The National Bicycle and Pedestrian Documentation Project

Responding to the Need for Improved Data on Bicycling and Walking
What is NBPD?

• A pro bono effort by Alta Planning + Design with support from ITE
• Annual national bicycle and pedestrian count and survey effort
• Fulfills need for in-depth analysis of why people bike and walk
• Objectives
  – Consistent data collection
  – Open access data
  – Shared research
Need for NBPD

- Lack of consistent data
- Non-motorized modes lack funding
- Minimal national data sharing
- Analysis for other modes are based on marginal data yet receive substantive funding
NBPD Accomplishments

• Over 75 organizations and agencies have sent data
• Over 600 count locations
• Extrapolation figures
• Related projects: Caltrans Seamless Travel
• Publicly available support documents including training presentations and count/survey forms
• www.bikepeddocumentation.org
Why Count?

- Evaluate need for new trails and trail upgrades
- Evaluate community demand
- Explain trail value to community, elected officials, grant agencies
- Justify resource allocation
- Forecast demand
- Support grant applications
Preparation for Counts

- Select count days, times, locations
- Determine manual or automatic counters, or both
- Visit locations to understand unusual traffic patterns
- Determine how many counters you will need to hire
- Hire and train your counters
After Counting Period

- Review forms
- Re-count locations if necessary
- Data entry
- Send data to NBPD
- Data analysis
- Plan for your next count
NBPD Count Dates and Times

2012 Official National Count/Survey Days

- January 10 – 12
- May 15 – 17
- July 3 – 5
- September 11 – 13

Recommended Times

- Weekday, 5 – 7 PM
- Saturday, 12 noon – 2PM

Secondary Times

- Weekday, 7 AM – 7 PM
- Saturday, 7 AM – 7 PM

Other days and times are okay, based on local situation
Selecting Count Weeks

- Consider:
  - School schedules
  - Daylight savings
  - Special events
  - Weather
Selecting Days of the Week

• Select one weekday and one weekend day to gather different levels
• Tuesdays, Wednesdays and Thursdays are not statistically significantly different
Selecting Time of Day

• Consistency is key
• Peak periods include:
  – Weekday, 10AM-Noon
  – Weekday, 5-7 PM
  – Saturday, Noon-2pm
• Actual local peak periods may vary considerably
Selecting Locations

• Depends on reason for collecting data
  – Area-wide estimation of activity
  – Before/after analysis
  – Facility use
  – Exposure data
  – Transit access mode share
  – Etc…
**Count Types**

**Screenline**
Count everyone who passes

**Intersection**
Count anyone who enters your intersection and note movement
Count Types

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Count anyone who enters your intersection and note movement
Quality Control

It is important to include quality control measures

– Spot field checks
– Review and verification of data within a day or two of collection to identify discrepancies
– Use of counters who care a lot about bicycle and pedestrian issues has been shown to improve the accuracy of counts.
Forms

- Intersection form
- Screenline form
- Forms available on website
Data Input

- Name
- Location
- Date
- Time Period
- Weather

STANDARD SCREENLINE COUNT FORM

Name: ____________________ Location: ____________________
Date: ____________________ Start Time: ________________ End Time: ________________
Weather: ____________________

Please fill in your name, count location, date, time period, and weather conditions (fair, rainy, very cold). Count all bicyclists and pedestrians crossing your screen line under the appropriate categories.
Data Input: Screenline Count Form

- 15 minute intervals
- Count from each direction
- Count by gender
- Count number of people on bicycle
- People in wheelchairs counted as pedestrians
Intersection Count Form

- Separate bicycle and pedestrian count forms
- Does not differentiate by gender
- Allows counters to collect turning movements
- 15-minute intervals
- 2-hour period can be collected on one sheet
Data Input:
Intersection Count Form

- 15 minute intervals
- Note movement through intersection
- May use different symbols for bikes/peds
- Or a symbol for sidewalk riding or road walking
Data Input: Intersection Crossing

Enter after field work
Total and summarize data for after the count and for input into the national database
Count forms collected by the sponsoring agency
Enter data in spreadsheet available at: www.bikepeddocumentation.org
  – NBPD updated the spreadsheets for the 2009 count effort
Send data sheets to data@bikepeddocumentation.org
Subjects
How do you count this?
How do you count this?

5!
How do you count this?
How do you count this?

2!
How do you count this?
How do you count this?

4!
How do you count this?
How do you count this?

Other!
By the park
How do you count this?
How do you count this?
How do you count this?
How do you count this?
How do you count this?
How do you count this?
Trail Counts with Automatic Counters

The corner of Nørrebrogart and Søtorvet, in Copenhagen, sees over 36,000 bicycles per day!
## Count Technologies

<table>
<thead>
<tr>
<th>Technology</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive Infrared</td>
<td>Detects change in thermal contrast</td>
</tr>
<tr>
<td>Active Infrared</td>
<td>Detects obstruction in beam</td>
</tr>
<tr>
<td>Video Imaging</td>
<td>Analyzes pixel changes or Data is played by and analyzed by a person</td>
</tr>
<tr>
<td>In-Pavement Magnetic Loop</td>
<td>Sense change in magnetic field as metal passes over</td>
</tr>
<tr>
<td>Slab Sensor</td>
<td>Detects change in pressure to measure footsteps</td>
</tr>
</tbody>
</table>
Passive Infrared

- Little maintenance
- Easy to move
- Can detect travel in both directions
- 70-95% accuracy
- Cannot distinguish between bicycles and pedestrians
- Grouping poses problem

Cost estimate: $1,000-$3,000 each
Are these images from Eco Counter? If so, should note.
lauren, 4/11/2011
Active Infrared

- Little maintenance
- Easy to move
- Can distinguish between bicycles and pedestrians
- 90-95% accuracy
- Cannot detect travel direction
- Requires equipment on both sides of path
- Grouping poses problem

Cost estimate: $700-$1,000 each
Video Imaging

• Little maintenance
• Can record travel in both directions
• Can distinguish between bicycles and pedestrians
• Difficult to move
• Requires review

Cost estimate:
Varies on hours and number of locations
In-Pavement Loop Detection

- Little maintenance
- Grouping does not cause significant problem
- Can detect travel in both directions
- 95% accuracy
- Difficult to move
- More expensive

Cost estimate:
$1,800-$3,000 each
Acoustic Slab

- Little maintenance
- Grouping does not cause significant problem
- Can detect travel in both directions
- 95% accuracy
- Only detects pedestrians
- Difficult to move
- More expensive

Cost estimate: $1,000-$3,000 each
Working with the equipment

• Installation & Mounting
  – Narrow area
  – Clear view of path
  – Avoid sun soaked trees
• Data downloads

Issues
• Rains and Flooding
• Vandalism
Where to put your counter

• Historic (manual) count location
• Trail head approach
  › Major access point
  › Near transit
  › High use areas
• Areas of planned improvement
• High conflict areas
• Stakeholder recommendations
What the data will tell you

Average Activity by Hour
What the data will tell you

Weekday Counts
What the data will tell you

Weekend Counts
What the data will tell you

Activity by Month
Why Use Automatic Counters?

• Consistent data rather than a snapshot
  › Weather
  › Seasonal variations in use
  › Events
    *All influence manual counts*
• More cost effective than coordinating volunteers
• More in-depth data than manual counts
One Slide About Surveys
Questions?

Thank you!

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www.bikepeddocumentation.org