




*2015 HEARTLAND IN MOTION FHWA PILOT PROJECT*

# *Project Description*

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- Proof of concept study to determine if traditional household travel survey paper diaries can be replaced using household members smartphones.
  - Recruited households from 2014 Heartland in Motion Transportation Study who indicated they were willing to participate in future studies.
  - Households were asked to participate in the 2015 Heartland in Motion Study for **7 consecutive days**, as opposed to 1.
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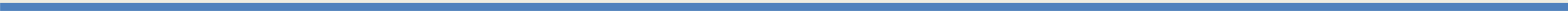
*PROJECT SPONSORS*



Office of Planning  
Office of Transportation Policy Studies

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*PROJECT CONSULTANT*



# Survey Timeline

Spring  
2014

- Households completed 2014 Heartland in Motion Transportation Study, indicated preference to participate in future studies.

April  
2015

- Households invited to 2015 Heartland in Motion Transportation Study.
- Household takes 2015 Recruitment Survey, updates household demographic information and indicates smartphone ownership.

April/May  
2015

- Selected households given travel dates and instructions for downloading smartphone application (rMove).

May  
2015


- Households answer trip surveys on smartphone during their assigned travel period.

End of May  
2015

- Households given last chance to complete unanswered surveys, and instructions to remove application from smartphone.


# *Project Research Questions*

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- Will smartphone method be truly viable as a 100% replacement for traditional household survey methods?
  - Can smartphones reliably capture GPS-based travel information that will result in a low-burden smartphone application?
  - Will the resulting smartphone GPS-data be equal or better in quality than traditional household travel surveys?
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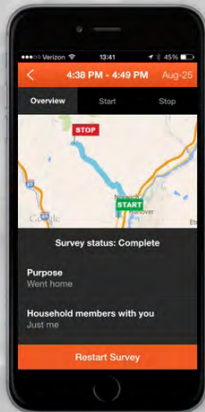
# *Project Goals*

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- Successfully implement smartphone-based household travel diary as a replacement to paper-based traditional household travel survey diaries.
  - Test an approach that will improve quality of household travel diary data (i.e. improve accuracy, better short-trip capture).
  - Collect travel data over an extended period of time (7 days).
  - Substantially reduce respondent burden by reducing survey interaction to only a few seconds per trip.
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# rMove

- RSG developed for both Android and iOS smartphone operating systems.
- rMove listed in Android and Apple stores, also has a support website for users to visit.



**rMOVE**  
by RSG


Private and secure data collection of your travel habits to plan tomorrow's transportation needs.


[+ read our security promise](#)

1. **Download the app**  
The app is available for most iOS and Android phones. If your phone is not compatible, we have other ways for you to participate.

2. **Just go about your life**  
**rMove** will track your travel and ask questions when you stop. Nothing to it!

3. **Answer questions about your travel**  
Your answers will help planning professionals design future transportation investments in your region.

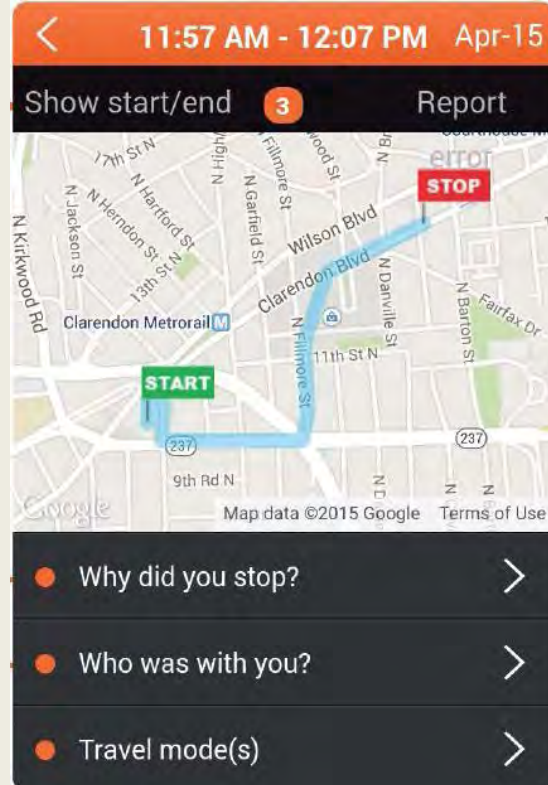
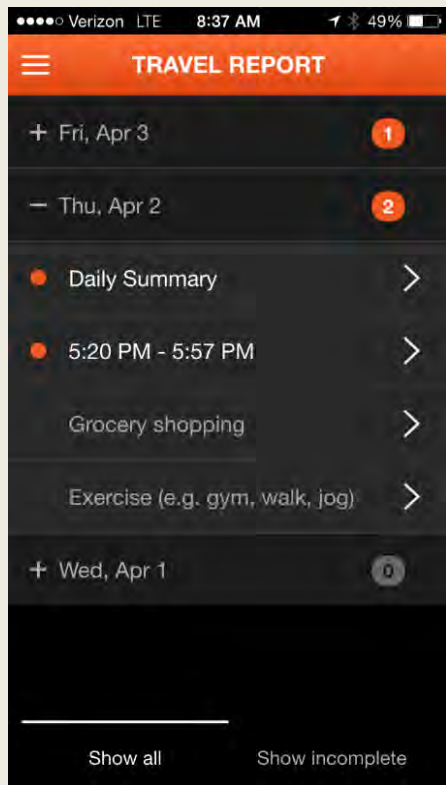
Download on the  App Store

ANDROID APP ON  Google play




# *rMove* Features


- Automatic trip start and end.
- Automatic recording of trip path and duration.
- Multiple sensor utilization (GPS, compass, accelerometer, Wifi).
- Automatically runs in background and starts on device power-up.
- Adaptive GPS collection technology for optimal battery life.



# *Repeat Trips*

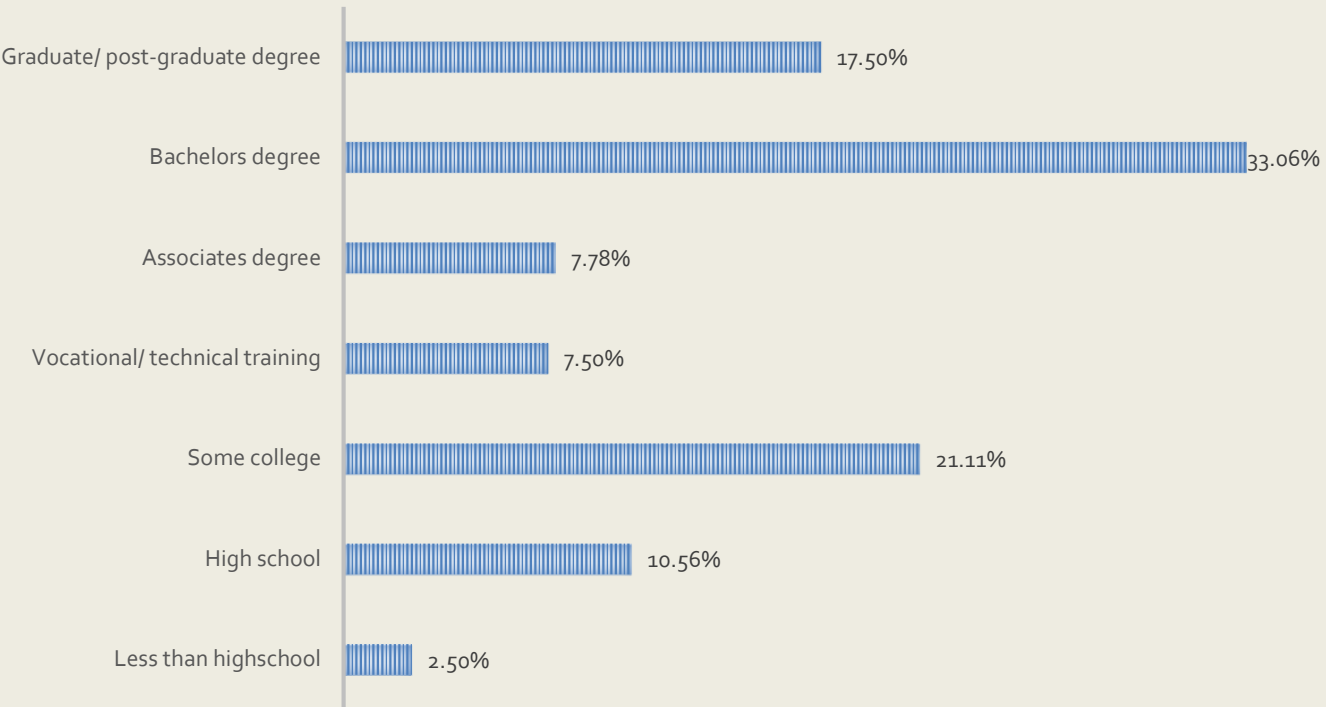
- rMove application will match repeat trips to reduce respondent burden.
    - *Trip must have same start and stop locations.*
    - *The trip distance must also be the same .*
  - Answers from repeat trips are automatically filled in, respondent just has to review and accept or change trip details as opposed to answer again.
  - 8% of all trips were repeat trips.
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# *Participation*

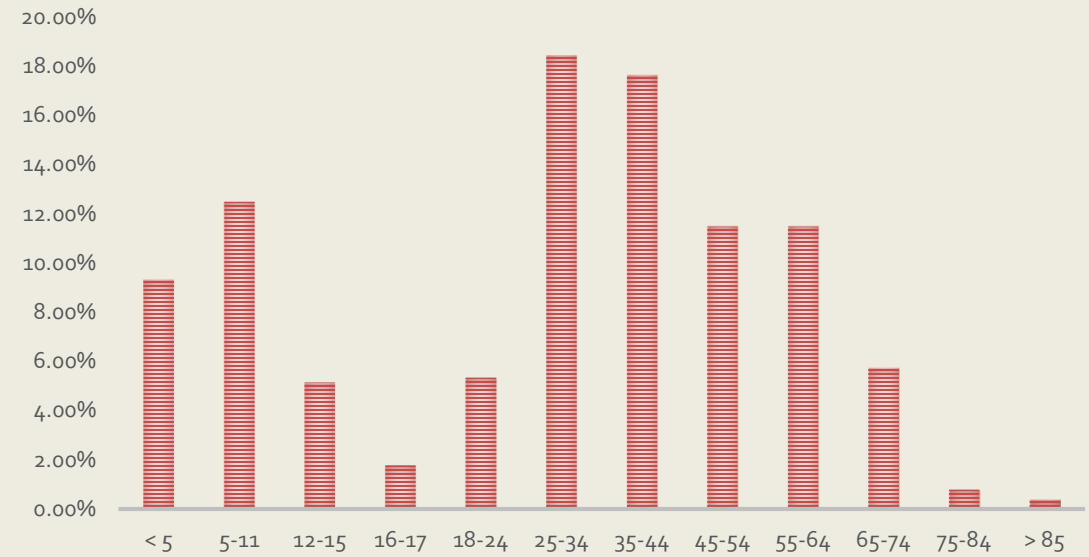
- 191 Total Households
  - 505 Total Persons
  - 13,689 Total Trips
  - 843,920 GPS points
  
  - 90% completed every single survey
  - 85% answered every daily survey
  
  - **For 7 consecutive days of data collection per person!**
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# Represented

## EDUCATION



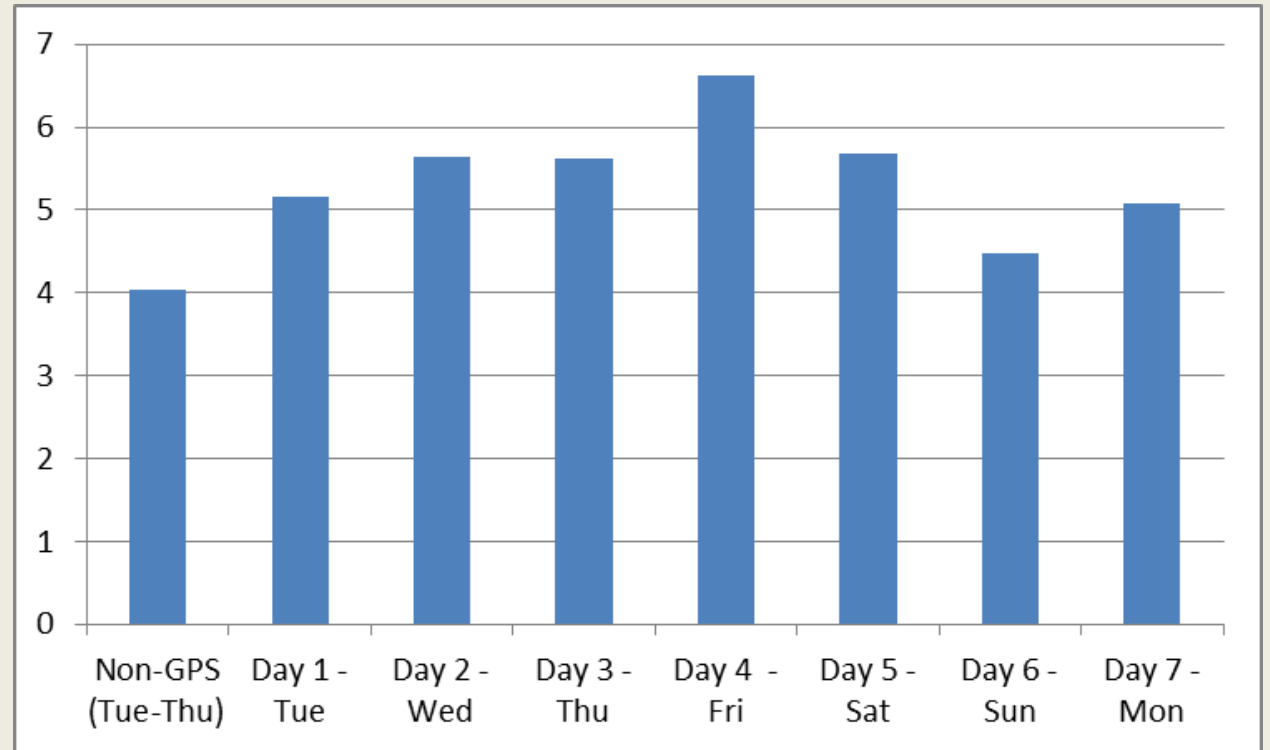
## AGE



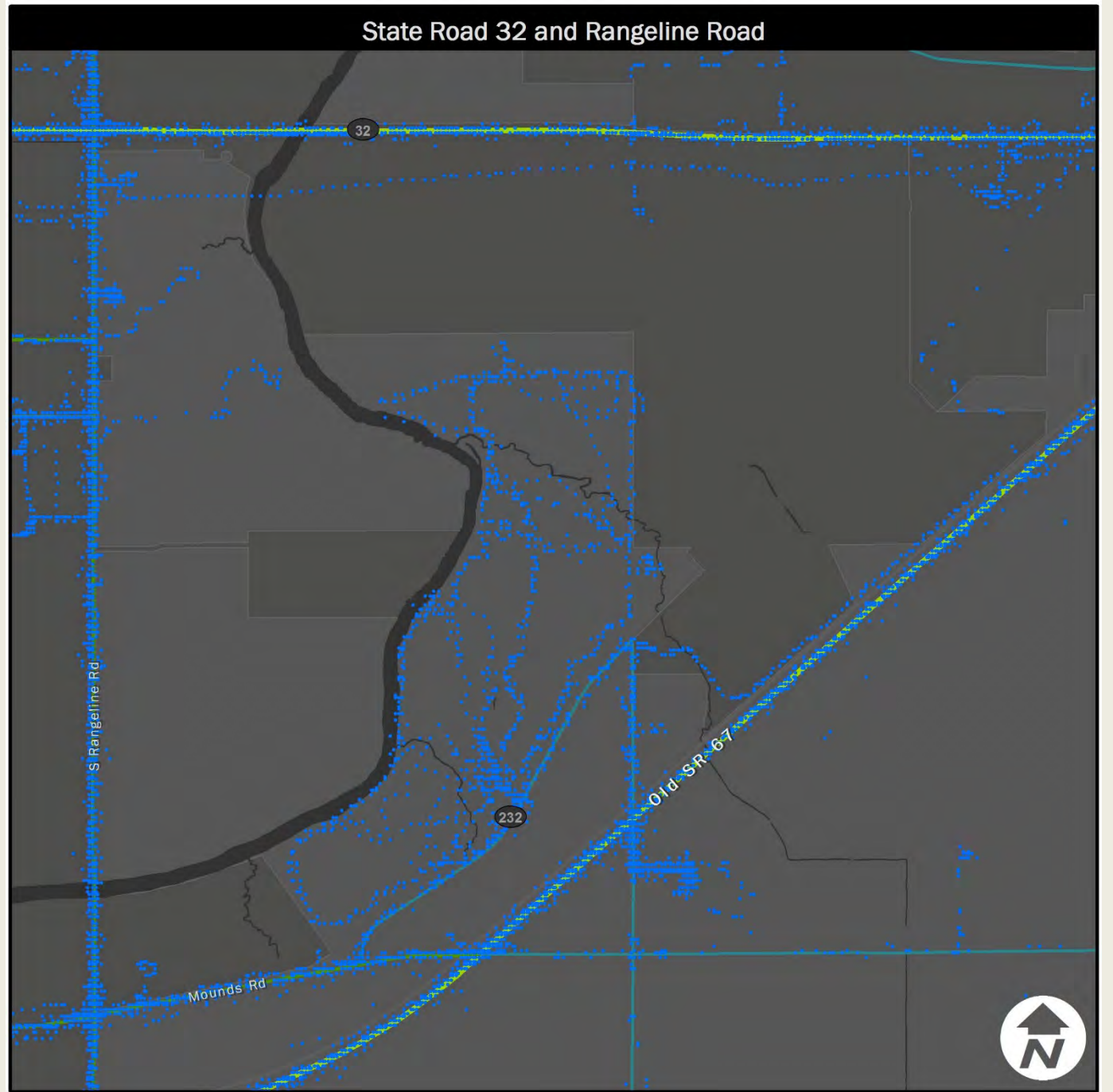
# Burden

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
Participating was easy in 2014	0.0%	13.3%	21.0%	42.9%	22.9%
Participating was easy in 2015	4%	3%	6.7%	30.5%	56.2%
Spent less time in 2015 participating than 2014	7%	16%	25.0%	20.2%	31.7%
More fun to participate in 2015 compared to 2014	3%	5	26.0%	27.9%	38.5%

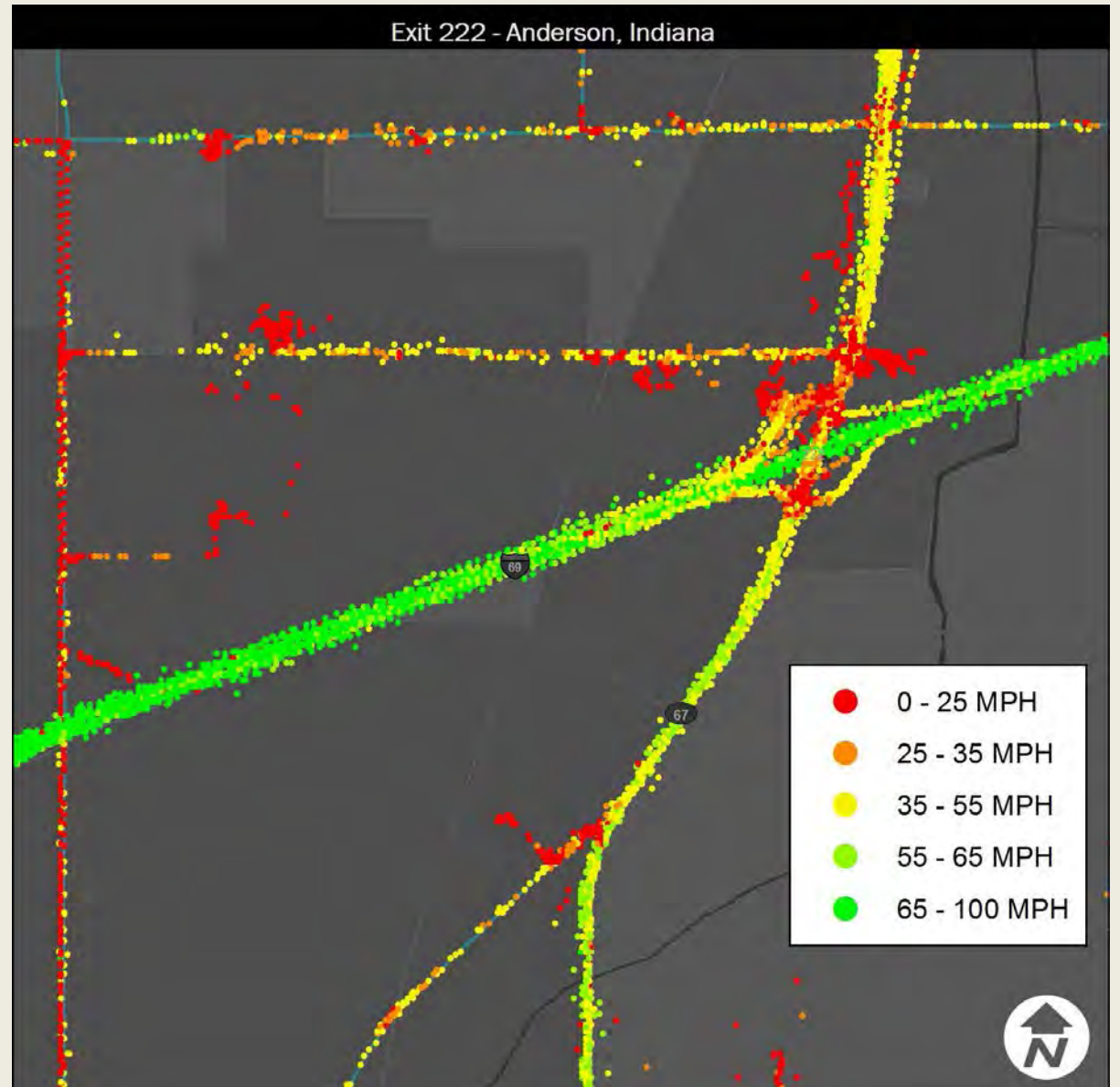
# *Smartphone vs. Traditional*



# *GPS trace*

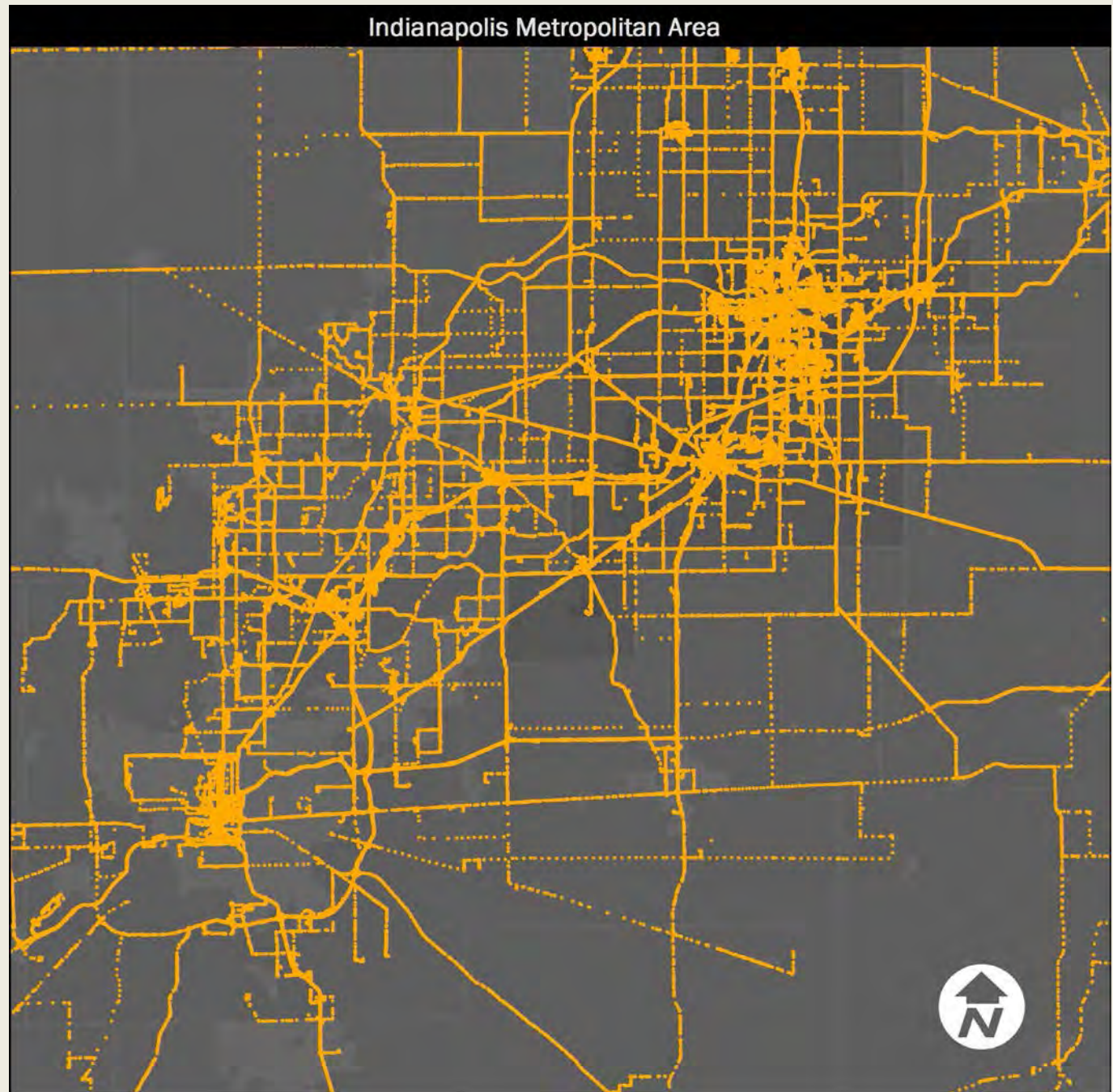


# Speed

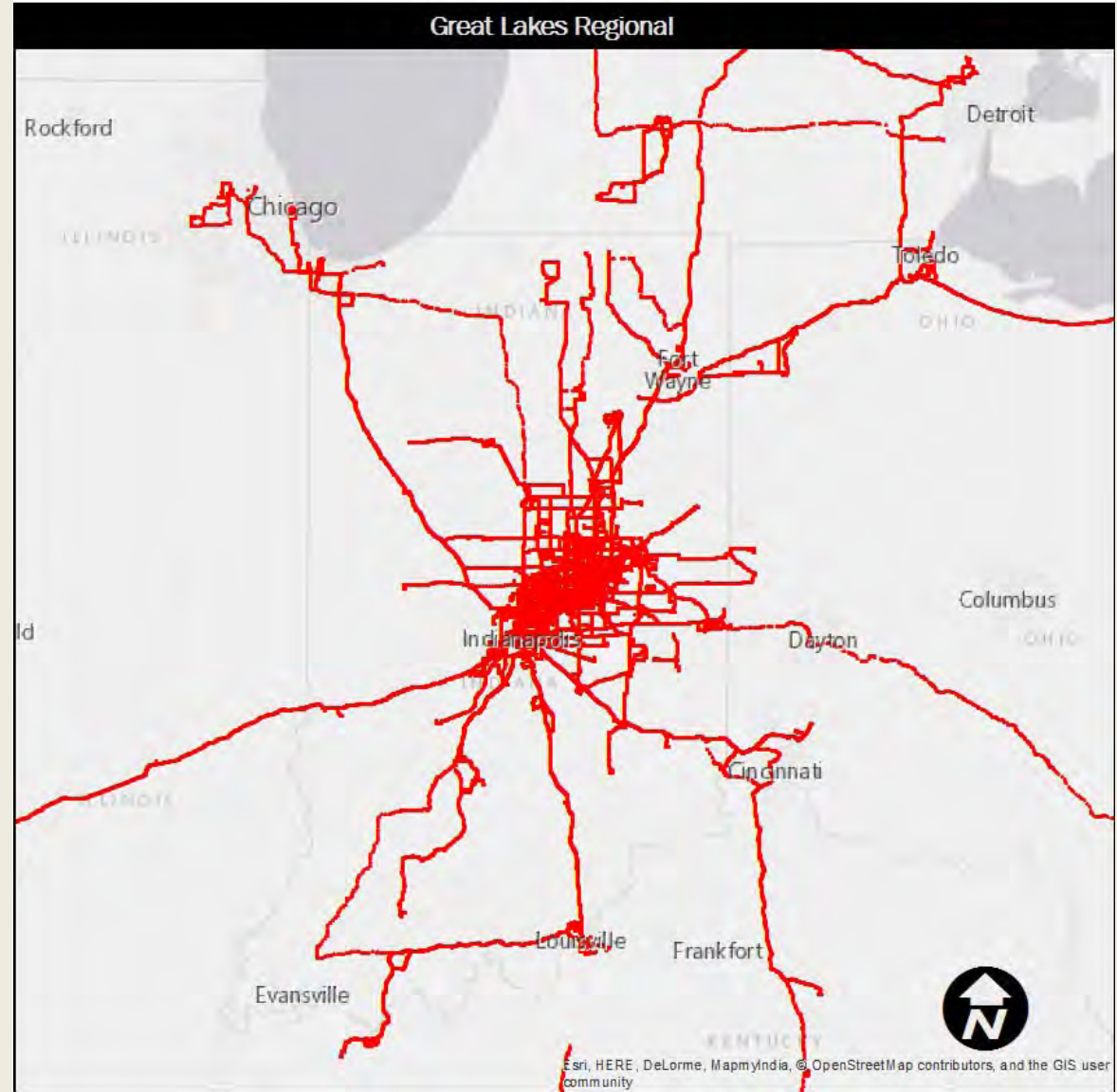




# *Regional trips*



# *Long Range Trips*



# *Project Team*

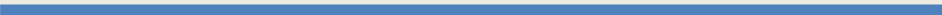
**Elizabeth Greene, RSG**

**Kevin Hathaway, RSG**

**Michael Geilich, RSG**

**Leak Flake, RSG**

**Elaine Murakami, FHWA Office of Planning**



# *Questions*



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