¡Subir Tren Suburbano!

Commuter Rail Emerges in Mexico's Largest City

By Tony McKegney

As RAIL Magazine has chronicled the developments in North American passenger rail for more than a decade – with profiles and articles spanning from the Canadian Maritimes to Southern California, and high-speed rail to neighborhood streetcars – our attention has never focused on passenger rail progress in Mexico. And while Mexico City's Metro is one of the most extensive in the world at more than 109 miles, 11 routes and 175 stations, and light-rail systems in Monterrey and Guadalajara have been in operation for decades, our first Mexican rail profile will consider the most recently-opened rail system in the nation, the Ferrocarril Suburbano de la Zona Metroplitana del Valle de Mexico, or the Suburban Railway of the Mexico City Metropolitan Area.

Like the United States, Mexico's chief mode of intercity, regional and local travel once was an extensive passenger rail network. Private railroads built more than 15,000 miles of rail lines, while cities throughout the country benefited from streetcar and interurban routes that fueled their growth through the 19th and 20th centuries. Also similar was the relative abandonment of that network after the 1950s, as highways, bus lines and air travel relegated rail travel to a lower status. And while the Mexico City Metro opened its first route in 1969, and light-rail followed in 1989 and 1991 in Guadalajara and Monterrey, respectively, all intercity passenger rail service was suspended in 1997 after investment at the federal, state and local levels failed to materialize.

And yet the need to offer enhanced mobility resources still remained in many Mexican communities, especially in the Mexico City metropolitan area – the world's third-largest, after Tokyo and Seoul at more than 20.4 million people. Although the Mexico City Metro moves more than 3.86 million daily riders, its network largely focuses on the city's dense urban core, leaving residents in suburban

The Tren Suburbano (red line on map at left) connects with Mexico City's extensive Metro system.

regions faced with congested highways and thoroughfares and overcrowded bus lines. Some trips from suburban communities to the downtown core could take over two hours for a 20-mile trip.

Like Washington, D.C., Mexico City is an entity unto itself – the Districo Federal – and much as U.S. federal leaders saw the need to help its capitol city workforce reach their jobs via the Washington Metro, the Mexican Federal Government began to study ways to help suburban residents reach employment in the downtown core, while also concentrating suburban growth and development at key transportation nodes.

Leveraging Existing Infrastructure

Although Mexico's intercity passenger rail system vanished in the late 1990s, extensive freight rail routes remained in service, including multiple routes leading in and out of Mexico City. As federal and Districo Federal officials began considering potential routes for a suburban rail service, they quickly identified a freight line from the downtown Buenavista station to Queretaro to the northwest that was electrified in the 1980s to support high-speed freight operations. And while the electric catenary was removed from the route from Queretaro to Huehuetoca in 1997 to allow for double-stack container trains, the 29-mile section from Huehuetoca to Buenavista retained its overhead power source in the hopes of

Tren Suburbano's infrastructure was built to support high-capacity freight rail service.

hosting commuter rail service.

By 2003, the federal government, Districo Federal and the neighboring state of Mexico had arranged $706 million in investment to begin construction on the first segment of the Buenavista – Huehuetoca route, reaching as far as Cuautitlán in the state of Mexico. The project included seven stations along a 17-mile route that would utilize the previously-installed catenary infrastructure to power newly-built electric-multiple unit (EMU) vehicles produced by Spain's Construcciones y Auxiliar de Ferrocarriles (CAF). Construction spanned five years and the service – known locally as Tren Suburbano – was inaugurated on June 2, 2008, with Mexican President Felipe Calderon and State of Mexico Governor Enrique Peña Nieto at the helm of the first train. After only four years of service, today Tren Suburbano ridership has grown from 30,000 at its opening to more than 88,000, making it one of the most heavily-utilized

commuter rail lines in the western hemisphere.

"I am delighted to see reflected in this work that the country is joining forces and realities that are building for Mexicans," Calderon said at the opening of the route. "Ferrocarril Suburbano will improve the quality of lives of four million people and will be a priority for the federal government, the state of Mexico and Mexico City."

Not only did the Tren Suburbano utilize an existing asset in the form of the rail line between downtown Mexico City and Cuautitlán, but it also restored passenger rail service to the city's most historic rail location at the station now called Buenavista. From the time the first passenger train departed Mexico City on January 10, 1873 enroute to Veracruz, several facilities have hosted rail service at the site, including the current Buenavista Station, which opened in 1961 and was refurbished in 2006 in preparation for the Tren Suburbano. Mexico City Metro subway trains call nearby at a stop of the same name on the system's B Line, while 6 Line trains connect at Tren Suburbano's Fortuna station. Additionally, the effort included significant new bridge and tunnel infrastructure in the downtown center to reach the Buenavista station, avoiding frequent grade crossings, improving safety and maintaining higher operating speeds.

En la Estación: Rail-Oriented Development, Mexican Style

In the United States and Canada, land use, zoning and development often take different shapes depending on state regulations and the

Mexico City Metro

With more than 1.4 billion annual riders, the Mexico City Metro is the ninth-busiest heavy rail metro system in the world, and the second-busiest in the western hemisphere after New York City. Connecting 175 stations on 11 lines – with a 12th under construction, the Metro is an inseparable aspect of daily life in Mexico's largest city. Moreover, like most of the world's largest metro systems, it's lines are highly integrated with each other via a portfolio of 24 transfer stations – or correspondencias – more than double the number of transfer opportunities of the Washington, D.C. Metro.

Among the more amazing elements of the Metro's size is its relatively young age. Only China's Guangzhou and Shanghai metros and the Seoul Subway are both larger and younger than Mexico City's heavy rail network. The system's 109 miles of rail lines were constructed in six stages beginning in 1967 in response to significant road congestion and air quality concerns. The first three lines opened for service on September 4, 1969.

Similar to the Paris Métro, the Mexico City network utilizes a mix of standard steel wheel vehicles along with rubber tired-trainsets among its 14 different types of rolling stock built by a variety of manufacturers over the years. The lines are designed by a mix of numbers and letters to indicate their routing, although no two lines share trackage in revenue service. Also distinct to the system, each station also features a unique icon in reference to nearby attractions, geographic features and historical sites, resulting in a logo similar to a coat of arms for each stop.

Under construction is Line 12, which will run from the western edge of the city at the Mlxcoac station east and south to Tláhuac, connecting with the 2,3,7 and 8 lines en route. Meanwhile, although not officially part of the Metro network, the Xochimilco Light-Rail line connects with Line 2 at the Tasqueña station, and was an upgrade of the city's last remaining streetcar line in 1986. Today, the route serves 18 stations on an 8-mile line carrying more than 21 million riders each year.

Tren Suburbano's stations prioritize easy access to retail and customer services within station facilities.

preferences of local jurisdictions. In general, Mexican communities place far fewer stipulations on how development and growth take place, with street patterns often unpredictable and great fluctuations between residential, commercial and industrial uses within close proximity of each other. And while the Tren Suburbano does not mark a landmark shift in how Mexico's communities orient their land use or planning processes, federal officials involved in the project do expect the system's stations to serve as centers for community life and activity.

"It is expected that these centers, at each station, with its own shopping center, become a meeting place and community life, family, neighbors, they will have access not only to users of the train, but the general population," says Mexican Secretary of Communications and Transport Luis Tellez. "These centers will be centers of economic activity which will create jobs and will have positive effects on the economy of each area in which they are deployed."

Key to that objective is the role of Tren Suburbano stations as hubs for information and connectivity – a role crucial to any responsive and functional transit center anywhere. Not only do the system's seven stations provide real-time information for rail service – which operates from 5:00 a.m. to 12:30 a.m., the following morning on weekdays, and opens at 6:00 a.m. and 7:00 a.m. on Saturdays and Sundays, respectively – but also local bus, taxi, jitney and private transportation options to reach nearby districts and neighborhoods. Nearly all stations have several designated pedestrian bridges and pathways to connect passengers with nearby commercial and residential districts. Meanwhile, large bicycle parking facilities have been installed at the Cuautitlán and Fortuna stations, each averaging more than 300 bicycle riders on weekdays. For a region that battles some of the worst roadway congestion in the world, any resources that help move travelers off of jammed thoroughfares is a significant tool for economic growth.

"The idea is that besides everything we are doing on public transport right now, what else can be done in order to make the citizen reflect, 'Why should I use the car today,'" says Mexico City Mayor Marcelo Ebrard. "In this sense, we increase the investment on public transport but every time you use your car it is going to cost you more. This is our policy. Now, it is a fact that as citizens in Mexico City increase their economic levels, they significantly increase their use of cars to an extent that far surpasses the rate of economic growth. The great risk is that we could face a collapse in the city in the next 10 years if we don't do what we are doing. I'm thinking in the long term here."

"We go through these roads every day and it is more accessible to arrive, because it is easier," adds Tlalnepantla Municipality Mayor Marco Antonio Rodriguez Hurtado. "You can measure it, in the case of President Juarez road, it feels that there's less road vehicles."

A Larger Vision

The electrified rail line between Buenavista and Cuautitlán was a natural starting point for a regional commuter rail network for Mexico City. But new routes and extensions could transform Tren Suburbano into a 150-mile regional rail system in the coming years and decades, the first of which is likely a 12-mile expansion of the current route from Cuautitlán to Huehuetoca, using the electric catenary infrastructure already in place. Another route would branch off from the current Lecheria station and head northeast to Jalto-

Beyond the current route between Buenavista and Cuautitlan, Tren Suburbano lines are planned to serve multiple destinations in the Mexico City region.

can, before turning southeast to reach Tecámac and Teotihuacán.

A second route – marked in blue on project maps – would initially begin at the Martin Carrera station in Mexico City – northeast of the current Buenavista terminal – and travel northeast through Altavilla and Americas to connect Jardines de Morelos, and then potentially continue on to meet the proposed branch from Lecheria and Jaltocan at Teotihuacán. A third main route – designated as green on maps – would originate at Nezahualcóyotl on the eastern fringes of Mexico City, connect with the Metro at La Paz and ultimately terminate at Chalco, with an option for a branch route from La Paz to Texcoco.

Although the three primary routes would initially begin at independent terminals in or near Mexico City, plans call for connective expansions to unite the lines. The Green Line would travel north, then west to meet the Blue Line at the Altavilla station, and then connect with the existing Red Line route at San Rafael. Meanwhile, from the Martin Carrera station, the Blue Line would turn south and west through the northern center of the city center to reach the Buenavista terminal, and then proceed west to access two different endpoints at Naucalpan and Polanco. A new Red Line branch could also parallel the current line, and offer a second link with the Blue Line at Tacuba. Most proposals would see new Tren Suburbano routes utilizing existing freight rail rights-of-way, although access for passenger trains would require negotiations with the respective freight rail operators, especially for the Blue Line route on the already-congested tracks through the heart of Mexico City.

Although no specific timeline or funding mechanisms have been established for the new routes and services, local leaders are embracing the prospect of Tren Surburbano service to their communities.

"Commuter rail is long overdue for the people of this town, as it may move in a short time to the towns of Vlle de Chalco without major mishaps, save money and travel time," says Augustine Ramirez Corona, Mayor of La Paz.

Rail Means Quality of Life

Recent passenger rail history in Mexico and Mexico City is not far removed from its American counterparts, as an extensive network – that was once discarded – gradually rebuilds its past role as a vital presence in vibrant communities. With Tren Suburbano, the Mexico City region is able to compliment its extensive Metro network with an additional rail option to connect outlying communities and improve overall quality of life.

"We are saying that this means of transport – Tren Suburbano – for thousands of people will move more quickly and efficiently, thus saving time, raise the quality of life for people and allow them to come home early and live longer with their families," said Secretary of Communications and Transport Luis Tellez.

Tren Suburbano station platforms are both pristine and functional.