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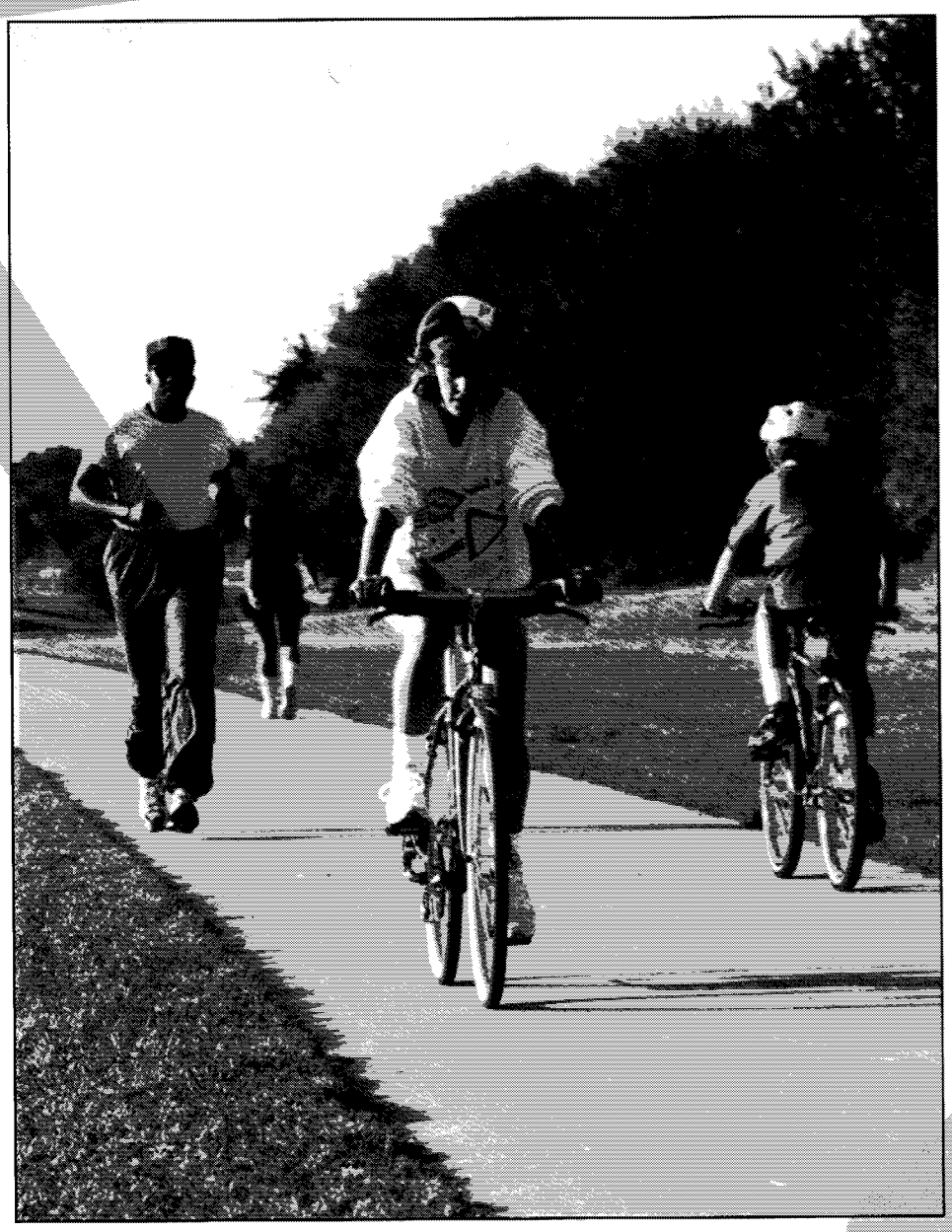

Case Study No. 10

Trading Off Among the Needs of Motor Vehicle Users, Pedestrians, and Bicyclists

National Bicycling And Walking Study

U.S. Department of Transportation
Federal Highway Administration

Foreword

This case study was prepared under contract for the Federal Highway Administration by William C. Wilkinson III.

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Trading Off Among the Needs of Motor Vehicle Users, Pedestrians, and Bicyclists

Prepared for
Federal Highway Administration
Washington, DC

November 15, 1993

Preface

The purpose of this study was to consider how limited resources can best be allocated to meet the needs of motor vehicle users, bicyclists, and pedestrians. By reviewing the evolution of this issue since the early 1970's, various trends were identified. The process of deciding on the allocation of resources among the various modes is less as a matter of quantitative analysis than one of consensus-building involving a broad range of participants. The report presents a series of conclusions and recommendations.

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1. Introduction

The purpose of this report is to consider how limited resources (including highway rights-of-way, funds, and others) can best be allocated to meet the needs of motor vehicle operators, bicyclists, and pedestrians. The next three sections offer a review and assessment of a system that is clearly in transition. The final section of the report presents a series of conclusions and recommendations.

Over the past 20 years there has been a slowly accelerating evolution in institutional approaches to transportation. Recent developments, such as passage of the Clean Air Act Amendments of 1990 (CAAA), the Americans with Disabilities Act (ADA), and the Intermodal Surface Transportation Efficiency Act (ISTEA), provide new, national mandates for the kinds of actions and approaches that have been developed by progressive public agencies, transportation professionals, public interest groups, and advocates.

The driving force behind this change in approach is a growing sense among elected officials, agencies, and the general public that if we are to have different outcomes—that is, if what is done in the area of transportation system and service development is going to provide real solutions to our transportation-related problems and meet our needs—there must be substantive changes in the way in which transportation needs and problems have been traditionally defined and addressed. We need a new set of performance criteria to help us respond to a new set of goals. Our actions must be designed to create a transportation system that delivers safe, efficient access in ways that are consistent and compatible with the qualities people want in their communities.

Viewed in the current context of a growing demand for fundamental change in the traditional transportation paradigm, the focus of this report—how limited resources can be optimally allocated among the various modes—is one manifestation of the new concept of what will characterize the transportation system of the future. Specifically, this report assumes that we seek to ensure that the public is provided with a range of mode choices—walking, bicycling, transit, and the private automobile—for most trips.

This goal is set in response to the mandates of recent Federal legislation and policy statements and reflects a shift from a demand-driven to a supply-driven approach. Essentially, providing facilities for bicycling and walking rests on the hypothesis that "if you build them, they will come." One of the underlying assumptions is that current mode choice is a function of an altogether rational response on the part of individuals to the current set of conditions, principally those related to the availability of options and to pricing. And, currently, most transportation consumers have few, if any, mode choices other than the private automobile.

Since 1990, major forces have been at work that should have a great impact on how planning, design, and development of the transportation system of the future is approached. These "macro" factors may produce a fundamental redefinition of the performance criteria used to establish what we want, need, and seek from our transportation system. Decisions affecting the allocation of resources will be made in the context of this new paradigm and this could result in substantial benefits for bicycling and walking.

Section 2 provides an assessment of how three aspects of the traditional approach to transportation development have affected bicycling and walking and a summary of emerging approaches at the State and local/regional levels. This summary is based, in part, on input from State and local practitioners.

Section 3 describes a range of alternatives that could lead to changes in the allocation of transportation resources and result in more support for bicycling and walking.

Section 4 reviews the roles of various actors or constituencies in determining how current practices might evolve in to some new approach and details how a new set of outcomes might be achieved through increased public participation.

Finally, Section 5 presents conclusions and offers a set of recommendations intended to allocate resources better to meet the needs of the nonmotorized modes, namely through new approaches to transportation planning, project selection, and facility design.

2. The State of the Practice

This section is divided into two parts. The first describes some new trends that are prompting transportation agencies and professionals to rethink the role of bicycling and walking as modes of transportation and to give them increased attention. The second describes some recent State and local agency approaches to incorporating bicycle and pedestrian considerations in resource allocation and in the planning and design decisionmaking processes.

Recent Trends Affecting Bicycling and Walking

Over the past 25 years, some trends have emerged that, along with recent actions, are having a significant impact on the level of attention walking and bicycling receive from Federal, State, and local transportation agencies. The most important developments are as follows:

- increased use of bicycles by adults;
- increased bicycling and walking for transportation and fitness;
- increased concern for energy conservation and air quality;
- increased concern with traffic congestion;
- increased concern with bicyclist and pedestrian safety;
- increased activity by bicycle and pedestrian advocates;
- increased participation in bicycling and walking by transportation professionals and elected officials;
- passage of new Federal and State legislative mandates; and
- increased allocation of transportation funds for bicycle and pedestrian facilities.

Increased Use of Bicycles by Adults

Since the early 1970s, adult Americans have rediscovered bicycling. Never before have so many adults made bicycling a regular activity. A Harris poll commissioned by Rodale Press showed 46 percent of American adults, or 82 million people, had ridden a bicycle in the past year (1). Also, it is interesting to note that 87 percent of cyclists indicated they depend on the street system for access to their community. Perhaps the most significant finding, though, was that *half* of the 82 million adult cyclists said they would commute to work by bicycle at least occasionally if there were safe bike lanes or other designated bicycle facilities.

Small wonder, then, that all this interest in bicycling has created a demand for better bicycle facilities. Bicycling is no longer just "kid stuff," and the new adult constituency has been making its desires known, leading to positive actions by Federal, State, and local governments.

There are growing signs that the increased use of bicycles by adults is beginning to produce significant changes in how bicycles are treated as part of the transportation system.

Increased Bicycling and Walking for Transportation and Fitness

Two specific purposes are leading to increased bicycling and walking: transportation and fitness. Bicycling for transportation is typically accorded more attention by transportation agencies than is bicycling for recreation. In cities such as Madison, Wisconsin; Eugene, Oregon; Boulder, Colorado; and Seattle, Washington that initially provided improvements to encourage bicycling as a response to well-organized bicycle advocacy and broad public support, the levels of bicycle use for transportation now further justify this attention.

For pedestrians, it is primarily the recent interest in walking for fitness, especially among older Americans, that is sparking increased attention to providing more and better facilities for walking. This new interest has already led to the establishment of a new magazine (Walking), a national walking organization (*Prevention* magazine's walking club), and a national pedestrian advocacy organization (the Pedestrian Federation of America).

Increased Concern for Energy Conservation and Air Quality

Since the early 1970s, bicycling has been touted as a mode of transportation ideally suited to efforts to conserve energy and reduce air pollution. Now there is growing recognition, too, of walking's role in reducing automobile use. Recently, both bicycling and walking have received new attention as transportation control measures intended to help metropolitan areas meet Federal Clean Air Act requirements.

Increased Concern with Traffic Congestion

The impacts of traffic congestion—including increased air pollution, energy consumption, costs associated with travel delays, and demand for increased transportation investments for additional capacity—are a major concern of citizens and government at every level. New legislation and policies have been adopted by some jurisdictions in an attempt to reduce travel demand and effect a shift to modes other than single-occupant vehicles (SOV). For instance, the Washington State legislature has passed a growth management act that establishes modal split goals for the year 2000, with the aim of reducing the use of SOVs and increasing the use of alternate modes, including bicycles and walking (2).

The City of Boulder, Colorado, and the Pima Area Governments—the Metropolitan Planning Organization (MPO) for Tucson, Arizona—adopted specific modal split goals that are being used to reshape transportation investment priorities and increase support for bicycling and walking (3,4).

Increased Concern with Bicyclist and Pedestrian Safety

While injuries and fatalities involving bicyclists and pedestrians have long been significant highway safety problems, they have not received concerted attention from the highway safety community, which has been oriented primarily to automobile and truck traffic safety issues. Now, with new support from public health professionals concerned with reducing traffic-related injuries to children (who make up a large percentage of the bicycle and pedestrian casualties) and continued pressure from bicycle and pedestrian advocates, Federal and State agencies are beginning to give real attention to safety issues associated with these users. In 1991, advocates succeeded in getting the U.S. Department of Transportation to add pedestrian and bicyclist safety to the list of Section 402 Highway Safety Program priorities. This makes it easier for State highway safety agencies to use their Federal funds for bicycle and pedestrian safety projects. However, it is not yet clear to what extent this interest and support will trickle down to the local level nor how the allocation of resources will be affected.

Increased Activity by Bicycle and Pedestrian Advocates

Over past two decades, bicycle advocates have steadily increased their level of organization and effectiveness and some real gains have been made. Prior to passage of ISTEA, several State Departments of Transportation had already appointed bicycle program coordinators (e.g., North Carolina, Florida, Minnesota, Ohio, and New Jersey). The same is true for cities such as Seattle, Washington; Madison, Wisconsin; San Diego, California; New York, New York; and Eugene, Oregon. Also, a growing number of jurisdictions are establishing bicycle and pedestrian advisory committees, an important element in efforts to make communities more bicycle- and pedestrian-friendly.

Generally, though, pedestrian advocacy has been slower to develop. In 1990, the Bicycle Federation of America (BFA) expanded its mission to include issues related to pedestrians and walking. The BFA created the Pedestrian Federation of America to provide technical assistance to public agencies and citizen advocates on making communities more pedestrian-friendly and to advocate for more pedestrian-friendly actions. Recently, several local pedestrian advocacy groups have been organized (e.g., Boston, Massachusetts; Willamette, Oregon; Asheville, North Carolina). The bicycle programs in Seattle, WA and in the states of Florida and North Carolina have recently been expanded to include pedestrians. Indeed, the whole pedestrian program area will likely get a big boost from the new ISTEA requirements that every State department of transportation have a bicycle and pedestrian program coordinator and that MPOs and States develop long-range bicycle and pedestrian plans (5).

Increased Participation in Bicycling and Walking by Transportation Professionals and Elected Officials

From the standpoint of bicycle and pedestrian accommodation, one of the more subtle, but still significant, changes to occur during the last 20 years is the number of elected officials and agency personnel who are now themselves bicyclists and serious walkers. For decades, the people making most decisions on transportation resource allocation used private automobiles for most, if not all, of their transportation needs. Not surprisingly, other modes were accorded little or no

recognition or serious consideration. Now there is a new awareness among these same decisionmakers and new opportunities for change.

New Federal and State Legislative Mandates

It is quite likely that no single piece of legislation has more potential to effect positive changes for bicycling and walking than the ISTEA. Bicycle and pedestrian advocates worked to have provisions included in the legislation to require explicitly various actions related to the nonmotorized modes. These include requiring every State department of transportation to appoint a bicycle and pedestrian program coordinator, requiring MPOs to include bicyclist and pedestrian considerations in their long-range transportation plans and transportation improvement programs, requiring State departments of transportation to develop long-range bicycle and pedestrian plans and to include bicyclist and pedestrian provisions in their transportation improvement programs, and making bicycle and pedestrian facilities eligible for transportation enhancement funds and virtually all the other programs in ISTEA. Other overall changes in the Federal surface transportation program, such as greater flexibility in the use of funds, create new opportunities to fund bicycle and pedestrian improvements.

The impetus for some of the major changes included in ISTEA was to make more resources available to achieve the requirements of the CAAA. The CAAA sets aggressive new objectives for clean air and specifies major sanctions on transportation investments should jurisdictions fail to meet the objectives. The list of CAAA transportation control measures includes actions designed to promote increased use of bicycles and walking. It remains to be seen if States and cities will allocate additional transportation resources to bicycling and walking as part of their attainment strategies.

A third Federal mandate likely to have a major impact on provisions for pedestrians is the ADA. The ADA requires that transportation facilities be accessible to individuals with disabilities. While much of the early focus is on transit, it should soon become apparent that the utility of transit service to the disabled is in large measure a function of the quality of access to and from transit stops. Good quality sidewalks with proper curb cuts, the timing of the "WALK" phase of traffic signals, and the provision of appropriate traffic control devices are all critical to accessibility. The ADA should have a major impact on the allocation of resources to pedestrian improvements.

New State growth management and travel demand management acts are also likely to increase interest dramatically in the nonmotorized modes. In some cases, such as in Washington State, specific modal split goals have been set, some calling for major reductions in the percentage of trips served by SOVs (2).

Increased Allocation of Transportation Funds for Bicycle and Pedestrian Facilities

Some States have adopted explicit procedures to allocate funds for bicycle (and sometimes pedestrian) improvements. More than 20 years ago, the Oregon state legislature passed an act earmarking 1 percent of highway funds for bicycle and pedestrian facilities. Michigan established a similar fund based on 0.5 percent of the transportation funds. Several years ago, the Ohio Department of Transportation implemented a policy of allocating the then Federal-aid maximum of $4.5

million per State per year of Federal highway funds for independent bicycle and pedestrian projects. And, more recently, the Governor of Vermont indicated that the State would allocate $5 million per year to bicycle, pedestrian, and greenway improvements. The Minnesota State Bicycle Committee's new bicycle plan, "Plan B," proposes that the Minnesota Department of Transportation allocate at least 3 percent of its funds to bicycle improvements (6).

In 1990, Congressman Joseph Kennedy (D-MA) introduced a bill to amend Title 23 of the United States Code to require that at least 3 percent of most Federal transportation funds be used for bicycle and pedestrian improvements. While the so-called "3 Percent Solution" legislation has not passed, it has generated much interest and support among bicyclists and pedestrians throughout the country (7).

Finally, ISTEA created the new Transportation Enhancements Program, which sets aside 10 percent of the Surface Transportation Program funds for a set of 10 activities, including bicycle and pedestrian facilities. Analysis of the first two years of implementation of the enhancements program indicate that over 30 percent of the funding is being used for bicycle and pedestrian enhancements (8).

Emerging Practices at the State and Local Levels

Several State and local bicycle or pedestrian program specialists and advocates were contacted in conjunction with the development of this report. The following people provided substantive comments:

- Diane Bishop, City of Eugene, Oregon
- Dan Burden, Florida Department of Transportation
- Jim Dustrude, Minnesota Department of Transportation
- Bill Feldman, New Jersey Department of Transportation
- Peter Lagerwey, City of Seattle, Washington
- Randy Neufeld, Chicagoland Bicycle Federation
- Michael Ronkin, Oregon Department of Transportation
- Rich Viola, Arlington County, Virginia
- Tom Walsh, City of Madison, Wisconsin
- Curtis Yates, North Carolina Department of Transportation

This subsection summarizes their comments in response to the following questions:

- How are funding levels for bicycle and pedestrian provisions determined in your agency?

- Is there any allocation of funds among the various modes?

- Are bicycle and pedestrian needs and related resource allocations considered as an integral part of the overall transportation planning and project selection process or as a separate and independent activity?

- On what basis and to what extent are provisions for bicycle and pedestrian facilities included in routine highway planning, design, and right-of-way acquisition?

- Have there been significant changes in the decisionmaking process over the past 10 years, particularly as a result of ISTEA?

These summaries do not reflect what is going on with State and local departments of transportation, in general, but rather the current approach in some of the more progressive State and local agencies with regard to provisions for bicycling and walking.

State Agencies

Most State agencies do not have a fixed level of funding for bicycle and pedestrian provisions. In the one State with legislation stipulating that a minimum of 1 percent must be spent on bicycle and pedestrian facilities, this apparently leads to greater than 1 percent expenditures. Another State agency sets a specific budget figure for certain types of bicycle projects, but others can be funded as part of an overall highway project.

Most State agencies indicated that there is a distinction between funding for "independent projects" and for "incidental projects." Independent projects are bicycle and pedestrian improvements undertaken separately from other ongoing highway projects. Several States reported that an annual funding level, or budget, is approved for independent projects.

Incidental projects are those in which provisions for bicycle and walking are undertaken in conjunction with an ongoing highway project. Most States indicated that such provisions were decided on a project-by-project basis and that cost was not usually a major factor. In fact, the additional costs associated with bicycle or pedestrian provisions are many times not broken out but are accepted as part of the overall design.

One apparent exception to this is where the inclusion of bicycle and pedestrian facilities would require additional right-of-way acquisition. One program specialist said that this can produce considerable resistance from within the department, leading some staff to efforts to reject the proposal that would appear to exceed what it would have taken them to include it. However, it may be that additional right-of-way acquisition is, in fact, a matter with the potential to bring on many other complications such as delays in negotiation, relocation assistance, and additional environmental impact assessments.

Several States have adopted policies calling for accommodating bicycles (but not pedestrians so far) in all highway projects. This usually involves the State bicycle and pedestrian office or program specialist in project review. Most of the State bicycle program specialists involved in this type of process spoke highly of the results. But most States reported that bicycle and pedestrian needs and resource allocations are still considered as a separate element in the planning and design processes. Some specialists also noted that the new ISTEA-mandated State and MPO transportation plans should serve to further establish provisions for bicycling and walking as legitimate modes of transportation and improve their acceptance by other agency staff.

Recently, States have begun to confront new requirements associated with the Americans with Disabilities Act, Clean Air Act, and Federal, State, and local trip reduction ordinances. Each of these initiatives establishes new mandates that translate into new performance criteria for the transportation system and services. This will likely have a significant impact on decisions about where and on what to spend transportation funds.

State and local program specialists noted two related developments they expect will have the most significance for bicycle and pedestrian considerations. The first is the move toward using comprehensive performance criteria for project selection. ISTEA, CAAA, ADA, and the other new mandates will require more criteria-based planning and project selection processes, both at the State and local levels. Bicycling and walking will likely benefit as both modes should compete well against other kinds of projects using this new performance-based approach. Also, it has already been recognized that highway projects with provisions for bicycling and walking tend to score better using the revised criteria.

The second development likely to improve conditions for bicycling and walking is the inclusion of provisions for bicycling and walking as a routine part of highway design, a development that is reflected in changes to official highway design policies and manuals. Several respondents noted that when such guidance is maintained in separate documents or references (as opposed to being incorporated into the highway design manual) is more likely to be overlooked or ignored. Some States have already revised their design manuals, and others are currently working to do so.

Most specialists indicated that, since ISTEA, there is a greater awareness in their agencies of bicycling and walking as modes of transportation and a growing acceptance of the need to do more to plan for and accommodate them.

Finally, several program specialists expressed the opinion that public interest and pressure also had a clear effect on the level of funding and on the likelihood of bicycle and pedestrian provisions being incorporated in a particular project design.

Local and Regional Agencies

The individuals commenting on local and regional agencies described a set of conditions with some significant differences from those detailed by State agency contacts. Also, the situation appears to be more consistent from one local area to another than from State to State.

All areas reported that funding is determined on a project-by-project basis. Most bicycle and pedestrian projects compete for funding with all other transportation projects. The only major suballocation of funds by mode noted was for transit, though officials from one jurisdiction did say they have specific funding programs (e.g., school sidewalks and trails) that are dedicated to nonmotorized modes and that their annual funding levels are established on the basis of historical trends and public support. Several noted the role of the ISTEA Transportation Enhancements Program in creating a funding source for which bicycle and pedestrian projects are able to compete on very favorable terms.

Also, it appears that local governments are more likely than the States to have developed an integrated approach to transportation planning and project selection. All the local respondents but one indicated that bicycle and pedestrian considerations have been treated as an integral element in the planning process since before the passage of ISTEA. It should be noted that, to some degree, this finding may reflect a certain bias in the selection of local agencies with reputations for supporting bicycling and walking, though the same can be said of the State agencies contacted.

Most local agencies use, to some degree, a criteria-based approach to project selection. One respondent, while wishing for a "completely objective" process, noted that political factors, such as public opinion, still play an important part in establishing priorities and so should be addressed by bicycle and pedestrian advocates as an essential element in project selection.

The project selection by local agencies is becoming even more criteria-based, due in part to new ISTEA, CAAA, and ADA requirements and to new State growth management regulations. Several respondents said that, while project selection has always been criteria-based to some degree, the rules were not always very specific (especially for State projects in local areas), the process was not always open, and the criteria tended to favor highway projects that increased motor vehicle capacity. That has changed.

The project selection model for the future is likely to look a lot like the one described below by the program coordinator in Seattle. Noting that the process takes place within the context of implementing an ISTEA-type long-range plan that defines mandates and broad performance me takes place within the context of implementing an ISTEA-type long-range plan that defines mandates and broad performance measures, he details the following steps:

In general: allocating resources for bicycle and pedestrian projects is an inexact science that changes from year to year. It changes because elected officials, directors, and funding sources change. While planners make yearly attempts to create an "objective" process for making decisions, it always reverts (at least to some extent) to a political process that involves both the public and private sectors. This is especially true for bicycle and pedestrian projects, which tend to be high profile, visible projects that attract a lot of public attention. Each year we do the following:

- Ask the Bicycle Board for a prioritized list of projects and programs (January).
- Revise and prioritize the unfunded "needs" list for bicycle and pedestrian projects.
- Integrate the unfunded bicycle and pedestrian "needs" list with the unfunded "needs" list for all transportation projects. Projects must fit in with the transportation plan and the Mayor's goals to be classified as a priority.
- Create a Capital Improvement Program (CIP) Team of about seven people from the Engineering Department to develop priorities and make recommendations.
- The CIP Team creates a list of possible funding sources.

- The CIP Team looks at funding criteria and then looks for high priority projects that will compete well in each of the funding categories.

- The CIP Team creates a list of recommended projects and programs organized by funding sources.

- The Director of Engineering reviews CIP Team recommendations, makes changes, and then informally runs the list by the Mayor and the chair of City Council Transportation Committee.

- The revised list of priorities is then sent to the Engineering Department Citizens Committee for review, and ideas are presented to neighborhood groups (the Bicycle Board, etc.,) for as-needed approval.

- The list is revised again and is once again reviewed informally by the Mayor and the chair of the Transportation Committee.

- The list goes back to the CIP Team, which is responsible for making sure the applications for funding get in on time and that the final list goes to the Office of Management and Budget (OMB) to be integrated into the larger City budget in April.

- The OMB presents the Mayor's budget to the City Council in September.

- The City Council holds public hearings; the budget is adopted in November for the following fiscal year, which starts January 1 (9).

As far as project design is concerned, officials from most local agencies said that they have policies calling for inclusion of provisions for bicycles and pedestrians in all highway projects and that this has become a routine part of the process. Some respondents noted that right-of-way is a real constraint because it is either fixed or additional acquisition typically provokes NIMBY (Not In My Back Yard) type resistance. However, local agencies treat these situations just as they do traditional highway projects, and the proposed improvements are usually implemented.

It is interesting to note that several local agencies commented that their State agencies were less likely to consider and include provisions for bicyclists and pedestrians routinely in State highway projects.

Most local agencies stated that they were already using a comprehensive planning process similar to that mandated by ISTEA, but that the new flexibility in the use of Federal transportation dollars was having a major impact on the ability to fund bicycle and pedestrian projects and improvements. Again, much of this stems from the impact of ISTEA (as well as CAAA, ADA, and State growth management regulations) on the restructuring of project selection criteria.

Summary

Resources (funds, rights-of-way, etc.) are generally *not* allocated among the modes, and the general trend seems to be more toward to following:

- adoption of policies that promote and accommodate the nonmotorized modes;
- an integrated, multimodal approach characterized by comprehensive, local transportation planning;
- criteria-based project selection;
- inclusion of provisions for bicycles and pedestrians in design standards; and
- more public involvement.

Clearly, there are some significant differences between State and local agencies in the level of integration of bicycle and pedestrian considerations. The following are possible explanations:

- Traditionally, local agencies have been more involved in comprehensive transportation system planning and development than are State agencies: All modes are considered, and all elements of the system are addressed. This has fostered the integration of all modes in the planning process.
- The nonmotorized modes tend to be more of an issue at the urban or suburban level than at the State level as a function of scale: Bicycling and walking for transportation are primarily short-distance, urban or suburban activities.
- Traditionally, local agencies have had a greater level of public participation in setting priorities than State agencies, and this may result in a greater expression of support for bicycle and pedestrian improvements. There is also a greater involvement of bicycle advisory committees in planning and project selection at the local level.
- Local areas have been confronted with the breakdown of the overall performance of the transportation system for some time. Several respondents described their communities as "built-out," adding that transportation improvement options were generally limited to demand management and new approaches to utilize the existing right-of-way effectively.
- The greater size of State agencies (versus local agencies) lends itself to an approach that tends to compartmentalize bicycle and pedestrian considerations in a special office. Bicycling and walking are then viewed as the responsibility of that office, while other elements of the agency concern themselves with other matters. Coordination is typically addressed through a formal project review process. At the local level, with smaller agencies, there is less absolute separation of functions and more likelihood of informal, ongoing coordination on all aspects of planning, design, and implementation.

As ISTEA-mandated requirements for planning transportation (including CAAA, ADA, and State growth and transportation demand management regulations) and for developing transportation improvement programs are incorporated into State-level decisionmaking procedures on transportation investments, they will tend to become more like the approaches currently utilized by a growing number of local agencies. This should result in better integration of bicycle and pedestrian considerations in the State approaches, routine operating practices of State agencies.

3. Changing the Allocation of Resources

This section reviews a range of alternatives that would change the allocation of transportation resources and provide more support for bicycling and walking.

Mandates

Various types of mandates have been, or could yet be enacted by Federal, State, and local governments with the effect of increasing the allocation of resources on bicycling and walking. Currently, the most significant mandates are contained in the CAAA. Nonattainment areas are required to implement, as needed, a variety of transportation control measures, including actions designed to shift SOV trips to bicycling and walking. Failure to achieve mandated air quality goals could result in extreme sanctions on the use of Federal transportation funds which, in turn, could lead to additional investments in bicycle and pedestrian provisions.

As mentioned earlier, the ADA mandates that transportation services be accessible to people with disabilities. Depending on how the regulations are written and interpreted, they could mandate widespread improvements in facilities for disabled pedestrians, an action likely to result in increased funding and better walking facilities for all pedestrians.

The ISTEA-mandated MPO and State transportation planning requirements, including the requirements for specific bicycle and pedestrian plans, create opportunities for bicycle and pedestrian advocates to incorporate new provisions for the nonmotorized modes. Currently, large-scale efforts are under way to recruit, train, equip, and coach bicycle and pedestrian advocates on how to utilize the ISTEA planning processes to stake out major claims for better facilities and greatly increased funding for development.

Congressman Joseph Kennedy (D-MA) has again introduced a bill calling for a set-aside of 3 percent of certain Federal transportation funds to be used for bicycle and pedestrian improvements. This so-called "3 percent Solution" was introduced approximately 20 years after a similar action was enacted in Oregon. The Oregon legislation sets aside 1 percent of the State's highway funds for bicycle facilities. Michigan has a similar provision (but for only 0.5 percent). More recently, similar measures have been enacted in some metropolitan areas in California and have been proposed for the state of Minnesota and for the Boston metropolitan area.

Finally, the Washington State legislature passed a Growth Management Act establishing modal split limits for SOVs and mandating actions necessary to achieve a series of SOV-reduction milestones (2). Similar goals could be included in some future Federal transportation legislation,

particularly if the CAAA and ISTEA fail to have the desired effect of shifting the mode choices to achieve a more environmentally sensitive, sustainable transportation system.

Restrictions and or Pricing Policy Changes

Some developments could result in a need for greater availability of bicycling and walking as alternative modes of transportation. Twice during the 1970s, interruptions in the availability of gasoline aroused increased interest in walking and bicycling for transportation and prompted a variety of actions intended to promote and facilitate greater use of these modes. It is not difficult to imagine a similar condition developing again in the future, either due to political instability or resource depletion.

It is even easier to imagine of a major change in the price of motor vehicle fuel. Various proposals to increase the tax on motor fuel continue to be suggested. At some price point, such an increase will precipitate a shift to less expensive modes, and this, in turn, will lead to increased investment in these modes.

Another factor that has proven potential to effect a shift to other modes is a change in the availability of parking. Parking fees have been imposed and increased as part of transportation demand-management strategies and have demonstrated the greatest potential of all measures to reduce SOV usage percentages. Another action designed to produce a similar outcome is the restriction of parking development. Seattle has done this in the downtown core to encourage a shift to other modes while increasing its investment in making alternatives such as transit, bicycling, and walking more viable and appealing.

Policies, Plans, and Project Selection

As was previously discussed, the ISTEA-mandated planning processes will require MPOs and States to reassess their approach to providing basic transportation services to ensure that their approaches are consistent and compatible with a broad set of objectives. These objectives will translate into project selection criteria to be used in setting transportation development and investment priorities and in selecting projects that support a broad range of community objectives including environmental protection (clean air and water), neighborhood preservation and revitalization, energy efficiency and independence, improved traffic safety, and equity in accessibility.

ISTEA also mandates new opportunities for public participation. If government agencies and elected officials take this directive to heart and seek to shift the lead in transportation planning to the public, then a new set of priorities could be adopted. These would likely reflect greater sensitivity to local needs, public interest, and the impacts of transportation development on the community. Under such a scenario it is likely that there would be a considerable increase in support for bicycling and walking. These are modes closely associated with the livability of a community and provide an easy way for people to judge how safe and friendly their neighborhoods are.

Institutionalization

Bicycle and pedestrian specialists want to institutionalizing consideration of nonmotorized users in all the decisionmaking processes of public transportation agencies. Substantial gains have been made in the areas of planning, environmental impact assessment, and project review. One of the critical objectives yet to be achieved is the incorporation of provisions for bicyclists and pedestrians into the basic standards for roadway design, construction, and operation. The new Federal Highway Administration (FHWA) bicycle and pedestrian research program includes a project to review the following four major standards and develop recommendations to incorporate bicycling and walking fully:

- ***Policy on the Geometric Design of Highways and Streets*** (the Green Book), Association of State Highway and Transportation Officials (10);
- ***Traffic Engineering Handbook,*** Institute of Transportation Engineers (11);
- ***Highway Capacity Manual,*** Transportation Research Board (12);and
- ***Manual on Uniform Traffic Control Devices,*** National Committee on Uniform Traffic Laws and Ordinances (13).

A second objective in making consideration of bicycles and pedestrians a routine part of highway planning, design, construction, and maintenance involves having incorporated these subjects into the academic training received by civil and transportation engineers. A recent survey by the American Society of Civil Engineers revealed that the chairs of most civil engineering schools now give little or no attention to the nonmotorized modes in the required course of study for undergraduates (14). It is of some concern that the reason they gave most often for their position was a concern for safety, though it could be argued that it is the lack of attention to training in these subjects that has produced a roadway environment that is less than friendly for people on foot and on bikes.

Advocacy and Public Support

Several State and local bicycle and pedestrian program specialists noted that gains in support for nonmotorized modes resulted from the efforts of advocates, typically with a broad base of public support. Actually, public support is likely an essential condition for any expanded program to improve conditions for bicycling and walking. Over time, such actions may become institutionalized, but for now, sustained public support is required.

Advocates are not, however, limited to individuals or organizations working outside public agencies. Some of the most effective advocates of better conditions for bicycling and walking are public agency staffer and elected or appointed officials. Still, even for such leaders, the support of the public must eventually follow.

For more than 20 years, bicycle advocates have been working to increase public agency support for improving conditions for bicycling. Some good examples of successes are places such as Seattle, Washington; Palo Alto, California; Eugene, Oregon; Arlington, Virginia; and Madison, Wisconsin. With the passage of ISTEA, there has been an increase in activity aimed at establishing effective State and local bicycle and pedestrian advocacy groups. For example, to maximize the potential of ISTEA to benefit bicycling and walking, the BFA has initiated the National Bicycle and Pedestrian Advocacy Campaign. The purpose of the campaign is to assist advocates of bicycling and walking for transportation to work with public agencies on such ISTEA-mandated activities as developing long-range bicycle and pedestrian plans, TIPs, and implementing the Transportation Enhancements Program. The new ISTEA requirements for State Departments of Transportation bicycle and pedestrian program managers, for State and local long-range plans and improvement programs (which must consider bicycles and pedestrians), and for more public participation are seen as opportunities to make consideration of bicycling and walking a more integral element in transportation activities. Still, advocates believe it will take a well-organized, concerted effort to ensure that these new opportunities translate into results.

4. The Key Participants in the Process

Key Participants in the Decisionmaking Process

Many individuals and groups come together in various ways to determine the nature, scope, and priorities for our transportation system. As was noted in the last section, public support manifested in part by effective bicycle and pedestrian advocates is one of the keys to improving conditions for bicycling and walking. But it is the interaction among a wide range of groups that ultimately determines the allocation of public transportation resources and that shapes the design and function of the transportation system. The following groups are some of the key participants in this process as it relates to bicycling and walking:

- elected and appointed public officials;
- transportation and highway agencies;
- transportation planning and engineering professionals;
- professional planning and engineering associations;
- bicyclists and pedestrians;
- traffic safety organizations;
- public health advocates;
- bicycle and pedestrian advocacy groups;
- transportation reform organizations;
- environmental organizations;
- advocacy groups for people with disabilities;
- neighborhood associations;
- organizations for the elderly and children;
- motorist organizations; and
- highway construction organizations.

As has been discussed, ISTEA not only makes Federal transportation funds more flexible (in terms of addressing the needs of any mode) but mandates new planning and public participation processes. MPOs are required to develop long-range transportation plans consistent with a list of criteria defined in ISTEA. New MPO transportation improvement programs (or short-term plans) are required to be consistent with the long-range plans. Bicycling and walking must be considered in the plans. ISTEA directs the State Departments of Transportation to develop long-range bicycle and pedestrian plans. In addition, State transportation agencies are required to incorporate the MPO-developed plans in the State plan. Finally, all planning processes must provide for extensive public participation.

The development and implementation of these new plans will entail many far-reaching decisions regarding the allocation of resources and the nature of transportation systems and services. The new emphasis on planning, together with the expanded requirements for public participation, will bring many new participants into the process. Both the Surface Transportation Policy Project (a coalition of environmental, professional, alternative transportation mode, and urban interest organizations) and FHWA refer to these participants as "new partners."

Bicycle and Pedestrian Advocates and the New Group Dynamic

The ISTEA requirements are fostering a variety of activities and processes likely to result in a new type of transportation decisionmaking in the United States. How bicycle and pedestrian issues will fare in this process remains to be seen, but some new opportunities will be critical. The requirements that MPOs and State Departments of Transportation include bicycle and pedestrian considerations in all new plans opens the door for advocates of these modes. The degree to which new policies and provisions for bicycling and walking are included in the plans will be, in part, a function of the following:

The extent to which pedestrian and bicycle advocates organize—With more than 400 MPO and 50 State plans to be developed, it will take considerable effort to involve bicycle and pedestrian advocates in all areas. Many aspects of transportation planning at these levels of government will initially be unfamiliar to advocates, requiring them to invest time and effort to come up to speed.

The extent to which pedestrian and bicycle advocates become part of a broader coalition supporting changes in the transportation system—The transportation reforms incorporated in ISTEA resulted, in large part, from the efforts of a new, broad-based coalition of interests working together for fundamental changes in Federal transportation policy. Members of the coalition believed that more specific issues (e.g., bicycling and walking) would be most likely to benefit if broad change was brought to the overall approach to transportation development. A similar approach will be needed to bring about big changes at the State and MPO levels.

The extent to which pedestrian and bicycle advocates form new partnerships with public agencies and transportation professionals—The operating environment for bicycles and pedestrians—streets, highways, parks, and recreation areas—is almost entirely under the control of public agencies. The potential for bicycling and walking will be a function of the degree to which public agencies act to address the needs and concerns of the nonmotorized modes.

The extent to which pedestrian and bicycle advocates are politically effective—Advocates need to develop and apply political skills to prevail in what is ultimately a political process, namely, the allocation of limited resources. Under ISTEA, the MPO transportation planning process will have more influence than ever in determining on what, where, and when Federal support is used to fund transportation improvements. The decisionmaking process will begin at the local level, move from there to the MPO level where regional plans and priorities will be determined, and finally be incorporated in the statewide transportation plan and improvement program. At the first two stages, the final decisions regarding what is in (and out) of the plans will be made (or approved) by locally elected officials.

Each of the many groups making up the key participants in the transportation decisionmaking process (from the standpoint of bicycling and walking) has its own specific interests. These can make them inclined to support or oppose the use of resources to address the needs of bicyclists and pedestrians. How this is resolved will vary from area to area and will primarily depend on how successful bicycle and pedestrian advocates are in developing strategic allegiances and a broad base of public support.

Who are the Bicyclists and Pedestrians to be Served?

Unlike planning transportation facilities for motor vehicle use, there is a much wider variety in the users and use of bicycles and walking for transportation. This poses some very basic questions that will have a major effect on the decisionmaking process regarding the allocation of resources to serve bicyclists and pedestrians. Several of these issues are as follows:

Bicyclists: current users or potential users?—This question has long been a central theme in discussions related to planning bicycle facilities. The basic distinction stems from the characterization of current users as individuals who are capable of operating a bicycle under most traffic conditions and want little more than adequate roadway width to accommodate shared use by bicycles and motor vehicles. These users and the far greater number of potential users are described in a recent FHWA research report, *Selecting Roadway Design Treatments to Accommodate Bicycles: Manual* (15). The potential users are adults and children who actually have and ride bikes but who restrict their travel (or have their travel restricted) to low-volume, low-speed neighborhood streets and designated bicycle facilities. The report states that bicycle use will increase substantially only if more designated bicycle facilities are provided to serve these potential users *and* basic roadway improvements are made to all other highways. A two-tiered approach is proposed in which a network of designated bicycle routes would be developed to provide potential users access throughout a community, and every roadway would be designed, at a minimum, to accommodate current users.

Transportation users or recreation users?—The Surface Transportation Assistance Act of 1978 limited the use of Federal transportation funds to bicycle facilities intended to serve primarily a transportation, rather than a recreation, function (16). Subsequent guidance issued by FHWA has clarified this stipulation by distinguishing between facilities likely to serve *some* transportation use versus *purely* recreational facilities (such as an isolated loop trail in a park or recreation area). This reflects the reality that virtually any bicycle facility in an urban area will attract bicyclists and pedestrians who will use the facility for transportation purposes.

The ISTEA legislation further blurs the distinction between funding bicycle facilities for transportation versus recreation in that it provides for the use of Federal transportation funds for a wide range of enhancements, including bicycle and pedestrian facilities and rail-trails.

Serve special populations such as the elderly, disabled, and children?—The full implications of the ADA on the design of the transportation infrastructure have yet to be determined. This is especially true when one considers the implications of making transit accessible. Clearly, it is not enough simply to make vehicles such as buses accessible to wheelchair users; these users

must be provided with a means of getting *to and from* transit stops. Currently, many transit stops, particularly in suburban areas, are not served by adequate sidewalks. Also, many sidewalks are still not equipped with curb cuts. In addition, many demand-actuated traffic control devices cannot be activated by individuals with disabilities, nor is sufficient time always provided for crossing the street. As implementation of the ADA reaches such local access issues, it will have a significant impact on the allocation of transportation resources to facilities designed to serve pedestrians. This will likely increase opportunities to address the growing needs of elderly and young pedestrians as well.

Summary

The consideration of transportation resource allocation related to bicycling and walking involves many groups of participants with a wide variety of agendas, some complementary, some contradictory. It also raises questions about the users and uses of bicycling and walking for transportation. How these issues are sorted out will affect the outcomes for bicycling and walking.

5. Conclusions and Recommendations

Conclusions

The purpose of this study was to consider how limited resources could best be allocated to meet the needs of motor vehicle operators, bicyclists, and pedestrians. In reviewing past and present practices and procedures affecting the current approaches to the allocation of resources, several findings became clear:

- Most planning, project selection, and design decisions *do not* include explicit criteria for making investment decisions among the various modes.

- The nature of the transportation system is the result of what decisionmakers understand to be the public's desire, what agencies believe to be their mission, and what transportation professionals perceive to be their charge.

- Prior to ISTEA, bicycling and walking traditionally were not viewed as integral elements in the transportation system; consequently, they were not provided for in most cases.

- Bicycle and pedestrian considerations are not yet generally incorporated in the training of transportation professionals, in the mission statement of transportation agencies, in the standards and guidelines used to plan and design transportation systems and facilities, or in the routine operating practices of transportation agencies.

- Where gains have occurred for bicycling and walking they are typically associated with effective advocacy initiatives that have fostered public support for changes that favor institutionalizing consideration of the nonmotorized modes in transportation system development processes.

Recommendations

Based on this assessment, the following actions are proposed as the means to effect a more appropriate allocation of resources among the modes, at least from the standpoint of bicycling and walking:

- Advocates of bicycling and walking should organize to take a more active role in the transportation planning and project selection processes at all levels of government.

- New local, MPO, regional planning commission, and State DOT long-range transportation plans should incorporate policies and provisions for the nonmotorized modes that are intended to ensure the development of these modes as viable options for short trips in urban or suburban areas and to ensure safe use in rural areas.

- Project selection criteria for transportation improvement programs (and the overall project selection process) should be developed to ensure full and fair consideration of the nonmotorized modes.

- The various policies, standards, guidelines, and procedures utilized by the transportation agencies and professionals in developing and operating the transportation system should be reviewed and revised, as needed, to ensure that bicycling and walking are accommodated as a routine aspect of good highway design and operation.

- The education and training of transportation professionals should be reviewed and revised to include explicit consideration of accommodating the nonmotorized modes.

In summary, the best way to resolve the appropriate allocation of resources among the various modes is not through explicit, isolated consideration of this question, but through a more comprehensive approach to the decisionmaking processes that determine the nature of the transportation system, thus institutionalizing consideration of bicycling and walking.

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