BUILDING BETTER BIKEWAYS IN SANTA CLARA COUNTY

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ESRI USER CONFERENCE - 2017
Role of GIS

• DB of Record

• Existing Conditions

• Prioritization
Study Area
2008 VTA Bike Plan

Figure 3-2 Cross County Bicycle Corridors - Northwest County

Bicycle Paths
- Corridor T-01 - SR 237 Bike Path
- Corridor T-02 - San Tomas Aquino Creek Trail to Saratoga Creek Trail
- Corridor T-03 - SR 87 Bike Path
- Corridor T-04 - Uvas Creek Trail
- Corridor T-52 - Stevens Creek Trail
- Corridor T-53 - Guadalupe River Trail in Alviso to Los Alamos Calero Creek Trail
- Corridor T-54 - Los Gatos Creek Trail from Downtown San Jose to Los Gatos
- Corridor T-55 - Coyote Creek Trail from Milpitas to Anderson County Park
- Corridor T-51 - De Anza Trail
- Corridor T-R4 - Bay Trail

Cross County Bicycle Corridors

Expressways
- Bike Paths
- Bike Lanes

Legend
- Expressways
- Bike Paths
- Bike Lanes

June 2008
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
Prioritization Analysis

- Level of Traffic Stress: 10%
- Collision History: 10%
- Projected bicycle ridership: 20%
- Transit access: 15%
- Employment & school access: 15%
- Equity: 10%
- Destinations: 15%
- Community support: 5%

Add map layers together

Composite map showing high value areas for bicycling
Prioritization Approach

1. Identify Metric

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
Criterion: Collisions
Density of Collisions weighted by severity

Legend
Collision Prioritization (1-1D Scale)
- < 3.0
- 3.1 - 5.0
- 5.1 - 8.0
- > 8.0

Prioritization Map: Collision Density (10%)
Criterion: Ridership

All bike trips in 2026 with CCBC network built out
Criterion: Transit
Last mile trips to transit stops & stations
Criterion: Work & School
Trips to and from work and schools

Legend

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

Trips originating from Communities of Concern (COC)
Criterion: Destinations

Density of shopping, schools, services, and affordable housing
Criterion: Outreach

Charrette & Crowdspot Outreach “Like” Density

Legend:
- Outreach Prioritization (1-10 Scale)
- Passenger Railway
- Santa Clara County

Prioritization Map: Public Support (5%)
Tools You Can Use

- **ArcNumerical** - add percentiles/z-scores to feature classes.
  - [https://github.com/Holisticnature/ArcNumerical-Tools](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](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](https://github.com/Holisticnature/FeatureLineSplit)
Questions?

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