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## **Executive Summary**

### **Site Selection Analysis for the Bus System Stations: Caguas- Centro Médico Station**

by

Amy C. Padovani  
e-mail: [apadovani@hotmail.com](mailto:apadovani@hotmail.com)  
Civil Engineering Department  
University of Puerto Rico at Mayaguez

Advisor  
Dr. Felipe Luyanda  
e-mail: [fluyanda@rmce02.upr.clu.edu](mailto:fluyanda@rmce02.upr.clu.edu)

## Executive Summary

The municipality of Caguas, although is not considered as part of the San Juan Metropolitan Area, is a city that generates a large vehicular movement towards and from the San Juan area. Las Américas Expressway, which represents the fastest, safest and most comfortable route for making this trip, operates under huge congestion for long periods of time, causing delays and discontent among the drivers. In order to solve this problem, the Tren Urbano Office has considered the possibility of establishing an exclusive-lane bus system, which will move people from this city, up to the Centro Médico Station in Río Piedras. Using information already available, this research will try to determine the most suitable locations, for the bus system stations.

The bus systems of Curitiba and San Francisco (BART Expressway Bus lines), were evaluated in order to determine which are the critical factors to implement an efficient bus systems in America. The Curitiba bus system, although it is a huge system compared to the one been considered for Caguas, was studied because it represents a great example of how design and planning can be used as measures of success. On the other hand, the San Francisco one was chosen, because of its similarities to the proposed Caguas system. Similarities such as the small amount of buses (San Francisco only has 38 buses) and the fact that they will both serve as a feeding system to the existing metro.

Once the bus systems were studied, the second stage began. The purpose of this stage was to study the procedure for the "Site Selection Method",

as described by ASSHTO, as well as the "Location- Allocation Model" theory, in order to see if they could be of help for my project. Once I saw they could help, then I began to determine all the information needed in order to use them. The "Location- Allocation Model" will be use the next semester, to determine which locations are more suitable for the bus system stations. The "Site Selection Method" will be used as a guideline in the selection of the possible sites, because it consists of a list of specifications and characteristics that the locations should have in order to be effective.

The third and final stage accomplished during this semester was the acquisition of relevant and useful information such as maps and studies. The first map acquired was a topographic map of the municipality of Caguas. This map was used to check in what area would it be more convenient to establish the stations, in order to reduce the amount of soil movement needed for the project. After this map was analyzed, I received a copy of a traffic study performed in the Caguas- San Juan segment of the Las Américas Expressway (PR- 52). Using this study I was able to analyze how the vehicular movements in both directions, changed as the day goes by. In addition to this I was also able to define the peak hours, as well as the total amount of vehicles on the road during this hour. All this information helped me acquire a better understanding of the vehicular movements along this route. It also served, to give me a rough idea of how many people travel to or from the San Juan area, everyday.

After several phone calls to the Highway and Transportation Authority, I was able to obtain two very important elements of my research: the urban maps

of the Caguas municipality and a copy of the statistical study "Origin- Destination Study". The maps, due to their small scale will be of great help in the location of the possible sites for the stations. In addition, since they include such specific details as were the neighborhoods are located, they will help me select locations that can be close and accessible to the people living around this communities. The other important element, the "Origin- Destination Study" will help me estimate the amount of people who travel in the morning from Caguas to San Juan (and in the afternoon the other way around), in order to go to school or get to work. This numbers, in addition to the study of the amount of people traveling in each car, will also give me an idea of the possible amount of people that might use the bus system, if the train can afterwards take them close to their school or work sites.

In general, all the work accomplished during this semester has consisted of gathering all the data needed, in order to select the possible sites that might then be analyzed using the "Location- Allocation Model", or any other model that might be of help. The process of selecting the possible sites will begin in January, and will be continued during the next semester.