



Rail Vision Day

From caveats to catenaries

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Making Rail Work

- A great system is a matter of *luck
- *Luck = Preparation meeting opportunity
- Opportunity created by
 - Density pattern
 - Bad traffic
 - Practical options
 - A population ready and open to solutions
 - Changing State and Federal priorities/regulations
- Solution: Go where you want to go, often



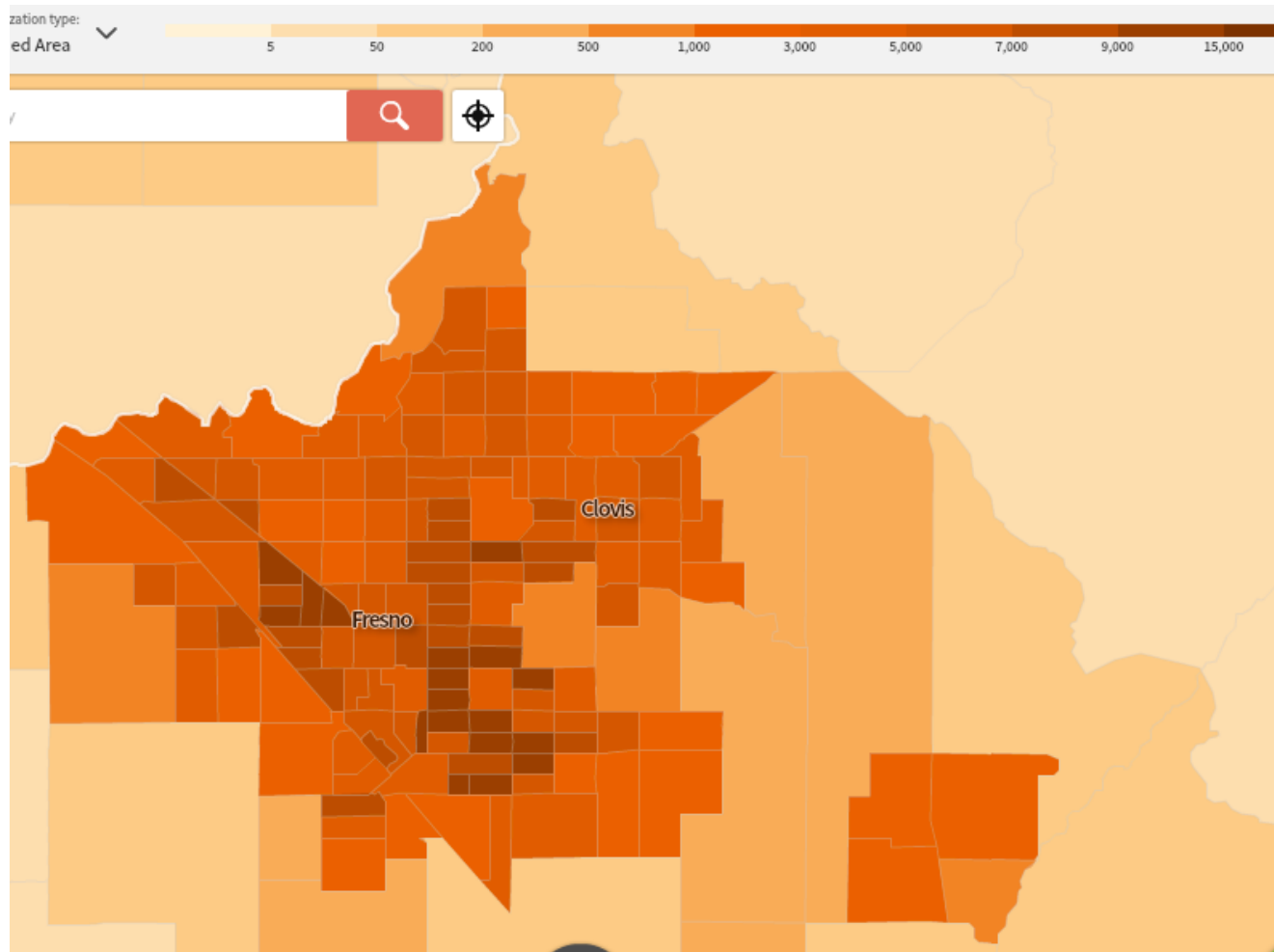
Density

- Not to be confused with population
- A large population can be very spread out (Jacksonville, Fresno)—both over 1M people, very unsuitable for transit
- Need dense population near a rail line PLUS
- Places to go near a rail line PLUS
- Ways to get to the rail line AND
- A long skinny settlement pattern
- FTA now realizes difference



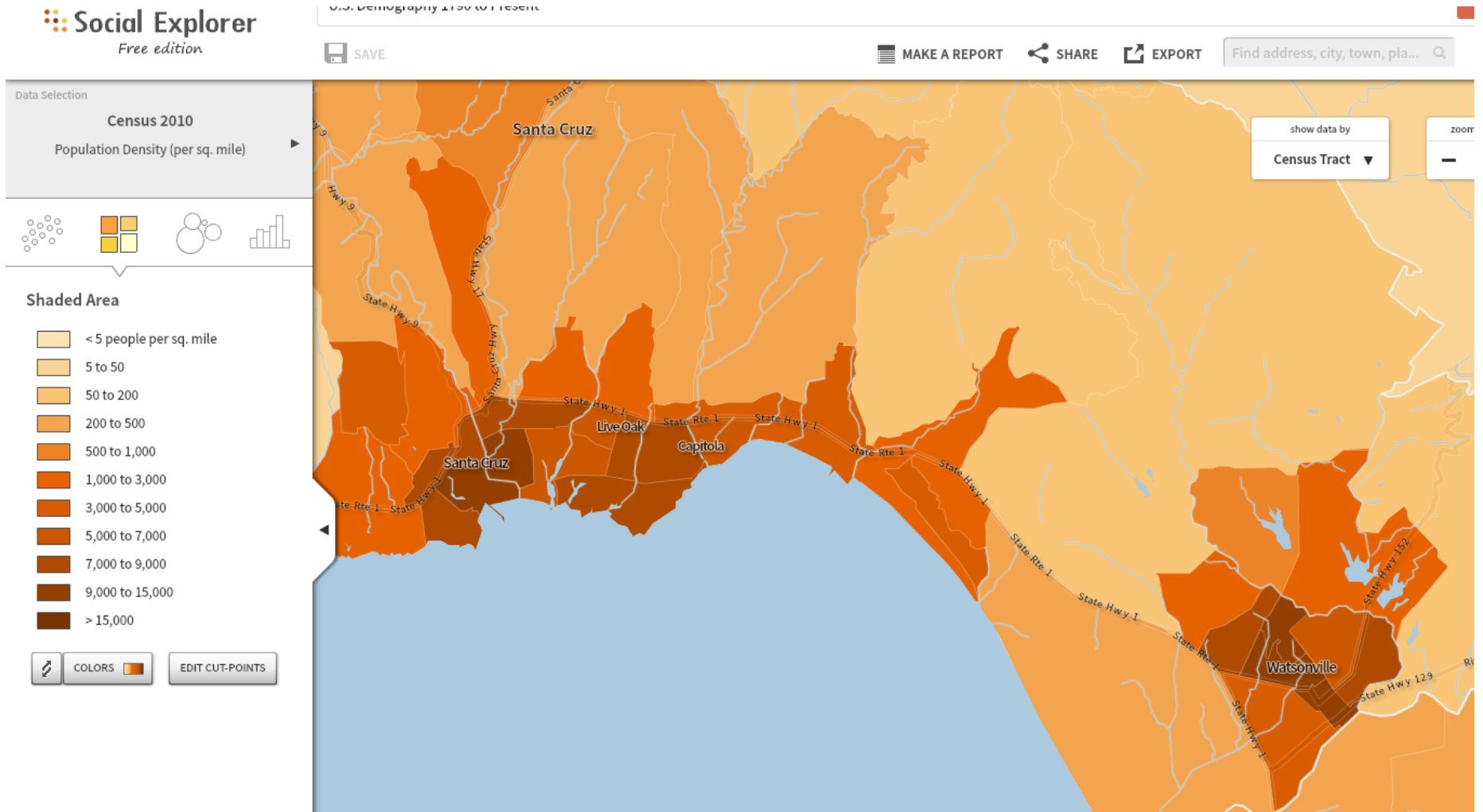
Density Maps (Fresno)

972,000 people



Density Maps (Santa Cruz)

250k people, 100+k in mid-County

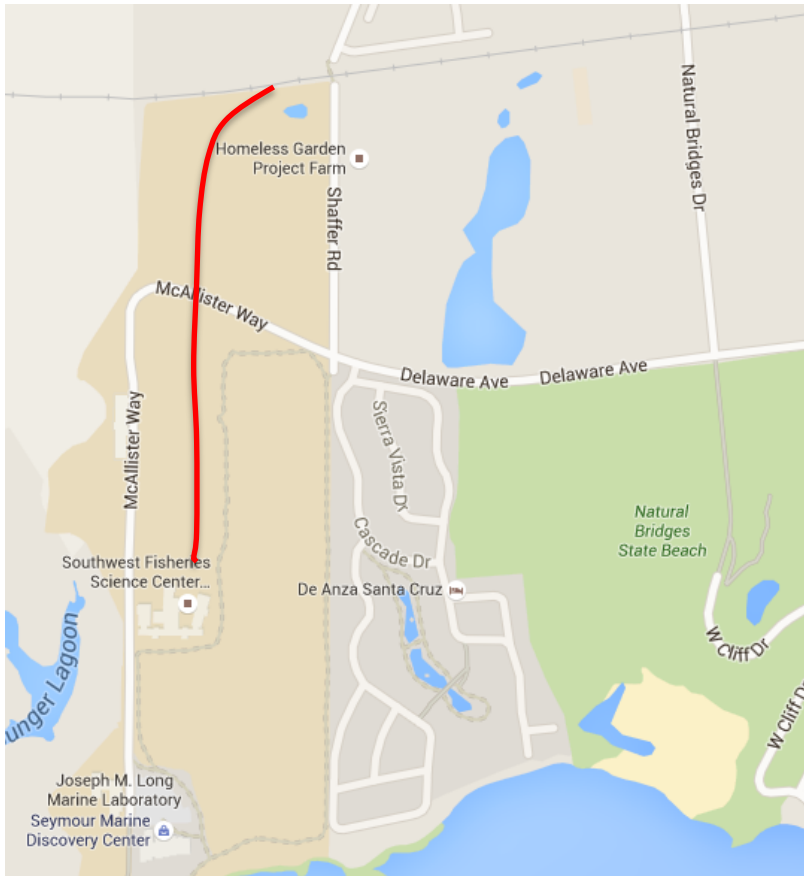


The Last Mile

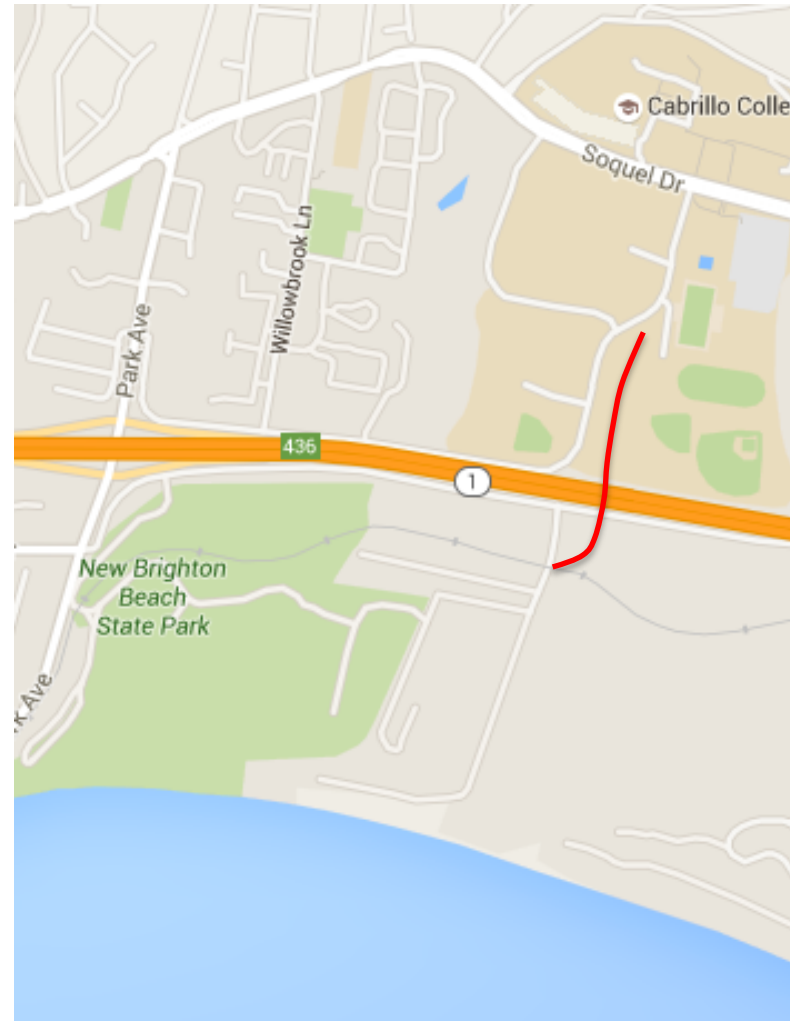
- Best if rail goes somewhere, not *near* somewhere. Somewhere = < 1 mile, pref. ½ mile. (28% SC pop ½ mile from RR, 50% 1 mile)
- VTA = What not to do (low ridership, heavy subsidy)
 - Traffic so bad, usage becoming decent anyway
 - Airport?
 - #10, Caltrain, #17 to get from SJC to SC
- In our area, this comes up for
 - UCSC
 - Marine Sciences Campus
 - Cabrillo College
 - Hospital/Medical Services area
 - Harvey West
- Best solution is direct service
- Second best is coordinated bus (UCSC, hospital, Harvey West)
- Serve a smaller number of people well than many poorly (~VTA)



Rail Spurs worth the effort



UCSC - MS
0.4 – 0.5 mi



Cabrillo College
0.2 mi. plus freeway
Over/underpass

A train is a train is a train?
Caltrain: Diesel powered, 460 tons



Explosion of new options

40-50 tons, electric, no locomotive



Light Rail with Streetcar feel-
Low boarding
Rapid acceleration
Rapid entry/exit

Streetcar with Light Rail Feel:
Top Speed 65 mph
Room for wheelchairs and bikes



New Technology

- Batteries (in use in Dallas, elsewhere)
- Supercapacitors (Europe)
- Hidden 3rd rail
- Inductive charging
- Diesel/electric hybrid
- Regenerative braking
- Efficiencies from 300-1000 mpg/passenger
- PTC

All aboard!

