

Purpose and Need

For the

Strava Bicycle Data Project

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ODOT Strava Workgroup

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Problem Statement

Across the United States, bicycling is increasing as mode of transportation and for recreation. A major challenge in supporting this mode of is the lack of data. Without data about bicycling, it remains difficult to both 1) target existing investments, and 2) illustrate the benefits of past investments. Without data, it remains challenging to integrate bicycle and pedestrian travel into mainstream planning, decision making, and transportation modeling.

There are currently gaps in the data on bicycle travel in Oregon and nationwide. Although ODOT and a few local jurisdictions collect bike counts, counts only provide usage data of a one location for a short period of time. Bike counts can often be time intensive and resource intensive. Counts do not provide data about bicycle travel behavior – i.e., where, when and how people ride.

At the same time, there are emerging data sources for all types of transportation, often referred to as “big data.” Public entities are faced with a choice of if and how to utilize this type of data from the private sector. Challenges with public data include sample control and bias. However, the private sector has the innovation and flexibility to create new tools to collect new types of data.

Background

ODOT is piloting a public/private partnership with Strava to create a mutually beneficial dataset to inform transportation planning and analysis for different aspects of transportation. The overarching goal of the Strava research project is to understand *how and where* cyclists are riding in Oregon; rather than how many. Volume data collection strategies are still needed.

Data collected by mobile phones, such as Strava, are a time-efficient and cost-efficient way to fill some of the data gaps. Strava has a large sample size that goes across an entire state network and includes both urban and rural data points. Data collected by mobile applications is the most efficient way to gather information about origin destination and travel instead of point measure. This type of data help ODOT on-finding ways to analyze bicycle travel behavior from the point of view of level of comfort.

Strava tracks users’ rides via iPhone, Android or dedicated GPS device and helps the user to analyze and quantify performance. Strava provides motivation and camaraderie by allowing users to see each other’s profiles. One drawback to using Strava data is that sample is not representative of all bike users. Strava users tend to be the “athletic” and “confident” riders. However, Strava staff stated that many of their recreational cyclists that use the Strava app tend to use same commute routes as the general cycling population.

Objectives of the Study

The primary objective of the Strava Bicycle Data Project is for ODOT to obtain and analyze a new type of bicycle data from the private sector. The Strava Workgroup will identify pilots within ODOT to test the usefulness of the Strava data. For the data set in 2013, Strava has the trips of

35,000 cyclists in Oregon and over 400,000 individual bike trips. This data can be analyzed at the mega-level for understanding of bike patterns in the following dimensions, such as:

- Seasons
- Day of week
- Time of Day
- Distance
- (Potentially) Trip Purpose.

At the micro or street level, the data can help understand:

- Cyclist patterns, such as: cut-through routes, “out-of-way” factor, shortest distances, use of dedicated routes versus other routes, ect.
- Bike Level of Stress or Bike Level of Comfort
- Verification of use (i.e., that some cyclists do in fact use a route for riding)

The Workgroup identified these areas where Strava data could *potentially* be useful:

- Transportation Planning Analysis
 - Increase understanding of bicycle travel behavior
 - Further ODOT’s intermodal objectives by informing the process through quantitative measures earlier
 - Test future applications for Demand Model
- Project Management and Project Delivery
 - Verify use of route by cyclists
 - Show patterns of cyclists, e.g., short cuts
 - Provide greater understanding of cyclist behavior in project area.
- Planning
 - Inform planning on multiple scales
 - Regional level: Inform TSPs, corridor plans and bike/ped plans
 - State level: Aggregated statewide data could inform statewide plans, i.e., time of day travel
- Maintenance
 - Verify use of route by cyclist (e.g., on rural roads)
 - Provide feedback on when (i.e., seasonal data) cyclists ride in the context of-sweeping and other maintenance schedules
- Research regarding Private/Public Partnerships

- Test private/public partnerships around data and app use
- Provide future recommendations for long term use of “big data” by ODOT
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Implementation

The three tasks below will run concurrently between January 2014 and January 2015.

Task 1: Format

TPAU and GIS are working together to put the Strava information in a format that is accessible and usable by ODOT, which is most likely in the TransGIS Tool. The GIS unit will house the data to make available to others in ODOT.

Note, under the contract between ODOT and Strava, ODOT cannot share Raw Strava Data, with externals, except for MPOs who sign a contract. When ODOT shares Strava Data with externals in form a report or a heatmap, it must include the words “Data Licensed from Strava, Inc.”, as provided by the contract:

3.2 Licensee will provide the following attribution on each Licensee Report and on each copy of the Strava Heat Map: “Data licensed from Strava, Inc.” Except for the foregoing attribution, Licensee will not use the Strava name, trademarks or logos or make any other reference to Strava, including any statement or suggestion that Strava endorses, advocates, recommends or supports any Licensee Report or any position taken by Licensee or any of its affiliates or constituents, unless agreed to in writing by both parties.

In summary, Strava Data can only be shared with externals in the form of a report or heat map produced by an ODOT employee.

Task 2: Education and Outreach

The Strava Workgroup Members will do education and outreach in the form of presentations to ODOT Leadership Teams, Management Teams and other ODOT teams that are interested. This will increase awareness and familiarity with the Purpose and Need for the data set.

Task 3: Pilot Projects

The Strava Workgroup will work with ODOT Regions and subject matter experts within ODOT to identify and implement pilot projects using Strava Data in the areas identified above. The goal is to find projects, programs, or plans where the Strava data will inform a decision. For example, in one of the first pilots, the Strava Data is being used to inform the discussion on where rumble strips should be located on some of ODOT’s high-speed rural roads. Also, the Strava data is also being used by Traffic Data Section to inform the location of bike counters on HWY 101 based on the travel behaviors illustrated in the Strava Data. These are just a few examples of the pilots

underway. ODOT staff who use the Strava data should report back to the workgroup for analysis and recommendations (see below).

Analysis and Recommendation

At the end of the year, the Strava Workgroup will analyze the pilot projects and evaluate whether:

- 1) The Strava data informed a project, program or plan;
- 2) The right type of data or attributes of the data was collected from Strava to inform the project, program, or plan; and
- 3) The Strava data was used in a way that could be replicated in other processes in the future.

This analysis and recommendation should begin on September 1, 2014 and go through January 2015. The Strava Workgroup will reproduce a short report with their recommendations based on the pilot projects. These recommendations will be shared with Strava.