Programa de Desarrollo Profesional Tren Urbano/UPR/MIT

Centro de Transferencia de Tecnología en Transportación
Universidad de Puerto Rico, Recinto de Mayagüez
Mayagüez, Puerto Rico

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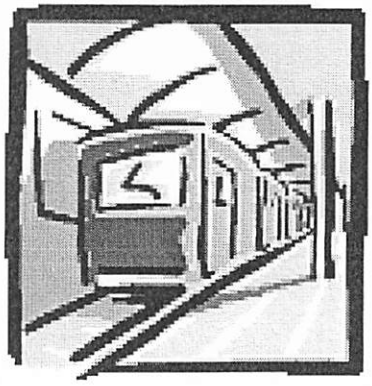
Informe Ejecutivo



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Transit-oriented Development was the rule on our first day at the Tren Urbano offices. Notwithstanding, as the day proceeded, the concepts as well as the extensive amount of acronyms introduced on the conferences made more sense. The conference on *Design, Development Vision and Construction Updates* provided a good overview on the logistics of the development of each one of the stations. For instance, it was obvious that the construction of the Río Piedras station had a direct impact on the commerce on the area; however, I did not had any knowledge on how small retailers had somewhat a role on allowing the construction of the station on its actual scenario. Moreover, I learned how the government retained some territories in the surroundings of the stations to hold auctions, in order to promote the already acknowledged Transit-oriented Development.

Being not even a civil engineer major, the conference on Caribbean Architecture seemed somewhat abstract at first. However, a slide show trip through the Caribbean was not only amusing, but a good crash course on Architecture as well. The presentation made me realize how ancient structures developed in the Island when people did not possess as much knowledge on construction and design methods as we do right now, can be even more suitable for the Caribbean weather than contemporary structures.

The highlight of our final day in San Juan was the field trips in several stations, for they allowed us to actually see all the construction methods and methodologies we had been listening about for roughly two days. The station that really captured my attention was Río Piedras. Not only it is the most complex and expensive station, but several years ago, I had the opportunity to visit the area assigned for this station. On that time, I saw an early stage of the excavations and listened to a small conference on the methods been used and some others been proposed. However, this time, I was able to see the actual outcome of the enterprise. Without a doubt, the most interesting aspect of the field trip was to actually be able to ride the train in the Martínez Nadal station, pass thorough Las Lomas, and finally go back. Impressively enough, the small island of Puerto Rico does not have anything to envy in terms of technology to big cities in the United States. Even though it only serves a small part of the Island, if we can extend this state-of-the-art technology to the rest of the territory in years to come, ridership is the only thing that has to be developed.

The MBTA system as an old and established system has many benefits as well as flaws. The field trips through the lines showed how a more than one hundred years old system might have needed better maintenance than the one provided. The status of the wagons are definitely not able to masquerade its age and usage; notwithstanding, despite the physical status of the system, the MBTA system is still able to provide a reliable system that serves more than a million persons a day. Furthermore, the "T" has been able to successfully expand its services throughout its more than one hundred years of existence, in order to serve nearly half of the Massachusetts population by making proper use of intermodal connections. Long-term Transit-Oriented Development has turned many of the MBTA stations into strategic points, providing the well desired one-sit ride for many of its users.

One aspect from the MBTA system that we might be able to exceed from the start is the provision of a completely tourist-friendly environment. We should provide orientation to passengers in every part of the system as if all users were tourists who do not know the smallest detail about the area surrounding the stations. In addition, the signage and safety around some stations of the MBTA system is poor. By naming properly the stations, providing useful information, and having visible and reliable security can make the riders perceive they are riding a safe public transportation system. The latest can not only constantly attract new riders, but it can retain and develop a significant amount of loyal riders.

The MIT Student Presentations even thought they were brief in content, they provided a wide range of relevant research topics for public transportation systems. Being deeply interested in finance and economics, the short presentation that really got my attention was the one on *Privately Provided Transit Services: A Contracts Approach.* The small presentation very briefly showed how a standard maximization model can be applied into several transportation systems in order to decide the best contract available.

After questioning Ken Kruckemeyer several times on the fare structure selected for Tren Urbano, he suggested that there has not been any research approach to test the economic impact of the flat fare strategy already established. Immediately, I decided that it is exactly what I want to work on for the following six months. My interest lies in developing an economic model to predict the revenues related to the actual flat fare strategy, and work on the strategy in order to refine it. Later on,

the revenues related to a differentiated strategy, either distance or time based, can be tested to determine if the implementation and operation costs of such strategy turn out to exceed in the long run the expected revenues for the flat structure proposed. On the topics discussion session on MIT, Nigel Wilson suggested me to contact Dan Fleischman from Multisystems, for he had written several papers on fare structure design that is specifically what I intend to test for the Tren Urbano scenario. Currently, I have not had the opportunity to contact him; however, looking on the internet I found several of his papers. For the following weeks, I expect to finish reading them, in order to learn common issues on fare design, prior contacting him for suggestions for the analysis of different fare strategies.