

NATIONAL BICYCLE & PEDESTRIAN DOCUMENTATION PROJECT

FACT SHEET AND STATUS REPORT

February 2009

What is the National Bicycle & Pedestrian Documentation Project (NBPD)?

The National Bicycle & Pedestrian Documentation Project (NBPD) is an effort led by Alta Planning + Design, in collaboration with the ITE Pedestrian & Bicycle Council, in response to the lack of useful data on walking and bicycling. While other modes such as motor vehicles have established conventions to collect and use data (such as trip generation for traffic modeling), the lack of consistent data for the walking/bicycling modes has made it difficult to justify funding, justify the allocation of capacity and right-of-way, develop exposure rates, among other issues.

The concept for the NBPD is very simple:

1. Provide materials and directions to agencies to conduct counts and surveys in a consistent manner
2. Provide standard count dates and times
3. Provide a location where this information can be sent
4. Make this information available to the public

The count and survey materials and methods have been evolving as more groups and researchers learn about the program, and determine their own unique needs for the information.

How would the NBPD Data be Used?

It is anticipated that the NBPD data could ultimately be used in four (4) basic areas:

- (1) Transportation
- (2) Funding and Policy
- (3) Exposure
- (4) Related Research

Potential Transportation Uses

1. Corridor and aggregate estimating models
2. Estimates of transportation and other benefits
3. Trip generation rates
4. Traffic model modal inputs
5. Quantitative multi-modal level of service methodology
6. Trends in volumes
7. Changes in volumes before and after project implementation
8. Integration with existing traffic monitoring programs
9. Integration with existing clean air and congestion management programs
10. Determine capacity needs of non-motorized facilities

Potential Funding and Policy Uses

1. Allocation of federal funding to bicycle/pedestrian modes
2. Prioritization of local and regional projects
3. Justification for accommodating bicycles/pedestrians in transportation projects (Complete Streets)
4. Changes in traffic impact analysis and required/funded improvements
5. Changes in definition of roadway level of service/capacity
6. Priorities to develop different types of facilities, complete comprehensive network
7. Research on Climate Change

Potential Exposure Uses

1. Ability to develop exposure 'rates' so that high priority locations can be identified

Related Research Uses

1. Relationship between walking/bicycling and external factors (climate, demographics, land use, facility type, etc)
2. Changes to zoning, urban design, and other local laws as appropriate

What is the History of the NBPD?

The National Bicycle & Pedestrian Documentation project (NBPD) was initiated by Alta Planning + Design in 2004, as a result of the lack of consistent bicycling or walking data to determine trends, estimate activity, and other uses. Alta developed a Program Description, Training Guidelines, and Count/Survey Forms and made them available to the public. Alta also requested and received count and survey data conducted prior to the NBPD, or from agencies who did not use the NBPD methods. Alta has invested approximately 500 hours of pro bono time into the NBPD to date.

Alta has been able to use the data collected so far to:

- a. Identify monthly use patterns on multi use paths in some parts of the country
- b. Identify day-to-day patterns in volumes in different settings
- c. Identify hourly patterns in use and peak hour patterns
- d. Establish a good base of data on trip purpose, trip length, and replaced vehicle trips
- e. Identify trends in bicyclist/pedestrian volumes at the same locations over a number of years
- f. Identify automatic count technology calibration factors
- g. Develop an Aggregate Bicycle and Pedestrian Demand and Benefits Model

In 2006, Caltrans selected the NBPD as the foundation of a 2.5 year research study in San Diego County called 'Seamless Travel'. This study included over 80 manual count locations, 500+ surveys, and 5 automatic count locations, along with extensive analysis of background factors through GIS.

In 2006, the Volpe National Transportation Systems Center (FHWA) selected the NBPD as one of several evaluation systems to document changes in walking and bicycling for the Non-motorized Transportation Pilot Project in four communities (Marin County, CA, Columbia, MO, Sheboygan, WI, and Minneapolis, MN). Counts and surveys were done in 2007 and subsequently to track the trends in activity, especially near new projects funded by the NTPP program.

The NBPD was presented at major conferences (such as ITE, TRB, ProWalkProBike) continuously between 2004 and 2009.

With no direct financial support, Alta has been collecting and analyzing count and survey data within its abilities. In late 2008, Alta brought together some interested people (including Jennifer Dill, Shawn Turner, David Ragland) to discuss how best to expand the NBPD effort.

In 2009, ITE increased its commitment to the NBPD and assigned staff (Jina Mahmoudi) to help collect and review the data. An ITE Bicycle/Pedestrian Trip Generation Working Group was formed in January 2009, focusing on how ITE can develop trip generation and other data that would be of use to its members.

Rails-to-Trails Conservancy also convened a Working Group in February 2009 focusing on a wide range of issues including getting the NBPD methodology into the next re-authorization.

An inventory of the data as of January 2009 showed approximately 310 counts in about 93 different communities nationwide.

How is the NBPD Different than other Demand or Suitability Methods?

A fundamental objective of the NBPD is to develop methods similar to other modes, all of which rely on quantifiable measures (such as delay). The lack of quantifiable methodologies for the non-motorized modes is a likely reason the modes are often under-funded and an afterthought in policy decision-making. The National Bicycle & Pedestrian Program (NBPD) is designed to address the deficiency in accurate data on walking and bicycling rates, patterns, and relationships. Unlike other transportation modes that have consistent data collection and methods that result on tools such as trip generation analysis, bicycle/walk data collection is inconsistent and/or incomplete, resulting in a lack of understanding of the existing and potential role and benefits from these modes.

The [Guidebook on Methods to Estimate Non-Motorized Travel](#) (U.S. Department of Transportation, Federal Highway Administration, Publication N. FHWA-RD-165, July 1999) states that “further development of modeling techniques and data sources are needed to better integrate bicycle and pedestrian travel into mainstream transportation models and planning activities (Vol. 1, Section 4).”

While existing methodologies that use bicyclist or pedestrian perceptions of comfort (level of service, suitability) and other tools help assess conditions, or measure latent demand, the lack of quantifiable supporting data or testing on accuracy makes them less useful as estimating tools. No estimating tool exists today for the non-motorized mode that has been independently evaluated and tested.

What are some of the Major Findings to Date?

Research findings to date include:

1. Automated counters can accurately count bicycles and pedestrians in many locations, but need to be calibrated
2. Multi-use paths can serve as primarily transportation facilities
3. Multi-use paths generally attract much higher numbers of bicyclists and pedestrians than on-street facilities (sidewalks, streets)
4. Even on multi-use paths with high recreational use, there are still much higher numbers of transportation-related trips than on-street

5. Seasonal variations in use of multi-use paths are unique in different parts of the country
6. Climate plays a significant role in the volumes on multi-use paths
7. Visitor destinations have distinct use patterns
8. Adjacent land use plays a large role in pedestrian peak periods and patterns of hourly use
9. Trip purpose, length, and other survey data is highly sensitive to the survey location and survey method
10. Most (44-63%) of pedestrian trips are transportation-related
11. A significant number (25-37%) of bicycle trips are transportation related
12. Unlike vehicles, there are few distinct peak hour patterns for pedestrians or bicycles
13. Pedestrians have lower-than-average incomes, while bicyclists have higher-than-average incomes
14. Employment density is a high indicator of pedestrian activity ($r = .976$) along with proximity to a multi-use pathway ($r = .879$).

How Does the NBPD Relate to the NHTS and Other Efforts and Methods?

Measuring bicycle or pedestrian activity can be broken into four basic types:

1. Household based trips (person trips)
2. Land use based trips (trip generation)
3. Screenline or similar (activity levels)
4. Intercept surveys

The National Household Travel Survey (NHTS) uses travel diaries and interviews to provide a national average (with some regional data available) household person trip generation. This source provides invaluable input on home-based mode split, trip purpose, trip length, and other information.

ITE has begun to ask agencies to count bicycles and pedestrians at specific land uses so that trip generation information can be developed, but this effort is still being developed and refined at this time.

The NBPD count effort conducts screen line and crosswalk counts to measure activity levels at the same location over time. It also allows for some associative research between variables such as demographics, facility, land use, and others and activity volumes.

The NBPD survey effort, based on intercept surveys, provides a complimentary effort to the NHTS. While not as extensive as the NHTS, intercept surveys ask randomly selected people for their trip purpose, length, and other information while they are in the middle of making those trips. This may help provide a better understanding of linked trips than travel diaries.

All four of these efforts, together, will provide enough information to move the non-motorized field forward.

Where would the data go and how would it be accessed?

Count and survey data has been sent to Alta Planning + Design since 2004. In 2009, all data is also being sent to ITE for review. One of the underlying goals of the NBPD is to store the data and make it accessible to the public in a non-proprietary manner. It is likely that some of the data used for things like trip generation and transportation modeling, where data quality must be monitored, may be kept by a group such as ITE. The basic count and survey data would best be kept in some publicly-accessible location such as PBIC or similar web site. The data would be used for a variety of research purposes including methods and

tools that would be usable by the same agencies who sent in the information. Localized information could also be developed for those communities.

Who is Working on This?

Numerous agencies and groups have expressed interest in working on the NBPD. This includes:

Michael Jones, Jennifer Donlon, Matt Berkow: Alta Planning + Design

Jina Mahmoudi, Institute of Transportation Engineers (ITE) Pedestrian & Bicycle Council

Shawn Turner, Texas Transportation Institute, TRB Pedestrian Subcommittee

Jennifer Dill, Portland State University, TRB Bicycle Subcommittee

Thomas Gotschi, Rails-to-Trails Conservancy

David Ragland, UC Berkeley Traffic Safety Center

Several working groups have formed focusing on different aspects of the research.

ITE Working Group: trip generation, data reporting, count/survey guidance to members

RTC Working Group: Federal legislation, research funding

Priority of Needed Actions and Decisions

Resources are need before the NBPD can become a reality. Some immediate needs include:

1. Project Objectives: determining the ultimate uses for the data, so that current count and survey methods and materials produce the needed information
2. Quality control of existing data, including contacting agencies who have sent in information, revising data base
3. Modify surveys and count forms as needed
4. Purchase and install at least 20 automatic counters around the country
5. Develop, produce, and promote a 'Walk-Bike Monitoring Guide'