Our Transportation System is in Crisis – 123

Last week, I wrote about the failures of integrated rapid transit in Santiago, Chile, as presented on July 17, 2008 by Dr. Luis Willumsen in a lecture/discussion to key transportation and planning professionals entitled "Successes and Failures in Rapid Transit Integration: TransMilenio, Bogotá and TranSantiago, Chile." Today, I discuss the successes of rapid transit in Bogotá, Colombia.

Willumsen has significant experience directing studies for advanced Bus Rapid Transit and Light and Rapid Rail schemes in both developed and emerging countries. He has been Project Director for the Operational Design of the TransMilenio System in Bogotá, Colombia.

He admonished that metro-rail systems are very expensive, and therefore, could only be justified for high levels of demand in order to spread the cost. He stated that metro and rail costs range from US$30 to 200 million per km, and Bus Transit ranges from US$1 to 10 million per km.

Bogotá's transport system in the 1990's consisted of the following: (a) 7 million inhabitants; (b) 1 million cars; (c) 30,000 buses, de-regulated, with different varieties; (d) Bus commercial speed during peak hours was 10 kmph; (e) Average time per day on bus was 140 min per traveller; and, (f) Infrastructure was mostly car-oriented.

According to an article by Edgar Sandoval and Dario Hildalgo in a book entitled 'Urban Public Transportation Systems: Ensuring Sustainability Through Mass Transit,' and edited by Walter Kulyk, the TransMilenio was designed and developed under the following principles: (1) respect for life, that is, to reduce fatalities due to traffic accidents and reduce harmful emissions; (2) Respect for users' travel time, that is, to reduce average trip time by 50 percent; (3) Respect for diversity, that is, full accessibility to young, elderly and handicapped; (4) Quality and consistency, that is, the use of advanced transit technologies, providing a world class system citywide; and, (5) Affordability, that is, the possibility for Government to afford infrastructure costs, for the private sector to recover bus acquisition and operating costs from fares (without public subsidies), and for the users to afford the fares

Concerning the design of the TransMilenio rapid transit system, both Rapid Rail Transit and Bus Rapid Transit were studied at the same time, but the lower cost of the BRT solution led to its choice. Phase 1 included three trunk corridors covering 38 km and seven feeder zones with routes covering 125 km. The system has 4 terminal stations, 4 intermediate integration stations and 53 stations. Additionally, there are 17 pedestrian overpasses, plazas and sidewalks. Phase 1 was implemented in 12 months after the study was completed.

Planning, developing, constructing and controlling the system are handled by public entities, while operations and fare collection are handled by private companies through concession contracts. The infrastructure was built by Government at a cost US$5.3 million per km, financed by (a) a fuel surcharge covering 46 percent of the total investment; (b) revenues from a capital reduction of the partially privatized Power Company, 28 percent; (c) a credit from the World Bank, 6 percent; and, a Government grant, 20 percent. The infrastructure was completed through 58 construction contracts all with national firms, and 48 supervision contracts.

The system operates 18 hours per day, with minimum headway (or time between buses) of 2 min (peak) and maximum headway of 6 min (non-peak). In addition, there are 15 feeder routes with a minimum headway of 3 min (peak). Maximum capacity is 35,000 passengers per hour per direction.

The impacts of the TransMilenio today are as follows: (1) Time savings of 32 percent per user (in terms of speed, reliability and interchange) (2) Eighty-Three percent of users say that time savings are the main reason for use (3) Thirty-Seven percent of users say that they now "spend more time with family" (4) There has been a more than 300 percent reduction in traffic accidents (5) Improved security: reported muggings in the area of influence of the busways have declined by 47 percent (6) Twenty percent reduction in air pollution emissions (7) The system is fully accessible for users with disabilities, elders, youngsters and pregnant women (8) Affordability: the system is affordable to the users, as a trip on the TransMilenio costs US$0.40 and (according to Sandoval and Hildalgo) totally covers capital investment, operation and maintenance of the bus fleet and ticketing system; supervision and control of the system; administration costs of the trust fund to deposit the revenues; and station cleaning and maintenance. (9) the TransMilenio has won several international awards (10) and, there has been a popular recognition of change in the quality of life in Bogotá.

The TransMilenio bus rapid transit system has provided efficient and high quality mass transit transport at a very low cost for the users and the Government. And according to Sandoval and Hildalgo, it also shows that it is possible to introduce innovative private participation mechanisms, through sustainability of the system and its components.

e-mail: info@ccost.org