TRAIL USE TRENDS: LEVERAGING DATA TO MAKE THE CASE FOR TRAILS

AUGUST 11, 2020 WEBINAR
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Quick Survey
Today’s Presenters

Torsha Bhattacharya, Ph.D.
Research Director
Rails-to-Trails Conservancy

Sherry Ryan, Ph.D.
Professor of City Planning
San Diego State University

Wade Johnston, AICP
Tri-State Trails Director,
Green Umbrella

Eric Oberg
Midwest Regional Director
Rails-to-Trails Conservancy

railsstotrails.org
Count to matter

Dr. Torsha Bhattacharya
Rails-to-Trails Conservancy
Why count?

- Without data, you just have opinions
- Support funding applications
- Demonstrating growth and value of trails
- Planning/prioritizing projects
- Evaluation
- Safety analysis
- Travel demand models

If **YOU** don’t count, then **TRAILS** won’t count!
Process

Determine: Determine modes of traffic to be monitored
Select: Select monitoring sites, including permanent and short-duration stations
Determine: Determine the type(s) of devices to be deployed
Implement: Implement monitoring following recommended guidelines
Follow: Follow recommended analytic procedures to ensure validity of data
Use: Use factors from permanent monitoring stations to estimate annual average daily bicyclists (AADB), pedestrians (AADP)
Site Selection

Stratified systematic

Purposeful selection

Local partners/practical significance

Technology
- Inductive loops - permanent counts
- Pneumatic tubes - temporary/short-duration
- Infrared sensors - both bike and ped

In-field validation
- Visual inspection of data
- Use of pre-specified criteria to identify potential outliers
- Assessment of zero counts
- Use of professional judgment to censor counts believed to be invalid
RTC established three objectives for the program:

1. Document use on existing trails using procedures consistent with TMG principles
2. Inform comprehensive regional monitoring efforts
3. Develop tools to support trail planning, including factors for extrapolating short-duration counts and estimates of network use

- Stratified random sampling for factors - Urban, Suburban, Rural, Parks, Forest
- Different pattern
- Different volumes
- Generalize results
- 6 within each class - a total of 30 sites
- Feasibility of access and installation
A. Normal Pattern
Suburban #12

B. Normal Pattern with Greater
Variation
Parks #4

C. Outliers
Forest #28

D. Missing Days
Urban #1

E. Counter with Errors
Suburban #9

A. Normal Pattern – ADTT is 189.

B. Normal Pattern with Greater
Variation – Maximum daily count is 2988 while minimum daily count is 10. ADTT is 422.

C. Outliers – Maximum daily count is 93 while ADTT is 4.

D. Missing Days – 89 days mis
from January to April. ADTT

E. Counter with Errors – 21 d
counts over 50,000. ADTT is
Strategies

- Land use
- Factor
- Volume
- Location
- Vary segment length by land use
- 5 miles for forest, 2 miles for suburban and rural, 1 mile for urban and park
- May-October monitoring period
- 14 permanent and 16 short-term counters, 10 days and 7-day short duration counts
  - Missing data
  - Erroneous counts
  - Only 19 valid counters out of 30
Distinguishing Utilitarian, Recreational and Mixed-Use trail use

- Weekday/ weekend ratio
- AM /Noon ratio
Eco Counters

http://data.eco-counter.com/ParcPublic/?id=4275#
RTC National Counters
COVID-19 and trails

https://www.railstotrails.org/COVID19/#trailcount
Strava Metro Data
Regional Data Collection/Sharing

- Data collected by regional and local agencies
- Allow for multiple types of data collection: Permanent automated counters, Mobile automated counters, Manual counts
- Use for projections where other data not available
- Historic mode share trends
Regional Trail Count Program Recommendations

- Web-based data sharing: available to public
- Counter equipment loaner program, including training
- Consistent guidelines for data collection
- Include count equipment in project costs
- Explore use of crowdsourced /Strava data
Questions?

Torsha Bhattacharya  
Director of Research  
Rails-to-Trails Conservancy  

torsha@railstotrails.org
Let's make moves.

Trail Use Trends - August 11, 2020
What We Do

EXPAND
advocate for connecting and expanding the regional trail and bikeway network

LEARN
collect and maintain data on trails locally

ASSIST
provide technical assistance to local governments and community groups

CONNECT
convene trail planners, managers, advocates, and users to share best practices

PROMOTE
promote and celebrate existing trails in the tri-state
Trail Monitoring Program

• Established in 2017 to collect reliable data source for trail usage
• Funded by the generous support of Interact for Health
• Comprehensive, regional approach
• Permanent counting sites and 7-day short duration counts generate 2 key metrics:
  1. Average Annual Daily Trail Traffic
  2. Trail Miles Traveled
Goals

• Document use of regional trails to understand the impact of the trail network over time
• Establish a standardized regional trail measurement methodology
• Generate useful data and information about the trail network for trail managers and advocates to justify investment
Partnering Organizations

- Tri State Trails
- Interact for Health
- Friends of the Little Miami State Park
- Great Parks of Hamilton County
- Humphrey School of Public Affairs
- University of Cincinnati
- OHI
- University of Minnesota
2019 Trail Counter Locations
- Long Term Count
- Short Term Count
- Trail Segments
- Planned Trails

Date: August 7, 2020
Source: Tri-State Trails, TIGER.
<table>
<thead>
<tr>
<th>Category</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
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</thead>
<tbody>
<tr>
<td>Long Term Counters</td>
<td>10</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Short Term Counts</td>
<td>51</td>
<td>99</td>
<td>109</td>
</tr>
<tr>
<td>Trail Miles Monitored</td>
<td>136</td>
<td>187</td>
<td>197</td>
</tr>
<tr>
<td>Average Annual Daily Trail Traffic</td>
<td>252</td>
<td>216</td>
<td>TBD</td>
</tr>
<tr>
<td>Trail Miles Traveled</td>
<td>11,121,318</td>
<td>12,738,756</td>
<td>TBD</td>
</tr>
</tbody>
</table>
Survey by the numbers...

- 20 survey locations
  - 1 weekday, 1 weekend
- Staggered 3-hour time periods from 7 AM to 7 PM
- 111 survey hours
  - 3 periods cancelled for weather
- 738 survey responses
REASON FOR TRAIL USE

- **88%** Recreation & Exercise
- **5%** Commuting
- **3%** Travel or Shopping
- **5%** Other

PRIMARY ACTIVITIES ON THE TRAILS

- **41%** Walking & Hiking
- **40%** Bicycling
- **17%** Running & Jogging
- **2%** Other
DEMOGRAPHICS

50% male
50% female

88% white
5% black/african american
1% hispanic
2% asian
1% 2 or more races
3% prefer no answer

Age

- 0% <16
- 0% 16-17
- 0% 18-24
- 0% 25-34
- 35% 35-49
- 35% 50-64
- 15% 65-74
- 5% >75
COVID-19 Impact on Trail Usage
Dearborn Trail
Lawrenceburg, Indiana

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>% CHANGE</th>
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<tbody>
<tr>
<td>Jan</td>
<td>1029</td>
<td>1562</td>
<td>52%</td>
</tr>
<tr>
<td>Feb</td>
<td>1175</td>
<td>1598</td>
<td>36%</td>
</tr>
<tr>
<td>Mar</td>
<td>2111</td>
<td>4268</td>
<td>102%</td>
</tr>
<tr>
<td>Apr</td>
<td>4283</td>
<td>6454</td>
<td>51%</td>
</tr>
<tr>
<td>May</td>
<td>4613</td>
<td>8696</td>
<td>89%</td>
</tr>
<tr>
<td>Jun</td>
<td>5131</td>
<td>8703</td>
<td>70%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>18342</td>
<td>31281</td>
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Great Miami River Trail
Hamilton, Ohio

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<th>% CHANGE</th>
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<tbody>
<tr>
<td>Jan</td>
<td>1141</td>
<td>1407</td>
<td>23%</td>
</tr>
<tr>
<td>Feb</td>
<td>1386</td>
<td>1637</td>
<td>18%</td>
</tr>
<tr>
<td>Mar</td>
<td>2723</td>
<td>8023</td>
<td>195%</td>
</tr>
<tr>
<td>Apr</td>
<td>7568</td>
<td>14224</td>
<td>88%</td>
</tr>
<tr>
<td>May</td>
<td>9146</td>
<td>17231</td>
<td>88%</td>
</tr>
<tr>
<td>Jun</td>
<td>11315</td>
<td>19171</td>
<td>69%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33279</td>
<td>61693</td>
<td>85%</td>
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</table>
Little Miami Scenic Trail
Loveland, Ohio

*Counter malfunctioned, only 73% complete days of data
Ohio River Trail at Lunken Airport
Cincinnati, Ohio

<table>
<thead>
<tr>
<th>Month</th>
<th>2019</th>
<th>2020</th>
<th>% CHANGE</th>
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<tbody>
<tr>
<td>Jan</td>
<td>4179</td>
<td>3790</td>
<td>-9%</td>
</tr>
<tr>
<td>Feb</td>
<td>5021</td>
<td>3053</td>
<td>-39%</td>
</tr>
<tr>
<td>Mar</td>
<td>7031</td>
<td>7907</td>
<td>12%</td>
</tr>
<tr>
<td>Apr</td>
<td>13992</td>
<td>10793</td>
<td>-23%</td>
</tr>
<tr>
<td>May</td>
<td>14689</td>
<td>20989</td>
<td>43%</td>
</tr>
<tr>
<td>Jun</td>
<td>16604</td>
<td>26512</td>
<td>60%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>61516</strong></td>
<td><strong>73044</strong></td>
<td><strong>19%</strong></td>
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Purple People Bridge
Newport, Kentucky

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>% CHANGE</th>
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<tr>
<td>Jan</td>
<td>19076</td>
<td>24907</td>
<td>31%</td>
</tr>
<tr>
<td>Feb</td>
<td>22440</td>
<td>27658</td>
<td>23%</td>
</tr>
<tr>
<td>Mar</td>
<td>47041</td>
<td>50519</td>
<td>7%</td>
</tr>
<tr>
<td>Apr</td>
<td>63683</td>
<td>55708</td>
<td>-13%</td>
</tr>
<tr>
<td>May</td>
<td>74358</td>
<td>62602</td>
<td>-16%</td>
</tr>
<tr>
<td>Jun</td>
<td>79442</td>
<td>52910</td>
<td>-33%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>306040</td>
<td>274304</td>
<td>-10%</td>
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All Permanent Counters

<table>
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<th></th>
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<th>2020</th>
<th>% CHANGE</th>
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<tbody>
<tr>
<td>Jan</td>
<td>28521</td>
<td>32922</td>
<td>15%</td>
</tr>
<tr>
<td>Feb</td>
<td>35637</td>
<td>40347</td>
<td>13%</td>
</tr>
<tr>
<td>Mar</td>
<td>68932</td>
<td>92213</td>
<td>34%</td>
</tr>
<tr>
<td>Apr</td>
<td>98917</td>
<td>101562</td>
<td>3%</td>
</tr>
<tr>
<td>May</td>
<td>126604</td>
<td>143997</td>
<td>14%</td>
</tr>
<tr>
<td>Jun</td>
<td>131957</td>
<td>130378</td>
<td>-1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>490568</td>
<td>541419</td>
<td>10%</td>
</tr>
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</table>
What we’ve learned…

• Building a systematic, comprehensive trail counting system takes time
• Data for trail use is critical to telling the story of trails and leveraging future investment
• Stakeholder buy-in and proactive collaboration is essential
Thank you!
For more information, visit tristatetrails.org/trailscount

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San Diego State of Cycling

Sherry Ryan, PhD, Ana Garate and Diane Foote
School of Public Affairs – Master in City Planning Program
San Diego State University
8-11-2020
The San Diego Regional Bicycle and Pedestrian Counting Program

• Started in 2011 with funds from the County of San Diego Health and Human Services Agency (CDC funds – Communities Putting Prevention to Work)

• SDSU identified technology, siting strategy and oversaw installation of the automated bicycle and pedestrian counting network

• Funds for launching, not for maintenance
System Characteristics – ECO-Counter Technologies

Zelt Logger & Inductive Loops

Pyro

Eco-Multi
Zelt Logger and Inductive Loop
Eco-Multi installed on San Diego River Path
Count Sites by City and Facility Type

- 32 counts sites across 12 cities on a variety of facility types

- All but 1 are located along San Diego’s Regional Bike Network

<table>
<thead>
<tr>
<th>#</th>
<th>City</th>
<th>Location</th>
<th>Facility Type</th>
<th>ON/OFF Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chula Vista</td>
<td>Bayshore Bikeway</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>2</td>
<td>Coronado</td>
<td>Bayshore Bikeway</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>3</td>
<td>Del Mar</td>
<td>Camino Del Mar</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>4</td>
<td>El Cajon</td>
<td>East Washington Ave</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>5</td>
<td>Escondido</td>
<td>Inland Rail Trail</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>6</td>
<td>Imperial Beach</td>
<td>Bayshore Bikeway</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>7</td>
<td>Imperial Beach</td>
<td>Palm Ave</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>8</td>
<td>La Mesa</td>
<td>University Ave</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>9</td>
<td>National City</td>
<td>Sweetwater Bike Path</td>
<td>Class I</td>
<td>Multi-Use Path</td>
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<tr>
<td>10</td>
<td>Oceanside</td>
<td>Coastal Rail Trail</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>11</td>
<td>Oceanside</td>
<td>Oceanside Blvd</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>12</td>
<td>Oceanside</td>
<td>Pacific St</td>
<td>Class III</td>
<td>Bike Route</td>
</tr>
<tr>
<td>13</td>
<td>Oceanside</td>
<td>San Luis Rey River Trail @College Blvd</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>14</td>
<td>Oceanside</td>
<td>San Luis Rey River Trail @Pacific St</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>15</td>
<td>San Diego</td>
<td>30th St</td>
<td>Class II</td>
<td>Bike Route</td>
</tr>
<tr>
<td>16</td>
<td>San Diego</td>
<td>4th and 5th Ave</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>17</td>
<td>San Diego</td>
<td>Del Mar Heights Rd</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
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<td>18</td>
<td>San Diego</td>
<td>Gilman Dr</td>
<td>Class II</td>
<td>Bike Lane</td>
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<td>19</td>
<td>San Diego</td>
<td>Harbor Drive Multi-Use Path</td>
<td>Class I</td>
<td>Multi-Use Path</td>
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<td>20</td>
<td>San Diego</td>
<td>Kearny Villa Rd</td>
<td>Class II</td>
<td>Bike Lane</td>
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<td>La Jolla Blvd</td>
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<td>Bike Lane</td>
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<td>22</td>
<td>San Diego</td>
<td>Landis St</td>
<td>Class III</td>
<td>Bike Route</td>
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<tr>
<td>23</td>
<td>San Diego</td>
<td>North Torrey Pines Rd @UCSD</td>
<td>Class II</td>
<td>Bike Lane</td>
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<td>24</td>
<td>San Diego</td>
<td>Pacific Hwy</td>
<td>Class II</td>
<td>Bike Lane</td>
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<td>25</td>
<td>San Diego</td>
<td>Rose Canyon Bike Path</td>
<td>Class I</td>
<td>Multi-Use Path</td>
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<tr>
<td>26</td>
<td>San Diego</td>
<td>San Diego River Bike Path</td>
<td>Class I</td>
<td>Multi-Use Path</td>
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<tr>
<td>27</td>
<td>San Diego</td>
<td>Sorrento Valley Rd</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>28</td>
<td>San Diego</td>
<td>SR56 Bike Path</td>
<td>Class I</td>
<td>Multi-Use Path</td>
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<tr>
<td>29</td>
<td>San Diego</td>
<td>Torrey Pines Rd</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
<tr>
<td>30</td>
<td>San Diego</td>
<td>University Ave</td>
<td>Class III</td>
<td>Bike Route</td>
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<tr>
<td>31</td>
<td>San Marcos</td>
<td>Inland Rail Trail</td>
<td>Class I</td>
<td>Multi-Use Path</td>
</tr>
<tr>
<td>32</td>
<td>Vista</td>
<td>Vista Village Dr</td>
<td>Class II</td>
<td>Bike Lane</td>
</tr>
</tbody>
</table>
Count Sites Along the Regional Bike Network

- Units at 9 sites were gifted by SDSU to SANDAG

- City of Oceanside has purchased additional counting units
First Major Reporting of SDSU’s Bicycle Count Data

• Bicycle Infrastructure and Changes (2015-2018)
• Bicycle Demands and Changes (2013-2017)
• Bicycle Collisions and Changes (2013-2016)
Inventory of Existing Bicycle Facility

- **Class II Bike Lane**: 1,059 (67%)
- **Class III Bike Route**: 339 (21%)
- **Class I Multi-Use Path**: 182 (12%)

Source: SANDAG, 2018
3-Year Change in Miles of Bicycle Facility Construction
2015 to 2018

- Class I: 6%
- Class II: 11%
- Class III: 31%
- Total: 14%
Changes in Cycling Demand
(Average Daily Bicycle Volume 2013 to 2017)

North Region

Rail Trails in San Diego County
Percent Change in Cycling Demand
2015 to 2017

North Region
Changes in Cycling Demand
(Average Daily Bicycle Volume 2013 to 2017)

Central Region
Percent Change in Cycling Demand
2015 to 2017

Central Region
Changes in Cycling Demand
(Average Daily Bicycle Volume 2013 to 2017)

South Region
Percent Change in Cycling Demand
2015 to 2017

South Region
Average Daily Bicycle Volumes by Neighborhood Density

More Cycling in Low Density Neighborhoods
Average Daily Bicycle Volumes by Neighborhood Income

More Cycling in High Income Neighborhoods
Concluding Remarks

• Cycling levels between 2013 and 2017 are going in wrong direction

• Bike lanes and bike routes won’t incentivize people to ride bikes

• A dense network of separated bike facilities or multi-use paths is required to change travel mode
Statewide GHG and VMT since 2000

- VMT per capita
- CO₂ per capita
- Anticipated SCS CO₂ Performance

Percent change with respect to 2005
Three Major Action Items

1. Equal Funding by Mode
2. Equal Quality & Capacity by Mode
3. Suppress Capacity for Auto Travel

[SANDAG 2018 RTIP Funds by Mode]
Unequal Quality & Capacity
Pedestrian, Bike, Transit and Auto Travel
As American life is altered significantly in response to COVID-19, Rails-to-Trails Conservancy (RTC) is providing resources and advocacy tools to connect people with outdoor space where they can be active and well during this time. We are sharing content and data that provides insights on safely accessing trails and the outdoors now, as well as information and tools to support trail managers in keeping communities safe, and perspectives on the long-term impacts of the illness on the trails movement and the communities we all serve. We are leading national efforts to call on local officials to repurpose streets to create more space for people to be active at a safe social distance, and we are organizing the trails and active transportation movement in response to federal stimulus opportunities. While we are working hard to maintain up-to-date content, the CDC’s website, coronavirus.gov, as well as local and state public health agencies are the best resources for current public health guidance and local orders and regulations.
Panelist Q&A

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