Bicycle commuting in the Des Moines metropolitan area

by

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CHAPTER I

INTRODUCTION

The use of bicycles for commuting purposes offers many advantages. Bicycles are inexpensive and reliable for short trips, especially compared with other modes of personal transportation. They offer door-to-door mobility and a high level of maneuverability in city streets and bikeways. In addition, they are non-polluting and have the advantage of enhancing the riders' physical fitness.

There are deterrents, however, to the use of bicycles for transportation. These deterrents include unfavorable weather conditions, exposure to polluting vehicles, and bicycle theft. But some of the most important deterrents are the absence of intermodal integration and the lack of support facilities such as secured parking, and availability of showers and lockers at the work place.

Transportation facilities, in most urban areas, are not designed or operated to encourage the use of bicycles. In fact, the hazards of riding a bicycle in motor traffic commonly discourage anyone from frequent bicycle use, including substituting of bicycle trips for automobile trips.

Purpose and Objectives

The goal of this study is to investigate the factors which could contribute to increased bicycle use as an alternative transportation mode for commuter

trips in the Des Moines metropolitan area. The expectation is that bicycle commuting in the Des Moines metropolitan area can be furthered through increased institutional and professional responsiveness, improved awareness of the desirability of bicycle commuting among employers and public decision makers, and improved infrastructure for bicycle users.

Major changes in transportation policy would be required to make bicycling an attractive alternative to automobile driving in the Des Moines metropolitan area. These changes would need to involve both the private and public sectors, and they require cooperation between them.

The Des Moines metropolitan area is the site of this study. The study area currently has no program promoting bicycles as an alternative transportation mode for commuter trips. This, however, has not always been the case. In the 1970s and early 1980s, bicycling received more attention in the Des Moines metropolitan area than it does now. This attention resulted in the development of the city of Des Moines Riverfront Bikeway System and the designation of a street system to be used by bicyclists for transportation purposes.

The study area includes the following political jurisdictions in the Des Moines metropolitan area, located in four different counties: Altoona, Ankeny, Bondurant, Carlisle, Clive, Cumming, Des Moines, Grimes, Johnston, Norwalk, Pleasant Hill, Polk City, Urbandale, Waukee, West Des Moines, and Windsor Heights (see map in Figure 1).

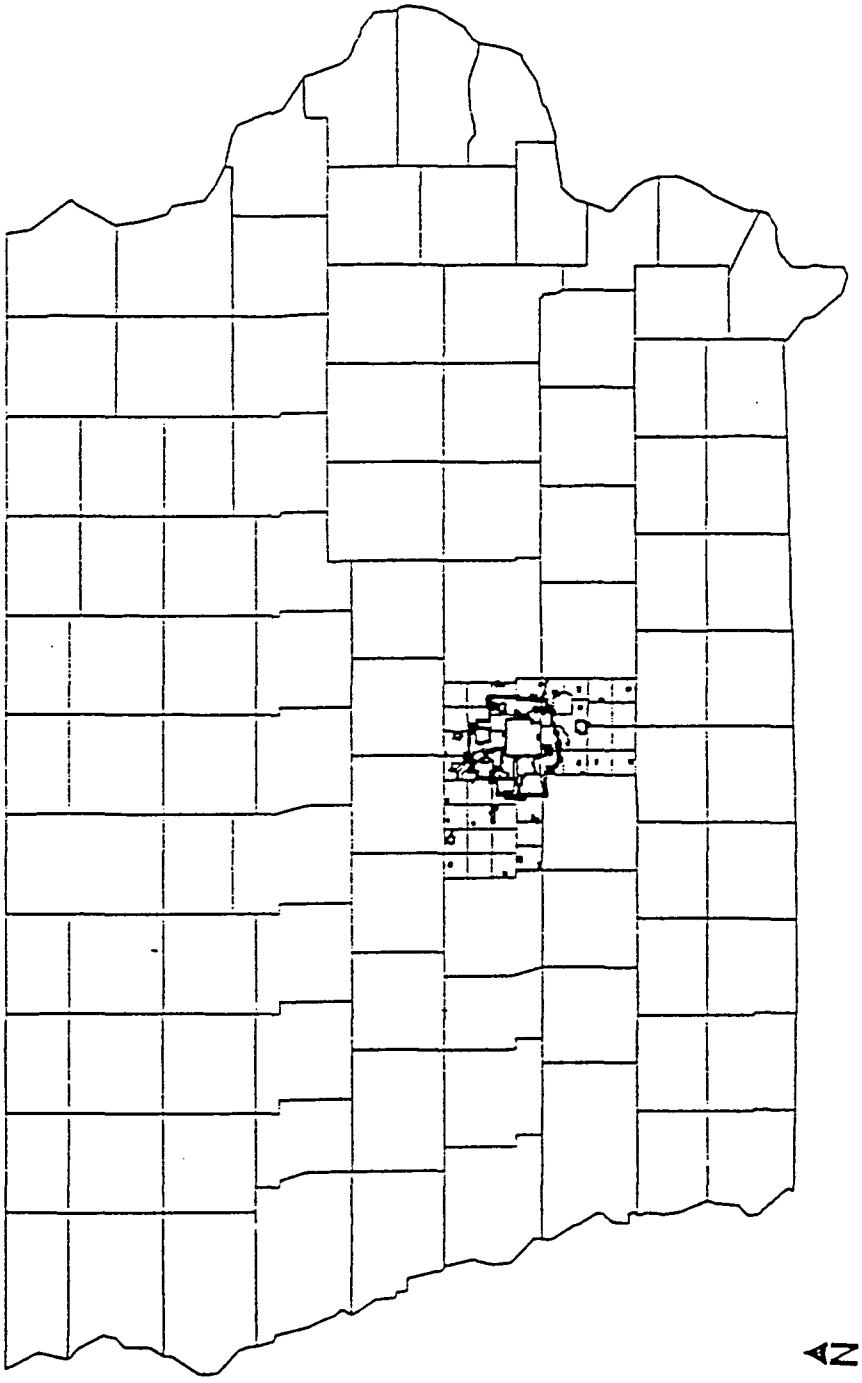

Figure 1. Des Moines Metropolitan Statistical Area
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

The majority of these cities, along with Polk and Warren Counties, form the Des Moines Area Metropolitan Planning Organization (MPO). The MPO's officials, city planners and transportation engineers in the various cities of the metropolitan area have expressed interest in the findings of this study.

Approach and Methodology

The approach utilized in this study involved a mail survey to employers in the metropolitan area. Receipt of responses was followed by sharing the findings from the survey with planning and transportation officials in the study area. A copy of the survey is included in Appendix 1. The survey questionnaire was designed to establish baseline information on what employers currently offer their employees to commute via bicycle and on their willingness to offer any type of incentive to encourage more employees to become bicycle commuters.

This survey questionnaire attempts to assess the factors which are available to encourage employees to use bicycles as an alternative transportation mode in commuting to work. Willingness of employers to offer incentives to encourage their employees to use bicycles was assessed. Feasibility of changes in transportation policy in facility design and operation to accommodate bicycle commuter trips also will be discussed with planners and with transportation engineers at both the local and regional levels. The study findings can be used to establish awareness about the feasibility of using

bicycles as a commuter mode and initiate dialogue between private and public officials on how to make bicycle commuting a reality.

Two workshops were designed and held within the study area jurisdictions to complement the mail survey. Both workshops were jointly sponsored and funded by the Federal Highway Administration, the Iowa Department of Transportation, and the Des Moines Area Metropolitan Planning Organization.

At the first workshop, questions were raised concerning the scope of the study as well as other bicycle commuting issues, such as safety issues and bikeway design specifications. The survey instrument was revised to address questions and concerns raised in the workshop.

The second workshop was planned to present study findings, to discuss ways of improving public bicycle infrastructure and facilities, and to devise strategies for coordinating bicycle transportation planning efforts at the metropolitan level.

Organization of This Study

This study has been divided into the following chapters: Chapter II offers a literature review of relevant experiences from other metropolitan areas in the United States and describes existing forms of government involvement in planning for bicycle transportation during the past 20 years; Chapter III outlines the existing conditions for bicycle travel in the Des Moines metropolitan area,

describes the role of the metropolitan planning organization, and explores legal issues surrounding the provision of bicycle facilities; Chapter IV presents the survey and workshop results and discusses the metropolitan area jurisdictions' attitudes towards bicycle commuting; finally, Chapter V provides the Des Moines metropolitan area with a set of recommendations on how to increase the feasibility of using bicycles as a commuter mode, and explores ideas for further research.

CHAPTER II

BICYCLING: A TRANSPORTATION ALTERNATIVE

Introduction

Developed originally as a transportation vehicle, the bicycle gained prominence 100 years ago as an alternative to the horse-drawn carriage. With the emergence of the motor vehicle, however, the situation quickly changed. Unlike the situation in Europe, where motoring took decades to supersede bicycling, in America bicycling never had the chance to coexist with the motor vehicle. When the automobile emerged as a transportation mode, bicycles experienced a rapid drop in status, from a serious transportation mode to a mere child's toy. Consequently the bicycle's popularity fluctuated with the relative availability of motor vehicles and fuel costs.

Bicycling began its comeback at the time of the postwar urban sprawl of the 1950s (Konski 1973). The surge in the use of bicycles placed bicyclists and motorists in competition with each other for the use of roadways. This competition led to frequent separation of the two modes through construction of bicycle paths, which physically separate the two types of transportation modes so there can be no competition between them for space (AASHTO 1991). They also reinforce the bicyclist's fear of motor vehicles by keeping bicyclists off streets and highways (Konski 1973). Experience with separate

bicycle paths in Arizona, in Florida, and Oregon proved that they did not offer the total answer. They function well in some areas but poorly in others. Bicycle paths are especially good where they are segregated from motor vehicles, such as along parkways or streams (Oregon 1988). On the other hand, poorly designed bicycle paths can put a bicyclist in a position where the bicyclist is not expected by the driver of a motor vehicle (Arizona 1982). A roadway-sharing viewpoint is beginning to shape today's bicycling trend (Oregon 1988). This trend promotes the integration of motorists and bicyclists by improving existing roadway systems in ways that accommodate both modes in general motor vehicle traffic. Not only does this trend saves money, but it also makes it possible to write one set of rules for both modes to achieve better cooperation and safer operation on roadways (Oregon 1988). With the increasing interest in bicycling, the development of quality bikeway facilities is becoming more and more important.

Bicycling, A Transportation Alternative: From the 1970s to the 1990s

> "That is when it all started. That was when thousands of people from the steaming hot gas lines that wound around blocks in Southern California gave up in disgust and bought bicycles." (Sloane 1980)

Between the mid 1970s and the early 1980s, bicycling and bicycle planning received considerable attention in the United States. In large part, this attention was the result of the energy crisis and of concern for the declining

availability of inexpensive fuel (Sloane 1980). However, it became clear that 30 years of planning for motor vehicles in the United States had resulted in a roadway network that just did not accommodated the bicycle (Howard Needles Tammen and Bergendoff 1989).

Some of the early responses to the 1970s bicycle revival were embodied in proposals for the creation of separate route systems for bicyclists (Rice 1973). This approach was wholly appropriate in newly developed residential areas, such as Boulder, Colorado, where several notable segregated networks of bicycle-pedestrian facilities have been constructed (Howard Needles Tammen and Bergendoff 1989). In contrast, separate routes for bicyclists were more difficult to implement in existing urban areas where pressure for space was severe (Northeastern Illinois Planning Commission 1990).

By the mid 1970s, the limitations of the segregated facilities approach became obvious in the United States (Florida 1982). Education of bicyclists then became an important issue. Education was used to teach bicyclists and motorists to improve their road behavior so the street system could be shared more safely. However, towards the end of the 1970s the limitations of this approach, and in particular the short-lived nature of such educational efforts, also became apparent (Florida 1982).

As bicycle use continued to increase at the end of the 1970s, it became clear that a realistic base for planning the future of the bicycle was required, and an integrated approach to planning for bicyclists began to emerge.

In the 1990s, the bicycle is enjoying renewed acceptance as an efficient form of transportation. Bicycles use no fuel products, thus decreasing dependency on foreign countries for oil; they are inexpensive and reliable, and they require little maintenance compared with automobiles (Moran 1980).

Automobile travel in the United States today is almost synonymous with personal transportation (Moran 1980). Private automobiles have replaced the multi-modal public transportation system of the turn of the century. Until recently, this situation has gone unchallenged. The energy crisis pointed up this country's wasteful use of non-renewable resources and more recently the ecological revolution has brought the environment as a whole to the country's attention. These facts have forced many people to rethink basic problems such as personal transportation, viewing them from a new perspective.

The automobile is considered the bicycle's largest competitor (Sloane 1980). Private vehicles are the predominant mode of personal transportation, accounting for more than 88 percent of the total person miles travelled in the United States (Moran 1980). Numerous benefits are derived from substituting bicycles for automobiles, such as personal improved fitness and opportunities to exercise, increased enjoyment of the outdoors for the user, and less traffic congestion, air pollution, vehicular noise, and fuel consumption for the population (Moran 1980, Rice 1973, Sloane 1980).

The city of Chicago, Illinois, provides an outstanding example of the trend of substituting bicycles for automobiles. The city's *Bike 2000 Plan*

demonstrates a commitment to achieving two goals: improving the city's air quality and making the Chicago transportation network more bicycle-friendly. The plan was developed in response to Chicago's existing air quality problem (Chicago 1992). Expanded use of bicycles is viewed by the Bike 2000 Plan as an alternate means of transportation represents a viable alternative for reducing pollution and for improving air quality through reduced energy use and traffic congestion.

Government's Role in Promoting Utilitarian Usage of the Bicycle

Broad-based transportation policy decisions made by many political jurisdictions underlie the failure to adopt the bicycle as an alternative transportation mode. These decisions resulted in cities being designed to accommodate and promote the automobile as the favored mode of travel for area residents. What sets apart the handful of countries that have chosen to embrace the use of the bicycle, along with those cities within the United States currently promoting it, is unrelated to living standards, culture, geography or climate. Rather, bicycling is related to an enlightened transportation policy and to strong government support for a diverse transportation network (Pulcher 1988). Past local development policies in most cities in the United States resulted in urban sprawl. Improved and easily accessible travel routes for automobiles were complemented with low cost parking. This is in sharp

contrast to the situation in the more coordinated, more compact and higher density cities of Canada and Western Europe.

Role of the Federal Government

The response of the federal government to the growth of bicycling at the beginning of the 1970s had two components. In 1974, the Federal Highway Administration (FHWA) compiled available information on planning and design for bikeways that had evolved at the states level (Moran, 1980). The second component of FHWA's efforts was the 'Bikeway Demonstration Program,' which provided 80 percent federal funding with 20 percent state and local match, for constructing bicycle facilities in urban areas (Highway Safety Research Center 1991).

The main contribution of the federal government to promote bicycling has been financial. Section 141(c) of the *1978 Surface Transportation Assistance Act* provided federal funds to state and local governments for projects aimed at enhancing the use of bicycles. This transportation bill also issued a detailed note on the implementation of the bicycle grant program.

The *1991 Intermodal Surface Transportation Efficiency Act* (ISTEA) recognizes the transportation value of bicycling, and offers mechanisms to accommodate bicyclists' needs within the National Intermodal Transportation System. Within ISTEA, bicycle transportation facilities are defined as new or

improved lanes, paths or shoulders, traffic control devices, shelters, and parking facilities for bicyclists.

ISTEA offers significant opportunities to enhance state and local bicycle programs with grants-in-aid. Federal-aid funding is available from several ISTEA programs for these efforts. Essentially, ISTEA encourages the states to determine how their shares of federal funds will be spent for bicycle transportation projects. The federal government will not select specific bicycle projects. Instead, local governments, working through their metropolitan planning organization (MPO), are expected to work with their state transportation agency to determine eligibility for the grants, availability of funds, and priority ranking of projects. For projects to be funded, they must be included in a Transportation Improvement Program (TIP) for metropolitan areas within the State Transportation Improvement Program (STIP).

Role of State Governments

A growing number of states are also turning their attention to bicycling as a viable transportation option. The following states were found among those currently supporting and promoting bicycling for personal transportation.

California. The state of California has demonstrated active and strong support of commuting by bicycle. In 1971, the California Legislature passed the *Transportation Development Act,* which permitted local agencies to use up to two percent of their local transportation funds for pedestrian and bicycle

facilities (Staff 1973). In 1975, the *California Bikeways Act* was passed, the goal of this Act was to pursue development of a multi-modal transportation system (CALTRANS 1977).

The State has achieved a great deal with regard to planning, design and construction of bicycle facilities. It has developed several innovative programs that have eliminated significant barriers to bicyclists, such as the "bikes on buses" program, the "access to rail system" program, and the "bicycle access improvements" program (CALTRANS 1977).

Florida. In Florida, bicycling is being considered in order to alleviate some of the major urban and environmental problems. The State has played an aggressive role in encouraging and assisting local governments in developing comprehensive bicycle programs at the local level (Applied Science Associates and Bicycle Federation of America 1990). Florida's programs provide education for children and adults in bicycle safety and operation. Further, these programs emphasize education of motorists regarding operating characteristics of bicyclists. The *Florida Bicycle Sketch Plan*, considered the blueprint for bicycle transportation, sets forth goals, objectives and programs that can make bicycle transportation a viable option (Applied Science Associates and Bicycle Federation of America 1990).

Minnesota. As a result of 15 years of progressive leadership in legislation, public agencies, and bicycle organizations, Minnesota has developed a strong statewide bicycling foundation (Mn/DOT 1987). In Minnesota, the

bicycle has come to be regarded as a key element of a more balanced transportation system due to the many environmental, social, and health benefits that accrue to local jurisdiction from its use.

The Minnesota Department of Transportation (Mn/DOT) is currently involved in a strategic planning process designed to maintain a leadership role in providing transportation services in a complex and changing society (Mn/DOT 1992).

The Mn/DOT 1987 *State Bicycle Transportation System Plan* had as its goal the development and coordination of safe and efficient bicycle transportation network along trunk highway corridors. This network was intended to accommodate the utilitarian and recreational bicycling needs of the state's citizens and its visitors (Mn/DOT 1987). The 1987 plan identified unsuitable (poor and unsatisfactory) segments within each corridor and evaluated bicycling conditions.

In 1992, the Mn/DOT published its *Plan B: The Comprehensive State Bicycle Plan*, a study which recommends that a successful commuter bikeway must provide direct and efficient access to points of destination (Mn/DOT 1992). The study findings also suggests to planners the need to modify existing transportation networks to include bikeways along local collectors, arterials and residential streets.

New Jersey. The development of bicycle programs by the New Jersey Department of Transportation (NJDOT) has been underway since the mid-

1970s. Initially, these programs were in response to the creation of the FHWA's 'Bikeways Demonstration Program.' Since 1980 the NJDOT has assigned one staff person, the Pedestrian/Bicycle Advocate, to deal with the needs of pedestrians and bicyclists. Acting as a liaison with the public and as a source of technical information on bicycling and bicycle facilities, the Pedestrian/Bicycle Advocate serves as an ombudsman for the interests of non-motorized transportation within the NJDOT.

The state has also adopted a plan, *Managing Our Transportation Future*, with the objective of promoting the development of transportation systems and programs that provide travelers with modal choices that are economical (NJDOT 1992).

Oregon. In 1971, Oregon became a pioneer in passing a legislation for the funding and development of bikeways. Basically, the law provides that at least one percent of the State Highway Fund received by the Highway Division, by counties, and by cities, be expended on the development of bikeways (ODOT 1988).

In 1992, the state of Oregon set into motion transportation plans with the intention of shaping Oregon's future transportation systems. The primary purpose of the *Oregon Bicycle Plan* is to give direction and guidance to all bikeway programs in Oregon (ODOT 1992).

The 1992 plan emphasizes that the state enjoys a positive reputation among bicyclists nationwide because of its scenic beauty and accommodating

climate and its pioneering spirit in the development of bicycle facilities (ODOT 1992). It also claims that most urban areas in Oregon have good bikeway networks. For example, the city of Eugene is consider one of the leading bicycling communities in the nation. This city has built 21 miles of separate bicycle paths and 36 miles of on-street bike lanes and has designated 18 miles of low traffic volume streets for shared roadway use (ODOT 1992).

Bicycles as an Integral Part of the Transportation Plan

Cities cannot expect commuters to convert to bicycling as an alternative transportation mode unless adequate planning and resources are devoted to the development of a safe and logical system of routes (Florida 1990). Many states have already recognized that if the bicycle is to become a viable, safe, and frequently used means of transportation, proper facilities must be provided (Arizona 1989, Florida 1990, Minnesota 1992 and New Jersey 1982). Primarily, this means constructing separate bicycle paths or delineating bicycle lanes on existing streets to separate bicycles from motor vehicles. In addition, several secondary support facilities, such as showers in places of employment and secure parking places at destinations, are necessary to encourage increased bicycle use.

Many of the issues regarding bicycles that are discussed today are the same as those discussed in the 1970s (Minnesota 1992). Accommodation of bicycles should be an integral part of transportation programs (Moran 1980).

Furthermore, the review and revision of standard policies and procedures of state bicycle programs should be incorporated into local and regional government transportation plans.

In 1989, an ad hoc Transportation Committee in Boulder, Colorado prepared a *Transportation Master Plan for the Boulder Valley.* The plan considered the transportation system in a broad context. It related the transportation system in the context of Boulder's neighborhoods, environment, and quality of life. This plan also proposes a complete bicycle network, which would allow convenient and safe bicycle travel throughout the Boulder Valley as an alternative to the automobile (Howard Needles Tammen and Bergendoff 1989).

Similarly, in 1990, the Northeastern Illinois Planning Commission created a task force to integrate bicycles into its transportation plan, by developing plans and programs that will reduce traffic congestion in their region. The 1990 report, *Development Guidelines That Promote Bicycle Use*, is one of the plans initiated by the task force. It recognizes bicycles as ideal for short commutes and recommends ways to encourage bicycle transportation (Northeastern Illinois Planning Commission 1990).

Conclusion

The list of advantages to be gained by using the bicycle in urban transportation is impressive. Besides benefits to the bicyclists' health, the

urban transportation system itself stands to gain from increased use of the bicycle. Reduction of air and noise pollution, of fuel consumption, of urban space consumption by parked vehicles, and of traffic congestion are some of the advantages that would result, in urban areas, from substitution of bicycles for motor vehicles for personal transportation needs.

Today, as the century of the automobile draws to a close, the far-reaching damage, caused by congestion and pollution, is drawing increasing attention and opposition to motor vehicles. Widespread acceptance of the bicycle as a mode of transportation can begin only if safe, convenient bikeways exist. To a certain degree, adoption of the bicycle for commuting might succeed if local governments realize that the bicycle is a legitimate and economical means of transportation.

CHAPTER III

THE DES MOINES METROPOLITAN AREA

Introduction

Located in America's lush agricultural heartland, the Des Moines metropolitan area is the political, economic and cultural center of the state of Iowa (Figure 2). The area is a center of insurance, government, printing, and retail and wholesale trade, with industry providing a diverse and strong economic base.

The Des Moines Metropolitan Statistical Area, with a population of 392,928 persons (1990 Census), is the largest urbanized area in Iowa. In recent years, population growth has been much greater in the suburban areas of metropolitan Des Moines. The city of Des Moines has actually experienced a population loss over the last 30 years, from a population of 208,982 in 1960 to a population of 193,187 in 1990 (Des Moines Area Metropolitan Planning Organization 1992). Employment growth is concentrated in two major areas, the Des Moines downtown area and the West Des Moines Professional Commerce Park area. Other growing employment areas are located in Urbandale, Altoona, Clive, Pleasant Hill, Southeast Des Moines, and West Des Moines (Hill 1989). The Des Moines metropolitan area is situated at the intersection of Interstates 80 (east to west) and 35 (north to south). The

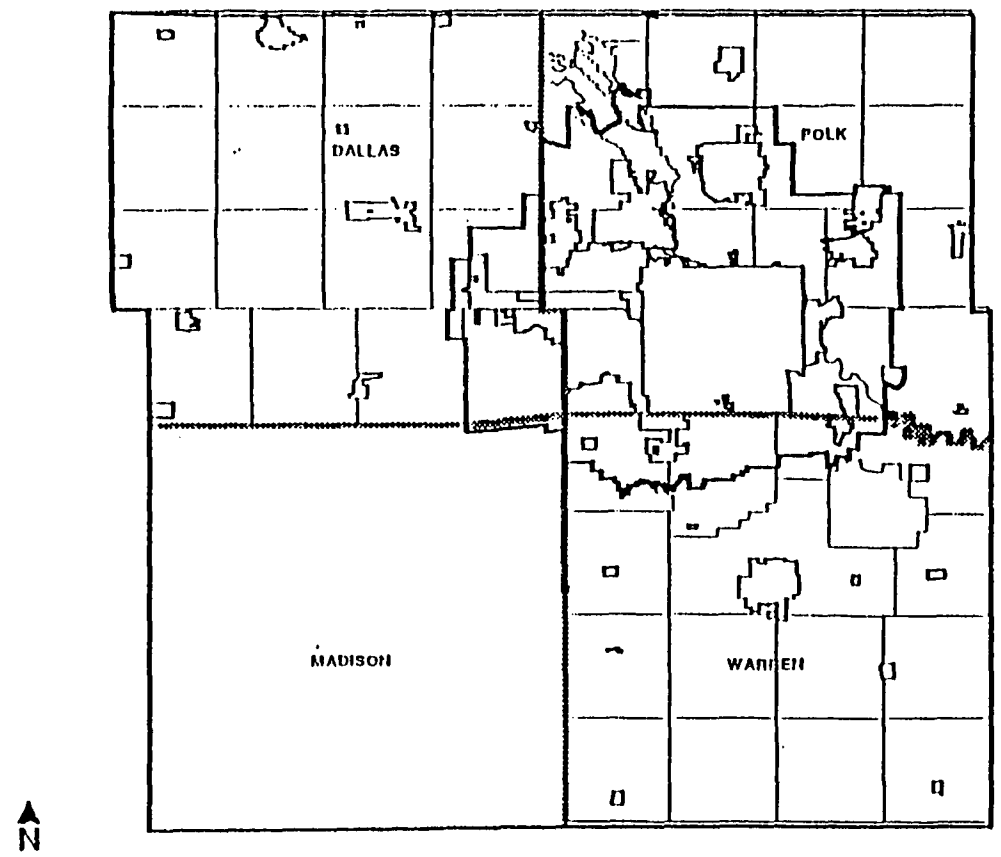

Figure 2. City and County Areas Included in the Des Moines MPO Planning Boundary
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

primary highway system is accented by Interstate 235 (Figure 3). Sections of several primary highways are also located throughout the metropolitan area.

The Des Moines Metropolitan Transit Authority (MTA) provides bus transit service to the cities of Clive, Des Moines, Urbandale, West Des Moines and Windsor Heights (Figure 4). The MTA offers a fixed route service Monday through Saturday. Six express routes serve rush hour commuters, and paratransit service is provided Monday through Friday for the disabled and those unable to travel on the fixed route bus system. The MTA also provides charter bus service within the Des Moines metropolitan area.

Transportation Planning in the Des Moines Metropolitan Area

In July 1983, Polk County and the cities of Altoona, Clive, Des Moines, Johnston, Pleasant Hill, Urbandale, West Des Moines, and Windsor Heights established the Des Moines Area Metropolitan Planning Organization (MPO) (Figure 5). In September 1991, Warren County and the city of Norwalk became part of the MPO (Figure 6) (MPO 1983).

The MPO is the metropolitan planning organization for the study area, pursuant to the provisions of Chapter 28E, Code of Iowa. The purpose of the 28E Agreement is to enable the MPO to carry out an urban transportation planning process. The 28E Agreement contains provisions for the establishment of a Transportation Policy Committee and a Transportation Technical Committee. The Transportation Policy Committee is composed of

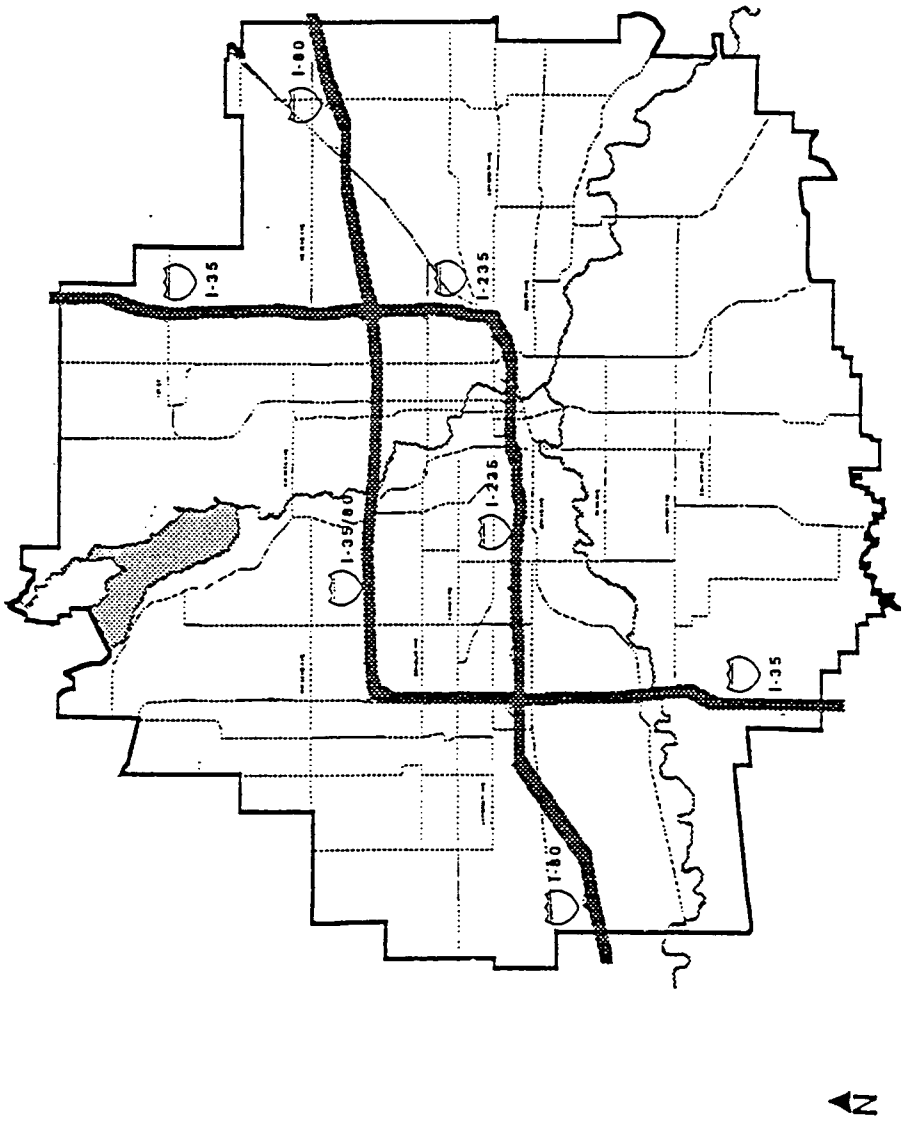

Figure 3. Des Moines Metropolitan Area Primary Highway System
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

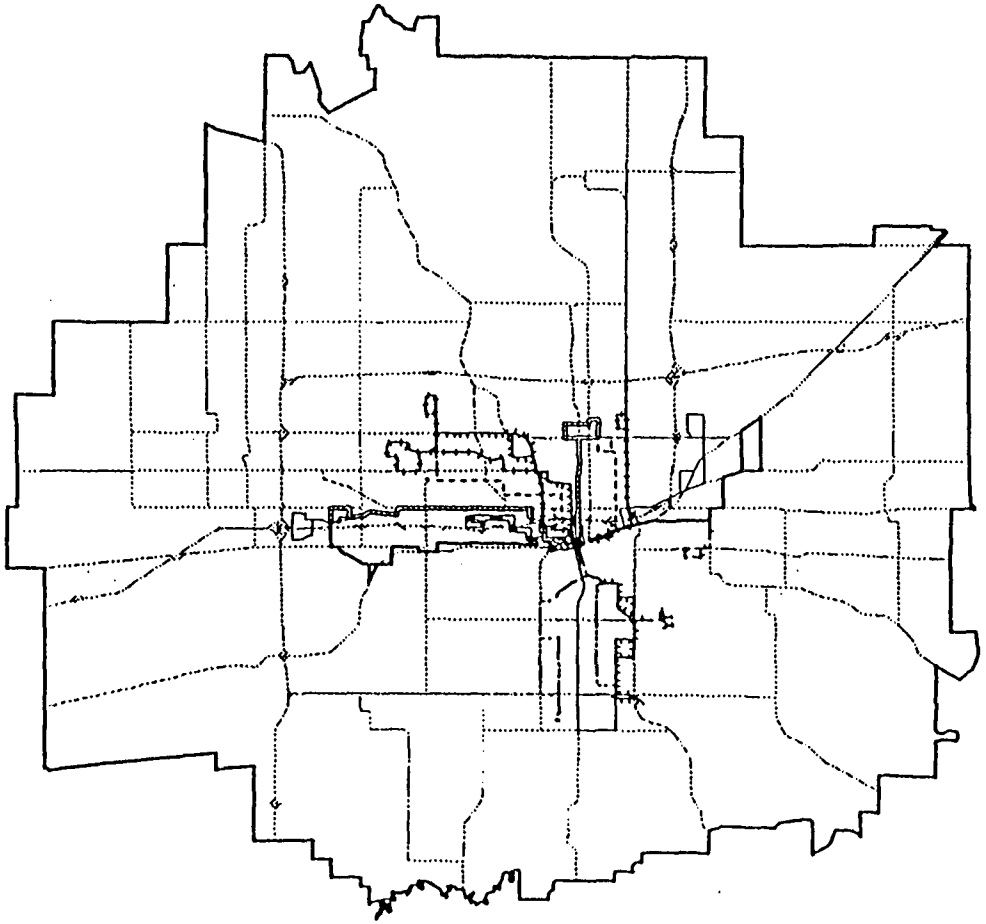

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Figure 4. Existing Regular Metropolitan Transit Authority Routes

Route 1
Route 2
Route 3
Route 4
Route 5
Route 6
Route 7
Route 8

Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

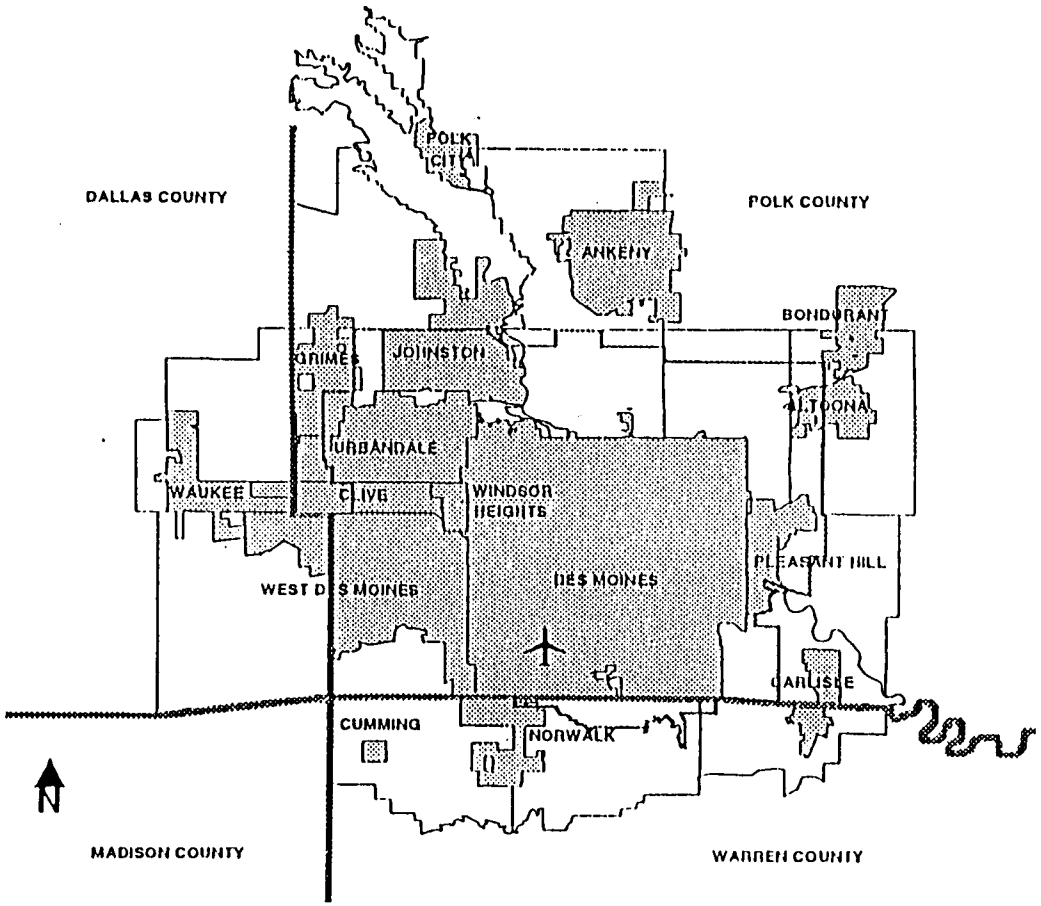

Figure 5. Des Moines Area Metropolitan Planning Organization 1983 Planning Area Boundary
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

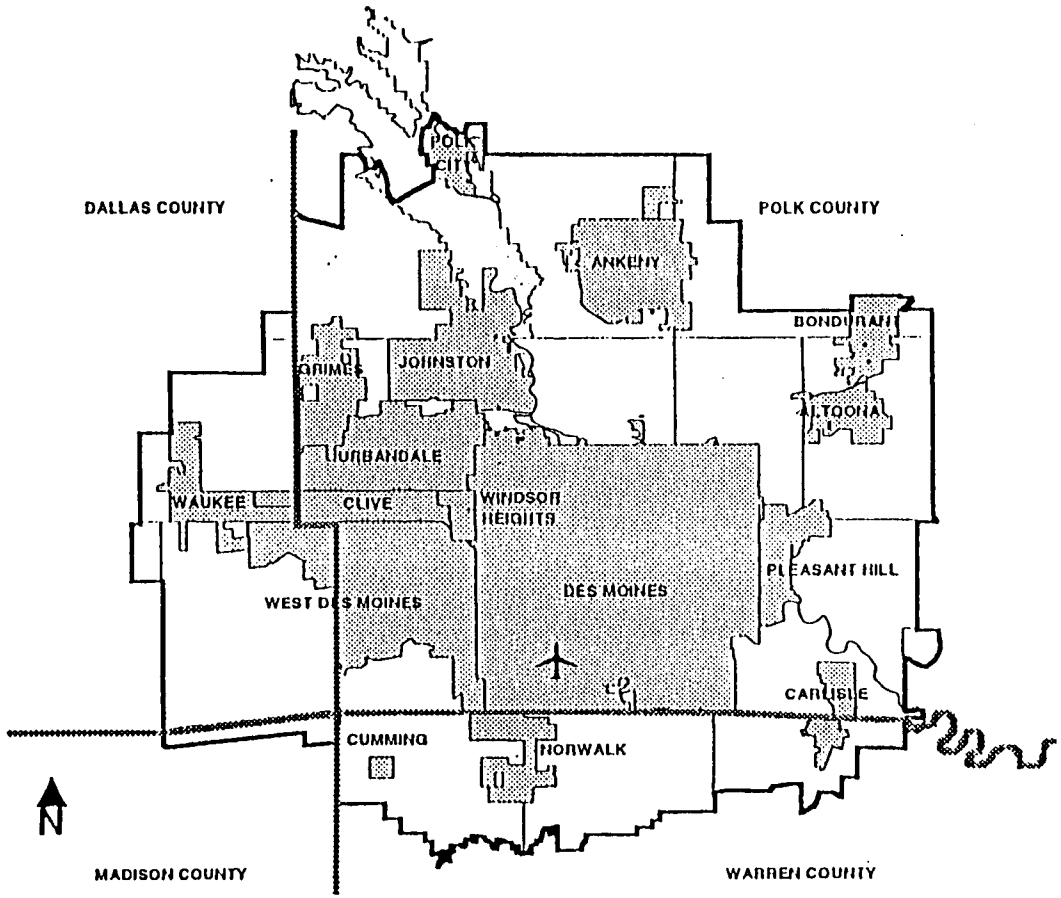

Figure 6. Des Moines Area Metropolitan Planning Organization Adopted Planning Area Boundary
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

MPO representatives of the local governments within the transportation study area. Also, the Transportation Policy Committee has the responsibility for coordination, reappraisal, revisions and recommendations relative to transportation planning. The Transportation Policy Committee is assisted in its reviews and recommendations by the Transportation Technical Committee, which is composed of individuals in the field of transportation appointed by the member governments and other transportation providers as represented on the Transportation Policy Committee. Designated by each member government, technical committee members are responsible for soliciting and obtaining the input of their respective organizations. Recommendations from the Transportation Technical Committee are included on each item submitted for approval to the Transportation Policy Committee.

The MPO's staff oversees all transportation planning functions, except for transit planning. The MPO contracts with the Des Moines Metropolitan Transit Authority for transit planning activities.

Bicycle Planning in the Des Moines Metropolitan Area

During the 1970s and early 1980s, bicycling as a form of transportation received considerable attention in the study area. This attention resulted in the development of two systems: the city of Des Moines Riverfront Bikeway System and the designation of street systems intended for use by bicycle commuters (CIRALG 1981).

The 1974 *Metropolitan Bike Trails Study* was published under the former Central Iowa Regional Association of Local Governments (CIRALG). At that time, it was expected that the Des Moines metropolitan area jurisdictions would work together to build a continuous bikeways network. However, as seen in the second edition of the study, the 1981 *Metropolitan Bikeways' Study*, the individual jurisdictions did not adopt this concept. In the 1980s, the cities of Clive, Des Moines, Urbandale, and West Des Moines individually planned and constructed bicycle routes that traversed their cities. As can be seen in Figure 7, these routes suddenly ended at the city limits, providing no continuity among the routes with adjacent communities.

The 1974 and 1981 studies stressed the importance of cooperation and coordination among the jurisdictions regarding bicycle planning. The lack of continuity of bicycle routes is further illustrated in Figure 8. Until recently, jurisdictions kept working in isolation without coordinating or consulting with their adjacent jurisdictions regarding their bicycle planning activities.

Existing Bikeways

As Table 1 illustrates, the existing bicycle facilities in Clive, Cumming, Des Moines, Johnston, Norwalk, Urbandale, Waukee, West Des Moines and Windsor Heights were mainly built for recreational purposes. Because most of the facilities which are classified as trails, connect two or more parks or greenbelt areas to each other. Nevertheless, they could serve commuting

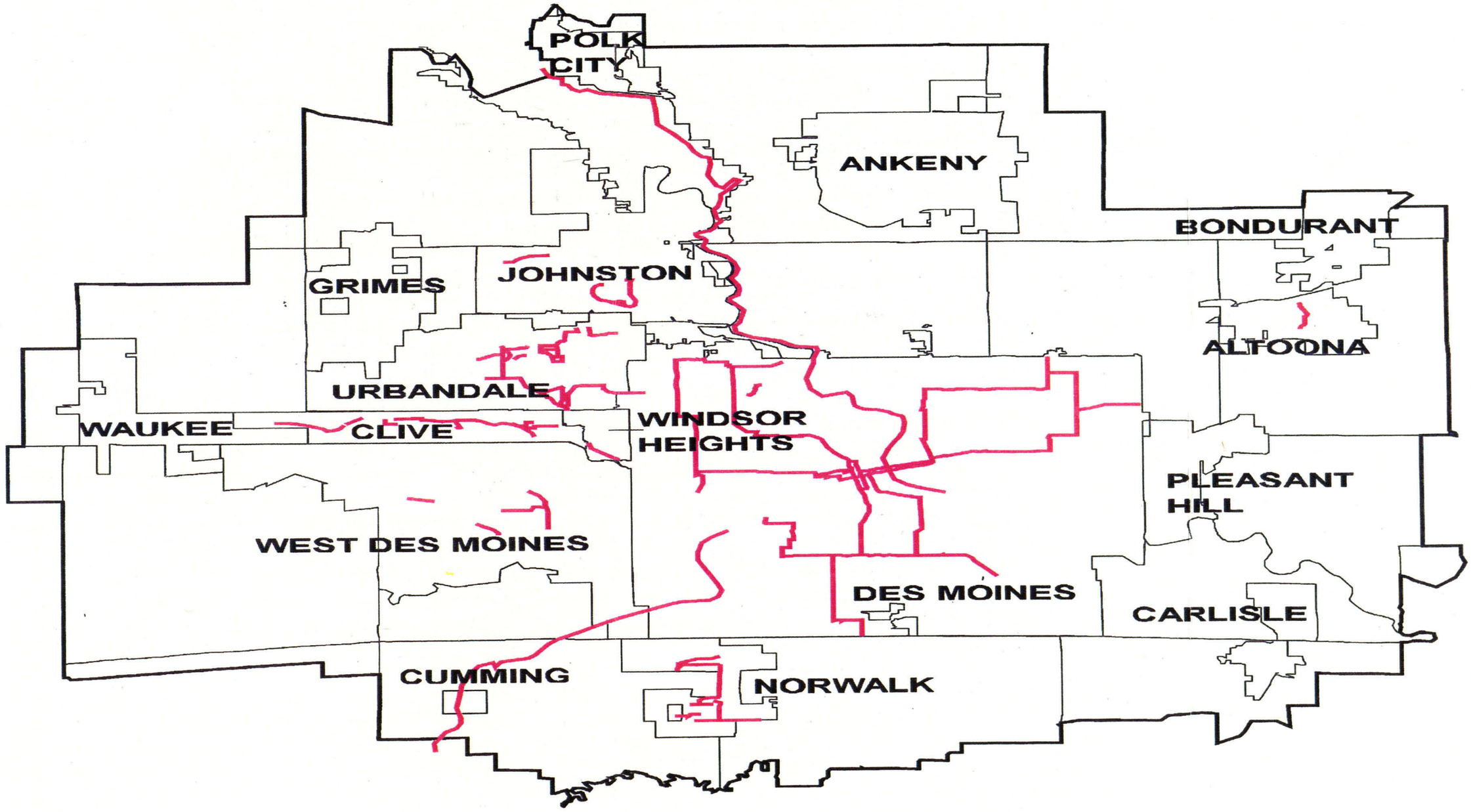

Figure 7. Existing Metropolitan Bikeway System
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

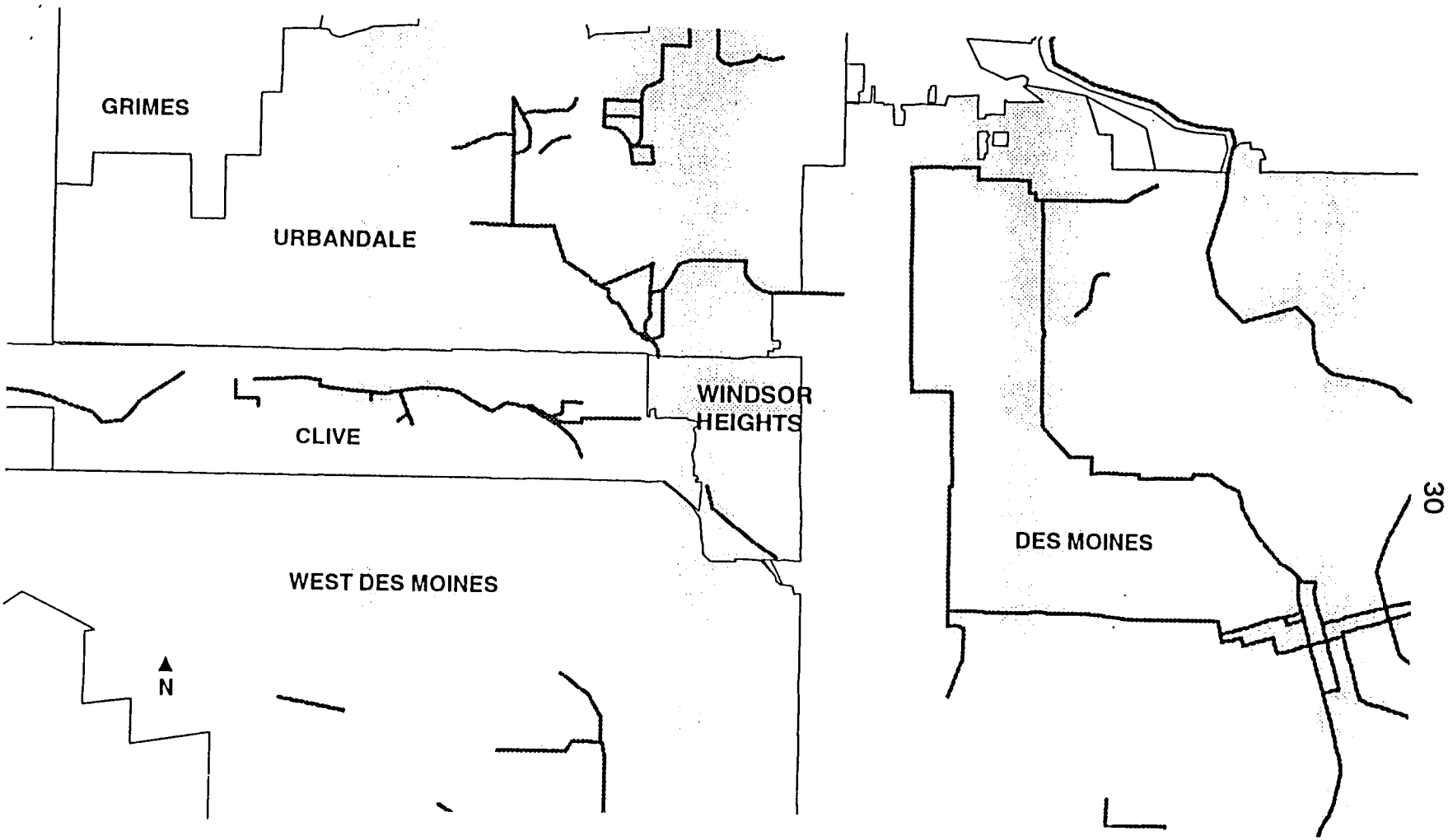

Figure 8. Existing Metropolitan Bikeway System
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

Table 1. Des Moines Metropolitan Area Bikeways Inventory

CITY	LOCATION		STATUS	NAME	MILEAGE
	TO	FROM			
Altoona	NA	Altoona's Corporate Limit	proposed	Four Mile Creek Greenbelt Trail	NA
Carlisle	NA	NA	NA	NA	NA
Clive	NW 128th Street	Country Club Blvd.	existing	Northeast Trail	NA
	Clive Road	Campbell Recreation Area	existing	Clive Greenbelt Trail	NA
	Along NW 156th Street between the north and south Clive Corporate Limits		proposed	NA	NA
	Country Club Blvd.	NW 156th Street	proposed	NA	NA
	Raccoon River Valley Trail	Walnut Creek	proposed	NA	NA
	Campbell Recreation Area	NW 128th Street	proposed	NA	NA
	Walnut Creek	NW 114th Street	proposed	NA	NA
	Karp Park	Walnut Creek	proposed	NA	NA
	NW 100th Street	Walnut Creek between NW 97th and NW 96th Streets	proposed	NA	NA
	78th Street	Near 92nd Ct. along Harbach Blvd.	proposed	NA	NA
	Windsor Heights	East end of Greenbelt Park	proposed	NA	NA

Source: Walbaum, Tricia. "Des Moines Metropolitan Area Bikeway's Study." Federal Highway Administration, 1993.

Table 1. (Continuation)

CITY	LOCATION		STATUS	NAME	MILEAGE
	TO	FROM			
Clive	University Avenue	Alice Avenue between 80th and 78th Streets	proposed	NA	NA
Cumming	Des Moines	Martensdale	existing	Great Western Trail	17 miles
Des Moines	North City Limits	Big Creek State Park	existing	Saylorville	21.9 miles
	Hawthorne Park	McHenry Park	existing	East River Bike Trail	5.5 miles
	Water Works Park	Ashworth Park Swimming Pool	existing	Bill Riley Bike Trail	9.7 miles
	Johnston	Prospect Park	proposed	NA	2.1 miles
	Prospect Park	Riverside Park	proposed	NA	3.8 miles
	Water Works Park	Riverside Park	proposed	NA	5.7 miles
	Martensdale	Water Works Park - Des Moines	proposed	NA	4.36 miles
	City of West Des Moines (63rd Street)	Ashworth Park (Bill Riley Bike Trail)	proposed	NA	2.6 miles
	Southeast Community Center	Hawthorn Park (East River Bike Trail)	proposed	NA	1.7 miles
	Hubbell Park	Hawthorn Park	proposed	Hawthorn Park/Hubbell Park Bike Trail	5.7 miles
Des Moines	Ewing Park	Easter Lake Park	proposed	NA	7.6 miles
Grimes	NA	NA	NA	NA	NA
Johnston	Johnston Corporate Limits	Camp Dodge Swimming Pool	existing	NA	NA

TABLE 1. (Continuation)

CITY	LOCATION		STATUS	NAME	MILEAGE
	TO	FROM			
Johnston	West of Pioneer Pkwy.	NW 62nd Avenue	existing	NA	NA
	Little Beaver Creek	Beaver Run Golf Course	proposed	NA	NA
	NW 54th Avenue	Beaver Run Golf Course	proposed	NA	NA
	I-35 & I-80	Camp Dodge Swimming Pool	proposed	NA	NA
Norwalk	Richard George Drive	Wakonda Drive	existing	IA 28 Trail	NA
	South Avenue	IA 28	existing	Cherry Parkway Trail	NA
	Main Street	Richard George Drive	proposed	IA 28	NA
	E 17th Street	Merle Huff Avenue	proposed	Greenbelt Route	NA
Pleasant Hill	CRI&P Railroad Tracks	Vandalia Road	proposed	NA	NA
Polk City	NA	NA	NA	NA	NA
Urbandale	78th Street	North Walnut Creek	existing	NA	NA
	Roseland Drive	78th Street	existing	NA	NA
	Mary Lynn Drive	Madison Avenue	existing	NA	NA
	East of Mary Lynn Dr.	Aurora Avenue	existing	NA	NA
	Aurora Avenue	West Aurora Avenue	existing	NA	NA
	Iris Drive	North Aurora Avenue	existing	NA	NA
	Meredith Drive	Urbandale Junior High School	existing	NA	NA

Table 1. (Continuation)

CITY	LOCATION		STATUS	NAME	MILEAGE
	TO	FROM			
Urbandale	Between 85th and 79th Streets	North of Alpine Drive	existing	NA	NA
	78th Street	West of 78th Place	existing	NA	NA
	North Walnut Creek	78th Street	proposed	NA	NA
	Walter Johnston Park	North Walnut Creek	proposed	NA	NA
	79th Street	Hillside Drive	proposed	NA	NA
	72nd Street	Douglas Avenue	proposed	NA	NA
	85th Street	North of Meredith Drive	proposed	NA	NA
	Sutton Drive	Hickory Hills Drive	proposed	NA	NA
	Mary Lynn Drive	North Walnut Creek	proposed	NA	NA
	78th Street	Meredith Drive	proposed	NA	NA
Waukee	Yale	Waukee	existing	Raccoon River Valley Trail	34 miles
West Des Moines	Locust Street	E.P. True Parkway	existing	Fairmeadows Greenbelt	.42 miles
	9th Street	11th Street	existing	Holiday Park Trail	.14 miles
	Raccoon River	Wendover Road	proposed	Western Greenbelt 1 Trail	4.22 miles
	Raccoon River Regional Park	West Greenbelt 1	proposed	Raccoon River Trail	5.64 miles
West Des Moines	63rd Street	Soccer Complex (RRRP)	proposed	Raccoon River Trail	2.56 miles
	335 Street	Country Club Office Park	proposed	74th Street Trail	2.05 miles
	Raccoon River	74th and 335th Streets	proposed	West Greenbelt 2 Trail	2.23 miles

Table 1. (Continuation)

CITY	LOCATION		STATUS	NAME	MILEAGE
	TO	FROM			
West Des Moines	74th Street	S. 50th Street	proposed	West Fuller Road Trail	2.14 miles
	E.P. True Parkway	60th Street	proposed	Westridge Greenbelt Trail	1.02 miles
	Clive	Jordan Creek	proposed	60th Street Trail	1.7 miles
	Prairie View Drive	Jordan Creek	proposed	Meadowview Greenbelt	.23 miles
	Ashworth Road	Jordan Creek	proposed	Knolls Greenbelt	.76 miles
	50th Street	Ashworth Road	proposed	Crossroads Park Trail	.47 miles
	Western Hills Drive	Jordan Creek	proposed	Western Hills Greenbelt	.38 miles
	11th Street	Grand Avenue	proposed	Holiday Park Trail	.95 miles
	Great Western Trail	E.P. True Parkway	proposed	S. 50th Street Trail	5.34 miles
	S. 11th Street	Maffit Reservoir	proposed	Pine Avenue Trail	3.67 miles
	Norwalk	Pine Avenue	proposed	Proposed Street Trail	1.23 miles
	Pine Avenue	Browns Woods Drive	proposed	S. 11th Street Trail	1.72 miles
	S. 11th Street	S. 50th Street	proposed	Walnut Woods Drive Trail	2.46 miles
	63rd Street	S. 11th Street	proposed	Browns Woods Drive Trail	.76 miles
	Railroad Avenue	Browns Woods Drive	proposed	63rd Street Trail	2.08 miles
Windsor Heights	73rd Street	Center Street	existing	Walnut Creek	NA
	South of College Drive	73rd Street	proposed	NA	NA
	Hickman Road	South of College Drive	proposed	North Walnut Creek	NA

purpose as well. For example, in the city of Des Moines the Bill Riley Bike Trail links the Water Works Park to Ashworth Park. Although this trail is recreational in nature, Des Moines residents living in the southeastern area could use it to commute to the Central Business District.

The cities within the study area concentrated their efforts in developing recreational bikeways within their own jurisdictions. Such experiments in the 1970s and 1980s proved that recreational bikeways can serve a variety of purposes (Howard Needles Tammen and Bergendoff 1989). Recreational bikeways can provide commuting bicyclists with a shortcut through a residential neighborhood, such as between two cul-de-sac streets (Sloane 1980). Located in a park or greenbelt area, they could also provide an enjoyable recreational experience (AASHTO 1991).

Proposed Bikeways

In 1992, the cities in the Des Moines metropolitan area created the Metropolitan Trails Planning Committee (MTPC), which serves as an advisory committee to the MPO and the MPO's Transportation Technical Committee. Through the MTPC, the cities of Altoona, Ankeny, Clive, Cumming, Des Moines, Johnston, Norwalk, Pleasant Hill, Urbandale, Waukee, West Des Moines and Windsor Heights are starting to cooperate in the planning and development of a bicycle network system for the study area. Currently, these cities are developing plans for a wide variety of local and regional bikeways.

Table 1 also illustrates the proposed bikeway in the study area. For example, the city of West Des Moines is planning a segment of the Raccoon River Trail, a regional trail that goes from Yale to Waukee, located west of the study area. Several cities are already planning to extend this trail, which will connect to the existing bikeways in the city of Des Moines.

Bicycle planning is a relatively new area of transportation planning for transportation officials in the study area. Bicycle transportation planning similar to conventional transportation planning, because it is also concerned with travel demand, safety, convenience, economics and other factors. A connected system of bicycle routes is needed to guide bicyclists along reasonably direct routes that satisfy their travel desires (Florida 1982). These routes also need to connect with other modes of transportation. In 1992, to fulfill these needs, the MTPC prepared a map that encompasses all the existing and proposed bikeways in the Des Moines metropolitan area (Figure 9). Complementing this map, a study was completed of the Des Moines metropolitan area bikeway network to provide a general framework for the development of bikeway networks in each of the cities (Walbaum 1993). These planning efforts are moving the existing fragmented bikeway system toward a system like the one originally proposed in 1974 by the former CIRALG. Figure 9 also shows that the proposed bikeways will make a continuous bikeway network system out of the fragmented one currently in place. As shown in Table 1, as well as in Figure 9, the majority of these bikeways are considered recreational trails. As

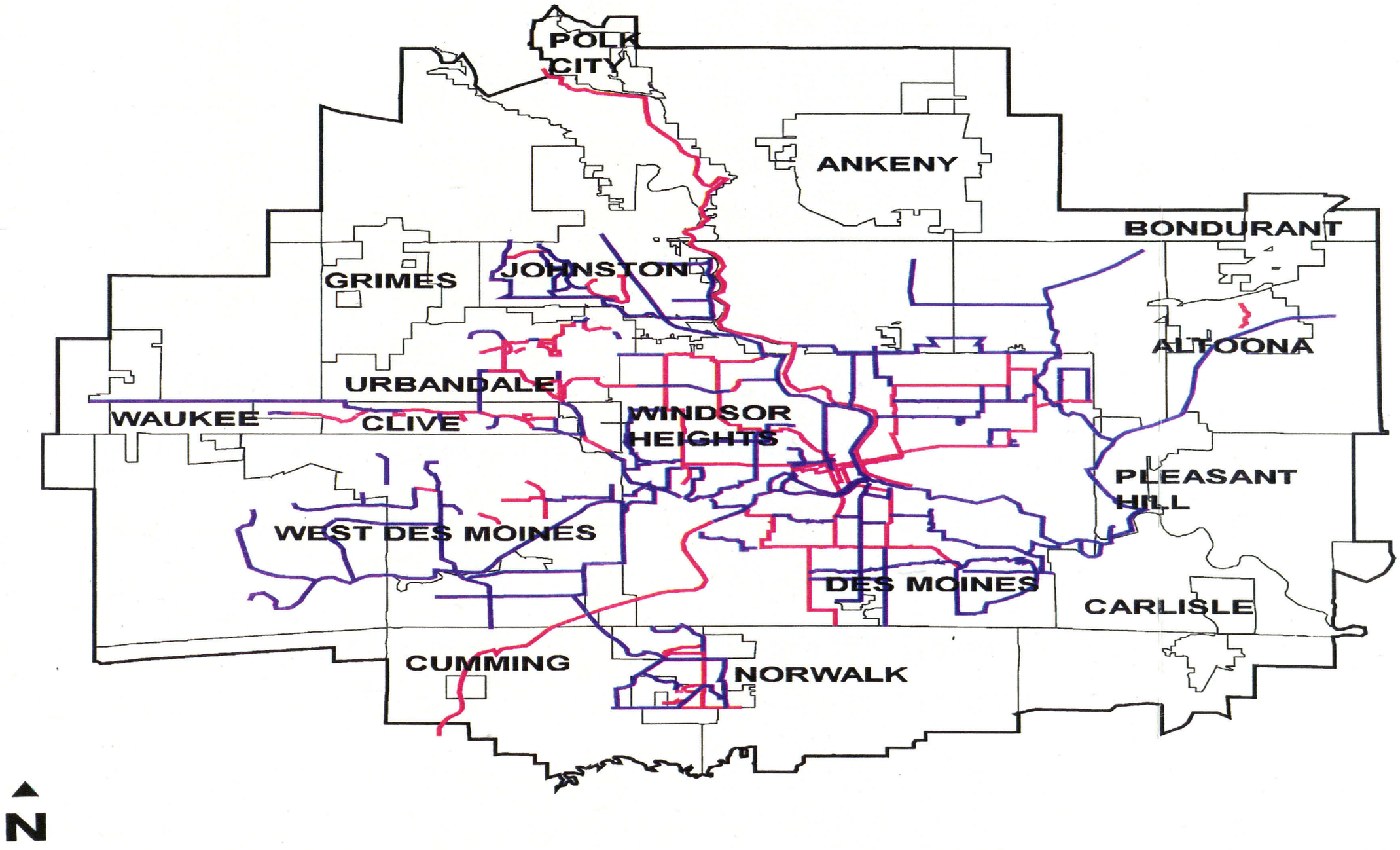

Figure 9. Existing and Proposed Metropolitan Bikeways
Existing ——— Proposed ———
Source: Des Moines Area Metropolitan Planning Organization, 6/4/93

suggested before, however, these trails could be used for commuting purposes as well.

Through the MTPC, the ultimate purpose of the cities in the study area is to develop a safe, convenient, comfortable, and secure bicycle riding environment appropriate to the needs of the Des Moines metropolitan area.

Legal Issues Concerning Bicycling in the Des Moines Metropolitan Area

Several cities in the study area are limited by issues involving location and design of bicycle facilities. It is appropriate for these cities to consider the legal context in which they will have to work when planning for bicycle facilities. Of particular interest to cities are two model codes developed by the National Committee on Uniform Traffic Laws and Ordinances. These are the *Uniform Vehicle Code* (UVC) and the *Model Traffic Ordinance* (MTO). These model codes are important because they can provide the basis for state and local laws regulating bicycle usage as well as the design and construction of bicycle facilities. These model documents have been followed by many governing bodies in drafting existing legislation regulating bicycle facilities.

The UVC represents a standard vehicle code which can be utilized by state governments in establishing a state vehicle code. The MTO, in contrast, represents a standard traffic ordinance which may be utilized by municipalities in establishing local laws that will be consistent with state law based on the UVC.

Uniform Vehicle Code

The following definitions from Chapter 1 of the UVC actually exclude bicycles from the general definition of vehicles, but provide a separate definition of bicycles:

> Sec. 1-184 **Vehicle.** Every device in, upon or by which any person or properties may be transported or drawn upon a highway, excepting devices moved by human power or used exclusively upon stationary rails or tracks.
>
> Sec. 1-105 **Bicycle.** Every device propelled by human power upon which any person may ride, having two tandem wheels either of which is more than 14 inches in diameter.

Under the statutes 1-184 and 1-105, bicycles are not defined as vehicles; however, a person operating a bicycle on the roadway is granted all rights and is subject to all requirements applicable to the driver of a vehicle as stated in Chapter 11 (Rules of the Road) of the UVC, in that they are required to obey the rules of the road:

> Sec. 11-1201 Effect of regulations.
>
> (c) These regulations applicable to bicycles shall apply whenever a bicycle is operated upon any highway or upon any path set aside for the exclusive use of bicycles subject to those exceptions stated herein.
>
> Sec. 11-1202 Traffic laws apply to persons riding bicycles. Every person riding a bicycle upon a roadway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by this act, except as to special regulations in this article and except as to those provisions of this act which by their nature can have no application.
>
> Sec. 11-1203 Riding on bicycles.
>
> (a) A person propelling a bicycle shall not ride other than upon or astride a permanent and regular seat attached thereto.
>
> (b) No bicycle shall be used to carry more persons at one time than the number for which it is designed and equipped.

Bicycles need to actuate traffic signals, just as do motor vehicles. Yet many traffic signals that are actuated by detection loops may not be adjusted to be sensitive to bicycles (Vancouver 1992). These devices may deter bicycle use or encourage violation of traffic codes by bicyclists because of their inability to actuate the signal. Rules of the road require bicyclists to obey traffic signals and street signs:

> Sec. 11-201 Obedience to and required traffic-control devices.
>
> (a) The driver of any vehicle shall obey the instructions of any official traffic-control device applicable thereto placed in accordance with the provisions of this act, unless otherwise directed by a police officer, subject to the exceptions granted the driver of an authorized emergency vehicle in this act.
>
> (b) No provision of this act for which official traffic-control devices are required shall be enforced against an alleged violator if at that time and place of the alleged violation an official device is not in proper position and sufficiently legible to be seen by an ordinarily observant person. Whenever a particular section does not state that official traffic-control devices are required, such section shall be effective even though no devices are erected or in place.
>
> (c) Whenever official traffic-control devices are placed in position approximately conforming to the requirements of this act, such devices shall be presumed to have been so placed by the official act or direction of lawful authority, unless the contrary shall be established by competent evidence.
>
> (d) Any official traffic-control device placed pursuant to the provisions of this act and purporting to conform to the lawful requirements pertaining to such devices shall be presumed to comply with the requirements of this act, unless the contrary shall be established by competent evidence.

Rules of the road also include specific instructions regarding where bicyclists may operate their bicycles, both on streets and bicycle paths:

> Sec. 11-1205 Riding on roadways and bicycle paths.
>
> (a) Every person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable, exercising due care when passing a standing vehicle or one proceeding in the same direction.
>
> (b) Persons riding bicycles upon a roadway shall not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles.

(c) Wherever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and not use the roadway.

Given these definitions, someone walking (pushing) a bicycle is considered a pedestrian and not a vehicle operator. This at first may seem a trivial distinction. However, in cases where bicycle paths cross streets at congested intersections, the requirement that bicyclists dismount and walk their bicycles across with pedestrians may be the only safe option.

Code of Iowa

Drafters of the Motor Vehicle Code of Iowa followed the Uniform Vehicle Code in drafting the 1993 revisions to Chapter 321 of the Iowa Code: Motor Vehicles And The Law of The Road (commonly referred to as the Motor Vehicle Code of Iowa). The following definitions from Chapter 321 are similar to those of the UVC for bicycles and vehicles:

321.1 (1) "Vehicle" means every device in, upon, or by which any person or property is or may be transported or drawn upon a highway. "Vehicle" does not include:

(a) Any device moved by human power.

(b) Any device used exclusively upon stationary rails or tracks.

(c) Any integral part of a truck tractor or road tractor which is mounted on the frame of the truck tractor or road tractor immediately behind the cab or which may be used to transport persons and property but which cannot be driven upon the highway by the truck tractor or another motor vehicle.

(d) Any steering axle, dolly, auxiliary axle or other integral part of another vehicle which in and of itself is capable of commercially transporting any person or property but is used primarily to support another vehicle.

321.1 (3)(C) "Bicycle" means a device having two wheels and having at least one saddle or seat for the use of a rider which is propelled by human power.

321.1 (47) "Pedestrian" means any person afoot.

Being consistent with the UVC, the Iowa Code does not consider bicycles as vehicles, but bicyclists are required to follow the rules of the road as indicated in Section 321.234 (Bicycles, animals, or animal-drawn vehicles):

321.234 (2) A person riding a bicycle on the highway is subject to the provisions of this chapter and has all the rights and duties under this chapter applicable to the driver of a vehicle, except those provisions of this chapter which by their nature can have no application.

321.234 (3) A person propelling a bicycle on the highway shall not ride other than upon or astride a permanent seat attached to the bicycle.

321.234 (4) A person shall not use a bicycle on the highway to carry more persons at one time than the number of persons for which the bicycle is designed and equipped.

321.234 (5) This section does not apply to the use of a bicycle in a parade authorized by proper permit from local authorities.

As with the UVC, the Motor Vehicle Code of Iowa would consider bicyclists walking their bicycles to be pedestrians and not vehicle operators. The observation regarding congested intersection crossing is also valid here.

Cities' Traffic Ordinances and Bicycle Regulation

The cities of Bondurant, Carlisle, Clive, Cumming, Grimes, Norwalk, Johnston, Pleasant Hill, Polk City and Windsor Heights do not have any traffic codes exclusively dealing with bicycles beyond that which is provided by the state. On the other hand, the cities of Altoona, Ankeny, Des Moines, Urbandale, Waukee, and West Des Moines provide their citizens with specific bicycle regulations. These regulations, in conformance with the UVC and the Code of Iowa, define bicycles as vehicles. However, the West Des Moines

statute prohibits their use on sidewalks. Ankeny, Des Moines and West Des Moines regulations provide a clear distinction between bicyclists and pedestrians, as well as clearly contemplate the cities' designation of bicycle paths.

> Ankeny Sec. 10.56.150 **Operators and Riders.** Applicability of traffic ordinances. Every person operating or riding a bicycle upon the public ways shall be subject to those provisions of traffic ordinances, except those ordinances which by their nature can have no application.
>
> Ankeny Sec. 10.56.170 **Operators.** Keeping to the right. Riding abreast. Every person operating a bicycle upon a public way shall ride as near to the right-hand side of the street as practicable. When so riding upon the public way with other cyclists, there shall not be more than two abreast, except on those ways set aside for cyclists.
>
> Des Moines Sec. 27-688; Urbandale Sec.16.17 **Motor Vehicle Laws Applicable.** Every person operating a bicycle upon the streets, highways, park roads, or bikeways of the city shall be subject to the provisions of this chapter, and other traffic ordinances of the city and the statutes of the state applicable to the drivers of motor vehicles, except as to special regulations in this chapter and except to those provisions of ordinances and statutes which by their nature can have no application.
>
> West Des Moines Sec. 2.1-5.0101 **Scope of Regulations.** These regulations shall apply whenever a bicycle is operated upon any street or upon any public path set aside for the exclusive use of bicycles, subject to those exceptions stated herein.
>
> West Des Moines Sec. 2.1-5.0102 **Traffic Code Applies.** Every person riding a bicycle upon a roadway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by the laws of this state declaring rules of the road applicable to vehicles or by the traffic code of this city applicable to the driver of a vehicle, except as to those provisions which by their nature can have no application. Whenever such person dismounts from a bicycle he shall be subject to all regulations applicable to pedestrians.

The following sections of the Ankeny and West Des Moines regulations are consistent with the Iowa Code in prohibiting the riding of bicycles on roadways adjacent to established bicycle paths.

> Ankeny Sec. 10.56.250 **Routes and Lanes.** Appropriate Vehicle Use. Every person operating a bicycle upon a street or public way where a bicycle lane has been provided shall at all times ride within and upon such lane.

West Des Moines Sec. 2.1-5.0105 **Bicycle Paths.** Whenever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and shall not use the roadway.

The following sections of the Ankeny, Des Moines, Urbandale, Waukee and West Des Moines regulations are extremely important, in that they strictly define areas or circumstances in which riding bicycles on sidewalks is prohibited:

Ankeny Sec. 10.56.200 **Operator -- Riding on Sidewalks.** Any person operating a bicycle upon a sidewalk shall operate such bicycle in a careful and prudent manner and at a rate of speed not exceeding eight miles per hour. Every person operating a bicycle upon a public sidewalk, approaching a pedestrian or a child, shall either dismount or give a clear right-of-way to the full extent to such person and, in overtaking such pedestrian or child, shall give an audible signal before passing.

Des Moines Sec. 27-695; Urbandale Sec. 16.24; Waukee Sec. 503.20 **Operation on Sidewalk.** Bicycles shall be operated upon the public sidewalks in a careful and prudent manner and at a rate of speed not exceeding eight miles per hour. Every person lawfully operating a bicycle upon a public sidewalk, when approaching a pedestrian or a vehicle occupied by a child under the age 16 years, shall either dismount or give a clear right-of-way to the full extent of such sidewalk to such pedestrian or child, and in overtaking such pedestrian or child, shall give an audible signal before passing.

West Des Moines Sec. 2.1-0109 **Riding on Sidewalks.** No person shall ride a bicycle on a sidewalk except in accordance herewith: (1) Business District. No person shall ride a bicycle upon a sidewalk within a business district. (2) Other Locations. When signs are erected on any sidewalk or roadway prohibiting the riding of bicycles thereon by any person, no person shall disobey the signs. (3) Yield Right-of-Way. Whenever any person is riding a bicycle upon a sidewalk, such person shall yield the right-of-way to any pedestrian and shall give an audible signal before overtaking and passing.

The city of West Des Moines section noted above asserts that the city, instead of having to sign the relatively few areas where bicycle paths are to be designed, must designate the multitude of areas (sidewalks) that are not bicycle paths. West Des Moines may have to amend its bicycle regulations and ordinances to legally install bicycle routes within their Central Business District,

because their current regulations contain internally conflicting sections dealing with designating bicycle paths and riding on sidewalks.

West Des Moines needs to take into consideration that sidewalks may be used as bikeways either by sharing the entire sidewalk with pedestrians or by designating a selected portion of the sidewalk for bicycles only (AASHTO 1991). The disadvantage of this approach is that shared use of the sidewalk by bicyclists and pedestrians creates a hazard for both. Providing a sidewalk bicycle path could be considered unsatisfactory for a variety of reasons. Sidewalks are typically designed for pedestrian speeds and are not safe for higher speed use. Collisions are common between pedestrians traveling at low speeds and bicyclists, as are collisions with fixed objects (e.g., parking meters, utility poles, and fire hydrants)(Oregon 1992).

Lack of bicycle parking facilities is considered a problem in the Des Moines metropolitan area, and providing such facilities may be as important as developing facilities to aid bicycle movement (AASHTO 1991). Furthermore, parking facilities, which are relatively inexpensive to provide, could be made the responsibility of the private sector through local zoning ordinances. The following are Ankeny, Des Moines, Urbandale and Waukee regulations concerned with parking such vehicles.

> Ankeny Sec. 10.56.220; Des Moines Sec. 27-627; Urbandale Sec. 16.26; Waukee Sec. 503.21 **Parking.** No person shall park a bicycle upon a street other than upon the sidewalk in a rack to support the bicycle or against a building or at the curb in such a manner as to afford the least obstruction to pedestrian traffic, or upon the parking area between the sidewalk and the roadway.

The remaining sections of the bicycle regulations, which were not reviewed, deal with operational and safety aspects, such as improper riding and appropriate safety equipment.

Conclusion

Increasing bicycle use has led the cities in the study area to reexamine their transportation priorities. Most have in the past 20 years provided for recreational, trail-oriented bikeways with little or no emphasis on commuter services. With renewed interest in bicycling, new funding sources, and the dedication of local governments to the advancement of bicycling, a system like the originally proposed network may become a reality.

Overall, the Des Moines metropolitan area jurisdictions' traffic codes/ordinances seem to provide enough regulations to encourage safe bicycle riding. The Model Codes clearly contemplate the provision of bicycle paths and similar facilities, as does the Code of Iowa (see Iowa Code Section 308A, Recreational Bikeways). Although the Code of Iowa does not explicitly empower cities to designate bicycle paths, it does not prohibit cities from doing so. Given home rule in Iowa, the jurisdictions may adopt such an ordinance if it does not conflict with the Code of Iowa.

CHAPTER IV

ATTITUDES TOWARDS BICYCLE COMMUTING

The Des Moines Metropolitan Area Bicycle Commuting Survey

To gain a better understanding of employers' attitudes toward bicycle commuting, a two page survey questionnaire[1] (Appendix 1) was designed for the following purposes: to establish baseline information on what employers are currently offering bicycle commuters and to assess employers' willingness to offer various incentives to encourage more of their employees to become bicycle commuters.

In the ten-question survey, employers were asked to describe their company policies and attitudes toward bicycle commuting. The first three questions of the survey sought background information, such as the size and location of the company and the percentage of employees who commute from other cities in the metropolitan area. Questions four and six inquired about incentive programs currently provided by employers. In question five, employers were asked if they believe the bicycle is a viable mode of transportation for work trips. Benefits of bicycle commuting were the topic of

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[1] This survey was approved by the Iowa State University Human Subjects Review Committee on March 16, 1993.

question seven. Questions eight and nine asked about city ordinances requiring the provision of vehicle parking spaces according to size and type of establishment. A discussion of answers for these two questions were not provided here due to lack of response from those companies who completed and returned the survey instrument. Lastly, question ten asked employers what they thought the government could do to encourage employees to bicycle to work.

Survey Participation

The survey was mailed to 430 employers selected through use of a proportional stratified sample[2], chosen from the Des Moines MPO database, utilizing a random number table. This database lists all firms in the metropolitan area by traffic zone and by city. The sample was stratified according to each city's population in order to achieve a balanced geographic representation.

Employers were initially contacted by mail on March 12, 1993. The information they received included an explanation of the study, a copy of the survey instrument, and a form to be returned on which they could provide the name and address of a contact person in the company. Employers who had not responded by March 28 received a follow-up letter and attachments containing material similar to that provided in the first mailing. Of the original 430 surveys

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[2] A proportional stratified sample is obtained by classifying the population into two or more strata, or classes, and then drawing a sample from each stratum (Parten 1950).

sent out, 23 were never received by the employers, either because they had changed their address or because they had gone out of business.

To fall within a 95 percent confidence limits within a five percent error, 126 surveys, or a 29 percent, needed to be returned. However, the study achieved a 52 percent rate of return, considerably above the number needed for statistical validity. Thus, 224 surveys of the 430 surveys mailed were returned. The number of surveys distributed, together with the number of valid surveys returned by city, are summarized in Table 2.

Table 2. Survey Participation

City	Surveys Mailed	Surveys Returned	Percent of Responses
Altoona	12	6	50.0%
Ankeny	26	11	42.0%
Bondurant	3	3	100.0%
Clive	17	11	65.0%
Carlisle	5	3	60.0%
Cumming	2	2	100.0%
Des Moines	275	150	55.0%
Grimes	6	3	50.0%
Johnston	7	7	100.0%
Norwalk	10	5	50.0%
Pleasant Hill	2	0	0.0%
Polk City	1	1	100.0%
Urbandale	44	12	27.0%
Waukee	3	3	100.0%
West Des Moines	10	6	60.0%
Windsor Heights	7	1	14.0%
TOTAL	430	224	52.0%

A log of participating employers was maintained. This log includes information on the size of company, location of employment, percentage of employees who commute from a city other than the city in which they are employed, and the date the survey was received. The log was maintained strictly for record keeping purposes.

Profile of Employers

Table 3 illustrates the size of employers according to their location in the metropolitan area. Fifty-seven percent of these companies had between 51 and 500 employees, and 43 percent had less than 50 employees. This table also shows that most of these firms are located in the city of Des Moines itself (150 companies). Of the 16 cities within the metropolitan area, Pleasant Hill was the only city from which no surveys were returned.

Commuting in the Des Moines Metropolitan Area

Question three requested employers to estimate how many employees in their companies commute from cities other than those in which their companies are located. Table 4 illustrates, according to city, the percentage of employees who commute from other cities. Urbandale and Johnston show the greatest percent of out-of-town commuters, while Cumming and Polk City have the lowest. Overall, 41 percent of the Des Moines metropolitan area employees commute to work from other cities.

Table 3. Distribution of Employees by Employer Size and Location

City	0-10	11-25	26-50	51-100	101-500	501-1000	Over 1000	Total
Altoona			3	2			1	6
Ankeny		2	1	4	3		1	11
Bondurant	1			2				3
Clive	3	2	3	3				11
Carlisle	1	2						3
Cumming	1						1	2
Des Moines	9	21	26	31	38	10	15	150
Grimes	1	2						3
Johnston		3	1	2			1	7
Norwalk	2		1	1	1			5
Pleasant Hill								0
Polk City		1						1
Urbandale	1	1	4	2	4			12
Waukee		1	1		1			3
West Des Moines	1				2	2	1	6
Windsor Heights			1					1
TOTAL	20	35	41	47	49	12	20	224

Table 4. Percent of Employees Who Commute from Other Cities by City

City	Mean
Altoona	33.0%
Ankeny	45.8%
Bondurant	69.6%
Carlisle	38.0%
Clive	86.0%
Cumming	0.0%
Des Moines	33.0%
Grimes	46.6%
Johnston	72.4%
Norwalk	33.4%
Pleasant Hill	No answer provided
Polk City	0.0%
Urbandale	73.5%
Waukee	31.6%
West Des Moines	56.5%
Windsor Heights	50.0%
TOTAL	41.0%

Incentive Programs

Employers were asked about specific programs within their companies which might influence employees' transportation choices. Similar responses regarding alternatives for transportation have been grouped for purposes of analysis. Questions four and six asked if companies provided programs to encourage the use of alternative modes of transportation.

Five percent of the employers reported that a transit subsidy is provided to employees choosing to ride the bus. The most common method of providing the subsidy is for the employer to purchase the daily tokens or monthly passes and resell them to employees at a reduced rate.

Only eight companies, or four percent, offered a structured or formal carpool/vanpool program to assist employees in finding rides. Of all the companies, only one indicated that it utilized a van on a regular schedule for employee transportation. But it was not used to provide direct transportation from the employees' home or neighborhood to the work site.

Fifty-one of the employers in the study area, 23 percent, offer the flextime option to their employees. Flextime is an option to the traditional work period. It defines a core work period within a company, usually between 9:00 AM and 3:00 PM, during which most employees must be present, with the balance of the workday time before or after the core period determined by the employee.

Bicycling programs include the availability of facilities to accommodate the special need of bicyclists (e.g., bicycle racks or secure storage areas, showers and lockers for clean-up), as well as programs that encourage physical fitness by using the bicycle as a transportation alternative. One hundred thirteen employers, 50 percent, indicated they had facilities needed to accommodate bicyclists, with bicycle racks being the most frequently

available facility. Twenty percent of the employers indicated they actively promoted bicycling as an alternative mode of transportation, but they were generally unable to estimate the numbers of employees who use the bicycle for commuting.

Participation in alternative transportation programs are summarized in Table 1 of Appendix 2. In addition to the distribution of total employers indicating participation in a particular program, the distribution of participating employers on the basis of location is included.

Bicycles, A Viable Mode of Transportation for Trips to Work

Question five asks whether companies consider the bicycle to be a viable mode of transportation for trips to work. Table 2 of Appendix 2 indicates that 20 percent of the Des Moines metropolitan area employers view the bicycle as a viable mode of transportation, while 72 percent do not view it as such, and eight percent are unsure.

Bicycle Commuting Benefits

Question seven asked employers to rank bicycle commuting benefits in order of importance (1 being the most important, and 5 being the least important). Table 3 of Appendix 2 shows this ranking of benefits according to city and to employer size. Similar responses were provided both by

employers with more than 500 employees and by those with fewer than 500 employees. Both groups ranked exercise and health as the most important benefit and nature enjoyment as the least important. The only difference between the two groups is that the former considers economical benefits more important than energy conservation benefits, and the later believes the opposite. In other words, employer size is generally irrelevant to employers' attitudes towards bicycle commuting. The results in Table 3 reinforce the preceding section in that the results suggest that the bicycle is not viewed as an alternative mode of transportation to work in the Des Moines metropolitan area. A summary of this table is presented in Table 5 below.

Table 5. Bicycle Commuting Benefits Summary

	Benefit	1	2	3	4	5
Metro Area	Exercise/ Health	68.0%	24.0%	6.0%	1%	1%
	Nature Enjoyment	7.0%	12.0%	16.0%	24%	41%
	Energy Conservation	14.0%	38.0%	25.0%	13%	10%
	More Economical	5.0%	14.0%	39.0%	24%	18%
	Environment	7.0%	14.0%	22.0%	30%	27%

Local Government Role in Promoting Bicycle Commuting

Increasingly, transportation officials throughout Iowa are recognizing the bicycle as a viable mode of transportation. Since the early 1970s, bicycle commuting has increased in popularity (Howard Needles Tammen and Bergendoff 1989). The *1991 Intermodal Surface Transportation Efficiency Act* (ISTEA) recognizes the transportation value of bicycling and offers mechanisms to increase consideration of bicyclists' needs. The ISTEA offers significant opportunities to enhance state and local bicycle programs.

Question 10 provided respondents an opportunity to make suggestions. The following statements were suggested by one or more employers regarding what they thought local government should do about bicycle commuting:

Altoona
- Provide bicycle paths or lanes on all major arterials.

Ankeny
- Provide more bicycle paths, lanes, or paved shoulders.
- Give federal and state tax incentives.
- Furnish bicycle parking facilities.

Bondurant
- Construct one side of the roadway wider for bicyclists' use.
- Provide adequate bicycle parking facilities.

Clive
- Build more bicycle trails.
- Provide bicycle paths and lanes on major roads.
- Give a tax credit on bicycle license fee.

Des Moines

- Furnish bicycle paths along all heavily traveled routes.
- Provide bicycle trails on east side of Des Moines.
- Encourage employers to purchase bicycles for employees' use.
- Improve bicyclists' safety.
- Offer discounts for first-time bicycle owners.
- Supply adequate parking for bicycles.
- Expand bicycle trail system.
- Give tax credit to employers to purchase bicycle racks/lockers.
- Raise gas tax by $1.00 to $3.00 per gallon.
- Build wider shoulders.
- Grant tax incentives for bicycle license.
- Eliminate parking subsidies for cars.
- Educate auto drivers about safety around bicyclist.
- Reduce government regulations.
- Maintain, cleanup bikeways.
- Set an example: through government officials biking to work.
- Give incentives for employers to initiate programs.
- Supply information about location of bicycle facilities.
- Grant tax deduction according to amount of miles travelled in the year.
- Pay individuals to bike to work.

Johnston

- Do nothing; government should not get involved.
- Provide more bicycle paths.
- Widen shoulders for bicycles.

Norwalk

- Furnish parking facilities for bicycles.
- Promote the use of bicycles for travel to work.
- Install traffic control devices to improve safety.
- Provide more bicycle paths.

Urbandale

- Construct safer bicycle paths.
- Require employers to provide incentives.
- Provide bicycle lanes.
- Create auto-free zones.
- Give tax incentives.

Waukee

- Provide more bicycle trails.
- Give a tax credit for riding bicycle to work.

West Des Moines

- Encourage employers to build incentives into their wellness programs.
- Provide monetary incentives for not driving.
- Grant discounts on health insurance.
- Give interest-free loans to purchase bicycles.
- Improve bicycle network systems.
- Build bicycle lanes.
- Create better bicycle registration programs.

In general, the Des Moines metropolitan area employers agreed that the government (whether local, regional, state, or federal) needs to provide more and safer bicycle facilities. Several employers mentioned that widening highway shoulders for bicycles and furnishing adequate bicycle parking facilities will persuade more individuals to convert to bicycle commuting. It was also suggested that federal and state tax incentives be given to cities that built these facilities and to employers who implement bicycle commuting programs. Few employers from Des Moines and Urbandale emphasized the importance of the elimination of parking subsidies for automobiles and the creation of auto free zones. Instead, employers felt that government should provide incentives (i.e., better bikeways, bicycle parking facilities, showers and lockers) for individuals to commute by bicycle. On the other hand, several employers suggested doing nothing.

These employers felt that there is too much government intervention and that government should not get involved in bicycle-related issues.

Workshops' Results

Two workshops were designed and held for the benefit of local officials, as a complement to the mail survey. The first workshop was intended to solicit comments from the public sectors on the study proposal and to offer an opportunity for questions and answers about the study. This workshop was sponsored by Federal Highway Administration (FHWA) and the Des Moines Metropolitan Planning Organization (MPO). Flier invitations were mailed by MPO staff to MPO technical and policy committees, who were to invite their respective elected officials. The flier described the purpose of the workshop as well as the purpose of the study. A copy of the study proposal was attached to the flier invitation. The workshop was held January 26, 1993, from 7:00 to 9:00 PM at the Johnston City Hall. A total of 10 individuals, representing Des Moines, Johnston and West Des Moines, participated in this workshop. At the workshop, questions were raised concerning the scope of the study as well as other issues pertaining to bicycle commuting, such as safety and design specifications for bikeways. These questions and concerns were addressed in revisions to the survey instrument.

The second workshop was designed to present study findings and to encourage city officials and other interested parties to discuss ways of improving public bicycle infrastructure and facilities and to devise strategies for coordinating bicycle transportation planning efforts at the metropolitan level. FHWA, the Iowa Department of Transportation (Iowa DOT) and the MPO sponsored this second workshop. Invitations were sent by the MPO staff to the MPO technical and policy committees, city planners, mayors, transportation engineers, bicycle clubs, and employers who expressed interest through the survey. This open-forum workshop was held May 19, 1993, from 5:00 to 8:00 PM at the West Des Moines Community Center. At this workshop, five booths were set up, which participants were encouraged to visit as they wished. At one booth the survey's findings were presented by the study's principal investigator. At another booth FHWA addressed the ISTEA legislation and its implication for bicycle transportation. Funding programs were discussed by the Iowa DOT at a third booth. At a fourth booth, the MPO and the Metropolitan Trails Planning Committee presented planning and programming of issues pertaining to bicycle facilities. At the last booth, the League of American Wheelmen provided information on how to commute by bicycle. A total of nine individuals, representing Grimes, Des Moines, Norwalk, and West Des

Moines, participated in this workshop. Most of the individuals showed up during the first 20 minutes of the workshop.

The limited level of participation in these workshops seems to provide an indication of the level of interest in the study area cities towards bicycle commuting. Those who participated in the workshop rated it very high in the workshop evaluation. Overall, they thought that it was a great source of information. For example, a representative from the city of Des Moines commented in the evaluation form that "The workshop had a good/wide variety of topics. Something for all aspects of bike trails".

While waiting for more participants to show up, the presenters discussed the future of bicycle commuting. As a consensus, there was agreement that the metropolitan area is not ready for bicycle commuting. This was concluded on the basis of the general attitude towards bicycling in the state of Iowa and the survey findings, and it was reinforced by the level of participation in the workshops.

Government Attitude Towards Bicycle Commuting

As a result of the limited level of participation in the second workshop a questionnaire was mailed out to FHWA, Iowa DOT and the MPO. This questionnaire, included in Appendix 3, was intended to facilitate an

understanding of each of the three agencies' points of view on bicycle commuting and related programs.

The following offers a summary of the comments provided by these agencies, with primary attention focused on the recommended policies and actions intended to increase the use of the bicycle for commuting.

Federal Highway Administration

The federal government generally has a more direct impact on programs that enhance bicycle transportation than on the bicyclists themselves. The federal government role in enhancing bicycle ridership might be in the areas of national legislation; research, demonstration and evaluation of projects; technical assistance and information dissemination; public information campaigns; and the encouragement of bicycling through official endorsement and positive example (i.e., implementation of programs to encourage bicycling among federal employees).

Dan Mathis, District Engineer with FHWA, Iowa Division, indicated that FHWA considers the bicycle a viable mode of transportation, although Iowa has some deterrents to bicycle commuting. These include weather and the lack of safe bicycle paths/routes. FHWA believes that its role should be to encourage the improvement of facilities for bicycles as a viable mode of transportation. According to Mr. Mathis, FHWA should be responsible for

evaluating and developing bicycle planning guidelines and procedures, reviewing projects for bicycle compatibility and helping the Iowa DOT manage on going bicycle projects. Also, he suggested that FHWA should coordinate with the Iowa DOT to encourage and ensure long-range planning, project planning and development of bicycle plans.

Iowa Department of Transportation

Responses from the Iowa DOT suggested that the state government role should be to maintain an involvement similar to that of FHWA. The Iowa DOT suggested that they will work in partnership with the federal government by allocating funds to state and local bicycle programs; promulgating standards; developing statewide transportation, energy conservation and air quality plans that include bicycle consideration; and designing highway projects to accommodate bicycles.

The Iowa DOT identifies several offices to be in charge of specific bicycle transportation issues. Education and encouragement programs will be addressed by the state bicycle coordinator located at the Project Planning office. These programs involved issues such as development of safety classes, development and implementation of bike-to-work day, and bicycle conferences. The office of Road Design will be developing engineering programs such as facilities design. The Bureau of Safety will be in charge of

including in their database the collection of accident data and preparation of safety related studies.

Des Moines Area Metropolitan Planning Organization

The MPO plays the role of mediator among the cities in the metropolitan area in planning and programming for bicycle facilities. According to Tom Kane, Executive Director of the MPO, the bicycle is certainly a viable mode of transportation. The MPO believes that the use of bicycles could be beneficial for the metropolitan area, because it will promote a decrease in the number of motor vehicles on the road, lower energy consumption, and the improvement of the health of the individual bicyclists. The MPO maintains that it should play a role in the development of standards for bicycle facilities when developing their metropolitan transportation plan. This plan will include provisions for a safe, convenient, comfortable, and secure riding environment appropriate to the community needs. Major bicycle-related tasks for this plan include analyzing the demand or need for bicycle facilities, identifying opportunities and constraints affecting bicycle transportation, and identifying the systems and programs needed to enhance the bicycle as a form of transportation; and encouraging bicycle use.

Another role that the MPO intends to play is to coordinate with local governments and the Iowa DOT in establishing project planning procedures, consideration of long-range planning, and development of bicycle plans.

Local Governments

According to FHWA and the MPO, local governments should be the responsible jurisdiction for the majority of activities which directly affect bicyclists and bicycle transportation. These activities include identifying and planning for the needs of bicyclists; enacting and enforcing bicycle-related ordinances; improving and maintaining roadways for bicyclists; constructing/installing bicycle facilities (including bicycle parking); and conducting bicycle promotion and education/training programs.

Many of the strategies recommended for the state government (e.g., those affecting transportation planning and public endorsement of bicycle transportation) apply as well to local governments. Other possible local strategies that might be considered include identifying barriers to bicycle access and establishing a prioritized schedule of capital improvements; clearly defining bicycle's status as vehicle in local ordinances; providing secure parking at inter-modal links; and publicizing facilities available to bicyclists.

All these activities identified by the federal, state and regional governments are similar to those identified by employers in the previous section. As a result the bulk of the bicycle planning is expected to be performed by the individual cities to support the regional planning activities of the MPO.

Conclusion

Support of employers for bicycle commuting was determined by the willingness to provide facilities, such as bicycle racks, lockers, and showers. As Table 1 of Appendix 2 indicates, 45 percent of the Des Moines metropolitan area employers offer incentive programs to encourage the use of alternative modes of transportation.

Although some employers currently offer bicycle racks or have showers or lockers available to those wishing to use them, they are not necessarily willing to encourage their employees to bicycle commute. Seventy-two percent of employers also indicated that they did not consider bicycling as a serious transportation alternative, given the climate, traffic problems, and the distance many of their employees have to travel to their jobs.

Overall, 20 percent of the employers surveyed indicated they would support and encourage bicycling as a transportation alternative if employees

would utilize the facilities and if there were general support in the community for this option.

The specific actions to be carried out by the MPO over the next five years, in coordination with federal, state, and local governments, depend on the provision of technical assistance and funding from the federal and state governments for the development and implementation of bicycle transportation projects.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Bicycle commuting in the Des Moines metropolitan area can be furthered increased through institutional and professional responsiveness, improved awareness of the desirability of bicycle community among employers and public decision makers and improved infrastructure for bicycle use.

Events over the past three decades have provided Americans with some good reasons to consider ways of making the country's transportation system safer and more accessible to pedestrian and non-motorized traffic.

Starting in the 1960s, the environmental movement prompted the public to rethink its dependance on motorized transportation in terms of its impact on the environment. The energy crisis of the 1970s showed that Americans, while still enjoying the use of their automobiles, are willing to explore and make use of alternative forms of transportation. Then the health and fitness boom of the 1980s brought to the attention of many Americans the personal benefits gained through participation in walking, running and bicycling.

In the 1990s, these movements are leading more and more people to change their exercise habits and their transportation choices. But more important, people must begin thinking about how the transportation network

can be improved to allow motor vehicles and bicyclists to co-exist peacefully and safely on our roads and in our parks and recreation areas.

Over a 20 year period the cities within the Des Moines metropolitan area concentrated their efforts in developing recreational bikeways within their own jurisdictions. In 1992, with the formation of the MTPC the metropolitan area cities began to cooperate and coordinate among themselves in the planning and development of bicycle network systems. Currently, these planning efforts are moving the existing fragmented bikeway system toward a continuous network. However, most of the existing and proposed bicycle facilities in the network system would not serve commuter transportation purposes because they do not link major traffic generators to each other, and they are designated to serve, mostly, recreational bicycle trips.

This study suggests that the potentials for utilizing the bicycle as a viable transportation mode for commuter trips has not been fully recognized by transportation professionals and employers in the Des Moines metropolitan area. This conclusion is based on the analysis of the questionnaire and the low attendance at the workshops organized for this purpose. Such potentials still exists, and much still need to be done to make them a reality.

The 1991 ISTEA offers significant opportunities at this front in enhancing the role that bicycle programs and facilities can play at the local and regional levels. Available funds under ISTEA can be used to induce local governments to integrate planning for bicycles within their transportation planning process.

Recommendations

It became apparent, during the development of this study that a wide variety of topics and concerns should be examined through additional study. This study was meant to initiate bicycle related research projects in the Des Moines metropolitan area as well as other areas in the state of Iowa. Many other studies will hopefully follow, including studies on topics such as demand studies, and especially estimating latent demand for bicycle under improved conditions, bicycle parking facilities studies, the bicycle element of the Des Moines Metropolitan Planning Organization Transportation Plan, public education programs, legal process programs, and master route(s) plan(s) are examples, among many others, of such studies.

As was pointed out in previous chapters, the use of bicycling as a means of transportation in the Des Moines metropolitan area would require major changes in transportation policy. Transportation policies supportive of bicycling as a transportation alternative include the following:

- Defining the bicycle's status as a vehicle in local ordinances;
- Enacting and enforcing bicycle-related ordinances;
- Conducting bicycle promotion and education/training programs;
- Providing secure parking at intermodal links;
- Improving and maintaining roadways for bicyclists; and
- Identifying and planning for the needs of bicyclists.

It does appear that the stage is set for initiating changes in bicycle transportation planning. On the other hand, the MPO is serving as a regional transportation agency. The MPO can play a critical role at the regional level in terms of integrating planning for bicycle facilities within its transportation planning process. This fact is coupled with another. Available funds within ISTEA can be utilized to invest in bicycle transportation facilities and programs, and to promote the use of bicycle as a viable transportation commuting mode. To attract the maximum number of persons within the study area to this alternative mode of transportation will require communities and the MPO to address specific needs of bicyclists and to actively promote bicycling as a transportation alternative. It is recommended, therefore, that the MPO take the lead role in planning for bicycle commuting. To carry out this role, it is recommended that the MPO should revise its transportation policy to provide for:

- The active promotion of safe, increased use of bicycles for transportation;
- The integration of bicycle transportation into all aspects of transportation planning; and
- The consideration of bicycle use in all appropriate transportation projects.
- Assist local governments with their bicycle transportation programs.

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Judith R. Perez
Ames, Iowa

APPENDIX 1

SURVEY INSTRUMENT



BICYCLE COMMUTING IN THE DES MOINES METROPOLITAN AREA

Please complete the following questionnaire and return it to Federal Highway Administration, P.O. Box 627, Ames, Iowa 50010 before April 8, 1993 in the attached postage paid envelope.

1. How many employees does your agency/company have?

< 10	[ ]	101 - 500	[ ]
11 - 25	[ ]	501 - 1000	[ ]
26 - 50	[ ]	> 1000	[ ]
51 - 100	[ ]		

2. Please indicate the city in which your agency/company is located.

_____

3. Please estimate what percentage of your employees are coming from:

ANKENY	____	JOHNSTON	____
ALTOONA	____	NORWALK	____
BONDURANT	____	PLEASANT HILL	____
CARLISLE	____	POLK CITY	____
CLIVE	____	URBANDALE	____
CUMMING	____	WAUKEE	____
DES MOINES	____	WINDSOR HEIGHTS	____
GRIMES	____	WEST DES MOINES	____
OTHER	____		

4. Does your agency/company provide any of the following programs to encourage the usage of alternative modes of transportation (mass transit, bicycles, etc.)? (Mark all that apply)

A FLEXTIME/STAGGERED HOURS PROGRAM	[ ]
A TRANSIT SUBSIDY PROGRAM	[ ]
A RIDESHARING PROGRAM	[ ]
MONETARY INCENTIVES	[ ]

OTHER _____

_____

_____

TURN OVER PLEASE ...

5. Does your agency/company consider the bicycle to be a viable mode of transportation for work trips?

YES [ ]
NO [ ]
NOT SURE [ ]

5a. Please explain _____

_____

_____

6. Many agencies/companies offer incentives to their employees to encourage the usage of the bicycle for work trips. Please indicate if your agency/company provides any of the following incentives. (Mark all that apply)

BICYCLE LOCKERS, RACKS [ ]
AVAILABILITY OF SHOWERS, LOCKERS [ ]
MONETARY INCENTIVES [ ]
OTHER _____

6a. If your agency/company does not currently provide such incentive programs would you be willing to implement, or learn about, them?

YES [ ]
NO [ ]
NOT SURE [ ]

6a1. Please comment _____

_____

_____

_____

_____

7. Would you please rank the following benefits of bicycle commuting in what you feel is the order of importance? (Please mark 1 as the most important)

EXERCISE/HEALTH ____
ENJOYMENT OF NATURE ____
ENERGY CONSERVATION ____
MORE ECONOMICAL ____
ENVIRONMENTAL CONCERNS ____
OTHER _____ ____

8. City ordinances require vehicle parking spaces according to size and type of establishment. Does your agency/company feel that these ordinances should allow for bicycle lockers/racks in terms of estimating parking needs? (Please comment) _____

9. How many square feet of... does your agency/company have? (Please estimate)

PARKING SPACE _____ square feet
BUILDING SPACE _____ square feet

10. What do you think government agencies could do to encourage your employees to bicycle to work?

Please place any comments or suggestions on reverse side



THANK YOU!

Your cooperation is essential to the successful completion of the Bicycle Commuting in the Des Moines Metropolitan Area Survey.

APPENDIX 2

SURVEY RESULTS

Table 1. Incentive Programs Provided by Employers by Cities

CITY	INCENTIVE	EMPL. SIZE						
		0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
Altoona	Racks			2				
	Showers			1	1			
	Lockers				1			
	Transit			1				
	None				1			
Ankeny	Racks				1	1		
	Showers		1			1		
	Lockers		1		1	1		
	Transit					1		
	Flextime		1			1	1	
	None		1	1	2	1		
Bondurant	None	1			2			
Carlisle	None	1	1					
Clive	Racks				1			
	Showers	1			2			
	Lockers	1			2			
	Flextime	1						
	Ridesharing			1				

Table 1. (Continuation)

CITY	INCENTIVE	EMPL. SIZE						
		0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
Clive	None	2	2	3	1			
Cumming	None	1						
Des Moines	Racks	1			5	7	3	4
	Showers		1		6	10	3	5
	Lockers		1		4	9	2	5
	Transit				4	4	1	
	Flextime	1	3	6	8	15	2	5
	Ridesharing		1			1		2
	Monetary Incentives					2		
	None	10	19	22	16	15	8	2
Grimes	None	1	1	1				
Johnston	Showers		1					
	Lockers		1					
	Flextime		1		1	1		
	Ridesharing		1	1				
	None		1			1		1
Norwalk	Racks					1		

Table 1. (Continuation)

CITY	INCENTIVE	EMPL. SIZE						
		0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
Norwalk	Showers				1	1		
	Lockers				1	1		
	Flextime				1			
	None	2		1				
Pleasant Hill	None							
Polk City	None		1					
Urbandale	Racks							
	Showers			2	2			
	Lockers			2	2			
	Flextime			1		1		
	Bicycle			1				
	None		1	1		2		
Waukee	Flextime			1				
	None		1			1		
West Des Moines	Racks						2	
	Showers						2	1
	Lockers						2	
	Flextime						2	

Table 1. (Continuation)

CITY	INCENTIVE	EMPL. SIZE						
		0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
West Des Moines	Ridesharing							1
	None	1				1	1	
Windsor Heights	None			2				

Table 2. Bicycle, A Mode of Transportation for Trips to Work by Employer Size

CITY	IS BICYCLE, A MODE OF TRANSPORTATION?	EMPL. SIZE 0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
Altoona	Yes			1	1			
	No			2				1
	Not Sure				1			
Ankeny	Yes		1	1	2	2		
	No				2	1		1
	Not Sure		1					
Bondurant	Yes							
	No	1			1			
	Not Sure							
Carlisle	Yes			1				
	No	1	1					
	Not Sure							
Clive	Yes				2			
	No	2	2	3				
	Not Sure	1			1			
Cumming	Yes		1					
	No							
	Not Sure	1						
Des Moines	Yes	3	4	6	3	7	9	3

Table 2. (Continuation)

CITY	IS BICYCLE, A MODE OF TRANSPORTATION?	EMPL. SIZE 0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
Des Moines	No	6	13	13	23	24	8	4
	Not Sure	1	4	4	4	5	1	5
Grimes	Yes		1					
	No	1		1				
	Not Sure							
Johnston	Yes		1		2			
	No		1	1		1		
	Not Sure							1
Norwalk	Yes				1	1		
	No	2						
	Not Sure			1				
Polk City	Yes							
	No		1					
	Not Sure							
Urbandale	Yes				1			
	No	1	1	4	1	3	1	
	Not Sure							
Waukee	Yes							

Table 2. (Continuation)

CITY	IS BICYCLE, A MODE OF TRANSPORTATION?	EMPL. SIZE 0-10	11-25	26-50	51-100	101-500	501-1000	OVER 1000
Waukee	No		1					
	Not Sure			1		1		
West Des Moines	Yes							
	No	1					3	1
	Not Sure					1		
Windsor Heights	Yes							
	No			1				
	Not Sure							
Total	Yes	3	8	9	12	10	9	3
	No	15	20	25	27	29	12	7
	Not Sure	3	5	6	6	7	1	7

Table 3. Bicycle Commuting Benefits

CITY	SURVEYS RETURNED	BENEFITS	RANK				
			1(BEST)	2	3	4	5(WORST)
Altoona	6	Exercise/ Health	100%				
		Enjoyment of Nature		25%	25%	25%	25%
		Energy Conservation		50%		25%	25%
		More Economical		25%	25%	25%	25%
		Environmental Concerns			75%	25%	
Ankeny	11	Exercise/ Health	50%	20%	30%		
		Enjoyment of Nature	10%		10%	20%	60%
		Energy Conservation	20%	40%	20%	20%	
		More Economical	10%	10%	30%	20%	30%
		Environmental Concerns	10%	30%	10%	40%	10%
Clive	11	Exercise/ Health	47%	15%	23%		15%
		Enjoyment of Nature	15%	5%		40%	40%

Table 3. (Continuation)

CITY	SURVEYS RETURNED	BENEFITS	RANK				
			1(BEST)	2	3	4	5(WORST)
Clive		Energy Conservation	15%	30%	30%	15%	10%
		More Economical	23%	15%	7%	15%	40%
		Environmental Concerns		30%	30%	30%	10%
Cumming	2	Exercise/ Health	100%				
		Enjoyment of Nature				100%	
		Energy Conservation		100%			
		More Economical			100%		
		Environmental Concerns					100%
Des Moines	150	Exercise/ Health	64%	15%	15%	5%	1%
		Enjoyment of Nature	2%	14%	10%	11%	63%
		Energy Conservation	19%	30%	25%	19%	7%
		More Economical	4%	21%	24%	35%	16%

Table 3. (Continuation)

CITY	SURVEYS RETURNED	BENEFITS	RANK				
			1(BEST)	2	3	4	5(WORST)
Des Moines		Environmental Concerns	9%	24%	30%	28%	10%
Grimes	3	Exercise/ Health	70%	30%			
		Enjoyment of Nature			33%	34%	33%
		Energy Conservation			70%	30%	
		More Economical	33%	33%			34%
		Environmental Concerns		34%		33%	33%
Johnston	7	Exercise/ Health	85%	15%			
		Enjoyment of Nature		10%	40%		50%
		Energy Conservation		17%	50%	16%	17%
		More Economical		17%	16%	35%	16%
		Environmental Concerns		40%		50%	10%
Norwalk	5	Exercise/ Health	100%				

Table 3. (Continuation)

CITY	SURVEYS RETURNED	BENEFITS	RANK				
			1(BEST)	2	3	4	5(WORST)
Norwalk		Enjoyment of Nature		40%	20%	20%	20%
		Energy Conservation		20%	40%	40%	
		More Economical		40%		20%	40%
		Environmental Concerns			40%	20%	40%
Urbandale	12	Exercise/ Health	50%	40%		10%	
		Enjoyment of Nature	10%	10%	10%	20%	50%
		Energy Conservation	10%	40%	40%	10%	
		More Economical		10%	30%	50%	10%
		Environmental Concerns	30%		20%	10%	40%
Waukee	3	Exercise/ Health	100%				
		Enjoyment of Nature		34%	33%	33%	
		Energy Conservation		67%			33%

Table 3. (Continuation)

CITY	SURVEYS RETURNED	BENEFITS	RANK				
			1(BEST)	2	3	4	5(WORST)
Waukee		More Economical			67%	33%	
		Environmental Concerns				33%	67%
West Des Moines	6	Exercise/ Health	50%	50%			
		Enjoyment of Nature	24%				76%
		Energy Conservation	25%		25%	25%	25%
		More Economical		50%	50%		
		Environmental Concerns		50%	25%	25%	
Windsor Heights	1	Exercise/ Health		100%			
		Enjoyment of Nature					100%
		Energy Conservation	100%				
		More Economical			100%		
		Environmental Concerns				100%	

APPENDIX 3

GOVERNMENTAL AGENCY SURVEY

Please complete the following questionnaire and return it to Judith R. Perez, Federal Highway Administration, P.O. Box 627, Ames, Iowa 50010 before.

1. Does your agency/organization consider the bicycle a viable mode of transportation?

2. Does your agency/organization provide incentive programs for employees who bicycle to work?

3. Please identify and describe some of the benefits of bicycle commuting.

4. Please identify deterrents to bicycle commuting in the state of Iowa and explain how they could be overcome.

5. The *1991 Intermodal Surface Transportation Efficiency Act* (ISTEA) recognizes the transportation value of bicycling and offers mechanisms to increase consideration of bicyclists' needs within the National Intermodal Transportation System.

    a. What do you think government agencies (including yours) could do to encourage employees to bicycle to work?

    b. What do you think they should do to encourage employers to provide incentives?

6. Bicycle programs are different from bicycle projects. Bicycle projects involve physically changing the bicycling environment. Bicycle programs deal with other intangible aspects of bicycling. Bicycle programs can be grouped into four general classifications, including education, engineering, evaluation and encouragement.

    a. Please describe how your agency/organization is/will deal with the following programs.

    b. Give a justification for the need of such programs.

c. Identify who should be in charge of developing and/or leading the program.

PROGRAM #1. Education Programs - development of safety classes and bicycle curricula for schools

PROGRAM #2. Engineering Programs - development of bicycle facility design standards

PROGRAM #3. Encouragement Programs - development and implementation of bike-to-work day/week, helmet campaigns, maps, bicycle conferences, etc.

PROGRAM #4. Evaluation Programs - collection of accident data and preparation of special bicycle studies.

7. Please express the importance of the following implementation steps and describe agencies/departments' responsibilities (including yours).

a. Develop Procedures - evaluate and develop bicycle planning guidelines and procedures, review projects for bicycle compatibility, and manage on-going bicycle projects.

b. Coordinate Intergovernmental Relations - coordinate bicycle issues with other agencies and assist local agencies.

c. Establish Project Planning Procedures - consider long-range planning, project planning, and the development of bicycle plans.

d. Create Promotion Procedures - encourage other agencies to develop bicycle programs, participate in bicycle conferences, and promote bicycling.

e. Develop Coordination Procedures - coordinate efforts in the public and private sectors, and provide a communication link between bicyclists and state agencies.