

# Estimating network-wide demand from heterogeneous demand data

Frank R. Proulx (Alta Planning + Design)  
& Alexey Pozdnukhov (UC Berkeley)

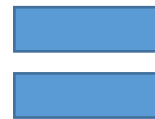
UTC Spotlight Conference  
12/2/2016



# How do datasets fit together to estimate bicyclist exposure?



STRAVA



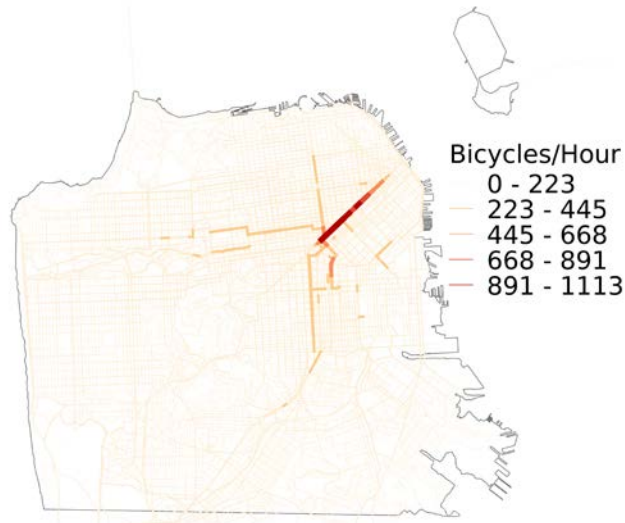
# Geographically Weighted Regression



STRAVA

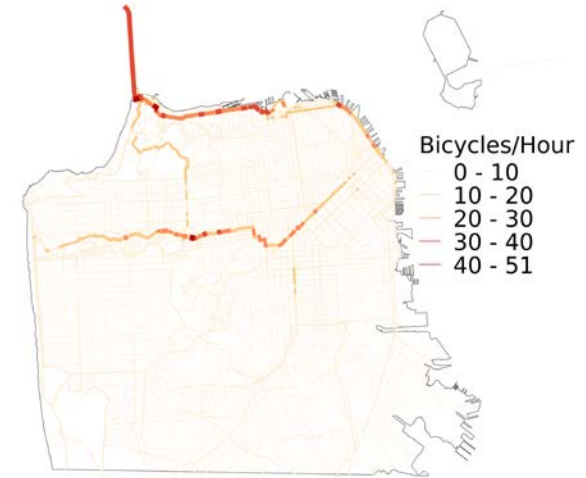


# Different demand patterns represented

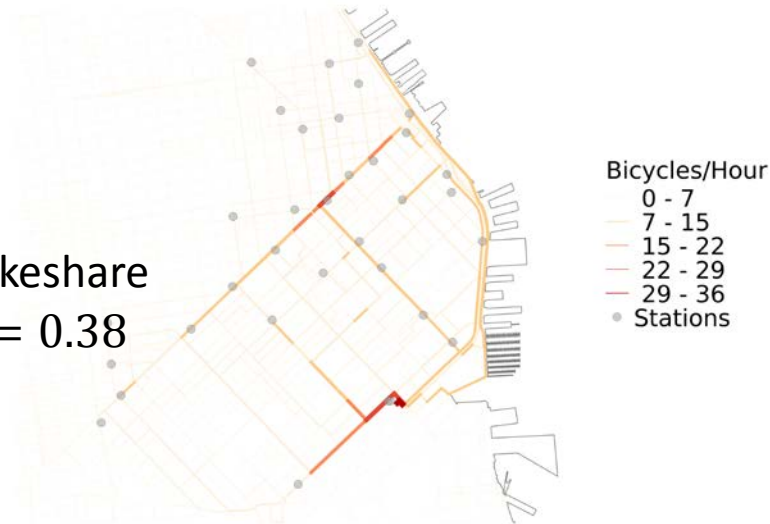


SF-CHAMP  
 $\rho = 0.59$

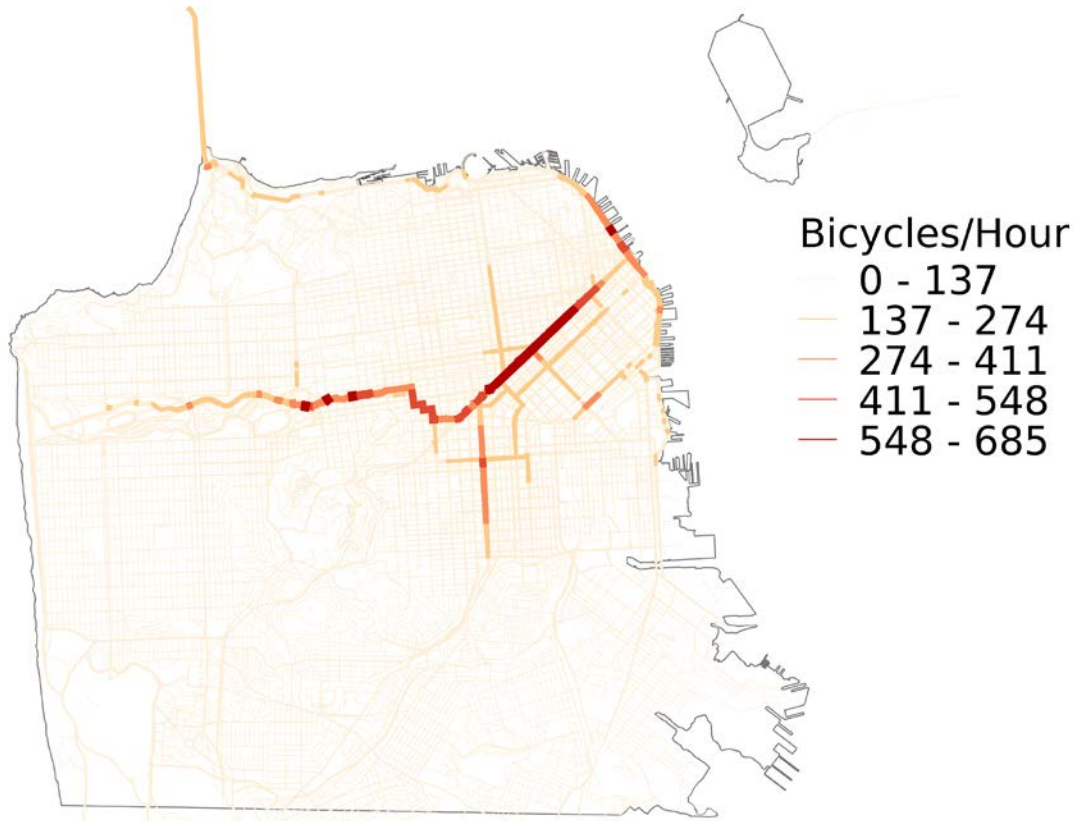
Strava Metro  
 $\rho = 0.72$



Bay Area Bikeshare  
 $\rho = 0.38$



# Best predictive accuracy from GWR model



$$\rho = 0.93$$

Leave-One Label Out CV

# Future Research Needs

- Alternative weighting schemes?
- Additional complementary datasets?

# Implications for Practice

- Safety Performance  
Functions/risk evaluation can be applied network-wide
- Value in emerging datasets... if used with caution!

