Housing + Transit Dependence + Limited Transit Access + Suburban Form = Transit Deserts

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Panelists: Raul Cardenas, Torolab, Alexandros Washburn, DRAW Brooklyn, Diane Jones Allen, DesignJones LLC.
Moderator: Sheila Kennedy, MIT Department of Architecture
MOTIVATION

- Populations have relocated at rates equaling the Great Migration of African-Americans arriving in American cities.

- Result of an urban design philosophy, privileging the automobile,

- These areas are unable to insure employment, and accessibility to social and cultural networks.

- The current trend, puts increased demand on areas of decreased service.
THEORIZING THE ORIGIN OF TRANSIT DESERTS

Areas of low development that have had economic and demographic shifts.

Urbanist reformulation Strategies

- Federal Urban Renewal
- Highway Development
- Redlining
- Block Busting
- The search for a better quality of life,

Large population shift from Baltimore Middle East Community to North East Baltimore due to redevelopment surrounding Johns Hopkins University.

Drastic population shift in the Lower Ninth Ward New Orleans due to hurricane Katrina.
“Hope VI” and “Choice Neighborhoods” Connection to market forces brought housing cost, and wages out of line. (Schwartz, 2013).

The privatization of public housing, the relocation of its residents, and the increase of surrounding property values.
Demolishing housing that would cost more to rehabilitate than issuing Section 8 vouchers to tenants.
1. Neighborhood form and physiography
2. The time spent and the ease of accessing transit
3. The demographics of users
The form and physiography characteristics of "Transit Deserts" include:

- Street patterns laid out in curving or irregular patterns
- Local streets completely blocked off or dead ended
- Local streets that do not easily travel through to arterials

Source:
The configuration of urban form, for example land use patterns, likely to influence travel behavior:

- Separated Land use
- Limited diversity of uses
- Lower density
- Limited sidewalks
- Car oriented design

Source:

Time Accessing Transit

In “Transit Deserts” stops are most often located on arterials, with residents often having to walk some distance to access bus stops. 

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- Stop spacing and wait time will also affect how successful the system is in attracting users.
The Demographics of Users
An influx of transit dependent populations which results in an area with both transit and car dependent populations.

The differences in economic classes are ever changing, especially as our economy and population shifts.

Means of Travel to Work Cedonia Frankford

The demographic characteristics important to “Transit Deserts Include”:

- Vehicle ownership
- Income
- Means of travel to work

The othering of transit riders
The ranking system

- The lower the score, the more likely the neighborhood is lacking
  - transit amenities,
  - transit access,
  - the form and physiography to support transit.

The ability to quantifiably establish whether a community is a Transit Desert could justify subsidies being dedicated to these particular areas through equity funding.
How housing and transport policy have played their role in creating ‘transit deserts’, and what impact race has upon those likely to be affected.

Research from New Orleans, Baltimore and Chicago to explore the forces at work in these situations, as well as proposing potential solutions.
The Incredible Daily Commute of those in the Transit Desert

Ms. Daigle in her New Orleans East Complex
Demand Forecasting does reflect the current pressures upon an existing transit system as experienced in the moment.

- Trip Generation
- Trip Distribution
- Mode Choice
- Trip Assignment
“Catalytic Forecasting” operates dynamically in the opposite realm of “Demand Forecasting”

- evaluating places based upon the full potential of urban dwellings
- placing potential riders at every parcel of land within a transit shed
- forcing analysis to find validity and appropriate accuracy from localized investigation and speculation of the future of a place.
The neighborhood is divided into service areas.  
- Each service area has a centroid to measure the distance to stops.

- Shed lines are formed by grouping parcels to minimize walking distance based on the ¼ mile distance (Furth 2007).

Residential parcels acting as locations of demand are used to derive a predetermined set of stops. “Catalytic Demand Forecasting”.

The catalyst is the future or proposed transit density.
where:

- $c_{walk}$ equals (walking) distance from stop i to center of parcel shed
- $d_{bus}$ is the cost of a minute of walking time relative to a minute of riding time (commonly given a value between 1 and 2.5 will be used)
- $u_{walk}$ is walking speed 2.8 miles/hour
- $runTime_{bus}$ equals running time from stop i to major transit arterial based on driving speed of 25 miles/hour
Stop 1: \(2.5 \times \frac{0.2157}{2.8} + 0.0091 = 0.2017\)
Stop 2: \(2.5 \times \frac{0.1830}{2.8} + 0.0052 = 0.1686\)
Cedonia-Frankford Stop 2
Stop 3: \(2.5 \times \frac{0.1858}{2.8} + 0.0074 = 0.1733\)
Stop 4: \(2.5 \times \frac{0.2029}{2.8} + 0.0071 = 0.1883\)
Stop 5: \(2.5 \times \frac{0.0334}{2.8} + 0.2047 = 0.2345\)
Stop 6: \(2.5 \times \frac{0.0450}{2.8} + 0.3417 = 0.3819\)
Stop 7: \(2.5 \times \frac{0.1015}{2.8} + 0.1989 = 0.2895\)
Stop 8: \(2.5 \times \frac{0.2182}{2.8} + 0.3489 = 0.4960\)
Stop 9: \(2.5 \times \frac{0.1648}{2.8} + 0.3489 = 0.4960\)
Stop 10: \(2.5 \times \frac{0.1696}{2.8} + 0.3506 = 0.5020\)
Stop 11: \(2.5 \times \frac{0.1988}{2.8} + 0.3526 = 0.5301\)
SOLUTIONS FOR WATERING THE DESERT

Digital Technology Based Modes

Transportation becomes increasingly demand responsive when supported by technology, with fast and flexible service provided through the use of modern digital interface.

- Ride Sharing (Lift, Uber, etc.)
- Bike Sharing
- Car Sharing
- Circulators (Via)

Innovative digital applications are being utilized to lower car ownership and dependency, and improve on conventional public transportation systems.
“Instituting Federal policy that places dollars into local areas so decisions as to where facilities are places are made by those most impacted.

Provide resources to refashion existing transportation infrastructure and bring it into scale with the local landscape.

Getting citizens involved through the public input process.

Focus on opportunity issues, by stepping up Title VI enforcement and increasing public conversation”.

Require affordable housing as a key component of transit oriented development.
Physical Planning and Design Methods for Providing Transit Access

- Basic infrastructure improvements and streetscape design.
- Encourage mix uses on smaller sized development parcels, and create density through the reuse of existing structures and infill
- Design should reflect the extent to which it creates places that help people connect to each other, opportunity, and employment.
Nomadic, Improvisational, and Flexible Methods for Providing Transit Access

Solutions that follow can be identified as nomadic or improvisational, connecting to the broader reinterpreting of landscape with urban tactical movements:

Those living in the Transit Desert are subject to a continual back and forth, a nomadic existence to some extent, and an attempt to be connected in a disconnected environment.

The regulated and improvisational for techniques for travel are effective methods for getting those in transit deprived environments the “last mile”

Improvisational methods of traversing the environment and meeting travel needs, such as “Hacking”, jitneys, gypsy cabs, are used by those who not only have trouble getting “the mile”, but don’t have ready access to technology and credit availability.
Economic Development and Community Self Determination

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Develop investment strategies and policy for regional transit authorities and government agencies addressing the needs of residents including education, health care, economic development, housing, employment and the key to all, transit access.
Increased access to employment, school, shopping, recreation, etc. for those that are currently transit dependent.

A system that will allow those that currently drive to leave their cars at home and take public transit.

Increased frequency making for a more efficient system that allows travelers to reach their destinations with little wait time.

Lowering of emissions into the environment due to the lessening of traffic on the road.

A green system with a lower carbon footprint including a greater foregrounding of bicycle transportation as a system as viable as the automobile.
“Transit Deserts” represent places of social inequity through limited transit access that can be eliminated through the distribution of new transit that adapts to the physical and demographic conditions of area.

Economic benefits associated with transit served communities include:

- Savings for transit users from not having to pay the associated cost of owning a vehicle, including gas, maintenance, and insurance.
- Business costs saving due to worker availability and reliability
- Business growth due to winder markets for workers and goods
- Reduce traffic congestion for drivers resulting in cost savings for households and business (Weisbrod, 2009).
Thank you