# 13

# TRANSPORTATION

## INTRODUCTION

As part of the vision for *The Ankeny Plan 2040*, the City recognizes the travel needs of its residents, local businesses, commuters, visitors, and others traveling through the community. In the Greater Des Moines Metropolitan Area, the City of Ankeny also recognizes its important role within the local and regional transportation system and that its policies and infrastructure improvement projects need to encourage and contribute to the orderly development within and surrounding the community. Transportation facilities link and, in some cases, also separate land uses within communities and throughout a county or region. Chapter 13: Transportation is an integrated component of *The Ankeny Plan 2040* because it addresses each mode of the transportation system. This chapter encompasses the location, limits, function, capacity, safety, and conceptual design of the transportation facilities in the City of Ankeny.

### PURPOSE AND CONTENT

The purpose of this chapter is to provide the policy and program guidance needed to make appropriate transportation-related decisions when land use changes occur, when elements of the transportation system need to be upgraded, or when transportation problems occur. This transportation plan defines how Ankeny will provide for an integrated transportation system that will serve existing and future needs of residents, businesses, visitors, and how the City's system of roadways will complement the Iowa DOT's regional, state, and interstate highway system roadway networks that lie within and immediately surrounding Ankeny's existing and planned growth area limits. To provide for safe transportation facilities that offer adequate capacity (existing and future) with a high level of mobility, a transportation improvement plan that corresponds to Ankeny's overall Comprehensive Plan must be adopted, implemented, routinely utilized, and regularly maintained.

This chapter is divided into six sections:

1. Vision and Guiding Principles
2. Existing Conditions
3. Needs Assessment
4. Future Transportation System Plan
5. Transportation System Design and Policy Guidelines
6. Transportation Plan Goals and Policies

### VISION

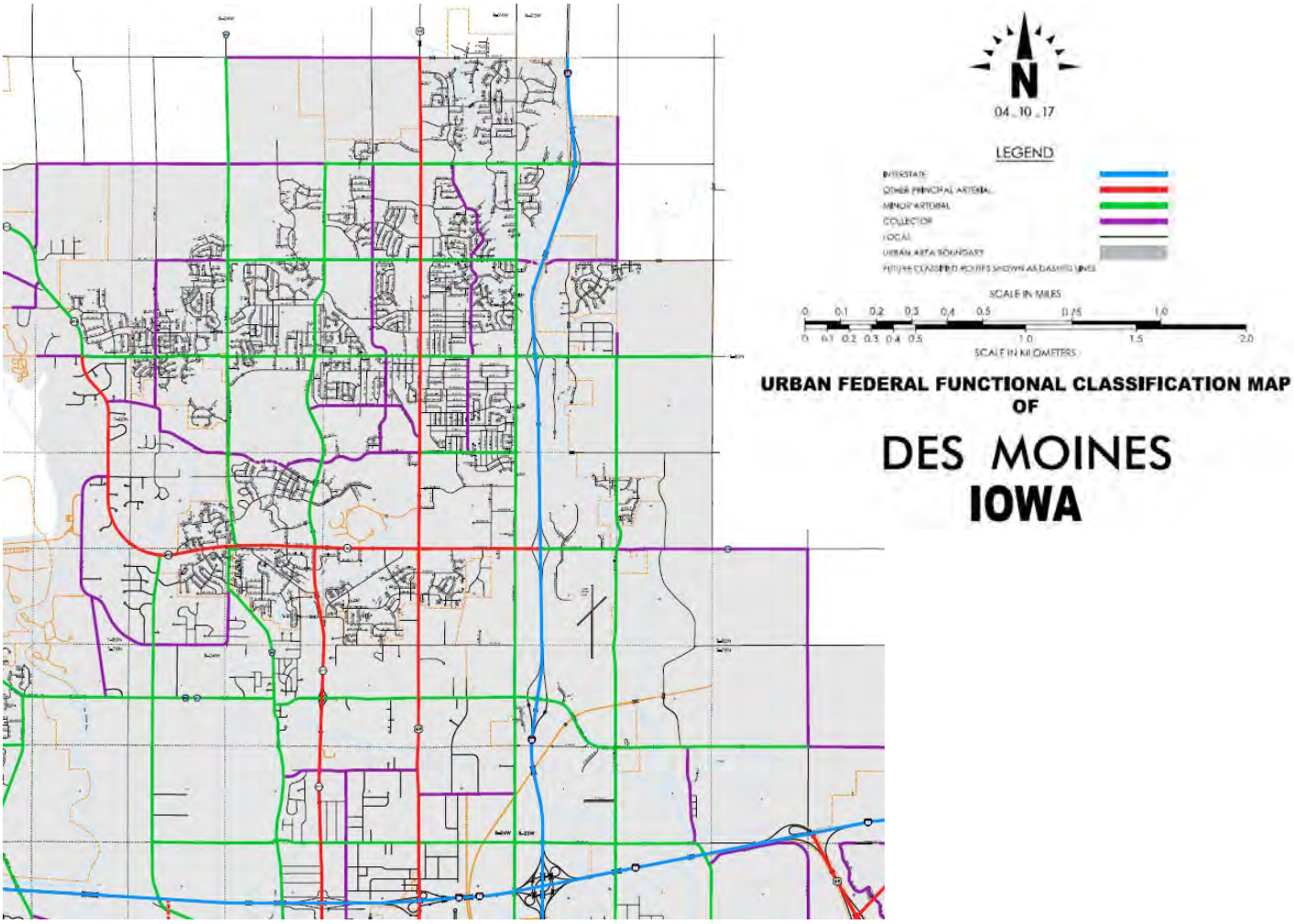
The following transportation vision statement was developed by considering key findings related to the transportation system and integrating public input generated as part of the community outreach associated with the plan update.

*"The transportation network in the City of Ankeny will facilitate the efficient movement of citizens, students, visitors, and commerce within and through the City on a safe, well-maintained, convenient, coordinated, and fiscally responsible network of routes using a balanced multi-modal transportation system".*

### GUIDING PRINCIPLES

The Comprehensive Plan Advisory Team (CPAT) has observed that the following guiding principles need to be related to concepts within this Comprehensive Plan. The City's transportation guiding principles will serve as an overall framework for this transportation plan. These principles represent the basic

FIGURE 13.1 - **Ankeny Existing Functional Classification Map (2017)**




goals of this plan and reflect the expressed needs and desires of the citizens and businesses of Ankeny. The guiding principles will provide direction for future transportation improvements throughout the community. These principles will also be used as a tool for guiding infrastructure improvements and furthering the transportation vision for Ankeny. The following design principles reflect the community's desire to provide a safe, convenient, multi-modal, and environmentally-responsible transportation infrastructure for Ankeny and the surrounding area:

- Develop a system of streets that is consistent with the existing transportation patterns throughout the community, which provides safe and timely travel for residents, visitors, commuters, and commercial users by creating a network of routes that separate traffic according to length of trip, speed, and land accessibility. Unless feasible street connectivity opportunities cannot be developed due to natural or human environment barriers, cul-de-sac streets should be discouraged.

- Create local street patterns that will minimize circuitous travel to reduce trip length, travel time, fuel consumption, and vehicle emissions. Local street design should permit flexibility in community design and allow streets that are compatible with all design objectives of a neighborhood.

- Find opportunities to encourage and facilitate walking and biking throughout the community by providing appropriate (i.e. ADA-compliant) and safe infrastructure for persons of all abilities and ages.

- Work with regional and local public transit providers to offer improved opportunities for transit ridership, appropriate transit service infrastructure, fixed route and on-demand bus service, and intermodal connections to trails, park and ride lots, taxi referral services (i.e. Uber and Lyft), regional and charter bus services, and other transit modes that help meet the local and regional needs of those that choose (or must) use transit as a primary travel mode.

- Opportunities to expand additional modes of transportation (i.e. air travel and railroad corridors) should be preserved and expanded in a safe and efficient manner.

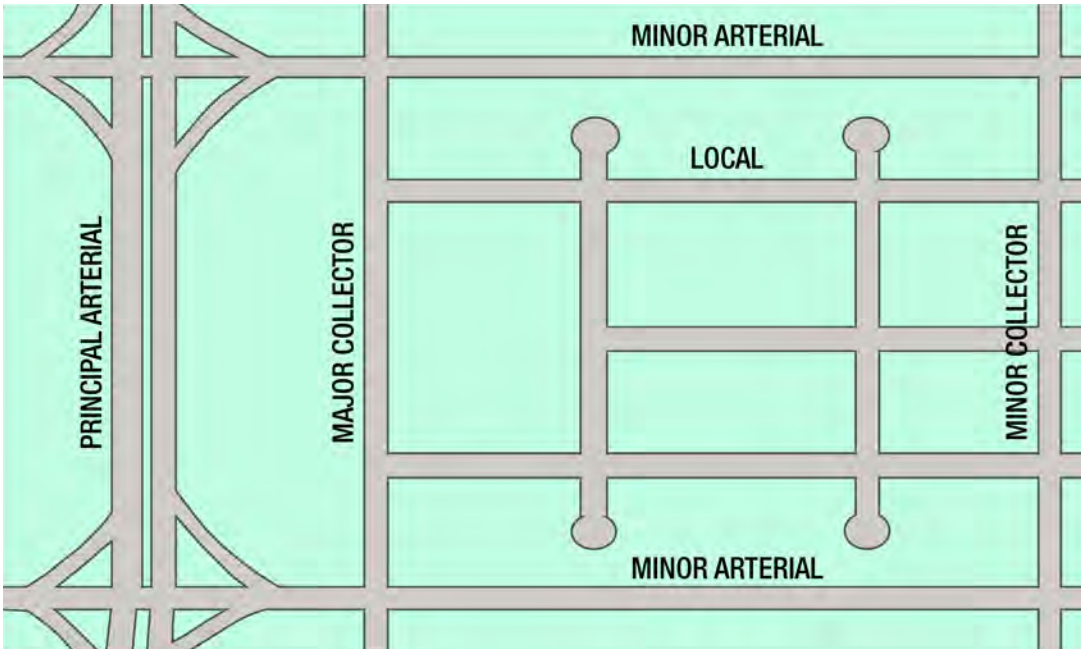
- Ensure local and regional transportation plans are regularly updated to effectively help guide planning and attract future development.

## EXISTING CONDITIONS

### ROADWAY NETWORK

Jurisdiction over the existing system of roadways in Ankeny is shared among two levels of government (State of Iowa and City of Ankeny). Roadway jurisdiction is important because it affects a number of critical organizational functions and obligations including regulatory, maintenance, construction, and financial commitments. The roadway network includes the interstate and state highway system, managed by the Iowa Department of Transportation (Iowa DOT), and the City of Ankeny's Municipal Local Systems roadways. In areas that will likely be annexed to Ankeny, most of the local roadways are under the jurisdiction of Polk County.

FIGURE 13.2 - **Functional Classification Basic Framework**




In general, the following relationships regarding jurisdictional designations are observed:

- Roadways that serve regional, inter-county or state-wide travel needs are typically owned and maintained by Iowa DOT.

- Roadways that serve sub-regional needs generally qualify as local city streets and are owned and maintained by the City of Ankeny. Polk County owns and maintains similar roadways in unincorporated, but future planned growth areas, of Ankeny.

- Roadways that primarily serve local trips and property access are owned and maintained by Ankeny.

Jurisdictional classification is based on a variety of issues and factors including functional classification, system continuity, access control, type of trips served (length of road/length of trip served), average daily traffic volumes, special facilities served, and funding/maintenance agreements.

Functional classification is the means by which roadways are grouped into classes according to the character of service they are intended to provide.

## INTERSTATE + HIGHWAY SYSTEMS

Generally, state jurisdiction is focused on routes that can be characterized as serving longer trips at higher speeds with regional, inter-county, and/or state-wide travel needs. State highways commonly have the highest traffic volumes, accommodate more truck movements, and are typically spaced at intervals consistent with population density, such that developed areas of the state are within reasonable distance of a state highway. The functional classification system for roads under the state jurisdiction is normally Interstate, Major Arterial, or Minor Arterial.

## LOCAL STREET SYSTEM

The City of Ankeny's roadway system is made up of two tiers of local city streets that provide connections throughout the city and convenient access to other communities within the Des Moines Metropolitan Area, local city streets, Polk County roads, and State highways.

The City's first tier of roadways (highest order) emphasizes higher mobility rather than land access and often includes some form of access management control that will assist in preserving mobility and safety. The functional classification system for roads under the City's jurisdiction is usually Minor Arterial, Major Collector, or Minor Collector. This first tier roadway system is often spaced at intervals consistent with population density so as to provide reasonable access to arterial or collector roads. Traffic volumes on these roadways tend to be at moderate levels and most often within the capacity range of two- and four-lane roadways, and in the highest land use density areas of the community, 5-lane urban arterial sections.

The City's second tier of local streets are typically closely spaced shorter routes that primarily focus on providing land access and connections between neighborhoods and commercial nodes rather than continuity to outlying areas. The functional classifications of most of these city streets is collector and local roadways, but in some cases the second tier streets can be designated as arterial routes if they serve highly developed areas and/or provide important connections between major traffic generators such as industrial parks, shopping centers, and education complexes.

## EXISTING ROADWAY FUNCTIONAL CLASSIFICATION SYSTEM

Functional classification is a system by which roadways are grouped according to the function they are intended to serve. Basic to this process is the recognition that individual roadways do not function independently, but rather most travel involves movement along a network of different functional types of roads. In simplistic terms, functional classification involves determining what role (level of mobility versus property access) each roadway should perform prior to determining its design features, such as street widths, design speed, and intersection control. Furthermore, functional classification is an important consideration in the development of local land use regulations. The mobility of higher classified roadways should be protected by careful management of site development and access spacing standards. Transportation problems commonly occur when a roadway's

design and the management of access to the roadway are inconsistent with the functional and operating demands imposed by the surrounding land uses.

The Federal-Aid Highway Act of 1973 first established the functional classification concepts, procedures, and criteria that a still being utilized today. Five basic functional classification categories are typically used for transportation planning. The functional classification categories include:

- Interstate
- Major Arterials
- Minor Arterials
- Collectors
- Local Streets

The Federal Highway Administration has established guideline ranges for travel demand volume and mileage percentage recommendations for each of the five functional classification categories. The City of Ankeny and Iowa DOT have designated their roadways in a fashion that complies with the intent of the federal standards. A well-ordered, functional classification system also provides a means for assigning "duties" to roadways and safe and efficient design for intended purposes, ranging from high-speed through-trips (Principal Arterials) to low-speed, low density residential private property access (Local Streets).

Figure 13.1 illustrates existing functional classifications of roadways in Ankeny.

### INTERSTATE SYSTEM + ARTERIAL ROADWAYS

Interstate system and principal arterial roadways typically have the highest volume capacity and provide the highest level of service at higher speeds for the longest uninterrupted distance. This type of roadway is intended to connect larger cities with one another and connect major business centers. The functional emphasis is on mobility rather than land access. The nature of land uses adjacent to principal arterials is typically of a higher intensity. In Ankeny, I-35 is classified as an Interstate roadway, and U.S. 69 (Ankeny Boulevard), IA 415/160 (generally NW Polk City Drive/Oralabor Road), are classified as Major Arterial roadways. These roadways are typically multi-lane divided or undivided highways with limited access at major intersections or controlled access only at grade-separated interchanges. Travel speeds between 35-65 mph are typical in Ankeny and rural Polk County. Except at signalized urban intersections, provisions for pedestrian access are typically not included.

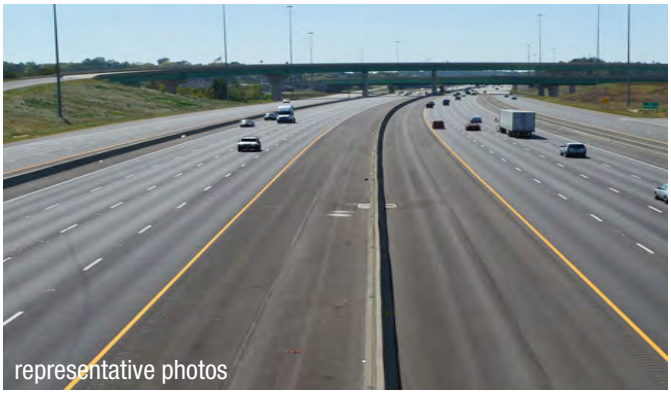
Interstate 35 runs north-south through the eastern part of the City, accessible at interchanges at NE 36th Street, First Street, Oralabor Road and Corporate Woods Drive. This facility provides regional access to Ames and other portions of the Des Moines Metropolitan Area, as well as national access to major cities in the mid-section of the United States from Duluth, Minnesota, to Laredo, Texas.

U.S. Highway 69 (Ankeny Boulevard) runs through the City's center, and although part of the federal highway system, generally serves local traffic needs. This highway provides important connections to Ames and Des Moines.

IA Highway 415 runs through the western part of the community and provides an important connection between Polk City and the Interstate 35-80 Corridor along the northern edge of Des Moines. Through its connection with IA Highway 160, it is linked with industrial and retail centers in southeast Ankeny, as well as Interstate 35.

## INTERSTATE + MAJOR ARTERIAL ROADWAY CHARACTERISTICS

- **Emphasis on mobility rather than providing land access**
- **High-speed design with travel speeds of 55 mph or greater in rural areas**
- **Serve longer (regional, inter-county, state-wide) trips**
- **Commonly spaced at least 6 to 12 miles apart**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## MINOR ARTERIAL ROADWAY CHARACTERISTICS

- **Emphasis more on mobility rather than providing land access**
- **Higher speed design (greater than 40 mph)**
- **Serve longer (regional, inter-county, inter-city) trips, typically greater than 5 miles**
- **One-mile typical spacing in urban areas**


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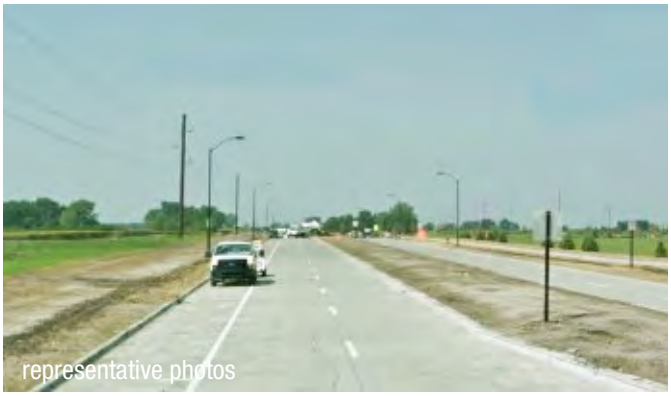
## MAJOR + MINOR COLLECTOR ROADWAY CHARACTERISTICS

- **Emphasize equally balanced between mobility and providing land access for major collectors and more focused on land access for minor collectors**
- **Serving shorter length trips within and through the community**
- **Commonly spaced at 1/2 mile apart in urban areas**
- **Travel speeds typically range from 30-40 mph in urban areas**



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## LOCAL ROADWAY CHARACTERISTICS

- **Local roads provide the highest level of direct property access and typically carry lower traffic volumes at lower speeds (30 mph or less)**
- **Typically serve trips that range from one city block in urban areas to less than 2 miles in rural areas**
- **Spaced as needed or approved with subdivision ordinance requirements**

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Northeast 36th Street, East First Street, Oralabor Road and Corporate Woods Drive extend eastward as two lane paved county roads toward Bondurant and the U.S. Highway 65 corridor, which provides commercial and commuter access to the Marshalltown area.

### MINOR ARTERIAL ROADWAYS

Minor arterials are intended to connect important locations both inside and outside of Ankeny. The function of this type of roadway is intended to provide service for trips of moderate length at a somewhat lower level of mobility than principal arterials. However, minor arterials should continue to have a greater focus on mobility rather than providing land access. Minor Arterials generally connect to principal arterials, other minor arterials, or major collectors. They are commonly of regional importance because they relieve traffic on, or substitute for principal arterials, when necessary. Minor arterial streets, like Irvinedale Drive, 18th Street, NE 36th Street, First Street, State Street, and Delaware Avenue are expected to have slightly lower traffic volumes, and usually accommodate local trips, or provide access to the major arterial streets.

### COLLECTOR ROADWAYS (MAJOR + MINOR)

Within a functional classification system there are commonly two types of collector roadways (major and minor), which provide a balance between land access and mobility.

Major collector roadways are designed to serve shorter trips that occur primarily within the City, and to collect and distribute traffic from one part of the community to another and from employment centers to the arterial system. These streets also serve to link cyclists and pedestrians with local parks, trails and businesses. These roadways can be part of the county highway system as well as the local municipal street system. The major collector system in the Ankeny area includes the following example roadways (see Figure 13.2): SW Magazine Road, NW 47th Street, NW Ash Drive, and NE/SE Trilein Drive. Major Collector streets connect several neighborhood districts and can cross multiple minor arterial corridors. They play an important role in community connectivity and providing parallel access to business areas and arterial street corridors.

Minor collector roadways collect and distribute traffic to the major collector and arterial networks. These roads are generally shorter and less continuous than major collectors, but serve to supplement those roadways. Minor collectors are also typically part of the municipal street system and county road system. The minor collector system in the Ankeny area includes the following example roadways: NE Georgetown Boulevard, NW 9th Street, and SE 8th Street.

Residential properties front many of the local system of streets, and aesthetic features are important to consider in the design process. These streets typically are designed as lower speed (25 mph) two lane streets, but may have turn lane accommodations at major intersections.

### LOCAL ROADWAYS

All other public roadways within the Ankeny Area (city streets and township roads) are classified as local roadways.

### PRIVATELY-OWNED LOCAL ROADWAYS

Although Ankeny may have gated neighborhood access in the future to limit public street access, such areas should be designed to city standards as part of the development process. Private local streets in a community are typically discouraged to ensure uniform street design and public maintenance operations can be better managed for improved service life and safety.

## BICYCLE + PEDESTRIAN CORRIDORS

Nearly all of Ankeny's streets have sidewalks or trails to accommodate pedestrians and bicycle riders. A network of trails follows major streets and greenbelts, providing a variety of recreational opportunities.

With 70 miles of trails, the City of Ankeny also maintains a significant connection to the Greater Des Moines Metro Area trail system, with three regional trails connecting recreational enthusiasts to a network of more than 500 miles of trails. The most unique of these trails is the High Trestle Trail, a 26-mile trail between the communities of Ankeny and Woodward. This trail features an iconic half-mile long bridge that spans the Des Moines River Valley. The Ankeny Market and Pavilion is the primary trailhead of the High Trestle Trail, with future links planned to the Gay Lea Wilson and Neal Smith Trail systems. It remains a priority of the City of Ankeny to identify improvements to the existing system of sidewalks and trails to increase opportunities for short commuter and retail trips by walking or bicycling.

## FREIGHT RAIL AND HEAVY COMMERCIAL VEHICLE FACILITIES

The City's network of interstate and major and minor arterial streets (as well as certain collectors) provide access for vehicle freight transport from local business centers to the regional highway network. The majority of commercial deliveries within the City use this network of roads.

The Union Pacific (UP) Railroad bisects the southeastern side of the current corporate limits of Ankeny, generally following at a diagonal south of the airport and across Corporate Woods Drive. The UP is a major rail line that provides continuous freight service across the length of the State of Iowa and its neighboring states of Minnesota and Missouri.

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## TRANSIT SERVICE AND INFRASTRUCTURE

Currently, the City is served by the Des Moines Area Regional Transit (DART) agency with one designated bus route and local on-call ride services. The weekday express commuter route (Route #98) provides morning service to and from downtown Des Moines spaced at 10-20 minute intervals, with routing in the DMACC, Uptown, and Delaware Commercial Corridor areas.

DART and partnering agency carpool parking lots serving Route #98 include Mercy North, Hawkeye, and DMACC Park and Ride lots. DART provides bus wi-fi and real-time route origin/destination data through a smart phone application. Route pickup signage and shelters DART on-call ride service is available to residents Tuesdays, Wednesdays, and Fridays each week, between the hours of 9:00 a.m.to 1:30 p.m. (Tuesdays) and 9:00 a.m. to 3:00 p.m. (Wednesdays and Fridays). The on-call service operates a shuttle through a reservation service on a first-come, first-served basis. Taxi service is currently provided by Freedom Taxi through reservations. Uber and Lyft also offer ride services to Ankeny residents and business patrons.

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## AVIATION FACILITIES

The Ankeny Regional Airport (IKV), located at 3700 SE Convenience Boulevard, is the third busiest airport in the state of Iowa. The airport primarily serves a variety of general aviation and small commercial aircrafts. In 1989, the Ankeny Regional Airport was included in an agreement between the Cities of Ankeny, Altoona, Bondurant, and Polk County for the purpose of owning, managing and operating the Ankeny Regional Airport (IKV) for the benefit of the Des Moines Metropolitan area. To supplement the current *Airport Master Plan* (2002), an investment strategy was developed with fiscal year priorities through FY 2017 to include such projects as pavement rehabilitation and

airfield lighting improvements, as well as land acquisition and relocation/construction of a relocated SE Four Mile Drive. All of these projects have been accomplished since the *2010 Ankeny Comprehensive Plan* was prepared.

As of January 2017, there were 105 aircraft based at IKV, including 91 single-engine, eight twin-engine, five corporate jets, and one military aircraft. The airport features two concrete runways, including a primary runway of 5,500 feet and a crosswind runway of 4,200 feet. A main terminal, three large box hangers, and 84 fee hangers are located adjacent to the airport's main parking lot at the current terminus of Convenience Boulevard. Access to the airport is provided from SE Oralabor Road via SE Convenience Boulevard. The airport is managed by Exec 1 Aviation, an F.B.O operator offering pilot services, mechanic services, fuel sales, charters, and other aviation related services. The airport currently serves more than 60,000 passengers annually. Much of the immediate project work at the airport (FY 2018-2020) involves new perimeter fencing, additional pavement rehabilitation, taxiway improvements, infrastructure for additional box hangers, and land acquisition for the main runway (Runway 18) approach protection / future expansion.

IKV serves as a reliever facility for the Des Moines International Airport (DSM), which provides regional commercial air service and Iowa Air National Guard training facilities. DSM currently encompasses approximately 2,625 acres. Presently, the airport has two full service runways capable of accommodating any size and type of aircraft with instrument landing systems on three approaches and with full-time air traffic control services. A new passenger terminal, as well as a number of other landside and airfield improvements, are planned for construction between 2020-2025.

One other private airfield is located in the vicinity of Ankeny. Todd Field, at NE 36th Street adjacent to I-35, includes a small building area with hangar space and a paved runway. The airfield is used primarily for crop dusting and other agribusiness services.

## EXISTING AND FUTURE ROADWAY NETWORK NEEDS ANALYSIS

Three key considerations were examined to establish transportation system trends:

- Capacity
- Mobility
- Safety

These trends help identify locations where:

- Inadequate infrastructure exists to accommodate current and forecasted traffic volumes
- Traveler mobility has been or continues to be impacted (reduced) by modes due to such impedances as discontinuous streets and trails, or lack of continuity or infrastructure connectivity in routing (roads, trails, and transit). The result is additional vehicle miles traveled between destinations and inefficient use of traveler time, labor, and energy resources
- Safety problems are recurrent and the costliest (property damage and loss of life)

### CAPACITY

A review of potential capacity constraints on the existing local and regional roadway system was completed using the most recent traffic volume counts maintained by the Iowa DOT for Ankeny in 2016 (Figure 13.3).

The DMAMPO has developed future traffic forecasts for the Des Moines Metropolitan Area as part of the region's long-term transportation plan. This plan (Mobilizing Tomorrow) includes travel demand forecasts for the year 2040 for the region. These forecasts include demographic data that was provided to the DMAMPO for the calibration of the regional travel demand model. The City of Ankeny's 2010 Comprehensive Plan was used among other resources, including building permit data, to develop the forecasts. For the purposes of the Comprehensive Plan, they are referred to as a "no build" forecast because they do not consider all long-range growth included in *The Ankeny Plan 2040*'s future land use plan. The travel demand forecasts prepared for the City of Ankeny in Mobilizing Tomorrow are shown on Figure 13.4.

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FIGURE 13.3 **Existing Annual Average Daily Traffic Volumes (2016)**

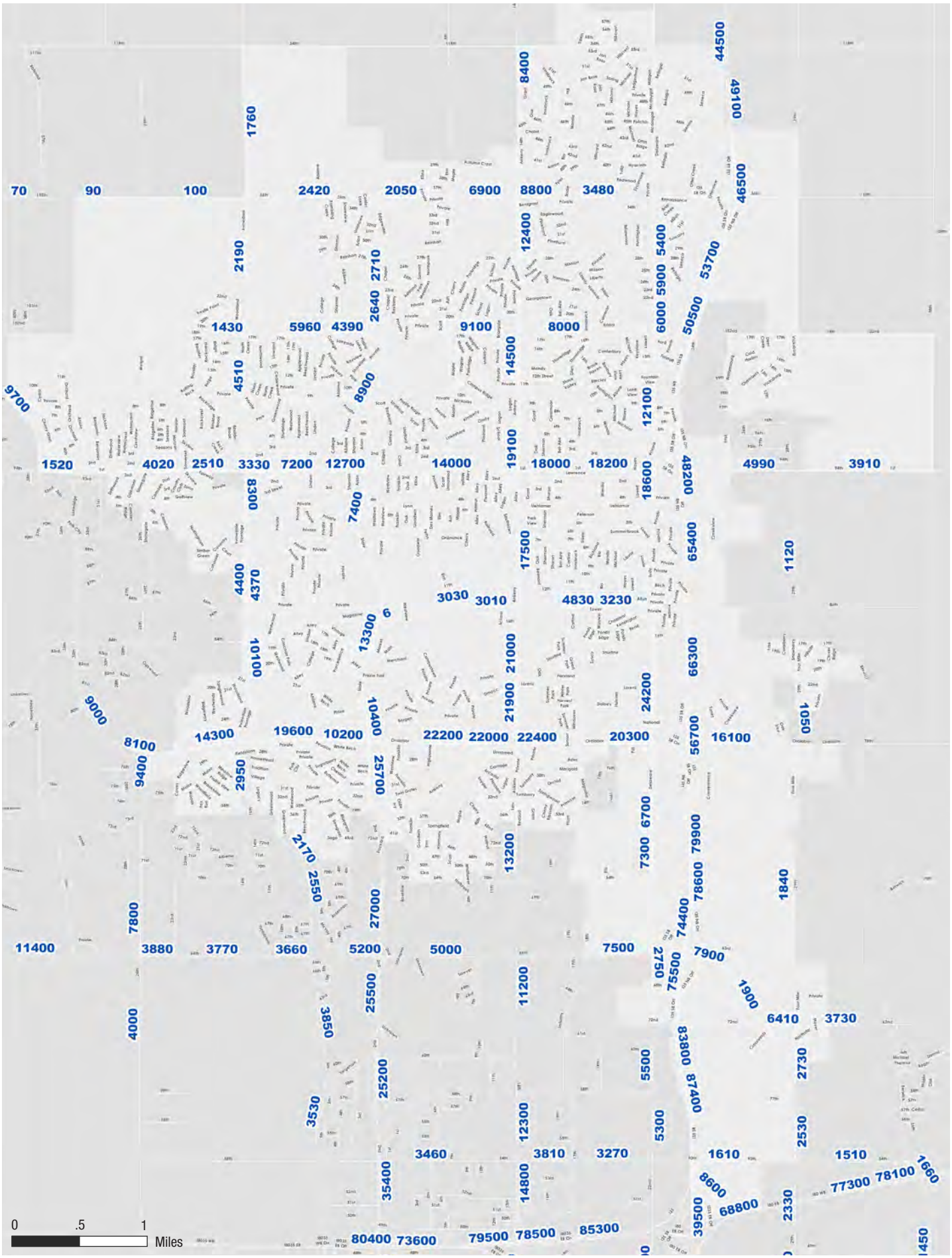
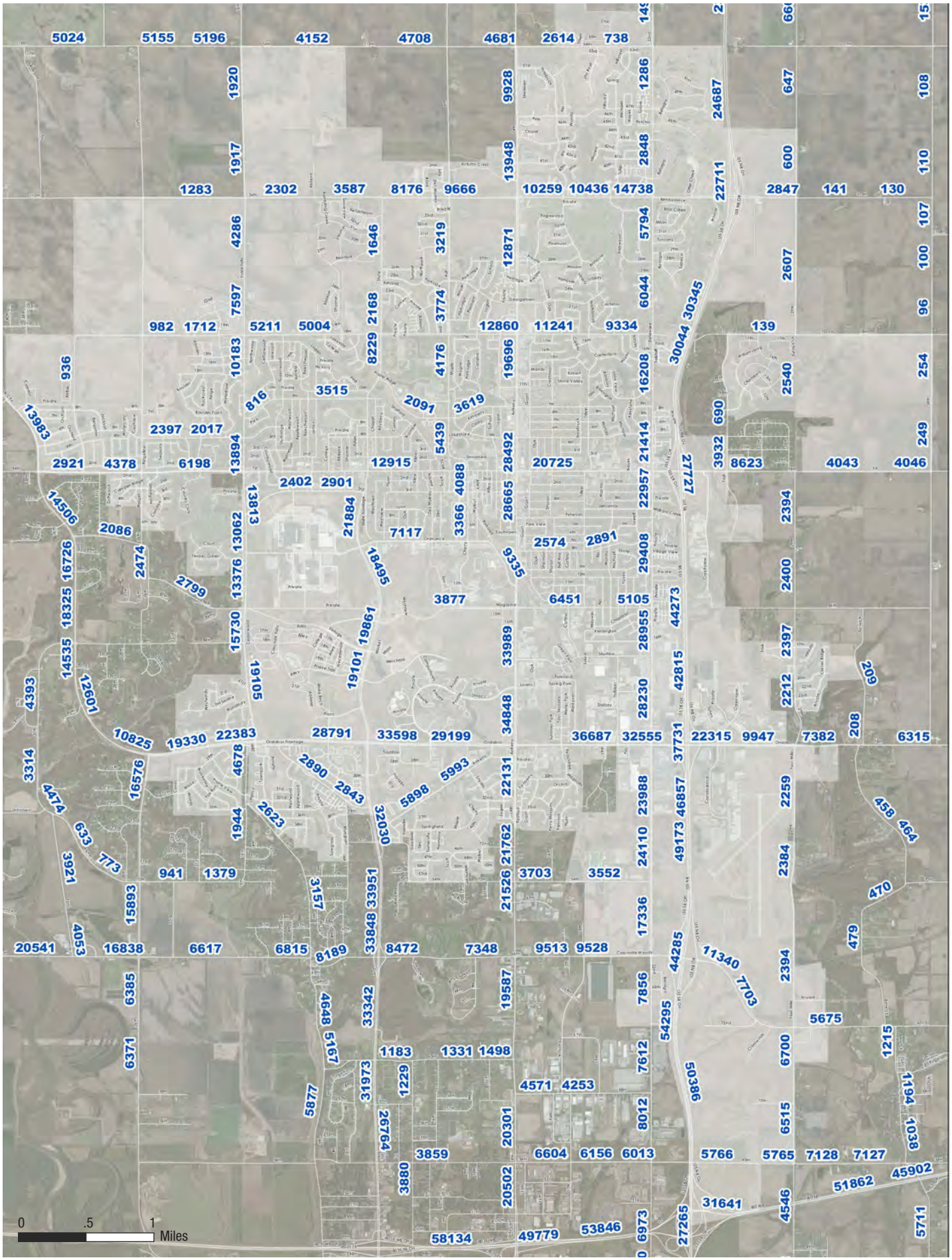


FIGURE 13.4 **Future Traffic Volumes (2040) from DMAMPO Long Range Transportation Plan**

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## TRAFFIC CONGESTION MANAGEMENT

The DMAMPO uses a scoring evaluation process developed in 2016 to evaluate congestion management needs for the Des Moines Metropolitan Area. This methodology is evolving as a Federal Highway Administration (FHWA) standard and uses indices of Travel Time and Planning Time to measure traffic congestion. It is expected to eventually replace traditional roadway volume-to-capacity ratio and level of service (LOS) measurement techniques that are widely used today to determine roadway capacity deficiencies. Using an indexing methodology, evaluations have been made in the Des Moines Metropolitan Area to determine the following:

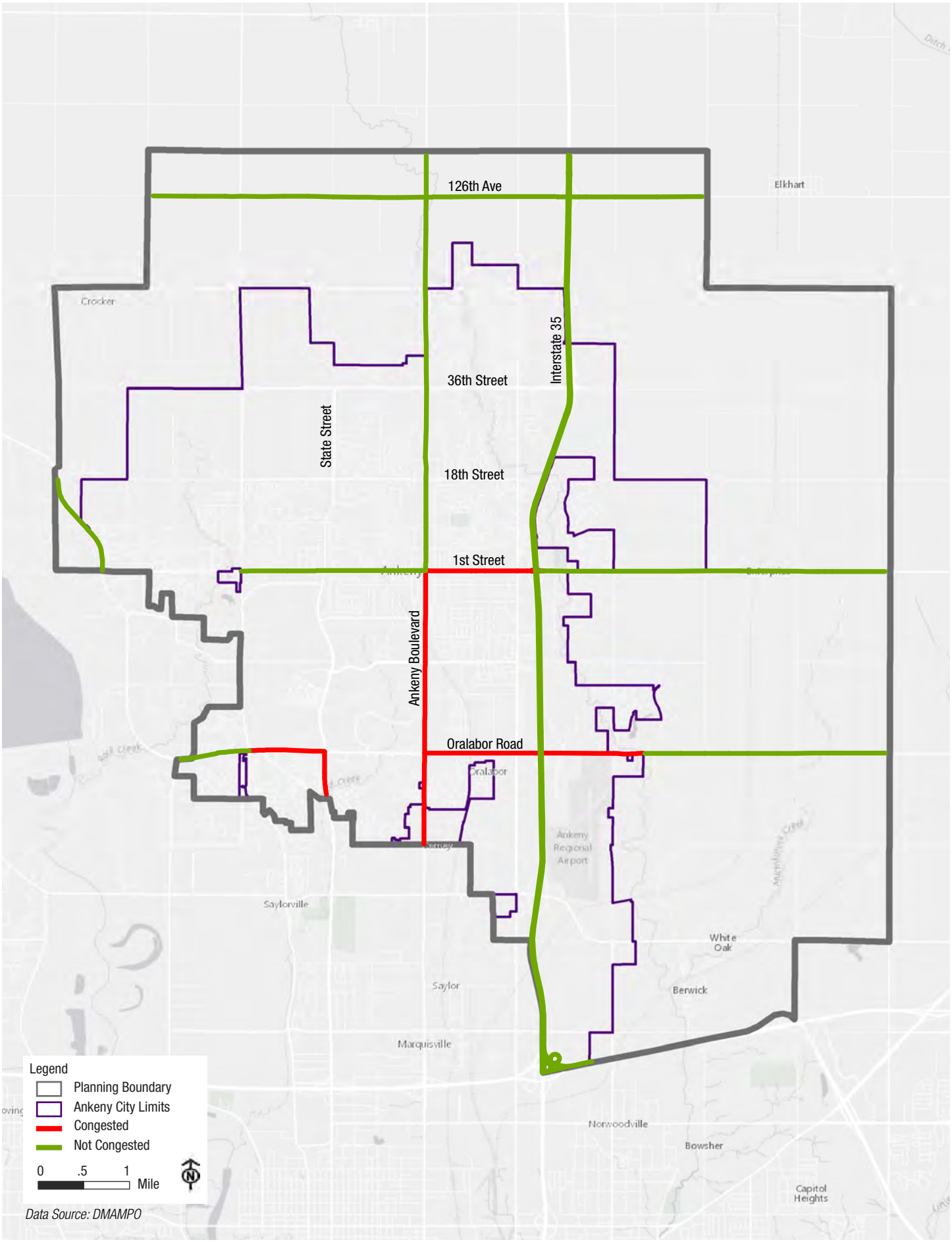
- Roadway Congestion and Mode Share (to determine where the surplus capacity is that could be used for alternative modes of transportation to decrease single-occupant vehicle trips)
- Travel Time Reliability (average observed travel time in comparison to free-flow traffic conditions)
- Planning Time (i.e., how much additional travel time travelers need to build into their trip to allow for congestion delay)
- Roadway Congestion (travel time index score plus planning time index score)
- Mode Share (personal choices for selected travel modes)
- Commute to Work (average travel time in comparison to distance traveled)

Figure 13.5 illustrates Ankeny's congestion management scoring from an analysis using data collected in 2015. The results are summarized below. It should be noted that the results for this analysis does not include recent capacity and safety improvements currently being constructed by the City of Ankeny and the Iowa DOT.

Figure 13.5 shows that five corridors in Ankeny exceeded seven (7) points for combined Travel Time and Planning Time scores at least one hour of the day. The corridors that were then given the "congested" values include:

- SE Oralabor Road, from Ankeny Boulevard to NE 29th Street
- First Street, from Ankeny Boulevard to I-35
- Ankeny Boulevard, from First Street to SE 54th Street
- SW Oralabor Road, from State Street to SW Irvinedale Drive
- State Street, from SW Oralabor Road to SW Polk City Drive

FIGURE 13.5 **DMAMPO Congestion Management Index Score for Ankeny**




*Data Source: DMAMPO*

## EXISTING ROADWAY SYSTEM SAFETY AND CRASH ANALYSIS

Roadway safety can be a major concern and should be a priority for all jurisdictional levels (state, county, local). Safety and operational problems often result from when a roadway or system of roads inhibits the efficient movement of travel. Other safety concerns can arise due to traffic volumes on a particular roadway or intersection approaching or exceeding the design capacity of the transportation infrastructure. An effort must be made to correct design problems which contribute to unsafe or inefficient conditions. Crashes (incidents between motorized and non-motorized vehicles, pedestrians, and other reported situations) were mapped according to severity and highest rates of crash occurrences in Ankeny. Figure 13.6 illustrates a five-year record of "hot spots" where reported crash severity has been identified as either fatal, major injury, or minor injury. These crashes include all modes of travelers, including vehicles, bicyclists, and pedestrians.

The fatal crashes were located primarily in remote, low volume areas, where no other incidents were reported, indicating a more random situation that could not be corrected with roadway design changes. The majority of major and minor injury crashes occurred on higher volume roadway segments where there are numerous uncontrolled intersections in primarily commercial areas. It should be noted that the recorded number of crashes only reflects "reported" crashes and instances were no law enforcement officer responded to a crash site and/or a crash report was not completed were not included.

As depicted on Figure 13.6, the highest concentrations of crashes occur at intersections and along corridors with higher traffic volumes. Figure 13.9 is intended to provide a graphical depiction of high-frequency crash areas and is not intended to provide a total number of reported crashes. Figure 13.9 also illustrates crash severity in the Ankeny area. Crashes of greatest concern are those that resulted in fatalities and/or incapacitating injuries. These crashes should receive a disproportional level of attention since they involve loss of life and injuries resulting in permanent disabilities.

The Delaware Avenue/Oralabor Road intersection has been identified as one of the highest crash rate intersections in Ankeny. Most of the reported crashes were fender bender or less serious crashes; however, property damage costs are considerable. The City of Ankeny and the Iowa DOT are partnering on several projects in the vicinity of this intersection to improve safety and capacity along SE Oralabor Road, from east of Peachtree Drive to west of Creekview Drive, including the addition of turning lanes at SE Delaware Avenue and the entrance and exit ramps at I-35.

Other intersections hot spots with higher frequencies of crashes in and around the community include Delaware Avenue and First Street, Oralabor Road and State Street, and at the current First Street/I-35 ramp terminals. Each of these locations have Ankeny CIP or Iowa DOT project programmed or appear in long-range plans to add capacity and safety improvements, both of which should reduce the crash rate at these locations.

FIGURE 13.6 **Ankeny Five-Year Crash Map**

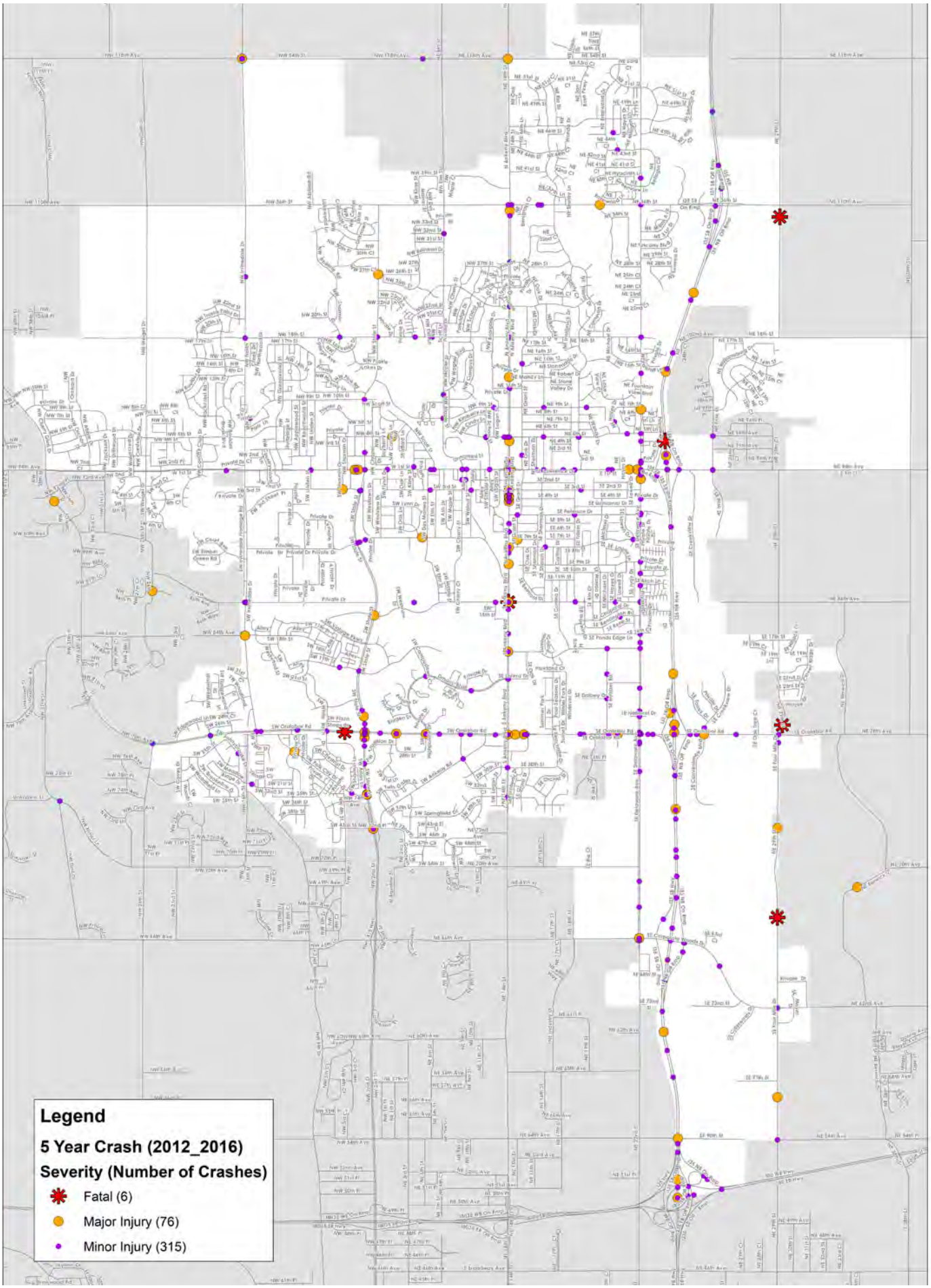
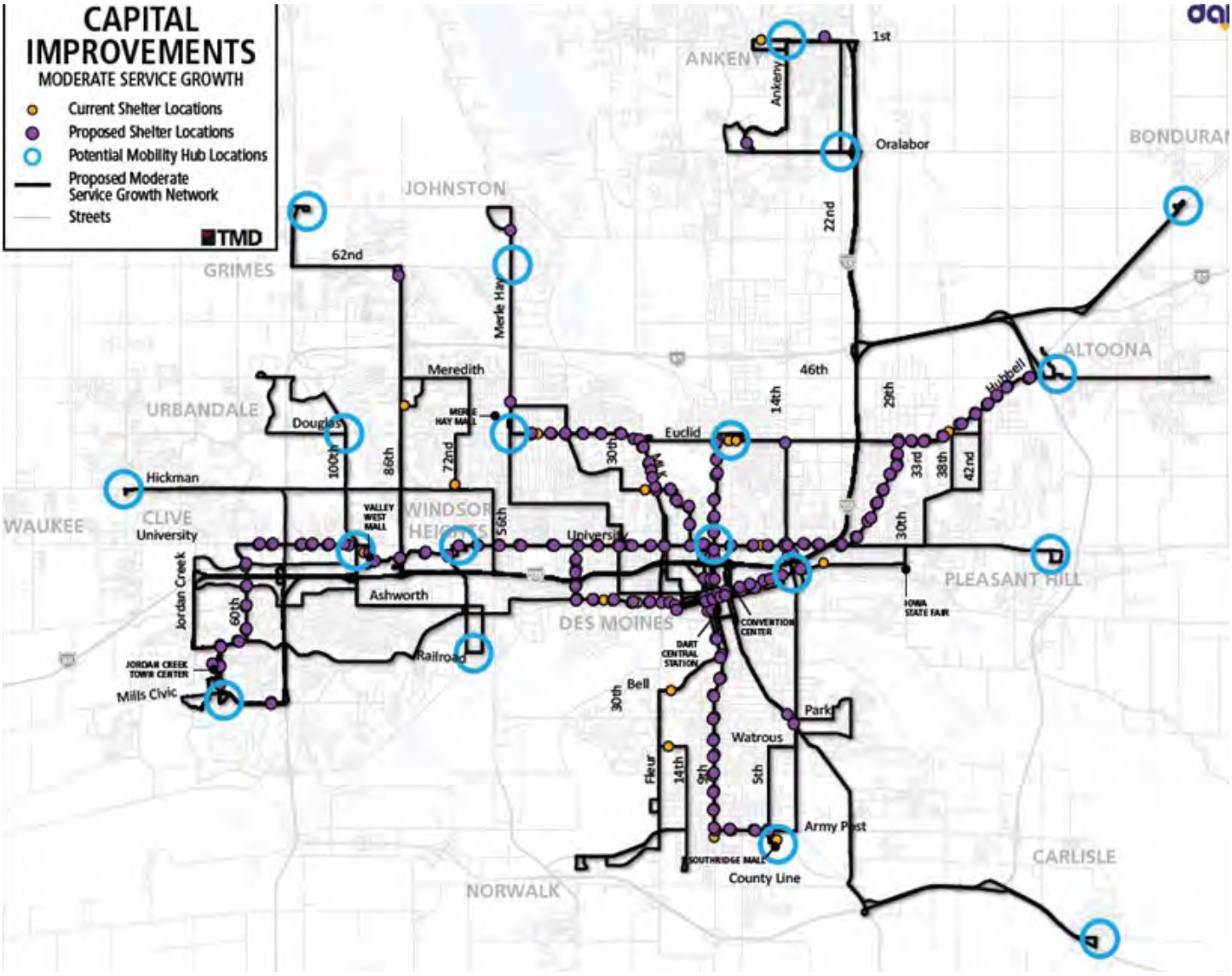


FIGURE 13.7 **DART Capital Improvements Map**




## MODE MOBILITY

To address safety and capacity issues in the community, it is important to identify gaps or missing links in the roadway and trail network, and also improving access and interconnecting mode choices for street, trail, and transit facility users. Ankeny's newest Capital Improvement Program (CIP) projects will address many of the current mobility issues in the community, using a inclusive transportation system (examined later in this chapter). Figure 13.7 illustrates DART's proposed capital improvements plan projects in the near term (through 2025) for the Des Moines Metro Area that will integrate with several of Ankeny's proposed CIP projects. These include routing changes to include additional service to the Prairie Trail and DMACC areas, new bus shelters, and future Mobility Hub locations (examined later in this chapter).


## PUBLIC AND TRANSPORTATION STAKEHOLDER INVOLVEMENT

The transportation planning process was designed to achieve broadly based, informed, and thoughtful consideration of the key issues confronting the City of Ankeny. An open and comprehensive public and transportation stakeholder involvement process was identified as a key component to the successful development of the Ankeny transportation plan. Key elements of the public involvement and transportation stakeholder process and key findings included the following:

### COMMUNITYWIDE SURVEY

Key findings: Among the survey respondents, there is growing support for more multimodal opportunities in Ankeny, including transit and bike lanes.

### PUBLIC MEETINGS

Key findings: "Mitigation of traffic congestion" is a frequently heard, desired improvement in Ankeny. The City is currently undertaking capacity and safety improvements at one of the most congested intersections at Oralabor Road and Delaware Avenue.

### TRANSPORTATION STAKEHOLDER MEETINGS

Key findings: Ankeny's partnering transportation agencies (Polk County, Iowa DOT, Des Moines Regional Transit (DART), and the Polk County Aviation Authority) are interested in the future of Ankeny's transportation system as it pertains to their agency's short-and long-range improvement plans and projects. Meetings were held with representatives of these agencies in 2016-2017 to discuss projects that would potentially impact the existing and future transportation system in Ankeny. Needs, perceptions, and desires for Ankeny's future transportation system were also elicited by these stakeholders.

# FUTURE TRANSPORTATION SYSTEM PLAN

## SHORT-TERM FISCALLY CONSTRAINED PLANNED MAJOR TRANSPORTATION IMPROVEMENTS

A number of transportation related improvements have already been programmed into the 2017 – 2021 City of Ankeny Capital Improvement Program (CIP).

Figure 13.8 lists these improvement projects by primary mode served, brief description, and projected construction year. Several projects slated for implementation in 2017 are currently under construction.

**FIGURE 13.8 Ankeny Transportation System Improvements, 2017-2021 - Capital Improvements Program**

| CIP Project and Location | Primary Modes | Description | Projected Construction Start |
|---|---|---|---|
| SW Vintage Parkway-Irvinedale to Magazine | Motorists | The connection of SW Vintage Parkway from 1,000 feet east of SW Irvinedale Drive to 200 feet west of SW Magazine Road | 2017 |
| NE Delaware Avenue Pedestrian Bridge and Trail | Bicyclists + Pedestrians | Pedestrian bridge on the west side of NE Delaware Avenue over Four Mile Creek and 8-ft sidewalk connection north and south of the bridge | 2018 |
| SW Plaza Parkway and SW College Avenue Extension | Motorists | Extension of SW College Avenue from SW Oralabor Road to a projected intersection with SW Plaza Parkway and the extension of SW Plaza Parkway from this projected intersection to its current terminus | 2018 |
| NE 54th Street Bridge Replacement and Trail | Motorists/ Bicyclists and Pedestrians | Replace bridge on NE 54th Street over the east branch of Four Mile Creek, approximately 1,300 feet west of NE Delaware Avenue. The new bridge will be wide enough to allow for an 8-feet sidewalk on the south side. The project will also include minor reconstruction of NE 54th Street and new 8-feet sidewalk connections on the south side of NE 54th Street. | 2019 |
| SW Prairie Trail Parkway-FFA to SW School Street | Motorists | This project includes the extension of SW Prairie Trail Parkway from the current east terminus near the FFA Enrichment Center to SW School Street. | 2017 |
| The District-SW District Dr & Merchant Street | Motorists | Construction of SW District Drive from SW Magazine Road to SW Prairie Trail Parkway and extension of SW Merchant Street from its planned terminus to the intersection with SW District Drive in The District at Prairie Trail. | 2017 |
| SW Des Moines Street-Prairie Trail to Magazine | Motorists | Construction of SW Des Moines Street from the existing intersection with SW Magazine Road to the planned future intersection with SW Prairie Trail Parkway being constructed in 2017. | 2019 |
| The District at Prairie Trail-SW Market Street | Motorists | Construction of SW Market Street from its current terminus to the planned intersection with SW District Drive and extensions of SW Park Square Drive and SW 16th Street to SW State Street in The District at Prairie Trail. | 2018 |
| SW Prairie Trail Parkway Sidewalk Improvements | Pedestrians | Construction of sidewalk from SW College Ave to SW State St. | 2018 |
| Chautauqua Park Lake Recreational Trail | Bicyclists + Pedestrians | Construction of 8 feet wide recreation trail in Chautauqua Park from SW Prairie Trail Parkway south along the west side of the lake to SW White Birch Drive and along the park frontage to SW White Birch Drive. | 2017 |
| Sidewalk and Trail Improvements | Bicyclists + Pedestrians | The purpose of this program is to provide new sections of recreation trails and sidewalks adjacent to the City's arterial and collector streets in order to promote non-motorized travel and a corresponding healthier lifestyle in Ankeny. | 2017-2020 |
| High Trestle Trail Extension-Ordnance to Oralabor Road | Bicyclists + Pedestrians | The construction of 1.65 miles of 10' PCC recreation trail along the High Trestle Trail corridor from the trail's current terminus at SW Ordnance Road, ultimately connecting directly to the Oralabor Gateway Trail/Gay Lea Wilson Trail located just south of SE Oralabor Road. | 2019,2021 |
| SE Delaware Avenue Sidewalk Connection | Pedestrians | Installation of 5-ft wide sidewalk along SE Delaware Avenue right-of-way from 425 to 605 SE Delaware Avenue. | 2018 |

**FIGURE 13.8 Ankeny Transportation System Improvements, 2017-2021 - Capital Improvements Program Continued**

| *CIP Project and Location* | *Primary Modes* | *Description* | *Projected Construction Start* |
|---|---|---|---|
| Annual Asphalt Street Resurfacing Program | Motorists | The Annual Asphalt Street Resurfacing Program generally has focused on the HMA overlay of old County rural roadways that are now within the City of Ankeny corporate limits. Specific projects for 2017 include: NE Delaware Avenue/County NE 22nd Street, NE 54th Street to County NE 126th Avenue, SE 54th Street/County NE 70th Avenue, and SW Ankeny Road to SE Rio Court | 2017-2021 |
| Annual Street Replacement Program | Motorists | Full-depth pavement removal and replacement of streets determined to be in poor to very poor condition as rated by the Pavement Condition Index (PCI). | 2017-2021 |
| SE Creekview Drive Paving and Drainage Improvement | Motorists | Culvert replacements and asphalt paving of SE Creekview Drive, an existing gravel road, from 700 feet south of East 1st Street to 4,000 feet south of East 1st Street. | 2018/2019 |
| NE 36th Street Reconstruction-Phase 2 | Motorists + Pedestrians | Reconstruction of the existing two-lane rural roadway into a four-lane divided urban street with left turn lanes from just east of North Ankeny Boulevard to just west of NE Delaware Avenue. | 2017 |
| East 1st Street and I-35 Interchange Reconstruction | Motorists + Pedestrians | Reconstruction of the East 1st Street and I-35 interchange into a diverging diamond and the widening of I-35 to a 6-lane section between East 1st Street and NE 36th Street. | 2019-2021 |
| SE Oralabor and Delaware Intersection Improvements | Motorists | Construct roadway and traffic signal improvements at the SE Oralabor Road and SE Delaware Avenue intersection, SE Oralabor Road and I-35 ramp intersections and along the SE Oralabor Road corridor from SE Peachtree Drive to just east of the I-35 interchange in 2017. | 2017 |
| NW Irvinedale Drive Corridor Improvements | Motorists | Reconstruction of the NW Irvinedale Drive and NW 5th Street intersection to provide traffic capacity and mobility improvements. | 2018 |
| NE Delaware Avenue Reconstruction (5th to 18th) | Motorists + Pedestrians | Reconstruction of NE Delaware Avenue from a two-lane rural roadway to a four-lane divided urban street with left turn lanes at the intersections from NE 5th Street to NE 18th Street. | 2021 |
| Ankeny Boulevard and 1st Street Intersection | Motorists | Paving, median, pedestrian ramp, pavement marking, and traffic signal improvements at all four approaches to the Ankeny Boulevard/US Highway 69 and 1st Street intersection. | 2018 |
| South Ankeny Blvd and SE Shurfine Dr Intersection | Motorists | Reconstruction of the existing South Ankeny Boulevard (US Highway 69) and SE Shurfine Drive intersection to provide dedicated left turn lanes in all directions. | 2019 |
| NW 18th Street Extension | Motorists | Extension of NW 18th Street from NW Weigel Drive west approximately 2,800 LF to NW Abbie Drive. | 2021 |
| West 1st Street Widening & Improvements-Phase 1 | Motorists / Transit | Reconstruction of West 1st Street from just east of SW Scott Street to just east of SW Logan Street. The existing street will be replaced with a five-lane street that includes dedicated left turn lanes. | 2020-2021 |
| SE Corporate Woods Turn Lane | Motorists | Construction of a widening section along the north side of SE Corporate Woods Drive to create a turn lane at SE Convenience Blvd. | 2017 |
| Traffic Signal Improvements (Citywide) | All Modes | New traffic signals – various locations | 2017-2021 |

## LONG-TERM AND ILLUSTRATIVE FISCALLY UNCONSTRAINED REGIONAL TRANSPORTATION IMPROVEMENTS

Long-term improvements are already at various stages of planning that will address transportation system demands within the City of Ankeny. These projects, estimated to occur as needs dictate between 2025–2040, typically require time for required studies, consensus building among stakeholders, right-of-way acquisition, funding, and construction. Figure 13.9 illustrates Ankeny's CIP projects together with long-range, fiscally-unconstrained additional recommendations, and potentially illustrative projects included in this plan. These projects are illustratively staged by planning year and illustrated as either corridor improvement or extension/connection projects.

Long-term and illustrative fiscally unconstrained transportation system improvements have been identified at a very high level. As Ankeny grows in accordance with *The Ankeny Plan 2040*, the City should enhance the high-level guidance provided by the Comprehensive Plan with a master transportation plan. Similar to other infrastructure specialty studies (water, sewer, storm water, etc.), a master transportation plan can provide a more in-depth analysis of the transportation system's existing conditions and deficiencies, and include a detailed needs assessment, travel demand modeling, traffic operations, safety analysis, future conditions, design standards, and stakeholder input. An implementation plan can then be based on the preceding analysis with specific project recommendations for the City's CIP and as may be determined through the technical analysis for other agencies with facilities in Ankeny (Iowa DOT, DART, etc.). Individual studies and projects that may be identified in the Master Transportation Plan can then be prepared to address more detailed mobility, capacity, and safety needs associated with long-term planned improvements including more refined cost estimates and funding sources.

Long-range travel corridor improvement recommendations include the following:

- Extend existing collector streets and minor arterial corridors on the City or Polk County system of roadways where feasible to make use of existing corridors and minimize land acquisition costs and environmental impacts. These roadways should be designed with context sensitive solutions and apply the principles of inclusive transportation design to reduce their impact as potential barriers to multimodal travel and isolating neighborhoods from one another.
- Continue to expand the existing system of trails to promote use of other forms of travel to commercial, employment and recreation centers.
- Continue integration of the local trail network into the larger regional network of trails.
- In coordination with the Iowa DOT, construct bridges across I-35 at SE Magazine Road, NE 18th Street and NE 54th Street as growth continues east of I-35 to better integrate neighborhoods on both sides of Interstate 35 and improve accessibility for emergency services.
- Review existing street corridors and their surrounding land uses and identify opportunities for retrofits to corridors to improve multimodal travel (i.e. during planning for necessary reconstruction).
- Review corridors with high traffic demand or where crashes frequently occur to initiate studies for intersection safety improvements
- Reopen prior discussions with partnering agencies and others regarding the corridor preservation and further study of a north-south connector corridor and/or the Northeast Beltway as part of a regional transportation system network to provide higher mobility/capacity facilities to accommodate planned growth and to help relieve congestion on the existing and future Metropolitan roadway system

**Proposed Northeast Beltway**

In 2009, Polk County initiated a corridor study and identified a preferred alternative for the Northeast Beltway, a high-speed principal arterial corridor with limited access and grade separated interchanges located north and east of the current Ankeny city limits. The northern terminus of the Northeast Beltway was planned to connect with US 69 in an alignment with a future NE 130th Avenue. The southern terminus was planned to connect with I-80 at the US 65 Bypass, however, the expansion of the Facebook Data Center campus through 2017 was perceived to preclude most alternatives for the US 65 Bypass interchange connection. Combined with funding deficiencies for construction and maintenance costs, in 2012, Polk County deferred continued project development on the Northeast Beltway.

With significant growth planned in Ankeny, including the consideration of appropriate land uses near roadway corridors, there will be additional demands placed on the interstate and local roadway system in Ankeny and its planned growth area in the future. Although the Northeast Beltway's corridor study documentation process was completed and supported by the Federal Highway Administration, the aforementioned issues suspended further project development. Since then, the Des Moines Area Metropolitan Planning Organization (DMAMPO) has removed the project from further consideration in the region's current long-range transportation plan. To serve future travel demands and relieve congestion on the local and regional roadways in the future, there has been renewed interest in preserving a corridor for the Northeast Beltway.

**North-South Connector Corridor**

A North-South Connector Corridor following along NW 26th Street, Highway 415, and NW 44th Street in rural Polk County would allow for a more significant connection between western portions of Ankeny and the central core of the Des Moines Metro Area. Such improvements would create a major arterial boulevard that would extend from the proposed Purple Heart Highway Beltway (US 65/IA 5 Bypass) near the Des Moines International Airport with Fleur Drive / Martin Luther King (MLK) Boulevard corridor to Highway 415. While the Iowa DOT has no long-range plans to provide interchange access at NW 26th Street and I-80/I-35, it is currently improving the NW 26th Street bridge crossing over the Interstate. Polk County is also improving NW 26th Street to meet traffic demands. Previous studies have indicated a new interstate interchange and bridge crossing of the Des Moines River and extension of MLK Boulevard will have significant adverse environmental impacts, although the City of Des Moines is currently (2017) completing a Long Range Transportation Plan that may indicate a continued need and support for this missing corridor network link in the future and to change the character of other streets currently serving this need. In addition, NW 44th Street in Polk County is carrying a growing volume of traffic

and will benefit from capacity and safety improvements in the future.

- Coordinate with the Iowa DOT on local roadway components of the following state projects
  - Interchange improvements at Interstate 35 and E. First Street
  - Widening of Interstate 35 from 4-lanes to 6-lanes between NE 36th Street and E. First Street
  - Widening of Interstate 35 from 6-lanes to 8-lanes between Oralabor Road and the I-35/I-80 Systems Interchange.
  - Widening of Interstate 35 from 4-lanes to 6-lanes from NE 36th Street to the future growth area limits of Ankeny (part of a long-term project to widen I-35 between Ankeny and Ames)
  - Widening of Interstate 80 from 6-lanes to 8-lanes from the I-35/I-80 Systems Interchange to the I-80/US 65 Interchange

## 20-YEAR ILLUSTRATIVE TRAFFIC FORECAST PROJECTIONS

Illustrative traffic volume projections were prepared for the year 2040 using the regional travel demand model maintained by the DMAMPO. Illustrative forecasts take into consideration future land uses, estimated population and employment in the current and future growth areas of the community as documented in *The Ankeny Plan 2040*. Future traffic projections for major collector and arterial roadways throughout the City are illustrated on Figure 13.4. The illustrative forecasts prepared for *The Ankeny Plan 2040* are expected to serve as a guide for planning future travel corridor development and with consideration to managing improvement projects on the current transportation system. The forecasts were authentically prepared by DMAMPO with the stipulation that they are illustrative for planning purposes only and cannot be used in place of the official approved regional forecasts of the region's long-term transportation plan.

For the development of the illustrative 2040 traffic forecasts, two scenarios were considered. The first scenario expected roadway network development north and east of the current Ankeny jurisdictional boundary without the Northeast Beltway. The second scenario included the planned roadway network with the Northeast Beltway. Two scenarios were considered to be able to observe, at a high level, the local traffic growth effects on existing and future roadways of either not building or building a new major regional roadway in the future Ankeny growth area.

Upon receiving the proposed future land use map, the DMAMPO used Envision Tomorrow, a land use modeling tool, to aggregate the proposed number of housing units and jobs to each traffic analysis zone (TAZ) within the future growth area of the City of Ankeny. The forecasted trips for the proposed land uses for the City of Ankeny, as well as the remainder of the MPO planning area, were then placed into the regional travel demand model to generate an illustrative 2040 traffic forecast for the City of Ankeny.

### SCENARIO 1: PLANNED ROADWAYS WITHOUT NORTHEAST BELTWAY (FIGURE 13.10)

The first scenario for the City of Ankeny includes the addition of the future roadway network development east of Interstate 35 (I-35) and west of 56th Street in Polk County. With the added development in the planned growth area, east-west arterial roadways have an annual average daily traffic (AADT) between approximately 6,500 and 32,000 AADT depending on the proximity to I-35. North-south collector roadways distribute traffic within the growth area to the arterials, as well as, two proposed grade crossings of I-35 at 18th Street and NE 118th Avenue. These new crossings would carry approximately 18,000 and 7,700 vehicles respectively. West of I-35, traffic would be heaviest along north-south arterials through the City of Ankeny and near interchanges at I-35. Oralabor Road and 2nd Avenue continue to be primary entrances into the City at the south, while a new connector roadway north of NE 118th Avenue provides access from the east. Interstate 35 remains a major corridor through the City with heavy traffic flows.

### SCENARIO 2: PLANNED ROADWAYS WITH NORTHEAST BELTWAY (FIGURE 13.11)

The second scenario for the City of Ankeny includes the same robust arterial and collector network with the addition of the Northeast Beltway between the systems interchange at Interstate 80 and the Iowa Highway 5 bypass southeast of the City of Ankeny (Appendix D). This forecast sees traffic shift from the I-35 corridor to the Northeast Beltway. The forecasted AADT volumes on the Northeast Beltway range from approximately 6,000 to 28,000. As in the first scenario, east-west arterials are the primary roads that carry traffic to the east of I-35 with AADTs between 5,000 and 30,000 depending on the proximity to both I-35 and the Northeast Beltway. The two proposed grade separated crossings over I-35 provide additional east-west connections with AADTs between 6,000 and 17,000. The addition of a Systems Interchange north of 126th Avenue produces higher traffic volumes to the north of the City of Ankeny that were not seen in Scenario 1. North-south roadways near the end of the Northeast Beltway alignment would potentially see AADTs between 7,000 and 12,000. Oralabor Road and 2nd Avenue would continue to be primary entrances into the City of Ankeny on the south.

A general overview and comparison between Scenario 1 and Scenario 2 indicates that a future Northeast Beltway (Scenario 2) would likely absorb a large volume of traffic otherwise destined for I-35 and/or I-80 through or near Ankeny. Projected traffic growth along upgraded existing and future collector and minor arterial streets would generally be similar regardless of the construction of the Northeast Beltway, except along the future northern streets of the planned growth area near I-35. The greatest impact of constructing the Northeast Beltway appears to be the ability to provide needed access from a major roadway corridor for the development of more intensive and high-density land uses, and also as a means to mitigate congestion caused by additional future traffic growth on I-35 and I-80 in the future.

FIGURE 13.9 **Ankeny Future Transportation System**

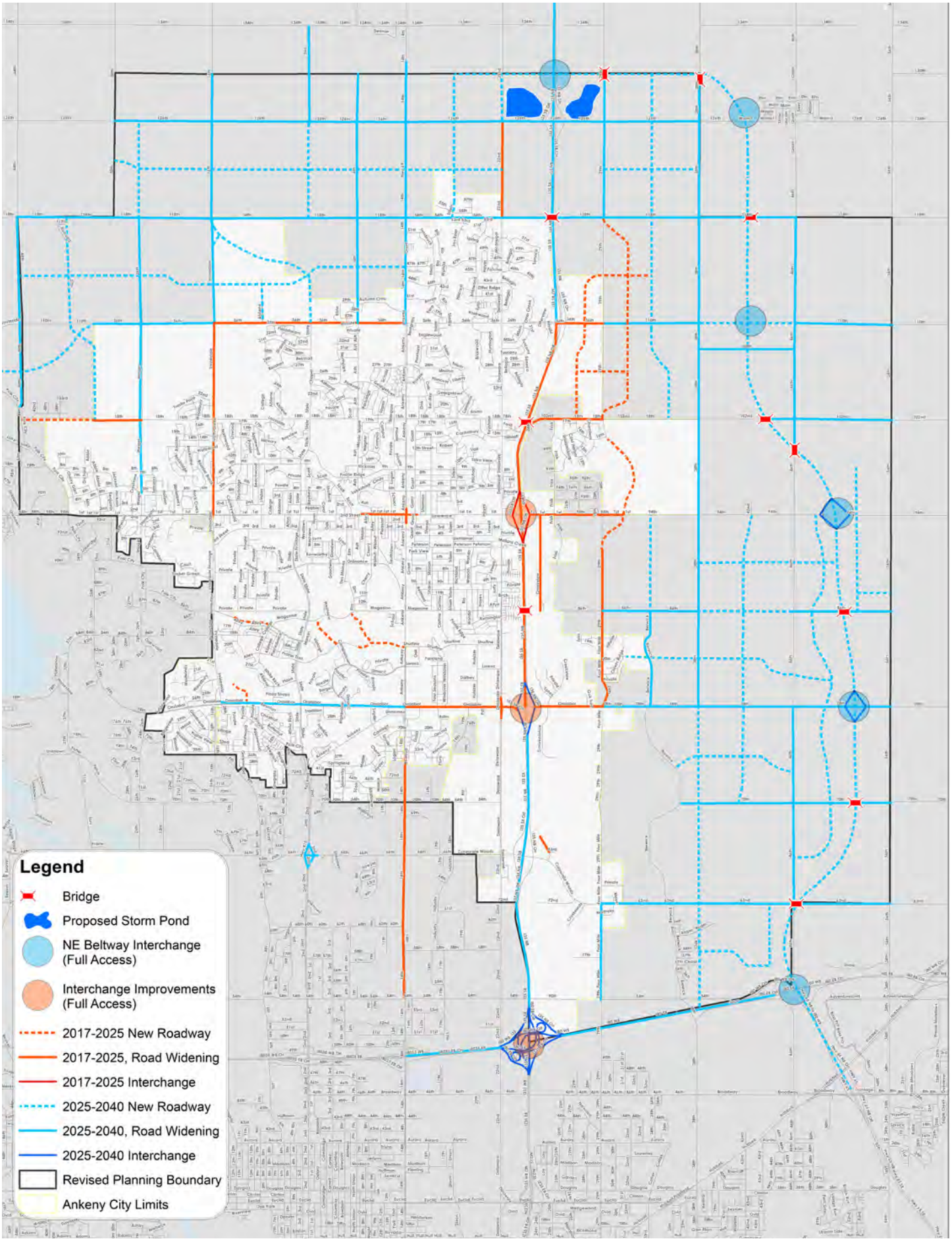
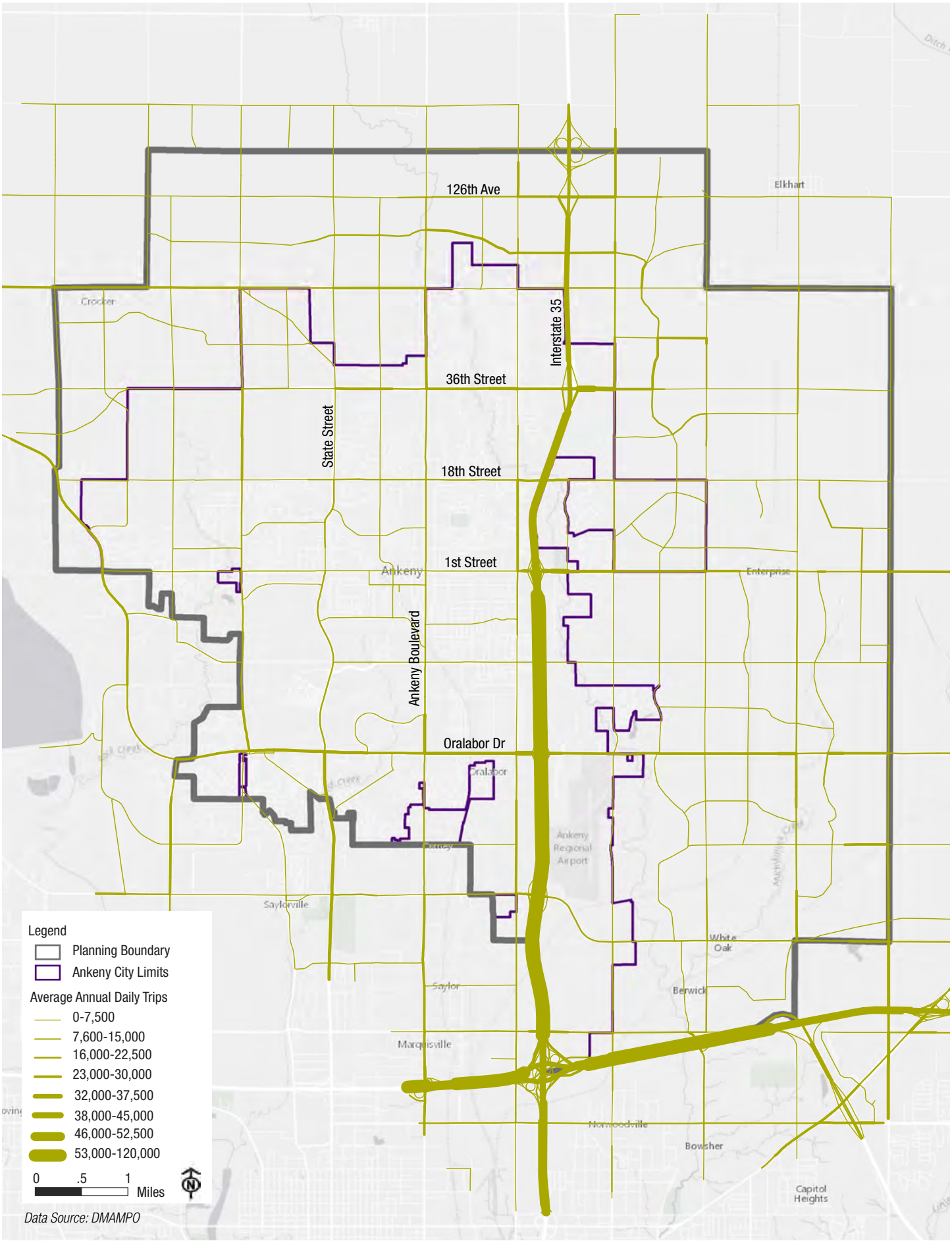
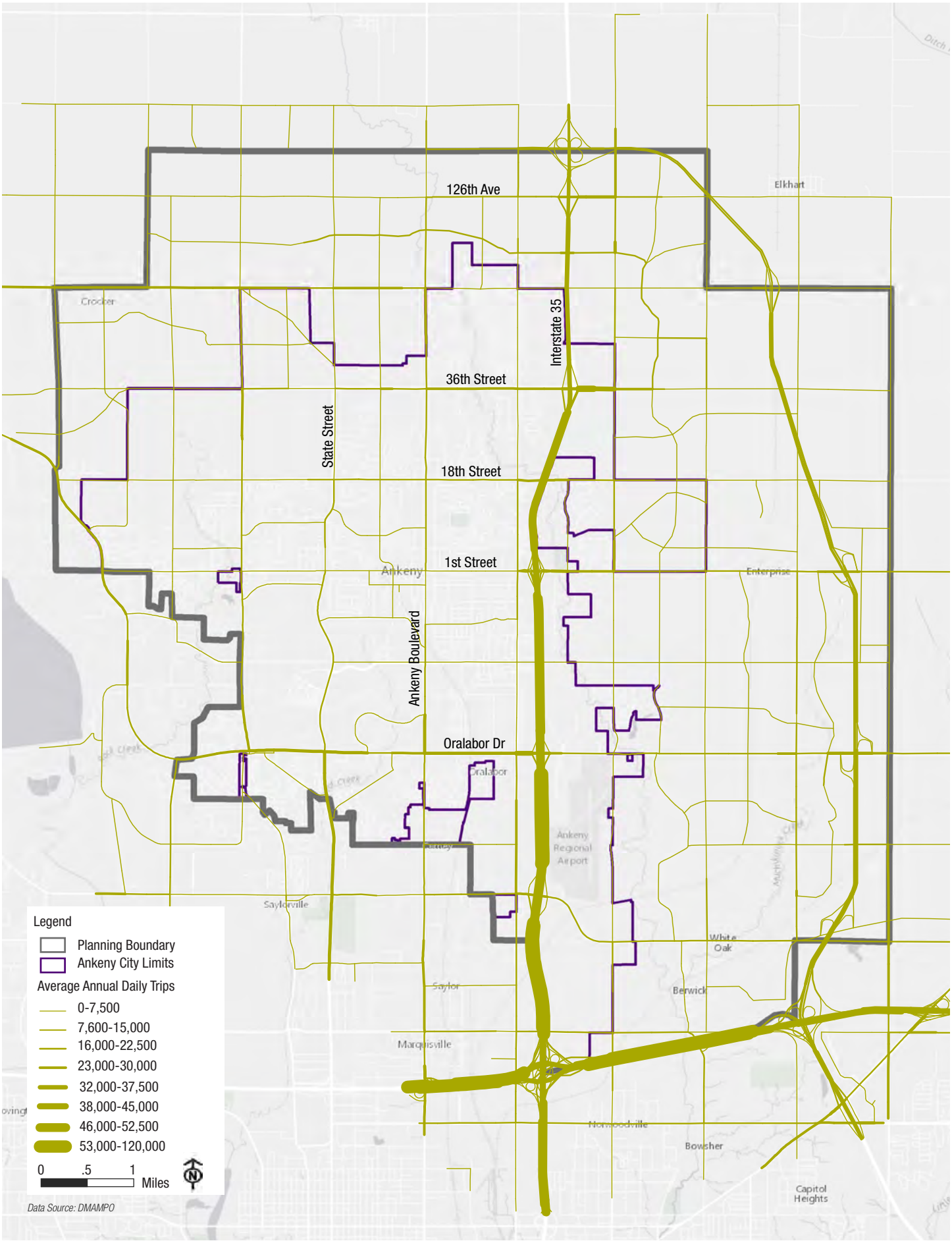


FIGURE 13.10 **Scenario 1 Traffic Forecasts - No Northeast Beltway**




*Data Source: DMAMPO*

FIGURE 13.11 **Scenario 2 Traffic Forecasts - With Northeast Beltway**




### FUTURE FUNCTIONAL CLASSIFICATION SYSTEM

The existing functional classification system (see Figure 13.1) for roadways in Ankeny was reviewed to ensure appropriate network connectivity is maintained and that the appropriate classification is assigned based on 20-year projected traffic volumes.

Additional criteria considered in determining if a roadway's functional classification should be changed included:

- Estimated Trip Length
- Trip Type
- Spacing
- Continuity
- Mobility
- Connections to Activity Centers
- Accessibility
- Speed

Future functional classifications were then assigned to the future roadway system shown in Figure 13.13. The future roadway functional classifications definitions and examples appear in Figure 13.12.

## LONG-RANGE AIRPORT PLANS

Long range improvement plans are detailed in the *2002 Ankeny Airport Master Plan*. The Updated Airport Capital Improvements Program (CIP), approved in November 2016 by the Polk County Aviation Authority, includes many of the projects in the investment strategy from 2017 to 2025, as follows:

- Airport perimeter wildlife fencing – 2017
- South apron grading and paving, access road and utilities (Phases I, 2, 3, and 4) – 2017 to 2020
- Rehabilitate terminal and maintenance building apron and parking lot pavements, construct drainage improvements – 2017 to 2019
- South apron area box hangars (Phases 1 , 2, 3, and 4) – 2017 to 2021
- Paving and marking of Convenience Boulevard, which functions as the airport service road connecting the north terminal area (existing) to the south corporate area (proposed) and ultimately to the Corporate Woods Interchange at I-35 - 2018
- Land acquisition for runway protection zone, NEPA, design and construction of a 500 foot Runway 18 extension (to a total length of 6,000 feet) and relocation of the Localizer Navaid Facility to accommodate projected aircraft activity and aircraft types as per FAA Regional Guidance Documentation "C-11" Airport Design Standards – 2018 to 2021
- Runway and taxiway lighting, drainage and grading improvements, and snow removal equipment acquisition – 2022 to 2025

Future major projects will include the construction of new box hangars and a 500 ft. extension of the main runway (Runway 18/36) to accommodate more corporate jet aircraft. An area for a possible new terminal and building area on the SW side of the airport has been preserved. A large parcel east of Convenience Blvd (north of the Hampton Inn) will be turned back from PCAA jurisdiction and sold for private development. Convenience Blvd will be extended to connect to its current termimus on the north, for a continuous access road between I-35, its interchanges at Oralabor and Corporate Woods Drive, and the Ankeny Regional Airport. Construction of a south terminal area that could accommodate an additional 230 aircraft is under consideration. This area may be accessed through extension of SE Convenience Boulevard or by connection to Corporate Woods Drive. Land uses adjacent to the airport should remain either vacant, very low-density residential, or commercial/industrial to be compatible with current airport development planning. Four Mile Creek provides a natural buffer to the east to facilitate the transition of mixed types of development. One property adjacent to the developing South Apron area (referred to as "Parcel 41") will be disposed of by IKV and will be available for development with the extension of Convenience Boulevard.

**FIGURE 13.12 Road Classification Defintions and Examples in Ankeny**

| Definitions | Example Roadways in Ankeny | Appendix Typical Cross Section Template Examples |
|---|---|---|
| Interstates | | |
| In Ankeny, Interstates are the highest functional classification of roadways and were designed and constructed primarily for mobility and long-distance travel. Interstate highways in Ankeny provide for high-speed, divided roadways with limited access, offering the highest level of mobility within the Des Moines Metropolitan Area | I-35, I-80 | (Iowa DOT Design Standards) |
| Principal Arterials | | |
| In Iowa, Principal Arterial Roadways comprise the majority of the State's Primary Highway System, including US Routes and State Routes in Ankeny.<br><br>These roadways:<br>• Serve major activity centers, highest traffic volume corridors and longest trip demands<br>• Carry a high proportion of total urban travel on a minimum of total roadway mileage<br>• Interconnect and provide continuity for major rural corridors to accommodate trips entering and leaving an urban area and movements through the urban area<br>• Serve demand for intra-area travel between the region's Central Business District and outlying areas | US 69 (Ankeny Boulevard), Iowa 160 (SW Oralabor Road) IA 415 (SW State Street) | T-1, T-2, T-10, T-11, T-12,T-13, T-14,T-15, T-16 |
| Minor Arterials | | |
| Minor Arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher Principal Arterial counterparts and offer connectivity to the higher Principal Arterial system. In an urban context, they interconnect and augment the higher Principal Arterial system, provide intra-community continuity and may carry local transit routes. | NE 36th St, Delaware Ave, NE 18th St | T-1, T-2, T-3, T-7, T-8, T-9, T-11,T-12, T-13, T-16 |
| Collectors (Major and Minor) | | |
| Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network. Within the context of functional classification in Ankeny, Collectors are broken down into two categories: Major Collectors and Minor Collectors.<br><br>*Major Collectors:*<br>• Serve both land access and traffic circulation in higher density residential, and commercial industrial areas<br>• Penetrate residential neighborhoods, often for **longer** distances<br>• Distribute and channel trips between Local Streets and Arterials, usually over a distance of greater than three-quarters of a mile<br>• Include operating characteristics of higher speeds and more signalized intersections<br><br>*Minor Collectors:*<br>• Serve both land access and traffic circulation in lower density residential and commercial industrial areas<br>• Penetrate residential neighborhoods, often only for **shorter** distances<br>• Distribute and channel trips between Local Roads and Arterials, usually over a distance of **less than** three-quarters of a mile<br>• Include operating characteristics of lower speeds and fewer signalized intersections. | NW Ash Drive, NW/ NE 47th Street | T-1, T-2, T-3,T-4, T-5, T-6, T-7, T-8 |
| Local Streets | | |
| Locally classified roads account for the largest percentage of all roadways in terms of mileage in Ankeny. They are not intended for use in long distance travel, except at the origin or destination end of the trip, due to their provision of direct access to abutting land. Transit routes generally do not run on these streets. They are often designed to discourage through traffic. As public roads, they should be accessible for public use throughout the year. Local streets:<br>• Provide direct access to adjacent land<br>• Provide access to higher roadway classification systems<br>• Carry little to no through traffic movement<br>• Constitute total mileage not classified as part of the Arterial and Collector system | NE Bellagio Circle, SW Timberline Drive | T-4 |

*Source: SEH, Iowa DOT*

FIGURE 13.13 **Future Road Classification Map - Ankeny, Iowa**

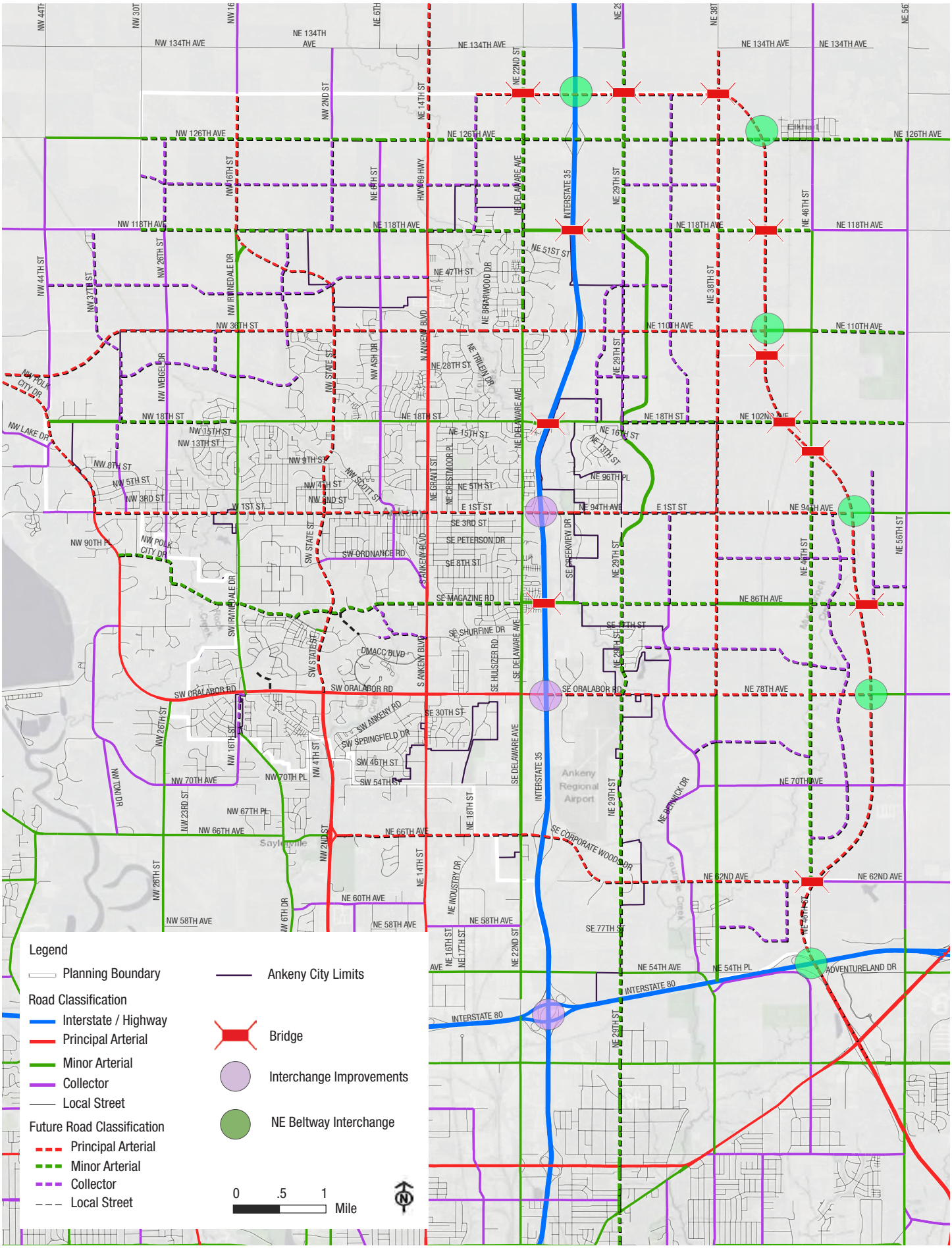
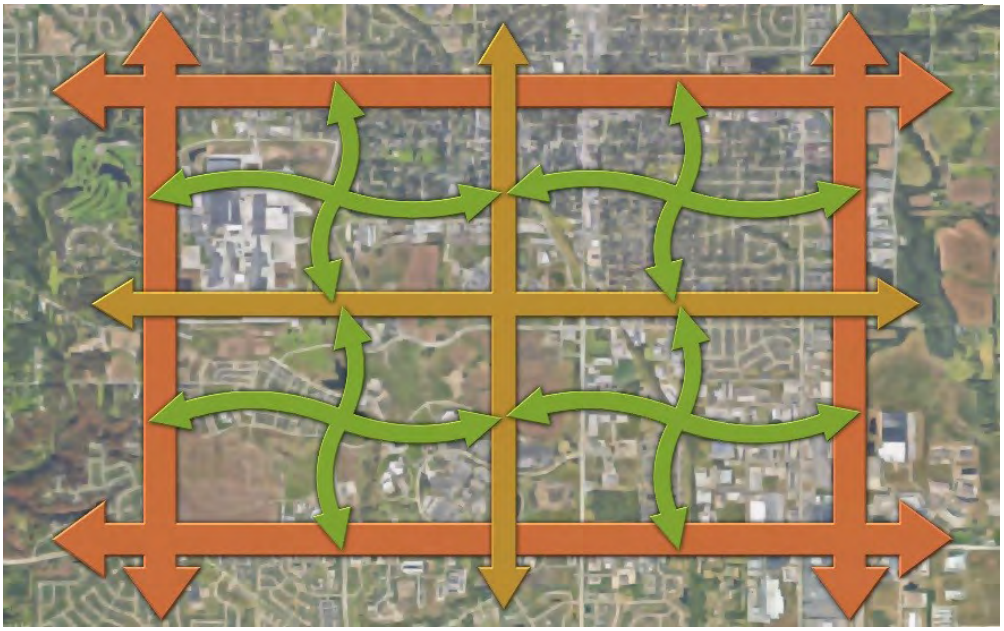


FIGURE 13.14 **Three Through Routes Section Diagram**



### THREE THROUGH ROUTES

*Introducing three through routes per section would enable future subdivisions in the same section to connect local streets to improve connectivity between neighborhoods. These routes should fall as close as possible to the 1/4-mile (local – green) 1/2-mile (collector – tan) and 3/4 to 1-mile (principal/minor arterials – copper) along each section (every mile).*

## TRANSPORTATION SYSTEM DESIGN AND POLICY GUIDELINES

### NETWORK SPACING AND CONNECTIVITY

Planning and building connectivity into the street network provides for access and capacity, and allows multiple modes of transportation to arrive at the same destination by a variety of travel paths. This reduces the focus of all traffic elements on a single dominant corridor, which can lead to congestion or the need to build additional lanes, signals and controls.

While expanding a single corridor may meet auto traffic capacity requirements, it may diminish access to adjacent properties or create a barrier for use and interaction by pedestrians and cyclists. Connectivity can be improved in the following ways:

- Arterial streets should be spaced at approximate one-mile intervals, generally in a rectilinear form (unless influenced by development constraints, land features or other planning considerations).
- Major collectors should be planned at least mid-section, between each arterial street. Minor collectors should be considered at closer intervals based on adjacent land uses to enhance connectivity within and between individual neighborhoods.
- A system of bicycle facilities should be provided with parallel routes usually no more than one-half mile apart. These may include separated paths, bike lanes and shared lanes on traffic calmed streets with lower automobile traffic volumes.
- Local streets should be provided in a dense, connected pattern internally to the neighborhood, with multiple connections to collectors and arterials. Where block lengths are long or ability to provide access is limited, supplemental bike-pedestrian access points may be necessary.
- Pedestrian facilities should be spaced so that block lengths do not exceed 660 feet (200 to 400 feet preferred) and direct routes are provided as much as possible. In higher density development areas, pedestrian accommodations should be provided more frequently, at intervals of 200 to 300 feet (with maximum desired spacing of 400 feet).

The following roadway spacing guidelines will help the City of Ankeny create a more defined street layout to match corresponding land uses with graduated levels of roadway function. The result is a more efficient distribution of traffic and a more connected street network. These spacing guidelines work in concert with the aforementioned access management recommendations with the overall goal of a better integrated future land use and street network.

**Introduce Three Through Routes Per Section**

As Ankeny considers annexation in the future, each land section will benefit from three through routes per section, which will allow a more uniform traffic distribution between neighborhoods. These routes should fall as close as possible to the 1/4, 1/2, and 3/4 to 1 mile spacing along each section (every mile). The benefits of this approach include continuous traffic flow appropriate for the neighborhood, reduced need for cul-de-sacs and dead end streets, and routing of the highest traffic volumes to intersections that will be designed to accommodate the necessary capacity.

### RIGHT-OF-WAY PRESERVATION

There are many different techniques available to protect right-of-way corridors for future road improvements. The City may determine the need to preserve roadway right-of-way in developing and/or redeveloping areas. The basic approaches for preserving right-of-way can be summarized as follows:

**Land Acquisition** - *purchase of easements, title purchase, and eminent domain.*
Approach applied only when specific improvements are eminent. The applicability of acquisition is directly linked to the availability of funding.

FIGURE 13.15 **Access + Mobility Relationships Diagram**

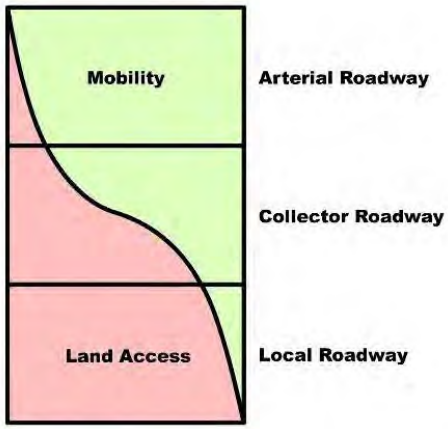
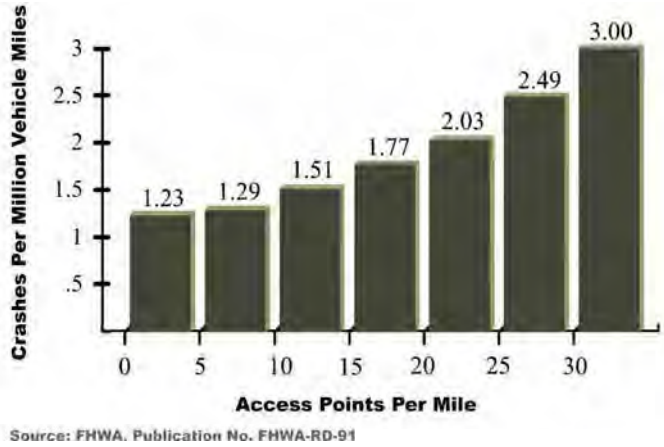
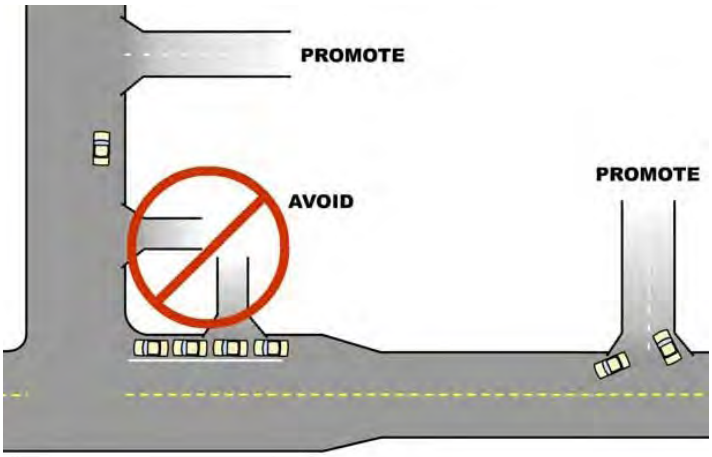



FIGURE 13.16 **Access Points + Crash Diagram**




Source: FHWA. Publication No. FHWA-RD-91

FIGURE 13.17 **Sample Access Planning Design**




**Landowner Agreements** - *development agreements, transferable development rights.*
Landowner agreements are often limited in effectiveness when dealing with a large project areas due to the potentially larger number of individual landowners involved. Landowner agreements are applied on a parcel-by-parcel basis and are most effective when dealing with larger land holdings and a small number of owners.

**Land Use Regulations** - *development exactions, setback ordinances, official map, and subdivision regulations.*
Land use regulation techniques are facilitated through the Comprehensive Planning and zoning process. Certain regulations such as setbacks can be applied to individual parcels, while others such as adopting an official map are typically developed for entire corridors and require a more substantial level of planning and corridor definition.

**Access Management** - *limiting property access.*
Principles should be a part of all levels of transportation planning. Access management principles are further discussed in the following section. To be successful, it is important that access management guidelines are applied consistently and uniformly at the time development/platting occurs. The applicability of these preservation options is dependent on many factors including available funding, the immediacy of development, and the timing of the need for the transportation improvements.

## ACCESS MANAGEMENT

Access management is an effort to maintain the effective flow of traffic on the network so each roadway can provide its functional duties while accommodating access needs of adjacent land.

Successful access management requires cooperation between land development and transportation interests in order to protect the public's investment in roads. The roadway functionality graphic illustrates the relationship between land access and roadway mobility. As shown in the Figure 13.15, there is a direct correlation to the amount of access provided and the ability to move traffic along a roadway. Higher levels of access reduce a roadways ability to move through-traffic. Therefore, Principal and Minor Arterials that have a high mobility function should have low level of access and local roads that focus less on mobility should be allowed to have a higher level of access.

Figure 13.16 shows the relationship between increased levels of access and increased crash rates. By law, reasonable access must be provided to each parcel. Therefore, early coordination between land development and roadway access needs to occur.

The City of Ankeny can control access onto city roadways only and access onto other roadways becomes the responsibility of the state, county, or townships. Access onto local roadways is generally managed through local subdivision, zoning regulations, access permits, and development standards. In Ankeny, access spacing guidelines are recommended as a strategy to effectively manage existing access and to provide access controls for new developments along City streets.

## FIGURE 13.18 Recommended Access Spacing by Type of Roadway

| Type of Public Access Requested | Type of Roadway and AADT Affected by Access [1] [9] | | | | | |
|---|---|---|---|---|---|---|
| | Controlled Access Arterial Freeway Facility | Multi-Lane Divided or Arterial Collector over 10,00 ADT | Multi-Lane or Collector 8,000-25,000 AADT 10,000 ADT | Two-Lane Arterial or Two-Lane Arterial Less than 3,000 ADT | Collector Less than 3,000 AADT | Two-Lane Collector or Local Road Less than 3,000 ADT |
| Local-Low-Volume Non-Continuous Streets [2] [3] | No direct access | 1/4 mile spacing with no median opening [4] | 1/4 mile spacing with turn lanes [6] [7] | 1/8 mile spacing with turn lanes [7] | 1/8 mile spacing [7] | 1/16 mile spacing |
| Local: Medium-Volume Non-Continuous Streets [2] | No direct access | 1/2 mile spacing with signals and turn lanes [5] | 1/4 mile spacing with signals and turn lanes [6] | 1/4 mile spacing with turn lanes [7] | 1/8 mile spacing with turn lanes | 1/8 mile spacing with turn lanes |
| Collector: Low-Medium Volume Through Streets [2] | No direct access | 1/2 mile spacing with signals and turn lanes [5] | 1/4 mile spacing with signals and turn lanes [6] | 1/4 mile spacing with turn lanes | 1/4 mile spacing with turn lanes | 1/8 mile spacing with turn lanes |
| Collector-Arterial: High Volume Through Streets [2] | 1 mile spacing (interchange) | 1/2 mile spacing with signals and turn lanes | 1/2 mile spacing with signals and turn lanes | 1/2 mile spacing with signals and turn lanes | 1/2 mile spacing with signals and turn lanes | 1/4 mile spacing with signals and turn lanes |
| Arterial: High Volume Streets and Highways | 1-2 mile spacing (interchange) | 1 mile spacing with signals and turn lanes | 1 mile spacing with signals and turn lanes | 1 mile spacing with signals and turn lanes | 1 mile spacing with signals and turn lanes | 1/2 mile spacing with signals and turn lanes |

Table Notes:

[1] The urban access guidelines are applicable to Iowa DOT, County, and City roads. Bold text are guidelines that may be modified (see Notes).

[2] All volumes represent 20-year forecasts. "Low Volume" <3,000 AADT; "Medium Volume = 3,000 to 8,000 AADT; and "High Volume"> 8,000 AADT.

[3] Non-continuous streets refers to cul-de-sac or short length local streets (less than 1/2 mile) which do not necessarily cross the roadway in question.

[4] Additional access may be permitted in the form of right-in/right-out if the corridor extends through a mature small town CBD or if the facility is under the jurisdiction of the county or city.

[5] For four-lane county or city roads, the guidelines may be relaxed to 1/4 mile spacing.

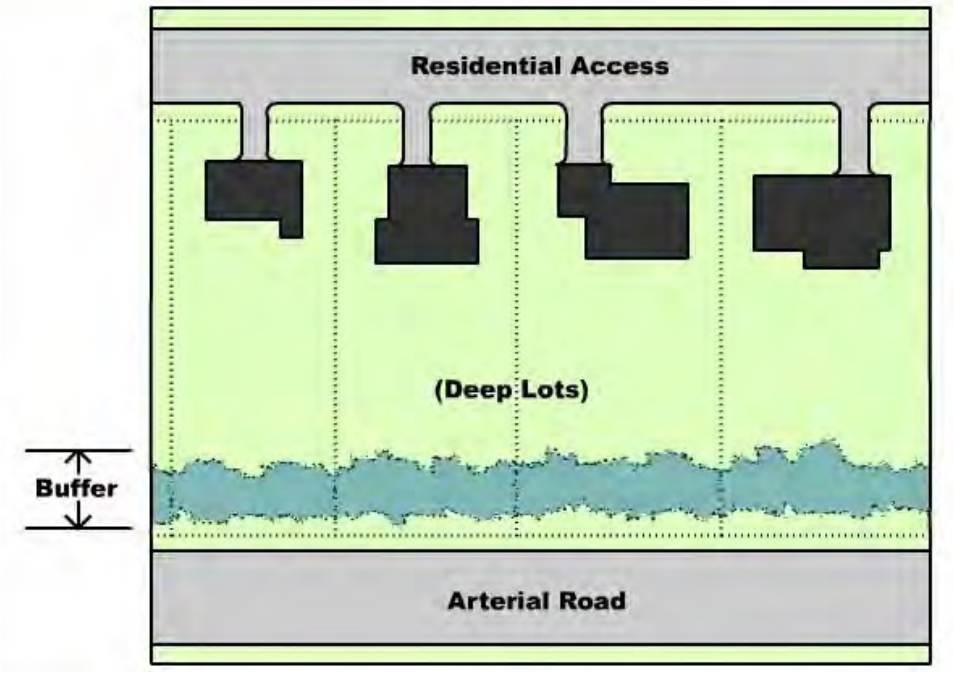
[6] When retrofitting an existing corridor, direct access may be permitted after considering turning conflicts, speed, crash history and capacity issues.

[7] Continuous left turn lanes or a raised median with left turn lanes may be considered if retrofitting an existing corridor and access guidelines cannot be achieved.

[8] Property access off of arterial streets should be minimized to the extent practical.

[9] All access locations should have adequate stopping sight distance, drainage, spacing from adjacent access, and alignment.

## FIGURE 13.19 Access Buffer Diagram



When the City receives a development proposal that proposes access onto a roadway under the jurisdiction of the state or county/township, the City will coordinate the review of these proposals with the appropriate agencies. The City will also participate in the design process with the appropriate agency when roadways are proposed for construction or reconstruction to ensure proper design and location of access points.

Figure 13.17 provides a sample access planning application designed to minimize vehicle conflicts, improve safety, and maintain reasonable levels of access to adjacent land use. Figure 13.18 describes recommended access spacing by type of roadway (functional classification).

### MINIMIZE DIRECT ACCESS TO HIGHER FUNCTION ROADWAYS

Access guidelines should be implemented using different methods. Any process should also deal with situations outside the guidelines, such as hardship cases. The City's development site plan review and approval process provides for such consideration. Figure 13.19 provides an illustration of how access buffering can be used to minimize impacts to low density residential properties that "back up" to arterial roadways.

## ACCESS MANAGEMENT STRATEGIES

### SHARED ACCESS POINTS OR CROSS ACCESS EASEMENTS FOR ADJACENT PROPERTIES

Cross-access easements are another form of access consolidation that involves agreements between adjacent property owners to maintain a joint/shared access point or to promote internal site circulation. This technique can be especially applicable along highway sections where a number of adjacent individual residential/commercial lots have already been developed, but too few to make construction of a public street feasible.

### NEW DEVELOPMENTS SHOULD OBTAIN ACCESS FROM AN ADJACENT ROAD OR FRONTAGE/BACKAGE ROAD

When a request for land development is submitted, specific access management techniques can be required of the development prior to granting development approval. Access can also be granted on an interim basis pending further land development in the area that would enable construction of supporting roads to provide access to the site. The City's development approval process (i.e. platting) could require the property to dedicate right-of-way to accommodate the future construction of a supporting roadway (frontage/backage road). Streets in individual developments should be aligned to provide access to other developments. This promotes neighborhood connectivity and provides quick and efficient routes for emergency vehicles and other services (i.e. mail, garbage and street maintenance activities).

### DEVELOP PROPER SECONDARY STREET SPACING

New developments should be required to provide proper intersection spacing for future intersection control (i.e. signalization).

### ENCOURAGE PROPER LOT LAYOUT TO MINIMIZE ACCESS POINTS

Promote direct residential access points onto local routes instead of onto arterials or collectors. Direct residential access onto arterial or collector routes slows traffic flow and can result in safety concerns when traffic levels increase. A proper technique is to require new developments that are located at an intersection (corner lot) obtain access from the secondary (intersecting) roadway rather than from the major collector or arterial roadway. The access to the local street should be designed in a manner that will not adversely affect the safety and operations of the local street and/or the intersection.

FIGURE 13.20 **Standard Four-Legged Intersection Conflict Diagram**

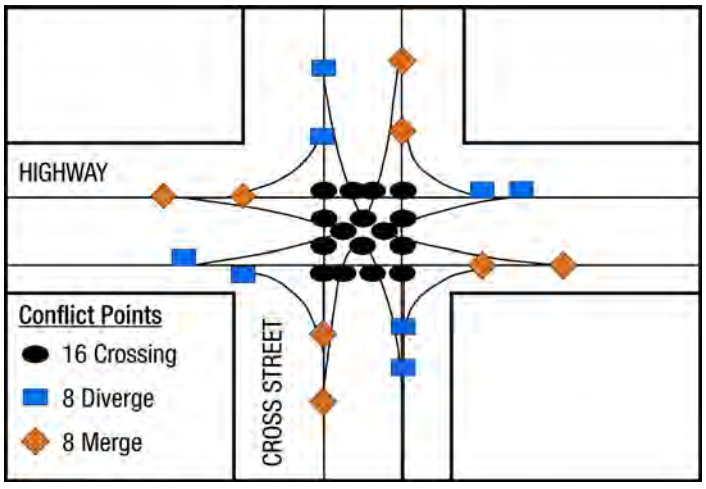
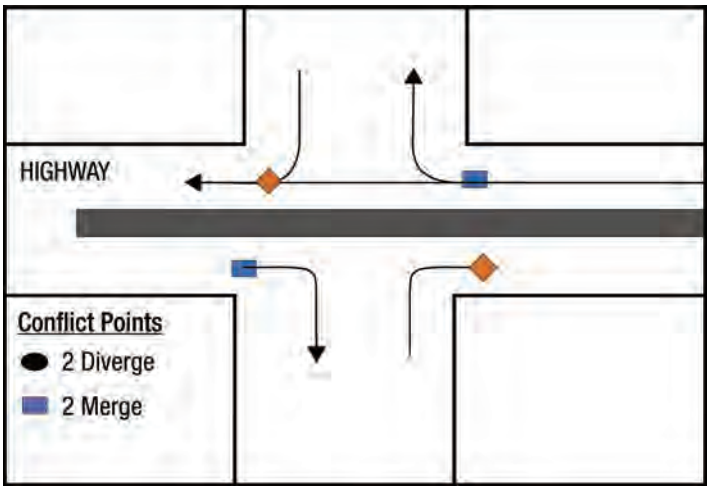



FIGURE 13.21 **Center Median Intersection Conflict Diagram**



## INTERSECTION DESIGN ELEMENTS

Intersections need to balance a variety of requirements from different users. Drivers want to pass through intersections with minimal delays and few conflicts. Large commercial vehicles and trucks need room to complete turning movements within the street area. Pedestrians and bicyclists need to be able to safely and comfortably cross at intersections and crosswalks. Intersection needs are influenced by surrounding land use, desired modes of transit, travel speeds and use, and interaction with the surrounding spaces. As such, intersection design will need to be completed on a case-by-case basis.

### INTERSECTION TRAFFIC CONTROL

Most roadway intersections in Ankeny (collector streets and higher) are traffic controlled by 2-or 4-way stop signs, traffic signals, and roundabouts.

#### Median Restrictions

If access points cannot be eliminated, consider turning movement restriction (e.g., left-in or right-in/right-out only) through installation of raised medians or other channelization or signing. The primary function of median barriers is to restrict the types of movements at intersections and/or access points, which consequently reduces the number of conflict points and potential crashes. A conflict point is a location on the roadway where normal traffic operations or patterns intersect (through traffic and turning traffic). Intersections along a roadway can have many points of conflict with each point increasing the probability of crashes occurring in the area. By restricting the types of movements at intersections, the conflict points are dramatically reduced. The illustration in Figure 13.20 depicts a total of 32 conflict points associated with a standard four-legged full access intersection with no restrictions on turning movements. A center median barrier, as shown in Figure 13.21 creates a situation where left turns and cross street through movements are prohibited. As a result the number of conflict points is reduced from thirty-two to only four.

#### Roundabouts

Modern roundabouts may be considered as an alternative when building new intersections or when doing a complete reconstruction to correct safety or reduce congestion problems. In general, roundabouts:

- Are proven to reduce the number of severe injury crashes and deaths
- Provide a good economic value (can be less expensive than a signalized intersection)
- Reduce delay and improve traffic flow
- Are a greener alternative with less vehicle idling, lower fuel emissions and less wasted fuel

Ankeny currently has nine modern roundabouts constructed in the community between 2004 to 2013. Most of the roundabouts are located in residential neighborhoods. The modern roundabout at Irvinedale Drive and Vintage Parkway/Polk City Drive is an example of a higher speed, greater traffic capacity dual-lane facility capable of handling up to 30,000+ vehicles per day.

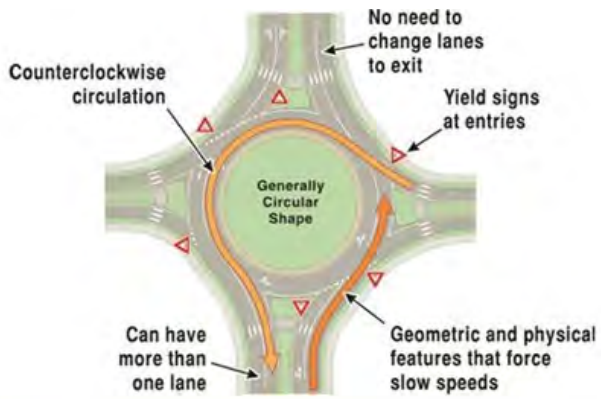
#### All-Way Stop, Traffic Signal, or Roundabout?

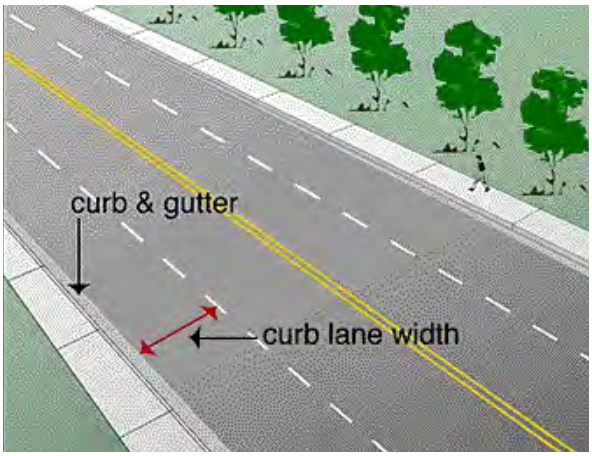
One method that the City of Ankeny can use to assess the type of intersection traffic control to incorporate into the roadway design is a process called Intersection Control Evaluation (ICE). The ICE process identifies the most appropriate intersection control type through a comprehensive analysis and documentation of the technical (safety, operational, other), economic (societal and agency cost), and political issues of viable alternatives. The goal of ICE is to select the optimal control for an intersection based on an objective analysis for the existing conditions and future needs.

In order to determine the optimal intersection control strategy, the overall design of the intersection must be considered. The flexibility of significant change in intersection design will largely be decided by the scope and location of the project. Some general objectives for good intersection design that should be considered are:

- Provide adequate sight distance
- Minimize points of conflict
- Simplify conflict areas
- Limit conflict frequency
- Minimize the severity of conflicts
- Minimize delay (for all users)
- Provide acceptable capacity
- Consider other transportation modes (pedestrian, transit, freight, bicycles etc.)

FIGURE 13.22 **Modern Roundabout Diagram**





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The Iowa DOT does not require an ICE process be undertaken for projects that may receive state or federal funds and require review by Iowa DOT Local Systems. Implementation guidance can be obtained from MnDOT and WisDOT to conduct these evaluations should the City of Ankeny choose to consider a more systematic approach to intersection traffic control design.

## TRANSPORTATION CORRIDOR CROSS-SECTION DESIGN ELEMENTS

Context sensitive solutions, as applied to street design, balances the needs of all modes of travel planned for a given corridor by using all elements within the street right-of-way (and in some situations the entire area between building faces) to promote desired travel speeds and create safe places where automobiles, pedestrians, cyclists, and other modes of transit interact. By applying certain design standards to each of a series of these elements of design, the desired balance between users can be achieved.

### LANE WIDTHS

Wider lanes promote higher speeds and create longer distances for pedestrians and cyclists to cross at intersections. A two-foot increase in lane width on a four lane arterial with a turn lane can add 10 feet to a street cross-section. Travel speeds of 35 mph usually can be accommodated with lane widths of 11-12 feet, depending on the local context and available right-of-way. Lane widths of 12 feet are appropriate on higher speed or regional arterial streets (target speed of 40 mph or higher). Lanes with significant bus traffic should be at least 12 feet in width, expanded to 13-15 feet only in areas around bus stops and turning locations.

### MEDIANS

Medians help control access, manage traffic patterns around intersections, create opportunities for landscaping and aesthetic features, and can provide refuge for pedestrians crossing wider street cross-sections. It is desirable to provide a uniform median width along a corridor to avoid unnecessary lane tapers and movement. Medians of 10 foot width are usually necessary to support large caliper trees. In sections where left turn lanes are anticipated, typical median width may be determined by adding the required turn-lane width and an appropriate width for a pedestrian refuge island (8-feet). This could result in typical median widths of 18-20 feet along major arterial corridors. The landscaping and aesthetic features should be low maintenance and sustainable.

### ON-STREET PARKING

On-street parking has traditionally been promoted in Ankeny in residential neighborhoods to serve the needs of local residents, provide access to parks and other amenities, and to act as a method of traffic calming to reduce travel speeds.

Principles of context sensitive design imply that use of on-street parking is beneficial along arterial streets as well in certain settings, such as near a neighborhood commercial center where street parking can create a more “main street” feel and encourage better access and pedestrian interaction. Existing corridors should be reviewed to look for contexts where on-street parking might be desirable, and where there is available right-of-way or property that could be acquired to develop such facilities. On-street parking along congested corridors is typically discouraged to improve mobility and safety, especially where off-street parking is available adjacent to the street.

### PEDESTRIAN BUFFERS

The area between the edge of the traveled roadway surface and the typical sidewalk or trail alignment is often called the verge or parking grade. The width of this area will often vary depending on the planned surrounding land uses (context zone). The desire to provide street trees, planter beds, street furnishings, or other plaza elements will determine the ultimate width for this element. These features

help to control speeds, as well as to create a place where the street corridor better interacts with the surrounding land uses.

In most residential settings, a buffer width of 8 feet is recommended to accommodate additional public facilities (a five-foot sidewalk), private utilities, and street trees between the roadway and adjacent walks and trails. These areas also become important for snow storage during the winter months.

## SIDEWALKS AND TRAILS

Varying sidewalks and trails may be required based on the planned land uses. In general, a minimum sidewalk width of 5 feet is to be provided within the street right-of-way section. If the walk serves as a recreational trail for use by both pedestrians and bicycles, a width of 8-12 feet will typically be required.

## LANDSCAPING AND LIGHTING

Landscape and lighting elements not only add to the aesthetic features within the spaces along the roadway corridor, but also play a major role in how different modes of travel can safely interact with one another. Well-planned landscaping and lighting can reduce travel speeds of auto traffic and highlight areas near cross-walks and bus stops elements that are placed out of context can impede vision and create on-going maintenance issues.

## UTILITY CORRIDORS

City utilities such as water, sanitary, and storm sewers as well as franchise utilities such as fiber optics, cable, telephone, gas and electric are important considerations in corridor design. A typical location of each utility needs to be established for consistency of location in developing areas. City utilities running parallel to street corridors typically run within the public street corridor outside of the traveled roadway section. In some cases, in areas with reduced frontage setbacks, sanitary sewers may be placed underneath proposed street paving. Franchise utilities often share the boulevard and sidewalk spaces with City utilities, or require designated easement areas on private properties adjacent to the road right-of-way.

## PROVISIONS FOR BUSES AND TURNING TRAFFIC

To limit the width of pavement needed to be crossed by pedestrians and bicyclists, use of lanes dedicated to right-turning traffic and transit stops should be limited to only those areas where expected traffic or transit demand warrants their inclusion. Where needed, an auxiliary lane dedicated for turning traffic (or on-street parking away from the intersection) can also accommodate transit use by locating a bus stop in the same lane on the far side of the intersection. Along transit corridors with heavy traffic, this allows the stop to be located where it will not impede travel in either the right turn or the outside through travel lane.

## TRANSIT STOP LOCATIONS

Transit stops are often needed to safely meet user needs in areas where traffic congestion may already be an issue. Bus stop placement directly impacts the convenience and accessibility of the street system. The final decision on bus stop locations is dependent on ease of operation, pedestrian transfer situations, space availability, and traffic operations. Ankeny will continue to work with DART and other regional transit providers to evaluate locations of proposed bus stops to analyze operating conditions and identify appropriate bus stop locations. All bus stop locations should be designed to accommodate at least one 45-foot bus, with an additional 45 feet of queuing space per vehicle when multiple transit vehicles are expected to utilize the bus stop simultaneously.

## FREIGHT ROUTES AND COMMERCIAL TRAFFIC

Attempts to try to accommodate use of the largest truck and freight traffic on all public streets can lead to overdesign of pavement sections and excessively large intersection return radii. The latter condition can make it more difficult for pedestrians and bicyclists to feel safe near intersections by increasing the length


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FIGURE 13.23 **Travel Needs Mode Assessment (Before and After)**


of pavement they need to cross, and allowing smaller vehicles to make turns at higher speeds. For this reason, the City has established truck and freight routes to focus the majority of this type of traffic onto arterial streets and collector streets that serve commercial and industrial districts.

Other corridors are expected to handle only local deliveries, which are usually completed by much smaller vehicles. Intersections on freight routes need to accommodate the turning requirements of freight traffic, while providing provisions for safe use by pedestrians.

## ACCOMMODATING ALL TRANSPORTATION MODES

Alternative modes of transportation generally consist of pedestrian, bicycle, and transit services. Non-motorized transportation, such as pedestrians and bicyclists, are legitimate users of the transportation system and should be able to use the transportation infrastructure safely and without unreasonable delay. Unfortunately, motorized transportation, such as passenger cars and commercial vehicles, can often dominate the transportation infrastructure due to their disproportionate size and numbers. Astute planning and design of transportation infrastructure is one component necessary in achieving an integrated motorized and non-motorized transportation system that is relatively safe and efficient for all users. In general, new developments in the Ankeny area should be encouraged to address bicycle and pedestrian accessibility. Also, during conceptual development plan review periods, a criterion to consider is the ability of the proposal to connect to existing and planned bicycle facilities. In constrained areas (i.e. Uptown), these facilities should be located where they do not disrupt or interfere with other pedestrian traffic. Bike lockers and corrals located along side streets or open spaces (parks) are a preferred option as long as they are located in relatively close proximity to the rider's destination(s).

### INCLUSIVE TRANSPORTATION POLICY

Accommodating all transportation modes in Ankeny includes an assessment of the benefits and opportunities of adopting an inclusive transportation policy. This policy would represent the construction and maintenance of multi-modal corridors where streets are designed and operated to enable safe access, along and across the street, for all users including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. The City of Ankeny can adopt this policy to ensure that there are no barriers to public access to transportation alternatives in the community. An inclusive transportation policy may include a range of transportation system components, depending on the local context. It may include sidewalks, bike lanes (or wide paved shoulders), multi-use pathways, bus lanes, comfortable and accessible public transportation stops, frequent and safe crossing opportunities, median islands, accessible (and audible) pedestrian signals, curb extensions, narrower travel lanes, roundabouts, special facilities for vision-impaired persons, and more.


**URBAN THREE-LANE ROADWAY WITH TWO-WAY LEFT-TURN LANE**

*Seventeen typical roadway and trail cross section templates were developed for The Ankeny Plan 2040 similar to the example shown here. Each template provides technical data to match forecasted traffic volumes and future functional classifications with an appropriate Inclusive Transportation Policy solution. These templates are included in The Ankeny 2040 Plan transportation appendix at the end of this chapter.*

## ADOPTING AN INCLUSIVE TRANSPORTATION POLICY

Adopting an inclusive transportation system policy means the City of Ankeny would plan and design community streets, sidewalks, and trails to enable safe access for all users, regardless of age, ability, or mode of transportation. The policy should have a goal that would create street connectivity and aims to create an integrated, comprehensive, and connected network for all travel modes. The policy should apply to new and retrofit projects, but also needs to be flexible to allow a phased approach and even exceptions due to unique circumstances and because accommodations are needed on all corridors. A strong statement about context can help align transportation and land use planning goals, creating livable and strong neighborhoods.

The City of Ankeny can create this policy at any time, but it should not adopt and implement a policy until it is completely committed to the processes, procedures, and effects on the community context. The policy could be in the form of a council resolution, departmental policies, policies adopted as part of a plan, or design guidance documents. However, a policy must do more than simply state the community's support for an inclusive transportation system. The policy should include a vision, provide clear direction and intent, and grant the flexibility in design and approach necessary to secure an effective process and outcome.

## NETWORK PLANNING FOR BIKE AND TRAIL USERS

A key goal for the City's future transportation network, is to better provide for alternative means to travel within the community between residential areas and centers for work and recreation. Traditionally, sidepaths have been developed along arterial streets, some of the major collector streets and certain greenbelt corridors. These corridors generally run north-south within Ankeny. Additional access corridors for trails may be required along collector streets or greenbelt corridors that run east-west in developing areas. Enhanced provisions for bicycle traffic may be necessary in established neighborhoods with limited access to the trail system. This is explored in greater detail in Chapter 6: Parks & Recreation.

## REGIONAL TRANSIT SERVICE PROVIDER

As noted earlier in this chapter, the City of Ankeny is currently served by the Des Moines Area Regional Transit Authority (DART). DART is a public transit agency that provides transit services to 18 member cities in Central Iowa. The agency is funded by a combination of local property taxes and fare revenue and is managed by a nine (9) member board. The City itself does not control or manage public transit in Ankeny, and the current public transit service levels and any planned service expansions are subject to planning, approval, funding, and operation by DART.

To serve the City's growing population and more transit-oriented developments (TODs), such as Prairie Trail, DART is proposing a local bus circulator loop system (similar to a bus rapid transit circulator) as part of their *2035 DART Forward* plan as a feasible service option in the community connecting the major employment centers. Future local circulator enhancements may connect the N. 36th St corridor to Ankeny Blvd, Uptown, the Prairie Trail area, SE Delaware Ave, and other new and expanding commercial or employment areas in the community. Two additional bus route are also proposed. Future growth in Ames, Polk City, Elkhart and other regional communities may warrant development of a park and ride or transit hub near the interchange at I-35 and NE 36th Street. This could accommodate additional service and connections to the regional DART system and downtown Des Moines.

### Community Mobility Hubs

Although higher density, compact development remains a physical characteristic to help sustain a feasible transit system, it is also recognized that travel consumer behavior and a new mobility culture is emerging. A potential solution to changing demand patterns is the integration of community services at mobility hubs. This concept recognizes that the fixed-route bus route cannot satisfy all trip needs, and by integrating multiple forms of transportation at a single location, people have the opportunity to choose the mode that best meets their travel needs for a particular trip. Transportation modes and facilities that can be located at mobility hubs include, but are not limited to: DART transit service, bike storage, bikeshare stations, parking for carsharing services (i.e., Car2Go, Zipcar), parking for taxis/transportation network company (TNC), parking for private vans and shuttles and electric charging stations. Private vans/shuttles can provide first/last-mile access to residents or employees. For example, if a business locates two miles from the nearest transit service, instead of dedicating a fixed-route DART vehicle to serve the location, the employer can provide a few vans/shuttles at a nearby mobility hub to help employees complete their journey to work. This concept allows fixed-route service to serve corridors where it provides the most benefit to a large number of riders while alternative transportation options provide effective mobility solutions for lower demand trips.

Mobility hubs can be a variety of shapes and sizes, depending on what space is available and the needs of specific communities. Ideal locations for Mobility Hubs are at key points in the network that already require a fair amount of space for fixed-route transfers. DART has recommended in its CIP program that Mobility Hubs be constructed in the Uptown area of the community, and in the retail area at Delaware Avenue and SE Oralabor Road. Additional Mobility Hubs could be developed in the Prairie Trail/DMACC areas, where density and user mode preferences may help create the most optimal conditions for a successful mobility hub. Ultimately, the development of these mobility hubs is dependent on the decision and funding process of DART.

**FIGURE 13.24 DART Expanded Service Enhancements Map**

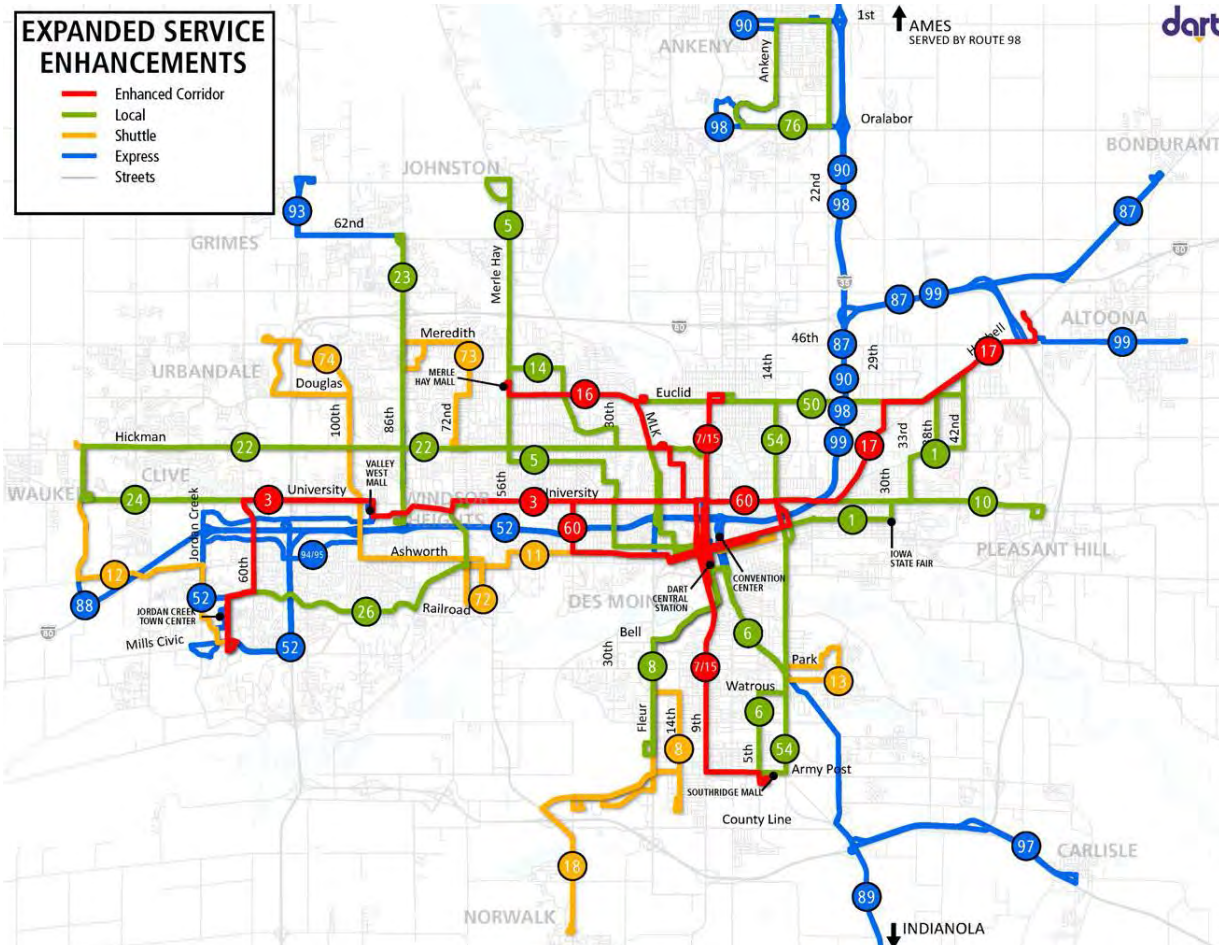



**FIGURE 13.25 Community Mobility Hub Diagram**

# TRANSPORTATION GOALS + POLICIES

## Goal 1: Preserve and enhance transportation system

*Policy 1.1* - The City will preserve its existing transportation system in the highest order operating condition

*Policy 1.2* - The City will continue to maintain pavement and permanent right-of-way fixtures associated with the roadway system (including bridges) using routine inspection and maintenance improvement programs coordinated by the Ankeny Public Works Department

*Policy 1.3* - The City will coordinate roadway preservation improvements with other transportation system partners including Iowa DOT and Polk County

*Policy 1.4* - The City will continue to develop a transportation system that is sustainable and cost-effective, where each expenditure satisfies a public transportation objective

*Policy 1.5* - The City will review all plans for development / redevelopment to determine their impact on the transportation system

*Action 1.6* - The City will actively participate with other jurisdictions in regional planning efforts

*Action 1.7* - The City will review the design standards used for streets in new developments, and if necessary, make revisions in order to improve the long-term sustainability of the pavement infrastructure and reduce future maintenance costs

## Goal 2: Improve the functionality and safety of the transportation system

*Policy 2.1* - The City will work with Iowa DOT and encourage traffic management studies to be conducted where documented safety issues exist

*Policy 2.2* - The City will monitor crash statistics for trends and work with the Iowa DOT to tailor crash reduction improvement for targeted areas

*Policy 2.3* - The City will seek to capture opportunities to implement roadway improvements with proposed development and/or redevelopment projects

*Policy 2.4* - The City will continue to work with the Iowa DOT and private property owners on access management strategies along primary roadway corridors

*Policy 2.5* - The City's sign maintenance practices will meet all requirements, including federal sign retro-reflectively standards, and ensure appropriate signing for the traveling public

*Policy 2.6* - Where applicable, the City will integrate safety features into pedestrian/bicycle improvements

*Policy 2.7* - The City's land use development standards will promote safe and efficient access to the transportation system

*Policy 2.8* - Require new development to provide an adequate system of local streets while limiting direct access to major thoroughfares in order to maintain safe and efficient roadway operations

*Policy 2.9* - Require the dedication or preservation of right-of-way consistent with adopted right-of-way standards when property is platted or subdivided, and work with landowners/developers during the site planning and platting process to implement safe and efficient roadway designs that look first to provide access via a local roadway rather than a regional roadway

*Policy 2.10* - The City will continue the implementation of access management guidelines to assist in preserving future roadway capacity and improving safety along all roadways

*Action 2.11* - The City will periodically survey the residents of Ankeny on their perception of the local transportation system including its strengths, areas of concerns, and opportunities for improvement

## Goal 3: Balance community needs with an inclusive transportation system policy

*Policy 3.1* - Where possible, the City will utilize an inclusive transportation system policy in the design of streets. To the greatest extent practical, the City will balance the transportation system needs with the potential impacts and effects upon natural features of the community

*Policy 3.2* - The City will minimize the number of private access points to minor arterial and major collector roadways as part of the development review process

*Policy 3.3* - The City will require multi-modal review in traffic impact studies for larger scale developments

# TRANSPORTATION GOALS + POLICIES CONT'D

## Goal 4: Improve connectivity throughout the community

*Policy 4.1* - The City will work with the Iowa DOT, Polk County, residents, and businesses to provide linkages for local connections that currently represent transportation system gaps, especially to help reduce crashes, improve mobility, and maintain local transportation system

*Policy 4.2* - The City will evaluate current intersection control (stop signs) along primary travel corridors that have frequent intersections from the "criss crossing" of local roadways. Removal of excessive intersection control will only be considered after a determination is made that traffic safety will not be compromised and the modification(s) will enhance travel efficiency/mobility

*Policy 4.3* - When new/redevelopment proposals are received, the City will require connectivity of collector and local streets (including their pedestrian facilities) and trails between residential developments and other land uses to improve street connectivity and reduce the potential for unwarranted cul-de-sac streets

*Policy 4.4* - The City will continue to support trail connectivity among local, regional, and state trail systems

## Goal 5: Enhance transportation opportunities and usage

*Policy 5.1* - The City will coordinate with local transit providers to determine the future transit services consistent with the City's transit market and its associated service standards and strategies

*Policy 5.2* - Evaluate the need for transit facilities and accommodations in the redesign and reconstruction of roadways whether or not they are currently used by transit providers

*Policy 5.3* - Reduce transportation system demand by encouraging programs that provide alternative to single occupant vehicles

*Policy 5.4* - Encourage collaboration with local employers, the Ankeny School District, DMACC and other academic and non-profit institutions, and surrounding communities on the need for and location of improved transit services

## Goal 6: Implement the transportation vision through strategic funding, and objective and definitive decision-making, with the collaboration of jurisdictions and metropolitan agencies including regional transit providers and DMAMPO

*Policy 6.1* - Utilize available funding programs, competitive grants, and other revenue sources to maximize and leverage funds for transportation

*Policy 6.2* - Require adequate right-of-way dedication for new and/or expanded roadways based on the planned function under future conditions

*Policy 6.3* - Encourage business owners, residents, and community groups to be active participants in seeking funding by contacting local, state, and federal decision makers in support of transportation funding

## TRANSPORTATION APPENDIX

Cross section requirements for roadways vary according to the capacity and level of service to be provided. Universal standards in the design of roadways are not practical. Each roadway section must be individually analyzed and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service, and available right-of-way. These cross sections are typical for facilities in new locations and where right-of-way constraints are not critical. For widening projects and rural or urban projects with limited right-of-way, special cross sections should be developed that meet the needs of the project. For example, to extend a segment of a longer separate trail design, a special solution may be needed where a narrow or unavailable right-of-way may require the transition of separate facility to a protected bike lane within the available roadway right-of-way.

Seventeen typical cross-section conceptual drawings are included in this Appendix, considering rural and urban roadway sections, coded from T-1 to T-17. These cross-section drawings were developed specifically for *The Ankeny Plan 2040* which conform to standards normally approved by the Iowa DOT Office of Local Systems or as recommended by the Statewide Urban Design And Specifications (SUDAS) Design Manual published by the Institute for Transportation at Iowa State University. These standards establish design criteria that emphasize safety, mobility, and accessibility for multiple modes of travel.

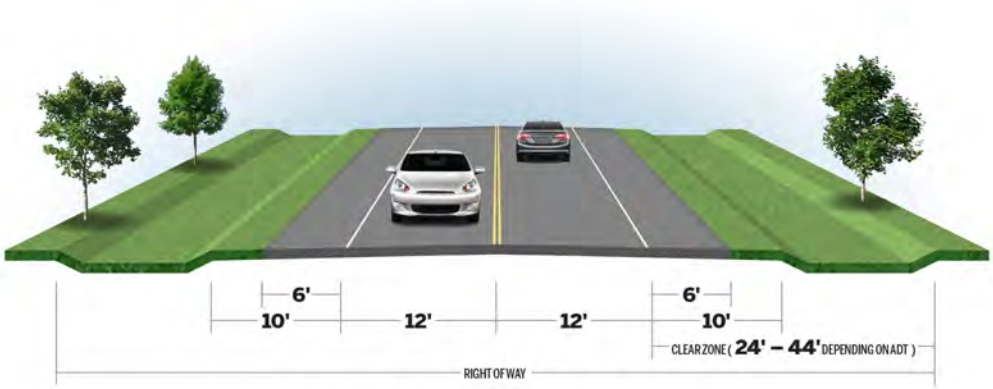
These "typical" cross sections should be used as preliminary guidelines for comprehensive transportation planning, project planning and project design activities. Specific and final cross-section details and right of way limits for projects will be established through preliminary and detail design plan preparation authorized and approved by the City of Ankeny's Public Works Department and Iowa DOT or other partnering agencies, as appropriate.

On all existing and proposed roadways delineated on *The Ankeny Plan 2040*, adequate right-of-way should be protected or acquired for the recommended cross-sections. Right-of-way needs are usually site specific and unique in many cases and things such as clear zones, ditch slopes and drainage needs will usually dictate the necessary limits. In addition to cross-section recommendations as improvements are considered, this appendix can provide support for ultimate needed right-of-way for the following situations:

- Roadways which may require widening after the current planning period, such as those that transition from a rural to an urban standard with land use changes and intensified development
- Roadways which are borderline adequate and accelerated traffic growth could render them deficient or cause emergent safety issues
- Roadways where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment
- Roadways which may need to accommodate an additional transportation mode


representative photo

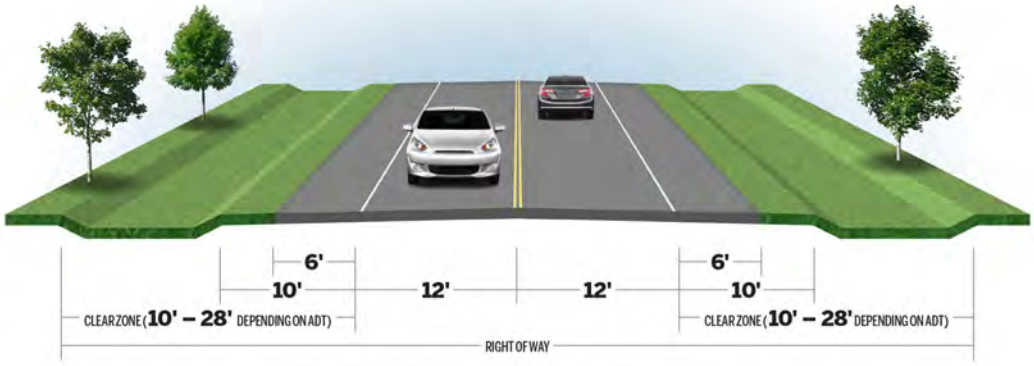
# RURAL TWO-LANE ROADWAY / 55 MPH




**RURAL TWO-LANE ROADWAY**
POSTED SPEED – 55 MPH
(DESIGN SPEED – 60 MPH)

| | |
|---|---|
| **Cross Section** | T-1 |
| **Functional Classification** | Collector / Minor Arterial/ Principal Arterial |
| **Traffic Volume Capacity** | < 12,000 AADT |
| **Preferred Operating Speed** | 45 – 55 mph |

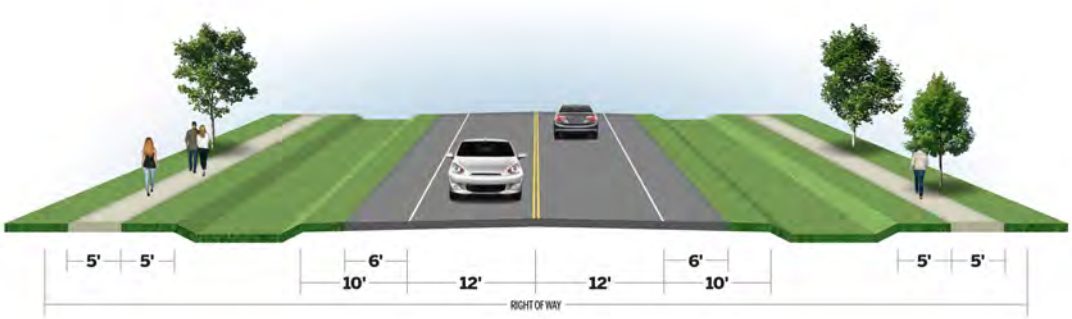
# RURAL TWO-LANE ROADWAY / 45 MPH




**RURAL TWO-LANE ROADWAY**
POSTED SPEED – 45 MPH OR LESS
(DESIGN SPEED – 50 MPH OR LESS)

| | |
|---|---|
| **Cross Section** | T-2 |
| **Functional Classification** | Collector / Minor Arterial/ Principal Arterial |
| **Traffic Volume Capacity** | < 12,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |

# RURAL TWO-LANE ROADWAY / SIDEWALK / DITCH




**RURAL TWO LANE ROADWAY**
(SIDEWALK PLACEMENT BEHIND A ROADWAY DITCH)

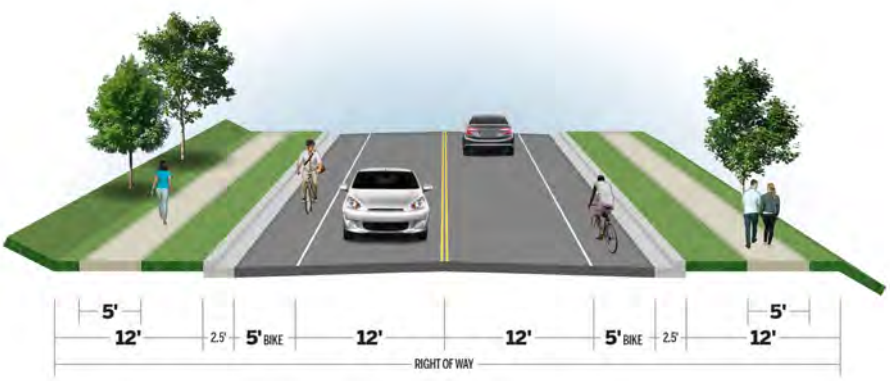
| | |
|---|---|
| **Cross Section** | T-3 |
| **Functional Classification** | Collector / Minor Arterial |
| **Traffic Volume Capacity** | < 12,000 AADT |
| **Preferred Operating Speed** | 35 – 55 mph |
| **Multimodal Features** | Sidewalks |

# URBAN TWO-LANE ROADWAY / SIDEWALK / PARKING ONE SIDE


**URBAN TWO-LANE ROADWAY**
(WITH PARKING ON ONE SIDE)

| | |
|---|---|
| **Cross Section** | T-4 |
| **Functional Classification** | Local |
| **Traffic Volume Capacity** | < 10,750 AADT |
| **Preferred Operating Speed** | 25 – 35 mph |
| **Multimodal Features** | On-Street Parking, Sidewalks |

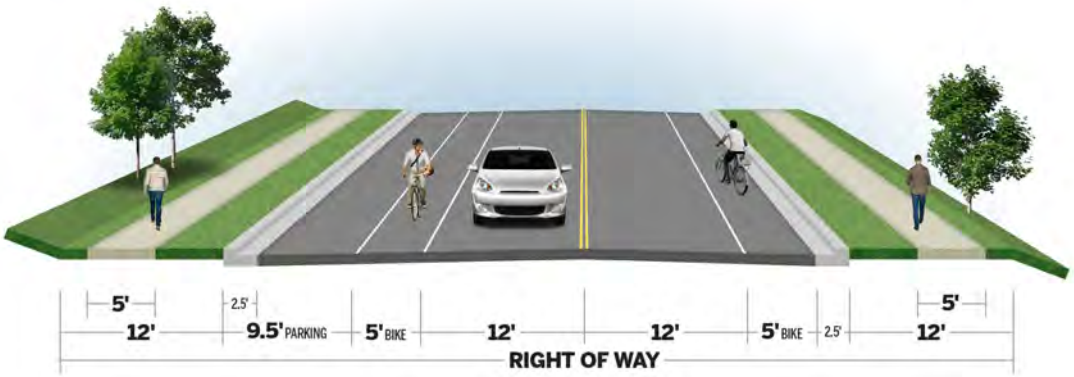
## URBAN TWO-LANE ROADWAY / BIKE LANES / SIDEWALKS




**URBAN TWO-LANE ROADWAY**
(WITH BIKE LANES AND SIDEWALKS)

| | |
|---|---|
| **Cross Section** | T-5 |
| **Functional Classification** | Collector |
| **Traffic Volume Capacity** | < 10,750 AADT |
| **Preferred Operating Speed** | 25 – 35 mph |
| **Multimodal Features** | Bike Lanes, Sidewalks |

## URBAN TWO-LANE ROADWAY / BIKE LANES / PARKING ONE SIDE




**URBAN TWO-LANE ROADWAY**
(WITH BIKE LANES AND PARKING ON ONE SIDE)

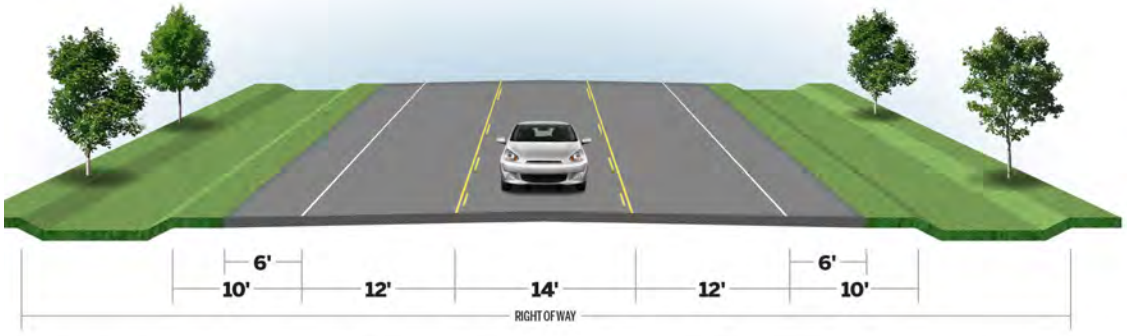
| | |
|---|---|
| **Cross Section** | T-6 |
| **Functional Classification** | Collector |
| **Traffic Volume Capacity** | < 10,750 AADT |
| **Preferred Operating Speed** | 25 – 35 mph |
| **Multimodal Features** | Bike Lanes, On-Street Parking, Sidewalks |

## URBAN TWO-LANE ROADWAY / BIKE LANES / RAISED MEDIAN / SIDEWALK


**URBAN TWO-LANE ROADWAY**
(WITH BIKE LANES, RAISED MEDIAN, AND SIDEWALKS)

| | |
|---|---|
| **Cross Section** | T-7 |
| **Functional Classification** | Collector / Minor Arterial |
| **Traffic Volume Capacity** | < 12,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |
| **Multimodal Features** | Bike Lanes, Sidewalks |

## RURAL THREE-LANE ROADWAY / TWO-WAY LEFT TURN LANE




**RURAL THREE-LANE ROADWAY WITH TWO-WAY LEFT-TURN LANE**

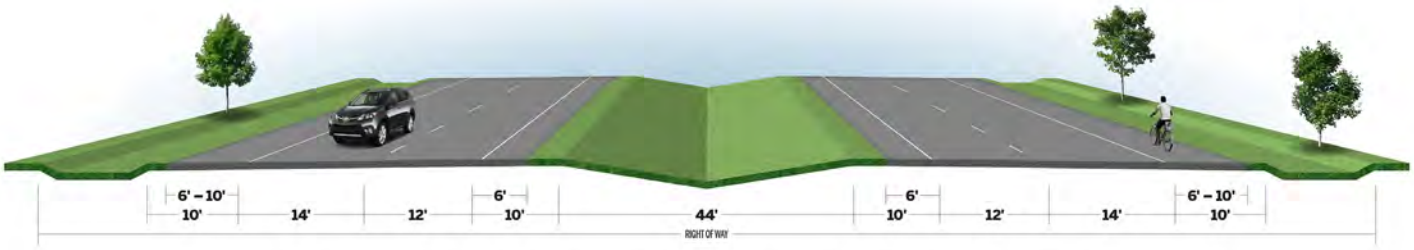
| | |
|---|---|
| **Cross Section** | T-8 |
| **Functional Classification** | Collector / Minor Arterial |
| **Traffic Volume Capacity** | < 17,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |

# URBAN THREE-LANE ROADWAY / TWO-WAY LEFT TURN LANE


**URBAN THREE-LANE ROADWAY WITH TWO-WAY LEFT-TURN LANE**

| | |
|---|---|
| **Cross Section** | T-9 |
| **Functional Classification** | Minor Arterial |
| **Traffic Volume Capacity** | < 17,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |
| **Multimodal Features** | Sidewalks |

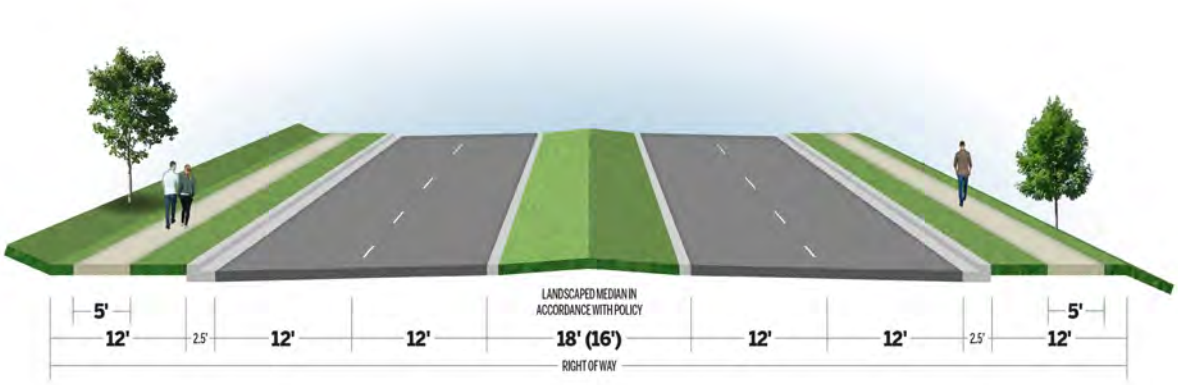
# RURAL FOUR-LANE DIVIDED ROADWAY / DEPRESSED MEDIAN




**RURAL FOUR-LANE DIVIDED ROADWAY WITH DEPRESSED MEDIAN**
FULL OR LIMITED CONTROL OF ACCESS

| | |
|---|---|
| **Cross Section** | T-10 |
| **Functional Classification** | Principal Arterial |
| **Traffic Volume Capacity** | < 27,000 AADT |
| **Preferred Operating Speed** | 55 – 65 mph |

# URBAN FOUR-LANE DIVIDED ROADWAY / RAISED MEDIAN / SIDEWALKS




## URBAN FOUR-LANE DIVIDED WITH RAISED MEDIAN
(WITH SIDEWALKS)

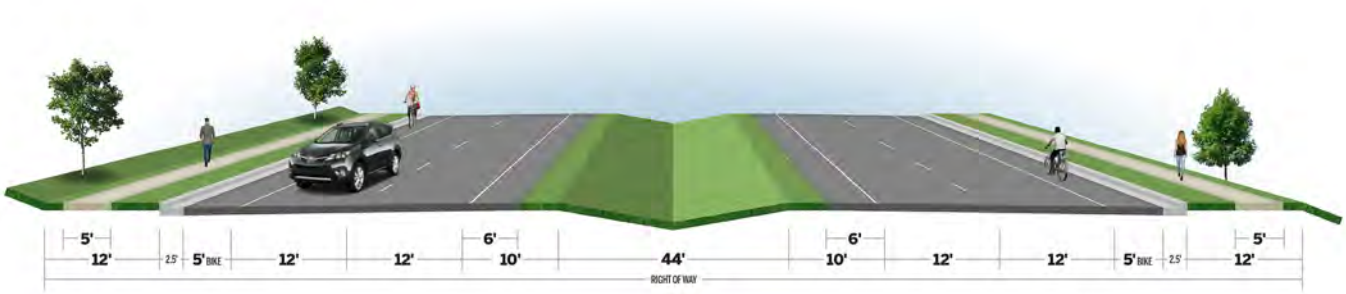
| | |
|---|---|
| **Cross Section** | T-11 |
| **Functional Classification** | Minor Arterial / Principal Arterial |
| **Traffic Volume Capacity** | < 27,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |
| **Multimodal Features** | Sidewalks |

# URBAN FOUR-LANE DIVIDED ROADWAY / RAISED MEDIAN / SIDEWALK / BIKE LANES


## URBAN FOUR-LANE DIVIDED ROADWAY WITH RAISED MEDIAN (WITH BIKE LANES AND SIDEWALKS)

| | |
|---|---|
| **Cross Section** | T-12 |
| **Functional Classification** | Principal Arterial |
| **Traffic Volume Capacity** | < 27,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |
| **Multimodal Features** | Bike Lanes, Sidewalks |

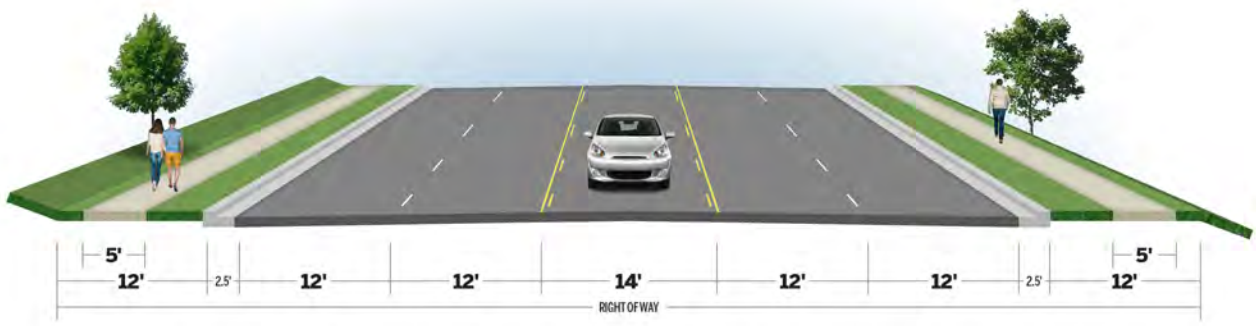
# URBAN FOUR-LANE DIVIDED ROADWAY / DEPRESSED MEDIAN / SIDEWALK / BIKE LANES




**URBAN FOUR-LANE DIVIDED ROADWAY WITH DEPRESSED MEDIAN**
(WITH BIKE LANES AND SIDEWALKS)

| | |
|---|---|
| **Cross Section** | T-13 |
| **Functional Classification** | Principal Arterial |
| **Traffic Volume Capacity** | < 27,000 AADT |
| **Preferred Operating Speed** | 45 – 55 mph |
| **Multimodal Features** | Bike Lanes, Sidewalks |

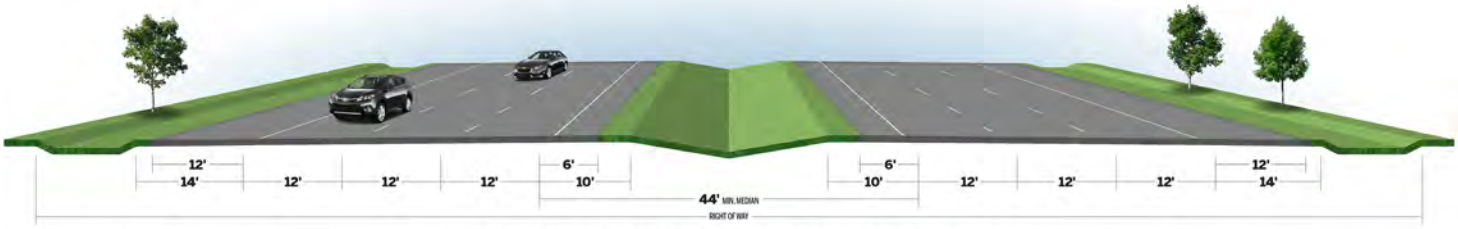
# URBAN FIVE-LANE ROADWAY / TWO-WAY LEFT TURN / SIDEWALK




**URBAN FIVE-LANE ROADWAY WITH TWO-WAY LEFT TURN LANE**
(WITH SIDEWALKS)

| | |
|---|---|
| **Cross Section** | T-14 |
| **Functional Classification** | Principal Arterial |
| **Traffic Volume Capacity** | < 32,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |
| **Multimodal Features** | Sidewalks |

# RURAL SIX-LANE ROADWAY / DEPRESSED MEDIAN




**RURAL SIX-LANE ROADWAY WITH DEPRESSED MEDIAN**

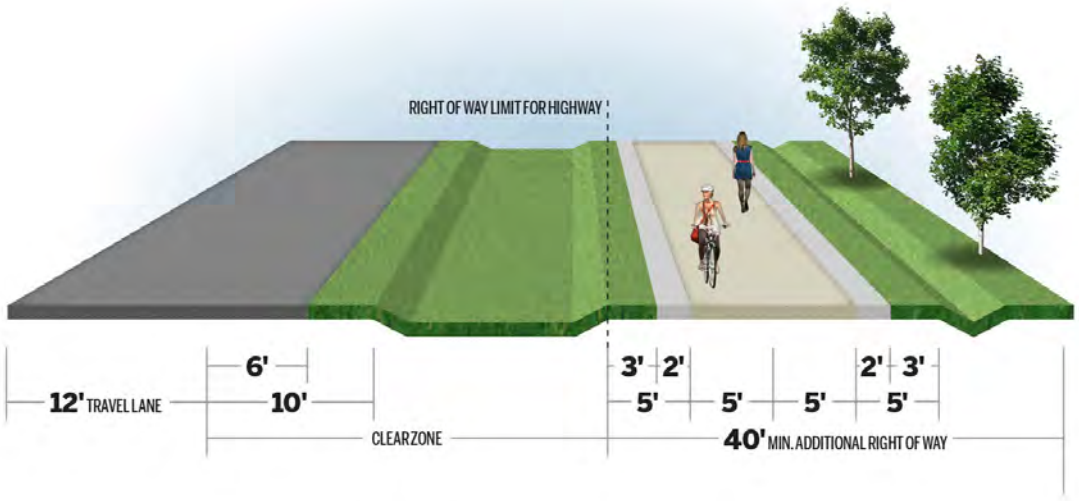
| | |
|---|---|
| **Cross Section** | T-15 |
| **Functional Classification** | Principal Arterial |
| **Traffic Volume Capacity** | < 46,000 AADT |
| **Preferred Operating Speed** | 55 – 65 mph |
| **Multimodal Features** | Not recommended for rural design |

# URBAN SIX-LANE DIVIDED ROADWAY / RAISED MEDIAN / SIDEWALKS


**URBAN SIX-LANE DIVIDED ROADWAY WITH RAISED MEDIAN**
(WITH SIDEWALKS)

| | |
|---|---|
| **Cross Section** | T-16 |
| **Functional Classification** | Principal Arterial |
| **Traffic Volume Capacity** | < 46,000 AADT |
| **Preferred Operating Speed** | 35 – 45 mph |
| **Multimodal Features** | Sidewalks |

# MULTI-USE PATH




## MULTI-USE PATH

ADJACENT TO RIGHT OF WAY OR SEPARATE PATHWAY