1. Introduction & Context

Introduction

Walking and bicycling are proven ways to improve the quality of life for Iowa's citizens, providing an essential option for people to get to work, school, and other destinations.

Many Iowans have embraced bicycling and walking for transportation purposes. Iowa is also a great place for recreational riding and walking. Moving forward, Iowa DOT has made a commitment—through the development of this Bicycle and Pedestrian Plan—to expand opportunities and further improve conditions for bicycling and walking across the state.

This plan builds upon the State Transportation Plan, Iowa in Motion 2050, which identifies comprehensive transportation objectives as well as specific needs and recommendations for non-motorized transportation.

1.1 Purpose of the Plan

The Bicycle and Pedestrian Plan has three key objectives:

- Improve the policies and practices for the ongoing development of the Iowa bicycle and pedestrian system program. This is especially important considering the current national transportation bill (Infrastructure Investment and Jobs Act, or IJJA) and evolving national design guidelines. Central to this objective is the development and adoption of a Complete Streets Policy.
- Expand the intercity and intracity bicycle network by providing guidance for the completion of national trail segments (including the Mississippi River Trail, American Discovery Trail, and Lewis and Clark Trail) and establishing additional US Bicycle Routes (national bikeways for cyclo-tourism and transportation).
- Facilitate implementation of the plan by including a funding toolbox, enhancing design guidelines used by Iowa DOT and local agencies and making recommendations for program priorities.

This Plan serves as the primary guide for Iowa DOT decision-making regarding bicycle and pedestrian programs and facilities (sidewalks, trails, bike lanes, paved shoulders, etc.). It also has applicability for regional, county, and city plans and programs, helping to achieve a better level of statewide coordination and continuity for all levels of bicycle and pedestrian mobility.

The Role of Context

A thorough review of the contextual elements that shape the current state of walking and biking in Iowa serves as the basis of this Plan and a foundation for the analysis and recommendations contained within. These elements include identifying the agencies involved in planning, designing, and maintaining infrastructure; events and innovative practices occurring within Iowa; demographic characteristics; estimated number of people walking and bicycling; and the numerous plans and policies that shape how infrastructure is planned, funded, and designed.

1.2 Infrastructure Jurisdiction and Planning Responsibility

Iowa's transportation system is composed of multiple interconnected networks that each have a primary purpose, but often serve secondary purposes as well. The primary purpose of US and State Highways, for example, is to facilitate the movement of goods and people between cities. However, these highways often take on the additional roles of facilitating mobility and access within the cities that they pass through. Case in point, many of Iowa's small-town Main Streets are US or State Highways, yet have lower speed limits, on-street parking, and other features that make them function as local streets. In many cases, most of the traffic on these roadways originates from within the community.

From a bicycle and pedestrian perspective, US and State Highways can pose challenges (as well as opportunities) for local jurisdictions that wish to develop effective citywide bicycle and pedestrian systems. Municipalities, Metropolitan Planning Organizations (MPOs), and Regional Planning Affiliations (RPAs) have the responsibility to plan bicycle and pedestrian systems within their jurisdictions. Almost invariably, the plans require infrastructure changes on roadways under Iowa DOT jurisdiction. This necessitates increased coordination and compromising between the parties and their goals.

The jurisdiction over multi-use trails (MUTs), in contrast, is typically tied to location. MUTs in and around cities are typically the responsibility of municipalities and MUTs in rural areas are typically the responsibility of counties. In addition, other organizations—such as the Iowa Department of Natural Resources (DNR) and the Iowa Natural Heritage Foundation (INHF)—help develop MUTs, and the National Park Service often provides assistance for the planning of MUTs. MPOs and RPAs often take the lead in planning multi-city trail systems. Iowa DOT's role in the planning and development of MUTs is generally limited to high-level planning efforts (such as this Plan) and providing funding for acquisition and construction.

Innovative Practices in Iowa

The level of accommodation of bicyclists and pedestrians varies across the state. While some communities have made minimal accommodations, several regions and cities are developing progressive walking and bicycling infrastructure and programs. Many cities across Iowa have adopted bicycle, pedestrian, and/or trail plans in the past few years; communities have been establishing Complete Streets policies; and many cities and counties alike have been constructing multi-use trails, bike lanes, sidewalks, and paved shoulders. The following includes a few examples of the efforts being made across Iowa.

- **Central Iowa Trail Network**—This system of 700-plus miles of multi-use trails links 11 counties in central Iowa, connecting many communities to each other, the coast-to-coast American Discovery Trail, and to central Des Moines. This network also includes the famous High Trestle Trail bridge, which crosses the Des Moines River. This bridge has drawn national attention due to its significant length and innovative, artistic design.
- **Trout Run Trail**—This 11-mile multi-use trail loop in Decorah encircles much of the city while paralleling the Upper Iowa River and providing access to the Decorah Trout Hatchery. The trail includes several public art installations and an architecturally-unique bridge (complete with color-changing LED lighting) over Iowa 9.
- **Bob Kerrey Pedestrian Bridge**—Another unique architectural bridge, this structure spans the Missouri River between Council Bluffs and downtown Omaha, providing an interstate bicycle and pedestrian connection and one of the most spectacular bridges of its kind.
- **Downtown Des Moines**—Many improvements have occurred over the last few years, including the launch of the B-cycle bikeshare system; the construction of bike lanes, contraflow bike lanes, and a separated bike lane; and the installation of bicycle-specific traffic signals. Des Moines has also installed reverse angle on-street parking, which requires cars to back into spaces and pull forward to leave. Compared to traditional angle parking, reverse angle parking improves drivers' visibility when pulling out of a parking space—a valuable benefit when bike lanes are present.
- **Johnson County Bicycle Commuter Guide**—The MPO of Johnson County publishes this guide, which contains safety tips and a map of commuter showers, bike racks (covered and uncovered), and bike lockers.
- **Online Interactive User Maps**—Several groups, including Iowa DOT, Linn County, Waterloo, and the Iowa Natural Heritage Foundation have developed online user maps that display multi-use trails and/or on-road bikeways. Many of these maps also provide information about various trails, such as trailhead locations, visitor amenities, etc.
- **Cedar Valley Trails Network**—The Cedar Valley Trails in the Waterloo/Cedar Falls metropolitan area was the first comprehensive network of trails developed in Iowa. With over 110 miles of connected multi-use trails, the Cedar Valley Trails system connects local, county, and state parks; downtowns; and a multitude of other attractions in the metropolitan area, while also offering trail users numerous loops ranging from 2.5 miles to nearly 20 miles in length. Some of the trail amenities include Prairie Pathways, which provides historical context of the Cedar Valley through a system of interpretive panels and kiosks, and the first trail emergency response system developed in the state.

1.3 Organizations and Events

The efforts of the Iowa DOT, MPOs, RPAs, counties, and municipalities to improve conditions for walking and bicycling are greatly strengthened by dedicated non-governmental organizations that seek the same goals. In many ways, becoming a more walkable and bicycle-friendly state is not possible without the ongoing commitment of organized advocates. Such organizations are also responsible for hosting numerous events, such as Iowa's famous RAGBRAI—the Register's Annual Great Bicycle Ride Across Iowa. These events attract thousands of participants from around the world and provide opportunities for people of all abilities and levels of fitness to participate.

Following is a list describing some of the organizations and events that contribute to the popularity of bicycling and walking in Iowa today.

Iowa Natural Heritage Foundation

The INHF is a private, nonprofit conservation organization that plays a significant role in securing and initiating recreational trails across Iowa. Since its inception in 1979, INHF has played a role in the development of over 850 miles of trail corridors. The organization provides various levels of support, from minor technical assistance to land acquisition and fundraising guidance. Since trails in Iowa are not managed by a statewide agency, INHF also provides resources and coordination for local jurisdictions that are responsible for operating and maintaining the trails.

Iowa Bicycle Coalition

The Iowa Bicycle Coalition (IBC) is the state's primary advocacy organization for bicyclists. The IBC focuses on both recreational and transportation bicycling, provides education to users, is involved with Safe Routes to School efforts, holds an annual education conference (the Iowa Bike Summit), and is a major partner for RAGBRAI. The group works with local organizations, the Iowa DOT, municipalities, MPOs, RPAs, and other entities to improve conditions for bicycling. Also an active lobbying group, the IBC has had a significant impact on changing legislation to the benefit of vulnerable road users.

Bike to Work Week

The Iowa DOT, IBC, and numerous local bike clubs, advocacy organizations, MPOs, RPAs, and municipalities partner to organize activities during national Bike to Work Week (part of National Bike Month) and encourage people to commute on two wheels during the week. Events typically include media campaigns, commuter stations with free breakfast and bike tune-ups, prizes and giveaways, and pub crawls. These events all seek to encourage more people to make bicycling an every-day part of their lives.

RAGBRAI

The Register's Annual Great Bicycle Ride Across Iowa (RAGBRAI) is Iowa's largest and oldest organized bike ride. First held in 1973, RAGBRAI is a multi-day ride that starts on one side of the state and ends on the other. The ride is planned, coordinated, and sponsored by the Des Moines Register newspaper and is supported by the IBC. The route changes each year, and the annual Route Announcement Party has become a major event in its own right. The event is limited to 8,500 riders each year due to logistic constraints, but since its inception, over 275,000 riders have participated. The route passes through numerous small towns (at least 780 since its inception) and as a result has a significant positive economic impact for a number of communities. RAGBRAI has inspired numerous similar events across the country, but it remains the original and most notable ride of its type in the United States.

Other Events

Organized bike rides occur nearly every weekend throughout the year and on many weekdays as well. These include benefit rides or rallies, simple open club/training rides, or theme rides. Examples include the annual Bike Ride to Rippey (also known as the "BRR Ride," which has occurred every February for 37 years), the annual Baccoon Ride (a bacon-themed ride along the Raccoon River Valley Trail), and the weekly Thursday Taco Ride from Council Bluffs to Mineola. These events are all important opportunities for recreational bicyclists to connect and explore Iowa's roads and trails.

1.4 Iowa's Population

Understanding the demographic characteristics of Iowa's population will help inform the assessment of bicycling and walking conditions in the state. In this section, population is analyzed in terms of total population, rural and urban shares of population, and population by age. This context is especially relevant to the Crash Analysis performed as part of the assessment of existing conditions (Chapter 4).

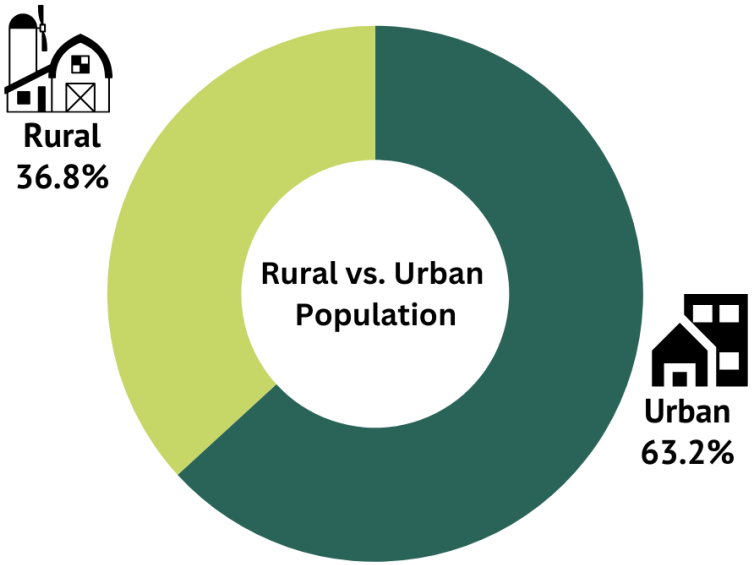
According to the U.S. Census Bureau, Iowa's total population in 2010 was 3,046,355 and 3,190,3692 in 2020. Considering the geographic size of the state relative to the population size, Iowa has a relatively low population density compared to other states (it is the 38th densest state). It is also part of America's agricultural heartland, which is evidenced by the state's moderately low population density. However, when taking a closer look, Iowa's population is clustered in urban areas, at least in terms of population distribution, with 63.2 percent of the population living in a city with a population of 2,500 or greater (see Figure 1.1).

Approximately 32 percent of the state's population lives in a city with a population of 50,000 or more, of which Iowa has eleven. Figure 1.2 illustrates the populations of Iowa's eleven largest cities for the 2010 Census and the 2020 Census. Three cities—Cedar Rapids, Davenport, and Des Moines—exceed a population of 100,000.

Population distribution is relevant for several reasons. First, it means that the context in which most Iowans bike and walk is within cities, rather than rural areas. Only a small proportion of state highways are within cities and suburbs, but these roads often pose major barriers to bicycling and walking. From a transportation standpoint, this means that improving conditions for bicycling and walking will rely heavily on Iowa DOT's partnerships with municipalities, MPOs, and RPAs. Second, most bicyclists riding on rural roads live within cities and suburbs. Access to rural roads is entirely dependent on the quality, safety, and comfort of "transitional" roads that connect city street grids through suburban areas to low-traffic rural roads.

Population by age is a useful statistic to consider when analyzing bicycling and walking trips and computing rates. For example, knowing the population distribution by age for the state (Figure 1.3) is helpful in analyzing bicyclist and pedestrian crashes (Chapter 4: Infrastructure Analysis and Recommendations). Understanding the share of the population held by each age range allows the analysis to identify which age ranges experience a disproportionate share of crashes.

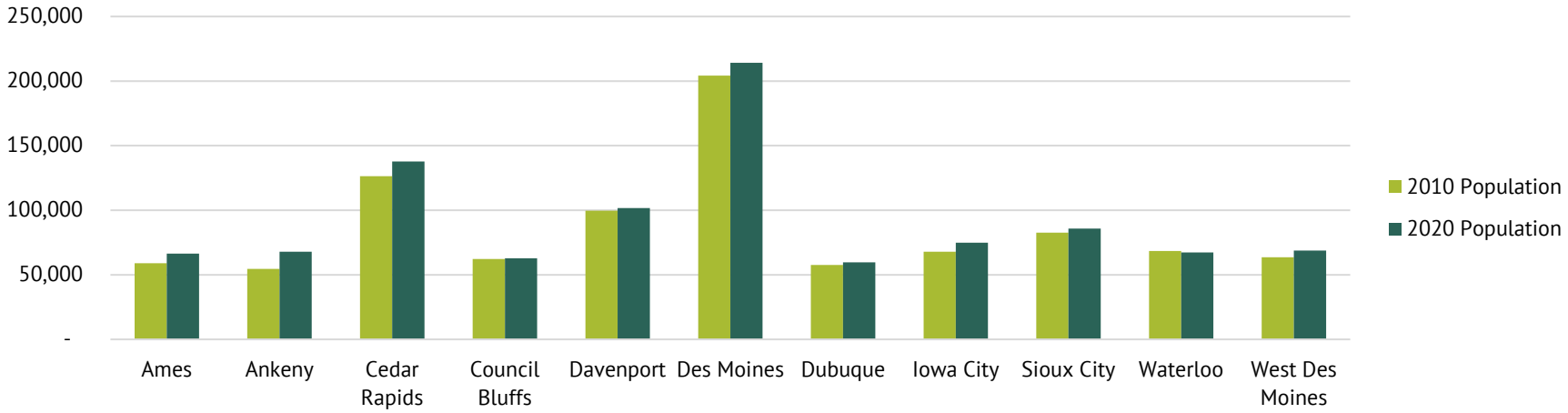
Figure 1.1: 2020 rural vs. urban population



The US Census Bureau considers any area with a population of 2,500 or greater to be "urban."

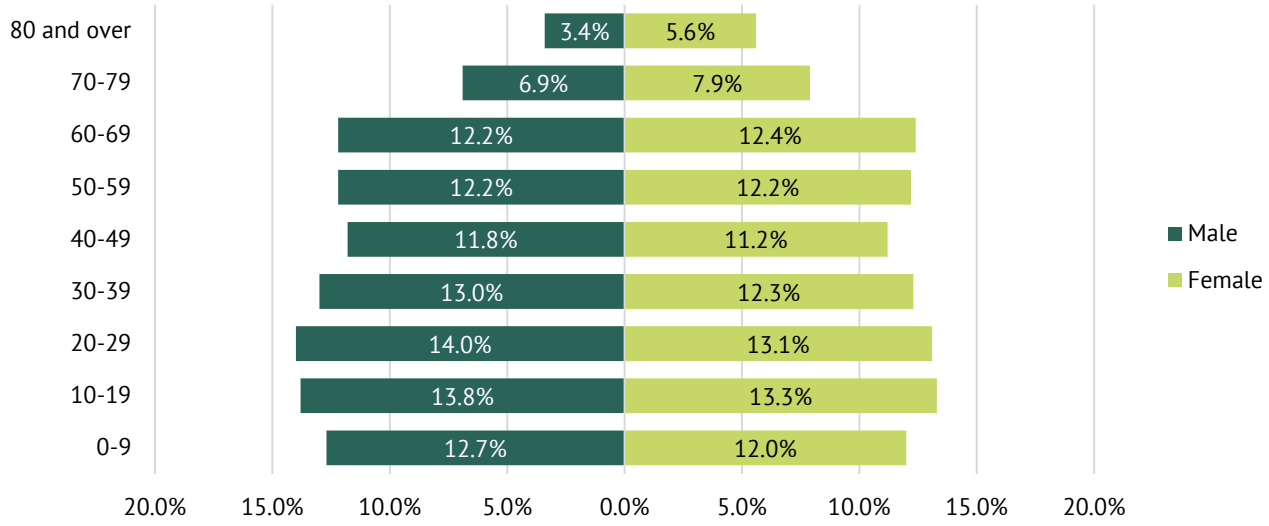
Source: U.S. Census Bureau 2020 Census

Figure 1.2: Total population for Iowa's largest cities (50,000 or more)



Source: U.S. Census Bureau 2010 and 2020 Censuses

Figure 1.3: 2020 population by sex and age



Source: U.S. Census Bureau 2020 Census

1.5 Biking and Walking Today

Estimating the number of bicycle and pedestrian trips taken per year is an important but challenging task. This is largely because consistent and comprehensive bicycle and pedestrian data collection is limited in most states, including Iowa. There are two primary sources for this analysis—the Census Bureau's American Community Survey (ACS) and the National Household Travel Survey (NHTS), which is conducted as a joint effort by the Federal Highway Administration (FHWA) and other federal agencies. Each of these sources has limitations, however—the ACS only accounts for journey to work trips and the NHTS includes all trips but is conducted on an irregular basis once every five to ten years. It is important to consider that the ACS focuses on transportation trips and likely underrepresents recreational trips to a significant degree.

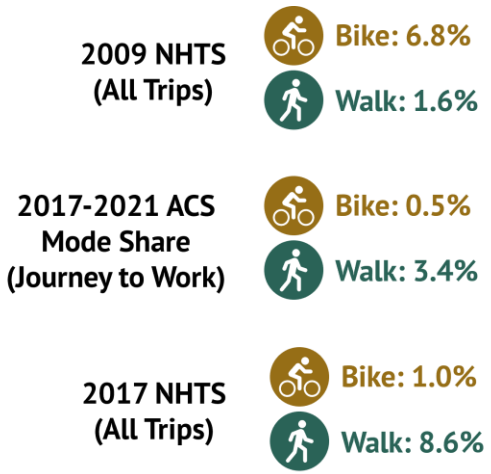
American Community Survey

The ACS is reported every year for each state and every one, three, or five years for counties and cities (depending on population size). This tool collects journey to work data by asking "How did this person usually get to work last week?" Respondents are allowed to select multiple options. Limitations of this methodology include:

1. It asks people about their journey to work for only one week out of the year. If it happened to be a week with poor weather, normal bicycle and pedestrian commuters might have chosen to drive or take transit.
2. The question asks what mode people usually used. Taken literally, if someone walks or bikes to work one day per week, they will likely not say that they usually use that mode of transportation.
3. This survey only collects transportation to work data. Many people walk and bike for recreational purposes or for transportation purposes other than commuting to work.

According to the ACS, there are 1.57 million workers over 16 in Iowa. Of this total, 0.5 percent reported bicycling to work and 3.4 percent walking to work; this translates to approximately 8,115 individual bicycle commuters (not trips) and 53,677 pedestrian commuters. The percentage of bicycle commuters has remained steady, while the walker commuters has declined slightly. Ames, Iowa City, and Dubuque all have above average levels of walking and/ or bicycling, according to the ACS data for 2017 through 2021. Ames and Iowa City both have major universities, which is likely the primary contributor to their higher-than-average mode shares for bicycling and walking. Seven universities, colleges, and seminaries are located in Dubuque, which likely contributes to its higher-than-average mode share for walking. However, it has a lower mode share for bicycling, which may be attributed, in part, to the area's steep hills. Also, it should be noted that students are not counted in the data unless they are in the workforce. Therefore, a student that walks or bikes to a part-time job on campus would be counted. In addition, faculty, staff, and other university employees would be counted in the data.

Figure 1.4: Sources of estimating bicycle and pedestrian trips



National Household Travel Survey

The NHTS is performed irregularly (once every 5 to 10 years) but—unlike the ACS—accounts for all types of trips, not just journey to work trips. The last NHTS was performed in 2017 and was funded by FHWA, the Federal Transit Administration, the American Automobile Association (AAA), and the American Association of Retired Persons (AARP) and some state DOTs and MPOs. The previous NHTS was performed in 2009. To increase the sample size (and statistical validity) in the 2009 NHTS, the Iowa DOT elected to pay for 2,000 additional travel diaries and the Linn County Regional Planning Commission paid for 1,200 additional surveys. In the 2017 NHTS, the MPOs for the Des Moines and Waterloo areas paid for 1,200 additional surveys each.

The results of the 2017 NHTS show greater mode shares for bicycling and walking in Iowa than was recorded by the ACS—1.0 percent of all trips were bicycling trips and 8.6 percent were walking trips. For a direct comparison, the NHTS estimates journey to work trips at 0.6 percent for bicycling (compared to the ACS estimate of 0.5 percent) and 5.3 percent for walking (compared to the ACS estimate of 3.8 percent). The mode share for bicycling dropped significantly since 2009, while the mode share for walking increased.

Table 1.1: Comparison of 2009 and 2017 National Household Travel Survey (NHTS) mode share

	2009 NHTS	2017 NHTS
Bike Mode Share (all trips)	1.6%	1.0%
Walk Mode Share (all trips)	6.8%	8.6%
Bike Mode Share (journey to work)	1.5%	0.6%
Walk Mode Share (journey to work)	4.8%	5.3%

In terms of the total number of annual bicycling and walking trips, the NHTS estimates 3.6 billion and 38.9 billion, respectively. When considering journey to work trips, the NHTS estimates 418 million trips by bicycle (11.6 percent of all bicycling trips) and 2.9 billion walking trips (7.4 percent of all walking trips).

In comparing Iowa to the nation as a whole, the mode share for bicycling is equal to the national mode share (although it was significantly higher in 2009 at 1.6 versus 1.0 percent) while the mode share for walking is lower (6.8 versus 10.5 percent).

While the NHTS and ACS record different information at different times, it is clear that the mode shares and number of bicycling and walking trips in Iowa far exceed what can be estimated based on the ACS journey to work mode share data.

Other Sources

Another indication of the levels of bicycling and walking in Iowa are the trail use counts performed by Iowa DOT between 2008 and 2010. Over the course of these three years, counters were placed at 29 locations across the state between Memorial Day and Labor Day (counters were placed along different trails each of the three years). On average, these counters recorded 2,883 bicycles at each location during this period. This was a worthwhile effort that should be repeated every few years as a benchmarking exercise. In developing The Economic and Health Benefits of Bicycling in Iowa, researchers from the University of Northern Iowa extrapolated this data across the 52 trails more than 5 miles long that existed in Iowa at that time. Currently there are 51 trails more than 10 miles long in Iowa. As a result, they estimate that approximately 149,916 bicycle trips are taken along Iowa's trails each year between Memorial Day and Labor Day. However, this result seems to be only a good indication of bicycling on trails, considering it is several orders of magnitude less than the estimated number of trips as calculated by the NHTS (62 million trips in 2009).

1.6 Summary of Plans, Policies, and Standards

Many ongoing planning efforts, current policies, and standing practices at the national, state, and regional level affect bicycling and walking in Iowa. Because a large portion of transportation funding originates with federal programs, there is a high degree of interplay between the various levels of government.

Federal

Federal policy has far-reaching implications for state, regional, and local transportation policies, programs, and projects. While state departments of transportation have a considerable amount of leeway and flexibility in how each plans, programs, designs, and conducts its general business, federal policy ensures that certain minimum standards, provisions, and methods are consistent across the country. In terms of bicycle and pedestrian transportation, the FHWA has produced **Accommodating Bicycle and Pedestrian Travel: A Recommended Approach** (commonly referred to as the "mainstreaming policy") to provide guidance on federally-funded transportation projects. This policy was most recently updated in 2017. Most importantly, the document sets forth an official policy that bicycling and walking facilities shall be incorporated into all transportation projects utilizing federal aid unless exceptional circumstances exist.

This guidance has been reinforced by the **Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations** published in 2010 by the US Department of Transportation (USDOT). The document stipulates that walking and bicycling should be treated as equals with other transportation modes. It also recommends policy adjustments and strategies for state departments of transportation and metropolitan planning organizations to better address the needs of bicyclists and pedestrians.

Other federal activity has been important in this arena as well. The Americans with Disabilities Act (ADA) ensures a minimum level of accommodation for all users of the public right of way, including those of limited ability. To address this issue, the US Department of Justice (USDOJ) and USDOT undertook a joint effort to publish guidelines ensuring compliance with the requirements of the ADA as it relates to transportation projects, released as **USDOJ/USDOT Joint Technical Assistance on the Title II of the ADA Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing (2013)**.

Federal Influence

From Washington, D.C., to Iowa, Federal policy shapes the planning and design of pedestrian and bicycle facilities

The primary federal transportation funding program for bicycling projects under IIJA, enacted in 2021, is the **Transportation Alternatives Set-Aside (TA Set-Aside or TAP) Program**. This program is a new iteration of the former Transportation Enhancements (later Transportation Alternatives) program that has been in existence since 1991. Implementation of this act formally allows Iowa DOT to suballocate funds to Iowa's MPOs and RPAs for competitive selection of projects according to federal and state guidance.

Eligible project activities include a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, and community improvements such as historic preservation, vegetation management, and some environmental mitigation related to storm water and habitat connectivity.

The Federal share is generally 80 percent with the other 20 percent consisting of State or local match. There are some exceptions, predominantly safety improvements or projects on tribal or national park lands, that can be eligible for 100 percent federal funding.

State

The State of Iowa has produced a number of plans related to bicycle and pedestrian travel. **Iowa in Motion 2050**, published in 2022, is the state's long-range transportation plan, the chief guide to Iowa's transportation policy. Planning efforts have identified "increasing demand for well-connected bicycle and pedestrian facilities" as a key state transportation issue. In this regard, the plan identifies funding as one of the key obstacles, particularly as it relates to the expansion of the state's network of trails. Section 4.2 of the plan describes in detail how bicycling and walking are important to the state's economy. The plan states that "The importance of bicycling and walking to Iowa's economy is significant, as both provide many benefits in the areas of health and fitness, the environment, and tourism."

The state's vision for its trail network is the result of multiple plans over the past two decades but is most comprehensively described in the **Iowa Trails 2000** plan. This plan defined a statewide network of trails and described design guidelines for trails and rural on-road bike facilities.

More recently, the Iowa DNR echoes the call for expansion of the state's trail system in its 2023 to 2028, 5 Year **Outdoor Recreation in Iowa** plan.

In recognition of the increasing profile of bicycling in the public consciousness, the University of Northern Iowa and the Iowa Bicycle Coalition produced **Economic and Health Benefits of Bicycling in Iowa** in 2012, a study that quantifies the impact of bicycling on the state's economy. The researchers found nearly a half-billion dollars in economic activity and over $80 million in savings on health care costs statewide annually. The health benefits of walking and bicycling also feature in the Governor's Healthiest State Initiative, a program to encourage health and well-being throughout the state. The Iowa Bicycle Coalition is in the process of updating this study that should be complete in 2025.

A significant effort related to pedestrian mobility is the Iowa DOT's program to improve the accessibility of trails and sidewalks along the state highway system. Last updated in 2024, the Iowa DOT maintains an **ADA Transition Plan** that identifies priorities for curb ramp replacement, sidewalk repair, and other accessibility improvements.

The Iowa DOT inventoried and evaluated trails that are within Iowa DOT right of way for ADA compliance. In addition to upgrading curb ramps, crosswalks, and sidewalks as part of reconstruction and repaving projects (as required by federal law), the Iowa DOT implements the **ADA Transition Plan** in part through a program that makes investments in sidewalk and curb ramp improvements in communities with populations less than 5,000.

The design of streets and roads in Iowa adhere to three sets of standards: the **Design Manual, Bridge Design Manual, and Statewide Urban Design and Specifications (SUDAS)**. The first two manuals are maintained and used by the Iowa DOT while SUDAS is used by counties and municipalities. In addition to roadway facilities designed for motorists, these manuals set the standards and criteria for bicycle and pedestrian accommodations such as sidewalks, paths, bike lanes, and paved shoulders. These documents—the content of which are closely aligned—have been in use for nearly two decades and are each updated every few years.

Regional

Iowa is unique in that the entire state is covered by some form of a regional body that engages in transportation planning. Federally-mandated **Metropolitan Planning Organizations (MPO)** are the local transportation authorities through which federal transportation funding is funneled. These agencies, however, are only present in more populous regions. **Regional Planning Affiliations (RPA)** serve as the regional agency for planning in all non-metropolitan areas of the state. In some cases an MPO and a surrounding RPA may share the same staff and resources, although they will have different boundaries, member governments, boards, and bylaws.

Although regional planning is ubiquitous in Iowa, the level at which each agency considers bicycle and pedestrian issues varies significantly. The level of funding allocated to bicycle and pedestrian infrastructure ultimately depends on the priorities of the member government representatives. It is entirely possible that an RPA could allocate a greater percentage of its overall transportation budget to bicycle and pedestrian projects than an MPO might allocate, due to differing member government priorities. Regardless, each MPO and RPA in Iowa has an important role in improving conditions for walking and bicycling

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