



# South Florida Commuter Travel Survey – Summary and Preliminary Results



Southeast Florida FSUTMS User Group Meeting  
June 1, 2012

# Agenda

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- ▶ Introduction
- ▶ Survey Design
- ▶ Survey Implementation
- ▶ Preliminary Findings
- ▶ Summary

# Introduction

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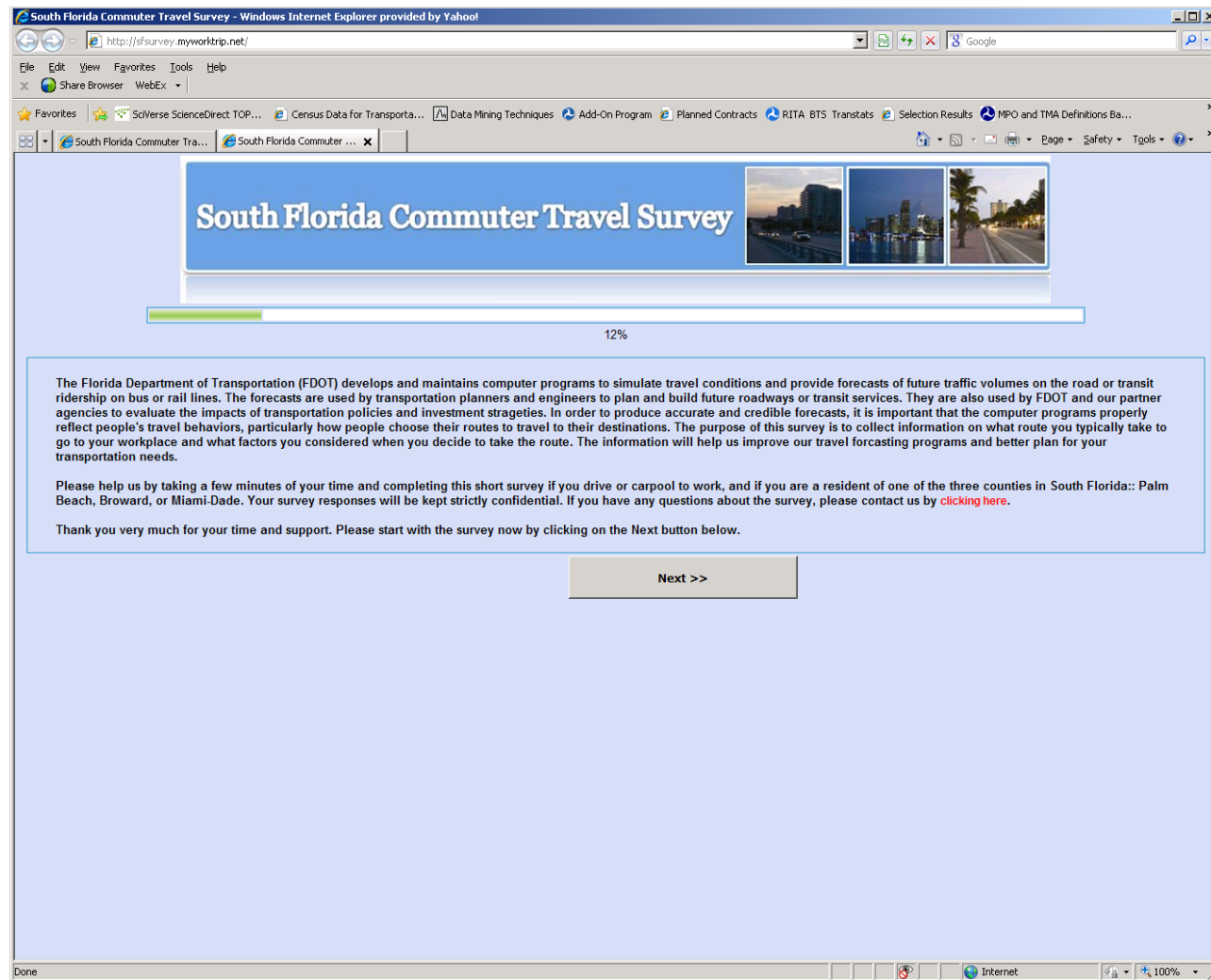
- ▶ Both Regional and Microsimulation Models Make Assumptions about People's Route Choice:
  - ▶ Regional model – shortest path
  - ▶ Microsimulation – vehicle interactions (gap, car following)
- ▶ Based on Theories without Empirical Evidence
- ▶ Need to Understand People's Route Choice Behavior and Identify Factors Influencing People's Choices
- ▶ Help Improve Travel Forecasting Models
- ▶ Intended to be a Pilot Study:
  - ▶ Test survey instruments
  - ▶ Collect empirical evidence

# Survey Design

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- ▶ On-line Survey with Google Map
- ▶ Volunteers with Smartphones to Track the Actual Route Information
  - ▶ Actual Travel Time
  - ▶ Route Variation

# http://sfsurvey.myworktrip.net



# Using Google Map to Select the Route

South Florida Commuter Travel Survey - Windows Internet Explorer provided by Yahoo!

http://sfsurvey.myworktrip.net/

File Edit View Favorites Tools Help

Share Browser WebEx

Favorites ScVerse ScienceDirect TOP... Census Data for Transporta... Data Mining Techniques Add-On Program Planned Contracts RITA BTS Transstats Selection Results MPO and TMA Definitions Ba...

South Florida Commuter Tra... South Florida Commuter ...

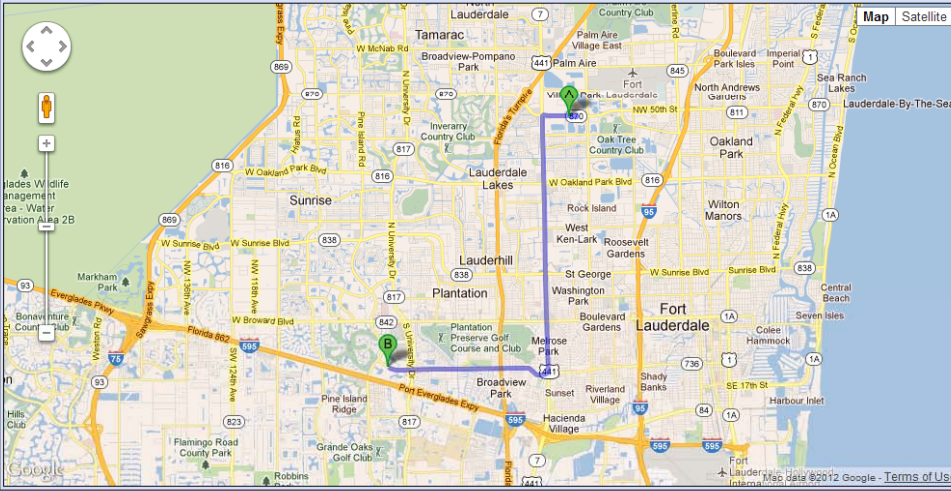
Page Safety Tgols

## South Florida Commuter Travel Survey

24%

3. Please see whether or not the route shown in Google Map below is typically the route you commute to work if you don't need to make intermediate stops.  
If "Yes", continue to the next question.  
If "No", click on the route and move the dot until the route shown is the route you actually take.  
If you lose track, click on the "Get Route" button and get back to the initial route on the Google Map and start over.

Start: 3400 West Commercial Blvd Fort Lauderdale | End: 8201 Peters Road, Plantation, FL 33324 | [Get Route](#)



Total Distance: 10.32 mi

A 3400 W Commercial Blvd, Fort Lauderdale, FL 33309, USA

10.3 mi - about 18 mins

1. Head east on NW 50th St/Commercial Blvd toward NW 33rd Ave 0.2 mi
2. Make a U-turn at NW 33rd Ave 0.8 mi
3. Turn left onto Range Line Road S 5.7 mi
4. Turn right onto FL-736 W/Davie Blvd Continue to follow FL-736 W 3.1 mi
5. Continue onto Peters Rd 0.5 mi

B 8201 Peters Rd, Plantation, FL 33324, USA

Map data ©2012 Google

Map Satellite

Done

Internet

100%

<< Previous

Next >>

# Using Smartphones

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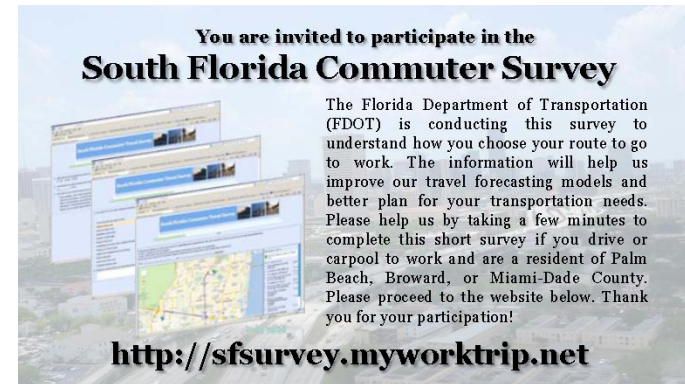
- ▶ Solicit Volunteers and Install Free APP (GPS Tracker)
- ▶ Work Trip in the Morning Only
- ▶ Data Collection for Five (5) Weekdays
- ▶ Confidentiality Guaranteed
- ▶ Can Terminate Any Time



# Survey Implementation

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- ▶ From Feb 17, 2012 to March 22, 2012
- ▶ Email Invitations
  - ▶ Employment centers
  - ▶ Professional organizations
  - ▶ Local social and cultural organizations
- ▶ Social Media
- ▶ Survey Announcement Cards
  - ▶ Residential communities
  - ▶ Shopping centers
  - ▶ Office buildings
- ▶ Dedicated Email Account for Communications





# Route Comparison Tool

The screenshot shows a web browser window titled "Survey Data Result Check - Windows Internet Explorer provided by Yahoo!". The address bar displays "http://131.94.122.209/TestGoogle/CheckResult.aspx". The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The Favorites bar shows several links, including "Survey Data Result Check".

The main content area features a Google Map of Miami, Florida, with a red route highlighted. The route starts at a point labeled 'A' in the northern part of the city and ends at a point labeled 'B' in the southern part, near the airport. The map shows major highways like I-95 and I-195, and various local streets.

Overlaid on the right side of the map is a blue panel with the following information:

- Un-processed List (SurveyID):** A text input field.
- Finished List (SurveyID):** A list box containing the values 328, 329, 330, and 331.
- Radio buttons:** Two options are present: "Same as the default" (which is selected) and "different from the default".
- Status:** "426 of 426 have been saved (100%)".
- Default Route Information:** "Google Default Route Travel Time: 27 mins" and "Google Default Route Travel Distance: 17.8 mi".
- Checkboxes:** A checkbox labeled "check to generate the default distance and time" is currently unchecked.
- Buttons:** Two buttons are located at the bottom right: "Save to database" and "Save default time & distance".

The bottom of the browser window shows the status bar with "Done", "Internet", and a zoom level of "100%".

# Example of Same Route

Survey Data Result Check - Windows Internet Explorer provided by Yahoo!

http://131.94.122.209/TestGoogle/CheckResult.aspx

File Edit View Favorites Tools Help

Survey Data Result Check

Map Satellite

Un-processed List (SurveyID):

Finished List (SurveyID):

415  
416  
417  
418

☒ Same as the default  
☐ different from the default

426 of 426 have been saved (100%)  
Google Default Route Travel Time: 20 mins  
Google Default Route Travel Distance: 11.1 mi

☐ check to generate the default distance and time

Save to database

Save default time & distance



# Example of Different Route

Survey Data Result Check - Windows Internet Explorer provided by Yahoo!

http://131.94.122.209/TestGoogle/CheckResult.aspx

File Edit View Favorites Tools Help

★ Favorites SciVerse ScienceDirect TOP... Census Data for Transporta... Data Mining Techniques Add-On Program Planned Contracts RITA BTS Transtats Selection Results MPO and TMA Definitions Ba...

Survey Data Result Check

Un-processed List (SurveyID):

Finished List (SurveyID):

116  
117  
118  
119

Same as the default  
different from the default

426 of 426 have been saved (100%)  
Google Default Route Travel Time: 26 mins  
Google Default Route Travel Distance: 20.9 mi

check to generate the default distance and time

Save to database

Save default time & distance

Map data ©2012 Google - Terms of Use Report a map error

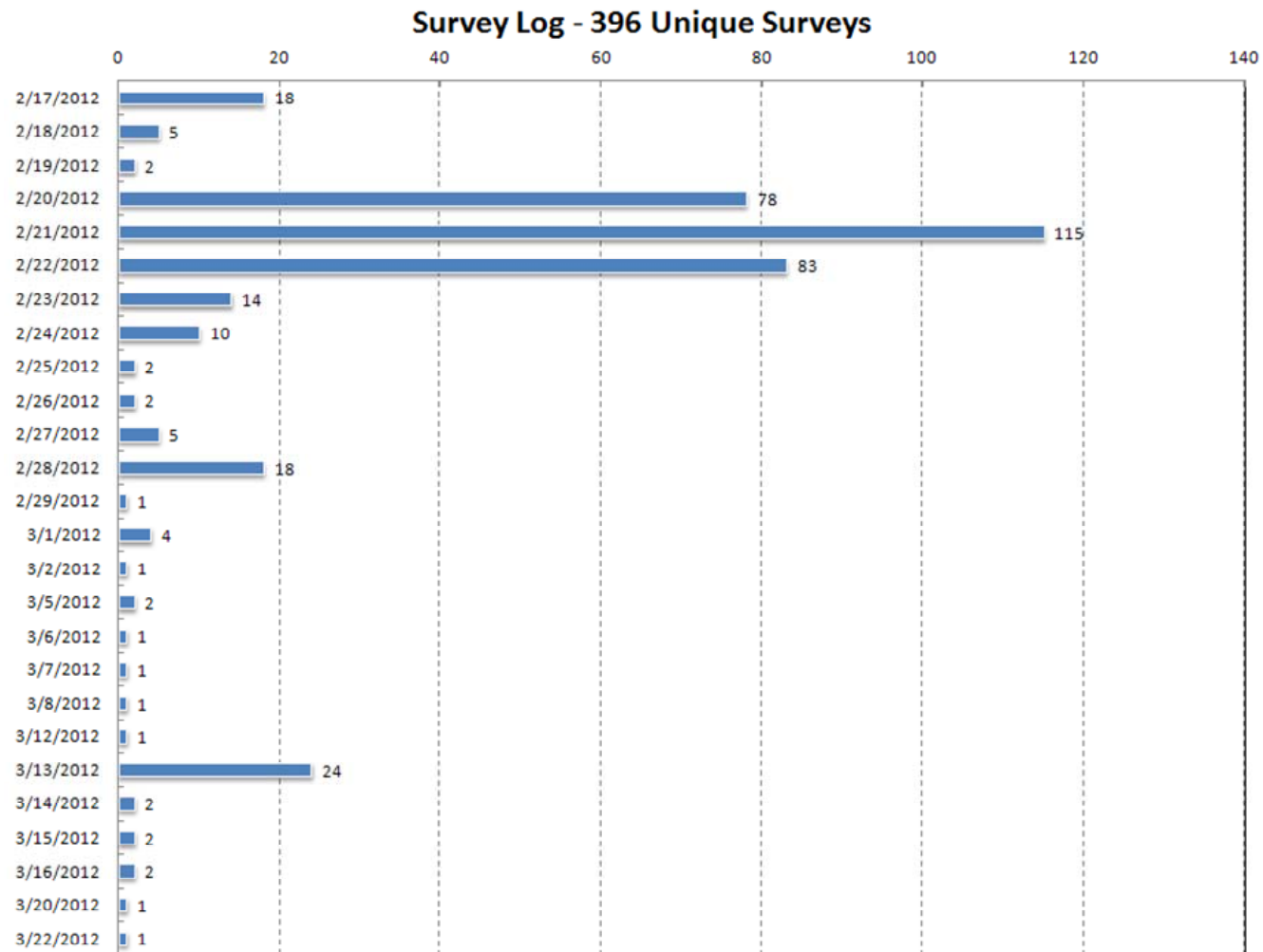
Done

Internet

100%

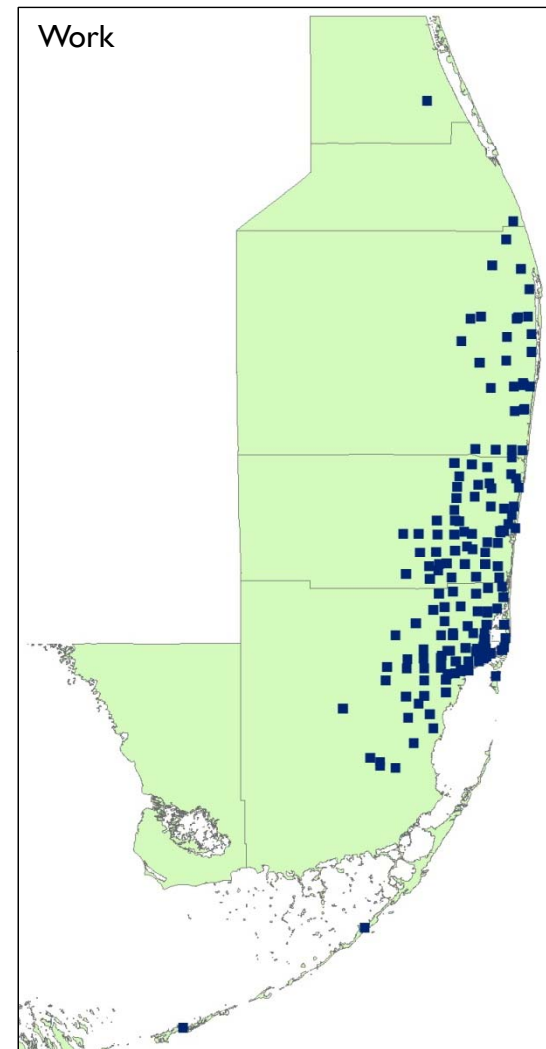
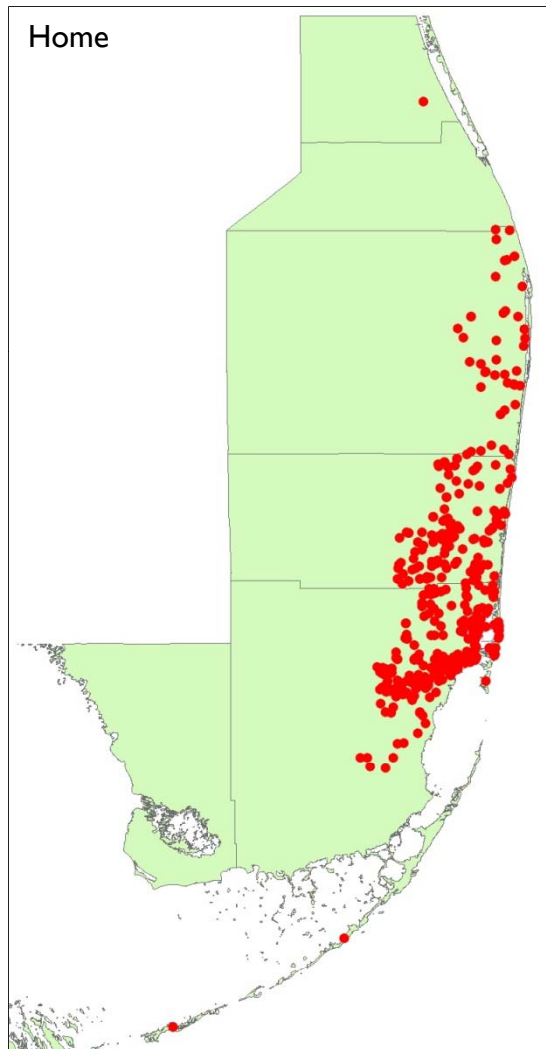
# Preliminary Findings

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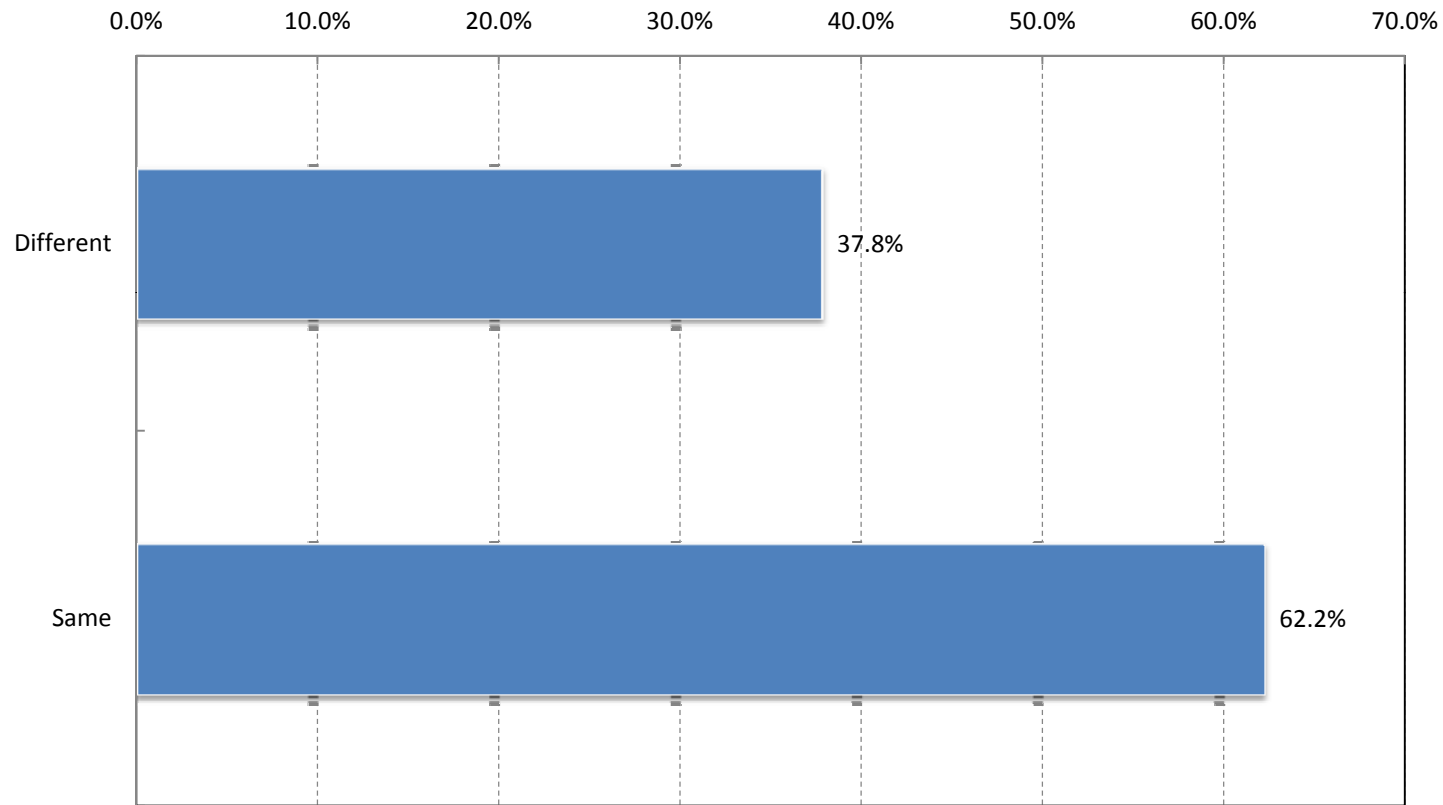
# 1 & 2. Responds Home & Work Addresses

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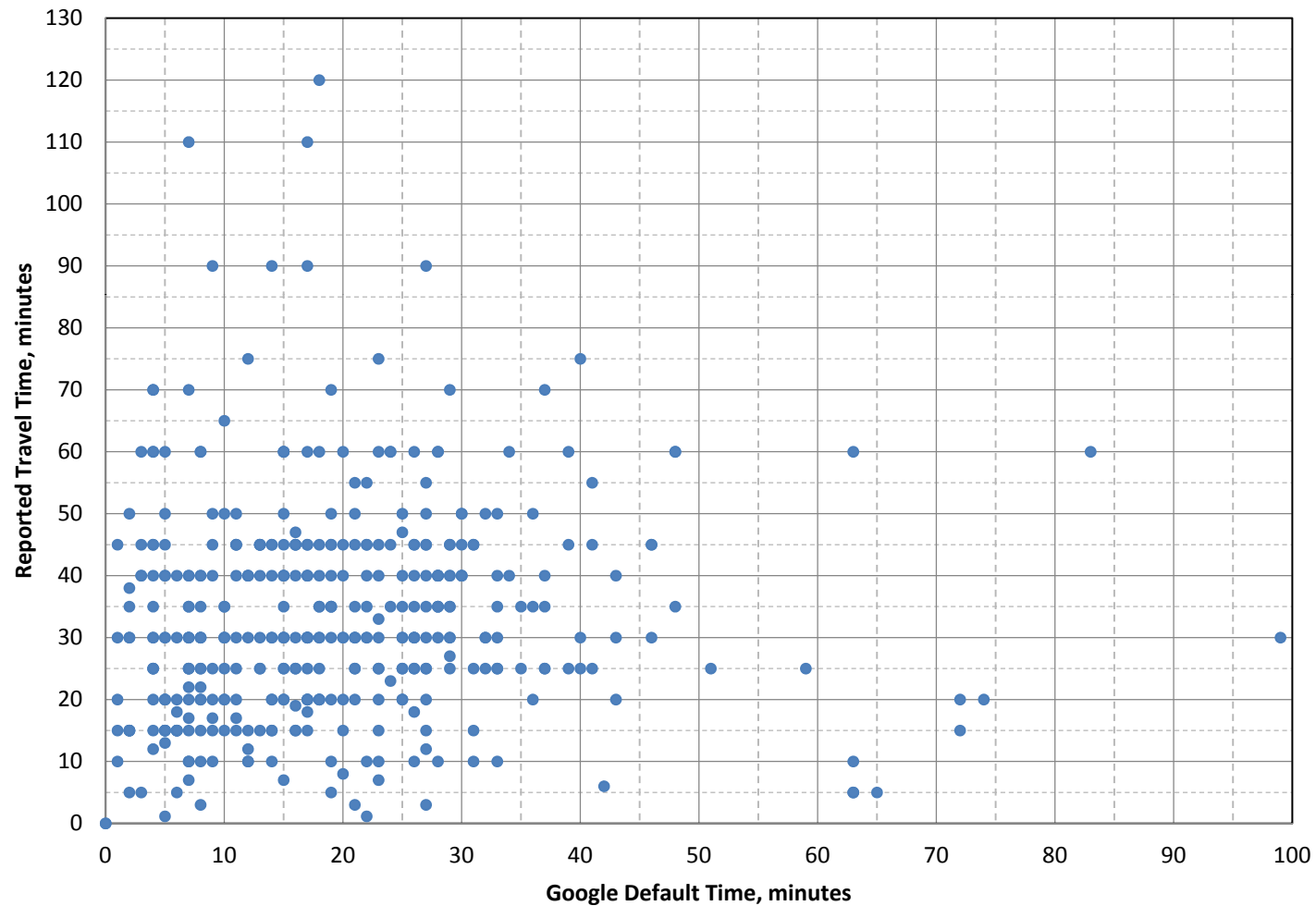
### 3. Stated Routes vs. Google Default Routes

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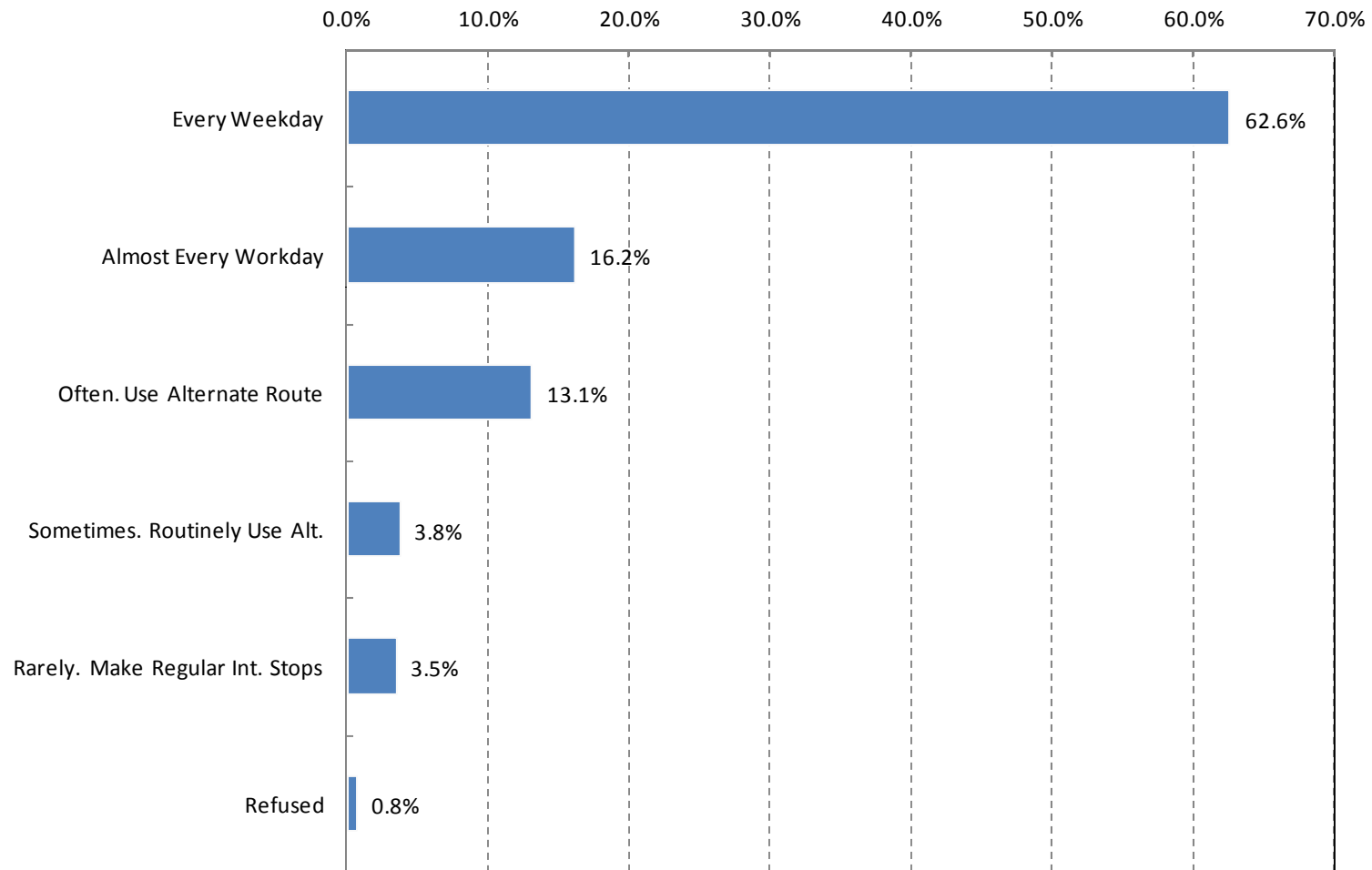
## 5. Reported vs. Google Default Travel Time

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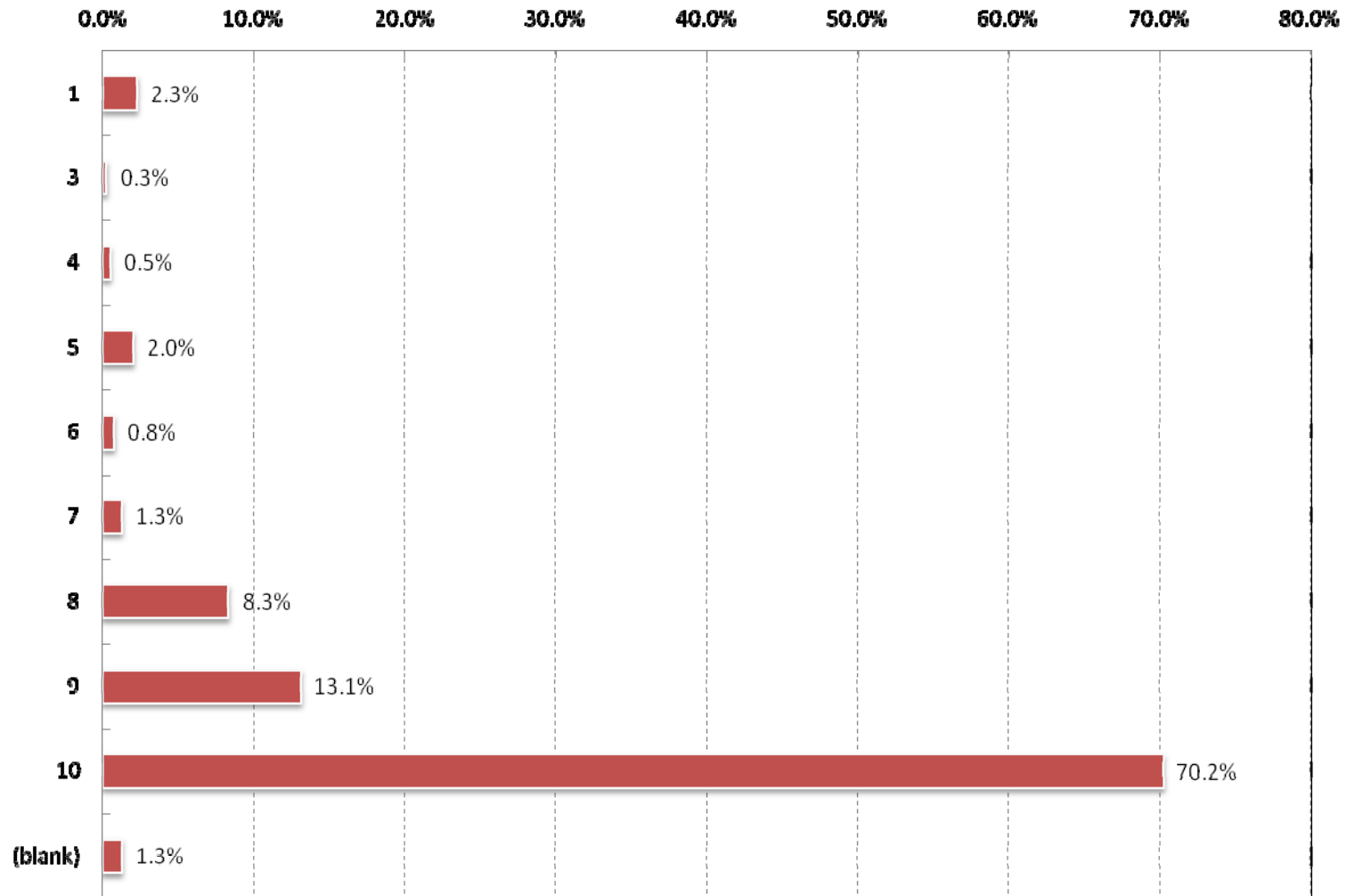
## 6. How Often Do You Use This Route?

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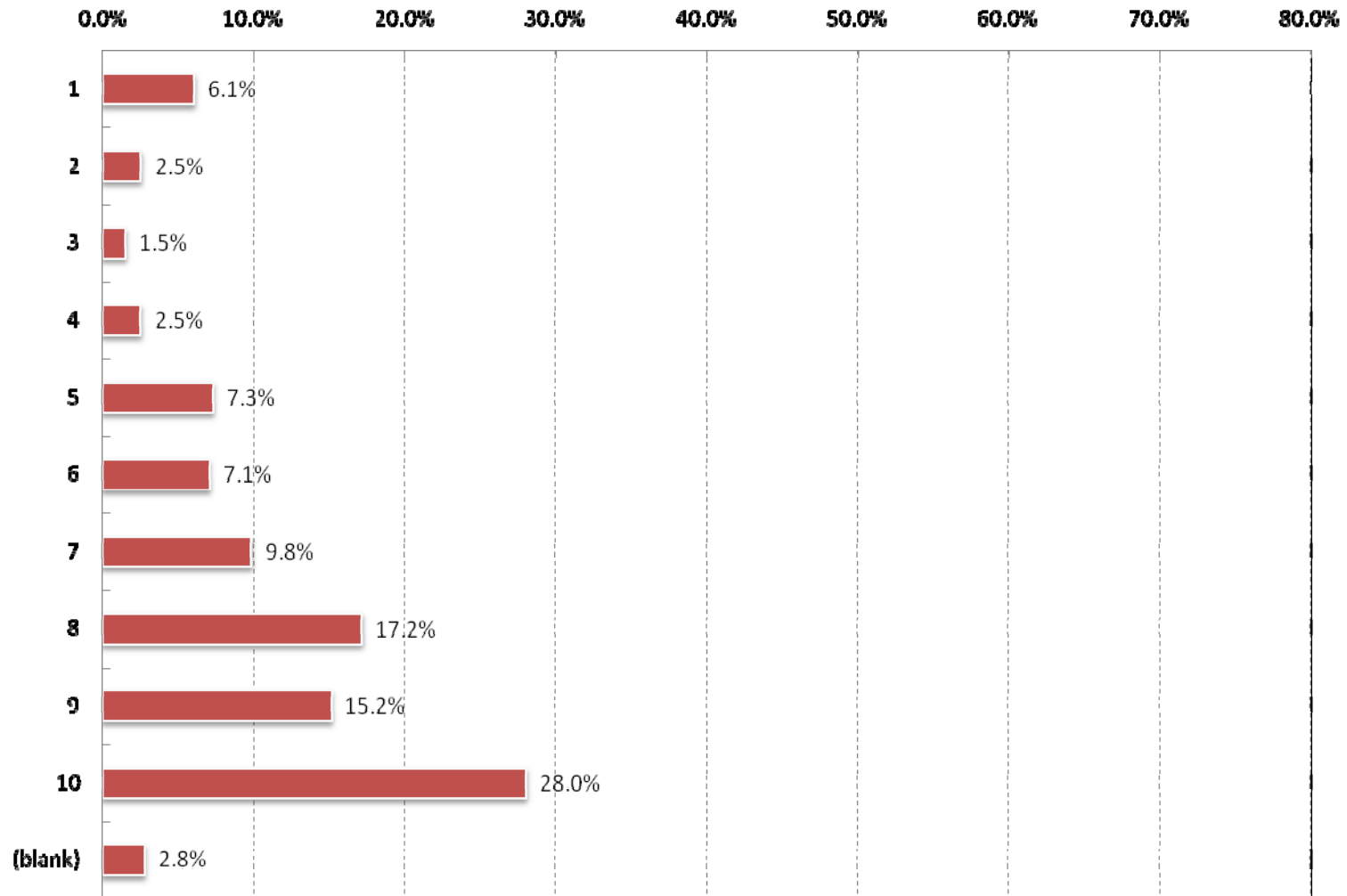




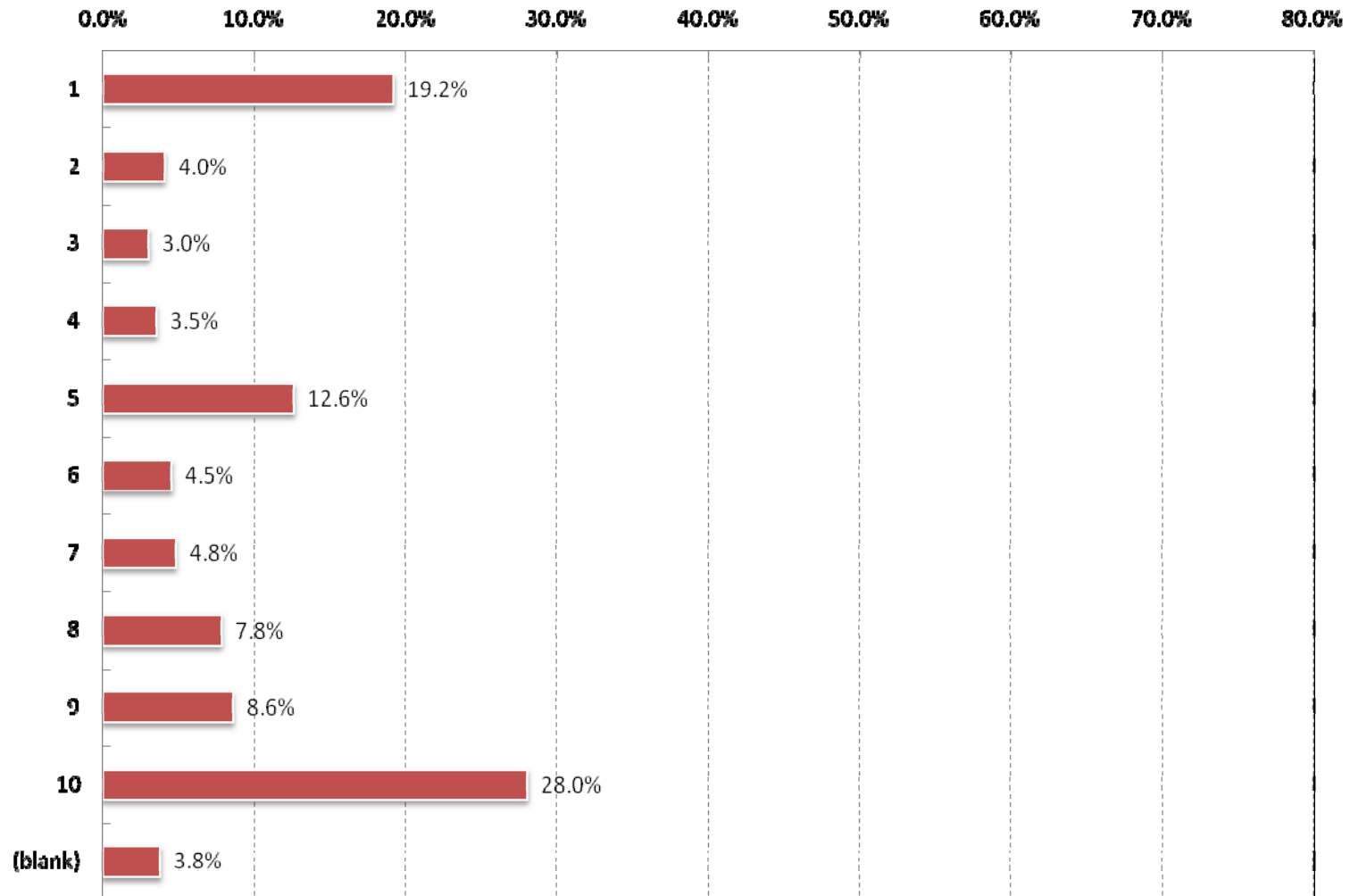
## 7a.Travel time the route takes to work ?



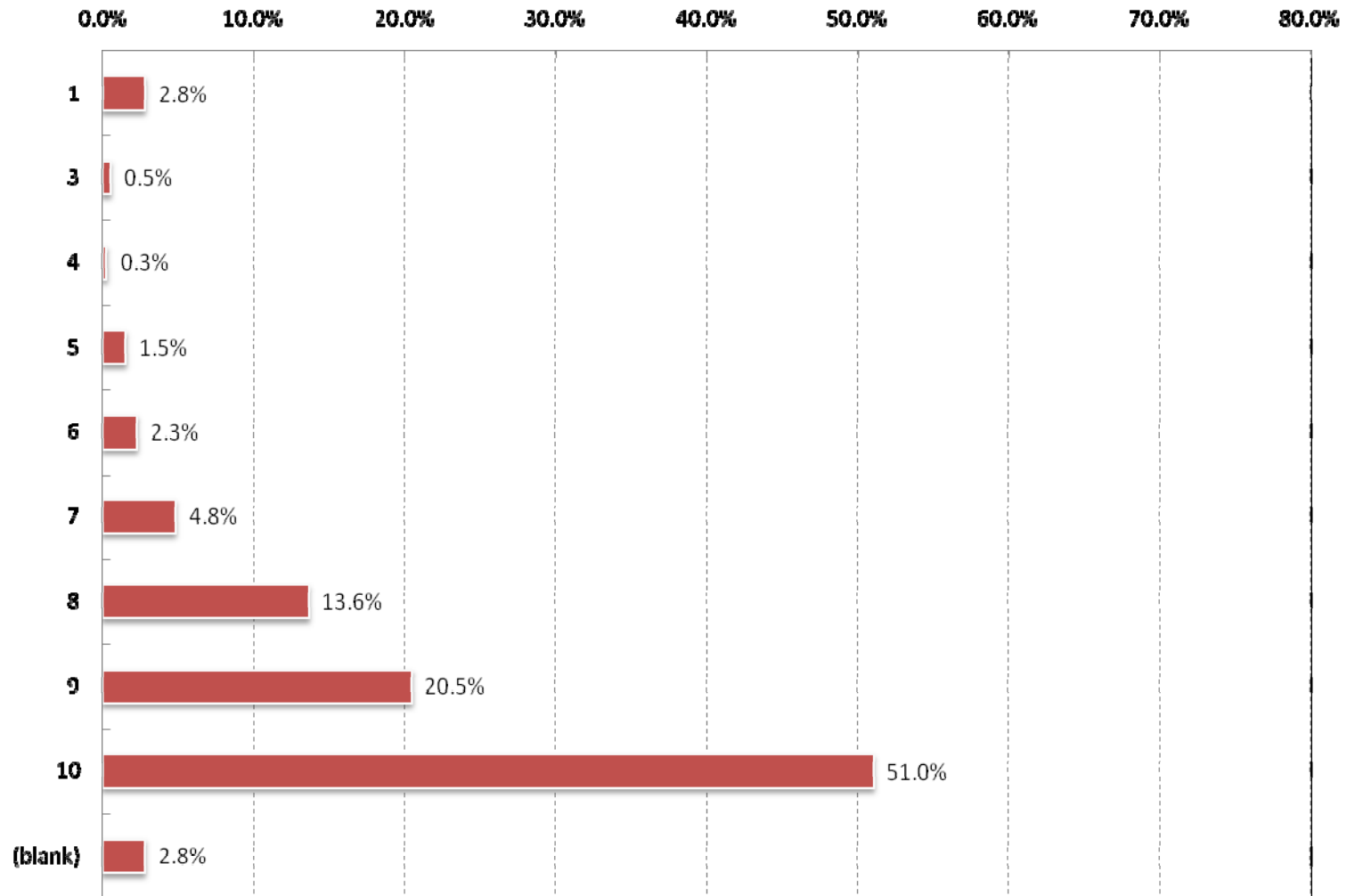
## 7b. Distance of the route?



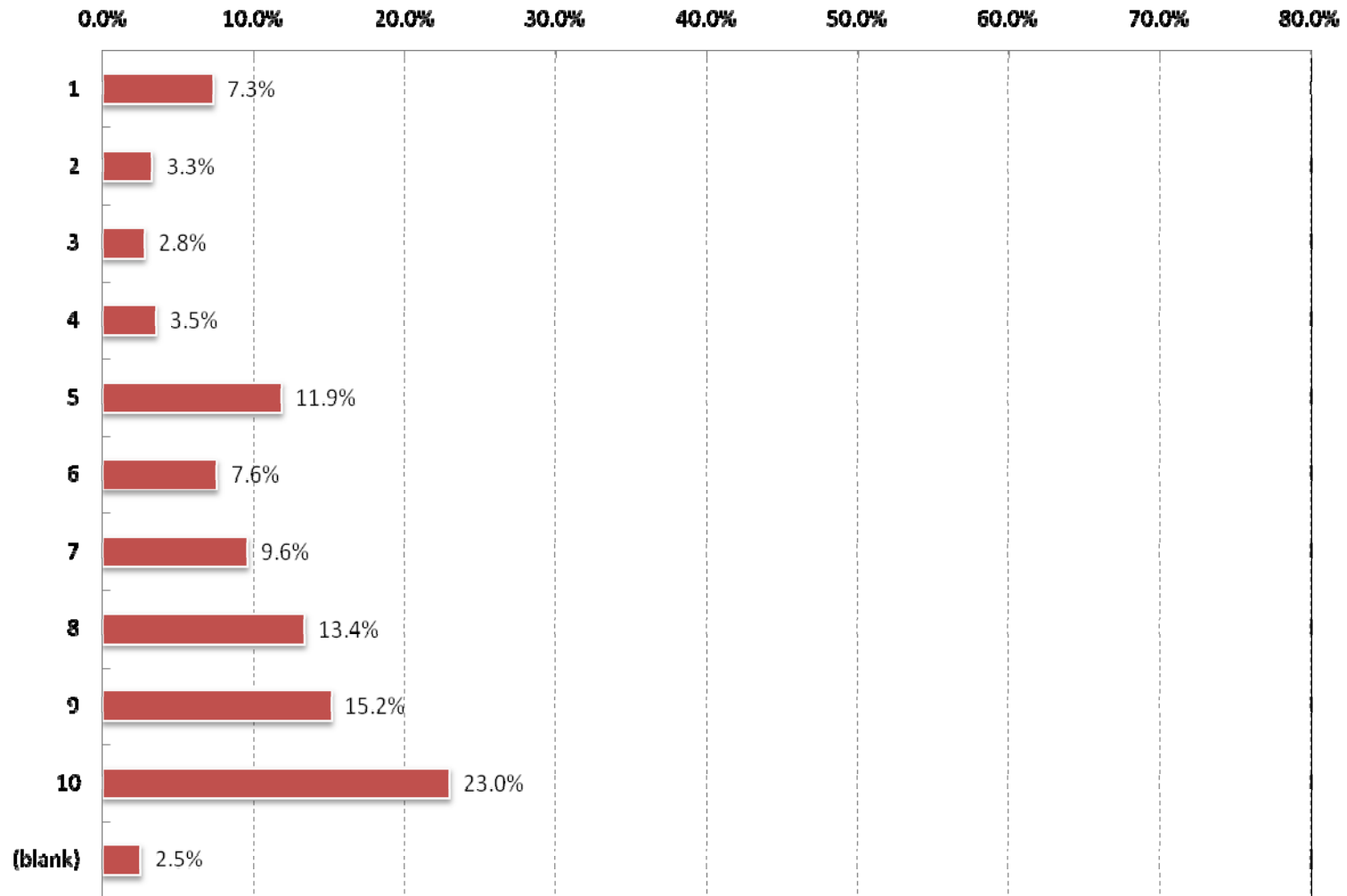
## 7c. Amount of tolls to pay?



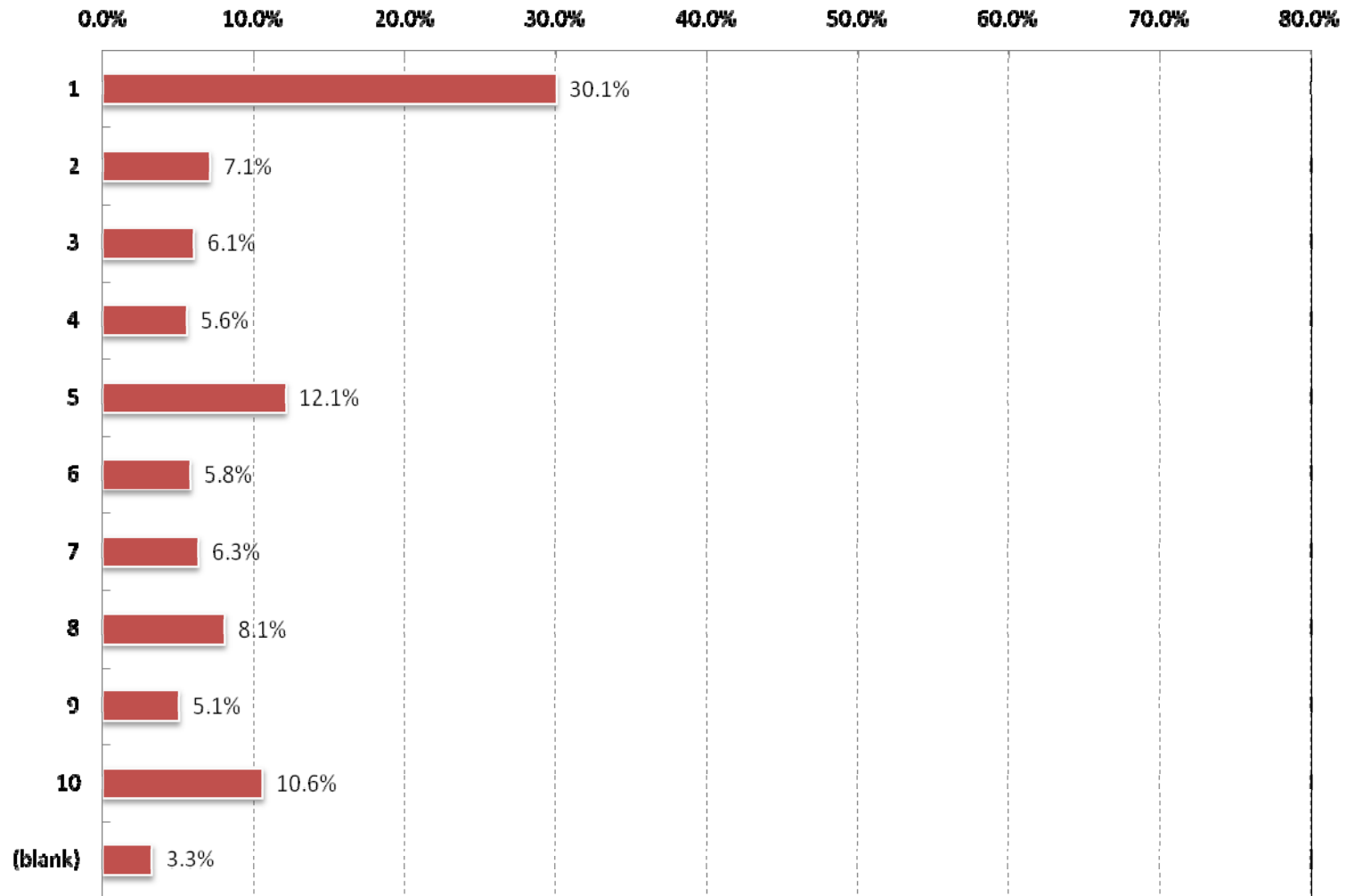
## 7d. Reliability of travel time?



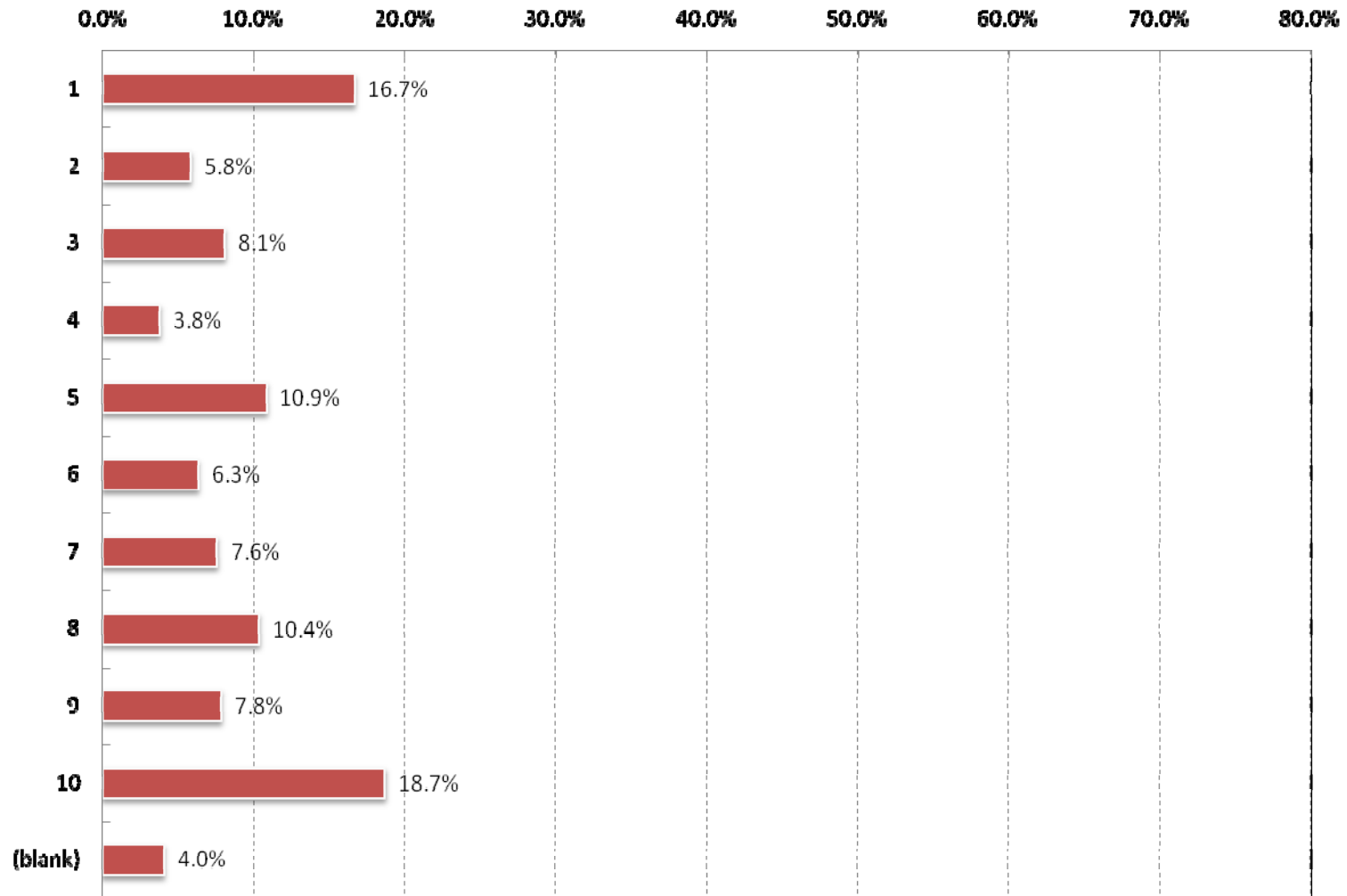
## 7e. Number of traffic lights?



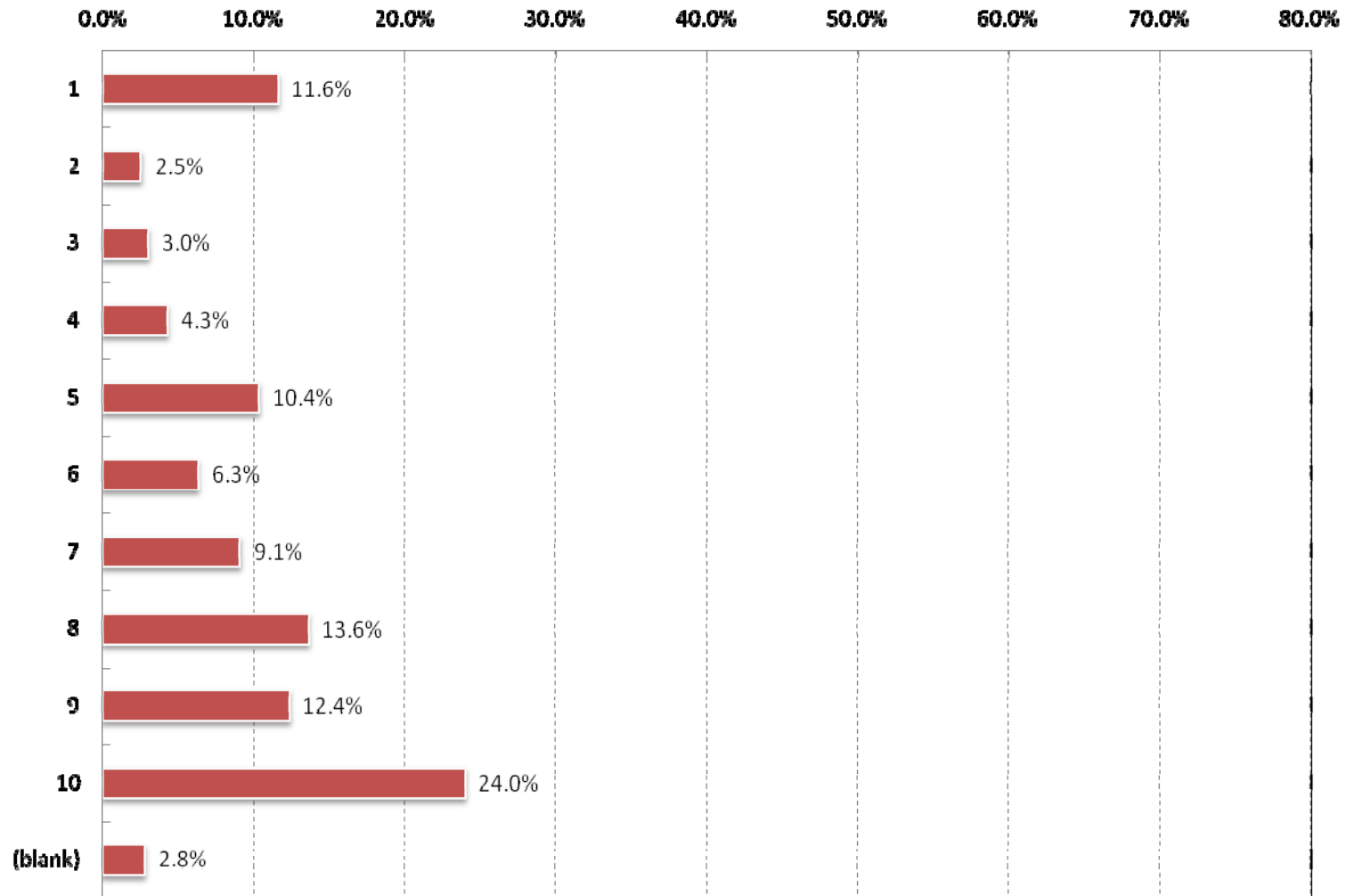
## 7f. Number of left turns?



## 7g. Real time road condition info?

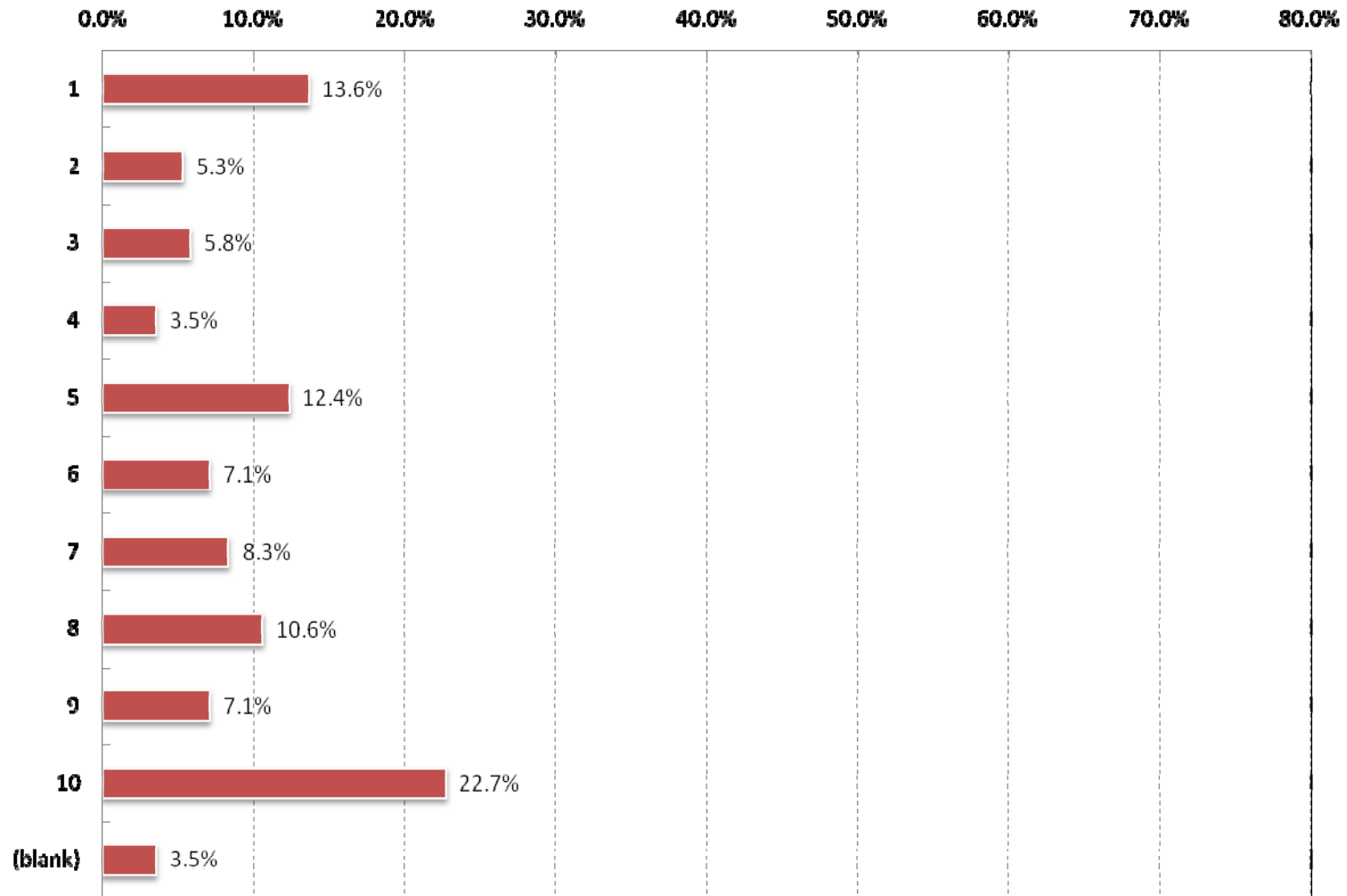


## 7h. Presence of School zones?

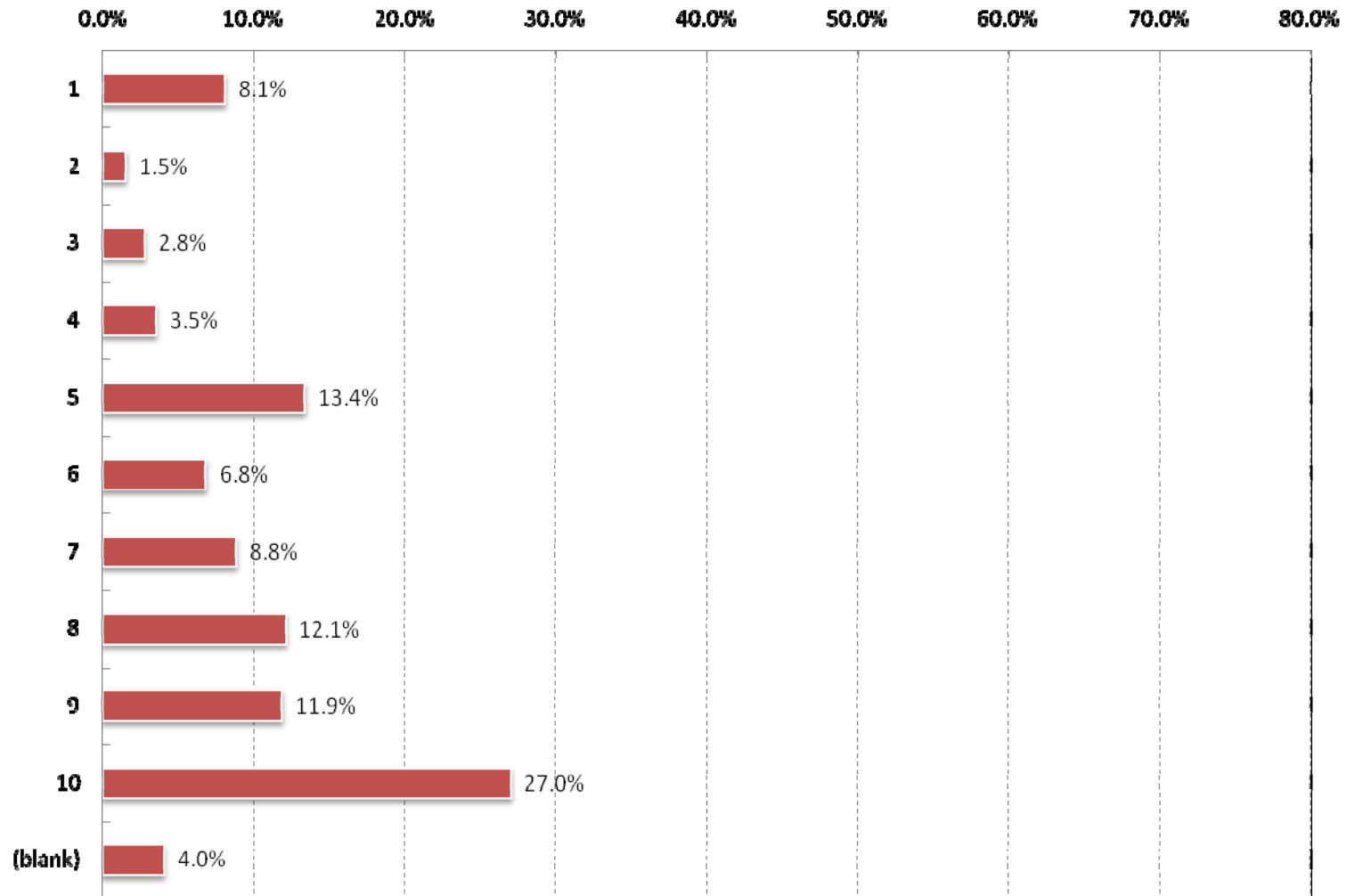




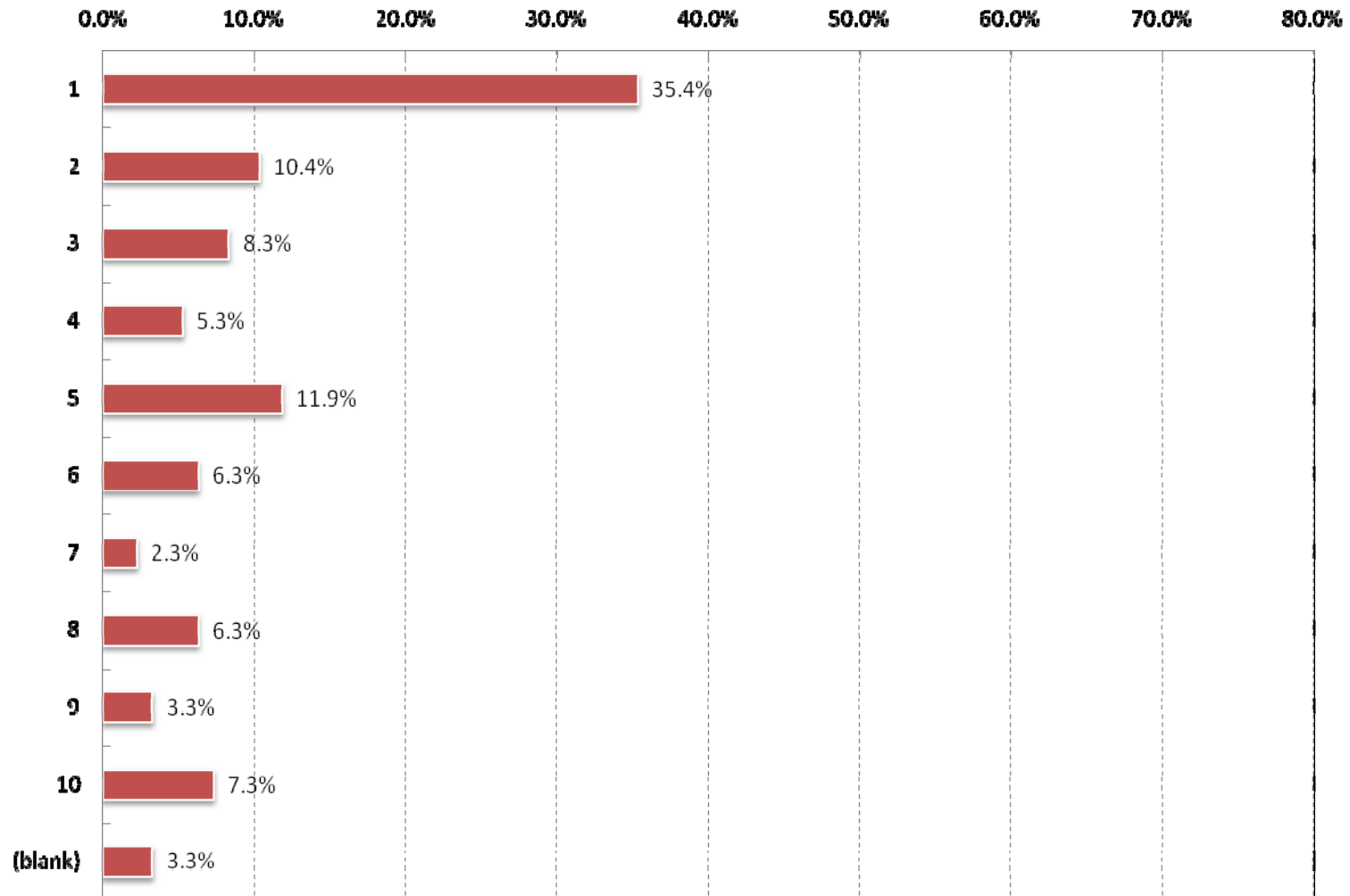
## 7i. Safety of the neighborhood?



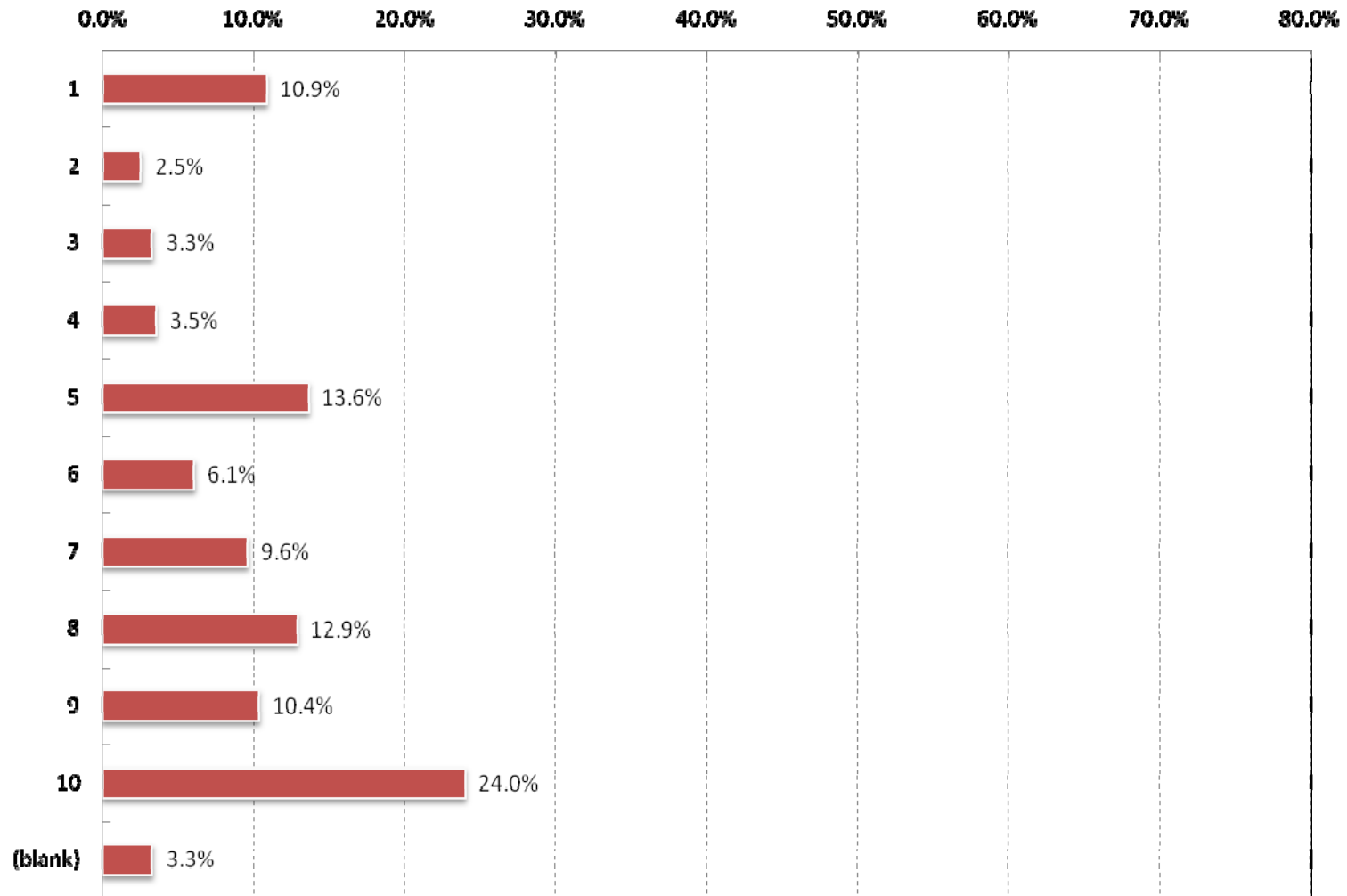
## 7j. Road construction?



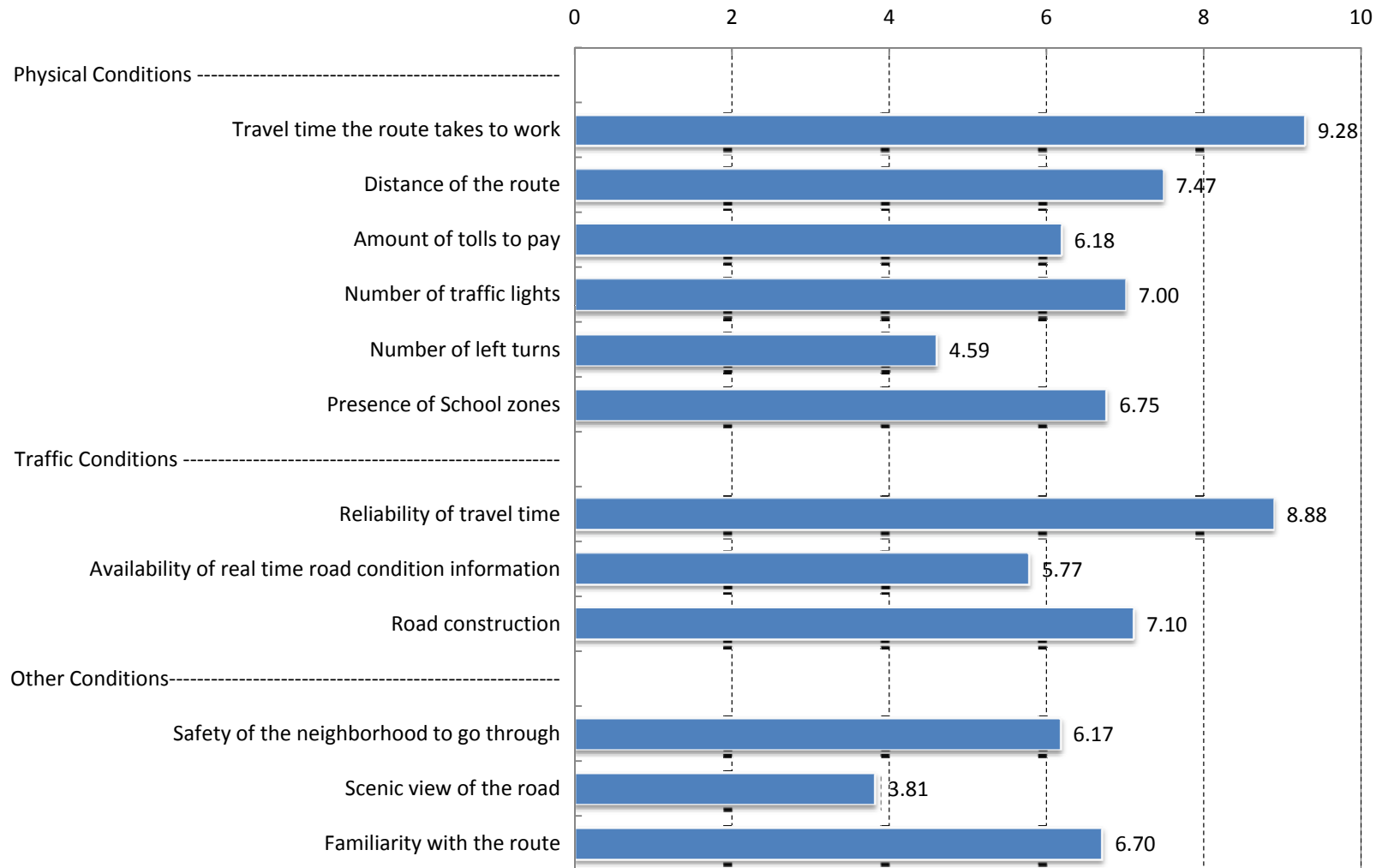
## 7k. Scenic view of the road?



## 71. Familiarity with the route?



## 7. Scores for Influencing Factors



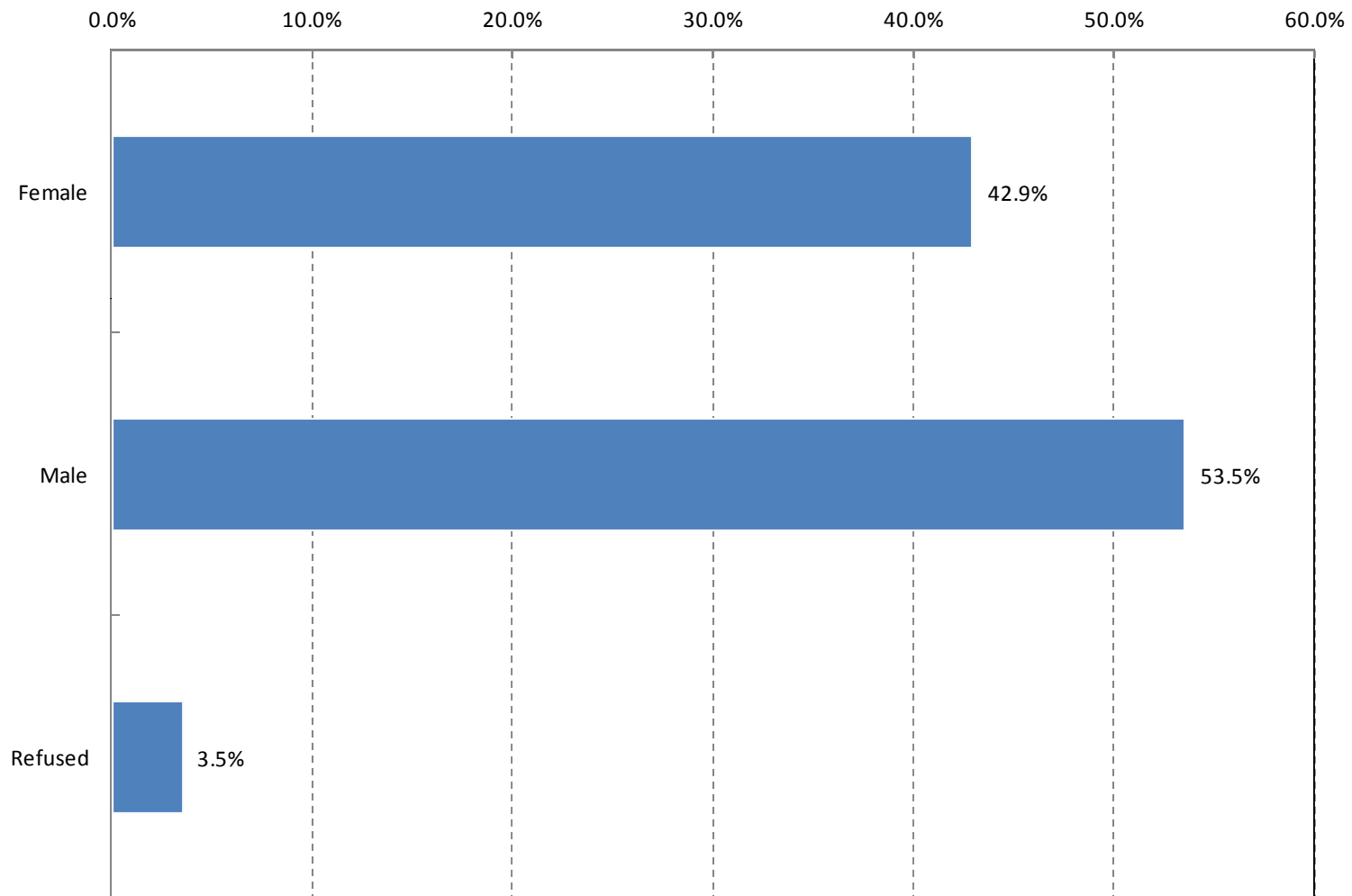
## 8. Other Factors – Sample Comments

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- ▶ Avoids traveling west to I 95
- ▶ all other routes are typically just as congested i
- ▶ I prefer to ride my bike. I do not like question 6
- ▶ Please note that I am a full-time telecommuter.
- ▶ Other drivers using the roadway/safety
- ▶ More roadway Safety, less truck volumes, less tran
- ▶ i sometimes stop at the sheridan train station and
- ▶ finish the construction on I595 ASAP
- ▶ Avoid railroad crossings
- ▶ The most important thing for me in choosing a rout
- ▶ Direct route connection.
- ▶ Amount of traffic
- ▶ most efficient, less traffic route
- ▶ Congestion
- ▶ quickest route have to factor in traffic lights,
- ▶ Avoid 1-95

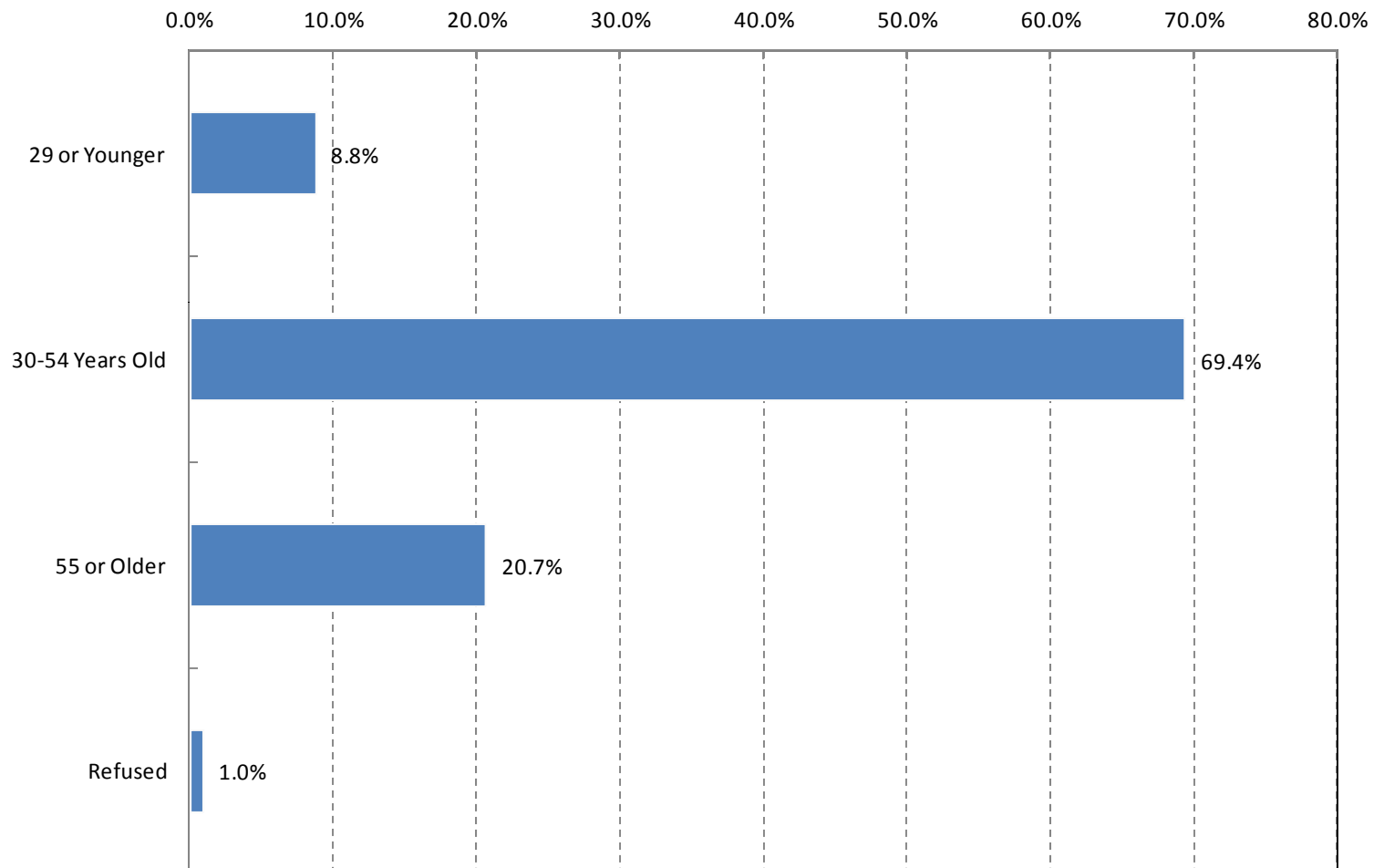
## 9. Survey Respondents Gender Distribution

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## 10. Respondents Age Distribution

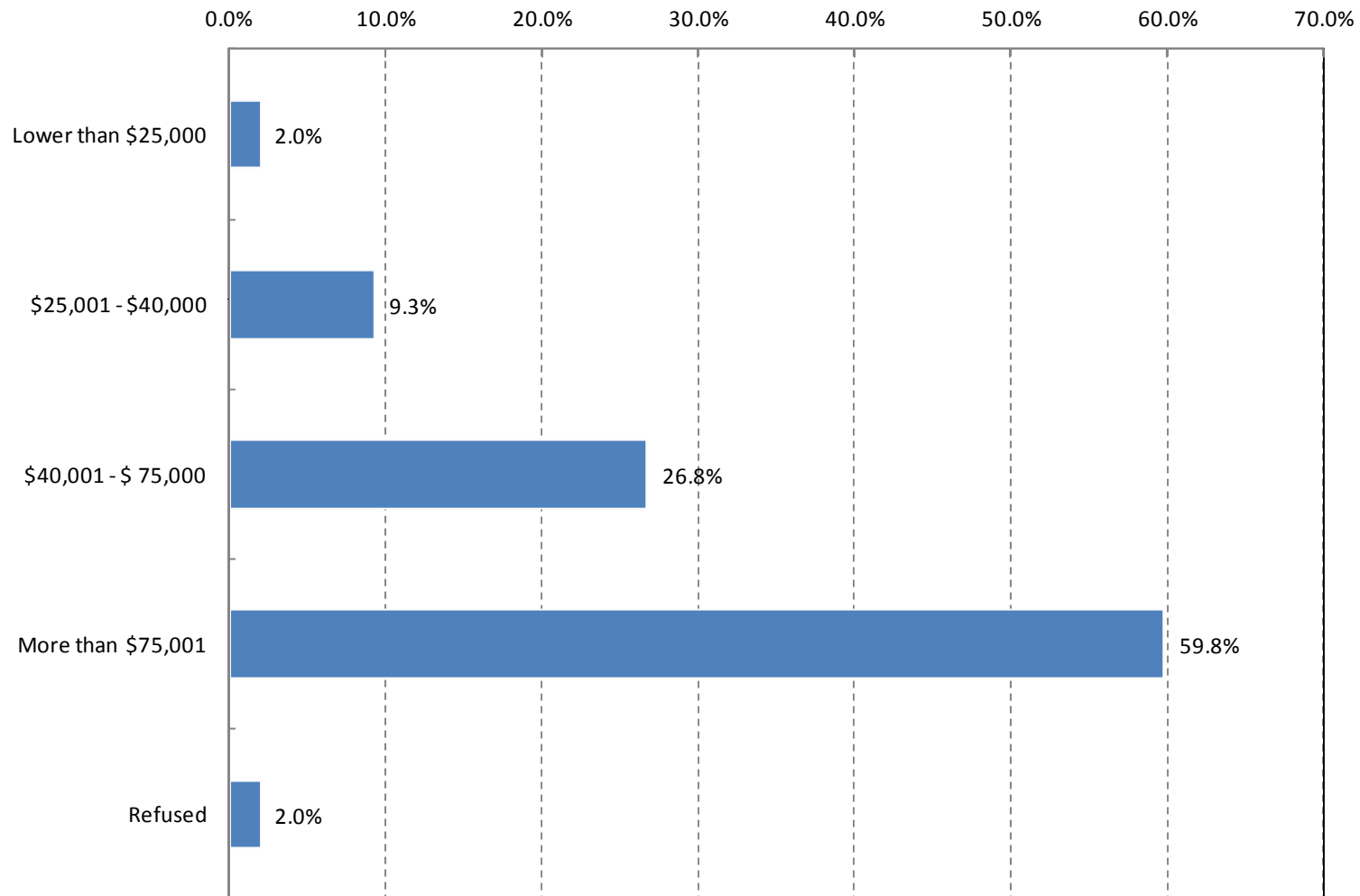
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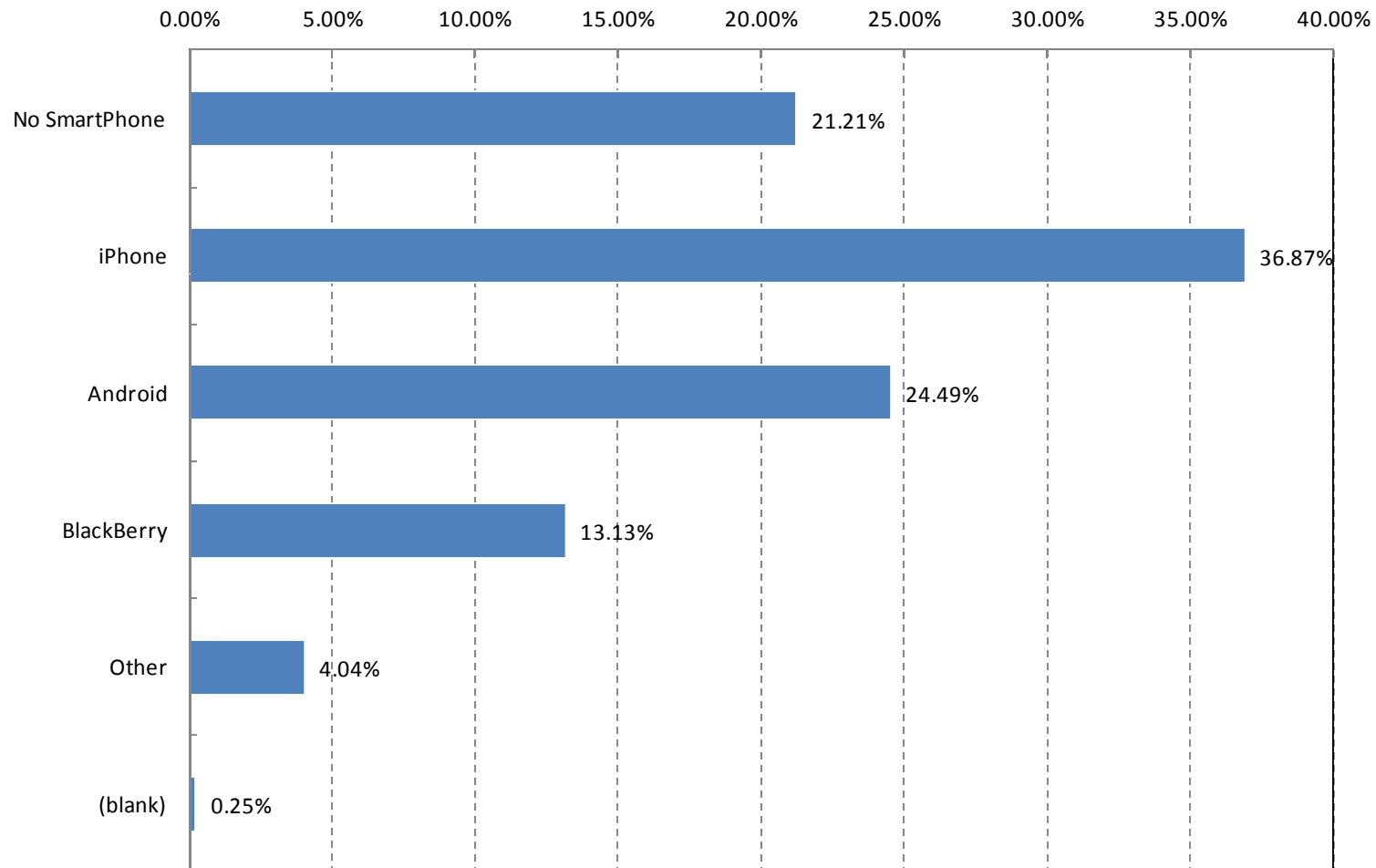
# 11. Respondents Income Distribution

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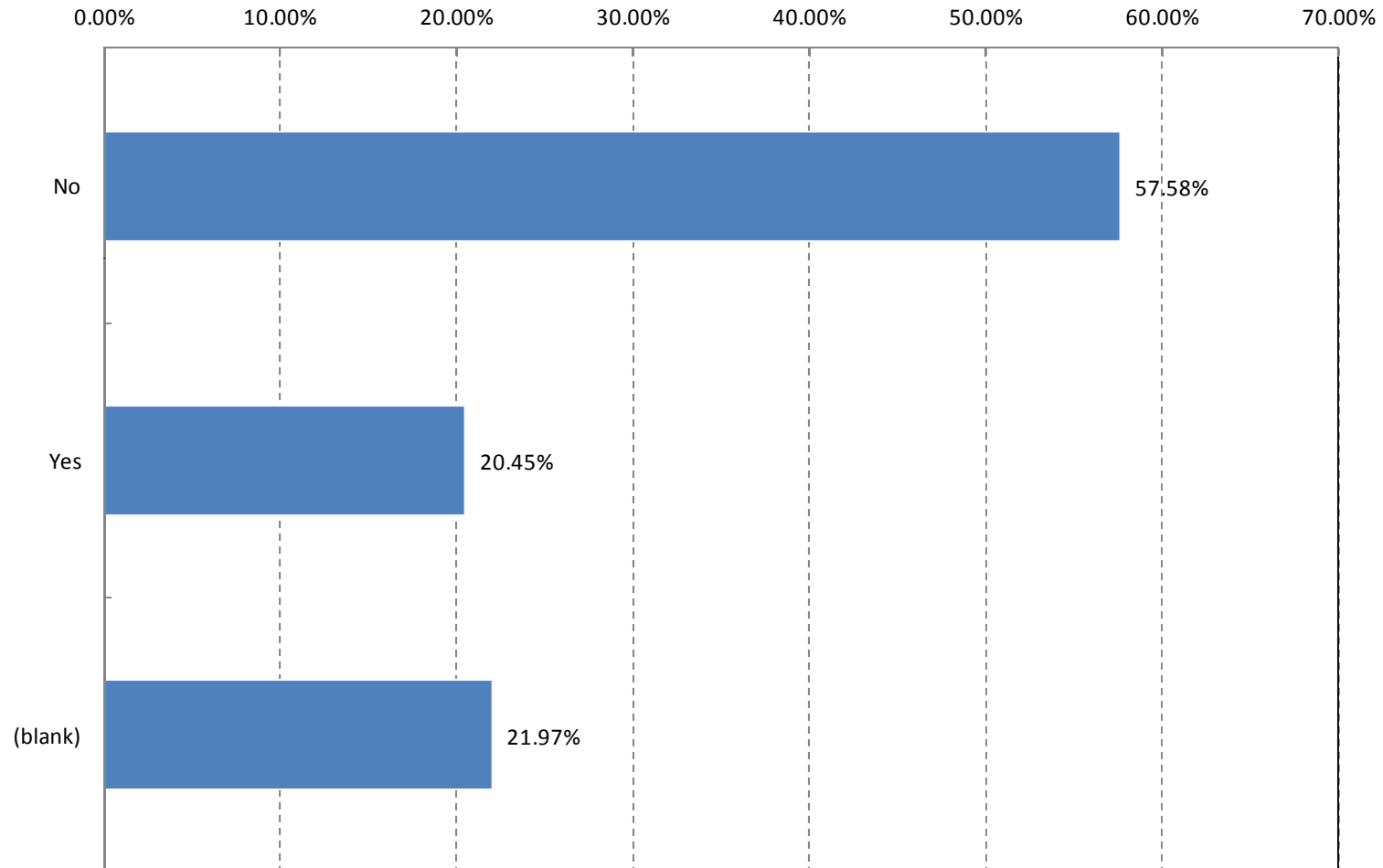
## 12. Smartphone Use

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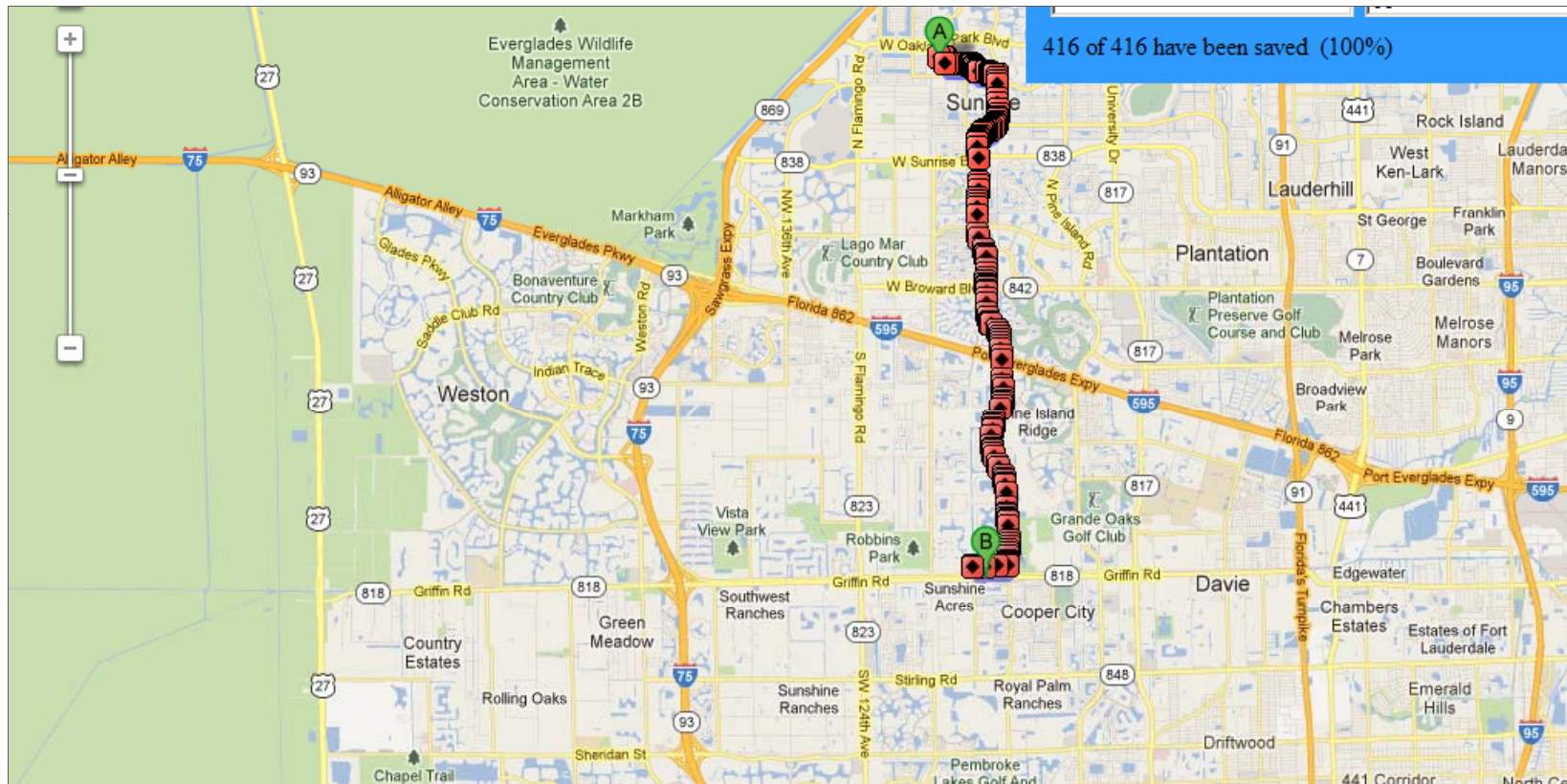
## 13. Use Cell Phone for Survey?

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# GPS Route vs. Google Route – Sample 1

## Google Survey Route



## GPS Route

IP-95-20120222-AM

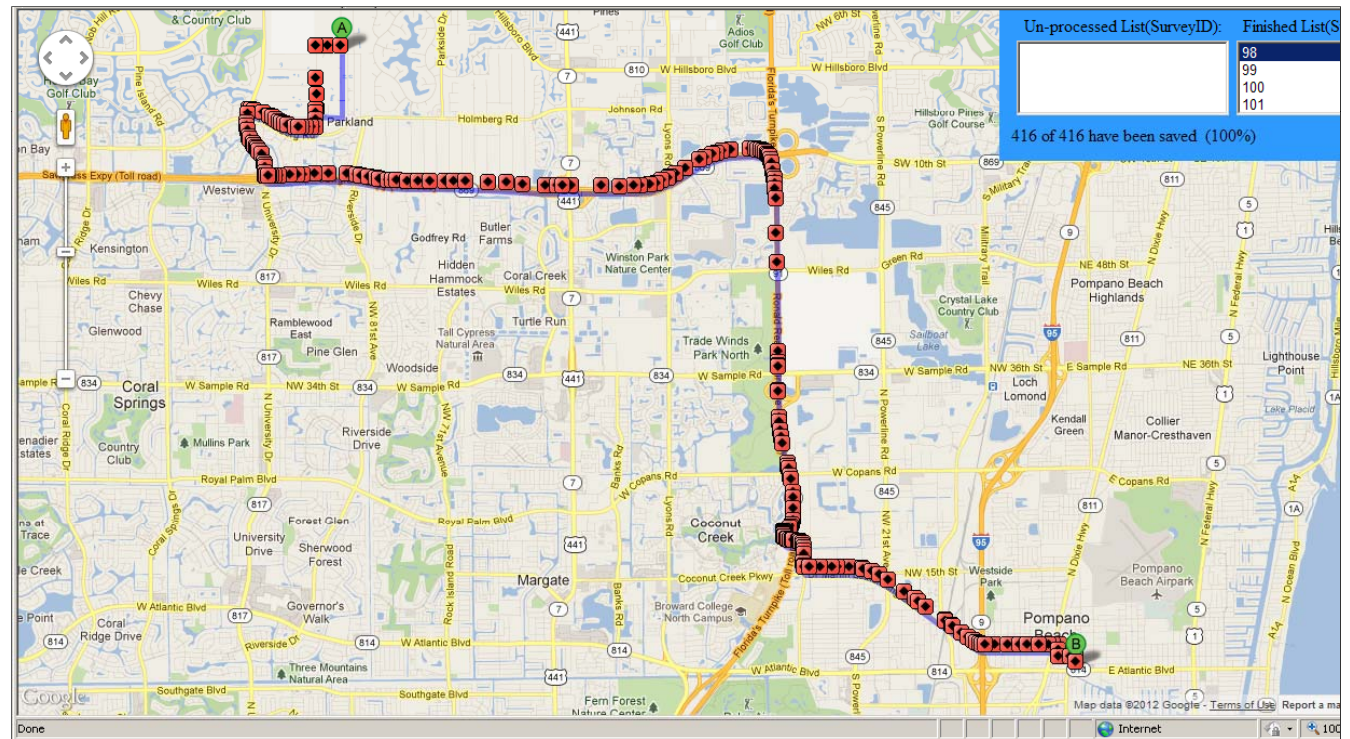
[track manager]





# GPS Route vs. Google Route – Sample 2

## Google Survey Route



# GPS Route vs. Google Route – Sample 2

## GPS Route

Track info

Start / finish

2012-02-21 17:42:27

2012-02-21 18:06:31

(24 minutes)

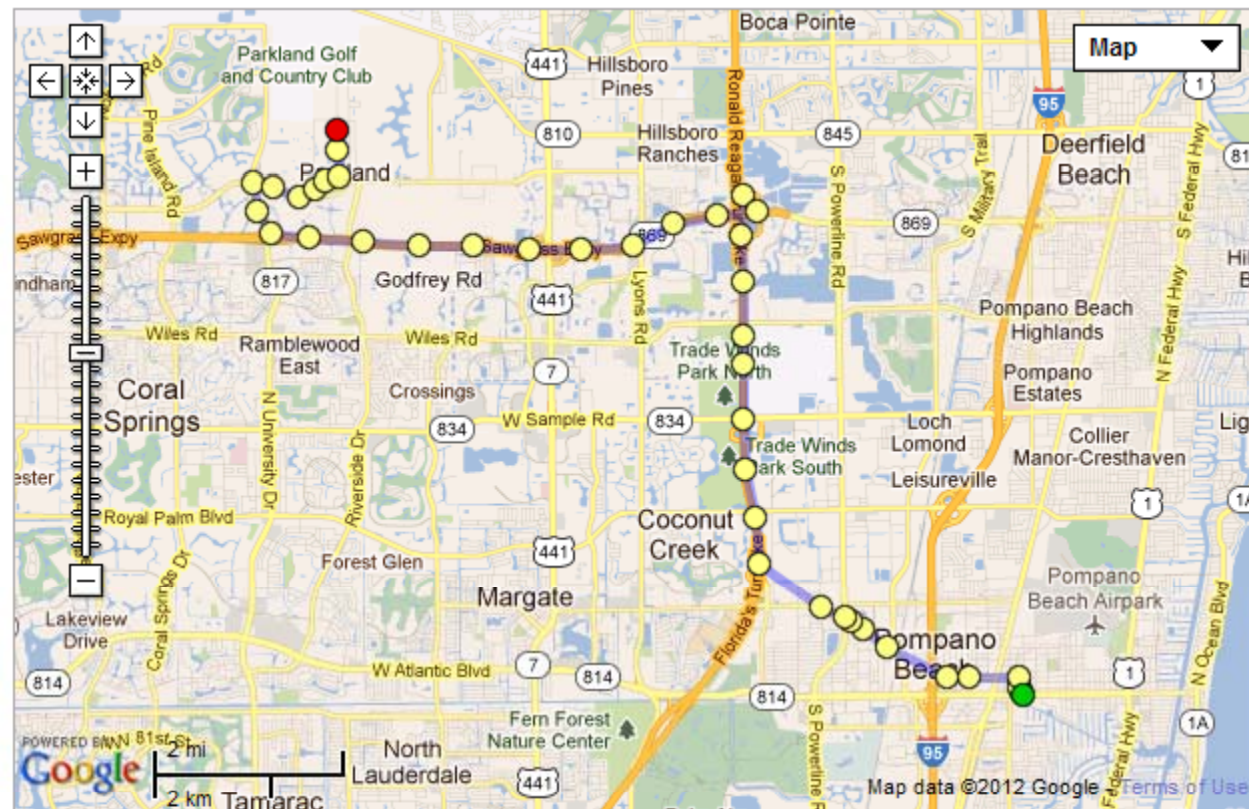
Distance: 14.7 mi

Avg speed: 37 mph

Max speed: 70 mph

[\[track manager\]](#)

IP-98-20120221PM



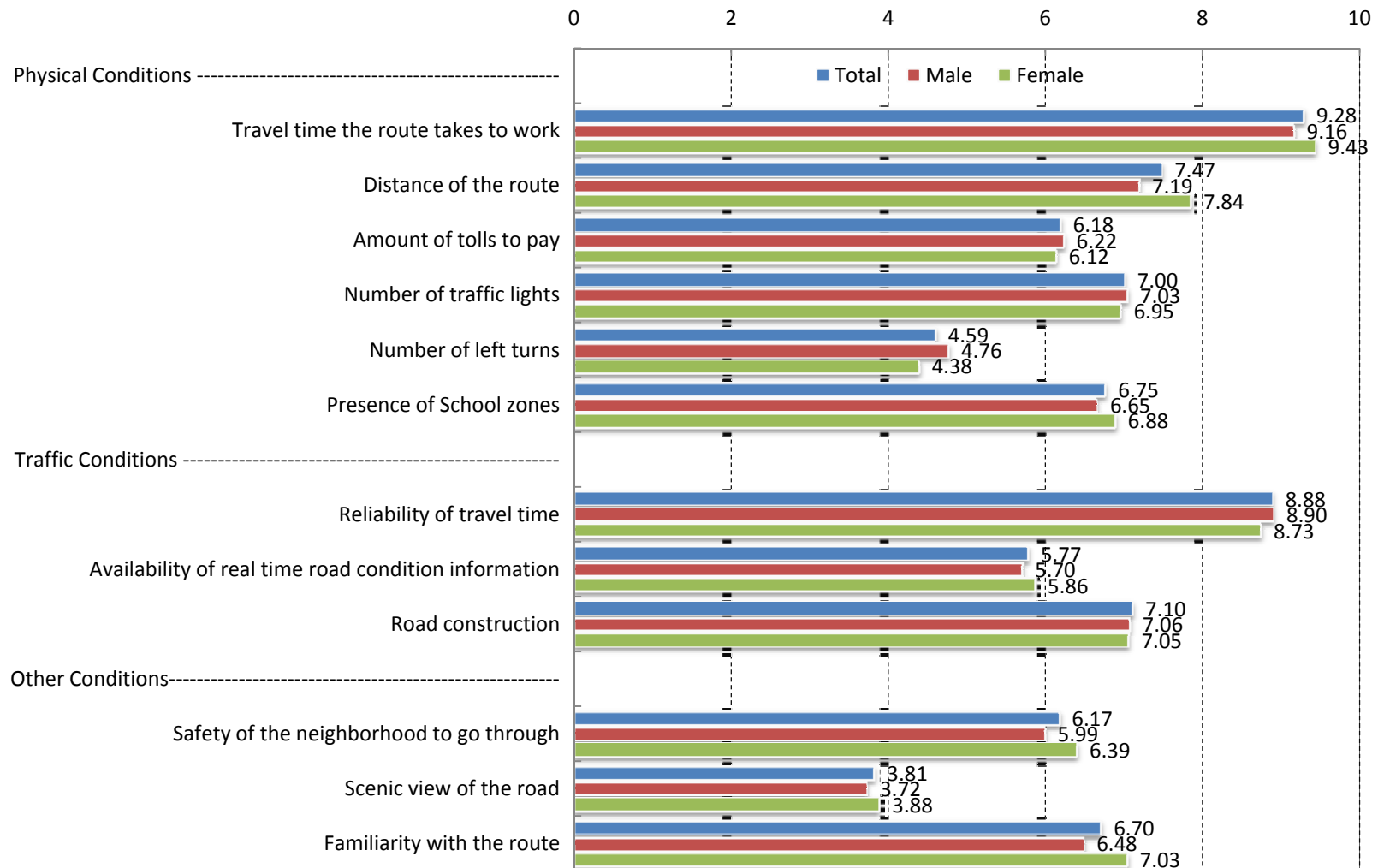
# Cell Phone GPS Data

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- ▶ Very Small Sample
- ▶ Often Different from Google Default or Stated Routes
- ▶ Sometimes Missing Data Points
- ▶ Speed Data Inconsistent
- ▶ GPS Data Not Used for Analysis

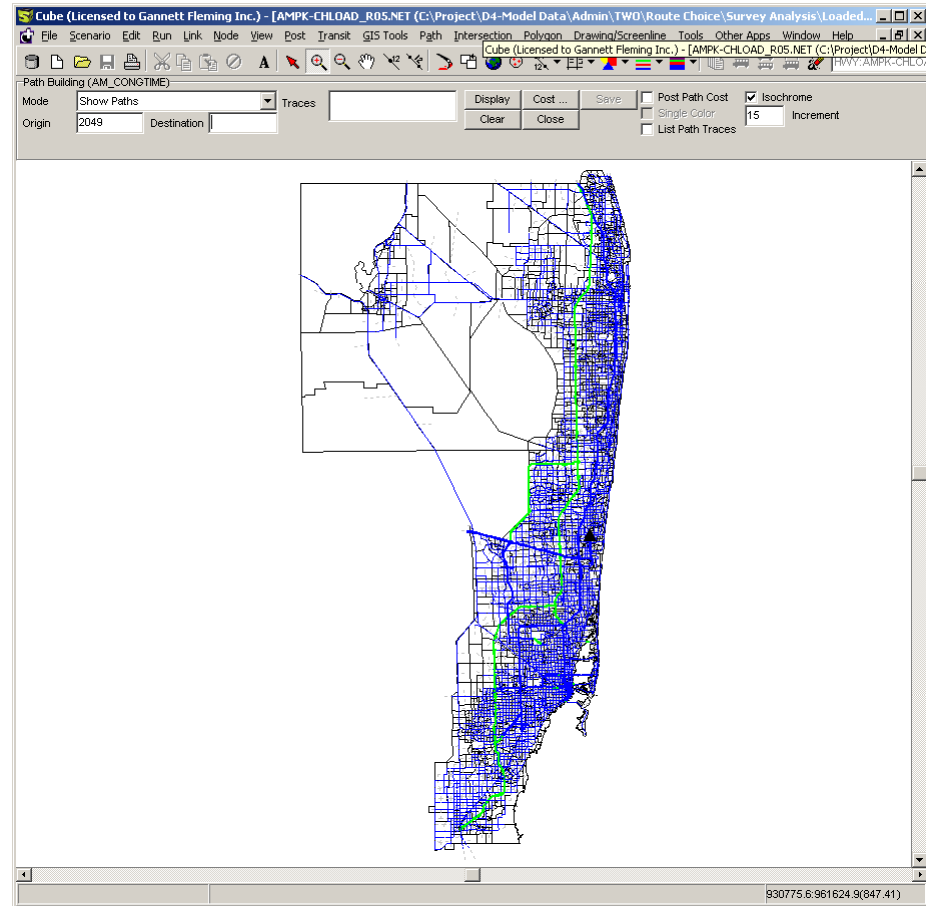


# Scores for Influencing Factors by Gender



# Model Route

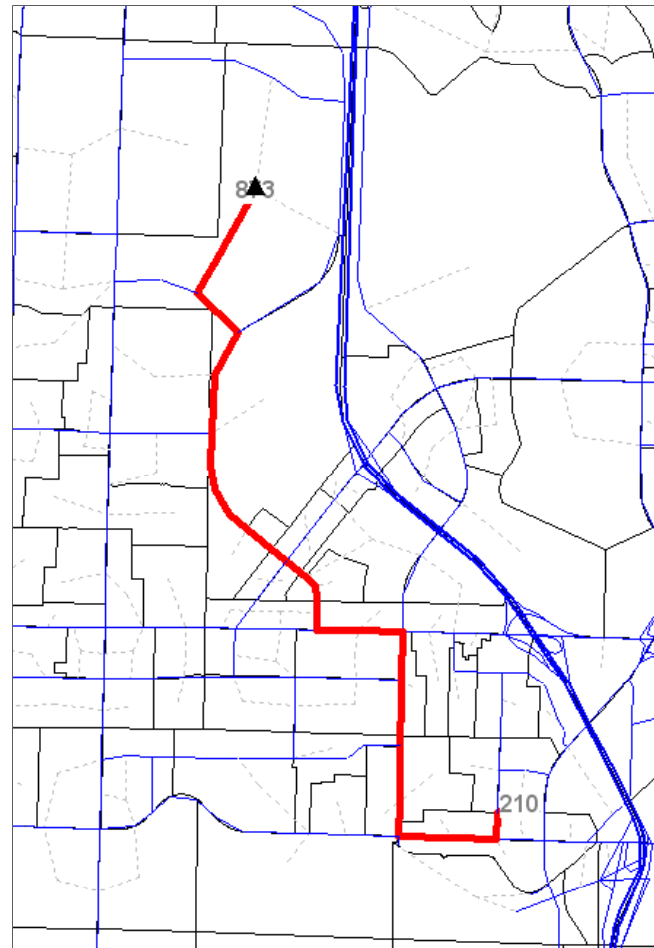
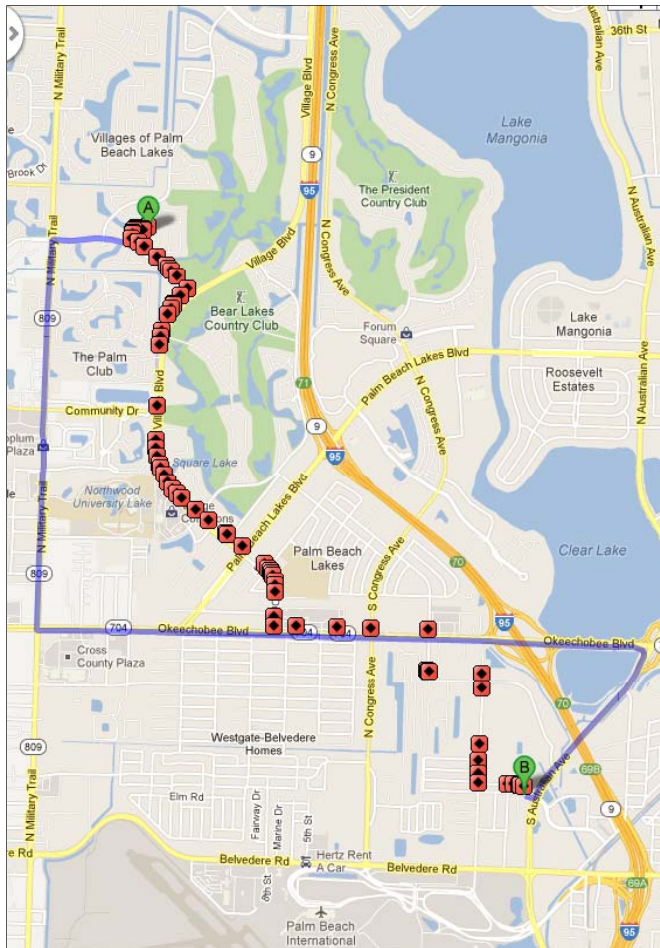
- ▶ SERPM 652I 2005 AM Loaded Network
- ▶ Cube Path Building
- ▶ AM Congested Travel Time as Cost Variable



# Example 1: Zone 873 – Zone 210

Google Default and Reported

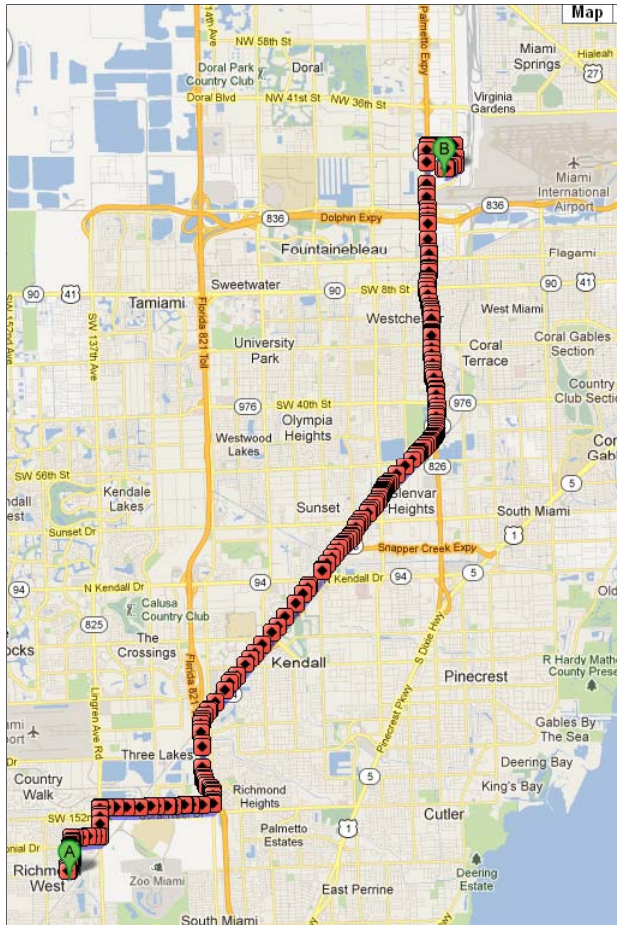
SERPM 2005 AM Loaded Network



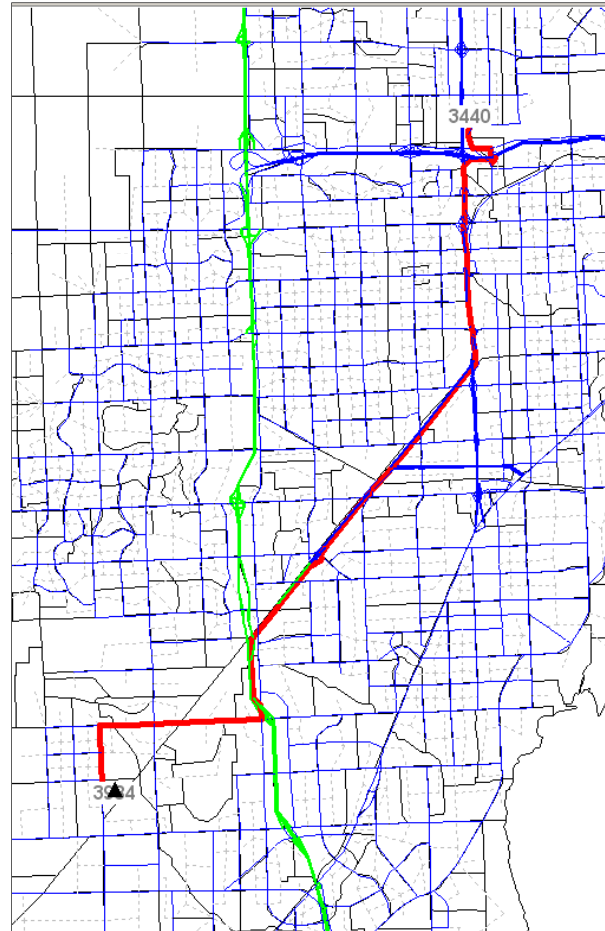
Source	Travel Time (minutes)
Google Default	12
Surveyor Reported	15
Model Congested	10.36

# Example 2: Zone 3984 – Zone 3440

Google Default and Reported



SERPM 2005 AM Loaded Network

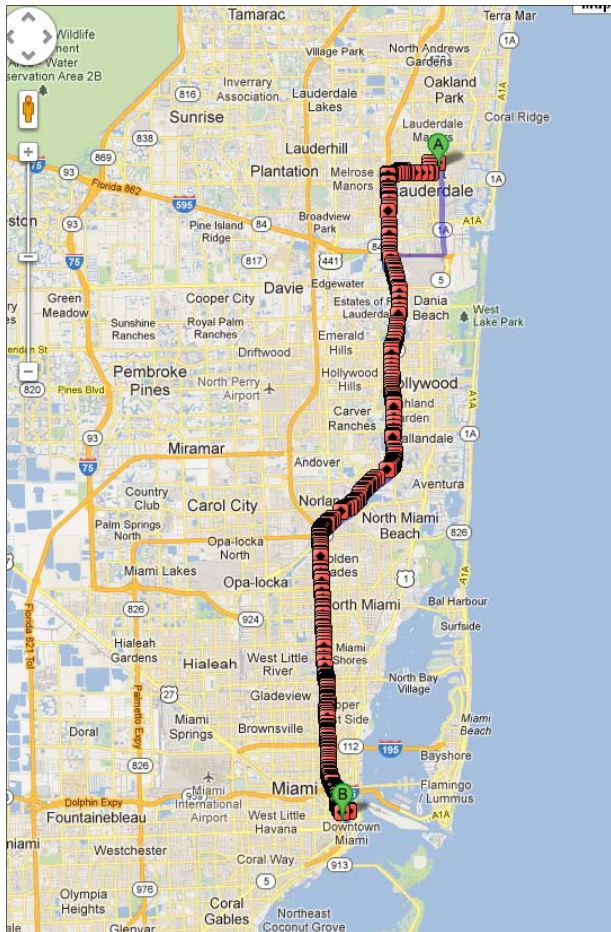


Source	Travel Time (minutes)
Google Default	27
Surveyor Reported	45
Model Congested	39.47

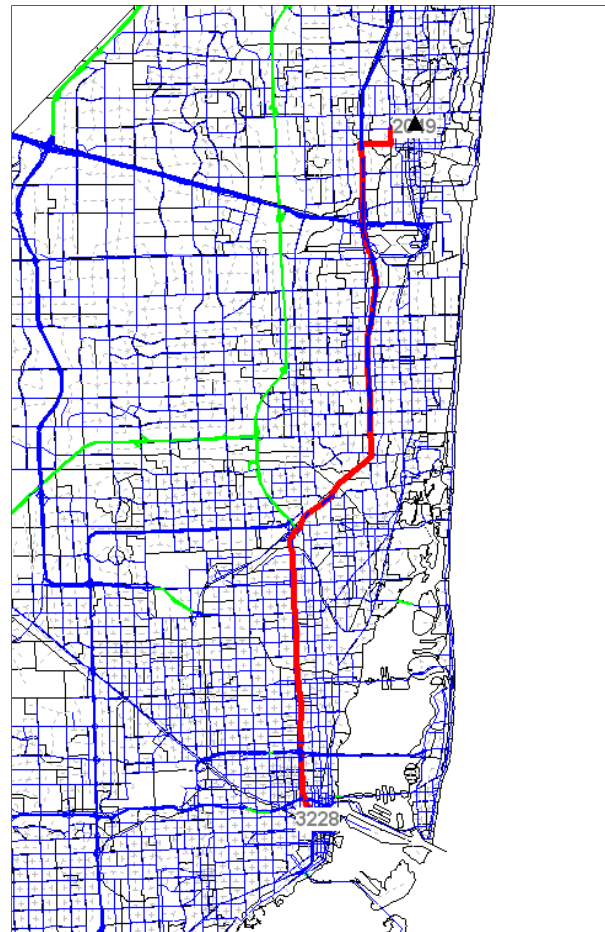


# Example 3: Zone 2049 – Zone 3228

Google Default and Reported



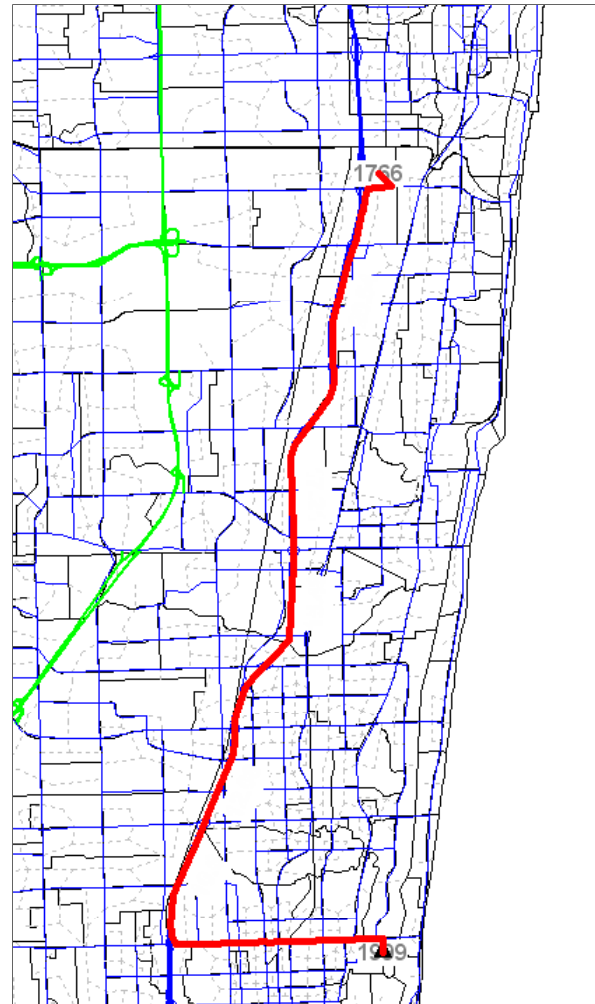
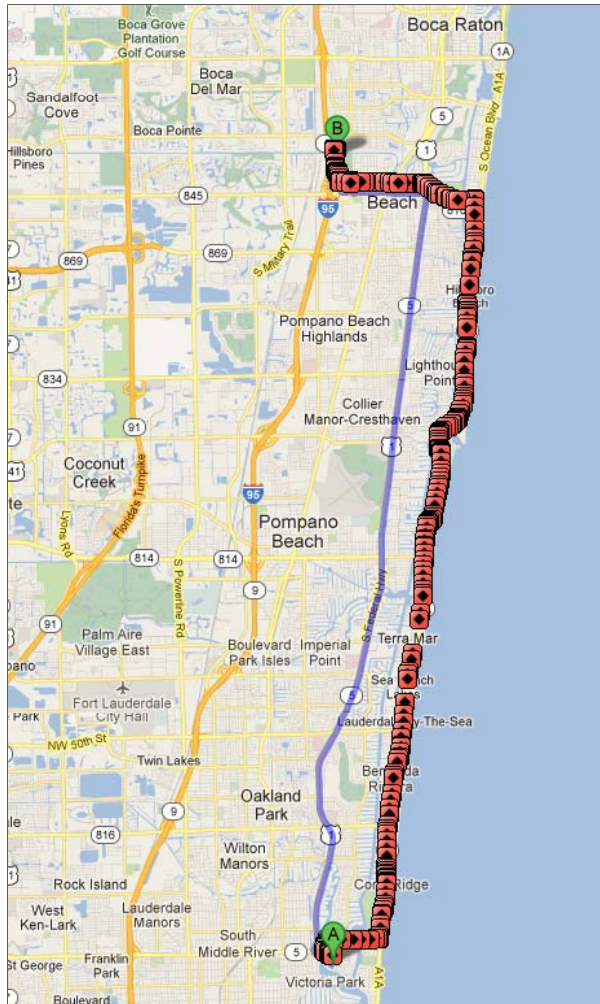
SERPM 2005 AM Loaded Network



Source	Travel Time (minutes)
Google Default	38
Surveyor Reported	45
Model Congested	35.65

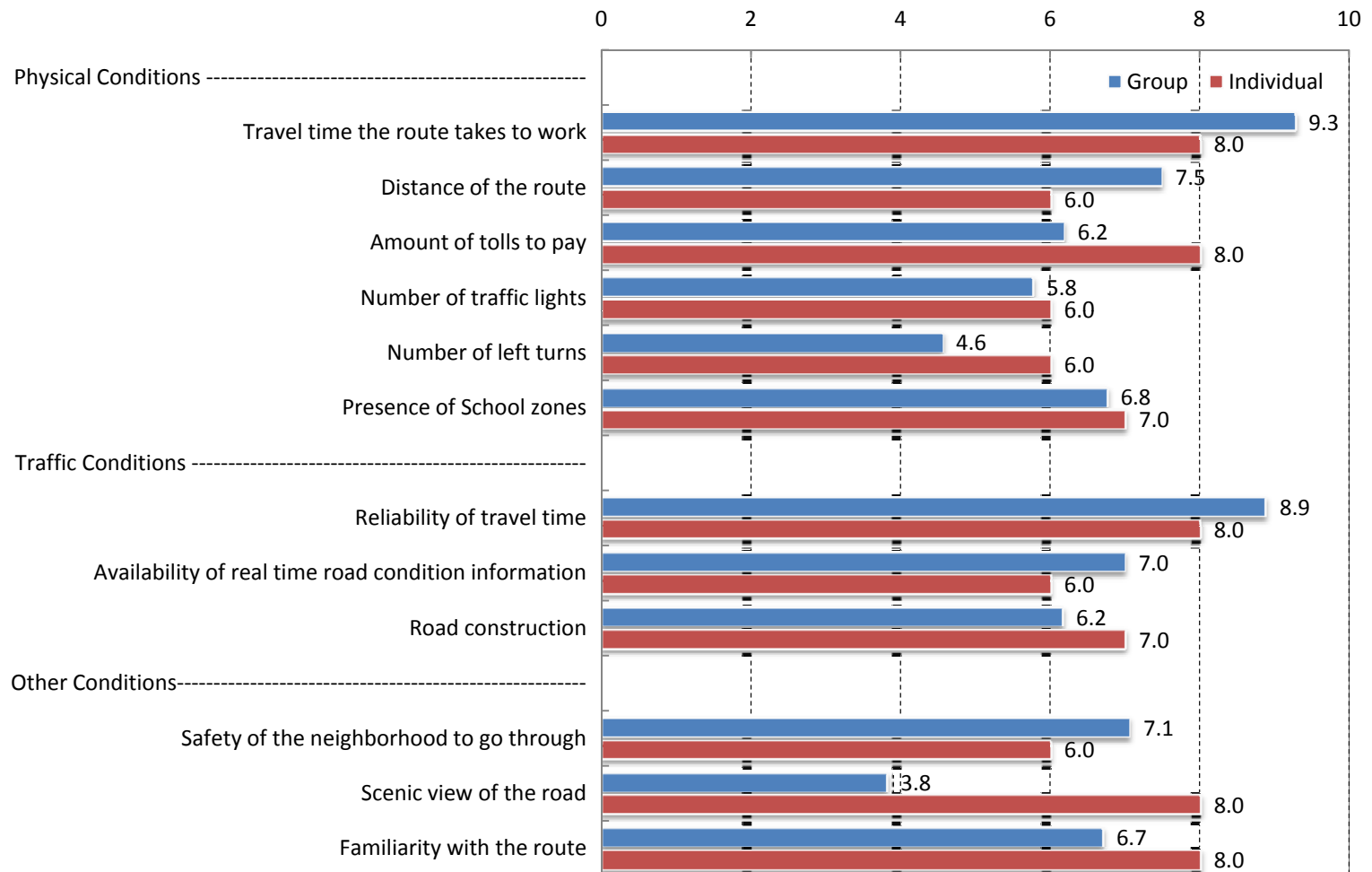
# Example 4: Zone1999 – Zone1766

Google Default and Reported SERPM 2005 AM Loaded Network



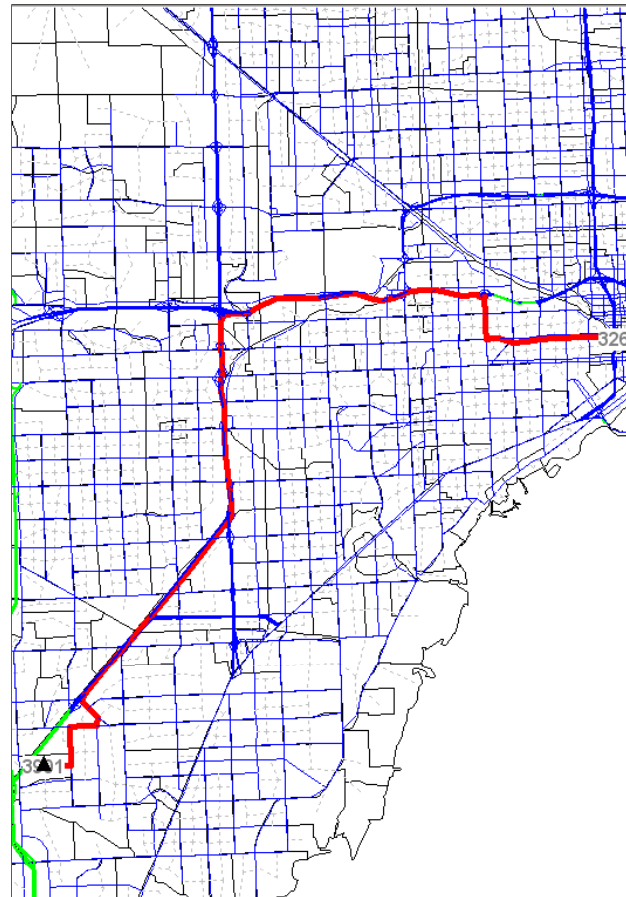
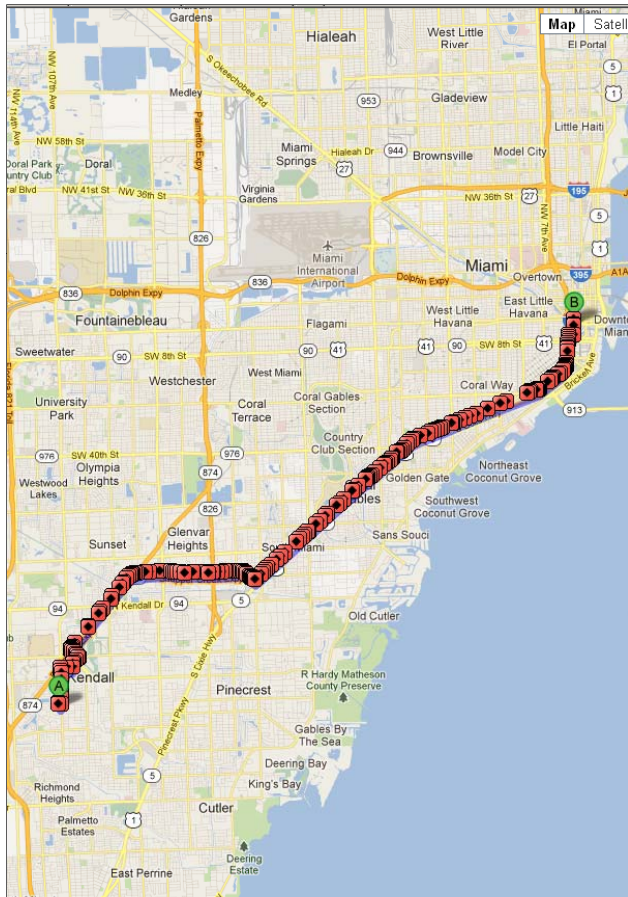
Source	Travel Time (minutes)
Google Default	25
Surveyor Reported	30
Model Congested	24.33

# Example 4 – Influencing Factors (175)



## Example 5: Zone 3901 – Zone 3261

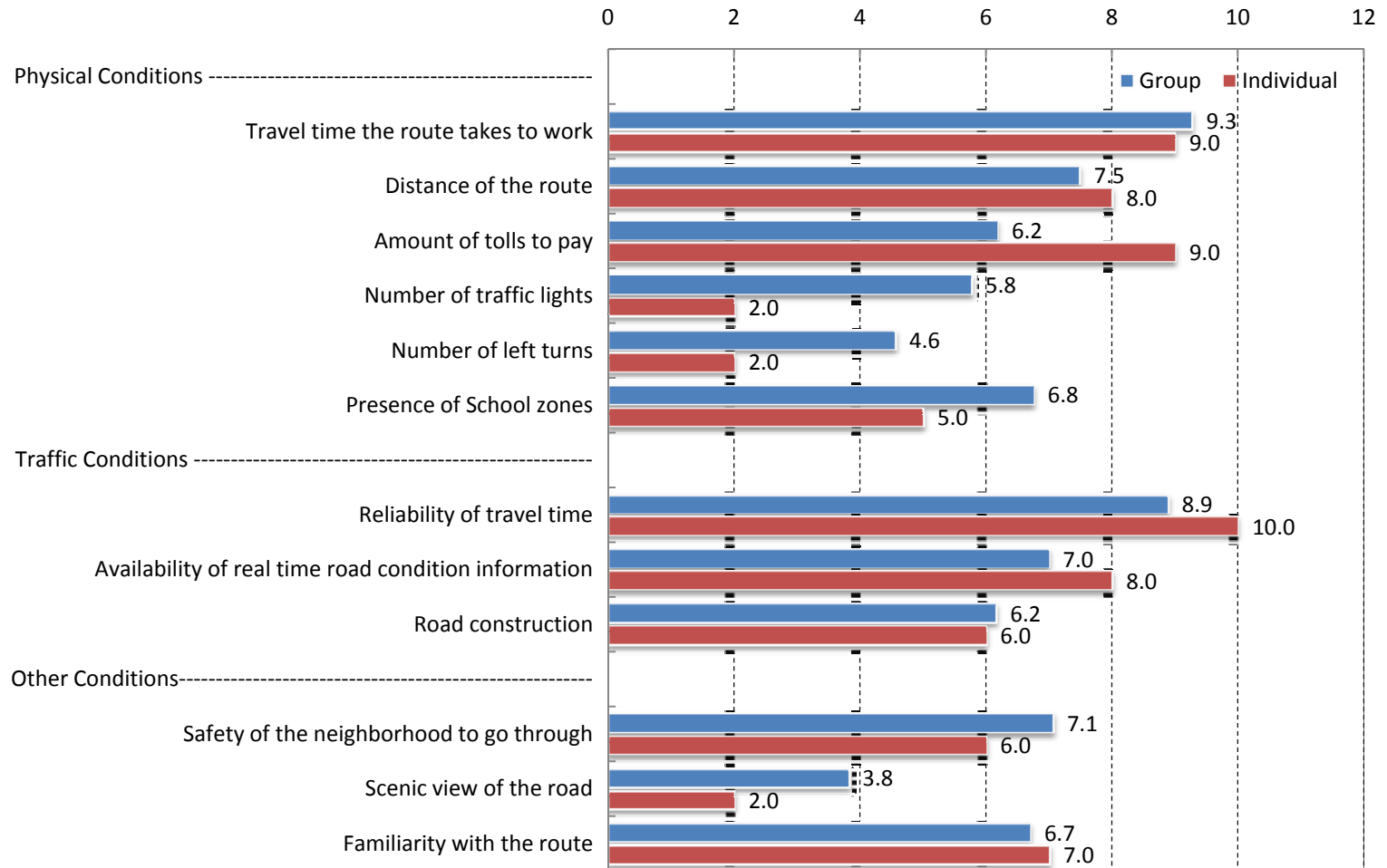
## Google Default and Reported SERPM 2005 AM Loaded Network



Source	Travel Time (minutes)
Google Default	25
Surveyor Reported	60
Model Congested	34.49



# Example 5 – Influencing Factors (272)



# Preliminary Findings

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- ▶ Many Factors other than Time and Distance Influence People's Route Choice Decisions
- ▶ Reported Travel Times are in Five (5) Minutes Increment and Usually Longer Than Actual Travel Times
- ▶ Over 60% of Commuters Use the Same Routes
- ▶ Modeled Paths Could be Different from Actual Paths, thought More Analyses are Needed.

# Summary

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- ▶ Google Map Effective for the Survey
- ▶ More Tests Needed Due To Varying OS and Browsers
- ▶ Reached Target Sample
  - ▶ Email Links More Effective than Announcement Cards
- ▶ Clear Description of the Purpose of the Survey
- ▶ More Encouragement/Incentives Needed for Using Personal Smartphones for the Survey