



New Tool Optimizes Housing and Service Provider Locations to Ease Transportation Burdens on Former Offenders

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Imagine you've just been released from prison. You don't have a phone yet, or a car, but through your reentry service, you are set up for now with a place to stay. They also got you a job interview for next Monday, but it's across town. You also have mandatory mental health, medical health, and parole-related appointments to make it to this week, so right now—transportation is your biggest problem. You have three complementary bus tickets, and you need to figure out the best way to use them.

"I can't imagine trying to navigate my way through a city, tackle the bus system and find my way around without a smartphone - in a community that I haven't been in for ten, twenty, however many years," said Dr. Stephen Mattingly.

That's the scenario facing roughly 2,000 former inmates who return to communities every day in the U.S.

To help them to reintegrate into society, researchers Anne Nordberg, Jaya Davis and Stephen Mattingly of the University of Texas at Arlington (UTA) leveraged funding from the National Institute for Transportation and Communities (NITC) on Optimizing Housing and Service Locations to Provide Mobility to Meet the Mandated Obligations for Former Offenders to Improve Community Health and Safety to partner with a Dallas, Texas reentry broker in developing a unique solution: three computer models that optimize the locations of housing and service providers to ensure that former offenders can actually, realistically, make it everywhere they need to be.

"Where can we re-situate some of these clients so that they can access all of these things through our existing transportation network most efficiently? That was the original question," said Dr. Jaya Davis, co-investigator.

FINDINGS FROM 15 INTERVIEWS WITH FORMER OFFENDERS

Returning citizens experience transportation disadvantage, and they identified many logistical issues related to relying on public transportation. Although public transportation is viewed as the less expensive alternative to owning and maintaining a private vehicle, and the only option for many, it can still be cost prohibitive. Often, existing public transportation routes do not connect riders to their final destination.

"I get up at around about 4:30 in the mornin'. I take a shower, I get ready, I get dressed. At about 5:20, I catch the first bus of the day, and I take it to the train station. Then I take a train to another station where I catch another bus, and that bus takes me to where I'm going."

Transportation is an extension of freedom for many returning citizens who must rely on their support network for transportation. However, relying on others impacts self-esteem and the freedom to support oneself. One participant talked about trying to get rides from people, "without making people think that I'm trying to sponge off of them."

"I don't have any income, so gas and like getting insurance paid off and things of that nature, is coming from other people. If I didn't have that, I would really be limited. I'm kinda in a push to try and hurry up and try to find something, to be just self-sufficient, to be independent, to be able to do good for myself and not have to rely on other people."

Transportation is clearly and intricately linked to reentry success. Transportation disadvantage makes navigating the barriers of re-establishing community life more difficult.

"The transportation makes a big impact. Transportation is really a vital resource that we really don't have much access to. And when we do have access to it, it's very limited."

FINDINGS FROM INTERVIEWS WITH SERVICE PROVIDERS

The research team also interviewed 17 reentry service providers with questions focused on transportation among their clients. Five themes emerged from those conversations:

1. Returning citizens face a complex network of obligations.
2. Transportation is critical for successful reentry.
3. Returning citizens rely primarily on public transit.
4. Access to cars is rare and complicated, but advantageous.
5. Transportation support lays a road to successful reentry.

"One of the main findings to me was that reliable transportation couldn't ensure their successful reentry if they had it, but it could absolutely prevent their success if they didn't," Davis said.

Limited access to transportation has been identified by clients and service providers alike as a major barrier to successful reentry. And in the Dallas/Fort Worth metro area where the study took place, most people rely on driving, yet returning citizens depend primarily on public transit. And that's not only true of returning citizens: many transportation-disadvantaged populations experience the same barrier.

"This issue of transportation access is really transferable to other vulnerable populations, like people experiencing homelessness. A lot of the problems are overlapping," said Dr. Anne Nordberg, principal investigator on the project.

NEW HOUSING AND EMPLOYMENT PRIORITIZATION TOOL FOR SERVICE PROVIDERS

Unlocking DOORS in Dallas, Texas, is a reentry brokerage firm with a unique model that coordinates housing, mental and physical health services, job retraining, transportation, and parole or probation obligations. By pooling together resources and programs into one cohesive effort – more or less serving as a one-stop shop for former offenders – Unlocking DOORS enables easier coordination between service providers.

UTA researchers collaborated with the firm's founder, Christina Melton Crain, to identify opportunities for improving their clients' mobility.

"From the outset, when [the research team] came to us and approached us about being their partner on this project, we were so excited because transportation is one of the key barriers for our population that we serve," said Christina Melton Crain.

The research team used a mix of qualitative and quantitative methods to create three mathematical applications to optimize housing and service locations in their own metro area of Dallas/Fort Worth, Texas. They created a simple graphical user interface (GUI) for the staff at **Unlocking Doors** to input their clients' locations and receive a list of feasible locations in return. By inputting the locations of everywhere a client needs to go, a reentry service provider can get a list of ideal housing locations for that individual. Or in reverse, they can input a housing location and get a list of reachable service locations.

The researchers can also run the models on behalf of other service providers, and can generate maps showing the optimal range of locations that can be reached by transit. Still in development is an improved GUI that will allow others to run the model more easily. This tool can be adapted for other organizations and transportation-disadvantaged populations.

THREE MODELS TO OPTIMIZE LOCATION OF HOUSING AND SERVICES

The research team developed the tool using three computer models to optimize locations and improve the efficiency of available transportation. This will allow service providers like **Unlocking DOORS** to better assist their clients with making travel accessible.

"If I'm able to put in where a guy resides... and it's going to populate for me all the different service providers that are available, the different employers that are available, in either a walkable or easy public transportation spectrum – or even on a bicycle – then we're doing great. I think this is really going to be a game changer for us. We're very excited about it," Melton Crain said.

Model 1 – Housing/Employment Prioritization: This model provides a prioritized rank order of housing or employment alternatives. When a returning citizen already has housing, the model provides a prioritized list of employment locations based on current services and the person's residence.

Model 2 – Optimal Travel Time Housing Location: This model identifies optimal housing locations to select for new housing projects or housing partners, based on **Unlocking DOORS'** own community network partner locations, Dallas County parole offices, and other county facilities.

Model 3 - Service Location: This model identifies optimal service locations to meet a maximum travel time constraint for all (or to start, as many as possible) Dallas County residents. Service providers and governmental agencies need to target serving as much of the population as possible so that they do not assume that all returning citizens must be concentrated in a few areas of the city.

RECOMMENDATIONS AND FUTURE WORK

Mobility represents freedom and access to opportunities. While the transit system provides a safety net and a minimum level of mobility, its cost and design represent a significant burden for most returning citizens. In order to mitigate this, **service providers must engage with transit agencies and other mobility providers to develop better solutions to the mobility needs of returning citizens.**

Where the public transit system does not meet the needs of returning citizens, service providers may want to explore **car shares and other mobility alternatives** rather than expecting all clients to successfully navigate reentry using public transportation.

The researchers hope to refine their models with additional input from returning citizens, as well as people that may not have been successful in their efforts to reenter. Insights from these two groups could provide opportunities to introduce new constraints and add additional elements to the models. Meanwhile, the research team intends to give the housing and employment prioritization model an improved graphical

user interface (GUI) to improve user friendliness. These and other enhancements should be implemented in consultation with Unlocking DOORS and other service providers, to identify the most important features.

ABOUT THE AUTHORS

The research team consisted of Anne Nordberg, Stephen Mattingly, Jaya Davis, Sarah Leat, Mansi Patel, Michael Mitchell, Santhosh Medeti, Craig Keaton, Jobaidul Boni, Jhanvi Manishkum, Alireza Fallahi, and Sheida Khademi of the University of Texas at Arlington

ABOUT THE FUNDERS

This research was funded by the National Institute for Transportation and Communities (NITC) with additional support from the University of Texas at Arlington and Unlocking DOORS.

THE REPORT and RESOURCES

For more details about the study, download the full report Optimizing Housing and Service Locations to Provide Mobility to Meet the Mandated Obligations for Former Offenders to Improve Community Health and Safety at nitc.trec.pdx.edu/research/project/1241

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The National Institute for Transportation and Communities (NITC) is one of seven U.S. Department of Transportation national university transportation centers. NITC is a program of the Transportation Research and Education Center (TREC) at Portland State University. This PSU-led research partnership also includes the Oregon Institute of Technology, University of Arizona, University of Oregon, University of Texas at Arlington and University of Utah.