BUSINESS CASE

NU RedEye Connect

SHUTTLE SERVICE APPLICATION

RedEye Inc,
Boston, MA

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1. EXECUTIVE SUMMARY

1.1. Issue

During the Fall, Winter and Spring semesters, a special nighttime off campus safety escort, the "**REDEYE**", is provided from dusk to dawn for those students of NEU who reside within one and a half miles of the center of campus. Every night from 7:00PM until 6:00AM, the "**REDEYE**" runs every 20 minutes, and the van picks up at the Snell Library and the Ruggles Public Safety Substation on Forsyth Street, Boston. During December and January Intersession and the Summer semester the "**REDEYE**" will run on the half hour. This case deals with the REDEYE shuttle service, concentrating on its business model, operations and the idea of providing an all-inclusive IT infrastructure to ensure efficient utilization of time and resources.

1.2. Anticipated Outcomes

The REDEYE application will provide an all-round solution to the existing shortcomings of the shuttle service. Students can register and request for service and additionally check for anticipated time of arrival of the shuttle and plan the wait times accordingly. Drivers can compute shortest route for drop points based on addresses entered by students. Administrators in NUPD can manage operation of shuttles based on availability and demand.

1.3. Recommendation

REDEYE's operational model revolves around quick response times and ideal maintenance of shuttle frequency. The current system is entirely manual resulting in operational inefficiency. Ideal recommendation is to provide an application interface that will benefit students, drivers and service administrators alike. This recommended approach aligns with the organization's operational model by focusing on safety along with cost and time efficiency. Some of the ways that this application will achieve its desired results are:

- Efficient route map.

- Digital record conversion of trip data.

- Operational efficiency of shuttle– control over the frequency based on traffic and resource.

- Informed and connected travel – facility to track the shuttle.

- Business Intelligence/Analytics will help to improve the service

1.4. Justification

The provision of a complete application interface for REDEYE will result in greater efficiency with regards to NUPD resources and processes. The only other alternative is manual management which is the current process. Mobile Application Project was selected for proposal in this business case because it provides the best opportunity to realize benefits in an expedited manner while also allowing for the greatest improvement in efficiency and cost reduction.

Initial estimates for this project are:

- 50% reduction in overhead costs in the first 12 months.

- 40% increase in student safety.

- 50% immediate decrease in the amount of time involved in dropping students at respective destinations.

- 25% decrease in wait-times.

- 75% decrease in manual labour.

2. BUSINESS CASE ANALYSIS TEAM

Role	Description	Name/Title
Executive Sponsor	Provide executive support for the project	Northeastern University Police Department
Project Manager	Manages the business case and project team	Thiyagarajan Anandan, Project Manager
Business Analyst	Handles all the business requirement analysis and advises team on process improvement	Vandana Iyer, BA/Scrum Master
QA Analyst	Provides quality support for the project	Vaisakh Srinivas, Quality Analyst
Software/Technology Support	Provides all technology and software support for the project	Shikha Shah, Software Developer Jahnvi Gandhi, Software Developer

3. PROBLEM DEFINITION

3.1. Problem Statement

Since the RedEye shuttle service started, it has been operated manually. The system works fine, but there are some underlying issues that make the system weak. Certain identified issues are mentioned below:

- Once all the students are aboard in the shuttle, the driver on duty has to manually note down all the addresses and take permission from the supervisor to proceed further. This is time consuming.

- Moreover, the driver will decide the route as per his own knowledge and convenience, which may result in the time delays for the students who are residing nearby. This is more difficult for the drivers who are new to the greater Boston area.

- There is a fixed frequency of the shuttle pre-decided, which may cause students to wait for a longer period of time during increased traffic hours.

- There is no source to track or estimate the student traffic.

The idea behind taking the initiative to develop an application, the NU RedEye Connect, is to enhance and effectively utilize the Northeastern University RedEye Shuttle Service.

3.2. Organizational Impact

The NU RedEye Connect will impact the existing shuttle service in many ways. The benefits will impact organization, processes, and resources in the following way:

- The manual routing will be taken over by the system generated shortest path mapping, which will be more efficient and less time consuming.

- The organizational efficiency will be improved once the frequency of the shuttles will be controlled based on the traffic and availability of the resources.

- The trip data and student traffic tracking will be persisted and converted to digital format, that can be utilized for further business intelligence and analytics to improve the efficiency.

- With the application in place, students will be able to track the shuttle with the real time, making the travel more informed and connected.

3.3. Technology Migration

This business case is to back the idea of the initiative to develop an application to support the effective utilization of the existing manual system for the Northeastern University RedEye Shuttle Service. As that is just the prototype and it is going to be

developed from the scratch, there is no phase by phase technology migration required in the current plan.

4. PROJECT OVERVIEW

The RedEye Shuttle service application Project overview provides detail for how this project will address RedEye's operational inefficiency. The overview consists of a project description, goals and objectives for this project, project performance criteria, project assumptions, constraints, and major milestones. As the project is approved and moves forward, each of these components will be expanded to include a greater level of detail in working toward the project plan.

4.1. Project Description

The RedEye shuttle service application Project will provide an all new common application interface for operating and managing the shuttle service. This will be done by determining and selecting a technology product which not only is robust for our existing system but also allows for growth for the next 15 years. Once selected, the project will be deployed in a phased implementation approach.

This project will result in greater efficiency of operational services and significantly lower overhead costs, and higher levels of student safety. Administrators in the managements can organize and track shuttles seamlessly.

RedEye Team will issue questionnaire to students, drivers and NUPD officials to get a first-hand collection of must-haves and nice-to have features that must form the basis of the application. Team will also issue a Request for Information in order to determine which products suit these needs. Once the product is finalized, other development activities will follow suit.

4.2. Goals and Objectives

The REDEYE shuttle service application Project directly supports several of NUPD and NEU's goals and objectives such as student safety. The following table lists the business goals and objectives that this project supports and how it supports them:

Business Goal/Objective	Description
Timely arrival of shuttles	Web based app will allow real-time and accurate tracking of shuttle services.
Improve operational efficiency	Manual work load will be replaced by automated system thus enhancing the way the shuttle service operates.

Business Goal/Objective	Description
Student Safety	Automated tracking and inter-connected networks allow for higher standards of student safety.
Reduce overhead costs	Shortest Route computation and managing frequency with demand help in reducing overhead costs.

4.3. Project Performance

The following table lists the key resources, processes, or services and their anticipated outcomes in measuring the performance of the project. These performance measures will be quantified and further defined in the detailed project plan.

Key Resource/Process/Service	Performance Measure
Shuttle Tracking	The system will track shuttles in operation and thus maintain accurate frequency based on appropriate time intervals.
Student Registration	Ensure proper logging and tracking of students boarding the shuttles.
Shortest Route Computation	Efficient and timely drops resulting in reduced fuel costs and decreased turnaround times.
Demand and Supply	Predict and assess high demand times and allow for increased frequency of shuttle services.

4.4. Project Assumptions

The following assumptions apply to the RedEye Shuttle Service application Project. As project planning begins and more assumptions are identified, they will be added accordingly.

- All drivers, students and NUPD management staff will be trained accordingly in their respective data entry and reporting/approval/denial tasks on the RedEye application.

- All students must use the application to register for the shuttle drop service.

- Funding is available for purchasing hardware/software for the new application.

- NUPD and NEU management will provide necessary support for successful project scompletion.

- NEU cloud space for application hosting and data storage.

4.5. Project Constraints

The following constraints apply to the RedEye shuttle service application Project. As project planning begins and more constraints are identified, they will be added accordingly.

- Due to limited budget, cannot go for high end products for developing the application.

- All users need to have internet connection to be able to use the app and register for shuttle service.

- Immediate on call IT support for probable system issues may not be available owing to limited IT resources.

4.6. Major Project Milestones

The following are the major project milestones identified at this time. As the project planning moves forward and the schedule is developed, the milestones and their target completion dates will be modified, adjusted, and finalized as necessary to establish the baseline schedule.

Milestones/Deliverables	Target Date
Project Plan Review and Completion	06/15/16
Project Kickoff	07/01/16
Phase I Complete	07/08/16
Phase II Complete	07/15/16
Phase III Complete	07/22/16
Phase IV Complete	07/29/16
Phase V Complete	08/05/16
Closeout/Project Completion	08/06/16

5. STRATEGIC ALIGNMENT

Plan	Goals/Objectives	Relationship to Project
Strategic Plan for Transport Management	Efficient route map	This project will allow for fast quick optimized driving directions delivery route planning software for multiple locations and stops
Strategic Plan for Transport Management	Operational efficiency of shuttle	This project will allow control over the frequency based on traffic and resource
Strategic Plan for Transport Management	Informed and connected travel	This project will implement a travel instruction program to assist new transportation users

6. COST BENEFIT ANALYSIS

Action	Action Type	Description	First year costs (- indicates anticipated savings)
Purchase of Application and licenses (Android/iOS)	Cost	Initial investment for Project	25$/year (android) 99$/year (iOS)
Software installation and training	Cost (per day)	Man power to train	65*40
Hardware	Costs	Costs of cloud Storage.	First 1 TB / month $0.0030 per GB (AWS)

Action	Action Type	Description	First year costs (- indicates anticipated savings)
Programming time/costs	Costs	Man power to develop the product	65*40*52 (Cost per hour*working hours in a week * total weeks in a year)
Application maintenance	Costs	Update and bug fixing costs (24*7 support)	65*24*7*52 (Cost per hour*working hours in a week*total weeks in a year)
Auto computation of shortest path	Savings	Auto computation of the shortest path reduces fuel costs (on an estimation of 10 miles in 1 gallon)	2.356$/gallon

By developing the proposed project, the major intent is to save a lot of time, and other resources in the long run. This data will be supported by the results of the survey the team is conducting.

7. ALTERNATIVES ANALYSIS

Alternative Option	Reasons For Not Selecting Alternative
Vanpool/Carpool	• Significantly higher cost • Many students don't have car so they might not get their desired stops and locations

MBTA Bus service	• There are no night time bus services when students need it most • Unsafe as it doesn't provide door to door services

8. APPROVALS

The signatures of the people below indicate an understanding in the purpose and content of this document by those signing it. By signing this document you indicate that you approve of the proposed project outlined in this business case and that the next steps may be taken to create a formal project in accordance with the details outlined herein.

Approver Name	Title	Signature	Date
Gail Raynus	Professor		