SONOMA COUNTY TRAVEL MODEL 2018 UPDATE

SCTA Planning Advisory Committee

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Topics

• Big Data Overview
• Sample Questions
• Proposed Approach
• Project Timeline
What is Big Data

• Archival location data from mobile devices
• Provides true origin-destination data passively and anonymously
Sources of Big Data

- Cellular Data
- GPS Data
- App-Based

[Logos for Airsage, INRIX, CueBIQ, and StreetLightData]
Benefits of Big Data

- Observed origin-destination data – not from a model or survey
- Relatively low cost for large sample
- Continuous passive data collection
- Customization and flexibility
- Can supplement with other data sources
Limitations of Big Data

- Sample of data (sample size and potential bias issues)
- Vehicle trips vs. person trips (carpool/buses)
- Spatial resolution (20 to 30 meter)
- Inferred using machine learning
- Have to define what a trip and purpose is
- Reliance on census or survey data for demographics
Why use Big Data
Recent Big Data Enhancements

- Increased GPS sample size
- Person trips
- 20-25% of the population
- Includes when device is at rest
- Resident, worker, visitor classification
- Trip purpose, home/work location, demographic data based on home
What questions do you want answered?

• Sebastopol pass-through travel
• Cloverdale and Petaluma - interested in interchanges with neighboring counties
• To/from Marin/San Francisco
• Others?
Who comes in to/out of an area?

**AM Peak Period Trips into Marin County**
- Santa Clara: 1%
- South Alameda: 2%
- San Mateo: 3%
- San Francisco: 24%
- North Alameda: 13%
- East Contra Costa: 7%
- West Contra Costa: 14%
- Solano: 5%
- Napa: 3%
- Sonoma: 28%

**Where do Marin County residents work?**
- Marin County: 57%
- San Francisco: 28%
- South San Francisco/Peninsula: 2.5%
- Petaluma: 2.4%
- Santa Rosa: 2.3%
- Berkeley: 2.0%
- Oakland: 1.9%
- Vallejo/American Canyon: 1.5%
- Richmond/San Pablo: 1.4%
- Napa: 0.7%
- Sonoma: 0.4%
Who are the users of a facility?

San Francisco County: 16%
Sonoma County: 6%
San Mateo County: 3%
Contra Costa County: 2%
Alameda County: 2%
Napa County: 1%

Marin County: 69%
Novato Area: 31%
San Rafael Area: 33%
Sausalito Area: 5%
West Marin County: 0%

Trip Types on US 101 at Corte Madera Creek
- Internal Trips: 48%
- Inter-County Trips: 41%
- Pass-Through Trips: 11%

Top 3 Pass-Through Movements
- Sonoma to San Francisco: 58%
- Sonoma to San Mateo: 17%
- Napa to San Francisco: 12%
How are people accessing the freeway?

AM Peak Period

- Route 1: 55%
- Route 1 and Route 4: 3%
- Route 2 and Route 3: 30%
- Route 2 and Route 4: 12%

Fehr & Peers
Where is tourism activity occurring?

APPLE HILL ORIGIN AND DESTINATION DATA: SEPTEMBER - OCTOBER 2014
What is the average trip length?

Average Daily Trip Length

- 17% longer than Bay Area Average
Proposed Approach

• Traffic Count Collection

• 3 Types of Cuebiq Mobile Device Data (O-D, Middle Filter, and Home/Work)

• Census and CHTS Data
Traffic Count Collection

- 20 total locations
- All major county gateways
- Plus intra-county locations
Mobile Device Data

- Origin and destination analysis
- Home and work analysis
- “Middle Filter” analysis at traffic count locations
- Trip lengths
- Trip purposes
- Demographic data of roadway users
Zone System

• Bay Area
• Select surrounding counties
• 115 zones + 20 count locations
• 5+ zones in each city
• Less detail for non-O-D metrics
Data Period

Primary Data Period

- March 2017 through May 2017

Two Additional Periods (less zones)

- March 2018 through May 2018 (Post-Fire)
- December 2016 through February 2017 (Winter)

OR

- June 2017 to Mid-August 2017 (Summer)

Model update to 2015 conditions – but benefits of obtaining more recent travel behavior data
Project Timeline

• Finish in 2019
• Big Data Study First – draft report in May
• Then Model Update and Enhancements – completed in October
• Report – draft in November
• Present Finding – December 2019?