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Technical Memorandum #5.3: Count Program Development

Date: May 31, 2016 Project #: 17453.005

To: Jovi Anderson, Robin Lewis, Nick Arnis; City of Bend

From: Ashleigh Griffin, Kelly Laustsen
Project: Bend Transportation Planning Strategy – Task 5: Multimodal Traffic Count Program
Subject: Technical Memorandum #5.3: Count Program Development

This memo provides recommendations for the City of Bend's count program. It provides a summary of the following:

- The general purpose(s) of the data collection program;
- Data collection resources available to the City, including volunteer time, staff time, and funding;
- Recommended counting program, including locations, schedules, and counting methods; and
- Next steps in the count program development.

COUNT PROGRAM PURPOSE

The purpose of the City's count program was developed based on a review of current practices within the City, County, BPRD and ODOT and discussions with the City and project Technical Advisory Committee (TAC). The following sub-sections document the goals of the count program, intended data uses, and considerations for the program.

Count Program Goals

The City of Bend has developed the following goals for the development of the new count program:

- The count program should be easy to implement with minimal staff time required for maintenance or data manipulation. Data should be accessible without a field visit.
- The data should provide mode split information.
- Locations for data collection should be selected to allow for corridor trend analysis as well as regional analysis.

- Locations for data collection should supplement locations where ODOT, Deschutes County, and BPRD already collect regular data.
- Locations for data collection should be developed systematically rather than randomly in response to requests.
- The storage system for the counts should allow for incorporating data from other agencies as well as other projects such as Traffic Impact Analyses.
- The storage program should provide some flexibility to allow for future changes to incorporate new data, such as demographics.

Data Uses

In order to meet the goals above and ensure that meaningful data is collected through the count program, a list of potential uses of the data was developed. For the count program to be successful long-term, the data collected needs to be actively used and respond to high-priority needs. The intent is not to collect data randomly or at locations that seem to be "important," but to be systematic in collecting data that will serve a clear purpose. The following data uses articulate existing data needs or activities the City intends to pursue in the future with the count program data.

- Monitor use and trends
    - Understand trends in the transportation system (coverage counts)
    - Understand mode split on key corridors
    - Understand changes in mode split on key corridors
    - Understand the number of people walking and biking
    - Understand the number of transit riders
- Measure project success
    - Understand traffic changes before and after project implementation (including roadway projects as well as pedestrian/bike projects) – "before" data may also be used for grant applications.
- Plan for the future
    - Understand where transportation issues exist today (congestion, etc.) and how the system is operating to:
        - Be able to require development to complete appropriate mitigation
        - Appropriately plan for the future of the transportation network
- Prioritize maintenance activities and operations
    - Understand which areas experience the heaviest use (across all modes) to appropriately prioritize maintenance activities
    - Understand the number of users at various times and seasons to appropriately time signals to maximize operations performance

- Improve safety analysis
    - Use volume data in addition to crash data to understand exposure and where key issues are located

Other Considerations for Location Selection

To further inform the selection of count locations, the following were reviewed:

- Locations of counts currently done by other agencies (ODOT, BPRD) and identification of locations the City would like other agencies to count in the future.
- Locations where volunteers have historically collected counts.
- Bridges which provide key locations for capturing travel patterns across the river.
- Underpasses which provide key locations for capturing travel patterns across a corridor.
- The City's defined opportunity areas which were developed by the Urban Growth Boundary (UGB) Technical Advisory Committees.
- Bike boulevard corridors and enhanced crossings.
- The location of parks and schools, which serve as attractors for pedestrians and cyclists.
- Locations where counts are regularly collected for updating the City's travel demand model.
- Committed, build and illustrative roadway improvements.

The maps in *Attachment A* illustrate the data reviewed.

RESOURCES

In order to plan a count program that efficiently uses available resources, it was important to first understand the resources available to the City. Based on discussions with the City, the following resources are currently available or expected to be available in the future:

- **Staff Time**: limited staff time is available for implementing or maintaining the count program. Staff are available to review and download the data collected. In addition, the City has a new GIS specialist available for organizing the data storage and sharing system.
- **Volunteers**: the City currently utilizes volunteers to collect bicycle and pedestrian counts throughout the year. The program requires staff time to organize volunteers and record the data manually collected by volunteers. The City has had mixed success recruiting volunteers and could use a system that is more sustainable.
- **Funds**: there is approximately $15,000 available in this project's contract for collecting data. In addition, the City has $70,000 available in the IT budget, which is available for purchasing counters during the 2015-2016 fiscal year. The City intends to set aside approximately $50,000/year in future years to maintain the count program, which may be split among purchasing equipment and conducting counts.

- **Additional Support**: the City does not have support available for installing permanent counters, but it does have staff that can manage the installation of the counters.

COUNTING PROGRAM

Based on the count program purpose and available resources, we worked with the City in an iterative process to define the count locations, types, prioritization, and schedule.

Count Locations, Types and Prioritization

The count program was broken up into vehicle count locations and multimodal count locations to more easily select and view high priority locations for data.

Vehicle Counts

At the vehicle count locations, twenty-four hour tube count data will be collected. Tube count data was selected over turning movement counts in order to more cost effectively get a longer span of data collection and collect vehicle speed and classification data. Vehicle count locations were prioritized into the following categories:

- **High priority** locations where data will be collected annually (these locations include bridges, high volume roadways, and a representation of the opportunity areas)
- **Lower priority** locations where data will be collected every two years (half of these locations will be counted one year and the other half the next year)
- **Lower priority** locations where **base counts** are needed (at these locations, data will be collected during year one of the data collection program to provide a base count and then during alternating years in the future)
- **ODOT** locations (ODOT collects data at these locations which is available to the City).

A map of the vehicle count locations and corresponding table is provided in *Attachment B.*

Multimodal Counts

At the multimodal locations, a variety of options are available for collecting bicycle, pedestrian, and/or vehicle data, including:

- **BPRD** currently collects counts at a variety of locations using portable TraffX counters that are installed long-term on select trails around the community and sometimes moved to new locations as needed. Additional locations were identified where the City would also like BPRD to collect data as future resources allow.
- **ODOT** currently collects counts on its facilities using video cameras. The locations are primarily based on requests from the City.

- **Volunteers** currently collect counts at several times throughout the year at identified locations. These counts include bicycle turning movement counts at intersections and bicycle and pedestrian screenline counts at roadway segments.
- **Short-term counts** can be collected via video by a data collection firm. These counts can provide whatever data is desired, from intersection turning movement counts to screenline counts.
- **Long-term counts** can be collected via a variety of technologies, including roadway tubes, infrared sensors, and inductive loops. These technologies can be installed permanently or be designed to be portable for shorter installations.

Multimodal count locations were identified to utilize all of the above options. Long-term count locations were selected primarily at bridges or key undercrossings and intended to provide mode split and information about seasonal trends and annual ridership. The long-term count locations were prioritized to identify locations to install in the near-term (summer 2016) and in the future as funding is available. Short-term count locations were selected to capture information about opportunity areas, existing bicycle routes, key crossings, and trails. The short-term count locations are intended to be counted by a data collection firm in the spring, with volunteers counting the highest priority locations again in the fall.

A map of the multimodal count locations and corresponding table is provided in *Attachment C.*

Count Schedule

The schedule for the count program is shown in Table 1. The schedule is intended to be followed each year with changes made as needed.

Table 1. Count Program Schedule

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Reassess count locations, types and priorities based on past report												
Collect spring counts at annual locations												
Collect summer counts at select locations												
Collect fall bicycle and pedestrian counts with volunteers plus any annual locations not collected in spring												
Produce annual report summarizing data collection from past year (spring, summer and fall counts, plus permanent counts)												

Notes:

- Update data collection firm three months in advance of data collection to schedule counts.
- Check construction schedule two weeks in advance of data collection to assess any conflicts with count locations.

NEXT STEPS

The count program outlined in this memorandum will be implemented with a first round of spring counts in May 2016. The first annual report will be produced in the winter of 2016, which will provide an opportunity to assess the success of the count program and make any needed adjustment to count locations, types or priorities.

ATTACHMENTS

A: Data Reviewed

B: Vehicle data collection locations (map and table)

C: Multimodal data collection locations (map and table)