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BUILD THE BICYCLE NETWORK (PHASE 1)

Annual savings potential:	5300 tons
Annual public cost:	\$1,171,000
Public cost per ton:	\$220
Implementing agency:	Municipal Transportation Agency
Horizon year:	2015

Assumptions

- 2 percent of all trips in San Francisco are currently made by bicycle.
- 34 miles of new bike lanes will promote a 50 percent increase in bicycle trips citywide.
- 31 percent of all new bicycle trips will replace driver trips.
- The length of the average auto trip replaced will be 3.3 miles.

Analysis

From a CO2 emissions perspective, the advantages of bicycling are obvious: Travel by bicycle produces no emissions. However, the relationship between investments in bicycle infrastructure and reduced emissions is not straightforward, because not all new bike trips will replace car trips. Many will be new recreational trips, or they may replace walking or transit trips. Some bike trips that make use of new facilities will simply be diverted from other corridors.

With a moderate cost of \$270 per ton of CO2 reduced, the bicycle network needs to be justified on a basis other than reduction in emissions. However, the most important impact of new bicycle facilities may be that in the long run, along with rich transit service and a desirable pedestrian environment, bike facilities help to make low-traffic, compact urban neighborhoods possible and attractive.

Relative Impact

We estimate that cycling accounts for 2-4 percent of all trips made in San Francisco. A 2007 David Binder poll found that 16 percent of San Franciscans bike at least once a week, 4 percent every day.

What we do now

The San Francisco Bicycle plan provides an outline for how the City will promote bicycling as transportation. The San Francisco City Charter states that San Francisco should develop "a safe, interconnected bicycle circulation network" and that by bike and on foot "must be an attractive alternative to travel by private automobile." The city charter also states that "bicycling shall be promoted by encouraging safe streets for riding, convenient access to transit, bicycle lanes and secure bicycle parking."

San Francisco has 45 miles of bike lanes. A court-ordered injunction has prevented the City from developing new bicycle facilities since 2006. Once the San Francisco Municipal Transportation Agency completes environmental review its bike plan, however, continued development of bicycle facilities will be permitted.

What we could do

The next phased of the bike plan proposes an additional 34 miles of bike lanes, as well as marking an additional 23 miles of on-street bike routes with stencils indicating that bicycles and automobiles share traffic lanes. The Bicycle Plan also calls for expanded bicycle parking facilities and other improvements to the overall bicycling environment.

Cost

The estimated capital cost of the improvements named in the bike plan is \$18 million. Financed at 5 percent over 30 years, these projects will cost \$1.17 million per year.

Carbon savings potential

As discussed above, it is difficult to accurately predict how much new bicycle facilities will increase bicycling or reduce driving. If 2 percent of all trips in San Francisco are made by bike, there will be approximately 28.2 million bike trips made in San Francisco per year by 2025. If we assume that 34 miles of new bike lanes will promote a 50 percent increase in bicycle trips citywide, the investments will lead to an additional 14.1 million bike trips. If we further assume that bike trips will shift away from other modes in proportion to each other mode's current share of all internal San Francisco trips, then about 31 percent of all new bicycle trips will replace driver trips. At the average internal trip length of 3.3 miles, the investments will save 14.9 million VMT per year, or 5,273 metric tons of CO2. The cost per ton of CO2 emissions abatement would be \$222.

The most important contribution that bike and pedestrian facilities can make to reducing emissions is by helping to build complete neighborhoods that can support additional low-traffic residential development. *

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