Project Management

*By: Gage Christensen*

Viability Plan

Various resources are required in order to evaluate the professional, legal, and ethical viability of *Reno-Sparks Variable Traffic Routing*. Professionally, the recommendation must follow all good practices set by other traffic management programs. Legally, the routing system needs to be implementable within the context of Reno-Sparks traffic code. And finally, the safety of commuters using the routing system must be prioritized to ensure that the recommendation is ethically defensible. To meet all these standards, Team 11-3 has put forth a plan to research the professional, legal, and ethical viability of the recommendation and ensure that all good practices are followed. Here the plan to research the system’s legality is detailed.

Legally, Team 11-3’s recommendation focuses on Reno-Sparks. As such they are primarily concerned with whether the system can be implemented within the city. Chapter 70 of the Washoe County Code and Ordinances details traffic law and is a good place to start for legal information [Washoe County, website]. These codes must be examined to ensure that the routing system does not contradict any traffic laws. In addition to this requirement, it must be determined whether new traffic laws must be implemented for commuters to be able to obey the system. With this information, the recommendation’s legal viability will be known, and the professional viability of the routing system can be considered.

To ensure that the recommendation will be viable in a professional sense, considerations made in other traffic regulation programs will also be considered. If something is deemed a good practice in other programs, Team 11-3 needs to ensure that their system also follows that good practice. In order to accomplish this, the engineers of Team 11-3 plan to look at other traffic management programs and see what factors were considered when implementing their solutions. Special attention will be paid to the safety considerations of other programs. With this information the team can determine how to implement these good practices within their system, and the recommendation will be professionally viable. The ethical viability of the recommendation can then be considered.

On an ethical level, the safety of commuters using *Reno-Sparks Variable Traffic Routing* must be carefully considered. Research must be conducted to determine whether the proposed system would bring a real increase in the safety of the Reno-Sparks transportation system. Team 11-3 will show that rerouting traffic so that ambulances may get to their destination faster will bring a significant decrease in the death rate of people in an accident. They will determine whether routing traffic away from an accident will decrease the chance of another accident happening somewhere else. In addition to these safety considerations, the engineers of Team 11-3 will make sure that the recommendation adheres to all standards of the National Society of Professional Engineer’s Code of Ethics [National Society of Professional Engineers, website]. With all this information, the engineers of Team 11-3 will be able to confidently assert the recommendation’s legal, professional, and ethical viability.

Besides having a plan to assess the proposal’s viability, Team 11-3 must also be able to deliver a thoughtful recommendation. In order to do this, a team charter must be established and plans to keep a collaborative and safe environment must be presented. Here the team’s charter is discussed.

Team Charter

Team 11-3 has established a charter to ensure that they are able to meet all deadlines and deliver on all requirements presented by the recommendation. Punctuality and professionalism are important to Team 11-3. As such, policies on deadlines, absences to meetings, and late arrivals have been determined. Deadlines for all major components of the project have been scheduled ahead of time. In the case that non-major, buffer deadlines are not met, the responsible engineer will have to write a formal apology to the rest of the team. If an engineer does not have all their required work for a major deadline, they will be reported to the ENGR 301 T.A.s. The engineers of Team 11-3 have agreed to weekly meetings on Wednesday. These may either be informal meetings where they simply report on their progress that week, or they may be formal meetings where plans for major components of the project are discussed. If a formal meeting is missed, the engineer responsible must bring coffee for everyone in the next meeting. Meetings will not be delayed waiting for late arrivals, so late members must be able to catch up on their own. Table 3 details these policies. With the team’s charter established, its culture can now be considered.

Table 3: The team charter establishes policies on late arrivals, absences, and deadlines. Missed deadlines are considered severe and met with harsher punishments.

A screenshot of a cell phone

Description automatically generated

Team Culture

Team 11-3 is proud to have an excellent team culture that encourages active participation and cooperation. When making decisions the team is careful to ensure that all voices are heard, and no decision is made without careful consideration from every engineer. When making general decisions a simple vote is performed. If there is no clear consensus, or the decision has great significance, the team will utilize a decision matrix to come to a final decision. In addition to this, the weekly meetings set by the team ensure that all engineers will collaborate on every aspect of the project. Each engineer in Team 11-3 can complete any assigned tasks without further management from anyone else in the team, and their background makes them especially qualified for the task. As Computer Science and Engineering majors, they can speak about what is required to implement an automated traffic routing system. The team’s culture shows that they will be able to deliver a thoughtful recommendation to the presented challenge.

Strategic Plan

Finally, a strategic plan for how the team plans to meet its goals must be established. Team 11-3 has put forth three major goals that they have for this project. They wish to deliver a viable solution to the challenge of managing traffic in emergency situations. They wish to learn about the challenges faced when designing an engineering solution. And finally, they wish to become an effective and efficient team. To accomplish these goals, objectives have been set for each goal, and tasks have been defined for each objective. For most of these tasks, the team has decided to start them on March 4 and finish them by April 15. A halfway point deadline, March 24, has been set to ensure progress on these tasks is being made. The rest of the tasks have a few specific set deadlines. A Gantt chart showing each deadline can be seen in Figure 5. The plan for each goal has been detailed here, starting with putting forth a viable solution.

To develop a viable solution to Reno-Sparks traffic management, Team 11-3 has defined three objectives. First, they must ethically defend the recommendation. To do this, then engineers must identify the ethical issues and debates surrounding traffic management, ensure that the recommendation meets NSPE Code of Ethics, and finally they must ensure that their system implements good practices set by other traffic management programs [National Society of Professional Engineers, website]. Identification of the issues and known good practices will be completed by the halfway point, and the recommendation will meet NSPE Code of Ethics by April 15 [National Society of Professional Engineers, website]. The next objective is to ensure that the system is feasible to implement. Here Team 11-3 will identify legal codes relating to their system, determine its business potential to the city, and create a strategy to legally implement the system. Identifying the legal codes and business potential of *Reno-Sparks Variable Traffic Routing* will be done before March 24, and the strategy to implement will be defined by April 15. The final objective is to assess the impacts of the recommendation. To accomplish this, the engineers must determine how the system would affect commuters, how it would affect global relations if implemented worldwide, and if it would affect the economy of Reno-Sparks. All these tasks will be completed before the halfway point. With the plan to develop a viable solution determined, the team can focus on learning about the challenges of engineering.

Team 11-3 desires to learn about the challenges faced when coming up with an engineering solution to a difficult problem. Here the three objectives required to accomplish this goal have been defined. The first objective is to identify the implementation challenges involved in engineering. Here they will identify in detail the obstacles faced when implementing their solution within Reno-Sparks, and then they will develop a plan to implement their system globally if the routing system caught on. Both tasks will be completed by April 15. The second objective is to identify the environmental challenges that are presented in engineering. The team will need to identify required infrastructure for their recommendation and predict changes in emissions, and then they will need to create a strategy to minimize the emissions caused by their system. The required infrastructure and emission details will be determined by the halfway point, and the strategy to minimize emissions will be developed by April 15. The third objective is to define a business plan for implementing their system. The engineers will determine how to market the system to citizens and city government by March 24, and then they will identify a business strategy by April 15. This concludes the plan to learn about engineering challenges, and now the plan to become an effective team is examined.

A screenshot of a cell phone

Description automatically generated

Fig. 5: Project deadlines are scheduled using a Gantt chart. A halfway point deadline for most tasks is scheduled for March 24 and the final deadline is April 15.

The engineers of Team 11-3 have a plan to become effective and efficient when working with each other. First, they will clearly define the desired outcomes for their final solution. To do this they will determine exactly what they expect of their solution by March 11, and then they will listen to suggestions for improvements on the solution from all members by March 18. Next, to be an effective team, they will ensure that they collaborate on all aspects of the project. Here they will collectively compile a design review report by April 29, and they will give a well-coordinated presentation on their design review by April 30. By completing these tasks, the engineers of Team 11-3 will become better at working with each other, and other engineers.

Team 11-3’s strategic plan has been detailed, as well as their charter, team culture, and plan to ensure viability. With these items well defined, it can be expected that the team will be able to complete all the requirements of the project.

**Conclusion**

*By: Gage Christensen*

Team 11-3 proposes a very promising solution to an especially important engineering challenge. Statement of need demonstrates that there is much work to be done in improving American urban infrastructure, and that properly managing traffic in the event of an accident will make great progress in improving the overall transportation system in American cities. The proposed recommendation, *Reno-Sparks Variable Traffic Routing*, is a promising answer to the presented challenge, as it allows for the reduction of congestion in case of an accident as well as the reduction of mortality rates of ambulance patients. Literature review shows that this solution is unique and fills voids left by other research on traffic regulation. And finally, project management demonstrates that the team behind this recommendation is capable, well-organized, and has a plan to bring forth the recommendation.