

ABQ Streets Project: Creating Alternative Residential Street Designs

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19PPUNM01

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University of New Mexico

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\$50,000

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Tran-SET
University of New Mexico

Total Project Cost:
\$100,000

Identifying alternative residential street designs that could feasibly be implemented in Albuquerque, New Mexico

This research aims to identify residential street designs that could be used to retrofit existing residential streets in Albuquerque, New Mexico. The objectives are to find more cost-effective designs that improve street function and community wellbeing while reducing negative environmental impacts. The research will identify alternatives and estimate their benefits through comprehensive review of the street design literature applicable to the residential context. Recently collected travel behavior and stated preference data and physical surveying of local streets will be used to identify feasible alternatives for a more detailed cost benefit analysis. The results will be shared with community members and city officials. The results will also contribute to an ongoing longitudinal study that will observe how changing street designs affect travel behavior, community wellbeing and the environment.

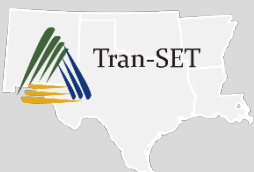
Problem Statement

While residential streets are clearly important for providing access and mobility, how their design affects these functions and the sustainability, security and health of our communities needs to be better understood. Streets can be designed to prioritize high speed vehicular traffic or to keep traffic moving slowly. They can also be designed to prioritize transit, walking or biking or travel by all means. Many residential streets built during the mid to late 20th century, including many of Albuquerque's and those in other Region 6 cities, were designed principally to accommodate vehicle traffic. Streets from this period in Albuquerque often have narrow, difficult to use, sidewalks; intersections with large turning radius and wide widths that encourage high speed travel; little street lighting; and lack street trees or other amenities that may enhance the street environment.

Residential streets also affect our environment, security and safety. Air quality and climate change concerns stemming from vehicle exhaust emissions are perhaps the most well-known environmental impacts of our transportation

system; however, streets pose other environmental challenges too. Urban heat and runoff are two of the most significant. Some studies indicate that Albuquerque has one of the largest urban heat islands in the United States, with daytime temperatures elevated by up to 6 degrees Fahrenheit during the day and 10 degrees Fahrenheit at night. The low efficiency of air conditioners also produces additional heat, and the energy they consume can indirectly cause additional warming through the production of greenhouse gas emissions that contribute to global warming. Since many pavements used for streets, sidewalks and parking lots are also impervious to water, they contribute to a large amount of urban runoff with can be difficult and costly to control and can have environmental impacts too.

Residential street designs that prioritize vehicular travel and encourage high speed travel (or fail to discourage it), provide inadequate pedestrian facilities, and that have poor lighting can also contribute to excessive traffic fatalities and injuries. Albuquerque is consistently one of the most dangerous places to walk or travel by any means in the United States. While crime and security are not often thought of when discussing street design, there is a connection. Well lighted streets have been shown to discourage some crime and can decrease the perception of crime too. Less street crime, and a greater sense of security can lead to greater amounts of active travel and transit use, which can itself have a reinforcing effect on actual and perceived security. Other street design features and maintenance that reinforce the street as an inviting, vibrant public space can help in this regard. Albuquerque has very little street lighting, low shares of pedestrian, transit and bicycle travel and one of the highest property and violent crime rates in the country. While street design is not likely to be the main cause of these challenges, they can be part of a solution.



Objectives

The proposed project will be part of a larger research project that we refer to as the Albuquerque Streets Project (ABQ Streets), which aims to understand the multiple ways in which improvements to residential streets can affect the wellbeing of communities in Albuquerque.

Intended Implementation of Research

Education, workforce development and outreach activities: This project will also significantly impact education, workforce development and outreach in several additional ways. Directly, the project will involve a graduate student research assistant. Furthermore, the project will use the city of Albuquerque, New Mexico as a case study. We expect that collaboration with the city will also result in significant, local, workforce development and outreach. The participation of neighborhood associations in our work may also help create local champions for distributing and discussing the study results in their communities.

Deliverables of this study will include:

- 1) At least one peer reviewed journal publication that describes our research methods, findings and contributions to the street design literature.
- 2) A broadly accessible policy brief that summarizes feasible alternative residential street designs and their main benefits and costs.
- 3) Required progress reports, project data, and the final project report that includes the products of each task.

Anticipated Impacts/Benefits of Implementation

The research will identify alternatives and estimate their benefits through comprehensive review of the street design literature applicable to the residential context. Recently collected travel behavior and stated preference data and physical surveying of local streets will be used to identify feasible alternatives for a more detailed cost benefit analysis. The results will be shared with community members and city officials. The results will also contribute to an ongoing longitudinal study that will observe how changing street designs affect travel behavior, community wellbeing and the environment.

Web Links

- [TranSET's website](https://transet.lsu.edu/research-in-progress/)
- [TRB's Research in Progress \(RIP\) database](https://rip.trb.org/View/1644243)

Tran-SET

Tran-SET is Region 6's University Transportation Center. It is a collaborative partnership between 11 institutions (see below) across 5 states (AR, LA, NM, OK, and TX). Tran-SET is led by Louisiana State University. It was established in late November 2016 "to address the accelerated deterioration of transportation infrastructure through the development, evaluation, and implementation of cutting-edge technologies, novel materials, and innovative construction management processes".

Learn More

For more information about Tran-SET, please visit [our website](#), LinkedIn, Twitter, Facebook, and YouTube pages. Also, please feel free to contact Mr. Christopher Melson (Tran-SET Program Manager) directly at transet@lsu.edu.

