

Nebraska Rural Transit Gap Analysis

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INTRO

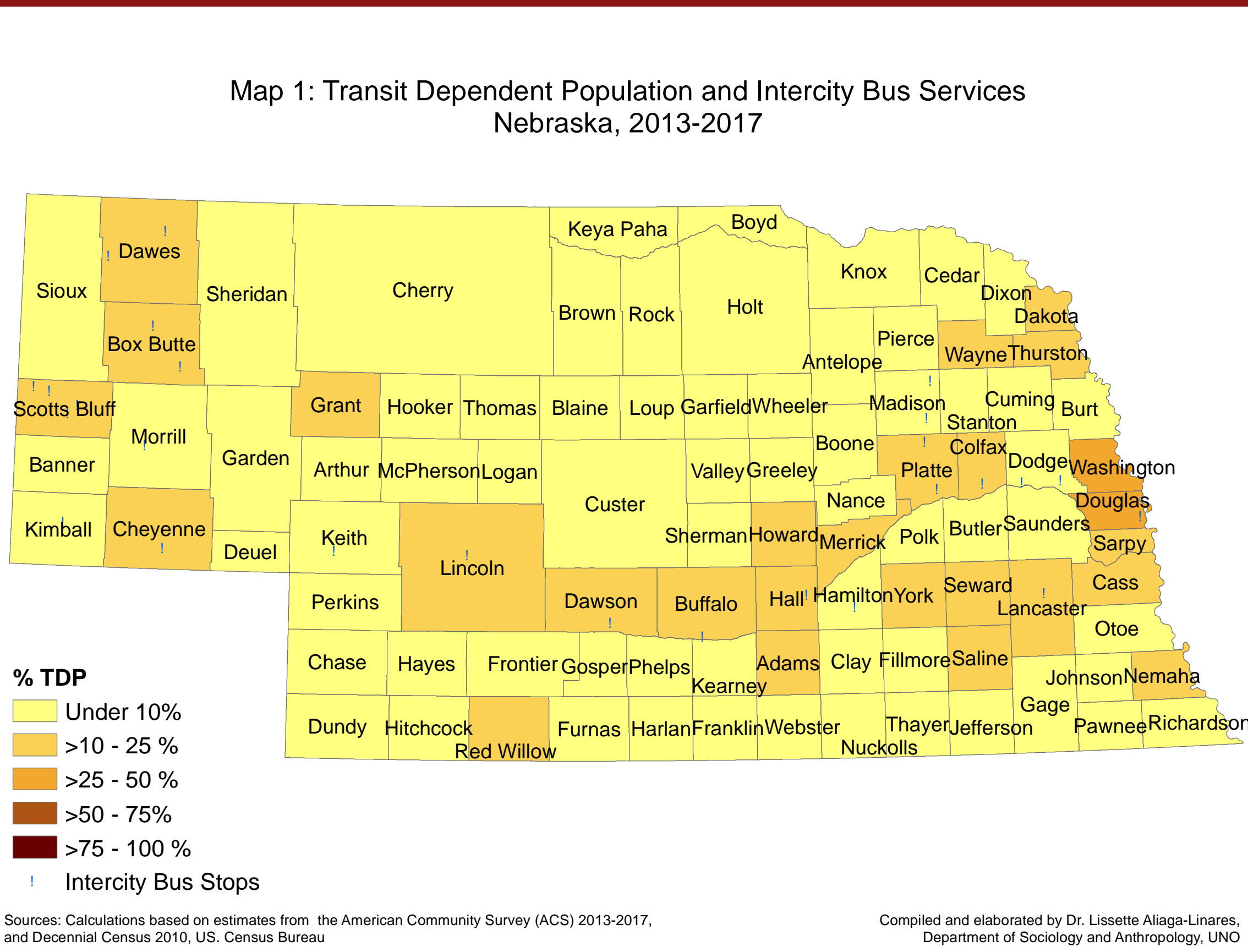
- **Transit dependents** are usually identified by population characteristics such as age (too young or too old), disability status, or socioeconomic status. However, these characteristics often overlap in aggregate census data, and do not provide an accurate estimate of transit demand.
- **This study** quantified the gaps between transit demand and supply in Rural Nebraska for two of the most common public transit services: intercity bus and demand response. It adapted the census block group formula developed by the U.S. Department of Transportation (Steiss, 2006) and its modifications (Jiao and Dillivan, 2013) to provide a single estimate of the transit dependent population.

DATA, MEASUREMENTS & METHODS

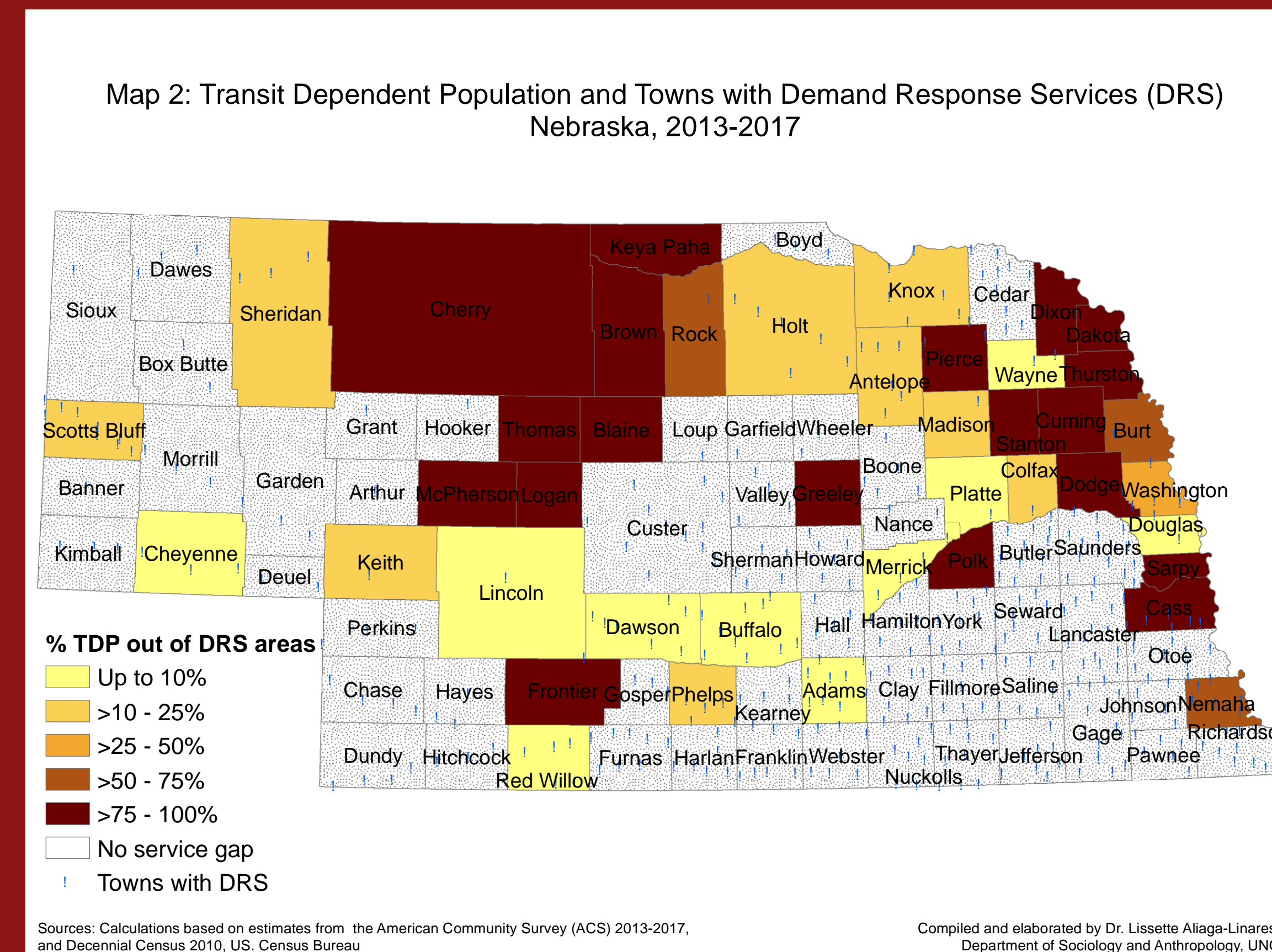
- **DATA:** U.S. Census Block Group data comes from the American Community Survey (ACS) 5 year 2013-2017 and 2010 decennial Census. Transit Supply information was accessed on 09/21/2018 through nebraskatransit.com and updated using each providers' websites.
- **TRANSIT DEMAND:** At the block group level, the transit dependent population (TDP) corresponds to the sum of the following population groups:
 1. **Transit Dependent Household Population (TDHP)**, which corresponds to the net difference between household drivers (population over 16 minus the group quarters population) and the total number of vehicles available. If vehicles available surpassed household drivers, the TDHP was set to zero.
 2. **Forthcoming Riders (FR)**, which correspond to the population between ages 12-15.
 3. **Non-institutionalized population living in groups quarters (NIGQP):** includes the population living in college/university housing or military quarters. Given that the group quarters population is only available at the census tract level in the latest ACS, I used the block group proportional distribution from the 2010 census to approximate the 2013-2017 estimate.
- **TRANSIT SUPPLY:** For rural transit, this study analyzed the coverages of two services:
 1. **Intercity Bus Service**¹ is a regularly scheduled bus service with limited stops over fixed routes connecting two or more communities.
 2. **Demand Response**² is any non-fixed route system of transporting individuals that requires advanced scheduling by the customer, including services provided by public entities, nonprofits, and private providers.
- **METHOD:** Using Arc GIS, I georeferenced the block group TDP estimates and assessed the gaps based on their location relative to the areas served by rural transit.

322,245 Nebraskans depend on rural transit.

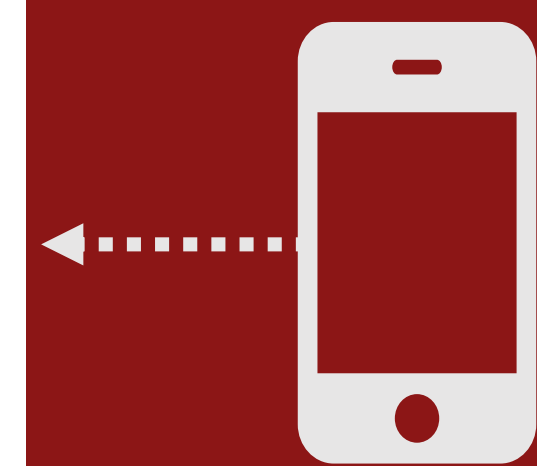
1 in 4 lives in a county without intercity bus stops, and around 1 in 6 lives in an area without demand response services.



What are the rural transit gaps by county?



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What drives transit demand?

Intercity Bus Service (IBS)	Metro		Non-metro	
	With	Without	With	Without
Type of Demand				
Forthcoming riders	49,565	17,856	16,667	19,413
Non-institutionalized Group Quarters	16,205	1,944	4,470	5,079
Households	136,364	33,993	15,247	5,442
Total TDP	202,134	53,793	36,384	29,934
% TDP Not served		21.0		45.1
Demand Response Services (DRS)	Metro		Non-metro	
	With	Without	With	Without
Type of Demand				
Forthcoming riders	53,858	13,563	28,295	7,785
Non-institutionalized Group Quarters	17,691	458	8,544	1,005
Households	143,489	26,868	18,165	2,524
Total TDP	215,038	40,889	55,004	11,314
% TDP Not served		16.0		17.1
Grand Total TDP	255,927		66,318	

RECOMMENDATIONS & LIMITATIONS

- TDP estimates allow to redirect the focus from population characteristics that inhibit mobility (age, disability, etc.) to areas where there are limited vehicles for individuals to use.
- TDP has the potential to be used for scenario planning at different distance levels and in combination with other transit measurements (e.g. mobility index) to identify sensitive transit need areas. More adjustments to TDP estimates will be needed to assess transit needs beyond availability.

NOTES

- 1 Providers include Burlington Trailways, Express Arrow, Megabus, Dashabout Shuttle, Panhandle Trails, Denver Coach, and K & S Express. 18 counties has at least one intercity bus stop.
- 2 Demand response service areas refer to towns/city boundaries listed as served by specific providers, no radius service areas were estimated due to lack of consistency in reporting distances and/or driving times for possible pickup locations among providers. 410 towns –from a total of 580- were listed as served by at least one provider.

REFERENCES

- Jiao, Junfeng and Maxwell Dillivan. 2013. "Transit deserts: The gap between demand and supply". *Journal of Public Transportation* 16 (3): 23-39.
- Steiss, Todd .A. 2006. Calculating/analyzing transit dependent populations using 2000 census data and GIS. Census Transportation Planning Package 2000 Status Report. US Department of Transportation. Washington, D.C.