



Improving Transit Impacts Through Design and Investment

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The latest report funded by the National Institute for Transportation and Communities – Transit Impacts on Jobs, People and Real Estate, from the University of Arizona – represents the culmination of nearly a decade of research into the economic effects of transit. To unpack the dense and substantial findings from 17 LRT, 14 BRT, 9 SCT, and 12 CRT systems in 35 metro areas across the United States, we’ve been telling the story in chapters. Previously we have explored how transit affects real estate rents, the locations of jobs and where people live. Now we’ll dive into the final chapter: Volume 5: Improving Transit Impacts by Reconsidering Design and Broadening Investment Resources (PDF).

Dr. Arthur C. Nelson of the University of Arizona has served as principal investigator on projects researching this topic for many years. He and fellow researchers Robert Hibberd, Kristina Currans and Nicole Iroz-Elardo of UA have now published the final phase of research into the development outcomes of light rail, bus rapid transit, streetcar, and commuter rail. The findings shed light on the complex interactions between transit station location and design, real estate rents, and where people live and work. The final report also offers ideas for consideration of how to improve these outcomes through better transit design and investment.

CONNECTING TRANSIT STATIONS TO ECONOMIC OUTCOMES

Fixed route transit station planning (determining where the station is located) and design (how it is physically connected with nearby land uses & other transportation options) can dictate not only ridership but also surrounding real estate markets and development outcomes. The previous volumes of this research analyzed data from 52 transit systems in 35 cities and reported on what the surrounding development outcomes were like. The research team also identified a couple dozen “exemplar” cities where the development outcomes were the most positive (e.g. people moving to be closer to transit, economic growth, the accumulation of jobs around stations). The researchers recommend doing case studies

of Cleveland’s bus rapid transit system, Kansas City’s streetcar, the commuter rail system in Orlando, and many others - cities, station sites and designs that must be doing something right.

This is the type of knowledge that principal investigator Dr. Arthur C. Nelson wants to bring to planners and engineers through his work: how to plan & design transit stations to cultivate desired economic outcomes. The team undertook “a remote visual reconnaissance” of transit stations, and included walk, bike and transit (WBT) scores for each example. For those who want visuals, Appendix H provides selected images from Google Earth.

“From real estate market analysis, we’ve got the data. We can tell you whether a station, or an area, suffers or flourishes just by how the market responds. What we’re missing is working with a transit designer to say, how do we combine our market insights with your design skills? We did touch on that with our “good, bad and ugly” stations – we can show you what a bad station looks like – but we can’t show you how to convert that to a good station. So we need other skills to build on this work,” Nelson said.

PRINCIPLES OF STATION PLANNING AND DESIGN

In 2012, the Transit Cooperative Research Program (TCRP) published Guidelines for Providing Access to Public Transportation Stations, which the authors used as a basis for this volume. It outlines principles which are listed on page 15 of the final report, but the researchers boil down the vast literature on FRT station planning and design to three overarching principles:

- Reduce adverse impacts of transit on surrounding land uses;
- Facilitate positive interactions between land uses near stations; and
- Maximize accessibility of passengers to transit stations and nearby land uses.

Poor station planning and design can undermine these principles, suppressing development outcomes.

What makes a poor design? Things that Nelson, Hibberd, Currans and Iroz-Elardo refer to as “negative externalities” or factors which drive development away from the stations. These might be things like noise, or congestion, that cause the station itself to be seen as a nuisance. While there may be design and land use planning approaches to offset these negative effects, they may require substantial resources or major land use decisions. On the other hand, station designers can work to remove some other negatives through human-scale factors. Researchers came up with the following criteria to distinguish good from bad design:

- Whether the station is easily accessible on foot or bicycle;
- Whether it is planned into the fabric of the existing community or it is separated from it;
- Whether it is elevated (thereby compromising ease of accessibility);
- Whether it is visually attractive (admittedly subjective);
- Whether there is comfortable separation between street traffic and the FRT vehicle;
- The extent to which the station is isolated by multiple-lane highways; and
- Whether passengers have to traverse parking lots to access the station (unless they are parking and driving their own vehicle).

These criteria assume that a principal objective of transit systems is to create communities around transit stations – places in which people want to live, work, and enjoy their leisure.

HOW FAR DO THE TRANSIT STATION BENEFITS EXTEND?

The researchers found two perspectives emerging from their study:

- First, the real estate market confers a premium on rents for many kinds of commercial real estate **beyond the standard half-mile circle** that seems to dominate transit-oriented development (TOD) planning.
- Second, for the most part, changes in jobs, people and households are confined to the **very closest distance** around transit stations.

Why is this? It may be that local planning does not seize market opportunities for maximizing development throughout the half-mile circle or beyond. While it makes sense for development to be close to the transit station, there may be opportunities for transit-oriented development farther away that are unrealized. Researchers found that in many of the metro areas they studied, more than half the land area within a half mile of transit stations is made up of:

- Surface parking lots,
- Vacant, privately owned land, and
- Land on which there are one- and two-floor structures being more than 30 years old and occupying less than 25% of the land area.

The report concludes that perhaps the **greatest challenge for America’s metropolitan areas is to meet the market demand for jobs and housing near transit stations by facilitating the redevelopment of parking lots, vacant land, and aging, low-intensity structures.**

ABOUT THE AUTHORS

The research team consisted of Arthur C. Nelson, Robert Hibberd, Kristina Currans and Nicole Iroz-Elardo of the University of Arizona.

ABOUT THE FUNDERS

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THE FULL REPORT and ONLINE RESOURCES

For more details about the study, download the full five-volume report **Transit Impacts on Jobs, People and Real Estate** at nitc.trec.pdx.edu/research/project/1253

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