Evaluating Success: Complete Streets Before and After

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Fehr & Peers
Overview

• Why is evaluation important?

• How can it be performed, and what metrics should be used?
  • What unique methods can be used for evaluating safety in the near term?

• How can the results be shared with the community?
WHY.
WHY.

Outputs

Outcomes

BEFORE

AFTER

BEFORE

AFTER
HOW.

Quick Build project in Richmond, CA

Quick Build project in Fremont, CA
# METRICS:

## Vehicle Flow

<table>
<thead>
<tr>
<th>Metrics</th>
<th>When to Use</th>
<th>How to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Hour Vehicle volumes (ADT)</td>
<td>All projects</td>
<td>To establish volume / roadway context for study (high volume vs. low volume)</td>
</tr>
<tr>
<td>Average corridor speeds</td>
<td>Corridor projects that include goal of reducing speed</td>
<td>To evaluate change in vehicle speed</td>
</tr>
<tr>
<td>Peak hour vehicle turning movements</td>
<td>Projects that include intersection safety treatments</td>
<td>To establish volume context for intersection (high volume vs. low volume) and thresholds of efficacy</td>
</tr>
<tr>
<td>Vehicle queuing during peak periods</td>
<td>Projects that include removal of a vehicle lane</td>
<td>To evaluate / demonstrate changes to vehicle flow</td>
</tr>
<tr>
<td>Vehicle turning speeds</td>
<td>Projects that include goal of reducing speeds at intersections</td>
<td>To evaluate effectiveness of reducing vehicle turning speeds</td>
</tr>
<tr>
<td>Vehicle travel time</td>
<td>Projects that may reduce roadway vehicle capacity</td>
<td>To determine expected and actual change in travel time through study area</td>
</tr>
</tbody>
</table>
# Multimodal Safety Metrics

<table>
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<tr>
<th>Metrics</th>
<th>When to Use</th>
<th>How to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosswalk or bikeway blocking at intersections</td>
<td>Projects that include a new bike facility with crossings at intersections</td>
<td>To provide near term evaluation of potential conflicts</td>
</tr>
<tr>
<td>User perception / comfort (intercept surveys)</td>
<td>Near-term safety projects whose pilot duration is less than five years</td>
<td>To provide near term evaluation of safety</td>
</tr>
<tr>
<td>Vehicle to pedestrian or bicycle to pedestrian yield rates</td>
<td>Projects that include changes at uncontrolled crosswalk locations (such as a road diet or adding a dedicated bike facility) or new intersection treatments at signalized crosswalks with permitted turns (such as new bicycle facilities)</td>
<td>To determine if a project has successfully elevated the pedestrian such that drivers and riders are more aware of their duty to yield or stop</td>
</tr>
<tr>
<td>Near-Collision Video Analytics</td>
<td>Projects with a major goal in addressing an existing safety issue</td>
<td>To evaluate safety problems before collisions occur.</td>
</tr>
</tbody>
</table>
CASE STUDY.

Since we completed the Bancroft Way Complete Street Project

Before:
- Vehicle Flow is unchanged
- Traffic: 30 mph before, 29 mph after
- Pedestrian safety: neutral difference in daily vehicles traveling on Bancroft

After:
- Added 2-way bike lane
- Added bus lane
- Added on-street parking

We found that:
- More people are riding bikes, and
- In a lower stress environment!

Data collected over three days at Bancroft between Edgeworth and Denman Street.

617 people were riding bikes before.
957 people were riding bikes after.

84% of vehicles do not block bikeway at Edgeworth St.
83% of people yield to bikes.

8 of 10 people yield to bikes.
9 of 10 keep bikeway clear.

Data collected during 6AM to 9PM at Edgeworth Street vicinity, April and May peak periods (1 hour total).

Data collected on Bancroft Way between Ruby Street and Evans Street during AM and PM peak periods (1 hour total).
CASE STUDY.

Since we completed the Bancroft Way Complete Street Project

We found that

More vehicles are yielding to pedestrians, with mixed results for bicycling yielding behavior.

1. **Fewer** bikes yield to pedestrians at Fulton-Bancroft left turn: 40% before vs. 25% after.
2. **More** vehicles and fewer bikes yield to pedestrians at Fulton-Bancroft right turn: 78% before vs. 66% after.
3. **More** vehicles and bikes yield to pedestrians at Ellsworth-Bancroft crosswalk: 83% before vs. 95% after.
4. 11% of bikes yielded to pedestrians after the project at Dana-Bancroft west leg crosswalk.
5. **More** bikes yield to pedestrians at Dana-Bancroft south leg crosswalk: 40% before vs. 33% after.

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Data collected during AM and PM peak periods at Fulton-Bancroft intersection.

Data collected during AM and PM peak periods at Fulton-Bancroft intersection.

Data collected during AM and PM peak periods at Ellsworth-Bancroft intersection.

Data collected during AM and PM peak periods at Dana-Bancroft intersection.
CALL TO ACTION.

Standardized data

Send us your studies!