

## **Measuring the Impacts of Bicycling and Walking in Communities: Regional Bicycle Working Group July 15, 2010**

The following is well supported in public and health and transportation research:

- **The walkability of a neighborhood has consistently been associated with:**
  - increased walking and biking for transportation purposes
  - residents who are more likely to meet adequate physical activity recommendations
  - lower body mass indexes (less overweight and obesity).
- This is even true when neighborhood self-selection is taken into account--people that value walkability and live in walkable neighborhoods walk and bike the most, but the neighborhood type impacts walking and biking even for those that don't value walkability.
- People who are more physically active are healthier and have lower medical costs that we can quantify
- **People want to live in walkable neighborhoods:** In a recent MTC survey, walk/bikeability emerged as one of the most important considerations of Bay Area residents in choosing a neighborhood
- There is an undersupply of walkable neighborhoods compared to demand
- **Safety:** As bicycling and walking rates increase, so do biking and walking safety
- **VMT Reductions:** Many studies indicate that increased biking and walking trips for transportation substitute for auto trips. Fewer hours in cars have also been associated with lower obesity and better health outcomes.

## Possible MTC Analyses:

### 1) Create performance measure for physical activity generation: convert transportation model output on time spent walking/biking into physical activity/health outcomes

Convert time spent walking/biking to:

- Increased minutes physical activity (PA) per day
- increased portion of people meeting recommended PA requirements
- calories burned
- reduction in levels of overweight and obesity
- \$\$: Health care/increased productivity savings due to increased PA, lowered obesity

*Data:* Output from MTC transportation model scenario assessment

### 2) Benefit-Cost Analysis: Correlate walkability/bikeability of neighborhoods to physical activity and health outcomes

1. Correlate walkability (and/or bikeability) of neighborhoods to minutes/day of biking and walking.
2. Translate increase in minutes of biking and walking to health outcomes.

*Data:* Walkability index (we have a land-use-based walkability index now)\*  
2000 Bay Area Travel Survey

*Regional analysis:* Calculate the portion of people that will be living in walkable/bikable neighborhoods under the plan scenarios, and compare with the current trend and/or current conditions.

### 3) Benefit-Cost Analysis: Correlate walkability/bikeability of neighborhoods to average neighborhood BMI directly

*Data:* Walkability index  
2000 Bay Area Travel Survey  
2001 California Health Interview Survey (would take at least a month to acquire)

*Regional analysis:* Same as #2

### 4) Benefit-Cost Analysis: Predict increases in walking/biking and health impacts under various future scenarios, based on established rules of thumb\*\*

1. After establishing current baseline for walkability and minutes walked in an area, make projections for change in walkability based on changes in density, land use mix and urban design, and use elasticities to predict increased walking.
2. Translate increase in minutes of walking to health outcomes.

*Data:* Walkability index  
2000 Bay Area Travel Survey  
Requires projecting changes in density, land use and urban design on project or regional level

*Regional analysis:* Could make scenario projections based on average change in walkability over the region, from the start, or could use the same method as #2 and #3.

### 5) Visual comparison: Map current minutes of biking/walking/day, or walkability, by zip code, and map various health outcomes by zip code as well. (Could also use charts)

-This is more for making the connection visually, it does not project to the future.

*Data:* Walkability index  
2000 Bay Area Travel Survey  
2001 California Health Interview Survey (would take at least a month to acquire)

\*\*There are no established elasticities for bikes. We would have to use another model, but there are various models that link bike infrastructure investments to bike trips.