8. APPENDICES

Appendices

Several appendices are included to provide additional information for topics discussed throughout the plan.

Appendix 1
Federal requirements

Appendix 2
Supplemental information for Chapter 1: Public input survey results, plans/studies used in document development, and resource agencies contacted

Appendix 3
Supplemental information for Chapter 4: Overview of the accessibility/mobility analysis methodology and output

Appendix 4
Supplemental information for Chapter 5: Strategies from other system, specialized, and modal plans

Appendix 5
Supplemental information for Chapter 6: Revenue generating mechanisms described in the 2021 Road Use Tax Fund (RUTF) Study

Appendix 1

Federal Requirements

Table A.1 provides the code of federal regulations (CFR) language related to state transportation plans and points to sections of the state long-range transportation plan (SLRTP) that address the CFR language. This CFR language was included in the Statewide and Nonmetropolitan Transportation Planning; Metropolitan Transportation Planning rule issued by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) on May 27, 2016.

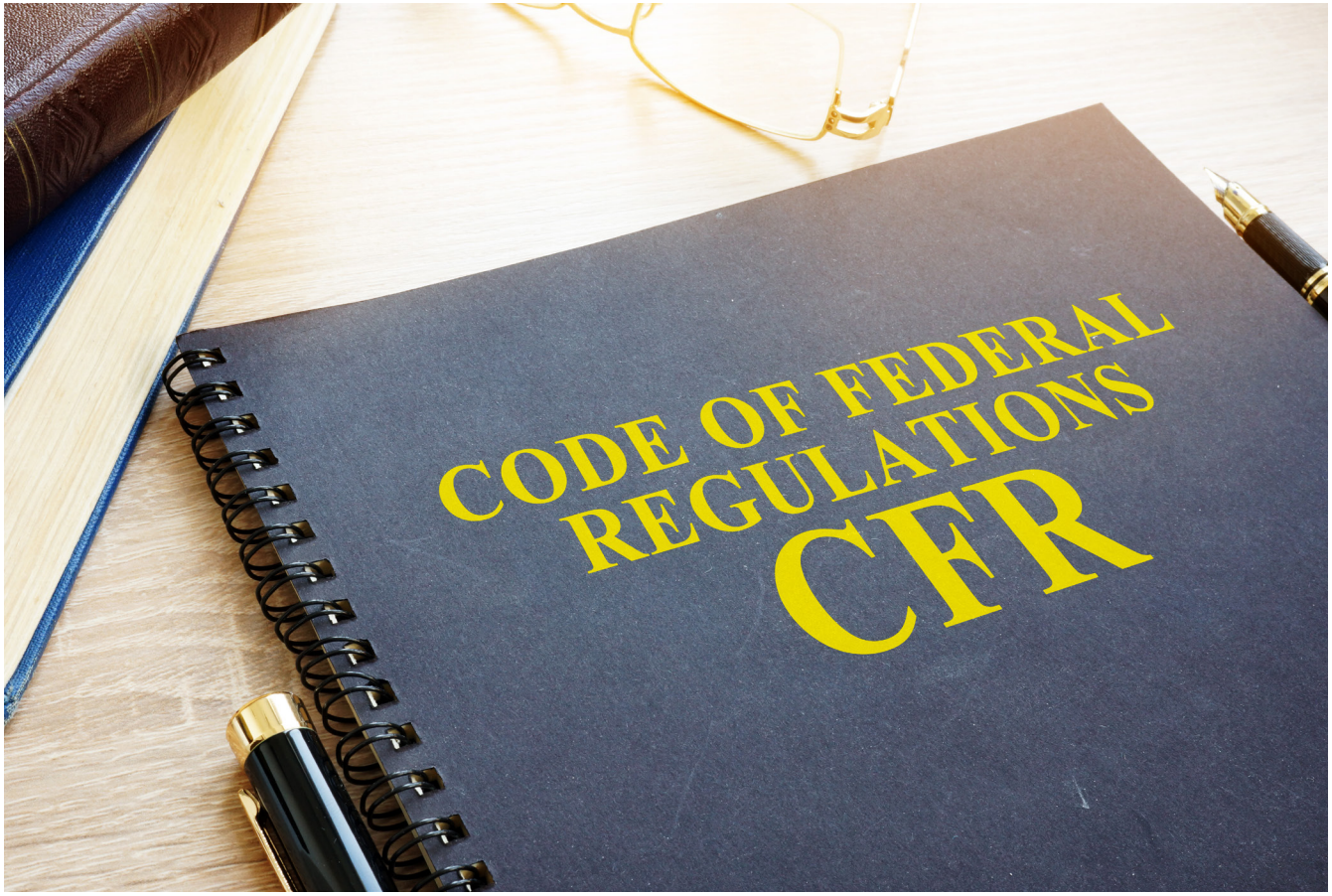


Table A.1: Federal requirements for state transportation plans and references to plan sections that relate to the requirements

23 CFR 450.216 Development and content of the long-range statewide transportation plan	SLRTP references and notes
(a) The State shall develop a long-range statewide transportation plan, with a minimum 20-year forecast period at the time of adoption, that provides for the development and implementation of the multimodal transportation system for the State. The long-range statewide transportation plan shall consider and include, as applicable, elements and connections between public transportation, non-motorized modes, rail, commercial motor vehicle, waterway, and aviation facilities, particularly with respect to intercity travel.	The SLRTP is a multimodal planning document with a horizon year of 2050.
(b) The long-range statewide transportation plan should include capital, operations and management strategies, investments, procedures, and other measures to ensure the preservation and most efficient use of the existing transportation system including consideration of the role that intercity buses may play in reducing congestion, pollution, and energy consumption in a cost-effective manner and strategies and investments that preserve and enhance intercity bus systems, including systems that are privately owned and operated. The long-range statewide transportation plan may consider projects and strategies that address areas or corridors where current or projected congestion threatens the efficient functioning of key elements of the State's transportation system.	Strategies related to these areas are discussed in Chapter 4, Section 4.3 and throughout Chapter 5.
(c) The long-range statewide transportation plan shall reference, summarize, or contain any applicable short-range planning studies; strategic planning and/or policy studies; transportation needs studies; management systems reports; emergency relief and disaster preparedness plans; and any statements of policies, goals, and objectives on issues (e.g., transportation, safety, economic development, social and environmental effects, or energy), as appropriate, that were relevant to the development of the long-range statewide transportation plan.	Referencing of other plans, reports, and studies is discussed in Chapter 1, Section 1.3. Related planning efforts are also discussed throughout Chapters 3, 4, and 5.
(d) The long-range statewide transportation plan should integrate the priorities, goals, countermeasures, strategies, or projects contained in the HSIP, including the SHSP, required under 23 U.S.C. 148, the Public Transportation Agency Safety Plan required under 49 U.S.C. 5329(d), or an Interim Agency Safety Plan in accordance with 49 CFR part 659, as in effect until completion of the Public Transportation Agency Safety Plan.	Safety planning efforts, including the SHSP and modal safety, are discussed in Chapter 4, Section 4.3.
(e) The long-range statewide transportation plan should include a security element that incorporates or summarizes the priorities, goals, or projects set forth in other transit safety and security planning and review processes, plans, and programs, as appropriate.	Security planning efforts are discussed in Chapter 4, Section 4.3.
(f) The statewide transportation plan shall include: (1) A description of the performance measures and performance targets used in assessing the performance of the transportation system in accordance with § 450.206(c); and (2) A system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in § 450.206(c), including progress achieved by the MPO(s) in meeting the performance targets in comparison with system performance recorded in previous reports.	Performance measures, targets, and performance are discussed included in Chapter 7, section 7.2.
(g) Within each metropolitan area of the State, the State shall develop the long-range statewide transportation plan in cooperation with the affected MPOs. (h) For nonmetropolitan areas, the State shall develop the long-range statewide transportation plan in cooperation with affected nonmetropolitan local officials with responsibility for transportation or, if applicable, through RTPOs described in § 450.210(d) using the State's cooperative process(es) established under § 450.210(b). (i) For each area of the State under the jurisdiction of an Indian Tribal government, the State shall develop the long-range statewide transportation plan in consultation with the Tribal government and the Secretary of the Interior consistent with § 450.210(c). (j) The State shall develop the long-range statewide transportation plan, as appropriate, in consultation with State, Tribal, and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation. This consultation shall involve comparison of transportation plans to State and Tribal conservation plans or maps, if available, and comparison of transportation plans to inventories of natural or historic resources, if available.	Cooperation and consultation efforts with Iowa's metropolitan planning organizations (MPOs), regional planning affiliations (RPAs),Tribal governments, resource agencies, and external stakeholders is discussed in Chapter 1, Section 1.3.

23 CFR 450.216 Development and content of the long-range statewide transportation plan	SLRTP references and notes
(k) A long-range statewide transportation plan shall include a discussion of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the long-range statewide transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The State shall develop the discussion in consultation with applicable Federal, State, regional, local and Tribal land management, wildlife, and regulatory agencies. The State may establish reasonable timeframes for performing this consultation.	Consultation with resource agencies is discussed in Chapter 1, Section 1.3. Environmental planning is discussed in Chapter 4, Section 4.3.
(l) In developing and updating the long-range statewide transportation plan, the State shall provide: (1) To nonmetropolitan local elected officials, or, if applicable, through RTPOs described in § 450.210(d), an opportunity to participate in accordance with § 450.216(h); and (2) To individuals, affected public agencies, representatives of public transportation employees, public ports, freight shippers, private providers of transportation (including intercity bus operators, employer-based cash-out program, shuttle program, or telework program), representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, providers of freight transportation services, and other interested parties with a reasonable opportunity to comment on the proposed long-range statewide transportation plan. In carrying out these requirements, the State shall use the public involvement process described under § 450.210(a).	Public input efforts are discussed in Chapter 1, Section 1.3.
(m) The long-range statewide transportation plan may include a financial plan that demonstrates how the adopted long-range statewide transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. In addition, for illustrative purposes, the financial plan may include additional projects that the State would include in the adopted long-range statewide transportation plan if additional resources beyond those identified in the financial plan were to become available. The financial plan may include an assessment of the appropriateness of innovative finance techniques (for example, tolling, pricing, bonding, public-private partnerships, or other strategies) as revenue sources. (n) The State is not required to select any project from the illustrative list of additional projects included in the financial plan described in paragraph (m) of this section.	Historical and forecasted costs and revenues are discussed at a modal level in Chapter 6.
(o) The State shall publish or otherwise make available the long-range statewide transportation plan for public review, including (to the maximum extent practicable) in electronically accessible formats and means, such as the World Wide Web, as described in § 450.210(a).	The project website, https://iowadot.gov/iowainmotion, will house the final SLRTP.
(p) The State shall continually evaluate, revise, and periodically update the long-range statewide transportation plan, as appropriate, using the procedures in this section for development and establishment of the long-range statewide transportation plan. (q) The State shall provide copies of any new or amended long-range statewide transportation plan documents to the FHWA and the FTA for informational purposes.	The SLRTP is currently on a 5-year update cycle and will be revisited and revised as necessary. Final copies of the SLRTP will be provided to FHWA and FTA.

Source: 23 CFR 450 and Iowa DOT

Appendix 2

This appendix provides supplemental information for Chapter 1, including public input survey results, plans and studies used in the development of the State Long Range Transportation Plan (SLRTP), and resource agencies that were contacted.

Public Input Survey Results

A public input survey was made available in May 2021. A total of 281 people provided data through the survey. Results are summarized here, and were used to help inform various components of the SLRTP.

Changes in travel, working, and shopping habits related to the COVID-19 pandemic

Since the public input survey was conducted a little over a year into the COVID-19 pandemic, a few questions were asked related to how the pandemic was influencing behavior. Individuals were asked how often they used various modes of transportation before and during the COVID-19 pandemic, as well as how often they thought they would use the modes one year after the pandemic's end. Table A.2 compares the responses for pre-pandemic usage of various modes versus their usage during the pandemic. As shown, driving a vehicle as an everyday occurrence decreased substantially. Also, occasional use of various passenger modes, such as flying, public transit, using Amtrak, and using a taxi or transportation network company (TNC) all decreased, with much larger percentages of respondents reporting not using those modes at all during the pandemic.

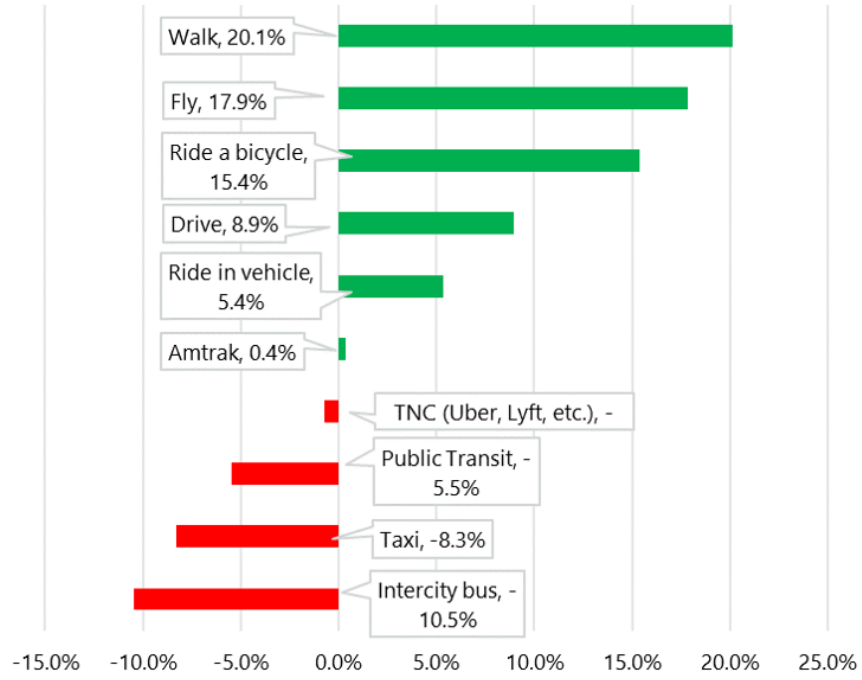
Table A.2: Net change in responses for how often modes of transportation were used, during the COVID-19 pandemic compared to pre-pandemic

	Most days of the week	One to three days a week	A few times a month	A few times a year	Less than that	Never
Ride a bicycle	0.7%	3.6%	1.0%	-8.0%	-0.8%	3.5%
Walk	5.5%	-2.9%	0.6%	-4.9%	1.9%	-0.2%
Use public transit (bus)	-2.2%	-1.1%	-2.2%	-3.7%	-6.6%	15.8%
Use an intercity bus (Burlington Trailways, Jefferson Lines, etc.)	0.0%	0.4%	-0.4%	-1.8%	-6.1%	7.9%
Fly	0.0%	-0.7%	-2.5%	-26.9%	-21.2%	51.3%
Use Amtrak	0.0%	0.0%	0.0%	-1.5%	-13.4%	14.9%
Drive a vehicle	-22.0%	16.6%	4.3%	0.0%	0.0%	1.1%
Passenger in vehicle (such as riding with family or carpooling)	-2.7%	-0.2%	1.6%	-1.5%	-0.4%	3.2%
Use a taxi service	0.0%	0.0%	-0.4%	-5.7%	-12.5%	18.6%
Use a transportation network company (Uber, Lyft, etc.)	0.0%	0.4%	-4.3%	-17.7%	-10.8%	32.5%

Source: 2021 Public Input Survey

Figure A.1 shows individuals' thoughts on their likely post-pandemic travel patterns. Many of the same passenger modes that saw decreased frequency during the pandemic were also seen as less likely to be used after the pandemic, with the exception of flying.

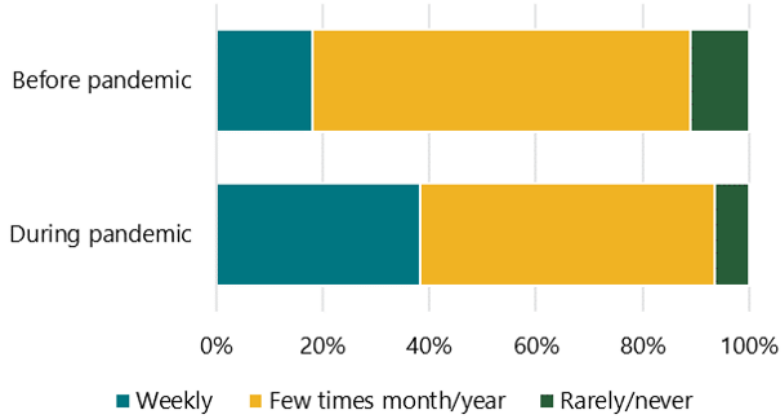
Figure A.1: Net change in responses for how travel habits one year after the COVID-19 pandemic ends will compare to travel habits pre-pandemic



Source: 2021 Public Input Survey

Individuals were also asked how often they had items, excluding food ordered from restaurants, delivered to their home both pre-pandemic and during the pandemic. There was a notable increase in the number of individuals having items delivered at least weekly, as shown in Figure A.2. Individuals were also asked how often they worked from home before and during the pandemic. Pre-pandemic, less than 20% of people were working from home any days of the week. During the pandemic, 57% were working from home at least one day a week, with over 30% working from home full-time. However, it should be noted that demographic/economic information collected with the survey suggested respondents may have skewed towards professions which are more likely to be able to work from home.

Figure A.2: Frequency of deliveries to home (other than food from restaurants), before and during COVID-19 pandemic



Source: 2021 Public Input Survey

System objectives

At the time of the public survey, system objectives were being refined for the State Long Range Transportation Plan (SLRTP). The public was asked to provide their opinions related to how safe, sustainable, accessible, and free flowing they felt the transportation system was as it pertained to specific modes or types of infrastructure. To avoid confusion regarding the primary meaning of the system objectives, sustainability was asked about in terms of how good of condition the system was in, and flow was asked about in terms of the amount of delay experienced. Positive, neutral, and negative feelings for each were highlighted in Table 4.2 in Chapter 4.

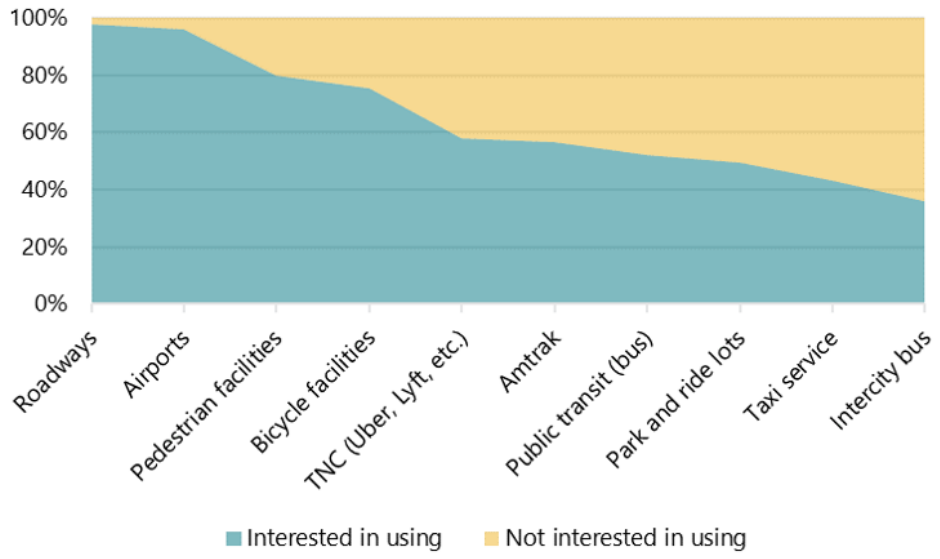
Table A.3 provides a combined view of the various attributes by showing the ranking of modes/infrastructure for each system objective based on positive rankings, as well as an overall composite. Of note is that roadways were among the top three modes/infrastructure for all areas except sustainability, where they ranked eighth. This means there was a smaller percentage of positive responses regarding roadway condition than the condition of most other modes. Respondents were asked to rank the infrastructure or mode if they used it or were interested in using it. Figure A.3 shows that interest levels varied substantially across modes, from 98% of respondents being interested in using roadways to less than 40% of respondents being interested in using intercity bus.

Table A.3: Ranking of various modes and infrastructure, based on percentage of positive responses for system objectives

	Safety	Sustainability	Accessibility	Flow	Average rank
Airports	1	1	2	7	2.75
Pedestrian facilities	3	4	3	1	2.75
Bicycle facilities	4	2	4	2	3
Roadways	2	8	1	3	3.5
TNC (Uber, Lyft, etc.)	8	3	5	5	5.25
Public transit (bus)	6	5	7	6	6
Park and ride lots	7	6	8	4	6.25
Amtrak	5	7	10	10	8
Taxi service	10	9	6	9	8.5
Intercity bus	9	10	9	8	9

Source: 2021 Public Input Survey

Figure A.3: Level of interest in using various modes and infrastructure



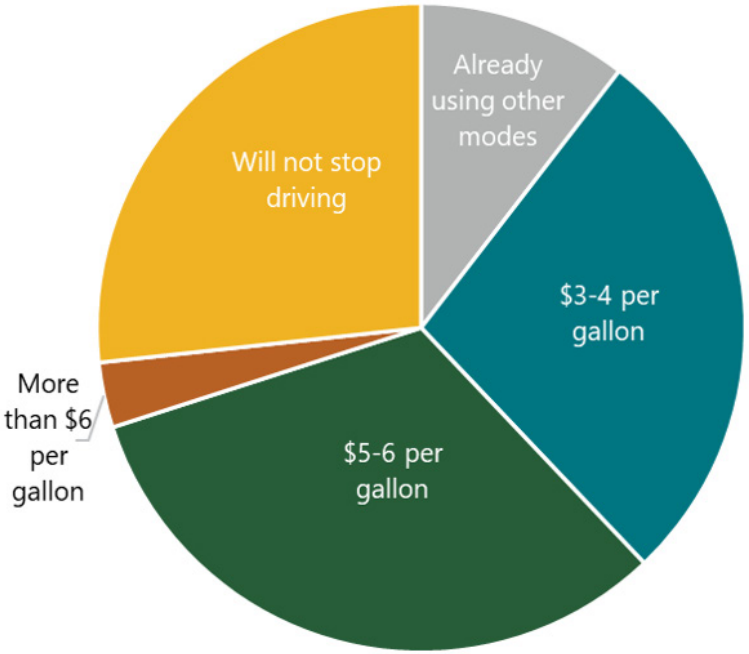
Source: 2021 Public Input Survey

Fuel prices, electric vehicles, and technology

Respondents that were drivers were asked about the impact of fuel prices on their driving habits, and at what point they would look to shift to other modes, if they were not already using them. Figure A.4. shows the results. While the majority of individuals would consider other modes at a price between $3 and $6 per gallon, over a quarter said that it did not matter how expensive fuel became, they would continue driving. Another question asked if individuals owned or were interested in purchasing an electric vehicle. As shown in Figure A.5, over half of respondents said they were interested in a hybrid or fully electric vehicle within ten years, while over a third were not interested in an electric vehicle.

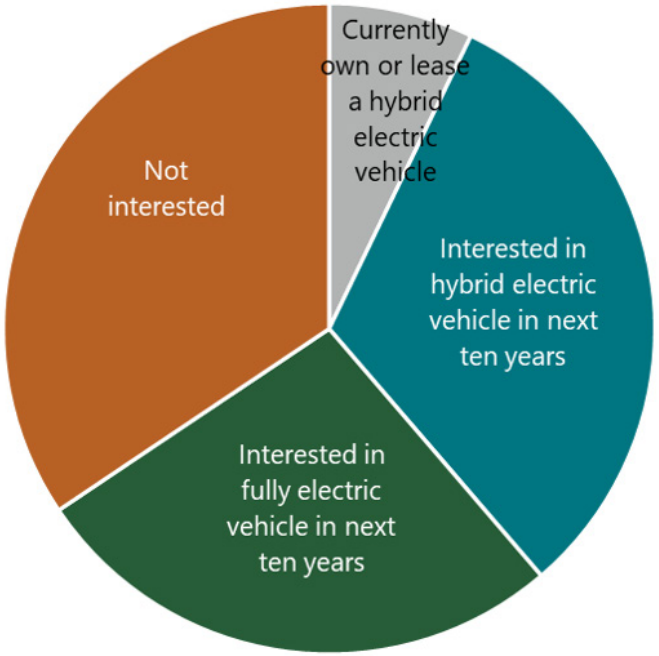
Individuals were also asked about their interest in micromobility or shared mobility options, such as owning or renting electric scooters or bicycles or using a carshare program. The highest rated of these options was a personal electric bike, with a quarter of respondents expressing interest. Over 60% of respondents were not interested in any micromobility or shared mobility options. Of those that were interested, most reported they would use the options for recreation or replacing entire trips they would have made by another mode; a smaller percentage showed interest in using these options for first-mile/last-mile connections for trips made by public transit or car.

Figure A.4: How expensive fuel would need to be to shift to a mode other than driving



Source: 2021 Public Input Survey

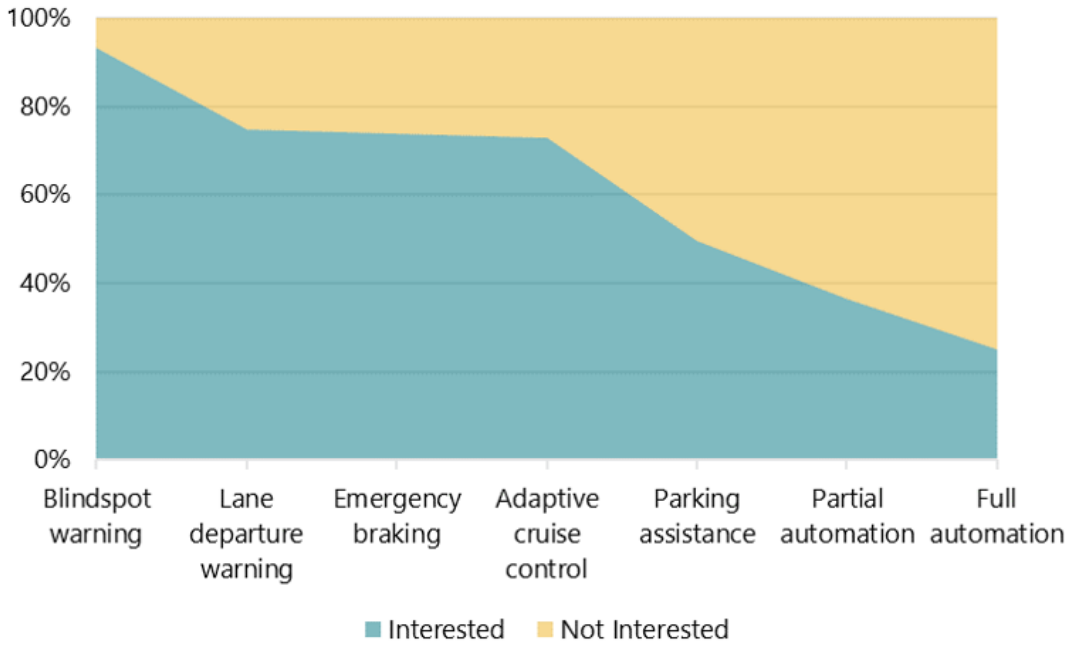
Figure A.5: Interest in electric vehicles



Source: 2021 Public Input Survey

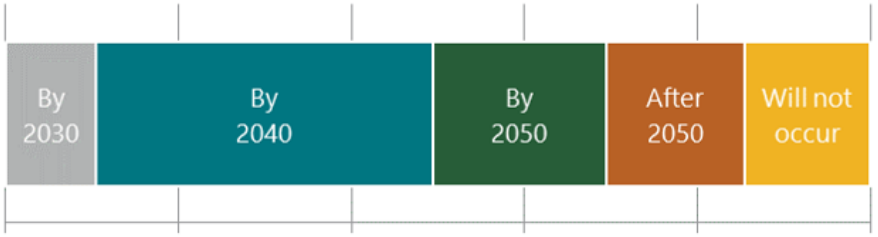
Respondents were also asked a few questions about technology advancements. One question focused on advanced driver assistance systems (ADAS) that are available in vehicles now, as well as advanced automation levels that may be available in the future. Individuals that drive were asked which ADAS they have available in their vehicle or have an interest in having available. Figure A.6 shows the responses. While the majority of individuals were interested in features such as blindspot warnings, lane departure warnings, emergency braking, and adaptive cruise control, less than 40% were interested in partial automation features, and less than 25% were interested in fully automated vehicles. Individuals who already have ADAS features in their vehicles were also asked whether they utilize them. Almost half of respondents indicated their vehicles do not have these features or they are not drivers. Over a third of respondents reported having ADAS features and using most or all of the features, while over 15% reported disabling some or all of them. Finally, individuals were asked whether they think highly automated vehicles (in which the vehicle is in full control for a portion or all of the driving task) will account for the majority of the cars on the road someday, and, if so, when. Figure A.7 shows that roughly half of individuals think this will occur by 2040, while about 30% think it will be after 2050 or not at all.

Figure A.6: Interest in advanced driver assistance systems and vehicle automation



Source: 2021 Public Input Survey

Figure A.7: Year by which individuals believe highly automated vehicles will account for the majority of cars on the road

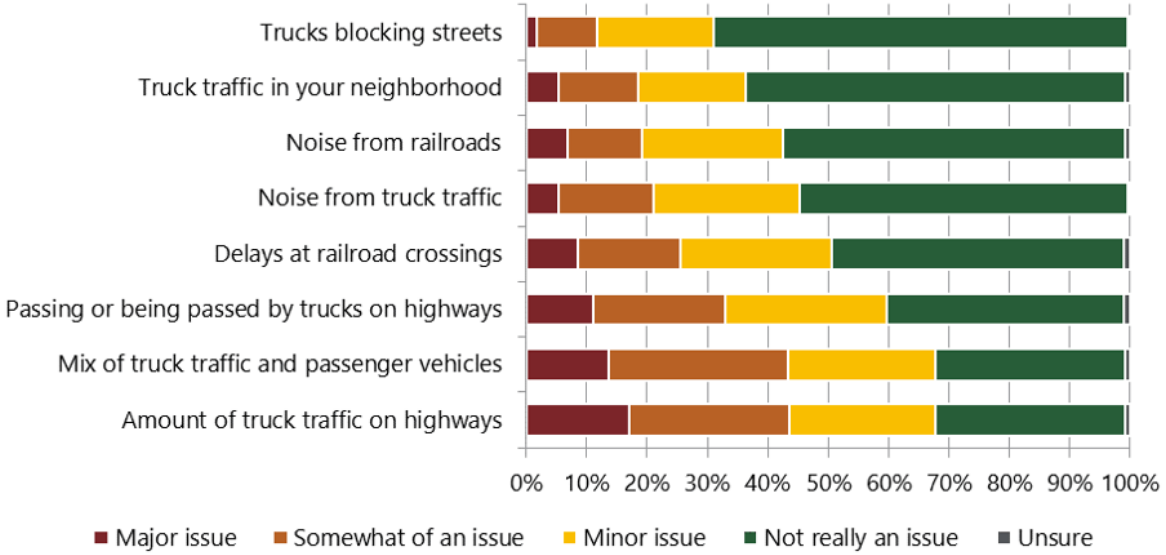


Source: 2021 Public Input Survey

Freight

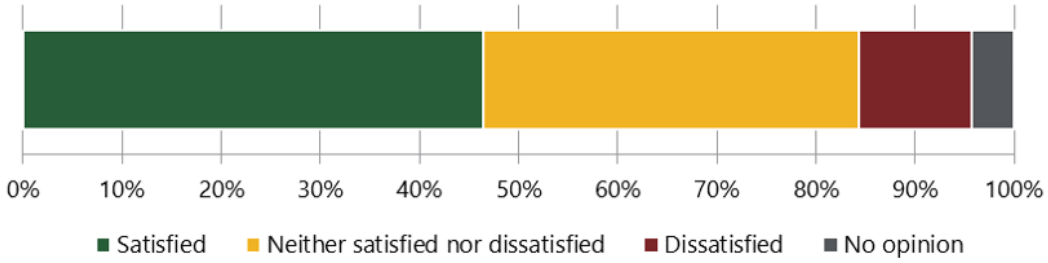
Two freight-related questions were asked as part of the survey. The first asked whether various freight-related issues impacted people's daily lives. Figure A.8 shows the responses to this question. The freight-related items the were reported most frequently as somewhat or major issues primarily related to truck traffic on highways – the overall amount, the mix of truck traffic with passenger vehicles, and passing or being passed by trucks on highways. Individuals were also asked about their satisfaction with how their community's roadways accommodate freight movements; results for that question are shown in Figure A.9. Most respondents reported being satisfied or neutral.

Figure A.8: Responses to whether various freight-related items cause issues in daily life



Source: 2021 Public Input Survey

Figure A.9: Level of satisfaction with how roadways handle freight movements

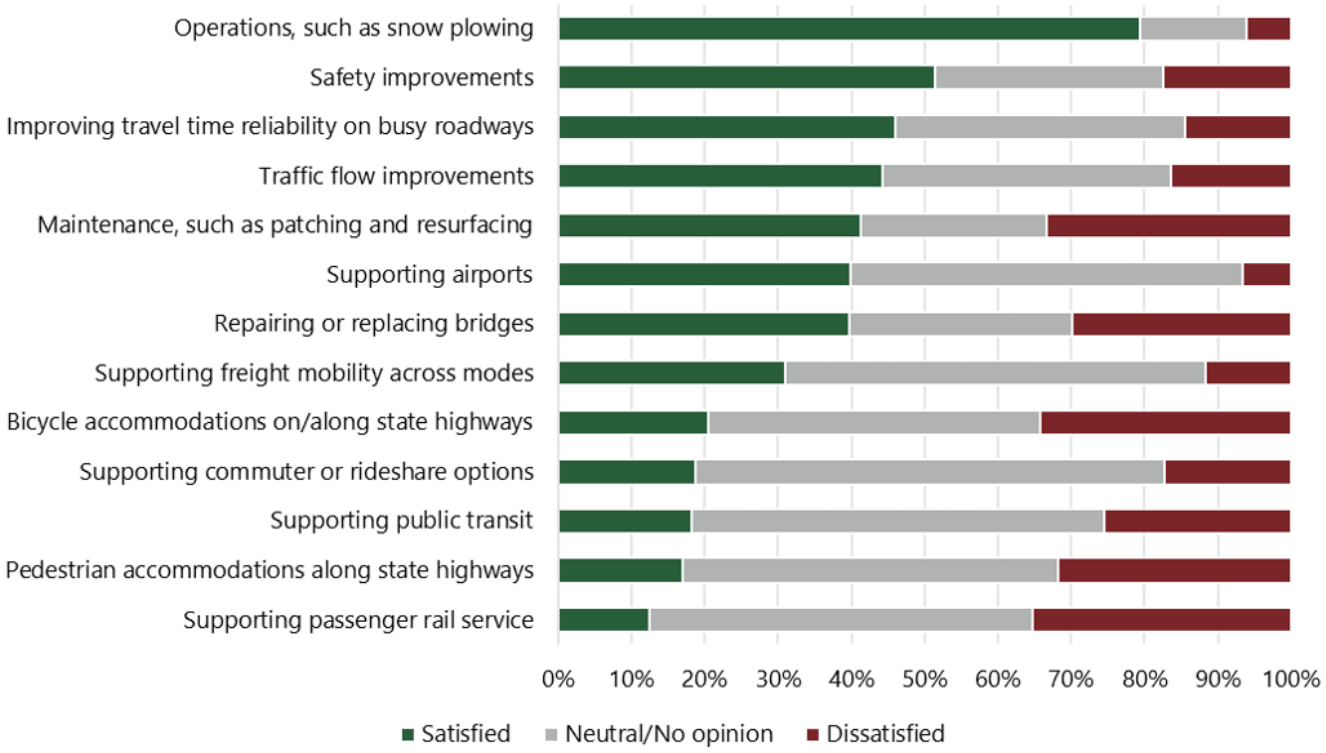


Source: 2021 Public Input Survey

Iowa DOT

Based on how they felt the state transportation system was operating, respondents were asked what their level of satisfaction was with Iowa DOT's efforts in several areas. Figure A.10 shows the responses. Overall, operations-focused items such as snow plowing and roadway operational improvements had higher satisfaction ratings. Condition improvements efforts for roadways and bridges ranked in the middle of the pack with roughly equal portions of satisfied and dissatisfied ratings. Most modal-related items had higher percentages responding as dissatisfied than satisfied. These results were also echoed in a question about how an individual would allocate funding among three highway categories (maintenance, operations enhancements, lane additions) and five modal categories (aviation, bicycle accommodations, passenger rail, pedestrian accommodations, public transit). The overall split of funding was just over 60% to the three highway categories and just under 40% to the modal categories. This is a much higher percentage of Iowa DOT's funding than is spent on those modal categories currently.

Figure A.10: Level of satisfaction with Iowa DOT's efforts in various areas

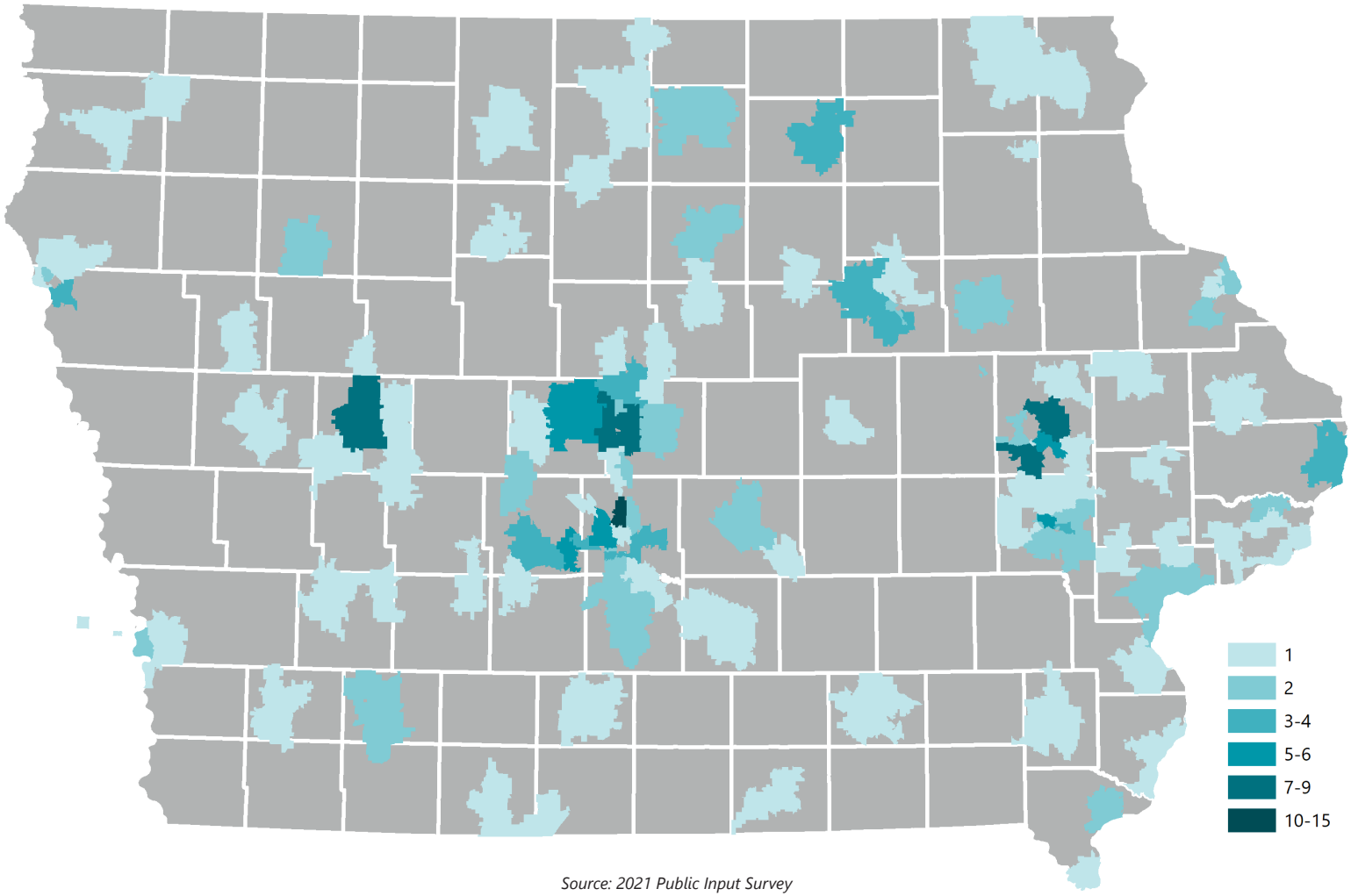


Source: 2021 Public Input Survey

Location of respondents

Figure A.11 shows the distribution of responses based on zip codes. As shown, while there were a limited number of responses overall, there were responses from across the state.

Figure A.11: Number of responses by zip code



Source: 2021 Public Input Survey

Stakeholder Consultation

As mentioned in Chapter 1, an important part of developing the State Long Range Transportation Plan (SLRTP) is consulting with various other government agencies, including Federal, State, Tribal, and local governments. Consultation with these agencies was achieved in two main ways: By reviewing plans and maps from these entities, and inviting them to review and comment on draft plan content. The agencies listed below were contacted for this purpose. In addition to government agencies, a variety of modal interest groups were invited to comment on the draft plan, also listed below.

Resource/governmental agencies

- Iowa Department for the Blind
- Iowa Department of Agriculture & Land Stewardship
- Iowa Department of Cultural Affairs
- Iowa Economic Development Authority
- Iowa Department of Education
- Iowa Department of Human Rights
- Iowa Department of Human Services
- Iowa Department of Natural Resources
- Iowa Department of Public Health
- Iowa Department of Public Safety
- Iowa Department on Aging
- Iowa Homeland Security & Emergency Management
- Iowa Tourism
- Iowa Utilities Board
- Iowa Workforce Development
- Office of the State Archaeologist at U Iowa
- State Historical Society
- FHWA, Iowa Division
- FTA, Region 7
- U.S. Army Corps of Engineers, Rock Island District
- U.S. EPA, Region 7
- U.S. Fish & Wildlife Service
- USDA NRCS: Iowa
- Meskwaki Tribe

External stakeholders

- Bicycle and Pedestrian Advisory Committee
- Freight Advisory Committee
- Intercity bus companies
- Iowa Transportation Coordination Council
- Metropolitan Planning Organizations
- Passenger Rail Advisory Committee
- Public Transit Providers
- Rail Advisory Committee
- Regional Planning Affiliations
- Strategic Highway Safety Plan Implementation Team

Plans and Studies

As mentioned in Chapter 1, a large variety of plans, reports, and studies were considered throughout the SLRTP development process. This list is not exhaustive, but captures many of the documents used in plan development; as most are Iowa DOT documents, it also helps provide an idea of the breadth of planning efforts that occur throughout the department. When multiple years are listed, that indicates various updates of the document that have taken place over time.

Multimodal system plans

- State Long Range Transportation Plan (2017; 2012; 1997)
- State Freight Plan (2022; 2017; 2016)

Aviation

- Iowa Aviation System Plan (2021; 2011)
- Uses and Benefits of Aviation in Iowa (2009)
- Iowa Air Service Study (2008)

Bicycle/pedestrian

- Iowa Bicycle and Pedestrian Long-Range Plan (2018)
- Economic and Health Benefits of Bicycling in Iowa (2012)
- Lewis and Clark Multiuse Trail Study (2010)
- Iowa's Mississippi River Trail Plan (2003)
- Iowa Trails 2000 (2000)

Highway

- Iowa Infrastructure Condition Evaluation Highway Planning Report (2021; 2020)
- Iowa Interstate Investment Plan (2019)
- Transportation Asset Management Plan (2019; 2018; 2016)
- Iowa Interstate Corridor Plan (2013)
- The Fix We're In For: The State of Our Nation's Bridges (2013)

Public transit/passenger

- Iowa Public Transit Long-Range Plan (2020)
- Transportation Coordination in Iowa (2020)
- Iowa Park and Ride System Plan (2014)
- Iowa Passenger Transportation Funding Study (2009)

Rail

- Iowa State Rail Plan (2021; 2017)
- Iowa Crude Oil and Biofuels Rail Transportation Study (2016)

Funding

- Road Use Tax Fund (RUTF) Study (2021; 2016; 2011; 2006)
- Report on the Impact of Electric Vehicles to the RUTF (2018)
- Governor's Transportation 2020 Citizens' Advisory Committee Report (2011)

Operations

- TSMO Plan Update (Draft; 2022)
- Iowa's Automated Transportation Vision (2020)
- TSMO Service Layer Plans (2017-2020)
- TSMO Program Plan (2016)
- TSMO Strategic Plan (2016)

Safety

- Statewide Bicycle and Pedestrian Systemic Safety Analysis (2020)
- Iowa Strategic Highway Safety Plan (2019; 2017; 2013)
- District Road Safety Plans (2017)
- Statewide Screening for Potential Lane Reconfiguration (2017)
- Iowa Comprehensive Highway Safety Plan (2006)

Miscellaneous

- Rest Area Management Plan (2020)
- Charging Forward: Iowa's Opportunities for Electric Vehicle Infrastructure Support (2019)
- ADA Transition Plan (2019; 2016)
- Iowa Energy Plan (2016)
- Climate Change Impacts on Iowa (2010)
- Livability in Transportation Guidebook (2010)
- Iowa's Renewable Energy and Infrastructure Impacts (2010)
- Transportation Planning and the Environment (2009)
- Policy Strategies for Iowa in Making Major Road Investments (2002)

This page intentionally left blank

Appendix 3

Accessibility/Mobility Analysis

Chapter 4 included a brief overview of accessibility/mobility analysis conducted for the State Long Range Transportation Plan (SLRTP). This appendix provides a detailed discussion of the methodology along with maps for each of the individual components that were analyzed.

The approach for this analysis was to focus on factors that may limit mobility, ability to access transportation infrastructure, and/or travel via a personal vehicle. The aim was to identify populations that may be more at risk of having mobility challenges than the general public. While transportation planning should be conducted through a multimodal lens by default, these populations may be particularly in need of or best served by alternatives to driving. These populations may also be better served by non-traditional public outreach techniques. Future analysis efforts may work to integrate other accessibility considerations, such as availability of different transportation options and how many essential destinations can be reached by them.

Geographic analysis level

There were multiple options to consider for the level of geography used in the analysis. Since most data was anticipated to come from the U.S. Census Bureau's American Community Survey (ACS), the main options were counties, census tracts, or census block groups. Counties were determined to be too large for the analysis, as that geography level would not provide detailed enough location-specific information. The smallest geographic unit considered, census block groups, did not have data available for all attributes being considered; when the data was available, it was often less reliable than larger geographic areas since the ACS is sample-based and there would be less samples for smaller geographic areas. Census tracts were chosen as the best balance of geographic size and data reliability. There were 825 census tracts in Iowa at the time of the analysis; two of them had no population and were excluded from the analysis.

Data analyzed

Analysis was conducted by using 2015-2019 ACS 5-year estimates from the U.S. Census Bureau, which were the most currently available 5-year estimates at the time of the analysis. The following ten person and household attributes were included in the analysis.

- Youth – under 18
- Older adults – 65 and over
- Minority (non-White and/or Hispanic/Latino)
- Foreign-born
- Limited English proficiency
- With a disability
- Households below poverty level
- Zero vehicle households
- College enrolled
- Single parent households

These attributes were chosen as they were felt to be the most likely attributes to impact a person's ability to fully access the transportation system. Several additional attributes were considered but not ultimately included in the analysis because they were too duplicative with other factors. Factors were also excluded if it was believed there would be no discernable impact that the presence or absence of a population with that attribute would have on people's ability to access the transportation system, how a project would be developed, or how public input efforts would be conducted. The percentage of a census tract's population was analyzed rather than the number of people in the tract, as tracts varied greatly in population.

Analysis structure

A single, statewide analysis of all census tracts was considered, as was dividing the state into rural and urban tracts and analyzing those groups together. The latter was preferred, as several of the attributes are relatively concentrated in urban areas, so using a statewide analysis would result in fewer non-urban areas being identified as being at higher risk for accessibility issues, even though the population in question may be significant relative to the area's size and characteristics.

Several options for defining rural versus urban census tracts were considered. Ultimately, metropolitan planning organization (MPO) planning area boundaries were used. These boundaries encompass areas that are urbanized or likely to be urbanized in the next 20 years, as defined by the MPOs. Census tract boundaries do not always align with the MPO planning area boundaries; a review of tracts that cross MPO borders led to labeling a tract as urban if more than ten percent of the tract's area was within the MPO boundary. This ensured all incorporated areas and growth areas of MPOs were included in the urban analysis while some very large rural tracts that only had a small portion of area in the MPO were grouped with the rural analysis. The end result was a relatively even split of Iowa's population, while the vast majority of land area was assigned to the rural analysis, as shown in Table A.4 and Figure A.12.

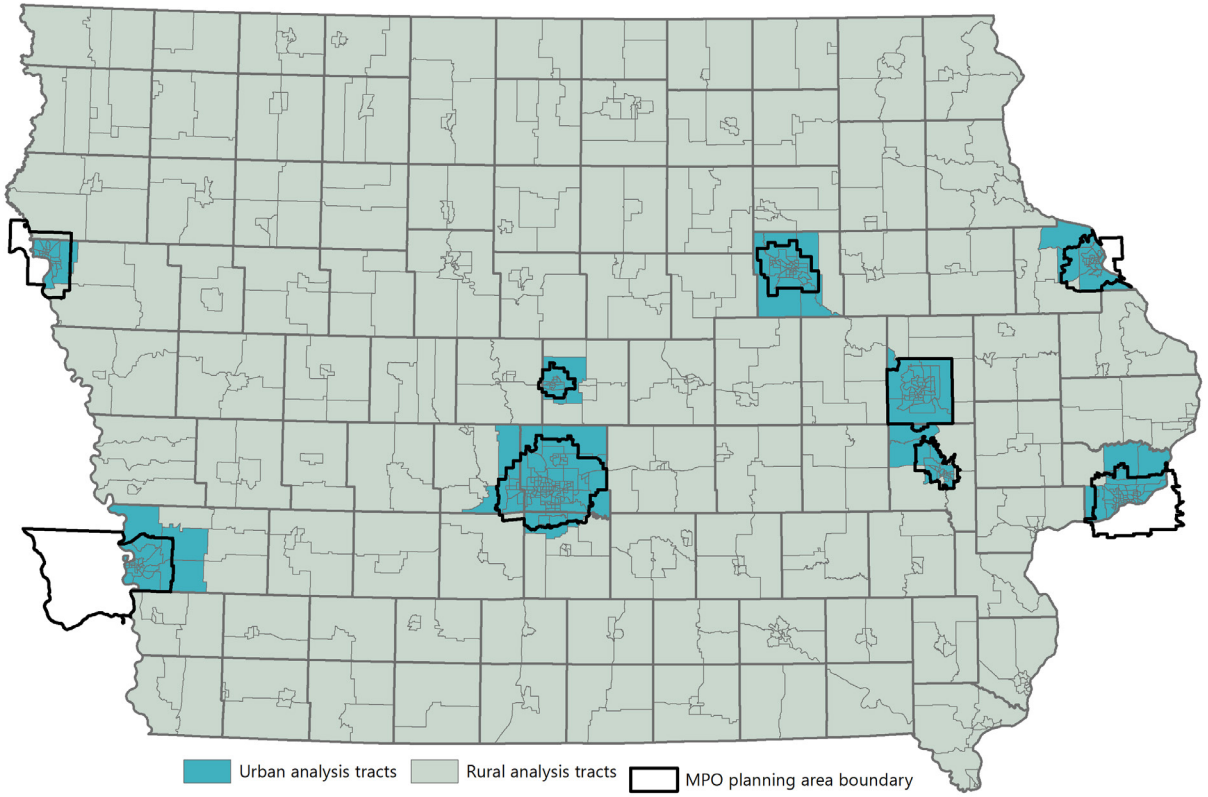
Table A.4: Statistics for urban and rural tracts for accessibility/mobility analysis

	Urban analysis	Rural analysis
Tracts	339*	486*
Population	1,519,424 *(48.4%)*	1,620,084 *(51.6%)*
Square miles	3,127 *(5.6%)*	52,726 *(94.4%)*

**1 tract in each analysis had no population and was excluded from the analysis.*

Source: Iowa DOT

Figure A.12: Census tract assignments for accessibility/mobility analysis



Source: Iowa DOT

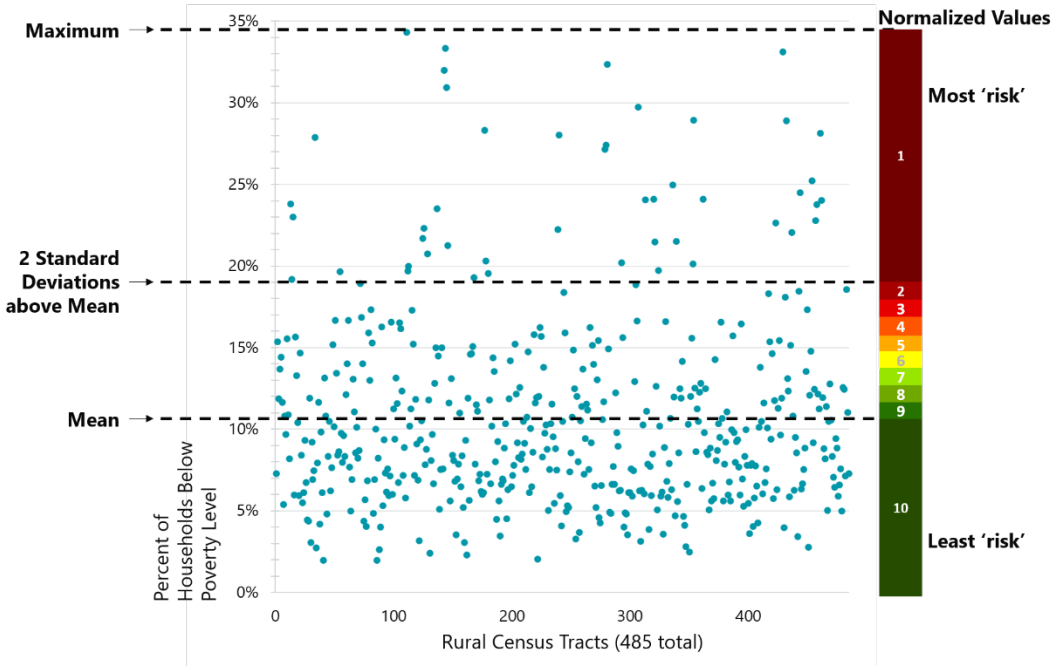
Analysis method

Several options were considered for how to analyze the census tracts, including focusing on standard deviation from the mean for the attribute or using various percentile thresholds to define an area as more 'at risk' from an accessibility perspective. Ultimately, a method similar to that used in several of the highway needs and risks discussed in Chapter 5 was used. This method focuses on data that is higher than the statewide average and develops a ten-point normalized scale for each attribute, which then allows for the aggregation of those attributes into a single composite score.

Figure A.13 helps illustrate the normalization process. All steps of the analysis were completed separately for the urban analysis and rural analysis. Each attribute was analyzed individually, and the mean for the attribute across census tracts was calculated. Tracts at or below the mean were assigned a normalized value of 10, meaning there is less risk relative to that attribute in those tracts compared to all urban or rural tracts in the state. The remainder of the census tracts that were above the statewide mean were assigned normalized values of 1-9. To determine the values to assign to each tract, a threshold of two standard deviations above the mean was used to calculate the cutoff for which tracts would be assigned a 1. The remainder of the range between those values and the mean was divided equally among the values of 2-9. This method was used because in many cases there were a few very high percentage census tracts that would stretch the range of values out, and using another method, such as assigning the same number of tracts to each normalized value, would not do as good of job of highlighting the relative severity of the level of risk based on that attribute's value.

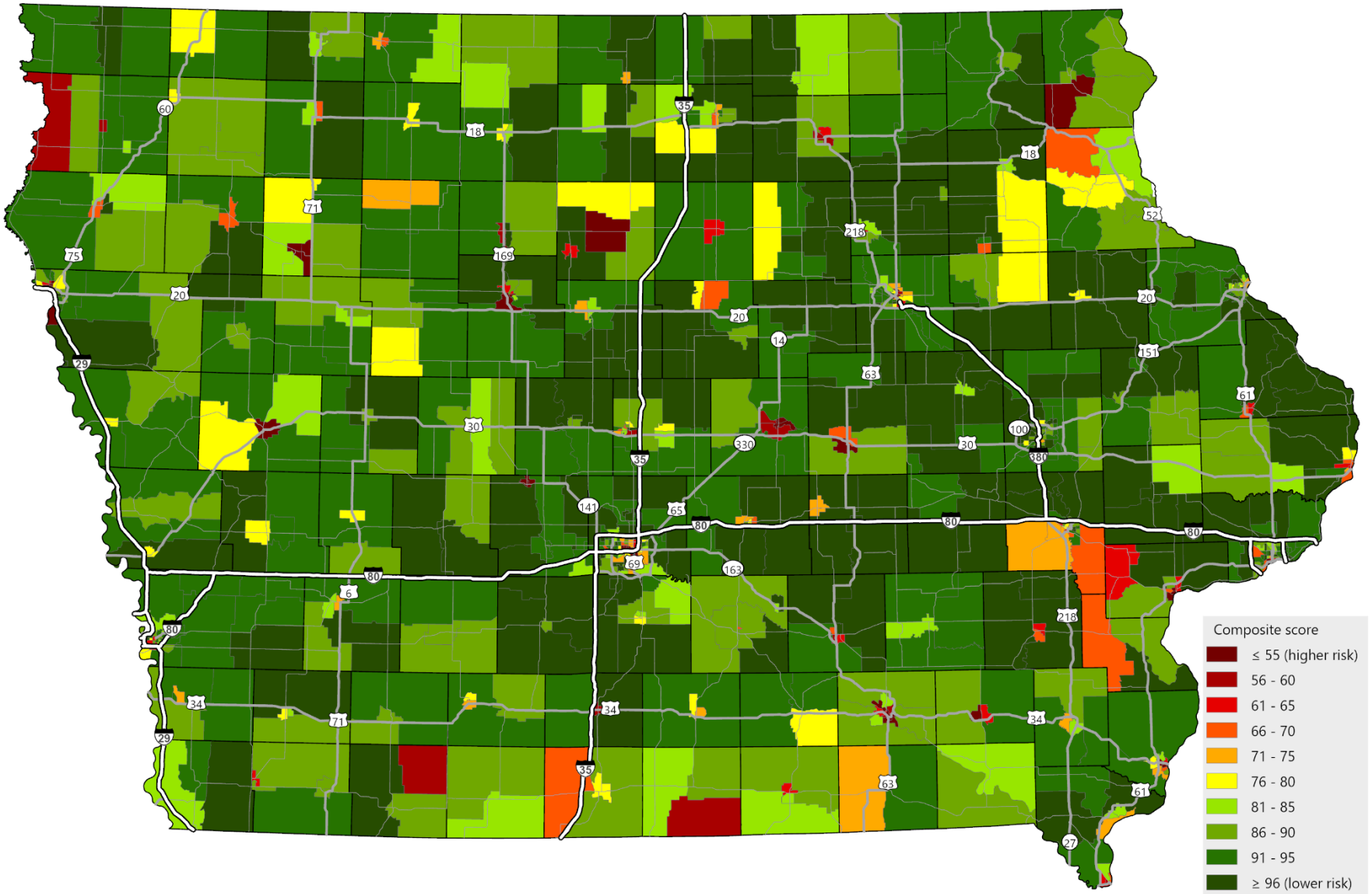
Once the normalized values were determined for all ten attributes, they were added together to determine a composite score for the tract. The composite score had a maximum value of 100, which would mean the highest possible score was assigned for each factor, or that the tract was below the statewide average for all attributes. The higher a tract's score, the fewer mobility challenges its population has relative to other tracts in the state; lower composite scores indicate a higher risk for accessibility issues. The following pages include statewide and urban inset maps of the composite scores and each individual attribute's normalized scores. While urban and rural tracts are mapped together, they were analyzed separately as previously described.

Figure A.13: Example of normalization process for attributes used in accessibility/mobility analysis



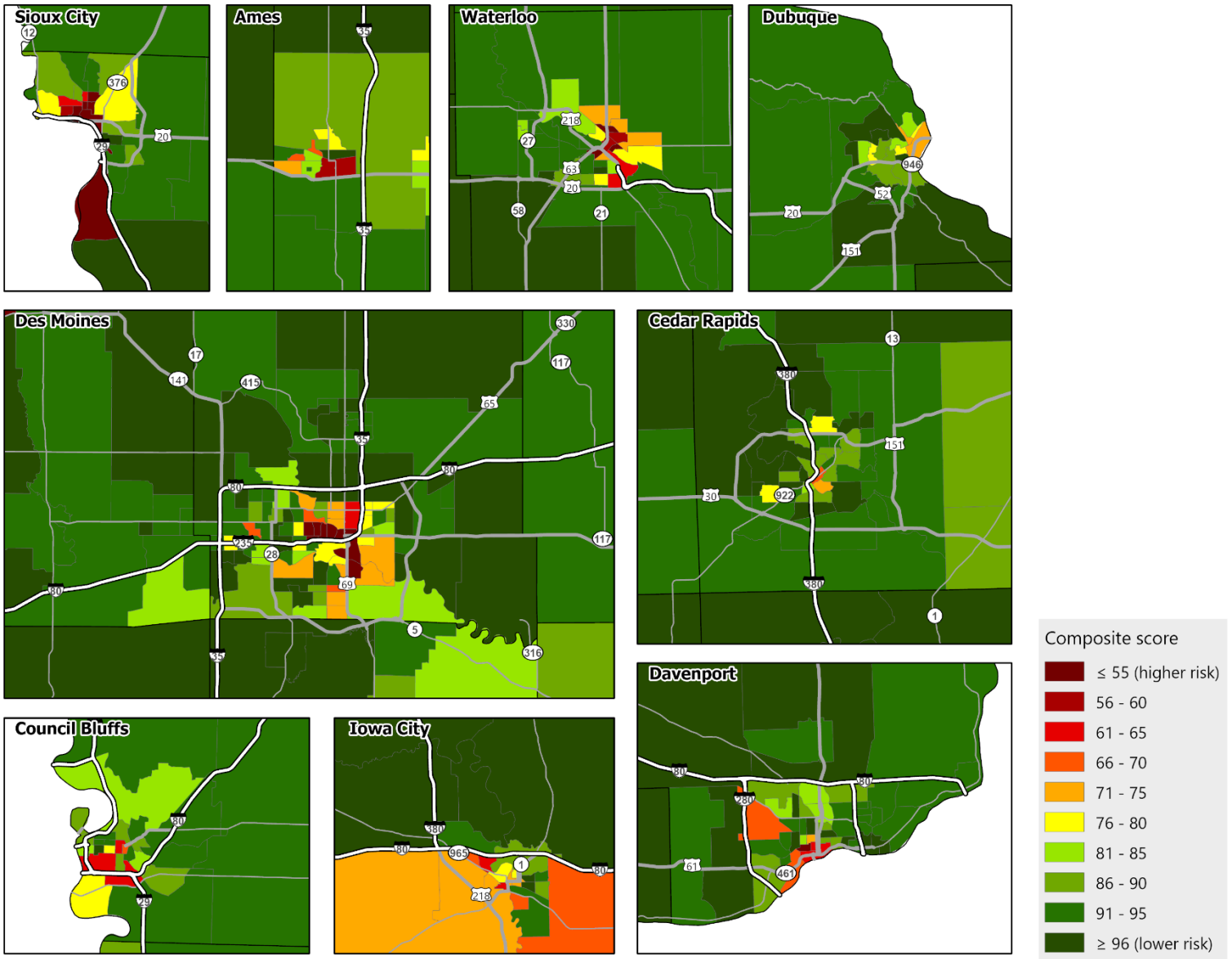
Source: Iowa DOT

Figure A.14: Accessibility/mobility analysis composite scores – statewide view



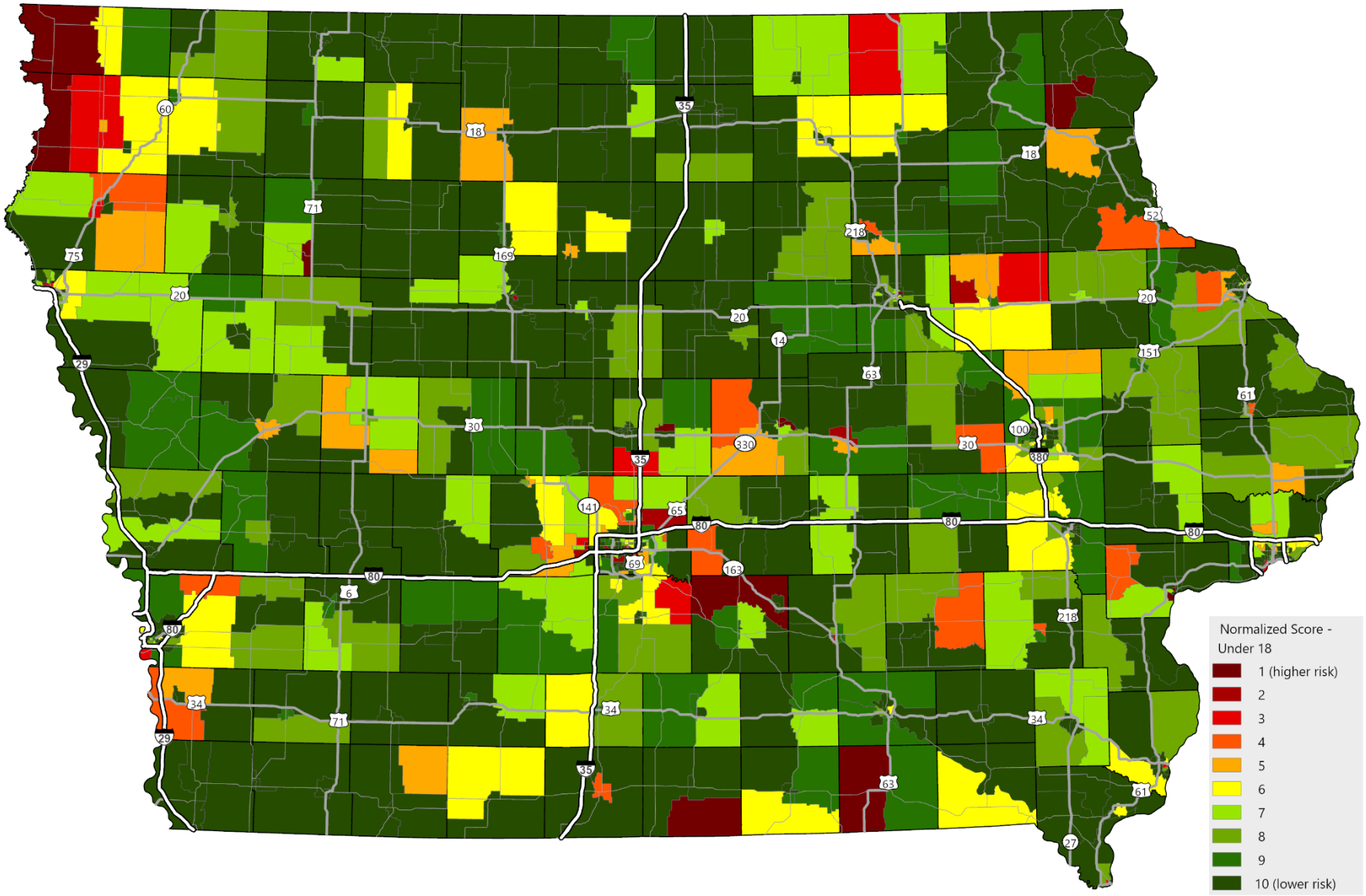
Source: Iowa DOT

Figure A.15: Accessibility/mobility analysis composite scores – urban insets



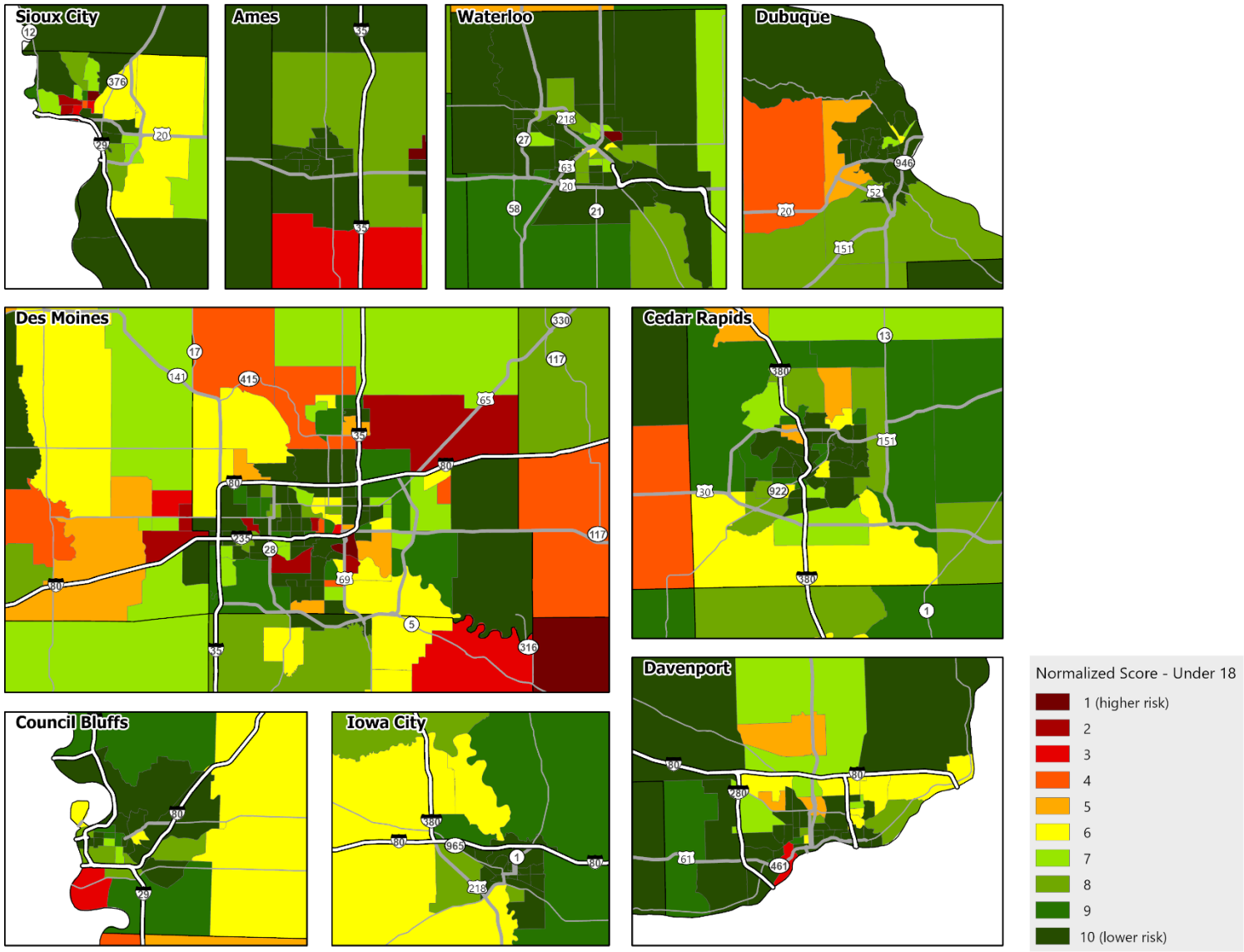
Source: Iowa DOT

Figure A.16: Accessibility/mobility analysis normalized scores for population that is under 18 – statewide view



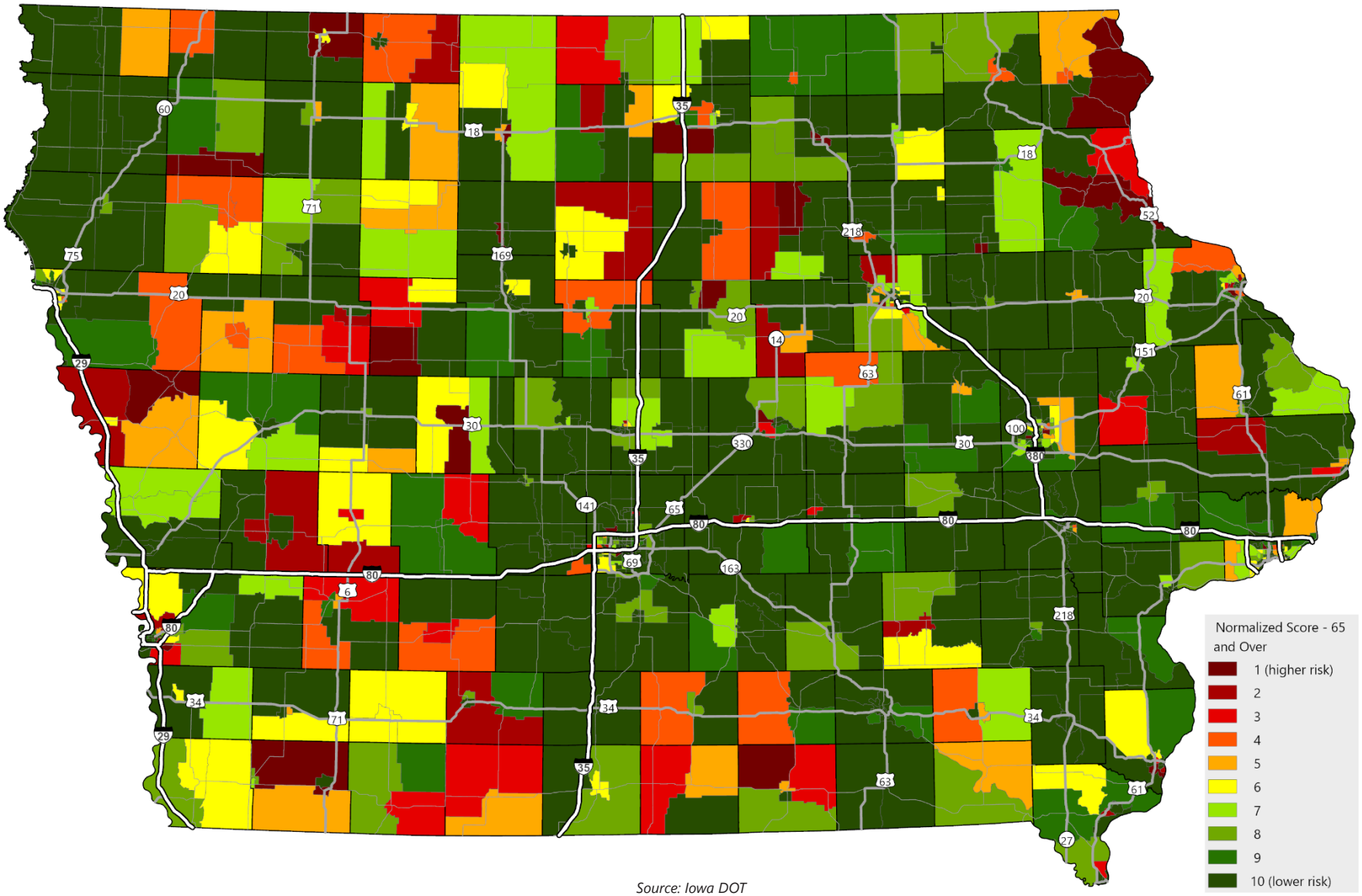
Source: Iowa DOT

Figure A.17: Accessibility/mobility analysis normalized scores for population that is under 18 – urban insets



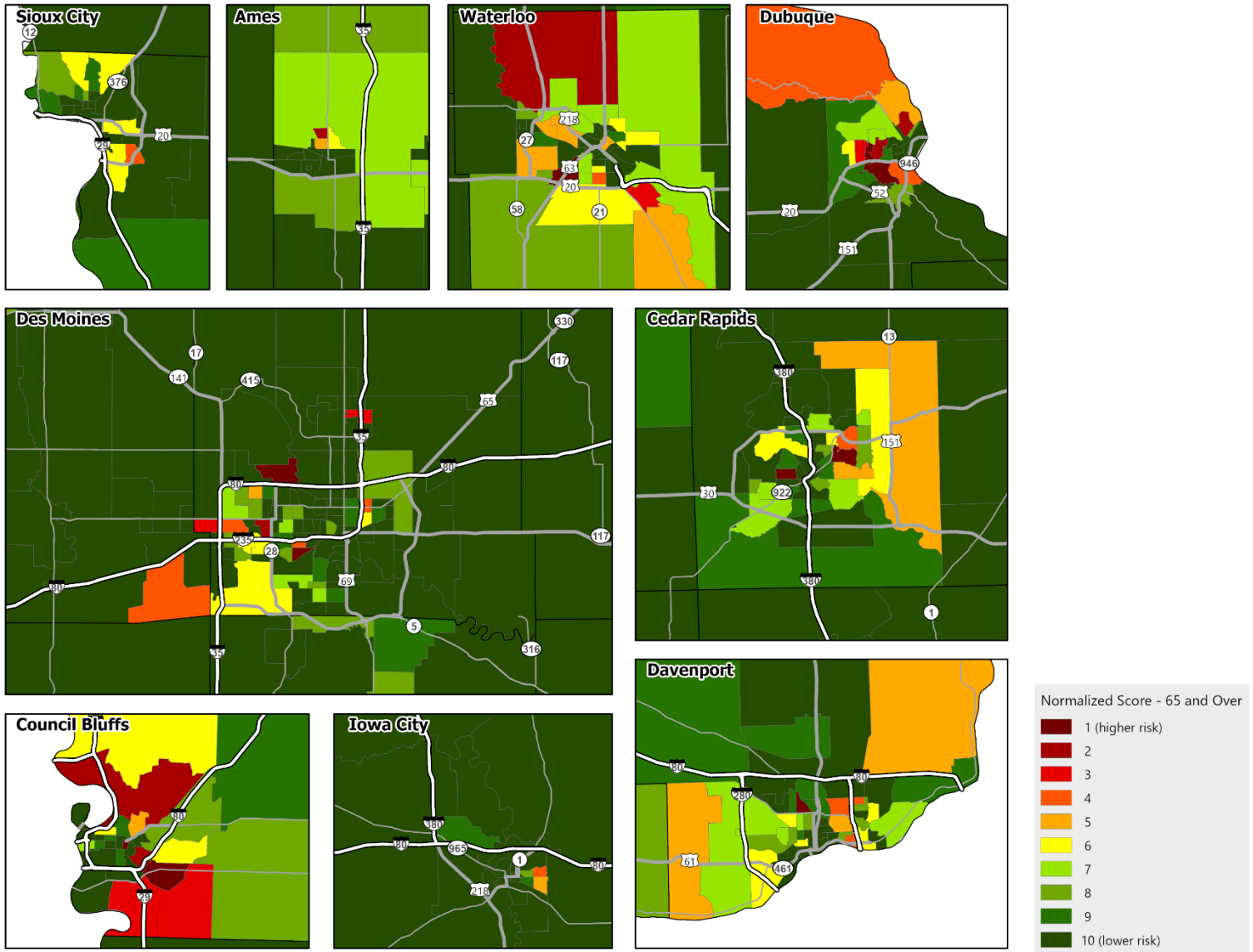
Source: Iowa DOT

Figure A.18: Accessibility/mobility analysis normalized scores for population that is 65 and over – statewide view



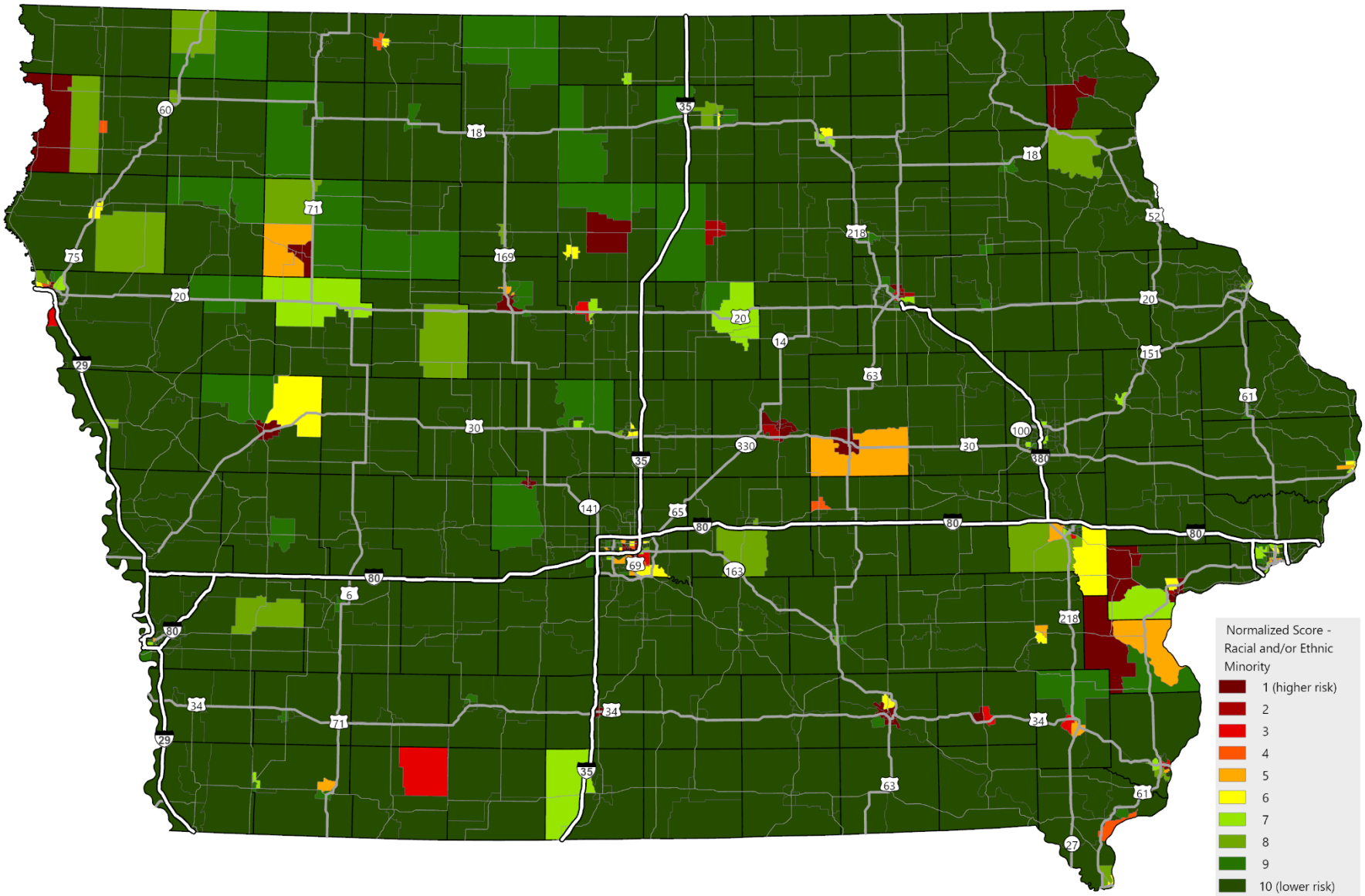
Source: Iowa DOT

Figure A.19: Accessibility/mobility analysis normalized scores for population that is 65 and over – urban insets



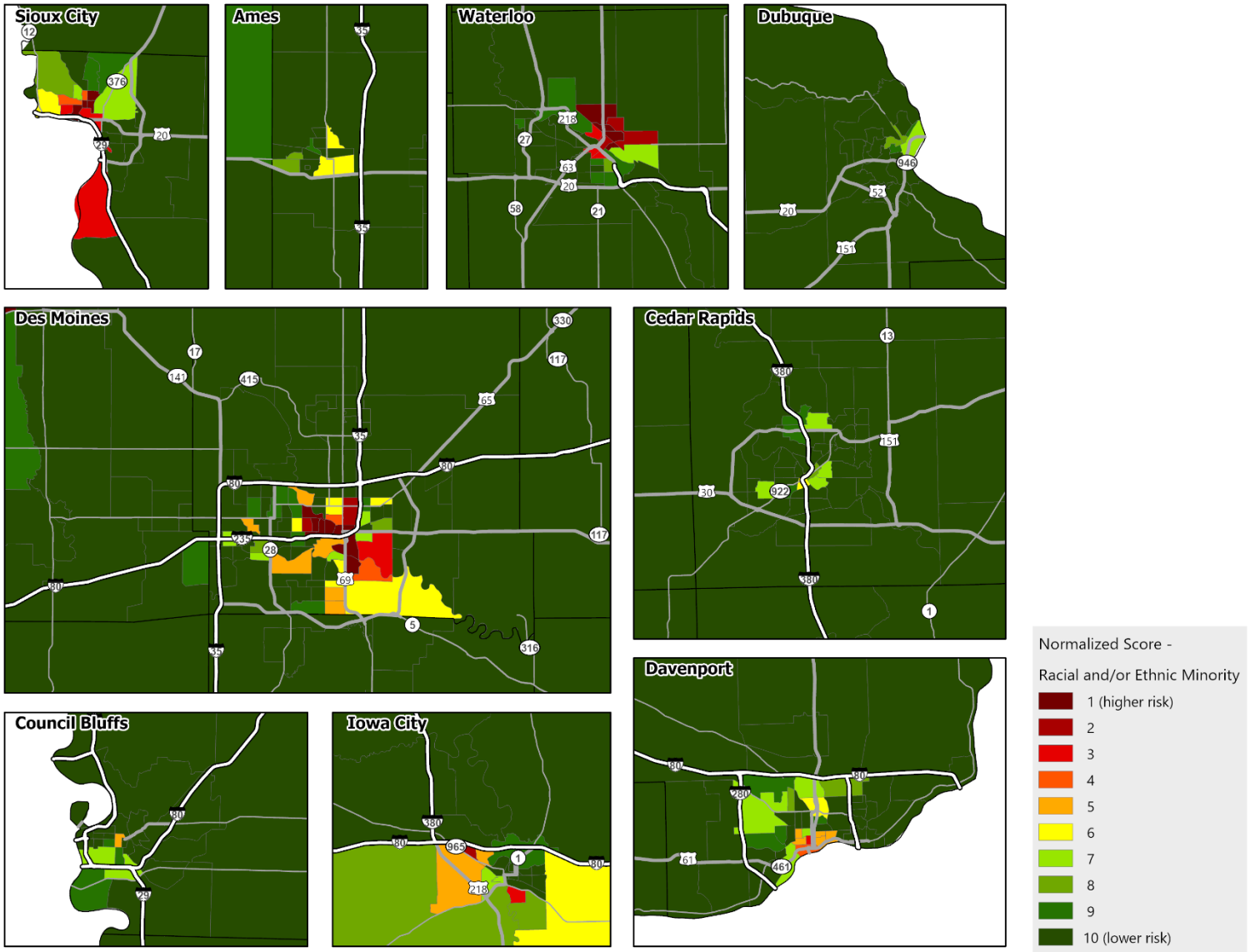
Source: Iowa DOT

Figure A.20: Accessibility/mobility analysis normalized scores for population that is a racial and/or ethnic minority – statewide view



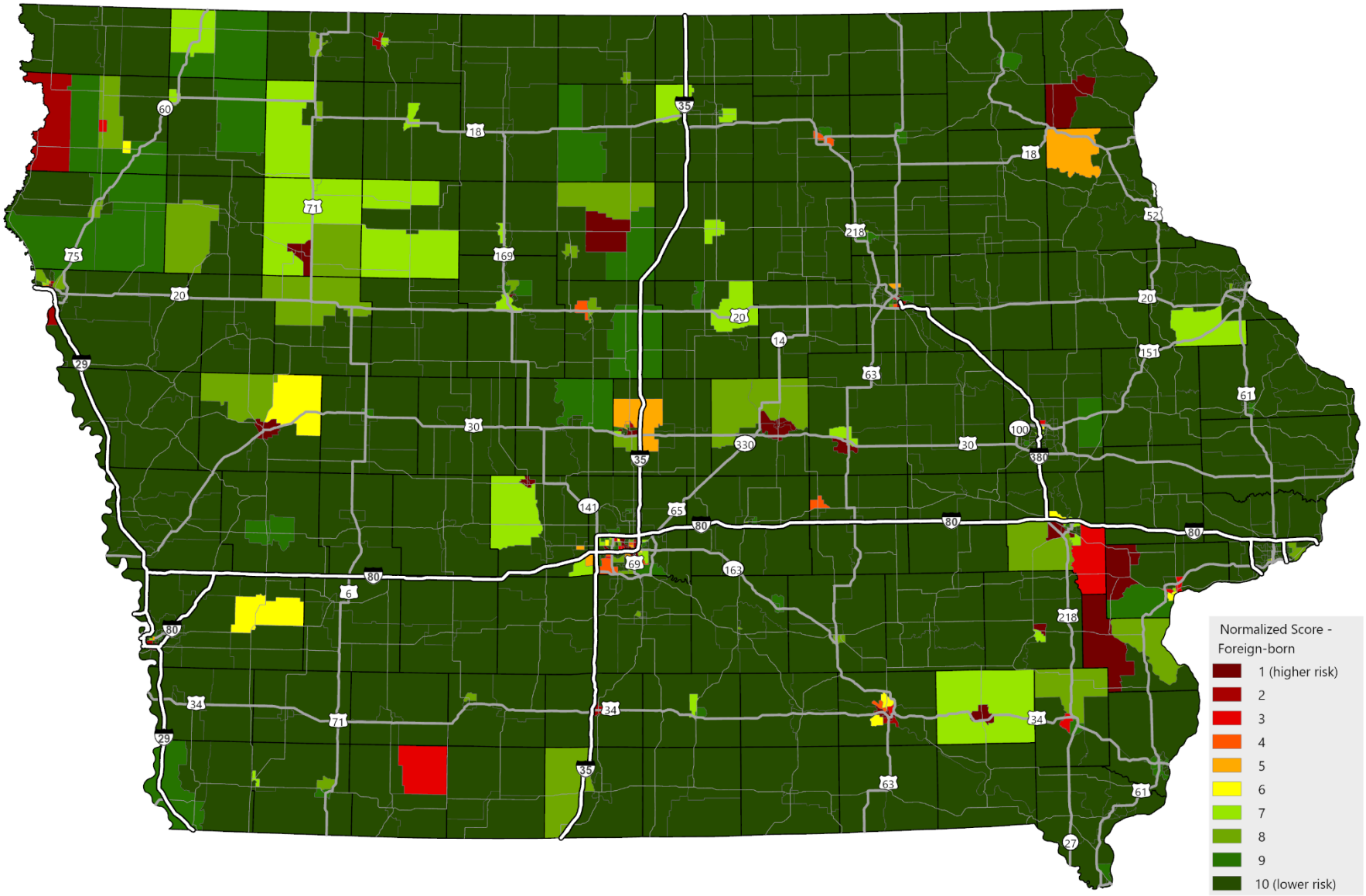
Source: Iowa DOT

Figure A.21: Accessibility/mobility analysis normalized scores for population that is a racial and/or ethnic minority – urban insets



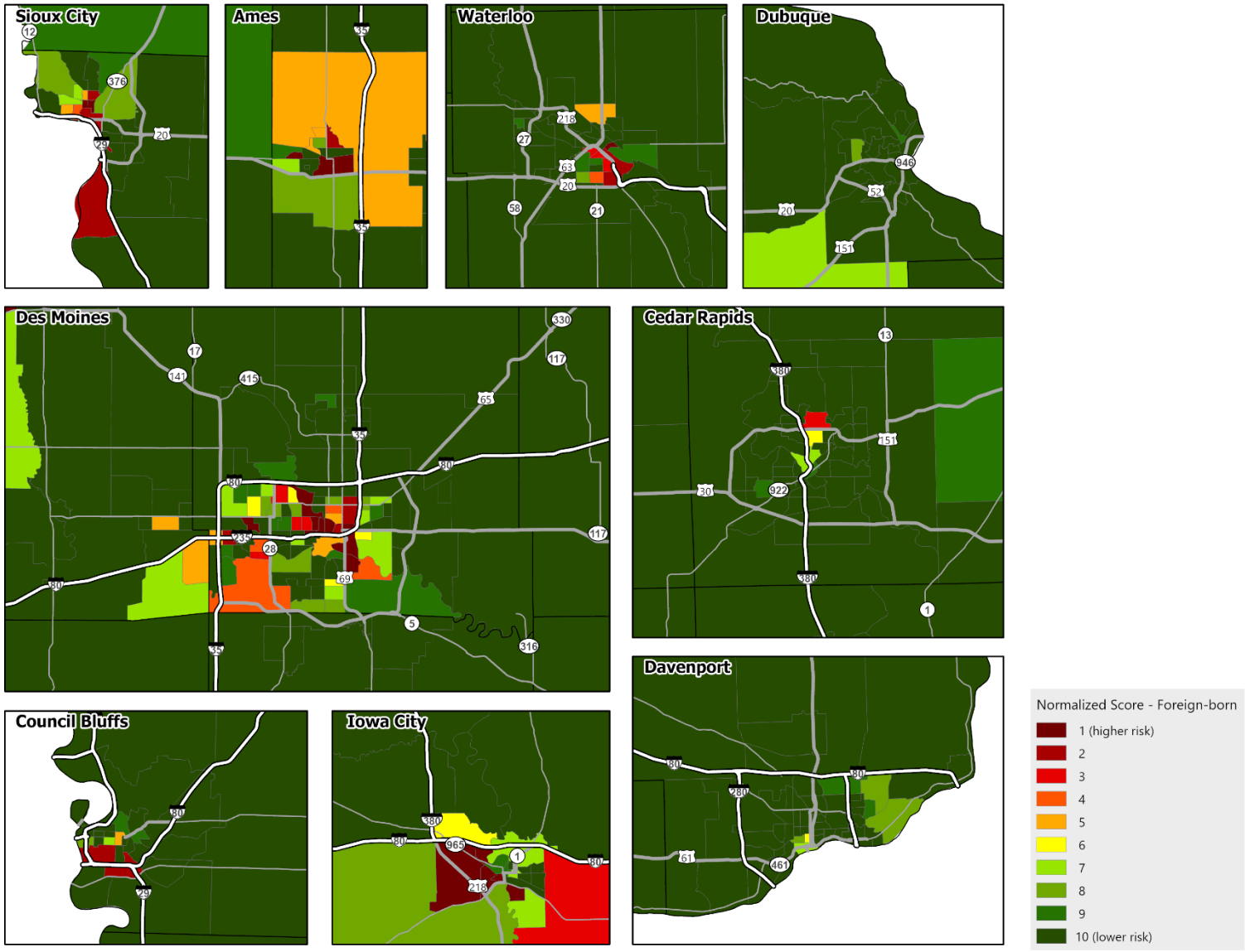
Source: Iowa DOT

Figure A.22: Accessibility/mobility analysis normalized scores for population that is foreign-born – statewide view



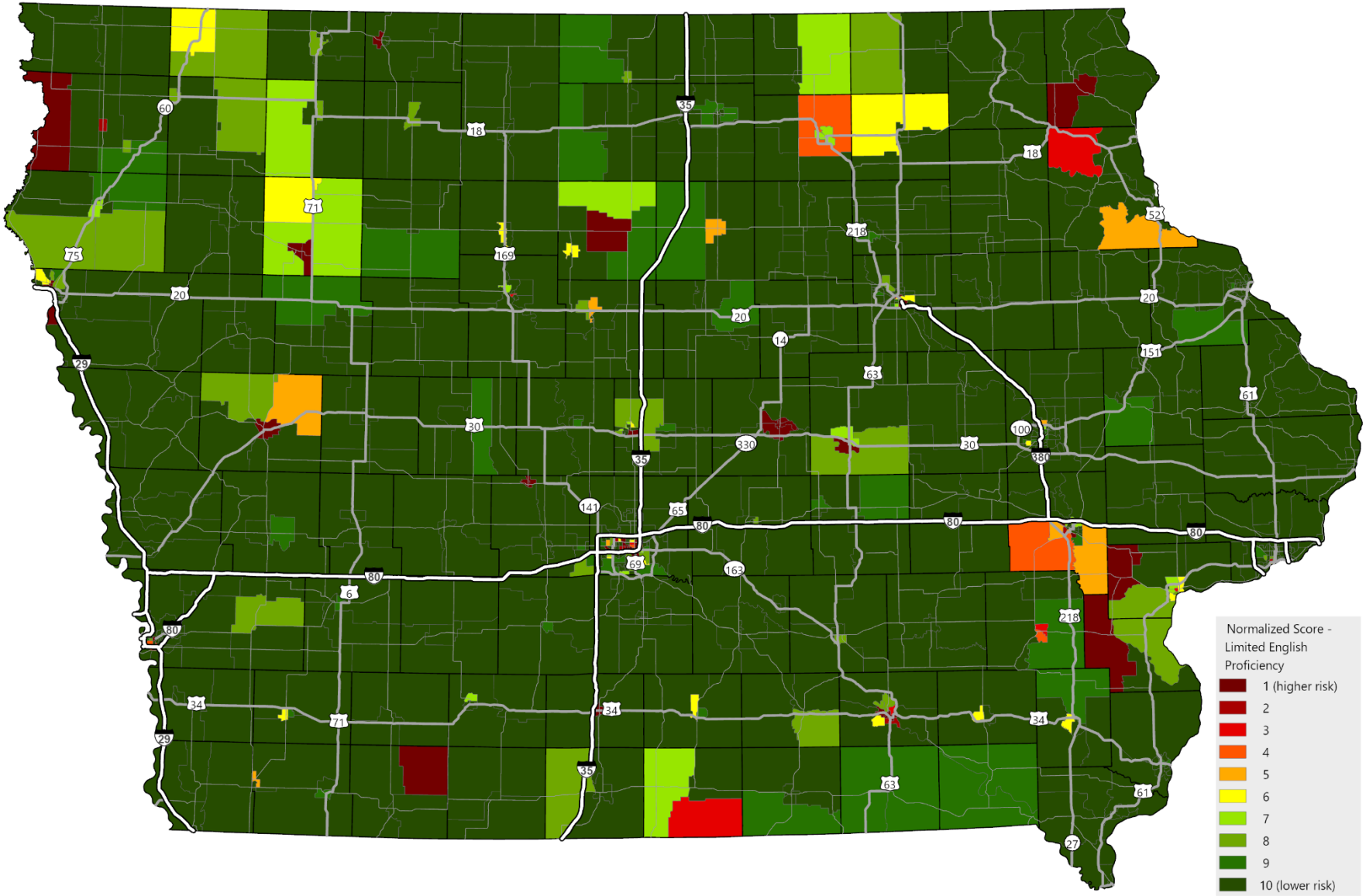
Source: Iowa DOT

Figure A.23: Accessibility/mobility analysis normalized scores for population that is foreign-born – urban insets



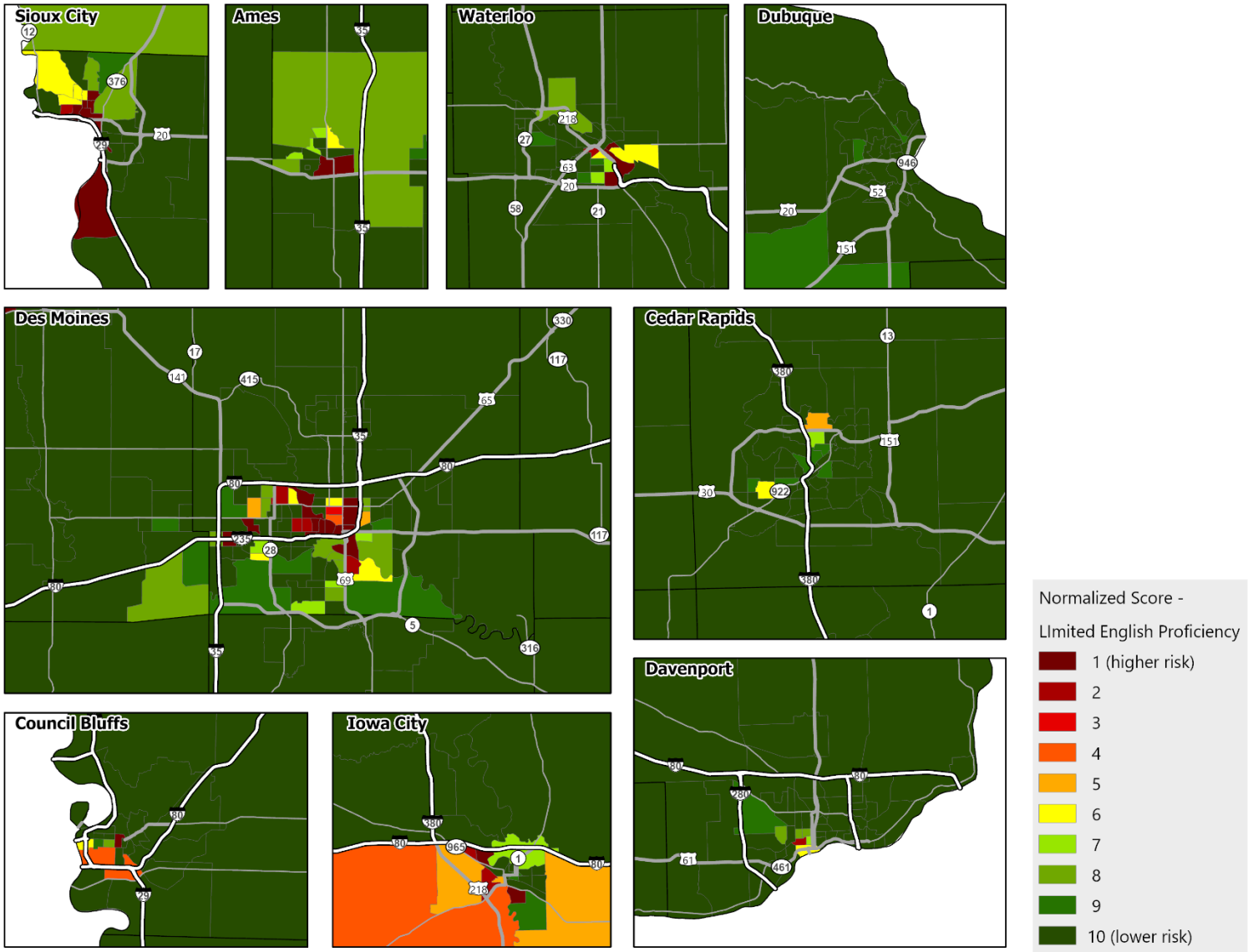
Source: Iowa DOT

Figure A.24: Accessibility/mobility analysis normalized scores for population that has limited English proficiency – statewide view



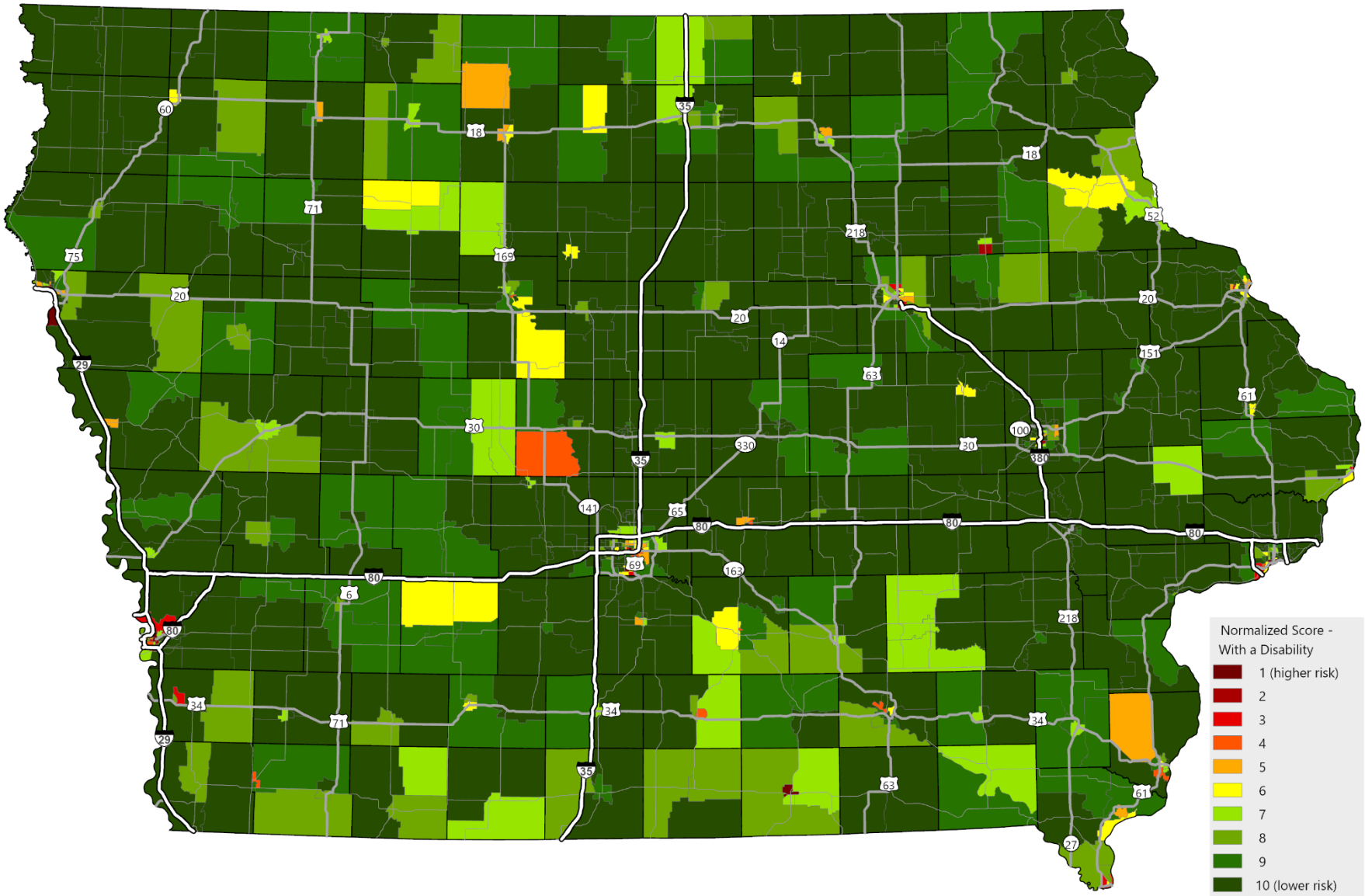
Source: Iowa DOT

Figure A.25: Accessibility/mobility analysis normalized scores for population that has limited English proficiency – urban insets



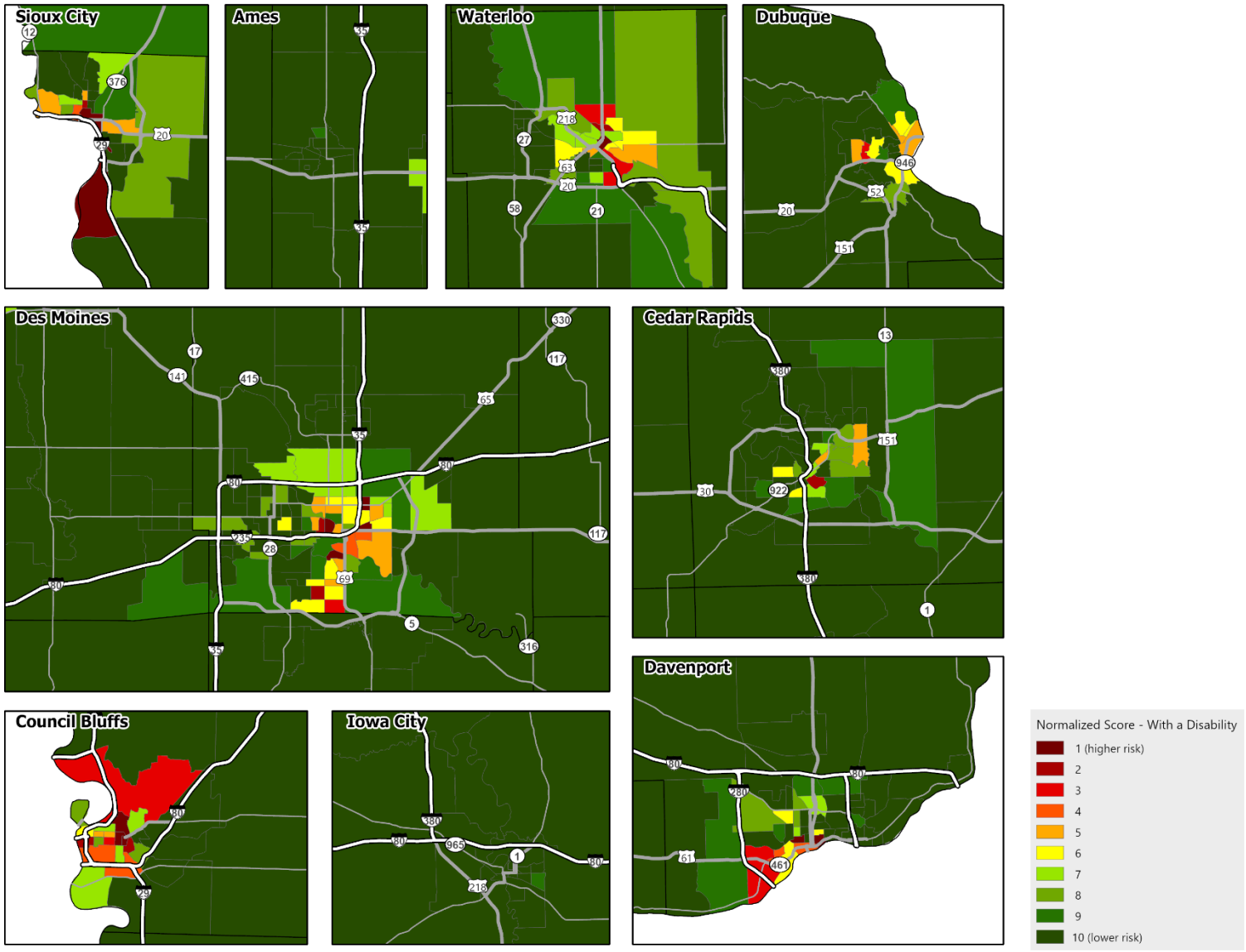
Source: Iowa DOT

Figure A.26: Accessibility/mobility analysis normalized scores for population with a disability – statewide view



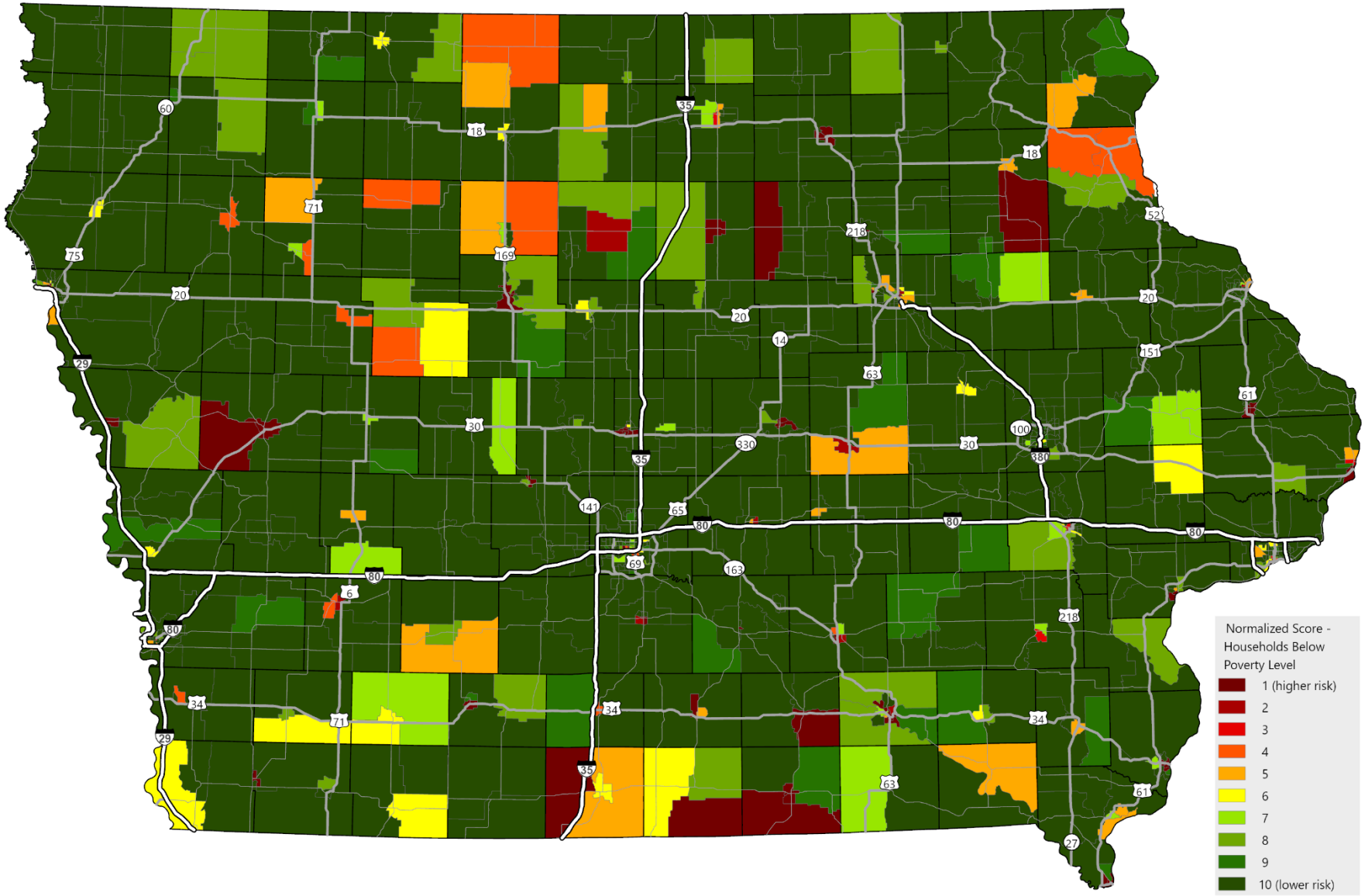
Source: Iowa DOT

Figure A.27: Accessibility/mobility analysis normalized scores for population with a disability – urban insets



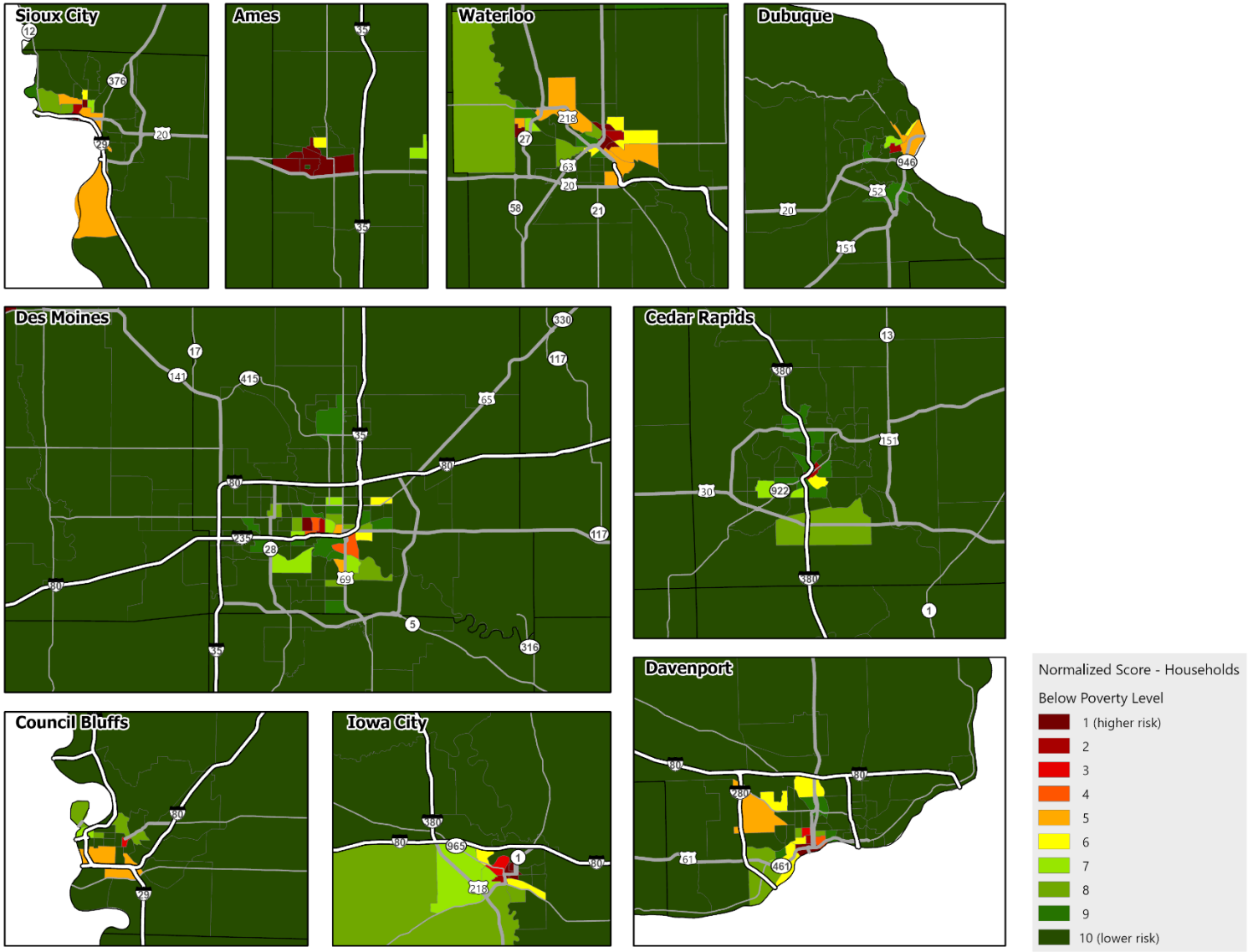
Source: Iowa DOT

Figure A.28: Accessibility/mobility analysis normalized scores for households below poverty level – statewide view



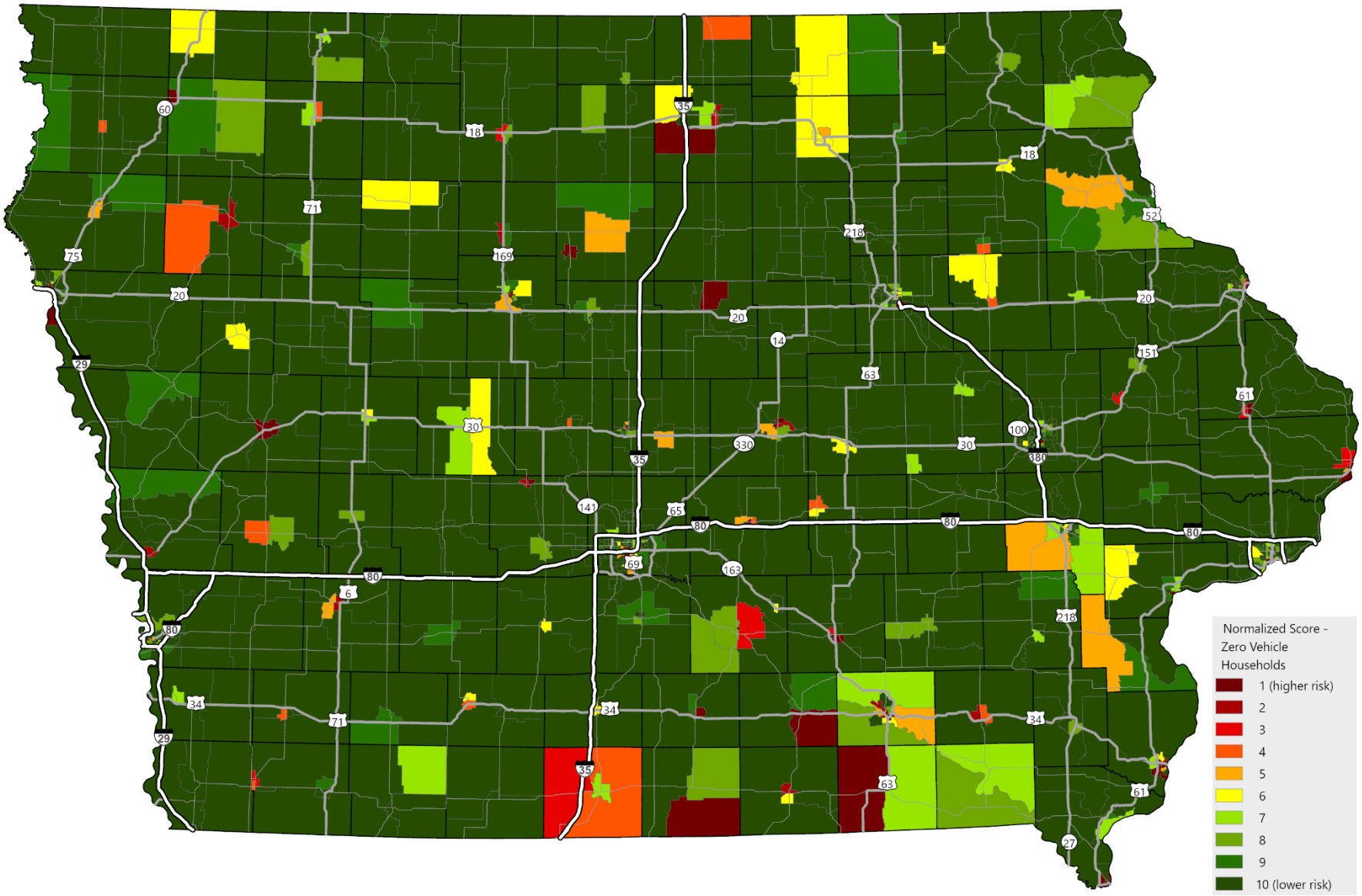
Source: Iowa DOT

Figure A.29: Accessibility/mobility analysis normalized scores for households below poverty level – urban insets



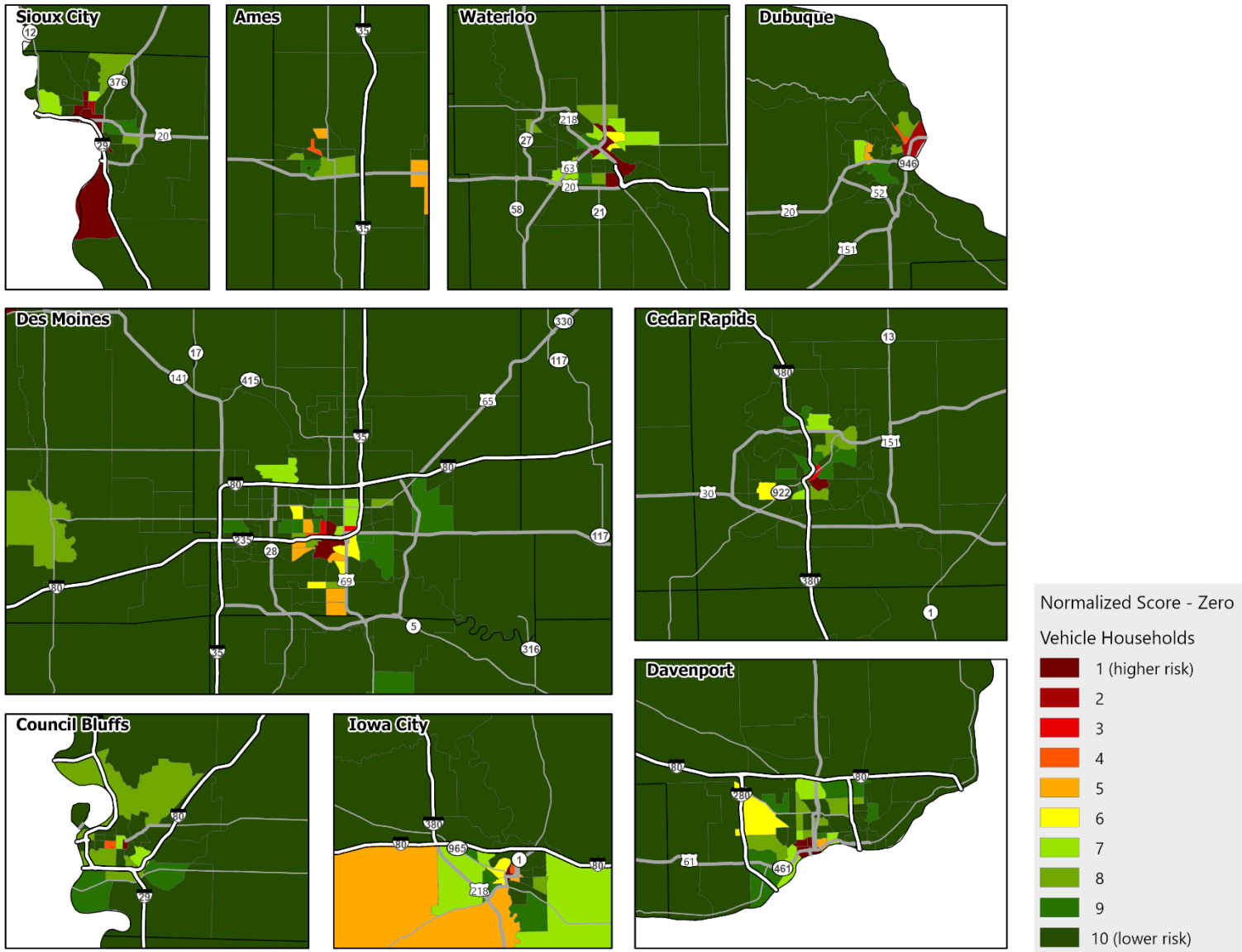
Source: Iowa DOT

Figure A.30: Accessibility/mobility analysis normalized scores for zero vehicle households – statewide view



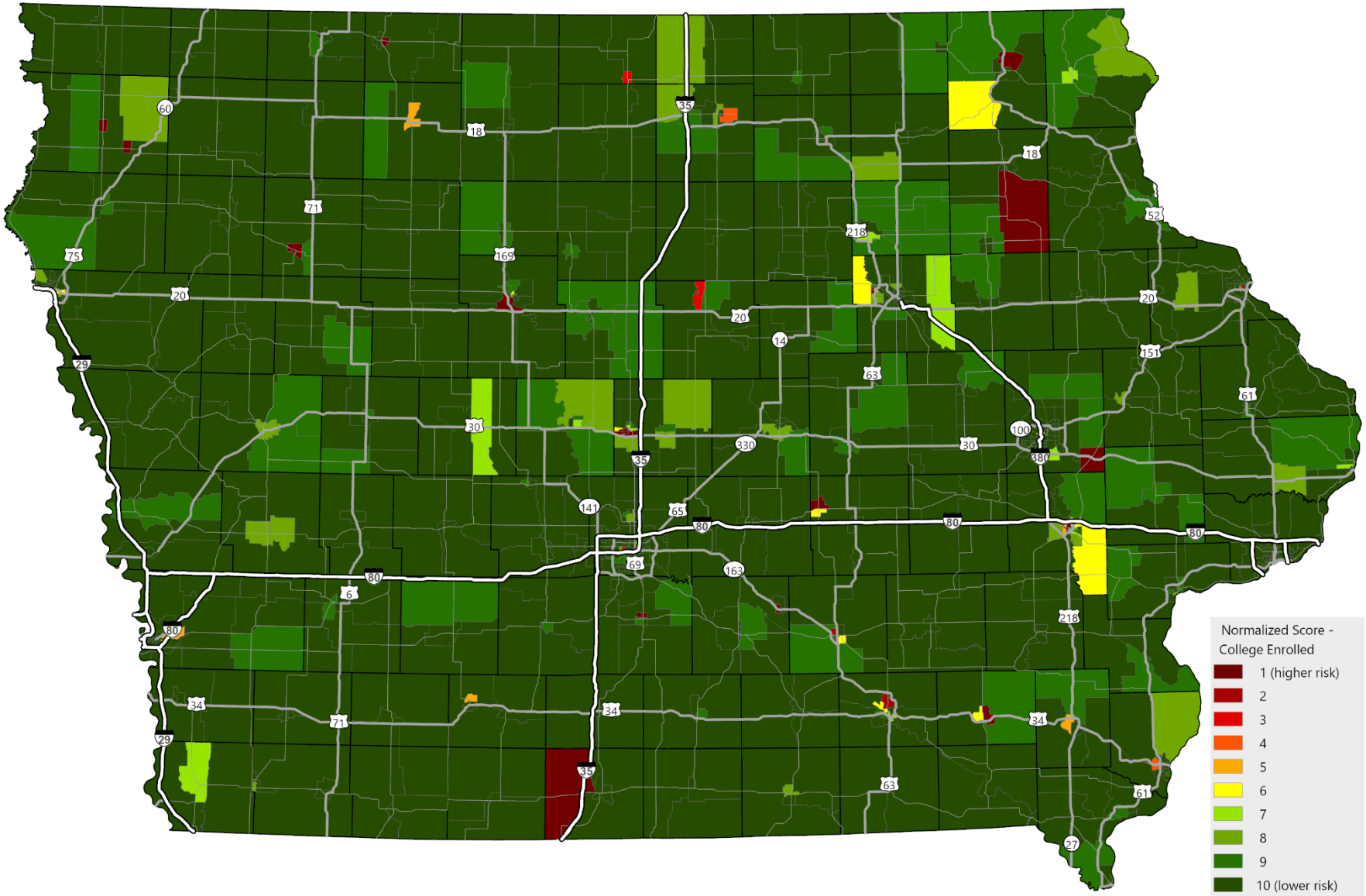
Source: Iowa DOT

Figure A.31: Accessibility/mobility analysis normalized scores for zero vehicle households – urban insets



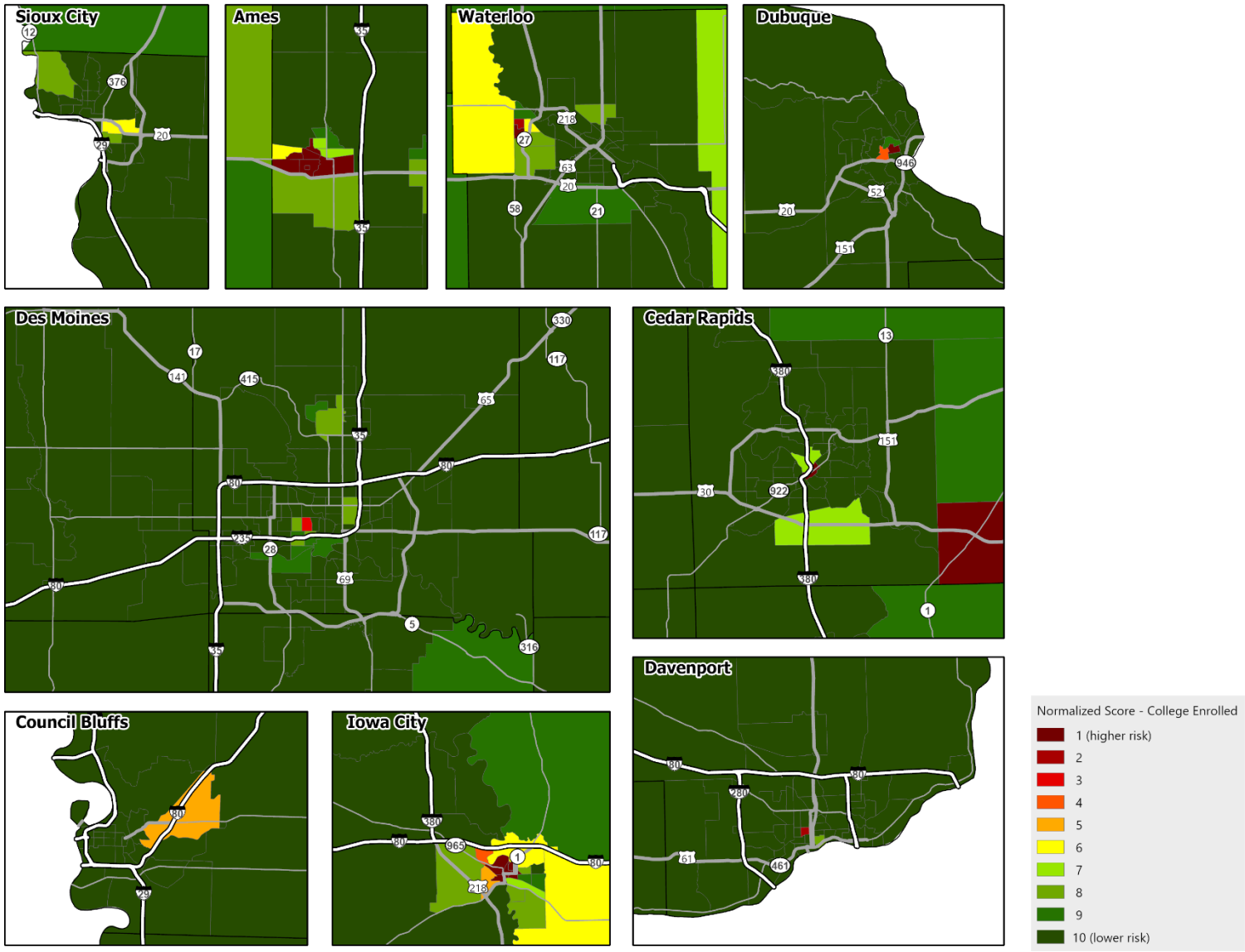
Source: Iowa DOT

Figure A.32: Accessibility/mobility analysis normalized scores for population that is college enrolled – statewide view



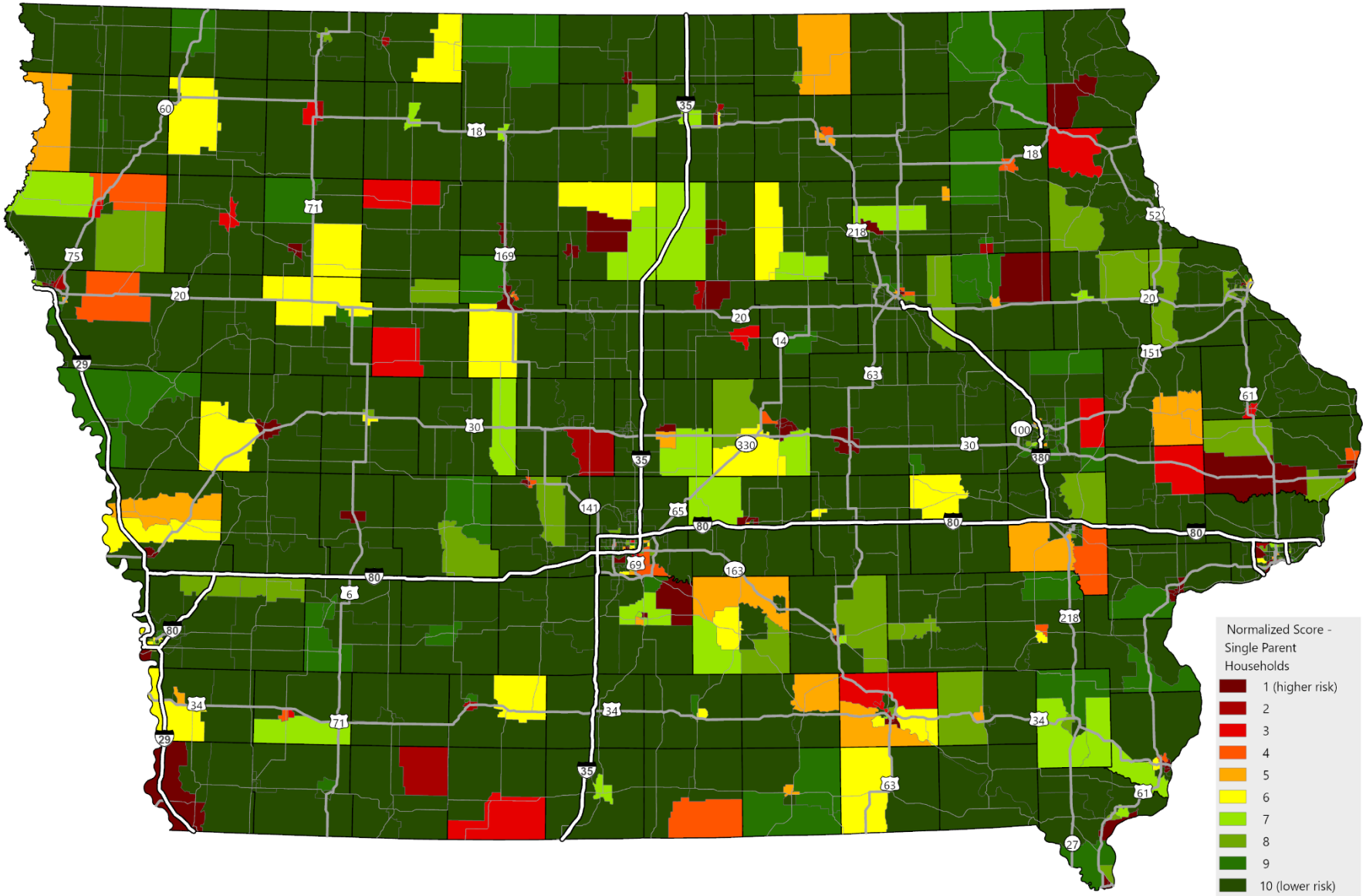
Source: Iowa DOT

Figure A.33: Accessibility/mobility analysis normalized scores for population that is college enrolled – urban insets



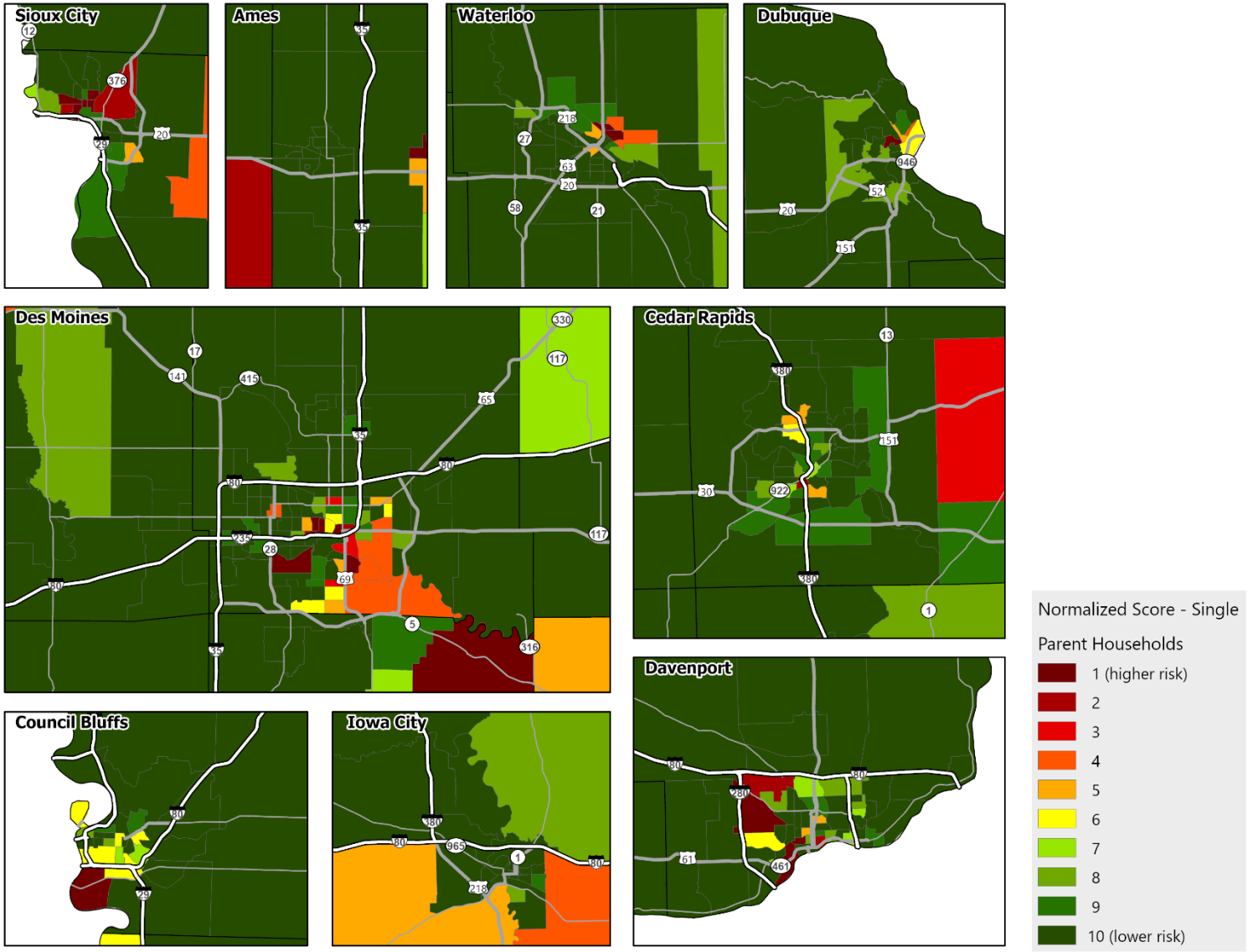
Source: Iowa DOT

Figure A.34: Accessibility/mobility analysis normalized scores for single parent households – statewide view



Source: Iowa DOT

Figure A.35: Accessibility/mobility analysis normalized scores for single parent households – urban insets



Source: Iowa DOT

Appendix 4

Strategies from Other Plans

Chapter 5 included strategies to help achieve the vision for the transportation system and address the needs and risks identified across various modes and the Primary Highway System. The first strategy was to support the implementation of modal and system plans. While the State Long Range Transportation Plan (SLRTP) is the overarching long-range planning document for the department, there are many other modal and system plans that are routinely developed and updated to examine specific issues, needs, strategies, and in some cases, projects. Rather than duplicate the strategies form those plans as part of the SLRTP, they are being incorporated here by reference. Strategies from the following plans are included in this Appendix.

- 2020-2040 Iowa Aviation System Plan (2021)
- Iowa Bicycle and Pedestrian Long Range Plan (2018)
- Iowa Public Transit 2050 Long Range Plan (2020)
- Iowa State Freight Plan (Draft; 2022)
- Iowa State Rail Plan (2021)
- 2019-2023 Iowa Strategic Highway Safety Plan (2019)
- 2019-2028 Transportation Asset Management Plan (2019)
- Transportation Systems Management and Operations Plan Update (Draft; 2022)
- Carbon Reduction Strategy (2024)
- Resilience Improvement Plan (2024)
- Transportation 4.0: Innovative strategies for the transportation revolution (2023)

Most of these plans are updated on a regular cycle, and many of them will be updated prior to the next iteration of the SLRTP. There is a symbiotic relationship between these plans and the SLRTP, as noted in Figure 1.3. Also, while these are the major modal, system, and specialized plans the department produces, they are not an exhaustive list of Iowa DOT plans that are shaped by the direction provided in the SLRTP or that guide activities that help implement the system vision included in the SLRTP.

2020-2040 Iowa Aviation System Plan (2021)

The Iowa Aviation System Plan provides a detailed overview of the Iowa aviation system. It evaluates existing conditions and makes recommendations for future development of the air transportation system to meet the needs of users over the next 20 years. Federal, state and local decision makers use the plan as a guide for future investment and activity decisions to maintain and develop, as necessary, airports in the state of Iowa. The plan is available at https://iowadot.gov/aviation/studiesreports/systemplanreports.

Strategies

Vertical infrastructure

Support continued vertical infrastructure improvements by maintaining existing funding and identify additional funding sources for maintaining and improving terminal buildings and hangar infrastructure. Maintain coordination with airport sponsors regarding terminal building and hangar existing conditions and future need.

Airport Attendance

Encourage attendance at Enhanced and General Service airports. Identify an airport contact at Basic and Local Service airports without after-hours arrangements, or that are unattended or maintain irregular hours.

Planning Measures

Continue supporting the development and implementation of zoning ordinances and land use plans that protect Iowa airports.

Security and Fencing

Prioritize airfield fencing for security and wildlife with 8-foot perimeter fencing at all Commercial and Enhanced Service airports. If an airport is planning to update or replace fencing, encourage 8-foot height.

24/7 Restroom Access

Incorporate 24/7 airside access to a restroom via a keypad. Many airports already have a restroom but lack the keypad technology required to make the facility fully accessible 24/7. Consider agreements with private operators if improvements at terminal buildings or other public facilities are not viable.

Aircraft Services

Continue to support aviation services at system airports that will promote a strong aviation system including maintenance, flight instruction and aircraft rental services.

Entryway and Parking Conditions

Encourage signage and adequate entrances and parking facilities.

Environmental Sustainability

Encourage integration of environmentally sustainable practices into capital improvements and airport operations throughout the Iowa system.

Pavement Maintenance

Encourage improved routine pavement maintenance practices and educate airport officials on the benefits of pavement maintenance and the existing PCI program.

Iowa Bicycle and Pedestrian Long Range Plan (2018)

This plan serves as the primary guide for Iowa DOT decision-making regarding bicycle and pedestrian programs and facilities. The planning process involved stakeholder input through policy and technical steering committees; public meetings and input opportunities; an existing conditions assessment; bicycle and pedestrian facility recommendations; and development of funding and implementation strategies. One of the most significant components of the plan is its Complete Streets Policy. This policy requires the consideration of accommodations for all users on all Primary Highway System projects, and requires the provision of appropriate bicycle and pedestrian facilities on Iowa DOT projects. The plan is available at https://iowadot.gov/iowainmotion/Modal-Plans/Bicycle-Pedestrian-Plan.

Strategies

Short-term implementation actions

- Implement the Complete Streets Policy.
- Modify Iowa DOT's project scoping process in accordance with the Complete Streets Policy.
- Modify the Design Manual to uniformly comply with the latest version of national standards and best practices (American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, AASHTO Pedestrian Guide, and National Association of City Transportation Officials (NACTO) Urban Street Design Guide).
- Modify the Bridge Design Manual to uniformly comply with the latest version of national standards and best practices (AASHTO Guide for the Development of Bicycle Facilities and NACTO Urban Street Design Guide).
- Encourage modifications to Iowa Statewide Urban Design and Specifications (SUDAS) to uniformly comply with the latest version of national standards and best practices (AASHTO Guide for the Development of Bicycle Facilities, NACTO Urban Bikeway Design Guide, NACTO Urban Street Design Guide).
- Develop Complete Streets training for Iowa DOT staff as well as interested local and regional staff.
- Hold accessibility workshops designed to train local officials, agency staff, and professional engineers to effectively meet accessibility requirements on state, county, and local road projects.
- Designate one licensed engineer in the Iowa DOT Central Office to be dedicated to providing technical assistance on bicycle and pedestrian facility design.
- Develop methodology for bicycle and pedestrian safety audits of high crash corridors and intersections to identify adequate countermeasures.
- Incorporate bicycle and pedestrian safety into the Strategic Highway Safety Plan (SHSP) and consider the interrelated impacts of projects funded by the Highway Safety Improvement Program (HSIP).
- Enhance law enforcement curriculum for bicycle safety-related training.
- Develop and implement a Bicycle Awareness and Traffic Safety public relations campaign via web, billboards, dynamic message signs, bus advertisements, and other media.
- Support safety and skills training courses annually for adults and youth.
- Identify the primary urban and rural crash types occurring in Iowa and develop strategies for reducing crashes.
- Review road project prioritization criteria to consider the project's potential benefits to bicycling and walking.
- Develop clear and consistent criteria to prioritize funding for stand-alone bicycle and pedestrian projects, consistent with the Complete Streets Policy.
- Apply for US Bicycle Route (BR) Designation for USBR 36, 40, 44, 51, and 55 (applications submitted to AASHTO).

Mid-term actions

- Encourage and work with cities, counties, and metropolitan planning organizations (MPOs) and regional planning affiliations (RPAs) across the state to adopt Complete Streets policies using the Iowa DOT's Complete Streets Policy as a model.
- Support MPOs and RPAs in the development and adoption of bicycle and pedestrian plans that are coordinated with the statewide Long-Range Plan.
- Identify barriers and gaps in the state highway system for bicycling and walking that will not be corrected by planned reconstruction/3R activities and develop alternatives for providing adequate interim connections, especially in cities and metro areas.
- Explore options for increasing the amount of dedicated funding allocated to bicycle and pedestrian projects and programs.
- Develop and implement statewide maintenance and work zone guidelines to address bicyclist and pedestrian needs. These guidelines should be adaptable to city, county, and Iowa DOT maintenance and work zone responsibilities.
- Work with transit agencies across the state to provide bike racks on all compatible buses. This may include identifying a funding source for this relatively inexpensive action and/or developing product and operational guidelines to assist agencies with implementation.
- Develop encouragement programs and events to get more people walking and bicycling. This includes designing safety and how-to materials, training courses, maps, and other education efforts that espouse the health, safety, environmental, and economic benefits of biking and walking.
- Recommend a safe passing law that requires drivers to change lanes when passing another vehicle (including cars, bicycles, agricultural equipment, construction equipment, etc.).
- Recommend a vulnerable road user law that increases penalties beyond the current penalties for a motorist that injures or kills a bicyclist, pedestrian, construction worker, law enforcement officer, or any other vulnerable roadway user.
- Continually revisit driver's education curriculum to include the rights of bicyclists and pedestrians, as well as current and future vulnerable road user laws (subsequent to adoption of new laws).
- Annually or biennially recalculate the On-Road Bicycle Compatibility Rating for all rural and metro area periphery paved roads in order to identify segments with poor conditions for biking. Coordinate gap elimination efforts with opportunities in upcoming projects.
- Update the Bicycle and Pedestrian Long-Range Plan in 5 to 10 years.

Long-term actions

- Implement current plans for the US Bicycle Route and National Trails systems (which include the Mississippi River Trail, American Discovery Trail, and Lewis & Clark Trail). Revisit these plans every 5 to 10 years until each segment is completely implemented.
- Implement the Statewide Trails Vision plan discussed in Chapter 5 of the Bicycle and Pedestrian Long-Range Plan in an opportunity-based manner. This means constructing trails along the vision plan's alignment as right-of-way and funds become available. While the Iowa DOT has a role in providing funding for this purpose, implementation will primarily be the responsibility of cities, counties, MPOs/RPAs, the Department of Natural Resources, and nonprofit groups.
- Encourage every unit of government in Iowa that has jurisdiction of streets and roads to adopt a Complete Streets policy in order to accommodate bicyclists and pedestrians across the state.
- Continue to identify barriers and gaps in the state highway system for bicycling and walking that have not been corrected by reconstruction/3R activities and develop alternatives for providing adequate interim connections, especially in cities and metro areas.
- Continue to analyze crash data and develop strategies for increasing road safety for all users.
- Continue to expand education and encouragement programs to teach safe bicycling skills, educate road users on the rights and responsibilities of bicyclists and pedestrians, and encourage more people to ride and walk (since greater numbers of people biking has an inverse correlation with bicyclist crash rates).

Iowa Public Transit 2050 Long Range Plan (2020)

This comprehensive system plan reviewed trends in demographics and passenger transportation usage, forecasted future needs for the public transit system, and developed strategies to improve the public transit system in Iowa. The plan is available at https://iowadot.gov/iowainmotion/Modal-Plans/Public-Transit-Plan.

Strategies

Goal Area 1: Service

- Examine the effects of offering fare-free statewide bus service.
- Examine bus service hours for people who work nights and weekends.
- Prioritize funding applications for communities that improve transit service or access.
- Examine the effects of creating more urban transit services in areas that are currently covered by regional transit services.
- Continue existing services and establish new inter-regional services along commuter routes (such as Interstate 380 between Cedar Rapids and Iowa City, Interstate 35 between Ames and Des Moines, and Interstate 74 between Davenport and Illinois).
- Start a subscription price service that works across all bus services in Iowa and includes bikes, scooter sharing, and parking facilities.
- Enable all buses and transit agencies in the state to accept digital fares or electronic payment formats, while still allowing for cash payments.
- Improve accessibility of all transit information, service notifications, and bus route information to ensure they are easy to understand for older adults, multilingual riders, and riders with audio, visual, or cognitive impairments.
- Establish standardized data collection and reporting requirements to better understand ridership.
- Study how to most effectively implement intercity transit bus systems in Iowa.
- Study and define a statewide minimum level of essential transit service necessary to meet critical needs, particularly in the event of severe and sustained disruptions to demand or service.

Goal Area 2: Partnering

- Improve bus transfers between regions and counties in order to support longer and more efficient trips across the state.
- Partner with companies (such as taxis, Uber, Lyft) in order to support city bus routes and provide more transportation options.
- Improve workforce development by partnering with businesses to help employees get to work.
- Partner with non-profit organizations (such as American Cancer Society, Veteran's Affairs, and hospitals) to help people get to their medical appointments on time.
- Partner with other government organizations to increase the number of transportation options for traveling long distances.
- Work with businesses to create transportation options for their employees by offering subsides, bus passes, or incentives such as tax breaks.
- Improve sidewalks and connecting infrastructure by working with state agencies, local government, and private organizations to improve access to bus stops and transit services.

Goal Area 3: Facility, Fleet, and Personnel

- Develop a rightsizing strategy for transit agency bus fleets to decrease costs and better match vehicle sizes to the number of people taking the bus.
- Decrease fuel costs for transit agencies by adopting electric, hybrid, or flex-fuel efficient vehicles.
- Prioritize transit facilities that are evaluated as being in marginal or poor condition for reconstruction or repair.
- Save costs by encouraging transit agencies and local governments to share facilities and staff.
- Address the bus driver shortage by targeting non-traditional candidates to expand the pool of potential applicants.
- Increase training for bus drivers to better serve mobility, hearing or visually impaired riders, children, older adults, immigrant, and refugee populations.
- Identify minimum technology needs for all transit agencies and develop a technology implementation plan.
- Update the Park and Ride System Plan to determine ideal locations for carpooling and ridesharing to support commuting activities.
- Improve the coordination of transportation services between transit agencies and other transportation providers by promoting and hiring mobility manager positions to provide statewide coverage.

Goal Area 4: Funding

- Decrease maintenance costs by focusing resources on replacing transit vehicles that are beyond their useful life.
- Examine alternative ways of funding public transit that do not rely only on existing federal and state sources.
- Conduct a benefit-cost analysis or economic impact study of transit services and projects in order to measure the impact and overall benefit to social welfare.

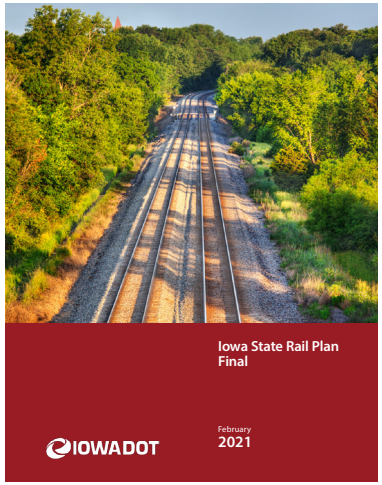
Iowa State Freight Plan (2022)

This plan weaves together Iowa DOT's freight planning activities to help achieve the goal of optimal freight transportation in the state. Additionally, the plan guides Iowa DOT's investment decisions to maintain and improve the freight transportation system. The plan is available at https://iowadot.gov/iowainmotion/Specialized-System-plans/2022-State-Freight-Plan

Strategies

1. Explore additional sustainable funding sources to increase investment in the freight transportation system.
2. Support the development and adoption of emerging freight technologies to increase safety and efficiency.
3. Partner with freight stakeholders to find innovative ways to address labor shortages across industry sectors.
4. Advance a 21st century Farm-to-Market System that moves products seamlessly across road, rail, and water to global marketplaces.
5. Streamline and align freight-related regulations and minimize unintended consequences.
6. Explore opportunities for increasing value-added production within the state.
7. Improve freight transportation system resiliency.
8. Collaborate with railroad operators to provide Iowa companies with increased access and capacity to accommodate additional Iowa freight shipments.
9. Support opportunities to develop new intermodal freight facilities in the state.
10. Target investment to address mobility issues that impact freight movements.
11. Continually monitor international trade deals and negotiations.
12. Advocate for the funding and improvement of the inland waterway system and explore ways to expand Iowa's role.
13. Optimize the availability and use of freight shipping containers, including exploring other options for repositioning empty containers.
14. Partner with law enforcement and the trucking industry to combat human trafficking.
15. Mitigate the impacts of freight transportation on the environment and communities.
16. Target investment in the Iowa Multimodal Freight Network (IMFN) at a level that reflects the importance of this system for moving freight.
17. Rightsize the highway system and apply cost-effective solutions to locations with existing and anticipated issues.
18. Enhance planning and asset management practices for the IMFN by utilizing designs and treatments that are compatible with significant freight movements.
19. Work with partners to address increasing truck parking demand.

Iowa State Rail Plan (2021)



The State Rail Plan is intended to guide the Iowa DOT in its activities of promoting access to rail transportation, helping to improve the freight railroad transportation system, expanding passenger rail service, and promoting improved safety both on the rail system and where the rail system interacts with people and other transportation modes. The plan is available at https://iowadot.gov/iowainmotion/Modal-Plans/Rail-Transportation-Plan.

Strategies

- Increase the movement of goods by rail and emphasize rail-related intermodal, transloading, and other rail improvements to ensure a diverse and robust rail network and multimodal connectivity, while maintaining economic competitiveness and community and environmental stewardship.
- Continue efforts to preserve strategic rail rights-of-way and support the development of rail spurs, intermodal and transload facilities, and other infrastructure projects required to maintain a state of good repair, enhance efficiency, and bolster economic development through support for the establishment of additional federal and state public rail assistance programs.
- Continue to promote and enhance rail safety through continued safety education programs, additional coordination with the state's railroads, and enhancements to the public grade crossing improvement programs and state track inspection program.
- Expand rail-related data collection efforts including data on hazardous material movements, grade crossing hazards, rail volume and commodity flows, and rail freight originating/terminating data.
- Preserve, protect, improve, and expand, as necessary, intercity passenger rail service through station facility and access improvements; and continue to study implementation of additional intercity passenger services and commuter rail services where transportation and other public benefits merit.
- Enable strategic and prioritized investments in passenger / freight rail to optimize positive economic impacts.
- Further collaborate with neighboring states on regional issues and solutions to freight and passenger rail needs through regional multi-state coordination.

2019-2023 Iowa Strategic Highway Safety Plan (2019)

The Strategic Highway Safety Plan (SHSP) is a statewide-coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. The SHSP establishes statewide goals, objectives and key emphasis areas developed in consultation with federal, state, local and private sector safety stakeholders. The plan is available at https://iowadot.gov/traffic/shsp/home.

Strategies

Lane departures and roadside collisions

- Enforcement: Evaluate high lane departure crash corridors for two-lane highways and deploy road safety audit (RSA) teams to evaluate.
- Engineering: Evaluate high-friction surface treatments (HFST) at targeted locations on state-owned and local systems.
- Engineering: Place centerline and/or shoulder rumble strips on rural two-lane highways on state-owned and local systems. Where necessary, install or widen paved shoulders.
- Engineering: Continue median cable barrier installations on the Interstate system. Initiate median cable barrier installations on multi-lane divided highways.
- Everyone: Focus on the road, don't over-correct or veer for objects or animals in the roadway.

Speed-related

- Education: Educate drivers on the importance of controlling and managing vehicle speed.
- Enforcement: Identify corridors with a high frequency of speed-related crashes and implement high-visibility enforcement campaigns.
- Engineering: Evaluate and implement signing and geometric design strategies to moderate speeds and enhance safety.
- Engineering: Implement speed feedback signs at targeted locations.
- Everyone: Give yourself enough time to reach your destination. Be patient, slow down, and don't engage with aggressive drivers.

Unprotected persons

- Education: Conduct public awareness campaigns focused on generating awareness of the risks associated with unprotected persons.
- Emergency medical services (EMS): Include medical professionals in educational efforts.
- Enforcement: Conduct highly publicized enforcement campaigns focused on restraint use.
- Everyone: Buckle up everyone and every time.

Young drivers

- Education: Improve content and delivery of driver education curriculum.
- Education: Continue educating young drivers in school-based settings using various training techniques, including those that simulate impairment.
- Education: Support a broad-based coalition to plan for addressing age-based transportation needs.
- Everyone: Support young drivers to avoid distractions and impairment.

Intersections

- Education: Develop educational resources informing the public of alternative intersection types, traffic signals, and laws.
- Enforcement: Conduct enforcement campaigns related to bicycle and pedestrian awareness at targeted intersections.
- Engineering: Use systemic approaches to improve visibility and awareness of intersections.
- Engineering: Implement alternative intersection designs that reduce conflict points and enhance safety and mobility.
- Engineering: Develop an intersection configuration/evaluation tool to aid planners and designers in selecting appropriate intersection types.
- Everyone: Approach intersections with caution and get familiar with new designs in your community.

Impairment involved

- Education: Educate drivers on the different types of impairments and their effects on driving.
- EMS: Employ screening and brief interventions in healthcare settings.
- Enforcement: Support trainings for 60 new drug recognition expert (DRE) officers and 500 new advanced roadside impaired driving enforcement (ARIDE) officers.
- Enforcement: Develop and implement a standardized approach for law enforcement to identify impaired drivers.
- Enforcement: Expand 24/7 program, place of last drink program, and ignition interlock program.
- Enforcement: Enhance detection through special OWI patrols and related traffic enforcement.
- Engineering: Implement countermeasures at access locations to reduce wrong-way driving on multi-lane divided highways.
- Everyone: Designate a driver, call a cab, but don't risk driving impaired.

Older drivers

- Education: Support a broad-based coalition to plan for addressing age-based transportation needs.
- Education: Provide educational and training opportunities for mature drivers that address driver safety, road engineering and signage, vehicle technology, driver licensing, health and vision concerns, and alternative transportation options.
- Education: Update publications and web resources for older drivers and their families to include safety strategies, warning signs, and planning for driving retirement.
- EMS: Update procedures for assessing medical fitness to drive.
- Everyone: Know when to put the keys down, or when to have a conversation with family members who may pose a hazard to others on the road.

Distracted or inattentive drivers

- Education: Develop targeted interventions and education programs for high-risk populations.
- Enforcement: Support high-visibility enforcement campaigns for hands-free cell phone law.
- Everyone: Put the cell phone down, avoid distractions, be alert, and focus on the roadway.

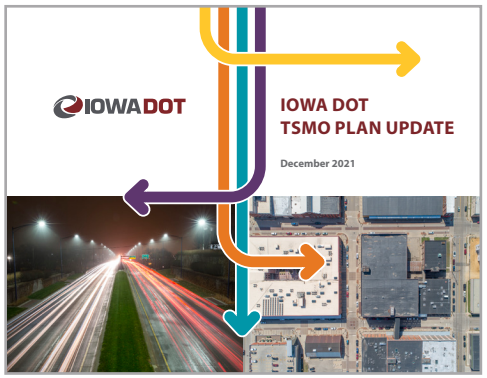
2019-2028 Transportation Asset Management Plan (2019)

The Transportation Asset Management Plan (TAMP) is required for pavements and bridges on the National Highway System; Iowa's TAMP describes these as well as how the Iowa DOT manages the existing Primary Highway System. It includes the following information: asset inventory and condition data; life cycle planning; performance measures and gap analysis; risk analysis; financial plan; and process improvements. The plan is available at https://iowadot.gov/systems_planning/fpmam/IowaDOT-TAMP-2019.pdf

Strategies

- Address asset management (AM) in the statewide transportation plan.
- Continue to advance the interstate capacity improvement projects
- Develop corridor plans that identify how AM and capacity improvement projects will be coordinated.
- Evaluate the highway system, and identify priority rural assets that should take precedence if AM funding decreases.
- Implement a formal communication plan that defines who to communicate with, what to communicate to them, and how to communicate to them.
- Continue efforts to educate the Iowa Transportation Commission about AM.
- Continue to implement data collection and analytics enhancements.
- Develop a plan for data and system coordination and integration.
- Continue to form and institutionalize the Asset Management Governance Structure.
- Develop an AM staffing plan, and include contingency plans in case staffing levels decrease. Examples include reallocating staff or exploring contracting alternatives.
- Develop an AM training plan.

Iowa DOT Transportation Systems Management and Operations Plan Update (Draft; 2022)



The purpose of Iowa DOT's Transportation Systems Management and Operations (TSMO) Plan is to improve the performance of Iowa's transportation system. TSMO uses and improves upon infrastructure, processes, technology, and other components of the system that Iowa already has and takes a proactive role in system management. The plan will be available at https://iowadot.gov/tsmo/.

Strategies

Collaboration

- Integrate TSMO into Multi-Disciplinary Safety Team (MDST) meetings
- Enhance multi-disciplinary/multiagency TSMO training and capacity building
- Integrate TSMO into Metropolitan Planning Organization (MPO) and Regional Planning Affiliation (RPA) plans
- Enhance joint traffic operations performance agreements
- Enhance TSMO communication with local organizations
- Establish TSMO policy stakeholder group with external partners
- Develop and maintain open contracts clearinghouse

Performance measurement

- Develop operations-oriented resiliency index
- Develop benefit/cost estimates for key TSMO applications
- Increase frequency of performance reporting

Culture

- Add access management to TSMO processes
- Add maintenance operations to TSMO processes
- Share TSMO and Intelligent Transportation System (ITS) benefits within and beyond the Iowa DOT
- Integrate TSMO into existing Iowa DOT meetings

Systems and technology

- Improve traveler info for transit and rideshare
- Improve connectivity and interoperability between state and locally managed systems
- Establish ITS configuration control board
- Establish systems engineering guidelines and repository
- Develop approaches to better leverage operations data
- Implement Integrated Corridor Management (ICM) concepts
- Expand statewide video sharing strategy

Business processes

- Integrate TSMO into Iowa DOT policies and guidance
- Integrate TSMO deployment planning and the Five-Year Transportation Improvement Program
- Develop district-level TSMO plans
- Ensure adequate access to funding for TSMO projects through existing and/or new budget categories
- Streamline TSMO procurement processes
- Establish innovative funding team

Organization and staffing

- Increase direct Iowa DOT staffing in Traffic Management Center
- Develop a TSMO training rotation program
- Conduct Systems Operations Division staffing assessment
- Enhance geographic information systems (GIS) capabilities and resources to support Operations

Iowa Carbon Reduction Strategy (2024)

The 2021 Infrastructure Investment and Jobs Act (IIJA) included the requirement for each state to develop a Carbon Reduction Strategy (CRS). Iowa's CRS was developed in consultation with the state's Metropolitan Planning Organizations (MPOs) and synthesized strategies and initiatives from across the state into a cohesive statewide strategy for reducing transportation emissions. The CRS is available at https://iowadot.gov/iowainmotion/Long-Range-Transportation-Plans/2022-State-Transportation-Plan.

Strategies

Multimodal Transportation

Objective: Support multimodal travel options that enable people to travel by less carbon-intensive modes than single-occupant vehicles.

- Invest in projects related to public transit fleets, facilities, infrastructure, services, and communications to reduce emissions directly through more efficient vehicles and facilities and indirectly through expanding service, access, intermodal connections, and education to increase the utilization of public transit.
- Invest in projects related to bicyclists and pedestrians, including constructing on- and off-road facilities, enhancing bicycle and pedestrian networks, creating intermodal connections, and facilitating education and encouragement activities to reduce emissions through increased utilization of bicycling and walking.
- Adopt and implement Complete Streets policies to ensure roadways serve all users, not just motorists.
- Support alternatives that reduce the number of single-occupant vehicles on the road, such as carpooling and vanpooling, as well as shared mobility and micromobility options such as mobility hubs and shared fleets of cars, bikes, and scooters.
- Support passenger and commuter rail planning and development efforts, including intermodal connections for existing and potential service.

Operational Efficiency

Objective: Reduce emissions by improving the efficiency of transportation system operations through strategies that improve flow and reliability by reducing congestion and managing demand rather than the construction of new capacity.

- Use Transportation Systems Management and Operations (TSMO) strategies to monitor and manage the transportation system by utilizing equipment, technology, and infrastructure improvements to improve traffic flow and reduce delays from recurring and non-recurring congestion.
- Maintain the transportation system in a state of good repair to prevent or mitigate congestion and bottlenecks through infrastructure improvements.
- Utilize and promote Travel Demand Management (TDM) strategies that shift trips to less carbon intensive modes, increase vehicle occupancy rates, or reduce demand, especially during peak hours.

Alternative Fuels

Objective: Reduce emissions by utilizing and supporting alternative and renewable fuel vehicles across modes, particularly cars, commercial vehicles, and transit vehicles.

- Invest in alternative and renewable fuel infrastructure that supports low or no emission vehicles.
- Transition to low or no emission vehicles, such as hybrid or electric vehicles or vehicles that utilize alternative and renewable fuels.
- Coordinate with governmental agencies, utilities, industry partners, and other stakeholders to advance efforts such as reducing the carbon intensity of fuels, increasing the fuel efficiency of vehicles, encouraging the use of lower emission fuels and vehicles, encouraging the use of alternative and renewable fuel vehicles, and ensuring the necessary utility and fueling infrastructure is in place.

Construction

Objective: Reduce emissions during the design, construction, operation, and maintenance of the transportation system.

- Incorporate sustainable elements or construction practices that utilize lower carbon materials or support carbon reduction into infrastructure design.
- Utilize transportation right-of-way for cross-sector purposes, such as renewable energy infrastructure or generation.
- Reduce carbon impacts during construction projects by utilizing alternative modes, implementing operational strategies, and staging projects to minimize emissions from traffic delays and vehicle miles traveled.

Other

Objective: Consider other methods to reduce transportation emissions, either directly or through coordination with other entities.

- Integrate transportation and land use planning across jurisdictions to ensure that multimodal options are accessible, safe, and efficient modes to utilize for transportation.
- Improve freight efficiency through infrastructure improvements that facilitate the use of less carbon intensive modes, such as developing intermodal connections and upgrading rail and water infrastructure.
- Explore other projects or programs that could help reduce carbon emissions, potentially including carbon sequestration, carbon trading programs, or offsetting carbon emissions.

Iowa Resilience Improvement Plan (2024)

The 2021 IIJA included the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program, which provides states the option to develop a Resilience Improvement Plan (RIP). The Resiliency Working Group oversaw the development of Iowa's first RIP in 2023. The RIP addresses surface transportation resilience to current and future weather events and natural disasters, and includes a toolbox of strategies, countermeasures, and research initiatives to help mitigate these hazards. The RIP is available at https://iowadot.gov/iowainmotion/Specialized-System-plans/Reslience-Improvement-Plan.

Strategies (S), Countermeasures (C), and Research (R)

Flooding

- S1. Approve resiliency policy in the Bridge Design Manual and plan for increased precipitation events, water elevations, and flow.
- S2. Engage internal and external stakeholders regarding watershed management, flood preparation, and emergency protocols.
- S3. Allow more ponding at certain "control" structures.
- S4. Determine critical routes for emergency routing during flood events at known areas of vulnerability.
- S5. Develop a Flood Operations Plan to support in the response of future flood events.
- S6. Proactively stockpile flood fighting material and assets including AquaDam and wrapped revetment bags.
- S7. Partner with the Iowa Department of Homeland Security and Emergency Management (HSEMD) on projects that reduce road damage from flooding and erosion through stream channel improvements.
- S8. Partner with HSEMD and local jurisdictions on comprehensive flood mitigation planning that considers watershed approach or green infrastructure options, then implement planned projects to mitigate flood damage to roads by installing watershed approach practices (e.g. upstream detention), retrofitting bridges, elevating roads, or installing culverts.
- S9. Develop a comprehensive statewide flood mitigation strategy that considers flood buy-outs, watershed approach flood mitigation, levees, and other solutions and outlines where, and under what, conditions these different strategies are best applied.
- S10. Evaluate key locations to increase waterway capability including widening upstream bench and channelization of the waterway.
- C1. Roadside and waterway erosion protection – Use engineered (e.g., concrete blocking or Flexamat) or natural (e.g., bio-retention or native planting) materials to control or stop the movement of soil along slopes.
- C2. Native plantings on roadsides – Certain native grasses and plants have deep roots that make them drought-resistant and can reduce soil erosion and flooding.
- C3. Bridge pier scour protection – Bridge scour is the removal of sediment from around bridge abutments. Countermeasures can include concrete armoring, spurs, revetments, wire enclosed riprap, etc.
- C4. Bridge/culvert conveyance improvements – Adequate sizing of bridges and culverts to ensure the proper conveyance of water through the channel and floodplain with the consideration of future increased precipitation.
- C5. Dikes/levees – Embankments of stone, cement, or soil that protect roadways and land during significant rainfalls and flooding.
- C6. Roadway/bridge grade raise – Increasing the elevation grade of a roadway or bridge to reduce overtopping due to flooding conditions.

- C7. Shoulder improvements – Increasing the width or improving the type of shoulder can mitigate the impacts of flowing water across roadways in low-lying areas.
- C8. Median crossover – Add median crossovers at key locations to allow for continued operations during flood events.
- R1. Develop and populate a Riverine Infrastructure Database that supports real time flood flow and levels across Iowa.
- R2. Develop a benefit/cost analysis tool to evaluate cost effectiveness of resilience improvements.
- R3. Research how native plantings can support flood mitigation for Iowa's transportation system.

Winter Storms

- S11. Design roadways that are less prone to blowing/drifting snow and winter drainage issues.
- S12. Plan for operational impacts of significant winter and ice events.
- S13. Plan a winter operations peer exchange or summit with neighboring states to share best practices and coordinate responses.
- S14. Develop internal guidance or policies for pre-staging winter operations assets in advance of storms.
- S15. Proactively remove vegetation along the Primary Highway System that could break during winter or ice storms.
- S16. Consider bridge design methods that mitigate the impact of ice accumulation on bridges and structures.
- S17. Evaluate recruitment strategies for part-time snowplow drivers to fill critical vacancies.
- C9. Snow fencing – Installation of engineered or natural materials that serve as windbreaks from blowing and drifting snow.
- C10. Anti-icing applications – The use of salt and water in precise concentrations known as brine to prevent ice formation on roadways.
- C11. Median crossover – Adding median crossovers at key locations to allow for improved snowplow operations during winter events.
- R4. Research low visibility navigation technology for Iowa's snowplows.
- R5. Continue to research the best material use and products for ice mitigation (melt).

Freeze/Thaw

- S18. Develop methods to better maintain pavement joints during intense freeze/thaw cycles.
- S19. Continue to monitor pavement condition throughout the state and implement asset management techniques to minimize the impacts of freeze and thaw cycles.
- S20. Monitor subdrain performance and placement to ensure proper drainage during freeze and thaw cycles.
- C12. Crack and joint cleaning and sealing – Cleaning and sealing with joint sealer to ensure water does not enter and undermine the integrity of pavement or asphalt during freeze and thaw cycles.
- C13. Improve subgrades and subdrains – Improving subgrades and subdrains in key locations supports the facilitation and movement of excess water away from the roadway and minimizes damage.
- C14. Integral bridge abutments – Integral bridges contain no expansion joints and span monolithically from abutment to abutment. This allows thermal expansion without damage to the structure.
- R6. Research how freeze/thaw cycles have changed and what we can anticipate in the future.

Tornado/Windstorm

- S21. Ensure Iowa DOT owned structures and signs are designed to withstand high wind events.
- S22. Develop internal guidance or policies on clearing or trimming trees that could fall on the roadway.
- S23. Purchase vegetation management equipment specifically for debris removal on the Primary Highway System.
- S24. Develop internal plan to pre-stage Iowa DOT assets in support of debris and vegetation removal following tornados or windstorms.
- S25. Engage with local communities regarding the resources and assets the Iowa DOT possesses to support debris removal and cleanup after significant events.
- C15. Underground utilities – Storage and coordination of utilities underground to ensure continued service during significant tornados and windstorms.
- C16. Solar as primary or backup electrical – Installation of solar arrays for traffic controls or facilities as a primary or backup energy source.
- C17. Generator backup – Purchase of backup generators to provide energy for traffic controls or facilities during major tornados or windstorms.

Hail/Thunderstorms

- S26. Improve roadway design to accommodate increased precipitation events.
- S27. Plan for operational impacts of severe weather and continue to enhance communication of rapid weather changes to the public.

Drought

- S28. Develop regulations or waivers to ease in the transport of water, livestock feed, etc. during drought conditions.
- S29. Coordinate across public and private sectors during times of low water levels to help facilitate shifts of bulk transportation from rivers to railroads or highways.

Excessive Heat

- S30. Consider strategies to reduce the impacts of excessive heat on vulnerable transportation users.
- S31. Consider strategies to mitigate the effects of excessive heat on construction workers.
- S32. Be prepared to address issues such as pavement buckling during heatwaves throughout the state.

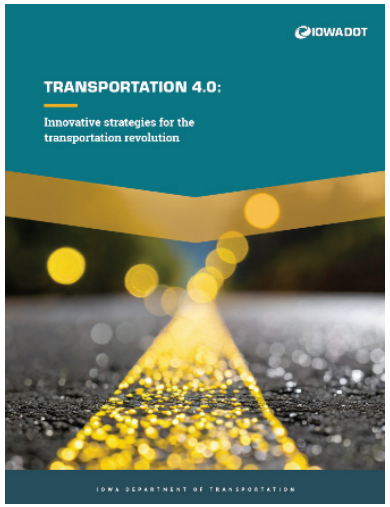
Dam/Levee Failure

- S33. Coordinate with the new Office of Levee Safety within HSEMD to plan for and support the levees throughout Iowa.
- S34. Regularly review traffic incident management plans and detour routing plans around critical assets.

Landslide

- S35. Develop internal guidance for land management practices (e.g., removing bluffs, terracing, etc.) that prevent landslides.
- S36. Stage equipment strategically if conditions such as an area's topography and recent weather result in an increased likelihood of rockfalls or landslides.

Transportation 4.0: Innovative strategies for the transportation revolution



Following SLRTP adoption, in connection with IEDA, Iowa DOT developed a new statewide strategy supporting economic development called Transportation 4.0. The plan targets manufacturing, agriculture, and bioscience industries and challenges Iowa DOT to implement technologies and strategies that move products and goods to market safer and more efficiently. The plan is available at https://iowadot.gov/iowainmotion/Long-Range-Transportation-Plans/2022-State-Transportation-Plan.

Strategies

- Advance artificial intelligence, machine learning, data analytics, data science, and economic analysis for transportation planning and operations.
- Continue to advance highway planning and analysis efforts.
- Continue to advance resiliency and sustainability planning and improve freight transportation system resiliency.
- Continue to work with local governments, state agencies, utilities, and other stakeholders to advance energy-related planning efforts and alternative fuel infrastructure improvements in Iowa.
- Support roadway digital infrastructure and seek dual-benefit investments.
- Ensure that the highest and best use of Iowa DOT ROW is considered.
- Enhance planning and asset management practices for the freight network by utilizing designs and treatments that are compatible with significant freight movements, and support superload route identification and enhancement.
- Support the development and adoption of emerging freight technologies to increase safety and efficiency.

Appendix 5

This appendix contains supplemental information for Chapter 6, including existing and potential revenue generating mechanisms as described in the 2021 Road Use Tax Fund (RUTF) Study.

Table A.5: Existing funding sources

Type of Financing	Description/Mechanism	Estimated Amount Generated	Advantages	Disadvantages	Collected from out-of-state drivers?
Fuel Tax (452A.3)	Cents per gallon tax on motor fuels, including some alternative fuels. Current rate (as of July 1, 2021): • Gasoline: 30.0 cents per gallon • Ethanol-blended gasoline E10-E14: 30.0 cents per gallon • Ethanol-blended gasoline E15 or higher: 24.0 cents per gallon • Diesel (B10 and lower): 32.5 cents per gallon • Diesel (B11 and higher): 30.4 cents per gallon The fuel tax is the only significant current source of RUTF revenue that is applied to out-of-state drivers as well as Iowans. The Iowa DOT has estimated that 20 percent of large truck travel in Iowa is from out-of-state trucks and 13 percent of passenger car/small truck travel in Iowa is from out-of-state drivers. In total, approximately 8 percent of RUTF revenue is estimated to be paid by out-of-state drivers primarily due to fuel tax payments.		• Collection and administration process already in place. • Generally proportional to system usage. • Generates revenue from out-of-state drivers. • Paid by all users of the highway system.	• Increased fuel efficiency results in lower revenue. • Higher fuel prices lead to reduced driving and reduced fuel tax collections. • Fees are fixed and do not adjust for inflation.	Yes (see description)
	Mechanism: Add automatic annual adjustment to fuel tax rates based on an inflation index such as the Consumer Price Index or Iowa's Construction Cost Index Amount of additional revenue generated is dependent on rate of inflation.	Variable. A three percent adjustment would generate $20.75 million per year.	• Automatically addresses loss of buying power.	• Makes forecasting for programming difficult.	

Type of Financing	Description/Mechanism	Estimated Amount Generated	Advantages	Disadvantages	Collected from out-of-state drivers?
Fee for New Registration (321.105A)	Five percent fee that is imposed on the sale of new and used motor vehicles and trailers		• Collection and administration process already in place. • Provides revenue source based on ability to pay. • Proportional to cost of vehicle.	• Not proportional to system usage. • May discourage sales of motor vehicles. • Fluctuates with economic cycles.	No
	Mechanism: Increase to six percent.	Approximately $75 million per year	• Brings fee in line with state sales tax rate.		
Driver's License Fee (321.191)	A fee charged for the privilege to operate a motor vehicle. $4 per year (non-commercial) $8 per year (commercial)		• Collection and administration process already in place. • Does not fluctuate with economic cycles.	• Not proportional to system usage.	No
	Mechanism: Double driver's license fee.	Approximately $18 million per year on average			
Registration Fees	Fees charged to register and license vehicles and trailers. Fees vary according to the weight and value of the vehicle.		• Collection and administration process already in place.	• Not proportional to system usage. • Higher administrative and enforcement costs. • Encourages retention of older vehicles.	Only commercial vehicles that pay a prorated fee based on travel within Iowa.
	Mechanism: Increase registration fees by 10 percent.	Approximately $65 million per year			

Source: 2021 Road Use Tax Fund Study

Table A.6: Alternative funding sources

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Local Option Vehicle Tax	A vehicle registration fee approved and levied at the local level in addition to vehicle registration fees levied by the state. Amount collected would vary based on the registration fee amount and jurisdictions in which the tax was applied.	• Enabling legislation already in place. • Revenue generated locally and available for local transportation priorities.	• Not proportional to system usage.	No
Sales Tax	Assess sales tax on fuel purchases. A one percent sales tax on fuel would generate approximately $49 million per year based on 2020 fuel usage and prices.	• Provides a mechanism to apply local option sales tax on the purchase of fuel. • Requires less frequent legislative action on fuel tax because revenues will increase as the price of fuel increases.	• Requires enabling legislation. • Administration and collection system need to be developed. • Because tax is tied to the price of fuel, the amount of tax could change significantly if fuel prices experience large fluctuations.	Yes
Severance Tax on Ethanol	A tax collected by the state either based on a percent of value or a volume-based fee on resources extracted from the earth. Typically charged to producer or first purchaser. To minimize the impact on Iowa drivers, the added cost of the severance tax could be offset with a reduction in fuel tax rate on ethanol-blended fuel. Potential revenue is dependent on rate set and volume produced. Assuming the fuel tax rate is lowered for ethanol-blended fuels to offset the addition of a severance tax, an estimate can be developed. Based on 2020 data, a severance tax of one cent per gallon would have generated $40.5 million.	• Creates opportunity to generate revenue from sources outside of Iowa. • Compensates for roadway deterioration resulting from usage of system for the production of ethanol.	• Requires enabling legislation. • Administration and collection system would need to be developed. • Potential regulatory issues. • Could put the producer at competitive disadvantage.	Yes

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Per-Mile Tax	Tax based on the vehicle miles traveled within a state. Based on the vehicle miles traveled in Iowa in 2019, a one cent per-mile fee would generate $338 million per year.	• Direct measure of actual costs incurred. • Highly related to needs for capacity and system preservation because as travel and revenue increases, the need for capacity and preservation improvements increase. • May be graduated based on vehicle size, weight, emissions or other characteristics.	• Requires enabling legislation. • Administration and collection system would need to be developed. • Potentially high administrative, compliance and infrastructure costs. • Technology needs to mature. • Privacy concerns.	Yes
Transportation Improvement District	Geographic areas are defined and tax imposed within the area to fund transportation improvements with voter approval. Revenue potential varies.	• Satisfies urgent infrastructure needs, which exceed available finances. • Encourages state, local and private-sector partnerships. • Users of the system decide to implement.	• Requires enabling legislation. • Administration and collection system would need to be developed. • May be seen as an equity issue.	Yes, if out-of-state driver makes taxable purchases within geographic area.
Tolling	Implementing fees to travel on road segments. Revenue potential varies based on length of tolled segment and toll rate, but a typical rate is seven cents per mile.	• Specific road segments/corridors generate their own revenue.	• Requires enabling legislation. • Expensive to initiate due to needed capital investment. • Ongoing administrative costs. • Requires sufficient traffic levels to generate enough revenue to pay for the costs of tolling, along with the maintenance and construction cost; Iowa may not have any reasonable corridors meeting requirements. • Public resistance may lead to adjustments in travel patterns to avoid tolls. • There are federal restrictions in some cases.	Yes

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Development Impact Fees	A fee charged to developers for off-site infrastructure needs that arise as a result of new development.	• Additional source of funding to off-set increased needs due to new development. • Places the cost of improvement on the development that caused the need.	• Typically a local jurisdiction fee and is difficult to apply statewide. • Potential negative impact on future development. • Can be difficult to establish and administer. • Can be an equity issue when costs are passed on to homeowners in the case of a housing development.	No
Bonds for Primary Road System Improvements	A written promise to repay borrowed money at a fixed rate on a fixed schedule. Can be limited to very specific situations, such as projects that exceed a certain dollar threshold, projects that cannot easily be phased over time (border bridges) and/ or projects that can reasonably generate sufficient revenue (tolls) to service their own bond debts. Revenue potential varies.	• Allows earlier and faster construction of some facilities. • Satisfies urgent infrastructure need, which exceeds available finances. • Avoids inflationary construction costs.	• Requires enabling legislation. • Requires state or community to extend payments for long periods of time. • Does not generate new money. • May cost more over time due to bond interest. • Requires existing annual resources be used for debt service rather than new needs. • May have a negative impact on statewide transportation decision-making. • Poses staffing issues for government road agencies and road consultants/contractors due to significantly changing annual project expenditure levels and cyclical nature.	Depends on funding mechanism that funds bond repayments.

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Public-Private Partnerships (PPPs)	Contractual agreements formed between a public agency and private sector entity that allow private participation in the delivery of transportation projects in one or more of the following areas: project design, construction, finance, operations, and maintenance. Can either be user-fee based (tolls) or non-user-fee based. The non-user-fee based types of PPPs are most viable in Iowa and include design-build and design-build-finance. Revenue potential varies.	• Expedited completion compared to conventional delivery methods. • Avoids inflationary construction costs. • Delivery of new technology developed by private entities. • Purchase of private resources and personnel instead of using constrained public resources.	• Requires enabling legislation. • May be less efficient. • If user-fee based, could lead to higher tolling than under a public-only project. • May limit ability for in-state contractors to participate in construction depending on type of project.	Depends on mechanism implemented by private owner but would likely generate funding from out-of-state drivers
	Mechanism: Privatization of infrastructure. Typically involves the long-term leasing of toll roads to private sector for up-front payment. Revenue potential varies.	• Influx of one-time capital. • Shifts responsibility to contractor.	• Requires enabling legislation. • Administrative process needed to let, execute, contract, and monitor performance. • Requires high-usage corridor to be marketable; Iowa may not have any candidates. • Built-in toll increases. • Potentially higher tolls to make project profitable. These tolls may result in system inefficiencies as traffic utilizes non-toll roads in lieu of using toll roads. • Requires very long-term decision that removes flexibility. • Very limited ability for in-state contractors to participate in construction.	Depends on funding mechanism implemented by private owner but would likely generate funding from out-of-state drivers.
	Mechanism: Enable design-build contracting. Design-build involves contractual agreements whereby a single bid is accepted for both the design and construction of a project. A variation of this is the design-build-operate-maintain contract whereby a private contractor is also responsible for operation and future maintenance. 45 states have statutory or administrative provisions that authorize design-build fully or with certain limitations.	• Intended to accelerate construction schedule since some activities can occur simultaneously. • Intended to allow construction to begin sooner • Reduces administrative burden by having one contract and point-of-contact. • Can result in reduced construction costs.	• Requires enabling legislation. • May impact ability of in-state contractors to participate in construction. • Not appropriate for all types of projects. • Potential for cost overruns if scope of work is not properly defined up front.	N/A

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Container Tax	Fee imposed on containers moving through a designated geographic area. Revenue potential varies based on chosen rate and transportation modes to which the container tax would be applied.	• Creates opportunity to generate revenue on shipments passing through the state.	• Requires enabling legislation. • Does little to promote efficiency • Ongoing administrative costs.	Yes
Imported Oil Tax	A tax charged on imported oil based on either the volume or value of the imported oil. Revenue potential varies.	• Could help promote U.S. energy production.	• Requires enabling legislation. • Imported oil can be used for purposes other than transportation. • Could result in larger free trade issues.	Yes
Tire Tax on Light Duty Vehicles	A tax on light-duty vehicle tires. Could be applied to both new vehicle tires and replacement tires. Revenue potential varies.	• Sustainable source of funds. • Under normal circumstance, a strong link exists between tire wear and system usage.	• Requires enabling legislation. • Would not generate significant revenues. • May have safety ramifications by discouraging the replacement of worn tires.	Yes
Agriculture Bushel Tax	A tax charged on each bushel of agriculture based products. Based on estimated 2020 production levels a $0.01 per bushel tax would generate approximately $28 million.	• Creates new source of sustainable revenues. • If products are shipped by road, a strong link exists between agriculture production and system usage.	• Requires enabling legislation. • Revenues would fluctuate based on production levels. • Administration and collection system would need to be implemented.	No

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Tax on Taxi and Ride Hailing Services	Sales tax or fee levied on taxi or ride hailing services. Iowa currently collects a 6% sales tax on taxi and ride hailing services.	• Clear link exists between these services and system usage. • Collection and administration process already in place. • Paid by all users.	• May be seen as an equity issue.	Yes
	Mechanism: Place revenue generated on taxi and ride hailing services in RUTF. Revenue potential varies.			
Increase Oversize/ Overweight Load Fees	Iowa currently charges fees on vehicles or loads that exceed statutory limits.	• Strong link between vehicle weight and system wear. • Paid by all users.		Yes
	Mechanism: Double Iowa's oversize and overweight fees. Based on 2020 permit information doubling the fees would generate approximately $4.5 million			
Truck Mileage Tax	A tax charged on each mile driven by trucks within a state. Per mile fee can vary according to vehicle weight. Revenue potential varies upon a number of factors including miles traveled and rate schedules.	• Creates new source of sustainable revenues. • Strong link between vehicle weight and system wear.	• Requires enabling legislation. • Subject to high levels of evasion • Administration and collection system would need to be implemented. • Costly to administer for state and companies	Yes

Source: 2021 Road Use Tax Fund Study

2024 Administrative Modification

This administrative modification incorporates by reference three implementation activities that have occurred since the adoption of the 2022 SLRTP. These activities were developed from the Iowa DOT Strategic Plan and programs in the 2021 Infrastructure Investment and Jobs Act and help implement strategies in the SLRTP. The plans being incorporated into the SLRTP are the Carbon Reduction Strategy, Resilience Improvement Plan, and Transportation 4.0: Innovative strategies for the transportation revolution.

Changes made to the 2022 SLRTP to incorporate these plans include the following.

- Discussion of Transportation 4.0 in the Economic Vitality portion of Section 4.3.
- Discussion of the Resilience Improvement Plan and Carbon Reduction Strategy in the Resiliency and Sustainability portion of Section 4.3.
- The inclusion of the three plans under Strategy 1 in Section 5.4.
- The inclusion of the three plans' strategies in Appendix 4.

www.iowadot.gov

MM951 04/11/2024