



APPENDIX G: ENVIRONMENTAL ANALYSIS

ENVIRONMENTAL ANALYSIS

The Des Moines Area MPO has established a regional goal to preserve, to protect, and to enhance the natural and the human environments. This appendix provides an overview of the environmental review conducted for projects in the plan. The assessment takes into consideration the social, the natural, and the human environments, assists in streamlining the federal project review process, and identifies potential environmental mitigation strategies. This environmental review is to conduct an early, cursory analysis of the Mobilizing Tomorrow's planned transportation capital improvements to the natural, human, and social environments to make early project decisions and to increase awareness of subsequent project-level environmental analyses that may be required.

Federal Requirements

The environmental streamlining of transportation planning review is intended to provide a mechanism which allows information, analyses, and products from long-range transportation planning efforts to be incorporated into and formally adopted in SAFETEA-LU and National Environmental Policy Act (NEPA) documents.

It is FHWA's policy that (23 CFR § 771.105):

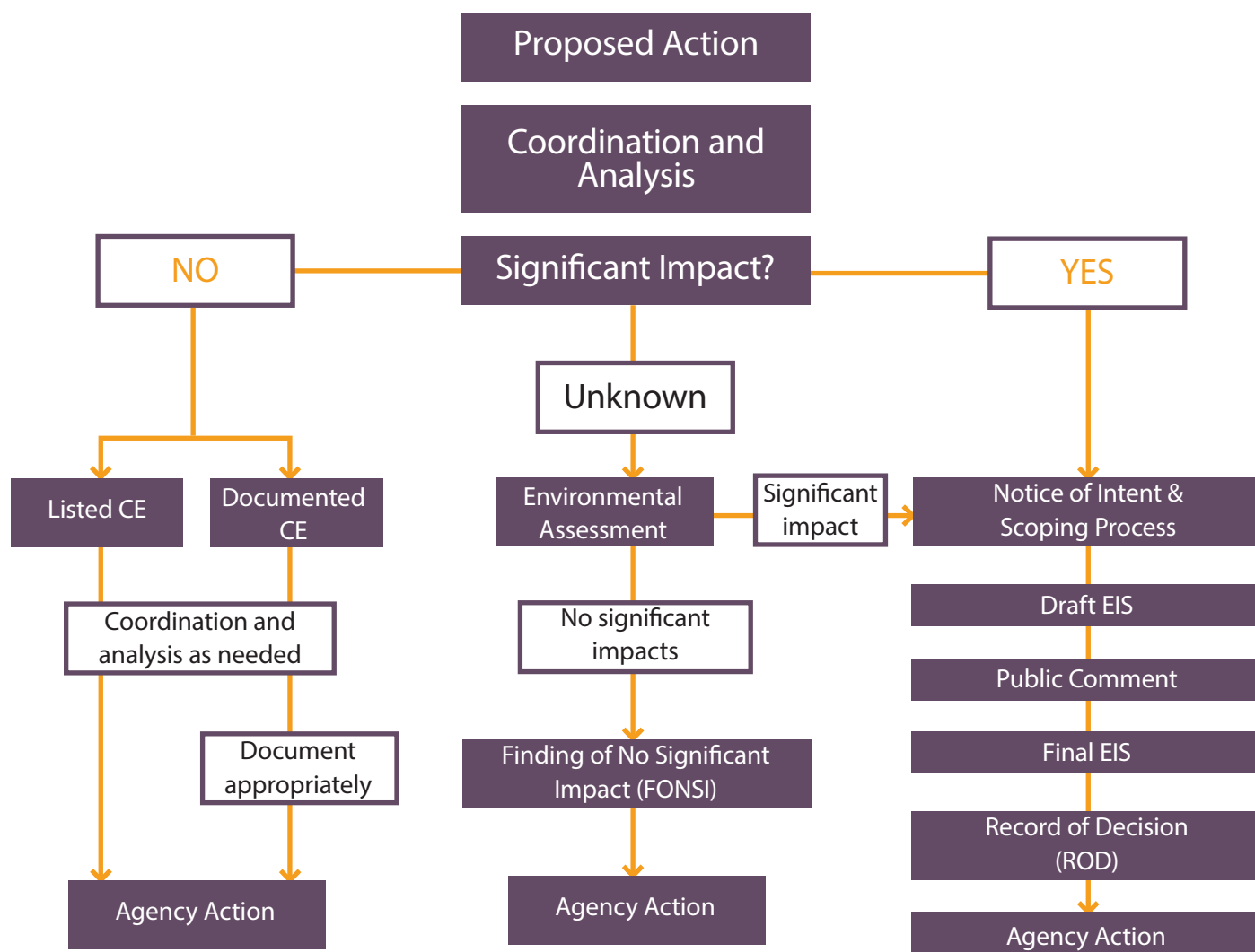
To the fullest extent possible, all environmental investigations, reviews, and consultations be coordinated as a single process, and compliance with all applicable environmental requirements be reflected in the environmental document required by this regulation.

- Alternative courses of action be evaluated and decisions be made in the best overall public interest based upon a balanced consideration of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the proposed transportation improvement; and of national, state, and local environmental protection goals.
- Public involvement and a systematic interdisciplinary approach be essential parts of the development process for proposed actions.
- Measures necessary to mitigate adverse impacts be incorporated into the action.

In addition, federal guidance notes an MPO's MTP should include a discussion of potential environmental mitigation activities. 23 CFR 450 defines environmental mitigation activities as:

“... strategies, policies, programs, actions, and activities that, over time, will serve to avoid, minimize, or compensate for (by replacing or providing substitute resources) the impacts to or disruption of elements of the human and natural environment, which includes, for example, neighborhoods and communities, homes and businesses, cultural resources, parks and recreation areas, wetlands and water sources, forested and other natural areas, agricultural areas, endangered and threatened species, and the ambient air.”

FIGURE F1: NEPA PROCESS FROM CENTER FOR ENVIRONMENTAL EXCELLENCE



Environmental Review

The Mobilizing Tomorrow environmental review consisted of assessing the impacts of each of the MTP's planned transportation projects on the natural and on the human environment. The Des Moines Area MPO established an on-line natural areas map to analyze the potential effects. The purpose of the Des Moines Area MPO's review is to assist in streamlining the NEPA process by identifying planned transportation capital improvements' potential effects on the environment within the early phases of the transportation planning process. This analysis is not intended to substitute for the development of a CE, an EA, or an EIS, but rather to supplement the NEPA process.

The Des Moines Area MPO utilized the maps, discussed in Chapter 2, to analyze the impact of planned transportation capital improvements and was used in the scoring of proposed projects. This inventory included:

- Farmland
- Wetlands
- Woodland
- Floodplains

Mitigation Strategies

Environmental mitigation refers to the strategies developed to actively avoid, minimize, or mitigate the potential impacts a transportation improvement may have on the natural and human environment.

Potential mitigation strategies will/shall include at least one of the following strategies:

- Avoiding impacts
- Minimizing a proposed activity/improvement size or its involvement
- Rectifying impacts (restoring temporary impacts)
- Taking precautionary and/or abatement measures to reduce construction impacts
- Employing special features or operational management measures to reduce impacts
- Compensating for environmental impacts by providing suitable, replacement or substitute environmental resources of equivalent or greater value, on or off-site

Extreme Weather Events

The extreme weather events that are becoming more common in Iowa are addressed in two ways: mitigation and adaptation. Mitigation aims to limit the magnitude of long-term global warming and the impacts that could result from the warming; i.e. reduction of greenhouse gas (GHG) emissions. Adaptation aims to reduce the vulnerabilities of social and biological systems to the changing climate and the overall global warming; i.e. constructing roads that can absorb or direct stormwater. Transportation affects both of these efforts.

Mitigation

Transportation modes have a large impact on GHG emissions. According to the U.S. Environmental Protection Agency, transportation is the largest contributor of GHG emissions in the United States. Light-duty vehicles, such as the personal automobile, contribute nearly 60% of all U.S. transportation GHG emissions; medium and heavy-duty vehicles, such as semi-trucks and other commercial vehicles, contribute 23% of GHG emissions.

In 2016, the MPO estimated that nearly 85% of commutes to work within the planning area are done in a single-occupancy vehicle, 9% in a carpool, 6% walk or bike, and just 1% on transit. While vehicle miles traveled or VMT from 2011 to 2015, according to Iowa DOT, have decreased in fifteen of the 19 Des Moines Area MPO communities, single-occupancy vehicles are still the number one choice for transportation for most purposes in the region.

In order for the Des Moines region to take serious extreme weather mitigation action in the transportation sector, the region must reduce the reliance on automobiles, especially those trips that are single-occupancy. Investments in transit and other climate conscience modes of transportation are crucial to reducing the amount of GHG emissions the metro produces.

Adaptation

In the United States the most publicly facing environmental resilience adaptation work is dealing with rising sea levels. While Iowa has no oceanic coastlines, it does have opportunities to adapt to the effects of fluctuating weather patterns that will greatly impact social and biological systems. The biggest opportunity in the transportation sector is stormwater management.

As pointed out in Chapter 2 and Chapter 4 there are a number of ways in which transportation and land-use infrastructure can manage stormwater better. The overarching applicable concept is treating stormwater where it lands on the built environment instead of relying upon stormwater grey infrastructure to take the water away. Permeable pavers, bioswales, curb cutaways, and tree boxes can help to retain and infiltrate water within the transportation right of way. Using these strategies for stormwater management also benefit also add capacity for urban areas to produce oxygen, sequester carbon, provide shade, filter particulate matter, and add habitat. Green spaces also are important to mental health. Having access to green spaces can reduce health inequalities, improve well-being, and aid in treatment of mental illness (World Health Organization, 2019).

In addition to green infrastructure, land-use decisions can greatly influence climate action and transportation infrastructure due to its influence on the public's transportation decision. With more dense development alternative transportation (transit, walking, biking, etc.) becomes a more feasible and efficient option for citizens to commute to work, run errands, and move around the metro. Currently, many development patterns in the metro continue to feed the urban sprawl/auto-centric feedback loop. If higher density, compact, and transit-oriented development were to be keystones of metro development patterns, the public would be more inclined to not use their car for each trip made from their house, and instead choose an alternative mode; which would reduce GHG emissions.

Interagency Consultation

The Des Moines Area MPO established the Environment Roundtable to support the review of environmental impacts of transportation projects. Members consist of representatives from the following agencies:

- Capital Crossroads – Environmental Capital
- Center on Sustainable Communities
- Central Iowa Sierra Club and Des Moines Area Audubon
- Department of Natural Resources
- Des Moines Area Community College
- Des Moines Izaak Walton League of America
- Des Moines Park and Recreation
- Des Moines Water Works
- Drake University
- Environmental Law and Policy Center
- Growing Green Communities
- Iowa Audubon
- Iowa Clean Cities Coalition
- Iowa Department of Public Health
- Iowa Economic Development Authority
- Iowa Energy Office
- Iowa Interfaith Power and Light
- Iowa Floodplain and Stormwater Management Association
- Iowa Natural Heritage Foundation
- Iowa Rivers Revival
- Madison County Conservation
- Metro Waste Authority
- Pleasant Hill Park and Recreation
- Polk County Conservation
- Polk Soil and Water Conservation District
- Trees Forever

Environmental Justice (EJ) Review

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations (1994) was enacted to reinforce Title VI of the Civil Rights Act of 1964. Executive Order 12898 states that:

“Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

As part of its environmental justice analysis, the Des Moines Area MPO identified seven degrees of disadvantage, or types of traditionally disadvantaged populations, as the analytic basis for ensuring compliance with Title VI. This analysis was utilized to evaluate the impacts of planned transportation projects in areas with socially disadvantaged populations. The seven degrees of disadvantage include:

- Linguistically Isolated
- Non-white Population
- Persons in Poverty
- Carless Households
- Single heads of households
- Persons over 65
- Persons with a disability

Using U.S. Census data at the census tract level, regional averages were determined for each of the seven degrees. A census tract was marked as disadvantaged for each degree if it exceeded the regional average. For example, the regional average for Persons in Poverty sits at 10.7 percent. Any census tract that had an average above 10.7 percent would be considered disadvantaged for that degree. To determine environmental justice areas, all seven degrees were combined to total the number of degrees of disadvantaged in each census tract. Any census tract with six or more disadvantaged degrees was identified as an Environmental Justice (EJ) Area. In the MPO planning area, 4 percent of the land is considered to be an EJ Area, with 15 percent of the population residing in these areas.

Transportation Impacts

The Des Moines Area MPO analyzed the planned transportation projects' proximity to the environmental justice areas. A complete look at each approved project and its proximity to an EJ area can be found on the MPO's website "Measures on the Map" on-line tool.

FIGURE G1: PERSONS OVER 65

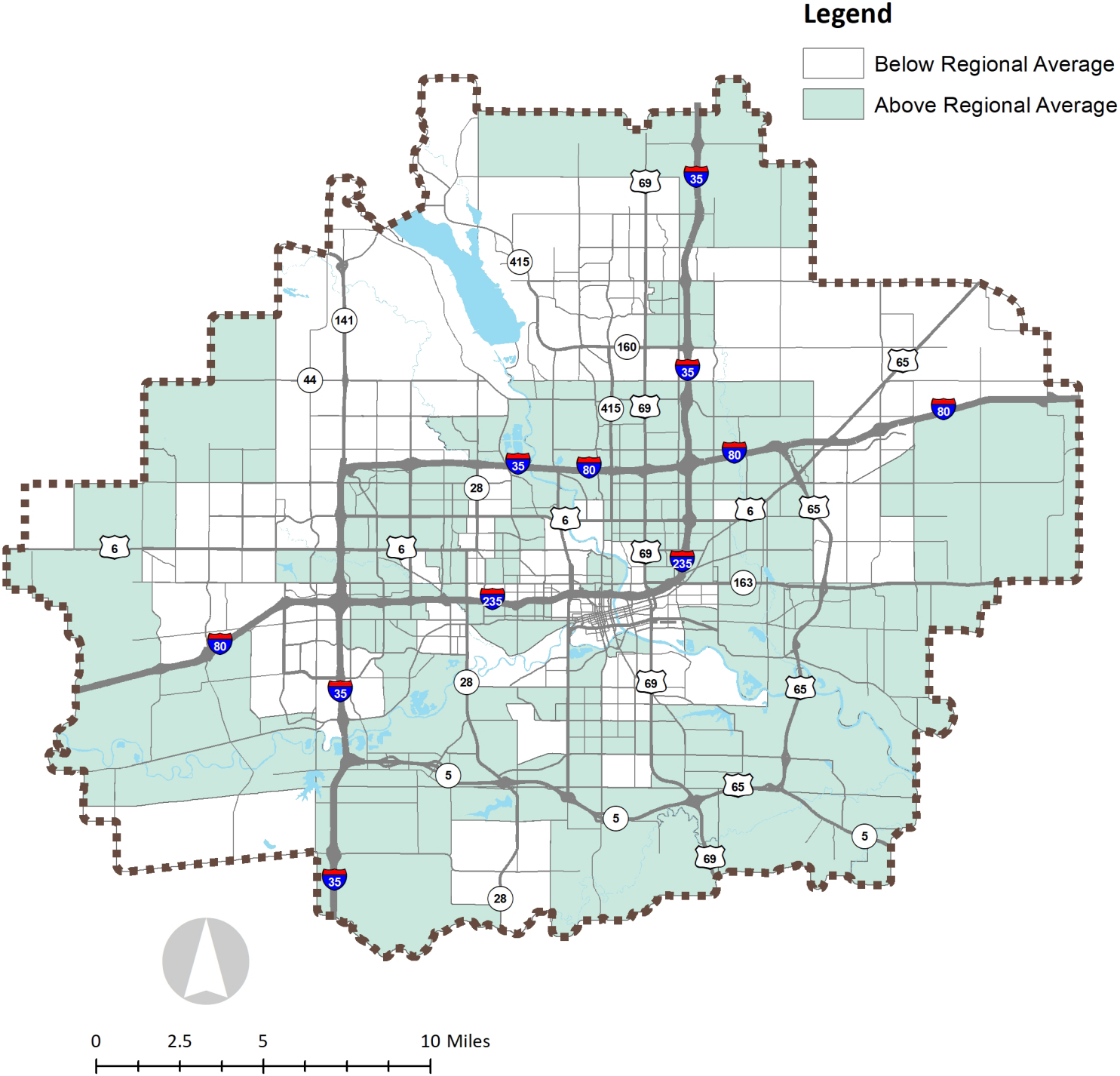


FIGURE G2: CARLESS HOUSEHOLDS

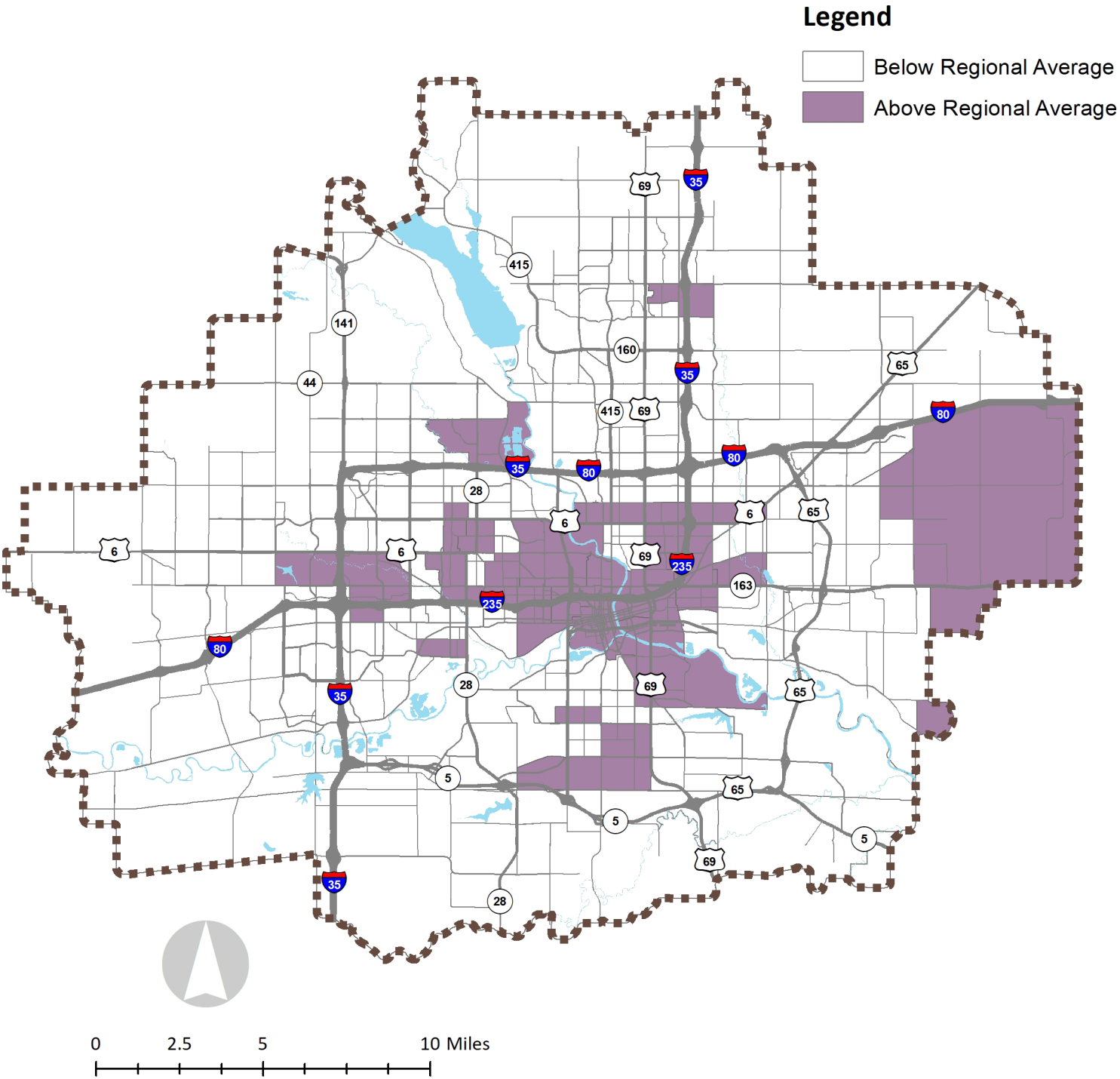


FIGURE G3: PERSONS WITH A DISABILITIES

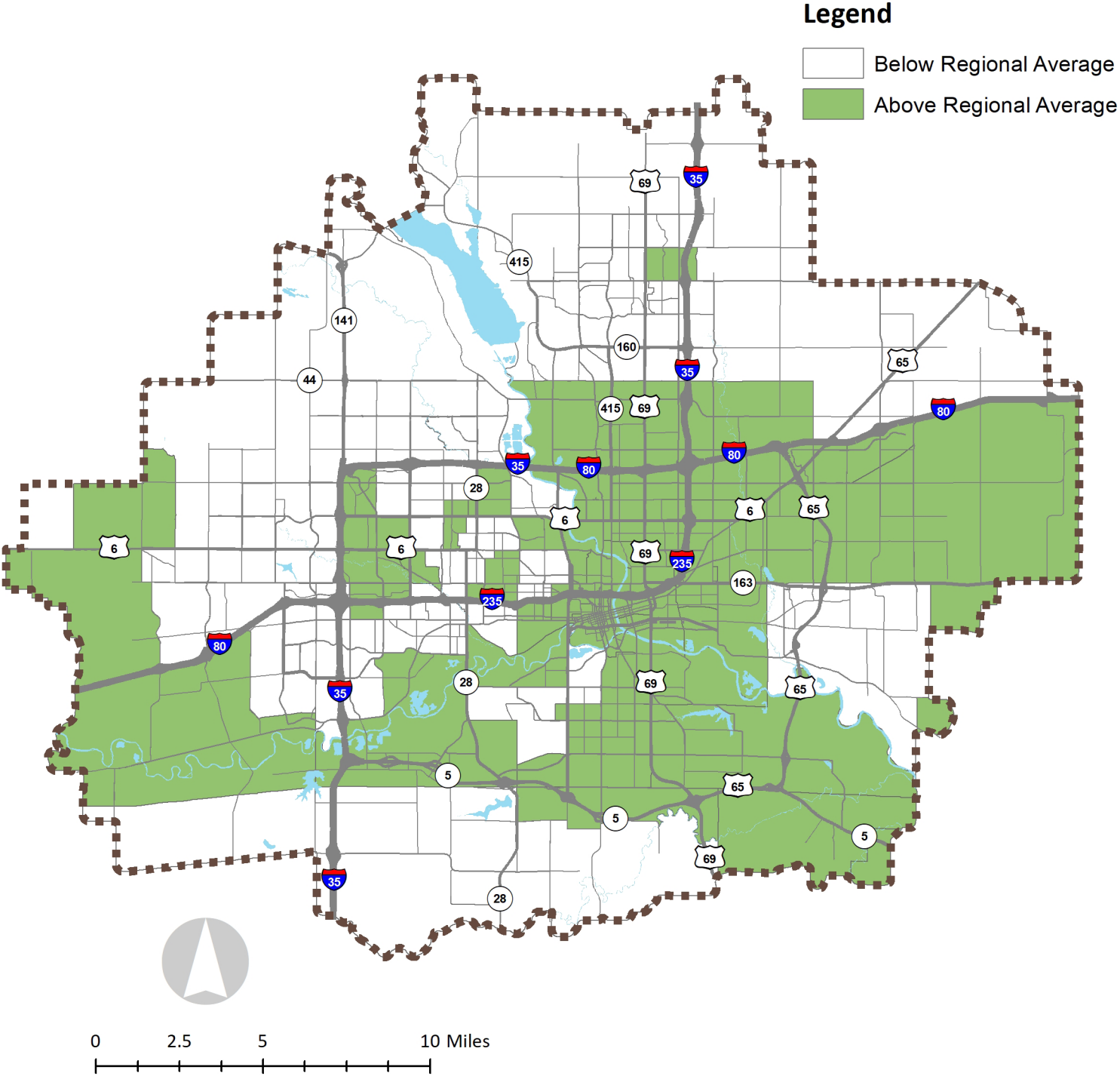


FIGURE G4: LINGUISTICALLY ISOLATED

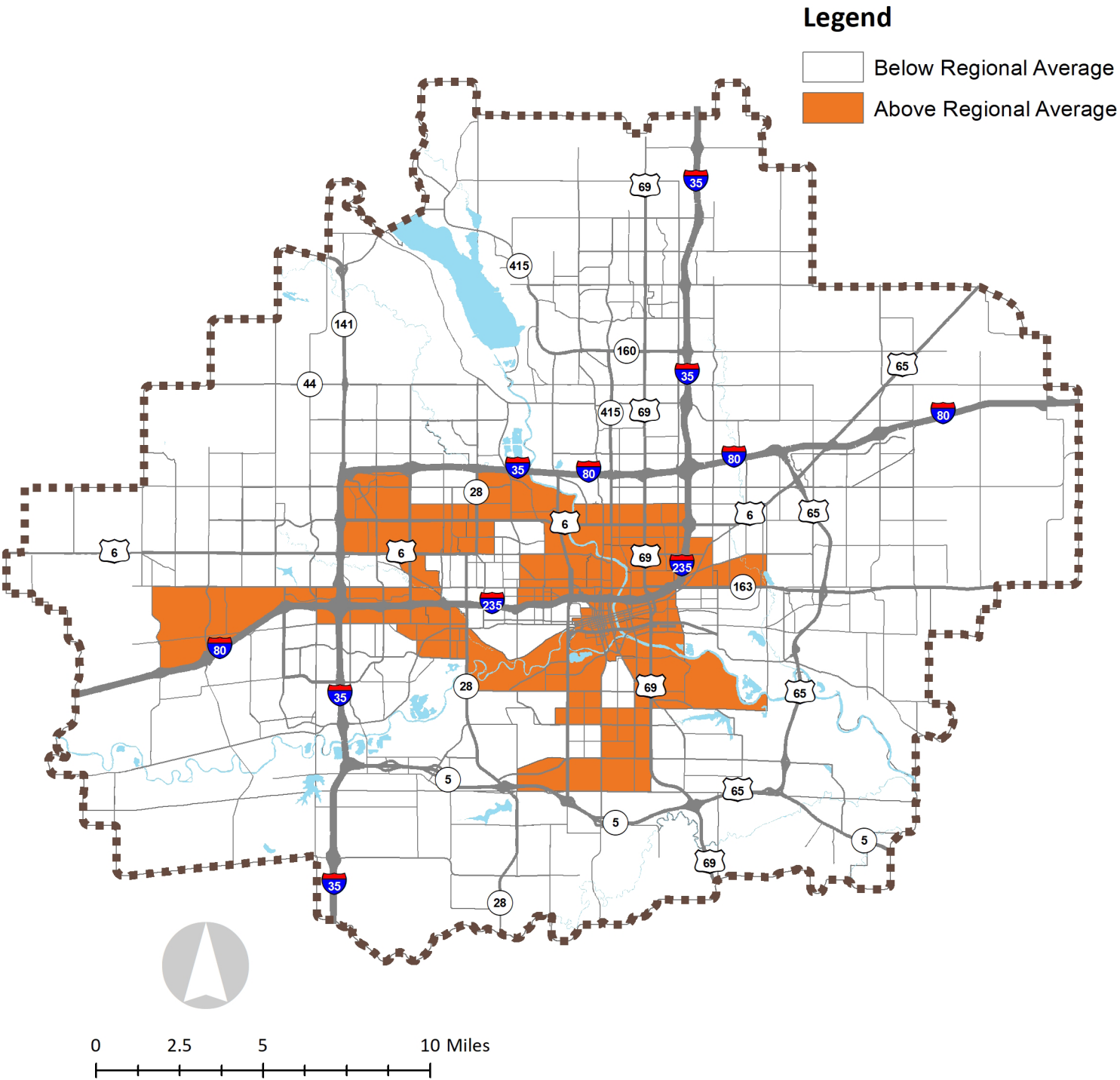


FIGURE G5: PERSONS IN POVERTY

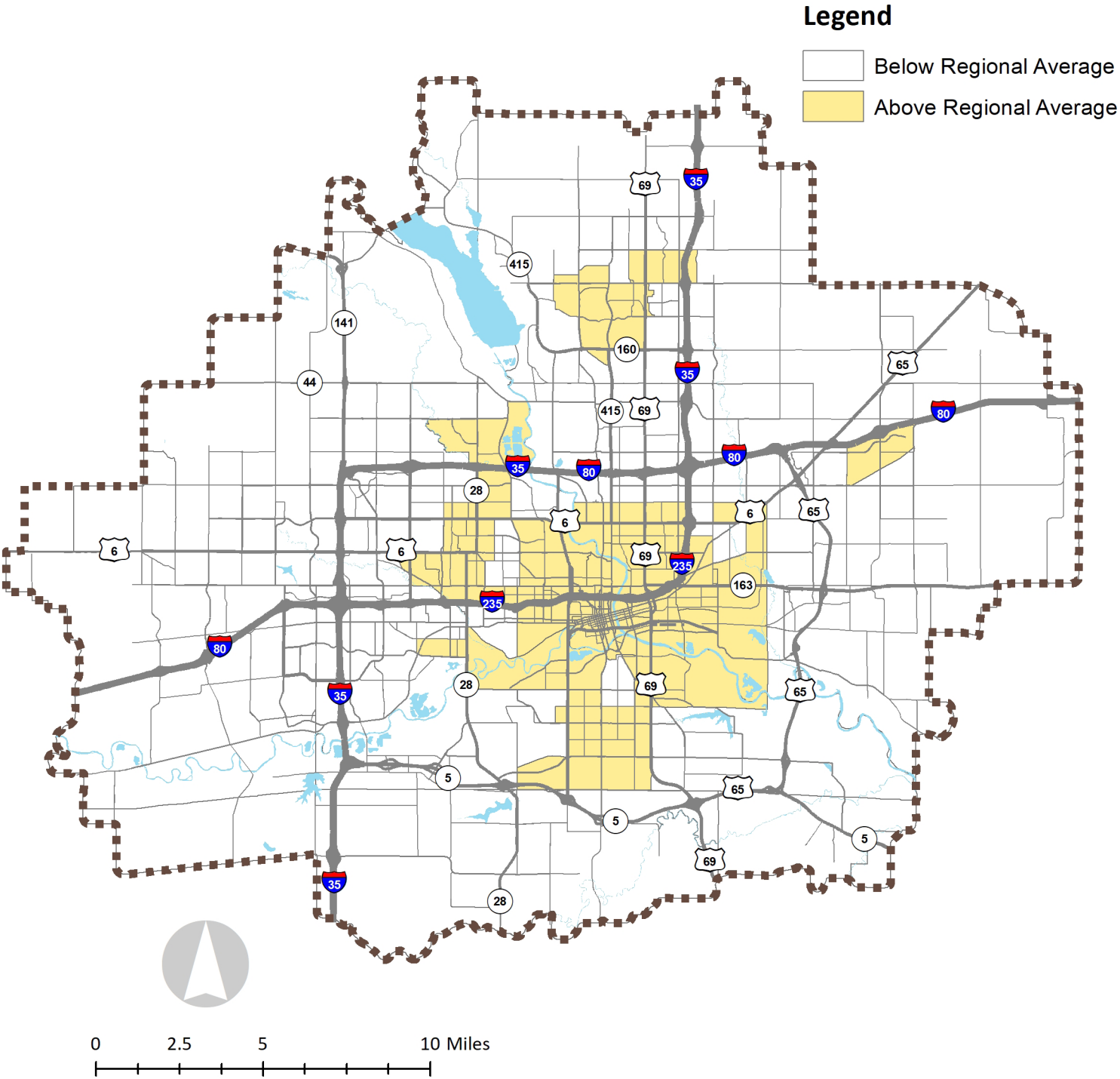


FIGURE G6: SINGLE HEADS OF HOUSEHOLD

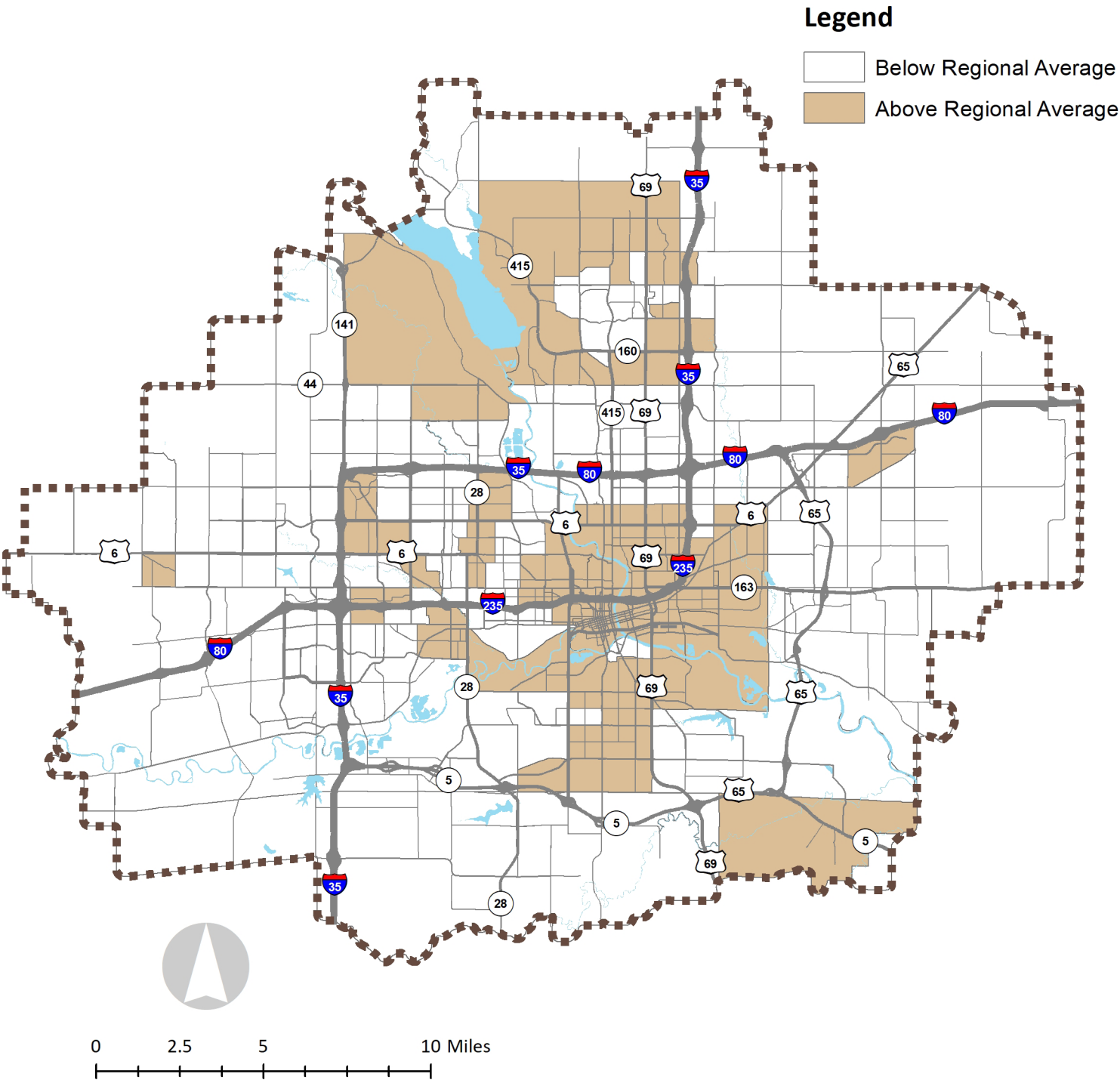


FIGURE G7: NON-WHITE POPULATION

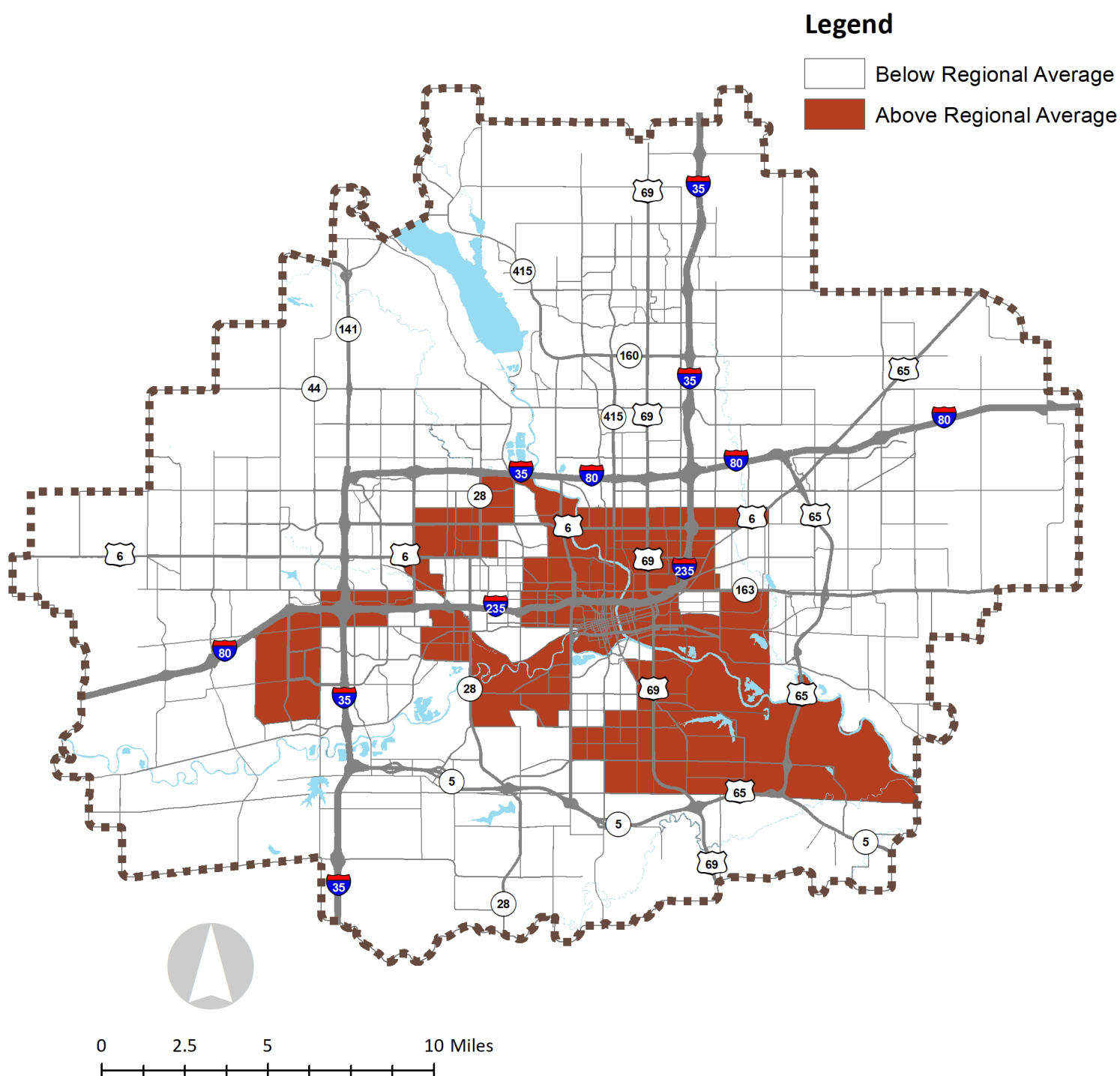


FIGURE G8: AREAS WITH MULTIPLE DEGREES OF DISADVANTAGE

