

## **BICYCLE/PEDESTRIAN PROJECT MERIT EVALUATION** **METHODOLOGY**

### Introduction

Consistent with the previous TIP Updates, CDTC Staff again used potential market for bicycle/pedestrian travel, cost-effectiveness and potential safety benefits (e.g., accident reduction or avoidance) in the evaluation of bicycle and pedestrian projects. These measures are briefly defined below.

#### **Potential Market for Bike and Pedestrian Travel**

This measure is based on the modeled short trip response on the bicycle/pedestrian version of CDTC's Systematic Traffic Evaluation and Planning (STEP) model. A potential bicycle trip table was created by selecting all PM peak hour trips from the CDTC STEP Model that are less than 10 miles. A potential pedestrian trip table was created by selecting all PM peak hour trips from the CDTC STEP Model that are less than 2.5 miles. (A pedestrian distance threshold of 2.5 miles was selected to allow for the extra distance between loading nodes in the model.) The aim of this measure is to get an indication of how many trips might be realistic candidates for conversion to cycling or walking.

For this analysis, project candidates are represented in the STEP Model using the conventions that correspond with biking or walking. In the STEP Model, illegal facilities are closed to bicycle and pedestrian travel (e.g., Interstates have no bicycle or pedestrian access), and discourages the use of very undesirable facilities (for example facilities with no sidewalks) with a 1 MPH speed limit. For the pedestrian model, facilities with sidewalks were coded at 3 mph. For the bicycle model, bicycle friendly streets were coded at 10 mph and bike lanes and bike/hike trails were coded at 15 mph. Projects were modeled under this rubric to see how many short trips could potentially walk or cycle based on the project improvement. The process does not model how many walkers or cyclists there will be on a given day, rather it provides a relative estimate of how many people would have access to use the project improvement for walking or cycling. Each project is then given a market value score of A, B or C based on their relative levels of access provided in comparison with other projects.

#### **Cost-Effectiveness**

Cost-effectiveness is calculated by comparing the market value score with the cost. Project candidates are divided into three cost groups in comparison to each other and assigned scores of A, B or C. Lowest cost projects received a grade of "A", medium cost projects a grade of "B" and high cost projects a grade of "C". This cost grade was compared to the grade given for market potential. Final cost effectiveness scores were based on the following table:

| <b>Cost Score</b> | <b>Assigned Trips Score</b> | <b>Final Cost Effectiveness Score</b> |
|-------------------|-----------------------------|---------------------------------------|
| A                 | A                           | A                                     |
| A                 | B                           | A                                     |
| A                 | C                           | B                                     |
| B                 | A                           | A                                     |
| B                 | B                           | B                                     |
| B                 | C                           | C                                     |
| C                 | A                           | B                                     |
| C                 | B                           | C                                     |
| C                 | C                           | C                                     |

### **Potential Safety Benefit**

The CDTC Bicycle and Pedestrian Advisory Committee suggested this measure as a way of illustrating the safety enhancement which comes in making accommodations for cyclists and pedestrians within the transportation system. The potential safety benefit is calculated using the Federal Highway Crash Modification Factor (CMF) Clearinghouse. A CMF provides a quantitative estimate of the effectiveness of a proposed improvement (i.e. high-visibility crosswalks, bike lane, etc.) on decreasing crashes of the site where it will be implemented. The CMF score is dependent on traffic volume, existing conditions, and car-bicycle and car-pedestrian crash histories. Candidate projects are given a safety benefit score of A, B or C based on their relative CMF in comparison with other projects.

### **Total Bicycle Pedestrian Score**

A weighted score for each project is calculated by assigning weighted score points as follows: A+=7, A=6, A-=5, B+=4, B=3, B-=2, C+=1, C=0. Market Potential and Safety are worth 2X Cost Effectiveness.