

TRANSPORT INNOVATOR

VOLUME 1, No. 6

November 2005

Welcome to *Transport Innovator*, a free newsletter dedicated to sharing information about innovative, cost-effective transportation solutions. We welcome comments and ideas for future stories. Please feel free to contact us – we look forward to hearing from you. Free subscriptions are available at www.gobrt.org

Table of Contents

<i>Editorial – A HOT Future?</i>	2
<i>Transport News from the United States</i>	3
New Orleans, Florida Bus Service Returns After Hurricanes	3
Los Angeles Orange Line Busway Launched	4
Cleveland Initiates Gold Line Bus Service	5
San Bernardino Contemplates BRT	5
Cedar Rapids Buses Get Mobile Broadband	5
Plans for Minneapolis Busway Modified	6
NYC Transit Increases Hybrid Diesel-Electric Bus Fleet	6
<i>Transport News from Around the World</i>	7
World Bank Recommends BRT in HCM City, Vietnam	7
BRT Coming to Winnipeg, Canada	7
UK Replacing Low Ridership Rail Lines With Busways	8
Lagos, Nigeria to Implement Bus Route Franchise Scheme	8
Vancouver, Canada to Demonstrate H₂-Powered Buses	8
Seoul, Korea Public Workers Must Use Alternate Transport – Transit Improvements Continue	9
Restored Cheonggyecheon river	9
Chile's Transantiago Bus System Largest in Latin America	10
Citaro Fuel Cell Buses Achieve 1 Million km Service	10
Bangkok, Thailand Plans BRT Corridors	11



1100 H Street, Suite 800, Washington, DC 20005
Contact: Bill Vincent
(202) 785-4222 ext. 30; vincent@fuelcells.org

Editorial – A HOT Future?

Highway tolling is rapidly gaining popularity because toll revenues offer a new source of funding for much needed transportation improvements. It may seem that toll policies, particularly those that add new lane capacity, are inconsistent with the goal of promoting public transportation. But this is not necessarily the case.

On Interstate 395/95 in Northern Virginia, a private consortium has proposed to convert two existing, reversible High Occupancy Vehicle (HOV) lanes into three reversible High Occupancy Toll (HOT) lanes, and to extend these HOT lanes 56 miles south of Washington, DC. Their concept: charge SOV and HOV-2 vehicles a fee and allow higher occupancy vehicles, such as HOV-3's and buses, to use the facility free of charge.

More to the point, they are offering to construct \$65 million worth of bus rapid transit (BRT) infrastructure, including stations and park and ride lots, to be used in conjunction with the HOT lanes. They also have suggested that sufficient toll revenues may be generated to repay the debt incurred to build the HOT lanes *and* to support BRT operations.

Can a toll road really be used to provide attractive, high quality transit services? You bet. By increasing toll rates as congestion builds, drivers are encouraged to use alternate, non-toll routes, thus ensuring that the HOT lanes remain free-flowing. The free-flowing corridor provides an ideal opportunity for buses to make long-distance runs to and from activity centers in the city.

An express bus/BRT system operating on Northern Virginia HOT lanes could attract at least 8,000 daily new riders, based upon our preliminary modeling. We also found that many of these new riders would otherwise be driving their cars. Expense to the government could be minimal, because much of the infrastructure, as well as some operational costs, would be paid through toll revenues.

There needs to be more planning to ensure that HOT lanes reach their full potential to support public transportation. One option is to develop a BRT network on local arterials that feeds into the HOT lanes, thus providing the potential for one-seat rides from home to destination. As part of this option, land use plans could ensure that higher density, mixed use development is associated with the BRT network.

The Commonwealth of Virginia recently recommended moving forward with the Interstate 395/95 proposal. The pieces appear to be in place to make this a multimodal corridor that supports the needs of both automobile drivers and public transportation customers. If successful, this could be a national and, indeed, international showcase for combining new toll road infrastructure with public transportation. The time to plan is now.

Transport News from the United States

New Orleans, Florida Bus Service Returns After Hurricanes

Despite substantial damage caused by Hurricane Katrina, Regional Transit Authority (RTA) bus service has returned to New Orleans. Daily limited service resumed on October 2 on three routes. Buses run every 30 minutes and operated initially on shortened schedules (8:00 am to 6:00 pm).

RTA service also returned on October 2 along one route in the town of Kenner. Jefferson Transit resumed bus service on ten Jefferson Parish bus routes on September 28.

RTA's bus service has increased over the past month with 36 buses now operating along 16 routes, although some service has been re-routed. In early November, operating hours were expanded to 10:00 pm on several lines. Weekday hours now begin at 7:00 am on all lines.

The emergency RTA bus service has been funded by the federal government and is provided free-of-charge. The federal government has allotted \$47 million in emergency funding to both the New Orleans RTA for restoration of bus service, and to Baton Rouge's Capitol Area Transit System (CATS) for bus service expansion to accommodate the sudden population growth from the influx of New Orleans evacuees.

A special new emergency bus service, known as LA Swift, has been developed by FEMA, RTA and CATS to provide free transportation from Baton Rouge to returning New Orleans residents. The initial 15-day trial service has been extended through February 2006.

RTA's streetcar fleet also suffered flood damage--all 24 of the Canal Street streetcars, and six of seven Riverfront streetcars, are inoperable. Although thirty-five St. Charles Street vehicles were spared, significant wind damage to the catenary system will prevent these cars from returning to service in the near future.

In Florida, Miami-Dade Transit restored bus service one day after Hurricane Wilma struck the region. Buses were used to create a "bus bridge" for Miami's Metrorail system, which was extensively damaged. Buses provided service along the entire Metrorail alignment using 15-minute headways.

Metrorail service was partially restored after three days, but only on 30 minute headways and, in some places, only on a single track. Buses continued to be used on parts of the system that did not have electrical power. Throughout the crisis, Miami-Dade's bus fleet was credited with pre-hurricane evacuations and post-hurricane transportation for National Guard troops, supplies like water and ice, and area residents.

Sources: [Times-Picayune-9/30/2005](#), [Official Site of Greater New Orleans](#), and [New Orleans RTA, Passenger Transport](#)

Los Angeles Orange Line Busway Launched

Los Angeles' new, fully-featured Orange Line BRT service debuted in late October 2005. Free rides were offered during the first weekend, attracting a standing-room only crowd of an estimated 83,000 riders.

Fee service began the following Monday, serving about 11,000 daily passengers, far exceeding early projections of 5,000-7,000 passengers. The line is expected to draw to 22,000 average weekday boardings by 2020 and was constructed in 2.5 years at a cost of \$349.6 million.



Thirty Metro Liner buses were specially designed by North American Bus Industries (NABI) in collaboration with the Los Angeles Metropolitan Transportation Authority (MTA). The articulated, low floor buses are powered by compressed natural gas and boarding is accomplished through three wide doors. A front door ramp deploys within 25 seconds to help passengers with mobility impairments.



The Metro Liners travel along a 14-mile, exclusive transitway located in the San Fernando Valley between Woodland Hills to the North Hollywood Metro Red line station. Peak headways are five to six minutes, with service provided between 4:00 am to 1:00 am. The Orange Line is seen as an extension of Metro's Red Line and the schedules and operating hours are coordinated.

The busway's 13 stations feature unique artwork, terrazzo paving, photography and sculpture. Ticket vending machines are used capture passenger fares prior to boarding.

Despite public education regarding safety at busway intersections, several bus-vehicle collisions have occurred. Reports indicate that these collisions were caused by automobile driver error. Officials temporarily suspended bus signal priority at the busway's 36 traffic intersections pending an investigation. Subsequently, traffic signals were adjusted and new signage added, including a green right turn arrow to indicate when it is safe for drivers to turn and cross the busway. MTA also has equipped one bus with flashing strobe lights to increase visibility.

Source: Los Angeles Daily News-[11/01/2005](#) and [11/2/2005](#), and [MTA](#)

Cleveland Initiates Gold Line Bus Service



Rendering of Cleveland's Silver Line

Gold Line rapid bus service recently was introduced to Cleveland's Clifton Corridor. The new service incorporates several BRT-like features, including frequent service and fewer stops. Additional features are being considered, such as dedicated lanes and traffic signal prioritization. Special gold buses will be delivered later this year.

Cleveland's fully-featured BRT service, the Silver Line, currently is under construction. The 9.4-mile median busway route will serve the Euclid Avenue Corridor, featuring level, multi-door boarding on articulated buses, off-board fare collection and real-time bus arrival information. Silver Line service will be launched in 2008.

Source: Passenger Transport, 10/17/2005

San Bernardino Contemplates BRT

San Bernardino, California's transit agency, Omnitrans, has proposed implementation of a BRT system along a corridor running between Cal State San Bernadino and Loma Linda University Medical Center. Dubbed sbX (San Bernadino Express), the express bus system would operate in dedicated bus lanes along 60 percent of the route, using low floor buses to allow level boarding at train-like stops. Anticipated cost of the 16-mile system is \$120 million. Omnitrans is holding public meetings to discuss four variations of the plan. A final decision is expected in early 2006.



Rendering of Proposed sbX

Source: San Bernardino County Sun, 10/17/2005. For more information, see <http://www.estreet-sbx.com/>

Cedar Rapids Buses Get Mobile Broadband

Cedar Rapids, Iowa has added mobile broadband to the city's 50 buses. The broadband service allows passengers to connect wirelessly to the Internet and permits the bus system to provide streaming digital video entertainment. The system also allows remote control of video surveillance cameras and can function as an automatic vehicle location (AVL) system without requiring global position (GPS) equipment.

Source: [Metro Magazine-9/14/2005](#)

Plans for Minneapolis Busway Modified

Hennepin County officials are negotiating with Burlington Northern Santa Fe railroad for permission to build bus lanes adjacent to the company's rail tracks. The proposed dedicated busway would operate along the busy commuter corridor between Minneapolis and Rogers, Minnesota, parallel to County Road 81. The bus lanes would provide a new transit alternative and assist in the county's efforts to attract transit-oriented development within the corridor.

The county had initially planned to develop median bus lanes on County Road 81. However, a recently-issued traffic forecast for 2030 shows that future roadway congestion will be too significant to be able to devote the road space to bus lanes.

The State had already approved \$20 million in funding to develop shelters and park-and-ride lots, which must be committed by the end of 2006. The county has also received \$10 million in funding from the federal government. An additional \$30 million is needed to move ahead with the bus lane project.

Source: Star Tribune-10/14/2005

NYC Transit Increases Hybrid Diesel-Electric Bus Fleet

New York City recently ordered 500 DaimlerChrysler Orion VII hybrid diesel-electric buses. The hybrids generate 90 percent less particulate matter, 40 percent less nitrogen oxides and 30 percent fewer greenhouse gases than standard diesel buses. Total cost of the purchase is \$249 million.

New York City will have 325 hybrid-electric buses in service by late 2005. Deliveries of the new 500 bus DaimlerChrysler order will begin in the second quarter of 2006.



Hybrid-electric bus service was implemented 1998 as part of NYC Transit's alternative fuel vehicle program. In 2002, the agency received the U.S. EPA Clean Air Excellence Award for its purchase of hybrid electric buses, use of ultra-low sulfur diesel fuel and diesel particulate filters, and its diesel engine re-powering program.

Sources: U.S. Department of Energy/EERE News-10/26/2005 and MTA/NYC Transit

Transport News from Around the World

World Bank Recommends BRT in HCM City, Vietnam

The World Bank recently recommended that HCM City implement a new 17 km BRT system. The system would use dedicated lanes, rail-like stations, and 180 passenger vehicles. Currently, bus usage is relatively modest in HCM City at roughly 600,000 passengers/day, according to a local official. The BRT system is designed to attract more public transportation riders, among other things.

A tramcar system also has been proposed by a French company, Lohr Industrie. A memorandum of understanding was signed between the company and HCM City, with 70% of development assistance to be provided by the French government. A pre-feasibility study currently is being conducted. If implemented, the tramcar would operate along East-West Avenue.

Source: [VietNamNet Bridge](#)

BRT Coming to Winnipeg, Canada

Winnipeg, Canada's city council approved a plan to develop dedicated busways in two corridors and bus operating improvements in nine other corridors. Winnipeg is the capital of the Province of Manitoba and has a population of roughly 700,000.

The plan is based upon a recent report recommending construction of two BRT busways: one linking the University of Manitoba to downtown, the other in Transcona along an unused rail line. The report also recommends other citywide transit enhancements, including bus "Diamond Lanes", use of transit signal priority, queue jump lanes, new bus shelters and real-time schedule information.



Rendering of proposed Winnipeg BRT

The total cost is expected to be CAN\$270 million. The report anticipated that two-thirds of funding would be obtained from federal and provincial grants, while one-third of costs would be covered by the city. The plan will be implemented in two phases over twelve years.

Source: [The Manitoban Online-11/04/2005](#) and [Made in Winnipeg, Rapid Transit Solution, Final Report](#)

UK Replacing Low Ridership Rail Lines With Busways

UK government ministers have approved the construction of guided busways along several abandoned or low ridership branch rail lines.

Under the plan, rail tracks will be torn up and replaced with concrete channels designed for buses fitted with special guide wheels. The buses will run more frequently than trains, arriving about every 10 minutes. The conversion is hoped to attract drivers to public transit and to lessen roadway congestion.

The first line to be converted is a 13-mile rail line running from Bristol to Severn. If successful, government ministers are expected to pursue further busway conversions along dozens of low ridership branch rail lines.



Guided busway in Leeds, UK

Source: [Times Online-10/07/2005](#)

Lagos, Nigeria to Implement Bus Route Franchise Scheme

Lagos is replacing a previously-planned bus rapid transit system with a new Bus Routes Franchise Scheme (BRFS). The change was prompted by difficulty in securing a federal highway corridor for BRT along the 10-km Iyana-Ipaja to Ikotun route. The State Governor has already approved the BRFS plan. Dedicated intra-city bus routes will be established and franchised on a competitive basis and two or three operators assigned to each route. The pilot service could begin by mid-2007.

Allocating routes to private operators is expected to cut down number of transporters in the state to as low as 100. Currently there are about 75,000 buses in Lagos State owned primarily by individuals.

Source: [Daily Independent-10/03/2005](#)

Vancouver, Canada to Demonstrate H₂-Powered Buses

Four of Vancouver's TransLink public transit buses will be converted to run on a blend of hydrogen and compressed natural gas (CNG) as part of a three-year Integrated Waste Hydrogen Utilization Project. The goal of the project is to advance a hydrogen economy, promote innovation and demonstrate the potential of green energy technologies.

The project also includes demonstrations of eight light duty trucks running on hydrogen and a fuel cell system providing power and heat to a car wash. Purified waste hydrogen will be used, a by-product of sodium chlorate manufacturing plant in Vancouver. The project has \$18.3 million in funding, and is supported by the

Government of Canada, Sustainable Development Technology Canada and industry partners.

Source: *Westport Innovations-10/13/2005*

Seoul, Korea Public Workers Must Use Alternate Transport – Transit Improvements Continue

Public office employees in Seoul, South Korea will soon be required to leave their cars at home once weekly. The Construction and Transport Ministry announced the new regulation in early November 2005 as part of a plan to promote the use of public transport. Officials also plan to promote public transport in the private sector by, among other things, increasing enforcement of illegal parking and placing additional restrictions on downtown parking lots. New parking lots will be developed at public transport stations.



Median busway in Seoul, South Korea



Restored Cheonggyecheon river

Encouraging government employees and citizens to use public transport is part of Seoul's broader commitment to sustainable transportation. Seoul has been developing a fully-featured BRT system featuring dedicated median bus lanes, signal priority, state-of-the-art buses, and quality stations. Five busway corridors totaling roughly 80 km began service in 2004. The most successful of these corridors carries roughly 10,000 passengers per hour, per direction on 250 buses per hour, per direction. Much higher capacities are possible by adding more buses.

Seoul also has received acclaim for removing the Cheonggye Expressway, a 6 km elevated highway covering the Cheonggyecheon river that flows through the heart of the city. The river now has been restored with parks and public spaces. Twenty-two bridges cross the river to connect the city, and five of these bridges are limited to pedestrians and bicycles only.

Source: *The Korea Times-11/01/2005; sustainabletransport-Winter 2005*

Chile's Transantiago Bus System Largest in Latin America

Phase 1 of Santiago's new public urban transport system, Transantiago, went into service when 1,181 low-floor Volvo buses took to the streets at midnight on October 22, 2005. The bus system is now the largest public urban transport system in Latin America.



Nearly 1,800 Volvo buses were ordered for Transantiago, constituting the largest bus order ever received by Volvo. Two Volvo bus models are used: an 18.5 meter articulated bus capable of carrying 160 passengers, and a 12 meter conventional bus capable of carrying 90 passengers. Both models are Euro 3 compliant to aid in the city's goal of improving air quality.

Ten concessionaires operate the new buses and are regulated by the city government. Transantiago will eventually pare the city's fleet of 8,000 buses down to 4,700 by phasing out the older, yellow buses referred to as "micros".

In Phase 2, buses will have color markings to distinguish among different routes. Automated Multivía fare cards will be employed on all buses and the Metro subway.

Five thousand bus stops, 35 bus stations and 2 intermodal transfer stations will be completed in 2006. Buses will be GPS-equipped for vehicle location at the control center and bus frequency information delivered to passengers via station signage, telephone and the Internet.

Source: Primezone-10/24/2005, The Santiago Times-10/24/2005 and Transantiago

Citaro Fuel Cell Buses Achieve 1 Million km Service

Thirty-three Mercedes-Benz Citaro fuel cell buses, powered by Ballard Power Systems fuel cells, have attained over one million kilometers of on-the-road service. The buses were deployed in 2003 in three demonstration projects: the Clean Urban Transport for Europe (CUTE) project operating in 10 European cities; Ecological City TranspOrt System (ECTOS) project operating in Reykjavik, Iceland; and the Sustainable Transport Energy project in Perth,



Australia.

Using a 200 kilowatt PEM fuel cell, the low floor Citaro buses have a driving range of about 125 miles and a top speed of 50 mph. Compressed hydrogen cylinders are stored on the roof of the Citaro bus.

Three additional Citaro fuel cell buses have been delivered to Beijing, China, and will be operational by the end of 2005. Ballard fuel cells are also used to power three Gillig buses used in the fleet of Santa Clara, California's Valley Transportation Authority.

Demonstrations using Van Hool buses equipped with UTC Power fuel cells are planned by San Francisco Bay's AC Transit and by SunLine Transit Agency in Coachella Valley, California.

Sources: Daimler Chrysler, Ballard Power Systems-10/20/2005 and California Fuel Cell Partnership

Bangkok, Thailand Plans BRT Corridors

The Bangkok Metropolitan Administration (BMA) is developing a new BRT system, called "Bangkok Smart Way". The BRT system will operate on dedicated median busway lanes with signal priority at intersections. A study conducted for BMA anticipates initial potential ridership to be 20,700 and 36,000 daily on the first two routes. By 2022, ridership is anticipated to be 80,000 – 100,000 passengers per day for each route.

Source: Bangkok Post-10/23/2005



Rendering of BRT in Bangkok, Thailand