How to Make Your Bike Data Count

Co-hosted by Eco-Counter and the League of American Bicyclists
Tuesday, July 20, 2021
How to Make Your Bike Data Count

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Moderator:
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League of American Bicyclists
Is it safe or dangerous to ride a bicycle in your neighborhood?
(n=22,335)

- Platinum: 7% Dangerous, 50% Safe, 44% It depends
- Gold: 6% Dangerous, 48% Safe, 46% It depends
- Silver: 12% Dangerous, 54% Safe, 35% It depends
- Bronze: 14% Dangerous, 52% Safe, 34% It depends
- Honorable Mention: 18% Dangerous, 52% Safe, 30% It depends
- No Award: 23% Dangerous, 54% Safe, 23% It depends
Rates of Active Commuting

In most cities included in the Benchmarking Project public transit has the largest share of non-car commuting. This chart is sorted by public transit as a share of commutes to work, showing its importance but also where biking and walking to work play a larger role.

- % Public Transit (excluding Taxi/cab)
- % Walk
- % Bike

Chart: The League of American Bicyclists • Source: Census Bureau 50801 Data Table • Get the data • Created with Datawrapper

Footnote 13

data.bikeleague.org
BIKES COUNT: A DATA COMPETITION DURING BIKE MONTH WITH ECO-COUNTER

BICYCLE FRIENDLY AMERICA
BICYCLE FRIENDLY COMMUNITY

by America Neptuno

Eco-Counter and The League are proud to announce the Bikes Count data competition during this May’s Bike Month! Check out the following blog from our friends at Eco-Counter for more details on how to enter!

INTRODUCING THE FIRST EVER ‘BIKES COUNT’ COMPETITION

We have been working on something really exciting for Bike Month! In collaboration with The League of American Bicyclists, we are proud to announce ‘Bikes Count’, a data competition during this May’s Bike Month.

Are you looking to use bike data to make an impact in your community? Have you been putting off analyzing and communicating that messy Excel sheet on your desktop? Do you have some bike data that never really got used or made a splash? Send us your data!
AND THE WINNERS ARE....

Advocacy Organization:
Treasure Valley Cycling Alliance

BFA Participant:
City of Charlottesville, VA
Honorable Mention

Advocacy Organization:
Walk Bike Tampa

BFA Participant:
City of Columbia, SC
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Bikes Count
Bike count data analysis, trends and key takeaways for the City of Charlottesville, Virginia

July 2021
Count Program Timeline

**Manual Counts**

TJPDC-led to support LRTP
21 locations

**2009**

**Student Research**

1 Tube Counter + TJPDC Counts
18 locations

**2011**

**West Main Street**

1 Tube Counter + TJPDC Counts
11 locations

**2013**

**Expand Count Equipment**

2 Zelt Loops
2 Tube Counters
1 Mobile Multi

**2015**

**2016**

**2018**

**2020**

**Emmet Street**

3 PYRO Box

All equipment installed + TJPDC counts
10 locations

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Volunteer-led
5 sites

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Equipment

- 4 - Tube Counters ("Temporary" Bikes)
- 3 - PYRO Box ("Temporary Pedestrians/Bikes* *does not distinguish)
- 1 - Mobile Multi ("Temporary" Bike/Ped)
- 2 - Zelt Loops (Permanent In-Road Bikes)
Issues that affect data quality

• Improper installation
• Trees/bushes/vegetation
• Maintenance vehicles displacing/destroying equipment
• No Replacement parts on hand
• Roadway closures
• Weird signals/interference
• Bugs
Narrow Bike Lanes and Potential for “Doorig”
Bicycle + Pedestrian Counts

Actual Count
81,564
What did we learn?

Bike commuters travel west (to UVA) in the AM and east in the PM.
What did we learn?
What did we learn?

- Low incidence of wrong way riding (Caveat – sidewalks)
What did we learn?

- Low occurrence of bicycle riding on Sunday
- Peak time occurs after regular church services
Cycling over the years: 2015-2021 West Main Street at the bridge

Weekly total bike counts for West Main EB/WB at the bridge.

- **Seasonal (winter)** dip in bikes counted
- **Significant growth** in cycling during summer 2019
- **Construction** for almost one year
- **Summer 2021** off to a strong start
West Main Street at the bridge - cycling over the years

- **53,270** Bikes counted during the 2015 cycling season.
- **50,450** Bikes counted during the 2016 cycling season, down 5% from the year before.
- **+26%** Growth in cycling during the 2019 season, compared to 2015.
- **-10%** Decrease in bikes counted during 2020, likely due to the pandemic.

Weekly bike counts for West Main EB/WB Total at the bridge. Bicycle counts did not span the entire 2015 cycling season: April 1 to May 16 were not captured. Total bike season counts have been estimated for the missing periods to generate a full-season count.
Average daily traffic across the network, April to October, 2020

- Hillsdale Drive: > 200 cyclists/day
- West Main Street at Bridge: 100 < < 200 cyclists/day
- Preston Avenue: 50 < < 100 cyclists/day
- Emmet Street: < 50 cyclists/day
- JWW at Rescue Station: < 50 cyclists/day
- Riverview Park 2: < 50 cyclists/day
The 2020 cycling season: daily average bike counts

- West Main at The Bridge: 225
- Riverview Park 2: 101
- Emmet Street: 55
- Preston Avenue: 52
- JWW at Rescue Station: 21
- Hillsdale Drive: 6

Calculated based on average daily cyclist counts between April 1, 2020 and October 31, 2020
The pandemic reduced weekday cycling in Charlottesville, but increased weekend cycling.

Weekend cycling increased in 2020 compared to 2019, overall reducing some of the weekday losses.

Calculated using data from all sites, comparing the 2020 cycling season (April to October) to the 2019 cycling season.
Recreational counting locations (JWW at Rescue Station and Riverview Park) had strong counts throughout 2020 and 2021, notably on weekends.

At West Main, activity in 2019 was 33% higher than in 2016 and 26% higher than in 2015.

Overall, the pandemic suppressed bike counts in Charlottesville. Early 2021 signs suggest a possible return to 2019 levels.
Tips to make your data COUNT...

Tip #1: Right equipment/right location

Tip #2: Have a plan!

Tip #3: Validate, validate, validate
Questions?

Amanda Poncy, Bicycle and Pedestrian Coordinator
City of Charlottesville
poncy@Charlottesville.gov
MORE PEOPLE ON BIKES
What do we do?

Removing barriers to cycling

*both real and imagined.*

improving cycling infrastructure

advocating for policy change to benefit cyclists, and

educating the community on cycling topics and issues.
Why do we count?

1. Better understand cyclist behaviors.

2. Data helps to advocate for infrastructure

3. Engages volunteers
Goals

1. Coordinate counts with bike-ability network audit
2. Conduct neighborhood requested bike counts throughout the year
3. Continue to partner with Boise State University students to conduct counts
4. Continue to leverage our bike counts to help agencies make better bike infrastructure decisions.
5. Count more times (Sat., Mid-day) and locations throughout the year to capture core cyclists.
### Shifts and Dates

**Tuesday, May 4th, 2021**

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<th>End Time</th>
<th>Registrants Needed</th>
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<td>Title</td>
<td>Start Time</td>
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<tr>
<td>AM Bike Count</td>
<td>7:00am (MT)</td>
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<td>1/1</td>
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<tr>
<td>Noon Bike Counts</td>
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<tr>
<td>PM Bike Count</td>
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**Wednesday, May 5th, 2021**

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Registration

Every September and June

Since 2007

Month long
Counting Sheet

Intersection turning

2-hour block
Additional Research

- Impact of Construction
- School Culture
- Neighborhood Socioeconomic status comparison
- Helmet use vs infrastructure
- Commuter vs leisure
Challenges

• Data organization
• Consistently counting locations
• Analyzing data
• Telling a story
Focus on a busy intersection: 8th & Bannock in Boise, Idaho

The pandemic drastically reduced counts in May 2020, complicating year over year comparisons.

A consistently well used intersection with AADT of 842 between 2010 and 2019.

Calculated based on extrapolated weekday average annual daily traffic (AADT). Some years are missing as manual counts were not conducted at the intersection that year.
Cycling is significant in Boise. Daily AADT bike counts at many intersections are higher than in a similarly sized comparable city.

As elsewhere, the pandemic dramatically reduced bike counts during the spring of 2020.

With some of the highest overall counts, the Greenbelt is an important commuting axis for Boise cyclists.

There is a need for weekend data collection to better distinguish commuting vs. recreation trends.
Making Count Data Count
Best practices for collecting, managing, and sharing data

July 20, 2021
A step-by-step guide to building a count program

Step 1: Define need
Step 2: Assess resources
Step 3: Develop a plan
Step 4: Implement and adapt
Step 5: Managing data and counters
Step 6: Show & tell
Manual and automatic counting
Manual counting

Best Practices

• At least 30 minutes at a time
• Schedule - varying times and days
• Varying weather conditions

Define parameters

• Who gets counted?
• Where do they get counted?
• What characteristics get recorded?
Automatic counting

Best Practices

• Site selection
• Equipment selection
• Proper installation
• Counter validation
• Regular care and maintenance

Short-term Counts

• Create a schedule
• At least 2 weeks per site
Recordkeeping
Site photos

Take photos of each count site
• Future reference and replication
• Useful for reports and presentations

Take photos of counter installation
• Troubleshooting
• Counter maintenance and field visits
Location

Record site location

• GPS coordinates
• Street address
• Side of street/trail

Why?

• Consistency and replication
• Counter maintenance visits
• Mapping and GIS
Direction of travel

Record traffic flows by direction

• Distinguish counts by direction
• Record directions consistently (e.g. north/south, east/west)
• For manual counts, define thresholds
Take note of events that may impact count data, such as:

- Festivals
- Road work
- Trail closures
- COVID-19 restrictions
- Bike to Work Day
- Extreme weather events
COVID-19 measures’ impact on bike counts

After deconfinement, growth was steady (~15-20%) all summer

The first lockdowns considerably reduced bike counts

The second wave brought a new energy to the boom
Weather data can be recorded manually or automatically

- Record extreme events like ice storms or wildfires
- Day-to-day weather data is nice info for automatic counts, and important info for manual counts
Counter and data management
Validate counts

Make sure automatic counters are functioning properly

- Validate automatic counters with manual counts
- Calibrate counter accordingly by adjusting settings and sensitivity
- Apply a correction factor if needed
Counter maintenance

Outdoor counters require regular care and maintenance!

- Visit the site regularly
- Check sensor position and direction
- Check for obstructions (e.g. insects, debris, parked vehicles)
- Clean components
- Check battery
Data management

Keep an eye on your data

- Compile data in a database (e.g. spreadsheet, vendor software)
- Routinely monitor data to check for anomalies (e.g. unusually high or low counts)
- Eco-Visio’s Eco-Alert service sends email alerts

**Maximum Exceeded**

Triggers whenever a counter has exceeded the maximum counts defined
Data reconstruction

Sometimes automatic counters will lose count

- Explain unusually high or low counts – was there an event?
- Omit or reconstruct incorrect data

Eco-Counter tools

- Eco-Visio auto-reconstruction tool
- Eco-Counter Data Services team
Tell a story with your count data
Observe patterns and trends

What’s important to you?

• Direction of travel
• Weekend vs. weekday
• Mode (e.g. bike, pedestrian)

Weekday to weekend comparison demonstrates this trail is both a commuter and recreational facility
Highlight key figures

Sometimes less is more!

- Peak hour
- Peak day
- Daily average
Capture trends over time

2 weeks
- Capture baseline trail use data
- Understand hourly, daily and weekly patterns
- Estimate use trends across a trail network
- Determine mountain bike volumes on different trails and at different network entrance points

6 months
- Justify investment in new or improved trails
- Capture monthly trends and peak usage periods
- Adapt maintenance practices on well-used trails
- Communicate with local stakeholders, such as tourism agencies and local businesses

12 months
- Understand seasonal trends
- Determine high-traffic areas in need of expansion or improvement
- Inform funding and grant applications
- Assess the demand for beginner, intermediate and advanced trails

24 months
- Publish long-term monitoring reports
- Analyze year-on-year trends
- Quantify the economic impact to local communities
- Justify network expansion & long-term strategy
Qualitative data

Combine count data with qualitative data to understand user profiles

Examples of qualitative data
• Gender
• Age
• Dollars spent in the region
• Origin and destination

Methods include
• Intercept surveys
• Online surveys
• Manual observation
Share your counting expertise!

- Documenting your process and sharing with others helps to establish best practices
- Transparency and credibility

Share your findings!

- Engages community
- Demonstrates the value of active transportation facilities
- Justifies investments
Recap: how to get the most out of count data

- Make a plan for what you want to study, create a schedule
- Keep records of count sites and track events
- Combine with other data sources (ticket data, survey data)
- Tell stories with even the smallest data points
- Keep an eye on your data
- Regularly report on data
- Engage key local partners (tourism agencies, universities etc.)
Thank you

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