

Impacts of Federal Transportation Legislation on Local Bicycle and Pedestrian Improvements

Angie Cradock, Steve Melly, Yimin Lou, Lindsey Cox
Harvard School of Public Health

Philip Troped
Purdue University

Billy Fields, Betsy Goodrich, Shannon Simms, Franz Gimmler,
Marianne Fowler
Rails-to-Trails Conservancy

2008 Active Living Research Annual Meeting

April 11, 2008

Funding Provided by The Robert Wood Johnson Foundation, Active Living Research

Environments and Physical Activity

- Declines in environmental conditions conducive to walking and biking
 - Increasing car ownership and relative cost of driving versus walking or biking (costs)
 - Increasing suburbanization of US (distance and density)
- Factors associated with walking and biking (local environmental influences)
 - Sidewalks, traffic patterns, accessible facilities
- Potential role for federal transportation policy

Federal Transportation Policy

- Federal funding for bicycle and pedestrian projects primarily from USDOT
 - FHWA is lead agency
 - Financial assistance and technical support to states and local agencies in implementation
- Funding through fuel and vehicle excise taxes
- Federal transportation bills authorize and appropriate \$ to FHWA programs
- FHWA originally created to focus on highways
- Change of focus in 1991 to include bicycling and walking

Key Federal Transportation Legislation

- **ISTEA: Intermodal Surface Transportation Efficiency Act (1991 – 1997)**
 - \$155 billion initially authorized
 - New objectives, programs and planning requirements for bicycle and pedestrian activities
 - State bicycle and pedestrian coordinators
- **TEA-21: Transportation Equity Act for the 21st Century (1998 – 2004)**
 - \$218 billion initially authorized
 - Expanded program funding options, eligible activities

Study Objectives

- Lack of information regarding federal policy implementation for bicycle and pedestrian improvements
 - Distribution over time
 - Distribution across geographic regions, states, counties
 - Social and demographic equity in distributions

Methods: Sample, Outcomes, Analysis

- **Sample:** 3140 US counties and District of Columbia
- **Study Period:** 1992-2004
- **Outcomes:** Fiscal Management Information System (FMIS)
 - **Successful implementation**
 - Any implementation (yes or no)
 - Per capita funding obligation
 - **System building**
 - Number of projects implemented
 - Number of years projects implemented
- **Analysis:** Multi-level modeling

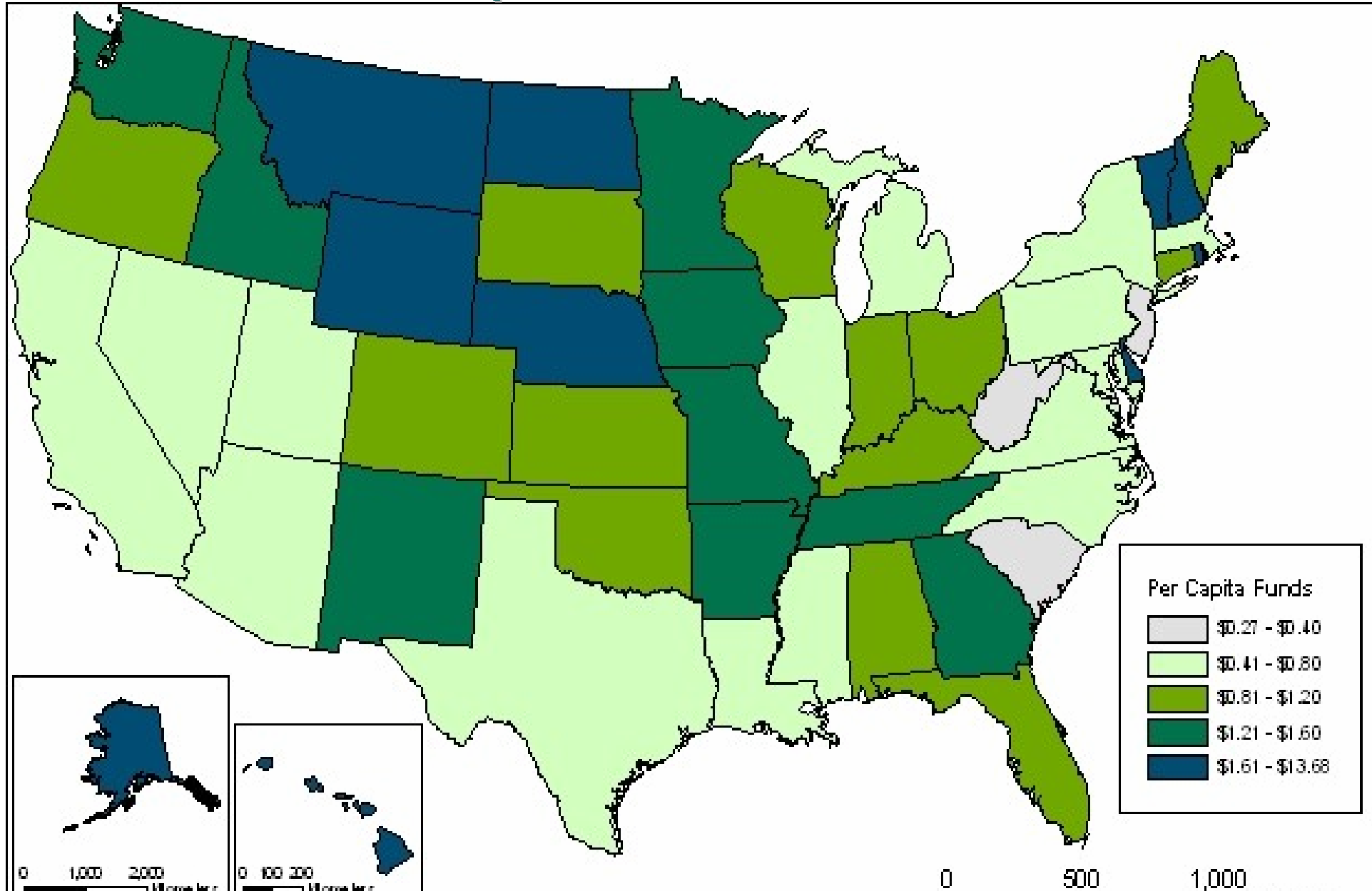
Independent Variables

- Population size, urbanization
 - Large metropolitan, small metropolitan, micropolitan, non-core
- Regional location
 - Four US Census regions
- Social, economic characteristics
 - Persistent poverty
 - Low education
- Transportation mode characteristics
 - % Households with no vehicle
 - % Households with 2 or more vehicles
 - % Bicycle/walk/transit journey to work

Annual Percentages of Total Bicycle and Pedestrian Projects and Federal Funding Obligations, FMIS 1990-2004

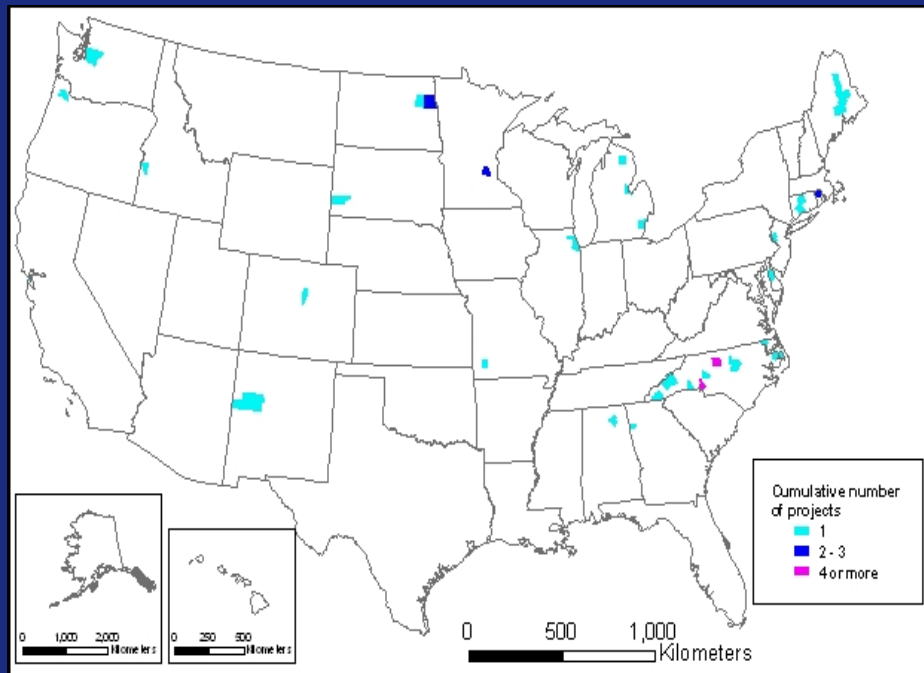


Annual Per Capita Obligation for Bicycle and Pedestrian Improvements, FMIS 1992-2004

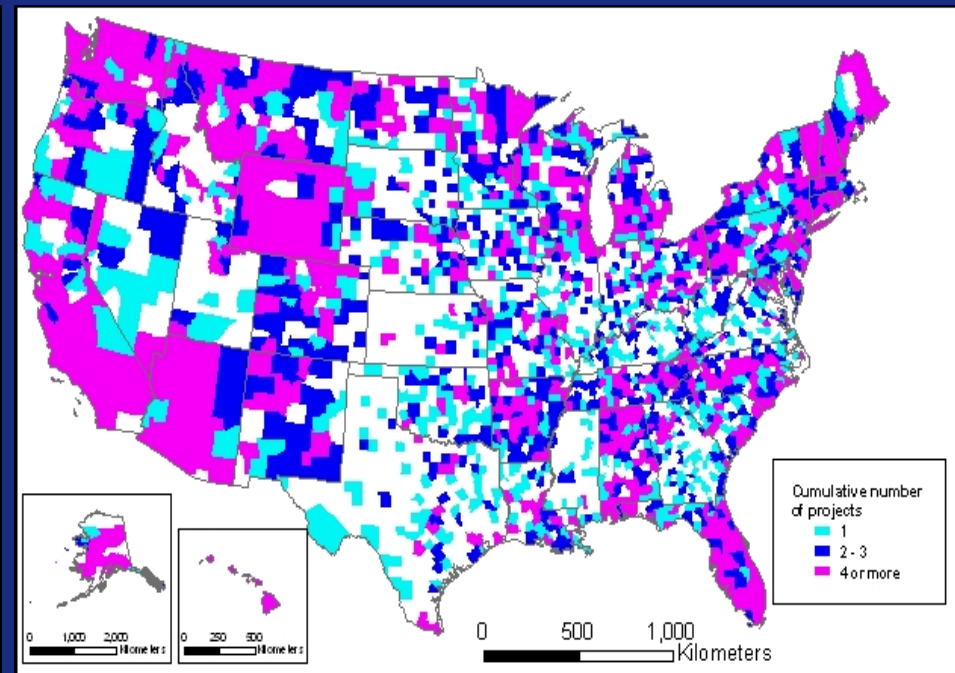


Number of Bicycle and Pedestrian Projects by County, FMIS 1992-2004

1992



2004



County Characteristics Associated with Any Implementation of Projects (n = 3140)

County Characteristic	OR	95% CI
Type (Referent Large Metro)		
Micropolitan	0.59	0.43-0.80
Non-Core	0.23	0.17-0.31
Region (Referent NE)		
Central*	0.19	0.07-0.50
Southern*	0.21	0.08-0.53
Social and Economic		
Persistent Poverty*	0.69	0.53-0.91
Low Education*	0.66	0.52-0.84
Transport Indicators		
% Households with 2+ cars*	0.96	0.95-0.98

* Model also included indicators for county type

Implementation and System Building

County Characteristic (n = 1938)	Per Capita Funding	# Projects	# Years
Type (Referent Large Metro)			
Small Metropolitan	+	-	
Micropolitan	+	-	-
Non-Core	+	-	-
Region (Referent NE)			
Central*			
Southern*		-	-
Western*	+		
Social and Economic			
Low Education*	-	-	-
Transport Indicators			
% Households with 2+ cars*		-	-
% Households with 0 cars*		+	+
% Walk/Bicycle/Transit to Work*	+	+	+

* Model also included indicators for county type, + or - indicates $p < 0.05$

Key Findings

- Over 10,000 bicycle and pedestrian projects funded through ISTEA, TEA-21
 - \$3.17 billion for ISTEA and TEA-21 combined
 - \$450 million in year of highest funding
- Differences in per capita implementation by state
- Likelihood of any project implementation differed by county characteristics
- Successful implementation and system building associated with county characteristics

Slide 13

usr10

Assume you're referring to future transp legislation? May want to say that explicitly.

User, 3/23/2008

Improving Implementation: Implications for Policy, Practice

- Improve data tracking and monitoring
- Work toward funding levels at least proportional to modal trip shares
- Make link between health and transportation (more) explicit
 - Scoring criteria for project selection
- Targeted strategy for training and technical assistance for use of federal funds

Angie Cradock
acraddock@hsph.harvard.edu



Study Limitations

- Variability in FMIS data coding by state personnel
- Some potential underestimation of implementation and system building
- Different levels of implementation across counties, states and regions
- Proxy indicators of local infrastructure and systems may not adequately capture actual environments