Complete Streets

Project Evaluation and Metrics
Policy to Practice Cycle

1. Set Goals and Performance Metrics
2. Plan Complete Streets
3. Build Great Projects
4. Evaluate Projects
How Should We Measure Complete Streets?

• Long history of measuring vehicle delay

• Rising interest in / funds for active transportation

• Increasing focus on public sector accountability

• Better guidance for planners and engineers
Goal-Setting and Visioning for a City

Vision
A desired end-state

Goals
Detailed outcomes of the Vision

Objectives
“How” and “what” of goals

Performance Measures
Goal-Setting and Visioning for a City

A Note on Performance Measures

**Outcomes** are things you influence
- Bicycle mode share
- Pedestrian mode share
- Number of bicyclist- or pedestrian-involved traffic fatalities

**Outputs** are things you control
- Miles of protected bike lanes
- Miles of sidewalks
- Number of pedestrian crossings of arterial roadways
- Number of projects at locations with an above-expected crash rate
Measuring Effectiveness

• Process-oriented thinking
  • Focus is on what has to be done, rather than think about the outcome
  • Measures outputs

• Outcome-oriented thinking
  • End goal is always on the mind
  • Measures outcomes

• Complete Streets requires both
  • The process of developing complete streets (goals, vision, design, etc.) is just as important as implementing a completed project
Why Evaluate your Complete Street?

• Make sure Complete Streets projects are working towards the right goals
  • Economy
  • Environment
  • Place
  • Safety
  • Equity
  • Public Health

• Apply the right performance metrics
Active Transportation Performance Measures

- Health and Safety
- Multimodal performance
- Equity
- Education
- Access
- Infrastructure
- Economic Development
- Placemaking
## Montgomery County, Maryland

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Network</th>
<th>Function/Quality</th>
<th>Usage</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrate Development</td>
<td>Expand Street Network</td>
<td>Improve Efficiency/Capacity</td>
<td>Increase Carpool</td>
<td>Improve Safety</td>
</tr>
<tr>
<td>Encourage Transit-Oriented Development Opportunities</td>
<td>Viable Alternative to Driving Alone</td>
<td>Maximize Person Throughput</td>
<td>Increase Transit Use</td>
<td>Increase Non-Auto Mode Share</td>
</tr>
<tr>
<td>Provide Mixed Uses</td>
<td>Implement Connectivity and Access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implement Bus Rapid Transit</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Safe, Direct, and Convenient</td>
<td>Comfortable Facilities</td>
<td>Increase Non-Auto Mode Share</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve Connectivity</td>
<td>Comfortable Facilities</td>
<td>Increase Non-Auto Mode Share</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variety of Skill Levels</td>
<td>Improve Access for People with Disabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Use</td>
<td>Network</td>
<td>Function/Quality</td>
<td>Usage</td>
<td>Safety</td>
</tr>
<tr>
<td>------------------------</td>
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<td>------------------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Varied Auto Performance Standards by Area</td>
<td>None</td>
<td>Congested Speeds Travel Time Index Highway Capacity Manual Level of Service Critical Lane Volume</td>
<td>Counts Non-Auto Driver Mode Share Vehicle Miles Traveled</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>Coverage</td>
<td>Peak Headway All-Day Headways Span of Service</td>
<td>Ridership Non-Auto Driver Mode Share</td>
<td>Facility Inventory</td>
</tr>
<tr>
<td>None</td>
<td></td>
<td></td>
<td>Counts Non-Auto Driver Mode Share</td>
<td></td>
</tr>
</tbody>
</table>

Applicability to Goals: **Good** Fair Poor
Montgomery County New Metrics

1. **Accessibility**
   - Jobs Accessible within 45 minutes by Mode
   - Person Trips Accessible within 45 minutes by Mode
   - Jobs Accessible by Travel Time by Mode
   - Person Trips Accessible by Travel Time by Mode
   - Person Trip Duration by Mode
   - Access to Transit by Mode

2. **Traveler Experience**
   - Frequency of Service
   - Span of Service
   - Reliability
   - Bicyclist Comfort
   - Pedestrian Comfort

3. **Intersection Performance**
   - Person Delay

4. **Activity**
   - Raw Person Trips by Mode
   - Person Trips Per Capita by Mode
   - Vehicle Miles of Travel per Person Trip
   - Vehicle Hours of Travel per Person Trip
   - Person Trips per Collision

10/12/2017 SACOG Corridor Working Group
Project Example #1

EDCTC – Active Transportation Connections Study
Project Example #2

Sacramento Bicycle Master Plan
Goals and Objectives of Bicycle Master Plan

• Goal: Increase Ridership
  • 7% bicycle mode share for commuting by 2020

• Goal: Increase Safety
  • Zero bicycles fatalities by 2020

• Goal: Increase Connectivity
  • *Double the percentage of residents that can conveniently reach a continuous low-traffic-stress bikeway network by 2025*

• Goal: Increase Equity
  • *Equitable investments in bicycling facilities and programs for all neighborhoods by 2020*
Goals, Objectives, & Metrics

- **Goal: Increase Ridership**
  - 7% bicycle mode share for commuting by 2020
    - Residential Density
    - Employment Density
    - Commercial and Entertainment Key Destinations
    - High Speed Roadways
    - High Volume Roadways

- **Goal: Increase Safety**
  - Zero bicycles fatalities by 2020
    - On the Bicycle High Injury Network

- **Goal: Increase Connectivity**
  - Double the percentage of residents that can conveniently reach a continuous low-traffic-stress bikeway network by 2025
    - Connects to Schools
    - Routes to Transit
    - Connects to Existing Parks
    - Gap Closure

- **Goal: Increase Equity**
  - Equitable investments in bicycling facilities and programs for all neighborhoods by 2020
    - Adjacent to Equity Index
Increase Safety and Equity
Project Example #3

Fair Oaks Boulevard Complete Street Plan
Project Objectives

• Improve mobility of pedestrian, bicyclists, motorists and transit
• Create a sense of place and center of activity
• Strengthen neighborhood cohesiveness
• Stimulate economic development
## Travel Time Reduction

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Non-Peak Condition</th>
<th>Peak Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing</strong></td>
<td><strong>Existing</strong></td>
<td><strong>Phase 1</strong></td>
</tr>
<tr>
<td>Average Travel Time</td>
<td>1.5 minutes</td>
<td>2.1 minutes</td>
</tr>
<tr>
<td>Travel Speed</td>
<td>45 mph</td>
<td>33 mph</td>
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</tbody>
</table>
Using Big Data

About 60% of trips using Fair Oaks Boulevard are local and begin and end within ½ mile of the corridor.
## Comparison of alternatives

<table>
<thead>
<tr>
<th>Concepts</th>
<th>One</th>
<th>Two</th>
<th>Three</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Remove Driver Conflict</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Accommodate Bike Rider</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Pedestrian Improvements</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Changes in Traffic Patterns</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Impact to Business Access</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Frontage Parking</strong></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

- ○ Low
- ○○ Medium
- ● High
Questions and Thoughts