



# Municipal Transportation Agency

## Transit Effectiveness Project

### Task 3 – Market Analysis Preliminary Draft Findings (Part 1)



March 21, 2007

# Overview

- Urban Environment
  - Land Use, Densities, Proposed Developments (CAP)
  - Origins and Destinations
- Travel Markets
  - Regional Bay Area Travel
  - San Francisco Local Travel
  - Travel Purposes (Work, School, Shopping, Medical)
- Consumer Research
  - Market Segmentation Models
  - Transit Competitiveness Factors



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## Urban Environment and Travel Markets



# Existing San Francisco Urban Environment

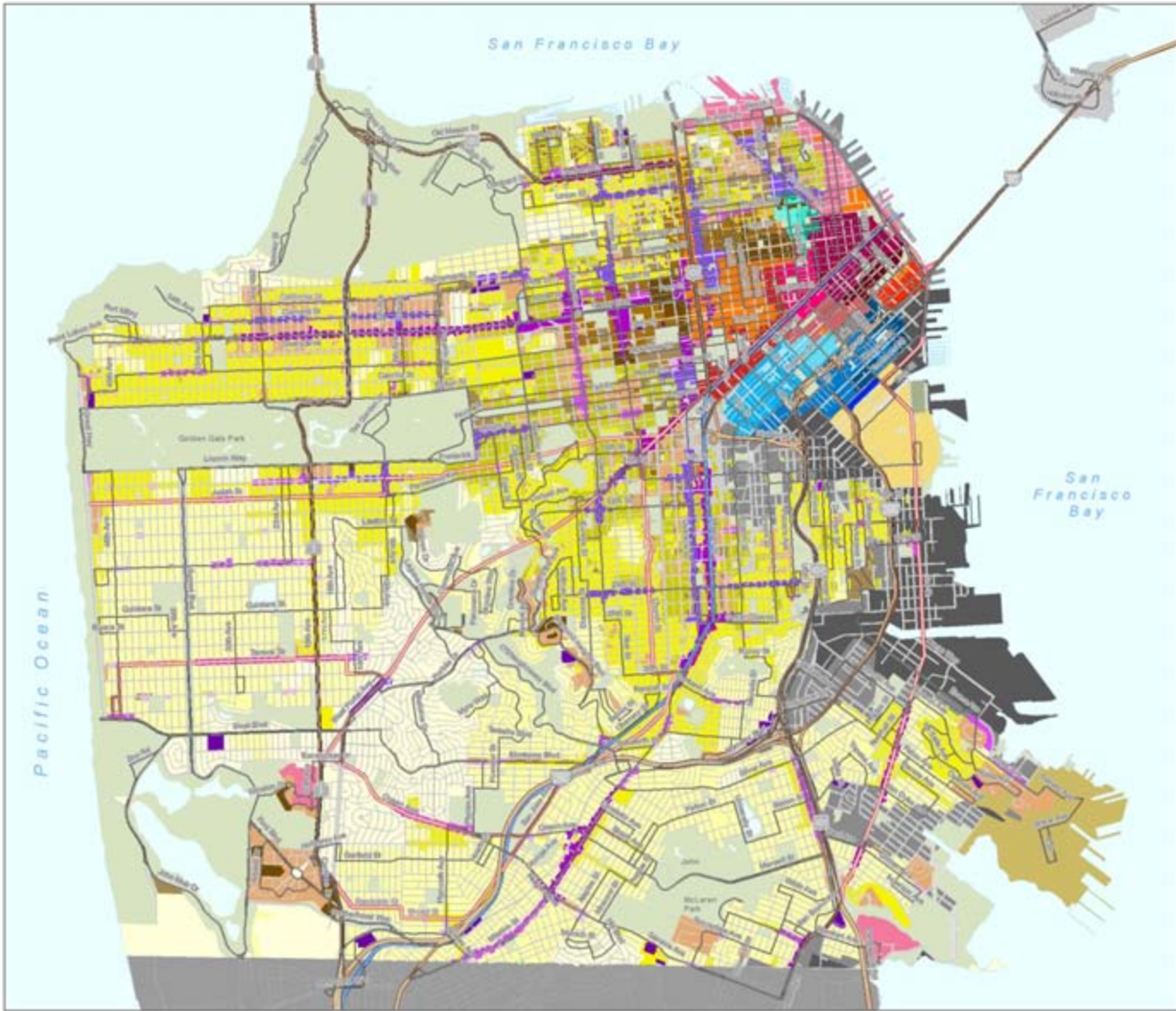
## ■ Land Use

- “Transit Friendly” high density, mixed uses concentrated in northeastern quadrant of the City
- Transit supportive densities also found in areas outside of this quadrant (e.g. Inner Mission, Richmond, Western Addition)
- Strong corridors along Geary Boulevard, Mission Avenue, Irving Street, Haight, and proposed developments along Third Street

## ■ Residential Locations

- Higher densities in mixed use core, with more single unit lots in the Sunset, Ingleside/Oceanview, and Excelsior analysis areas

# San Francisco Zoning (2005)



## Zoning Classifications

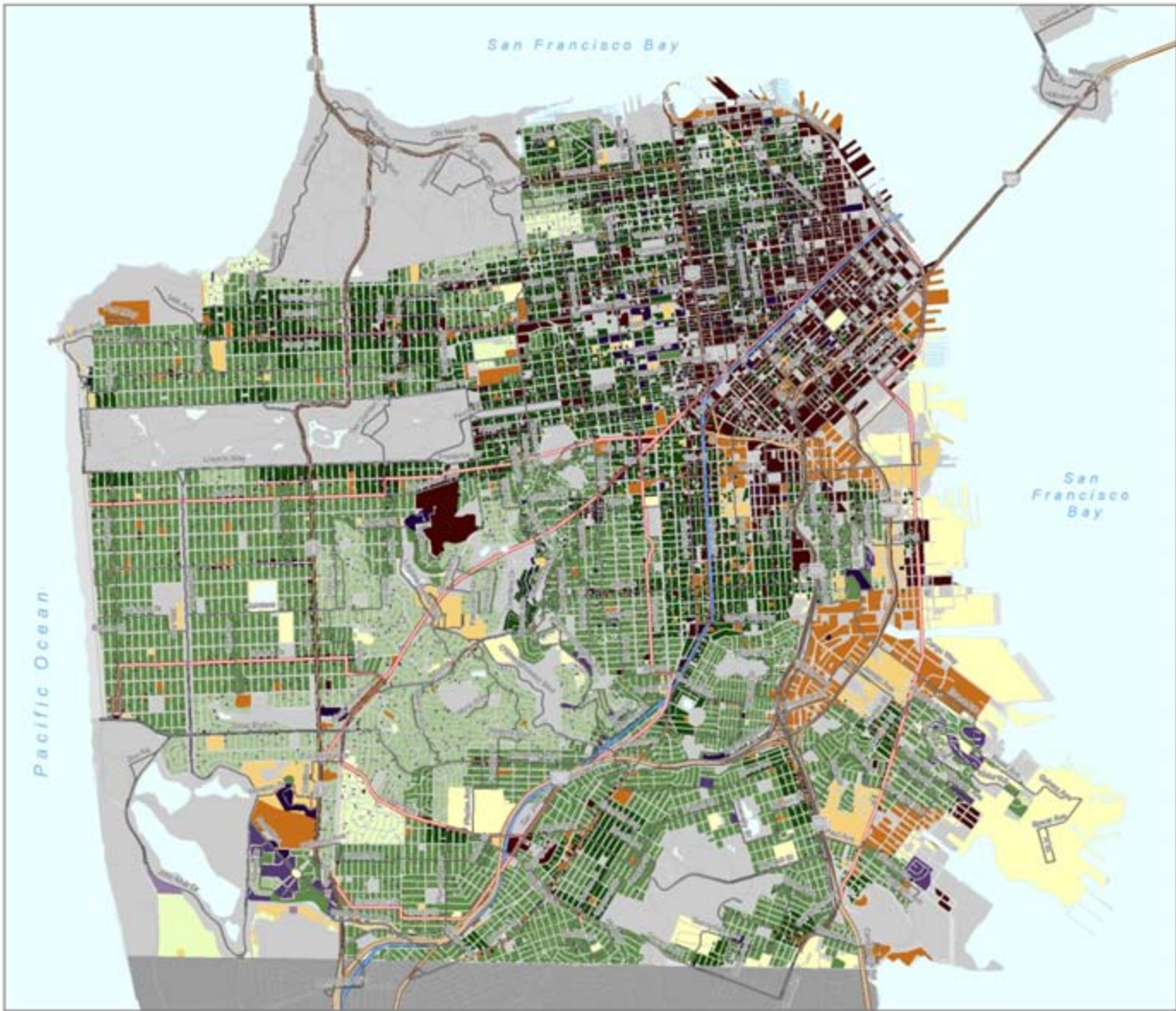
- Public Districts**
  - P-W Public
  - P Public
- Residential, House Character Districts**
  - RH-1(D): One Unit per Lot, Detached
  - RH-1 One Unit per Lot
  - RH-1(S): One Unit per Lot with Minor Secondary Unit
  - RH-2 Two Units per Lot
  - RH-3 Three Units per Lot
- Residential, Mixed (Houses & Apartments) Districts**
  - RM-1 Low Density (1 Unit per 600 sf)
  - RM-2 Moderate Density (1 Unit per 600 sf)
  - RM-3 Medium Density (1 Unit per 400 sf)
  - RM-4 High Density (1 Unit per 200 sf)
- Residential-Commercial Combined Districts**
  - RC-3 Medium Density (1 Unit per 400 sf)
  - RC-4 High Density (1 Unit per 200 sf)
- Neighborhood Commercial Districts**
  - NC-1 Cluster (1 Commercial Story)
  - NC-2 Small-Scale (2 Commercial Stories)
  - NC-3 Moderate-Scale (3+ Commercial Stories)
  - NC-S Shopping Center (2 Commercial Stories)
  - NCD Individual (Mixed, Controls Vary by Area)
- Chinatown Mixed Use Districts**
  - CRNC Residential / Neighborhood Commercial
  - CVR Visitor Retail
  - CCB Community Business
- South of Market Mixed Use Districts**
  - SPG South Park
  - RED Residential Enclave
  - RSD Residential / Service
  - SLR Service / Light Industrial / Residential
  - SLI Service / Light Industrial
  - SSO Service / Secondary Office
- Downtown Residential Districts**
  - DTR Downtown Residential
- Commercial Districts**
  - C-2 Community Business
  - C-3-R Downtown Retail
  - C-3-S Downtown Support
  - C-3-G Downtown General
  - C-3-O Downtown Office
  - C-3-O(SD) Downtown Office (Special Development)
- Industrial Districts**
  - CM Heavy Commercial
  - M-1 Light Industrial
  - M-2 Heavy Industrial
- Mission Bay Districts**
  - MB-OS Open Space
  - MB-O Office
- Redevelopment Agency Districts**
  - MB-RA See Mission Bay Redevelopment Plans
  - HP-RA See Hunters Point Redevelopment Plan

- Freeway/Highway
- Existing Bus Network
- Muni Metro Line
- BART Line

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Data Source: SFMTA, SFCTA, SFGOV, SF Planning, MTC





# Urban Use Density

**Persons Per Residential Acre**

- More Than 80
- 41 - 80
- 21 - 40
- 0 - 20

**Jobs Per Commercial Acre**

- More Than 80
- 41 - 80
- 21 - 40
- 0 - 20

**Jobs & Persons Per Mixed Use Acre**

- More Than 80
- 41 - 80
- 21 - 40
- 0 - 20

- Freeway/Highway
- Existing Bus Network
- Muni Metro Line
- BART Line

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Data Source: SFMTA, SFCTA, SFGOV, MTC

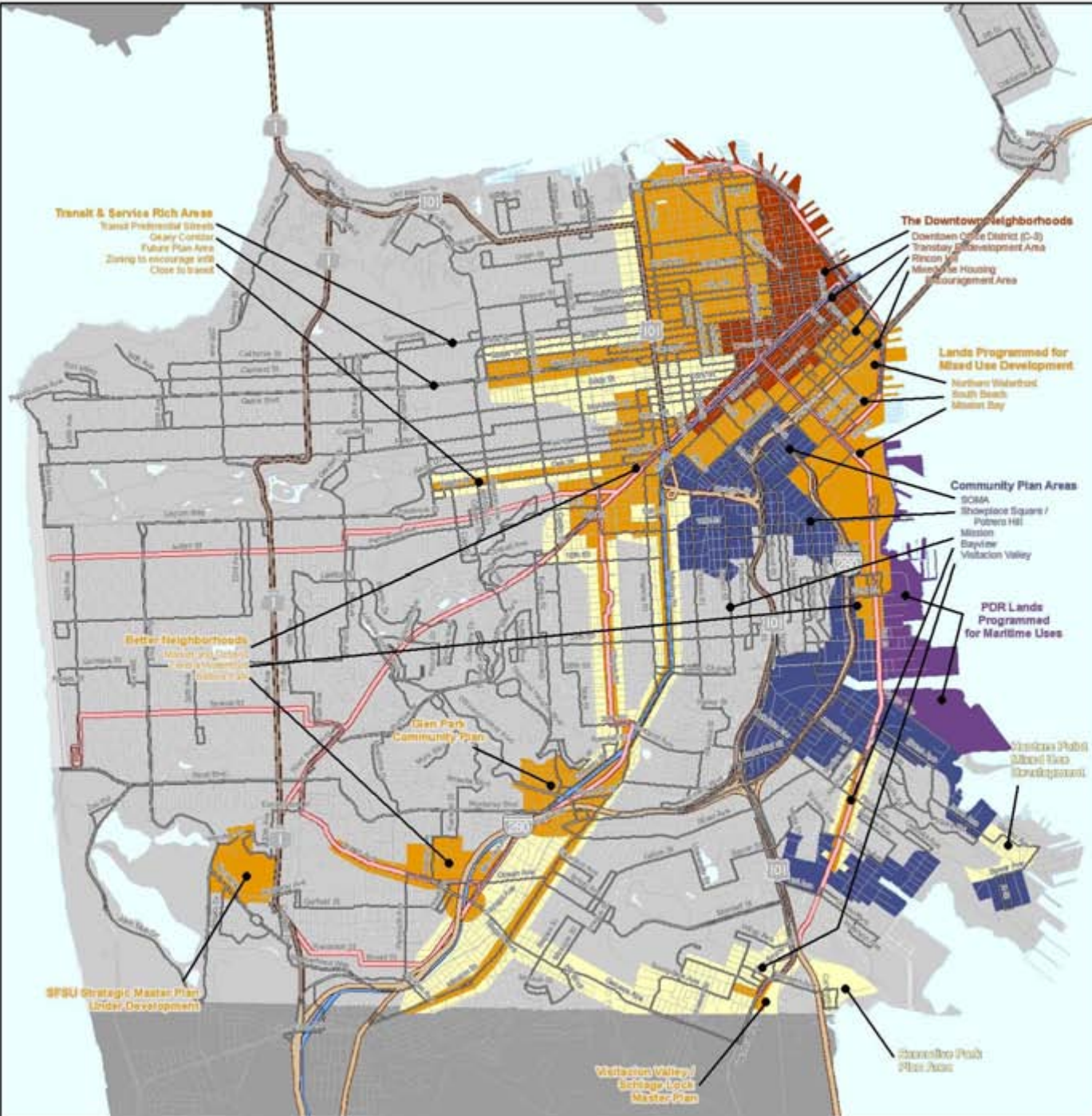


# Urban Environment – Proposed Developments

- The Urban Neighborhoods
  - Downtown Neighborhoods Initiative
  - Eastern Neighborhoods Initiative
- Colleges and Universities
  - All have projected enrollment increases within the next 15 years
  - All identify Transit and Transportation Demand Management strategies as essential to improving vitality of campuses
- Improved Integration with Regional Transit
  - New Transbay terminal
  - Balboa Park Master Plan
  - Glen Park Master Plan



# Proposed Development Areas



## Strategic Land Use Framework

- Residential
- Commercial
- Industrial
- Mixed Commercial / Industrial
- Mixed Residential / Commercial

- Freeway/Highway
- Existing Bus Network
- Muni Metro Line
- BART Line

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Data Source: SFMTA, SFCTA, SFGOV, SF Planning





# Bay Area Regional Travel – AM Peak

## ▪ San Francisco Origins

- Top Total Trips
  - Ingleside (13,100)
  - Excelsior (12,700)
  - Sunset (8,500)
  - North Beach (7,200)



- Top Transit Shares
  - Civic Center (21%)
  - North Beach (17%)
  - Noe Valley (15%)
  - SOMA (14%)



## ▪ Regional Destinations

- Top Total Trips
  - Daly City (12,200)
  - South San Mateo (12,000)
  - Oakland (10,200)
- Top Transit Shares
  - Berkeley (32%)
  - Oakland (31%)
  - Contra Costa (18%)
  - Rest of Alameda (13%)

# Bay Area Regional Travel – AM Peak

## ▪ Regional Origins

- Top Total Trips
  - Contra Costa (32,000)
  - Daly City (27,200)
  - Oakland (21,900)



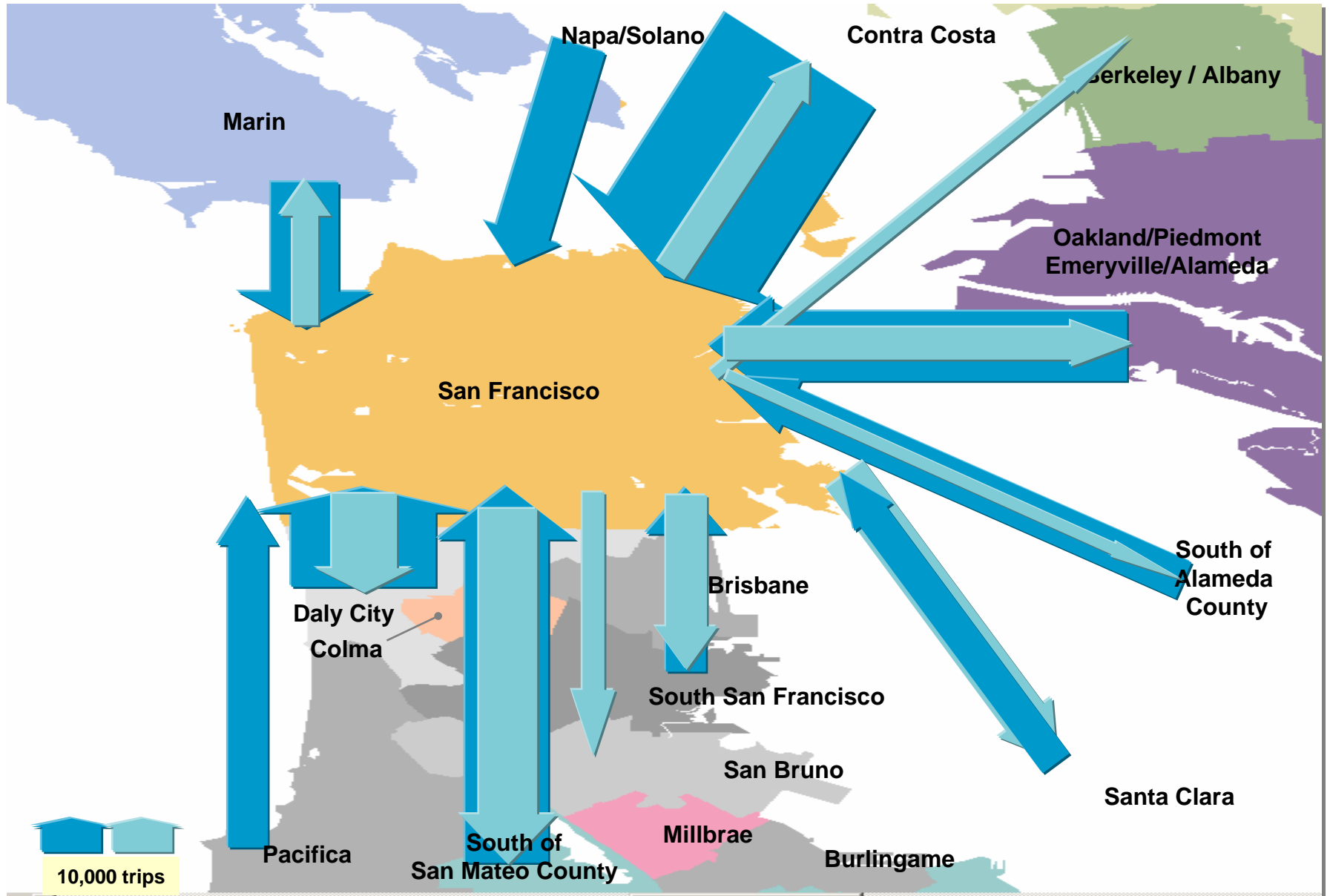
- Top Transit Shares
  - Oakland (66%)
  - Rest of Alameda (61%)
  - Berkeley (60%)
  - Contra Costa (56%)
  - Marin (34%)



## ▪ San Francisco Destinations

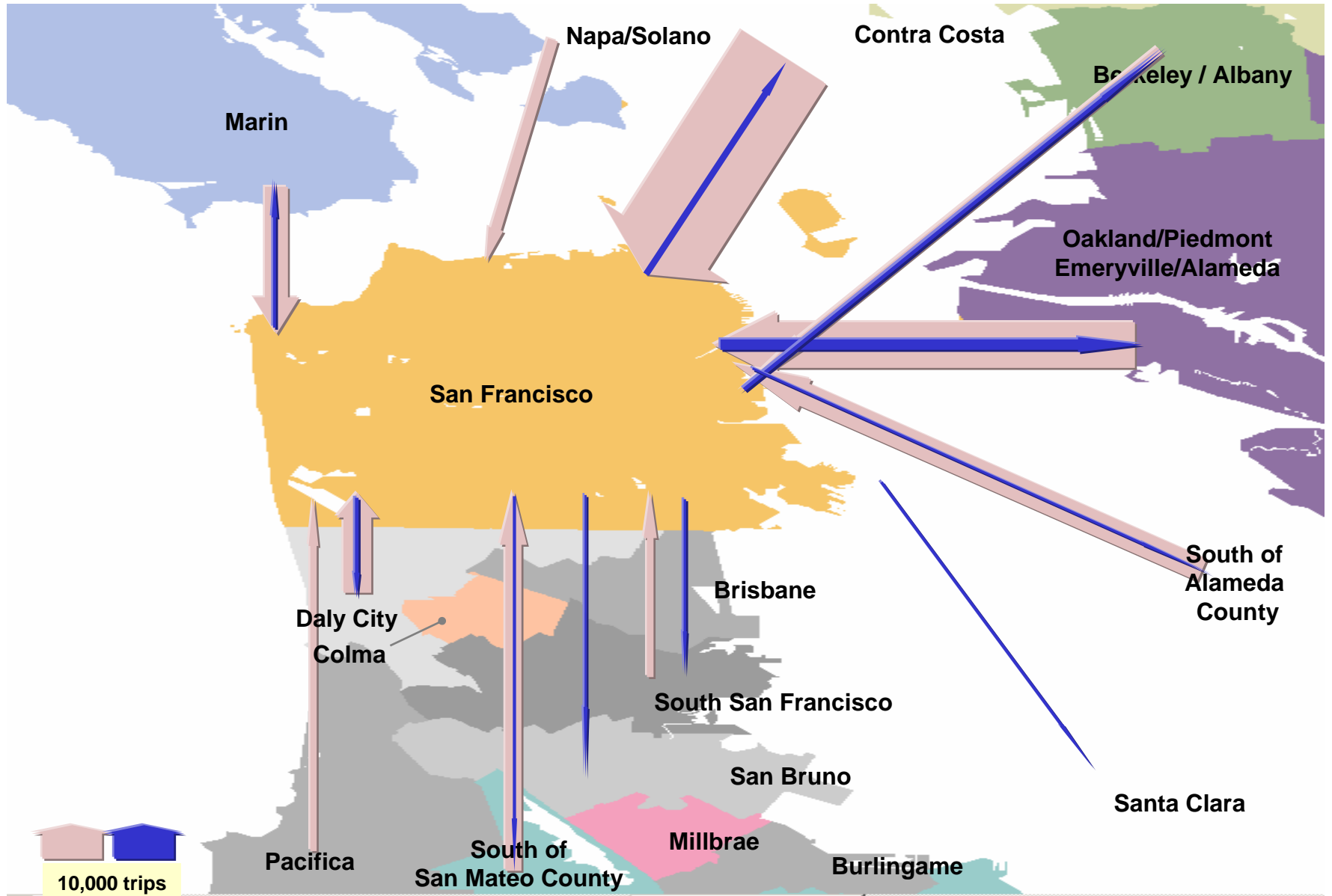
- Top Total Trips
  - SOMA (33,900)
  - Financial Dist (33,700)
  - North Beach (22,200)
  - Civic Center (20,900)
- Top Transit Shares
  - Civic Center (54%)
  - Financial Dist (54%)
  - SOMA (54%)
  - North Beach (38%)

# Bay Area Reg. Travel - Top 10 Person Trips

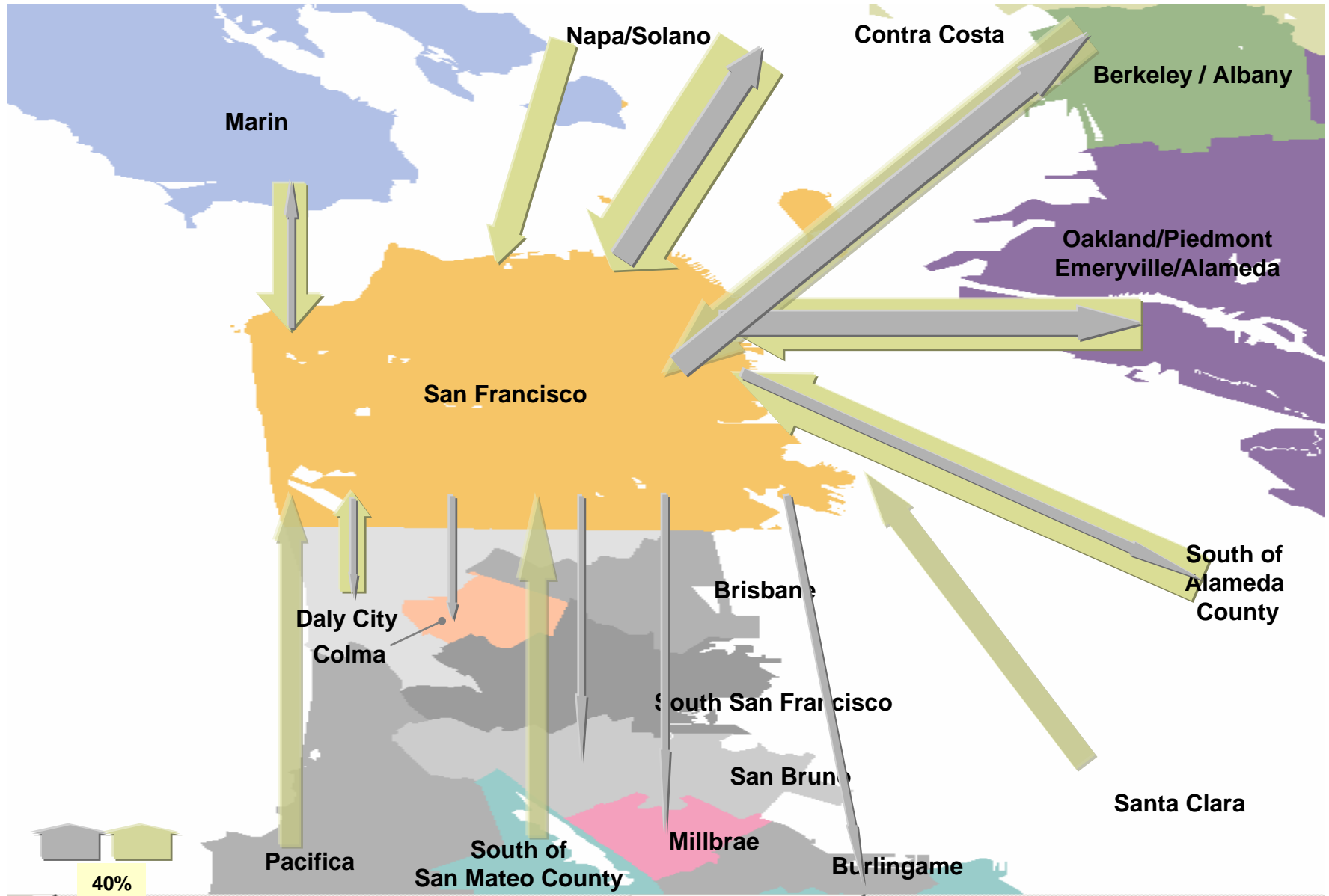




# Bay Area Reg. Travel - Top 10 Transit Trips



# Bay Area Reg. Travel - Top 10 Transit Shares

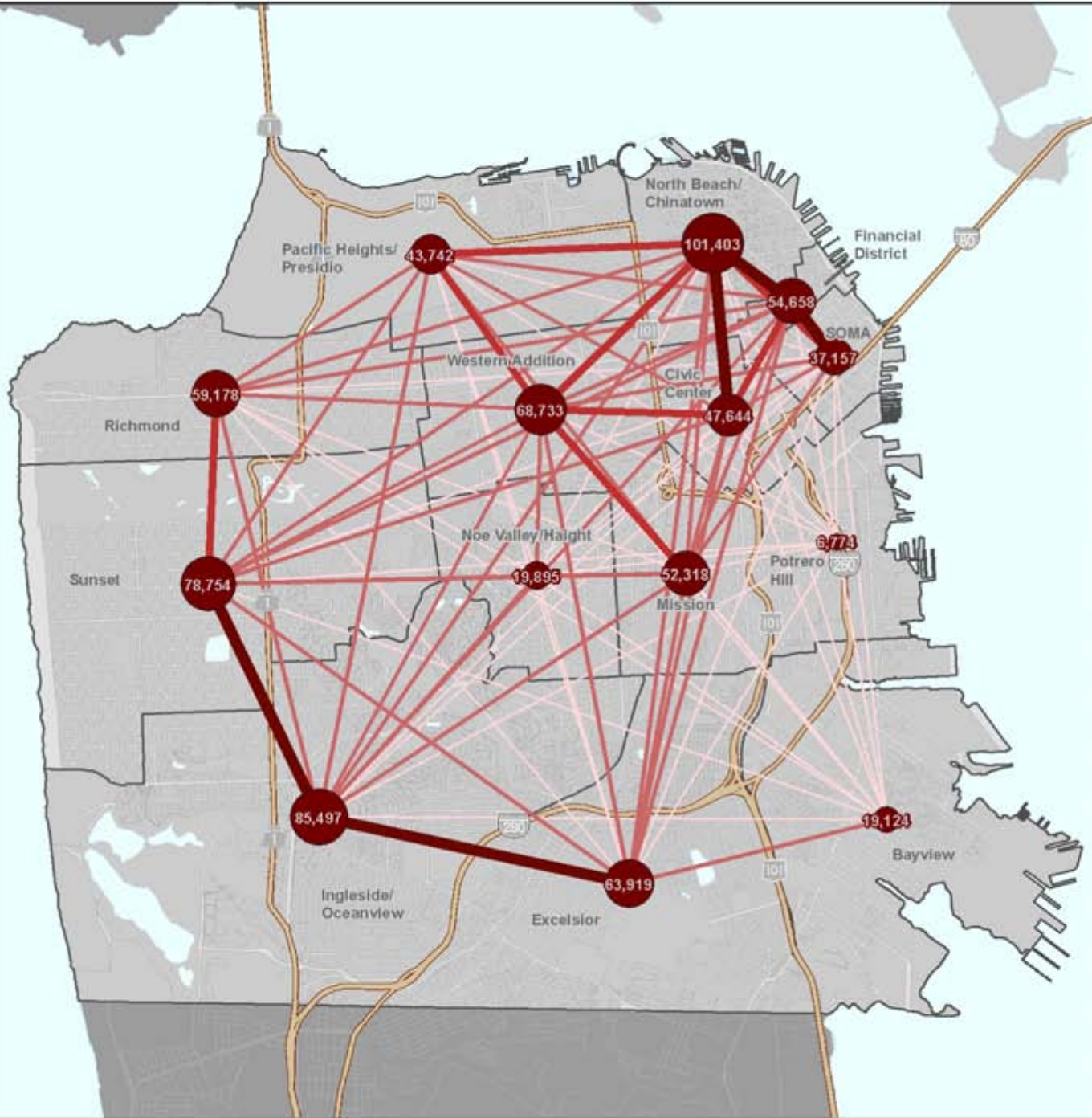


# SF Local Travel – Overall Daily Travel

- Overall Travel
  - Large volume movements in the downtown and mixed use core area and between the Sunset, Ingleside/Oceanview, and Excelsior
  - Radial travel is not dominant
- Transit Travel
  - Focused heavily on radial travel and travel within the downtown and mixed use core area
  - Transit shares low for travel between Sunset, Ingleside/Oceanview, and Excelsior
- Automobile Travel
  - Highest travel volumes in travel between the Sunset, Ingleside/Oceanview, and Excelsior



# Total Daily Travel



## Travel Between Zones

- Above 60,000
- 40,000 - 60,000
- 20,000 - 40,000
- 5,000 - 20,000

## Travel Within Zones

- 1,000 Total Trips

- Freeway/Highway
- City Blocks

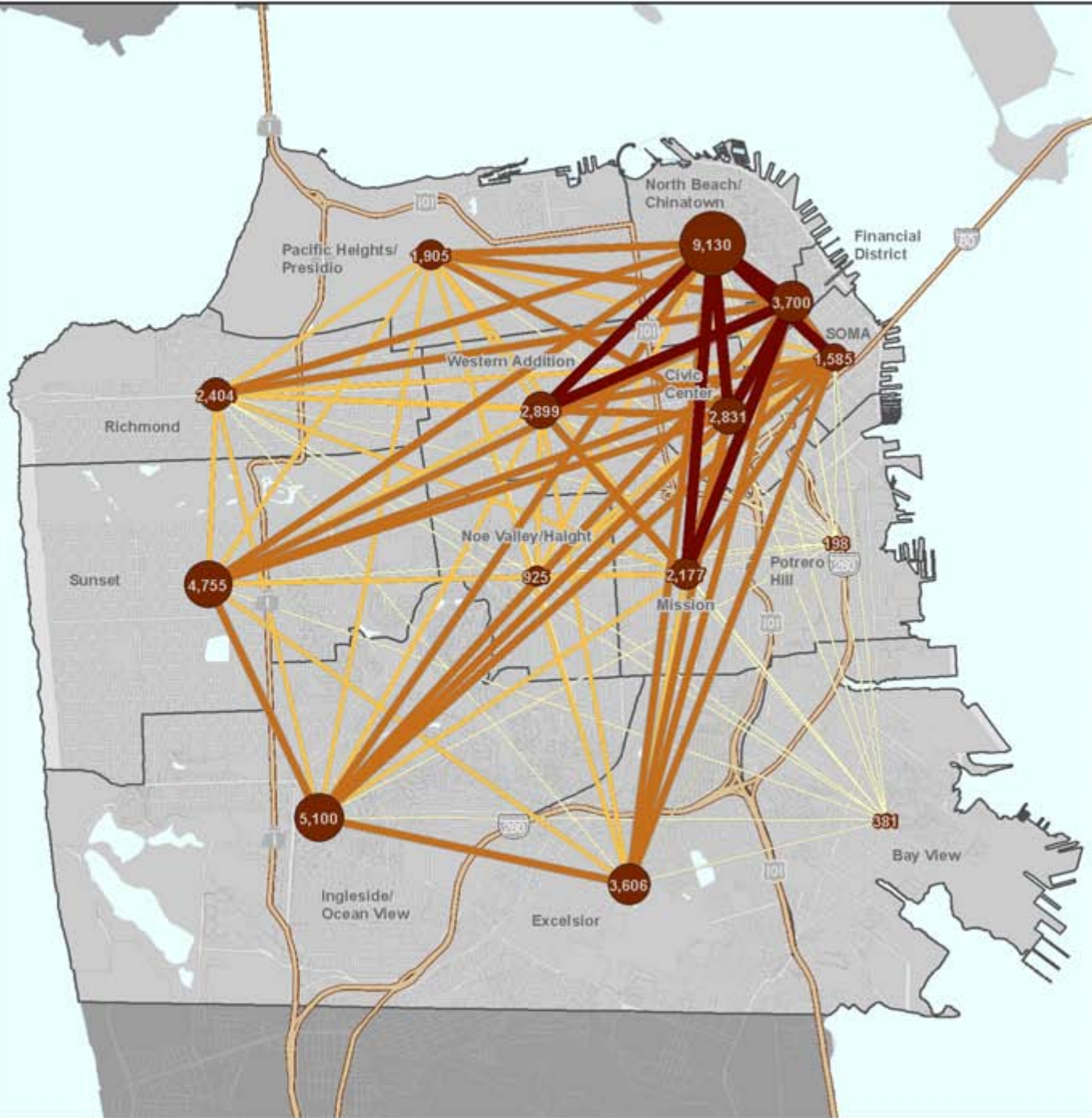
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Data Source: SFMTA, SFCTA CHAMP, SFGOV



# Daily Transit Travel



**Travel Between Zones**

- Above 9,000
- 6,000 - 9,000
- 3,000 - 6,000
- 500 - 3,000

**Travel Within Zones**

- 1,000 Total Transit Trips

- Freeway/Highway
- City Blocks

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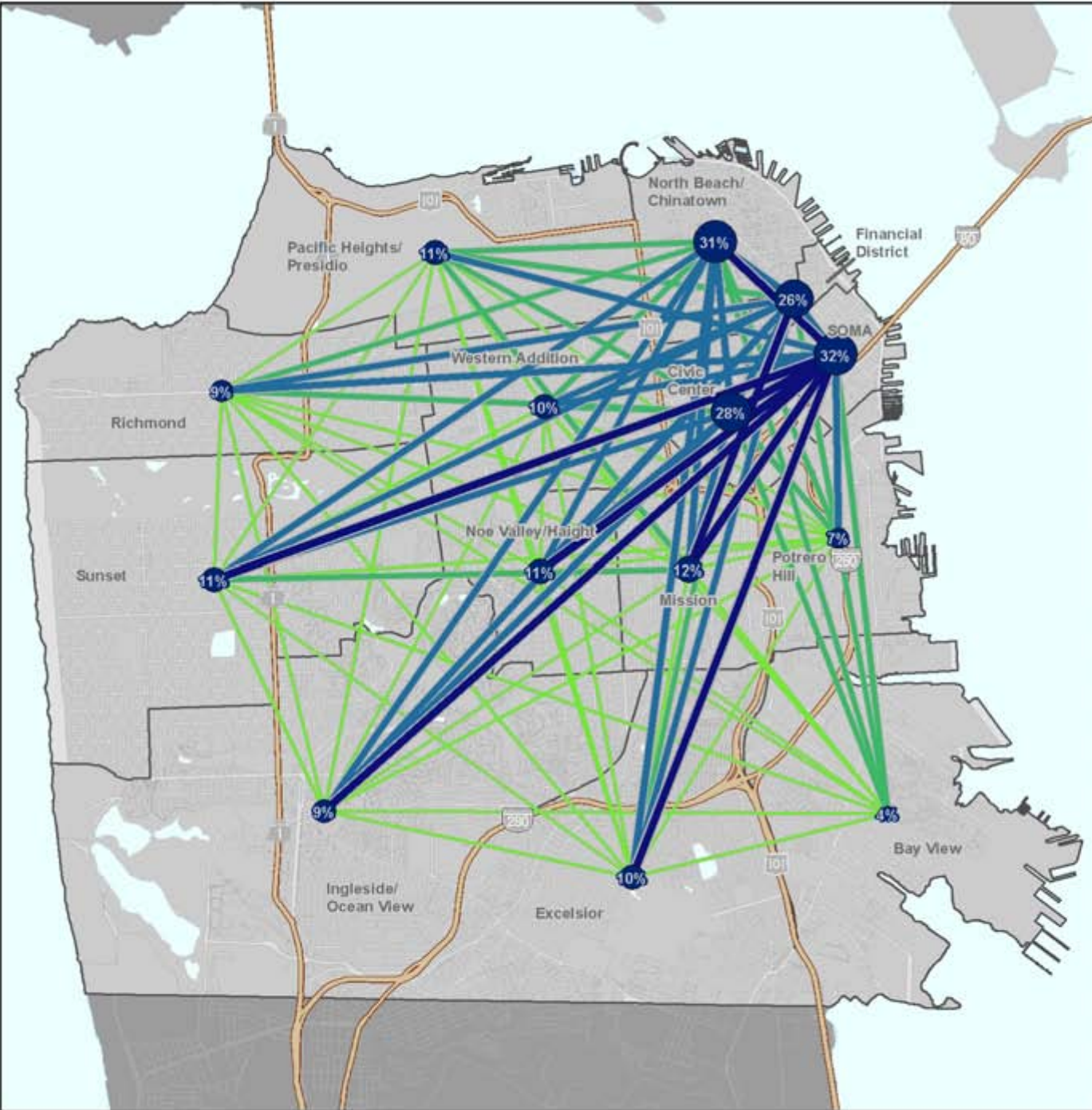


Data Source: SFMTA, SFCTA CHAMP, SFGOV





# Daily Transit Market Share Of Motorized Travel



## Daily Travel Between Zones

- █ 40% - Above
- █ 30% - 40%
- █ 20% - 30%
- █ 10% - 20%
- █ 0% - 10%

## Daily Travel Within Zones

5%

- █ Freeway/Highway
- City Blocks

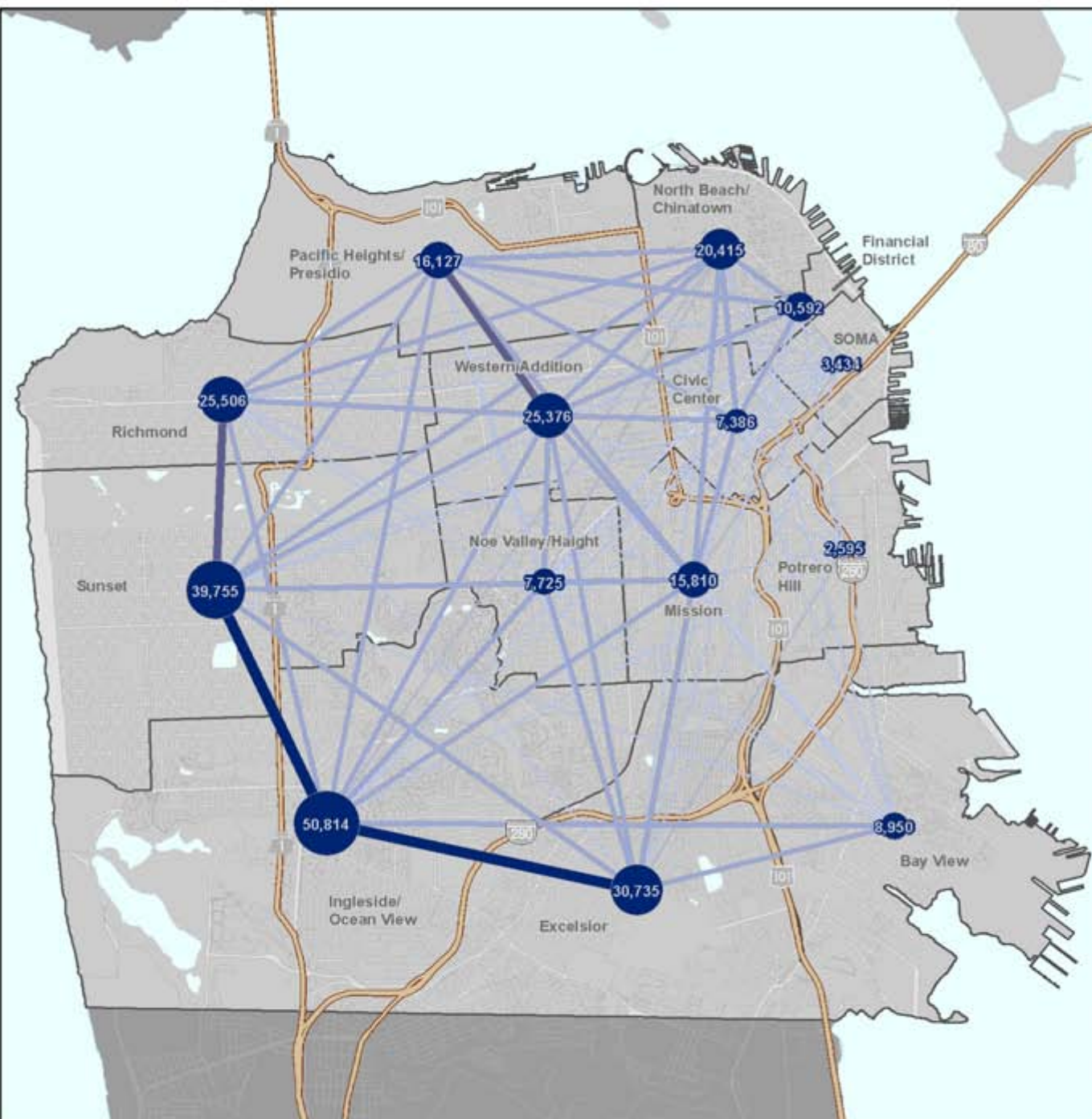
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Data Source: SFMTA, SFCTA CHAMP, SFGOV



# Daily Automobile Travel



## Travel Between Zones

- Above 45,000
- 30,000 - 45,000
- 15,000 - 30,000
- 5,000 - 15,000

## Travel Within Zones

- 1,000 Total Automobile Trips

Freeway/Highway

City Blocks

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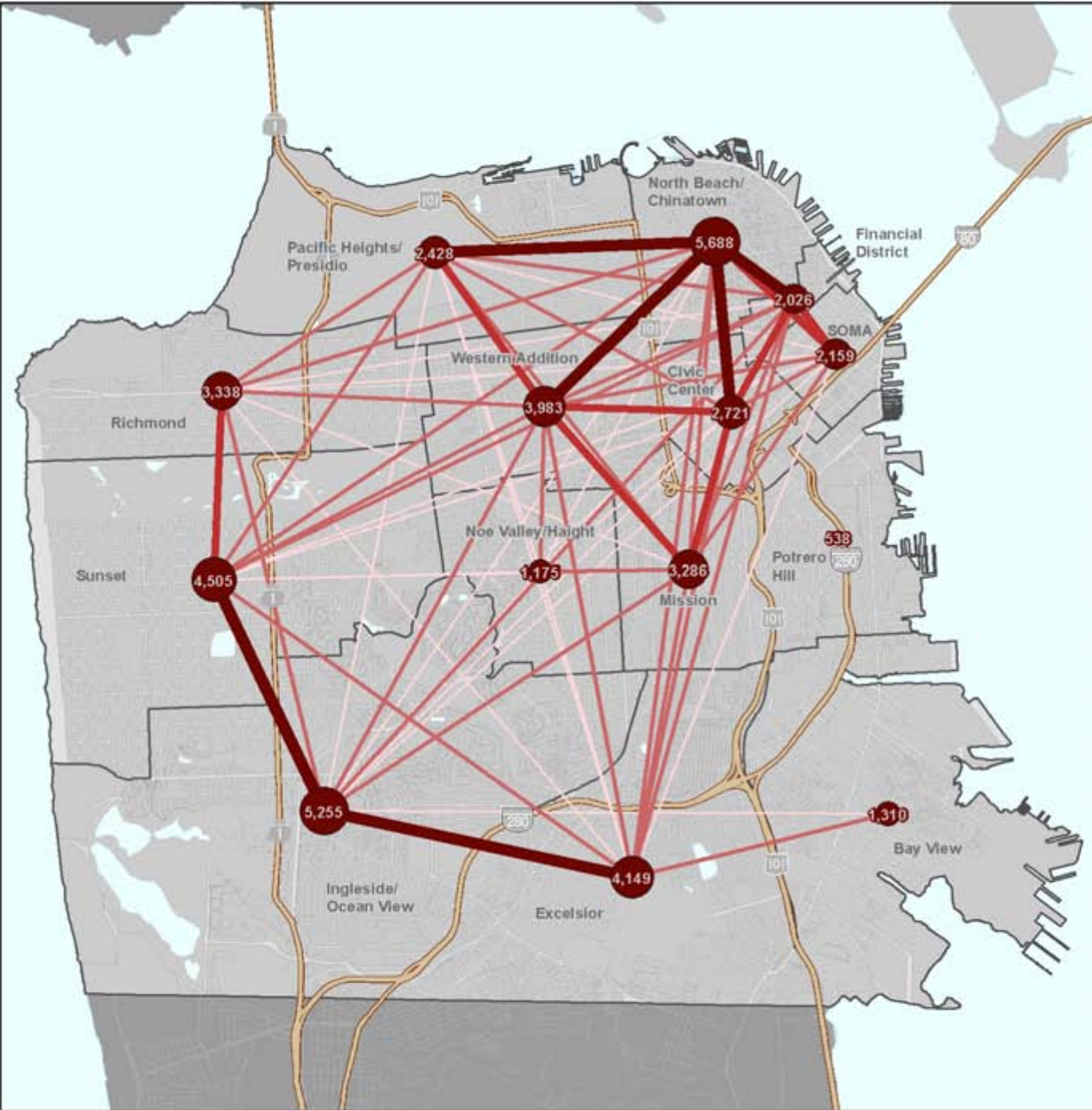
Data Source: SFMTA, SFCTA CHAMP, SFGOV



# SF Travel Markets – Peak/Midday

- Peak and Midday travel not substantially different patterns
  - Large movements in downtown, mixed use core, and outer perimeter districts
  - Midday has less radial orientation to patterns
  - Midday patterns more oriented to shorter internal district travel

# Total Hourly Peak Travel



## Hourly Travel Between Each Zone

- █ Above 3,500
- █ 2,500 - 3,500
- █ 1,500 - 2,500
- █ 1,000 - 1,500

## Hourly Travel Within Each Zone

● 1,000 Total Trips

- █ Freeway/Highway
- █ City Blocks

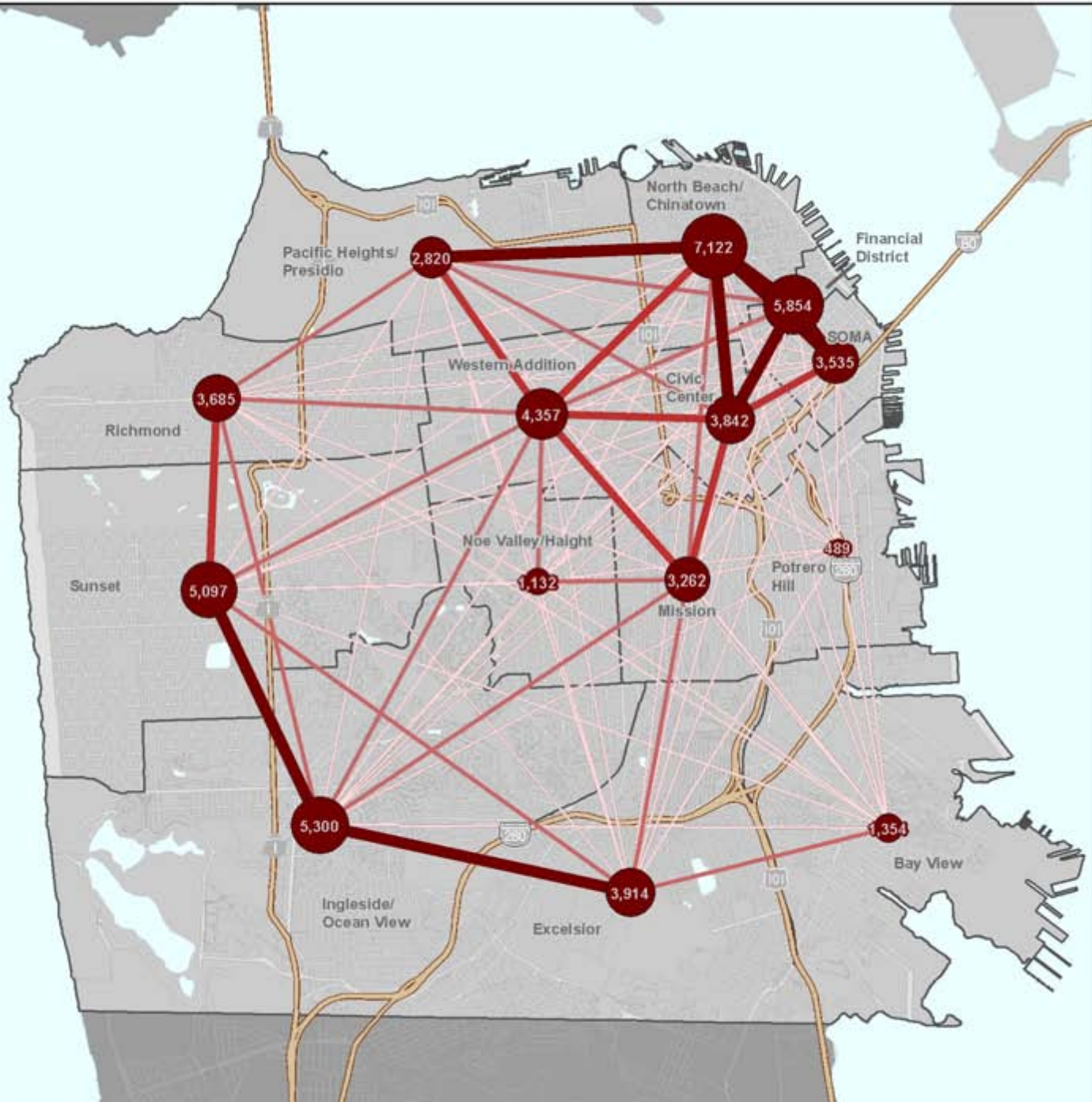
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Data Source: SFMTA, SFCTA CHAMP, SFGOV



# Hourly Total Midday Travel (9:00am - 3:29pm)



## Total Hourly Travel Between Each Zone



## Total Hourly Travel Within Each Zone



█ Freeway/Highway

City Blocks

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Data Source: SFMTA, SFCTA CHAMP, SFGOV

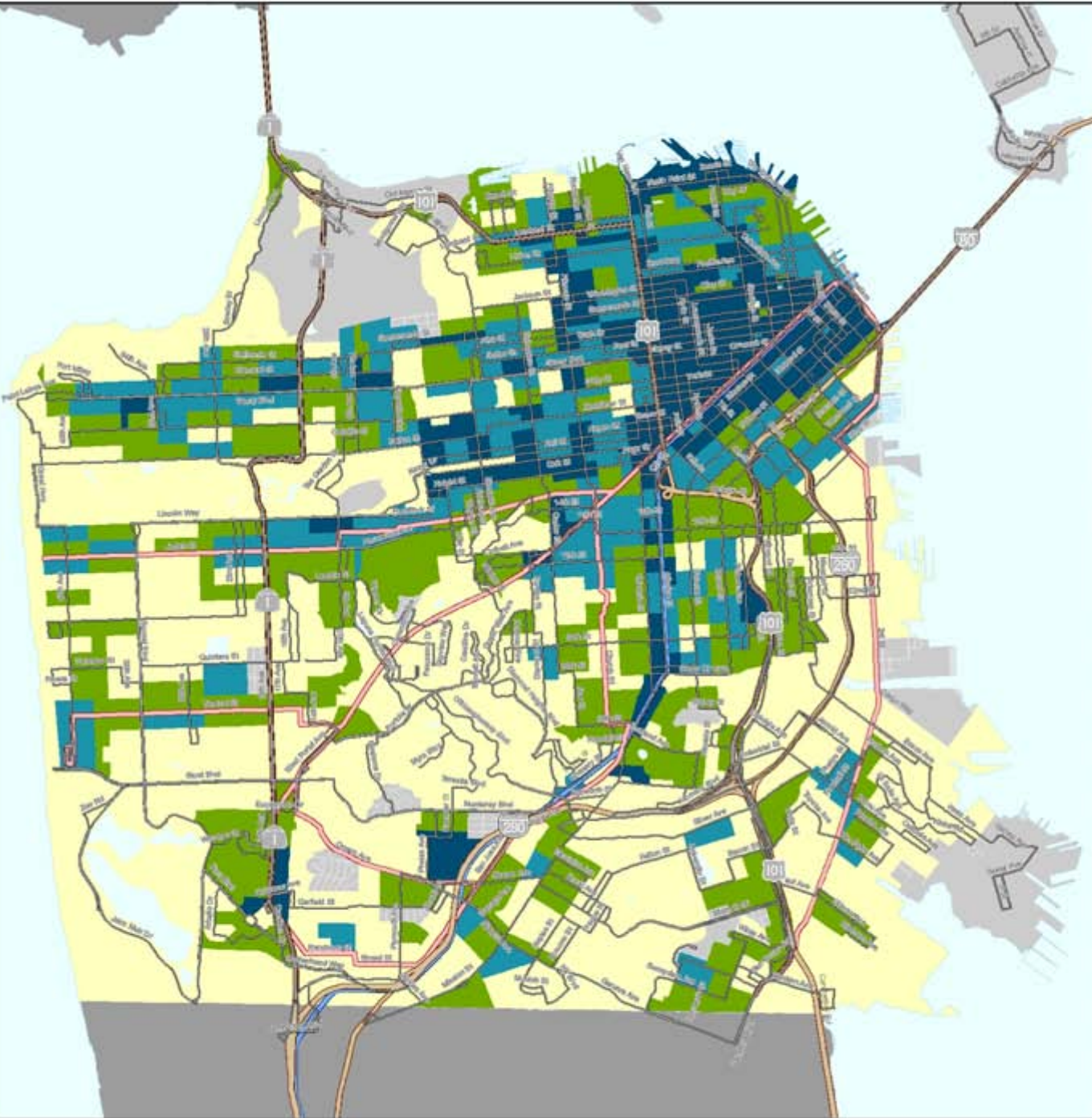




# SFCTA/Muni On Board Rider Survey

- 2005 Survey collected over 13,000 responses from Muni riders regarding their travel patterns and preferences
- Muni Rider origins & destinations concentrated:
  - In mixed use urban core/downtown
  - Along major transit corridors
  - Regional nodes outside of the mixed use core
    - UCSF – Parnassus
    - San Francisco State University
    - City College of San Francisco – Main Campus
    - Others

# Density of Muni Rider Survey Origins & Destinations



## Responses Per Acre By TAZ

- Greater Than 80
- 40 - 80
- 20 - 40
- 20 & Below
- No Responses

- Freeway/Highway
- Existing Bus Network
- Muni Metro Line
- BART Line

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Data Source: SFMTA, SFCTA, SFGOV

# SFCTA/Muni Survey - Market Groups

## ■ Employment

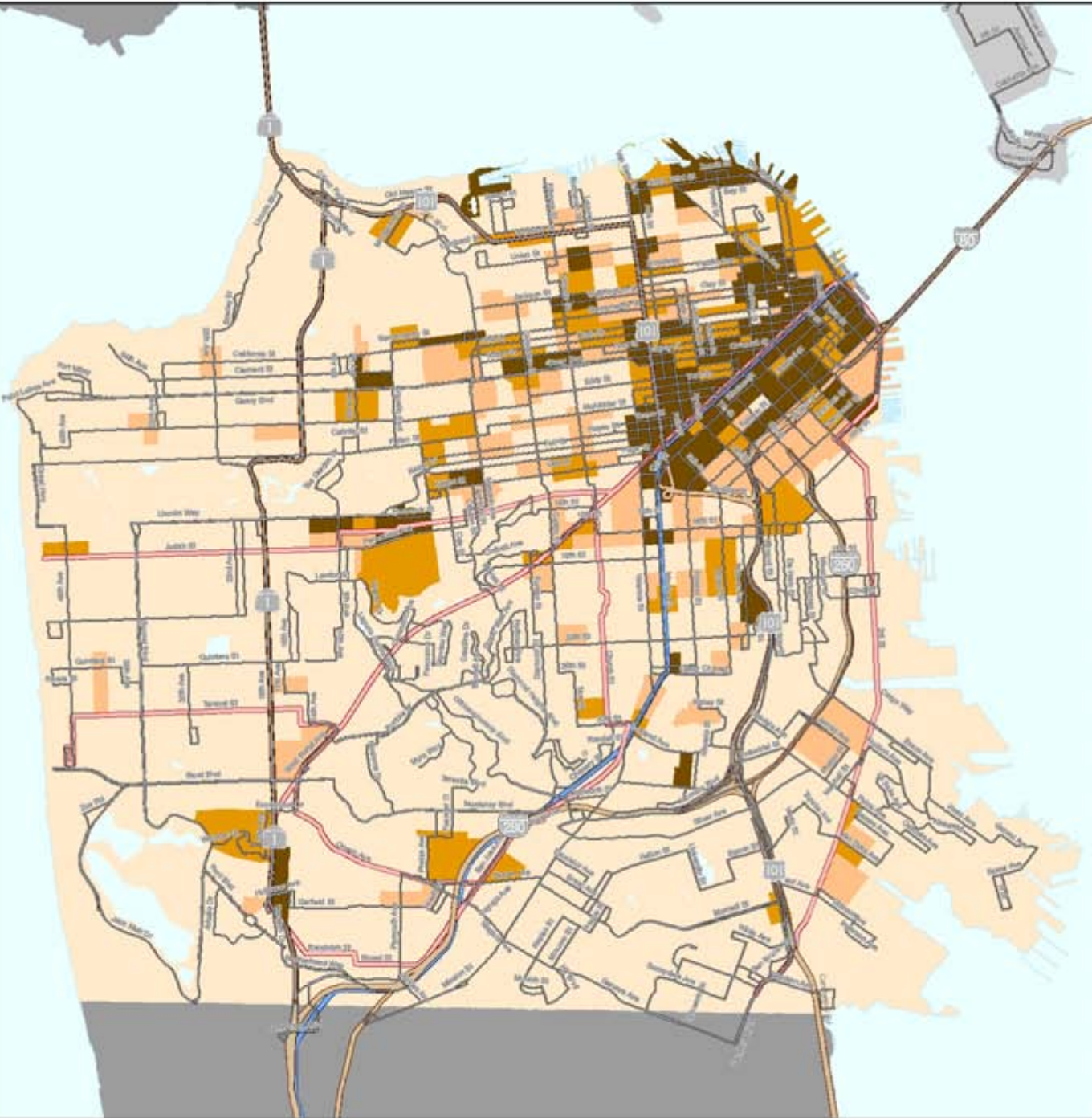
- Focused heavily in areas adjacent to Market Street
- Highest Muni travel volumes between Sunset district and Downtown
- Regional nodes are highest employment destinations in the periphery

## ■ Schools

- Transit shares to major colleges and universities in SF above 40%
- Enrollments are forecasted to increase and Muni service is seen as vital in helping to accommodate this growth
- Muni's highest school travel is between Ingleside/Oceanview and the Sunset



# Density of Muni Rider Survey Work Locations



## Locations Per Acre By TAZ

- Greater Than 20
- 10 - 20
- 5 - 10
- 5 & Below
- No Responses

- Freeway/Highway
- Existing Bus Network
- Muni Metro Line
- BART Line

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Data Source: SFMTA, SFCTA, SFGOV



# Daily Muni Transit School Travel

2004/05 Rider Survey



### School Travel Between Zones

- 3,000 - Above
- 2,000 - 3,000
- 1,000 - 2,000
- 500 - 1,000

### School Travel Within Zones

Total Transit Trips

- Freeway/Highway
- City Blocks

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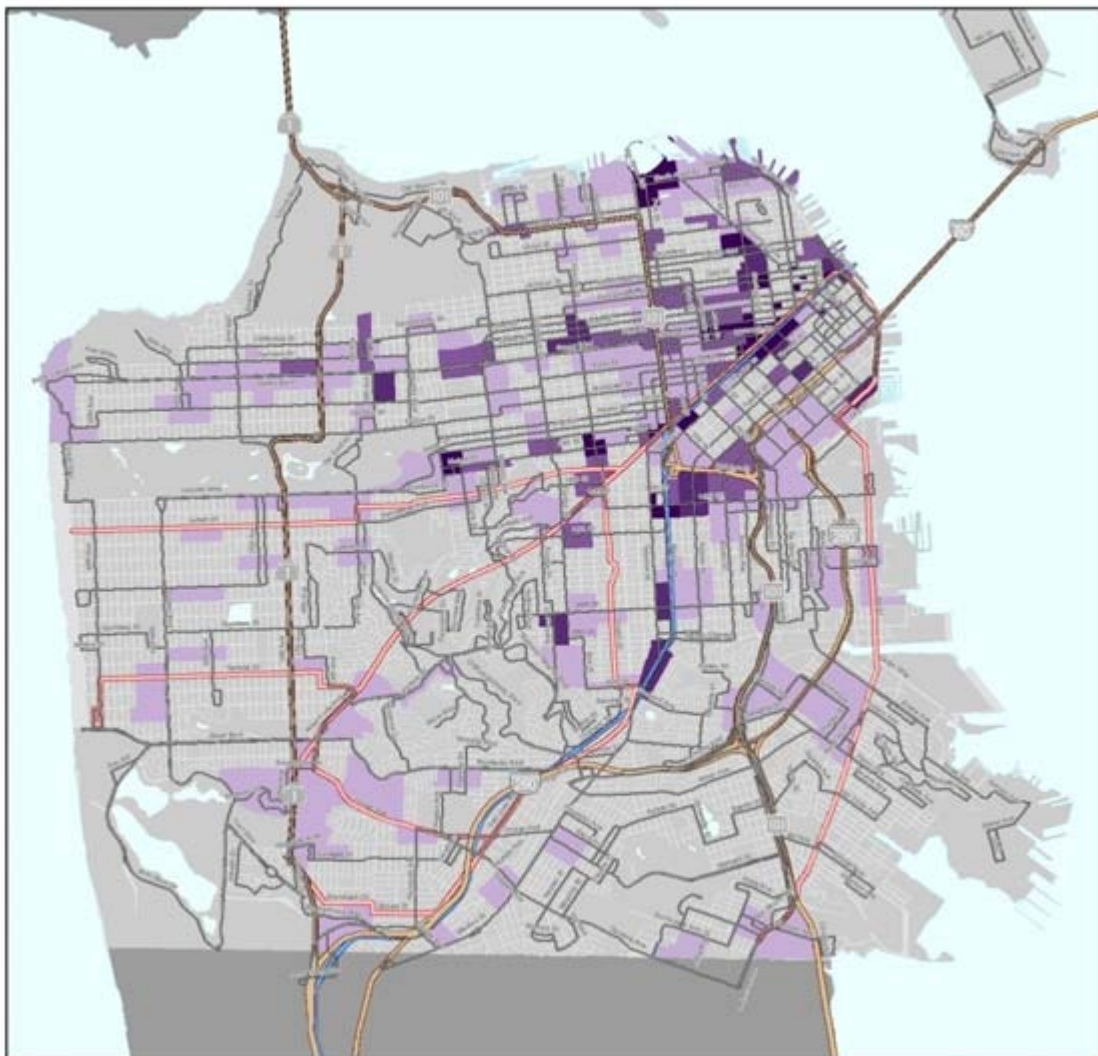


Data Source: SFMTA, SFCTA Rider Survey, SFGOV, MTC



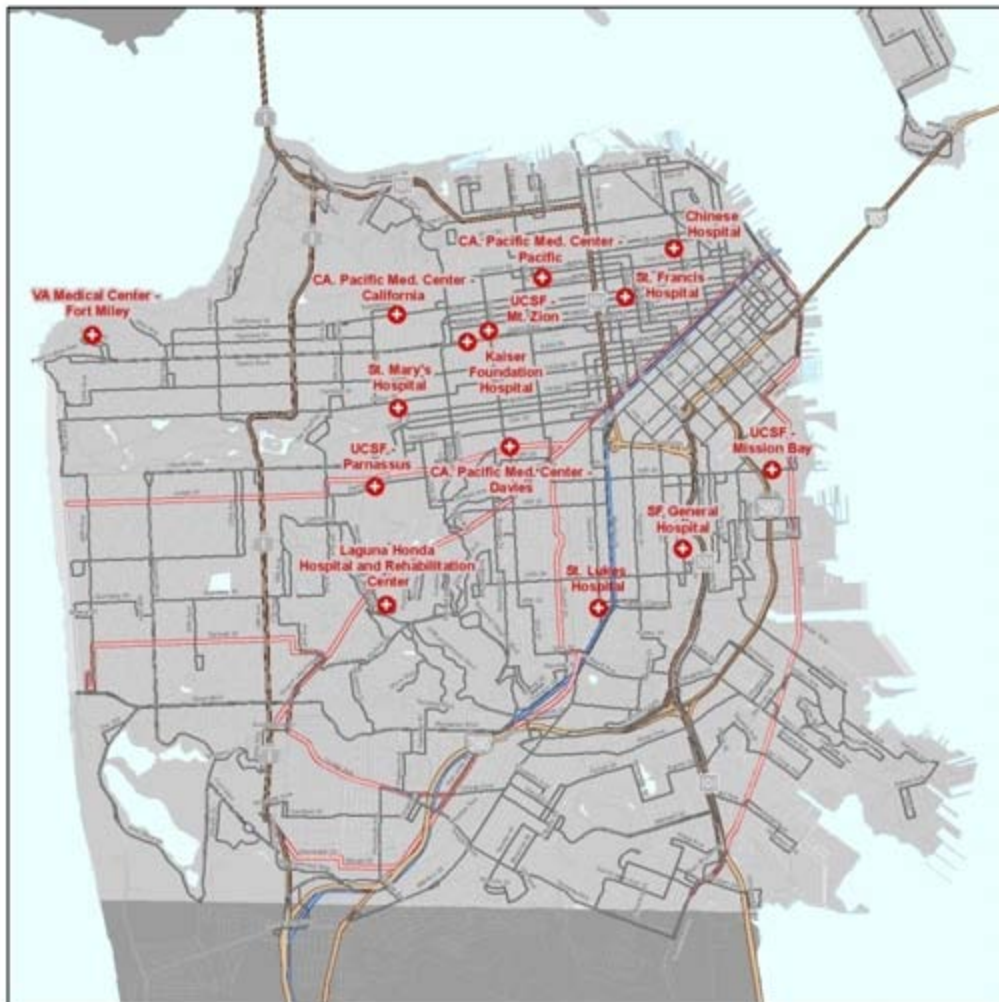
# SFCTA/Muni Survey - Market Groups

- Shopping
  - Highly concentrated in North Beach/Chinatown
  - Present along major transit corridors as well



# Medical Center Travel

- Hospitals are located around the perimeter of the urban core on major transit lines
- Development of UCSF-Mission Bay represents a new opportunity for Muni and the T Line service





# Conclusions

- Urban environment and travel demand differ between urban core and the outer districts.
- Transit success currently seen in radial commute travel to/within urban core, but most trips are not radial.
- Transit could be more successful for short distance local travel (e.g., Downtown).
- Significant unmet demand for peripheral travel between outer districts.
- Transit expected to play increasing role in collegiate travel as well as planned developments.



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## Transit Effectiveness Project

### Task 3 – Market Analysis Preliminary Draft Findings (Part 2)



March 21, 2007





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## Consumer Research





# Market-Based Planning

**Private Sector**

**Polaroid**

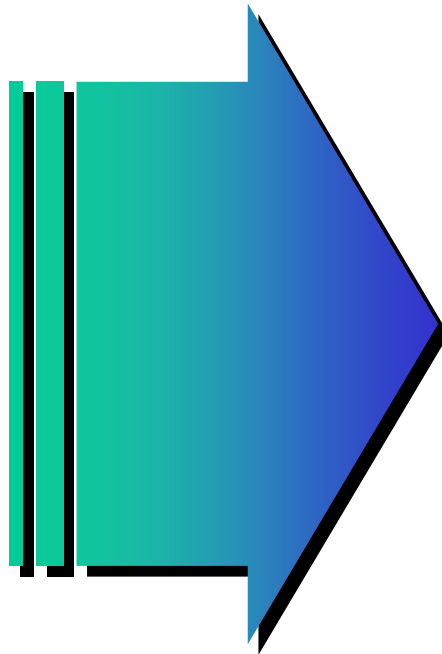
**AT&T**

**Fidelity Investments**

**Toyota**

**CITIZENS BANK**

**ERICSSON**



**Transit Properties**

**MTA** | Municipal Transportation Agency

**BART**

**WATER TRANSIT AUTHORITY**

**WTA**

**samTrans**

**UTA**

**pace**

**VTA** SANTA CLARA Valley Transportation Authority

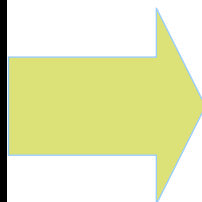
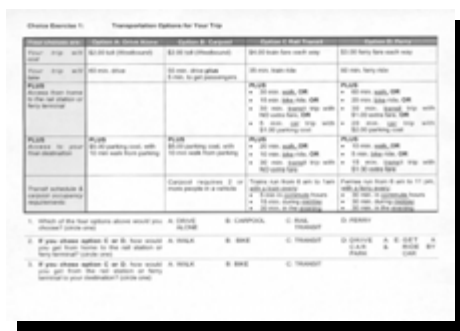
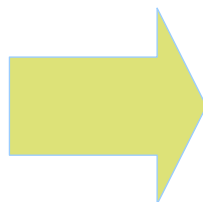
**MTS**

# Understanding Traveler Attitudes Attitude-Based Market Research Survey

Recruit Survey

Choice Experiments

Attitudinal Questions



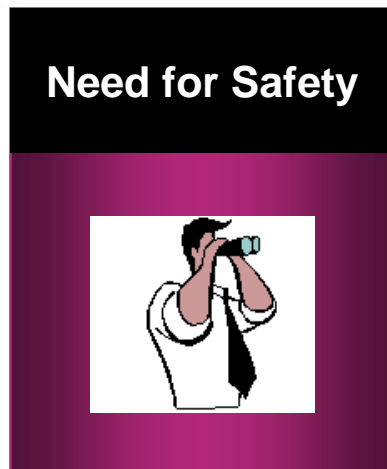
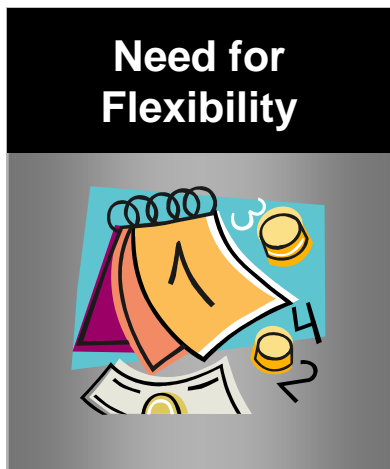
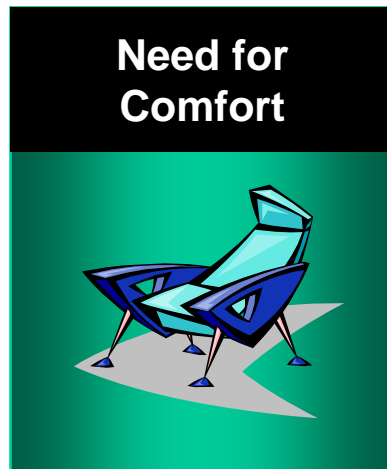
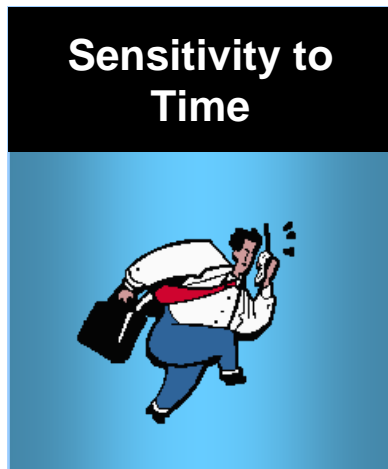
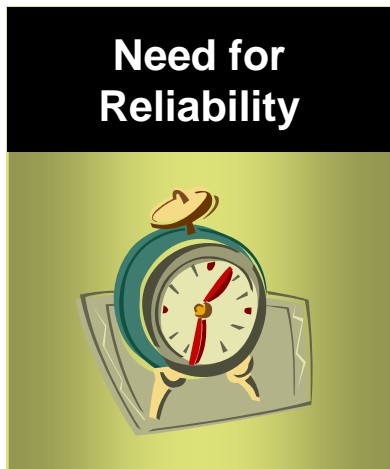
## Random Sampling

579 completed surveys  
English, Cantonese and Spanish  
Trip Information  
Demographic Data

## Compare driving and transit options

## Measure Sensitivity

# Six Key Transportation Attitudes







# Need for Reliability

**More likely to ride transit if it always showed up on time**

**Would change form of travel if it saves time**

**Prefer travel option that has predictable travel time**

**If delayed, want to know the length of delay**

**Cannot be late, even on occasion**

**Occasional long delays affect my travel choices**



# Need for Comfort

**Don't like transit because buses and trains are too crowded**

**Don't ride Muni because some passengers are too noisy**

**Privacy is important when I travel**

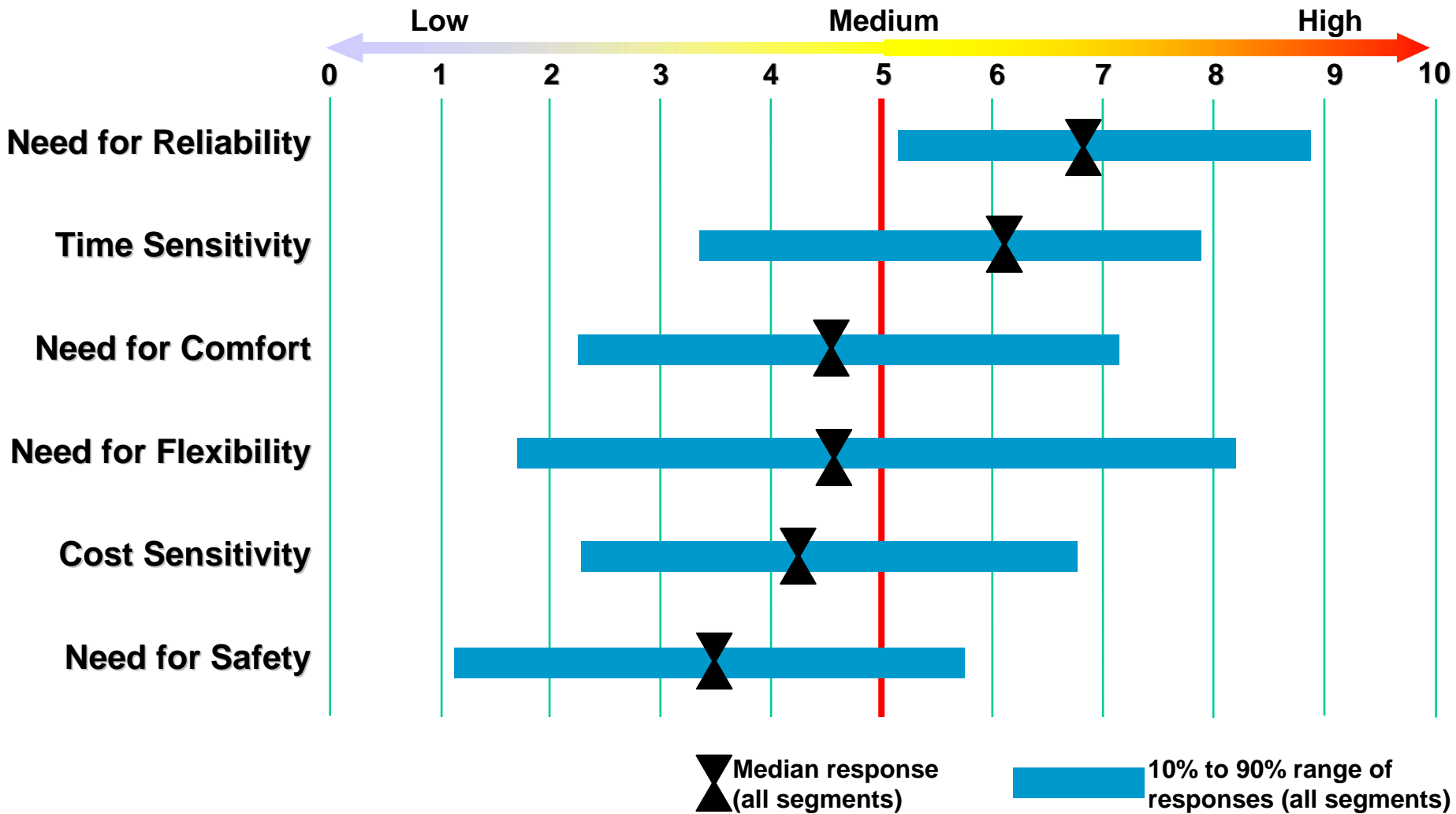
**Important to have comfortable seats when I travel**

**Avoid making certain trips at certain times because it is too stressful**

**Willing to pay more if buses and trains were less crowded**

# Six Key Transportation Attitudes

## Total Adult Population











# Seven San Francisco Market Segments

	Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
Segment A						
Segment B						
Segment C						
Segment D						
Segment E						
Segment F						
Segment G						

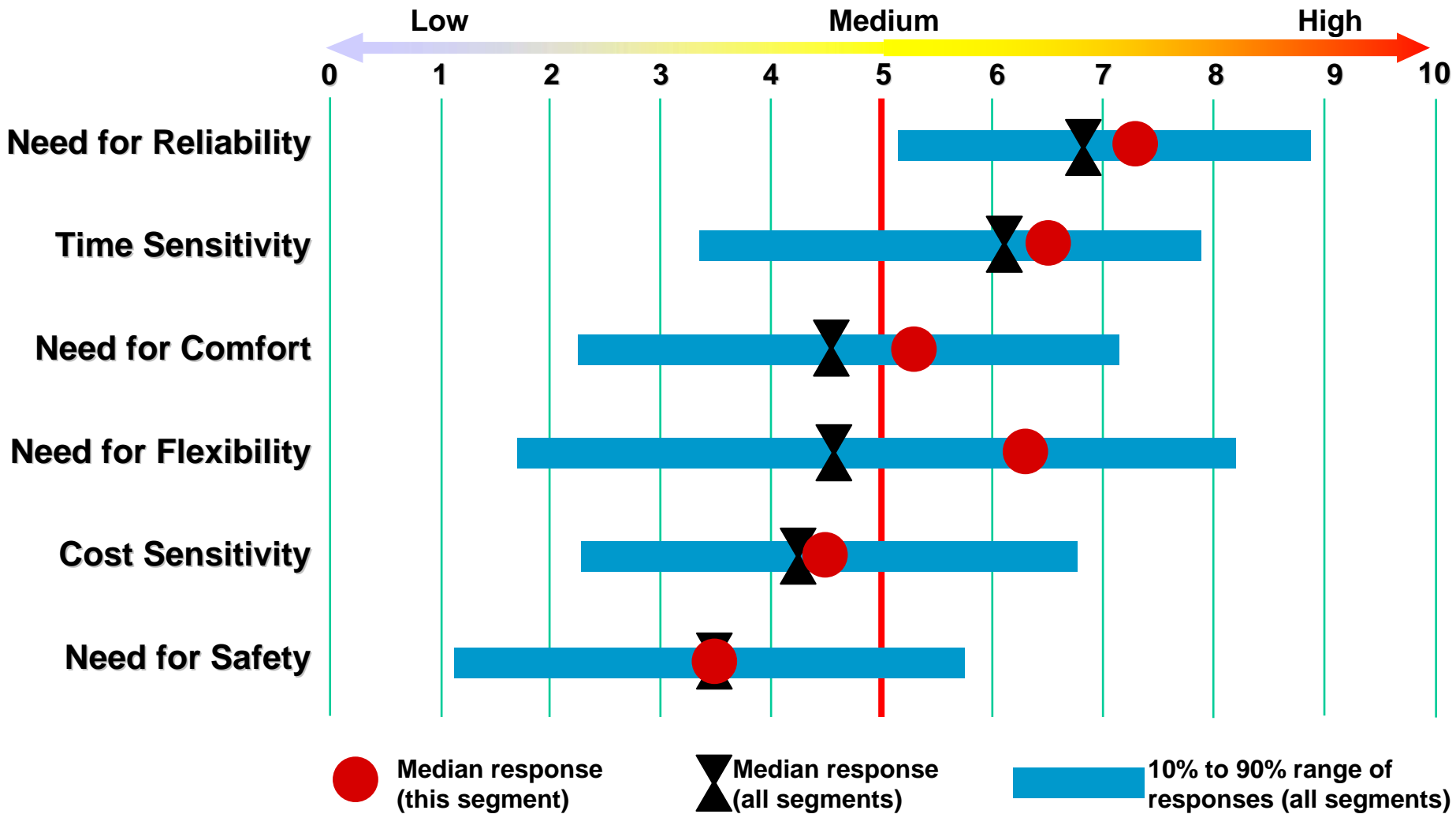
High   
 Medium   
 Low   
 Very Low

# Market Segment A

Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					







- **48,000 Adults** (7% of total)
- **Demographics** (compared to other segments)
  - More likely to have one or two children
  - More likely to have two+ vehicles available in household

# Market Segment A



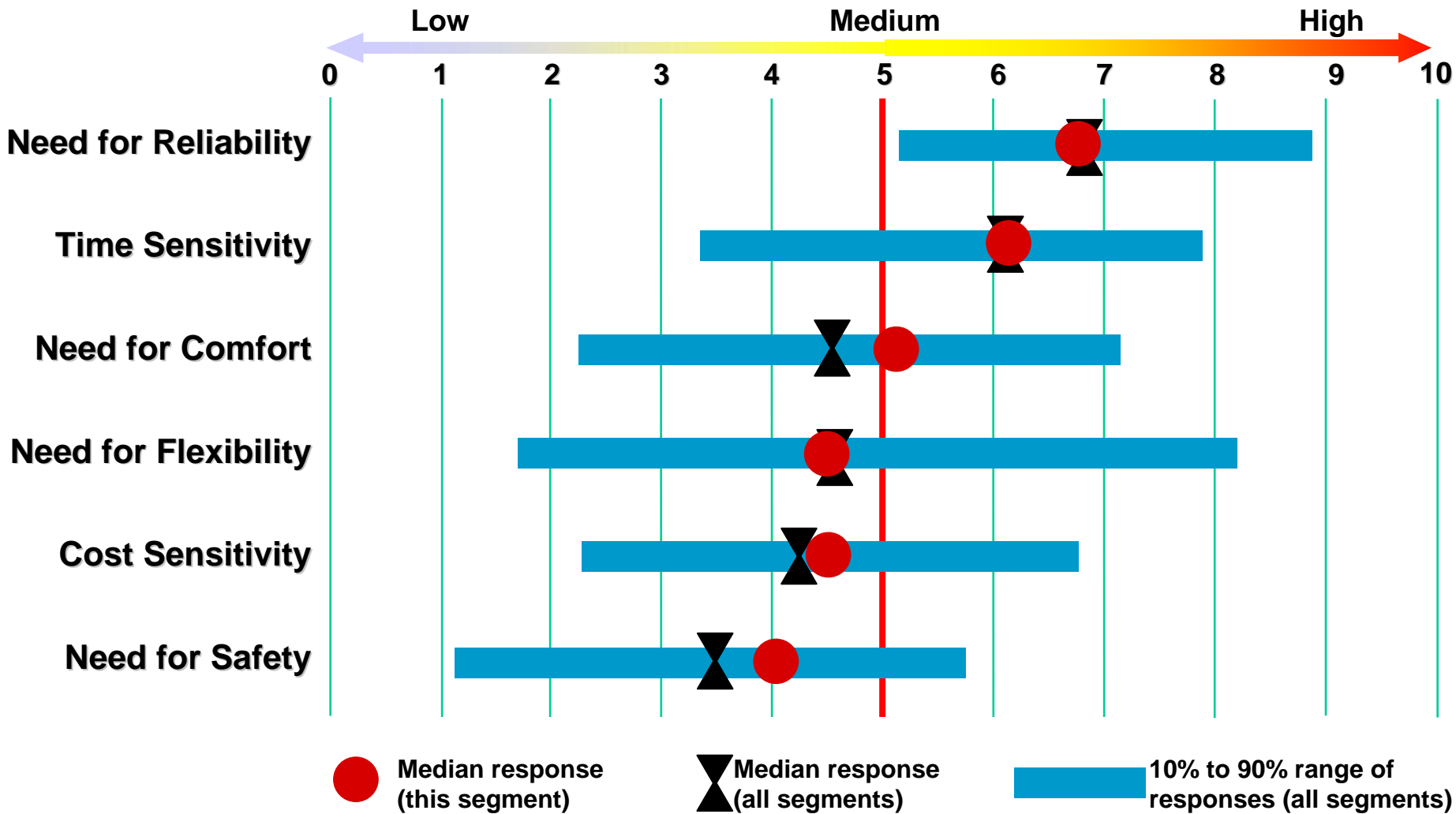


# Market Segment B







Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					

- **119,000 Adults** (17% of total)
- **Demographics** (compared to other segments)
  - More likely to have no kids
  - More likely to be one car households
  - More likely to be students
  - More likely to have incomes between \$35-\$70K
  - More likely to be between ages 45-64

# Market Segment B

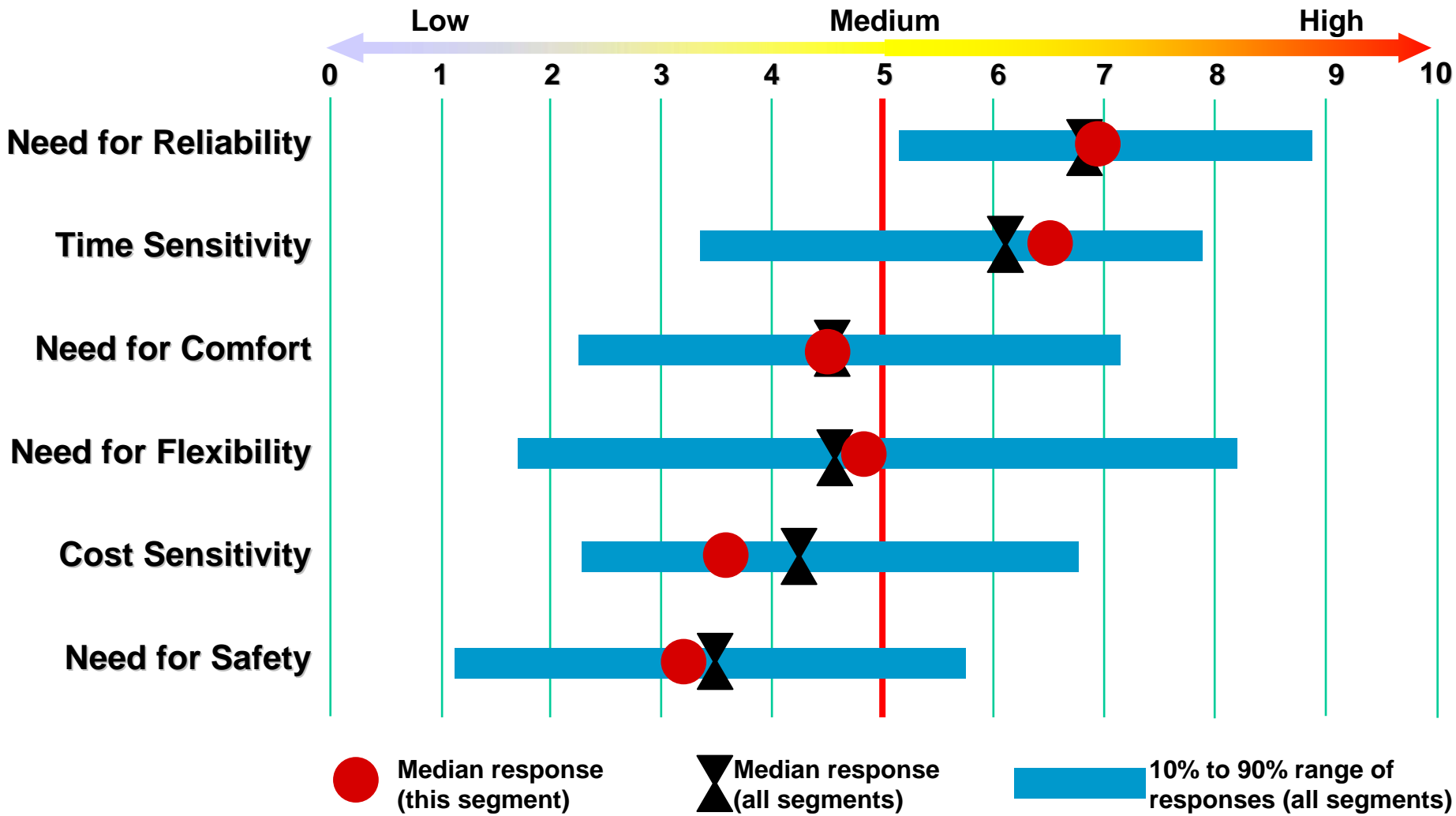


# Market Segment C

Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					







- **299,000 Adults** (42% of total)
- **Demographics** (compared to other segments)
  - More likely to be married; less likely single
  - More likely to have two+ workers in household
  - More likely to have two+ vehicles available in household
  - More likely to work full-time
  - More likely to have income greater than \$100K
  - More likely to be age 25-44
  - More likely to have completed graduate school

# Market Segment C



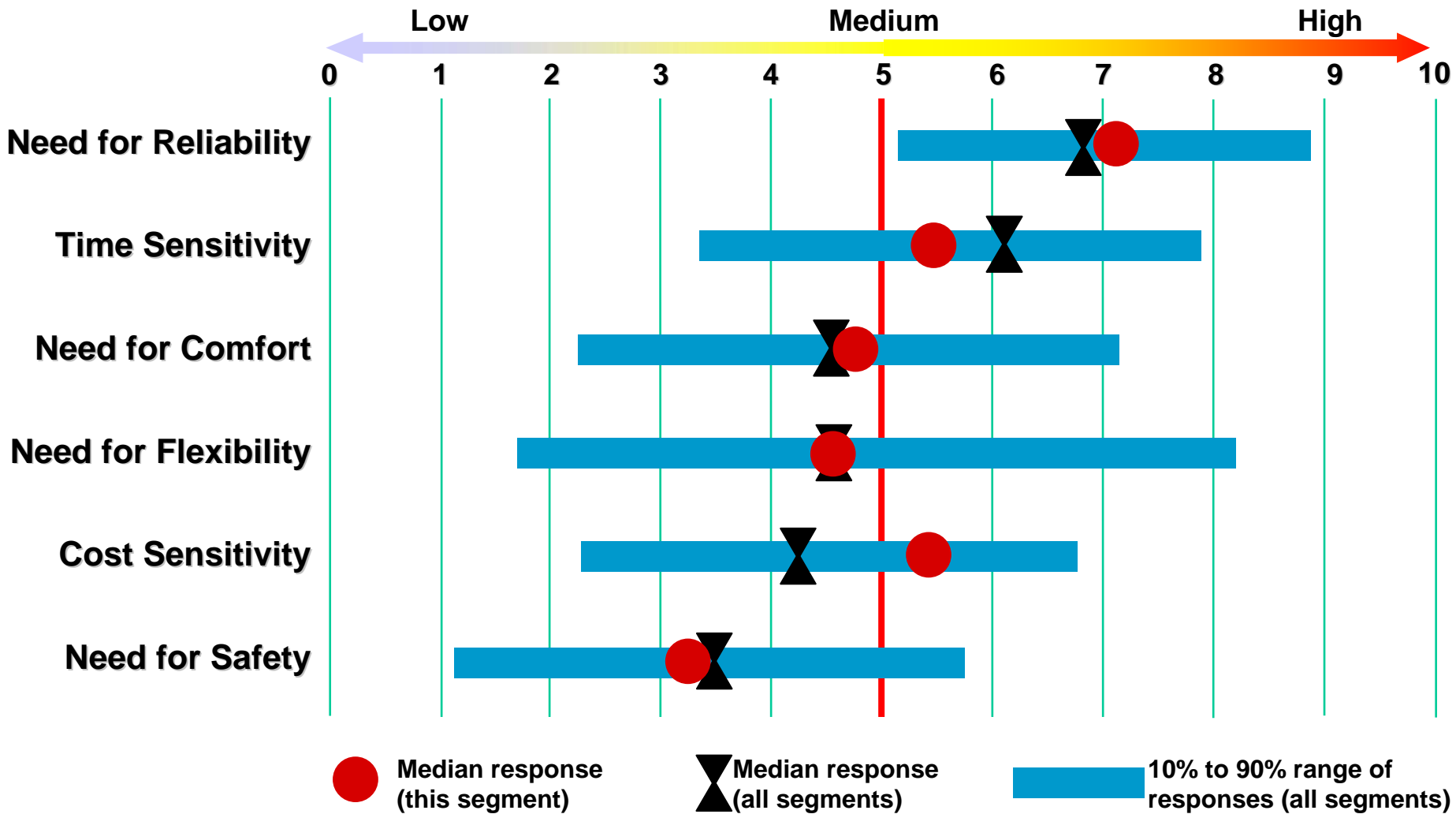


# Market Segment D







Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					

- **56,000 Adults** (8% of total)
- **Demographics** (compared to other segments)
  - Most likely to be single with a household size of 1 person
  - Almost universally do NOT have any automobiles available
  - Most likely to have an income of less than \$50K
  - Most ethnically diverse

# Market Segment D

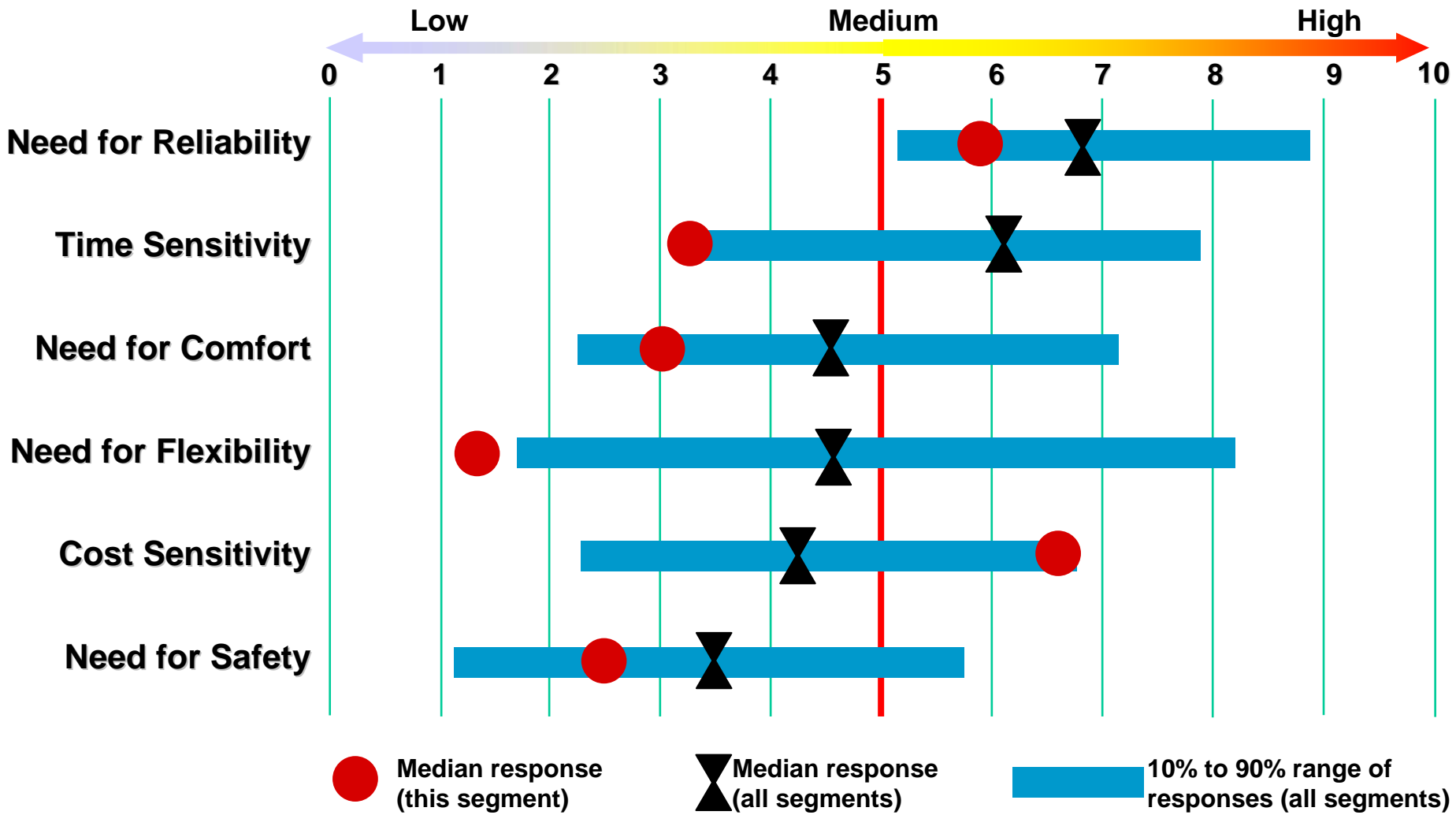


# Market Segment E

Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					







- **51,000 Adults** (7% of total)
- **Demographics** (compared to other segments)
  - Less likely to have children
  - Most likely to have zero workers in household
  - More likely to have zero automobiles
  - More likely to be retired, female, widowed, and age 65+
  - More likely to be Asian and speak a foreign language
  - More likely to have not completed high school

# Market Segment E



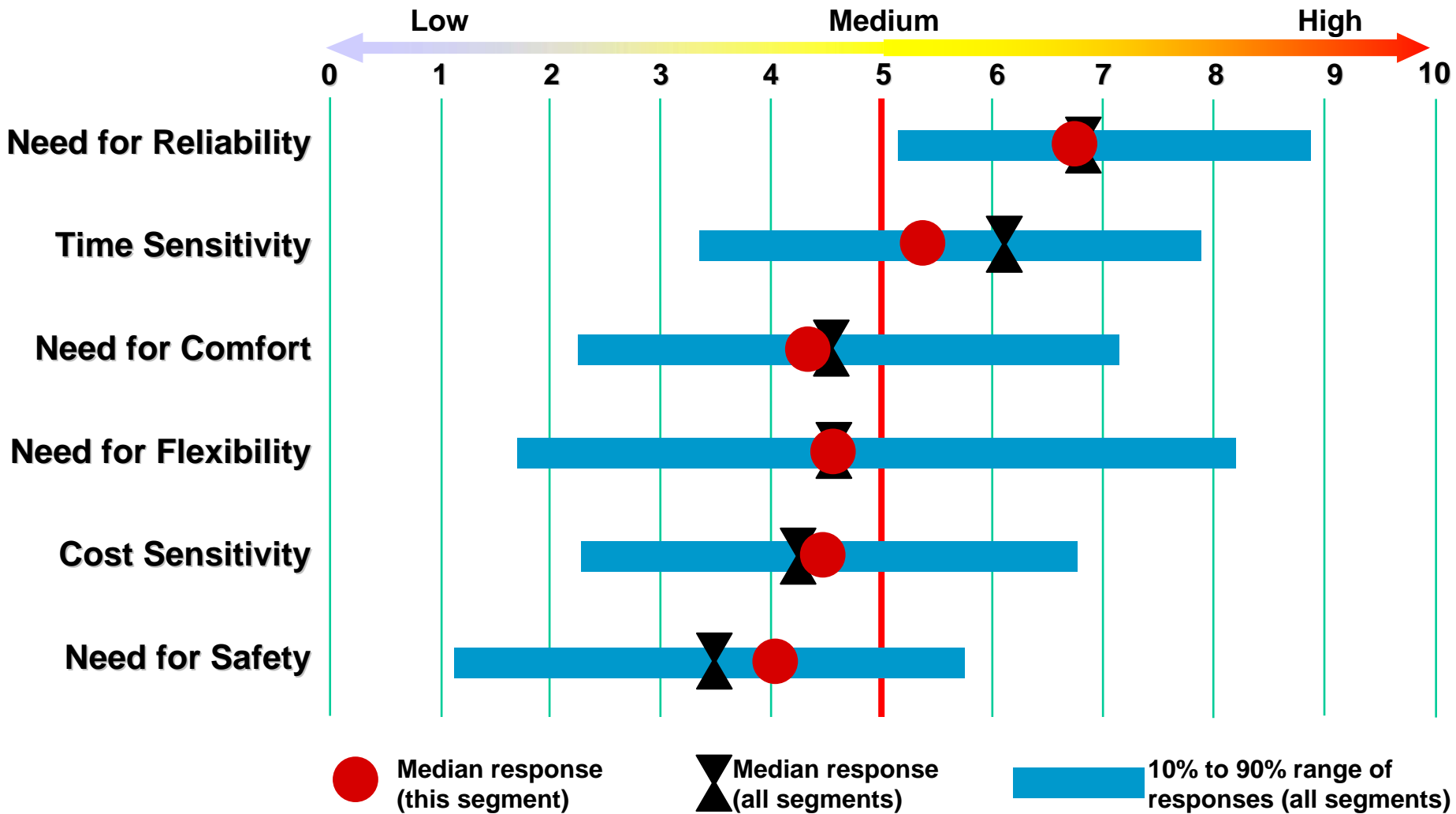


# Market Segment F







Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					

- **36,000 Adults** (5% of total)
- **Demographics** (compared to other segments)
  - More likely to have two or more children with a large HH size
  - More likely to have zero automobiles
  - More likely to have an incomes between \$50-\$75K; (half refused this question)
  - More likely to be female
  - Hispanics were most likely to be in this market segment (23%)

# Market Segment F

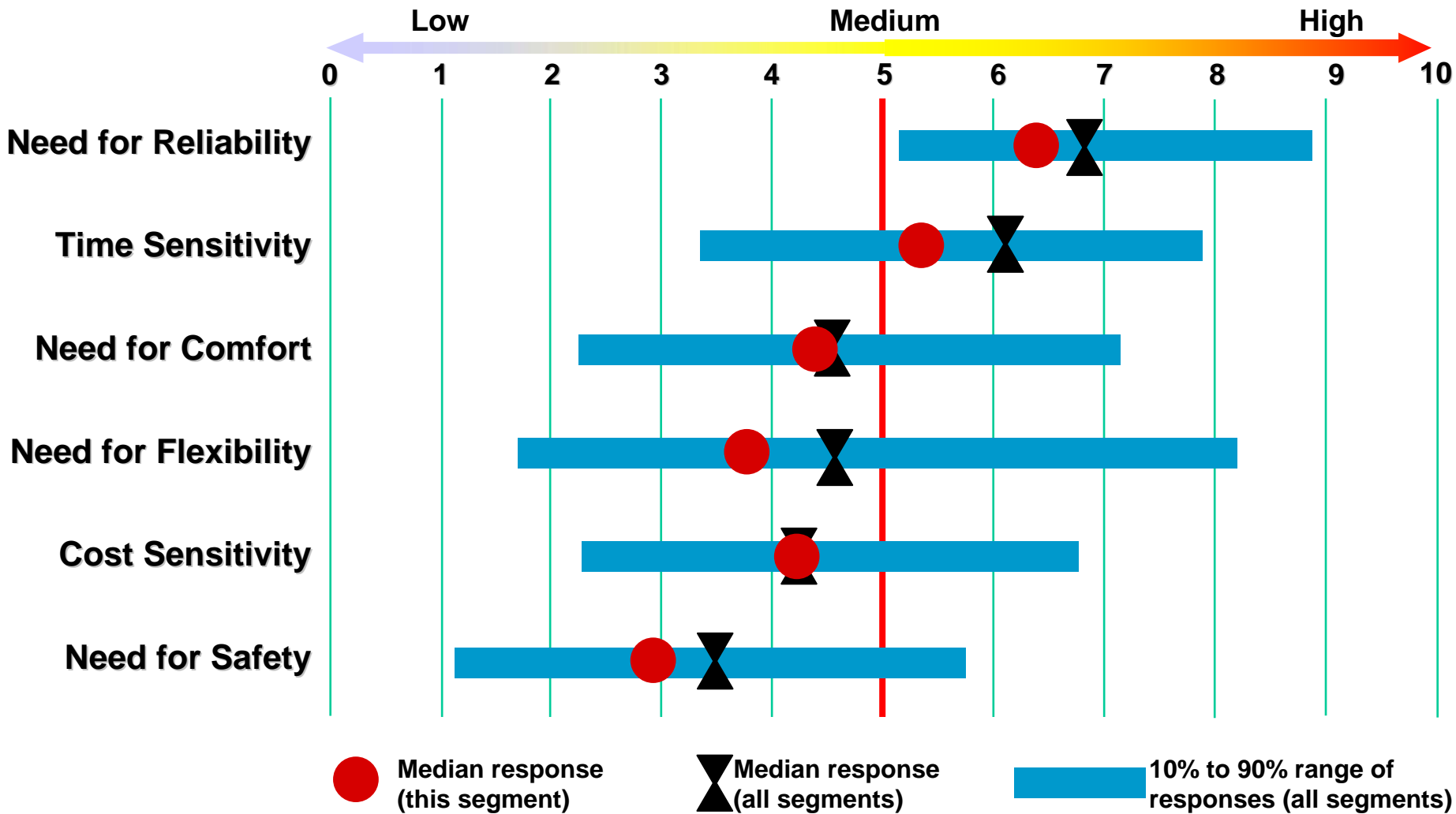


# Market Segment G

Need for Reliability	Sensitivity to Time	Need for Comfort	Need for Flexibility	Sensitivity to Cost	Need for Safety
					

- **104,000 Adults** (15% of total)
- **Demographics** (compared to other segments)
  - More likely to be widowed or divorced
  - More likely to have small household size (1 or 2 persons) and no children
  - More likely to have 1 auto available
  - More likely to be a part-time worker
  - More likely to be male; aged 65+; and highly educated

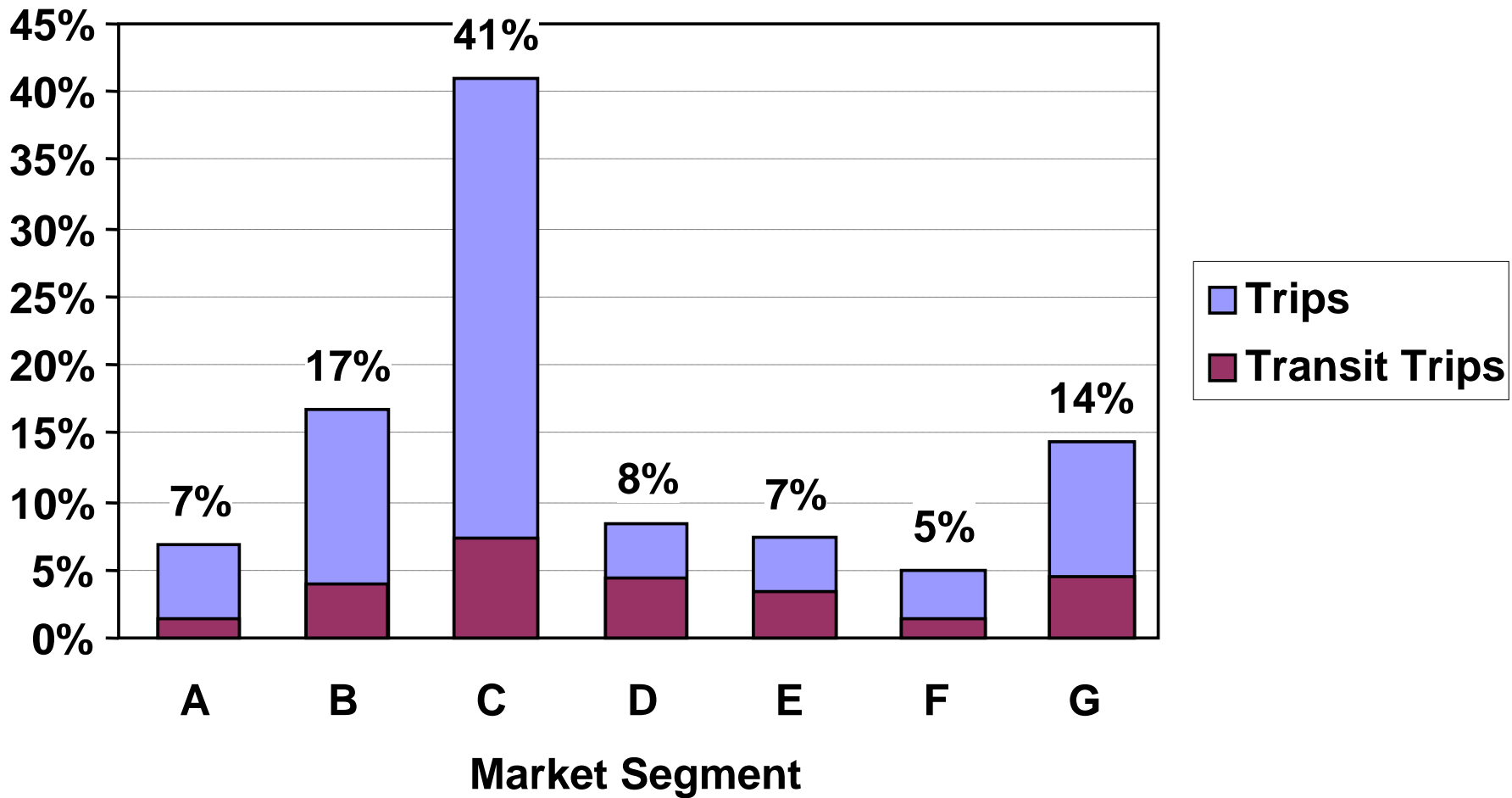
# Market Segment G





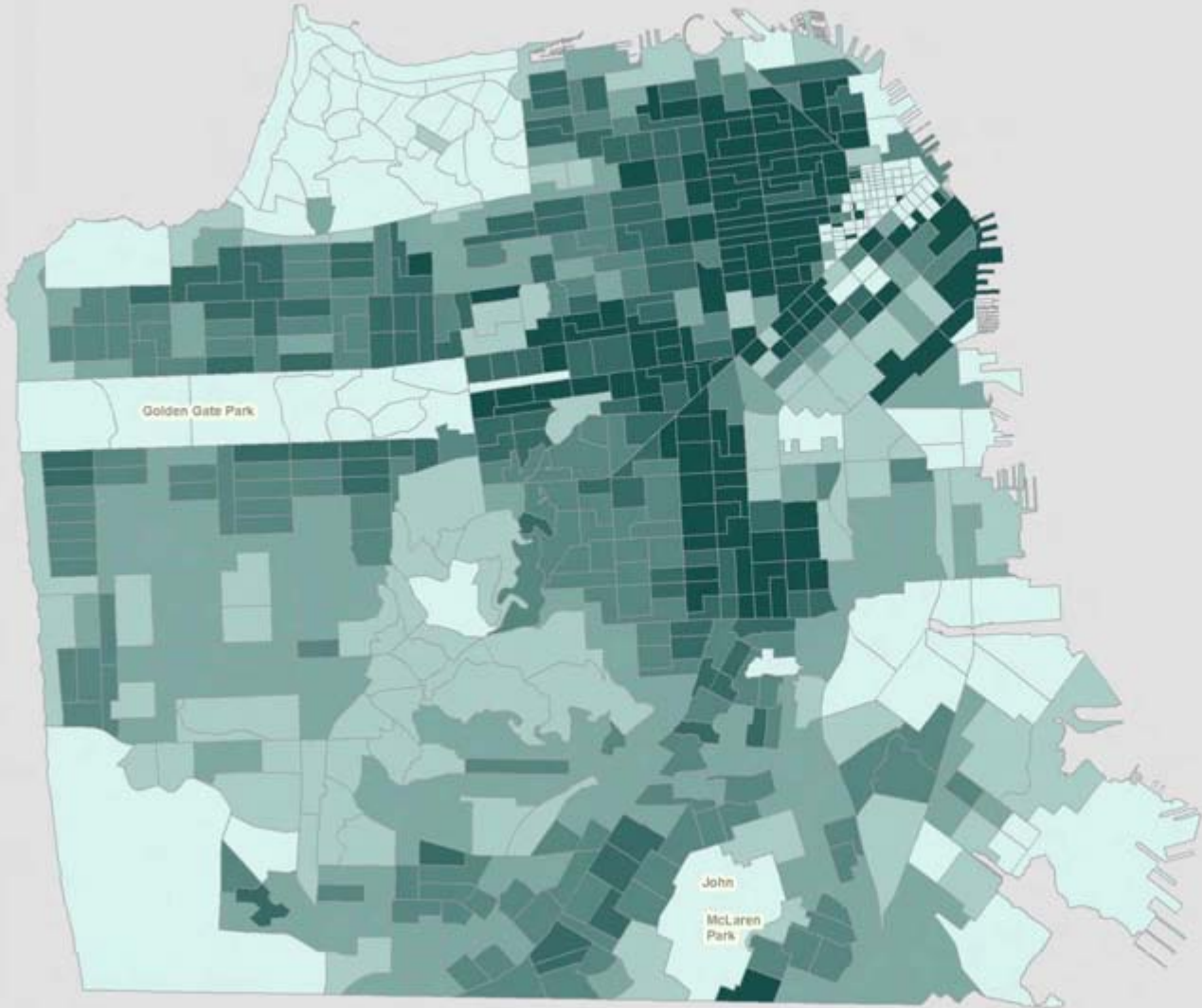
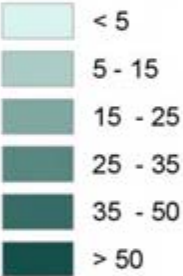
# Market Segment Sizes

## Percent of Trips



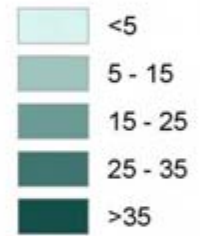
# High Need for Reliability Adults Density

Adults per Acre

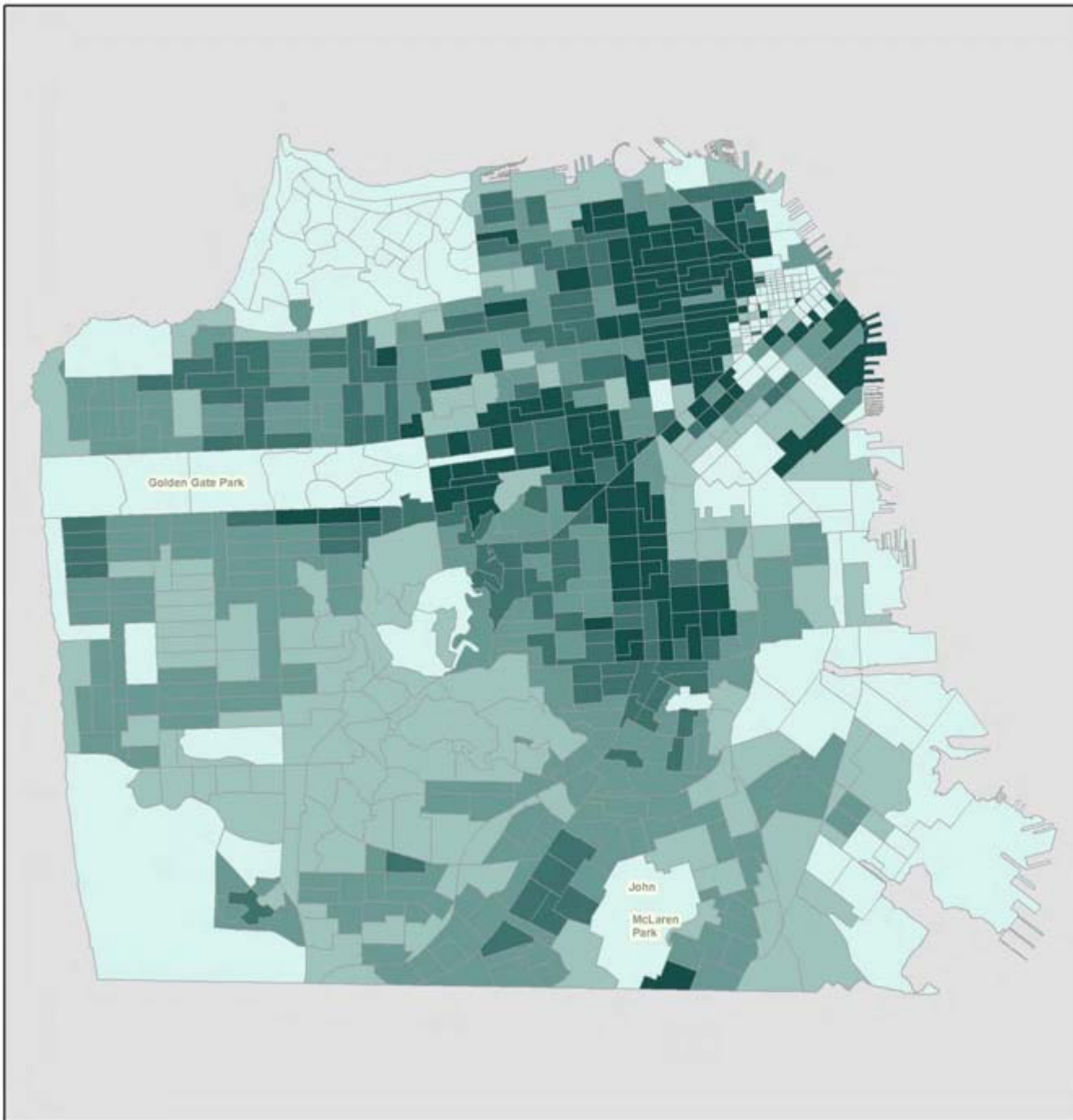


## High Sensitivity to Time Adults Density

Adults per Acre

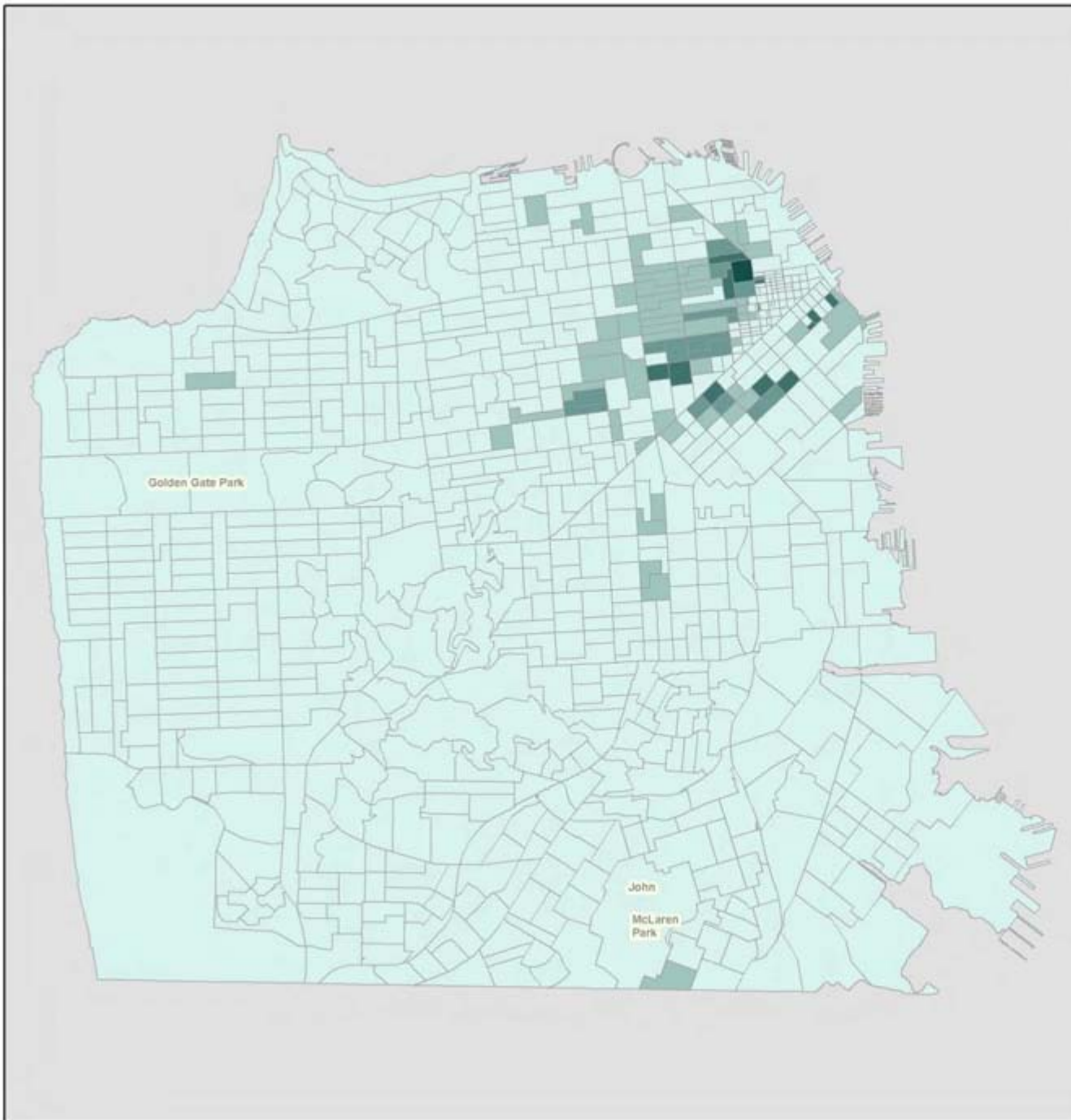
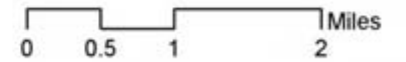
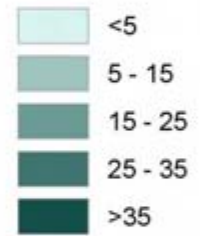


0 0.5 1 2 Miles



## High Sensitivity to Cost Adults Density

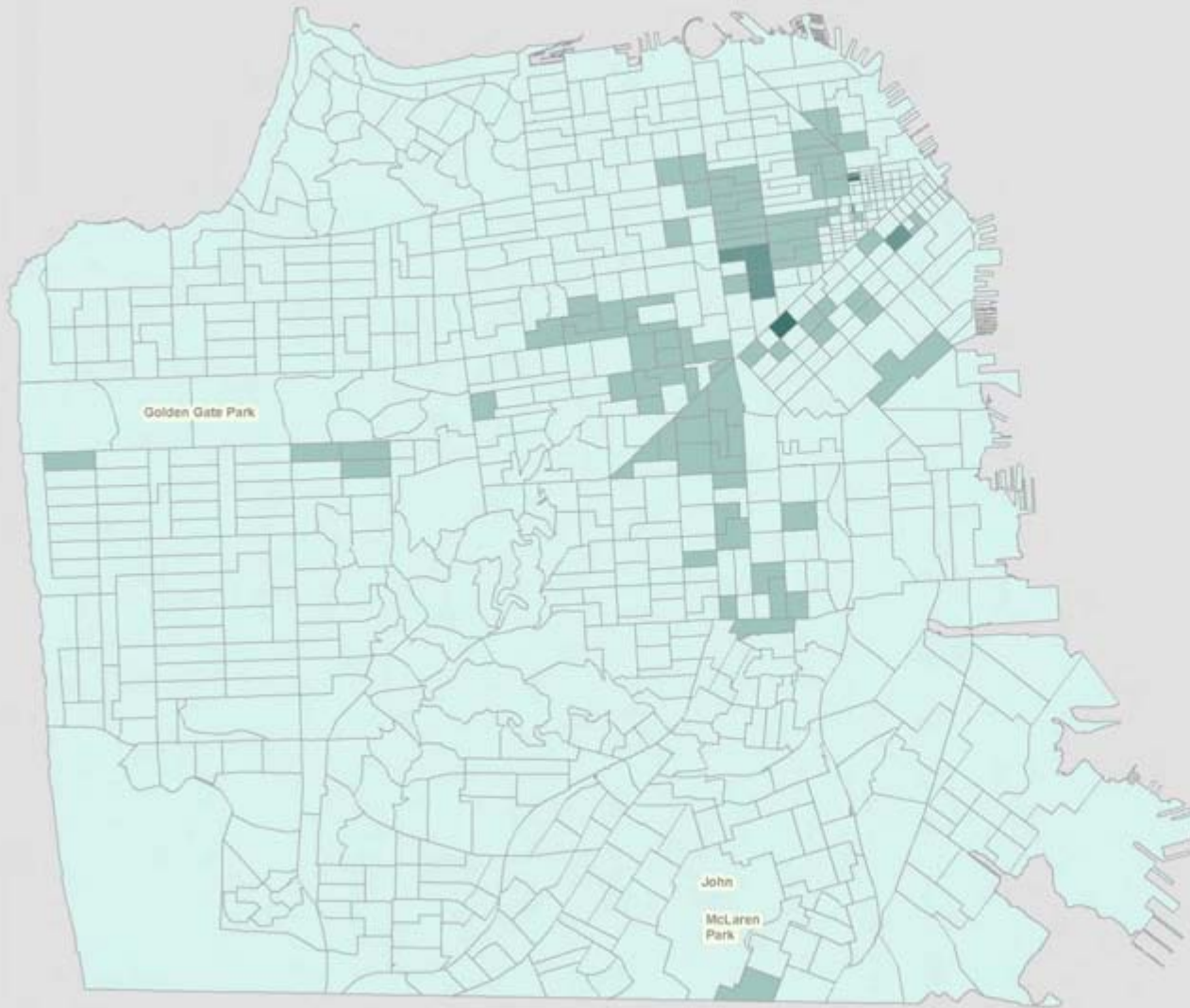
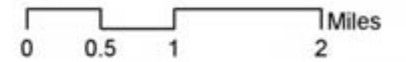
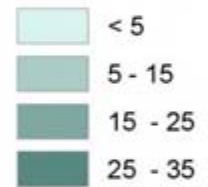
Adults per Acre





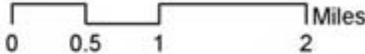
## High Need for Flexibility Adults Density

Adults per Acre



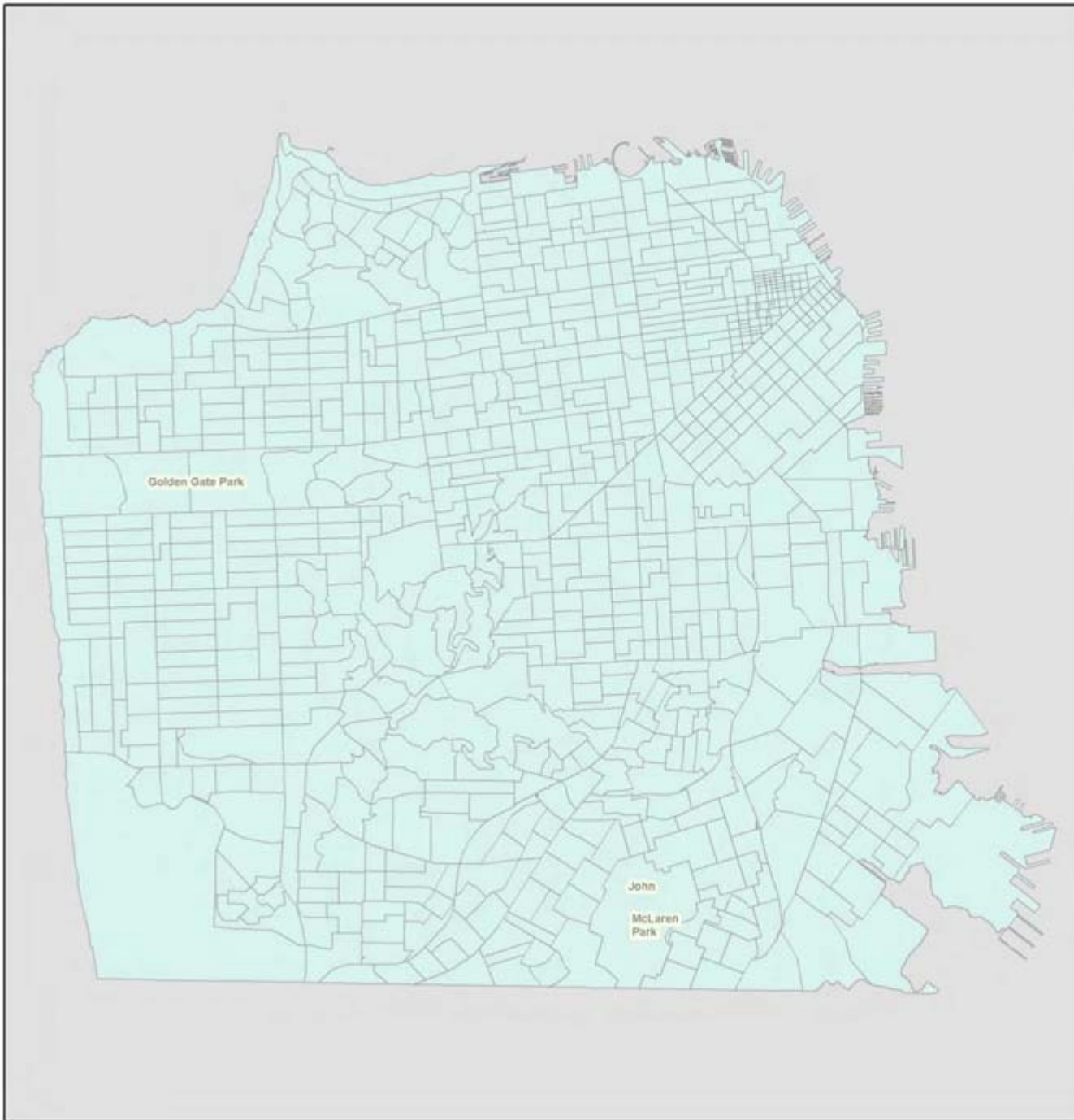
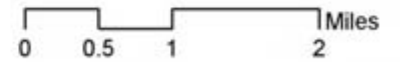
# High Need for Safety Adults Density

Adults per Acre



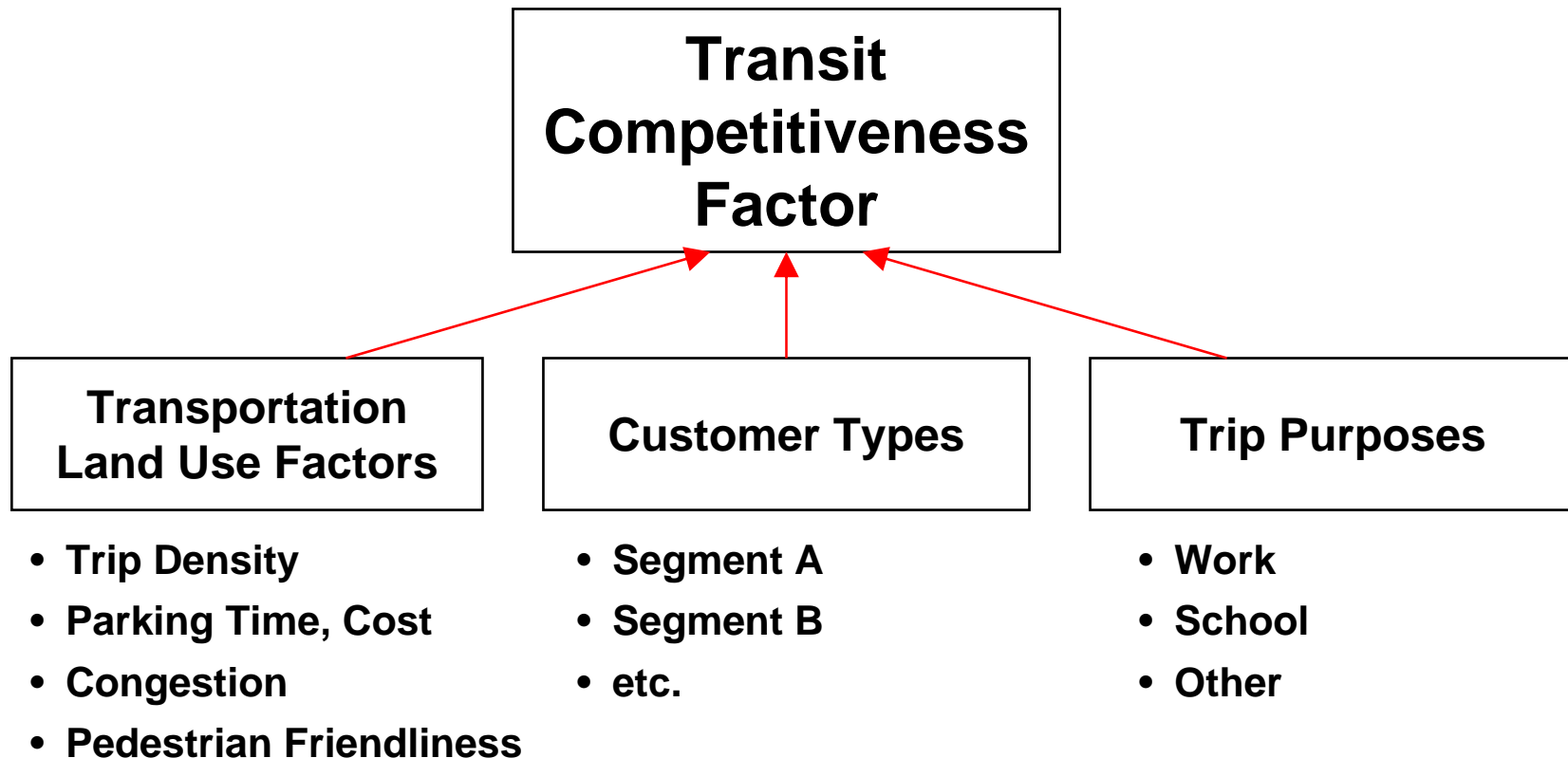
# High Need for Comfort Adults Density

Adults per Acre



# *Next Steps*

## Transit Competitiveness Factors

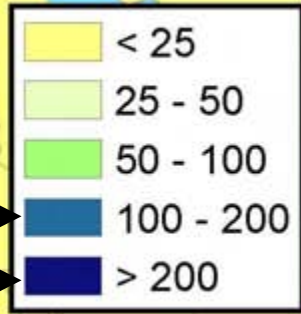


*Each factor weighted by ability to generate transit trips*

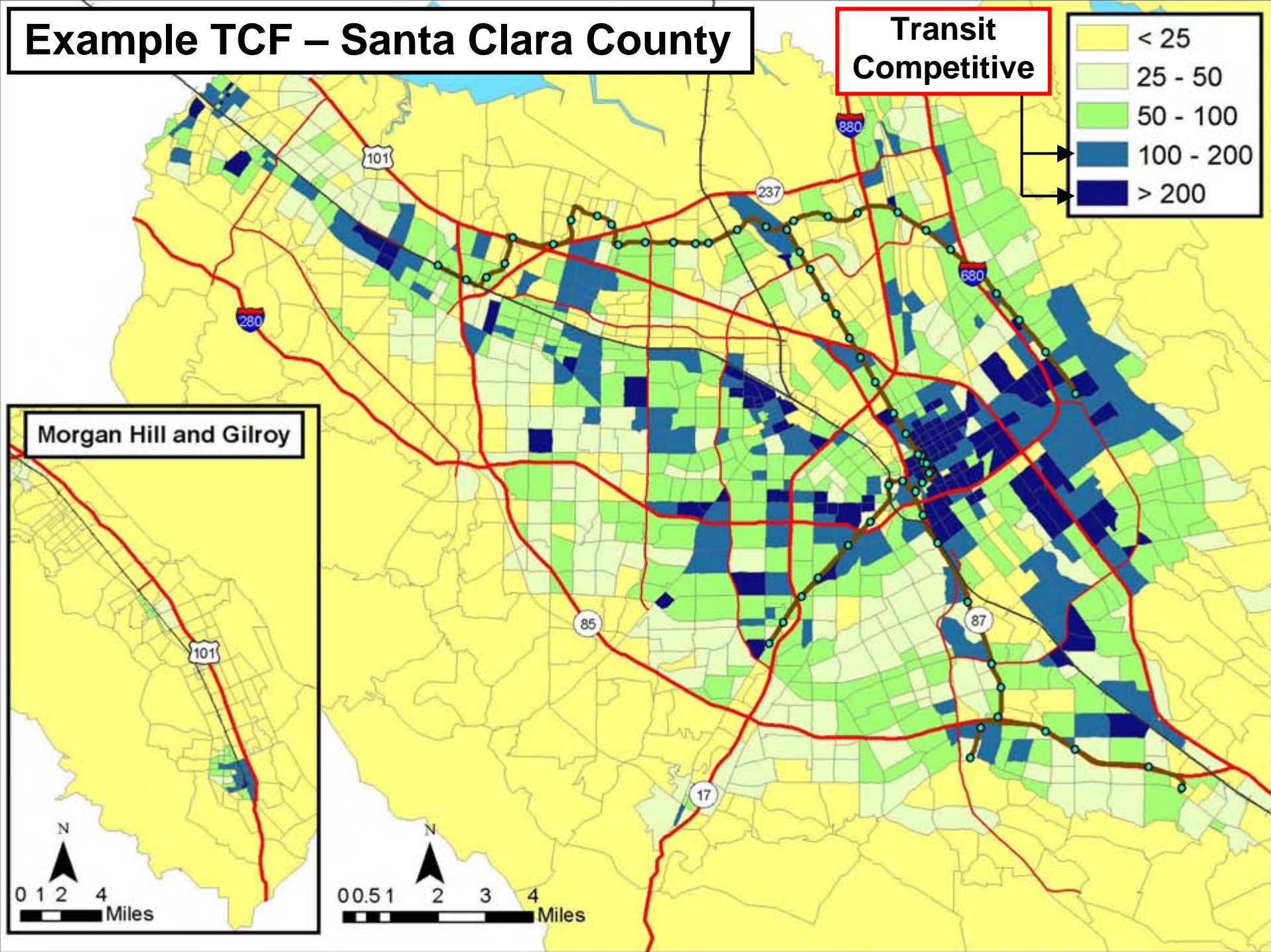
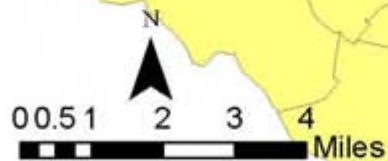
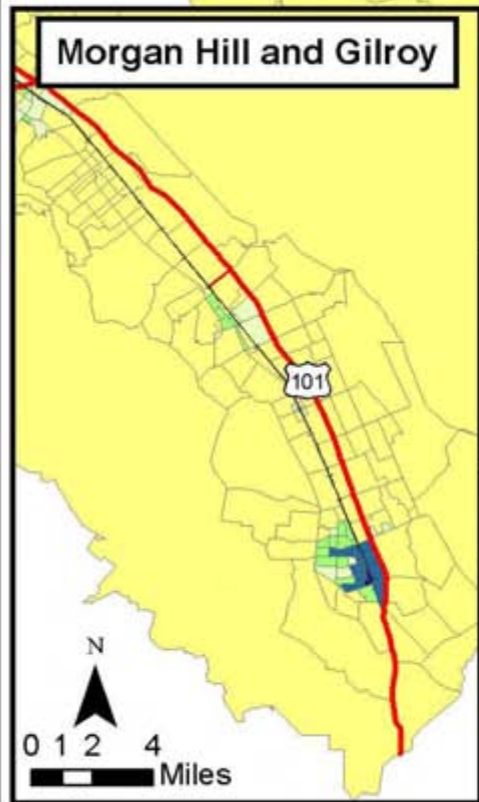


# Example TCF – Santa Clara County

**Transit  
Competitive**



## Morgan Hill and Gilroy





# Conclusions

- Transit use distributed among all market segments
- Reliability is highly important for most market segments
- Travel time improvements key to growth in three key market segments: A, B, C (66% of population)
- Need for reliability and travel time improvements spread throughout the city
- Adult population is less sensitive to flexibility, comfort, and safety
- Only one segment (E) shows high cost sensitivity
  - Represents just 7% of the adult population
  - Concentrated in urban core