

NEW TOWNS
JANUARY/FEBRUARY 2008

Transit-Oriented Development -- By the Numbers

The compact, walkable neighborhood built around public transit rather than the private car has long been one of the ideals of new urbanism. Now significant new research confirms with hard numbers the advantage of transit-oriented development over conventional suburbia. With the United States in the midst of a light-rail building boom, it's a great time to be finding this out.

By Ruth Walker

The numbers are in.

And they show that transit-oriented development really does get people out of their cars.

A new study of 17 different transit-oriented developments in four metropolitan areas showed that they generated only about half as many car trips as the standard planning reference guide predicts.



The Englewood Light Rail Station, along the RTD's Southwest Corridor Light Rail, has anchored local development since it opened in 2000. Credit: Courtesy RTD

It's research with potential for major impact on the way communities view transit-oriented development (TOD). The findings could drive changes to local building codes, lead to lower development impact fees, and make the numbers work better for communities and home buyers as well.

This validation of TOD comes at a time when new light-rail systems are being built or planned in city after Sunbelt city across the United States.

Denver is Exhibit A for this trend. In 2004 voters in eight counties of metro Denver approved a ballot measure calling for the construction of 119 miles of light rail on six different lines, with 70 stations, 40 of them in Denver itself.

“What they’re doing in Denver is unprecedented in modern American cities,” said G. B. Arrington of PB PlaceMaking in Portland, Ore., an advocate of TOD and one of the authors of the study.

And it’s clear from talking with officials in Denver that the light rail isn’t just about solving a transportation problem. Julius Zsako, communications director for Denver Community Planning and Development, pointed to a passage in his city’s strategic plan for TOD: The whole project “provide[s] an unparalleled level of transit access for a region of this size and, as such, could fundamentally reshape growth patterns in the region.”

The report also notes that the voters were sold on the project for two reasons:

- The need for transportation alternatives if the Denver region is to remain competitive
- The desire to cluster growth around transit stations to stimulate development “of the type of neighborhoods Denver Metro residents desire.”

Denver may be out front on this, but other communities aren’t too far behind. Portland is another leader. So is Arlington County, Virginia, whose Rosslyn-Ballston Metro Corridor, along the Orange Line of the Washington, D.C., subway system, is widely admired.

Not too many years ago, the country’s light-rail systems numbered fewer than a dozen, and many of them lived on largely as tourist attractions -- think San Francisco and its cable cars. Currently 33 light-rail systems are in use across the United States. Some are centenarians like Boston’s MBTA, but many others are new in the past couple of decades.

And many of the new systems in place or under construction are in parts of the country that have grown up with the automobile, where wheels of one’s own have been an essential element of personal autonomy: Denver, Dallas, Charlotte, Salt Lake City, even Los Angeles.

It is against this background that Arrington and his partners, Dr. Robert Cervero of the Urban Land Institute and the Center for Transit-Oriented Development, did their study, for the Transit Cooperative Research Program. The authors have presented their findings at a conference; a final report was to be submitted in late January.

The 17 TOD projects the researchers looked were in Washington, D.C.; Portland, Ore.; San Francisco; and Philadelphia/Newark. All were within easy walk of high-quality transit with a mix of modes -- heavy rail, commuter rail and light rail.

Using the time-honored methodology of pneumatic tubes laid across driveways, the researchers determined that the TODs were generating, on average, 44 percent fewer auto trips than conventional wisdom assumes: 3.754 versus 6.715 daily trips per unit. The numbers were more dramatic during rush hours -- 49 percent lower rates during the morning and 48 percent during the afternoon.

Arrington sees these numbers as evidence that “the reality lines up with the theory” -- that transit-oriented development really does generate less auto traffic and so can be more compact without causing congestion. He also sees the numbers as showing how local codes may be mandating unnecessary infrastructure. If they require planning for 1,000 auto trips when research shows that residents are likely to make only 500, “we’re overbuilding our road systems for traffic that will never be there,” as he put it.

The Institute of Transportation Engineering Handbook informs local planning codes across the United States. But it has a serious “suburban bias,” according to Arrington.

“Most of the empirical data used to set [car trip] generation rates are drawn from suburban areas with free and plentiful parking and low-density single land uses,” he noted in October in an article for Planetizen, the Planning and Development Network. And actual TODs have not been studied much at all, he added.

The key implications of the study’s findings, according to Arrington:

- Local governments and communities may be more accepting of the higher densities of TOD if they are confident that such development will generate less auto traffic.
- Local governments may be able to reduce the impact fees they require of developers by up to 50 percent. In California, these fees can run up to \$17,000 per unit -- just to mitigate transportation impact.

- Lower impact fees for developers and less onerous parking requirements should translate into more affordable housing.
- Transit agencies stand to gain ridership when it becomes possible to build dwellings without parking spaces.
- Using less land for parking means more compact, more environmentally sustainable development.

Arrington cited U.S. Environmental Protection Agency estimates that each on-site parking space in an infill project can reduce the number of new housing units by 25 percent or more.

Arrington noted a need to “ride out the uncertainty in the real estate market” for the time being. But he also suggested that this is a time for advocates of TOD to continue to work for changes in the ITE Handbook and local building codes. It’s a time to “get ready for the next cycle.”

Meanwhile, back in Denver, as the freeways of the Eisenhower years reach the end of their useful lives, the public has realized something has to be done. “We’re rethinking whether we want to spend our dollars like that again,” says Peter Park, Denver’s chief of community planning and development.

The vote for FasTracks, the Denver transit agency’s 12-year comprehensive plan to build and operate high-speed rail lines and expand and improve bus service and park-and-rides throughout the region, came out of “a conversation that has been going on in the region” for some time, says Park. He ascribes the “yes” vote to two factors -- strong political leadership from Denver’s mayor, John Hickenlooper, who was able to get the mayor of 30 different cities in the region to sign on, and a broad recognition by the people that they couldn’t simply widen their way out of freeway congestion.”

They began to see that adding capacity merely invites more congestion, Park said. “And that’s a fairly sophisticated idea.”

Park stressed that Denver isn’t building just a single line but six different transit lines. And however remarkable the idea of 119 miles of new tracks sounds, in a sense it’s “back to the future.” In the golden age of streetcars, Denver had 300 miles of rail lines, Park pointed out, including streetcars and interurban lines -- and that’s the city of Denver.

Public transit is “embedded in the DNA of the city,” he says. And he notes that the most desirable neighborhoods, in those days, were served by public transit. The old maps he has in his archives show that transit-oriented development is “not a fairytale or a fantasy,” but something that can be done.

Park in Denver is not the only one to think multiple lines are important to making TOD work. “One line does not constitute a system,” insists Stefanos Polyzoides of Moule & Polyzoides, Architects and Urbanists, in Pasadena, Calif. People need to be able to count on the system to get them there and get them back. If not, they’ll stick with their cars. “They don’t want to be stranded somewhere.”

Transit Oriented -- or Merely Transit-Adjacent?

One concern among new urbanists is that some development around light-rail stations is transit-adjacent development, rather than truly transit-oriented. Some observers blame local building codes that still require streets too wide and parking too plentiful to make for a genuinely walkable community. They see developments geared too much toward park-and-ride users.

Polyzoides takes a more nuanced approach. “Design is of the complete essence here,” says Polyzoides. For him, a critical point is the coding of the buildings around the transit stop. Do transit passengers step off the train and enter “something that looks like a legitimate urban context?” he asks. Or are they confronted with a suburban-scale storefront “that stretches out 300 or 400 feet with only a single front door?”

But, Polyzoides says, “I think park-and-ride and TOD are not competing ideas.” Successful development around a transit station needs to draw people from a wider area than is described by just the pedestrian radius of five or 10 minutes’ walk, he suggests. That means accommodating those who arrive by car and by bus. “It’s a common mistake not to have enough bus lines or parking space.”