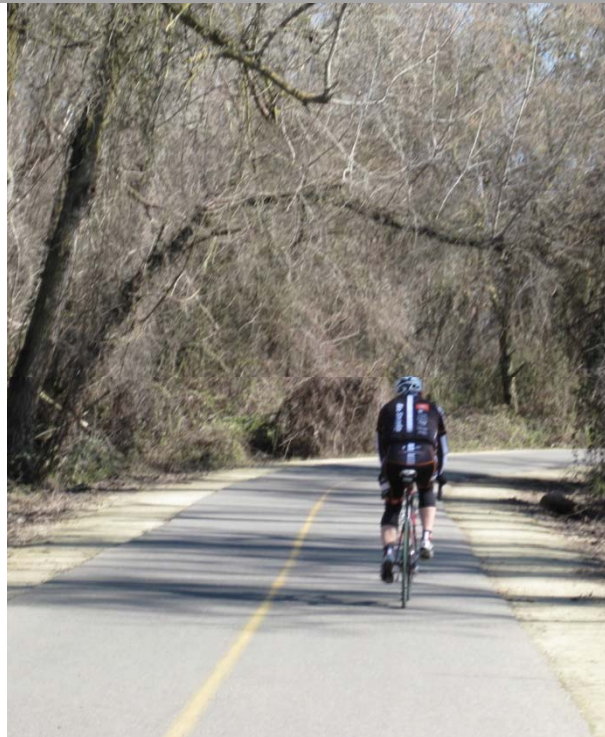


# Trail Counts with Automatic Counters

## The National Bicycle and Pedestrian Documentation Project

*Responding to the Need for Improved Data on Bicycling and Walking*



# Presentation Overview

1. What is NBPD?
2. Why count?
3. Available count technologies
4. Where to put your counter
5. What your count data can tell you

# 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




# The Need for NBPD

- Lack of consistent data
- Lack of support for non-motorized funding
- Forecasting and modeling bicycle and pedestrian travel

## National Bicycle and Pedestrian Documentation Project

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**2009 Count Dates:**

The next count/survey days are during the week of May 11, 2010.

- Tuesday, May 11 through Thursday, May 13
- Saturday, May 15 through Sunday, May 16

### About

One of the greatest challenges facing the bicycle and pedestrian field is the lack of documentation on usage and demand. Without accurate and consistent demand and usage figures, it is difficult to measure the positive benefits of investments in these modes, especially when compared to the other transportation modes such as the private automobile. An answer to this need for data is the National Bicycle & Pedestrian Documentation Project, co-sponsored by and Alta Planning and Design and the Institute of Transportation Engineers (ITE) Pedestrian and Bicycle Council. This nationwide effort provides consistent model of data collection and ongoing data for use by planners, governments, and bicycle and pedestrian professionals.

### Methodology

The basic assumptions of the methodology are that, in order to estimate existing and future bicycle and pedestrian demand and activity, agencies nationwide need to start conducting counts and surveys in a consistent manner similar to those being used by ITE and other groups for motor vehicle models.

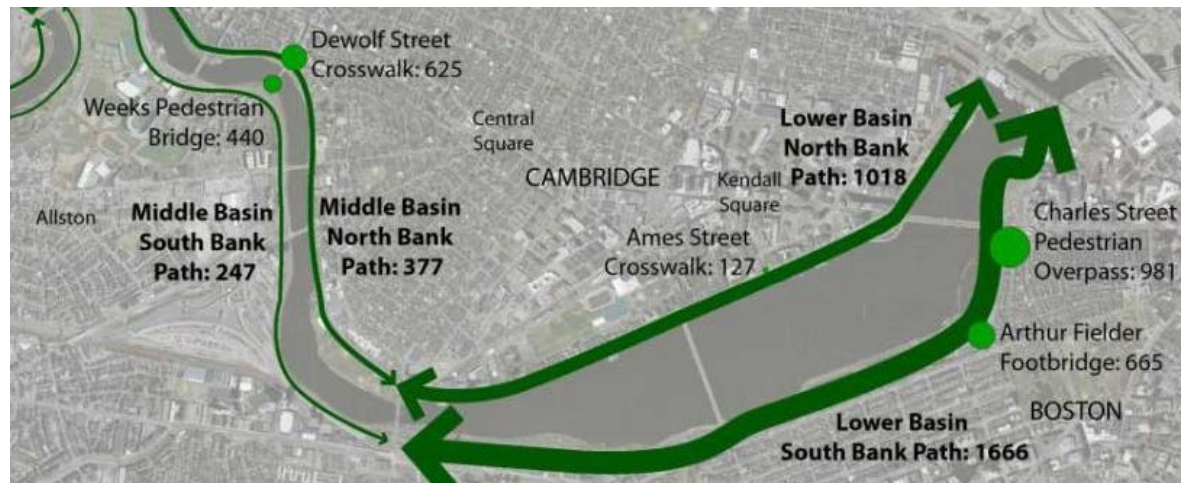
# Why Count?

- 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

# Counts Inform Design

Multi use pathway capacity ranges

- ›8ft path – 50-100 users per hour
- ›10ft path – 100-125 users per hour



# Why Use Automatic Counters?

- Consistent data rather than a snap shot
  - › Weather
  - › Seasonal variations in use
  - › Events

All influence manual counts
- More cost effective than coordinating volunteers
- More in-depth data than manual counts

# Count Technologies

Passive Infrared	Detects change in thermal contrast
Active Infrared	Detects obstruction in beam
Video Imaging	Analyzes pixel changes or Data is played by and analyzed by a person
In-Pavement Magnetic Loop	Sense change in magnetic field as metal passes over
Slab Sensor	Detects change in pressure to measure footsteps

# Passive Infrared

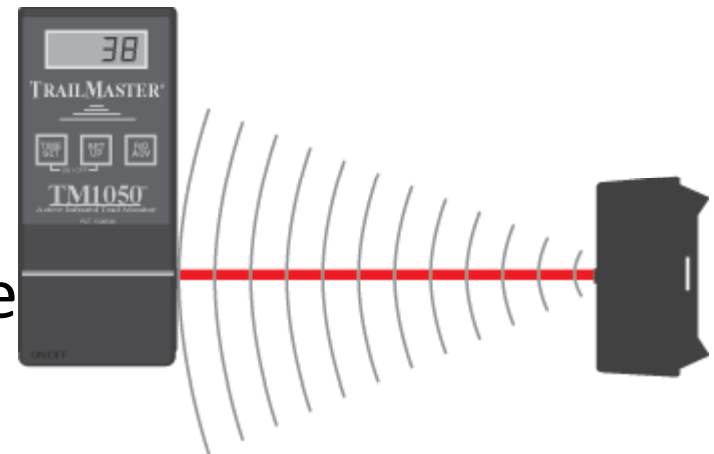
- Little maintenance
- Easy to move
- Can detect travel in both directions
- 70-95% accuracy
  
- Can not distinguish between bicycles and pedestrians
- Grouping poses problem



Cost estimate:  
\$1,000-\$3,000 each

# Active Infrared

- Little maintenance
- Easy to move
- Can distinguish between bicycle and pedestrians
- 90-95% accurate
- Can not 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% accurate
- Difficult to move
- More expensive

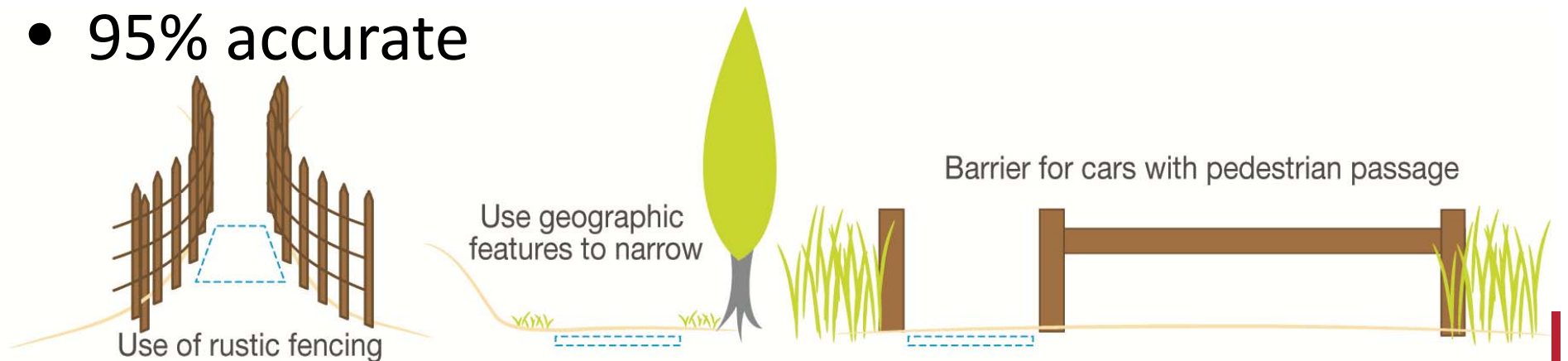


Cost estimate:  
\$1,800-\$3,000 each

# Acoustic Slab

Cost estimate:  
\$1,000-\$3,000 each

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



# Working with the equipment

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

## Issues

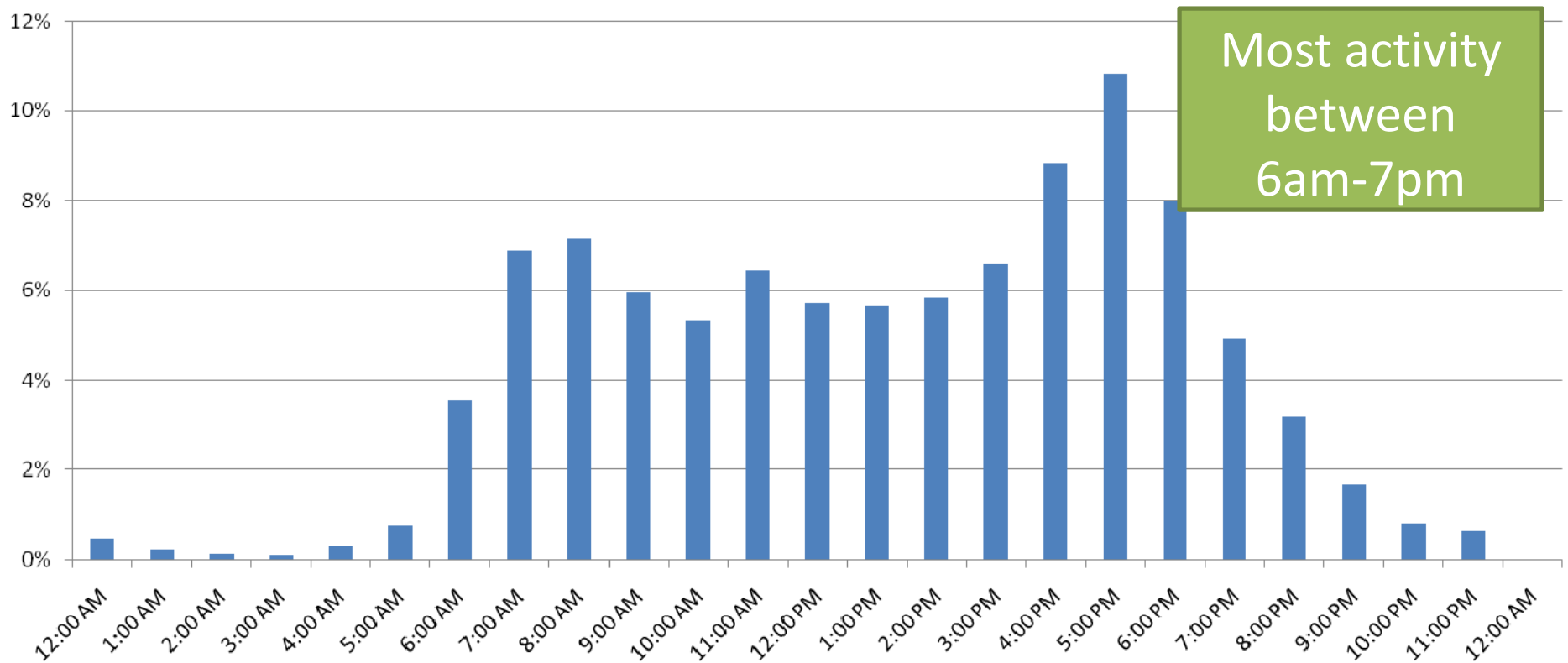
- Rains and Flooding
- Vandalism



# 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

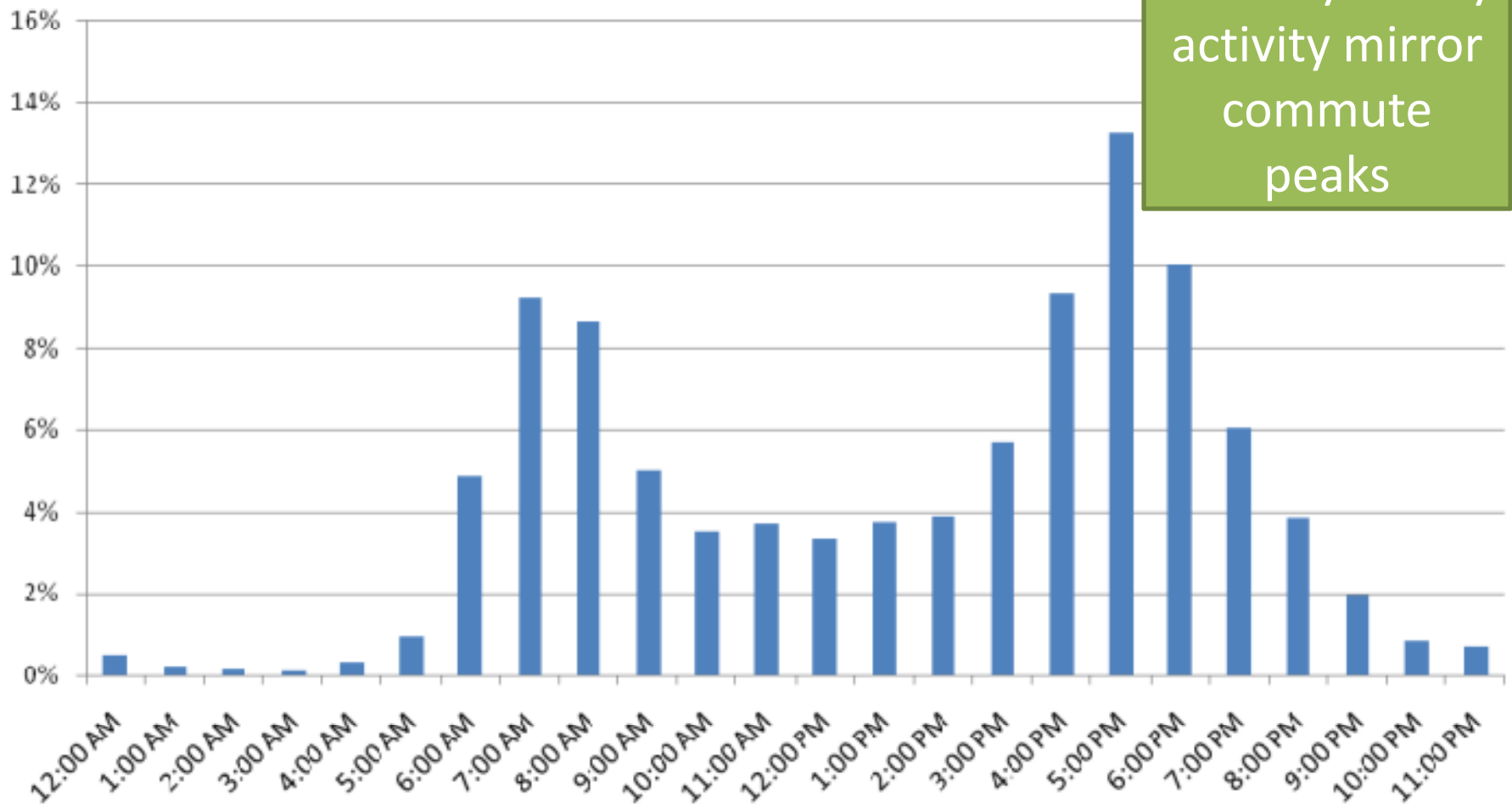
# What the data will tell you



Week Average  
Activity by Hour

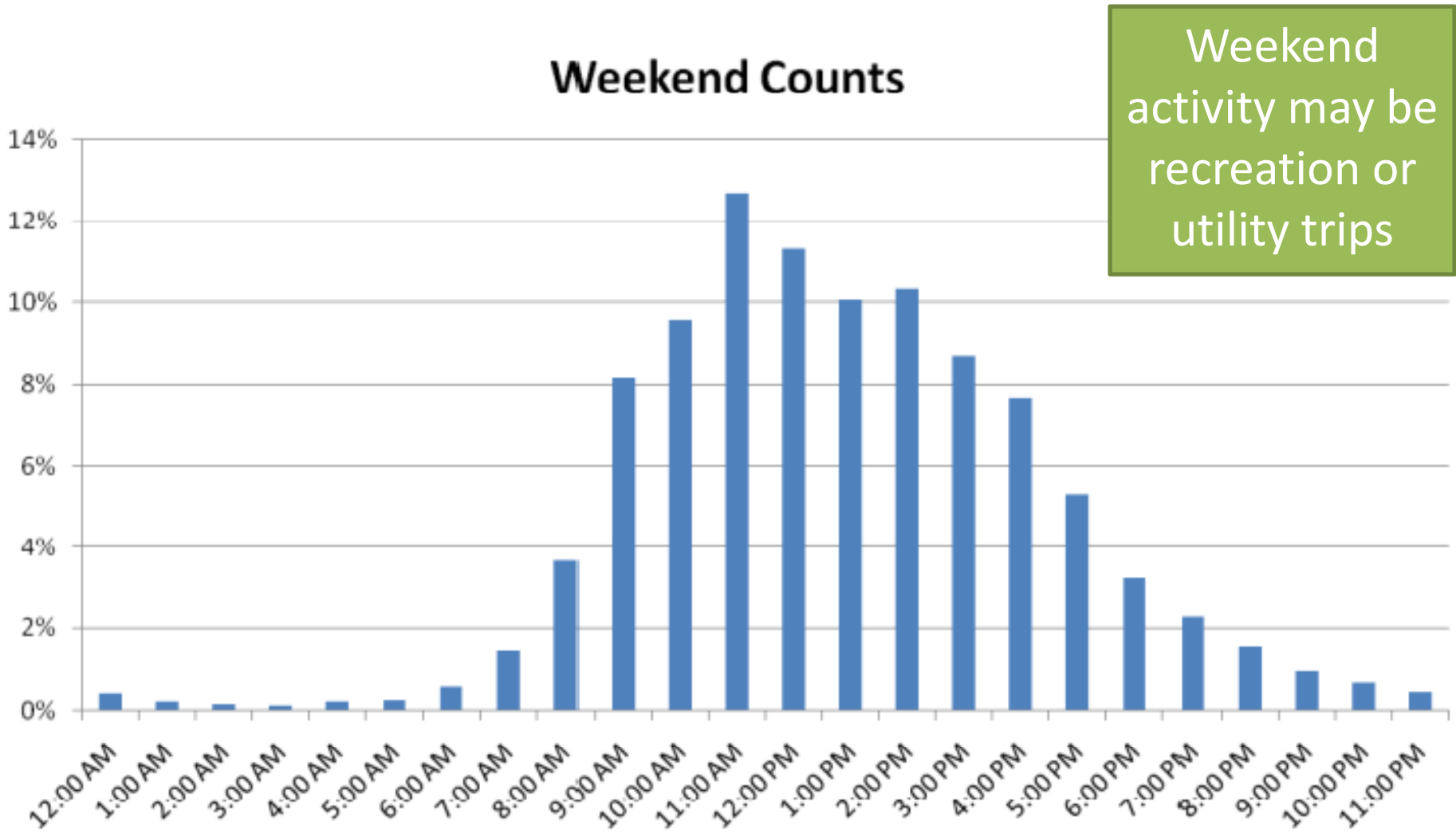
# What the data will tell you

## Weekday Counts

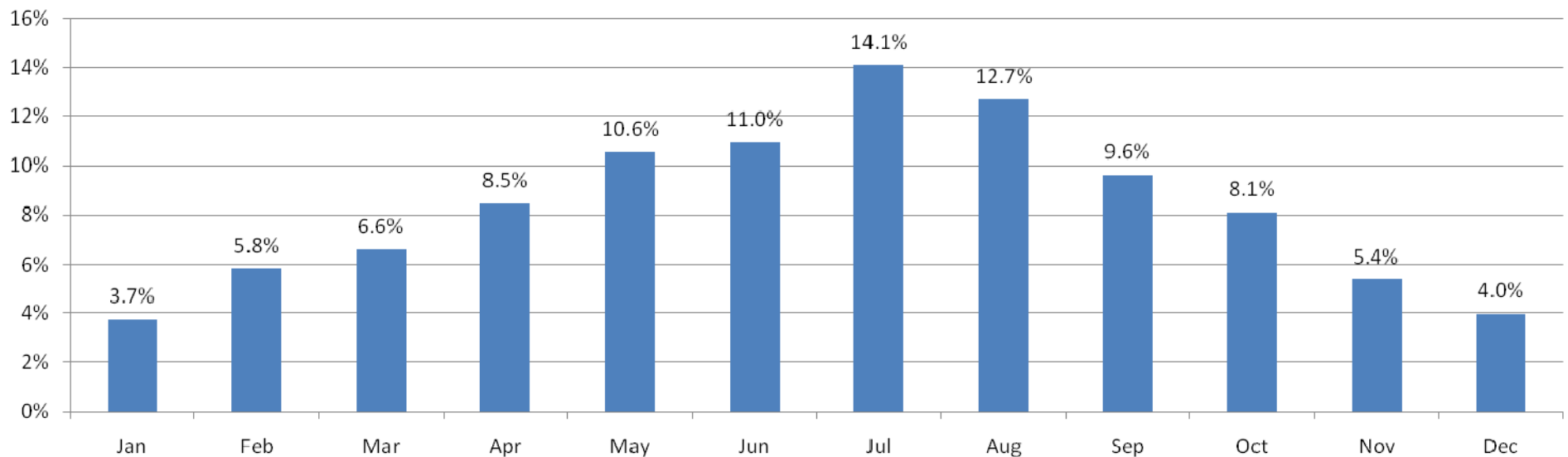


Monday-Friday  
activity mirror  
commute  
peaks

# What the data will tell you



# What the data will tell you



Activity by Month

# What the data will tell you

Metric	Number of bicyclists and pedestrians
<b>Total Activity</b>	
Annual total	113,541
<b>Averages</b>	
Average Monthly Activity	9,462
Average Weekly Activity	2,183
Average Weekday Activity	310
Average Weekend Activity	334
Average Weekday Peak Hour Volume	41
Average Weekend Peak Hour Volume	42
<b>Peak Periods</b>	
Weekday Peak Hour	5:00 PM
Weekend Peak Hour	11:00 AM
Month with Highest Activity	July
Month with Lowest Activity	January

# What does this all mean?

- Is your facility used for
  - › Recreation?
  - › Transportation?
  - › Both?
- Does your facility have high enough volumes to warrant separating users?
- Is more maintenance needed at peak times?

# What does this all mean?

- What benefit does your trail provide to your community?
  - › High use and therefore valued?
  - › Contribute to biking and walking as transportation?
  - › Contribute to active lifestyles?
  - › Support community strategies for sustainability?

# Extrapolation Factors

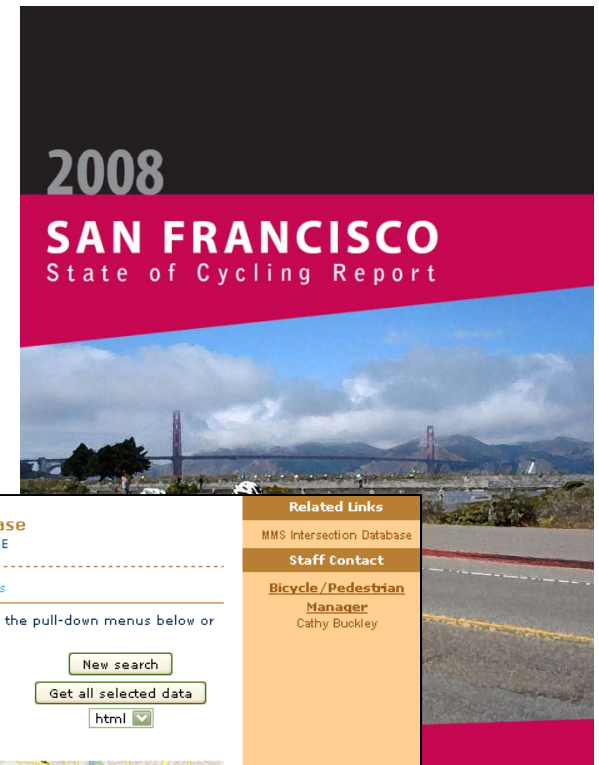
	A	B	C	D	E	F
1						
18						
19			<b>Inputs - Green cells require your attention.</b>			
20						
21			<b>Input your two-hour count total</b>	20		
22			<b>Count date</b>	9/21/2010		
23			<b>Count time:</b> Enter first hour of two hour count period	10:00 AM		
24			<b>Type:</b> Path or PED District	Path		
25			<b>Climate Zone:</b> Long Winter Short Summer, Moderate Climate, or Very Hot Summer Mild Winter	Long Winter Short Summer		
26						
27		<b>Multiplier Value</b>	<b>Outputs - Orange cells are the daily, weekly, monthly and annual estimates.</b>			
28						
29		1.05	1 hour period multiplied by 1.05	21.00		

# How Communities Use Data

1. Understand use
2. Forecast demand for
  - Existing
  - Proposed
3. Support grant applications
4. Design

# Who's Counting?

- Cities
  - Arlington, VA
  - Lincoln, NE
  - Portland, OR
  - San Francisco, CA
- Regional
  - East Bay Regional Parks District
  - San Francisco MPO
  - Mid-Ohio Regional Planning Commission
- State
  - Washington
  - Colorado



**Bicycle / Pedestrian Resources - Database**  
OVERVIEW • WALKABLE COMMUNITIES • REPORTS • DATABASE

Overview • About the Data • Access the Database • Contributors

Search for a set of locations by selecting items from the pull-down menus below or by zooming in on the map.

**Search by:**

Municipality:

Facility:   Format:

Date:

**2010 Washington State Bicycle and Pedestrian Documentation Project**



*Questions?*

*Thank you!*

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***www.bikepeddocumentation.org***

