

TRANSPORT, MOBILITY AND CITIES:

Making planning, transport management, and mobility consistent with urban development has a positive influence on quality-of-life indices and social justice. Professor Erik Vergel Tovar has covered these issues in his studies of the concept of Transit-Oriented Development.

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Erik Vergel



a necessary dialogue to boost inclusive, sustainable urban development

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The
TransMilenio
mass public
transport
system in
Bogotá,
Colombia.

Struggling in the midst of overcrowding, fare dodgers, and run-down buses, mass public transport users needing to reach their destinations quickly will use stops and stations merely as transfer points, of arrival offering pleasant experiences or satisfying their tastes and needs.

In general, the design of stations is not friendly to users or their surroundings, responding only to the needs of a mass transport system, which means having an independent charging mechanism, enabling user boarding, organizing routes and passenger flows, and meeting the demands of the sectors in which they are situated.

To analyze this phenomenon, Erik Vergel Tovar—professor of the Faculty of Political Science, Government, and International Relations at the Universidad del Rosario, and holder of a PhD in City and Regional Planning from the University of North Carolina at Chapel Hill (USA)—has kept his focus, right since his doctoral studies, on the concept of Transit-Oriented Development (TOD) from the perspective of inclusion and social justice in contexts such as cities in Latin America and India.

As part of this vast work, he recently published an academic paper titled *Urban development around bus rapid transit stops in seven cities in Latin-America*, co-authoring the article with Professor Daniel Rodriguez, of the Department of City and Regional Planning of the University of California, Berkeley (USA).

Vergel's study points out that "transport systems are planned to be efficient and to satisfy demand, while cities are planned, in some way, to accommodate the population and offer services that meet its needs. But very often there is no dialogue between these two worlds."

His conclusions are based on the analysis of 81 stops on the public transport systems of rapid buses (BRT, meaning Bus Rapid Transit) in 7 Latin American cities: Bogotá (Colombia), Quito and Guayaquil (Ecuador), Guatemala City (Guatemala), Curitiba, Goiania, and the Sao Paulo Metro Region (Brazil). In the year of the study, 2017, these represented 17.6% of the

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number of world passengers and 27.5% in Latin America for this type of transport system.

BRT systems—buses that travel on exclusive busways or corridors, such as TransMilenio—are singular in that they make the service a little more rigid but, at the same time, more efficient than conventional buses. “Traditional public transport is so flexible that a bus can enter a district, climb hills, and reach areas of tricky access,” explains the expert. Stops along the busways, the exclusive lanes intended to reduce journey times, are placed to serve the processes of fare charging, boarding, changing lines, and handling passenger flows.

This research set out to analyze the built environment of the stops on BRT-type systems with the aim of understanding to what degree their designs are based on the characteristics of the transport support infrastructure, as well as assessing how far urban design might influence passenger demand. “What we found is that where the environments are more friendly to pedestrians or cyclists, with better public spaces and amenities (schools, hospitals, churches, markets, sports and recreational spaces), greater passenger demand presented.”

This is an important finding for the country’s cities that are bringing in BRT systems, since urban planning has not been explored as an option for improving performance in terms of passenger demand.

THE BRT BOOM IN LATIN AMERICA

Research projects of this kind have been undertaken in the USA and Europe, but Vergel and Rodríguez extended the focus to stations in Latin America, where 54 cities have set up BRT systems (32.53% of the total worldwide, according to the website BRTData.org).

These systems take more time to implement in Latin America, but they are still an innovation on the up. And consequently, there are still many aspects of them to study. The specialist points out that Asia, Africa, and



Oceania could look to this experience in order to streamline the planning of their transport systems to their city development plans.

The research shows that the way public transport is planned may not coincide with the urban form of travel behavior, especially when investments in mass transport are not understood as city development projects. In fact, Vergel thinks that the crisis affecting integrated mass transport systems in Colombia is not merely a question of demand, but also of urban planning. If stations and stops were designed with typologies responding to the features and needs of the city sectors where they are set up, sustainable transit-oriented urban development could be achieved.

This would help reduce problems with overcrowding, route design and programming, and the management of popula-

tion flows between different activity nodes, thus reducing the need for travel. This would even promote inclusive housing building for low-income residents close to stations.

FROM MOBILITY TO ACCESSIBILITY

The future of TOD research goes much further than the aforementioned aspects, however, as the professor points out: “We are moving towards inclusive and sustainable urban development, which will occur in two phases: in the short term, there is a technological aspect that improves city mobility (applications, demand management mechanisms, electric vehicles); while in the long term there is city

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design, where we hope that investment in transport changes the way in which these are built, favouring inclusive urban development for the more vulnerable groups, and in more sustainable ways for the environment.

“But one additional variable has emerged, and that is the area of social justice: the right to mobility, where I live in relation to where I work, how much of my monthly pay I spend on transport, how many line changes I have to make to get to work. Social and environmental justice in transport are recent topics that are catching the attention of transport planners in Latin America, and this too is a key area ripe for more research.

“If we don’t research, we are planning cities and transport systems solely for those who can pay. But experience tells us that mobility is cross-cutting, an area in which it is fundamental to know how people move around, so that we can plan cities in which the need to travel is reduced, thus moving from mobility to the paradigm of accessibility,” concludes the researcher. ■

TYPES OF STATIONS AND THEIR ENVIROMENTS

Research into urban development of station environments in BRT rapid bus public transport systems in seven Latin American cities allowed for the identification of 10 types of stations. These are the most representative:

Nexus: connections between two or several BRT public transport bus lines, and with other forms of transport; located by converging roads that set up physical barriers between the stations and their environments.

Institutional use corridor: stops with institutional land use such as schools, hospitals, churches, libraries, and amenities for recreational activities, with low BRT orientation.

Mixed-use corridor: located in corridors with a wide mix of land use, including institutional buildings. These are not particularly dense since they have not necessarily been well placed in the city's urban structure.



Universidades, Guayaquil, Ecuador.

Metrovía integrated transport system, Guayaquil, Ecuador.

Downtown city center (Quito): the historic center of Ecuador's capital city has a high density of government institutions, pedestrian amenities, several public and private spaces, such as churches and hotels, and considerable small-business activity. Residential land use is low and it has a majority floating population.



Plaza Grande, Quito, Ecuador.

Trolebús the metropolitan public transport system in Quito, Ecuador.

Neighborhood center: high population density in residential developments of relatively low quality, with considerable commercial development, far from activity nodes, but with good BRT orientation. Stops with high density of informal housing.



Portal Usme, Bogotá, Colombia

Community center terminal: single family housing far from activity nodes, with some BRT-oriented institutional uses.

Residential center: high density of multifamily residential developments with pedestrian infrastructure and small public spaces. Relatively weak BRT orientation.

Getulio Vargas, metropolitan area, Sao Paulo, Brazil.



Green areas: vacant land, some high-quality green spaces, with some institutional land use and distant from activity nodes. The Base Naval stop in Guayaquil is an institutional land use next to the airport, thus explaining its large green areas. Other stops in Bogotá and Quito are in urban expansion areas, often with low-income housing.



Portal 80, Bogotá, Colombia

BRT-oriented satellite center: high population density with pedestrian infrastructure, green spaces, public spaces, BRT-oriented infrastructure; located distant from activity nodes, with low consolidation and high availability of open space.

Guatemala City corridor: low consolidation of spaces, low-quality green spaces, with some institutional uses close to activity nodes.



Colective Integrated transport network in Curitiba, Brazil.