s)” throughout this System Proposal) a quick and simple tool for tracking the details of their travels.

Major section [1.0.0 Introduction and Overview](#) of this System Proposal includes a synopsis of the initial understanding of the proposed system. This major section contains an assessment of the needs of the client in the following secondary sections: [1.1.0 Problem Statement](#), [1.2.0 Project Vision and Scope](#), [1.3.0 Requirements Summary](#), [1.4.0 Stakeholders and Interests](#), [1.5.0 Expected Costs and Benefits](#), [1.6.0 Constraints](#), [1.7.0 Recommendation](#), and [1.8.0 Document Overview](#).

1.1.0 Problem Statement

Current methods of travel journaling require travelers to spend hours sorting through photographs, videos, and printed media, often after the trip. Consequently, travelers either do not attempt or cease attempting to organize travel journals. The proposed system addresses the need for an easier and faster method of tracking the details of a trip.

Wanderer’s Tools needed a professional, passionate systems development partner to develop the proposed system. VISION™ shares Wanderer’s Tools’ dream of offering the world an enhanced travel experience.

1.2.0 Project Vision and Scope

1.2.1 Project Vision

Wanderer's Tools would like to sell a toolkit of various travel-related applications. The preliminary product of the Wanderer's Tools toolkit will be an integrated travel journal tool called the TrackTravel™ (TT) app. TT will enable travelers to conveniently record the details of their travels.

1.2.2 Project Scope

The software will be an application for desktop and tablet computers. Travelers will be able to quickly add or edit journal entries at any time while they are on their trip. TT will give users the ability to keep a digital travel journal, which will support text entries, documents, images, videos, and spreadsheets.

The system will be a single tool that integrates all the media into a single organized history for each trip. TT will automatically organize the journal of each trip into a day-by-day arrangement. Travelers should only need to spend a few minutes a day adding new content. However, the system will easily allow users the ability to add or enhance any entry at any time and any location. TT will also give travelers the capability of sharing any selected content with one or more contact(s) at any time.

TrackTravel™ will not require Internet access or location tracking for the addition or enhancement of journal entries. The application itself will not suggest any attractions, events, or alternate destinations. TT will not request ratings of any attractions, events, or destinations.

1.3.0 Requirements Summary

1.3.1 Business Requirements

The TrackTravel™ app will fulfill the following major business requirements:

- TT must be compatible with most laptop and tablet computers.
- TT must support both Windows and Mac operating systems.
- TT must be able to utilize Internet access when available.
- TT should be a low-cost, downloadable app.
- TT should be able to utilize location tracking when available.
- TT should have cross-platform support between Windows and Mac devices.
- TT should support multiple languages.
- TT should store and backup user data in cloud servers.
- TT could have a free limited edition and/or a free trial edition.
- TT could have an annual subscription edition.
- TT could be able to directly interface with smart-phones and digital cameras.
- TT could have a mobile app version for smart-phones.
- TT will not require Internet access or location tracking for the addition or enhancement of any entries.

1.3.2 User Requirements

The TrackTravel™ app will fulfill the following major user requirements:

- TT must allow addition or enhancement to any entry at any time and any location.
- TT must provide the ability to keep written journaling, photos, videos, housing and meal notes, expenses, purchases, and maps.
- TT must support text entries, documents, images, videos, and spreadsheets.
- TT must integrate all media into a single history for each trip using a single tool.
- TT must allow users to share selected media with any contact(s).
- TT must be able to organize trip entries into a day-by-day arrangement.
- TT should be able to organize trip entries into arrangements other than day-by-day.

1.4.0 Stakeholders and Interests

The following individuals and groups have identifiable interest in the design and deployment of the TrackTravel™ app:

- As end-users, travelers want a quick and easy method of keeping a record of their journeys.
- As end-users, churches and other missions-based organizations want to utilize the system capabilities to keep detailed records of mission trips, thereby allowing for easier planning and organization of future mission trips.
- As consultants to end-users, travel agents, trip planners, and other individuals in the travel and tourism industries want to provide their clientele with excellent customer service and could recommend TT to their clientele as a convenient travel journal tool.
- As project sponsor and project champion, Ms. Weltz represents Wanderer's Tools and wants the completed system to fulfill her vision of an easy-to-use travel journal tool.
- As the client, Wanderer's Tools desires an exceptional app for their proposed travel toolkit and will fund the development costs for the system.
- As the lead technical writer, Mr. Stevens wants the system to be well-documented and wants to ensure that the VISION™ development team understands the client's vision and requirements for the system.
- As the developer of the system, VISION™ Systems Development, LLC wants the TrackTravel™ app to be developed without faults, with minimal delays, with minimal costs, and fully satisfying all requirements.

1.5.0 Expected Costs and Benefits

1.5.1 Expected Costs

The TrackTravel™ app will incur the following expected costs:

- Development
 - Compensation for all individuals of the Wanderer's Tools and VISION™ project team and the user focus group
- Operational
 - Updates to add or enhance features to TT
 - Maintenance patches to correct bugs in TT
 - Compensation for all customer support service individuals of Wanderer's Tools
 - Compensation for all technical support service individuals of VISION™
 - Trademark Registration application fee for "TrackTravel"
- Integration
 - License to a Single Database cloud server on the Microsoft Azure SQL Database
- Distribution
 - Purchase and download capabilities added to the Wanderer's Tools website
 - Advertising and marketing campaign added to the Wanderer's Tools website
 - Support ticket capability added to the Wanderer's Tools website

1.5.2 Expected Benefits

The TrackTravel™ app will offer the following expected benefits:

- Better method of recording and organizing trip details while traveling
- Better method of keeping track of trip photos and videos while traveling
- Enhanced ability for travelers to recall trip details
- No need to organize travel materials after the trip
- Convenient tool that travel agents and trip planners can recommend to their clientele

1.6.0 Constraints

The following constraints will limit the scope of the TrackTravel™ app; however, VISION™ has proposed preliminary actions to mitigate the effects of these constraints:

- Wide range of ages and computing levels of prospective end-users
 - *Proposed mitigation:* Organize the Graphical User Interface (GUI) of the system into a logical, intuitive format using standard icons
- Cross-platform support for both Windows and Mac operating systems
 - *Proposed mitigation:* Develop the software without anything specific to any particular operating system and distribute a single installer
- Low-cost downloadable product for end-users
 - *Proposed mitigation:* Offer a downloadable software installer at an affordable one-time payment on the Wanderer's Tools website
- Launch of completed system by June 2019
 - *Proposed mitigation:* Develop software using an agile development methodology known as eXtreme Programming (XP)
- Ability to add or edit entries without Internet access or GPS location tracking
 - *Proposed mitigation:* Develop the system to function offline as a downloaded software application on the devices of the end-users
- Omission of requests and advertisements
 - *Proposed mitigation:* Develop the system without sponsorship from third-party entities

1.7.0 Recommendation

VISION™ has determined that the completed system will be beneficial for Wanderer's Tools, VISION™ Systems Development, LLC, and all end-users. VISION™ recommends that the project immediately proceed into the design phase of the System Development Life Cycle (SDLC).

Ms. Weltz and the other executive members of Wanderer's Tools should examine secondary section 7.2.0 Recommendations of this System Proposal, which provides a detailed list of recommended action steps for Wanderer's Tools. Ms. Weltz and the other executive members of Wanderer's Tools should also examine major section 4.0.0 Requirements Definition, which provides a detailed list of the identified system requirements.

Ms. Weltz should contact Mr. Stevens and relay any clarifications and/or revisions that Wanderer's Tools would like resolved in the current iteration of this System Proposal.

1.8.0 Document Overview

This System Proposal will proceed with the following major sections:

2.0.0 System Initiation

- The System Request composed by Ms. Weltz of Wanderer's Tools and the Sales Letter composed by Mr. Stevens of VISION™ Systems Development, LLC

3.0.0 Feasibility Assessment

- An analysis of the practicality of the proposed system, the severity of the risks involved, and the proposed actions to prevent or mitigate the risks

4.0.0 Requirements Definition

- Descriptions of the required features and services of the proposed system

5.0.0 Requirements Model

- A use-case diagram and the accompanying use-case descriptions

6.0.0 System Evolution

- A brief analysis of the expansion and servicing to the completed system after launch

7.0.0 Conclusions and Recommendations

- A summary of the key features of this System Proposal and concluding remarks of recommended actions for project progression

2.0.0 System Initiation

2.1.0 System Request

October 8, 2018

SYSTEM REQUEST – Travel Journal

Project Sponsor

Name: Ms. Elaine Weltz

Representing: Wanderer's Tools

Phone: 206.281.3639

E-mail: eweltz@spu.edu

Opportunity Statement:

Lots of people love to travel. And people who love to travel often like to write about their experiences, take pictures and videos, track expenses, and describe memorable sites they have seen. As part of a proposed "toolkit" for travelers, Wanderer's Tools envisions an "integrated" travel journal tool for capturing the memories of a trip of any kind.

Proposed Product:

Background and Context:

It may be a week at the beach with the family, a road trip to parts unknown, a European Cruise, a semester abroad: we engage in all kinds of travel these days. Be it long or short, near or far, travelers love to keep track of the details of their travels. The problem is, these details can be of different types: images, videos, word processor entries, paper receipts, maps...and the list goes on. The job of gathering all of this together in a single place once one returns home is time-consuming enough (and confusing if the trip is a long one) that most people don't bother. They wish that the pictures of Berlin could somehow be related to the written impressions, purchases, and details of places visited while in the city, but it never happens. WE THINK WE CAN HELP THEM WITH THAT!

Initial Vision and Scope:

We are thinking of an app for laptop and tablet computers. It would likely need to be able to work with other devices, for example, smart-phones and cameras for image and video capture. The idea is that travelers could quickly update their journal every day (or so) while on the road as opposed to having to come home with tons of vaguely organized pictures, receipts, and random impressions that need to be organized after-the-fact. They can enhance entries at any time; we just don't want to *make them* wait until the trip is over. We know from personal experience that one comes home all fired-up to create a trip log, but few actually do it.

Here are some initial thoughts on what we might provide for our client-users:

- The ability to keep a written travel journal with pictures, videos, housing and meal notes and expenses, purchases, maps, and other trip information all using a single tool.
- A way to integrate all of the different pieces of trip information into a single integrated history. This seems probably best organized day-by-day, although being able to organize it in other ways could be nice.
- A tool that is easy to use, so that a journal can be kept up-to-date during the trip by spending only a few minutes each evening reliving the day's events, but also robust enough that there is the option to add to and enhance a trip record at any time.
- The ability to select and pull out different pieces of a trip into a kind of travelogue that can be shared with friends and family.

We know this is not everything this kind of tool could do, but hope this gives us a starting point.

Stakeholders Identified:

- People who travel and want to be able to quickly and easily keep a record of their journeys.
- Travel agents and trip planners
- Others in the travel and tourism industries
- Wanderer's Tools – we hope this will be the first of several helpful tools for people who want to see the world!
- Of course, you as our partners!

Expected Benefits:

- A better way to record one's travels on the road than by random text entries that are difficult to relate to other trip artifacts.
- A better way to keep track of trip pictures and videos than as a large collection of unmarked – and uncaptioned – picture files. It might even encourage users to sort through their pictures while still on the road!
- Enhanced ability for travelers to recall the details of their trips when they return home.
- No need to organize trip artifacts after the fact: you can return home with just the images, impressions and information you know you want to keep.
- Travel agents and trip planners might be able to use journal information to help clients plan possible future journeys.

Special Issues or Constraints:

Our prospective client-users will includes a wide range of ages (probably college-age through retired seniors) and computing skill levels. It is unlikely that a true computer novice or phobic would be interested in this type of tool, so it doesn't have to be "super simple". But it needs to be intuitive for a person who knows their way around things like word processors, spreadsheets, simple image editors, and the web.

Also, we expect we will have users who prefer Mac and users who prefer Windows. Both platforms must be supported. Being able to go back and forth between the two would be even better.

You can let Wanderer's Tools worry about exactly how this will be funded. We are currently considering a low cost, but paid, download or subscription as opposed to a strictly ad-based model. We have the capital to fund your development costs for now, assuming they are within reason. We do not have a strict timeline for completion. But since this is the first of a series of tools, we would like to have it available for distribution sooner rather than later if for no other reason than to help fund future tools.

We understand that web access would be needed for things like map downloads or GPS tracking of where a traveler has been or a site is located, and that "storage in the cloud" is very popular and safe these days. Our only concern along these lines is that Internet access is not universal in all places to which people travel. So it would seem that at least basic tasks (for example, written journaling, organizing and saving media, entering data into expense records) need to be able to be handled even when the Internet is not available.

We would like to avoid having this be an app that opens our users up to a barrage of random requests to rate places they have seen, or to unending lists of places they might want to travel to...if that is still possible in 2018.

2.2.0 Sales Letter

October 12, 2018

Ms. Elaine Weltz
Wanderer's Tools
241 Miller St.
Seattle, WA 98119



VISION™ can turn your vision of a Travel Journal app into reality

Thank you, Ms. Weltz, for sending VISION™ your System Request for an integrated travel journal tool. We understand the need for a simple app that allows travelers to quickly record their journeys. VISION™ shares Wanderer's Tools' dream of offering the world an enhanced travel experience. We believe that we have the best skills and expertise to develop the requested product.

Enabled by advances in transportation and communication, travelers are truly making the world a more interconnected place. Travelers go on trips to make memories and carry those moments with them throughout their lives. However, many travelers find that it is rather tedious and time-consuming to accurately organize their journeys using current tools. Therefore, people may forget interesting details of a trip or may lack the ability to easily relate their experiences with loved ones back home.

VISION™ would like to partner with Wanderer's Tools to bring travel further into the Information Age. VISION™ is a systems development organization that has passionate development teams, professional leadership, and unique technical expertise. We highly value our relationships with our clients and strive to bring innovative vision into each project.

Our organization has had excellent experiences with startup businesses and specializes in developing easy-to-use visual software applications. We have exceptional understanding in Graphical User Interface (GUI) design, digital media integration, and cross-platform support. VISION™ has the teams and resources needed to produce an intuitive, low-cost Travel Journal app for Wanderer's Tools.

Thank you for considering VISION™ Systems Development, LLC for this project. It would be our privilege to be your partner in creating the first app for the Wanderer's Tools toolkit. If Wanderer's Tools would like to partner with VISION™, then please call me at 425.495.4426, so that we can discuss specific system requirements and other details of the project.

A handwritten signature in blue ink that reads "Chandler Stevens".

Chandler V. Stevens
Senior Technical Writer

3.0.0 Feasibility Assessment

3.1.0 Introduction

This major section provides an analysis of the feasibility of the proposed system, including the risks involved and the proposed actions to prevent or mitigate the effects of the risks. VISION™ has determined that the TrackTravel™ application is **feasible** based on the viability of the system requirements, the given timeline, and the allotted budget. The 3.2.0 Feasibility Analysis secondary section is examined in five categorical tertiary sections: 3.2.1 Technical, 3.2.2 Resource, 3.2.3 Schedule, 3.2.4 Organizational, and 3.2.5 Legal and Contractual.

The risks of each tertiary section are ranked in severity by the following Risk Rating Scale:

1. **Negligible Risk** – There is an extremely low probability of risks and/or the potential risks are of no effective consequence to this tertiary section.
2. **Low Risk** – There is a low probability of risks and/or the potential risks are of minimal consequence to this tertiary section.
3. **Moderate Risk** – There is a fair probability of risks and/or the potential risks are of medium consequence to this tertiary section.
4. **High Risk** – There is a high probability of risks and/or the potential risks are of substantial consequence to this tertiary section.
5. **Extreme Risk** – There are inevitable risks and/or the potential risks are of catastrophic consequence to this tertiary section.

The feasibility of each tertiary section is ranked by the following Feasibility Rating Scale:

1. **Optimal** – The associated risks deem this tertiary section ideal in practicality.
2. **Feasible** – The associated risks deem this tertiary section practical and realistic.
3. **Infeasible** – The associated risks deem this tertiary section highly impractical.

3.2.0 Feasibility Analysis

3.2.1 Technical Feasibility

Risk Rating: Moderate Risk**Feasibility Rating: Feasible**

- **Familiarity of Users with Application Area – Feasible with Low Risk**
 - The prospective end-user profile is an individual with sufficient knowledge of word processors, spreadsheets, simple image editors, and the web. However, there will be various computing skill levels and a wide age range.
 - *Proposed mitigation:* The VISION™ development team will design the Graphical User Interface (GUI) into a logical, intuitive format using standard icons. Wanderer's Tools will recruit individuals for a user focus group who will provide valuable feedback including suggested design elements that will help make the GUI easier to use and detailed descriptions of specific user needs that will help the developers build the application into a more marketable product.
- **Familiarity of Developers with Application Area – Optimal with Negligible Risk**
 - The development teams at VISION™ are expert professionals with excellent experience in the design and implementation of visual software applications.
 - *Proposed mitigation:* VISION™ project management will organize a passionate, enthusiastic development team to develop the proposed system.
- **Size of Project – Feasible with Low Risk**
 - The proposed system is not very complex and is not a large-scale project. The constraints limit the project to a realistic scope, thus diminishing the probability of schedule delays and excessive expenses. However, the proposed system will need to integrate all necessary features and services into a cohesive product.
 - *Proposed mitigation:* The development team will make fault-free interfacing of the services an imperative priority during the design and implementation phases.
- **Structure of Project – Feasible with Moderate Risk**
 - The proposed system has clear system requirements and will not require a complicated design architecture. However, there is moderate volatility that the user requirements may change during the implementation phase.
 - *Proposed mitigation:* The VISION™ development team will utilize an agile development methodology known as eXtreme Programming (XP) to ensure that changes to the system structure will be embraced and easily implemented.

3.2.2 Resource Feasibility

Risk Rating: Low Risk**Feasibility Rating: Feasible**

- **Human Resources – Optimal with Negligible Risk**
 - VISION™ has a substantial workforce of highly-skilled development teams composed of expert professionals including software engineers, system analysts, programmers, project managers, change management agents, and technical writers. Wanderer's Tools has an enthusiastic project sponsor/champion and a sufficient salesforce team to successfully launch the product.
 - *Proposed mitigation:* VISION™ team members will partner with Wanderer's Tools representatives to develop and sell a high-quality product. Wanderer's Tools will recruit and compensate the individuals of the user focus group.
- **Software Resources – Feasible with Low Risk**
 - VISION™ currently possesses many of the necessary software development environment tools needed to create the proposed product. However, more software tools will likely need to be acquired in order to implement certain features such as interfacing with the cloud storage database.
 - *Proposed mitigation:* VISION™ development team members will be proactive in identifying required software and will make acquiring the necessary programs an imperative priority during the design phase.
- **Hardware Resources – Feasible with Low Risk**
 - VISION™ currently possesses many of the necessary hardware machines needed to create the proposed product. However, there is a potential that more hardware may need to be acquired in order to implement certain features such as interfacing with the cloud storage database and purchasing laptop and tablets for testing and quality assurance (QA) evaluation.
 - *Proposed mitigation:* VISION™ will acquire the necessary hardware devices to complete the system according to the system requirements and regard this task as an imperative priority during the design phase.
- **Financial Resources – Optimal with Negligible Risk**
 - Ms. Weltz has assured VISION™ that Wanderer's Tools has the capital to fund all reasonable development costs and will handle the funding for the project.
 - *Proposed mitigation:* VISION™ will nonetheless strive to produce a cost-effective, profitable product by only incurring reasonable, essential expenses.
- **User and Environment Resources – Optimal with Negligible Risk**
 - The end-users will have laptops and/or tablets with Windows or Mac operating systems and will be able to easily install the application on to computers that have sufficient storage capacity remaining.
 - *Proposed mitigation:* The VISION™ development team will produce the product with cross-platform support and will ensure that the downloadable installer for the application is no more than 100 MegaBytes (MB) in download size and that the application program files are no more than 1 GigaByte (GB) in total size.

3.2.3 Schedule Feasibility

Risk Rating: Low Risk**Feasibility Rating: Feasible**

- **Completion Date – Feasible with Low Risk**
 - Ms. Weltz has assured VISION™ that there is not a strict timeline for product completion. However, Wanderer's Tools would very much prefer to launch the TrackTravel™ app by June 2019 since it will be the first tool in the Wanderer's Tools traveler toolkit and would like to release a product by the beginning of the next prime travel season.
 - *Proposed mitigation:* The VISION™ development team will utilize an agile development methodology known as eXtreme Programming (XP) to ensure that the System Development Life Cycle (SDLC) progresses promptly without sacrificing product quality or reliability.
- **Schedule Visibility – Feasible with Low Risk**
 - Ms. Weltz has assured VISION™ that there is not a strict schedule for product progression. However, VISION™ project managers strongly appreciate the capability of having a clear, accurate, and precise understanding of the current progress on the project throughout the SDLC.
 - *Proposed mitigation:* The VISION™ development team will utilize an agile development methodology known as eXtreme Programming (XP) since this process model provides excellent schedule visibility to ensure accountability.

3.2.4 Organizational Feasibility

Risk Rating: Low Risk**Feasibility Rating: Feasible**

- **Expected Workload – Feasible with Low Risk**
 - VISION™ team members have excellent experiences with startup businesses and specialize in developing easy-to-use visual software applications. The development team confidently develops applications with professionalism, dedication, and courage. The proposed system presents minimal challenge to the software development team and to representatives of Wanderer's Tools.
 - *Proposed mitigation:* VISION™ and Wanderer's Tools will partner together to complete a product with the values of collaboration, communication, and vision. VISION™ project managers will diligently assign tasks to individuals on the development team. The project managers will ensure that all persons involved in the creation of the system are given all appropriate compensation and benefits and are challenged with new opportunities without inflicting undue burdens.
- **Stakeholder Interests – Optimal with Negligible Risk**
 - Ms. Weltz is highly invested in the success of the system and will continue to stay involved throughout the development process as the project sponsor and project champion. Wanderer's Tools is eager to release the first application of the Wanderer's Tools traveler toolkit as the project client. VISION™ Systems Development, LLC is passionate about the opportunity to partner with Wanderer's Tools in the exciting journey of developing a convenient travel journal app. Travelers and other end-users will greatly benefit from the ease of use that the TrackTravel™ app will provide them along their travels.
 - *Proposed mitigation:* VISION™ and Wanderer's Tools will cooperate together to continually reinforce the vision of the TrackTravel™ app for each other and toward prospective end-users throughout project development.
- **Projected Acceptance – Feasible with Low Risk**
 - Travelers, travel agents, trip planners, and mission trip directors will greatly benefit from the simple design of the TrackTravel™ app and are highly likely to accept the completed product. Current processes make travel journaling extremely complex and time-consuming, so the end-users will very much enjoy the ability to quickly and easily keep track of their journeys.
 - *Proposed mitigation:* The user focus group will evaluate the progressing system and provide critical feedback to ensure acceptance of the completed product, including suggested design elements that will help make the GUI easier to use and detailed descriptions of specific user needs that will help the developers build the application into a more marketable product. VISION™ change management agents will partner with Wanderer's Tools salesforce representatives to successfully persuade the target market of the unique benefits of the system through an online advertising and marketing campaign.

3.2.5 Legal and Contractual Feasibility

Risk Rating: Moderate Risk

Feasibility Rating: Feasible

- **Legal Concerns – Feasible with Moderate Risk**
 - The TrackTravel™ app must carefully align with all applicable laws and regulations. The primary legal areas relevant to this product include liability protection, privacy protection, and intellectual property rights.
 - *Proposed mitigation:* The VISION™ legal consulting advisory board will ensure that the application will obey all applicable laws and regulations during implementation, testing, distribution, and support.
 - The advisory board will resolve liability concerns including damage to end-user property, harm to end-user health, jeopardization of end-user safety, and improper handling of end-user financial information.
 - Privacy concerns that the advisory board will resolve include unintended disclosure of end-user location, financial information, contact information, and personal information.
 - The advisory board will deter infringement of intellectual property rights by ensuring that the TrackTravel™ app does not infringe on any patents or copyrights of existing products and by selecting an appropriate license to protect the source code developed by VISION™.
- **Contractual Agreements – Optimal with Negligible Risk**
 - VISION™ and Wanderer's Tools must reach agreements on who will own the source code of the TrackTravel™ app, who will provide support for the completed system, how to maintain mutual loyalty within the partnership, and specific ownership rights of the end-users.
 - *Proposed mitigation:* VISION™ Systems Development, LLC and Wanderer's Tools are partners in the creation of the TrackTravel™ app and will work together with professionalism, integrity, and humility.
 - VISION™ will own and retain the rights to the source code of the TrackTravel™ app.
 - VISION™ will provide support for the completed system regarding technical issues and will implement software updates to enhance the system as to adapt to the environment and changing user needs.
 - VISION™ will not sell, license, or otherwise distribute any portion of the source code of the TrackTravel™ app to any entity besides Wanderer's Tools for any reason for the duration of the partnership.
 - VISION™ will not develop any products using any portion of the source code of the TrackTravel™ app for any entity besides Wanderer's Tools for any reason for the duration of the partnership.
 - VISION™ will not develop any applications similar to the TrackTravel™ app or any travel journal applications for any entity besides Wanderer's Tools for the duration of the partnership.

- Wanderer's Tools will not sell, license, or otherwise distribute any portion of the source code of the TrackTravel™ app to any entity for any reason for the duration of the partnership.
- Wanderer's Tools will distribute licenses to the TrackTravel™ app to users on the Wanderer's Tools website on the Internet.
- Each end-user will own a license, specified by an End-User License Agreement (EULA), to the TrackTravel™ app.
- Each end-user will own all the content that the user created within the TrackTravel™ app.

3.3.0 Additional Comments

- The partnership between VISION™ Systems Development, LLC and Wanderer's Tools and the corresponding contractual agreements will be nullified when either entity of the partnership dissolves or if both entities mutually agree to terminate the partnership.
- VISION™ technical writers will work closely with the development team to carefully document the features of the system and will be responsible for compiling help documentation for end-user reference, such as Frequently Asked Questions (FAQ), installation requirements, and tooltips describing each application feature.
- Neither VISION™ nor Wanderer's Tools anticipate a need to hire new staff for the completion of the system. However, Wanderer's Tools will recruit a compensated user focus group for the purpose of providing direct feedback on the progressing system.
- In the improbable event that the implementation phase of the system experiences unforeseen and unacceptable delays, both entities of the partnership will refrain from transferring current staff on to the TrackTravel™ app team or from hiring new staff on to the team, unless a transfer or hire is critical to the completion of the system. VISION™ project managers observe Brooks' Law, which states that "adding human resources to a late software project makes it later."

3.4.0 Conclusion

There are inherent risks associated with the development and deployment of the TrackTravel™ app; however, the most severe identified risks of any feasibility tertiary section are rated at only a **Moderate Risk** level. Similarly, all feasibility tertiary sections rated no worse than a **Feasible** level. Therefore, the TrackTravel™ app is a practical system that VISION™ and Wanderer's Tools can realistically implement fault-free, within the given timeline, within the allotted budget, and with all vital system requirements included in the application. VISION™ concludes that the TrackTravel™ app is a viable project and must promptly move forward into the design phase.

4.0.0 Requirements Definition

4.1.0 Introduction

This section provides a textual overview of the functional, data, and nonfunctional requirements of the proposed TrackTravel™ app.

Functional requirements detail the desired features and services of a system and the desired responses of the system to particular inputs and situations. The identified functional requirements of the proposed system are provided in section 4.2.0 Functional Requirements.

Data requirements detail what information the system will need and how the system will use the information it receives, stores, and generates. The identified data requirements of the proposed system are provided in section 4.3.0 Data Requirements.

Nonfunctional requirements detail the characteristics and limitations of a system. The identified nonfunctional requirements of the proposed system are provided in section 4.4.0 Nonfunctional Requirements.

4.2.0 Functional Requirements

4.2.1 Add New Trip

Use-Case 4. Select Trip – S2-a

- TT must allow the user to create a new trip.
- TT must allow the user to input attributes about the new trip including title, start date, expected end date, and collaborators.
- TT should allow the user the option to immediately load and view the new trip.

4.2.2 View Existing Trip

Use-Case 4. Select Trip – S2-b

- TT must allow the user to load and view existing trip.

4.2.3 Enhance Existing Trip

Use-Case 4. Select Trip

- S2-c: TT must allow the user to edit the current attributes of an existing trip.
- S2-d and Use-Case 6. Backup Data: TT should allow the user to backup all the entries of a trip.
- S2-e: TT must allow the user to delete a trip and all its entries.

4.2.4 Add New Entry

Use-Case 1. Add Entry

- TT must allow the user to create a new entry in the currently loaded trip.
 - S1-a: TT must allow the user to upload documents, images, videos, and spreadsheets.
 - S1-b: TT must allow the user to submit a journal note.
- S2-3: TT must allow the user to input attributes about the new entry including title, date, time, and location.
 - S2-2 and Use-Case 7. Track Location: TT should automatically enter the current location if location tracking is enabled.

4.2.5 View Existing Entry

Use-Case 1. Add Entry – 3 and Use-Case 3. Edit Entry – 4

- TT must display each existing entry with a preview image or the journal note.
- TT must allow the user to view the uploaded file of an entry.

4.2.6 Enhance Existing Entries

Use-Case 2. Select Entry

- S3-a and 2a: TT must allow the user to select or deselect entries of a trip.
- S3-b: TT must allow the user to share selected entries.
- S3-c: TT must allow the user to download the stored files of selected entries.
- S3-d and Use-Case 6. Backup Data: TT should allow the user to backup selected entries.
- S4-c: TT must allow the user to delete selected entries.

Use-Case 3. Edit Entry

- TT must allow the user to edit an existing entry in the currently loaded trip.
 - S2-a: TT must allow the user to upload documents, images, videos, and spreadsheets.
 - S2-b: TT must allow the user to resubmit a journal note.
- S3-2: TT must allow the user to change attributes about the entry including title, date, time, and location.

4.2.7 Backup Existing Entries

Use-Case 6. Backup Data

- TT should allow the user to backup existing entries and existing trips.

4.2.8 Customize System Settings

Use-Case 5. Change Setting

- TT should allow the user to change user information, change backup settings, enable or disable location tracking, and change the organization of entries.

4.2.9 Track User Location

Use-Case 7. Track Location and Use-Case 1. Add Entry – S2-2

- TT should automatically determine the location of the user to afford the user more convenience when adding a new entry to an existing trip.

4.3.0 Data Requirements

4.3.1 Trip Attributes

Use-Case 4. Select Trip

Stored Information:

- Trip Title: A unique name for the trip given by user input
- Trip Start Date: The date on which the trip began given by user input
- Trip End Date: The date on which the trip ended or is expected to end given by user input
- Trip Collaborators: The username and email address of other users allowed access to edit and view the trip given by user input
- Date and Time of Trip Creation: The date and time when the trip was created given by the user's device
- Date and Time of Most Recent Modification to Trip: The date and time when the trip was last enhanced given by the user's device

Information Constraints:

- The user is required to input at least a Trip Title for each trip.
- The Trip Start Date input is required to have a valid date and valid format.
- The Trip End Date input is required to have a valid date and valid format.
- The Trip Collaborators inputs are required to each have a valid username and a valid email address that corresponds to the given username.

4.3.2 Entry Attributes

Use-Case 1. Add Entry and Use-Case 3. Edit Entry

Stored Information:

- Entry Title: A unique name for the entry given by user input
- Entry Date: The date of which the entry corresponds given by user input
- Entry Time: The time of which the entry corresponds given by user input
- Entry Location: The time of which the entry corresponds given by user input or by TT through Use-Case 7. Track Location
- Date and Time of Entry Creation: The date and time when the entry was created given by the user's device
- Date and Time of Most Recent Modification to Entry: The date and time when the entry was last enhanced given by the user's device

Information Constraints:

- The user is required to input at least an Entry Title for each entry.
- The Entry Date input is required to have a valid date and valid format.
- The Entry Time input is required to have a valid time and valid format.

4.3.3 Settings

Use-Case 5. Change Setting

Stored information:

- User Information: A unique username, a unique email address, a state or region, and a country given by user input
- Backup Settings: Options to immediately backup all entries and all trips into cloud storage, to restore entries or trips from cloud storage, to enable or disable automatic backup, to set the frequency of how often to automatically backup, and to delete entries or trips from cloud storage given by user input
- Location Tracking Setting: Option to enable or disable location tracking of user device given by user input
- Organization of Entries: Options to view entries in a particular arrangement including day-by-day, by location, and by type given by user input
- Currently Loaded Trip: The Trip Title of the currently loaded trip given by TT
- Currently Selected Trip: The Trip Title of the currently selected trip given by TT
- Currently Selected Entries: Each Entry Title of all currently selected entries given by TT
- Current Location: The current location of the user's device given by TT through Use-Case 7. Track Location

Information Constraints:

- The user is not required to input any information into User Information.
- If the user would like to collaborate with other users, then the user is required to input a unique, valid email address with a valid format and a unique username into User Information.
- The user's device is required have Internet connection in order to select any option in Backup Settings, except for enabling or disabling automatic backup and for setting the frequency of how often to automatically backup.

4.3.4 Backup

Use-Case 6. Backup Data

Stored information:

- Trip Attributes: The stored file given by TT that records 4.3.1 Trip Attributes of the trip
- Entry Attributes: The stored files given by TT that record 4.3.2 Entry Attributes of each entry
- Entry File: The stored copy of the uploaded file for each entry given by TT
- Settings: The stored file given by TT that records 4.3.3 Settings

Information Constraints:

- The user's device is required to have Internet connection and is required to have a connection with the cloud server database in order to backup any data.

4.4.0 Nonfunctional Requirements

4.4.1 Project Development

- TT must support Windows XP, 7, 8, 8.1, and 10.
- TT must support Mac OS X 10.10 and 10.11.
- TT must support macOS 10.12, 10.13, and 10.14.
- TT should have cross-platform support.
- TT should be launched by June 1st, 2019.
- TT source code should be implemented and maintained using C# in Visual Studio Enterprise 2017.
- TT should be implemented and maintained using an eXtreme Programming (XP) methodology.

4.4.2 Product Operation

- TT must backup user entries and trips into a Microsoft Azure SQL Database cloud storage server.
- TT must use standard icons in all Graphical User Interfaces (GUIs).
- TT must perform all necessary error checking and display confirmation messages or error messages as needed.
- TT will not require Internet connection, cloud server connection, or GPS connection, except for specific tasks.
- TT downloadable installer will not exceed 100 MB in download size.
- TT program files will not exceed 1 GB in total size.

4.4.3 Performance

- TT must reliably operate at any time, on any day, and at any physical location.
- The response time for each TT action should provide high performance by not exceeding 60 seconds but may exceed 60 seconds if required to reliably load or enhance user data.
- TT should display a progress bar when loading or enhancing user data, especially since each trip may contain many entries with many uploaded files.

4.4.4 Efficiency

- TT will not continuously run any background processes, except for automatic backup if enabled and other critical processes.

4.4.5 Security and Control

- TT will not require the user to enter any user information, unless the user would like to collaborate with other users.
- The user is required to have accepted the TrackTravel™ Terms and Conditions and the TrackTravel™ Privacy Policy when the user inputs any user information.
- The user is required to have accepted the TrackTravel™ Terms and Conditions and the TrackTravel™ Privacy Policy in order to backup any data.
- Authorized personnel within Wanderer's Tools should have access to user data in cloud storage in order to contact users by email and to observe travel trends.

4.4.6 Cultural, Political, and Legal

- TT must follow all applicable industry standards involving cloud storage.
- TT must cease operation of backup functionality if the license with the Microsoft Azure SQL Database expires or terminates.
- TT must follow all applicable industry standards involving location tracking.
- TT must allow standard accessibility options.
- TT must reliably operate in any time zone.
- TT must be available in English.
- TT should be available in other languages including Spanish, French, German, Russian, Italian, Chinese, Japanese, Korean, Arabic, and more, especially since the users of TT will likely include travelers from across the globe.
- Wanderer's Tools and VISION™ will not be held liable for the actions of users.

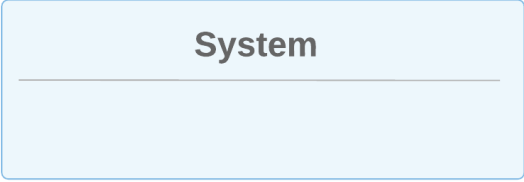

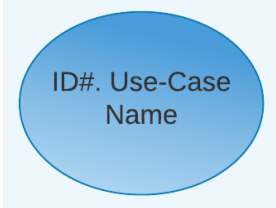
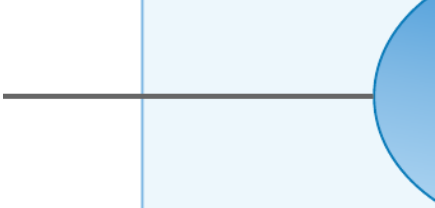

4.4.7 Service

- TT must provide tool tips and help documentation to the users.
- TT must be distributed as a downloadable installer from the Wanderer's Tools website.
- The TT installer must be available to any person at any location that has a laptop and/or tablet device and that can access the Internet.
- TT must be available to any person at any location that has a laptop and/or tablet device.
- Wanderer's Tools must provide customer support services, including the ability to submit user feedback and the ability to submit a help request, after launch of TT. Wanderer's Tools should forward help requests and user feedback to VISION™, especially regarding technical support issues, bugs, and new features.
- VISION™ must maintain and upgrade TT after launch.
- VISION™ must update TT to be compatible with updates to the supported operating systems and with updates to the Microsoft Azure SQL Database.

5.0.0 Requirements Model

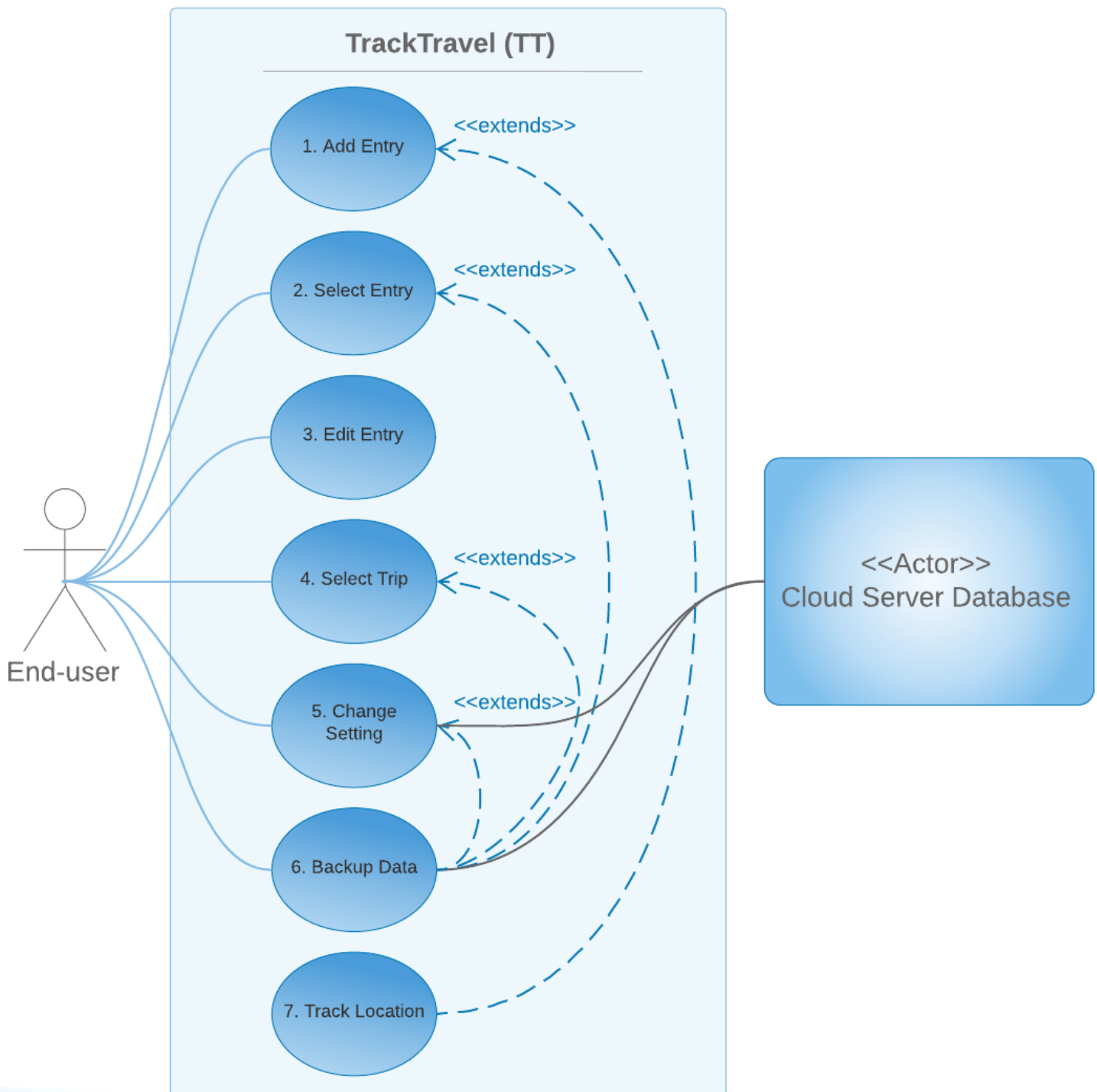
5.1.0 Introduction

This section describes all the identified use-cases. A use-case is a sequence of actions performed to complete a specific task. The identified use-cases and relationships are visually modeled in [5.2.0 Use-Case Diagram](#) and are textually modeled in [5.3.0 Use-Case Descriptions](#).

Use-Case Diagram Legend		
Name	Symbol	Description
Boundary		The Boundary defines the interior and exterior of the system.
Actor		An Actor is outside the Boundary and is a role that directly interacts with Use-Cases through Associations.
Use-Case		A Use-Case is inside the Boundary and is a sequence of actions performed to complete a task with a unique ID number and name.
Association		An Association crosses the Boundary and is a solid line that directly connects an Actor and a Use-Case.
Extension		An Extension is inside the Boundary and is a dashed line with an arrow that directly connects an optional Use-Case to a base Use-Case.

5.2.0 Use-Case Diagram

Each oval use-case symbol has a section link that will link to the respective use-case description for that particular use-case. This convenient capability may be utilized by either clicking anywhere within the oval use-case symbol or by holding the “Ctrl” key on the computer keyboard and then clicking anywhere within the oval use-case symbol.



5.3.0 Use-Case Descriptions

5.3.1 Add Entry

Use-Case name: Add Entry		ID: 1	Importance: Must
Primary actor: <i>End-user</i>		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> must have the ability to add new entries since the core service of TT is the ability to add document files, image files, video files, spreadsheet files, and notes to a trip.			
Brief description: The <i>End-user</i> creates a new journal entry in the currently loaded trip by uploading a file or by submitting a note.			
Triggers: a. The <i>End-user</i> drags-and-drops a file into an upload slot. b. The <i>End-user</i> clicks an upload slot and browses to a compatible file on the device. c. The <i>End-user</i> types and submits a note.			
Type: External			
Relationships: Association: <i>End-user</i> Include: None Extend: <u>7. Track Location</u> Generalization: None			
Normal flow of events: 1. The <i>End-user</i> uploads a file or submits a note for the new journal entry. 2. TT creates a new file and stores it. 3. TT generates a new journal entry displaying the thumbnail or note.			
Subflows: S1 – Uploading a file or submitting a note a. The <i>End-user</i> uses an upload slot to drag-and-drop a file or to browse to a file with a supported file type. b. The <i>End-user</i> types in text content into a textbox and submits it as a note. S2 – Creating and storing a new file 1. TT displays an entry attributes window with four textboxes and a “Save” button. 2. TT performs <u>Use-Case 7. Track Location</u> . 3. The <i>End-user</i> types in attributes about the new entry including title, date, time, and location within the textboxes and then clicks the “Save” button. 4. TT creates a copy of the uploaded file and stores it. 5. TT creates a preview image of the copied file and stores it. 6. TT creates an attributes file and stores it.			
Alternate / exceptional flows: S1-aa. If the <i>End-user</i> attempts to upload an incompatible or unsupported file, then TT will display an error message asking the <i>End-user</i> to upload a compatible, supported file with an associated error code. TT then terminates <u>Use-Case 1. Add Entry</u> . S2-4a. If the <i>End-user</i> submits a note, then TT creates a text file with the content of the note and TT then proceeds to S2-6.			

5.3.2 Select Entry

Use-Case name: Select Entry		ID: 2	Importance: Must
Primary actor: <i>End-user</i>		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> must have the ability to select existing entries since a vital feature of TT is the ability to share, download, backup, and delete existing entries of a trip.			
Brief description: The <i>End-user</i> selects entries in the currently loaded trip for sharing, downloading, backing up, or deleting.			
Trigger: The <i>End-user</i> clicks the circle in the upper left corner of an existing entry.			
Type: External			
Relationships: Association: <i>End-user</i> Include: None Extend: <u>6. Backup Data</u> Generalization: None			
Normal flow of events: <ol style="list-style-type: none">1. TT displays the selection menu bar.2. TT changes the open circle of the entry into a filled-in circle to denote that the entry is selected and TT appends the entry title in a stored "Selected Entries" file.3. The <i>End-user</i> clicks a button in the selection menu bar to perform an operation.4. TT closes the selection menu bar and empties the stored "Selected Entries" file.			
Subflows: S3 – Perform desired operation(s) <ol style="list-style-type: none">a. The <i>End-user</i> clicks the "Select All" button, then TT performs 2 for all entries.b. The <i>End-user</i> clicks the "Share Selected" button, then TT opens a draft in the default email program on the <i>End-user's</i> device with the selected stored files attached.c. The <i>End-user</i> clicks the "Download Selected" button, then TT makes copies of the stored files of every selected entry and stores the copied files into the "Downloads" folder on the <i>End-user's</i> device.d. The <i>End-user</i> clicks the "Backup Selected" button, then TT performs <u>Use-Case 6. Backup Data</u>. S4 – Close bar when no entries selected <ol style="list-style-type: none">a. The <i>End-user</i> performs 2a until no entries are selected.b. The <i>End-user</i> clicks the "Deselect All" button. TT performs 2a on all selected entries.c. The <i>End-user</i> clicks the "Delete Selected" button, then TT displays a confirmation message. Next, TT moves all the stored files and stored attribute files of every selected entry into the "Recycle Bin" or "Trash" folder on the <i>End-user's</i> device. Finally, TT removes all the selected entries from the currently loaded trip.			
Alternate / exceptional flows: <ol style="list-style-type: none">2a. If the <i>End-user</i> clicks a filled-in circle of a selected entry, then TT changes the filled-in circle into an open circle to denote that the entry is not selected and TT removes the entry title of the entry from the "Selected Entries" file. TT then repeats 1.			

5.3.3 Edit Entry

Use-Case name: Edit Entry		ID: 3	Importance: Must
Primary actor: <i>End-user</i>		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> must have the ability to edit existing entries since a vital feature of TT is the ability to overwrite existing entries of a trip.			
Brief description: The <i>End-user</i> edits an existing journal entry in the currently loaded trip by uploading a new version of the file or by revising a journal note.			
Trigger: The <i>End-user</i> clicks the pencil icon in the upper right corner of an existing entry.			
Type: External			
Relationships: Association: <i>End-user</i> Include: None Extend: None Generalization: None			
Normal flow of events: <div><div>1.</div><div>TT displays an upload slot or a textbox with the note content automatically filled in.</div></div> <div><div>2.</div><div>The <i>End-user</i> uploads a new file or resubmits a note for the journal entry.</div></div> <div><div>3.</div><div>TT creates a new file and stores it.</div></div> <div><div>4.</div><div>TT generates an updated journal entry displaying the updated thumbnail or note.</div></div>			
Subflows: S2 – Uploading a new file or resubmitting a note <div><div>a.</div><div>The <i>End-user</i> uses the upload slot to drag-and-drop a file or to browse to a file with a supported file type.</div></div> <div><div>b.</div><div>The <i>End-user</i> revises note content in a textbox and resubmits the note.</div></div> S3 – Creating and storing a new file <div><div>1.</div><div>TT displays an entry attributes window with four textboxes and a “Save” button.</div></div> <div><div>2.</div><div>The <i>End-user</i> revises the textboxes containing the current attributes about the entry including title, date, time, and location and then clicks the “Save” button.</div></div> <div><div>3.</div><div>TT creates a copy of the uploaded file and overwrites the existing stored file.</div></div> <div><div>4.</div><div>TT creates a preview image of the copied file and overwrites the existing image.</div></div> <div><div>5.</div><div>TT revises the stored attributes file.</div></div>			
Alternate / exceptional flows: S2-aa. If the <i>End-user</i> attempts to upload an incompatible or unsupported file, then TT will display an error message asking the <i>End-user</i> to upload a compatible, supported file with an associated error code. TT then repeats 1. S3-2a. If the <i>End-user</i> resubmits a note, then TT revises the existing stored text file. TT then proceeds to S3-4.			

5.3.4 Select Trip

Use-Case name: Select Trip		ID: 4	Importance: Must
Primary actor: <i>End-user</i>		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> must have the ability to select existing trips since a vital feature of TT is the ability to create new trips and edit existing trips.			
Brief description: The <i>End-user</i> selects a trip for starting, loading, editing, or deleting.			
Trigger: The <i>End-user</i> clicks the “Select Trip” button in the menu bar at the top of the screen.			
Type: External			
Relationships: Association: <i>End-user</i> Include: None Extend: <u>6. Backup Data</u> Generalization: None			
Normal flow of events: <div><div>1.</div><div>TT displays a trip selection window and a trip menu bar.</div></div> <div><div>2.</div><div>The <i>End-user</i> starts a new trip or selects an existing trip.</div></div>			
Subflows: S2 – The <i>End-user</i> starts a new trip or selects an existing trip <div><div>a.</div><div>The <i>End-user</i> clicks the “Start Trip” button in the trip menu bar and types in attributes about the new trip including title, start date, expected end date, and collaborators. The <i>End-user</i> then clicks the “Create New Trip” button and TT creates a trip attributes file and stores it. TT then repeats 1.</div></div> <div><div>b.</div><div>The <i>End-user</i> clicks the “Load Trip” button, then TT loads the selected trip in the main application window. TT then closes the trip selection window and trip menu bar.</div></div> <div><div>c.</div><div>The <i>End-user</i> clicks the “Edit Trip” button and then revises the current attributes of the selected trip.</div></div> <div><div>d.</div><div>The <i>End-user</i> clicks the “Backup Trip” button, then TT performs <u>Use-Case 6. Backup Data</u> for the selected trip.</div></div> <div><div>e.</div><div>The <i>End-user</i> clicks the “Delete Trip” button, then TT deletes the selected trip.</div></div>			
Alternate / exceptional flows: <div><div>1a.</div><div>TT will not display the “Load Trip”, “Edit Trip”, “Backup Trip”, and “Delete Trip” buttons in the trip menu bar until the <i>End-user</i> clicks an existing trip.</div></div> <div><div>S2-ab.</div><div>If the <i>End-user</i> checks the “Load New Trip” checkbox, then TT performs S2-b for the new trip.</div></div> <div><div>S2-ea.</div><div>If the <i>End-user</i> deletes the currently loaded trip, then TT performs S2-b for the most recent trip.</div></div>			

5.3.5 Change Setting

Use-Case name: Change Setting		ID: 5	Importance: Should
Primary actor: <i>End-user</i>		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> should have the ability to change the settings of the TT application since customization options are preferable and contribute to the acceptance of TT.			
Brief description: The <i>End-user</i> changes settings for user information, backup data, location tracking, or visual arrangement of entries.			
Trigger: The <i>End-user</i> clicks the “Change Settings” button in the menu bar at the top of the screen.			
Type: External			
Relationships: Association: <i>End-user, Cloud Server Database</i> Include: None Extend: <u>Use-Case 6. Backup Data</u> Generalization: None			
Normal flow of events: <ol style="list-style-type: none">1. TT displays a settings window with four sections including “User Information”, “Backup”, “Location Tracking”, and “Organize Entries”.2. TT loads the current settings from the settings file.3. The <i>End-user</i> changes settings as desired.4. TT automatically updates the settings window and the settings file.			
Subflows: S3 – The <i>End-user</i> changes settings <ol style="list-style-type: none">a. If the <i>End-user</i> enters any information in the “User Information” section, then TT displays a link to the TrackTravel™ Privacy Policy.b. If the <i>End-user</i> clicks the “Backup All Data” button, then TT performs <u>Use-Case 6. Backup Data</u>.c. If the <i>End-user</i> clicks the “Restore Data” button, then TT downloads all chosen user files from the <i>Cloud Server Database</i> on to the <i>End-user’s</i> device and restores all chosen user files without overwriting any current user files on the <i>End-user’s</i> device.d. If the <i>End-user</i> clicks the “Delete Data” button, then TT deletes all chosen user files off the <i>Cloud Server Database</i>.e. If the <i>End-user</i> checks the “Enable Location Tracking” checkbox, TT displays a link to the TrackTravel™ Privacy Policy. TT also displays the location settings window of the operating system of the <i>End-user’s</i> device requesting permission to allow the TT app access to location data.			
Alternate / exceptional flows: S3-aa. If the <i>End-user</i> enters an email address with an invalid format, then TT displays a message informing the <i>End-user</i> that the email address must be entered in the valid format. TT rejects the new email address and maintains the current email address.			

5.3.6 Backup Data

Use-Case name: Backup Data		ID: 6	Importance: Should
Primary actor: <i>End-user</i>		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> should have the ability to utilize cloud storage since a useful feature of TT is the ability to backup data in the cloud. The <i>Cloud Server Database</i> is responsible for persistently storing uploaded data in the cloud.			
Brief description: The <i>End-user</i> or TT uploads data into cloud storage.			
Triggers: a. <i>S3-d</i> of <u>Use-Case 2. Select Entry</u> is executed. b. <i>S2-d</i> of <u>Use-Case 4. Select Trip</u> is executed. c. <i>S3-b</i> of <u>Use-Case 5. Change Setting</u> is executed. d. Automatic backup is enabled in the stored settings file and the time elapsed since the last execution of <u>Use-Case 6. Backup Data</u> is greater than a specified time duration as measured by the internal clock of the <i>End-user's</i> device.			
Type: External (<i>Triggers a and b</i>) Temporal (<i>Trigger c</i>)			
Relationships: Association: <i>End-user, Cloud Server Database</i> Include: None Extend: None Generalization: None			
Normal flow of events: 1. TT confirms that the <i>End-user's</i> device is connected to the Internet. 2. TT uploads all data currently pending backup into the <i>Cloud Server Database</i> .			
Subflows: S2 – Upload data into cloud storage a. If <i>Trigger a</i> triggered <u>Use-Case 6. Backup Data</u> , then TT uploads the stored files and stored attribute files of all selected entries to the <i>Cloud Server Database</i> . b. If <i>Trigger b</i> triggered <u>Use-Case 6. Backup Data</u> , then TT uploads the stored files and stored attribute files of all entries in the selected trip to the <i>Cloud Server Database</i> . c. If <i>Trigger c</i> or <i>Trigger d</i> triggered <u>Use-Case 6. Backup Data</u> , then TT uploads all the stored files and stored attribute files of every entry of every trip to the <i>Cloud Server Database</i> .			
Alternate / exceptional flows: 1a. If the <i>End-user's</i> device does not have Internet connection, then TT terminates <u>Use-Case 6. Backup Data</u> . 2a. If TT fails to connect to the <i>Cloud Server Database</i> or to upload a file, then TT terminates <u>Use-Case 6. Backup Data</u> .			

5.3.7 Track Location

Use-Case name: Track Location		ID: 7	Importance: Should
Primary actor: None		Use-Case type: Detail, Essential	
Stakeholders and interests: The <i>End-user</i> should have the convenience of having the current location automatically loaded when adding a new journal entry.			
Brief description: TT retrieves the current location of the <i>End-user's</i> device using GPS.			
Trigger: S2-2 of <u>Use-Case 1. Add Entry</u> is executed.			
Type: External			
Relationships: Association: None Include: None Extend: None Generalization: None			
Normal flow of events: 1. TT confirms that location tracking is enabled in the stored settings file. 2. TT confirms that TT has permission to access location data by checking the location settings of the operating system of the <i>End-user's</i> device. 3. TT connects with GPS using the <i>End-user's</i> device location tracking capability and retrieves the current location of the <i>End-user's</i> device. 4. TT updates the stored settings file by changing the existing location in the file to the retrieved current location of the <i>End-user's</i> device. 5. TT fills in the location textbox displayed in the entry attributes window described in <u>Use-Case 1. Add Entry</u> with the retrieved current location of the <i>End-user's</i> device.			
Subflows: None			
Alternate / exceptional flows: 1a. If location tracking is disabled in TT, then TT terminates <u>Use-Case 7. Track Location</u> . 2a. If TT does not have permission to access location data, then TT terminates <u>Use-Case 7. Track Location</u> . 3a. If the <i>End-user's</i> device fails to connect to GPS or fails to retrieve a reliable location, then TT terminates <u>Use-Case 7. Track Location</u> .			

6.0.0 System Evolution

The initial edition of the completed system will be called **TrackTravel™ Standard** and will launch by June 1st, 2019. The initial edition will include the features and services detailed in 4.0.0 Requirements Definition and 5.0.0 Requirements Model. The remaining features and services within the scope of the project mentioned in 1.2.0 Project Vision and Scope and 1.3.0 Requirements Summary will be implemented and included in updates to the completed system. The remainder of this section details the process that VISION™ will follow when implementing 6.1.0 Requirements, 6.2.0 Updates, and 6.3.0 Maintenance to the completed system and details the 6.4.0 Planned Editions of the completed system.

6.1.0 Requirements

- All requirements defined with a “must” importance level will be included in the initial release of the completed system.
- Requirements defined with a “should” importance level will be included in the initial release if the project is on schedule and is proceeding smoothly.
- Requirements defined with a “could” importance level will be included in the initial release if the project is ahead of schedule and is proceeding optimally.
- Requirements not included in the initial release will be redefined with an updated importance level in the analysis phase of updates to the completed system.

6.2.0 Updates

- VISION™ will embrace feedback from users and Wanderer’s Tools about the completed system and will develop occasional modifications that will enhance the existing features and services of the completed system.
- VISION™ will embrace feedback from users and Wanderer’s Tools about the completed system and will develop occasional modifications that will add new features and services to the completed system.
- The analysis phase of each update will involve analysis of the proposed requirements of the update and analysis of the feasibility of the proposed update.
- Wanderer’s Tools will distribute updates to the completed system on the Internet.
- VISION™ will implement a service in the first update to the completed system that will automatically install subsequent updates to the completed system.

6.3.0 Maintenance

- VISION™ will monitor user feedback regarding glitches and crashes and will develop patches that will correct bugs in the completed system.
- Wanderer's Tools will distribute patches to the completed system on the Internet.
- VISION™ will implement a service in the first update to the completed system that will automatically install patches to the completed system.
- VISION™ will provide technical support services by responding to user help requests though support tickets available to users on the Wanderer's Tools website.

6.4.0 Planned Editions

Each new edition of the completed system will be defined by an edition name and a projected release date. Wanderer's Tools will distribute licenses for each edition on the Internet.

6.4.1 TrackTravel™ Trial – August 1st, 2019

- VISION™ will develop a trial edition that will allow the user full functionality of the initial edition (**TrackTravel™ Standard**) for a total of 90 days.
- This edition will allow users to try out the system for a generous time period of three months and will persuade them to purchase the initial edition.
- This edition will be removed from the user's device once the trial period ends.
- This edition will run if the user has not installed **TrackTravel™ Free**, has not purchased **TrackTravel™ Standard**, and does not have a current subscription to **TrackTravel™ Premium**.

6.4.2 TrackTravel™ Free – December 1st, 2019

- VISION™ will develop a free edition that will allow the user limited functionality of the initial edition (**TrackTravel™ Standard**).
- This edition will allow the user to try out basic features of the system and will persuade the user to upgrade by purchasing the initial edition.
- This edition will be removed from the user's device when the user purchases the initial edition.
- This edition will run if the user has not purchased **TrackTravel™ Standard**, does not have currently have **TrackTravel™ Trial**, and does not have a current subscription to **TrackTravel™ Premium**.

6.4.3 TrackTravel™ Premium – June 1st, 2020

- VISION™ will develop an advanced edition of the initial edition (**TrackTravel™ Standard**) that will allow the user to directly interface with third-party programs, smart-phones, and digital cameras.
- Wanderer's Tools will distribute this edition using an annual subscription-based pricing model on the Internet.
- This edition will not run if the user's subscription period of 365 days expires and has not been renewed.
- The user may renew the subscription at any time and will add an additional 365 days to the subscription period each time the user purchases a renewal.

6.4.4 TrackTravel™ Mobile – June 1st, 2021

- VISION™ will develop a mobile app edition that will allow the user full functionality of the initial edition (**TrackTravel™ Standard**) on the user's smart-phone.
- This edition will directly interface and synchronize with any edition installed on the user's laptop(s) and/or tablet(s) device(s).
- This edition will be a one-time fixed-cost downloadable mobile app available on all major app stores including Google Play, App Store, GetJar, Aptoide, Amazon AppStore, Opera Mobile Store, and Appland.
- This edition will likely support smart-phones with Android 4.4 KitKat and up and smart-phones with Apple iOS 10 and up.

7.0.0 Conclusions and Recommendations

7.1.0 Conclusions

VISION™ Systems Development, LLC confidently believes that the TrackTravel™ (TT) app as defined in this System Proposal will satisfy the interests of all stakeholders and turn Wanderer's Tools' vision of a travel journal app into reality. TT will be the optimal solution to Wanderer's Tools' need for an integrated travel journal tool as the initial product of a traveler's toolkit.

TT will provide travelers a convenient, easy, and quick method of recording the details of their travels. The completed system will enable travelers the ability to easily organize the documents, pictures, videos, and spreadsheets of each trip into a travel journal.

VISION™ has completed a preliminary analysis of the proposed system and has concluded that the project can be completed fault-free, on time, without excessive costs, and with all core features and services included. The proposed system is feasible considering the defined scope, identified constraints, available resources, designated timeline, and target market.

Wanderer's Tools would like to launch **TrackTravel™ Standard** by June 1st, 2019 and VISION™ would like to develop four additional editions from 2019 until 2021. Therefore, VISION™ concludes that the project must immediately proceed into the design phase of the System Development Life Cycle (SDLC).

7.2.0 Recommendations

The following recommendations from VISION™ Systems Development, LLC are a list of suggested actions that Wanderer's Tools should perform for optimal project progression.

- Recruit and hire 10-12 interested individuals to form the user focus group
- Schedule weekly meetings with VISION™ project managers to maintain clear and consistent communication within the partnership
- Schedule monthly meetings with the VISION™ development team, VISION™ project managers, VISION™ legal consulting advisory board, and the user focus group to collaboratively identify and discuss new needs and changes to the progressing system
- Prepare a webpage on the Wanderer's Tools website for users to purchase licenses to the completed system and for users to download installers, updates, and patches
- Prepare a marketing campaign to promote the progressing system to prospective users and to advertise the completed system to the target market
- Apply for a Trademark Registration for "TrackTravel" at this link:
<https://secureyourtrademark.com/trademark-application/>
- Purchase a license for a Microsoft Azure SQL Single Database at this link:
<https://azure.microsoft.com/en-us/pricing/details/sql-database/single/>

Appendices

Appendix A

Question and Answer Session with Ms. Weltz on October 29th, 2018:

Q: What should be the first screen the user sees when opening the application?

A: The first screen should be welcoming and display the available tools within the app.

Q: Will any tourist company be authorized to have access to user data?

A: Travel industries do not need to know any specific or personal details about the users. Wanderer's Tools highly prefers that the app does not display any ads as to prevent spamming. Wanderer's Tools would like aggregate user data to be accessible for viewing by authorized personnel of Wanderer's Tools. This capability would enable the possibility of data analytics and to observe statistical trends, such as how often users travel domestically versus abroad.

Q: How essential of a requirement is support for Windows and Mac devices at time of launch?

A: Lacking support for a particular operating system will severely limit the initial target market. However, if attempting to provide support for both operating systems pushes the project behind schedule, then the initial release of the completed system may acceptably only support Windows devices. Nonetheless, the product must provide cross-platform support in an update to the completed system.

Q: Should the application backup user data into the cloud?

A: The app should allow the user to enable automatic backup of journal entries into the cloud while connected to the Internet. However, the user must not be required to have an Internet connection in order to use the app and the user must not be required to backup data into the cloud.

Q: Under which pricing models should the application be distributed?

A: The app could be offered as an annual paid subscription or as a one-time purchase.

Appendix B

Question and Answer Session with Ms. Weltz on October 31st, 2018:

Q: Should the application directly interface with social media?

A: Wanderer's Tools is very concerned with protecting the privacy of users and prefers that the app does not directly integrate social media. However, the app should provide a way for the user to share journal entries with a known contact or to collaborate with other users.

Q: What should be the launch date for the application?

A: The app should be launched by June 2019, since that is the beginning of the prime travel season. If the app is not ready for launch by June 2019, then a minimal working system should be released as to provide the target market a product to try out, test, and review.

Q: Should the application display localized advertisements or upcoming local events?

A: The primary purpose of the app is to allow users to record where they have been and what they have done. Ads that are carefully considered and that align with the primary purpose of the app may be tolerable. However, Wanderer's Tools would prefer that the app omit any ads.

Q: Should the application be able to interface with third-party programs for the addition and enhancement of journal entries?

A: Users will likely prefer to use tools that are already familiar and are specifically designed for a desired task. Therefore, the app should allow users to easily upload content, especially pictures, created and edited in other programs. The app should provide a simple text editor that allows users to submit or edit a note for a journal entry.

Q: Should any travel agents be authorized to have access to user data?

A: Travel agents do not need to know who the users of the app are. Wanderer's Tools would like a database of who the users of the app are. This capability would allow Wanderer's Tools to contact an individual user who has opted in to receiving emails from Wanderer's Tools. These emails would suggest similar travel destinations to the user based on the user's past trips.

Q: Should the application be sold as a subscription or a one-time payment?

A: Wanderer's Tools has no preference regarding the pricing model of the app. However, a subscription should be annual instead of monthly since most people do not travel every month of the year. The app could even have a free edition or a free trial edition with limited features and services, which would allow users to try out the product before purchase.

Q: Will Wanderer's Tools be responsible for the marketing and advertising of the application?

A: Wanderer's Tools will advertise the product on the Wanderer's Tools website. The systems development organization will not be responsible for the marketing or advertising of the app.

Q: Could the application be distributed as a mobile edition?

A: Wanderer's Tools would like a future edition of the app to be available on smart-phones.

Glossary

Actor(s) – A role that interacts with a *use-case* of the *software product*

Agile development – A category of *methodologies* or *process models* that are iterative and collaborative

Bug(s) – A mistake or error in the *source code* of the *software product*; The potential cause of a glitch or temporary malfunction in the *software product*; The potential cause of a crash or unexpected exit of the *software product*

Business requirements – A detailing of the objectives that the *software product* must satisfy in order to meet the needs of an organization

Cloud storage – A service on the Internet that can store large amounts of data; Also referred to as “**cloud server(s)**,” “**cloud server database**,” and “**the cloud**” throughout this *System Proposal*

Cross-platform – The ability for the *software product* to work on multiple *operating systems*

Data requirements – A detailing of what information the *software product* will need and how the *software product* will use the information it receives, stores, and generates

End-user(s) – The person or people for whom the *software product* is distributed; A *stakeholder* who uses the *software product*; Also referred to as “**user(s)**” and “**traveler(s)**” throughout this *System Proposal*

End-User License Agreement – An agreement that allows a *user* to use a *software product* and specifies the rights that a *user* has concerning the usage of a *software product*

eXtreme Programming – A type of *agile development methodology* or *process model* with five values including (1) communication, (2) simplicity, (3) feedback, (4) courage, and (5) respect; Also referred to as “**XP**” throughout this *System Proposal*

Feasibility – The practicality of a required feature or characteristic of the *software product*

Feasibility analysis – An assessment of the *feasibility* of the *software product* and consists of five areas including (1) *technical*, (2) *resource*, (3) *schedule*, (4) *organizational*, and (5) *legal and contractual*

Functional requirements – A detailing of the desired features and services of the *software product* and the desired responses of the *software product* to particular inputs and situations

Graphical User Interface(s) – A visual interface that allows human interaction with the *software product*; Also referred to as “**GUI(s)**” throughout this *System Proposal*

Legal and contractual feasibility – An analysis of the practicality of the *software product* concerning legal concerns and contractual agreements

License(s) – An exclusive authorization of rights to an individual *user* of a *software product* that is usually specified by an *End-User License Agreement (EULA)*

Methodology – A particular structure or approach of the *System Development Life Cycle (SDLC)*; Also referred to as “**process model**” throughout this *System Proposal*

Nonfunctional requirements – A detailing of the characteristics and limitations of the *software product* and consist of seven subtypes including (1) project development, (2) product operation, (3) performance, (4) efficiency, (5) security and control, (6) cultural, political, and legal, and (7) service

Operating system(s) – A set of instructions that enable a computer to use the *software product*

Organizational feasibility – An analysis of the practicality of the *software product* concerning workload, *stakeholder* interests, and acceptance of the *software product*

Patch(es) – A correction of an identified *bug* or error in the *source code* of the *software product*

Privacy Policy – An agreement required by law for a *software product* that collects or uses any personal information from the *users* of a *software product*; An agreement with the purpose of informing the *users* of a *software product* that the personal data of the *users* may be collected and used by the organization associated with the *software product*

Resource feasibility – An analysis of the practicality of the *software product* concerning available workforce, software, hardware, finances, and environment

Risk(s) – The potential problems or challenges that may hinder the success of the *software product*

Schedule feasibility – An analysis of the practicality of the *software product* concerning the set completion date and schedule visibility

Scope – The features and characteristics that are included in the *software product*

Source code – The set of typed instructions that compose the *software product*

Software product – An electronic or digital tool used by a computer

Stakeholder(s) – A person, people, or organization that have an interest in the *software product* and who can affect or can be affected by the *software product*

System Development Life Cycle – A structured process that guides the development of the *software product* and consists of five phases including (1) planning, (2) analysis, (3) design, (4) implementation, and (5) support; Also referred to as “**SDLC**” throughout this *System Proposal*

System Proposal – A document that defines the *software product* and specifies the development process of the *software product*

System requirements – A detailing of the features and behavior of the *software product* and consist of three types including (1) *functional*, (2) *data*, and (3) *nonfunctional*

TrackTravel™ – The name of the *software product*; Also referred to as “**TT**,” “**the system**,” “**the proposed system**,” “**the progressing system**,” “**the completed system**,” “**project**,” “**application**,” “**product**,” or “**software**” throughout this *System Proposal*

Technical feasibility – An analysis of the practicality of the *software product* concerning familiarity with technology, size, and structure

Terms and Conditions – An agreement that defines the terms, conditions, requirements, and clauses concerning the usage of the *software product* by *users*

Use-case – A sequence of actions performed to complete a specific task of the *software product*

Use-case diagram – A visual model or representation that shows the relationships between the *use-cases* and the *actors*

Use-case description(s) – A specification of a *use-case* that may summarize an interaction between the *use-case* and an *actor*

User requirements – A detailing of the objectives that the *software product* must satisfy in order to meet the expectations of *users*

VISION™ Systems Development, LLC – The organization responsible for the development of the *software product*; The *stakeholder* that produces the *software product*; Also referred to as “**VISION™**” throughout this *System Proposal*

Wanderer’s Tools – The organization responsible for the sponsorship of the *software product*; The *stakeholder* that distributes the *software product*; Also referred to as “**the client**” throughout this *System Proposal*

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