Towards a Regional Active Transportation Monitoring Program

Automated Bicycle Counting

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10-18-2012

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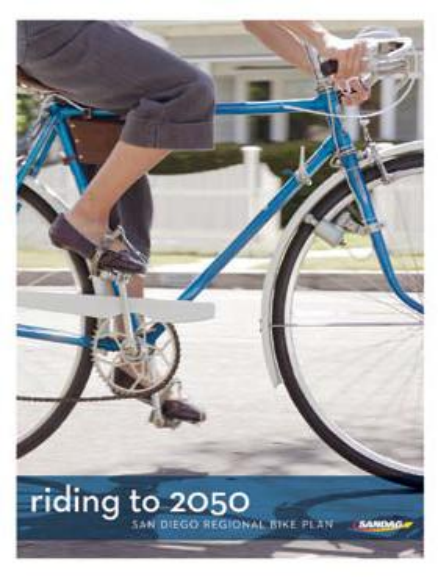
Active Transportation Research

Impetus for Project

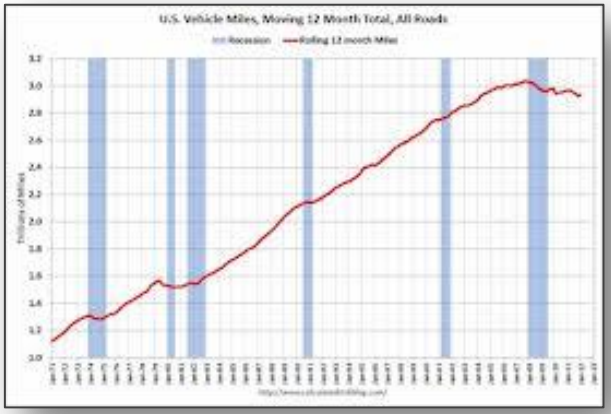
Promoting Policy Change to Encourage Physical Activity

Why Counting?

Policy Evaluation



Travel & Health Monitoring

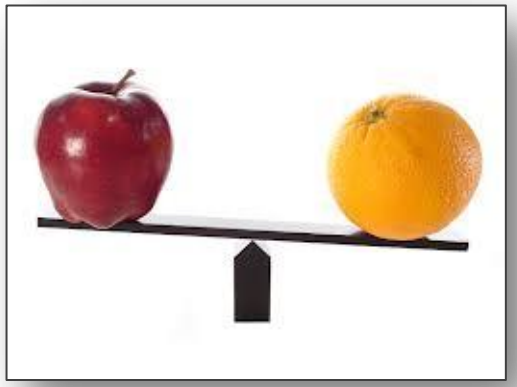


Infrastructure Evaluation

Measure ➡ ***Understand*** ➡ ***Realize***

Why Automated Counting?

- **Data Quality**
  24-Hour Counts at 15' Intervals
- **Reliability**
  Automated Upload of Data
- **Consistency**
  Compare "Apples to Apples"



Program Overview

- Technology
- Siting and Installation
- Preliminary Data

Technology – *Eco-Counter*

Zelt Logger & Inductive Loops

Pyro

Eco-Multi

Advantages of Eco-Counter

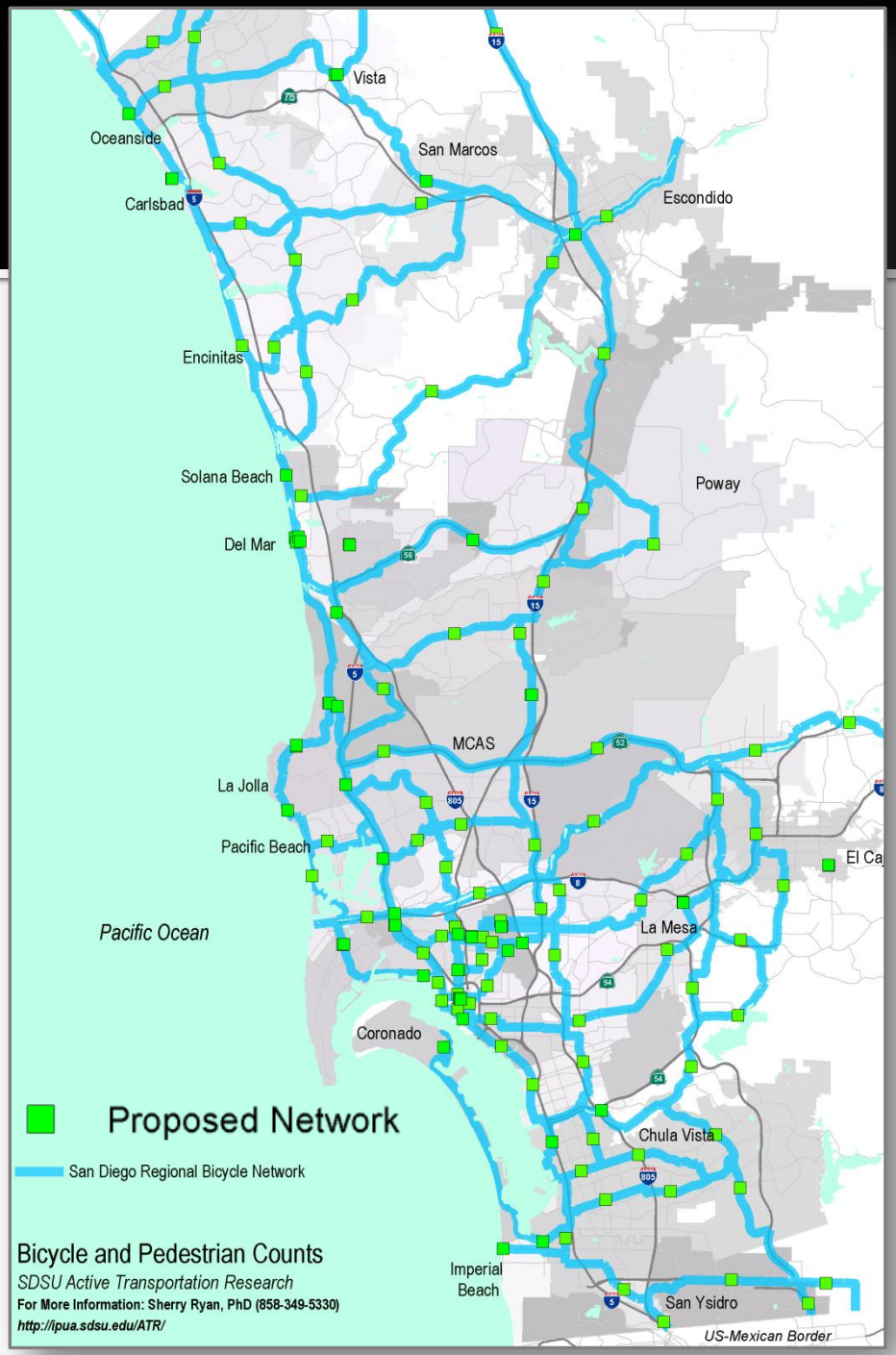
- Directional Bike and Pedestrian Counts at 15' Intervals
- In-Street Bicycle Counting
- Automated Daily Upload to Webserver
- Automated Summaries of Data

Siting Process – *Guiding Criteria*

- *Comprehensive* Network of Bicycle Count Stations
- Synch-up with *Regional Bicycle Network* and the *SGOAs*
- Representative Sampling of Locations

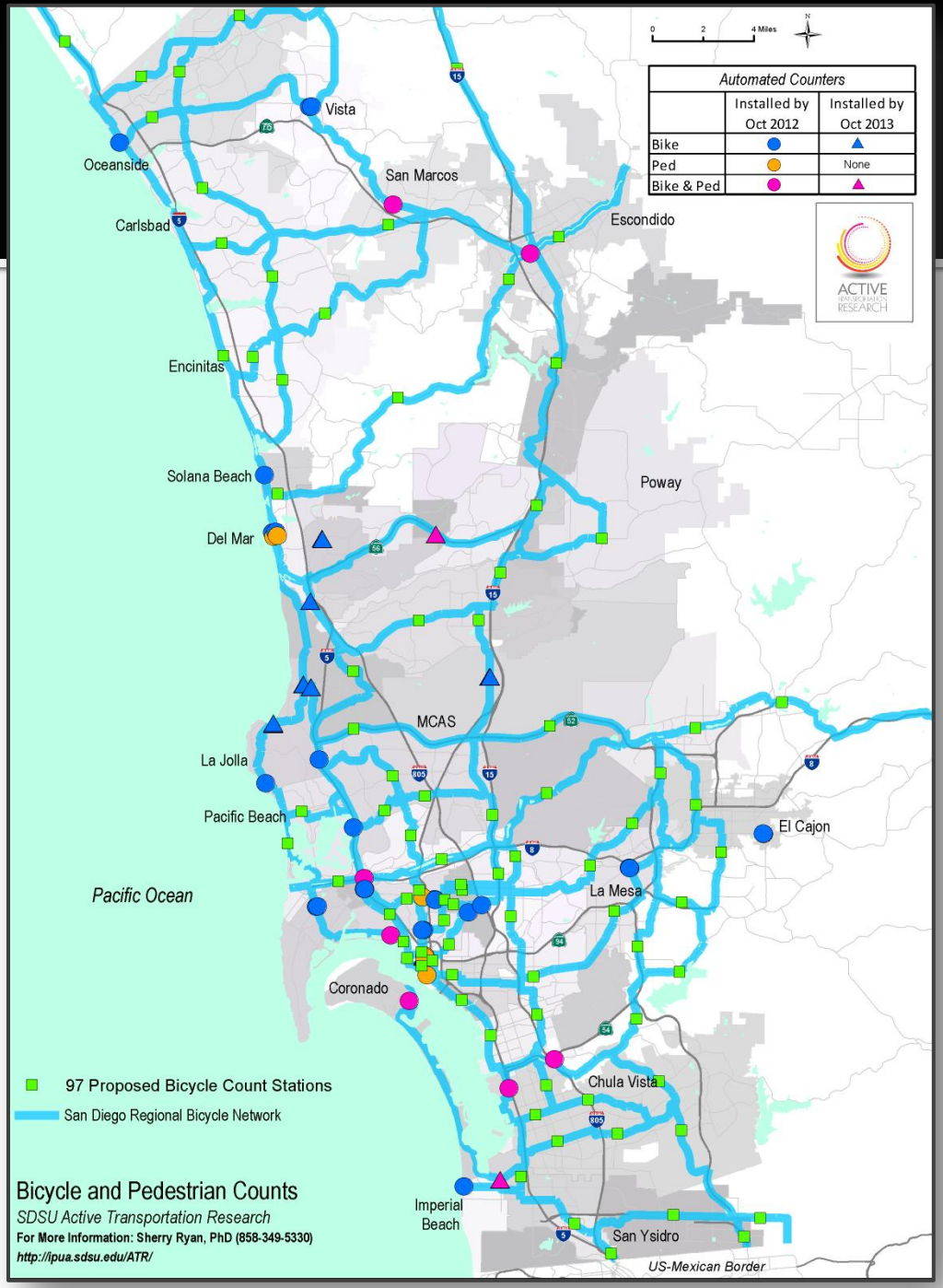
Proposed Network

- 125 Total Count Stations
- Coverage of Regional Bicycle Network
- Implement Incrementally

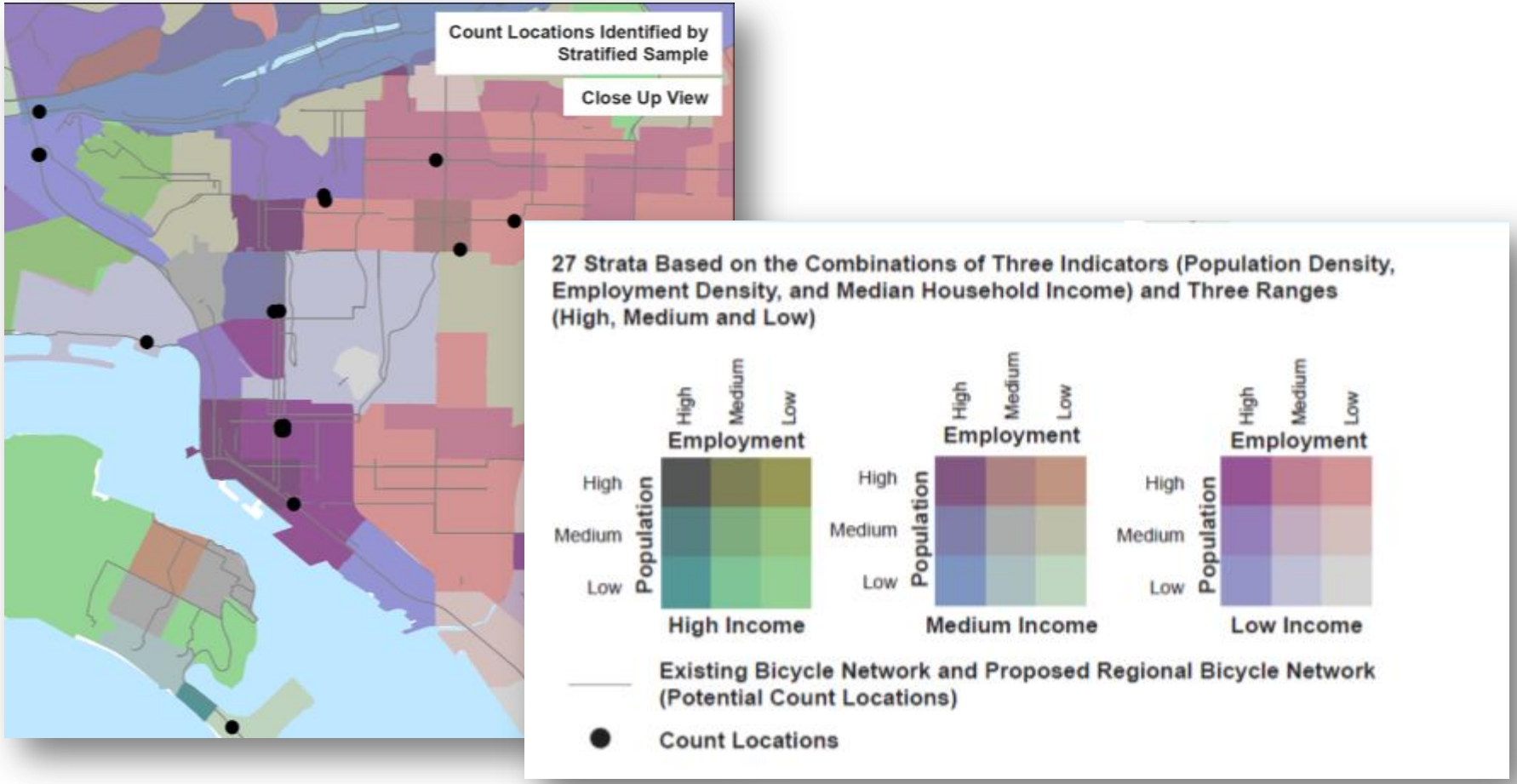


Phase I Siting
28 locations

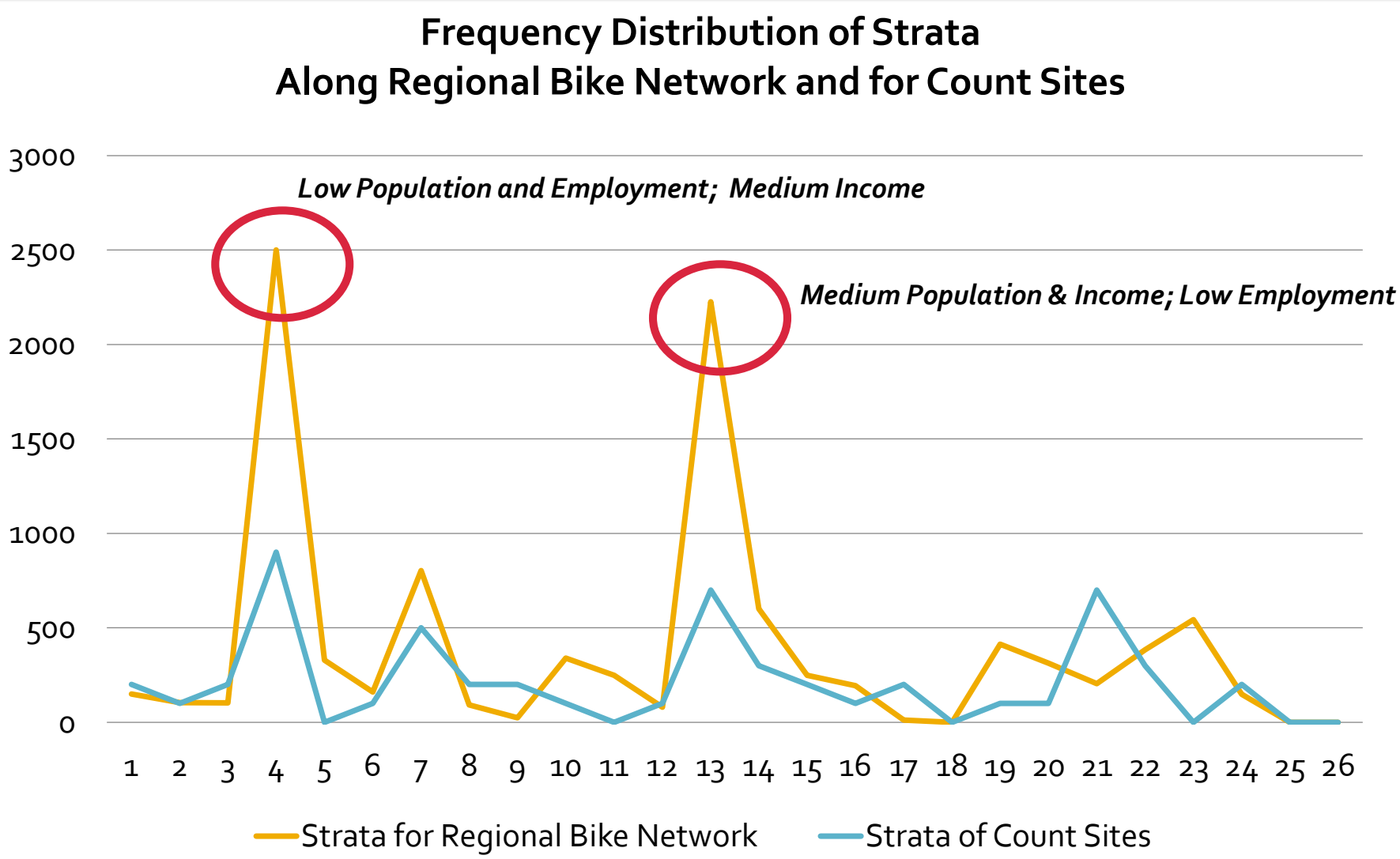
- 28 TOTAL SITES
  - 17 Bike Only - *Class II or III*
  - 7 Bike & Ped - *Class I*
  - 4 Pedestrian Only - *Urban*



Representative Sampling



Matching 28 Count Sites to RBN

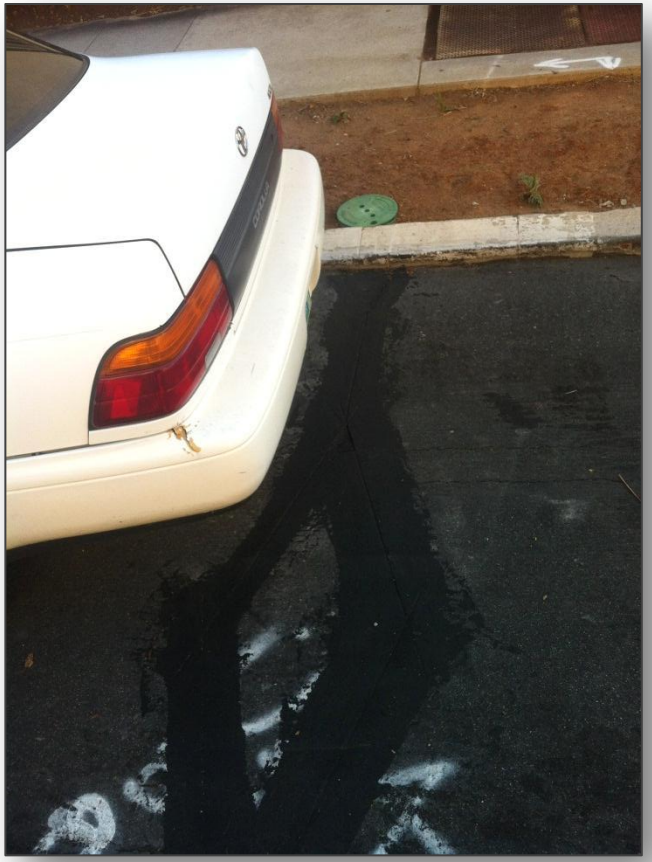


Phase I Installations

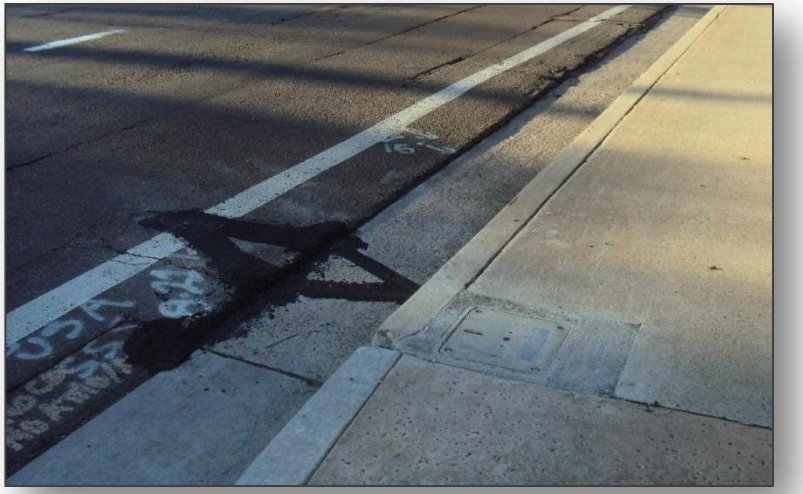
	Jurisdiction	Number of Units	Number of Sites	Technology
1	Chula Vista	1	1	Eco-Multi
2	Coronado	1	1	Eco-Multi
3	Del Mar	4	1	Zelt & Pyro
4	El Cajon	2	1	Zelt
5	Escondido	1	1	Eco-Multi
6	Imperial Beach	1	1	Zelt
7	La Mesa	2	1	Zelt
8	National City	1	1	Eco-Multi
9	Oceanside	1	1	Zelt
10	San Diego	19	16	Eco-Multi; Zelt and Pyro
11	San Marcos	1	1	Eco-Multi
12	Solana Beach	1	1	Zelt
13	Vista	2	1	Zelt
	TOTALS	**37**	**28**	

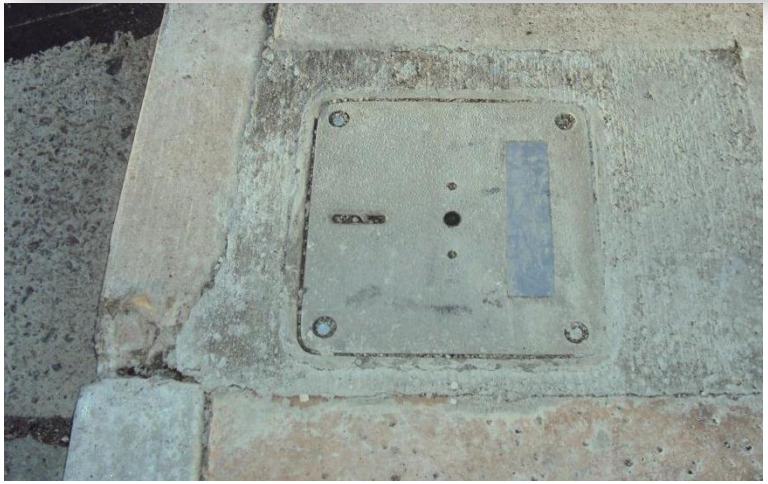
Rose Creek Bike Path - Zelt

4th Avenue - Zelt

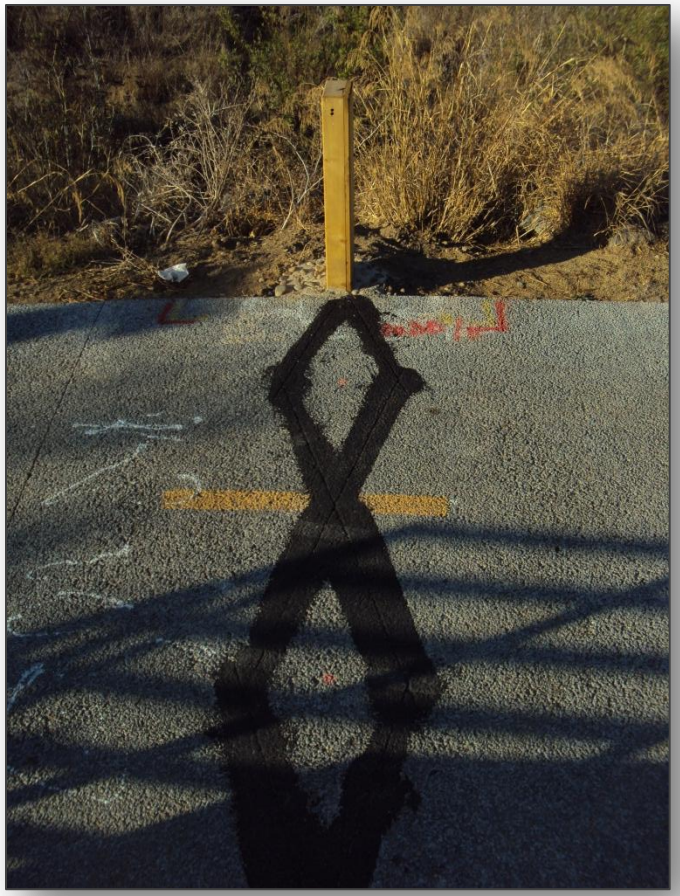


Pacific Highway - *Zelt*

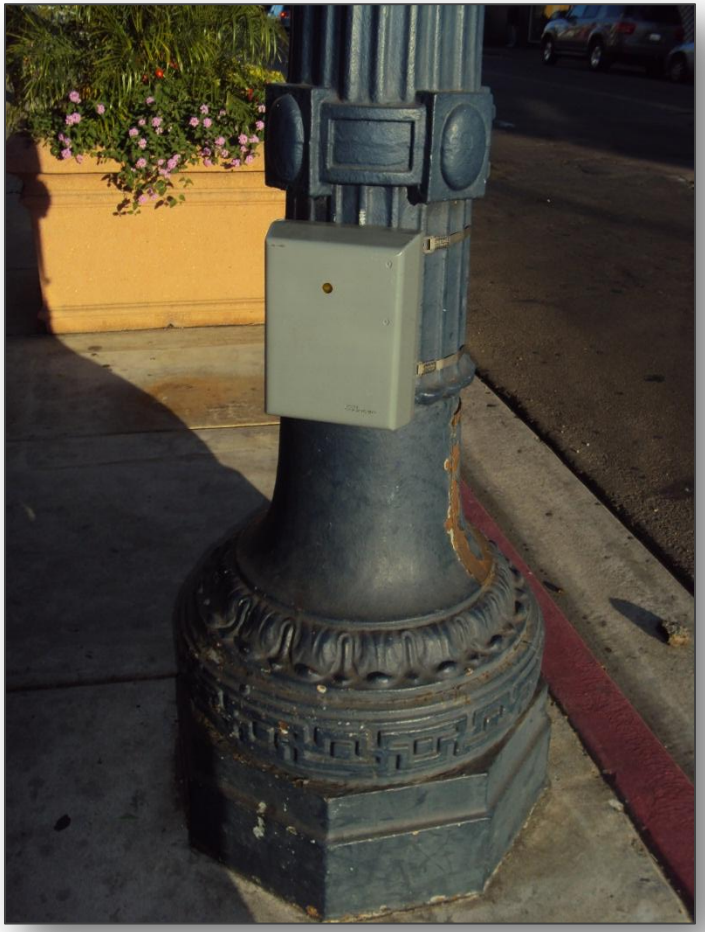


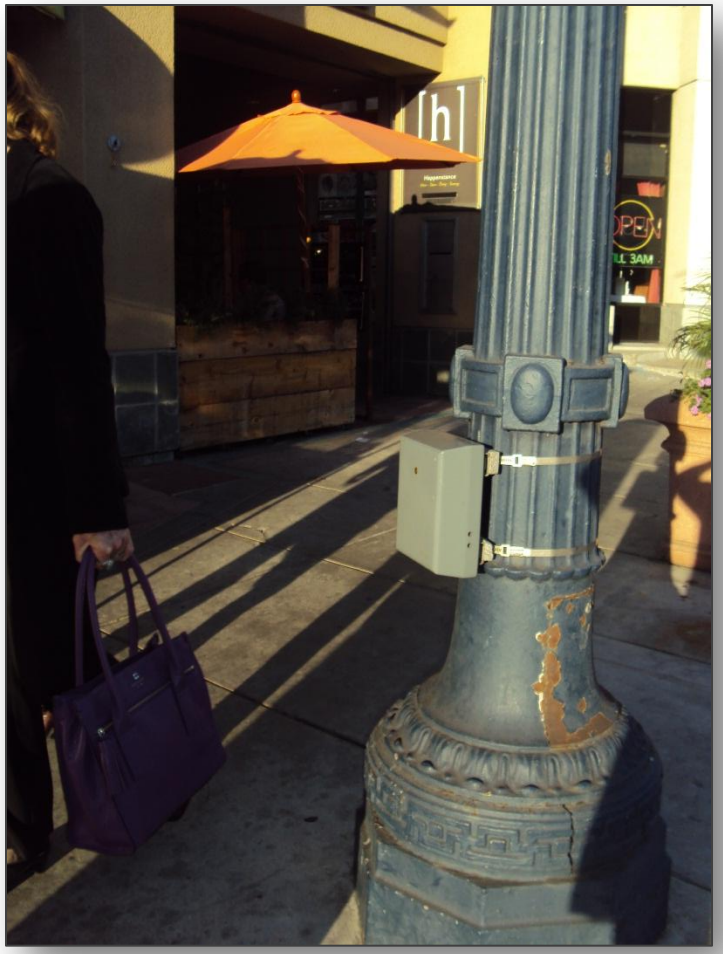


San Diego River Bike Path
Eco-Multi



University Avenue – Pyro

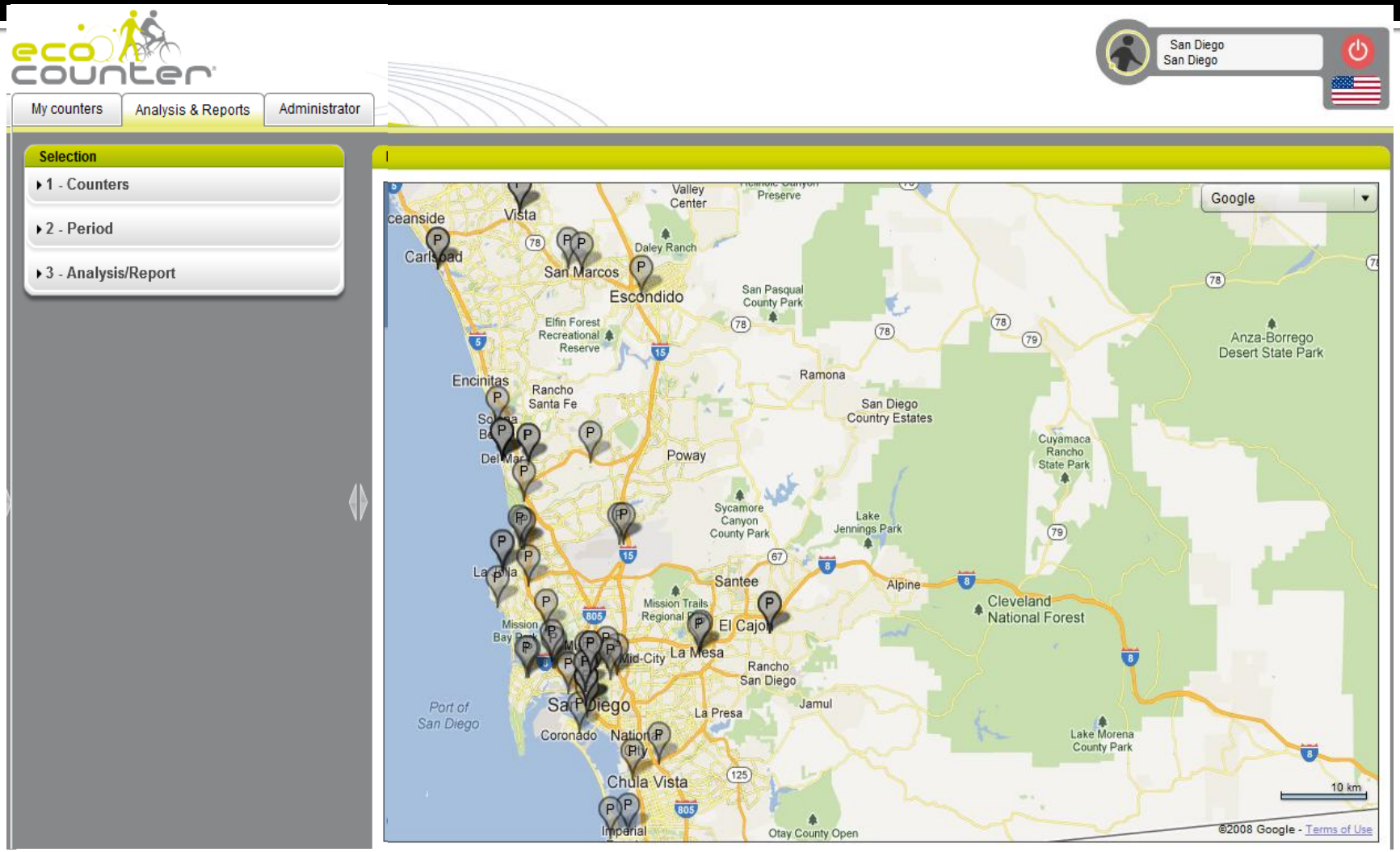




Del Mar – *Pyro and Zelt (SB)*

Del Mar – *Pyro and Zelt (NB)*

Automated Web-Based Data Upload



Eco-Visio Web-based Software

Data Downloads

Time Intervals

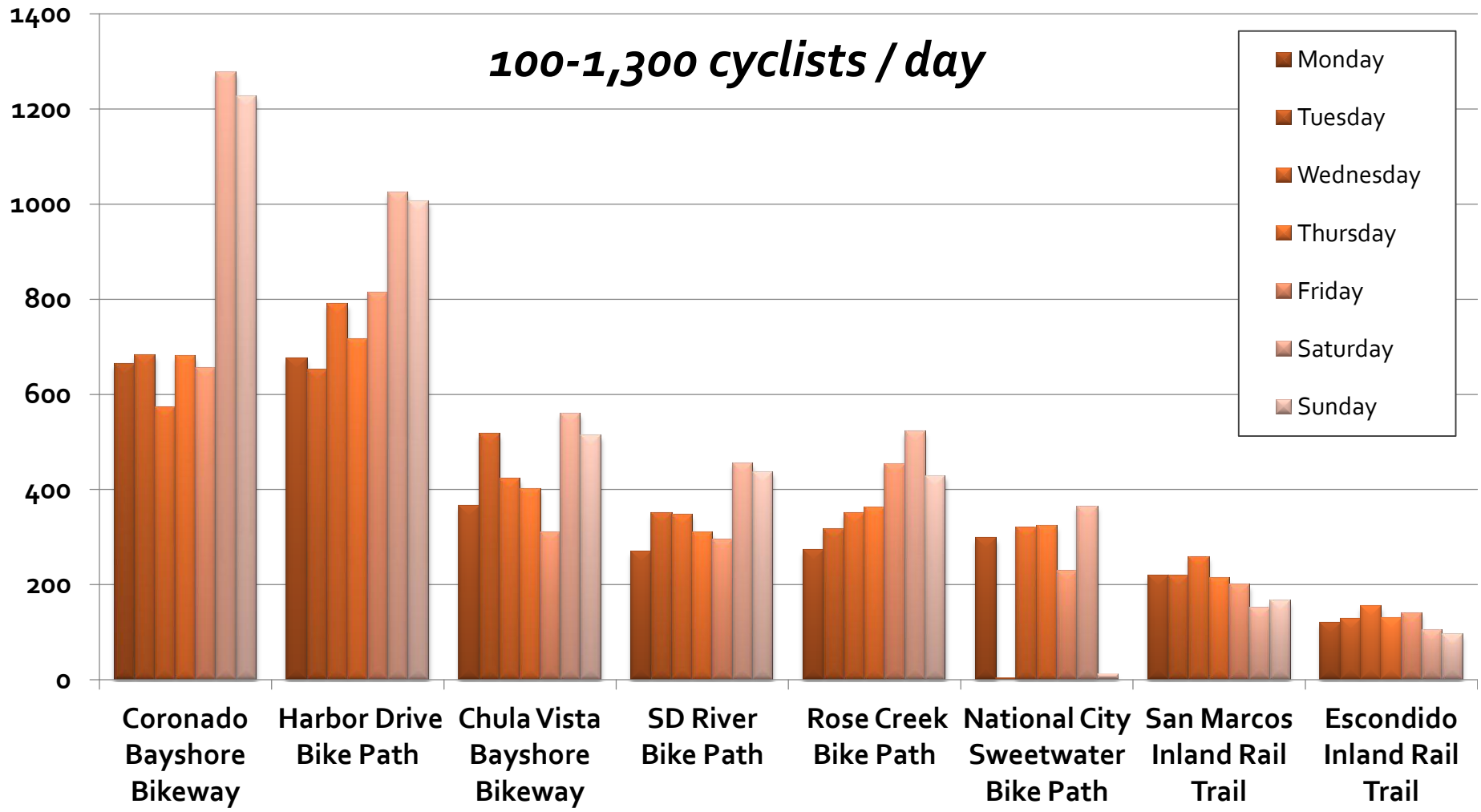
- Annual
- Monthly
- Weekly
- Daily
- Hourly
- 15-minutes

Formats

- Ready-made Charts
- Excel Spreadsheets
- Averages
- Word and PDF Reports

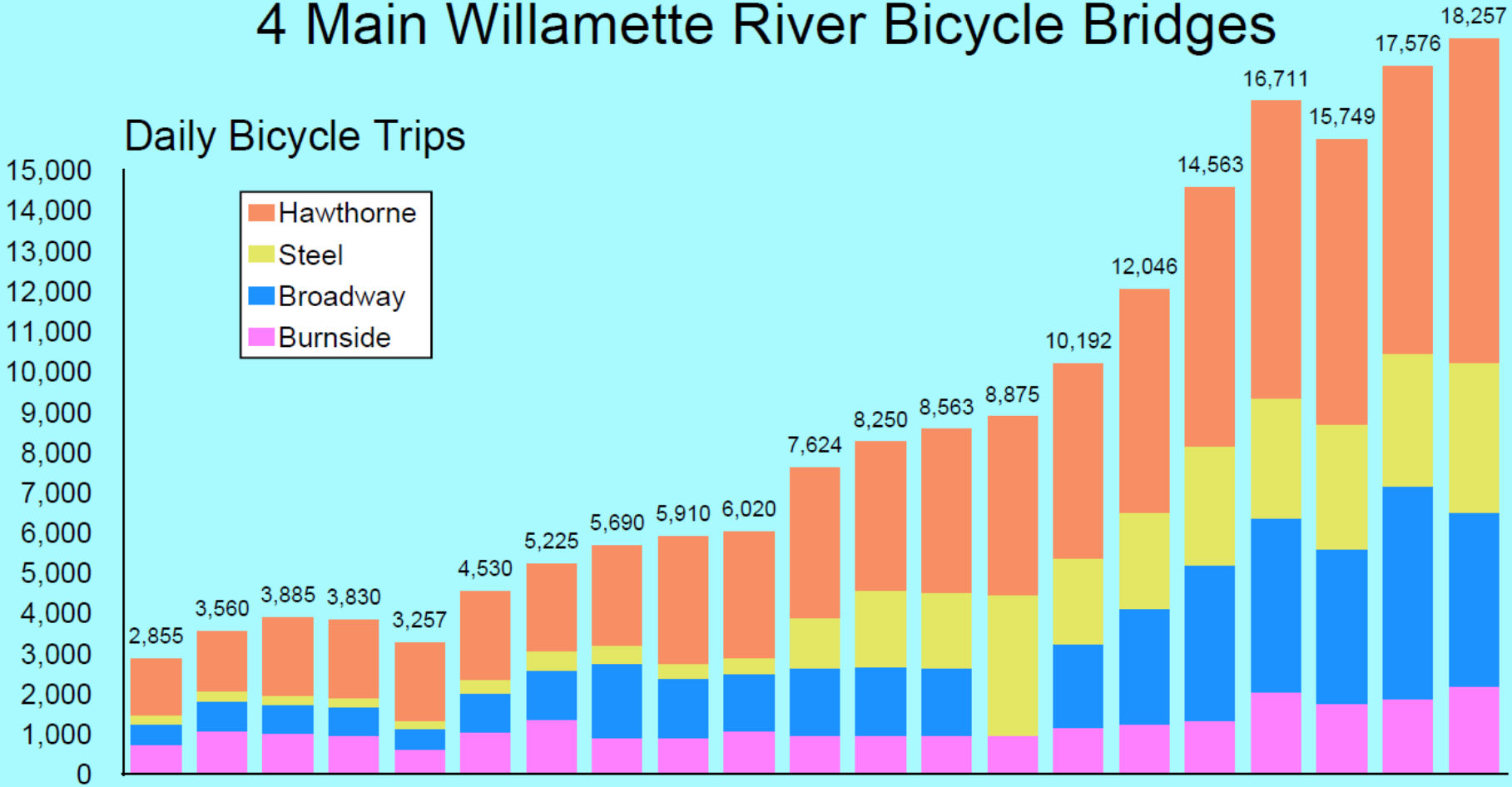
Daily Cyclists along Class I Bike Paths

Last Week of September 2012



Average Daily Bicycle Traffic

4 Main Willamette River Bicycle Bridges



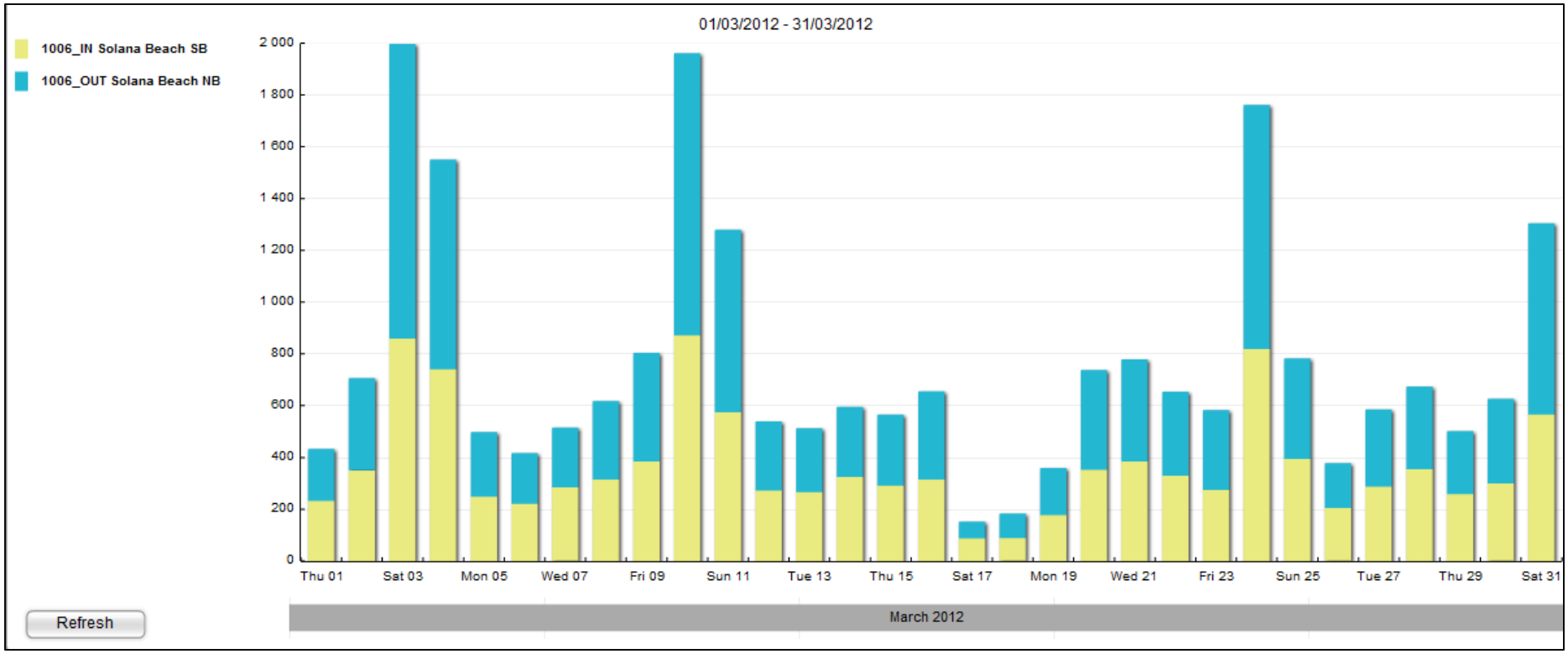
	Before 1992	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Hawthorne	1,390	1,500	1,920	1,940	1,910	2,165	2,170	2,471	3,154	3,125	3,729	3,682	4,055	4,428	4,829	5,557	6,423	7,379	7,063	7,133	8,044
Steel	230	230	220	220	200	350	475	460	360	410	1,250	1,891	1,860	3,482	2,112	2,373	2,943	2,982	3,101	3,287	3,703
Broadway	495	755	735	690	527	950	1,205	1,854	1,476	1,405	1,680	1,712	1,683	*	2,081	2,856	3,872	4,315	3,825	5,291	4,335
Burnside	740	1,075	1,010	980	620	1,065	1,375	905	920	1,080	965	965	965	965	1,170	1,260	1,325	2,035	1,760	1,865	2,175

Year

Based on either 24-hour hose counts or extrapolated from 4-6 pm counts

* Broadway Bridge closed for construction during time of count.

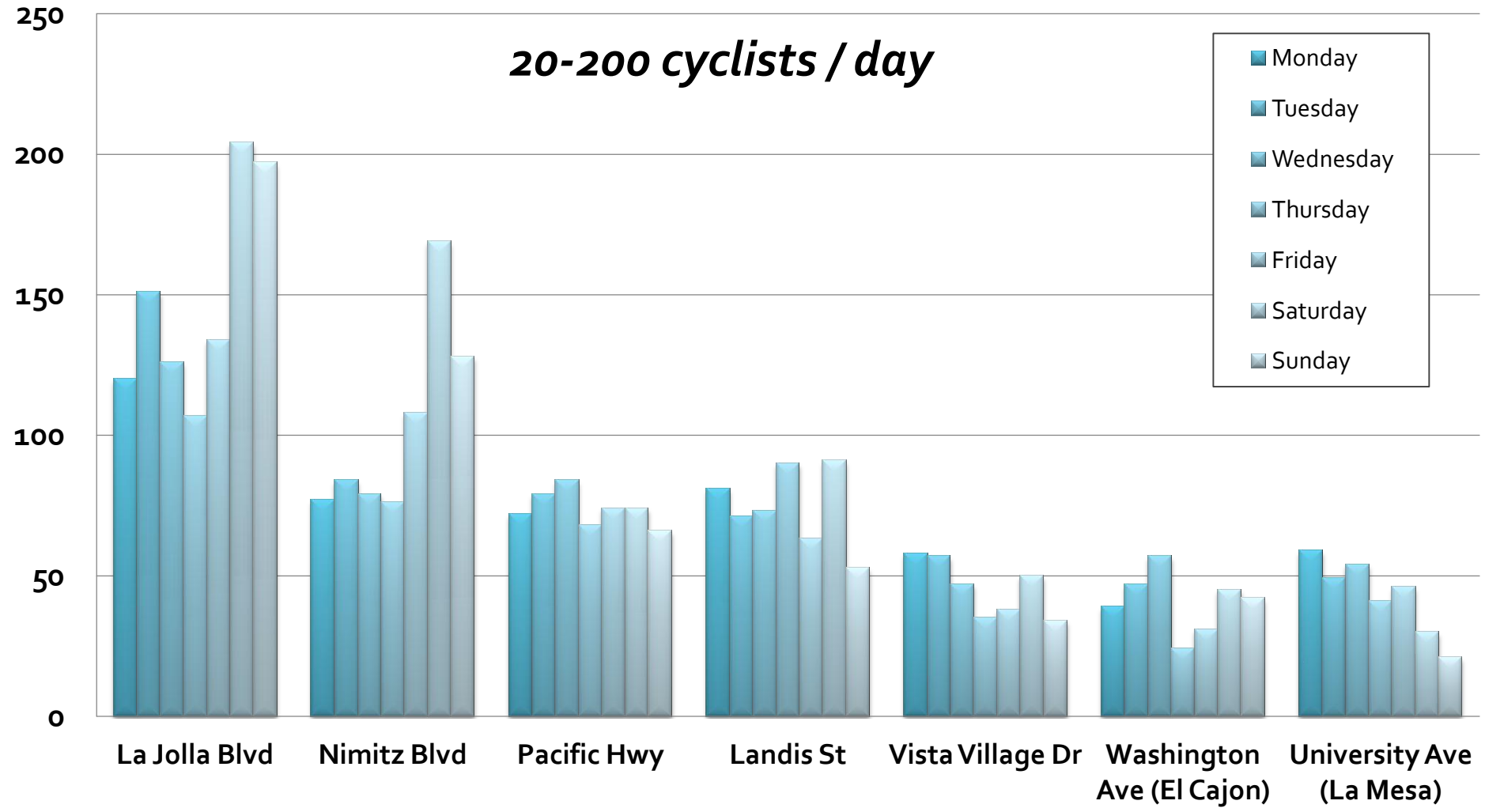
Solana Beach – Daily Cyclists for March 2012



- 1,200-2,000 weekend cyclists
- 400-800 weekday cyclists

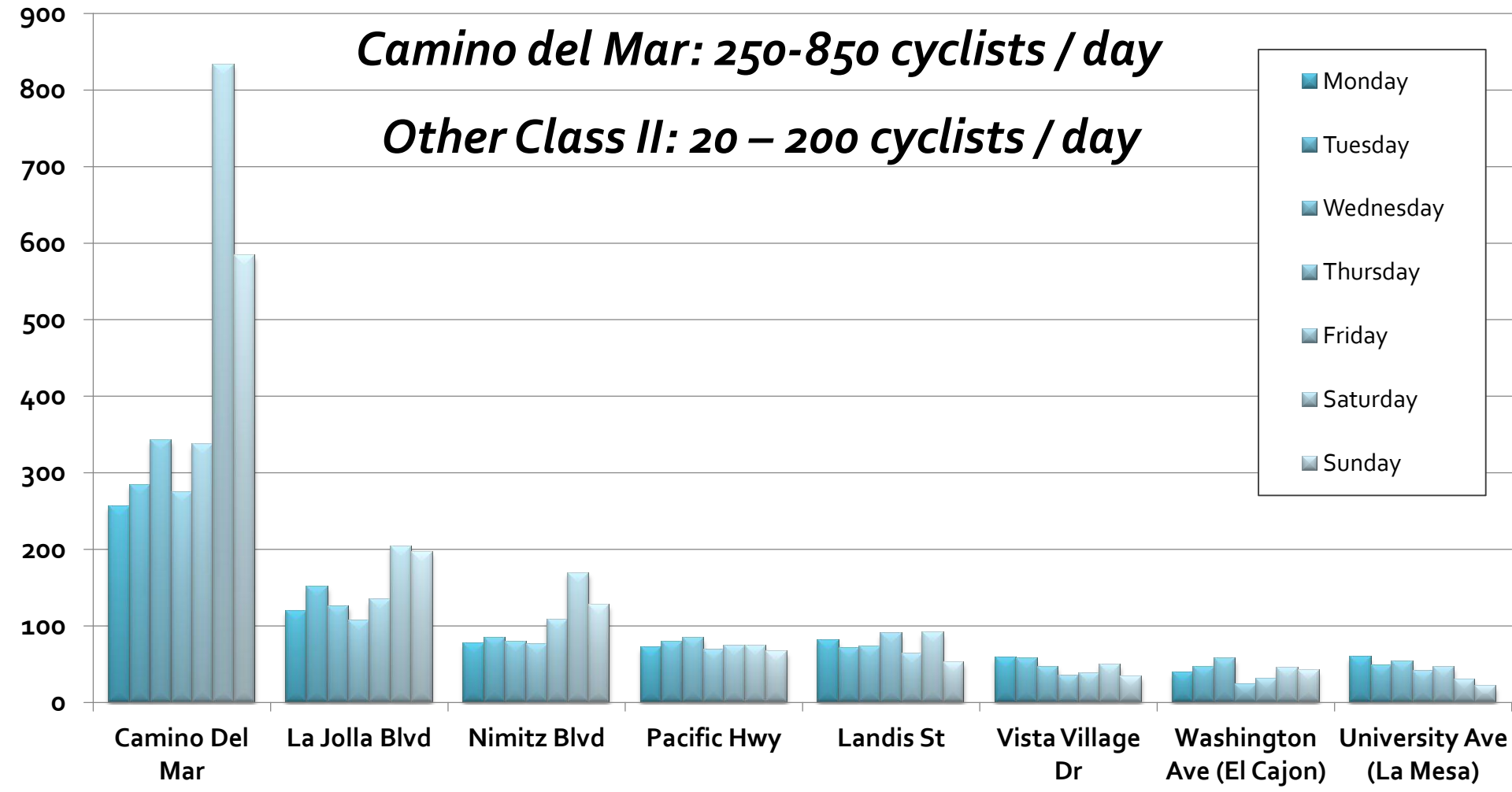
Daily Cyclists along Class II Bike Lane

Last Week of September 2012



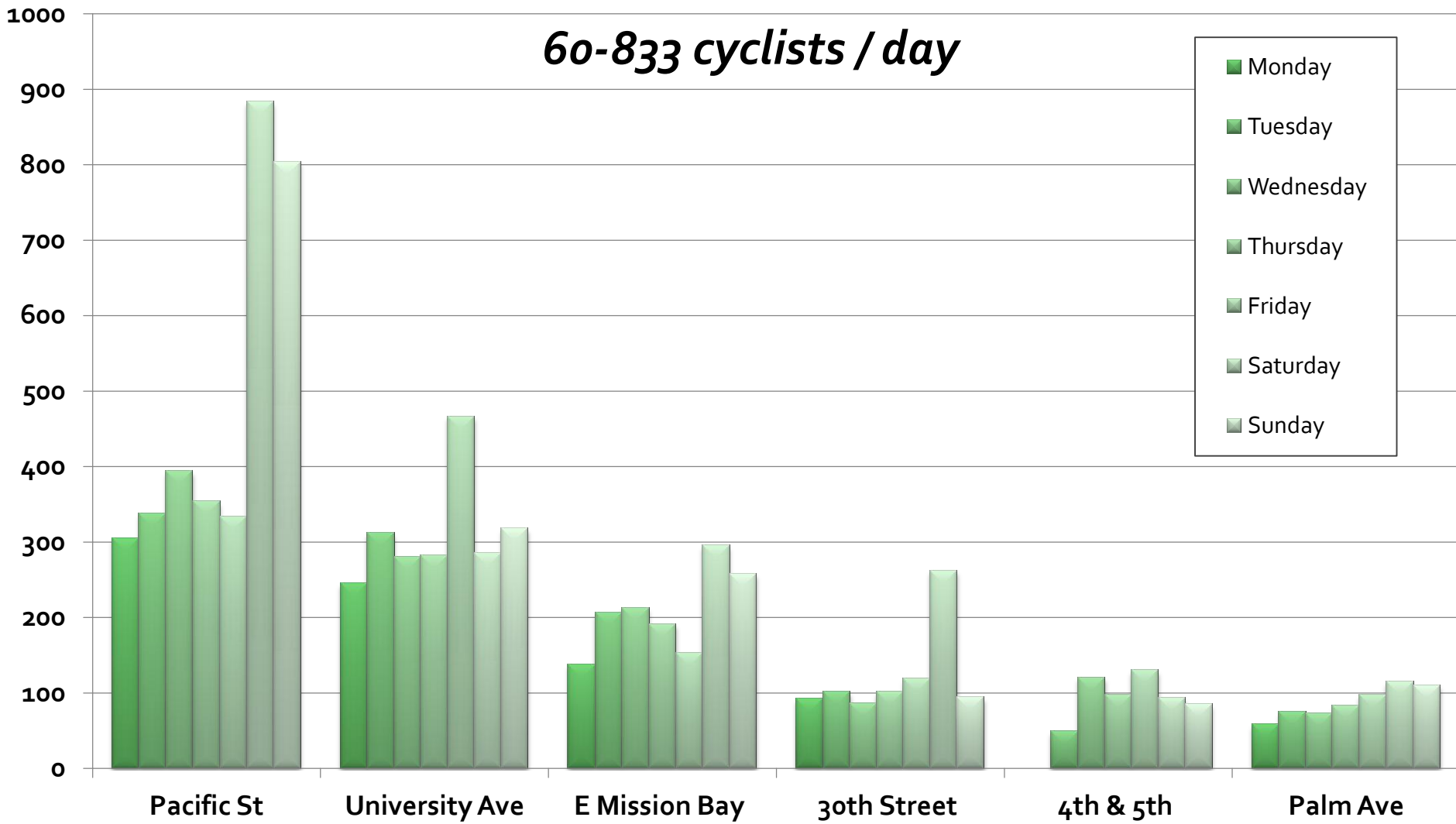
Daily Cyclists along Class II Bike Lane

Last Week of September 2012

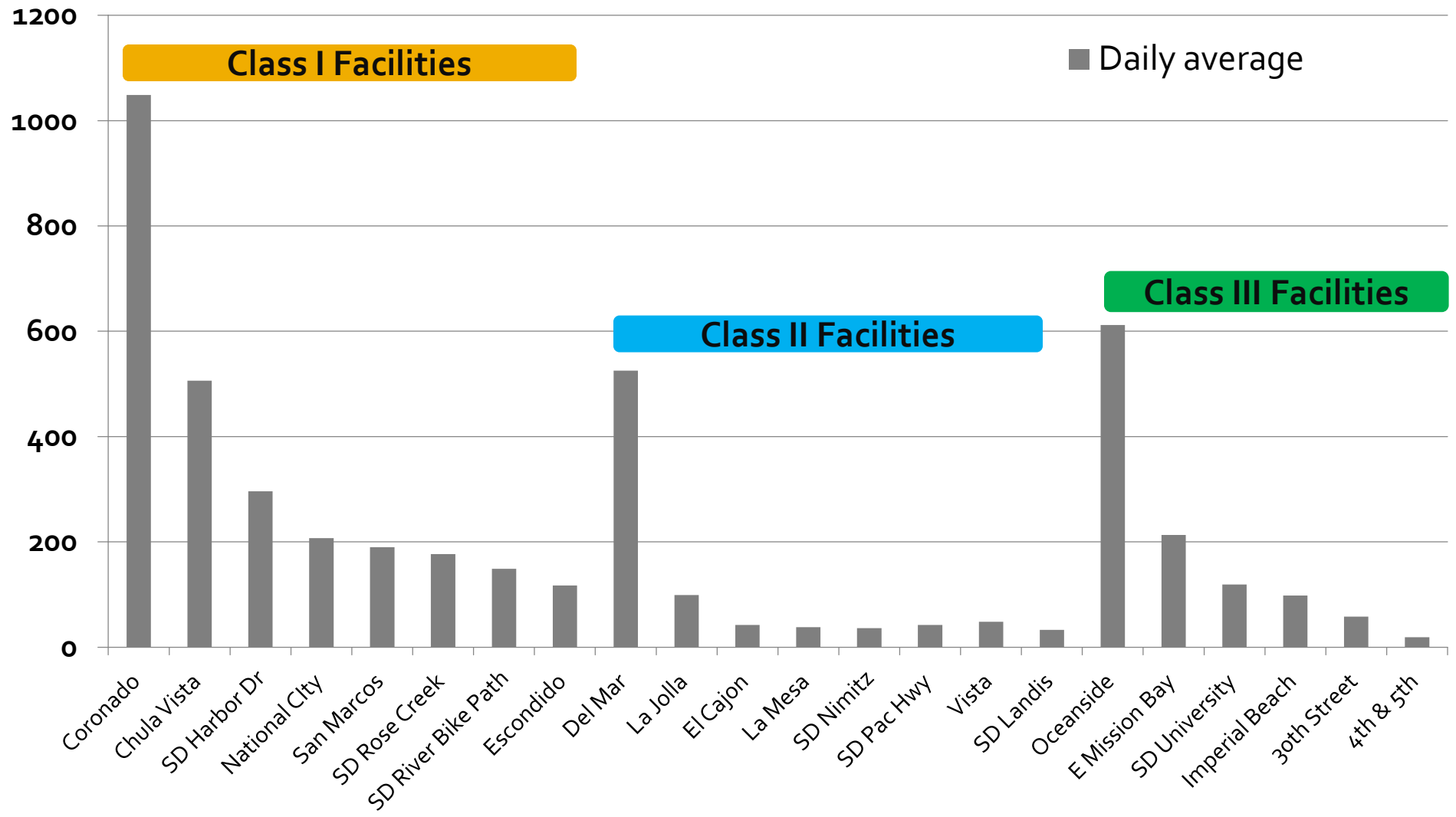


Daily Cyclists along Class III Bike Route

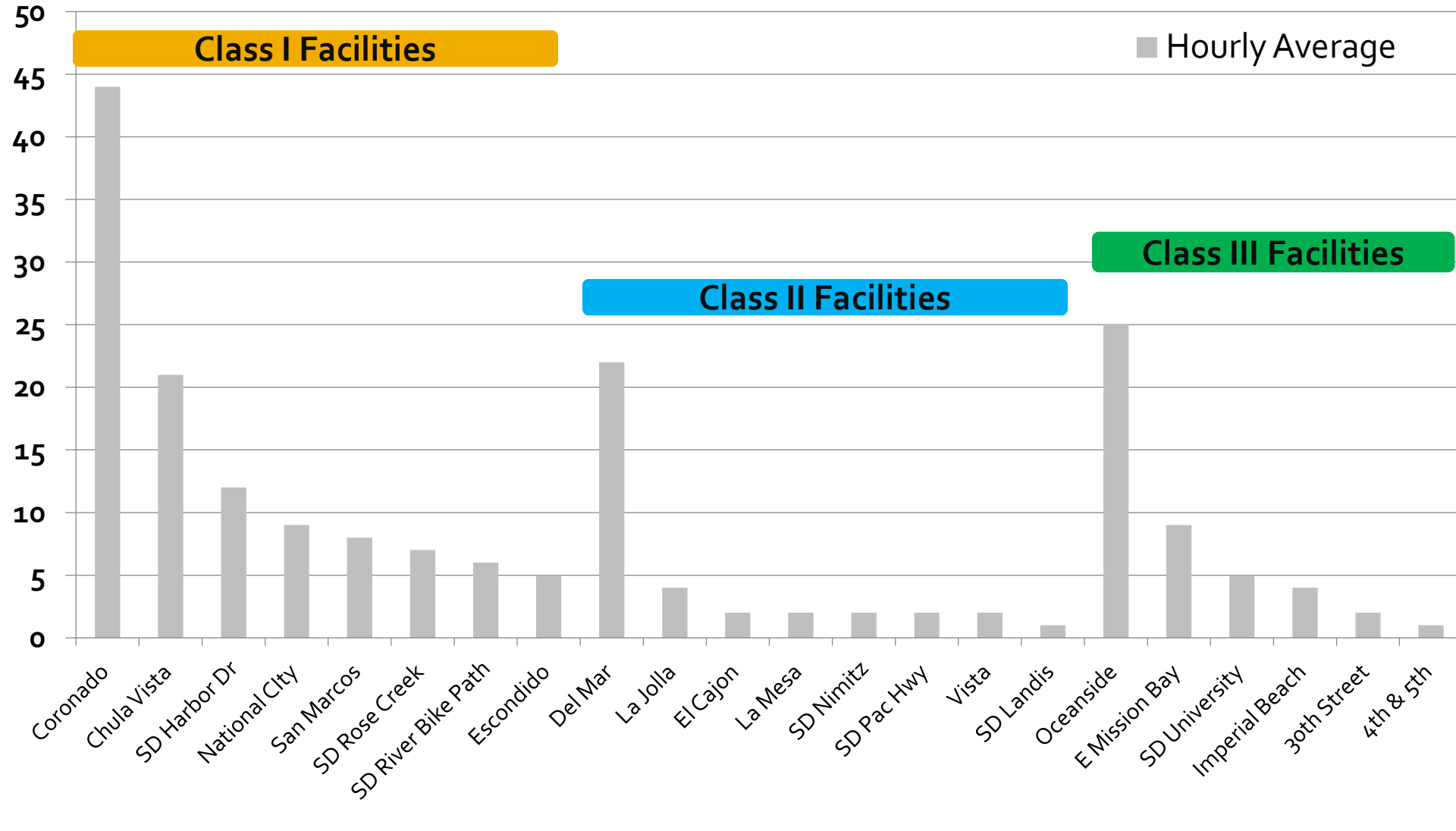
Last Week of September 2012



Daily Average by Facility Type for Month of *September 2012*



Hourly Average by Facility Type for month of *September 2012*

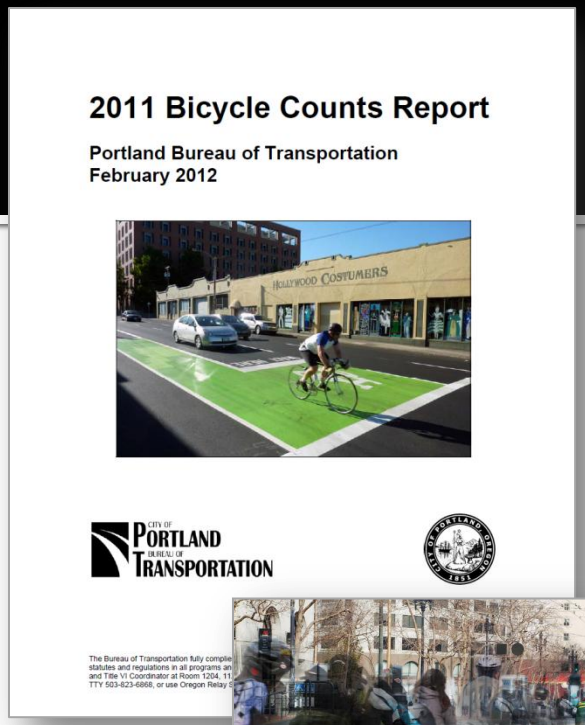


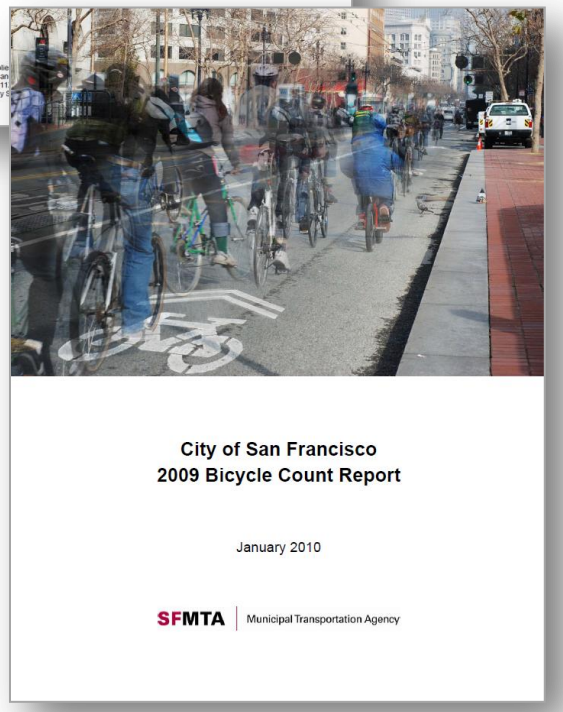
Potential Applications

- Model Validation
  SANDAG Active Transportation Model Enhancements
- Bicycle Demand Modeling
  Forecast cycling in other locations based on similar strata
- Extrapolate Peak Period Counts to Daily Counts
- Before-After Assessments
  Solana Beach, Del Mar, Priority Urban Bikeways, Early Action Bikeways
- Average Bicycle-Miles-Traveled
  via intercept surveying at count sites

Next Steps

- Validation Counts
- Install already purchased Equipment
- Data Acquisition
- Annual Reporting of Active Travel Trends





Thanks!

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