Measuring and Mapping Access to Public Transit

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Get Healthy San Mateo County

• Collaborative of community-based organizations, County agencies, cities, schools, and hospitals
• Facilitated by County health department
• Mission: advance policy change to prevent diseases and ensure everyone has equitable opportunities to live a long and healthy life
• 4 key priorities: housing, neighborhoods, schools, economy

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Join the Get Healthy conversation and ‘Like’ us on Facebook! www.facebook.com/GetHealthySMC
Transportation and Health

• Public transit connects people to work, school, community
• Transportation can be major barrier to health care access
Purpose

• Estimate populations living outside transit service areas

• Share data as an advocacy tool to encourage development of transit-oriented communities and expansion of transit options
Measuring Access to Transit

• Access to transit defined as living within half mile of transit stop

• Potential methods for measuring access
  – Buffer method
  – Network-ratio method
  – Parcel-network method

Network-Ratio Method

\[ A_j = \left( \frac{W_j}{M_j} \right)(P_j) \]

Where:

- \( A_j \) = population in analysis zone \( j \) with access to transit
- \( W_j \) = length of street network within walking distance to transit in analysis zone \( j \)
- \( M_j \) = length of street network in analysis zone \( j \)
- \( P_j \) = total population in analysis zone \( j \)

Data

• Transit stops
  – Caltrain (rail)
  – SamTrans (bus and shuttles)
  – BART (rail)

• Street network
  – County GIS

• Demographic data (census tract)
  – U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
Process

1. Run half-mile buffer around transit stops in ArcGIS Online using Create Drive-Time Areas.
2. User half-mile buffer shapefile to clip street network shapefile.
3. Spatial join original street network shapefile and clipped street network shapefile to census tract shapefile.
4. Calculate population living with access to transit.
Results

Who has limited access to transit in SMC?

- 137,225 (19% of all residents)
- 29,689 youth
- 19,682 elderly
- 11,108 individuals with disability
- 81,295 people of color
- 28,385 individuals living below 200% Federal Poverty Level
People rely on public transit for mobility and access to job, school, community, and recreational opportunities. Get Healthy San Mateo County believes that everyone should have access to efficient and affordable public transportation that connects them to everyday necessities.

San Mateo County is served by three transit agencies:
- SamTrans (buses and shuttles)
- CalTrain
- BART

Transit stops that connect transit lines are most available in north and south county and along the El Camino Real corridor. Half mile is considered reasonable walking distance, which means there are many areas in San Mateo County that is considered to not be within walking distance to a transit stop.
In San Mateo County, 19% of residents (or 137,225 residents) do not live within a half mile of a transit stop.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
In San Mateo County, 29,689 youth (under 18 years old) do not live within a half mile of a transit stop.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
In San Mateo County, 19,682 elderly adults (65 years or older) do not live within a half mile of a transit stop.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
In San Mateo County, 11,108 individuals with disability do not live within a half mile of a transit stop.

In San Mateo County, 81,295 people of color do not live within a half mile of a transit stop.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
In San Mateo County, 35,918 Asians do not live within a half mile of a transit stop.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
In San Mateo County, 28,385 individuals under 200% Federal Poverty Level (FPL) do not live within a half mile of a transit stop.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates
Limitations

• Distribution of population with consideration to residential and commercial areas
• Sample size of small populations
• Other transportation barriers
  – Affordability
  – Attitudes and perception
  – Walkability
Next Steps

• Compare
  – Day of week and time of day
  – Headway (high frequency)
• Meet with stakeholders to received feedback
• Publish maps and reports as an advocacy and education tool
Thank You!

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