**Front End Implementation – ESE Senior Design (Team 13)**

At this stage of our project, there are two user groups that we have been able to identify that would benefit from the findings of our project:

1. Philadelphia Sports Teams (Phillies/Eagles)
2. Philadelphia Sports Fans

This document determines the end-user requirements, flexibility requirements and delivery platform for both these user groups, which will be used to drive the GUI design once we choose which user group to focus upon.

**Important Note**: Our finished product for this project will be a wireframe/mockup of the delivery platform that we propose based on the target audience that we select. Given the scope of the project and the analysis required, delivering a full-functionality platform would compromise on the quality of the algorithms. Implementation of the actual platform can be easily outsourced to a number of companies that develop websites/apps.**Section 1 - User Group 1: Philadelphia Sports Teams**

End-User Requirements/Goals

* Efficient traffic routing at the end of the sports games
* Techniques to implement modal shift toward public transportation
* Reduction of overall carbon emissions from fans traveling to sports games

Flexibility Requirements

* Ability to generalize to any sports/event coordinator
* Ability to scale up (as well as down) effectively based on size of fan base
* Ability to include/exclude certain public transportation methods

Delivery Platform Features

* Proprietary software
  + Run simulations to see impact of techniques relating to modal shift
  + Understand impact of each initiative on carbon emissions
  + Prioritize between various initiatives
  + Understand impact of combining incentives
  + Understand cost impact of incentives (including feedback loop)
* Mobile App
  + Understand traffic patterns within parking lots in real time
  + Efficiently route traffic given current traffic patterns
  + Live notifications/update to police on impending alerts
  + Instructive algorithm based on location informing different policemen to direct traffic in certain ways in order to ensure smooth outflow**Section 2 - User Group 2: Philadelphia Sports Fans**

End-User Requirements/Goals

* Understand environmental impact of traveling to sports games
* Determine most environmentally-friendly way to travel to games
* Ability to offset carbon emissions for a given trip
* Share environmental contributions with friends
* Seek other sports fans to enjoy and travel to games with

Flexibility Requirements

* Ability to generalize to certain set of sports fans
* Ability to take into account public transportation congestion
* Ability to balance future user behavior (and expected carbon impact) to the immediate impact of using public transportation

Delivery Platform Features

* Website
  + Connected to Google Maps to provide SEPTA information
  + Connected to Facebook/Twitter to share initatives
  + Partner with Terrapass to offset carbon emissions
  + User-friendly forum to allow carpooling
* Mobile App/Webapp
  + Connected to Google Maps to provide SEPTA information
  + Connected to Facebook/Twitter to share initatives
  + Live carpooling updates from the website