Every Roll and Step Counts

Bicycle and Pedestrian Counting Equipment Loan Program

SACOG

Table of Contents

For installation assistance, please view the video links and resources provided in this guidebook. It is also helpful to include any staff from your agency with experience collecting traffic counts; their expertise will assist with installing these active transportation counters.

If you still need assistance please reach out to Summer Lopez at slopez@sacog.org or you may also contact Tyler Barton at tyler.barton@eco-counter.com

Overview

Every Roll and Step Counts is an equipment loan program operated by the Sacramento Area Council of Governments (SACOG). Through Every Roll and Step Counts, SACOG will loan bike/ped counting equipment to cities, counties, transit operators, and other planning partners in the SACOG region of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties.

SACOG is an association of local governments and is an agency that provides transportation planning and funding for the region. SACOG provides technical assistance for local jurisdictions and supports active transportation in the region. As part of that support, SACOG received a planning grant to develop this equipment loan program and help collect accurate, high-quality data about the number of people biking and walking in the SACOG region.

The data collected will help SACOG monitor the use of active transportation facilities within the region and measure the continued impact of investments on biking/walking modes. Cities, counties, and special districts use the bicycle and pedestrian volume data to support local planning efforts, inform grant funding applications, and identify biking and walking operational needs and trends in communities.

This document was originally developed by Caltrans and the Active Transportation Resource Center. SACOG thanks the Active Transportation Resource Center and California State University, Sacramento for allowing SACOG to adapt their guidance document for Every Roll and Step Counts.

Caltrans has a similar program for the state of California and has contracted with Sacramento State University to administer their program. To learn more about the statewide program, please visit: http://caatpresources.org/index.cfm/1516

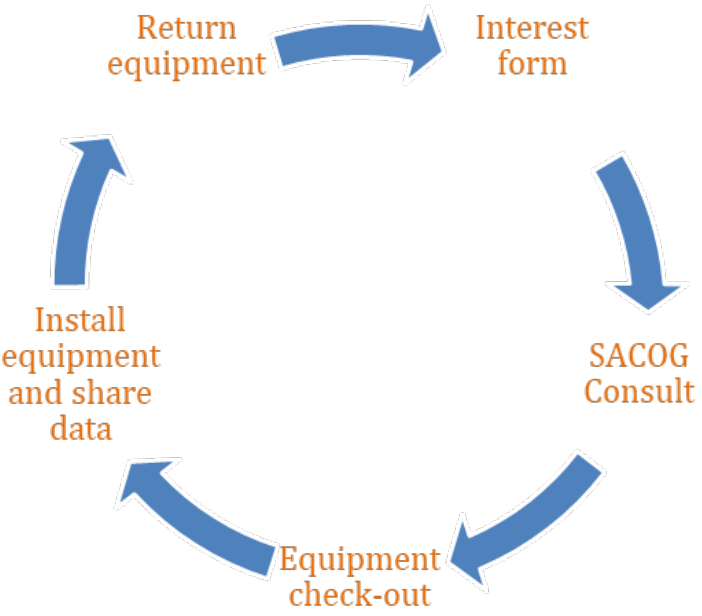
SACOG Loan Process & Terms

Getting ready

Your agency will enter into a Master Agreement with SACOG that identifies the terms and responsibilities for borrowing, using, and returning equipment. A sample version of the Master Agreement is in Attachment A.

Once your agency has a Master Agreement with SACOG, you can request to borrow equipment multiple times for the duration of the Master Agreement. Approving requests will be at SACOG's discretion to best meet needs within the region and will depend on equipment availability and demand.

Cycle for Borrowing Equipment



1 - Fill out the SACOG loan program interest form identifying your needs for bicycle and pedestrian counting equipment. The loan program interest form

is on the SACOG website: https://www.sacog.org/counting-equipment-loan-program The interest form provides us with more information about the project you are wishing to support with these devices. The three types of counters available to borrow are described in this guidebook to help you select the right equipment type for your count location.

2 - SACOG staff will discuss the information about your project and data needs. Depending on demand, we will do our best to loan you the equipment you need at the time you need it.

3 - SACOG will provide you with a Check Out Packet that has details about picking up the equipment, caring for it, and how to return it. Unless otherwise arranged, it is assumed that you will pick up the equipment at a designated time from the office of SACOG's partner on this project, Sacramento County Regional Parks.

4 - Using the installation instructions and videos from Eco-Counter in this guidebook, install the bike/ped counting equipment you are borrowing. Part of installing the equipment is verifying that it is counting people biking and walking so you will have strong data for your local needs.

5 - At the end of your borrowing term, remove the equipment from your trail, sidewalk, or roadway and return to SACOG. Use the check-in sheet to ensure you return all the needed parts for the next borrower. Unless otherwise arranged, it is assumed that you will return the equipment at a designated time to the office of SACOG's partner on this project, Sacramento County Regional Parks. Depending on demand, you may be able to use the equipment at another location in your jurisdiction and extend your borrowing period.

Technical Assistance Information

For installation assistance, please view the video links and resources provided in this guidebook. It is also helpful to include any staff from your agency with experience collecting traffic counts; their expertise will assist with installing these active transportation counters.

If you still need assistance please reach out to the Summer Lopez at slopez@sacog.org or you may also contact Tyler Barton at tyler.barton@eco-counter.com

About the equipment maker, Eco-Counter

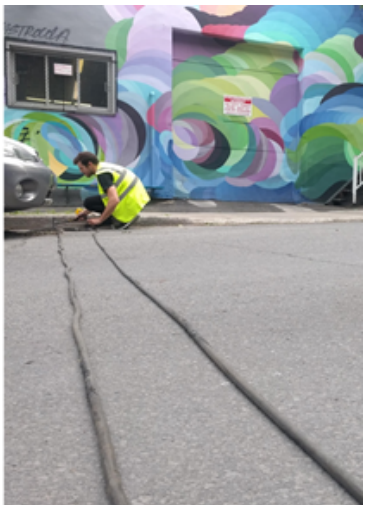
Since 1997, Eco-Counter has developed unique and innovative solutions to count pedestrians and cyclists. Although knowing the numbers is the end goal, the system we use depends on the site – counting pedestrians downtown is quite different from counting them on mountain trails. Eco-Counter specializes in pedestrian and bicycle counting solutions and offers a complete range of products from sensors to data analysis software.

Why collect biking and walking count data?

Transportation planning and funding hinges on data. By having biking and walking count data, we increase our ability to plan effectively for the infrastructure and behaviors we want to see in the Sacramento region. Count data supports existing planning initiatives at various agency levels and can integrate into planning practices among transportation agencies that are accustomed to measuring traffic volumes.

Every Roll and Step Counts also aims to support the growing demand for measuring the performance of different investments, such as whether new bike lanes and trails deliver the increases in biking and walking originally discussed. Some state-managed programs, such as the Active Transportation Program, require pre- and post-project counts as a reporting requirement for receiving funding.

Biking and walking count data also helps with monitoring travel patterns and developing multi-modal transportation models.



Why use automated counters?

Automated devices require minimal maintenance and count people biking and walking day and night, rain or shine. This continuous data provides a baseline to capture cycling patterns. Automated counters are a great compliment to manual bicycle counts and together provide a clear understanding of walking and cycling behavior.

It can be difficult to measure cycling activity due to low rider volumes, fluctuating peak patterns, the impact of inclement weather and seasonal variations. Manual-counts rely heavily on staff or volunteer time over periods of a few hours to a full workday.

SACOG Eco-Counters for Loan

SACOG has purchased 35 Eco-Counter units as part of the borrowing program. Each counter type has a different purpose and best use. Use this guide to determine which counter type would work best for the purpose and location of your count.

Type	# Available	Technology	Best Use
PYRO-Box	15 Units	Heat Sensor	Pedestrian Only* (*bike and ped w/ no differentiation)
TUBE	10 Units	Pneumatic Tube	Bicycle Only
Mobile MULTI	10 Units	Both	Pedestrian and/or Bicycle (w/ differentiation)

Eco-Counters Types

How Eco-Counters work

Sensor

- Reads signal
- Makes decision on counts

Logger

- Stores Data
- Transmits Data
- Provides power to sensor

Software

- View and analyze data on web-based software, Eco-Visio

eco counter

PYRO-Box (15 Units)

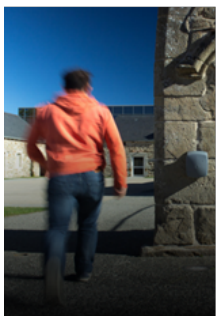
PYRO-Box is the most popular people counter. The sensor monitors pedestrians and cyclists by measuring the heat emitted by the user. It does not differentiate between pedestrians or cyclists. This product is used for counting pedestrians and cyclists on multi-user paths and any type of street.

What is a PYRO-Box?

- Ideal for counting pedestrians (no differentiation between ped/cyclists)
- 15' Range
- Measures the direction of travel
- Quick and easy installation on any post
- Works in all weather conditions
- IP66 Waterproof
- Shock resistant
- Battery operated - 10-year battery life
- Discreet with vandal proof mounting system
- Seamless data transmission to Eco-Counter Software

How does it count people?

The PYRO-Box sensor, with its passive-infrared, pyroelectric technology and a high-precision lens, detects infrared emission from the human body through variations in infrared radiation. It does not measure temperature; therefore, air temperatures will not affect the PYRO sensor. Because of this technology, it can count all users, including pedestrians, fast or slow bikers, skaters, etc. The PYRO-Box sensor can simultaneously detect two people walking in a slightly staggered formation.



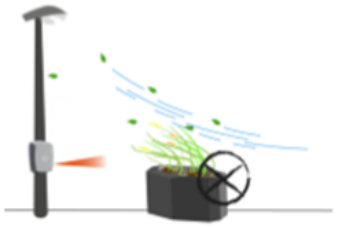
Where is it best used?

The PYRO-Box can count both cyclists and pedestrians in urban and rural locations. This product is used for counting pedestrians and cyclists on multi-user paths and any type of street. The PYRO-Box is easily moved between counting locations and the self-calibrating sensor makes for simple

installations.

DO CHOOSE	AVOID
• A passage reserved for pedestrians/cyclists with uncongested traffic. • A facility with a width of up to 15-feet • A location where the PYRO Sensor can be installed at a height of 30" to 35" from the ground. • A location where the PYRO Sensor will not be pointed at a reflective surface or a metallic plate. • A location where the PYRO-Sensor's beam will not be affected by external interferences such as vegetation, branches, etc.	Do not direct the PYRO Sensor towards: - Hot surface areas - Sun-exposed metallic surfaces - Doors and Windows - Vehicles

Choosing Installation Sites – What to Avoid



- **Moving objects or vegetation in front of the PYRO Sensor**
  - Door
  - Bushes, branches, etc.

- **Motor vehicles in front of the PYRO Sensor**

  This will cause counting issues

- **Locations that circulation is congested**

  Rest spots, information posters, steep surfaces, etc.

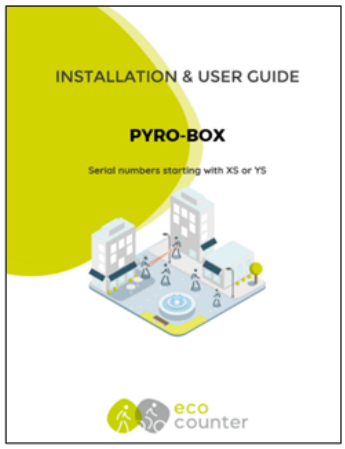
- **Locations where undesired subjects could be counted**

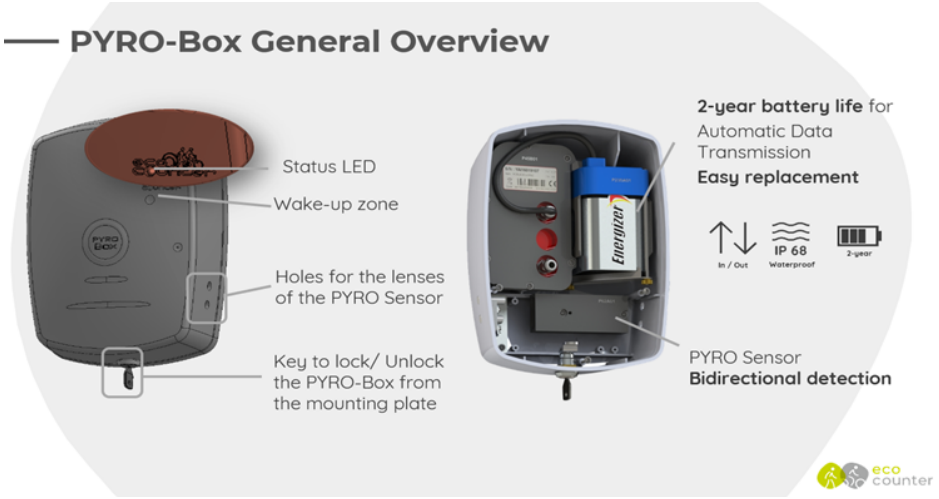
  Animals, cars, undesired pedestrians or cyclists

Installation of PYRO-Box

View this video to see a demonstration of how to install the PYRO-Box: https://youtu.be/2U2h_cwEN_o

For more thorough installation instructions please refer to the PYRO-Box installation guide.





Equipment Included

TUBE Counter (10 Units)

Tubes are a mobile bike counter, designed with short-term bike volume studies in mind. Eco-Counter's Pneumatic TUBE counter is the perfect solution for temporary (one-day to one-month) bike counting. The TUBE counter can be used on- or off-street, and installation takes less than 30 minutes. The system uses a set of two tubes that are placed perpendicular to traffic flow along the pavement.

The TUBE counter can house the complete counting system (logger, sensor and battery) in its stainless-steel housing. The steel housing is vandal proof and the components inside are completely waterproof. The system has a ten-year battery life with manual Bluetooth data transmission.

- Two tubes placed on the road (up to 30')
- Measures the direction of travel
- Easy and mobile installation
- Installation on- and off- road
- Works in all weather conditions
- IP68 Waterproof
- Battery powered - 10 -year battery life
- Accuracy is +/-5%
- Vandal proof
- Seamless data transmission to the Eco-Counter Software

How does it count cyclists?

The system determines the distance between the front and back wheels of the passer-by. With this information, the TUBE counter can distinguish bicycles from motorized vehicles in mixed traffic, extract directional data, and accurately count the number of cyclists in a group. The TUBE Counters operate with high-precision and can count cyclists even in groups.

Where is it best used?

There are two types of TUBES available to use with this counter, depending on location:

1. TUBE Selective: for shared roads like bicycle lanes, shared vehicle lanes, etc. These tubes are designed to ignore motorized vehicles due to a special insert in the tube.

2. TUBE Greenway: for groups of cyclists, bicycle lanes, and greenways/ multi-use paths. These are designed to optimize the detection of groups of cyclists. They cannot be used in areas with motor vehicle traffic.

Selective: Shared Roads

Greenways: Group of cyclists

DO CHOOSE

- Choose a major route of travel.
- Areas where there is a continuous flow of traffic (Mid-block).
- Choose an area where the surface is flat.
- Install the Pneumatic TUBEs perpendicular to the flow of traffic.

AVOID

- Area where bicycles or motorized vehicles will stop on the TUBEs (bus stops, areas with heavy congestion, loading zones, etc).
- Area where there is a curve or turn in the road / bike path.
- Configuration where two cars can be on the tubes at the same time
- Cars parking on the tubes
- Do not cut the tubes for any reason, instead wrap excess around post

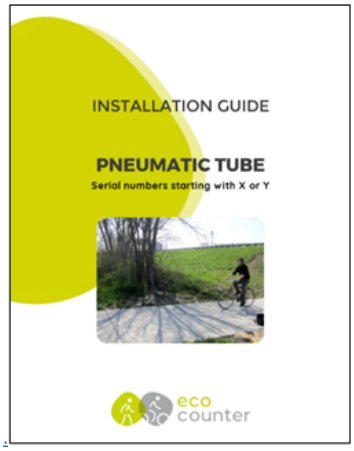
Installation of TUBE Counter

View these videos to see a demonstration of how to install the TUBE counter depending on tube type you will need:

Tube Selective – https://youtu.be/XwjtV161Dfc

Tube Greenway – https://youtu.be/G8PXp9MygMQ

For more thorough installation instructions please refer to the installation guide



— TUBE Counter Components

- Stainless Steel Box

Eco-Combo

Battery Pack

- 2 Transducers

- Tubes

Installation on a shared road	Installation on a greenway or segregated bike lane
2 Selective TUBEs	2 Mini-TUBEs and two shock absorbers

Mini-TUBE Ø 9 mm (0.35") *Shock absorber 15 mm (0.5")*

Stainless steel box

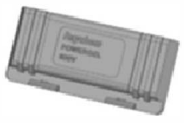
Chain to secure the stainless steel box at the installation site

Padlock

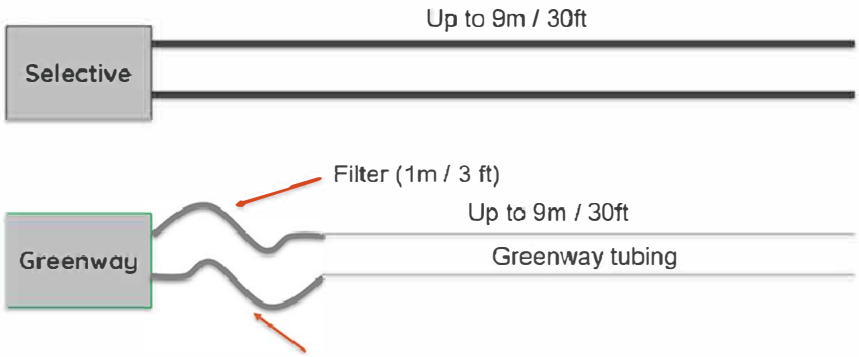
2 Fasteners per TUBE
2 Nails per TUBE

Magnetic key

Waterproof RayGel



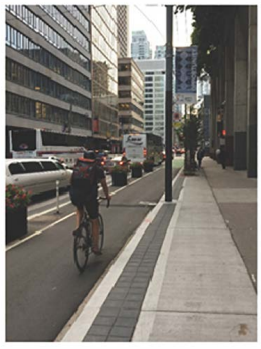
— Tube types



— Equipment not provided

- Hammer
- Marker
- Drill with a 6 mm Ø drillbit
- Measuring tape
- Bitumen tape for sidewalks

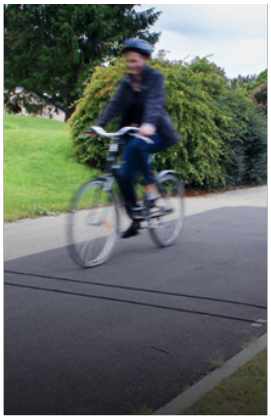
— Installed Tube Counter



Mobile MULTI (10 Units)

The Mobile MULTI is an innovative and flexible counter, able to count and differentiate pedestrians from cyclists while being completely mobile and able to stand alone. The system is built around a PYRO-Box and TUBES, each of which is able to detect a specific user type. The different types of passers-by are classified using an intelligent device called the Smart Connect which is capable of differentiating between pedestrians and cyclists. The Mobile MULTI's ease of use makes it the ideal product for temporary and/or mobile count programs.

- Ideal for counting pedestrians and/or cyclists
- Differentiates between cyclists and pedestrians
- PYRO sensor and pneumatic TUBEs
- Range is up to 30' for bicycles and 15' for pedestrians
- Measures the direction of travel
- Works in all weather conditions
- IP66 Waterproof
- Battery operated
- Seamless data transmission to Eco-Counter Software



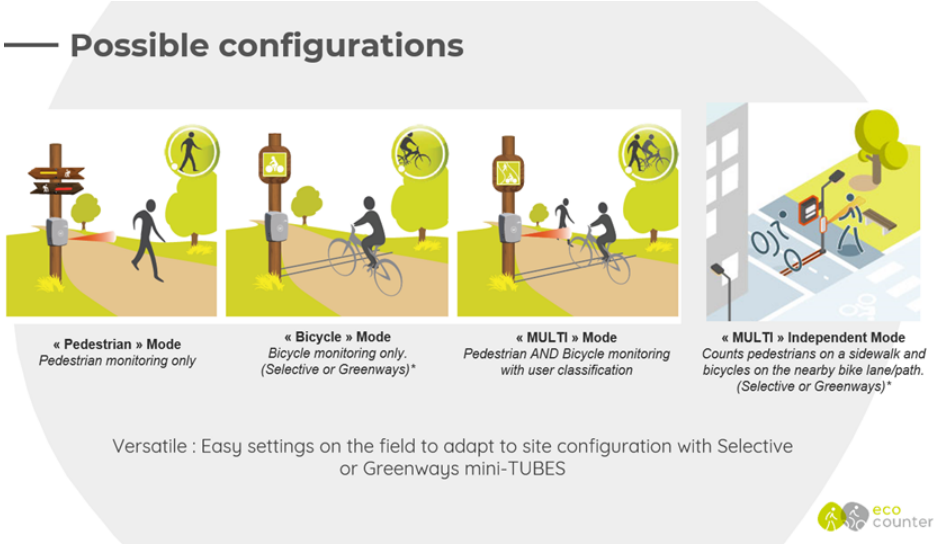
How does it count people?

By combining two unique patented technologies, the Mobile MULTI counter separately detects and counts pedestrians and cyclists. The PYRO sensor detects pedestrians and gives reliable trends. TUBES sensors and the patented algorithm ARGO detect cyclists with over 95% accuracy. An intelligent system classifies users and analyzes the direction of travel.

Where is it best used?

The Mobile MULTI is ideal for counting pedestrians and cyclists on footpaths, greenways, or shared paths and understanding user profiles (commuting, leisure, etc.). It is also capable of counting pedestrians on the sidewalk and

cyclists on the adjacent road. In selecting a count site, it is important to select a location where PYRO sensor will not be pointed at vehicle traffic.



Installation of Mobile MULTI Counter

View this video to see a demonstration of how to install the Mobile MULTI counter:

https://www.youtube.com/watch?v=9yohN10ahkk&list=PLhEpll8TUa9AtZ3RNU0y5XSLzO4yzi4YJ&index=7

For more thorough installation instructions please refer to Mobile MULTI installation guide.

Mobile MULTI – Installation Examples

eco counter

Sidewalks

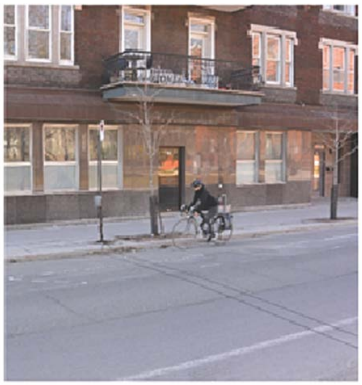
Pedestrian only mode

Trails

MULTI mode - pedestrian and bikes

Bike Lane

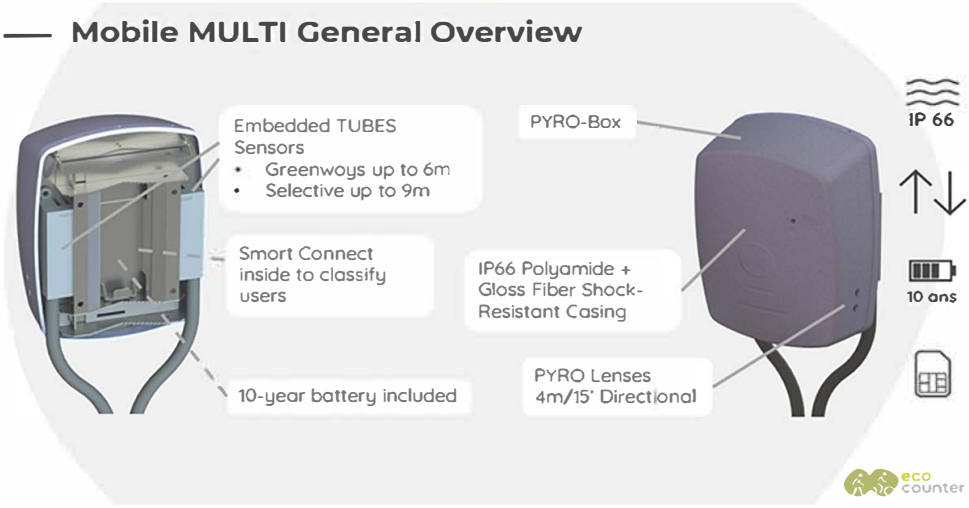
MULTI - Bike only mode



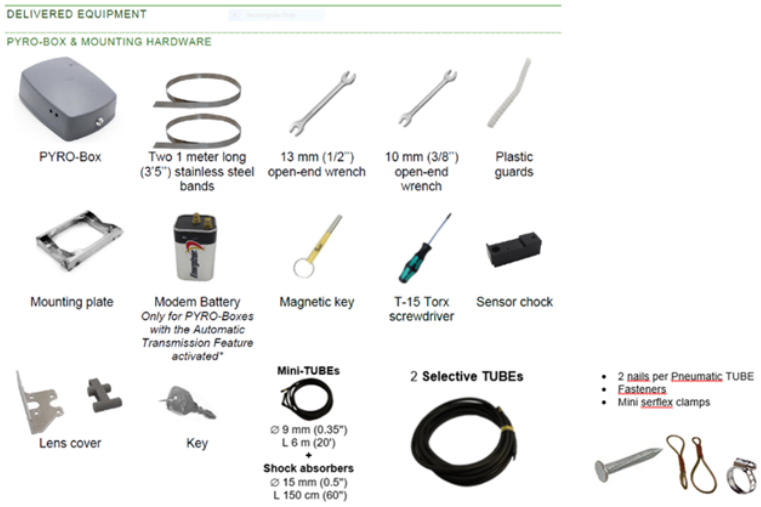
Sidewalk + Bike Lane

MULTI - Independent mode

Mobile MULTI General Overview



Mobile MULTI Parts



Eco-Counter Data Collection Platforms

Before you Leave the Installation Site

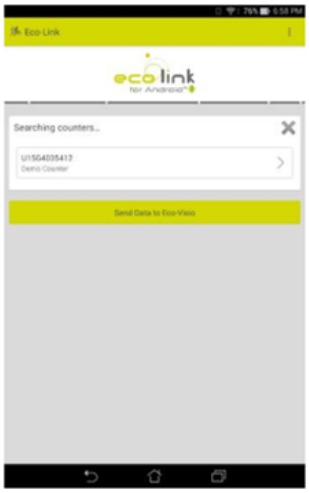
After you have installed the counter, be sure to do the following while you are still at the installation site for each counter:

Write down the:

- Counter Serial Number
- Date and Time of Installation
- Counting Site Name (ex. El Dorado Trail or 6th Street between A Street and B Street)
- IN/OUT direction (ex. IN = Southbound, OUT = Northbound
- Validate that counts are being collected
- Take a picture of the location
- Perform modem test using Eco-Link

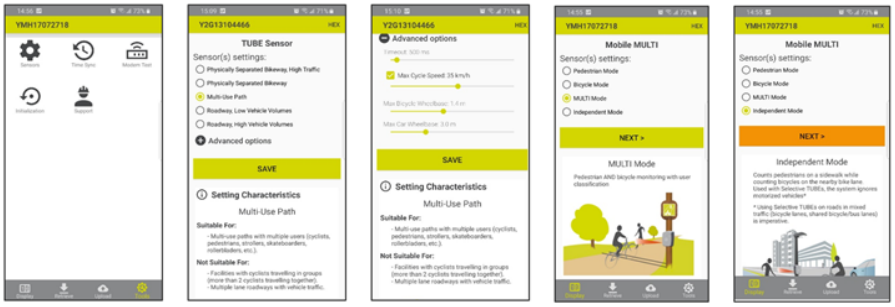
Eco-Link Data Collection

Eco-Link is the mobile application used to view count data. If you have access to a tablet at the installation site, it is important to troubleshoot and do test counts prior to leaving the site to make sure the counter is working properly. Download the Eco-Link Application, available for Windows based laptops/tablet and Android devices. The Eco-Counter will connect via Bluetooth. Once connected you can change sensor settings and conduct validation counts.



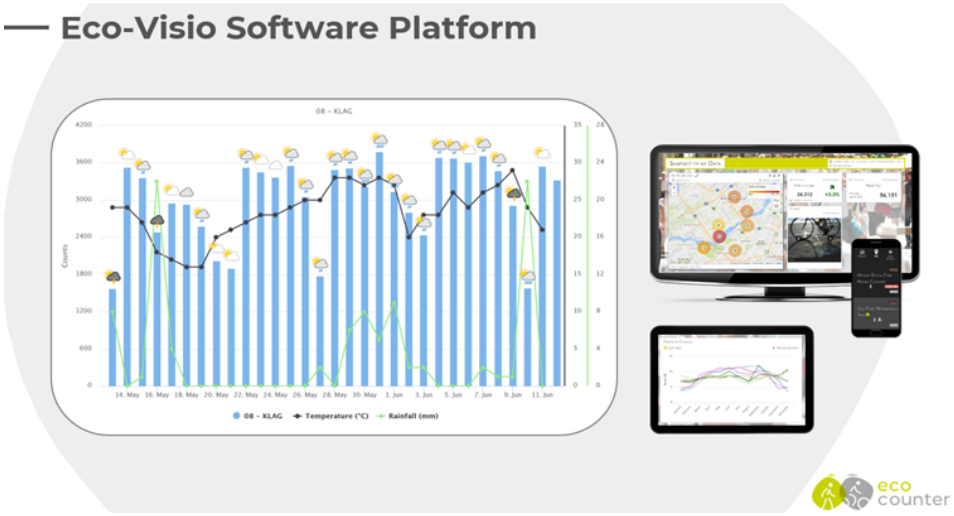
Eco-Link – Sensor settings

Sensor settings should be adjusted based on facility and/or user types



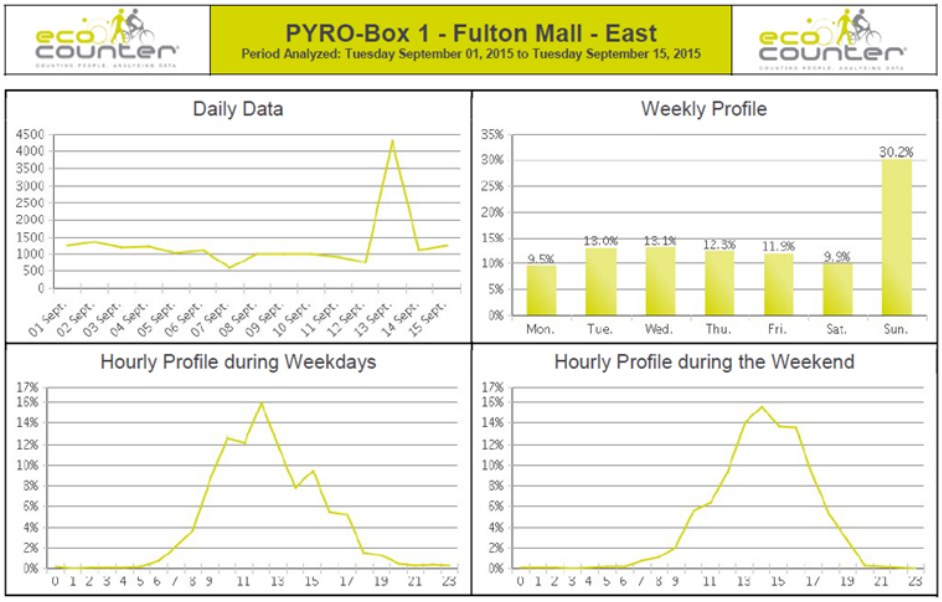
Eco-Visio Software Platform

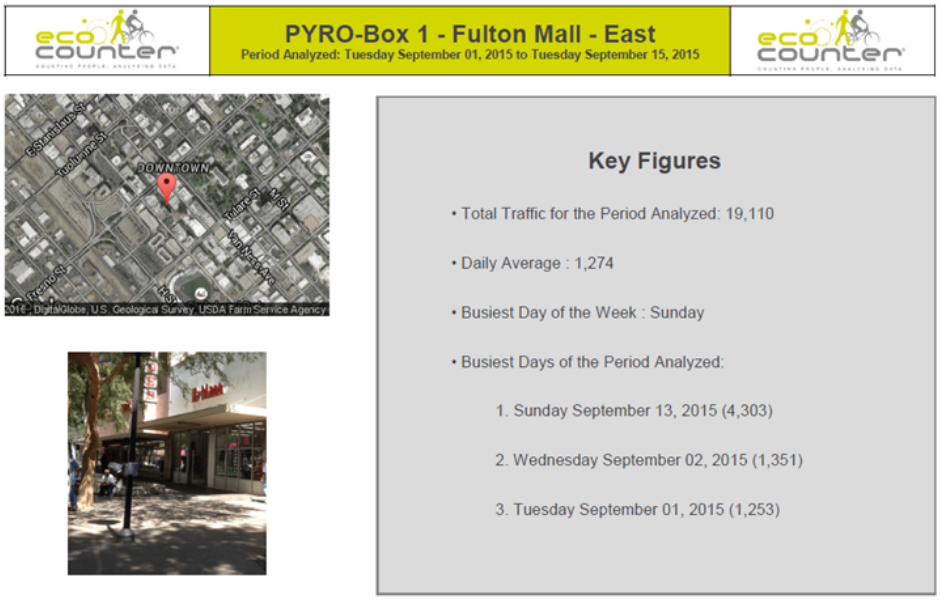
The Eco-Visio Platform is where you can access your count data and run analysis after your count is complete. SACOG will add you as a new master user in the account and will provide you with your log-in information.



In Eco-Visio you will be able to run reports on your count data.

Here is an example of a report created from a PYRO-Box counter within Fresno COG in 2016.





References

The information and graphics provided in this guide were supplied by the Eco-Counter website and Neal Poku, Client Consultant at Eco-Counter.

Installation, de-installation, and other instructional videos are on the Eco-Counter YouTube channel.

Appendix A: Sample Master Agreement

Appendix A: Sample Master Agreement

EQUIPMENT USE AGREEMENT

This Equipment Use Agreement ("Agreement") is entered into on this ___ day of _____, 20___ by and between the SACRAMENTO AREA COUNCIL OF GOVERNMENTS ("SACOG") and _____ ("User").

RECITALS:

WHEREAS, SACOG is owner of certain equipment to be more particularly described in equipment loan agreements to be entered into by the parties in substantially the form attached hereto as Exhibit "A" to this Agreement (the "Equipment Check-out Form"); and

WHEREAS, User desires to utilize the equipment specifically identified in the Equipment Check-out Form (the "Equipment") for purposes of collecting pedestrian and bicycle counts at locations within User's jurisdiction; and

WHEREAS, SACOG desires to permit use of the Equipment pursuant to the terms and conditions of this Agreement.

NOW, THEREFORE, SACOG and User agree as follows:

1. Term. This Agreement shall be effective through December 31, 2028 (the "Term"), unless otherwise terminated as provided for herein. User shall return the Equipment as specified in the Equipment Check-out Form or sooner in accordance with Section 3 of this Agreement.

2. Data Collected. In consideration for use of the Equipment, User agrees to share copies of any and all data collected by the Equipment with SACOG during the Term of this Agreement.

3. Recall of Equipment. User acknowledges that the Equipment is for the use and benefit of all SACOG member agencies. SACOG reserves the right to recall any or all Equipment upon ten (10) days written notice to User for use by other agencies following the expiration of two months of the commencement date listed on any Equipment Check-out Form.

4. Installation of Equipment. User shall be responsible for installing all Equipment. SACOG will make available to User Equipment manufacturer and supplier installation instructions and materials. SACOG does not assume any liability for any damages resulting from the improper installation or use of the Equipment. In no event shall SACOG be liable for any consequential, incidental, exemplary or special damages whether in contract or in tort, in any action connected with Users use or installation of the Equipment. User shall install Equipment at the locations identified in the Equipment Check-out Form. If User desires to relocate the Equipment due to any circumstance, the new location shall be mutually agreed upon by both SACOG and User prior to the User relocating the Equipment.

5. Maintenance and Operation of Equipment. User shall not alter or modify the Equipment and shall maintain the Equipment in good repair and operative condition and return it to

Appendix A: Sample Master Agreement

SACOG in such condition, ordinary wear and tear resulting from proper use thereof expected. In the event that the Equipment or any portion thereof is damaged, destroyed, vandalized or rendered inoperable, User shall replace the Equipment at User's expense. User agrees to inform SACOG of any damage to the Equipment within three (3) days of discovery of such damage.

6. Repairs. The expense of all repairs made during Term of this Agreement, including labor, material parts and other items shall be paid by User.

7. DISCLAIMER OF WARRANTIES. SACOG, BEING NEITHER THE MANUFACTURER, NOR SUPPLIER OF THE EQUIPMENT, MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO ANY MATTER WHATSOEVER, INCLUDING WITHOUT LIMITATION, THE CONDITION OF THE EQUIPMENT, ITS MERCHANTABILITY, ITS DESIGN, ITS CAPACITY, ITS PERFORMANCE, ITS MATERIAL, ITS WORKMANSHIP, ITS FITNESS FOR ANY PARTICULAR PURPOSE, OR THAT IT WILL MEET THE REQUIREMENTS OF ANY LAWS, RULES, SPECIFICATIONS, OR CONTRACTS WHICH PROVIDE FOR USE OF A SPECIFIC APPARATUS OR SPECIAL METHODS. SACOG FURTHER DISCLAIMS ANY LIABILITY WHATSOEVER FOR LOSS, DAMAGE, OR INJURY TO USER OR THIRD PARTIES AS A RESULT OF ANY DEFECTS, LATENT OR OTHERWISE, IN THE EQUIPMENT. AS TO SACOG, USER UTILIZES THE EQUIPMENT "AS-IS". SACOG SHALL NOT BE LIABLE IN ANY EVENT TO USER FOR ANY LOSS, DELAY, OR DAMAGE OF ANY KIND OR CHARACTER RESULTING FROM DEFECTS IN, OR INEFFICIENCY OF, EQUIPMENT HEREBY USED OR ACCIDENTAL BREAKAGE THEREOF.

8. Indemnity. User shall indemnify SACOG against, and hold SACOG harmless from, any and all claims, actions, suits, proceedings, costs, expenses, damages, and liabilities, including attorney's fees, arising out of, connected with or resulting from User's use of the Equipment, including without limitation, the manufacture, selection, delivery, leasing, renting, control, possession, use, operation, maintenance or return of the Equipment. User shall further indemnify SACOG and hold SACOG harmless from all loss and damage to the Equipment during the Term. This section shall survive the expiration of the Term of this Agreement.

9. Risk of Loss. SACOG shall not be responsible for loss or damage to property, material, or equipment belonging to User, its agents, employees, or anyone directly or indirectly employed by User while the Equipment is in User's care, custody, and control.

10. Ownership of Equipment. SACOG shall at all times retain ownership and title to the Equipment.

Appendix A: Sample Master Agreement

11. Execution of Equipment Check-out Form. SACOG and User agree that the Equipment Check-out Form may be submitted by User staff and approved by SACOG's project manager. The Equipment Check-out Form may be submitted multiple times by User throughout the term of this Agreement to request repeated use of the Equipment.

12. No Assignment. User shall not assign or transfer any interest in the Equipment, the Equipment Form, or this Agreement without written consent of SACOG.

13. Entire Agreement. This Agreement constitutes the entire agreement between SACOG and User as it relates to the terms and conditions of use of the Equipment and it shall not be amended, altered or changes except by written agreement of the parties.

IN WITNESS WHEREOF, THE PARTIES HAVE ENTERED INTO THIS AGREEMENT AS OF THE DATE HEREIN ABOVE APPEARING:

SACRAMENTO AREA COUNCIL OF GOVERNMENTS

_____
JAMES CORLESS
Executive Director

APPROVED AS TO FORM:

_____
SLOAN SAKAI YEUNG & WONG LLP
Legal Counsel to SACOG

[INSERT USER NAME]:

_____
Name and Title

Appendix A: Sample Master Agreement

EXHIBIT "A"

EQUIPMENT CHECK-OUT FORM

This Equipment Request Check-out Form is entered into on this ___ day of _____, 20____, by and between the Sacramento Area Council of Governments and _____ ("User").

1. This Equipment Check-out Form is subject to the terms and conditions of the Equipment Use Agreement entered into by the parties.

2. SACOG agrees to provide the equipment specifically identified below (the "Equipment"), to User for use by User from _____ through _____, unless terminated sooner in accordance with the Equipment Use Agreement.

3. User hereby acknowledges SACOG has provided the Equipment in good working order. The User acknowledges all manufacturer and/or supplier instructions concerning installation of the Equipment has been provided to or made available to User.

Description of Equipment	**Location of Installation** (Location cannot be changed without consent of SACOG)	**Quantity**

SACRAMENTO AREA COUNCIL OF GOVERNMENTS

_____

[INSERT PROJECT MANAGER]

[INSERT USER NAME]:

_____

Name and Title

Appendix B: Building a Bike Count Program

Program guide from Eco Counter

How to build a bike count program

This primer is intended to help any community build a bike count program. It attempts to capture and distill key insights gained by our team's experience working with organizations all over North America.

Why collect bike count data?

Bike count data helps to inform how people are cycling in a community. This data is useful for: monitoring travel patterns, measuring the usage of bicycle facilities, understanding safety trends, evaluating the impact of projects, prioritizing infrastructure, developing multi-modal transportation models and much more.

Count data supports existing planning initiatives at various agency levels and can integrate into planning practices among transportation agencies that are accustomed to measuring traffic volumes.

Key terms:

Bicycle count data: the number of bicyclists passing a specific location over a given time.

Why use automated counters?

It can be difficult to measure cycling activity due to low rider volumes, fluctuating peak patterns, the impact of inclement weather and seasonal variations. Manual counts rely heavily on staff or volunteer time ranging from a few hours to a full workday.

Automated devices require minimal maintenance and count bikes day and night, rain or shine. This continuous data provides a baseline to capture cycling patterns. Automated counters are a great compliment to manual bicycle counts and together provide a clear understanding of cycling behavior.

Automated bicycle counters: collection of bicycle count data using continuously recording, automatic equipment.

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A step-by-step guide to building a bike count program

1. Define need
2. Assess resources
3. Develop a plan
4. Implement and adapt
5. Manage data and counters
6. Show and tell

Define need

Step 1

Count programs with defined needs and outcomes are easier to plan, fund and implement. Clear objectives facilitate research and discussion on the need for permanent counting stations and short-duration bicycle counts, collected either manually or with automated counters.

- **Listen** to local stakeholders, including bicycle advocates, academic and research groups, and community organisations.
- **Pinpoint** gaps in existing databases.
- **Connect** your plan to active transportation vision statements, policies, trail plans, and existing objectives.
- **Research** other similar communities who have developed count programs.
- **Visualize** how the program could look in 6 months, 1 year, and 5 years from now.
- **Consider** potential uses for bike count data.

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Step 2

Assess resources

Once needs have been defined, consider the opportunities and constraints for your organization. Both knowledge about the local context and expertise in measuring bicycle activity, inform how to build a count program. Avoid reinventing the wheel and seek out potential partners.

Below are key questions to consider when assessing knowledge, funding and partnerships for your count program. Refer to the national guidance section, outlined below, for a list of useful resources for your background research.

Knowledge

Have bike counts ever been collected before in the community, or a neighboring community? If so, by what organization? If not, which organizations or local experts might lead such an effort?

Funding

How is other bike-related data procured, or have other monitoring programs been deployed in the past? Are data collecting or counting equipment eligible in the funding stream for current bikeway?

Partnerships

What other stakeholders would be interested in bike count data? What other agencies could help support a bike count program?

National guidance - assessing the tools and resources

NCHRP Report 797

A definitive guidebook on pedestrian and bicycle volume data collection and developing a non-motorized count program.

TRB ABJ35

The National Bicycle and Pedestrian Data Subcommittee of the Transportation Resource Board comprised of leading researchers and practitioners who support non-motorized data collection.

FHWA-TMG Chapter 4

The non-motorized chapter of the Traffic Monitoring Guide, first edition, includes pedestrians, bicyclists, trail users, and other non-motorized transport.

Step 3

Develop a plan

Site selection

There are several factors to site selection based on feasibility, context, and goals of the plan. Factors include: location and function within bike network; existing and planned bike facilities; cordon line across key activity areas; connection to mobility hubs and future development sites; and coverage of city neighborhoods.

Equipment selection

There are a variety of excellent, durable automated counters to choose from. Equipment suitability may depend on the type of facility, site constraints, data quality needs, budget, and staff resources. The selection table below reviews the Eco-Counter options based on the type of site and duration.

	PEDESTRIANS			CYCLISTS			MULTI-USER : PEDS & CYCLISTS		MULTI-USER : PED / 2-WHEELED / VEHICLES
	PYRO-Box	Urban Post	CITIX-IR	ZELT	TUBES	EASY-ZELT	MULTI	Mobile MULTI	CITIX 3D
Mobile / Temporary	●				●	●		●	
Permanent	●	●	●	●			●		●
User Classification							●	●	●
Bicycle Lane or Track				●	●	●			
Multi-User Path	●	●		●	●		●	●	●
Shared Roads				●	●				●
Sidewalk	●	●	●						

Budget and installation

When planning to deploy counters at each site, consider the budget for equipment services and internal procurement processes. In particular, reliance on in-house partners, or outsourced technical support can greatly affect a project's total cost.

Reporting and assessment

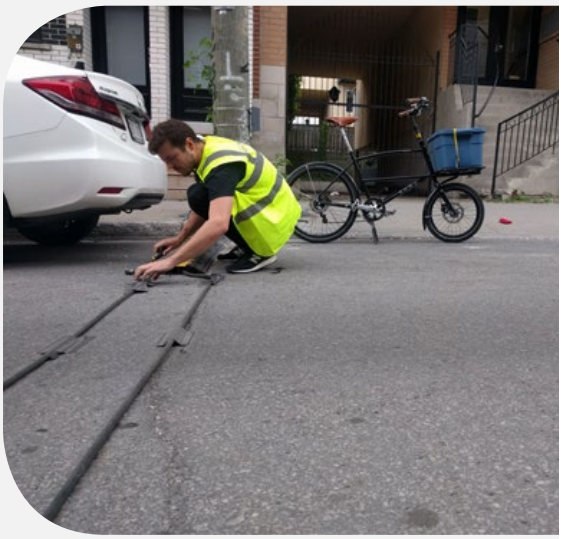
Keep in mind the resources required for reporting data and consider the following questions: who are the primary and secondary audiences for this data, and for what purpose? How frequently does this data need to be summarized and reported? What is the most effective way to share this data?

Steps 4 & 5

Implement and adapt

Here it is - go time!
With a plan in place, now comes the task of acquiring and installing counters at selected sites to begin collecting data. During this process it is important to be flexible to adapt to unexpected challenges that may arise.

Full-scale deployment can present a steep learning curve when implementing your count program. Pilot projects or staged rollouts permit time to: train staff, create a communications plan, adjust to unexpected challenges, assess project progress, and develop partnerships to distribute responsibilities.



Managing data and counters

Automated counters produce a continuous data feed; preserving this new data infrastructure requires a shift in maintenance practices. To manage data and assure quality in a bike count program, consider the following best-practices:

Document site and equipment specifications.

Develop a schedule for short-duration counts.

Conduct a manual verification count to test for proper installation.

Formulate seasonal adjustment factors to account for seasonal variation.

Step 6

Show and tell

Share your success and experiences!

Documenting how bike counts are collected, managed, and used to support planning will help establish standard practices.

Sharing count data publicly engages the public in active transportation, justifies investments and creates a healthy sense of pride and collaboration among the community.

Engage local cyclists

Use bicycle data to show that people count. Engage the local community in a count program, through initiatives such as Bike To Work Day and display counters, to demonstrate a community's commitment to cycling. On Laurier Street in Montreal, for example, a real-time display counter was installed after a significant street redesign and displays the number of cyclists that have passed-by so far that day and year.

Open data

Sharing daily, seasonal and annual bike count data with the community via public communications is a powerful tool to demonstrate your bike count program. Some communities also choose to make daily bike count data available to the public via online mapping platforms, allowing advocates and the wider community to engage with the count program on a daily basis.

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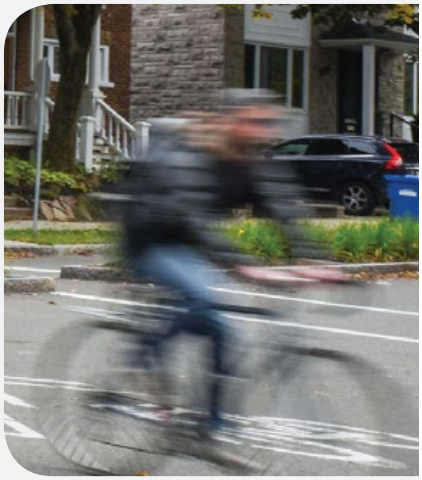
Count programs in all shapes and sizes

City of Omaha, Nebraska
Population: 450,000

Since 2011, Omaha has conducted bike and pedestrian counts at 20-30 locations, biennially. Volunteers track a variety of attributes during peak travel periods, which provides valuable information; however, inclement weather reduces this data reliability. In response, the City installed 2 permanent trail counters and 5 on-street count stations, with plans to add more permanent and mobile devices.

Quebec City, Canada
Population: 540,000

Quebec City is home to a 315 km bike network, including three permanent counting stations installed in 2016. Data collected along the new Saint-Charles River pathway has proven that the trail functions as a commuter route and recreational destination. Another site was selected to measure bike access trends along a connector to a burgeoning technology park. On a new bicycle boulevard, count data showed bike volumes 3x higher than parallel streets. This data helped respond to concerns over parking impacts and bring support from businesses and the public.



City of Boulder, Colorado
Population: 110,000

In August 2014, Boulder installed an Eco-DISPLAY Classic on a major bicycle corridor to create a signature, interactive data collection tool. Continuous bike data from this site helped make the case to install automated counters in several protected bike lane projects. Boulder currently has permanent counters throughout the city, primarily in bike lanes and on several multi-use paths. In addition, the city has recently started annual cyclist and pedestrian counts on multi-use paths, as well as turning movement counts at intersections.

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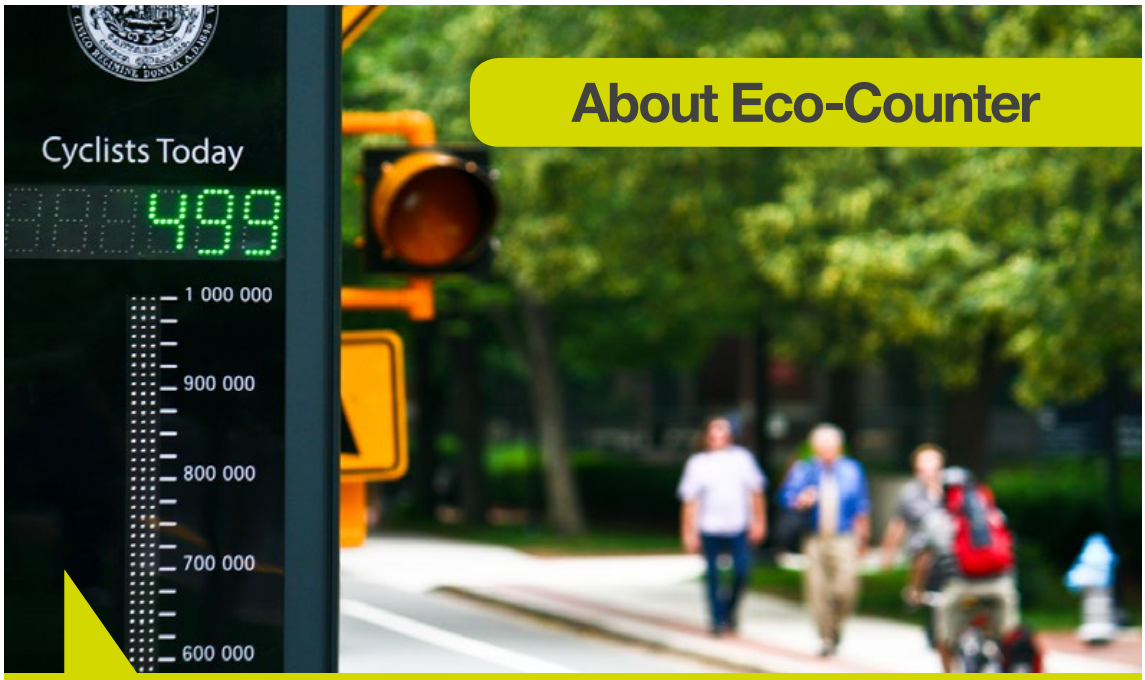
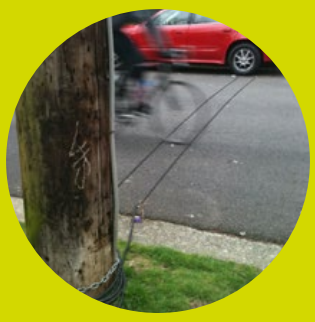


About Eco-Counter

Eco-Counter is the world leader in bicycle counting solutions. For over 15 years, Eco-Counter has provided all types of organizations the tools to collect pedestrian and bicycle count data.

From small scale projects using temporary counters, to comprehensive city networks of permanent stations, or to state-wide inter-agency collaborations, Eco-Counter can help tailor a solution to your needs.



Get in touch!

Whether you want to discuss counting methods, or learn about our tools, our dedicated team is always ready to chat.

1-866-518-4404 info@eco-counter.com eco-counter.com

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