



# How Does Federal Funding Impact Infrastructure for Biking and Walking?

Assessing the impact of federal funding for bicycle and pedestrian infrastructure on regional, state and local policies

## SUMMARY

Since the 1990s Congress has dramatically increased the funding available to state and metropolitan areas for bicycle and pedestrian infrastructure. States and metropolitan areas are free to decide how to spend these funds.

From 2006 to 2009 researchers from the University of California, Davis, analyzed spending of federal funds for bicycle and pedestrian infrastructure across metropolitan regions nationwide and conducted case studies of policies and projects in six metropolitan areas. In two of those areas (Baltimore and Sacramento, Calif.), they also analyzed the impact of infrastructure investments on bicycling and walking behavior.

## Key Findings

- Making federal funding available for bicycle and pedestrian infrastructure has resulted in an increase in bicycle and pedestrian projects across the United States (from \$3.6 million in 1992 to \$363 million in 2006), although more so in some regions than in others.
- Support from local governments and advocacy groups is a key driver of support for bicycle and pedestrian investments at the metropolitan region level.
- State policy also plays a role in encouraging and supporting spending on bicycle and pedestrian infrastructure at the metropolitan region level, both directly and through its influence on local governments.
- In Baltimore and Sacramento, spending on infrastructure resulted in a small, although statistically significant positive effect on bicycling and walking.

## Key Recommendations

- Design funding programs to achieve specific outcomes and develop outcome-oriented measures of success, or encourage states and regions to create their own programs that tie funding more tightly to local planning goals.

- Pass more funding directly to metropolitan planning organizations rather than routing it through the states, thereby allowing more direct local influence over spending decisions.
- Provide more tools to state and local governments to help bicycling and walking projects meet eligibility requirements such as demonstrated emissions reductions.

## Funding

The Robert Wood Johnson Foundation (RWJF) supported this study through two grants totaling \$217,195.

## CONTEXT

The Intermodal Surface Transportation Equity Act of 1991 resulted in a dramatic increase in federal funding available for bicycle and pedestrian infrastructure—including sidewalks, safe pedestrian crossings, bike lanes, shared-use trails and bridges and bicycle parking facilities. Subsequent federal transportation bills, including the Safe Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005 to 2009), expanded federal funding for bicycle and pedestrian infrastructure.

Although Congress made it possible to spend federal funding on bicycle and pedestrian infrastructure, it did not mandate this type of spending. Instead, state departments of transportation and metropolitan planning organizations in metropolitan areas with populations of more than 50,000 were free to decide how to spend and allocate this money.

The results were considerable variation in spending across metropolitan areas and wide variation in bicycling and walking environments, according to initial research led by Susan Handy, Ph.D., professor of environmental science and policy, and the Institute of Transportation Studies at the University of California, Davis.

## RWJF's Interest in the Area

This project supports the Childhood Obesity team's goal of reversing the childhood obesity epidemic by 2015 by improving access to affordable healthy foods and increasing opportunities for physical activity in schools and communities across the nation. For more information, see the team's strategy [statement](#). This project also contributes to the research base on policy factors that influence physical activity and the effectiveness of policies and strategies for increasing bicycling and walking.

## THE PROJECT

Handy and a team of researchers from the University of California, Davis, Institute of Transportation Studies analyzed patterns of spending of federal funds for bicycle and pedestrian infrastructure across metropolitan regions nationwide and conducted case studies of policies and projects in six metropolitan areas. In two of those areas (Baltimore and Sacramento, Calif.), they also analyzed the impact of infrastructure investments on bicycling and walking behavior.

The first grant (ID# 057780), part of RWJF's national program *Active Living Research*, covered the analysis of spending and the case studies of Baltimore and Sacramento.

*Active Living Research* contributes to the prevention of childhood obesity in low-income and high-risk racial/ethnic communities by supporting research to examine how environments and policies influence active living for children and their families.

Under the second grant (ID# 065386), the research team conducted four more case studies and expanded dissemination efforts. The focus of dissemination was to inform policy-makers about the project's findings during the policy debate on the future of the federal transportation program that began in 2009 (as of July 2010, no new bill had been passed).

### Answering Research Questions About Pedestrian and Bicycle Infrastructure

The research team set out to answer four questions about federal funding for bicycle and pedestrian infrastructure:

- To what degree have metropolitan planning organizations and local governments taken advantage of the opportunity to invest in bicycle and pedestrian infrastructure?
- What factors explain the variation in bicycle and pedestrian investments across metropolitan planning organizations?
- Has federal support for bicycle and pedestrian infrastructure led to increased attention to these modes throughout the transportation planning process?
- Have bicycle and pedestrian investments stimulated by federal funding had a positive impact on bicycling and walking?

### Analyzing Sources and Patterns of Spending

The research team used data from the Federal Highway Administration's Fiscal Management Information System to analyze spending patterns on bicycle and pedestrian infrastructure by states and regions from 1990 to 2006. The analysis covered a variety of

programs that provide federal transportation funding, with an emphasis on the three programs that fund most bicycle and pedestrian infrastructure:

- The Transportation Enhancements Program, the largest source of funds spent
- The Congestion Management and Air Quality Program
- The Surface Transportation Program, the largest potential source of funding

### **Determining What Accounts for Variation in Spending: The Case Studies**

To understand the variation in spending across metropolitan areas and to determine the impact federal funding had on bicycle and pedestrian planning at the regional level, the research team conducted case studies of six metropolitan areas:

- Baltimore
- Denver
- Memphis, Tenn.
- Minneapolis
- Orlando, Fla.
- Sacramento, Calif.

The research team selected these regions based on their range of bicycle and pedestrian spending, as well as their geographic and socioeconomic diversity. Team members reviewed documents, including two travel surveys, and conducted 36 interviews with key informants. (Travel surveys collect data about individual travel behavior and typically are conducted in metropolitan areas once a decade.) For more information about the case study methodology, see [Appendix 1](#).

### **Determining the Impact of Federal Funding on Bicycling and Walking Behavior**

To determine whether bicycle and pedestrian infrastructure investments stimulated by federal funding impacted bicycling and walking behavior, the research team examined data from Baltimore and Sacramento, Calif. For information about why the research team chose these areas, see [Appendix 2](#).

The research team used travel surveys conducted about a decade apart (in 1993 and 2001 for Baltimore and in 1991 and 2001 in Sacramento) to examine the relationship between changes in bicycling and walking and expenditures on bicycle and pedestrian infrastructure. The team accounted for changes in land use (e.g., population and employment density) and income levels in each region.

## Limitations

The analysis, however, was limited by serious deficiencies in the data on infrastructure investments and bicycling and walking activity levels. There were few data on bicycling and walking infrastructure projects and locations and few counts of bicycling and walking activity. Also, the research team noted issues such as not knowing how close people need to live to bicycle or walking infrastructure to be influenced to use it.

## FINDINGS

The research team reported the following findings in the report *The Regional Response to Federal Funding for Bicycle and Pedestrian Projects*, an article in the *Journal of the American Planning Association* (forthcoming) and a report to RWJF:

- **Making federal funding available for bicycle and pedestrian infrastructure has resulted in a dramatic increase in spending for bicycle and pedestrian projects across the United States (from \$3.6 million in 1992 to \$363 million in 2006), although more so in some regions than in others.**
  - Among the 50 largest metropolitan areas, the five top-spending areas invested almost seven times as much per resident as the five lowest-spending areas:
    - An average of \$1.54 per resident per year in the five top-spending areas
    - An average of \$0.21 or less per resident per year in the five lowest-spending areas
  - In metropolitan areas with a population of more than 1 million, spending on bicycle and pedestrian infrastructure ranged from a low of \$0.18 per resident per year to a high of \$2.30.
- **State policy—on suballocation and matching funds—plays a role in spending on bicycle and pedestrian infrastructure in metropolitan regions.**

For most federal transportation funding programs, states receive the majority of the money and decide how to spend it. The federal government recommends suballocation, allowing metropolitan planning organizations to directly control funding for transportation enhancements and congestion mitigation and air-quality programs, rather than having to apply to the state. However, many states do not do this.

Suballocation facilitates spending on bicycle and pedestrian infrastructure. For example, California's suballocation laws allowed the Sacramento Area Council of Governments to combine funding from different programs and directly plan and implement varied projects to create a comprehensive non-motorized network.

States also have different requirements for the share of Transportation Enhancements Program matching funds the metropolitan area must provide. Although federal policy

requires that the state or local government make a 20 percent match, some states require more or less.

Maryland, for example, requires local governments to provide a 50 percent match, making it more difficult for them to fund bicycle and pedestrian projects. In California and Florida, the state provides the required match.

- **In Baltimore and Sacramento, spending on infrastructure resulted in a small although statistically significant positive effect on bicycling and walking.**
  - In Baltimore:
    - *Bicycling*: Trails and improvements to the appearance of the street were modestly related to an increase in bicycling.
    - *Walking*: Improvements to the appearance of the street were related to increased walking, but trail and sidewalk projects were not.
  - In Sacramento:
    - *Bicycling*: Bike lane projects were associated with an increase in bicycling, but trail projects were not.
    - *Walking*: The limited data did not show any association between trail or sidewalk improvement and walking.
- **Sacramento used about \$5.5 million more of its federal funding on bicycle and pedestrian infrastructure than did Baltimore:**
  - Sacramento spent 95 cents per resident and used about 2.4 percent of its federal transportation funding on bicycling and pedestrian infrastructure.
  - Baltimore spent 59 cents per resident and used 1 percent of its federal transportation funding on bicycling and pedestrian infrastructure.
- **The case studies show that support from local governments and advocacy groups is a key driver of metropolitan planning organization–level support for bicycle and pedestrian investments.** State policy also plays a role in encouraging and supporting bicycle and pedestrian spending at the regional level, both directly and through its influence on local governments. Other unique regional factors also have influenced spending.

Although the effectiveness of federal funding for bicycle and pedestrian projects has so far depended on state policy and local support, the next federal transportation authorization bill offers an opportunity to reduce this dependence.
- **Federal policy helped further the institutionalization of bicycle and pedestrian infrastructure in the transportation planning processes of metropolitan planning organizations.** Supportive policies are:

- The flexibility to invest federal funds in bicycle and pedestrian infrastructure
- The requirement that states employ bicycle and pedestrian coordinators

## Conclusions

The research team reported the following conclusions in the report *The Regional Response to Federal Funding for Bicycle and Pedestrian Projects*:

- The share of federal funding used for bicycle and pedestrian infrastructure varies considerably across metropolitan areas. The effectiveness of this funding has depended primarily on state and regional policy.
- "The national interest in promoting active living and non-motorized transportation modes requires federal policy-makers to consider ways to increase use of federal funds for these programs."

## Recommendations

The research team reported the following recommendations for federal policy-makers in the report *The Regional Response to Federal Funding for Bicycle and Pedestrian Projects*:

- Pass more funding directly to metropolitan planning organizations rather than routing it through the states, thereby reducing the effect of differences in suballocation.
- Design funding programs to achieve specific outcomes and develop outcome-oriented measures of success, or encourage states and regions to create their own programs that tie funding more tightly to local planning goals.
- Provide more tools to state and local governments to help bicycling and walking projects meet eligibility requirements such as demonstrated emissions reductions.
- Prohibit states from requiring more than the federally specified local match.
- Introduce more requirements for institutionalized non-motorized transportation planning to improve the ability of metropolitan planning organizations to meet their goals for bicycling and walking.
- Continue to emphasize public involvement in the planning process to ensure opportunities for local advocates to shed light on bicycling and pedestrian needs. Institutionalize the involvement of health departments and other public agencies that support bicycling and walking.

## Communications

The research team published a report on the study and the Baltimore and Sacramento, Calif., case studies, entitled *The Regional Response to Federal Funding for Bicycle and*

*Pedestrian Projects*, along with an **executive summary** of the report. Project staff sent the executive summary to key organizations and legislative staff involved in the federal transportation reauthorization effort. One team member also made a presentation to the U.S. Department of Transportation's undersecretary for policy and agency staff and researchers in November 2009.

The team summarized all six case studies of Baltimore; Sacramento, Calif.; Denver; Memphis, Tenn.; Minneapolis; and Orlando, Fla., in an unpublished forthcoming paper and also wrote up each case study separately (also unpublished).

The research team also was supposed to produce policy briefs highlighting issues of concern and the performance of some states or metropolitan areas. The team had not done this when the grant ended but planned to do so, working with various organizations to determine the best approach.

## **LESSONS LEARNED**

1. **Be aware that available data on bicycle and pedestrian projects are limited.** Very few locales have consistently taken accurate counts of non-motorized activity, making longitudinal research challenging. The low quality of available data on bicycling and pedestrian infrastructure and use meant that the analysis of the effect of spending on bicycling and walking was limited. This also hinders future research in this area. (Project Director/Handy)

## **AFTERWARD**

The research team has prepared an unpublished manuscript awaiting publication about the study. The team also plans to post the case studies on Denver; Memphis, Tenn.; Minneapolis; and Orlando, Fla., on the University of California, Davis, website.

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## APPENDIX 1

### Case Study Methodology

#### *Document Review*

- Long-range transportation plans
- Transportation improvement programs
- Other plans and policies adopted
- Other documents

#### *Key Informant Interviews*

- Staff from metropolitan planning organizations with responsibility for bicycle and pedestrian planning
- Bicycle and pedestrian coordinators in the state departments of transportation
- Bicycle and pedestrian planners in key local jurisdictions
- Directors of state and local bicycle and pedestrian advocacy groups

#### *The Goals of the Document Review and the Interviews*

- Identify policies that have influenced spending patterns, including:
  - Goals related to pedestrians and bicycles in regional transportation plans
  - Policies related to complete streets (i.e., streets designed for all users, including bicyclists, public transportation vehicles and riders and pedestrians of all ages and abilities)
  - Stand-alone bicycle and pedestrian plans
  - Selection procedures for Transportation Enhancements projects (Transportation Enhancements is the federal program that provides the largest share of funding for non-motorized vehicle transportation projects.)
  - Innovative financing techniques
- Understand the state policy context (i.e., "top-down" effects) as well as the impact of local plans and programs (i.e., "bottom-up" effects).
- Analyze the degree to which bicycle and pedestrian concerns have been institutionalized in the regional planning process, through mechanisms such as performance measures, travel demand forecasting models, project selection criteria and advisory committee structures.

## APPENDIX 2

### Reasons for Choosing Baltimore and Sacramento, Calif.

The research team chose Baltimore and Sacramento because:

- Sacramento was a relatively high spender with an extensive bicycle network and Baltimore was a relatively low spender with a limited network. According to data from the Federal Management Information System, the Sacramento region was 15th in the United States at 95 cents in federal spending on pedestrian and bicycle projects per capita per year from 1992 to 2006, whereas the Baltimore region was 27th, at 59 cents per capita per year.
- The availability of large, high-quality household travel surveys conducted in each region around the time that the Intermodal Surface Transportation Equity Act passed in 1991 and about a decade later.
- The proximity of each region to members of the research team.

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