Innovation in Accessible Transportation and Demand Response Service

Transportation Works: Accessing Transportation in a Diverse Community

Texas State Independent Living Council

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Todd Hansen, AICP
Assistant Research Scientist
Transit Mobility Program
Texas A&M Transportation Institute
Overview

Emerging ideas and technologies for improved accessibility in transportation, with a particular focus on public transit

• Project update on wayfinding application to transit stops for persons with visual disabilities
• Information about Transportation Network Companies (TNCs) and technology platforms being piloted by transit agencies for on-demand demand response service
• State of Texas statutes on TNCs and implications for accessible transportation
• Questions/discussion
Accessibility Needs in Transportation

- Lack of sidewalks, curb-cuts to reach fixed-route transit stops or area destinations
- Limited-to-no TNC/taxi service available in the area
- Lack of wheelchair-accessible vehicles (WAVs) from TNCs/taxis
- Limited-to-no transit service available in the area
- Difficulty in navigating roadways, transit schedules, technology
Topics

• Using New Technology to Assist in Transit Navigation
• Innovation in Demand Responsive Service
• TTI Research on Transportation Network Companies (TNCs)
Using New Technology to Assist in Transit Navigation

Comprehensive Wayfinding for All (CWall)
Challenges of Accessible Transit Wayfinding

**COMPLICATED**
Finding your way on transit can be confusing and difficult.

**REQUIRES SIGHT**
Graphical transit maps and schedules and finding stops rely heavily on vision.

**BROKEN PATHWAYS**
Pathways to transit stops may include missing and damaged sidewalks.

**LACK OF INTEGRATION**
Some solutions exist, but most are not integrated, accessible, one-app solutions.
CWall Project: Background and Purpose

• Project with Capital Metro, supported by TCRP IDEA Program

• Building an accessible iOS app to help all passengers use transit

• Integrate accessible sidewalk data and transit data to provide accessible transit trip itineraries

• Use GPS to provide locational awareness and directions

• Detect Bluetooth low-energy beacons installed at bus stops to help riders locate bus stop boarding areas
Lessons Learned from Previous Work

• Additional precision and guidance is needed for adequate navigation (especially in transit centers).
• Multiple location sources (e.g., Bluetooth + GPS) could work better than a single source alone.
• Sound (i.e., a screen reader) cannot be the only way riders receive information from the app. Noisy environments make listening for spoken guidance difficult.
  • Simple sounds (e.g., bells or chimes) can be used for certain notifications.
  • Vibrations can be used to provide navigation cues and notifications.
Wayfinding Technologies

**GPS** - positioning technology that allows people with visual impairments to use their smartphones for navigation.
- Many apps already exist to assist people who are blind with navigation.
- Reliability varies and not precise enough to guide riders to the bus boarding area.

**Bluetooth beacons** are small devices that transmit data using Bluetooth.
- Can be installed virtually anywhere.
- Some are ruggedized for outdoor use.
- Bluetooth signal can transmit information (like a unique code or website address).
- Can be detected up to 200 feet away.
Data and Technology Integration Model

Mapped accessible sidewalks

Static and real-time transit data

Accessible Smartphone App

Bluetooth beacons at bus stops

GPS positioning
Open CWall
Open the CWall app on your smartphone.

Plan a Trip
Use the app to plan your trip, getting itineraries using accessible paths to transit stops.

Travel to Bus Stop
The app provides turn-by-turn directions along accessible pathways.
Beacon at Stop

The app detects the Bluetooth beacon at the desired stop to help direct you to the boarding area.

Bus Arrival

Get real-time bus arrival countdowns and notification when the bus arrives.

Board Bus

Board the bus and get notified when it's time to get off.
Why It’s Innovative

CWall will do what no other app or solution currently does.

• Provide sidewalk-level navigation assistance along accessible paths to and from transit stops on an app.  
  Currently Available?
  No.

• Improve the entire trip experience by giving travelers accessible alerts and information, including
  • Precise location of bus stops, supported by Bluetooth® low-energy (BLE) Beacons. Limited pilots.
  • Notifications of real-time bus arrivals. Yes.
  • Alerts when users are approaching their deboarding stop. Yes.

All these features will exist on ONE app with open source code.
Current Steps

• Data verification of crosswalks and curb ramps in Austin downtown test zone

• Alpha stage of the app under development

• Capital Metro is in the process of installing their beacons at select bus stops

Timeline

Organize Stakeholders & Data
Develop App Version 1
Pilot Test App Version 1
Develop App Version 2
Pilot Test App Version 2
Finalize App
Collect Usage Data
Final Project Report
Project Contacts

• Michael J. Walk  
  Texas A&M Transportation Institute  
  Principal Investigator  
  m-walk@tti.tamu.edu  
  512-407-1135

• Martin Kareithi  
  Capital Metro Program Manager - Systemwide Accessibility  
  martin.kareithi@capmetro.org  
  512-389-7583
Innovation in Demand Responsive Service

Transit Partnerships with TNCs and Pilot Programs in On-Demand Service
Emergence of TNC Partnerships

- Examination of on-demand paratransit service available by real-time trip requests for customers with disabilities available
  - Made using a mobile app or through a representative using an online platform

- Pilots have examined how incorporating contracted WAV vehicles, technology platforms, assistive booking, and trip subsidies can improve demand response options for customers

Source: MassDOT
Challenges to Partnerships

• Technology access/familiarity
• Underbanked communities & credit cards
• Wheelchair accessible vehicles (WAVs)
• Driver background check questions
• Guarantee of service delivery
Wheelchair Accessible Vehicles

• Under federal rules, transit operators must have service that is accessible to people with disabilities

• Both Lyft and Uber have accessible vehicle options in their application platforms. In most cities WAVs are contracted from local organizations.

• Pennsylvania requires TNCs operating in Philadelphia have a combined minimum of 70 WAVs on the road. Quota of WAVs has been met, but data on wait times are not publicly available

Source: wheelchairtravel.org
Accessibility Fund in California

• New program through the California Public Utilities Commission mandated by state Senate Bill 1376 - “TNC Access for All Act”
• TNCs will start paying into a state fund to create wheelchair-accessible ride-hails
• New law will levy a five cent surcharge on every TNCs ride in particular geographic areas set by the commission, to be implemented by July 2019
• Fund will help provide supporting revenues for WAV purchases to providers demonstrating effort to provide accessible trips
• Commission will convene workshops with members of the disability community, ride-hail providers, cities and others
Microtransit Pilots

Technology-enabled transit service using shuttles/vans to provide on-demand or fixed scheduled with either dynamic or fixed routing

- DCTA recently launched the Lewisville Lakeway On-Demand Service
- CapMetro had one-year Pickup pilot with Via
- Arlington, TX continues their pilot with Via

Source: http://transitcenter.org/2017/11/08/micro-transit-is-it-really-a-city-thing/
Microtransit Pilots – Marin Transit

- New Connect service and app through technology partnership with Via
- Marin operates the vans; each has 7 seats or 5 seats and one wheelchair securement spot
- Top of each van is wrapped with a unique color to help riders identify their van driver
- Passengers are picked up within 15 minutes of trip request

Source: https://marintransit.org/routes/connect
Microtransit Pilots – Norwalk Transit System

• Wheels2U pilot with TransLoc/Ford for microtransit in a designated area

• “Simulations of this microtransit service in a city comparable to the size of Norwalk showed that waiting times for bus service can be cut to as little as two minutes.”

• Boal of Wheels2U is to cut down waiting times, while doubling ridership with no additional operating costs

Source: https://www.norwalktransit.com/wheels2u/
Microtransit Pilots – Dublin, OH

- Began pilot program in January offering a microtransit service to the community’s senior population
- The city partnered with Columbus-headquartered transportation solution business SHARE for the service during the mid-day, three days per week
- SHARE provides shuttles, outreach, and engagement for the program

Microtransit Pilots – Los Angeles DOT

- FlexLA began operating in downtown Los Angeles last year to complement existing public transit service.
- Grant to ButterFLi, an LA-based transportation provider for residents with accessibility challenges, to expand the FlexLA program during the evening when public transit service is less frequent.
- FlexLA offers eligible riders access to up to 8 reduced-fare rides per month within the eight-mile service area for $2 per person per one-way ride.

Source: [https://fastlinkdtla.org/flexla/](https://fastlinkdtla.org/flexla/)
Trip Subsidy Pilots

Agency provides a subsidy for a portion of the TNC trip cost

- Goal is to save in overall operational costs in lieu of providing the trip while providing paratransit customers with an on-demand option

Source: https://www.mbta.com/accessibility/the-ride/on-demand-pilot
Trip Subsidy Pilots – MBTA

- The RIDE on-demand pilot with Uber, Lyft, and Curb; emphasis on WAV availability
- MBTA subsidizes part of the trip cost after an initial charge with the customer paying any subsequent cost
- Original subsidy was $13, but has since been expanded up to $40 per trip after initial $2 cost
- Pilot now includes subsidies for UberPOOL trips as well

Source: https://www.mbta.com/accessibility/the-ride/on-demand-pilot
Trip Subsidy Pilots – WMATA

• Abilities Ride program partnership with local taxi companies for paratransit service in Maryland
• WMATA subsidizes up $15 of the trip after initial $5 cost
• Eligible for up to 4 rides per day; Personal care assistants can travel along for free
• Recently announced promotion through the end of 2019 to pay the first $20 of fare for specific regularly taken trips

Source: https://www.wmata.com/service/accessibility/metro-access/Abilities-Ride.cfm
On-Demand Service Pilots

Service available to eligible customers in a prescribed area, using the TNCs app platform for reservations. Sometimes rides are not required to be shared.

DART

• Recently partnered with Uber to provide UberPool rides in four specific zone areas around DART rail and park-and-ride stations.
• Commuters may take up to two free UberPool trips from an eligible DART station per day.
• Riders are allowed up to two UberPool trips from point-to-point locations inside the eligible zone at $3 per day.

DCTA

• Partnership with Lyft provides discounted weekday rides in Highland Village area zone as well as to medical center.
On-Demand Service Pilots – Santa Monica, CA

• City partnership with Lyft to provide on-demand services for older adults and people with disabilities through MODE service
• One-way fare for members is $0.50
• Can travel with up to one or personal care attendant at an additional cost of $0.25 per ride
• Trips taken within the Santa Monica city limits during hours of operation and select shopping destinations in nearby Venice, CA
• Access to the area medical facilities is permitted at all times during hours of operation.

Source: bigbluebus.com
On-Demand Service Pilots – PSTA

• Launched the Health Hop program in partnership with Tarpon Springs, FL
• Provide trips through Lyft, United Taxi, Care Ride and Liberty Wheelchair for low-income seniors going to medical appointments
• Trips are fare free through a sponsorship with local hospital
• Qualified residents can receive two round trip or four one-way rides to and from medical appointments, pharmacies and grocery stores

Source: psta.net
Gap Service/Surplus Demand

Programs/initiatives designed to fill a service gap due to limited operating budget or capacity.

DART

- Providing free rides on Lyft for paratransit customers through contract with MV Transportation to increase program capacity
- Expanded paratransit capacity by 7 percent

Walnut Creek, CA

- Pilot with Lyft for seniors to schedule rides when standard paratransit service is not available

Source: dallasnews.com
Assistive TNC Booking

Programs and technologies which assist seniors and persons with disabilities in booking trips on TNCs

• Decatur-Macon County, IL – program with GoGo Grandparent allows senior citizens to use TNC services without owning a smartphone
• GreatCall – subscribers can order a Lyft trip over the phone through a GreatCall operator
• Acuity Link, Allscripts – separate partnerships with Lyft to plug into Lyft dashboard to arrange trips for patients

Source: gogograndparent.com

Source: Lyft
TTI Research on Transportation Network Companies (TNCs)

TNCs as a Part of Basic Mobility & Policy Implications of TNCs
Existing TNCs Used as a Part of Basic Mobility

Experiences of transit agencies in partnership with TNCs and technology companies

Focus on rural or small urban settings and pilots designed to replace existing services

Completed in Fall 2018 for TxDOT Public Transportation Division
Research Case Studies

Six case studies conducted with transit agencies to describe and detail aspects of TNC partnerships

- Goals, issues, and opportunities
- Federal and state/local regulatory concerns
- Performance and cost effectiveness

- Capital Metropolitan Transit Authority
- City of Arlington
- Denton County Transportation Authority
- SouthWest Transit
- Town of Innisfil
- City of Temple/Heart of Central Texas Independent Living Center, Inc.
Key Takeaways

• Data can provide meaningful information on the role of TNCs and inform decision making. Data-sharing agreements have not been common due to privacy concerns.

• Cost per passenger is not capable of telling the entire story of TNC-style service; there is a need for development of further metrics to measure cost and service quality.

• Outreach and training are critical for adoption of pilot services; includes word-of-mouth as well as initial education efforts at the beginning of the pilot
Key Takeaways (con.)

- Third party software for dispatch and routing has potential to be more efficient than traditional demand-response models.

- Transit agencies must ensure that enough TNC drivers are available to meet demand for requested trips.

- Exploration of additional funding opportunities is critical to continue, improve, and expand the service/partnership.

- Transit agencies must understand the capabilities of rapidly evolving TNCs and adjust to the rapid pace of innovation.
Policy Implications of Transportation Network Companies

Summary of white paper on policy aspects of TNCs

Published in October 2017 through TTI’s Policy Research Center

Authors: Maarit Moran, Ben Ettelman, Gretchen Stoeltje, Todd Hansen, Ashesh Pant
Priority Policy Issues

- Are TNCs Considered Motor Carriers in the Texas Transportation Code?
- State Preemption of Local TNC Authority
- TNCs and Impaired Driving
- Concerns with Driver Background Checks
- Maintaining Public Safety
- Equity and Accessibility Considerations
- Data Sharing
- TNC and Transit Partnerships
TNC Policy in Texas

HB 1733  (Jan 2016)
  • Requires TNC drivers to have primary automobile insurance that allows them to operate as TNC drivers.

HB 100  (May 2017)
  • Statewide regulatory framework for TNCs
  • Requires a TNC permit, operational requirements, driver and vehicle standards, and passenger protections
  • Nullified all local TNC regulations and by establishing one set of statewide regulations
Equity and Accessibility Considerations

• Existing questions about whether TNC services are accessible to transportation-disadvantaged groups (older adults, low-income, persons with disabilities, rural areas, etc.)

• Limited information available suggests that TNCs primarily serve users who have higher incomes in urban areas.

• Features likely improving equity a reduction of rider rejections due to user traits and destinations being unknown before the trip.

• Features creating inequity include requirements to have credit cards or use smartphones as well as unequal availability of wheelchair accessible vehicles.
Texas – Accessibility Pilot Program

What is the Accessibility Pilot Program?

• “The Accessibility Pilot Program is a two-year pilot program offered in one of the four largest markets in which the TNC operates to offer its services to disabled persons using a fixed-frame wheelchair and make referrals to services that do not unreasonably delay the requested ride service.”

• Reporting requirements are in the TNC Administrative Rules

Source: https://www.tdlr.texas.gov/tnc/tncfaq.htm
TTI Reports on TNCs

Policy Implications of Transportation Network Companies:
https://static.tti.tamu.edu/tti.tamu.edu/documents/PRC-17-70-F.pdf

Existing Transportation Network Companies Used as a Part of Basic Mobility:
https://groups.tti.tamu.edu/transit-mobility/
Questions?

Todd Hansen, AICP
Assistant Research Scientist
Transit Mobility Program
713-613-9205
t-hansen@tti.tamu.edu