Deciding on the best solution for public transportation in brazos: a recommendati...

Abstract

On October 31 st , 2018 Professor Alicia O'Neill greenlighted a proposal prepared by Yahneed John to investigate and analyze the feasibility of the expansion of public transportation within Brazos county. Yahneed executed a series of tasks beginning with: Studying of traffic data within Brazos county. Evaluation of pre-existing bus routes by necessary criteria such as road quality, cost of maintenance and traffic volume. Observation of traffic patterns especially during Texas A and M game day at Kyle Field. Discussed potential plans to expand Brazos District with Chairman Marvin Tate and his board of directors as well as the Texas A and M transportation board. Requested an agency profile from the Brazos Transit District. Issued a 3-week survey to the student body at Blinn and TAMU both online and physically. All the relevant data was then compiled, and the report was written. The Texas and M transportation board as well as the Brazos Transit District were readily convinced that expansion was crucial within Brazos. Though they were uncertain of how effective the expansion would be in terms of overall coverage they do believe that better access and navigability is paramount to the success of College Station, particularly as the home of Texas A and M. We recommend based on the data, cost criterion, time criterion and from the literature we have extensively studied; that we utilize the pre-existing bus routes, buses and facilities and expand them as a means of reaching and servicing more people. With the implementation of new technology to assist traffic routes, bus schedules, we believe that this makes the best use of pre-existing infrastructure especially within College Station. Additionally, it's been well accepted by our team and well-respected

associates on the matter that this is the most suitable option for minimal interference with every day activities during its implementation.

Keywords: buses, BTD, Brazos County, Texas A & M, Brazos, transit, district, expand, game day, Blinn, Bryan,

Executive Summary

To determine the best method in which to provide public transportation to more people and areas within Brazos County, Professor Alicia O’Neill allowed us to study bus routes, speak with boards and committees, analyze student satisfaction through surveys, monitor traffic patterns and congestion and then detail our findings and recommendations.

According to Transit. gov (2014) Brazos County is currently serviced by 38 Brazos Transit District buses in an area with over 362, 457 residents according to Census. gov (2017). Our task was to explore solutions to effectively remedy the lack of significant public transportation options in Brazos county.

The process of discovery was initiated with a series of tasks outlined in the proposal. Beginning with the study of traffic data within Brazos county, a thorough assessment of pre-existing bus routes, observation of traffic patterns during some of Brazos County’s busiest times, such as festivals and during game days at Kyle Field. Spoke and discussed at length with Brazos District with Chairman Marvin Tate and his board of directors as well as the Texas A and M transportation board. A 3-week survey was also issued to

both the student body at Blinn Bryan Campus and Texas A and M campus. All the relevant data was then compiled, and the report was written.

Our primary findings are that between the survey issued and the general agreement from The Texas and M transportation board, as well as the Brazos Transit District board, we had no one against the expansion of public transport within Brazos. Though they were uncertain of the best solution, we did see a greater degree of agreement for fleet expansion of the pre-existing bus services as opposed to any other options.

We recommend two possible solutions for this issue. The first potential solution we explored was the introduction of transit services such as Lyft, Uber, etc. on a larger scale. Though this was our least costly option by far it proved to have several drawbacks. Our primary concern was the inability to hold these companies accountable for safety, routes and schedules. We did explore potential contracts which would allow for some liability but still don’t see this as the best or most comprehensive solution moving forward. Our second solution was the expansion and use of pre-existing infrastructure and bus fleets. These fleets include Texas A and M and Brazos Transit District. As these operate within the county already we had no concerns with either of them being a permanent solution to this issue. Both boards and committees agreed that this was an attractive idea, and noted its ability to effectively solve congestion, decrease road maintenance, increase traffic safety and urbanize the city significantly.

Introduction

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Therefore, we put ourselves to task to determine the best way to implement, improve and expand the current or new public transportation within Brazos County. We executed 5 tasks to accomplish this.

- Analyze traffic data within the two cities to allow us to pinpoint the most crucial places for new bus stops.
- Evaluate bus routes by necessary criteria such as road quality, cost of maintenance and traffic volume. Observe traffic patterns which will allow for effective planning of the most cost efficient and least congested routes to take.
- Discuss potential plans to expand Brazos District with Chairman Marvin Tate and his board of directors.

- Discuss potential plans to expand Texas A and M's Aggie Spirit Bus with Texas A and M transportation board.
- Request an agency profile from BTD for 2017 to accurately estimate and determine the cost of increasing their current fleet.
- Issue a 3-week survey of the student body at Blinn and TAMU to discover what percentage of the student and staff body suffers from the lack of public transportation.

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solve congestion, decrease road maintenance, increase traffic safety and urbanize the city significantly.

Research Methods

We began our research by studying the literature of previous methods employed and proposed over the past decade. By far, one of our most valuable resources was from Colin Killian's (2015) " Brazos Transit District" which provided cost analysis and statistics of both Texas A&M and Brazos Transit District. We used this information as a foundation on which to consider cost along with information from Transit. gov (2014) which shows a detailed list of Brazos Transit District financial details.

Given the challenge ahead of us, we organized our research into 5 separate tasks to be completed over the period of 7 weeks.

1. Analyze traffic data within the two cities to allow us to pinpoint the most crucial places for new bus stops.
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3. Discuss potential plans to expand Brazos District with Chairman Marvin Tate and his board of directors.
4. Discuss potential plans to expand Texas A and M's Aggie Spirit Bus with Texas A and M transportation board.
5. Request an agency profile from BTD for 2017 to accurately estimate and determine the cost of increasing their current fleet.

6. Issue a 3-week survey of the student body at Blinn and TAMU to discover what percentage of the student and staff body suffers from the lack of public transportation.

Major Task Timeline in weeks.	Wk. 1	Wk. 2	Wk. 3	Wk. 4	Wk. 5	Wk. 6
Task 1: Analyze traffic data.						
Task 2: Evaluate bus routes.						
Task 3: Meet with BTD board						
Task 4: Request of Agency Profile						
Task 5: Issue 3-week survey						
Task 6: Compile data and draft for recommendation report.						

Table 1. Major Task Timeline for recommendation report. Blue representing everything which was completed.

Table 1. represents how the work was divided over the weeks and allowed for efficient and quick results via this schedule.

Task 1. Analyze traffic data within the two cities to allow us to pinpoint the most crucial places for new bus stops.

Functional classification categorizes streets according to the category's traffic service function they are intended to provide. All streets are grouped into a class depending on the character of traffic and the degree of land

access they allow. For the purposes of this Plan streets in College Station are divided into five classes: freeway/expressway; major arterial; minor arterial; collector; minor collector; and local or residential street. Freeways/expressways are intended to carry the highest volumes of traffic for the longest distances with the least amount of direct access. By contrast, local residential streets are intended to carry low volumes of traffic at slow speeds for short distances, offering the highest level of access and connectivity. Functional classification identifies the necessary right-ofway width, number of lanes, and design speed for the streets. Map 6. 6, Thoroughfare Plan – Functional Classification, displays the functional classifications for current and future proposed roadways.

transit system. It is anticipated this scenario would require more than $200 million (in 2009 dollars) in public funds, as well as expenditures by development interests on streets serving private development. This scenario accommodates the projected increase in vehicle miles; however it also results in a slight increase in congestion and degradation of levels of service in specific areas along the network. This scenario is dependent on an increase in the use of alternative modes of travel, which could be encouraged through multi-modal design with the new construction. A modified version of this scenario has been selected as the preferred scenario due to its fiscal practicality, its ability to support expansion of multi-modal opportunities, and its response to the community desire to manage and reduce congestion. This option necessitates land use planning that promotes alternative modes of transportation and reduces the frequency and length of vehicular trips. Additionally, the selected option requires an increased

investment in transit and enhancement of the Thoroughfare Plan in the Extraterritorial Jurisdiction to reserve rights-of-way for future needs and facilitates connectivity. Congestion-Reduction Option This scenario focuses future efforts on substantial expansion of roadway capacity and the construction of new streets. This scenario would result in the construction of more than 440 lane miles in addition to the construction of local streets necessary to serve private development, several miles of off-street multi-use paths, and continued maintenance of the existing transit system. It is anticipated this scenario would require more than $650 million (in 2009 dollars) in public funds, as well as expenditures by development interests on streets serving private development. This scenario accommodates the projected increase in vehicle miles, with a decrease in congestion and maintenance or improvement in levels of service throughout the network. This scenario is dependent on an increase in the use of alternative modes of travel, though the general lack of congestion and abundance of six-lane streets could reduce the likelihood of this occurring. Though meeting the community’s desire to reduce congestion, this option was rejected due to its high-costs and incompatibility with other community goals and strategies. Preferred Scenario A modified version of the Programmed-Project Option is the preferred scenario based on its multi-modal cost-effective approach to managing increasing transportation demands balanced with other community goals and objectives. The preferred scenario includes

Appendix B:

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