

---

# IOWA PARK AND RIDE SYSTEM PLAN

---



## **Iowa Park and Ride System Plan**

2014

Federal and state laws prohibit employment and/or public accommodation discrimination on the basis of age, color, creed, disability, gender identity, national origin, pregnancy, race, religion, sex, sexual orientation or veteran's status. If you believe you have been discriminated against, please contact the Iowa Civil Rights Commission at 800-457-4416 or Iowa Department of Transportation's affirmative action officer. If you need accommodations because of a disability to access the Iowa Department of Transportation's services, contact the agency's affirmative action officer at 800-262-0003.

## Table of contents

List of figures and tables.....	iii
1. Introduction.....	1
1.1 Need for a plan .....	1
1.2 Relationship to the State Transportation Plan .....	3
1.3 Relationship to MAP-21.....	3
1.4 Department policy .....	5
1.5 Some caveats .....	6
2. Trends .....	7
2.1 Socioeconomics.....	7
2.2 Passengers .....	10
2.3 Implications .....	13
3. Process overview .....	14
3.1 Existing inventory .....	14
3.2 Initial conceptualization .....	16
3.3 Analysis structure.....	17
3.4 Input.....	20
4. Statewide network .....	22
4.1 Drawing the line .....	22
4.2 Top county pairs .....	23
4.3 Initial statewide network .....	24
5. Gap analysis and prioritization .....	27
5.1 Existing park and ride system.....	27
5.2 Identification of network gaps.....	28
5.3 Prioritization of network gaps .....	30

6. Financial analysis ..... 42

    6.1 Multijurisdictional implementation..... 42

    6.2 Preferred development options ..... 42

    6.3 Funding sources ..... 44

    6.4 Cost estimates ..... 46

7. Future activity ..... 48

    7.1 System implementation ..... 48

    7.2 System coverage ..... 50

    7.3 Periodic evaluation and review..... 52

Appendix 1 ..... 53

    Stakeholder input..... 53

Appendix 2 ..... 56

    Public input ..... 56

Appendix 3 ..... 69

    Rideshare needs survey ..... 69

Appendix 4 ..... 71

    Iowa park and ride partnership opportunity ..... 71

List of figures and tables

Table 1.1: Consistency with MAP-21 national performance goals..... 4

Figure 2.1: Iowa population, 1980-2040..... 7

Figure 2.2: County population change, 2000-2010 ..... 8

Figure 2.3: Iowa employment by sector, 1980-2040 ..... 9

Figure 2.4: Number of vehicles available per household in Iowa, 1990-2010..... 9

Table 2.1: Iowa passenger transportation trends, 1990-2010 ..... 10

Table 2.2: How Iowans got to work, 1980-2010 ..... 11

Figure 2.5: Commuting trends: Passenger average annual daily traffic on primary highways, and percent of workforce leaving county of residence to work, 2010 ..... 12

Table 3.1: Existing state-owned inventory ..... 14

Table 3.2: Existing county-owned inventory ..... 15

Figure 3.1: “Exit” and “entrance” lots..... 18

Figure 4.1: County-to-county commuter flow chart..... 22

Table 4.1: Top 25 county-to-county commuting pairs ..... 23

Table 4.2: Statewide candidate locations..... 24

Table 5.1: Statewide candidate and existing locations ..... 28

Table 5.2: Prioritized statewide candidate locations..... 30

Figure 5.1: Statewide map with table-referenced candidate locations..... 33

Figure 5.2: Sioux City detail map with table-referenced candidate locations ..... 35

Figure 5.3: Council Bluffs-Omaha detail map with table-referenced candidate locations..... 36

Figure 5.4: Ames-Des Moines detail map with table-referenced candidate locations ..... 37

Figure 5.5: Cedar Rapids-Iowa City detail map with table-referenced candidate locations..... 38

Figure 5.6: Waterloo-Cedar Falls detail map with table-referenced candidate locations..... 39

Figure 5.7: Dubuque detail map with table-referenced candidate locations..... 40

Figure 5.8: Davenport detail map with table-referenced candidate locations..... 41

Table 6.1: Right of way acquisition cost estimates (per square foot)..... 46

Table 6.2: Surface construction cost estimates (per square foot)..... 47

Table 6.3: “Typical” lot development cost estimates (12,000 square feet)..... 47

Figure A2: Public input suggested locations map..... 67

This page left blank intentionally

# 1. Introduction

---

The Iowa Park and Ride System Plan (PRSP) will be used by the Iowa Department of Transportation (Iowa DOT) to plan, evaluate, and develop a formal statewide system of park and ride facilities. For the purposes of this plan, park and ride facilities are places to park a vehicle when carpooling, vanpooling, or taking public transit. The PRSP will provide the framework for determining the current need for commuter park and ride services, evaluating the existing system, identifying gaps in service, and guiding potential system expansion. The primary objective of the plan is to develop a location-specific, priority-based park and ride system that allows for coordinated planning and implementation of park and ride facilities that maintain highway safety, encourage ridesharing, support commuter transportation, and promote energy conservation.

Park and ride facilities are often a primary component of an effective commuter transportation system.

They can serve as meeting locations for commuters when they participate in ridesharing activities such as carpooling or

vanpooling, and they can also serve as connection points for public transportation services such as fixed-route transit, demand-response transit, or commuter shuttles. In these ways, park and ride facilities provide commuters with more transportation options by offering a convenient and safe place to park.

The structure of park and ride facilities may vary depending on the nature of the commuting activity they are intended to serve. Facilities can range from a simple surface parking lot, which is most typical in Iowa, to a more complex parking structure with amenities such as bike racks, storage lockers, and bus bays that are typically found in larger urban settings. When they are strategically placed and well-advertised, park and ride facilities of all types can serve as a valuable resource for commuters and employers alike.

## 1.1 Need for a plan

The need for a more formalized park and ride system was initially identified through input from citizens who contacted various offices within the Iowa DOT. Typically, members of the public have contacted

the department seeking information related to the location of existing park and ride facilities. The need for a formal park and ride system plan was the outcome of periodic planning-level reviews of the existing system by the Iowa DOT's Office of Systems Planning and Office of Public Transit.

The need to support commuter services such as park and ride facilities was also identified through the public input process conducted during the development of the State Transportation Plan: "*Iowa in Motion – Planning Ahead 2040*". During this input process, the public was asked to identify their highest priority investment actions in various categories. In the category of public transit efficiency, "support commuter services" was one of two investment actions that received the most support. Additionally, in the highway quality of life category, "reduce transportation-related congestion and emissions" was the second-highest rated investment action, and "accommodate other modes as appropriate" was rated third (see Table 5.2 in Section 5.4 of "[Iowa in Motion – Planning Ahead 2040](#)").

Additional support for this effort was derived from the [Rideshare Needs Survey](#) conducted by the Office of Public Transit in July 2012, which can be found in Appendix 3. The purpose of this survey was to assess the need for establishing a statewide rideshare program to match car pool and van pool participants. Typically, park and ride facilities are considered an integral part of a rideshare program that supports the needs of those who carpool and vanpool. This survey polled planning staff from Iowa's metropolitan planning organizations (MPOs) and regional planning affiliations (RPAs) to determine the usefulness of various components of a potential statewide rideshare program.

Overall, the survey data supports investment in rideshare services as 80 percent of the respondents reported there is a need for such services in their planning area. The most compelling support for park and ride facilities came in response to a question asking how valuable it would be to commuters if the Iowa DOT developed new strategically placed park and ride facilities. Of the respondents, 70 percent stated that such facilities would have medium or high value in their area.

Currently, the Office of Public Transit is in the process of developing a statewide rideshare program, bolstering the need for a statewide park and ride system plan. As these efforts are interrelated, the Office of Systems Planning and Office of Public Transit will coordinate all associated planning and implementation activities.

Other sources of support have involved metropolitan and regional planning efforts such as the Passenger Transportation Plan development process conducted at least every five years by each of the state's MPOs and RPAs. A recent review of these plans reveals that more than half of the state's planning agencies have identified projects or strategies related to ridesharing.



## 1.2 Relationship to the State Transportation Plan



The three goals of “*Iowa in Motion – Planning Ahead 2040*”, adopted on May 8, 2012, are safety, efficiency, and quality of life. These goals are the basis for decision-making and will guide investments covering all modal areas. The following explains how the Iowa Park and Ride System Plan is consistent with these goals. As the **bold text below**

**indicates**, there are clear benefits of an effective park and ride system to both the State of Iowa as a whole and the individual user.

### Safety

Safety is the foremost concern in any transportation system. Both real and perceived safety will be factored into the evaluation and site selection of all park and ride facilities. Also, while the impact may be minimal, facilitating additional ridesharing will help **reduce individual exposure to crashes** through a reduction in vehicle volume.

### Efficiency

An efficient transportation system makes the best use of available resources. An efficient park and ride system will help reduce vehicle-miles traveled (VMT) and, as a result, could **reduce congestion**, as well as **fuel consumption and vehicle emissions**.

### Quality of life

Our state’s quality of life is directly supported by our transportation system. Iowans value the ability to travel with ease, and an effective park and ride system will **provide more commuting options** for Iowans and **reduce individual costs**.

## 1.3 Relationship to MAP-21

The State Transportation Plan discussed in the previous section was developed under the guidance and requirements of the federal transportation legislation known as SAFETEA-LU. Since the adoption of “*Iowa in Motion – Planning Ahead 2040*,” new transportation legislation has been enacted known as the “Moving Ahead for Progress in



the 21<sup>st</sup> Century Act” (MAP-21). This legislation, which governs current funding and program requirements, will impact some rideshare programs as well as their related park and ride components.

One notable provision of MAP-21 allows any nongovernment funding used for the purchase of van pool vehicles to be credited as local match for rideshare capital improvement projects such as the construction of a park and ride lot. Another provision allows private van pool operators to use passenger revenues in excess of operating costs for the purchase of additional van pool vehicles, as long as the company agrees with the affected transit agency to use the vehicles in the agency’s service area. Also specified in the legislation are provisions for using Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds for rideshare capital and operating costs.

MAP-21 also represented a transition to a performance and outcome-based program where states will invest resources in projects that collectively make progress toward national goals. The legislation established seven national performance goals, and Table 1.1 shows how this plan effort is consistent with those goals.

**Table 1.1: Consistency with MAP-21 national performance goals**

Goals	Additional ridesharing facilitated by park and ride facilities can:
Safety	Reduce exposure to crashes, which can help reduce traffic fatalities and serious injuries.
Infrastructure condition	Reduce VMT, which can help maintain a state of good repair.
Congestion reduction	Reduce congestion by providing more alternative transportation options to commuters.
System reliability	Reduce exposure to crashes and congestion, which can help improve system efficiency and reliability.
Freight movement and economic vitality	Help support economic activity and strengthen rural access to economic centers.
Environmental sustainability	Reduce fuel consumption and vehicle emissions.
Reduced project delivery delays	Assist with travel demand management during project construction.

Source: Iowa DOT

As national transportation goals and priorities shift, the State of Iowa intends to proactively address these changes through coordinated and aligned planning efforts, and this intention extends to the PSRP. The specific impacts of MAP-21 on rideshare programs and related park and ride components will continue to be evaluated for application to Iowa initiatives.

### 1.4 Department policy

The PRSP will be supported and implemented through a department policy related to park and ride facilities. The creation of this policy was driven by a couple of key issues. As was alluded to in section 1.1, prior to the creation of this policy the Iowa DOT had not formally advertised the location of state park and ride facilities. This was due to concerns related to the accuracy of the statewide facilities inventory as well as issues of liability. The policy was also driven by an overall lack of statewide consistency in terms of how facilities were managed. For example, there was no consistency in signage posted to identify these locations, which incidentally relates back to the issues of liability.

In addition, the Iowa DOT will use its existing right of way disposal process as a potential strategy for the development of park and ride facilities. Presently, when state-owned right of way is being considered for disposal, the Iowa DOT initiates an internal recommendation process prior to making a final decision. The Iowa DOT's Office of Systems Planning evaluates the subject property for its potential value as a future park and ride location and factors this evaluation into its office recommendation. A formalized policy that ensures park and ride activity will be considered in this evaluation process should provide opportunities for a more systematic approach to the development of the statewide park and ride system.

While the PRSP will guide park and ride system activities over the long term, there were a number of issues that needed to be addressed in the short term through this policy. Issues addressed in the policy include, but are not limited to, the following.

- Communication between the Iowa DOT's district offices and central office
- Monitoring compliance with established policies and procedures
- Maintaining the park and ride facilities inventory
- Development of park and ride facilities plans
- Identifying and evaluating candidate sites
- Design, construction, and maintenance of park and ride facilities
- Liability and park and ride facilities signage

- Conducting park and ride facilities inspections
- Promoting the state’s park and ride program
- Evaluating the effectiveness of the state’s park and ride program

### 1.5 Some caveats

Prior to introducing the analysis contained in this plan, it should be noted that it is extremely difficult to estimate the number of commuters who currently rideshare. Many rideshare participants commonly use a home residence as their parking and transfer location<sup>1</sup>. Also, observations from Iowa DOT staff indicate that both sanctioned and unsanctioned private and public parking lots serve as a major resource for Iowa’s ridesharing participants. These issues should be considered in the evaluation of current need, the existing system, and service gaps.

Likewise, it is difficult to project the number of commuters who would utilize a mature statewide rideshare system at any point in the future. Rideshare participation can be significantly impacted by demographic changes and economic conditions. For example, if the cost of fuel rises substantially, the number of commuters looking to rideshare can increase dramatically. Therefore, the reader should consider this plan as an effort to accommodate current and future ridesharing needs, while understanding that the plan is based on current data and analysis that will need to be revisited and updated as conditions change.

Finally, the following represents the fundamental planning question that will be answered through the analysis contained in this plan: As the need to expand the existing park and ride system arises, which locations should be considered, and why? The analysis in the following chapters will include evidence of historical trends that provide a basis for ridesharing activities, a thorough analysis of commuting patterns and ideal site locations, an examination of gaps in the existing system, a financial analysis, and a strategy for future implementation of the PRSP.

---

<sup>1</sup> This observation is supported by the results of the statewide survey for this planning effort. Please refer to Appendix 2 for more detailed information.

## 2. Trends

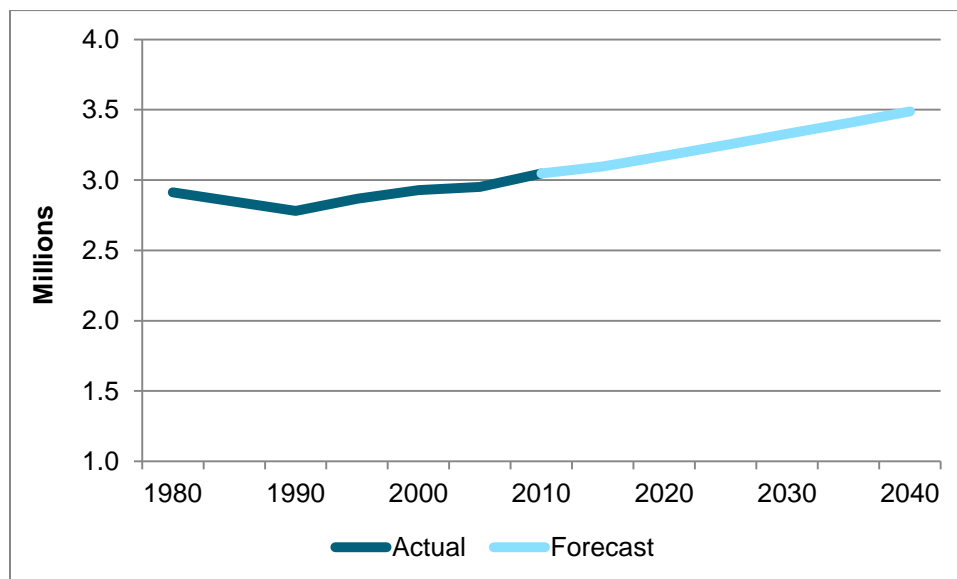
In addition to those points highlighted in Chapter 1, there are several socioeconomic and passenger trends that point to a need for more coordinated park and ride planning in the state of Iowa.

### 2.1 Socioeconomics

#### Population is increasing at a slow pace, and growth is not uniform across the state

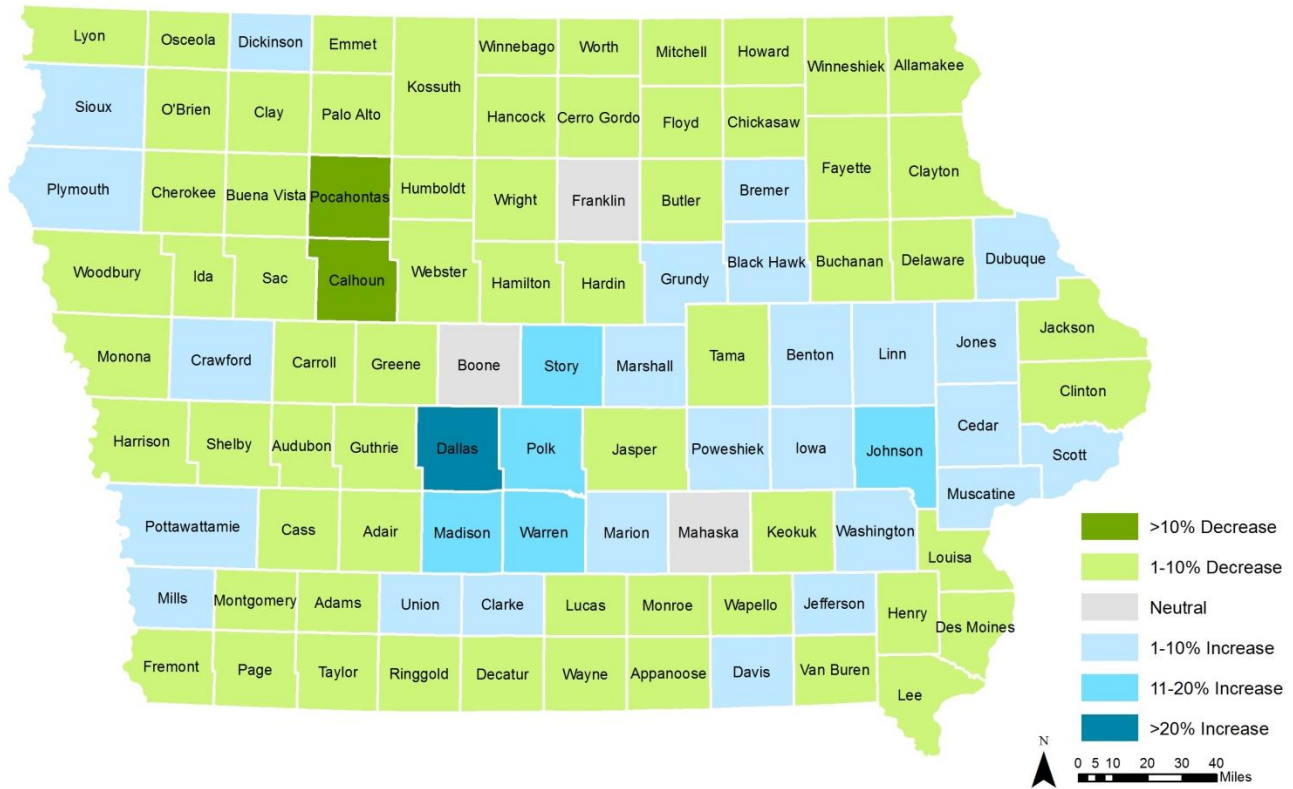
According to the 2010 United States census, Iowa's population grew 4.55 percent since 2000 to 3.04 million people. Although the state's population is slowly increasing, this growth was not uniform across the state. Of Iowa's 99 counties, 31 saw an increase in population since 2000, while 65 counties declined in population and three remained virtually unchanged. While there was growth in various locations across Iowa, the majority of population increases took place within or near metropolitan areas. Figure 2.1 shows Iowa's statewide population trends since 1980 and projected to 2040. Figure 2.2 illustrates the percentage change in county population between 2000 and 2010.

Figure 2.1: Iowa population, 1980-2040



Sources: U.S. Census Bureau, Decennial Census (1980, 1990, 2000, 2010); Woods and Poole Economics Inc.

Figure 2.2: County population change, 2000-2010

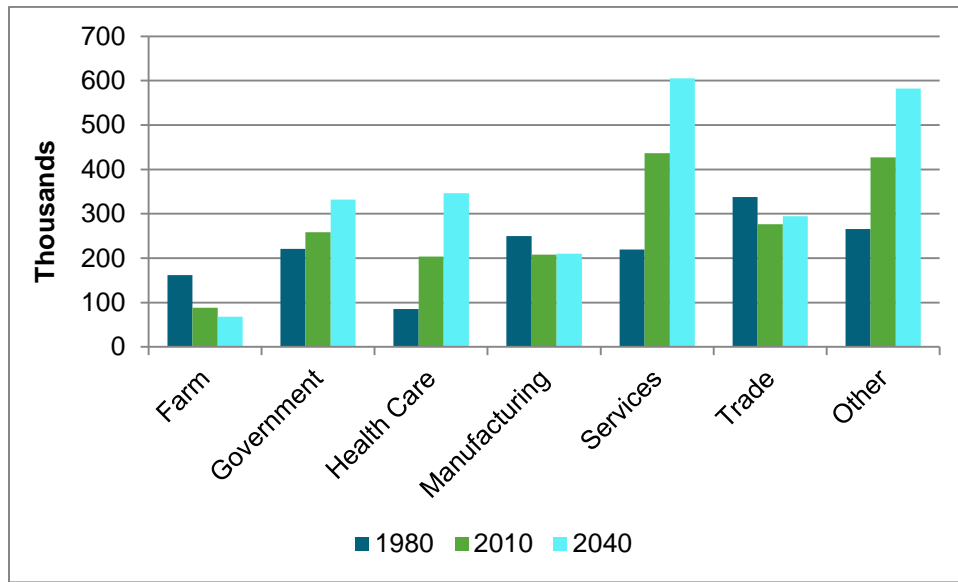


Source: U.S. Census Bureau, Decennial Census (2000, 2010)

### Traditional employment sectors have changed

The geography of Iowa’s employment sectors has changed as well. Traditionally, farming and manufacturing were two of the primary employment sectors in Iowa, but technological advancements and economic diversification have changed this in recent years. Instead, the areas that have seen the most growth in employment are the health care and services sectors, which are more often located in urban areas. According to the [2013 Commuting in America, Commuting Mode Choice, Brief 10](#), published by the American Association of State Highway and Transportation Officials (AASHTO), modes such as transit and carpooling are affected by employment sectors. Urban service and management-oriented jobs are more supportive of transit; whereas construction, manufacturing, or agricultural jobs are more supportive of single-occupant vehicle travel, and to a lesser degree, carpooling. In Iowa, these trends are expected to continue through 2040, as illustrated in Figure 2.3.

Figure 2.3: Iowa employment by sector, 1980-2040

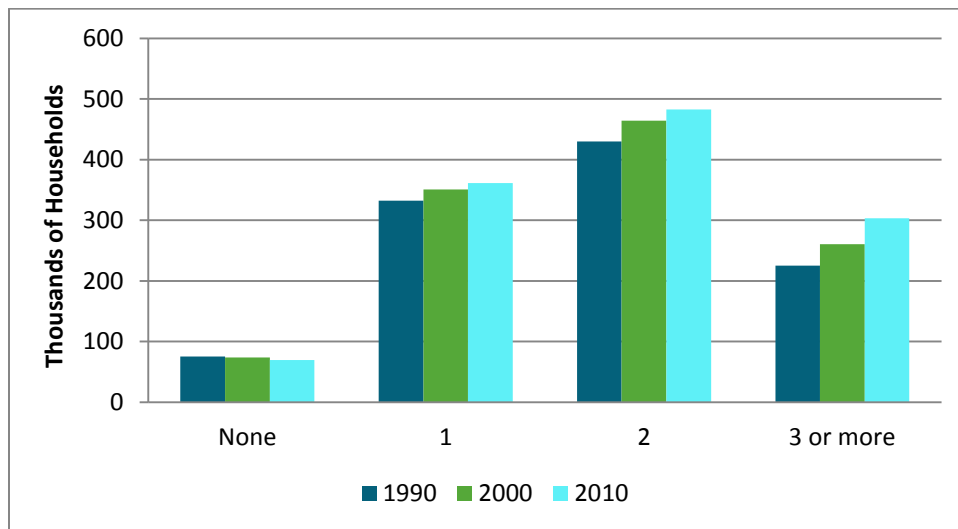


Sources: U.S. Bureau of Economic Analysis; REMI Economic Models Inc.

### The number of vehicles per household has increased

Since 1990, the number of households with three or more vehicles has increased by 35 percent, while the number of households without any vehicles decreased 8 percent. However, as in 1990, the majority of households still have one or two vehicles. Figure 2.4 illustrates the increase in vehicles per household from 1990 to 2010.

Figure 2.4: Number of vehicles available per household in Iowa, 1990-2010



Source: U.S. Census Bureau, Decennial Census (1990, 2000)  
2006-2010 American Community Survey's five-year estimates

## 2.2 Passengers

### Passenger travel is increasing

Since 1990, travel across all passenger modes (aviation, highway, passenger rail, and public transit) has increased by about 16 percent. Between Iowa’s two primary commuter modes, highway passenger vehicle-miles traveled (VMT) increased by 37 percent between 1990 and 2010, while the number of annual public transit rides increased by 17 percent in the same time period. Table 2.1 shows the passenger transportation trends for each mode from 1990 to 2010.

**Table 2.1: Iowa passenger transportation trends, 1990-2010**

	1990	2000	2010
Amtrak rides	51,719	55,146	68,744
Aviation enplanements	1,385,684	1,610,292	1,469,143
Highway VMT	20,323,000,000	26,048,000,000	27,859,000,000
Transit rides	22,417,065	22,423,693	26,209,999

Source: Iowa DOT (Note: Highway VMT includes include automobiles, pickup trucks, and motorcycles.)

### Most Iowans drive alone to work

In 2010, 78.7 percent of workers commuted to work by driving alone, 10.3 percent of Iowans carpooled to work, 3.8 percent walked, and 1.1 percent used public transportation. Additionally, 1.3 percent of the working population used an “other” mode of transportation to work, and 4.8 percent of employed Iowans worked at home. These trends remained largely the same between 2000 and 2010. However, between 1980 and 2010, the percentage of workers driving to work alone increased from 62.1 percent to 78.7 percent, while carpooling decreased from 18.4 percent in 1990 to 10.3 percent in 2010. Table 2.2 shows how Iowans got to work from 1980 to 2010. According to the same AASHTO report cited in section 2.1, these trends are consistent with those at the national level and reflect a shift toward single-occupant vehicle travel to work, contributing to the potential for more congestion on Iowa’s roadways.



Table 2.2: How Iowans got to work, 1980-2010

	1980	1990	2000	2010
Drove alone	62.1%	73.4%	78.6%	78.7%
Carpooled	18.4%	11.9%	10.8%	10.3%
Public transportation	1.9%	1.2%	1.0%	1.1%
Walked	8.6%	5.8%	4.0%	3.8%
Other (bicycle, motorcycle, taxi)	1.6%	0.9%	0.9%	1.3%
Worked at home	7.3%	6.7%	4.7%	4.8%

Sources: U.S. Census Bureau, Decennial Census (1980, 1990, 2000);  
2006-2010 American Community Survey 5-Year Estimates

**Average travel time to work has increased**

Average travel time to work for Iowans has slowly increased over the past two decades, and this trend will likely continue. Since 1990, the percentage of workers commuting 30 minutes or more to work has increased from 16 percent to 19 percent, while the percentage of workers commuting less than 15 minutes has decreased from 51 percent in 1990 to 45 percent in 2010.

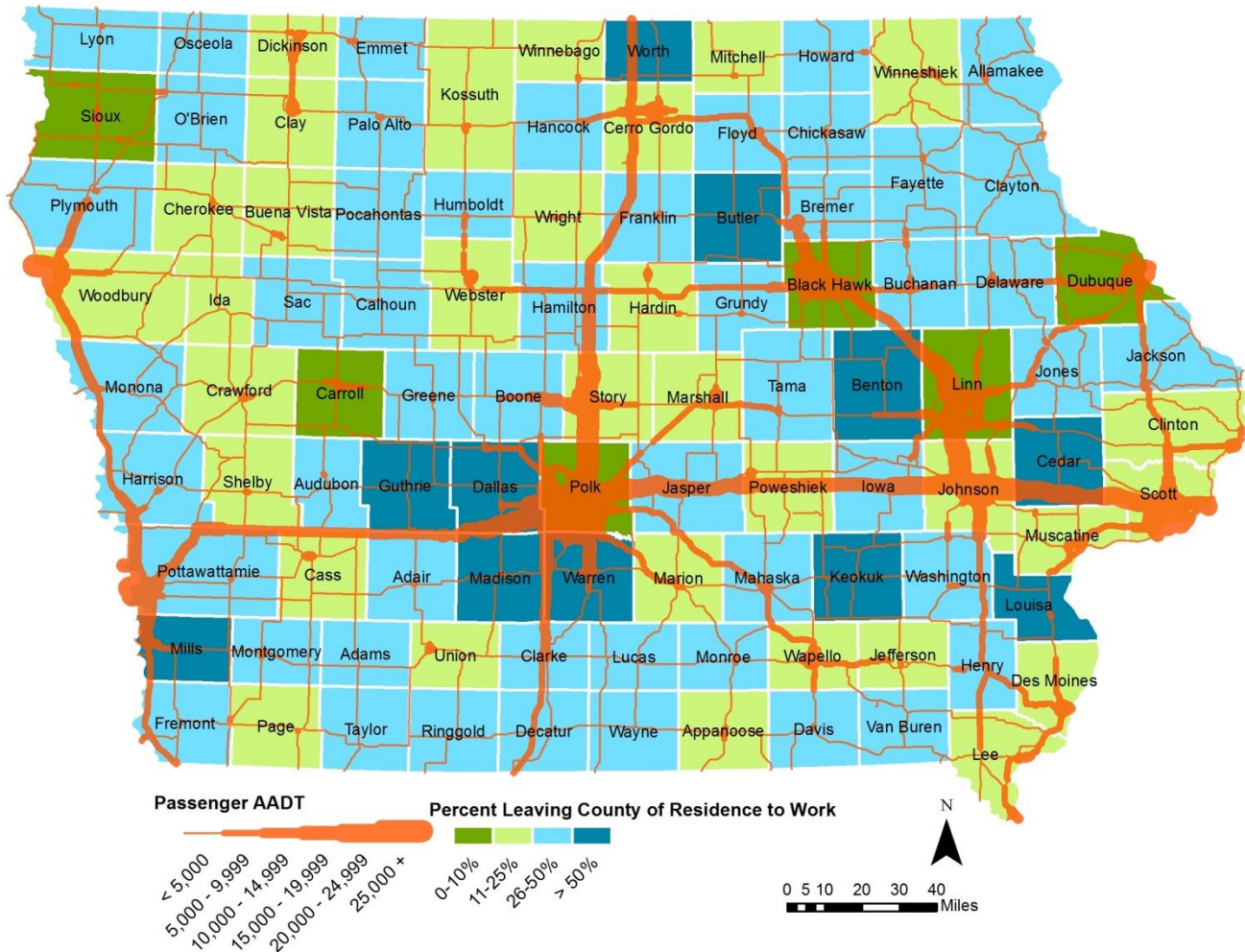
More Iowans are commuting to locations outside their county of residence which can often result in increased travel times to work. In 1990, approximately 17 percent of workers commuted to a job outside their county of residence; while in 2010, this number was about 22 percent. Additionally, there were 11 counties in Iowa where more than 50 percent of residents traveled to jobs outside their home county in 2010, compared to only two counties in 1990. Figure 2.5 illustrates potential commuter routes, highlighting the passenger vehicle average annual daily traffic (AADT) on primary highways, compared with the percentage of the workforce leaving their county of residence to go to work.

With an increase in jobs moving to Iowa’s metropolitan areas, commuting has taken on more of a role to support the labor force in these metropolitan areas. The influence of a metropolitan area is no longer concentrated around the core city, but includes the surrounding counties as well.

There is still a significant portion of the population that desires to live at the fringe of metropolitan areas, in smaller communities, or in a nonmetropolitan environment. These workers may value the particular lifestyle and quality of life benefits associated with their residence location and are likely willing to commute to jobs located elsewhere.

As is indicated by the figure below, primary roadways facilitating travel to metropolitan economic centers carry more passenger traffic. This trend is suggestive of additional wear and tear on roadways within these travel corridors and can mean increased costs in terms of frequency of maintenance and repair for these roadways.

**Figure 2.5: Commuting trends: Passenger average annual daily traffic on primary highways, and percent of workforce leaving county of residence to work, 2010**



**Sources:** U.S. Census Bureau, 2006-2010 American Community Survey 5-Year Estimates; Iowa DOT (Note: Passenger vehicles include automobiles, pickup trucks, and motorcycles.)

## 2.3 Implications

Iowa's socioeconomic and passenger travel trends suggest there will be a need to identify travel demand management strategies for increasing the safety and efficiency of Iowa's transportation system. Increased population in and around metropolitan areas will create congestion and capacity issues as long as single-occupant vehicle travel remains the primary mode of travel. As Iowans drive longer distances to work, it will be increasingly important to identify and maintain commuter routes with facilities to support ridesharing.

Park and ride facilities may have an important role to play in achieving Iowa's transportation goals in the future. Reducing demand for single-occupant vehicle travel through ridesharing activities such as carpooling, vanpooling, and taking public transit are key components of any travel demand management strategy.

In a 2004 Transportation Research Board publication titled [Park-And-Ride/Pool: Traveler Response to Transport System Changes](#), Chapter 3, Report 95, researchers develop findings from reported results and case studies of systems that have implemented park and ride/pool facilities. In this report, some observations indicate the availability of park and ride facilities can facilitate a change in mode choice from a single-occupant vehicle to transit or carpooling/vanpooling. In terms of transit and carpooling, the report indicated that between 40 and 60 percent of park and ride users had commuted by single-occupant vehicles previously. Additionally, in park and ride/pool lot user surveys conducted by the Maryland State Highway Administration, individuals were asked if they had participated in ridesharing previous to their use of the facility, and nearly 46 percent had indicated that they had not.

As the Iowa DOT strives to meet the goals outlined in the 2040 State Transportation Plan and MAP-21, it should consider not only roadway improvement investments, but it should also incorporate strategies that offer

**By providing a park and ride system that is strategically placed and consistently managed, Iowans are provided with more opportunities to choose a mode of travel other than single-occupant vehicle travel.**

Iowa's commuting public greater choice in how they travel. By providing a park and ride system that is strategically placed and consistently managed, Iowans are provided with more opportunities to choose a mode of travel other than single-occupant vehicle travel.

## 3. Process overview

To determine the optimal locations for a statewide network of park and ride facilities, a data-driven analysis was developed by Iowa DOT staff. The primary assumption behind this analysis is that the demand for park and ride facilities will increase as the percent of the workforce leaving their place of residence for work increases. For the purposes of this plan, place of residence and place of employment were analyzed at the county level. This was done primarily due to data availability, but this approach also compliments the rural nature of the state of Iowa and its commuting patterns.

### 3.1 Existing inventory

Before candidate locations could be identified, the existing inventory of park and ride locations needed to be confirmed and updated. For this process, the Iowa DOT's Office of Systems Planning had discussions with Iowa DOT district staff to confirm the existing state-owned inventory of locations and identify other county-owned locations within their respective Iowa DOT districts. From this process, an inventory of 26 state-owned locations and 12 county-owned locations was compiled and confirmed. A table listing the locations is shown below.

**Table 3.1: Existing state-owned inventory**

County	Location
Benton	U.S. 30/U.S. 218 (NW quadrant)
Boone	U.S. 30/S Story St (SE quadrant)
Buchanan	U.S. 20/Iowa 187
Cass	I-80/Co Rd N28 (NE quadrant)
Chickasaw	U.S. 63/U.S. 18/Iowa 346 (SE quadrant)
Crawford	U.S. 59/Iowa 141 (SE quadrant)
Dallas	I-80/U.S. 169 (NW quadrant)
Guthrie	Iowa 4/Iowa 141
Iowa	U.S. 6/Co Rd V77
Iowa	Iowa 21/Iowa 212

Jasper	U.S. 65/Iowa 117
Lee	U.S. 218/Co Rd J40 (NW quadrant)
Lee	U.S. 218/Iowa 16
Mahaska	Iowa 163/Eaton Ave (NW quadrant)
Marion	Iowa 5/Co Rd G71
Marion	Iowa 5/Iowa 92/Co Rd S45 (SE quadrant)
Monona	Iowa 37/290th St (NW quadrant)
Osceola	Iowa 9/Northwest Blvd (SE quadrant)
Poweshiek	Iowa 146/Co Rd F57
Poweshiek	Iowa 21/Iowa 85/Co Rd F52 (SE quadrant)
Shelby	U.S. 59/Iowa 37 (NW quadrant)
Sioux	U.S. 75/Iowa 10
Story	U.S. 69/Iowa 210 (SE quadrant)
Tama	U.S. 30/Iowa 21 (SW quadrant)
Union	U.S. 34/Quail Ave (East of Afton)
Van Buren	Iowa 1/Iowa 16

Source: Iowa DOT

Table 3.2: Existing county-owned inventory

County	Location
Benton	U.S. 30/Co Rd V40
Bremer	U.S. 63/Co Rd C33 (NW quadrant)
Clarke	I-35/Co Rd R35 (SW quadrant)
Dallas	Co Rd F65/EI Paso Ave/Old U.S. 6 (NW quadrant)
Dallas	Iowa 44/Co Rd P58 (NW quadrant)
Dallas	I-80/Co Rd P57 (NE quadrant)

Johnson	Iowa 1/Co Rd F62 (SE quadrant)
Mitchell	Iowa 9/Co Rd T26 (Foothill Ave)
Pocahontas	Iowa 3/Co Rd N65 (SE quadrant)
Sioux	U.S. 18/Co Rd K42/Garfield Ave
Washington	Iowa 1/Co Rd G36
Washington	U.S. 218/Co Rd G36 (SW quadrant)

Source: Iowa DOT

Once this process had been completed, the Office of Systems Planning could then determine a methodology for identifying candidate park and ride locations. It should be noted that the existing inventory of state-owned locations did not factor into the overall analysis until the end, during the gap analysis explained in Chapter 5. The intent behind the overall analysis was to identify locations based on data indicating demand and need as opposed to identifying additional locations based on the existing system, due to the provisional nature of development for park and ride locations prior to this plan. Therefore, to achieve unbiased results, the initial analysis was approached and locations were identified without consideration of the existing system.

### 3.2 Initial conceptualization

In analyzing potential demand, counties that had the greatest interaction in terms of commuting activity had to be identified. That is, which county pairs have the highest residence-to-workplace passenger flows traveling between them? To answer this question, the following data sources were examined.

- [2000 Census residence county to workplace county flows](#)
- [2006-2010 American Community Survey \(ACS\) county-to-county commuting flows](#)

Each of these data sources has strengths and weaknesses. The 2000 census data is the most complete and accurate data set – the last data of this type to be collected through the old census long form – yet it is fairly dated. The ACS data is the opposite in that it does not provide a single year snapshot but is much more current. The solution was to examine both of these data sources in combination.

For the sake of this initial examination, it was recognized that exact commuter volumes may not be as important as the relative commuter volumes when comparing different county pairs against each other. Therefore, while the absolute number of commuters has undoubtedly changed since the 2000 census,

it was anticipated that a ranking of those county pairs with the greatest interactions would not have changed significantly since that time.

This assumption held true when the 2000 census data was compared to the 2010 ACS data. When ranking the top 20 county pairs by residence-to-workplace passenger flows using both of these data sources, the average deviation in ranking between the two lists was just over one. With this knowledge, it was decided that the ACS data was reliable as well as current, and thus would be the basis for the analysis going forward.

### 3.3 Analysis structure

#### County pair and origin-destination identification

Using the ACS data that was discussed in the previous section, a ranking of county pairs was developed based on the level of commuting interaction between those counties. This ranking would eventually be used to constrain the analysis to a reasonable number of locations, and would also be the basis for the prioritization discussed later in this section. The next step was to identify an origin and destination for each county pair.

For the sake of this initial analysis, the origin was defined as the geographic center of the most significant cluster of population in the residence county, and the destination was defined as the geographic center of the most significant cluster of employment in the workplace county. While destination identification was fairly straightforward, two scenarios existed that presented challenges in identifying a small number of residence county origins. This included residence counties with dual population centers or residence counties with no obvious population cluster at all. In these rare cases, a close examination of the passenger traffic data and local agency input was critical.

#### Commuter route identification

After the origin and destination had been identified, the next step was to identify the most heavily traveled commuter route between each county pair. In many cases, the primary commuter route was self-evident, particularly in areas where a single major highway connects obvious population and employment centers. In most of the remaining cases, the most heavily-traveled commuter route could be identified by examining passenger traffic data along the possible connecting routes. Typically, there was an obvious confluence of traffic onto the preferred route within the residence county.

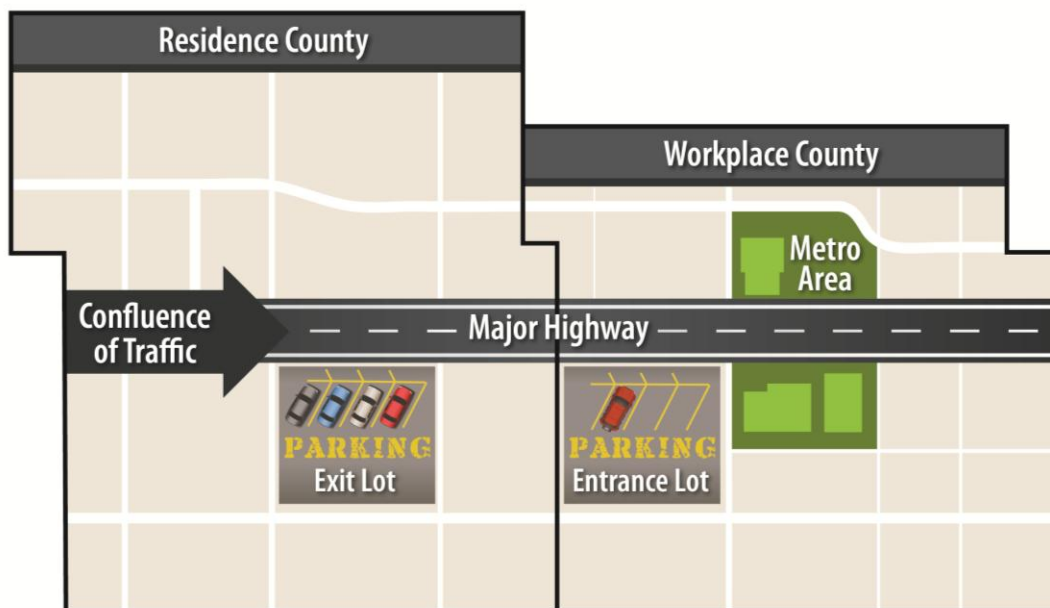
In a few rare instances, local authorities such as Iowa DOT district offices were consulted in order to identify the appropriate route(s). This was typically in situations that involved comparable parallel commuter routes or multiple river crossings in interstate areas.

**Candidate location identification**

Once the origin, destination, and primary commuter route were identified for each county pair, the analysis could then shift to identifying possible candidate locations for park and ride facilities. In doing so, the nature of commuting in Iowa first had to be considered. Since Iowa does not have large, expansive metropolitan areas like Minneapolis or Chicago, commuters are typically utilizing park and ride facilities or similar parking and transfer locations as they exit their place of residence, before they have traveled significantly toward their workplace. These types of facilities are often referred to as exit lots.

In areas like Minneapolis or Chicago, commuters often utilize the opposite, which are entrance lots located at the outskirts of the destination city. These lots, which often involve a transfer to a public transit service, are intended to assist the commuter in avoiding significant traffic congestion or a lack of parking near their workplace. This is a relative nonfactor in Iowa. With this in mind, initial candidate locations were identified along the primary commuter routes near the most significant confluence of traffic within the county of residence (see Figure 3.1).

Figure 3.1: “Exit” and “entrance” lots



Source: Iowa DOT



## Prioritization

Initially, it was assumed that priority would be given to those locations that have the potential to achieve the largest reduction in commuter-vehicle volume. One limitation with this approach is that it does not acknowledge commuting distance and the increased inefficiencies and externalities associated with longer commutes. Also, a prioritization based solely on a reduction in volume would likely be biased toward those counties in and around metropolitan areas. To address this, the Office of Systems Planning investigated the potential of factoring commute distance into the analysis. The commute distance was to be calculated as the distance along the previously identified commuter route between each origin-destination pair.

With this in mind, the analysis was to be conducted with the goal of developing two separate priority lists intended to achieve two different but important goals:

1. **Commuter-vehicle volume reduction:** Priority is given to those corridors that have the potential to achieve the largest reduction in commuter-vehicle volume.
2. **Commuter-mileage reduction:** Priority is given to those corridors that have the potential to achieve the largest reduction in commuter-miles, calculated by multiplying the county-to-county passenger flows by the distance between the origin and destination in miles.

The following example illustrates how two different county pairs could be prioritized differently when analyzed within the context of these two goals.

5,000 residents of County A commute to County B for work. The distance between the identified origin-destination for this pair of counties is 20 miles.

3,000 residents of County X commute to County Y for work. The distance between the identified origin-destination for this pair of counties is 40 miles.

### **Potential commuter-vehicle volume reduction:**

County A to County B (5,000 commuters)

County X to County Y (3,000 commuters)

### **Potential commuter-mileage reduction:**

County X to County Y (3,000 commuters x 40 miles = 120,000 commuter-miles)

County A to County B (5,000 commuters x 20 miles = 100,000 commuter-miles)

While a prioritization process that accounts for both commuter-vehicle volume reduction and commuter-mileage reduction is preferable, the data sources and methods currently available cannot accommodate a commuter-mileage reduction analysis at this time. However, as data sources and analysis methods develop over time, this issue may be revisited and the plan could be updated to include this second prioritization. Therefore, to place the candidate locations more in line with the goals and intent behind the PRSP, the commuter-vehicle volume reduction process was utilized to identify locations that would serve the largest share of commuters on the roadway.

### 3.4 Input

The analysis outlined in this chapter was applied statewide. Once a draft network was identified by Iowa DOT central office staff, these candidate locations were vetted through an input process that included a review by the following.

- Iowa DOT's district staff
- MPO and RPA planning staff
- Public transit providers
- The public (e.g., comment solicitation, online survey, public meetings)

This external review was particularly useful in obtaining local knowledge and input. Local transportation professionals and residents have an intimate knowledge of their area's unique commuter behavior, which occasionally involves interactions that cannot be easily understood through an examination of census or traffic data. Ultimately, this local knowledge was used to either confirm or modify the candidate locations identified through the initial analysis. A summary of stakeholder input, which includes Iowa DOT districts, MPOs, RPAs, and public transit providers, is contained in Appendix 1.

In addition to stakeholder input, public input is a primary component of the planning process. For this plan the Iowa DOT presented the draft plan for public comment from September 2, 2014 through October 16, 2014, for a total of 45 days. To gather input the Iowa DOT solicited comments through an online survey and via email, and held seven public input meetings at locations around the state. Through the survey and comments submitted, social media outreach, and project webpage, the Iowa DOT reached at least 8,000 individuals, and received direct input from approximately 280 members of the public across the state. For more detailed information regarding public input that was received, please refer to Appendix 2.

Overall, feedback on the plan and candidate locations from stakeholders and the public was very positive. One of the most compelling forms of support comes from the online survey.

**Despite 80.2 percent of respondents having indicated that they do not currently carpool or rideshare, 92.5 percent of respondents were still supportive of the state identifying opportunities for park and ride facilities in Iowa.**

Despite 80.2 percent of respondents having indicated that they do not currently carpool or rideshare, 92.5 percent of respondents were still supportive of the state identifying opportunities for park and ride facilities in Iowa. Additionally, 52 percent of respondents indicated that if a designated car pool location was available and convenient, they would use one and approximately the same number (51 percent) indicated that those in their community would as well. One can infer from this that there is a public desire for facilities to support ridesharing, and adding park and ride facilities may provide the opportunities for more commuters to make that choice.

However, having a park and ride facility available is not the only factor in an individual's decision to rideshare, as was indicated in the survey results. When those that do not currently rideshare were asked for the reasons why, work schedule, personal schedule, access to a vehicle during the day, and not finding anyone to carpool with were among the top reasons cited. These survey results support the assumption that facilitating an effective rideshare system requires a comprehensive approach to travel demand management. Ridesharing programs, transit systems, employer incentives, and park and ride facilities are all components of a system that works best when they are coordinated together. For these reasons, and those cited earlier in Chapter 1, the Office of Systems Planning and Office of Public Transit will be working together to implement this plan and the statewide ridesharing program in a coordinated fashion.

Input was also received on candidate locations via stakeholder discussions and through the online survey and public meetings. Although some of the candidate locations were modified slightly based upon input received through this process, most modifications were minor and resulted from input related to items such as ease of access for locations, proximity of locations to the local commuter base, and proximity of locations to local transit service. The following chapters will present the network of candidate park and ride locations developed through this process, compare them to the existing system to identify gaps, and then prioritize those gaps based on the commuter-vehicle volume reduction goal mentioned previously. As these chapters will demonstrate, the strength of this data-driven analysis is in its objectivity and impartiality.

## 4. Statewide network

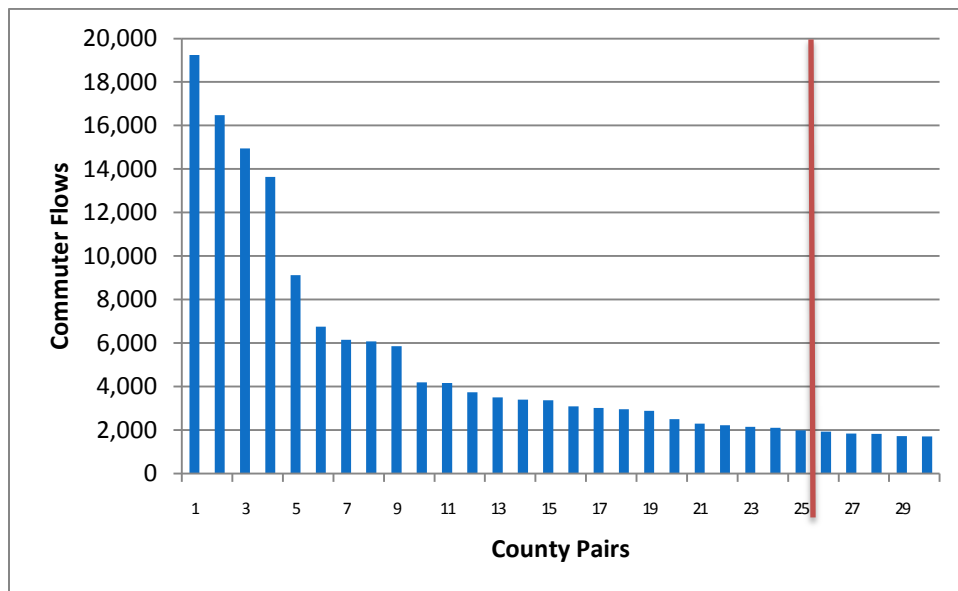
After the proposed structure of the analysis had been conceived, it was recognized that this analysis could not realistically be applied to every county pair contained in the ACS dataset. This was neither feasible nor logical and would need to be addressed before proceeding further.

### 4.1 Drawing the line

In order to constrain the analysis in terms of the number of candidate park and ride locations that would be presented, a determination had to be made regarding the cutoff point, or where to “draw the line.” To do so, both a reasonable number of locations and a logical cutoff in terms of residence-to-workplace commuter flows had to be defined. In considering these two points, a logical cutoff presented itself at the top 25 county pairs.

Analyzing 25 county pairs was certainly feasible, and drawing the line at this point allowed the analysis to include all county pairs that have commuter flows of at least 2,000 traveling between them. Beyond this point, the commuter flows level out between 1,000 and 1,500 for the next 25 or so county pairs. This cutoff point is presented visually in Figure 4.1.

Figure 4.1: County-to-county commuter flow chart



Source: U.S. Census Bureau, 2006-2010 American Community Survey's five-year estimates

## 4.2 Top county pairs

The 25 county pairs identified in Table 4.1 are those counties that had the highest residence-to-workplace commuter flows traveling between them according to the 2006-2010 ACS data. As noted in Chapter 3, this list aligned very closely with a similar ranking using 2000 census data. The county pairs in Table 4.1 are listed alphabetically by residence county.

Table 4.1: Top 25 county-to-county commuting pairs

Residence county	Workplace county
Benton	Linn
Boone	Story
Bremer	Black Hawk
Buchanan	Black Hawk
Cedar	Johnson
Clinton	Scott
Dallas	Polk
Jackson	Dubuque
Jasper	Polk
Johnson	Linn
Jones	Linn
Linn	Johnson
Madison	Polk
Mahaska	Marion
Marion	Polk
Plymouth	Woodbury
Polk	Dallas
Polk	Story
Pottawattamie	Douglas (Neb.)
Scott	Rock Island (Ill.)

Story	Polk
Warren	Polk
Washington	Johnson
Woodbury	Dakota (Neb.)
Woodbury	Union (S.D.)

Source: U.S. Census Bureau, 2006-2010 American Community Survey’s five-year estimates

### 4.3 Initial statewide network

After identifying the top county pairs, the origin, destination, and primary commuter route were then identified using the process explained in Chapter 3. From there, the analysis shifted to identifying possible candidate locations for park and ride facilities. As mentioned previously, these candidate locations were, for the most part, identified along the primary commuter routes near the most significant confluence of traffic within the county of residence. To summarize the analysis that was presented in Chapter 3, it essentially seeks to answer the following three questions in identifying possible candidate locations.

1. Which counties have the greatest interaction in terms of commuting activity?
2. What are the most heavily traveled commuter routes between these counties?
3. What locations along these routes would serve the most commuters as they exit their places of residence?

As was mentioned earlier in Chapter 3, candidate locations identified through the analysis were further vetted through an input process that included outreach to Iowa DOT district transportation planners, metropolitan and regional planning agencies, and transit agencies. Through this input process, locations were modified, added, or removed from the list. The changes that resulted from this process are summarized in Appendix 1 of this plan, and are reflected in Table 4.2.

Table 4.2: Statewide candidate locations

Residence county	Workplace county	Candidate location A	Candidate location B
Benton	Linn	U.S. 30/U.S. 218 (Vinton)	
Boone	Story	U.S. 30/S Story St (Boone)	

Bremer	Black Hawk	U.S. 218/South corporate limits (Waverly)	
Buchanan	Black Hawk	U.S. 20/Iowa 150 (Independence)	
Cedar	Johnson	I-80/Iowa 38 (Tipton)	
Clinton	Scott	U.S. 30/S 6 <sup>th</sup> Ave (De Witt)	
Dallas	Polk	I-35/I-80 (West Des Moines)	U.S. 6/East corporate limits (Waukee)
Jackson/ Delaware	Dubuque	U.S. 61/Iowa 64/West Platt St (Maquoketa)	U.S. 20/Iowa 136/9 <sup>th</sup> St SE (Dyersville)
Jasper	Polk	I-80/Iowa 14 (Newton)	
Johnson	Linn	I-380/Co Rd F28 (North Liberty)	I-80/1 <sup>st</sup> Ave (Coralville)
Jones	Linn	U.S. 151/Iowa 64/ E 3 <sup>rd</sup> St (Anamosa)	
Linn	Johnson	I-380/Wright Brothers Blvd (Cedar Rapids)	I-380/Iowa 100 (Cedar Rapids)
Madison	Polk	I-80/U.S. 169 (De Soto)	
Mahaska	Marion	Iowa 92/Iowa 163 (Oskaloosa)	
Marion	Polk	Iowa 14/Iowa 163 (Monroe)	Iowa 5/Iowa 92/Co Rd S45 (Pleasantville)
Monona	Woodbury/ Pottawattamie	I-29/Iowa 175 (Onawa)	
Plymouth	Woodbury	U.S. 75/Business U.S. 75 (Le Mars)	
Polk	Dallas	I-235/U.S. 6 (Des Moines)	I-35/I-80 (West Des Moines)
Polk	Story	I-35/NE 36 <sup>th</sup> St (Ankeny)	I-35/Corporate Woods Dr (Ankeny)
Pottawattamie	Douglas (Neb.)	I-29/U.S. 275/Iowa 92 (Council Bluffs)	I-29/I-680 (Crescent)
Scott	Rock Island (Ill.)	U.S. 61/E Kimberly Rd (Davenport)	U.S. 61/Iowa 22 (Davenport)
Story	Polk	U.S. 30/Dayton Ave (Ames)	

Warren	Polk	U.S. 69/North corporate limits (Indianola)	
Washington	Johnson	U.S. 218/Iowa 22 (Riverside)	
Woodbury	Dakota (Neb.)	I-29/U.S. 20 (Sioux City)	
Woodbury	Union (S.D.)	I-29/Riverside Blvd (Sioux City)	

Source: Iowa DOT

Note: The above represent general candidate locations. Specific sites have not been identified.

It is worth noting that the candidate locations identified in Table 4.2 could present site challenges for a variety of reasons. For example, a candidate location may have significant access or right of way limitations. The intent is to simply identify those general locations that appear to be ideal candidates based on the factors considered in the analysis. Future implementation would involve a more detailed analysis to identify a specific site within that general location that is best-suited for park and ride lot development.



State-owned park and ride location at U.S. 75 and Iowa 10 in Sioux County



## 5. Gap analysis and prioritization

Before the statewide network presented in Chapter 4 can be prioritized, it must first be compared to the existing system of park and ride lots. In doing so, candidate locations already served by existing park and ride facilities can be identified. All unserved candidate locations would then represent the “gaps” in the network, and it is these remaining locations that will be prioritized.

### 5.1 Existing park and ride system

Iowa’s existing system of state-owned park and ride lots consists of 26 facilities in 22 counties. For a listing of the state-owned locations please refer back to Table 3.1. Many of these existing lots were developed during the 1980s, primarily in response to a growing demand that resulted from an increase in fuel prices. In most cases, lot development was truly the result of grass-roots efforts, with Iowa DOT district offices often responding to specific public requests for park and ride facilities. Very basic lots were provided, frequently sharing space with material storage locations on state right of way.

While the district offices were largely effective in responding to these specific requests, this practice led to an overall lack of statewide consistency in terms of how facilities were managed, as each district handled these requests differently. Permission to use state-owned lots was often granted on an informal basis, there was no consistency in signage posted to identify these locations, and no policies existed to allow for more coordinated planning and implementation. These issues, in addition to the needs discussed in section 1.1, pointed to a need for both a department policy and statewide system plan.

The most significant result of this past practice was an existing system of park and ride lots that leaves substantial service gaps when demand is measured through a more comprehensive, data-driven analysis. Of the 35 candidate locations identified in Chapter 4, only a small handful are already served by existing park and ride lots. These locations, as well as the remaining network gaps, are identified in the following section.

## 5.2 Identification of network gaps

In comparing the statewide network of candidate locations to the existing system of park and ride lots, it was determined that four locations in Benton, Boone, Madison, and Marion counties are already being served. These locations are shown in red in Table 5.1, and will be excluded from the prioritization of the remaining network gaps contained in the following section.

Table 5.1: Statewide candidate and existing locations

Residence county	Workplace county	Candidate location A	Candidate location B
Benton	Linn	<i>Existing location at U.S. 30/U.S. 218 (Vinton)</i>	
Boone	Story	<i>Existing location at U.S. 30/ S Story St (Boone)</i>	
Bremer	Black Hawk	U.S. 218/South corporate limits (Waverly)	
Buchanan	Black Hawk	U.S. 20/Iowa 150 (Independence)	
Cedar	Johnson	I-80/Iowa 38 (Tipton)	
Clinton	Scott	U.S. 30/S 6 <sup>th</sup> Ave (De Witt)	
Dallas	Polk	I-35/I-80 (West Des Moines)	U.S. 6/East corporate limits (Waukee)
Jackson/ Delaware	Dubuque	U.S. 61/Iowa 64/W Platt St (Maquoketa)	U.S. 20/Iowa 136/9 <sup>th</sup> St SE (Dyersville)
Jasper	Polk	I-80/Iowa 14 (Newton)	
Johnson	Linn	I-380/Co Rd F28 (North Liberty)	I-80/1 <sup>st</sup> Ave (Coralville)

Jones	Linn	U.S. 151/Iowa 64/ E 3 <sup>rd</sup> St (Anamosa)	
Linn	Johnson	I-380/Wright Brothers Blvd (Cedar Rapids)	I-380/Iowa 100 (Cedar Rapids)
Madison	Polk	<i>Existing location at I-80/U.S. 169 (De Soto)</i>	
Mahaska	Marion	Iowa 92/Iowa 163 (Oskaloosa)	
Marion	Polk	Iowa 14/Iowa 163 (Monroe)	<i>Existing location at Iowa 5/Iowa 92/Co Rd S45 (Pleasantville)</i>
Monona	Woodbury/ Pottawattamie	I-29/Iowa 175 (Onawa)	
Plymouth	Woodbury	U.S. 75/Business U.S. 75 (Le Mars)	
Polk	Dallas	I-235/U.S. 6 (Des Moines)	I-35/I-80 (West Des Moines)
Polk	Story	I-35/NE 36 <sup>th</sup> St (Ankeny)	I-35/Corporate Woods Dr (Ankeny)
Pottawattamie	Douglas (Neb.)	I-29/U.S. 275/Iowa 92 (Council Bluffs)	I-29/I-680 (Crescent)
Scott	Rock Island (Ill.)	U.S. 61/E Kimberly Rd (Davenport)	U.S. 61/Iowa 22 (Davenport)
Story	Polk	U.S. 30/Dayton Ave (Ames)	
Warren	Polk	U.S. 69/North corporate limits (Indianola)	
Washington	Johnson	U.S. 218/Iowa 22 (Riverside)	

Woodbury	Dakota (Neb.)	I-29/U.S. 20 (Sioux City)	
Woodbury	Union (S.D.)	I-29/Riverside Blvd (Sioux City)	

Source: Iowa DOT

Note: The above represent general candidate locations. Specific sites have not been identified.

### 5.3 Prioritization of network gaps

As outlined in Chapter 3, candidate locations not already served by park and ride facilities were prioritized based on the amount of commuter traffic flowing between the residence and workplace county pairs. Through this process, priority is given to those corridors that have the potential to achieve the largest reduction in commuter-vehicle volume. This volume reduction goal is consistent with the goals of safety, efficiency, and quality of life established in the State Transportation Plan and summarized in Chapter 1 of this plan.

With this in mind, the unserved candidate locations are prioritized in the following table. Table 5.2 lists the candidate locations from highest to lowest priority by residence-to-workplace commuter flows for each respective county pair.

Table 5.2: Prioritized statewide candidate locations

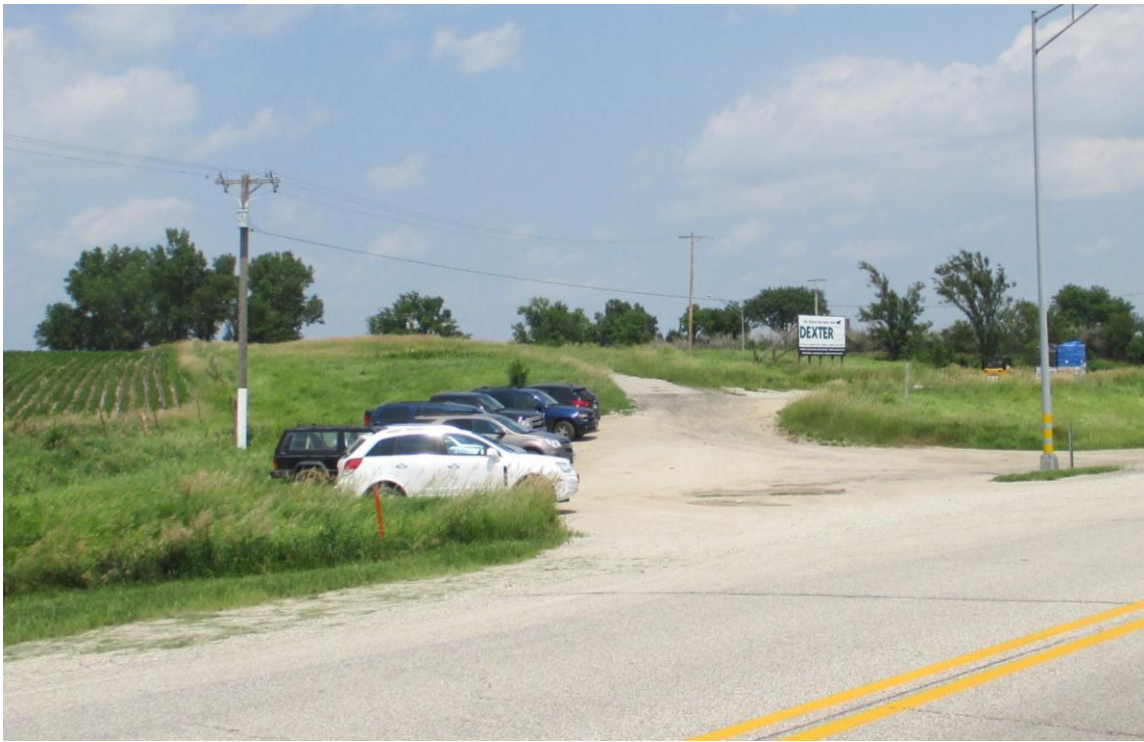
Location number	Residence county	Workplace county	Candidate location A	Candidate location B
1	Dallas	Polk	I-35/I-80 (West Des Moines)	U.S. 6/East corporate limits (Waukee)
2	Pottawattamie	Douglas (Neb.)	I-29/U.S. 275/Iowa 92 (Council Bluffs)	I-29/I-680 (Crescent)
3	Scott	Rock Island (Ill.)	U.S. 61/E Kimberly Rd (Davenport)	U.S. 61/Iowa 22 (Davenport)
4	Warren	Polk	U.S. 69/North corporate limits (Indianola)	
5	Polk	Dallas	I-235/U.S. 6 (Des Moines)	I-35/I-80 (West Des Moines)

6	Johnson	Linn	I-380/Co Rd F28 (North Liberty)	I-80/1 <sup>st</sup> Ave (Coralville)
7	Linn	Johnson	I-380/Wright Brothers Blvd (Cedar Rapids)	I-380/Iowa 100 (Cedar Rapids)
8	Story	Polk	U.S. 30/Dayton Ave (Ames)	
9	Woodbury	Dakota (Neb.)	I-29/U.S. 20 (Sioux City)	
10	Jasper	Polk	I-80/Iowa 14 (Newton)	
11	Bremer	Black Hawk	U.S. 218/South corporate limits (Waverly)	
12	Woodbury	Union (S.D.)	I-29/Riverside Blvd (Sioux City)	
13	Washington	Johnson	U.S. 218/Iowa 22 (Riverside)	
14	Jones	Linn	U.S. 151/Iowa 64/ E 3 <sup>rd</sup> St (Anamosa)	
15	Plymouth	Woodbury	U.S. 75/Business U.S. 75 (Le Mars)	
16	Polk	Story	I-35/NE 36th St. (Ankeny)	I-35/Corporate Woods Dr (Ankeny)
17	Clinton	Scott	U.S. 30/S 6 <sup>th</sup> Ave (De Witt)	
18	Buchanan	Black Hawk	U.S. 20/Iowa 150 (Independence)	
19	Cedar	Johnson	I-80/Iowa 38 (Tipton)	
20	Mahaska	Marion	Iowa 92/Iowa 163 (Oskaloosa)	
21	Marion	Polk	Iowa 14/Iowa 163 (Monroe)	

22	Jackson/ Delaware	Dubuque	U.S. 61/Iowa 64/W Platt St (Maquoketa)	U.S. 20/Iowa 136/9 <sup>th</sup> St SE (Dyersville)
23	Monona	Woodbury/ Pottawattamie	I-29/Iowa 175 (Onawa)	

Source: Iowa DOT

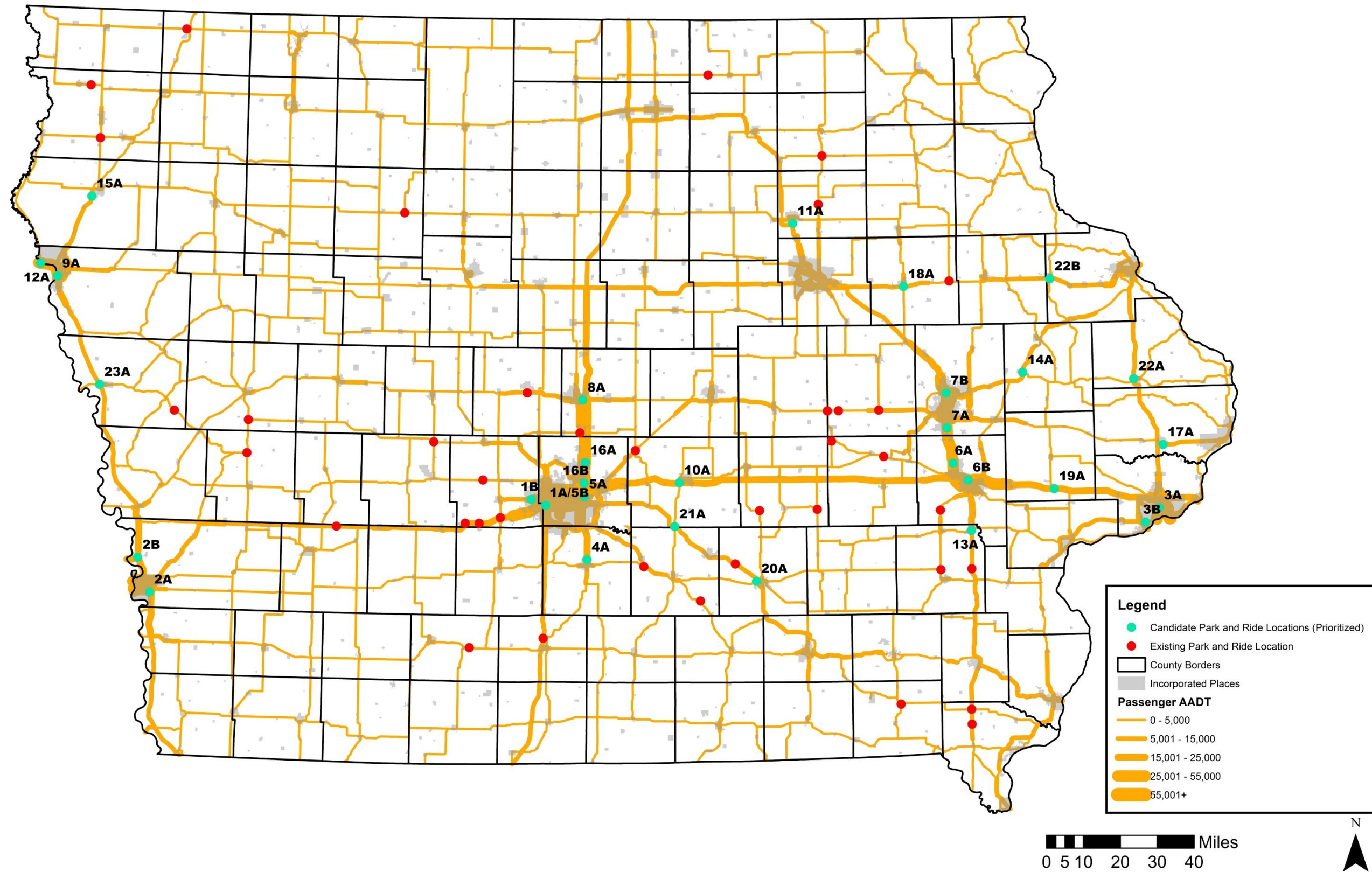
Note: The above represent general candidate locations. Specific sites have not been identified.



County-owned park and ride location at F65 and El Paso Ave (Old U.S. 6) in Dallas County

The locations identified in Tables 5.1 and 5.2 are also represented visually in the following series of maps. The maps displayed on the next eight pages include a statewide map showing existing park and ride locations as well as candidate locations identified through the analysis discussed in Chapter 3. The candidate locations have numbers and letters (location number, candidate A/B) associated with them that indicate their priority in Table 5.2. In addition to the statewide map, a series of detailed maps depicting locations along major corridors is provided. As shown by these maps, a large proportion of areas unserved by existing park and ride facilities lay within or around metropolitan areas of the state.

Figure 5.1: Statewide map with table-referenced candidate locations

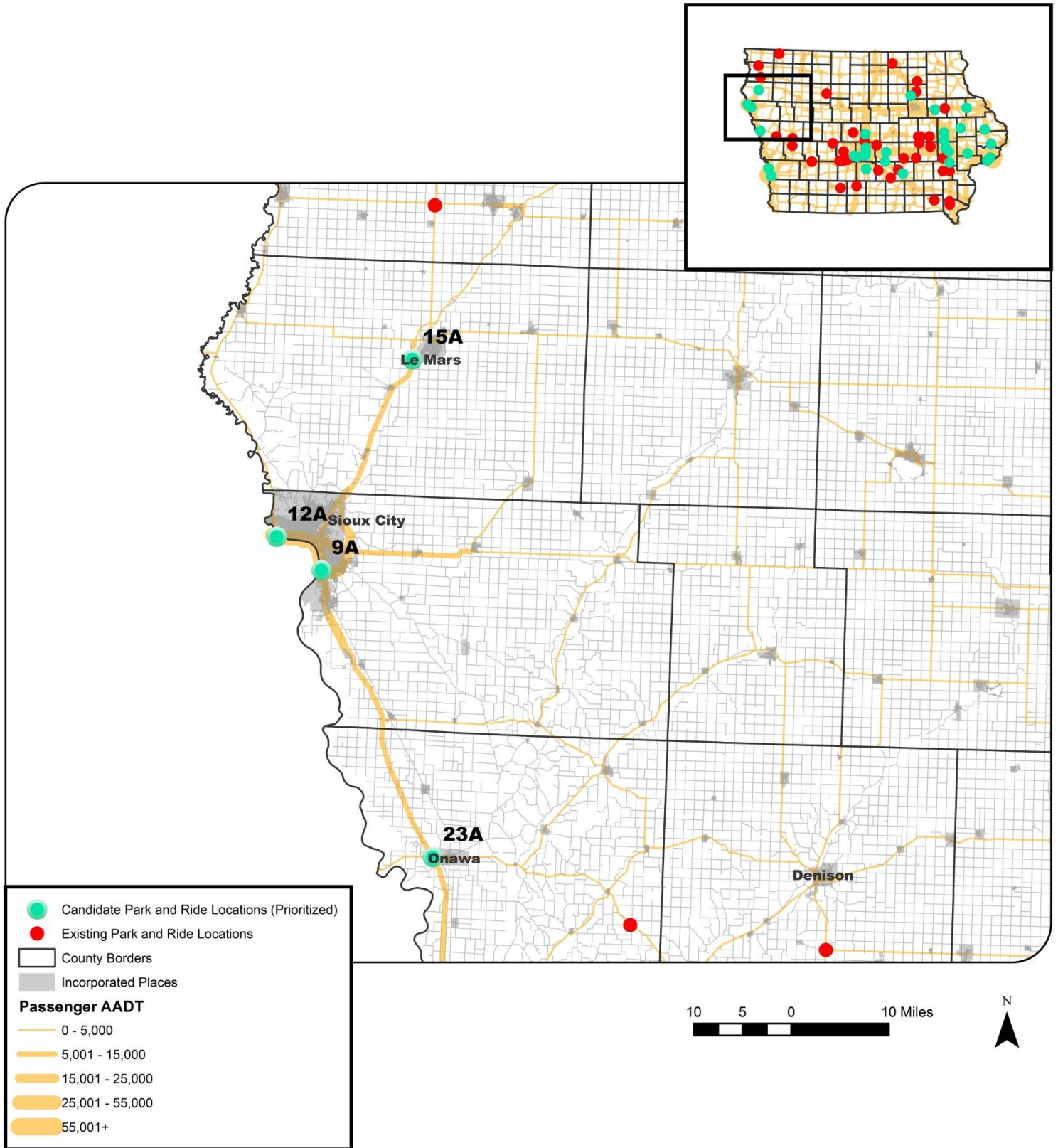


Source: Iowa DOT

This page left blank intentionally

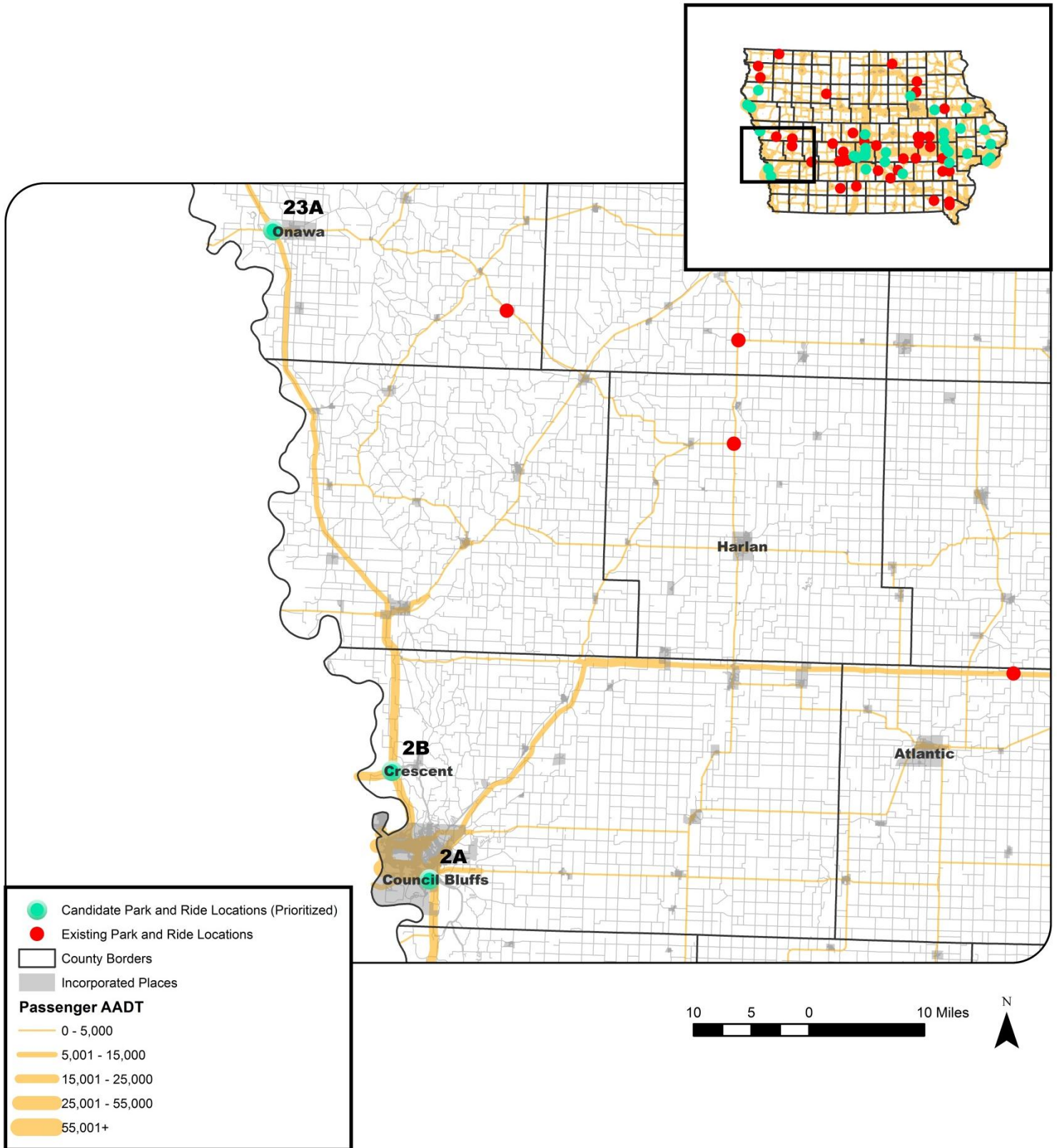


Figure 5.2: Sioux City detail map with table-referenced candidate locations



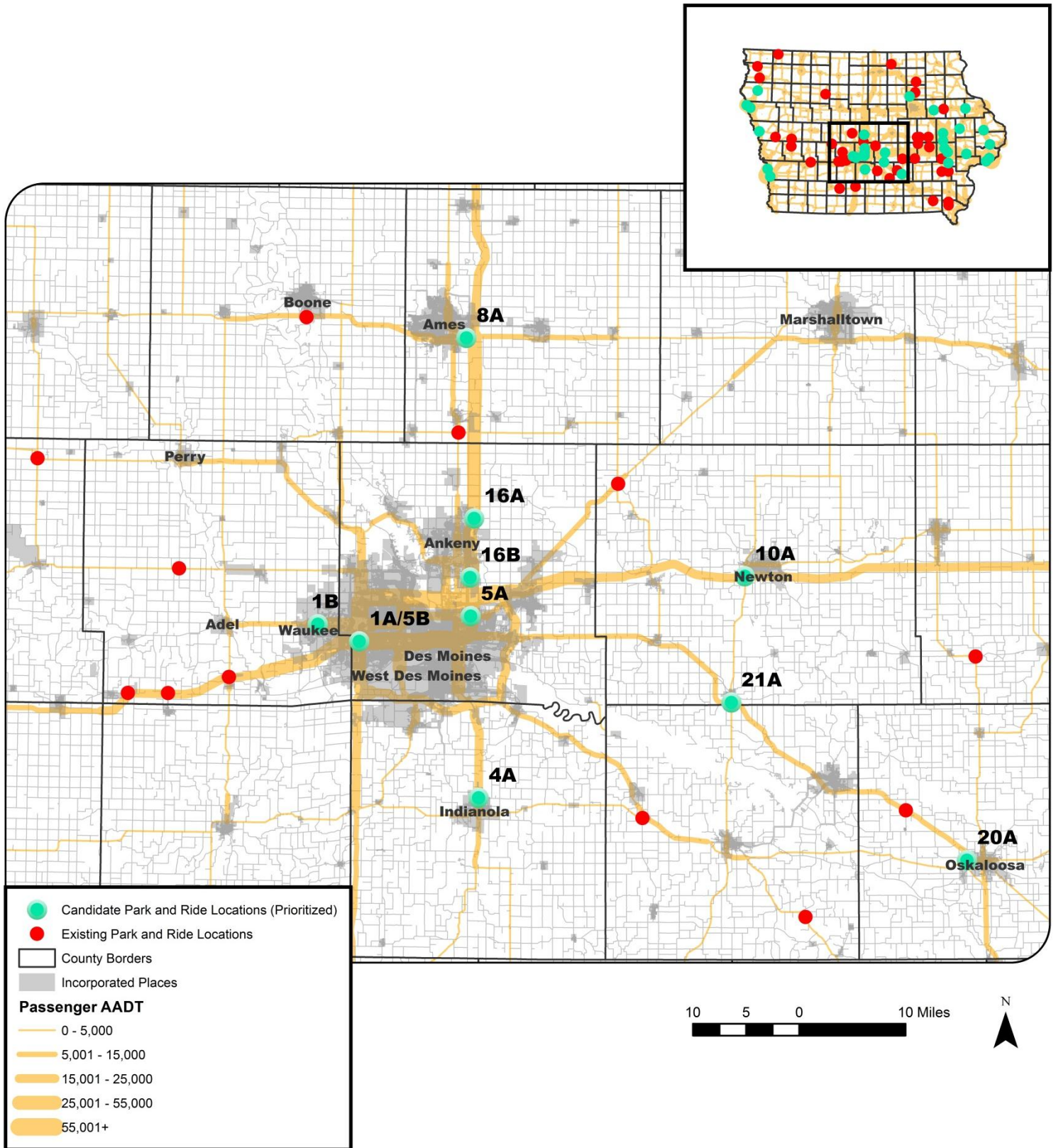
Source: Iowa DOT

Figure 5.3: Council Bluffs-Omaha detail map with table-referenced candidate locations



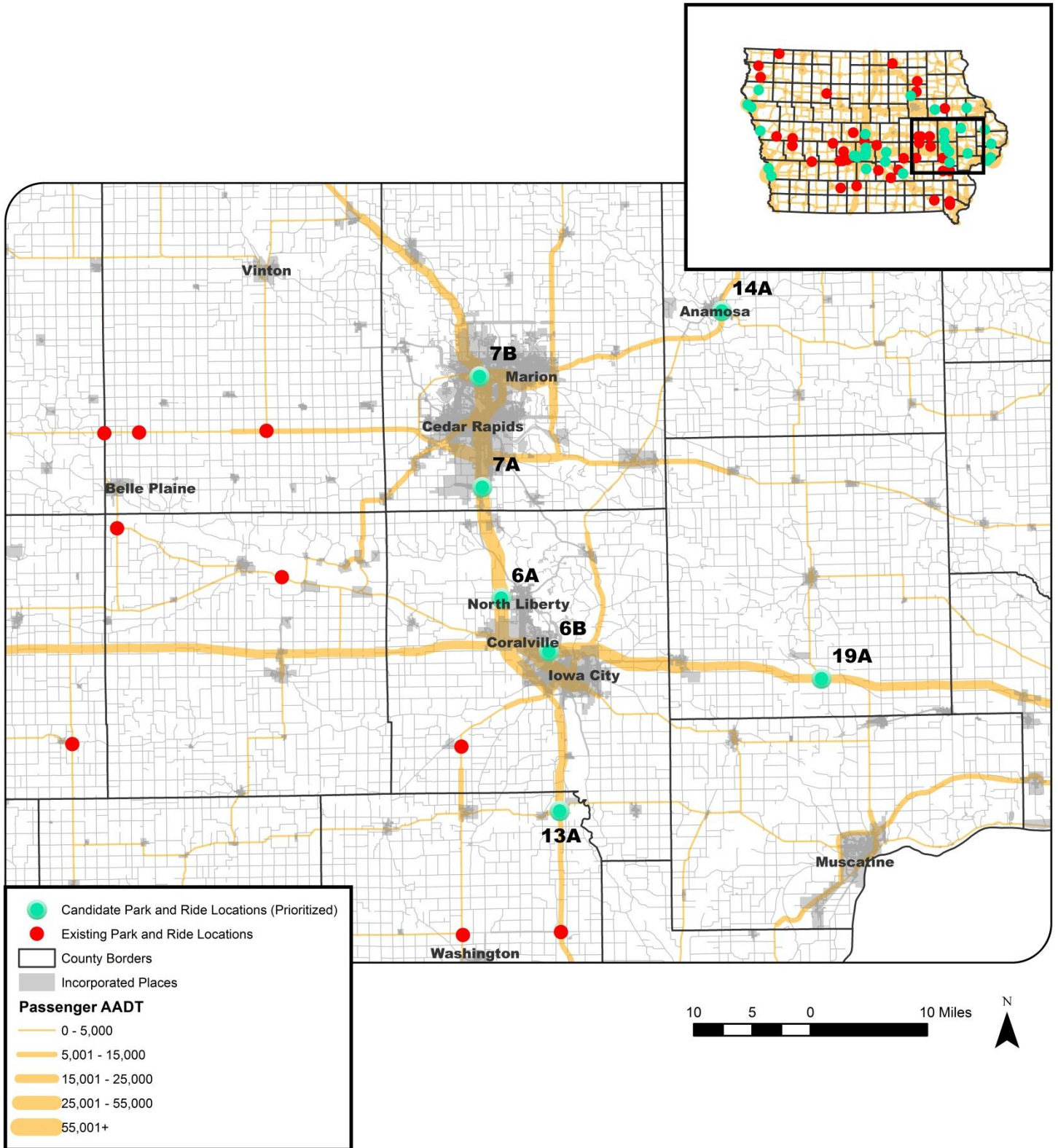
Source: Iowa DOT

Figure 5.4: Ames-Des Moines detail map with table-referenced candidate locations



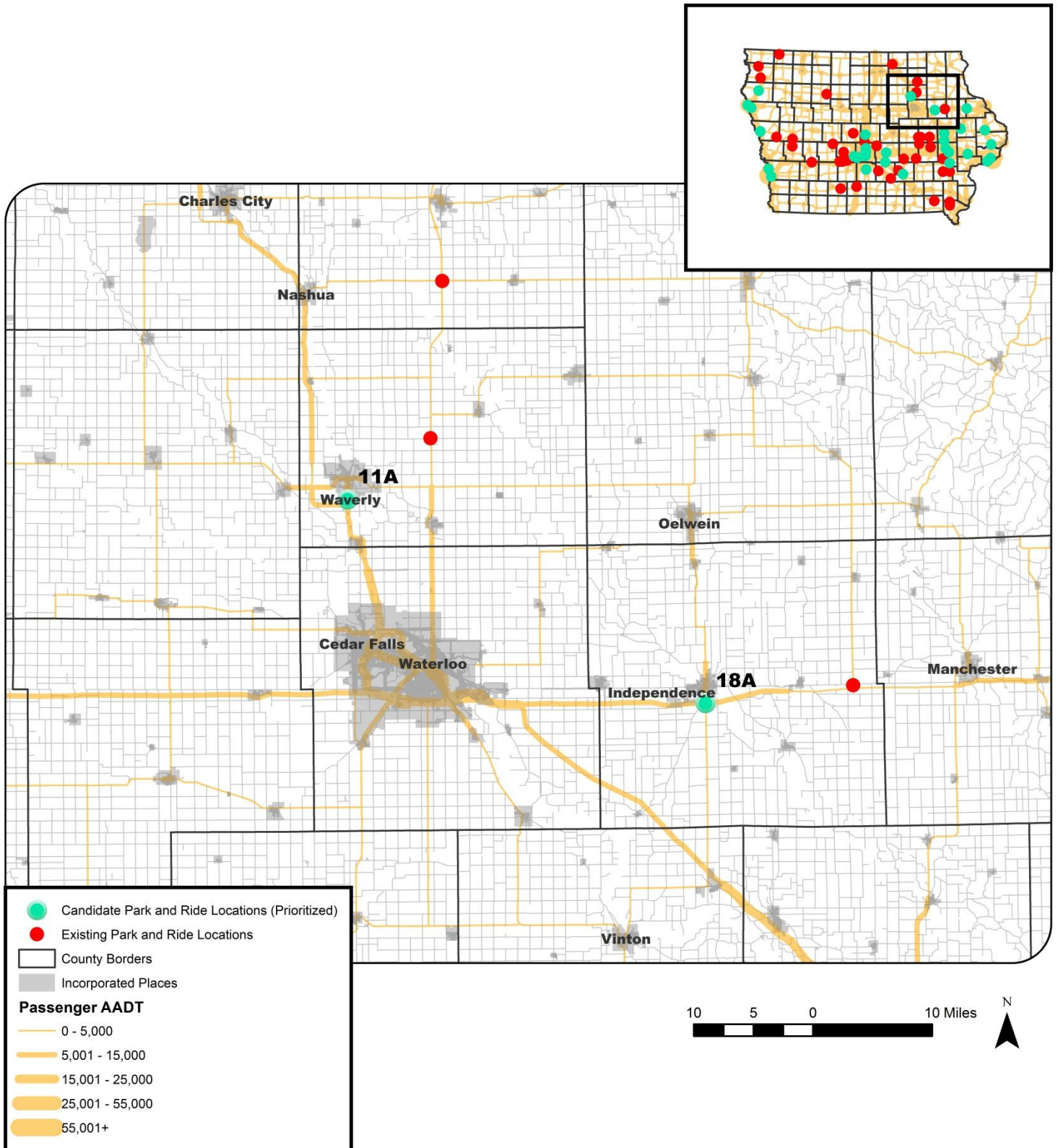
Source: Iowa DOT

Figure 5.5: Cedar Rapids-Iowa City detail map with table-referenced candidate locations



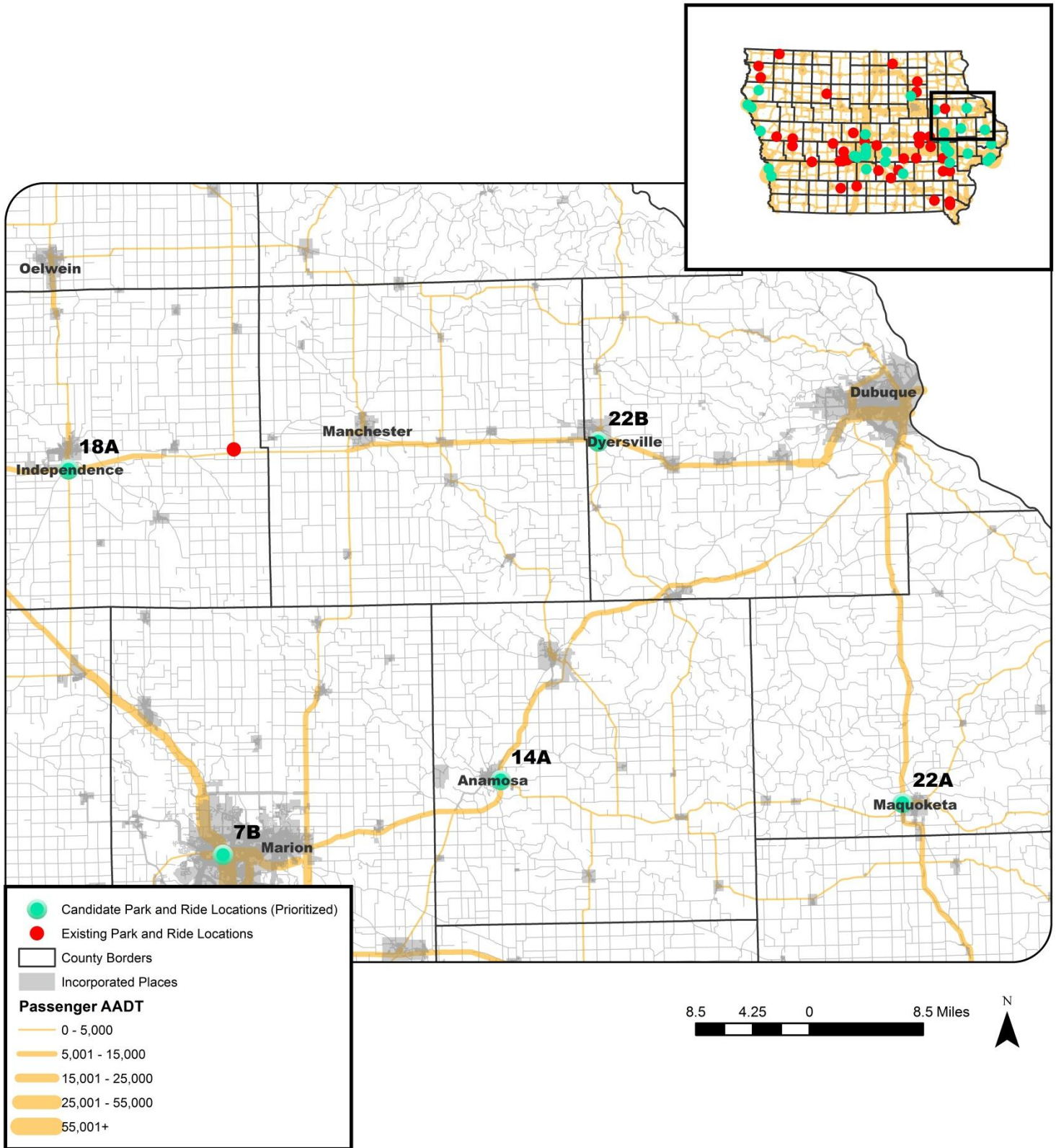
Source: Iowa DOT

Figure 5.6: Waterloo-Cedar Falls detail map with table-referenced candidate locations



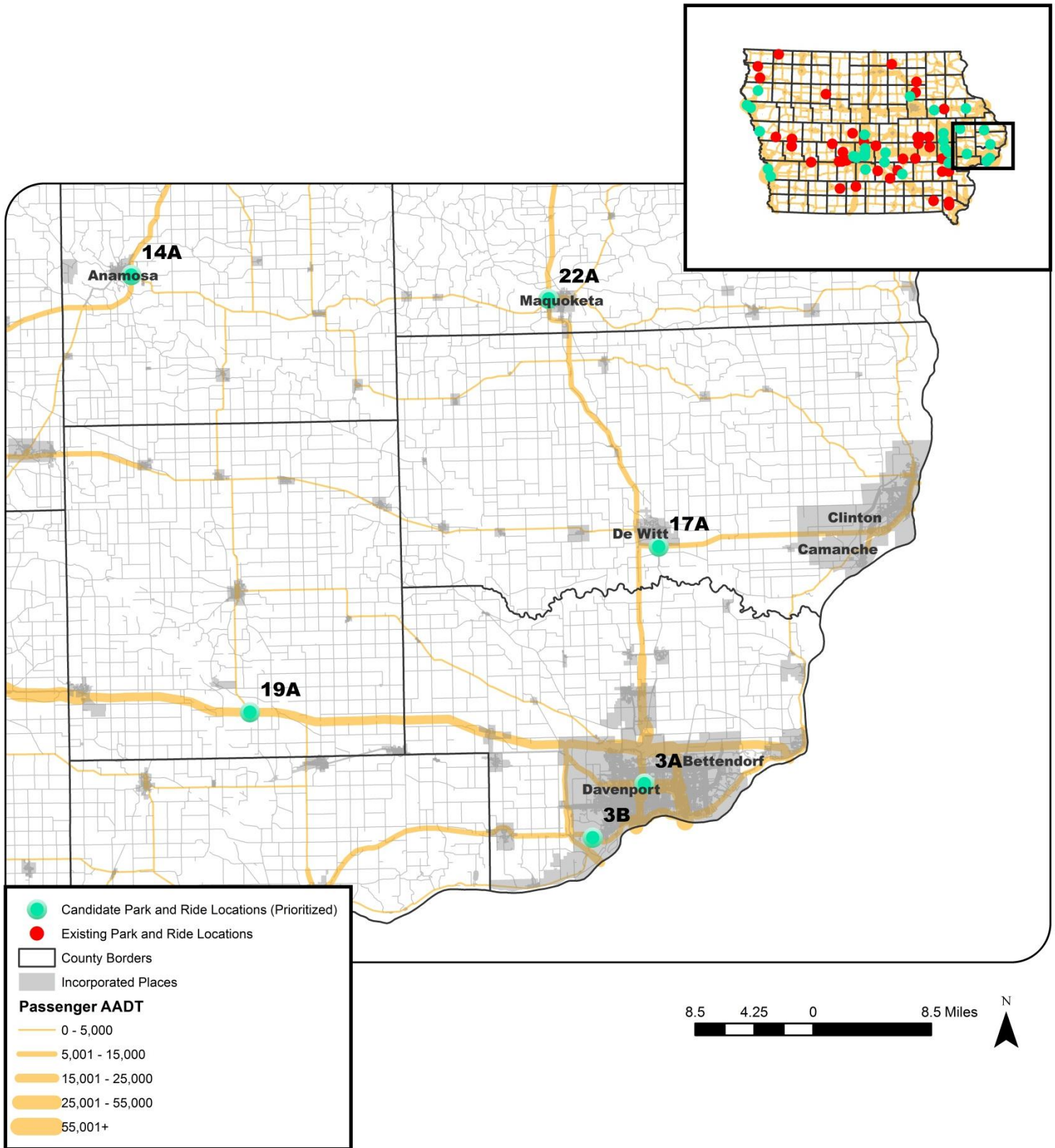
Source: Iowa DOT

Figure 5.7: Dubuque detail map with table-referenced candidate locations



Source: Iowa DOT

Figure 5.8: Davenport detail map with table-referenced candidate locations



Source: Iowa DOT

## 6. Financial analysis

---

Due to a variety of funding options available, financing the statewide network could follow several paths that would result in a wide range of associated costs. In addition to the number of lots, location and design will also greatly affect the funds needed to develop a statewide network. Location will affect the cost parameters as lots located in and/or near cities will likely have higher property acquisition costs than lots located in rural areas. Cost factors are also impacted by design criteria and the type of amenities provided. For example, choosing to have a paved surface instead of a granular surface and adding amenities such as lighting and perimeter fencing would certainly impact project costs.

In terms of future expansion of the statewide network, the number of lots developed will be a function of available funding, programming goals, and development opportunities. Chapter 4 presented a list of the top 25 county-to-county commuting pairs based on the highest residence-to-workplace passenger flows. This cutoff constrained the analysis to a reasonable number of candidate locations, but the actual number of expansion lots that are considered will be a function of those items mentioned above.

### 6.1 Multijurisdictional implementation

As discussed in section 4.3, the intent of this plan was to identify general locations that appear to be ideal candidates for park and ride lot development. Given that specific sites have not been identified, this allows for a multijurisdictional implementation of the statewide network that has been presented in this plan.

Each individual location possesses different characteristics, which may make it more conducive for one jurisdiction to pursue park and ride lot development over another. Ideally, this flexibility will allow for better overall site selection and a more efficient development timeline. As a result, it is recommended that this issue be considered on a location-by-location basis as opportunities for development arise.

### 6.2 Preferred development options

There are a variety of options available for developing a more comprehensive statewide park and ride system. The following presents a hierarchy of preferred development options, primarily based on cost factors and opportunity for development. Each candidate location identified in Chapter 5 should be examined with these preferences in mind.



It should also be noted that, for all development options discussed in this section, the Iowa DOT could provide ridesharing assistance at no cost to the local partner through tools such as statewide ride-matching software. Upon agreement, locations of all available park and ride lots could be advertised on the Iowa DOT's ridesharing/park and ride webpage. Maintenance, liability, and other issues would be discussed between the state and local partners to identify satisfactory solutions within the constraints of the Iowa DOT's park and ride facilities policy.

### **Existing public property**

Due to the high cost of property acquisition, the preferred development option is to utilize existing public property or right of way in the candidate locations identified in Chapter 5. Consistent with the multijurisdictional implementation concept presented previously, existing property could be owned by the state, counties, or cities. The preference for using existing public property is based on the assumption that there would be no property acquisition costs and minimal improvement needed to facilitate use. This public partnering development option has the greatest potential for successful and cost-effective expansion of the park and ride system.

Cities and counties would also have an incentive to provide property for park and ride lots at no cost due to the economic benefits derived from accommodating their residents who commute to different locations for work. While these individuals commute to other locales, they still contribute to the local economy of their place of residence. Cities and counties benefit from local taxes, retail purchases, local school enrollment, and other economic impacts. Again, these economic and social benefits are an incentive for local jurisdictions of any population or location to consider using available property to support their commuting residents.

### **No-cost private property**

Should available public property not exist in the candidate locations identified in Chapter 5, another no-cost option is to partner with private property owners, such as retail businesses, for the use of their parking facilities. In 2004, the National Center for Transit Research conducted a study on the use of Florida park and ride facilities entitled [\*Evaluation of Shared Use Park and Ride Impact on Properties\*](#). Findings indicated that park and ride users made purchases at retail locations that would not have been made had those park and ride facilities not been there. Iowa could benefit from evaluating examples of other states' park and ride programs that have utilized private partners, and the candidate locations identified in Chapter 5 should be examined for such opportunities.

### Leasing private property

A similar partnering path that has been used by some states is lease agreements with private property owners for the use of parking facilities. While this is not a no-cost option, it may be preferable to the final option discussed below as leasing property typically results in lower costs than property acquisition. The Iowa DOT's policy related to park and ride facilities notes that such agreements shall, at a minimum, include the name of the property owner, a contact person and contact information, terms of the agreement, use of the facility, responsibility and schedule for maintenance and inspection, consent to advertise/promote the property as a park and ride facility, security, and signage. Again, Iowa could benefit from evaluating other states' park and ride programs that have successfully utilized the lease agreement option.

### Purchasing public property

Perhaps the least preferable option for the development of a more comprehensive statewide park and ride system is for the Iowa DOT and other public entities to finance property acquisition for the development of expansion lots. While many states have used this development option for much of their park and ride system, partnering to identify no-cost or low-cost opportunities would be preferred. The following section highlights some possible funding sources if development were to be financed primarily by public entities.

## 6.3 Funding sources

Park and ride facilities can be funded in a number of ways and by a variety of sources. Evidence of significant capital investment was shown in a [2012 National Cooperative Highway Research Program Research Results Digest \(359\)](#) report, which surveyed 13 states with established park and ride programs. Nine of these 13 states had programmed funds for park and ride facilities projects, totaling \$1.7 billion over the next 20 years. The options discussed below highlight some of the most commonly used funding sources.

By far the most popular funding source for states with mature park and ride programs is **Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds**. The primary reason for this is because the goals and guidelines for this federal program align very well with park and ride projects. As the program name suggests, CMAQ funding is targeted toward projects that reduce congestion and improve air quality, which is a logical outcome of ridesharing activities supported by park and ride facilities. In addition, these funds cover up to 80 percent of the eligible project costs, requiring just a 20 percent local match.

Currently, Iowa receives approximately \$10 million to \$11 million in CMAQ funding annually, and enjoys maximum flexibility with these funds due to the state's attainment status. Iowa's CMAQ funds are allocated to three separate pots, and funding from two of these pots could be utilized to finance park and ride facilities. The first is a **discretionary set-aside for Iowa DOT's CMAQ activities**, and the second is the **Iowa's Clean Air Attainment Program (ICAAP)**, which distributes funding through a competitive application process.

Another commonly used federal funding source is the **Surface Transportation Program (STP) funds**. These funds also cover up to 80 percent of the eligible project costs, leaving a 20 percent local match similar to the CMAQ program. STP funds also offer greater overall flexibility in terms of project eligibility. Perhaps the most noteworthy advantage of STP funds is that they are available for programming, not only through the Iowa DOT, but primarily through Iowa's **metropolitan planning organizations** and **regional planning affiliations**. This, along with other funding sources discussed later in this section, makes the multijurisdictional implementation concept a real possibility.

Many states have also taken the financing path of incorporating park and ride lots into larger construction or maintenance projects. Under this option, costs for park and ride facilities, including right of way and surface construction, are absorbed into the overall costs for the larger project. With this financing path, advance planning is imperative so that park and ride facilities can be considered when new projects enter the design phase. Regardless of whether or not this linkage occurs, park and ride facilities could be funded using **state Road Use Tax Fund dollars** programmed in the five-year **Iowa Transportation Improvement Program**.

Another important financing option that many states have used is to partner with cities and counties. In those cases where public partnerships still involve development costs, sharing these costs would be beneficial to all involved. In addition to those federal, state, and regional sources highlighted above, there are **local sources of funding** that could be used to finance park and ride facilities through **city capital improvement programs** and **county five-year construction programs**. Just as cities and counties have an incentive to provide property for park and ride lots to accommodate their commuting residents, they also have an incentive to provide local funding.

According to the Federal Transit Administration's 2014 Joint Development Circular, Chapter 53, programs commonly used for transit projects and assistance could also be used for intermodal facilities, parking facilities, and park and ride services. In Iowa, due to limited funding availability, transit funds are typically allocated to public transit operations activities and bus replacement capital purchases. Therefore, the availability of FTA funding in Iowa for park and ride-type facilities is unlikely for the

foreseeable future. In terms of state funding, **Public Transit Infrastructure Grant (PTIG) Program funds** are eligible to be used for park and ride facilities; however they require a vertical component and public transit agency sponsor to qualify. PTIG funds can cover up to 80 percent of project costs up to a total of 40 percent of the total funds available in a given year, and the projects are evaluated based on their benefits to transit.

## 6.4 Cost estimates

The Iowa DOT’s Office of Design and Office of Right of Way have provided information to assist interested parties in developing rough cost estimates for park and ride lot development. In order to provide information that would be useful in a variety of development scenarios, a “menu” of per square foot figures was requested that could be used to develop estimates for paved or granular lot construction on right of way in metropolitan, small urban, nonurban incorporated, or rural locations. Although the figures are accurate according to the latest data available, it should be noted that the cost of land, especially agricultural land, is highly variable from year to year and geographically. Therefore, the averages used to generate development cost estimates should be evaluated accordingly.

**Table 6.1: Right of way acquisition cost estimates (per square foot)**

	Lower	Upper	Average
Metropolitan	\$3.00	\$12.00	<b>\$7.50</b>
Small urban	\$1.50	\$3.50	<b>\$2.50</b>
Nonurban incorporated	\$0.75	\$2.00	<b>\$1.38</b>
Rural	\$0.05	\$0.34	<b>\$0.20</b>

Source: Iowa DOT, Office of Right of Way (2014)



State-owned park and ride location at Iowa 5/Iowa 92 and S45 in Marion County

Table 6.2: Surface construction cost estimates (per square foot)

	Paved	Granular
Earthwork	\$1.10	\$1.10
Special backfill	\$1.10	N/A
7-inch Portland cement concrete pavement	\$3.70	N/A
Granular surface	N/A	\$0.70
Unquantified items*	\$2.90	\$2.90
<b>TOTAL</b>	<b>\$8.80</b>	<b>\$4.70</b>

\*Unquantified items include drainage structures, erosion control, traffic control, lighting, and signage.

Source: Iowa DOT, Office of Design (2014)

To provide perhaps a more tangible point of reference, these per square foot figures were applied to a “typical” lot size in order to estimate costs for full lot development in the eight possible scenarios shown in Table 6.3. For the purposes of this plan, “typical” is defined as the average size of the 26 existing state-owned park and ride lots, which is roughly 12,000 square feet. Conservatively, 350 square feet is needed per parking space, meaning that a 12,000 square-foot lot should accommodate approximately 35 vehicles. Also, it should be noted that “typical” is not to be interpreted as “preferred,” which is a function of each individual location.

Table 6.3: “Typical” lot development cost estimates (12,000 square feet)

	Paved	Granular
Metropolitan	\$195,600	\$146,400
Small urban	\$135,600	\$86,400
Nonurban incorporated	\$122,100	\$72,900
Rural	\$107,940	\$58,740

Source: Iowa DOT (2014)

## 7. Future activity

---

The analysis contained in the preceding chapters sought to answer the following fundamental planning question: As the need to expand the existing park and ride system arises, what locations should be considered and why? Going forward, there are several issues that should be taken into consideration as this plan is implemented.

### 7.1 System implementation

#### Use of available right of way

According to the Iowa DOT's Office of Right of Way, the majority of available right of way involves small, irregular-shaped parcels of land usually left over from intersection improvement projects. Often, these leftover parcels of land are too small and too close to the intersection to allow for acceptable entrance and exit access. Securing additional right of way to expand these intersection parcels would most often involve prohibitive costs and purchase constraints. Although opportunities may be rare, the Iowa DOT has recognized that available right of way suitable for future park and ride use would be of tremendous value from a benefit-cost standpoint.

With this in mind, the Iowa DOT has considered right of way disposal in its policy and procedures related to park and ride facilities. When state-owned right of way is being considered for disposal, the Iowa DOT initiates an internal recommendation process prior to making a final decision. As outlined in the department's park and ride facilities policy, the Office of Systems Planning evaluates the subject property for its potential value as a future park and ride location and factors this evaluation into their office recommendation, ensuring that this potential use is at least considered.

#### Coordination with statewide rideshare program

Park and ride programs are oftentimes part of more comprehensive rideshare programs used to match car pool and van pool participants. Commuters who carpool, vanpool, and use transit services are common users of these types of programs. Rideshare programs are typically free, with online ride-matching services for individuals looking to travel from point A to point B, either on an ongoing basis for commuting purposes or on a one-time basis for a trip or event. Such programs help reduce transportation costs as well as traffic congestion and emissions.

In order to provide Iowans with additional transportation alternatives, the Iowa DOT's Office of Public Transit is developing a statewide rideshare program that can be used to match potential car pool and van pool participants using a single ride-matching system. Historically, rideshare services across Iowa have been administered in a decentralized model where the Iowa DOT has not been involved in the procurement, administration, or marketing of local rideshare programs. This model requires rideshare organizations to provide separate startup funding and yearly support fees, reduces the overall number of matches available for potential rideshare participants, and is not consistently administered across the state.

The result of this has been an inefficient and costly system that does not serve all of Iowa's communities and results in fewer ride matches created. The statewide rideshare project will provide a more efficient, affordable, and user-friendly service by eliminating the need for multiple global administrators, reducing capital and operating expenses, and consolidating services into a single software system. The goal of this program is to increase the number of people who wish to take part in car pools, van pools, and transit services. If the number of persons taking advantage of these options grows, there will be an increased need for park and ride facilities, which makes coordination between the two programs extremely important.

### Partnerships

Related to the issues above, successful implementation of this plan will require effective partnerships between various Iowa DOT entities. This is especially true for the six Iowa DOT districts and the Offices of Maintenance, Public Transit, Right of Way, and Systems Planning. Each of these offices will play a critical role in implementation, and each has distinct responsibilities outlined in the department's park and ride facilities policy.

Also, as alluded to in Chapter 6, opportunities exist for the Iowa DOT to partner with other public and even private entities. On the public side, this plan allows for a multijurisdictional implementation. Depending on characteristics of each individual location, it may be more conducive for one jurisdiction to pursue park and ride lot development over another. On the private side, property owners such as retail businesses and religious centers could enter into agreements with the Iowa DOT to share their parking facilities for park and ride purposes. Outside of providing a public good, the benefits of this public-private partnership to the private entity would be the potential for increased business and exposure.

## Marketing Iowa's park and ride system

Marketing and advertising of both park and ride programs and rideshare programs is critical to ensuring that the park and ride system is utilized to its full extent. It is much more difficult for commuters to find commuting partners or to locate a convenient park and ride lot if this information is not easily accessible. The most obvious and user-friendly approach to providing this information is through some sort of online resource.

To promote Iowa's park and ride system, the Iowa DOT plans to dedicate a page to ridesharing/park and ride on the department's website. This webpage will be easily accessed from [www.iowadot.gov](http://www.iowadot.gov). In order for the public to better engage with Iowa's park and ride system, an online, interactive mapping tool will also be developed. This tool will use aerial photography and mapping to deliver up-to-date and pertinent information from the statewide park and ride database, and will include the following information.

- Lot location
- Lot access
- Lot surface type
- Lot amenities and available services
- Estimated number of parking spaces
- Transit service availability
- Nearby services and amenities

This tool will be embedded into the department's ridesharing/park and ride webpage and can be accessed from the user's computer or mobile device for immediate and convenient access, eliminating the need for printed maps. And, as the state's park and ride program matures, so too will the associated marketing and advertising efforts.

## 7.2 System coverage

In constraining the analysis to a certain number of priority locations, it is recognized that this results in a park and ride network that would more densely cover some areas of the state than others. This is the logical result of candidate locations following population, employment, and the resulting commuter traffic. While this approach may not appear equitable in a geographic sense, it is the most cost-effective approach in terms of its potential to serve the greatest number of commuters. Similarly, this approach is



consistent with the basic principles of asset management, which continue to grow in importance during this era of insufficient funding and competing needs.

### **Regional replication**

As is indicated through the survey results and additional locations proposed by the public, the demand for park and ride facilities locally exceeds the state's ability to accommodate every need. While, for the purposes of this PRSP, the analysis focused on statewide priority locations, this does not preclude a similar analysis from being conducted at a smaller regional or local level. The same three questions that were the basis for the statewide analysis (below) could be examined at a smaller geographic scale in areas with lower-volume commuter routes. Doing so would identify additional regional or local candidate locations that may not have necessarily been identified as priorities in a statewide context.

1. Which areas have the greatest interaction in terms of commuting activity?
2. What are the most heavily traveled commuter routes between these areas?
3. What locations along these routes would serve the most commuters as they exit their places of residence?

### **Grass-roots efforts**

In the same sense that the statewide analysis should not preclude similar regional or local analyses, this plan should not discourage continued grass-roots ridesharing efforts, which have been the driving force behind much of the existing system of park and ride lots. There are many rural areas of the state where both the percentage of workers who carpool and average commute time are higher than the respective statewide averages of 10.3 percent and 18.6 minutes. Additionally, as mentioned earlier, several locations were identified by the public through the input survey conducted as a part of this planning effort. A map of these locations is provided in Appendix 2, and could be used as a starting point for conversations with those communities interested in the grass-roots program.

While many areas in the state may not have the number of commuters that some of the priority candidate locations have, it may still be a local priority to provide park and ride options to accommodate the commuting public. Recognizing this, the Iowa DOT has developed a partnering toolkit to help facilitate these grass-roots efforts anywhere there may be an interest. This toolkit can be found in Appendix 4.

### 7.3 Periodic evaluation and review

It is common practice in states with mature park and ride programs to continually evaluate the condition and effectiveness of their systems. On an individual facility level, the Iowa DOT's park and ride facilities policy requires annual inspections for all lots. These inspections help ensure that basic maintenance is being provided and that no improvements or repairs are needed. Routine evaluations will also be used to determine lot usage, and the department policy allows for facility closure should usage decrease to a level that no longer warrants basic maintenance.

On a broader system level, this plan should be reviewed periodically to ensure the planned network is still valid given the most current data and progress toward implementation. Over time, changes in population and employment could alter established commuting patterns, which would necessitate such a review. As the trends highlighted in Chapter 2 indicate, the state of Iowa is by no means stagnant when it comes to demographic and economic change.



Public input meetings for the Iowa Park and Ride System Plan

# Appendix 1

---

## Stakeholder input

As noted in Chapter 3, draft candidate locations were vetted through an input process that included the following.

- Review by Iowa DOT district staff
- Review by MPO and RPA planning staff
- Review by public transit providers
- Review by the public (e.g., comment solicitation, online survey, public meetings)

Stakeholder input is summarized in the following sections. For a more detailed summary of public input received regarding the plan and candidate locations, please refer to Appendix 2.

### Iowa DOT district input

Input is summarized by district, with any changes noted by respective residence-workplace county pair.

#### District 1

- Polk-Dallas: Move I-35/I-80 (Ankeny) north to I-35/Corporate Woods Dr (Ankeny)
- Story-Polk: Move I-35/U.S. 30 (Ames) west to U.S. 30/Dayton Ave (Ames)

#### District 2

- No changes to locations.

#### District 3

- Woodbury-Dakota (Neb.): Remove I-29/U.S. 77 (Sioux City)

#### District 4

- Pottawattamie-Douglas (Neb.): Move I-29/I-80 (Council Bluffs) east to I-29/I-80/S 24<sup>th</sup> St (Council Bluffs)

#### District 5

- No changes to locations.

#### District 6

- Johnson-Linn: Add I-80/Iowa 965 (Coralville)
- Linn-Johnson: Move I-380/U.S. 30 (Cedar Rapids) south to I-380/Wright Brothers Blvd (Cedar Rapids)
- Clinton-Scott: Move U.S. 30/US 61 (DeWitt) south and east to U.S. 30/S 6<sup>th</sup> Ave (DeWitt)

- Cedar-Johnson: Move I-80/Co Rd X30 (West Branch) east to I-80/Co Rd X-54 (Tipton)
- Jackson-Dubuque: Move U.S. 61/Co Rd E17 (Fulton) north to U.S. 61/Co Rd D61 (Bellevue)

### MPO and RPA input

Input is summarized by seven metropolitan area clusters, with any changes noted by respective residence-workplace county pair.

#### Ames-Des Moines cluster

- Polk-Dallas: Move I-35/Corporate Woods Dr (Ankeny) south to I-235/U.S. 6 (Des Moines)

#### Cedar Rapids-Iowa City cluster

- Linn-Johnson: Add I-380/Iowa 100 (Cedar Rapids)
- Jones-Linn: Move U.S. 151/Iowa 1 (Anamosa) east and north to U.S. 151/Iowa 64/E 3<sup>rd</sup> St (Anamosa)

#### Council Bluffs-Omaha cluster

- Pottawattamie-Douglas (NE): Move I-29/I-480 (Council Bluffs) north to I-29/I-680 (Crescent)

#### Davenport cluster

- Scott-Rock Island: Move I-74/U.S. 67 (Bettendorf) north to I-74/53<sup>rd</sup> St (Davenport)
- Scott-Rock Island: Move US 61/U.S. 67 (Davenport) west to U.S. 61/Iowa 22 (Davenport)

#### Dubuque cluster

- Jackson-Dubuque: Move U.S. 61/Co Rd D61 (Bellevue) south to U.S. 61/Iowa 64/W Platt St (Maquoketa)
- Delaware-Dubuque (not top 25): Add U.S. 20/Iowa 136/ 9<sup>th</sup> St SE (Dyersville)

#### Sioux City cluster

- No changes to locations.

#### Waterloo cluster

- Bremer-Black Hawk: Move U.S. 218/Janesville north to U.S. 218/South corporate limits (Waverly)
- Buchanan-Black Hawk: Move U.S. 20/Iowa Ave (Independence) east to U.S. 20/Iowa 150 (Independence)

### Transit providers input

Input is summarized by seven metropolitan area clusters, with any changes noted by respective residence-workplace county pair.

#### Ames/Des Moines cluster

- No changes to locations.

### Cedar Rapids/Iowa City cluster

- Johnson-Linn: Move I-80/Iowa 965 (Coralville) east to I-80/1<sup>st</sup> Ave (Coralville)

### Council Bluffs/Omaha cluster

- Pottawattamie-Douglas (Neb.): Move I-29/I-80/S 24<sup>th</sup> St (Council Bluffs) east to I-29/US 275/Iowa 92 (Council Bluffs)

### Davenport cluster

- Scott-Rock Island (Ill.): Move I-74/53<sup>rd</sup> St (Davenport) west to U.S. 61/E Kimberly Rd (Davenport)

### Dubuque cluster

- No additional input provided. No changes to locations.

### Sioux City cluster

- Monona-Pottawattamie/Woodbury (not top 25): Add I-29/Iowa 175 (Onawa)

### Waterloo cluster

- No changes to locations.



Public input meeting for the Iowa Park and Ride System Plan

## Appendix 2

### Public input

On September 2, 2014 the 45-day public comment period for the Iowa Park and Ride System Plan began, and the comment period ended on October 16, 2014. During the same time period, a survey was advertised and made available to the public. The online version of the survey was posted to the Iowa DOT's website via a webpage dedicated to the plan project. Direct links to the survey and the website where the draft plan was available were distributed through multiple press releases, emails to regional planning agencies such as metropolitan planning organizations and regional planning affiliations, distributed through the League of Cities online newsletter, and provided through multiple posts on Facebook and Twitter. Paper copies of the survey were also made available at the public meetings, which were then entered into the online survey for easier data analysis.

### Survey results summary

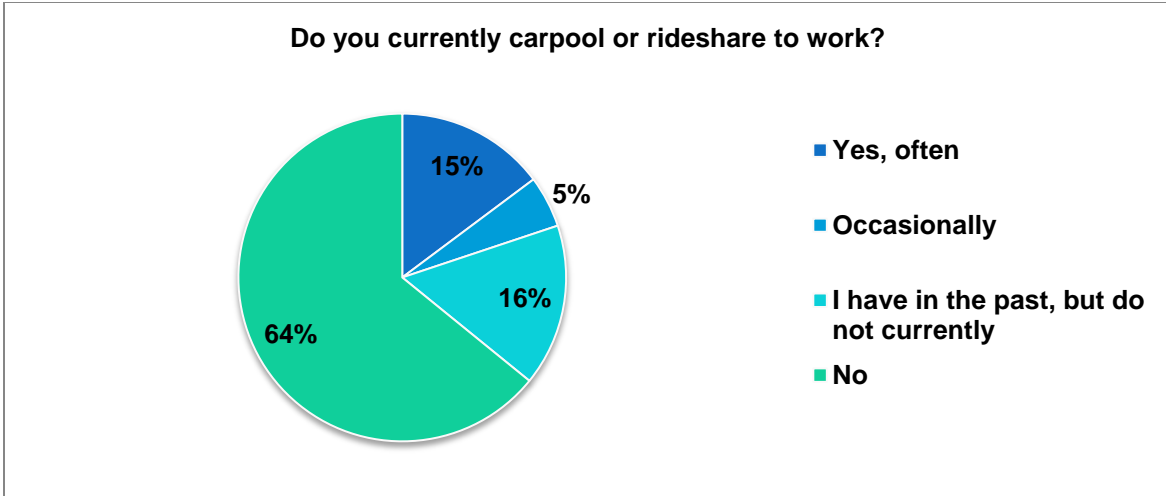
The following summarizes the results of the survey that was conducted.

Survey respondents by place of residence									
Adel	1	De Witt	3	La Porte City	1	Pleasantville	1	Zwingle	1
Altoona	2	Decorah	1	Le Claire	1	Polk City	1	East Moline	1
Ames	28	Des Moines	2	Lisbon	1	Readlyn	1	Rock Island	1
Ankeny	6	Dubuque	9	Logan	1	Riverside	3	Wisconsin	1
Armstrong	1	Dunkerton	1	Madrid	1	Robins	1		
Asbury	1	Durant	1	Manchester	1	Ryan	1		
Atlantic	1	Dyersville	1	Maquoketa	1	Scranton	1		
Avoca	1	Earlville	1	Marion	2	Shueyville	1		
Bellevue	1	Epworth	1	Marshalltown	1	Sioux Center	1		
Bernard	2	Farley	2	Mediapolis	1	Sioux City	1		
Bettendorf	6	Fontanelle	1	Monroe	1	Slater	1		
Bondurant	1	Fort Dodge	1	Mount Auburn	1	Solon	1		
Boone	2	Fort Madison	1	Mount Pleasant	2	St. Marys	1		

Burlington	2	Fredericksburg	1	Mount Vernon	1	Story City	2		
Carroll	8	Grimes	1	Nashua	1	Stuart	1		
Cedar Rapids	13	Hawkeye	1	Nevada	3	Urbana	1		
Clinton	2	Hazleton	2	New Liberty	1	Urbandale	4		
Colfax	2	Hinton	1	New Virginia	1	Waterloo	6		
Conrad	1	Huxley	2	Newton	26	Waukon	1		
Coralville	1	Independence	1	North Liberty	4	West Burlington	1		
Council Bluffs	4	Indianola	1	Oskaloosa	1	West Des Moines	3		
Cresco	1	Iowa City	8	Panora	1	West Union	3		
Danville	1	Jefferson	4	Peosta	1	Wilton	1		
Davenport	9	Jesup	3	Perry	1	Winterset	2		
DeSoto	1	Keokuk	1	Pleasant Hill	1	Zearing	1		

Note regarding question 2: Those who responded “Yes, Often” or “Occasionally” were routed to question 3 asking what location they use to carpool or rideshare. Those who answered “No” or “I have in the past, but do not currently” were routed to question 4 asking them why they do not carpool.

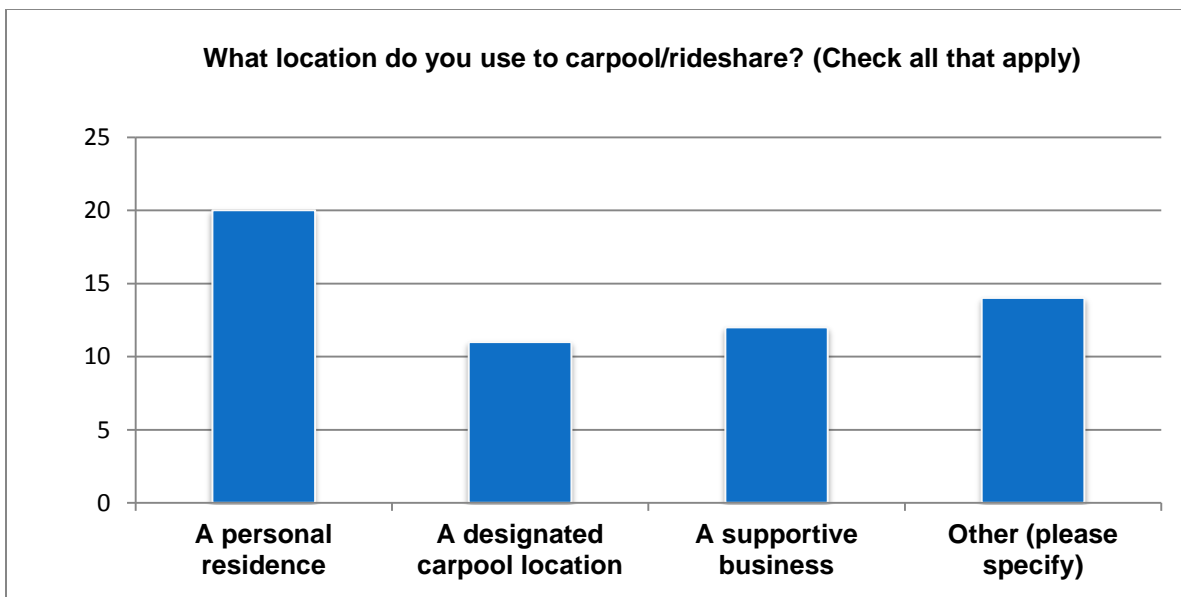
Question 2		
Do you currently carpool or rideshare to work?		
Answer options	Response percent	Response count
Yes, often	14.8%	38
Occasionally	5.1%	13
I have in the past, but do not currently	16.0%	41
No	64.2%	165
<i>Answered question</i>		257
<i>Skipped question</i>		4



**Question 3**

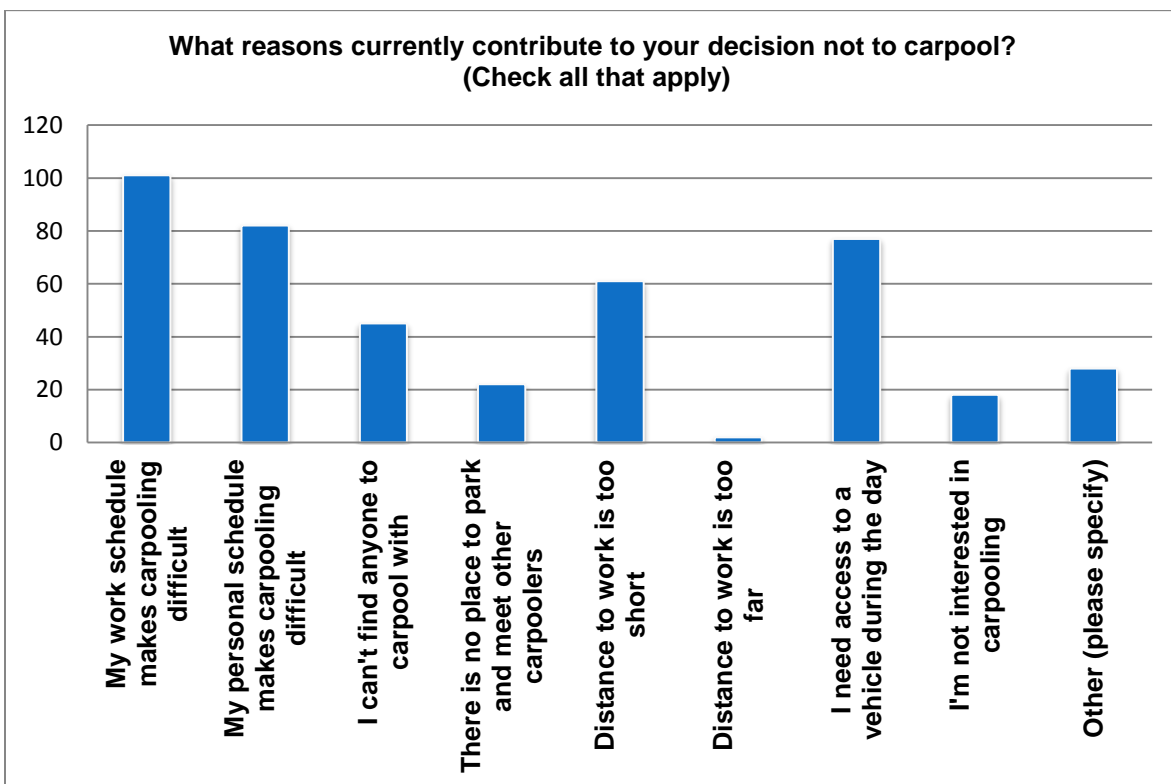
What location do you use to carpool/rideshare? (Check all that apply)

Answer options	Response percent	Response count
A personal residence	40.0%	20
A designated car pool location	22.0%	11
A supportive business	24.0%	12
Other (please specify)	28.0%	14
<i>Answered question</i>		50
<i>Skipped question</i>		211

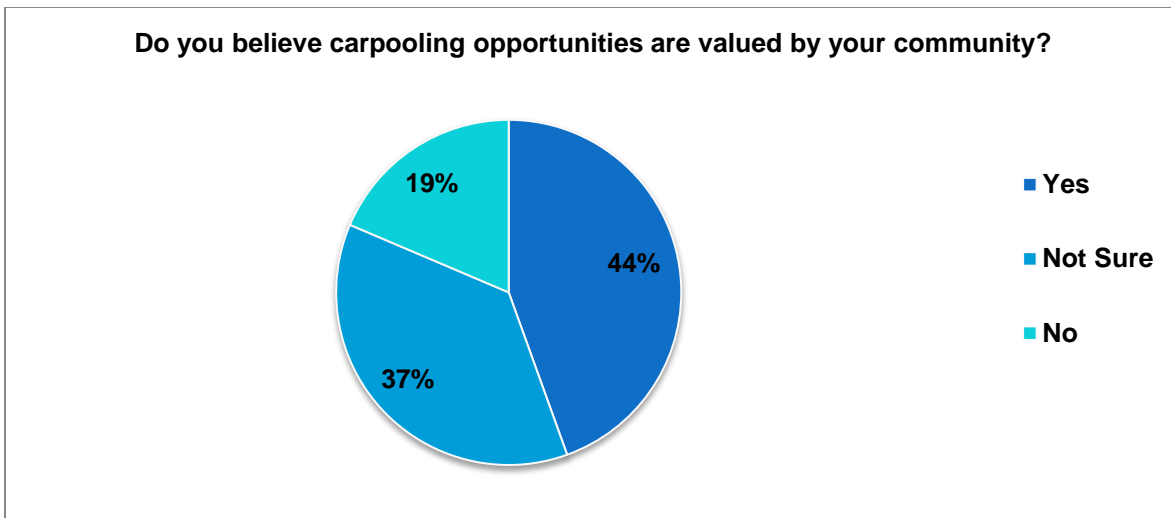




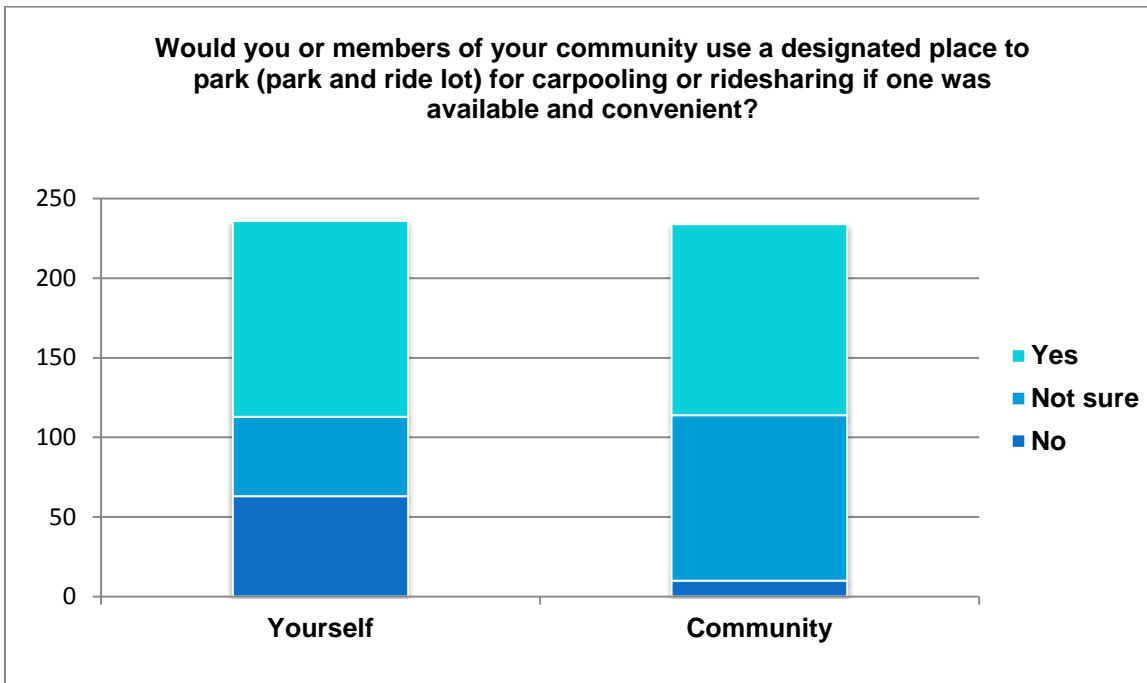
Question 4		
What reasons currently contribute to your decision not to carpool? (Check all that apply)		
Answer options	Response percent	Response count
My work schedule makes carpooling difficult	52.1%	101
My personal schedule makes carpooling difficult	42.3%	82
I can't find anyone to carpool with	23.2%	45
There is no place to park and meet other carpoolers	11.3%	22
Distance to work is too short	31.4%	61
Distance to work is too far	1.0%	2
I need access to a vehicle during the day	39.7%	77
I'm not interested in carpooling	9.3%	18
Other (please specify)	14.4%	28
<i>Answered question</i>		194
<i>Skipped question</i>		67



Question 5		
Do you believe carpooling opportunities are valued by your community?		
Answer options	Response percent	Response count
Yes	44.5%	105
Not sure	36.9%	87
No	18.6%	44
<i>Answered question</i>		236
<i>Skipped question</i>		25



Question 6				
Would you or members of your community use a designated place to park (park and ride lot) for carpooling or ridesharing if one was available and convenient?				
Answer options	Yes	Not sure	No	Response count
Yourself	123	50	63	236
Community	120	104	10	234
<i>Answered question</i>				237
<i>Skipped question</i>				24



Note regarding question 7: To gather input on the candidate park and ride locations identified in the plan, a survey question was designed to gauge the potential use of each location based on two perspectives, the respondent and their community. An interactive map of the locations was also provided through the survey.

Question 7			
Please indicate if you or your community already use, or would use, a park and ride lot near any location listed below. Locations are listed alphabetically by county, please mark all that apply.			
Answer options	You	Your community	Response count
(1) BREMER COUNTY   U.S. 218 near the south side of Waverly	0	1	1
(2) BUCHANAN COUNTY   U.S. 20 and Iowa 150 interchange (Independence)	2	2	3
(3) CEDAR COUNTY   I-80 and Iowa 38 interchange (Tipton)	2	0	2
(4) CLINTON COUNTY   U.S. 30 and S 6 <sup>th</sup> Ave interchange (DeWitt)	3	5	6

(5) DALLAS COUNTY   Intersection of Hickman Rd and Alice's Rd (Waukee)	0	1	1
(6) DUBUQUE COUNTY   U.S. 20 and 9 <sup>th</sup> St SE interchange (Dyersville)	2	6	7
(7) JACKSON COUNTY   U.S. 61 and W Platt S. interchange (Maquoketa)	2	5	6
(8) JASPER COUNTY   I-80 and Iowa 14 interchange (Newton)	21	17	25
(9) JASPER COUNTY   Iowa 14 and Iowa 163 interchange (Monroe)	3	7	7
(10) JOHNSON COUNTY   I-380 and West Penn St interchange (North Liberty)	8	8	11
(11) JOHNSON COUNTY   I-80 and 1st Ave interchange (Coralville)	10	5	12
(12) JONES COUNTY   U.S. 151 and Iowa 64 interchange (Anamosa)	1	0	1
(13) LINN COUNTY   I-380 and Wright Brothers Blvd interchange (Cedar Rapids)	7	12	15
(14) LINN COUNTY   I-380 and Collins Rd interchange (Cedar Rapids)	6	12	15
(15) MAHASKA COUNTY   Iowa 92 and Iowa 163 interchange (Oskaloosa)	1	1	1
(16) MONONA COUNTY   I-29 and Iowa 175 interchange (Onawa)	0	0	0
(17) PLYMOUTH COUNTY   U.S. 75 and Business U.S. 75 interchange (Le Mars)	1	0	1
(18) POLK COUNTY   I-235 and E Euclid Ave interchange (Des Moines)	3	2	4

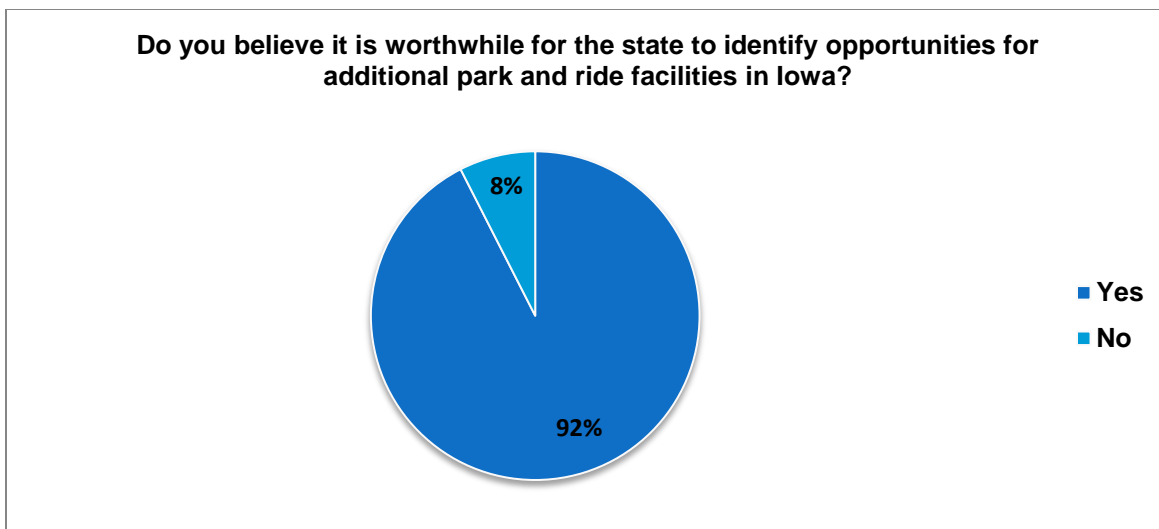
(19) POLK COUNTY   I-35 and I-80 interchange (West Des Moines)	5	3	7
(20) POLK COUNTY   I-35 and NE 36 <sup>th</sup> St interchange (Ankeny)	5	6	9
(21) POLK COUNTY   I-35 and Corporate Woods Dr interchange (Ankeny)	8	6	11
(22) POTTAWATTAMIE COUNTY   I-29 and I-680 interchange (Crescent)	0	0	0
(23) POTTAWATTAMIE COUNTY   I-29 and Iowa 92 interchange (Council Bluffs)	1	1	2
(24) SCOTT COUNTY   U.S. 61 and Iowa 22 interchange (Davenport)	0	6	6
(25) SCOTT COUNTY   Intersection of U.S. 61 and East Kimberly Rd (Davenport)	5	7	10
(26) STORY COUNTY   U.S. 30 and Dayton Ave interchange (Ames)	8	11	14
(27) WARREN COUNTY   U.S. 69 near the north side of Indianola	1	0	1
(28) WASHINGTON COUNTY   U.S. 218 and Iowa 22 interchange (Riverside)	3	1	3
(29) WOODBURY COUNTY   I-29 and U.S. 20 interchange (Sioux City)	0	1	1
(30) WOODBURY COUNTY   I-29 and Riverside Blvd interchange (Sioux City)	0	1	1
<i>Answered question</i>			115
<i>Skipped question</i>			146

Note regarding question 8: If respondents provided another location, those locations were mapped and can be found in the map located in this appendix titled “Public input suggested locations map”.

Question 8		
Based on your own experience and knowledge of your community, are there other locations you would suggest for a park and ride lot?		
Answer options	Response percent	Response count
No	54.3%	108
Yes	45.7%	91
If Yes, what location(s)?		88
<i>Answered question</i>		199
<i>Skipped question</i>		62



Question 9		
Do you believe it is worthwhile for the state to identify opportunities for additional park and ride facilities in Iowa?		
Answer options	Response percent	Response count
Yes	92.5%	196
No	7.5%	16
<i>Answered question</i>		212
<i>Skipped question</i>		49



### Public comments summary

There were approximately 18 written comments submitted during the public comment period in addition to the survey responses and the stakeholder input solicited at various stages throughout the development of the plan. Comments were submitted at the public meetings or electronically through an email address set up for the planning effort. The comments submitted during the comment period primarily focused on three areas:

- A need to accommodate multimodal transportation
- Recommendations related to additional locations and site selection
- Recommendations related to marketing and signage of facilities

Overall, comments were supportive of the plan and focused on recommendations or considerations to keep in mind during the implementation process.

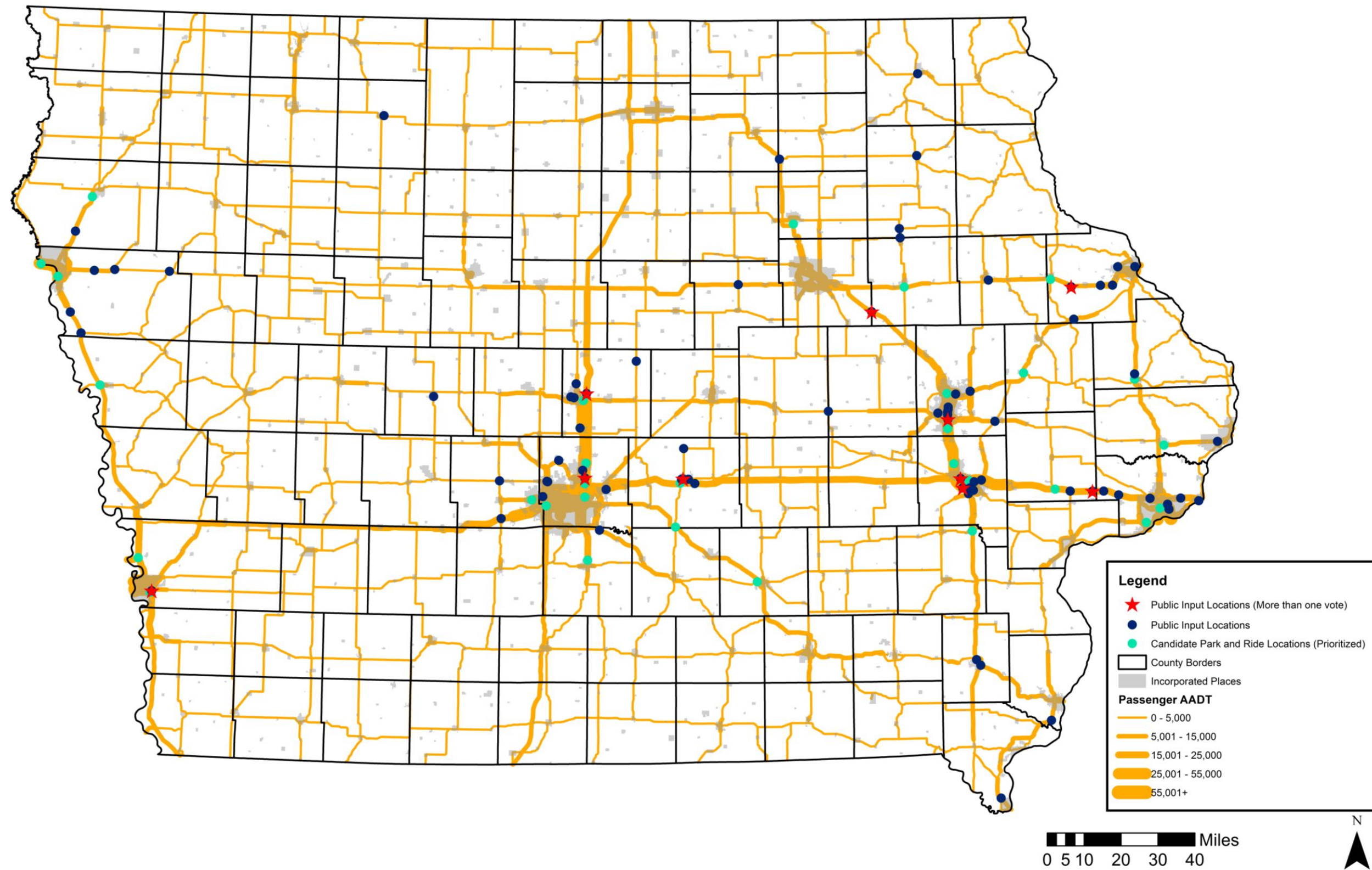
### Public input suggested locations map

The map on the next page provides an overview of the additional locations that were suggested through the public input process, both through the online survey and written comments. The locations that were suggested are identified by blue dots, and those locations that were suggested by more than one person are indicated by a red star. As can be seen on the map, most locations that were proposed by the public are in and around larger metropolitan areas. This supports the determination that there are currently gaps near major metropolitan areas and areas with the largest amount of commuters are currently underserved by the existing system. Additionally, as was mentioned in Chapter 7, this map provides a good starting point for the grass-roots program the Iowa DOT plans to implement in coordination with this plan.

This page left blank intentionally



Figure A2: Public input suggested locations map



Source: Iowa DOT

This page left blank intentionally

## Appendix 3

---

### Rideshare needs survey

#### Purpose

The purpose of this survey was to assess the need for establishing a statewide rideshare program to match car pool and van pool participants. The survey was sent to recipients on July 3, 2012.

#### Sample

The survey was sent to the individuals responsible for developing the Passenger Transportation Plans (PTP) at each metropolitan planning organization and regional planning affiliation in Iowa. This group is required to involve human service agencies/organizations, private transportation providers, and transit systems in the passenger transportation planning process and consider all passenger transportation needs and services.

#### Methodology

The survey was distributed to the 20 PTP developers via email, with a brief description of the purpose and a link to the online survey. A 100 percent response rate was required in order to receive input on rideshare needs across Iowa. The survey was distributed on July 3 2012, and all surveys had been responded to by July 19. A single response was needed from all PTP regions. In six instances survey responses were received from persons not identified as the plan developer for the PTP area. In two cases multiple responses were received from a single planning area. The responses from the individuals who were not PTP developers were saved but removed from the survey data.

#### Findings

Overall, the data seems to support the need for investment in rideshare services. Eighty percent of the respondents reported there is a need for rideshare service in their planning area (16/20, question 5); however, more than half of the respondents indicated a rideshare program is not available (11/20, question 1). Of those 11 respondents reporting that a rideshare program is not currently available, 10 identified rideshare service as a need in their planning area.

Half of the respondents rated a statewide online ride-matching system for linking potential car pool and van pool participants as somewhat valuable (10/20), nine categorized it as very valuable, and one respondent categorized it as not valuable (question 7).

Respondents were fairly uniform in their answers to the question referring to what level of use an online ride-matching system would receive for matching car pool and van pool participants, if it were available and marketed statewide. Seven anticipated low usage, seven anticipated medium usage, and six anticipated high usage (question 8).

Low-income persons were identified as having the highest need for rideshare services (19/20), followed by commuters (17/20), employers (17/20), and public transit agencies (16/20) (question 9).

Six respondents reported that if the Iowa Department of Transportation developed new strategically placed park and ride lots they would have a low value to commuters in their area, nine respondents reported they would have a medium value to commuters in their area, and five respondents indicated strategically placed park and ride lots would have a high value in their area (question 12).



Public input meeting for the Iowa Park and Ride System Plan

## Appendix 4

---

### Iowa park and ride partnership opportunity

The Iowa DOT is in the process of planning a comprehensive statewide park and ride system to support the statewide ridesharing program.

#### What are park and ride lots?

Park and ride lots are used by individuals in both urban and rural locations as areas to park their vehicles when:

- Carpooling
- Vanpooling
- Taking public transit

#### What's the need?

Commuting in Iowa has changed over the past three decades:

- Since 1990, the percentage of workers commuting 30 minutes or more to work has increased 3 percent, while the percentage of workers commuting less than 15 minutes has decreased 6 percent.
- In 1990, about 17 percent of workers commuted to a job outside their county of residence, while in 2010 this number was about 22 percent.

#### What exists and what are we planning to develop?

Currently, there are 26 state-owned park and ride lots across the state. Additional locations are identified in the Iowa Park and Ride System Plan as potential sites for future facilities.

Although these locations are a great start for a statewide park and ride system, there may be a need for additional park and ride sites to accommodate Iowa's commuters.

To accommodate this need without overextending state resources, the Iowa DOT is offering a partnership opportunity to communities that want to establish park and ride locations in their area.

### **What is the Iowa park and ride partnership opportunity?**

The Iowa DOT would partner with any municipality or county interested in establishing a park and ride location.

In this partnership, communities will identify candidate park and ride sites, and ask the state to consider including the sites in their park and ride system.

The local partners will be responsible for finding, leasing, and maintaining park and ride locations. The state will provide signage and advertisement of their location in the statewide park and ride system's online map.

### **What are the benefits for the commuter, community, employer, and society?**

#### **The commuter**

Park and ride lots provide commuters with increased transportation options that in turn provide a wide array of benefits, including the following.

- Reduced fuel costs
- Reduced parking fees
- Reduced wear and tear on vehicles
- Greater choice in where they live

#### **The community**

Offering park and ride locations can provide economic and social benefits to a community, including the following.

- Allowing greater flexibility for community members to choose where they live.
- Bolstering the local economy by bringing in individuals from surrounding areas that might shop before or after their commute.

#### **The employer**

Park and ride locations support employee ridesharing that in turn provides benefits to employers, including the following.

- The cost of parking for employees can be expensive; ridesharing helps to reduce that cost.
- Ridesharing allows employers to recruit and retain employees from a larger geographic area.

### Society

There are numerous benefits that ridesharing, and by extension, an extensive park and ride system can provide society, including the following.

- Reduced emissions
- Reduced wear and tear on roads
- Less congestion
- Increased regional mobility

### How do I get started?

Before a community or county can establish a park and ride location, it first needs to identify and obtain a site.

### Site selection

There are several factors that make a park and ride location ideal, including:

- **Right of way:** Sites that are already city or county-owned will be less costly to acquire and maintain.
- **Security:** Sites should provide some degree of security for the user such as lights, visibility from the roadway, etc.
- **Site size:** Site size should accommodate use based on current and anticipated demand.
- **Access:** Park and ride facilities should be easily accessible from major commuter routes.
- **Transit service:** Access to transit service can provide commuters with more affordable options, thereby increasing potential use of the lot.
- **Bike access:** Providing access to bike facilities and recreational trails can promote use and provide commuters with another transportation mode.

### Ideal locations

There can be many locations in a community that would be ideal for a park and ride lot, including the following.

- Community squares
- Grocery stores
- Parks
- Public facility lots
- Religious institutions

**Who do I contact about getting involved?**

To find out more about how to get involved contact your local metropolitan planning organization or regional planning affiliation, or contact the Iowa DOT’s park and ride representative.

Office of Systems Planning  
Iowa Department of Transportation  
800 Lincoln Way  
Ames, Iowa 50010  
Phone: 515-239-1664





For additional copies, contact:  
Iowa Department of Transportation  
Office of Systems Planning  
800 Lincoln Way  
Ames, IA 50010  
Phone: 515-239-1664  
Fax: 515-233-7857