

Rural Mobility: Challenges, Impacts, and Geographic Equity

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Rural Transportation Challenges

- Even with increasing urbanization, about **half the population is still rural/exurban**
 - Nonmetro population >150 million
 - 19.3% of U.S. population live in rural 97% of U.S. land mass¹
 - Current research doesn't reflect this dynamic
- **Acute economic link between mobility and employment**
 - Without a car, you don't have a job
 - Higher personal transportation costs
 - Loss of younger generations to urban opportunities
- **Rural access and adoption lag as mobility technologies shift**
 - Cultural preferences and fewer mobility options = **High car dependence**
- **Access to goods and services = longer trip distances**
 - Without a car, limited access to food, medical care, education
 - Near-future **mobility crisis** as Boomers "age out" of driving

1. <https://www.census.gov/library/stories/2017/08/rural-america.html>

Rural/Urban Mobility Equity Divide

Rural/Exurban

- Mobility-as-a-service (MaaS)
 - Minimal TNC (Uber, Lyft) availability
 - Sharing, micromobility not operationally viable
- Vehicle electrification
 - Minimal EVSE infrastructure
 - Range poor match for greater trip distances
 - Cultural preferences for large vehicles
- On-demand economy
 - Increased access to goods (Amazon, etc.)
 - May reduce trips, depending on service area
- Infrastructure
 - Automobile is king
 - Transit non-existent (mostly)
 - Bikes are toys or exercise equipment
 - Fast internet infrastructure lags

Urban

- Mobility-as-a-service (MaaS)
 - Wide TNC (Uber, Lyft) availability
 - Sharing, micromobility nearly ubiquitous
- Vehicle electrification
 - Expanding EVSE infrastructure
 - Range meets most urban needs
 - Cultural preferences for large vehicles
- On-demand economy
 - Increased access to goods (Amazon, etc.)
 - Can reduce trips, improve convenience
- Infrastructure
 - Automobile is king
 - Transit underutilized (outside biggest cities)
 - Micromobility induces improvements (slowly)
 - Fast internet is treated as essential (for most)

Re-envisioning Commutes:

Creating new small community jobs

- Decades-long loss of population inhibits resilience of rural areas
 - Talent drain as younger generations move to urban areas for opportunities
 - Reduced tax base, education funding furthers detrimental outcomes
- Opportunity: Exurban areas attractive to workers who can “work from anywhere”
 - Requires investments in mobility and communication infrastructure
 - Remote workers need goods and services provided within rural communities
 - You are likely trying out this situation now
 - Future AVs may extend bedroom communities well beyond current suburbs

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- Tulsa, OK pays workers to relocate
 - \$10k incentive direct to remote workers
 - Traditional approach is for tax incentives employer relocation
 - May be more cost effective to convince individual workers than corporations
 - Energy efficiency outcomes
 - Incrementally reduce urban congestion
 - Reduced corporate overhead, building energy use

The Great Tulsa Remote Worker Experiment

SARAH HOLDER FEBRUARY 28, 2020

The first class of hand-picked remote workers moved to Tulsa, Oklahoma, in exchange for \$10,000 and a built-in community. The city might just be luring them to stay.



TULSA, OK — Obum Ukabam sits suctioned to his laptop in the middle of an open-plan coworking space, quietly typing. With its vaulted ceilings, rows of elbow-to-elbow workbenches and a Spotify-Chill playlist, the office exudes a vibe you might find in many a major U.S. city. And Ukabam could do his job from any of them.

This particular office, though, happens to be in Tulsa, Oklahoma. That's where Ukabam and his wife moved last spring, sight unseen, after 10 years in Southern California.

<https://www.citylab.com/life/2020/02/tulsa-incentives-work-remotely-coworking/604873/>

Acknowledging Rural Differences: Optimizing mobility technology

- Rural/small communities differ in:
 - Demographics, physical characteristics, resources, and culture
- **Opportunity: Embrace rural identification with self-reliance and independence**
 - Energy independence
 - Produce and consume transportation energy locally
 - EVs may be mobile power source for work needs or natural disasters
 - Pragmatism and economic advantage
 - Design electric vehicles to be superior in function to ICE equivalents
 - Agriculture application forged early AV implementation
 - AVs may improve access, safety, quality of life
 - Enable spanning greater distances overnight
 - AV long-distance trucks can improve road safety
 - Aging in place can remain viable



Self-driving John Deere 9510R, circa 2013

Photo: Andrew Duvall



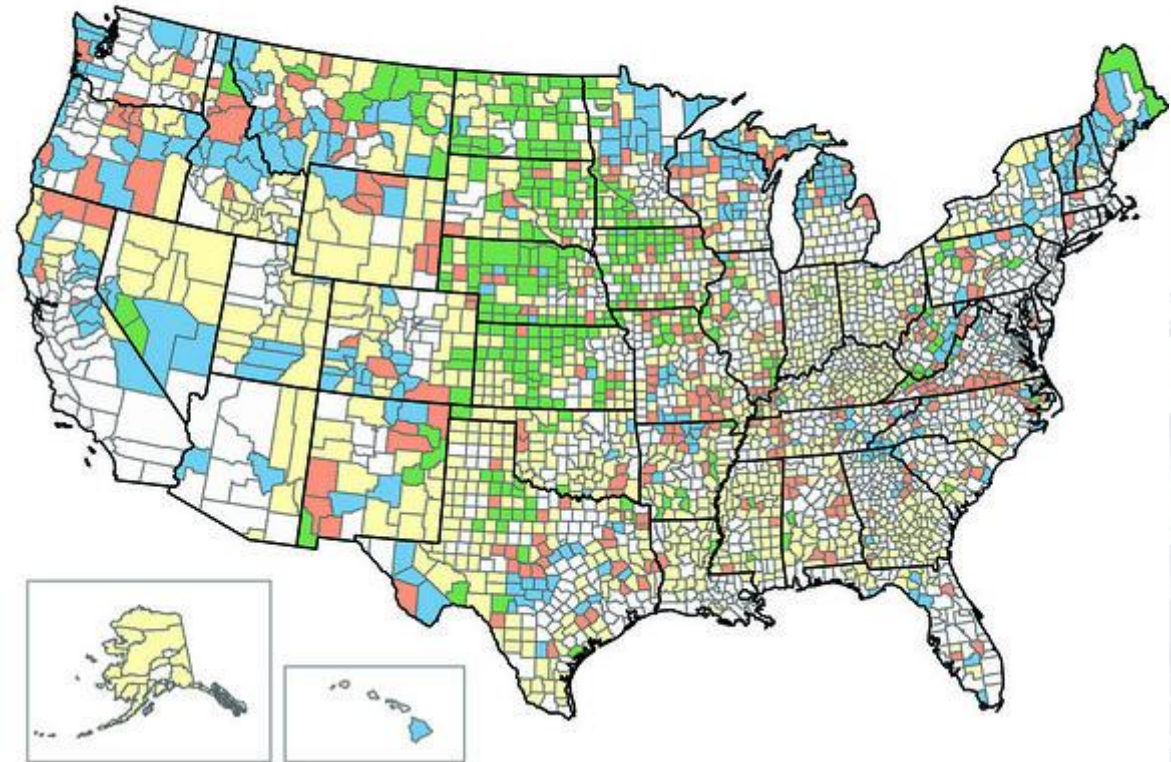
Rivian work truck, F-150 competitor

<https://www.journalgazette.net/article/20191026/WEB/191029915>

Looming Mobility Crisis: Rural Aging Population

- 19% of the U.S. nonmetro population is 65 or older, compared with 15% in metro areas
- Baby boomer generation aging out of driving
- Mobility needs persist, yet mode options are limited
- Remote medicine poses different commute options for medical professionals

Most older-age counties are in scenic or chronic population loss areas



Population 65 years or older, 2017

- 20 percent or higher, recreation/retirement destinations (306 counties)
- 20 percent or higher, persistent population loss (304 counties)
- Other 20 percent or higher (310 counties)
- Less than 20 percent (1,056 counties)
- Metro counties (1,166 counties)

Source: USDA, Economic Research Service using data from the U.S. Census Bureau Population Estimates Program.

Learning from Rural Contexts

- **Long-term community vitality**
 - Strong dependence on a single mode reduces ability to respond to changing dynamics or crises
 - Applies to communities of all sizes
- **The definition of commuting is already changing**
 - Exurban areas are potentially attractive to younger generations seeking lower costs
 - Outcomes from COVID-19 may catalyze, speed change
- **Awareness of risks, unintended consequences**
 - Wealthy may gentrify rural and nonmetro communities
 - Under-privileged may be forced into longer commutes to link affordable housing with employment



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