FHWA's Livable Communities Case Study Series

Counting Pedestrians and Bicyclists to Better Manage the Transportation System: A Case Study from Minnesota

Challenge— Transportation agencies need good data on walking and bicycling activity to make informed funding decisions

Livable communities maximize transportation choices, among them walking and bicycling. Governments and non-profit agencies can support walking and bicycling by counting people traveling by these means. Transportation agencies have been monitoring motorized traffic for many years, but many have historically lacked comparable data on nonmotorized travel for a variety of reasons. Some reasons include the following: there are no Federal requirements to collect data on nonmotorized travel, most bicycle and pedestrian traffic volumes are lower and may be more dispersed, and the same methods for counting motor vehicles may not work for pedestrians and bicyclists. Travel count data serves a variety of purposes, such as identifying safety concerns, understanding and communicating benefits of active transportation, prioritizing investments and tracking their effectiveness, and analyzing trends. The results can inform future design, policy, planning, maintenance, and budgeting decisions. Despite the potential benefits, many transportation agencies face challenges in counting nonmotorized travel, such as limited resources to implement.

Solution— Leverage partnerships to implement a count program

A number of agencies have successfully implemented nonmotorized traffic count programs and there are a variety of ways to do so. For example, some may count traffic manually through the use of staff, volunteers, or consultants who record data for a specified period. Others may count traffic with automated counters (either permanently fixed or portable), which function through a variety of different technologies. Each operating model and technology has strengths and weaknesses and the resources at the conclusion of this case study can provide more information. This case study highlights efforts to develop a nonmotorized count program in Minnesota.

Figure 1: There are a variety of different technologies available to count pedestrians and bicyclists, such as infrared sensors or inductive loops.

Minnesota Bicycle and Pedestrian Counting Initiative

The Minnesota Department of Transportation (MnDOT) is working to improve and coordinate pedestrian and bicycle counting statewide through the Minnesota Bicycle and Pedestrian Counting Initiative, as introduced in this video. Various strategic directions compelled the agency to develop this initiative. For example, MnDOT is committed to reducing serious injuries and fatalities through the Toward Zero Deaths approach, which uses data to target areas for safety improvements. MnDOT needed to know the walking and bicycling rates at each location where bicycle or pedestrian injuries occur in order to provide context. This allows MnDOT to estimate relative rates of injuries per traveler for various locations in addition to absolute numbers, helping the agency to prioritize countermeasures and more effectively improve safety outcomes. Overall, MnDOT's role is to provide guidance and tools so that everyone in the State is counting nonmotorized traffic in a consistent manner.

To implement the Bicycle and Pedestrian Counting Initiative, MnDOT partnered with organizations across the State, such as the University of Minnesota, Department of Health, other State agencies, and local governments. The project builds on bicycle and pedestrian data collection for the FHWA Nonmotorized Transportation Pilot Program. To fund it, MnDOT uses a combination of State research funds and Federal funds from the Statewide Planning and Research (SPR) program. Local programs support activities with their own funds. The Minnesota Department of Health supports the project through the Statewide Health Improvement Program, which has strategies to increase physical activity through active transportation.

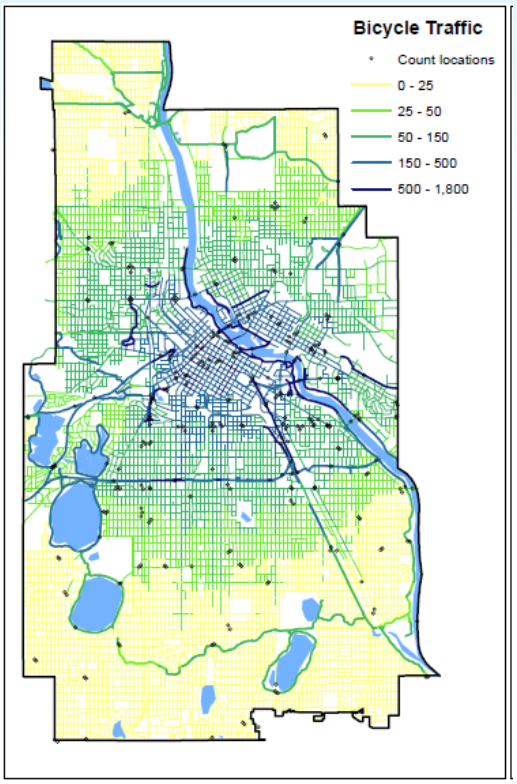

Figure 2: Data on bicycle traffic in Minneapolis, Minnesota, showing the number of recorded bicyclists over the duration of a count.

Across the State, communities record nonmotorized traffic with various approaches and technologies, including both manual and automated counts. In some cases local planning, engineering, traffic monitoring, or other staff administer and conduct the counts, and in other cases volunteers participate in manual counting. MnDOT provides training and technical support for local count programs and promotes consistent methods. The initiative is not solely focused on greater Minneapolis-St. Paul. Recognizing that small communities are the most common institutional structure across the State, MnDOT has facilitated counting in many rural areas.

MnDOT and partners are now trying to institutionalize this initiative by making it part of standard practice and by developing a business case to justify continued investment. In support of the business case, they are meeting with stakeholders, such as traffic engineers and planners, to find out how they might use the data. A concurrent review of manuals, rules, and policy documents has revealed many instances where guidance refers to nonmotorized traffic volumes. For example, the Minnesota Manual of Uniform Traffic Control Devices states that pedestrian and bicycle traffic volumes are factors to consider in the engineering study for a multi-way stop at an intersection. Connections with existing guidance clarify the need for data and build a business case for continuing and expanding the monitoring programs.

Resources and Additional Examples

- MnDOT Research Reports: Provides research results and other background information.
- Minneapolis Bicycle and Pedestrian Counts: Provides annual reports, traffic maps, and other resources.
- FHWA Traffic Monitoring Guide (Chapter 4): Describes technical and strategic considerations for monitoring nonmotorized traffic.
- 2013 Peer Exchange on Bicycle and Pedestrian Count Programs: Provides information about phased approaches, funding, equipment maintenance, partnerships, and other practical topics.
- National Cooperative Highway Research Program Report 797: Offers guidance on developing a nonmotorized count program.