

**APTA Passenger Transport--Sustainable Source Column Article, Part 2 of 1
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Editor's Note: The first part of this article, which appeared in the Sept. 17 issue of Passenger Transport, focused on ways that public transportation can help support a healthy environment, such as principles of sustainable transit system development and overviews of land use efforts in Phoenix and Houston.

Transit Design and Technology Benefit the Environment

Return to Streetcars

Nearly 20 streetcar projects are in the works across North America, a "new/old" mode of travel changing the face of both large and small cities.

Streetcars will serve as true urban circulators in cities including Miami, Sacramento, Omaha, Tucson, and Winston-Salem, N.C., helping to complete "the last mile of the trip" by linking to regional transit systems; reducing traffic congestion; improving the carbon footprint of less sustainable transit modes; providing affordable transportation to employment opportunities; and promoting economic development and urban infill.

Building the Future

The Transit Master Plan for Rancho Cordova, Calif., has an interesting dual focus: to pre-plan a multi-modal future for a "new" city, having been incorporated only since 2003, and to help complete the Sacramento Regional Transit system. Since most of the city is yet to be built, Rancho Cordova intends to closely coordinate the future land use pattern with the proposed transit system.

The city has an aggressive vision: that Rancho Cordova will be one of California's premier transit-supportive communities. Transit is an expected and available means of travel. Transit and land use will forge a powerful partnership to create a livable and memorable Rancho Cordova.

The plan includes three levels of service: regional service (light rail and BRT); city service (streetcar and bus); and district/neighborhood service (streetcar and shuttles). It envisions the streetcar as its "Signature Service" to demonstrate the city's commitment to transit.

With both long- and short-range emphasis, RT revamped its current service to Rancho Cordova to allow more direct, convenient, cost-effective service for current residents. One specific focus is access to the major employment centers within the city.

The San Francisco Bay Area Rapid Transit District's Pleasant Hill Station in Contra Costa County is a success story showing the conversion of an office complex and regional park-and-ride garage into a true, walkable, mixed-use transit-oriented community.

A charrette--a dynamic, interactive, public planning process--was the means to prepare the master plan. Participants in the process were community members who would potentially be affected by the new development, including neighborhood residents, BART users, local business owners, government agencies, citizen leaders, and activists. They determined the most important issues of the Pleasant Hill BART Station Area Master Plan to be:

- * The design of the future development on BART property;
- * Control of vehicular traffic;
- * New open spaces and greenways for pedestrians and cyclists;
- * Maintaining parking capacity for BART patrons and residents;
- * New services and facilities for area residents; and
- * A mix of uses within the site.

The plan incorporates a large public plaza adjacent to the BART station surrounded by ground-floor retail and offices, buildings with civic uses, and townhomes facing the regional bike trail. It preserves parking for BART.

In Northern Virginia

The national capital region has seen explosive growth over the past several decades, extending miles beyond its traditional boundaries. In northern Virginia, commuters had no option except driving until the Virginia Railway Express commuter rail system entered service 15 years ago. At that time, travel patterns into Washington began to change.

VRE now operates on two lines: 35 miles from Manassas, Va., to Washington's Union Station, and 55 miles from Fredericksburg, Va., to Union Station. It offers sustainability benefits such as reducing reliance on single-occupancy vehicles for long commutes; integrating with the Washington Metropolitan Area Transit Authority's Metrorail system to increase transit ridership; and promoting transit-oriented development at several key stations. Such development increases ridership, cuts down on auto trips, improves walkability, and offers new housing and living

opportunities at key stations. VRE adopted a TOD policy to provide a coordinated public/private development process.

Sustainable Design

The goal is to infuse sustainable design principles into every aspect of a project, including planning, design, construction, and operations. Consequently, there is a need to measure and monitor program success. This is accomplished through best practices and specific means and measurements for tracking sustainability within the project development process.

Measurement techniques include Geographic Information System-based evaluation tools, spreadsheets, and checklists. This approach facilitates and documents appropriately applied sustainable solutions.

Making sustainable transit solutions a reality begins with planning. Scale is crucial, as are environmental and community impacts. Specific sustainable transit solutions can be found in five principal areas:

- * Socioeconomic analysis. This identifies how a transit plan impacts job creation and household development;
- * Public involvement. The process is visible, accessible, and credible, offering all stakeholders equal access to help define the project;
- * System planning. Sustainable systems help shape regional settlement patterns, foster mobility, and increase community interaction, and protect and enhance environmental assets;
- * Environmental documentation. Practicing environmental responsibility includes proper documentation and permitting; and
- * Sustainable urban design. Providing compact, walkable mixed-use station area planning and community design creates livable places--places where people want to be.

Design, Construction, Operations

The design and construction phase manifests environmental and economic sustainability implications. For example, corridor and track development might include provisions for alternative delivery, recycling of construction waste, avoidance of negative environmental impacts, and using recycled/composite materials.

Site and facilities development should incorporate cost-effective, environmentally sensitive construction--delivering green/LEED buildings and structures whenever possible--and environmentally sound site work.

Significant opportunities exist within transit operations to advance sustainable solutions, from the use of less hazardous fluids to reduction of greenhouse emissions. Environmental management systems facilitate policy development, help set goals, and establish processes for monitoring performance and reporting results.

Coordinating office, operations, and maintenance facilities benefits operational and environmental efficiencies. Converting to non-caustic solutions and employing recycling programs can reduce hazardous waste.

Further environmental and economic gains are possible by maximizing fuel efficiency of the transit system. This can be accomplished by considering new technologies and alternative fuels, making vehicle/mechanical adjustments, and consolidating routes.

Looking to the Future

The era of environmental stewardship and sustainability is here, and transit is an important part of the formula for sustainable transportation solutions. Transit helps reshape the way we live, work, and move. Across the country, transit agencies, APTA, HDR, and other Business Members can make significant contributions by planning, constructing, and operating sustainable systems.

Through a coordinated sustainability strategy that includes transit, climate change can be moderated, energy conserved, congestion relieved, open space preserved, and healthy, livable cities realized.