

Bus Rapid Transit and Land Use

SARAH JO PETERSON

Conventional wisdom teaches that transit-oriented development requires rail service. The half-mile circles defining the TOD area are measured from stations serving subways, light rail, and perhaps even commuter rail, but not buses. But what about bus rapid transit? Is there such a thing as BRTOD?

SUCCESSFUL TRANSIT-ORIENTED developments (TODs) meet demand for compact, walkable, mixed-use development—the same markets that are also likely to see an important amenity value in easy access to high-quality transit service. At the same time, the more people, jobs, and services that exist within walking distance of transit service, the higher the potential transit ridership and fare generation, and the more cars that can be pulled off congested roads. TOD is a win-win for land use and transportation.



The Cedar Grove Transit Station in the Twin Cities, an example of a neighborhood station along the Cedar Avenue Transitway, handles 200 weekday buses and is integrated into a plan for a pedestrian-focused, mixed-use neighborhood.

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TOD would seem to work for both trains and buses, but rail stations have attracted the most development attention, at least in the United States, because the infrastructure required for rail service is seen as both more permanent and more impressive. The significant investments in rights-of-way, tracks, and stations, especially when these elements are new, signal the commitment to make these areas investment priorities. The flexibility of bus service—in which routes and service levels can be quickly changed—works against the bus as an organizing anchor for TOD.

In addition, rail typically offers higher-capacity and higher-quality service than do buses and sometimes even cars. The separate corridor required for the tracks means that the train may reach a destination before a car would, while the bus, trapped on the same congested roads as cars and stopping

frequently, has the reputation of being the slow horse of the transportation world.

Rail stations also help boost TOD by contributing to the place making that is a critical component of success. Rail stations not only function as gateways to a city, neighborhood, or employment center, but they also are singular in the urban landscape. Mix in an underground tunnel or an elevated platform, and they become even more interesting. Recognizing the landmark potential of rail stations, societies historically have chosen to invest in high-quality design.

But what if buses provided a high level of service, traveled through permanent and impressive infrastructure, and contributed to place making? Bus rapid transit (BRT) has the potential to meet all these criteria and, in the process, turn TOD into BRTOD.

Bus rapid transit is not really just a bus. It is better described as a movement that is

BRT Areas Undergoing Innovation

The National Bus Rapid Transit Institute, in its 2009 handbook *Characteristics of Bus Rapid Transit for Decision-Making*, identified the following seven elements as those undergoing innovation as bus rapid transit emerges as a transportation alternative:

- ▷ running ways or corridors;
- ▷ stations;
- ▷ vehicles;
- ▷ fare collection;
- ▷ transit signal priority technologies;
- ▷ service and operations; and
- ▷ branding.

The Apple Valley Transit Station, a \$21 million facility that opened in January, serves the Cedar Avenue Transitway, a 16-mile (26-km) route running from Lakeville to the Mall of America, where riders can transfer to the area's expanding rail system.



applying creativity and innovation to bus service, with a special focus on medium-length and longer trips. It is in these longer trips where the *rapid* aspect becomes important—where saving time helps bus service compete with the automobile. Not all BRT innovations, however, have the same potential to shape land use. Some innovations improve the rider experience, while other innovations begin to make a statement in the landscape—that bus infrastructure no longer means just a sign and maybe a bench by the side of the road.

One way to think of BRT is to imagine a rail line, but with buses instead of trains. In this type of BRT, specially designed and branded buses travel on a bus-only lane or corridor and stop at stations. Stations are typically spaced from a half mile (0.2 km) to several miles apart. In the full expression of “like-rail” BRT, the corridor is fully grade separated so that the buses only slow to stop

at stations. Trips are free from congestion and delays to cross intersections.

The Orange Line in Los Angeles and the EMX Line that travels between Eugene and Springfield, Oregon, are U.S. examples of like-rail BRT.

Bus-only corridors with stations are also a key component of a type of BRT often called busway, or transitway, systems. Busway systems take advantage of the fact that unlike trains, buses can run anywhere there is a road. A bus may start on a neighborhood route, go to the busway to speed downtown, and then circulate on the downtown streets. Busway systems, therefore, can reduce the need for transfers, potentially combining door-to-door service with speed. Busways also can accommodate multiple transit providers: intercity buses, buses from distant suburbs, express buses, local buses, and even private vanpools all could be permitted access to the busways.

Pittsburgh has a busway system dating to the 1970s, and Ottawa, Canada, and Brisbane, Australia, have developed extensive systems of rapid transit on the transitway model. Bus service that uses high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lanes can get a community part of the way toward implementation of a full transitway system.

Bus rapid transit is being unveiled in communities across the United States, following the international trend as BRT spreads from Curitiba, Brazil, to Bogotá, Colombia, to Guangzhou, China, and now to Johannesburg, South Africa. Many of the U.S. BRT projects are much smaller in scale than the leading international examples, but as experience in the suburbs of Minneapolis reveals, thinking anew about land use and buses is still possible.

The Cedar Avenue Transitway is one of two new BRT lines under construction in the Twin Cities metropolitan region. The 16-mile



(26-km) route runs from Lakeville through Apple Valley, Eagan, and then on to the Mall of America in Bloomington, where riders can transfer to the area's expanding rail system. The corridor connects these growing suburbs to jobs in downtown Minneapolis and St. Paul and along Interstate 494. The \$250 million project is building stations, parking facilities, and bus lanes on the shoulders of the busy, and increasingly congested, Cedar Avenue.

When the first stations on the Cedar Avenue Transitway opened earlier this

year, the Minnesota Valley Transit Authority began expanding express service to the region's job centers and linking in local bus routes. Station-to-station service is planned to begin in 2012.

The investment in the Apple Valley Transit Station signals the commitment to high-quality service both to bus riders and to the occupants of the cars that pass under its glass-enclosed pedestrian bridge. Opened in January, its 750-stall parking structure nears capacity on a typical workday; the station also

connects to city and county bicycle trails. The \$21 million facility shows that bus infrastructure can provide the type of landmark that could boost place making for a neighborhood.

Smaller and supporting less parking than the Apple Valley Transit Station is the Cedar Grove Transit Station, an example of a neighborhood station. The station and its 200 weekday buses are an essential element in Eagan's efforts to promote the redevelopment of an area once occupied by a mall. The transit station is integrated into a plan for a





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Bus rapid transit is being unveiled in communities across the United States, following the international trend as BRT spreads from Curitiba, Brazil, (left) to Brisbane, Australia, (facing page) to Guangzhou, China (above).

pedestrian-focused, mixed-use neighborhood of residential and commercial uses.

The Cedar Avenue Transitway terminates at the Lakeville Cedar park-and-ride lot. Transit planners thought ahead when selecting the site, currently a surface parking lot in a still-developing area of the suburb. They avoided the prime commercial locations and instead positioned the lot to support shared parking with the commercial development when it eventually reaches the area.

Because BRT technologies are new and evolving and because their use seems to play out differently in every community, it is crucial that transportation and land use decision makers from both the public and private sectors share the specifics about what is being planned and developed. With construction underway on the BRT corridors in the Twin Cities, ULI Minnesota brought together transit providers, local governments, and the private sector for a bus rapid transit forum to learn about the new transit services and share ideas about how to coordinate BRT and land use. Among the issues raised, though not resolved, was whether a development's shuttle bus service would be allowed to use the new transitways and transit stations.

To capitalize on BRT's potential, land use decision makers need to understand what type of BRT is planned. Is it like-rail BRT that will concentrate access at the stations? Or is it

a busway system, where land with good vehicle access to the transit corridor may be just as significant as sites within a half-mile walk of the stations? Or does BRT mean better bus service, without much of an impact on infrastructure? Will the BRT line or corridor be

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“rapid” enough, and—often even more important to transit users—will the buses arrive frequently enough to constitute an amenity to surrounding development?

BRT may open opportunities to coordinate transit service with demand for compact,

mixed-use, walkable development in communities that are not large enough to support rail. The same is true for suburban areas not dense enough to support rail. Regardless of the type and service level of BRT, however, the same land use lessons of TOD apply: station area design, attention to security, the placement of parking, and easy and relatively pleasant access into the surrounding neighborhoods or activity centers by foot and bicycle are still the elements of success. **UL**

SARAH JO PETERSON is the senior research associate for the ULI/Curtis Regional Infrastructure Project, which is working with ULI Minnesota and other district councils at the intersection of land use and infrastructure. More information on the Curtis Project and other ULI infrastructure initiatives is available at www.uli.org/infrastructure.