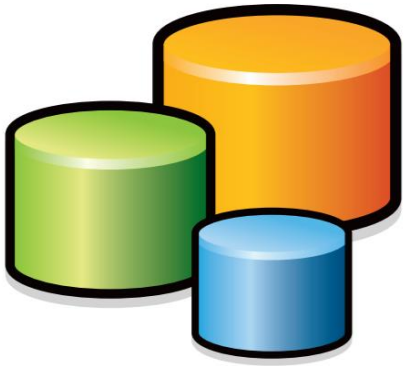
BUILDING BETTER BIKEWAYS IN SANTA CLARA COUNTY

DAVID WASSERMAN
ESRI USER CONFERENCE - 2017

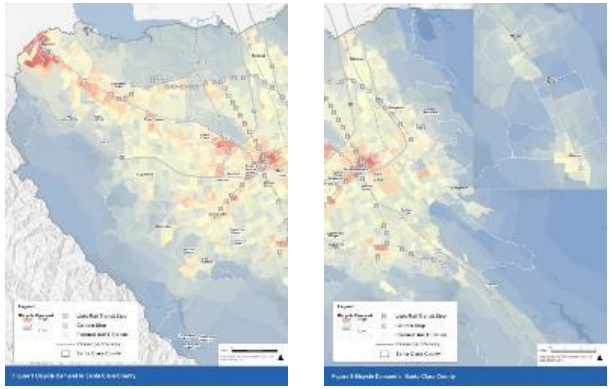
FEHR & PEERS

Role of GIS

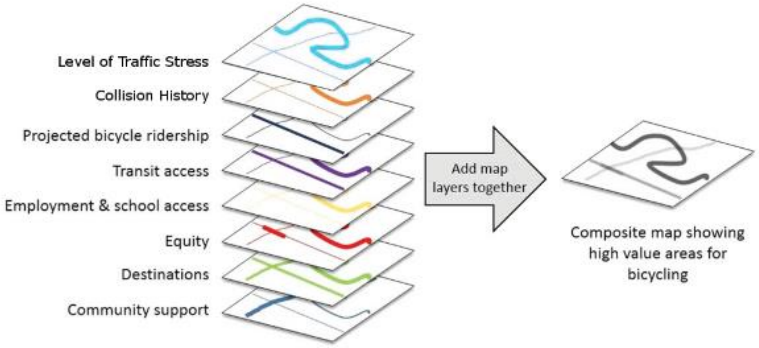
- DB of Record



- Existing Conditions



- Prioritization



Study Area

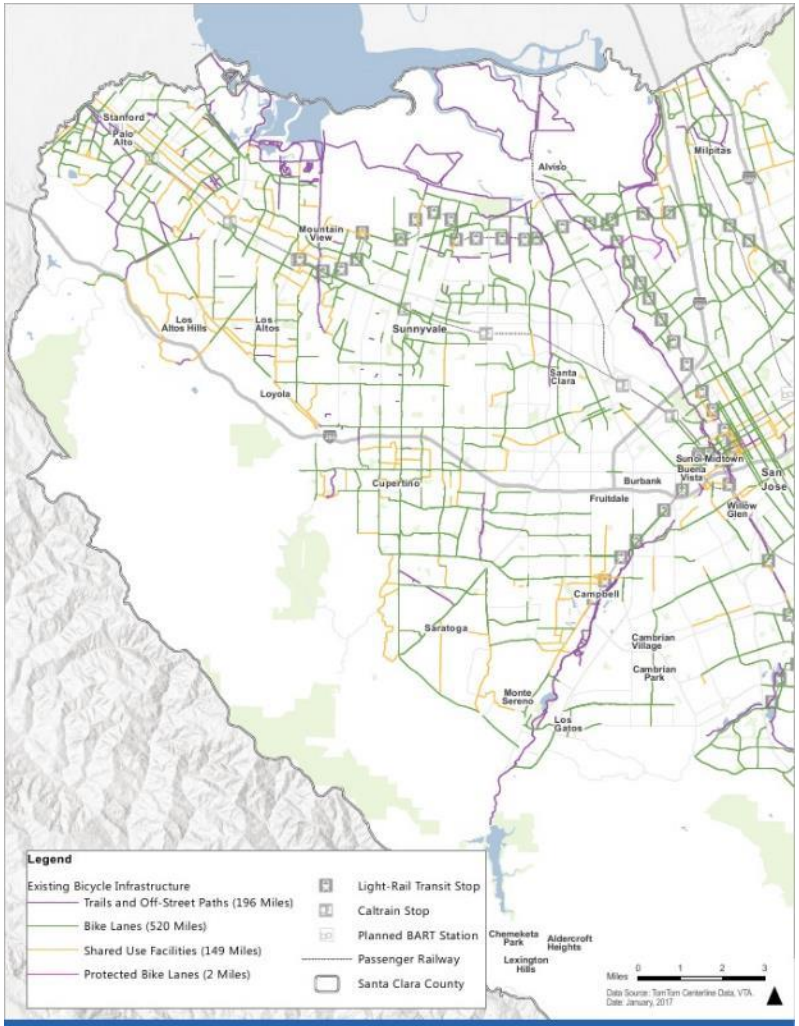


Figure 4 Existing Bicycle Infrastructure by Type in Santa Clara County

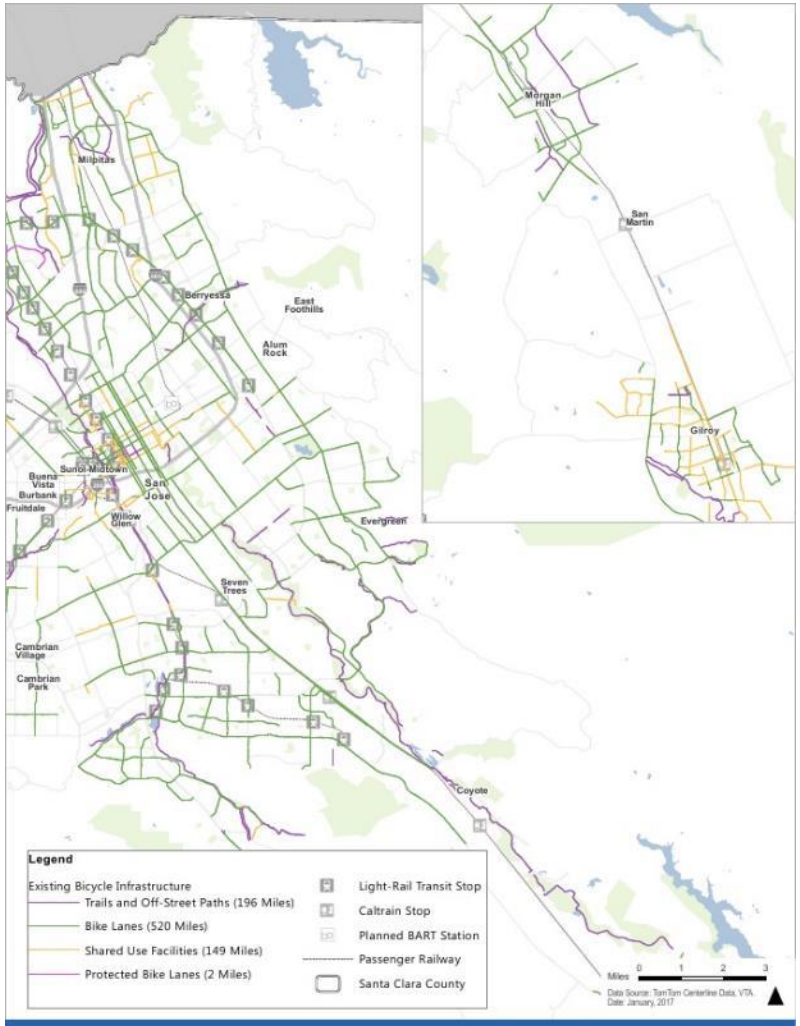
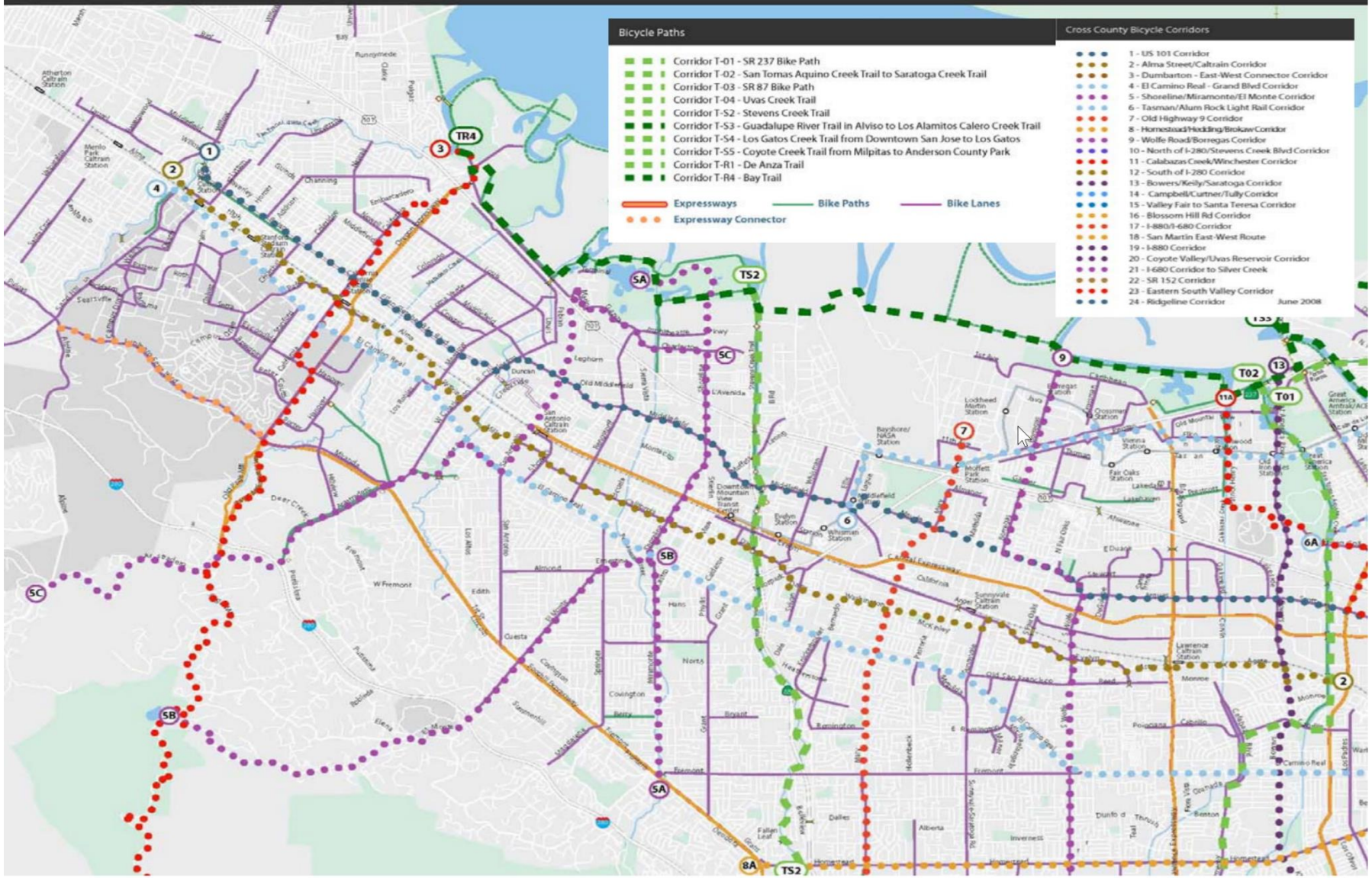


Figure 4 Existing Bicycle Infrastructure by Type in Santa Clara County

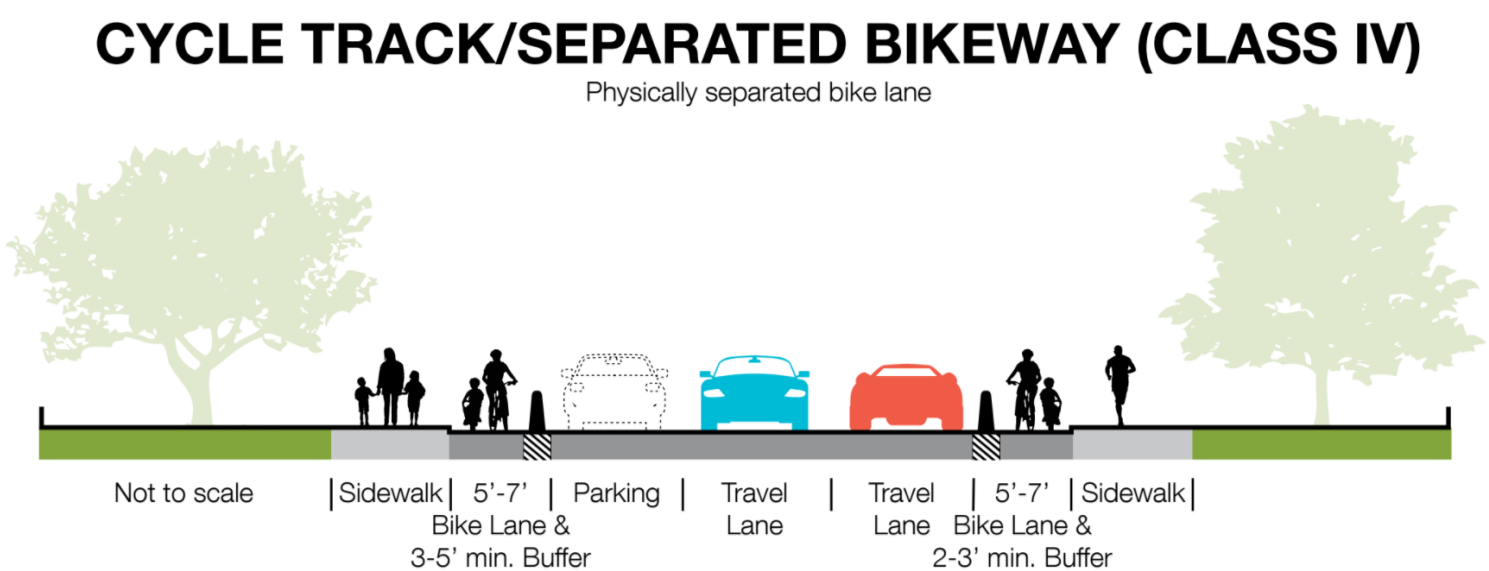
2008 VTA Bike Plan

Figure 3-2 Cross County Bicycle Corridors - Northwest County



2016 Bike Plan Update

- Why Update?
  - Last plan is ~8 years old
  - Increased demand for higher quality and safe bikeways
  - Cities have constructed many new bikeways
  - New Best Practices in Design



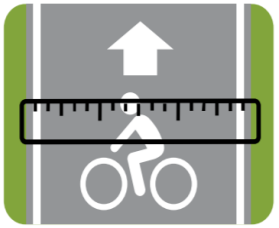
Existing Conditions: Level of Traffic Stress

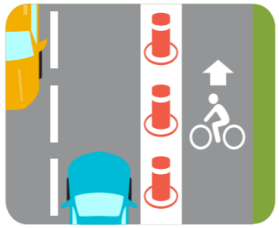

Number of Travel Lanes


Speed of Traffic


Number of Vehicles


Presence of Bike Lanes


Width of Bike Lanes


Presence of Physical Barrier

LTS 1 Most children can feel safe riding on these streets.

LTS 2 The mainstream "interested but concerned" adult population will feel safe riding on these streets.

LTS 3 Streets that are acceptable to "enthused and confident" riders who still prefer having their own dedicated space.

LTS 4 High-stress streets with high speed limits, multiple travel lanes, limited or non-existent bikeways, and long intersection crossing distances.

Level of Traffic Stress

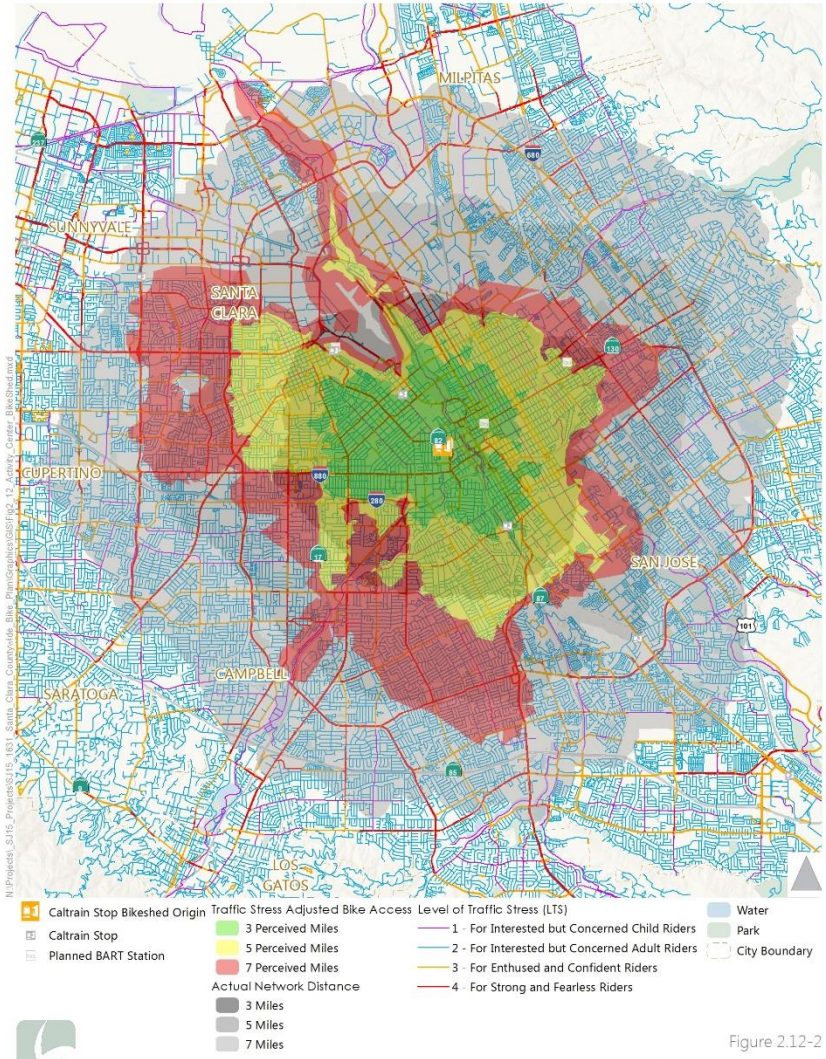


Figure 2.12-2

Downtown San Jose Caltrain Station - Activity Center Bikeshed

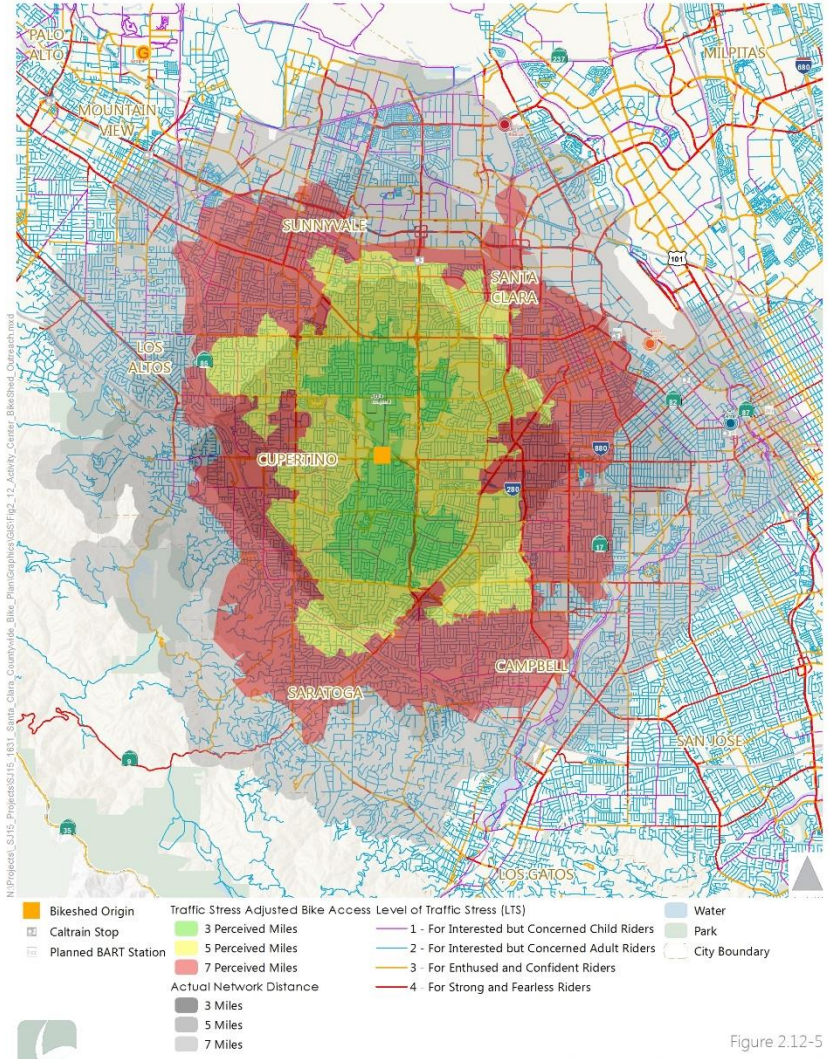
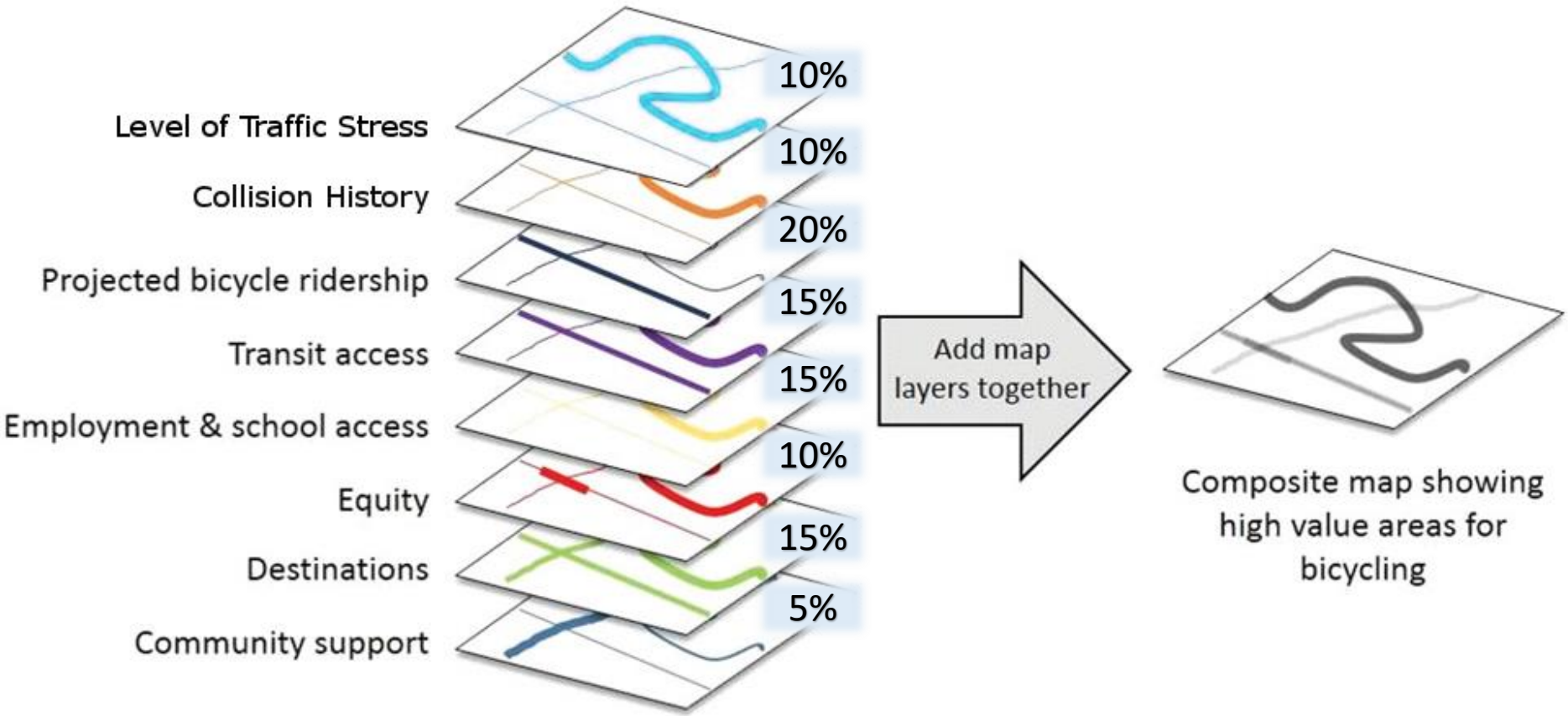


Figure 2.12-5

PDA near Apple Campus II - Activity Center Bikeshed

Prioritization Analysis

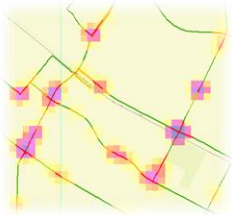


Prioritization Approach

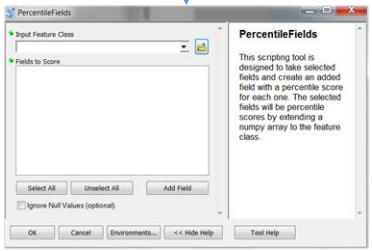
1. Identify Metric

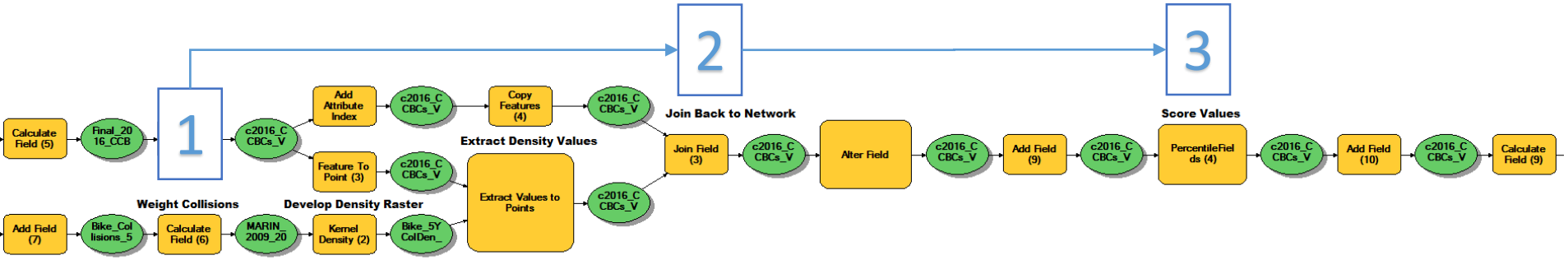
Criterion		Assessment	Percent of Total Score*
Safety			
1	Provides opportunity to improve safety in a corridor with high number of collisions.	Bicycle collision density, with fatal and severe injury collisions weighted higher than other types of collisions. Data from Statewide Integrated Traffic Records System, most recent five years of data.	10%

2. Associate Metric With Network



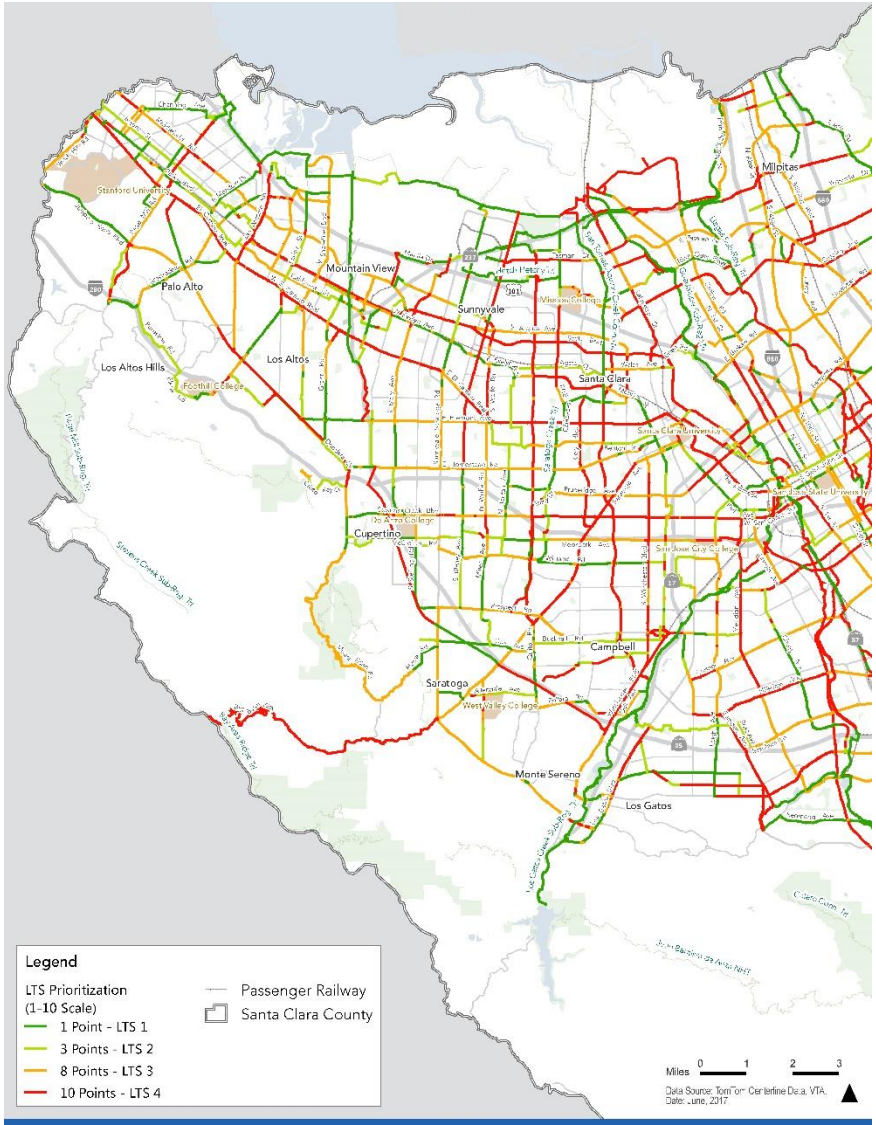
3. Develop 1-10 Score From Metric
   1. Percentiles (Most Common)
   2. Linear Normalization (Combined Metrics/Datasets)
   3. Expert Judgement (LTS)



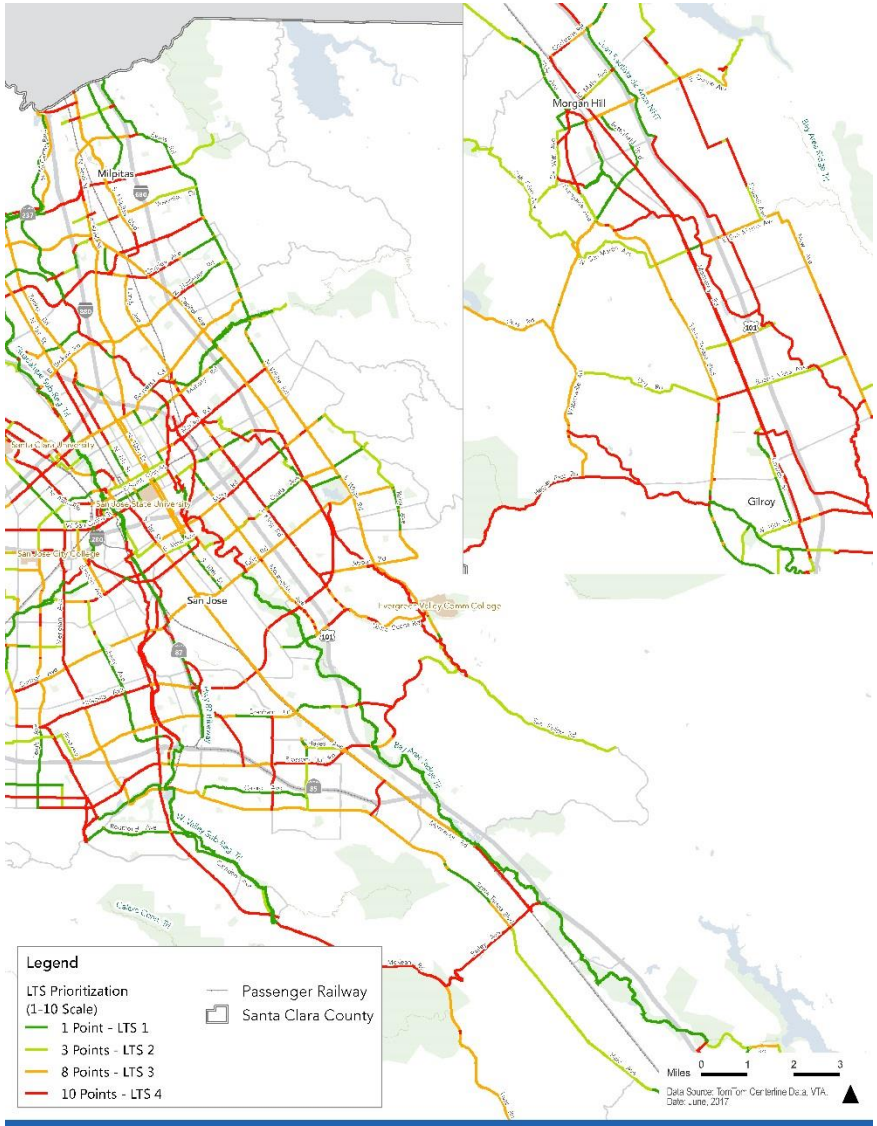


Criterion: LTS

Level of Traffic Stress of CCBCs



Prioritization Map: Level of Traffic Stress (10%)

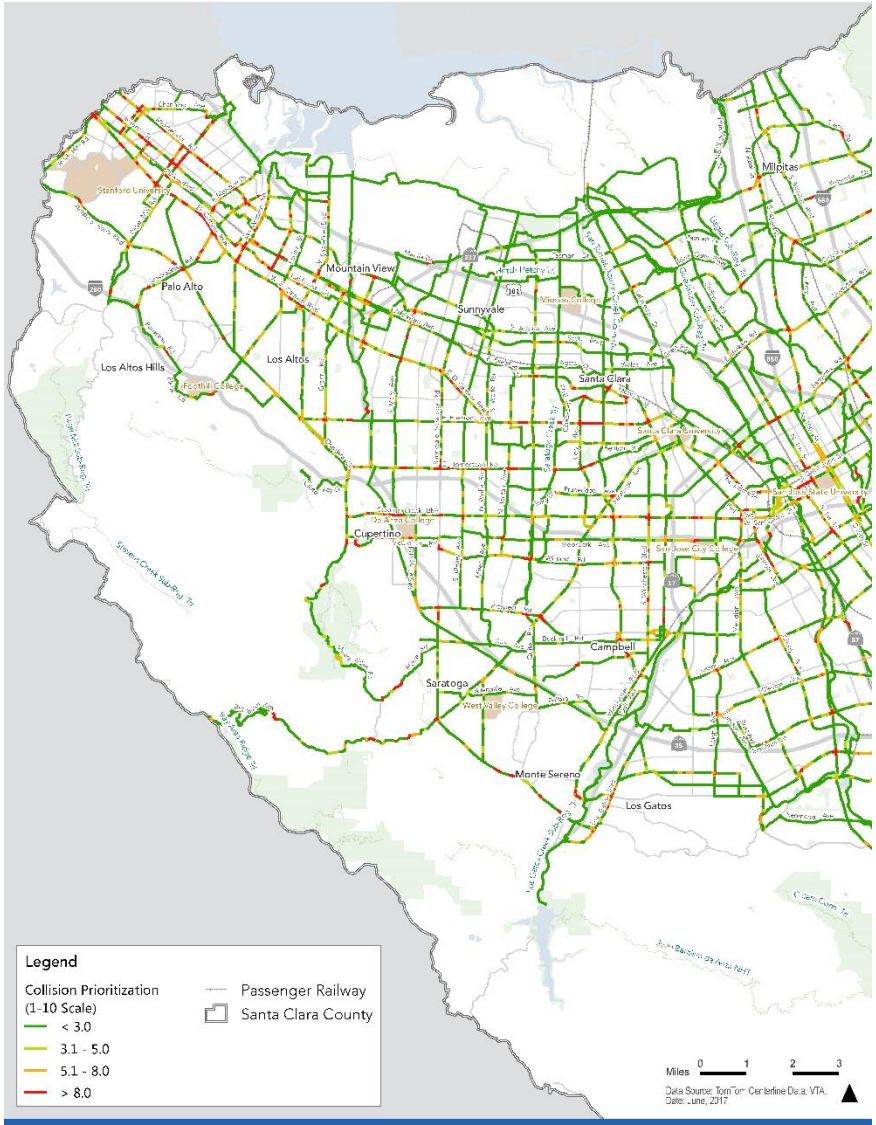


Prioritization Map: Level of Traffic Stress (10%)

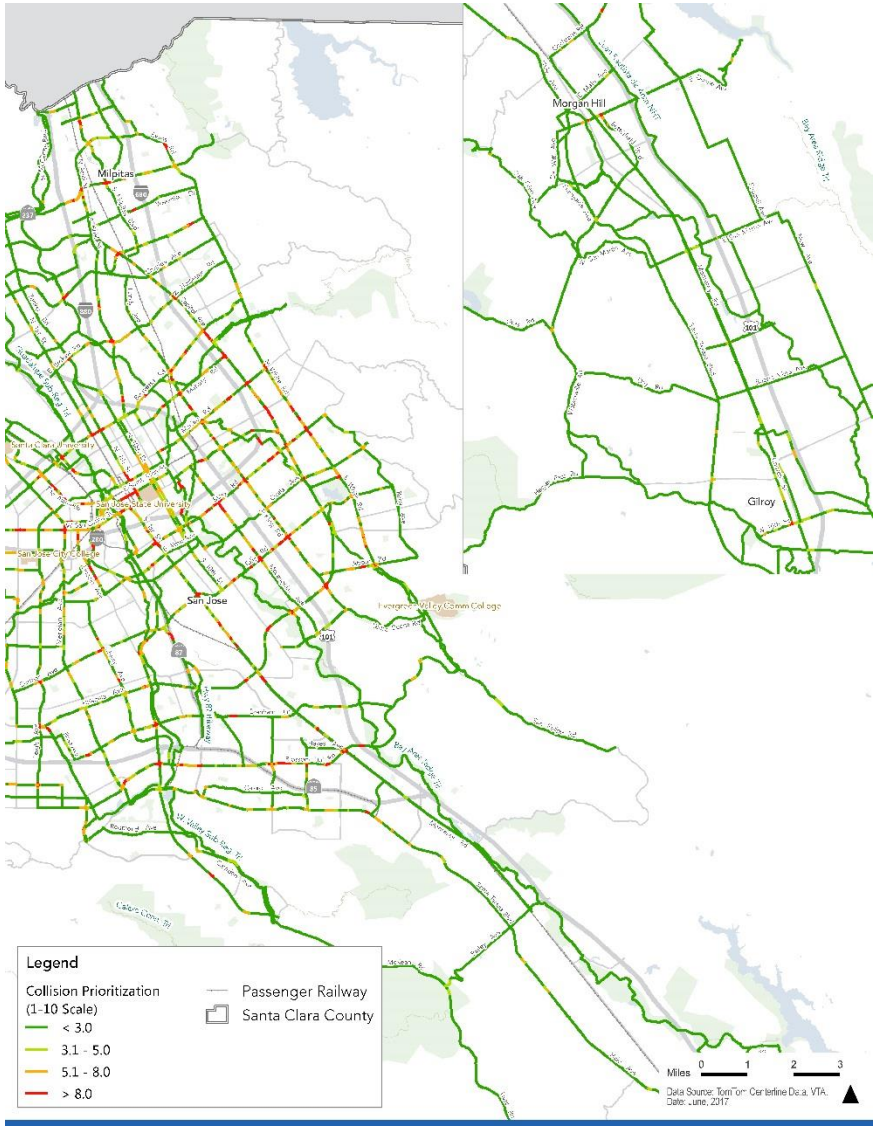
June, 2017 - DRAFT

Criterion: Collisions

Density of Collisions weighted by severity



Prioritization Map: Collision Density (10%)



Prioritization Map: Collision Density (10%)

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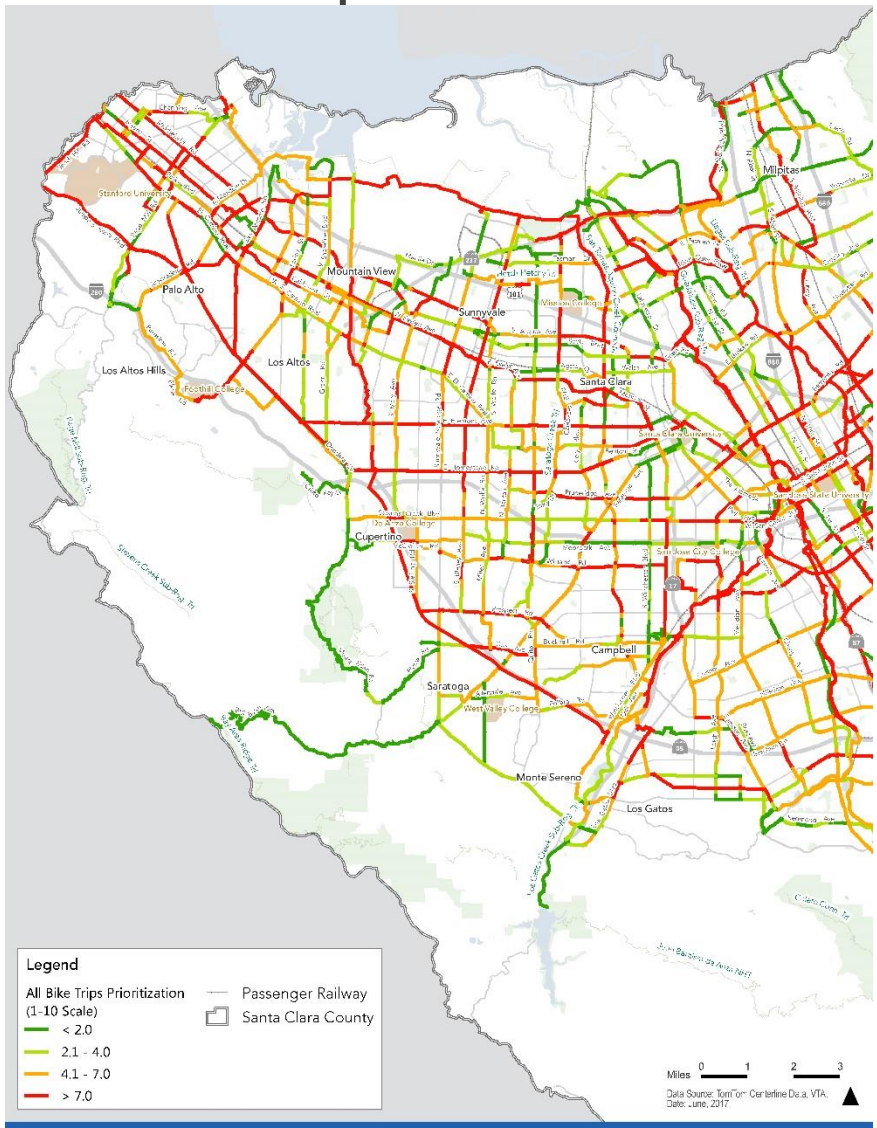
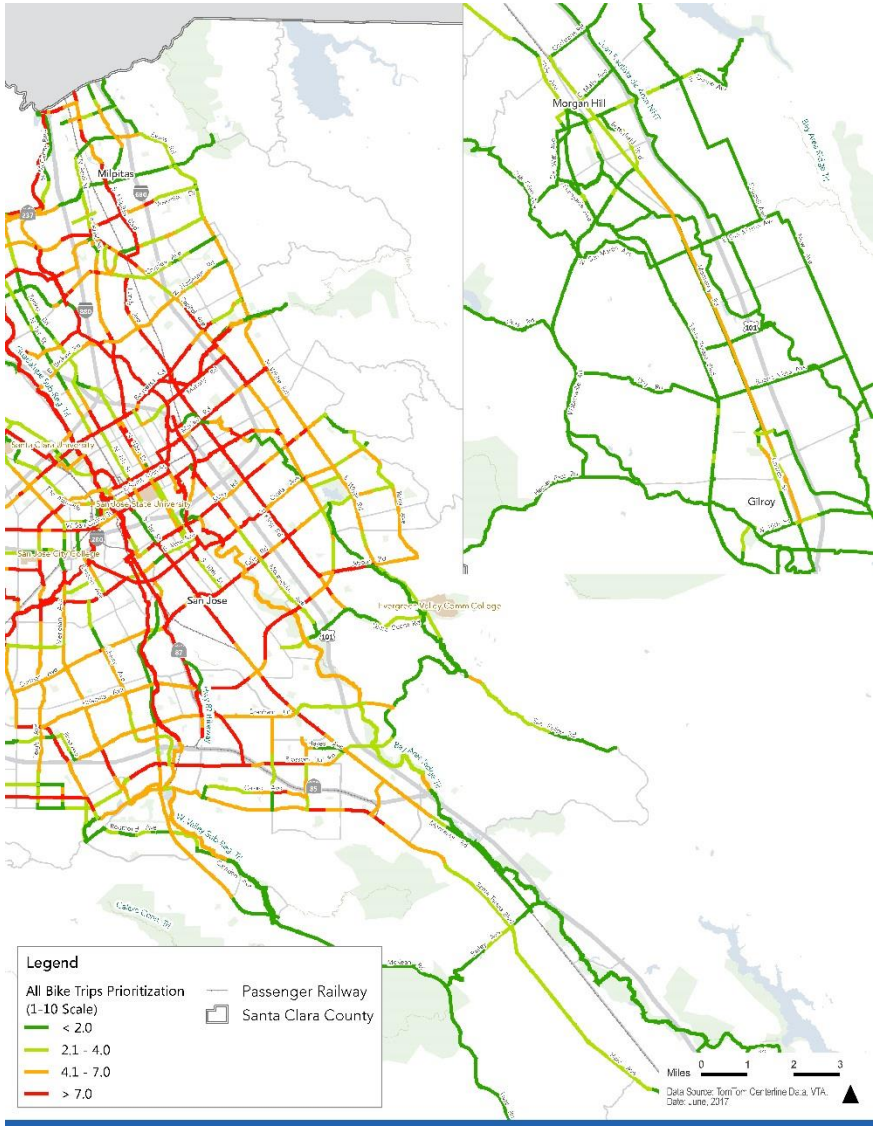
Criterion: Ridership

All bike trips in 2026 with CCBC network built out



Prioritization Map: All Bike Trips (20%)



Prioritization Map: All Bike Trips (20%)

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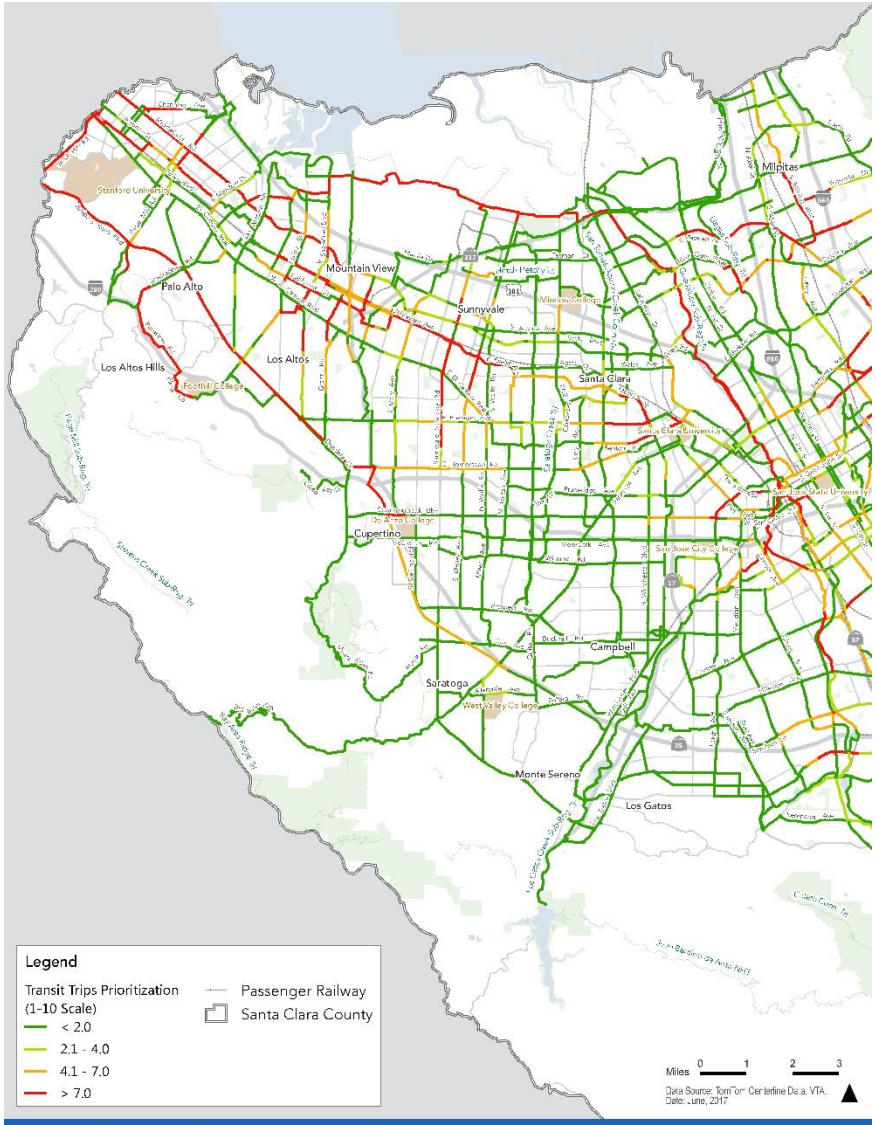
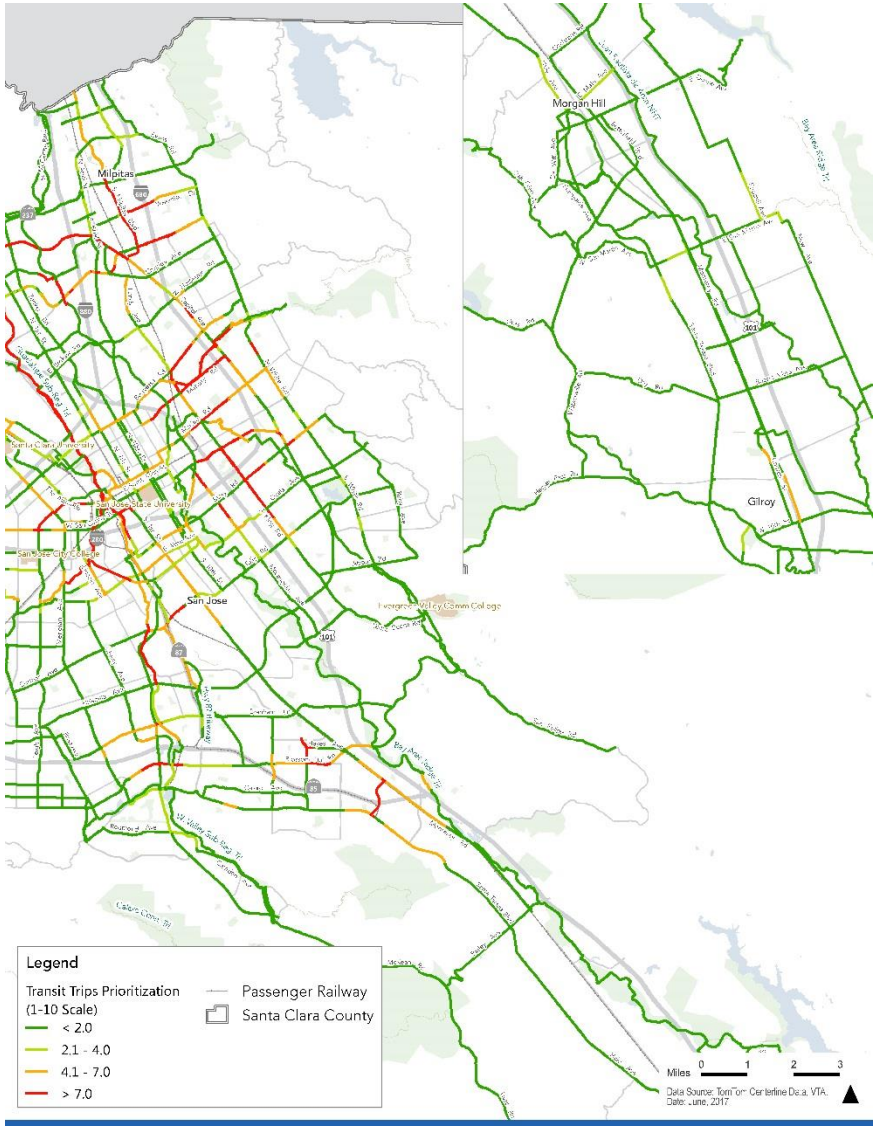
Criterion: Transit

Last mile trips to transit stops & stations



Prioritization Map: Transit Access (15%)



Prioritization Map: Transit Access (15%)

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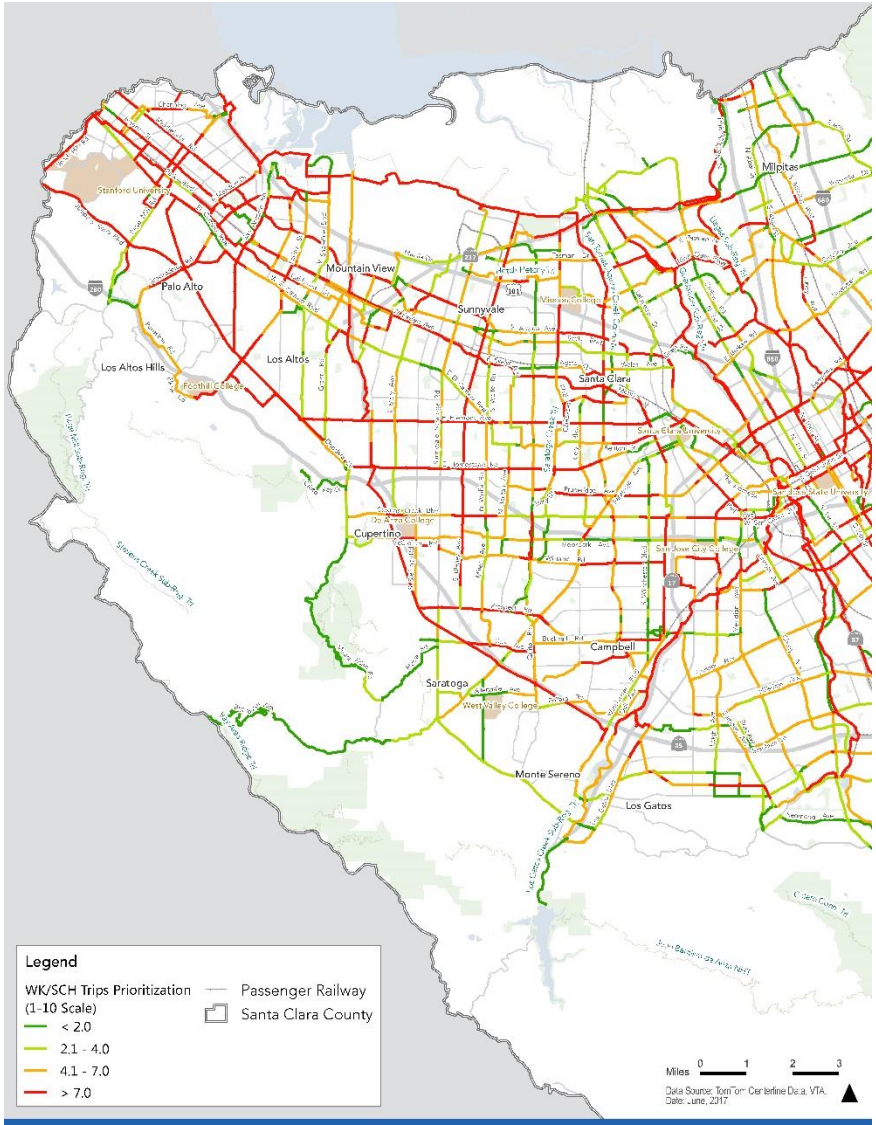
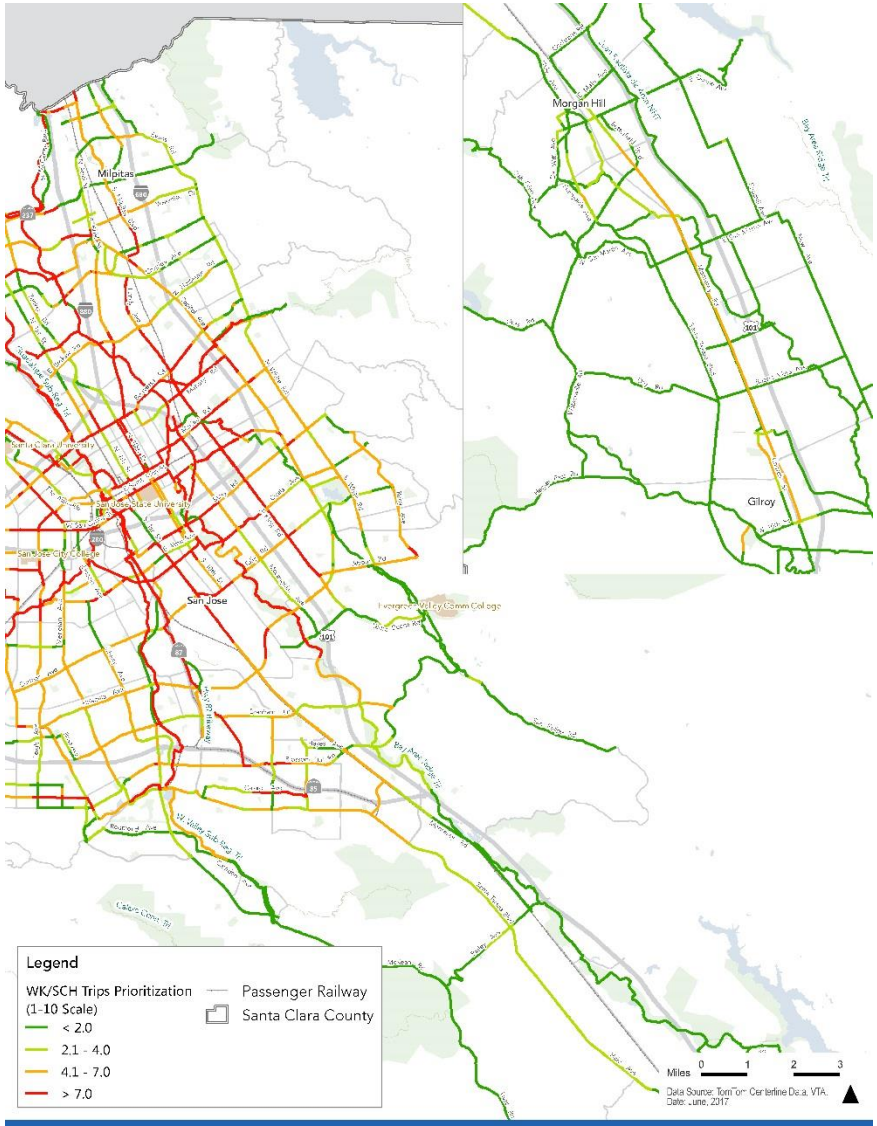
Criterion: Work & School

Trips to and from work and schools



Prioritization Map: Trips to/from Schools and Work (15%)

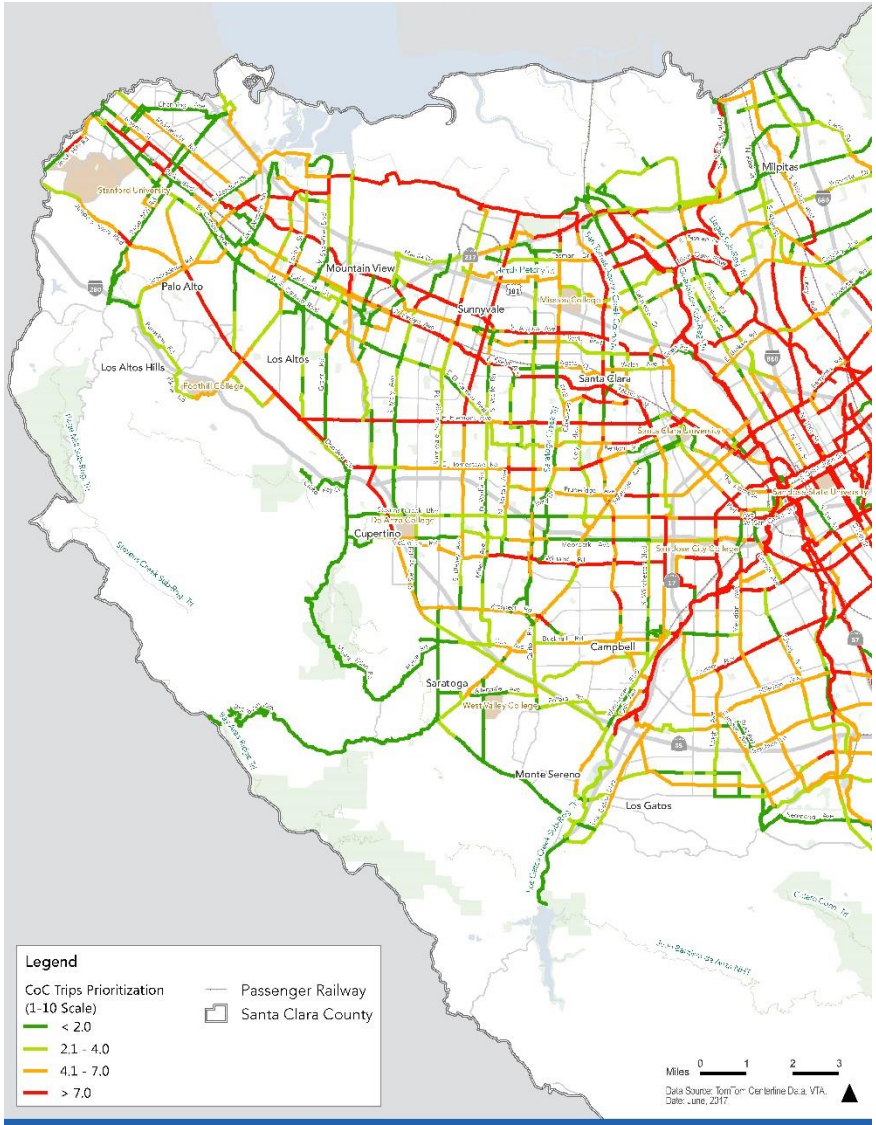


Prioritization Map: Trips to/from Schools and Work (15%)

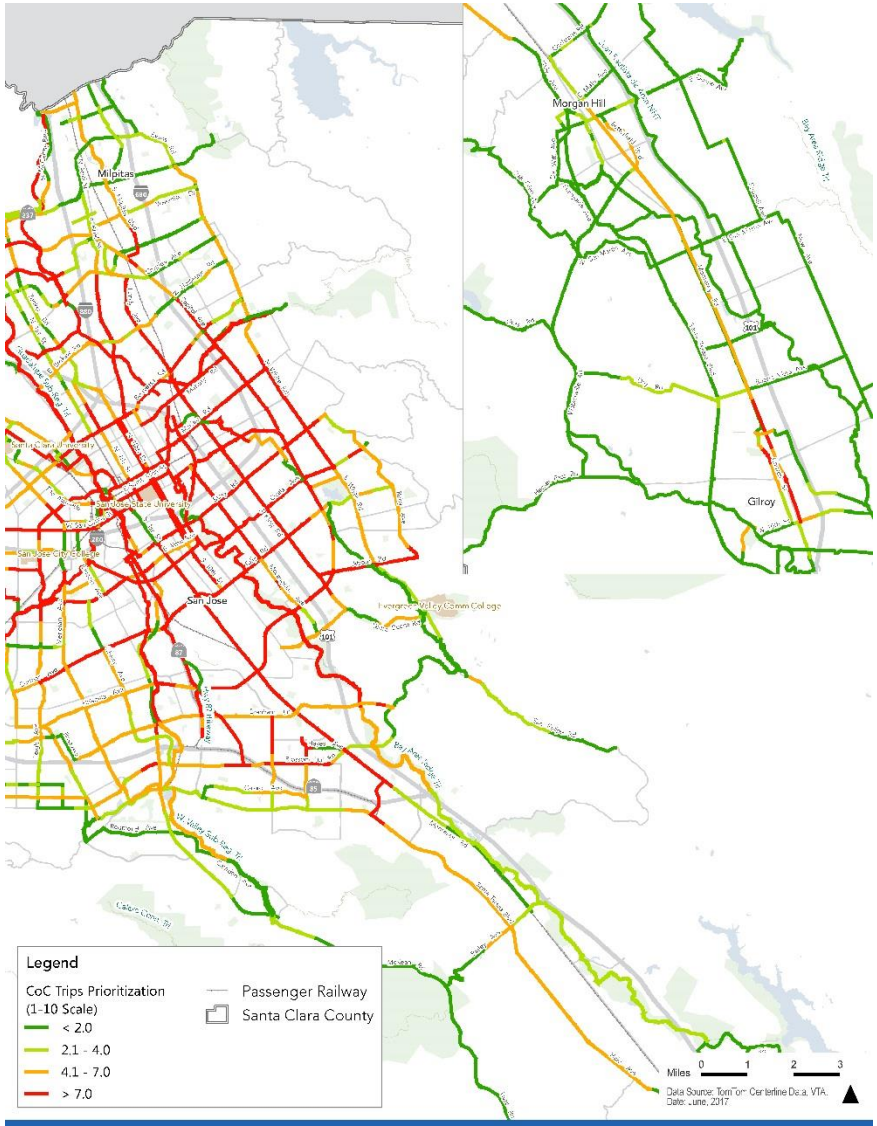
June, 2017 - DRAFT

Criterion: Equity

Trips originating from Communities of Concern (COC)



Prioritization Map: Trips from Communities of Concern (10%)



Prioritization Map: Trips from Communities of Concern (10%)

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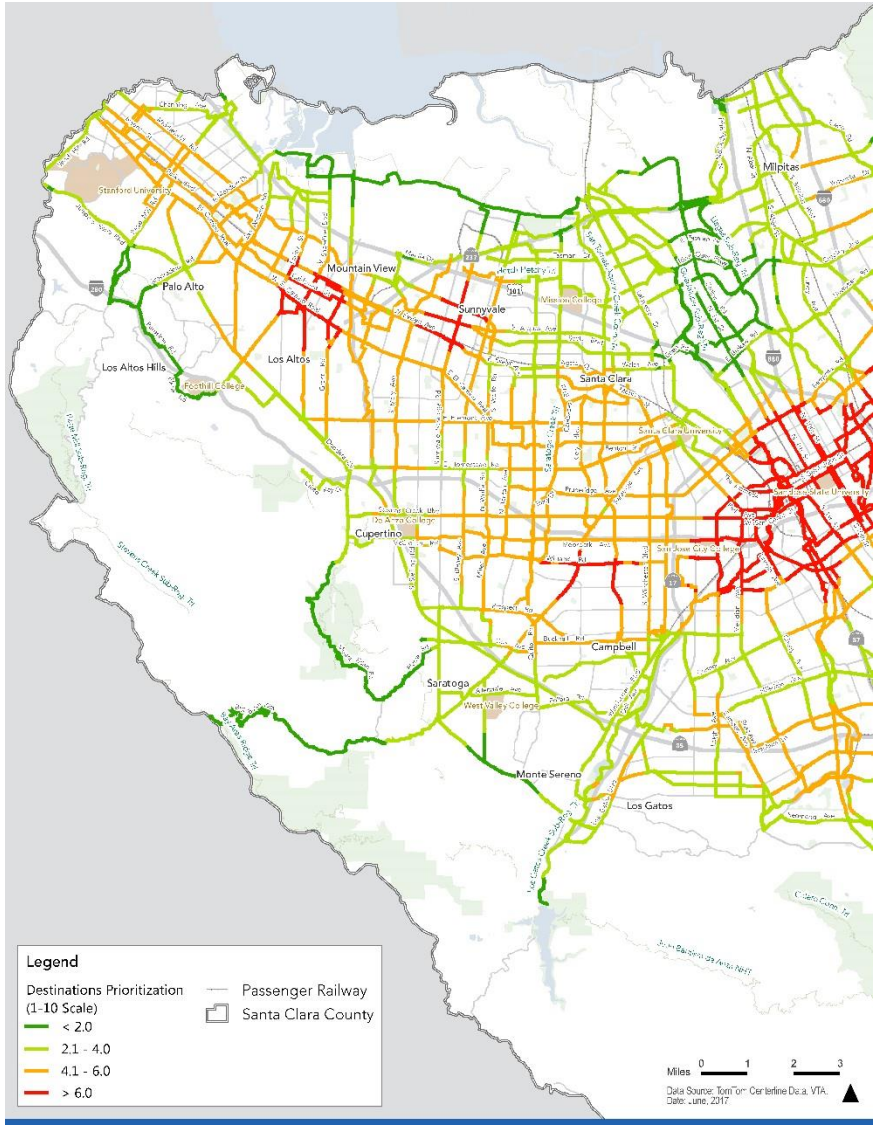
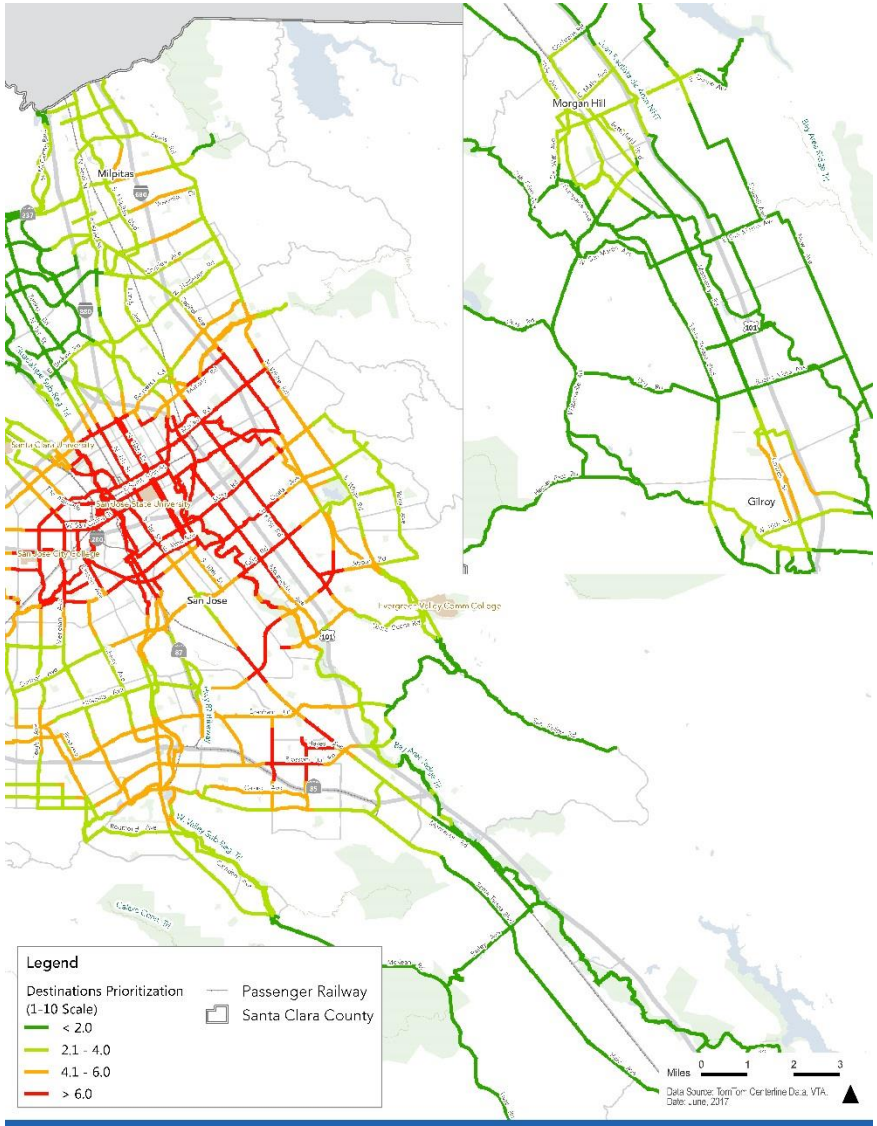
Criterion: Destinations

Density of shopping, schools, services, and affordable housing



Prioritization Map: Destination Access (15%)



Prioritization Map: Destination Access (15%)

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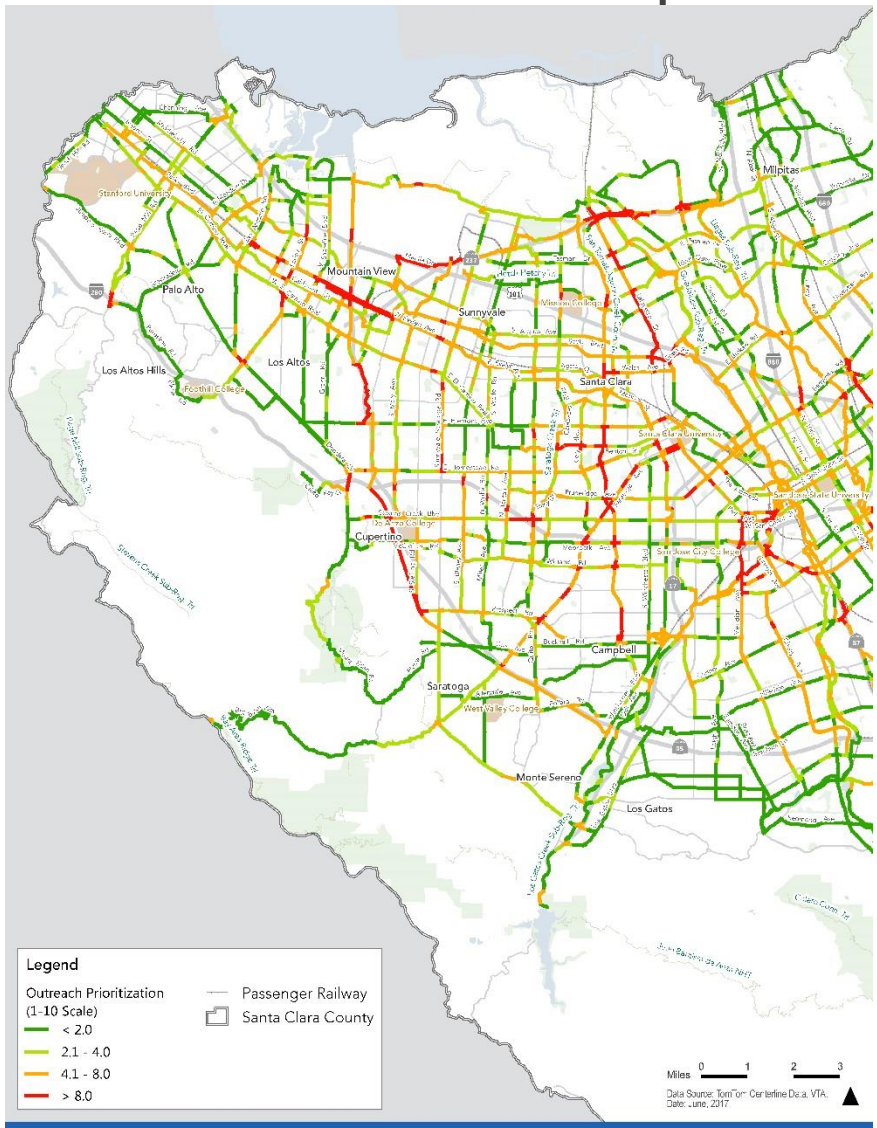
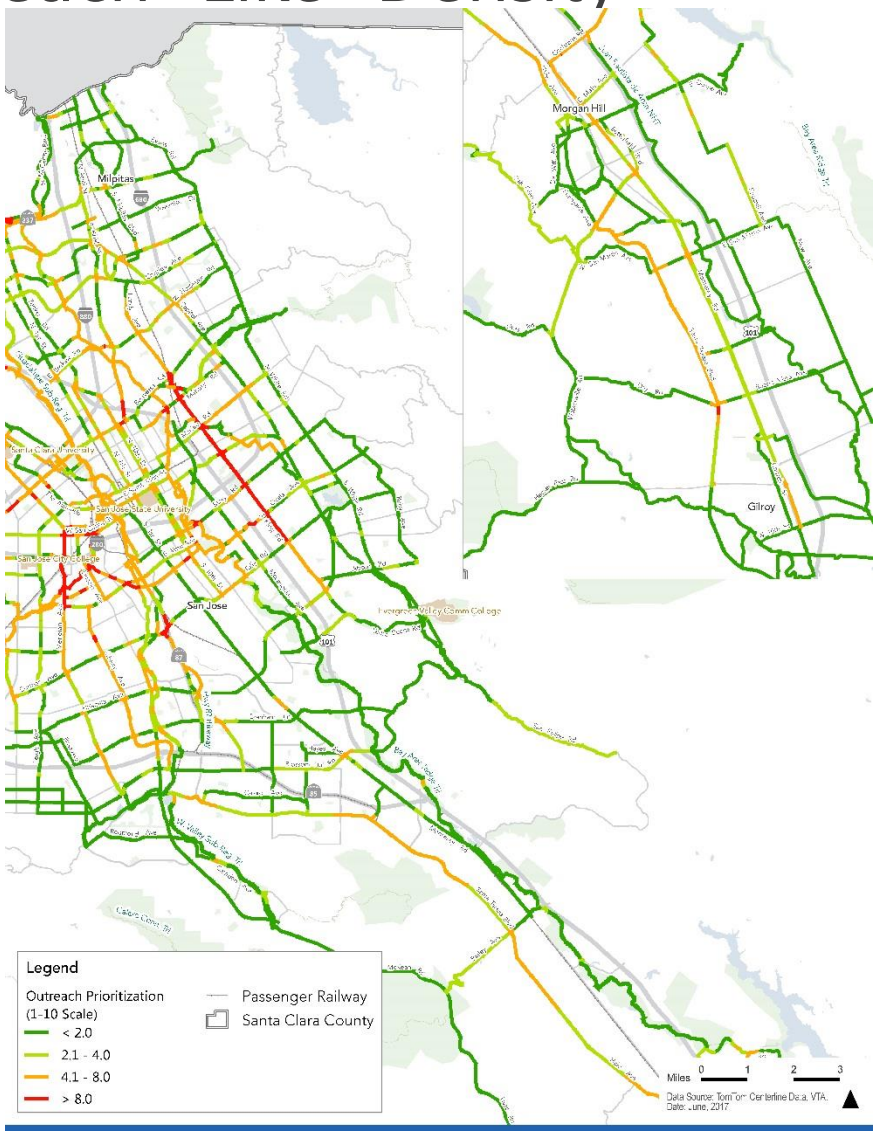
Criterion: Outreach

Charrette & Crowdspot Outreach "Like" Density



Prioritization Map: Public Support (5%)



Prioritization Map: Public Support (5%)

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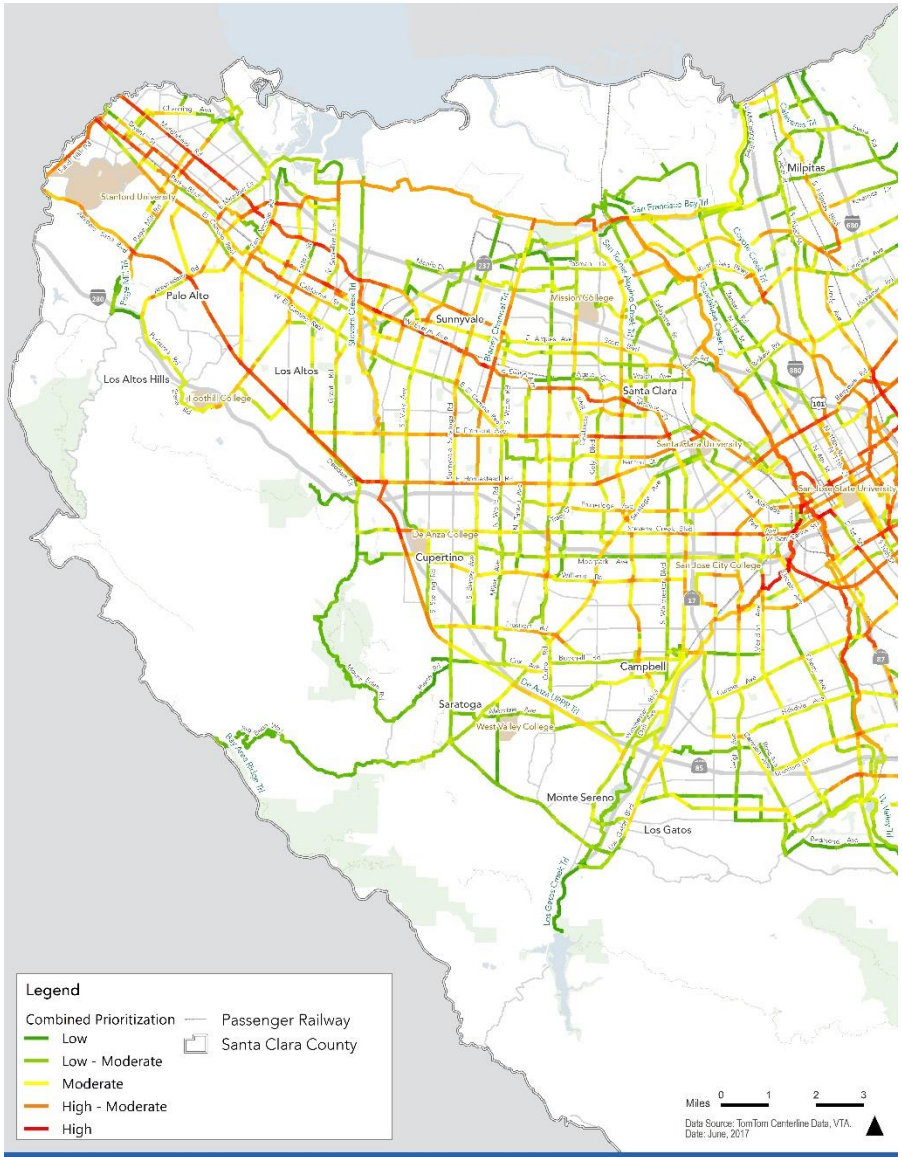
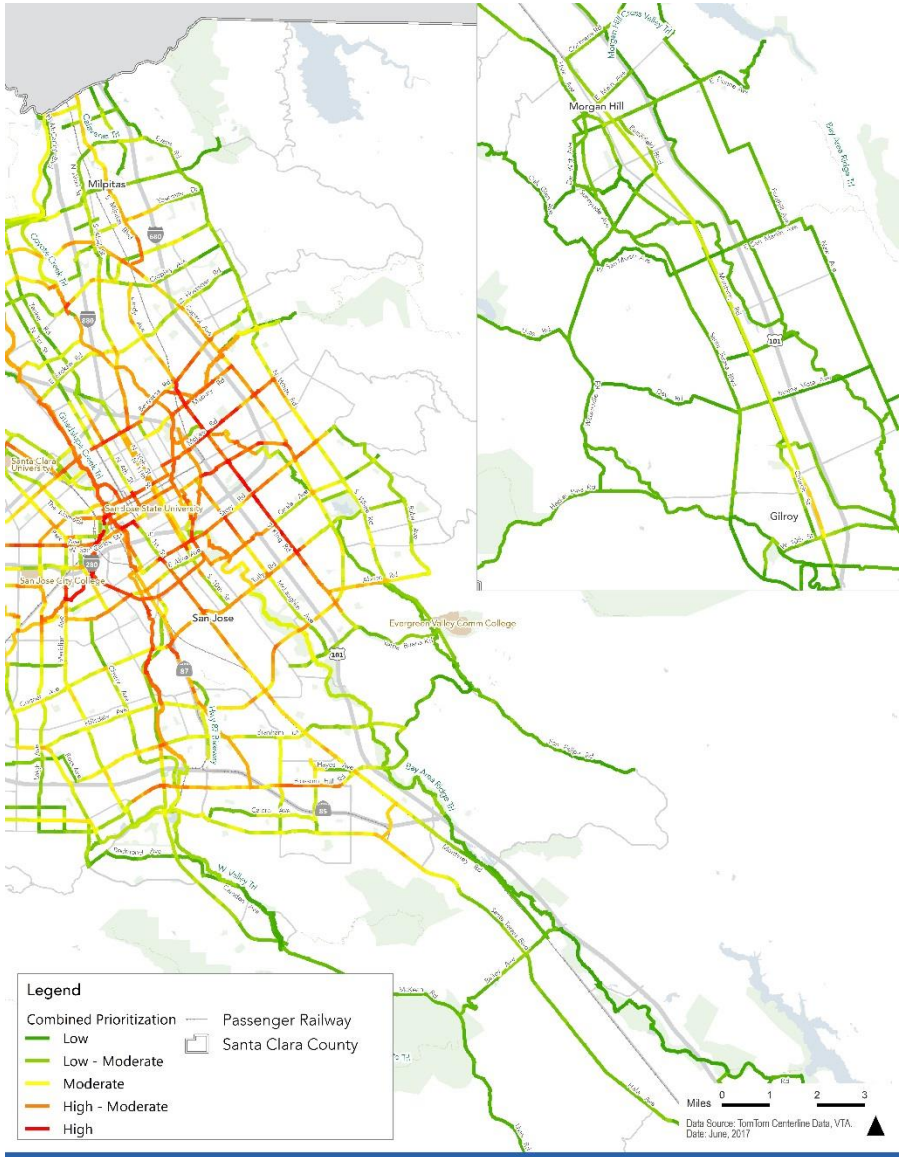
Final Prioritization



Prioritization Map: Combined Prioritization



Prioritization Map: Combined Prioritization

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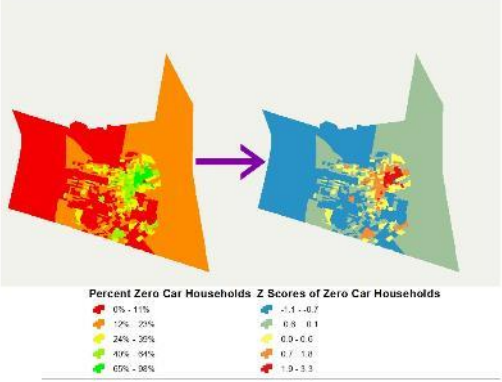
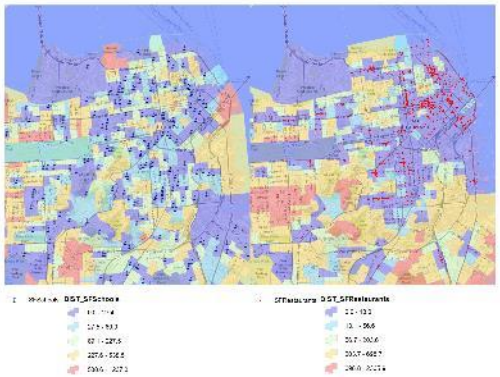
Tools You Can Use

- ArcNumerical- add percentiles/z-scores to feature classes.
  - https://github.com/Holisticnature/ArcNumerical-Tools



- Proximity Analysis- conducts a chained near analysis and chained scoring to rank criteria quickly.
  - https://github.com/Holisticnature/ProximityAnalysis



- Feature Line Split- splits polylines into a target number of features and pulls lines back a target amount.
  - https://github.com/Holisticnature/FeatureLineSplit

Questions?

FEHR PEERS

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