



# Metro Transit On-Board Survey

Spring 2015

# Project Background

- On-board surveys generally completed every five years
  - » Last survey was done in 2008
- To be used for updating mode choice component of travel demand model
  - » Needed for BRT planning
- Assists Metro with Title VI planning
- Data used for general planning purposes and information

# Project Details

- Project led by Cambridge Systematics
  - » Dikita hired as survey sub-consultant
  - » Surveying and data entry from UW TOPS lab
- Conducted February through April 2015
  - » Avoided spring break and other holidays
- Routes 1-75
  - » Did not include UW circulator routes, supplemental school day service, or paratransit
- Weekdays 6:00 am to 9:00 pm
- Sample of trips distributed throughout the day

# Improvements to 2008 Survey

- Span expanded to 9:00 pm
- Use of tablet personal interviews on select trips
- College/university question added
- Spreadsheet tool to easily filter and cross-tabulate results
- Web application to trouble-shoot records

# Survey Methods

## ■ Tablet Personal Interview

### » Individuals randomly approached

+ More accurate data, reduced bias

- Expensive and time consuming, problems on crowded buses, lack of paper trail makes for more difficult error checking

1,805 valid surveys

## ■ Paper Survey

### » Pencil and paper handed to everyone onboard

+ More surveys for lower cost, better in crowded conditions

- Some sampling bias according to FTA, some incomplete or questionable data

3,958 valid surveys

# Survey Methods

- On-to-off survey
  - » Card only, no questions
  - » Near 100% compliance
- Boarding/alighting counts
  - » Manual counts
- Used for survey expansion

# Tablet Personal Interview

Back
Keyboard
Exit & Begin New Survey
Save & Continue

**Where did you BOARD route 2-WT or 2-NT?**

- 2-WT - E MIFFLIN & N PINCKNEY (WB)
- 2-WT - W MIFFLIN & N CARROLL (WB)
- 2-WT - STATE & W DAYTON (WB)
- 2-WT - STATE & W JOHNSON (WB)
- 2-WT - STATE & W GORHAM (WB)
- 2-WT - W GORHAM & N BASSETT (WB)
- 2-WT - UNIV AVE & N FRANCES (WB)
- 2-WT - UNIV AVE & N LAKE (WB)
- 2-WT - UNIV AVE & N PARK (WB)
- 2-WT - UNIV AVE & N MILLS (WB)
- 2-WT - UNIV AVE & N ORCHARD (WB)
- 2-WT - UNIV AVE & N RANDALL (WB)
- 2-WT - UNIV AVE & N BREESE (WB)
- 2-WT - UNIV AVE & PRINCETON (WB)
- 2-WT - UNIV AVE & FOREST (WB)

**Interlined**

**Sort List**

Run    A->Z    Z->A

**Filter List**    Clear

Wisconsin DMV - Hill Farms

4802 Sheboygan Avenue

City	St	Zip
Madison	WI	53705

**The board location is not in this list. I want to enter it by:**

Intersection

Landmark

**Staff Comments**

Passenger

Trip Frame

Origin

Board

Alight

Destination

Geocode

Map & Narrative

Demographics

Conclusion

BOARD

Passenger:   
 Vehicle No: 912

Event ID: 65\_670455  
 SurveyID: 503    Status: Valid

Route  
 2    NTP

# Paper Survey



## METRO TRANSIT PASSENGER SURVEY

### Dear Metro Rider:

Thank you for taking time to answer questions about you, your bus service, and how you use it. The information you provide is very important and will be used to guide improvements to bus service in the future.

If possible, please complete this survey on the bus and return it to the surveyors. If you are unable to do so, please complete the survey as soon as possible, and fold it so the mailing label is visible and drop it into any mailbox.

You may also scan the QR code at the end of survey or go to the following website to complete the survey:  
www.surveyygizmo.com/s3/1957304/madison

- Check here if you already filled out a survey on another trip. Please continue to complete this form.

### ABOUT YOUR BUS RIDE

#### 1. What is the ROUTE NUMBER?

Route: \_\_\_\_\_

#### 2. What time did you get on THIS ROUTE?

Time: \_\_\_\_\_  AM  PM

#### 3. Where did you BEGIN this one-way trip? (✓ only one)

- Home/Residence
- Place of Work
- College/University
- School (K-12)
- Other \_\_\_\_\_
- Medical/Dental
- Store/Shopping
- Restaurant/Eat Out
- Social/Recreation

#### Where was that located?

Place name and exact address: \_\_\_\_\_

Or nearest street intersection:

On street: \_\_\_\_\_

At street: \_\_\_\_\_

#### 4. How did you arrive at the FIRST bus stop at the BEGINNING of this trip? (✓ only one)

- Walked \_\_\_\_\_ blocks
- Rode bike
- Was dropped off at bus stop
- Drove/rode in a vehicle and parked on the street
- Drove/rode in a vehicle and parked at park-and-ride or other lot
- Used wheelchair/scooter

#### 5. Did you TRANSFER or CHANGE to THIS ROUTE? (✓ only one)

No  Yes

#### 6. At what bus stop did you get ON THIS ROUTE?

Nearest street intersection: \_\_\_\_\_

On street: \_\_\_\_\_

At street: \_\_\_\_\_

Place Name: \_\_\_\_\_

#### 7. At what bus stop will you get OFF THIS ROUTE?

Nearest street intersection: \_\_\_\_\_

On street: \_\_\_\_\_

At street: \_\_\_\_\_

Place Name: \_\_\_\_\_

#### 8. Will you TRANSFER or CHANGE ROUTES to complete your trip? (✓ only one)

No  Yes

#### 9. How will you get from your LAST bus stop to your FINAL destination for this trip? (✓ only one)

- Walk \_\_\_\_\_ blocks
- Ride bike
- Will be picked up at bus stop
- Drive/ride in a vehicle parked on the street
- Drive/ride in a vehicle parked at park-and-ride lot or other lot
- Will use wheelchair/scooter

#### 10. What is your FINAL destination for this one-way trip? (✓ only one)

- Home/Residence
- Place of Work
- College/University
- School (K-12)
- Other \_\_\_\_\_
- Medical/Dental
- Store/Shopping
- Restaurant/Eat Out
- Social/Recreation

#### Where is that located?

Place name and exact address: \_\_\_\_\_

Or nearest street intersection:

On street: \_\_\_\_\_

At street: \_\_\_\_\_

#### 11. How many TRANSFERS or ROUTE CHANGES will you make in total on this trip?

Number of transfers: \_\_\_\_\_

#### 12. What ROUTES (in order) will you take on this trip?

Route# \_\_\_\_\_ Route# \_\_\_\_\_ Route# \_\_\_\_\_

#### 13. How did you PAY for this trip? (✓ only one)

- Cash
- Unlimited Ride Pass (student/employee)
- 10-Ride Card
- 31-Day Pass
- 31-Day Pass (low income)
- EZ Rider Youth Pass
- Other \_\_\_\_\_

#### 14. Did you use a Senior/Disabled or Youth Fare? (✓ only one)

Senior/Disabled  Youth  Neither

#### 15. How many times per week do you make this same trip using Metro Transit? (✓ only one)

Less than once a week  3-4 trips a week  1-2 trips a week  5 or more trips a week

### ABOUT YOURSELF

#### 16. What is YOUR age? \_\_\_\_\_ Years

#### 17. What is YOUR gender? (✓ only one)

Male  Female  Do not identify as either

#### 18. Are YOU employed? (✓ only one)

No  Yes

#### 19. Do YOU have a valid driver's license? (✓ only one)

No  Yes

continued >

#### 20. Are YOU a college/university student? (✓ only one)

No  Yes

#### 21. Are YOU of Hispanic, Latino, or Spanish origin? (✓ only one)

No  Yes

#### 22. Of what racial group(s) do YOU consider yourself a member? (✓ at that apply)

- Black/African-American
- American Indian/Alaska Native
- Asian
- Hawaiian Native/Pacific Islander
- White
- Two or more races
- Other \_\_\_\_\_

#### 23. Do YOU speak English well? (✓ only one)

No  Yes

#### 24. Which language(s) do YOU speak at home? (✓ at that apply)

- English
- Spanish
- Hmong/Miao
- Cantonese/Mandarin
- Korean
- Other \_\_\_\_\_

#### 25. How long have YOU used Metro Transit? (✓ only one)

Less than 6 mos.  3 years to 5 years  6 mos. to 2 years  More than 5 years

### ABOUT YOUR HOUSEHOLD

Note: If you are a college student living away from home, do NOT include your parents' household information. If you are currently staying with room-mates, PLEASE include information about your room-mates when describing your household.

#### 26. Including yourself, how many people live in YOUR household?

Number of people in household: \_\_\_\_\_

#### 27. Including yourself, how many people in YOUR household are employed?

Number of workers in household: \_\_\_\_\_

#### 28. How many motor vehicles (cars, vans, motorbikes, or trucks) are available to people in YOUR household? (✓ only one)

0  2  1  3 or more



MADISON WI 53703-9923  
1245 E WASHINGTON AVENUE  
SUITE 201  
METRO TRANSIT  
POSTAGE WILL BE PAID BY ADDRESSEE  
FIRST-CLASS MAIL PERMIT NO. 377001 MADISON, WI  
**BUSINESS REPLY MAIL**

#### 29. Were any of these vehicles available today for YOU to make this trip? (✓ only one)

No  Yes

#### 30. What category best describes the combined total income (before taxes) in 2014 for everyone in YOUR household? (✓ only one)

- Under \$15,000
- \$15,000-\$34,999
- \$35,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$99,999
- \$100,000 and more

### WHAT DO YOU THINK?

Circle HOW YOU RATE Metro service overall.

	NA	Poor	Fair	Good	Very Good
a. Cleanliness of buses	N/A	1	2	3	4
b. Personal safety while riding	N/A	1	2	3	4
c. Personal safety at bus stops	N/A	1	2	3	4
d. Personal safety at transfer points	N/A	1	2	3	4
e. Convenience of routes	N/A	1	2	3	4
f. Driver courtesy	N/A	1	2	3	4
g. Time waiting for buses	N/A	1	2	3	4
h. Travel time on buses	N/A	1	2	3	4
i. Crowding on buses	N/A	1	2	3	4
j. Maps and schedules	N/A	1	2	3	4
k. On-line trip planning	N/A	1	2	3	4
l. Bus tracking	N/A	1	2	3	4
m. Overall satisfaction	N/A	1	2	3	4

#### Comments on Metro service:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please provide your e-mail information if you would like to participate in future Metro Transit research studies. Your e-mail information will be strictly confidential.

Email contact: \_\_\_\_\_

Please refold with mailing panel out and tape securely.





# Information Collected

- Origin, boarding and alighting locations, destination
- Mode of access (walk, bike, drive, etc.)
- Route, transfers, trip purpose, etc.
- Fare category (cash, pass, 10-ride card, etc.)
- Demographics (age, race, income, etc.)
- Opinions and comments on Metro Transit

# Survey Expansion

- 5,763 surveys expanded to represent weekday ridership of about 45,000 unlinked trips (boardings)
- Weights for each survey based on:
  - » Flows between groups of bus stops  
From on-to-off survey
  - » Bus stop boardings and alightings  
From boarding/alighting counts
  - » Route/direction/time-of-day  
From on-to-off survey and boarding/alighting counts

# Survey Expansion

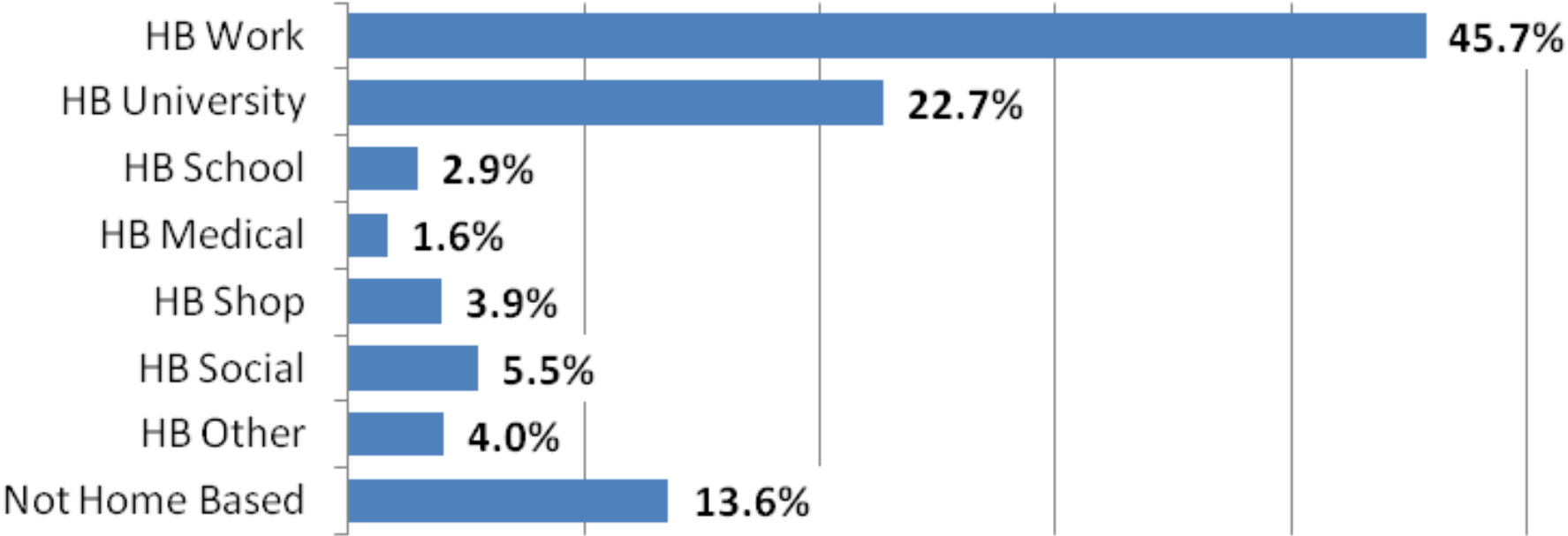
## ■ Boarding weights

- » Designed to reflect actual daily boardings, matching farebox records

## ■ Trip weights

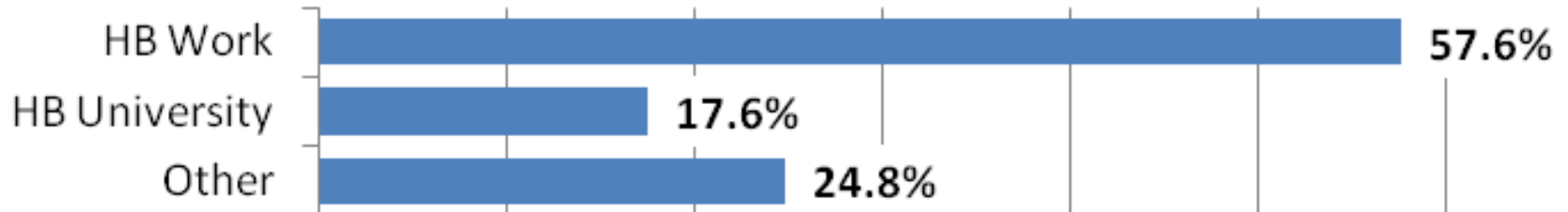
- » Account for transfers
- » Take into account likely interline transfers
- » Rides with transfers in theory have a higher likelihood of being surveyed, but also a higher likelihood of being surveyed multiple times and refusing

# Trip Purpose



HB: Home Based  
Trip weighted estimates

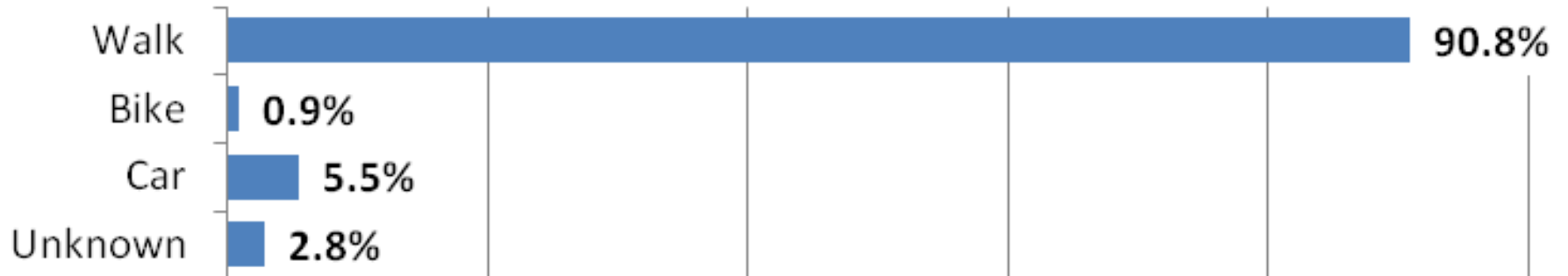
## Trip Purpose, Peak Periods



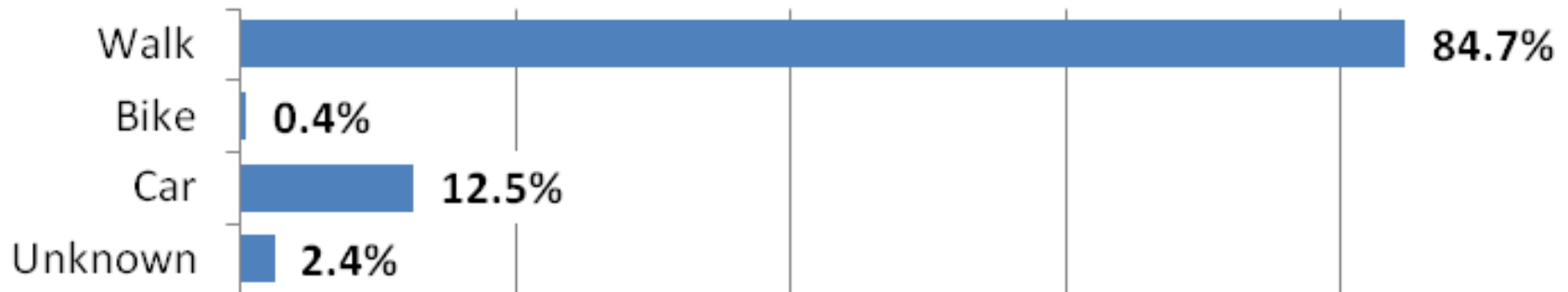
## Trip Purpose, Off Peak



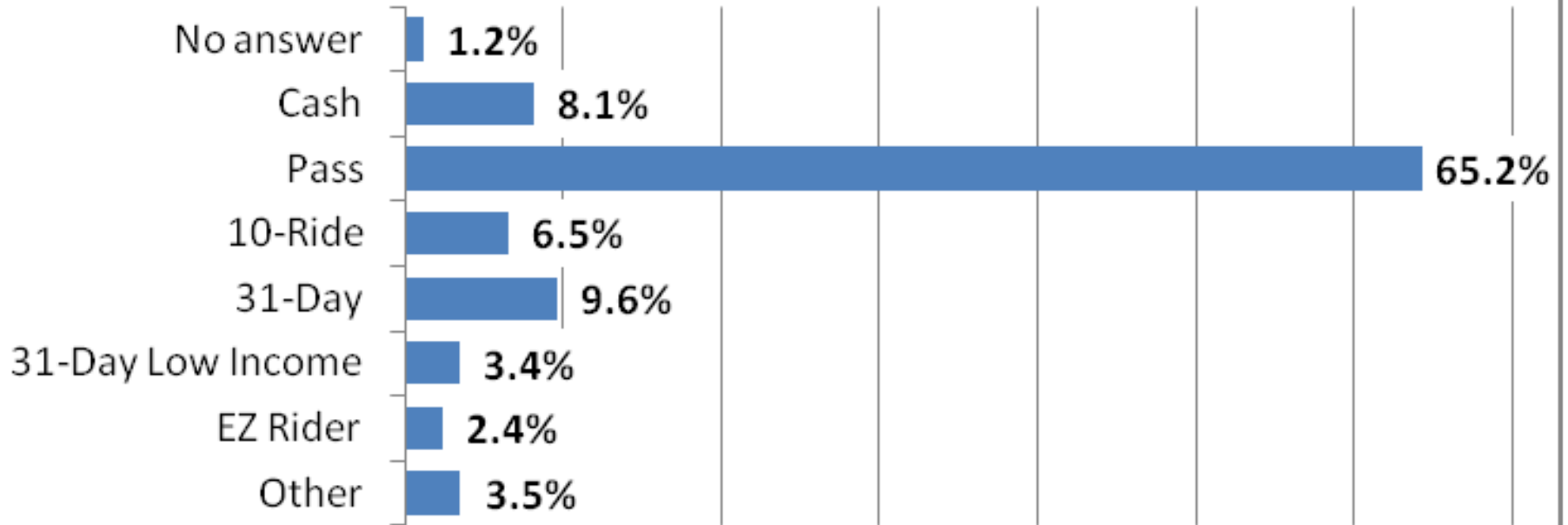
## Transit Access



## Transit Access, Vehicle Available



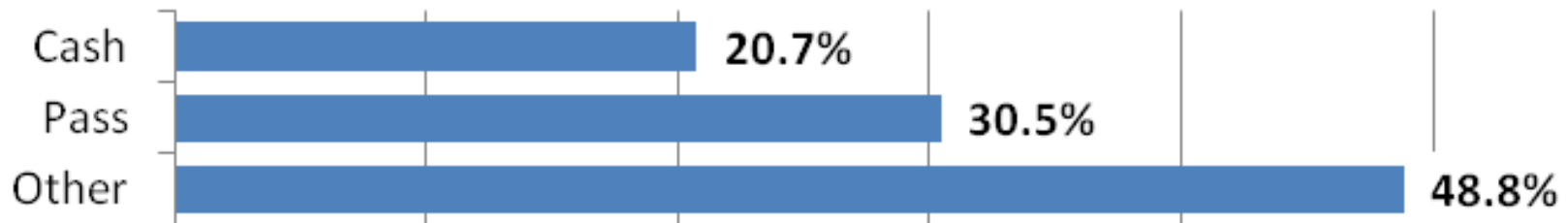
# Fare Type



## Fare Type \*



## Fare Type, HH Income < \$35K per Yr \*

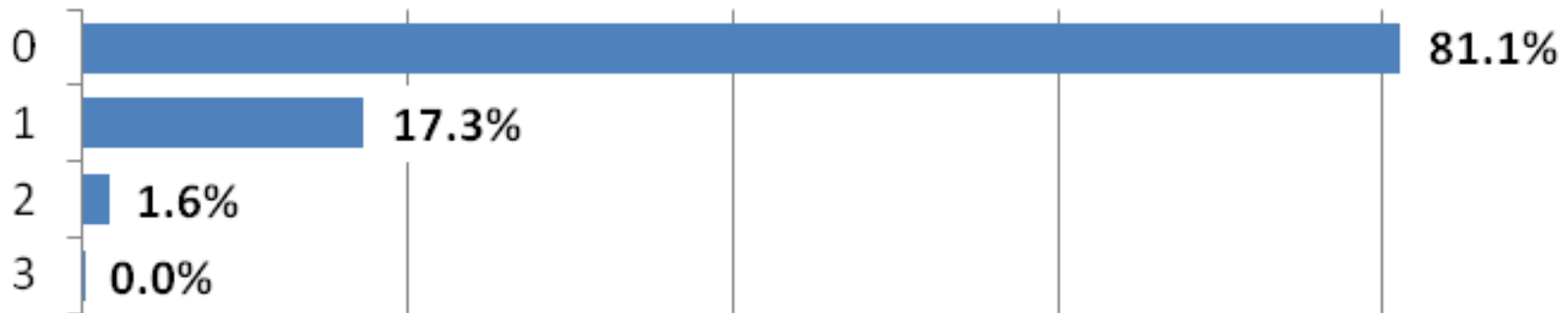


Trip weighted estimates

\*Not including college/university students

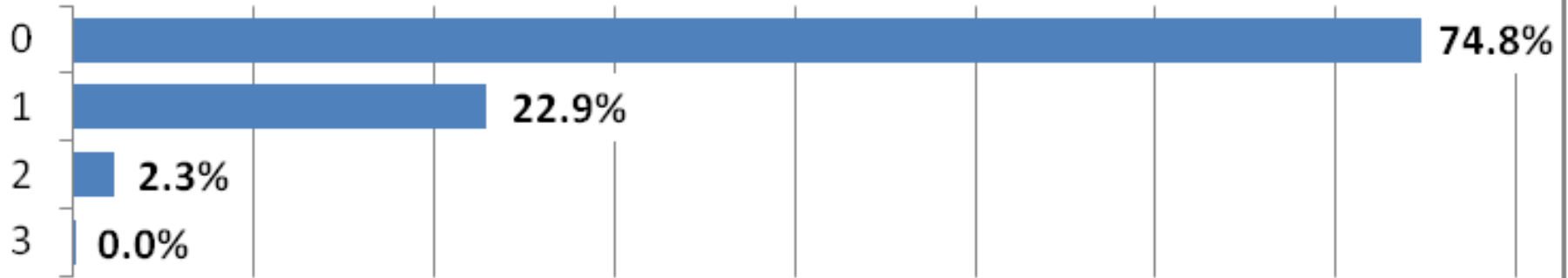


## Number of Transfers

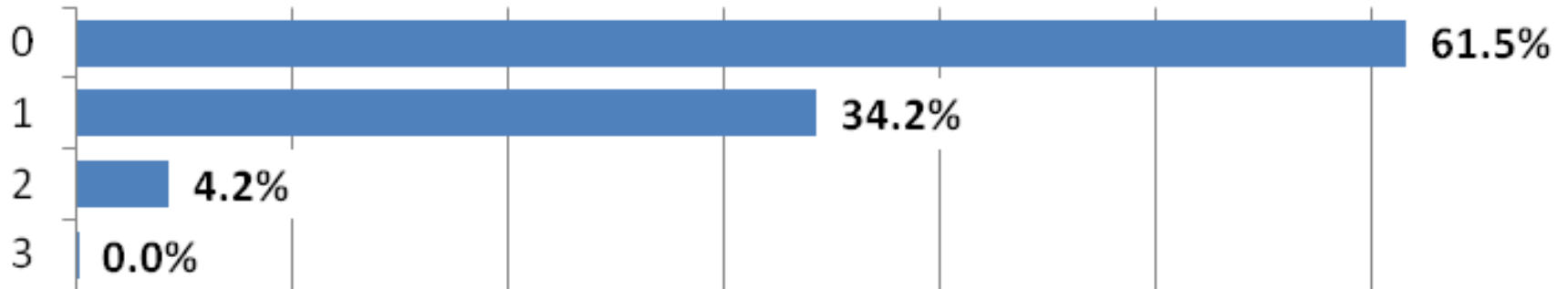


Trip weighted estimates

## Number of Transfers \*



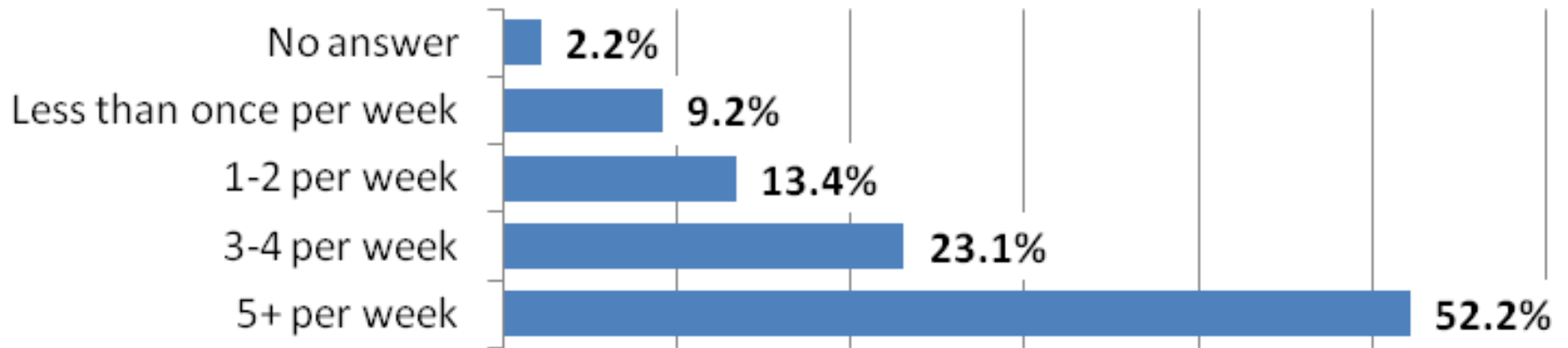
## Number of Transfers, Minorities \*



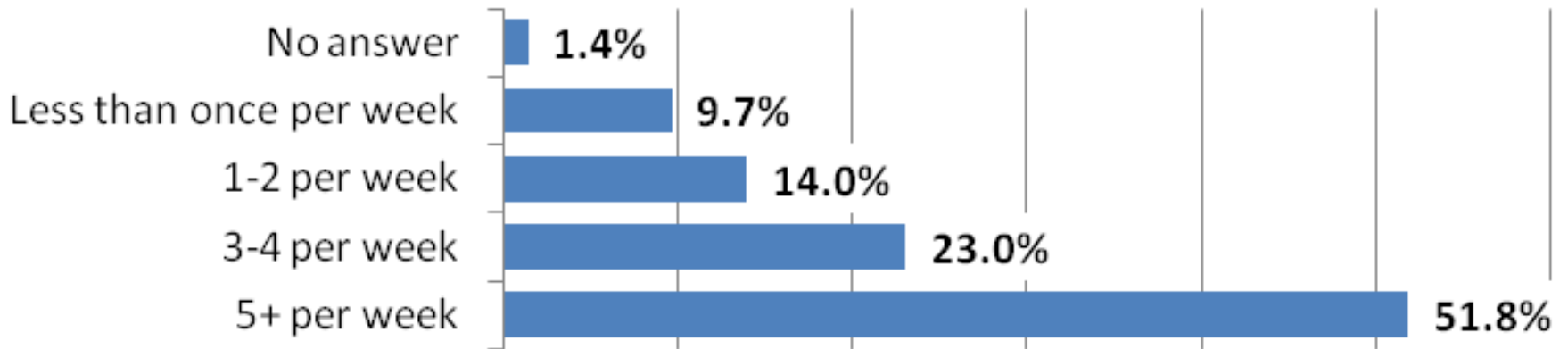
Trip weighted estimates

\*Not including college/university students

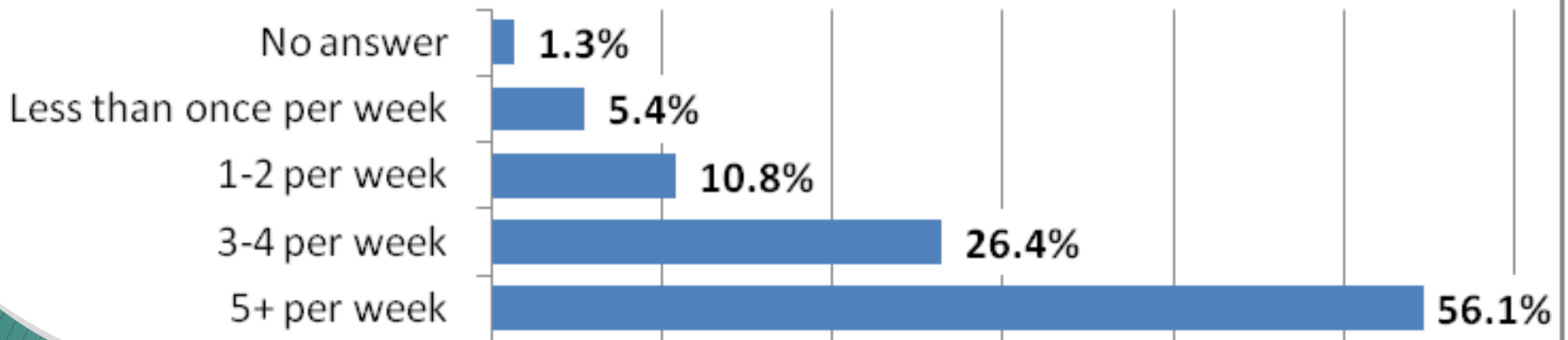
## Frequency of Use



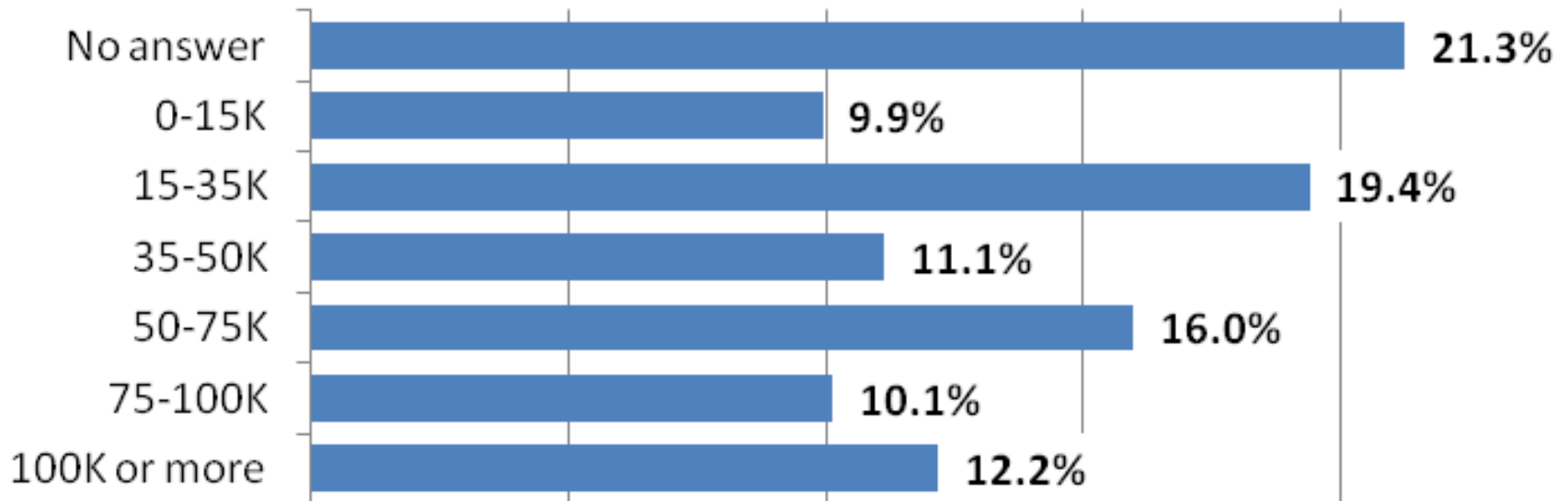
## Frequency, Satisfaction $\geq$ Good



## Frequency, Satisfaction $\leq$ Fair



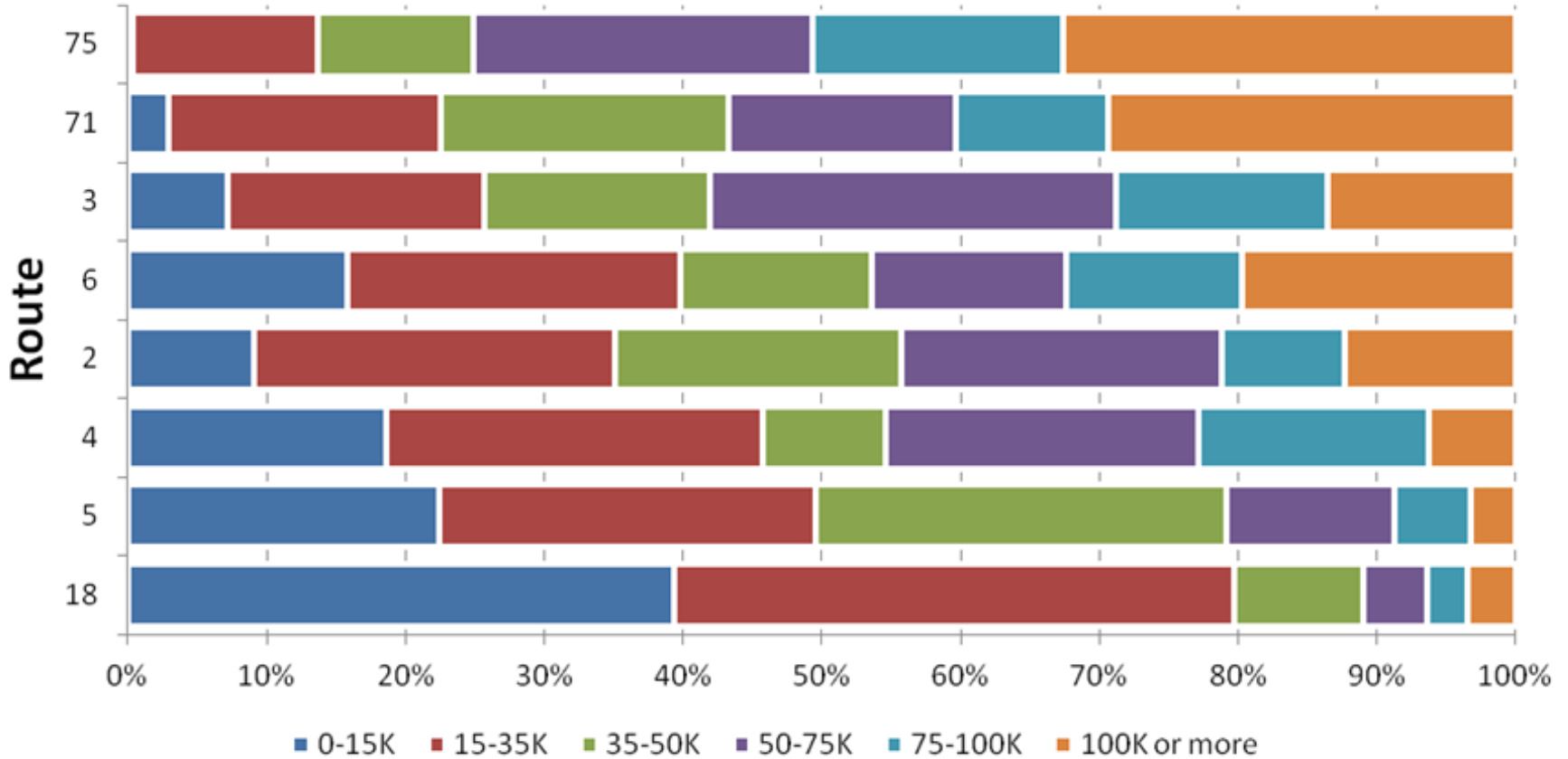
## Household Income \*



Trip weighted estimates

\*Not including college/university students

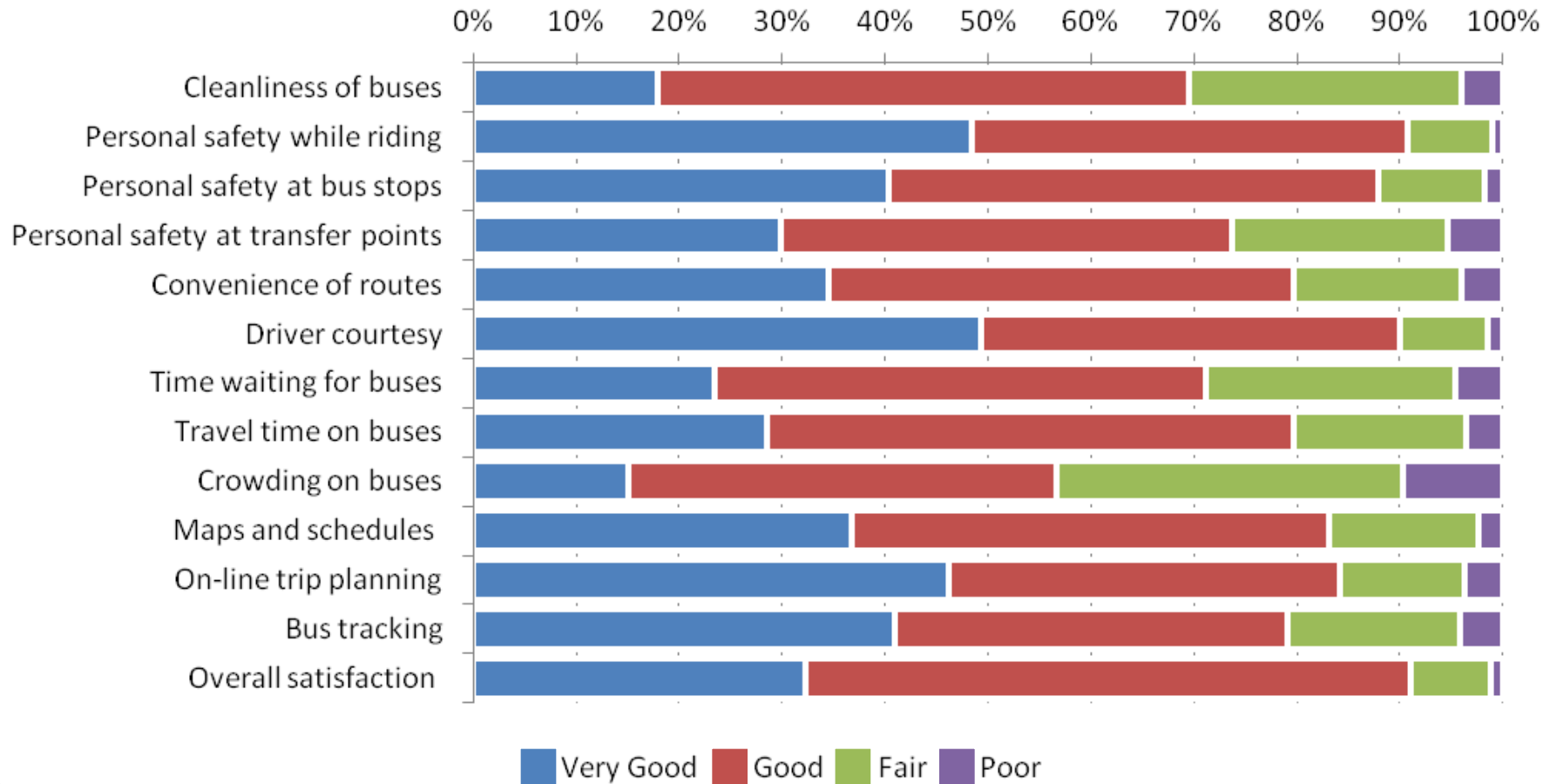
## Household Income by Selected Routes \*



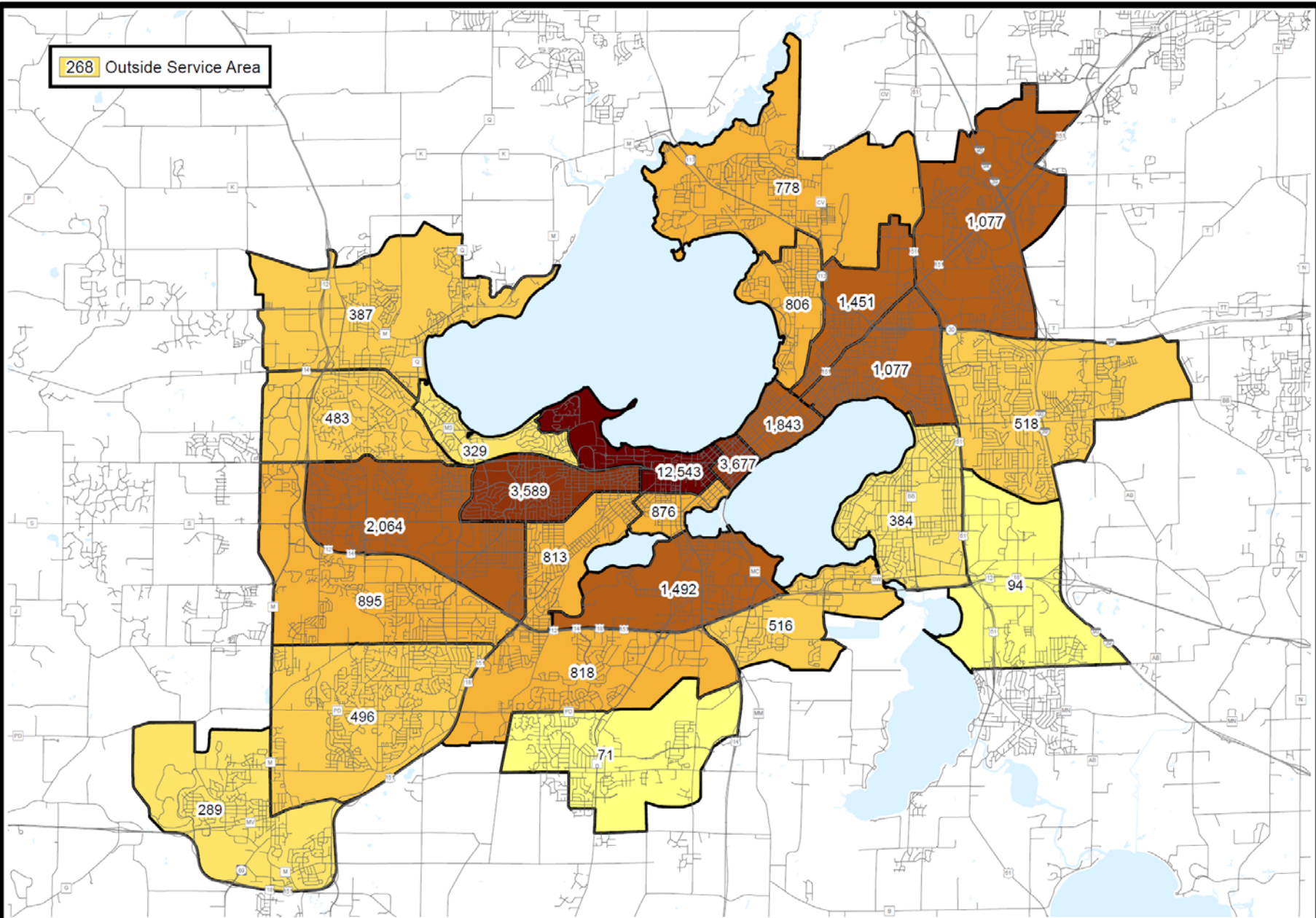
Trip weighted estimates

\*College/university students and no-answers for HH income excluded

## Satisfaction (Excluding N/A and No Answers)



268 Outside Service Area



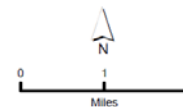
### 2015 Metro Transit Onboard Survey Zone Origin and Destination Totals



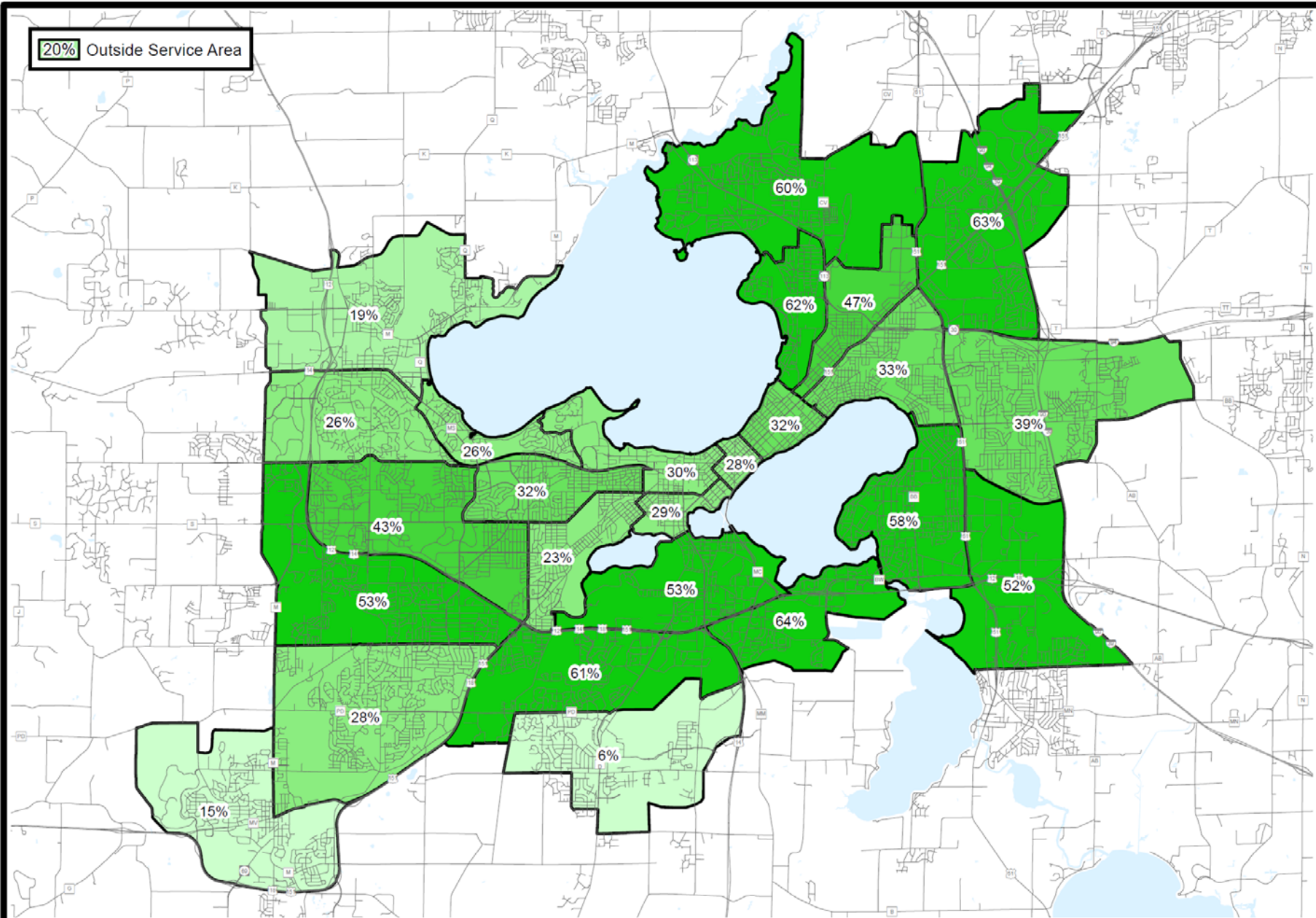
Prepared by staff to the:



Date Revised: 11/17/2015







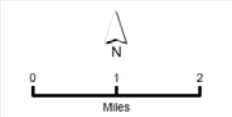
2015 Metro Transit Onboard Survey  
 Low Income\* Proportion of Zone Origins  
 and Destinations (College/University Students Excluded)

\* Riders with a household income less than \$35,000 per year

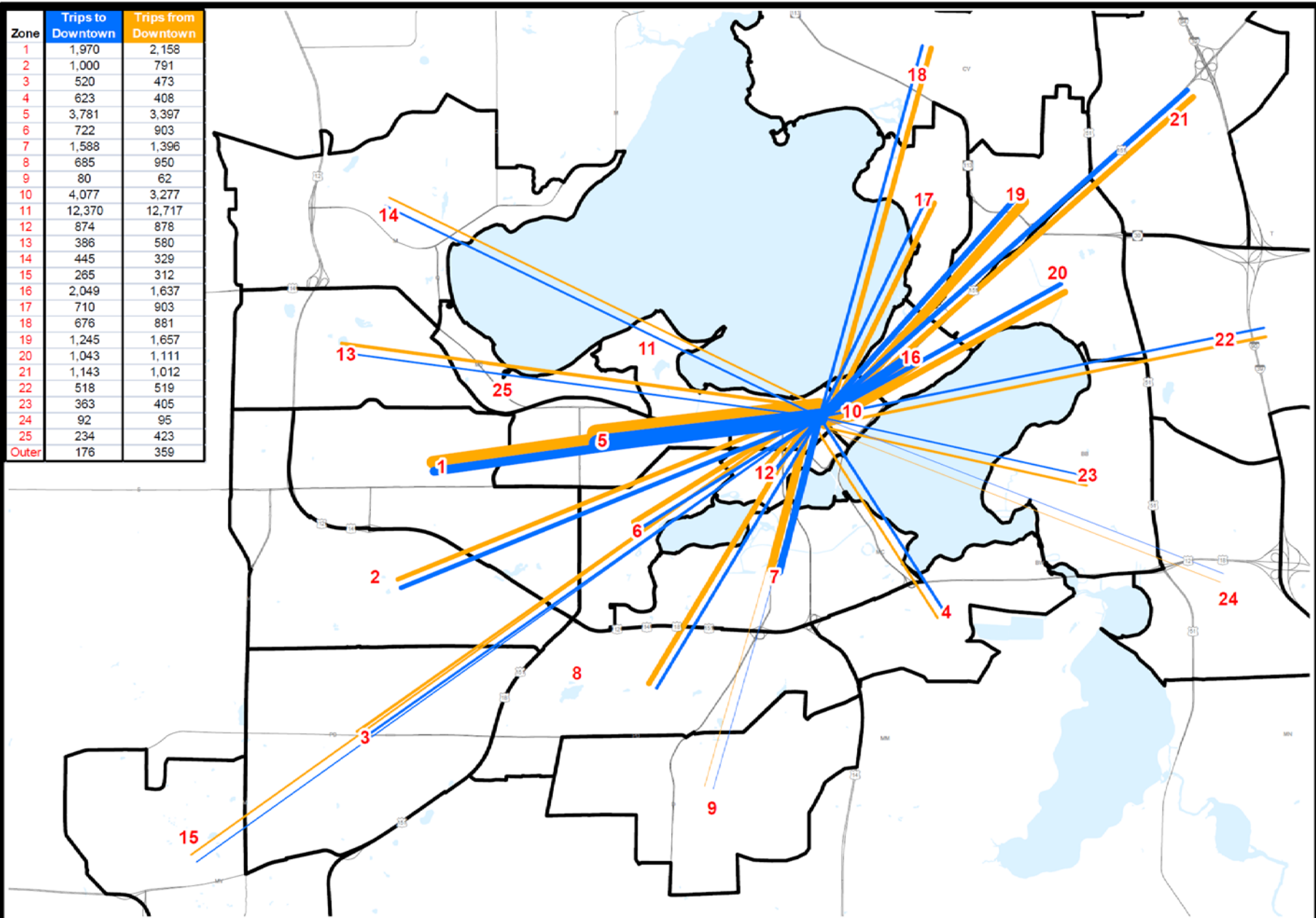


Prepared by staff to the:  
 Madison Area  
**T.P.B.**  
 Transportation Planning Board  
 A Metropolitan Planning Organization (MPO)

Date Revised: 12/1/2015



Zone	Trips to Downtown	Trips from Downtown
1	1,970	2,158
2	1,000	791
3	520	473
4	623	408
5	3,781	3,397
6	722	903
7	1,588	1,396
8	685	950
9	80	62
10	4,077	3,277
11	12,370	12,717
12	874	878
13	386	580
14	445	329
15	265	312
16	2,049	1,637
17	710	903
18	676	881
19	1,245	1,657
20	1,043	1,111
21	1,143	1,012
22	518	519
23	363	405
24	92	95
25	234	423
Outer	176	359

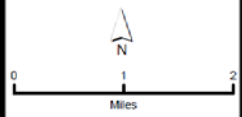


2015 Metro Transit Onboard Survey  
Downtown/UW Passenger Flows

█ Total Trips to Downtown    # Zone Number  
█ Total Trips from Downtown

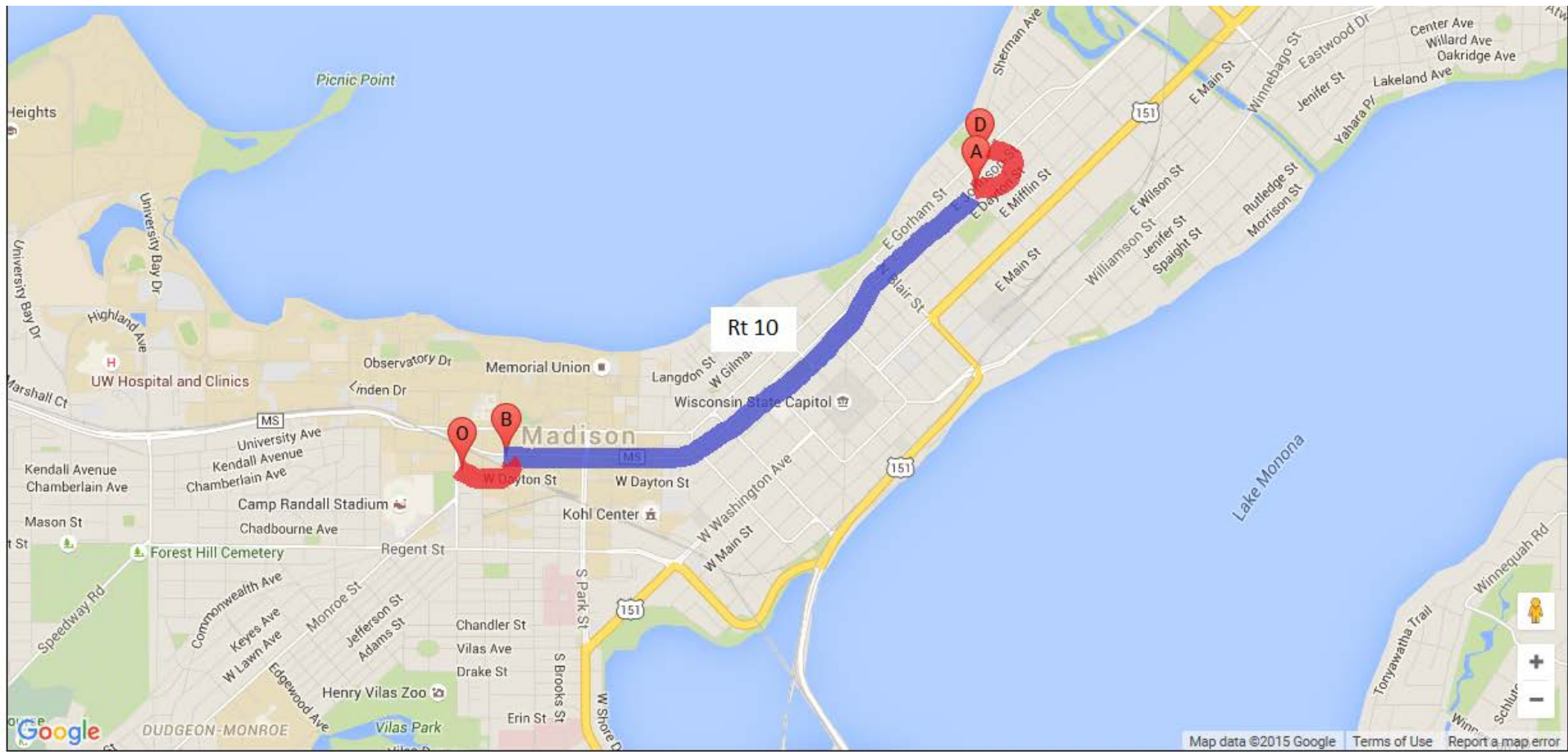
Symbols are shown proportionally

Prepared by staff to the:  
Madison Area  
**T.P.B.**  
Transportation Planning Board  
A Metropolitan Planning Organization (MPO)  
Date Revised: 11/18/2015

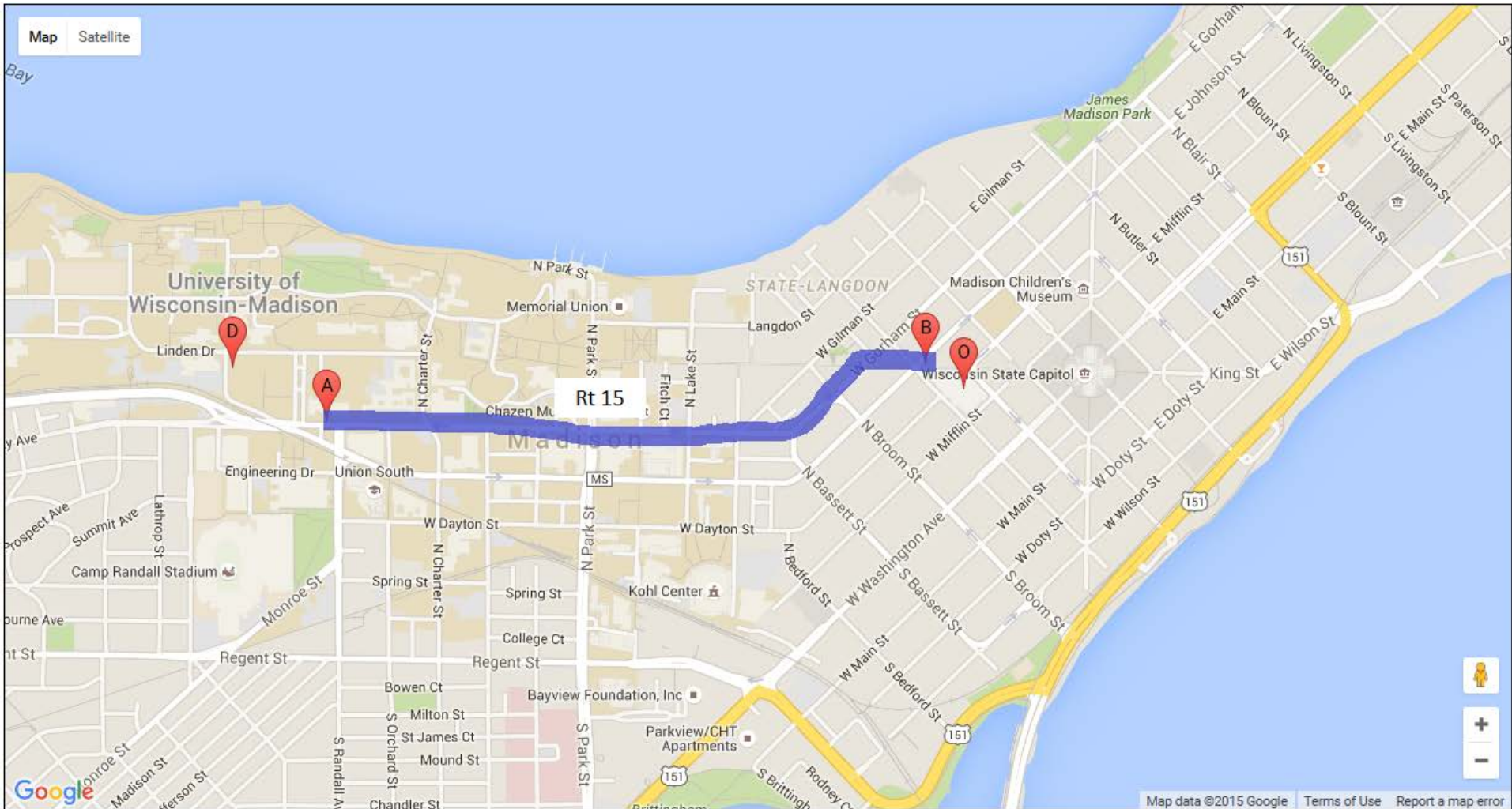


# Typical Trip

■ O rigin - B oarding - A lighting - D estination

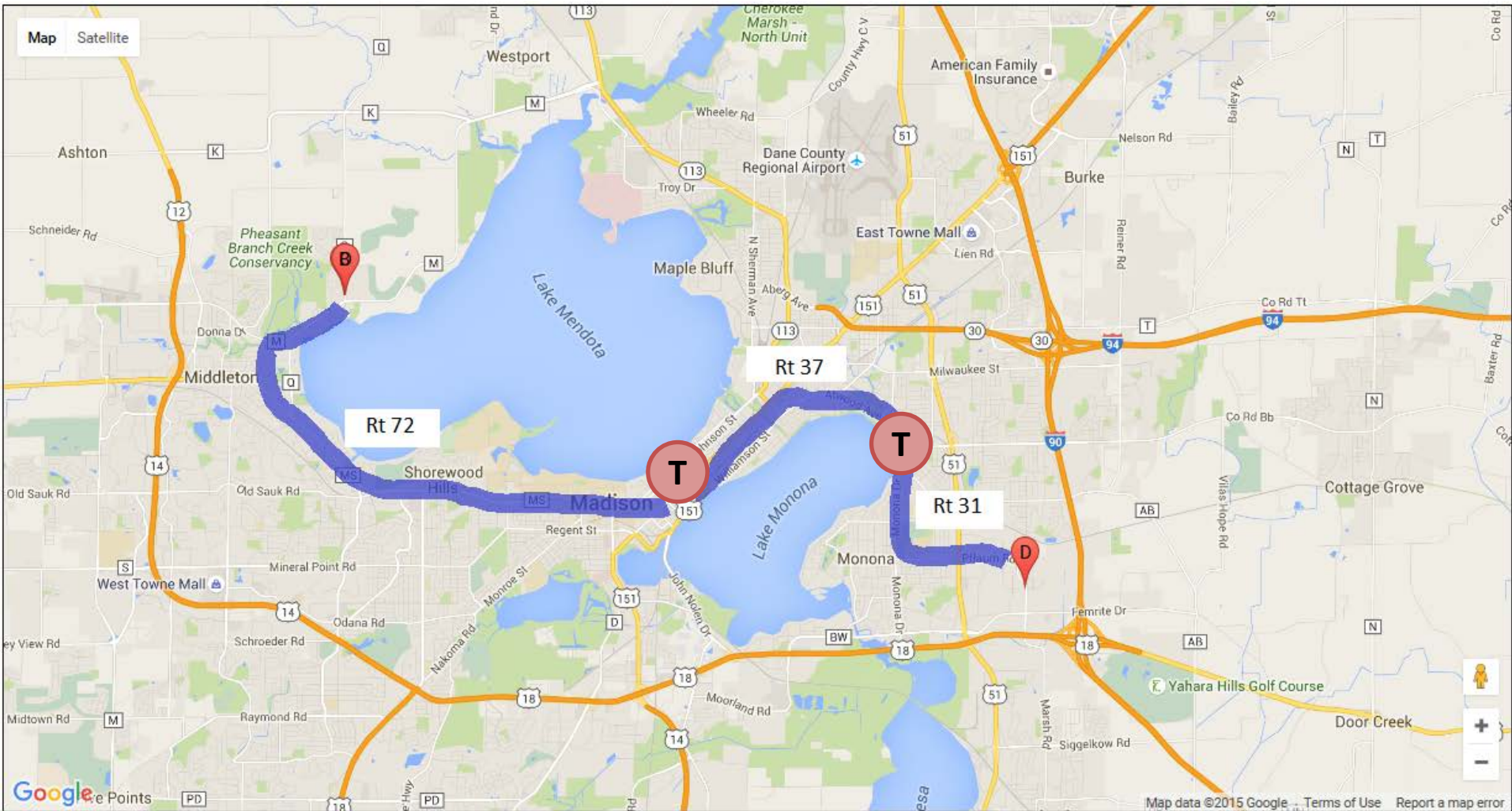


# Short Trip

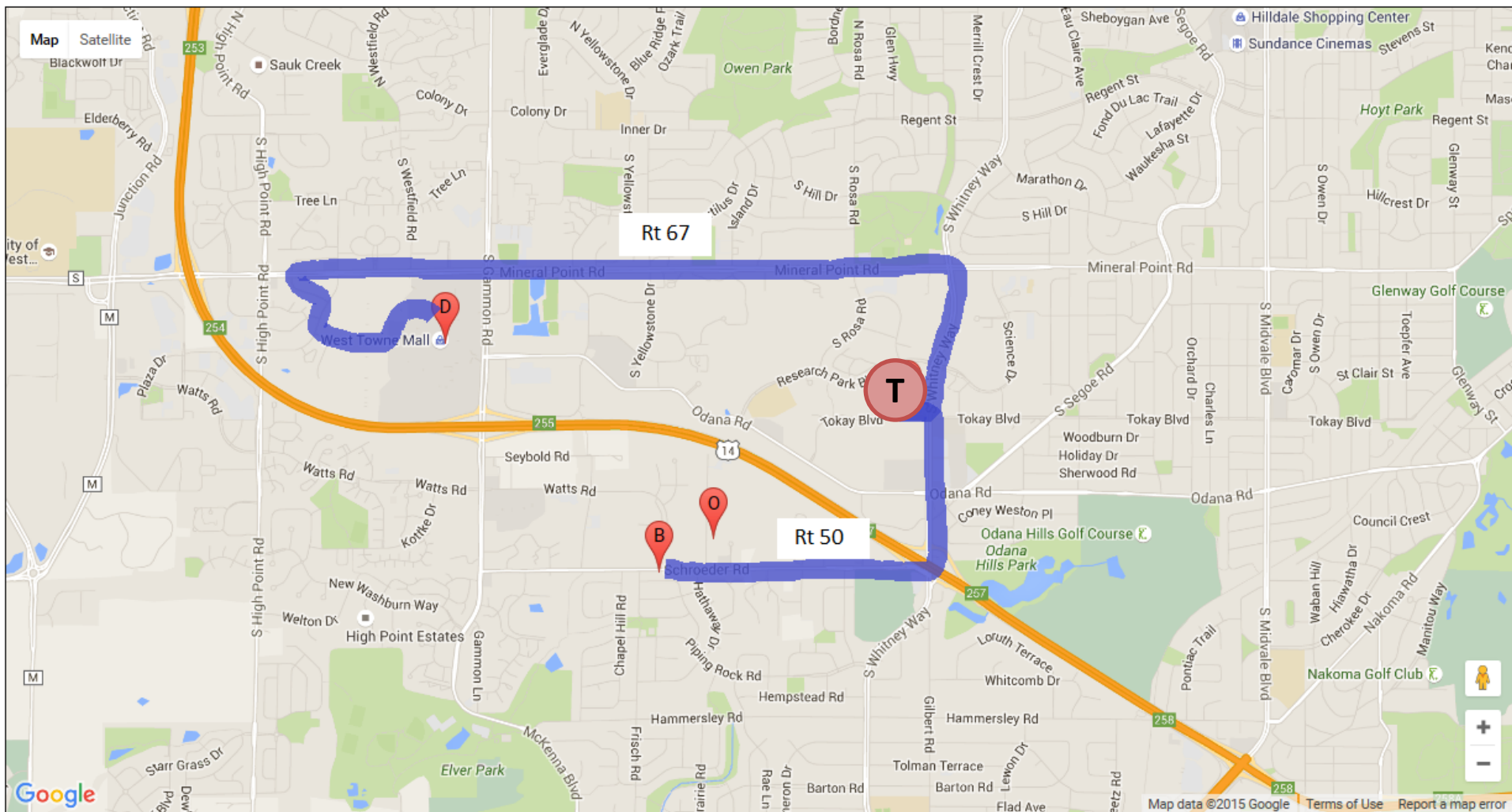




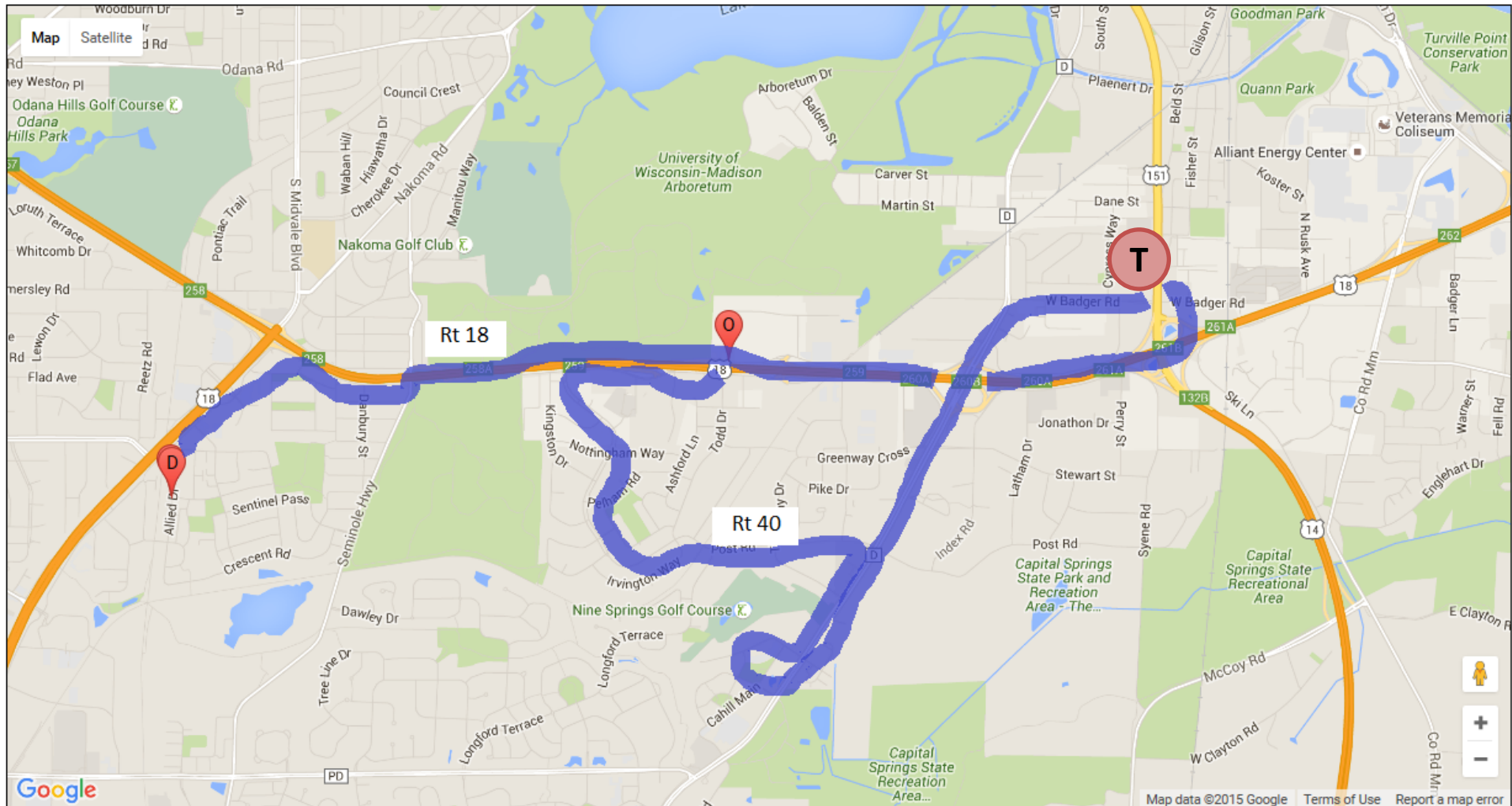
# Extreme Trip



# Out of Direction Trip

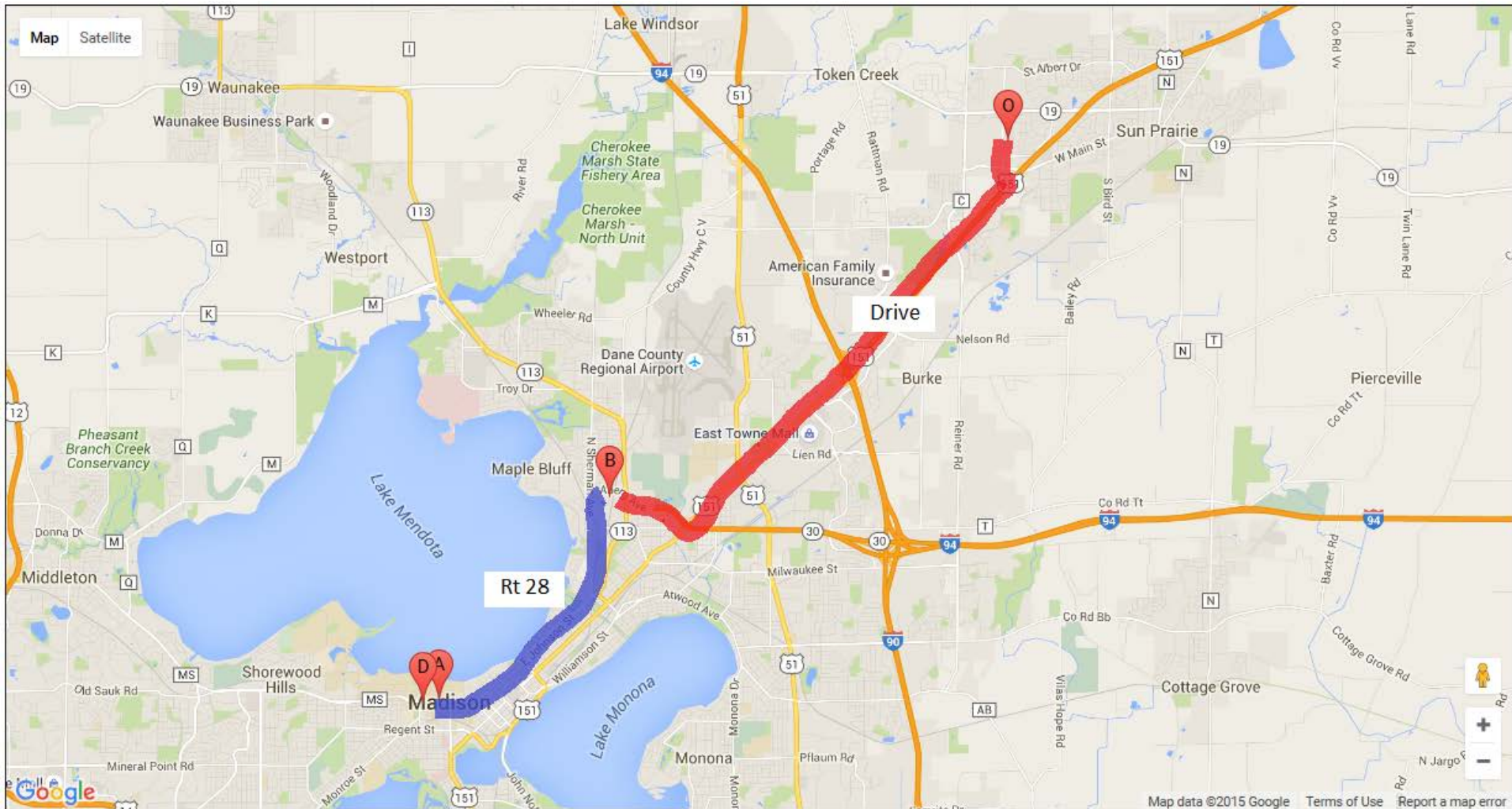


# Extreme Example





# A Regional System, We Have





# Metro Transit On-Board Survey

Mike Cechvala  
mcechvala@cityofmadison.com  
608 266-4518