



A vision for rail
in
Santa Cruz County

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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
 - CA State Rail Plan “goes big” on rail statewide by 2040
- Solution: Go where you want to go, often



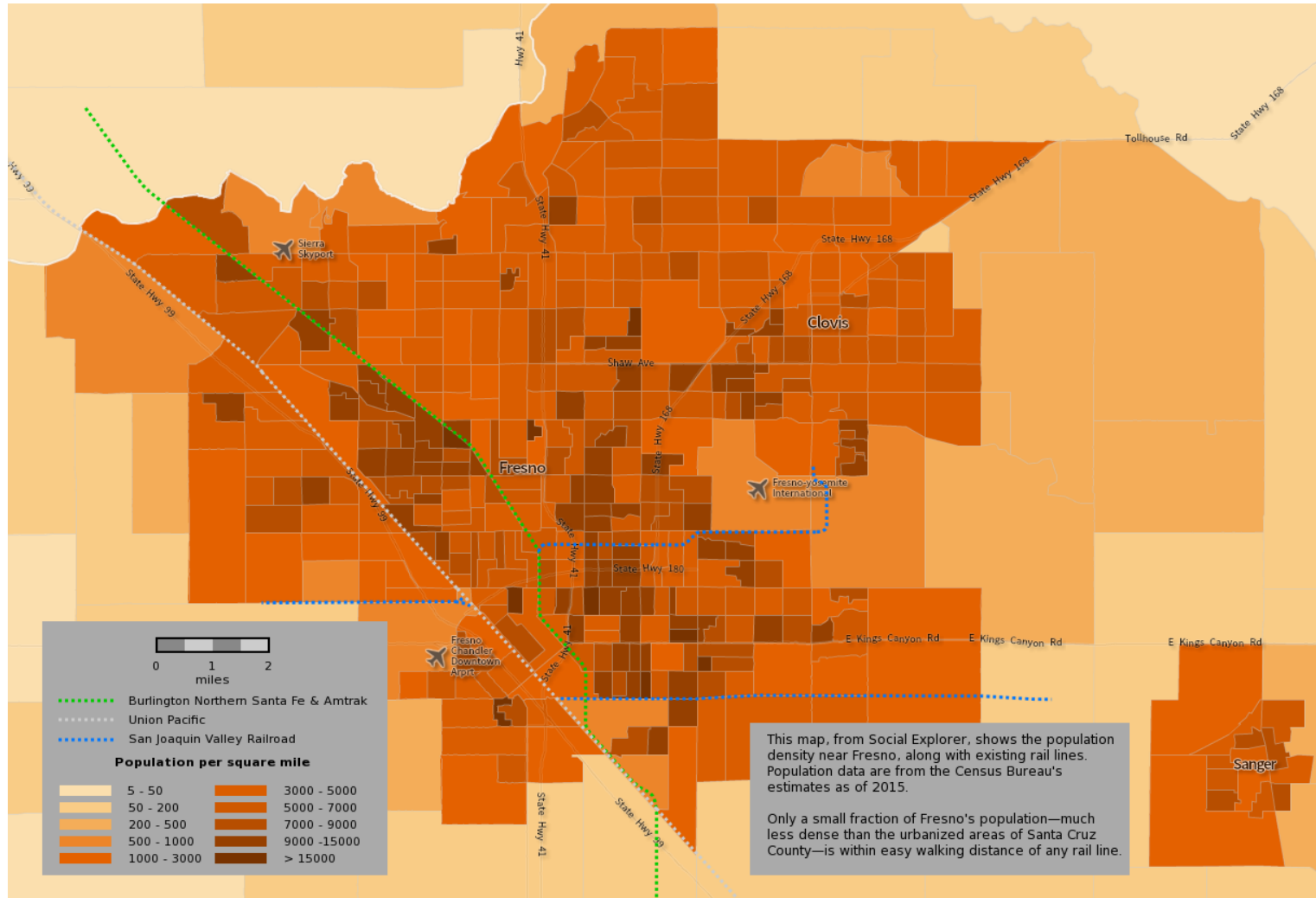
About Population Density

- Not to be confused with population
- A large population can be very spread out (Jacksonville, Fresno, San Antonio)—all 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
- Santa Cruz Co. checks all boxes



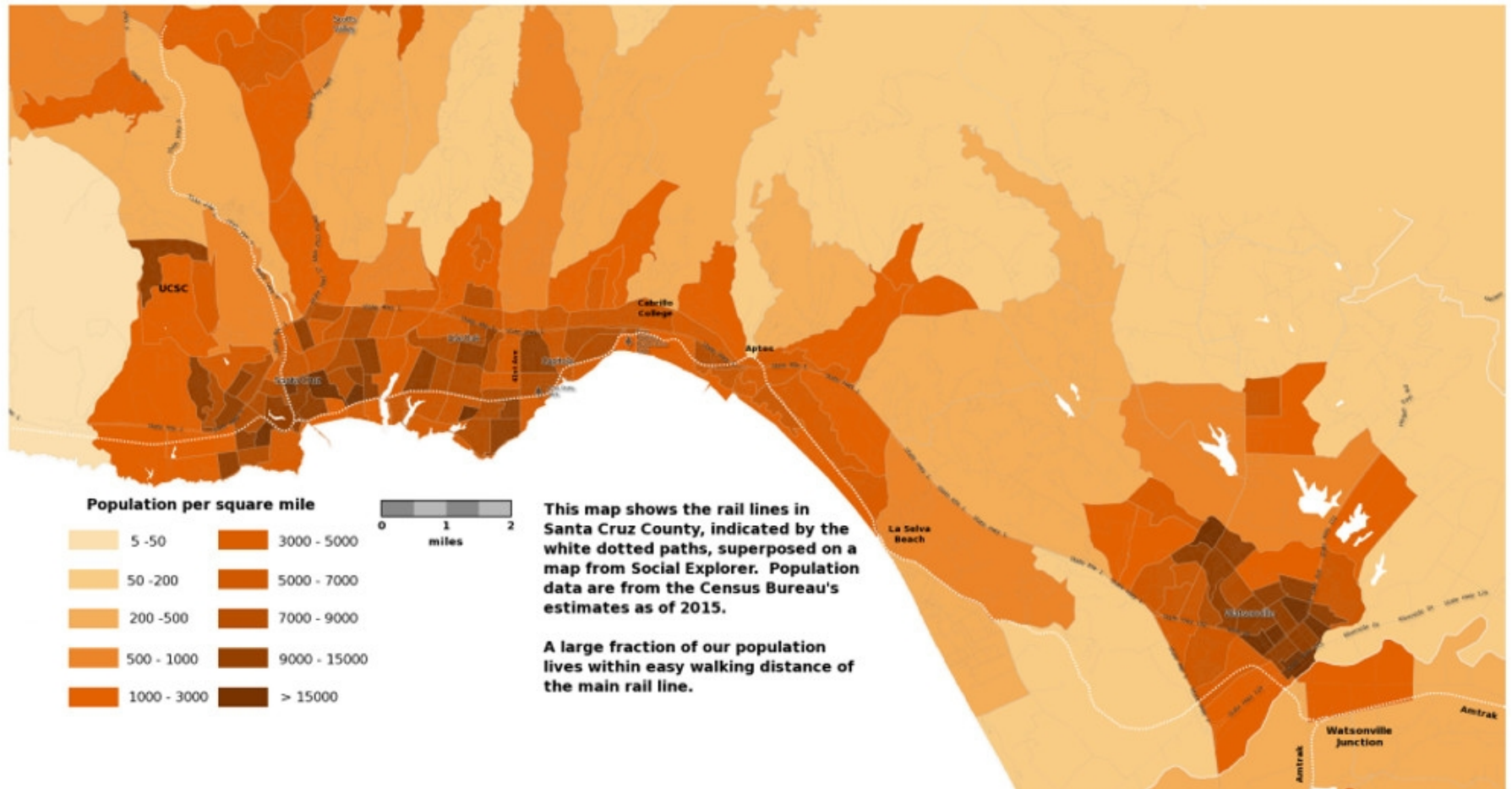
Density Maps (Fresno)

972,000 people



Density Maps (Santa Cruz)

250k people, 100+k in mid-County-rail lines dotted white



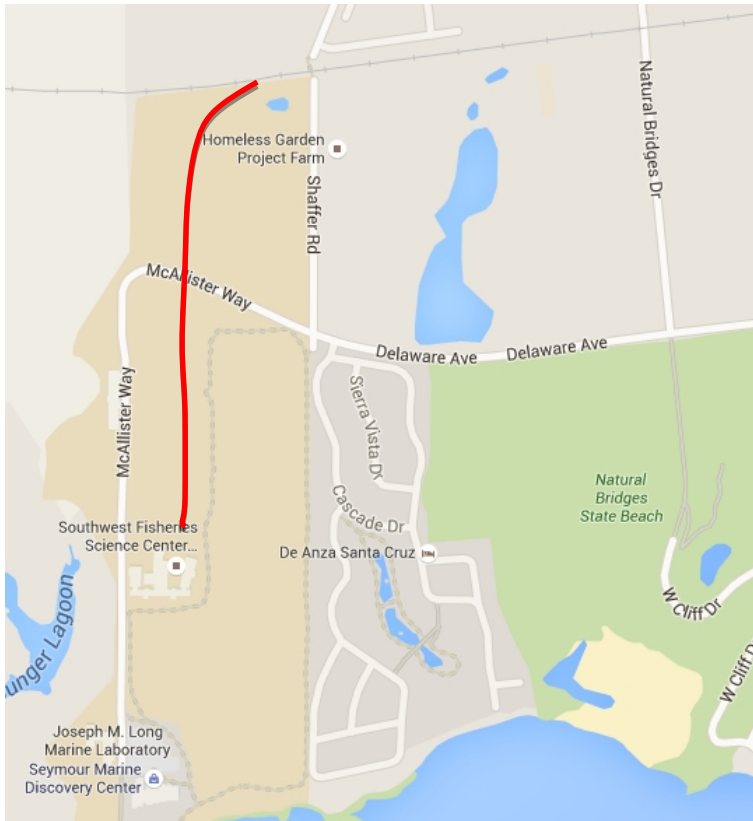
The Last Mile

- 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 = Example of what not to do (low ridership, heavy subsidy)
 - Traffic so bad, usage becoming decent anyway
 - Why not Airport?
 - 3 trip legs 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 (unlike VTA)

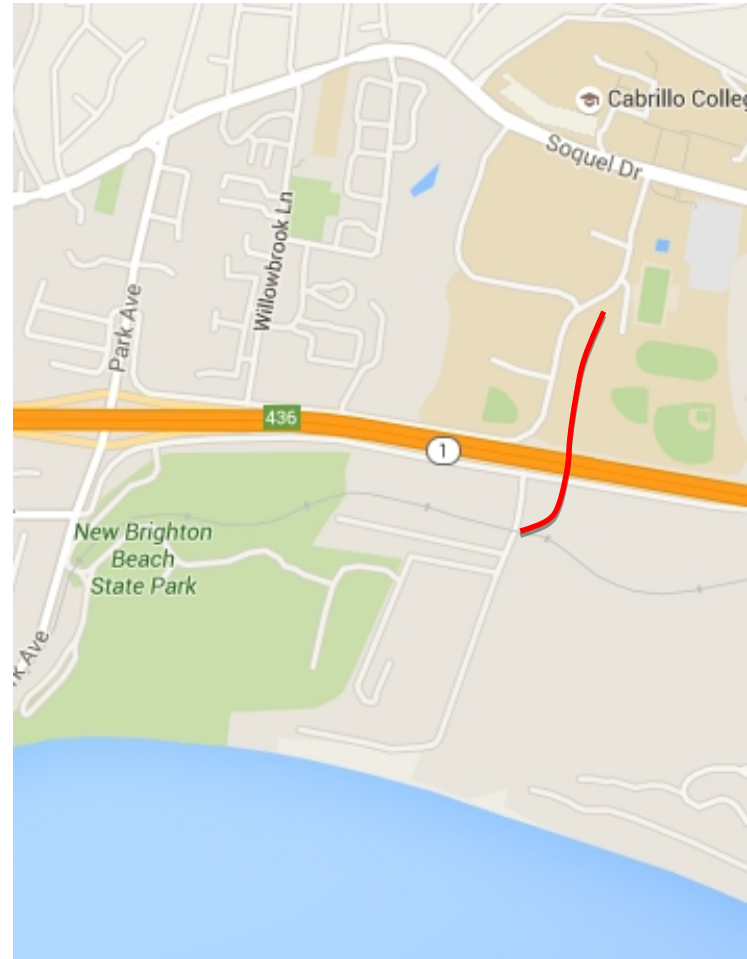


Rail Spurs worth the effort

These could add thousands of riders per day



UCSC - MS
0.4 - 0.5 mi
All on UCSC land



Cabrillo College
0.2 mi. plus freeway
Over/underpass

A train is a train is a train?

Caltrain: Diesel powered, 460 tons
(soon to be replaced by electric)



Explosion of new options since 2013

40-50 tons, electric, no locomotive



- Streetcar w/Light Rail capability
- Rapid acceleration
- Rapid entry/exit
- No-step boarding
- Supercapacitor/battery options
- Can carry up to 350 people
- Made in USA (2018)

Light Rail (Sacramento):
Top Speed 65 mph
Can carry up to 660 people
Made in USA
Battery version tested in San Diego



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!

