

## 4. Infrastructure

This chapter examines and sets policies for the various systems that comprise 'infrastructure' – the water and wastewater systems, energy utilities and transportation. Each system is closely related to existing and future land use, as well as other elements of the Comprehensive Plan, such as economic development and housing. Policies are designed to ensure that investments in these systems are made in coordination with the policies outlined in the Land Use Plan and other elements of the Comprehensive Plan.

### Water Supply System

The water supply system is a complex one, characterized by a variety of separate supply and distribution systems. Most potable water supplies within Polk County are provided by public water suppliers (PWS), both municipal and private, rather than private wells. The Des Moines Water Works (DMWW) is the largest public water supplier, serving approximately 350,000 residential and commercial customers within a roughly 50-mile radius around the City of Des Moines.

Distribution systems are generally under the jurisdiction of municipal, private or rural 'benefited' water districts, about 18 of which are found within Polk County.

DMWW's service area is shown on Figure 4.1. The utility provides total water service to the City of Des Moines, the Polk County Water District, Windsor Heights and the Warren County Water System. This service includes maintaining the distribution system, meter reading, billing and other services.

DMWW sells water to the cities of Ankeny, Bondurant, Clive, Johnston, Pleasant Hill, Polk City and West Des Moines, to the local water systems in Berwick and Saylorville, and to the Southeast Polk and Xenia Rural Water Districts. These purchasers of water generally maintain their own distribution systems, billing, and other services.

The rural water districts generally provide only drinking water supplies, not supplies for fire protection or industrial processes. Supplies are limited by the diameter of the pipes, which typically range from 2 to 4 inches. Thus, rural water service has acted as something of a brake on large-scale development in the unincorporated parts of Polk County, even in those areas already densely developed with housing and industrial uses.

DMWW water supplies are drawn from the Des Moines and Raccoon rivers and treated prior to distribution at the Fleur Drive treatment plant in the City of Des Moines and a newer facility at Maffitt Reservoir southwest of the metro area.



*Utilities accompany new development*

A new treatment plant in Polk County is currently in the planning stages, to be located at NW 66<sup>th</sup> Avenue and NW 26<sup>th</sup> Street in Saylor Township. The Saylorville Water Treatment Plant will include a series of radial collector wells connected via a 30" feeder main along 66<sup>th</sup> Avenue to feed Ankeny and Des Moines (see Figure 4.1).

In 1980s Polk County purchased a number of small rural "benefited" water districts, consolidated them, and contracted with DMWW in 1987. These districts are now operated through a full-service contract with DMWW. DMWW is now beginning to gradually replace the old small-capacity pipes in these areas with 8" pipe, to upgrade the service to fire protection standards, beginning with the areas highlighted on Figure 4.1. The upgrades would facilitate new industrial or residential development and redevelopment in these centrally-located areas, consistent with the Land Use Plan.

#### Southeast Polk Rural Water District Urban Renewal Plan

In October 2004, the Des Moines Water Works proposed a merger with the Southeast Polk Rural Water District, with the intent of significantly reducing customer water bills and allowing new development in portions of the service area. In 2005 a change in Iowa law allowed the Rural Water District's board to sell its assets to DMWW. To assist in this process, Polk County created an Urban Renewal Plan to allow for the issuance of \$5 million in water bonds. With an additional \$7 million in bonds, DMWW will be able to purchase the Southeast Polk Rural Water District.

Urban Renewal was the means chosen by the County to allow issuance of bonds for the purchase under state law. However, the County has made it clear that it will not undertake any development or redevelopment activities, acquire property or relocate residents under the Plan<sup>1</sup>. Final approval of the purchase was given by the SE Polk Rural Water Board on January 18, 2006.

#### Infrastructure Goal and Water Supply Policy

As stated in Chapter 2, the overall goal for infrastructure and utilities expansion within the County is as follows:

*Polk County will stage infrastructure expansion to guide future development and keep infrastructure affordable.*

##### Policy 1 – Targeted Water Service Improvements

Polk County will encourage and assist in the staged extension of urban services, including water supply, to areas designated for development in the Land Use Plan. In areas designated for continued agricultural or rural

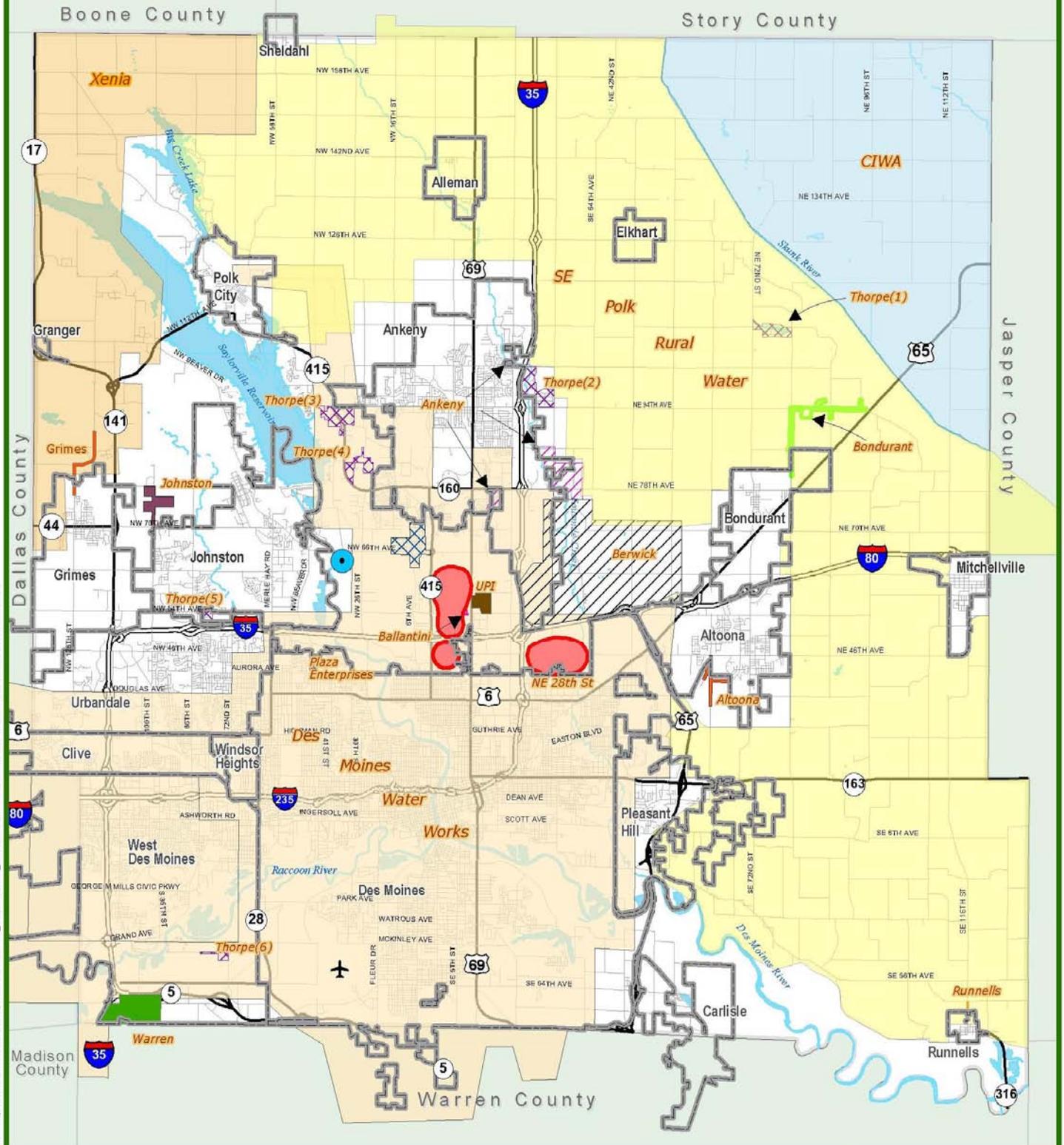
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<sup>1</sup> *Urban Renewal Plan, Southeast Polk Rural Water Urban Renewal Area.* August 9, 2005 (adopted as amended September 13, 2005).

uses, the rural water system will be maintained but not expanded. If expansion or upgrades in these areas are desired, they would have to be provided by the private sector as needed to support new development.

**Policy 2 – Consistency with Urban Renewal Plan**

As described above, the Urban Renewal Plan for the Southeast Polk Rural Water District specifically precludes development or redevelopment activities, acquisition of property or relocation of residents. The Urban Renewal Plan is consistent with the policies of this Comprehensive Plan; in that it is not intended to encourage premature conversion of agricultural land, leapfrog development, or large-lot rural development in agricultural protection areas.



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Grimes	NE 28th St	UPI
SE Polk Rural Water	Plaza Enterprises	Warren
Altoona	Berwick	Xenia
Ballantini	Runnells	Des Moines Water Works
Bondurant	Ankeny	Proposed Water Improvement Areas
CIWA	Saylor	Proposed Water Treatment Plant
Johnston	Thorpe	

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**Figure 4.1**

Data Sources: DMA MPO, Polk County

## Wastewater System

Regional wastewater treatment is provided by the Wastewater Reclamation Authority (WRA), a regional wastewater conveyance and treatment body created in 1979. The WRA was reorganized in 2004, with a new facilities plan. Major issues in the reorganization included how to integrate the City of Des Moines' combined sewer system with the WRA and the interest of several member communities in connecting to the regional system.

The conclusion of the facility planning process was that the cities of Ankeny, Altoona and Bondurant would retire their wastewater treatment plants and connect to the WRA system.

The governing structure of the WRA was also updated under a restated 28E agreement with a cost-sharing allocation among the member communities. The plan identifies "core" projects (those that benefit the entire system) and "expansion" projects (those that benefit specific communities). It also identifies "core" and "expansion" communities. All communities share in the cost of core projects, but only expansion communities share in the capital costs of expansion projects.

Core communities are: the cities of Des Moines, Johnston and Pleasant Hill, Polk County, the Urbandale-Windsor Heights Sanitary District, and the Greenfield Plaza/Hills of Coventry Sanitary District.

Expansion communities are: the cities of West Des Moines, Clive, Ankeny, Altoona, Bondurant and Norwalk, and the Urbandale Sanitary Sewer District.

The primary expansion projects in the Polk County planning area are:

- Four Mile Interceptor improvements to serve flows from the three newly connecting communities of Altoona, Ankeny and Bondurant. The project will construct a parallel sewer to the existing Four Mile Interceptor to increase its capacity. The expansion must be completed before the cities of Ankeny and Bondurant connect to the regional system.
- Four Mile Interceptor extension, from NE 46<sup>th</sup> Avenue to the Ankeny wastewater treatment plant. The City of Ankeny will retire its plant and connect to the new interceptor between 2010 and 2013.
- Little Four Mile Interceptor Extension, from the east side of Highway 65 to the Altoona wastewater treatment plant, scheduled for 2005-2006. Altoona will retire its plant and connect to the new interceptor in July 2006.
- Mud Creek Interceptor and Little Four Mile Interceptor – South Branch. The Mud Creek Interceptor is designed to serve the City of Bondurant and coordinate with future

development in the eastern part of the City of Altoona. The scheduling of the project will be determined based on development patterns and Bondurant's connection plans. The South Branch interceptor would serve as the outlet sewer for the Mud Creek interceptor and would also serve areas to the south and east of the City of Altoona.

It is important to note that Polk County is not an expansion community. Therefore, areas within unincorporated Polk County are not eligible to connect to the new trunk sewers, even when those run through unincorporated Polk County. This fact is reflected in the Land Use Plan. Areas of the County where WRA trunk sewers will be located are generally designated as Agricultural Transition areas. These areas are intended to remain agricultural during the 25-year planning period, but are likely to ultimately be annexed and developed at urban densities. A primary reason for this designation is to prevent the filling-in of these areas with large residential lots served by on-site septic systems, which would then spur leapfrog development of outlying agricultural areas.

#### County and Municipal Sewer Extensions

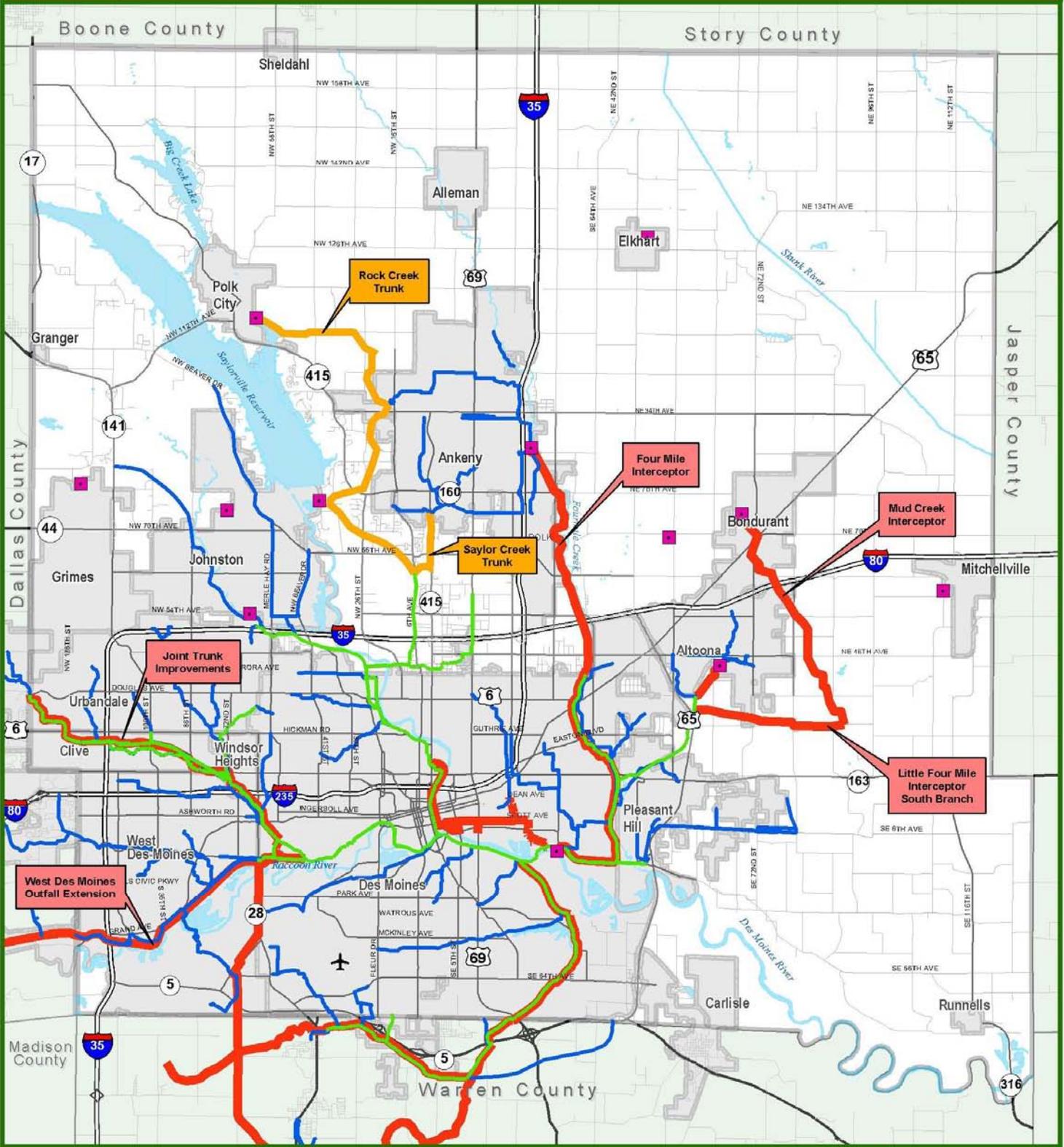
Polk County is in the process of planning extensions of two trunk sewers within its own system.

- The Saylor Creek Trunk Sewer would extend north from the existing terminus of the WRA Saylor Creek Interceptor, possibly extending to the City of Ankeny. This would be considered a local Polk County project if it serves only unincorporated Polk County areas. If it serves Ankeny as well, it would be considered a WRA trunk sewer.
- The Rock Creek Trunk Sewer would extend north from the Saylor Creek Interceptor along NW 2<sup>nd</sup> Street to approximately NW 70<sup>th</sup> Avenue, to join the Ankeny system. Its purpose is to serve the west side of Ankeny, Polk City, and rural users along the east side of the Saylorville Reservoir.

The existing WRA system, local trunk sewers and proposed extensions are shown on Figure 4.2. Among the local projects are trunk sewer extensions in Pleasant Hill and in Johnston, where Polk County is assisting with installation of a pressurized sewer system along NW Beaver Drive, to serve properties in that area that currently use on-site mechanical treatment systems that connect to the Johnston storm sewer system.

# Polk County 2030 Comprehensive Plan

## Trunk Sanitary Sewer Lines and Treatment Plants



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- Wastewater Treatment Plant
  - WRA Existing Sewers
  - Local Trunk Sewers
  - WRA Proposed Sewers
  - Polk County Proposed Sewers
- Data Sources: DMA MPO, Polk County



  
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**Figure 4.2**

## Transportation

The policies of the Comprehensive Plan must be coordinated with municipal and regional planning efforts. The transportation system element requires an additional coordination process in that the Des Moines Area MPO 2030 *Long Range Transportation Plan* (LRTP) is the overall regional coordinating document. Thus, most of the recommendations for transportation improvements in this section are based on policies and projects identified in the LRTP. However, the MPO's jurisdiction encompasses only the more developed parts of Polk County, so some of the policies and recommendations in this chapter fall outside its jurisdiction.

### Existing Transportation System

The current transportation system for the County and region is composed of the following elements:

- State and federal highways and local roadway systems
- A system of on-street and off-street multi-use trails
- Municipal airports
- Intra-area transit
- Intercity bus transportation
- Freight movement systems

Each of these elements was described in the "Existing Conditions" report. Key aspects of the roadway, transit, trail and freight systems are summarized below, along with the major issues identified in the planning process.

### State/Federal Highways and Local Roadway Systems

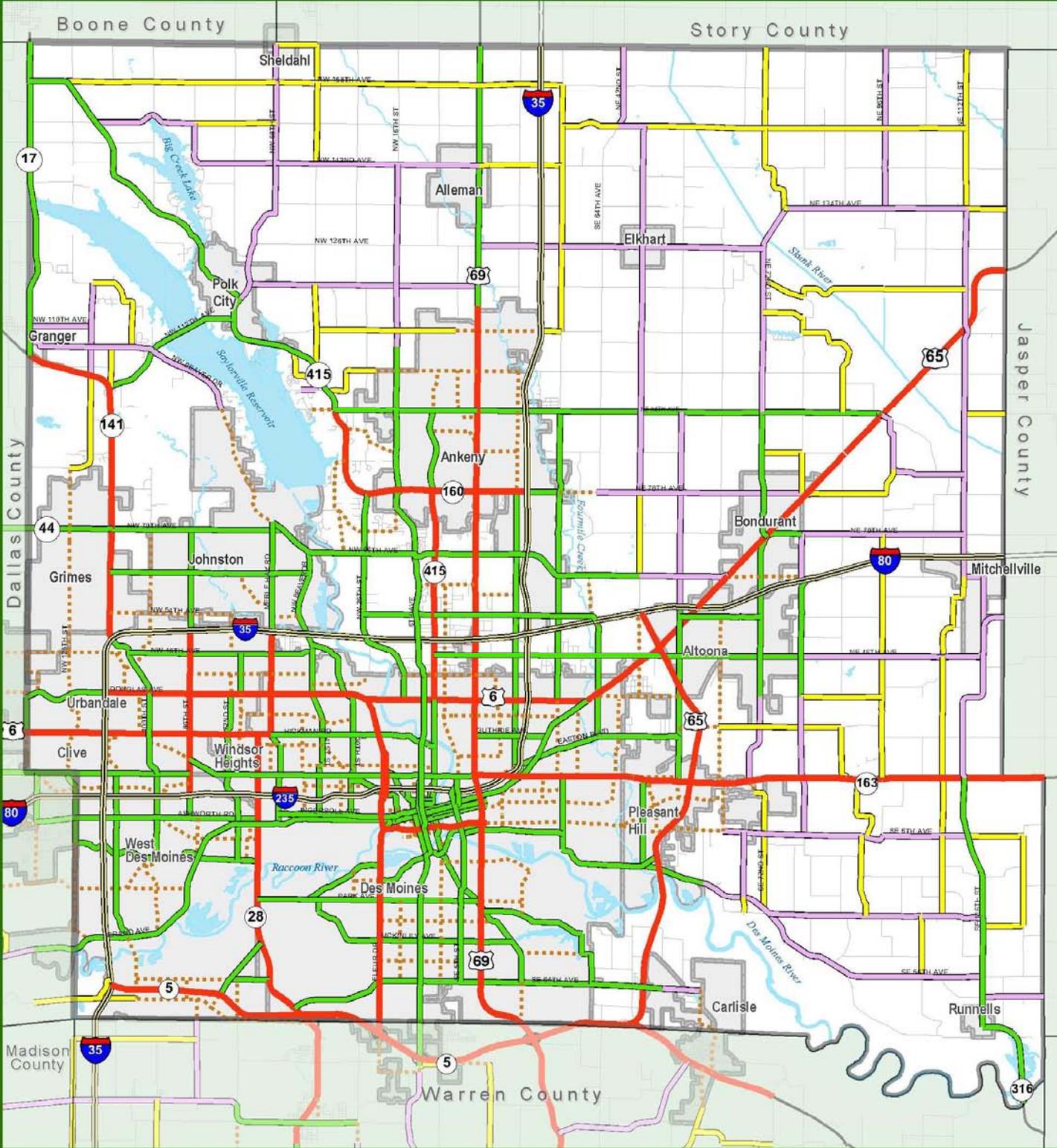
Existing highway and roadway systems are categorized into a functional hierarchy based on the type of facility, facility ownership, and the role the facility serves in the county's and region's transportation system. Within the county, the roadways are grouped into six general functional categories:

- Interstate
- Principal Arterial
- Minor Arterial
- Collector (Urban)
- Rural Major Collector
- Rural Minor Collector
- Local

The current functional classification system is displayed in Figure 4.3. The facility mileage by functional class is documented in Table 4-1.

# Polk County 2030 Comprehensive Plan

## Federal Functional Classification



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- Class**
-  Interstate
  -  Principal Arterial
  -  Minor Arterial
  -  Collector
  -  Rural Major Collector
  -  Rural Minor Collector



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**Figure 4.3**

Data Sources: DMA MPO, Polk County, IDOT

Functional Category	Mileage Outside Municipalities	Total Mileage in County
Interstate	24	61
Principal Arterial	42	135
Minor Arterial	93	315
Collector (Urban)	28	177
Rural Major Collector	133	138
Rural Minor Collector	110	114
<b>Total</b>	<b>430</b>	<b>940</b>

Source: URS Corporation

#### Road Jurisdiction

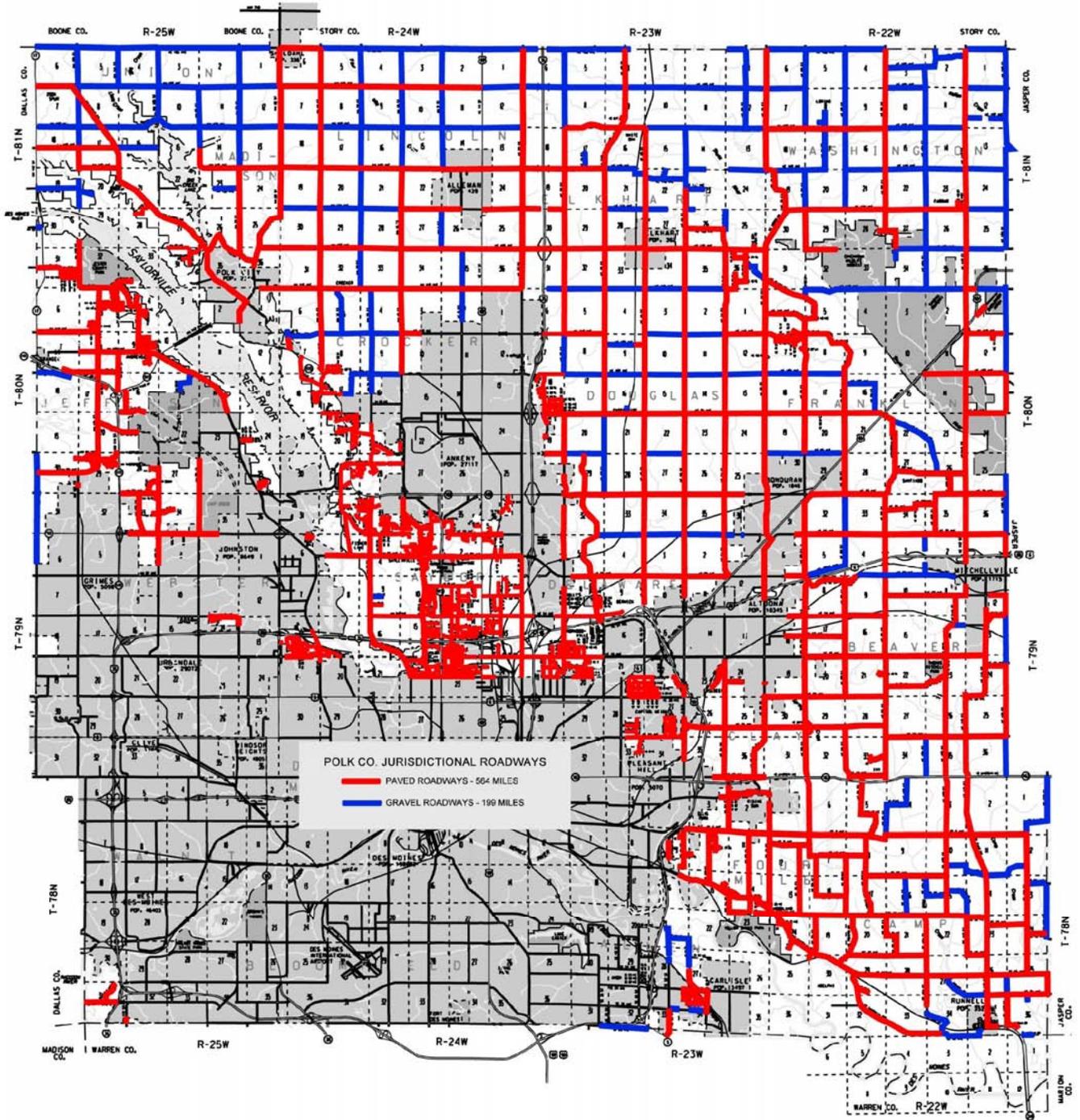
Most of the principal and minor arterials within Polk County are U.S. and State highways, including Interstates 35 and 80, US Highways 6, 65, 69 and Iowa State Highways 5, 17, 141, 44, 415, and 163. Most of the collector and local road network outside the cities (and some collector roads within cities) are under County jurisdiction. County roads are shown in Figure 4.4.

#### Traffic Volumes and Congested Locations

Current average annual daily traffic volumes are an important input for the analysis of the current roadway system's operations. Count information for 2002 from Iowa DOT and county data sources is displayed in Figure 4.5. The data displayed represents the weighted daily average of traffic for weekdays and weekend days.

Areas of congestion are typically defined as areas with a "capacity deficiency" – where current traffic volumes exceed the corridor's *acceptable* traffic volume. Based on current count data and the existing transportation network, the following corridor segments and intersections within the County (shown on Figure 4.5) experience recurring congestion on a daily basis. Level-of-service (LOS) is determined based on average traffic speed throughout a corridor and delay at intersections; LOS "D" is generally considered the minimum acceptable level within the Des Moines metro area.

**POLK CO. JURISDICTIONAL ROADWAYS**



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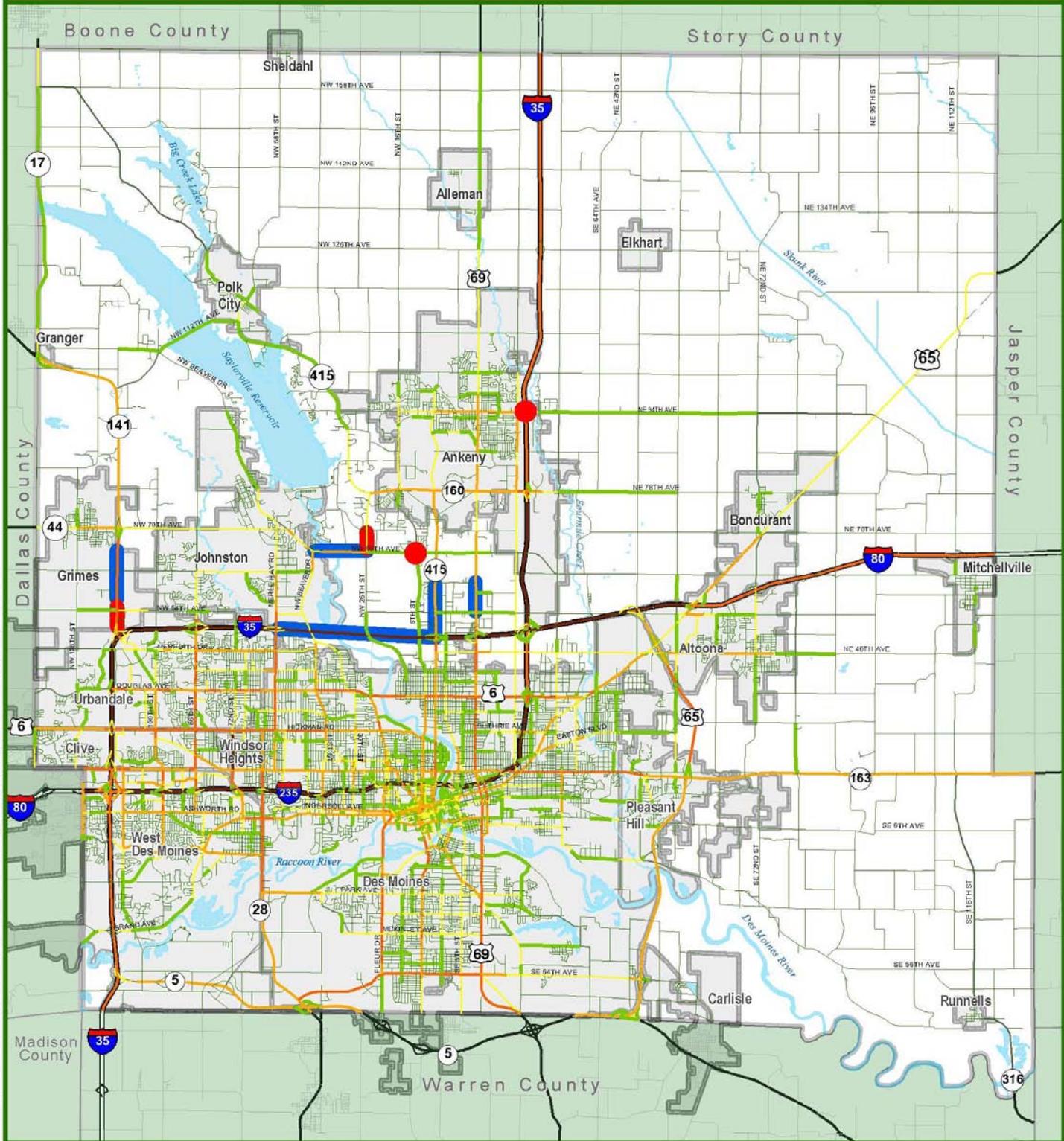
**OFFICE OF COUNTY ENGINEER**  
POLK COUNTY, IOWA

- INTERSTATE HIGHWAYS
- U.S. HIGHWAYS
- STATE HIGHWAYS
- PAVED COUNTY ROADS
- SEALCOAT COUNTY ROADS
- GRAVEL COUNTY ROADS
- TOWNSHIP BOUNDARIES
- PROPOSED CONSTRUCTION



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**Figure 4.4**



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**Average Annual Daily Traffic**

- 0 - 2499
- 2500 - 4999
- 5000 - 9999
- 10000 - 19999
- 20000 - 49999
- 50000 - 135000

**Traffic Count**

- Level-of-Service F (Junction)
- Level-of-Service F (Segment)
- Level-of-Service E (Segment)



**Figure 4.5**

Data Sources: DMA MPO, Polk County, IDOT

- Northeast 14<sup>th</sup> Street (US Highway 69) from NE 54<sup>th</sup> Avenue to north of NE 60<sup>th</sup> Avenue (LOS E).
- Northwest 2<sup>nd</sup> Street from I-80/35 to NW 60<sup>th</sup> Avenue (LOS E).
- Northwest 66<sup>th</sup> Avenue from NW Beaver Drive to NW 26<sup>th</sup> Street (LOS E).
- Northwest 26<sup>th</sup> Street from NW 66<sup>th</sup> Avenue to approximately NW 70<sup>th</sup> Avenue (LOS F).
- Northwest 66<sup>th</sup> Avenue intersection with NW 2<sup>nd</sup> Street (LOS F).
- I-35 junction with East 1<sup>st</sup> Street/NE 94<sup>th</sup> Avenue in Ankeny (LOS E).
- IA 141 from I-80/35 to approximately NW 66<sup>th</sup> Ave.

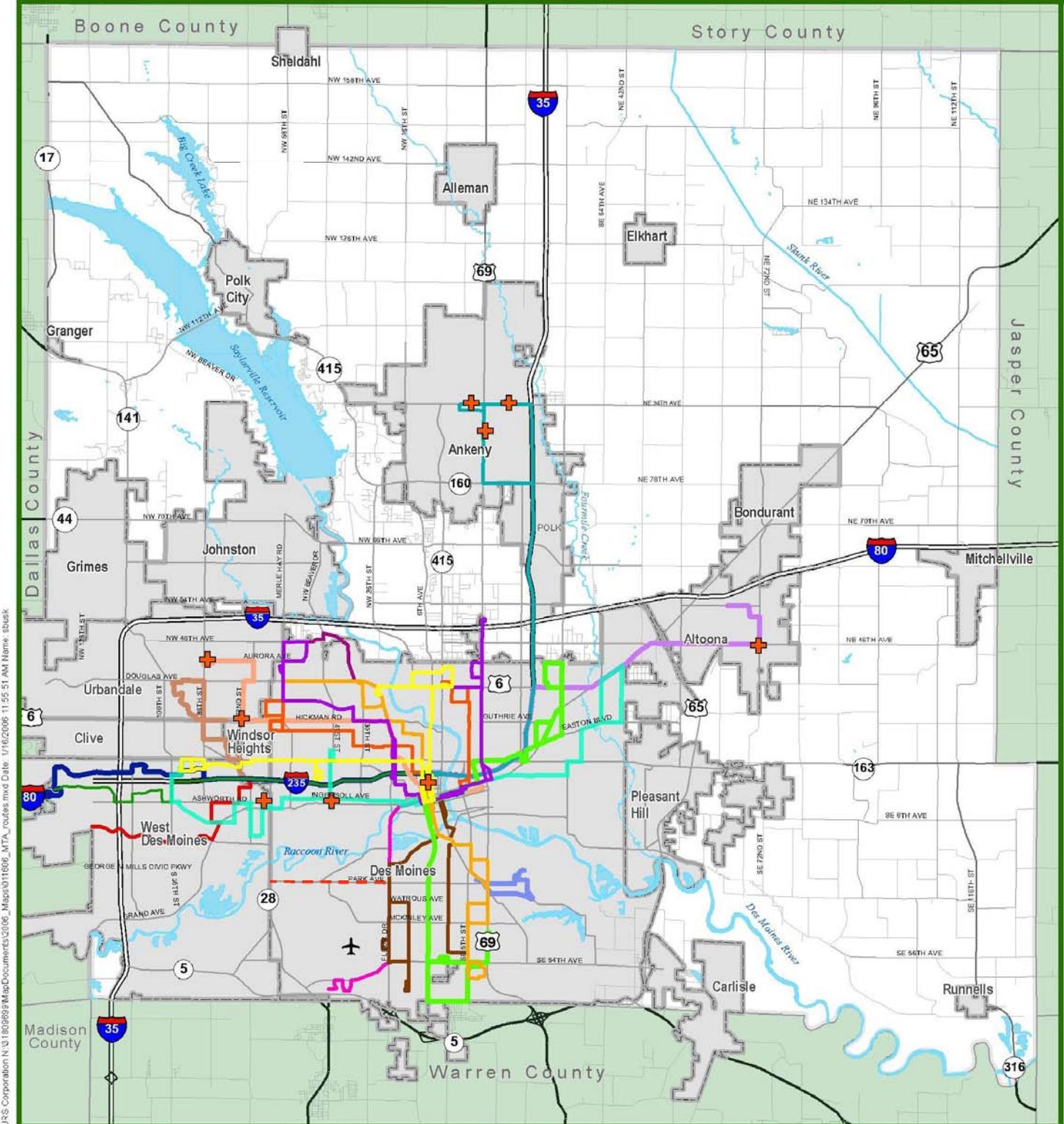
Some of the planned improvements discussed in this chapter will add capacity to these areas, thereby relieving congestion, during the time period of the Comprehensive Plan (see Figure 4.7, Long-Range Transportation Plan improvements).

#### Transit Service

Within Polk County, transit services are provided through a broad range of operating formats and programs, including:

- Fixed route bus service provided through the Des Moines Metropolitan Transit Authority (MTA). The MTA community members include the cities of Altoona, Ankeny, Clive, Des Moines, Urbandale, West Des Moines and Windsor Heights. These routes are shown on Figure 4.6.
- Paratransit service, which provides door-to-door service for elderly, disabled and special needs individuals, provided by the Des Moines MTA and the Heart of Iowa Regional Transit Agency (HIRTA)
- Rideshare services managed by Central Iowa Rideshare, including carpool and vanpool programs.
- Participation in the Des Moines Area Transportation Management Association.

Each of the agencies and government representatives/ liaisons to the identified agencies share a common goal of reducing peak hour travel time in the region by approximately 10 percent. At present, service extends north to Ankeny and east to Altoona; many growing communities, including Johnston, Bondurant and Pleasant Hill, have no transit service. The MTA is currently being reorganized as a regional agency, which will allow additional communities to be served in the future.



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- |                                |                               |                        |
|--------------------------------|-------------------------------|------------------------|
| University-Highland Oak Park   | SE Park Ave Circulator        | Westtown Express       |
| Urbandale-East 14th            | Airport S Business Pk Express | Vista Express          |
| Clark-East 6th & 9th           | Altoona Commuter              | Urbandale Express      |
| W 9th-Douglas/Indianola-Lacona | Ankeny Commuter               | SW Park Av Replacement |
| W Des Moines-Fairgrounds       | Clive Express                 | Park and Ride          |
| Ft Des Moines-Walker           | EP True Express               | Municipal Boundary     |
| SW 14th-Havens/South Union     | Northwest Express             |                        |

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**Figure 4.6**

Data Sources: DMA MPO, Polk County

### Pedestrian and Bike Trails System

While a relatively small percentage of all of the daily trips in the region are on bicycles or by foot, these travel modes are vitally important parts of Polk County transportation system. Facilities for these travel modes provide benefits for users in terms of physical fitness, enjoyment, and mobility while also benefiting the communities by decreasing traffic and air pollution.

Walking and bicycling trips are accommodated through sidewalks and multi-use trails. The trend in Polk County and surrounding areas is to accommodate bicycling through multi-use trails instead of using on-street bicycle facilities (i.e., bike routes and bike lanes). Communities within the Polk County region have made significant investments for construction of new multi-use trails over the last twenty years. A list of the major multi-use trails within and/or connecting to Polk County communities is provided in Table 4-2. (It does not include trails that cover short distances within cities or are located in parks.)

Bicycle and pedestrian usage within Polk County and the Des Moines metropolitan area is becoming more popular for recreation and other non-work trip purposes. While the level of walking and bicycling for work was only about 2.2 percent of all commuting trips in 2000, expansion of the current system will encourage an increase in the use of these modes for both work and recreational trip purposes. As gaps in the pedestrian and bike facilities system are closed through new projects, this will create greater connectivity that is needed to serve transportation commuting purposes.

Table 4-2: Major Multi-Use Trails in Polk County

Trail	Communities Served	Existing Miles
John Pat Dorrian Trail <sup>a</sup>	Des Moines	2.2
Neal Smith Trail <sup>a</sup>	Des Moines	4.0
Bill Riley Trail <sup>b</sup>	Des Moines	1.6
Gay Lea Wilson Trail	Des Moines, Pleasant Hill, Altoona (3 segments)	6.0
InterUrban Trail	Des Moines	3.6
Kruidenier Trail	Des Moines	2.0
Jordan Creek Trail	West Des Moines	12.0
Four Mile Greenway Trail <sup>b</sup>	Pleasant Hills, Altoona	6.5
Clive Greenbelt Trail	Clive	8.5
Windsor Heights Trail	Windsor Heights	2.0
Colby Trail	West Des Moines, Clive	2.2
Sycamore Trail	Des Moines to Johnston	6.5
Great Western Trail	Des Moines to Martensdale	16.5
Saylorville (East River) Trail <sup>a</sup>	Des Moines to Big Creek S.P.	19.3
Raccoon River Valley Trail	Clive to Jefferson	56.0
Chichaqua Valley Trail	Bondurant to Baxter	20.0
Highway 330 Trail <sup>b</sup>	Melbourne to Marshalltown	5.5
Summerset Trail	Carlisle to Indianola	11.0

Sources: Iowa Department of Transportation website; Iowa Natural Heritage Foundation website; Polk County Conservation Board website; City of Des Moines website; City of West Des Moines website; City of Clive website; City of Altoona website; City of Pleasant Hills website; City of Windsor Heights website; and the Des Moines Area Metropolitan Planning Organization website.

Notes:

a – These trails connect downtown Des Moines to Big Creek State Park. Dorrian and Neal Smith Trails are segments of the Saylorville (East River) Trail

b – These trails connect Des Moines to Marshalltown (a few trail segments still need to be constructed)

Cities and counties within the Des Moines region currently plan, construct, and maintain their own pedestrian and bicycle facilities. The Des Moines Area MPO coordinates the planning, mapping, and inventory activities for bicycle and pedestrian facilities through its Metropolitan Trails Planning Committee. The Committee is made up of parks and recreation staff from each of the communities, Polk County Conservation Board staff, and Conservation Board staff from adjacent central Iowa counties. This committee is responsible

for matters related to trails funding and promotion of a coordinated system of trails between communities.

Additional trail system coordination for a larger eight county region is provided through the Central Iowa Bicycle and Pedestrian Roundtable, organized in 2004 as a regional coordinating body. Funding for the regional system is proposed through the Metropolitan Trails Planning Committee.

## Goods Movement

### Truck Freight Traffic

The location of Polk County and its extensive transportation network underscores the importance of transportation not only in the state, but nationwide. The interstate corridors of I-35 and I-80 are critical trade corridors for national freight movements. Many other U.S. and state highways within Polk County and throughout the eight county area that comprise the Central Iowa Regional Transportation Planning Alliance (CIRTPA) also play an important role in freight movement across Iowa and the nation.

The segments of I-35 and I-80 within Polk County and the Des Moines metropolitan area all have truck traffic counts above 13,000 vehicles per day. (By contrast, the truck counts on I-80 are approximately 9,000 vehicles per day in Jasper County and between 7,000 and 9,000 vehicles per day in Dallas County, while truck counts on I-35 in Story and Warren County are approximately 5,000 and 4,500 vehicles per day, respectively). Other roadways within this area that experience higher truck volumes include U.S. 6, Iowa 141, and Iowa 163. Freight movement by trucking is the primary means of moving commodities in or out of the CIRTPA area.

### Freight Rail

Four freight railroad companies operate in the eight-county CIRTPA<sup>2</sup>. The area is served by three Class I railroads:<sup>3</sup> the Union Pacific (UP) Railroad, with 270.3 miles of track within the study area, the Burlington Northern Santa Fe (BNSF), with 56.8 miles of track, and the Norfolk Southern (NS) Railroad, with seven miles of track.

The fourth railroad company serving this area is the Iowa Interstate Railroad (IAIS) with 131.9 miles of track within the

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<sup>2</sup> "Goods Movement in the Des Moines Metropolitan Area" report by the Des Moines Area Metropolitan Planning Organization, June 2002.

<sup>3</sup> A Class I railroad is defined as a long-haul rail carrier with operating revenue in excess of \$258.5 million in 1999.

study area. The IAIS is defined as a Class II railroad.<sup>4</sup> No Class III railroads, also known as "short-lines," currently serve Polk County. However, the City of Bondurant is working with the Iowa Department of Transportation and Polk County to improve and operate a short line railroad that will run from Des Moines north to the eastern edge of Bondurant, serving existing and proposed industrial parks in that area.

#### Air Travel and Freight

Polk County and Central Iowa are served by the Des Moines International Airport, the Ankeny Regional Airport and six airfields that are located within the county borders.

The Des Moines International Airport serves as the major air passenger and airfreight center for an 18-county area of central Iowa, with its primary service area being Polk, Dallas, and Warren Counties. As Iowa's largest airport, DMIA handles large numbers of passengers and goods. The number of passengers using DMIA is approximately 1.7 to 1.8 million per year. The DMIA is ranked among the top 50 airports in the nation in terms of the amount of cargo shipped.

The Ankeny Regional Airport is the principal reliever facility for the Des Moines International Airport. Currently, the Ankeny Regional Airport Master Plan is being updated.

#### Intermodal Facilities

Intermodal facilities serve an important role in the transportation of goods. More than one mode of transportation is often used to move goods from their origin to destination. The Des Moines and Ankeny airports are both air/truck intermodal facilities, and there are several pipeline and rail/truck facilities located in Des Moines and Clive. In addition, grain elevators also qualify as intermodal facilities since they typically interact with trucks and railroads.

#### Transportation-Related Issues

Many transportation related issues were identified in the course of the planning process by the Area Committees, Steering Committee, and Housing and Economic Development Task Forces. The issue of highway congestion was identified most frequently as an increasing problem (especially in specific location such as IA Highway 141) with the potential to degrade the region's quality of life and slow its economic growth. At the same time, there was concern that road improvements would lead to sprawl and increase congestion on local roads. Other issues related to the relationship between land use and transportation planning and the need or

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<sup>4</sup> A Class II railroad is defined as a line-haul railroad operating 350 or more miles of track and/or with revenue of at least \$40 million in 1999.

desire for transit and trail improvements. The primary issues can be summarized as follows:

Congestion and Access Problems: Several roads or intersections were identified as problem areas, including:

- Iowa 141 – access points and access management
- I-35/80 – need for new interchanges serving Northwest communities
- NW Second Street (Iowa 415) south of Ankeny

Northeast Beltway: This proposed arterial was the subject of many comments, particularly in the Northeast and North Central planning areas (the beltway corridor follows the boundary between these areas). Comments can be grouped into four categories:

- The proposed route will promote sprawling development patterns in the predominantly agricultural areas of Polk County;
- The design of the route will greatly affect its functioning and impacts on land use – i.e., a controlled access (freeway) road with interchanges, a limited access road with intersections, or a parkway type of design;
- The route could be an important economic development tool facilitating growth in and around cities in eastern Polk County;
- It is premature to plan for land uses along the route before environmental studies are complete and funding is in place.

Local Roads and Agricultural Needs: The grid of local section-line roads is important for agriculture-related transportation needs, and should be maintained and enhanced. Roads should be designed to accommodate farm vehicles and avoid creating conflicts with bikes or pedestrians. There are differences of opinion as to whether all local roads should be paved.

Coordination of Land Use and Transportation: There is strong support for coordination of transportation improvements with land use. Transportation improvements should be planned concurrently with land development.

Transit Improvements: There is strong interest in fostering improved public transit and alternatives to the automobile, including commuter rail, light rail, and other transportation technologies. It is recognized, however, that only certain corridors or activity centers within the County can sustain the densities needed to support improved transit service.

Trail Improvements: There is strong support for trail extensions and improvements to serve a variety of goals –

recreation, transportation, open space and natural resources protection. Trails should be located and designed as multi-purpose greenways, and should avoid conflicts with agricultural vehicles or activities.

## Transportation Policies

Regional transportation goals, objective and policies have been addressed through a range of coordinated efforts by Polk County, individual communities within the county, the Des Moines Area MPO, and the Transit 2030 Committee. The Comprehensive Plan is focused on the county roadway system, but coordination and consistency with the goals and objectives of the Long-Range Transportation Plan is necessary to provide a seamless multimodal transportation system within the county. The LRTP goals and objectives are included in Appendix A following this chapter.

### Transit 2030 Process Vision Statement

The Transit 2030 Committee was organized in 2005 by the MTA and Greater Des Moines Partnership as a "blue ribbon" committee of business and community leaders to develop a vision for Greater Des Moines transportation system, looking out towards the year 2030. The effort is intended to enhance and complement the MPO's transportation system planning and program implementation.

The yearlong Transit 2030 Committee effort has resulted in a consensus vision and initial strategies for addressing the vision. The process and results have been endorsed by the MPO, the MTA, cities in the region and the business community. The vision statement is as follows:

In 2030, Greater Des Moines' world-class metropolitan community will move on a world-class transportation system that:

- Invigorates the local economy, reduces reliance on single-occupant vehicles and guarantees the shortest commute to work time of any metropolitan area in America.
- Plays a proactive role in planning and growing a connected community composed of a vibrant downtown Des Moines, thriving neighborhoods and outstanding suburban communities.
- Enhances quality of life by making it possible for everyone to enjoy all facets of culture, entertainment and education.
- Innovates and leads in providing regional and multi-modal mobility solutions in a cost-efficient and cost-effective manner.

- Attracts all customers by providing safe, convenient, accessible, clean, affordable and comfortable service.

### General Polk County Transportation Policies

It is the County's desire to balance new private development and public investment in roads in order to maintain reasonable traffic patterns, protect inter-community traffic flow on regional highways, improve traffic safety, and promote multi-modal transportation options.

#### Policy 1 - Roads and Highways

Investment in local traffic infrastructure and inter-community or regional infrastructure are both needed to allow reasonable access to employment centers, homes, services, and retail centers. Polk County will manage road and highway investment to stabilize local traffic patterns and protect the flow of arterial traffic.

#### Policy 2 – Public Transit

Efficient use of road infrastructure requires investment in alternatives that provide choices for commuting, errands, and access to critical services. Polk County will promote efficient public transportation and multi-modal alternatives to the private automobile and will encourage transit-oriented development along corridors capable of supporting enhanced transit service.

#### Policy 3 – Agriculture and Transportation Infrastructure

Location of transportation infrastructure, the capacity of roads to handle agricultural needs, and management of road use are important for keeping agriculture viable in the County. Polk County will guide development and expansion of transportation in agricultural areas so as to enhance the viability of agricultural practices in regard to siting of new roads, improvement and maintenance of existing roads, and creation or maintenance of rail transportation options.

#### Policy 4 - Transportation Access

Conflicts between local traffic and regional traffic increase congestion and create demand for expensive post-development modifications to regional transportation corridors. Polk County will enhance and manage transportation infrastructure to improve access to regional highways for residents and businesses.

#### Policy 5 - Transportation and Land Use

Transportation infrastructure investment and new development are integrally related – land use choices create traffic demand, and road investment creates

development opportunities. Polk County will consider the land use impacts of transportation investment choices and will consider multi-modal alternatives to road expansion or improvements that might have distinct impacts on development opportunities.

### Specific Policies and Actions

Following are more specific policies, projects and initiatives that apply to all or part of Polk County.

#### L RTP Projects

The Des Moines Area Metropolitan Planning Organization on December 16, 2004 adopted the 2030 Long Range Transportation Plan (LRTP) covering portions of Polk, Warren and Dallas Counties. The plan was developed through a collaborative effort between the 15 member communities and three member counties in the region, including Polk County. The Recommended Plan projects included in the LRTP address the multimodal systems in the region (roadways, transit, non-motorized) within the framework of the region's transportation funding.

The improvement projects contained in the LRTP are focused on enhancing traffic flow, reducing the impacts of population growth, and bringing economic development to the region. In developing the plan the Des Moines Area MPO worked with member governments, including Polk County, to determine where new roads will be constructed and where capacity will be added to existing facilities.

Figure 4.7 displays the Polk County projects contained in the adopted LRTP. Note that some of the projects listed for 2005 have now been completed and do not appear on the map. A listing of all projects is provided in Appendix C.

Road Improvement Projects: Regional road improvement projects that are considered particularly important to alleviate congestion within Polk County and to achieve the economic development goals of the Comprehensive Plan include the following:

- Southwest Connector: The proposed route provides a high-level, four-lane divided connection between Warren County and downtown Des Moines. The alignment, displayed in Figure 4-7, provides connectivity between suburban residential development in northern Warren County, business park development adjacent to the Des Moines International Airport and employment and housing opportunities in downtown Des Moines.
- Southeast Connector: The proposed route will provide an arterial corridor connecting the Martin

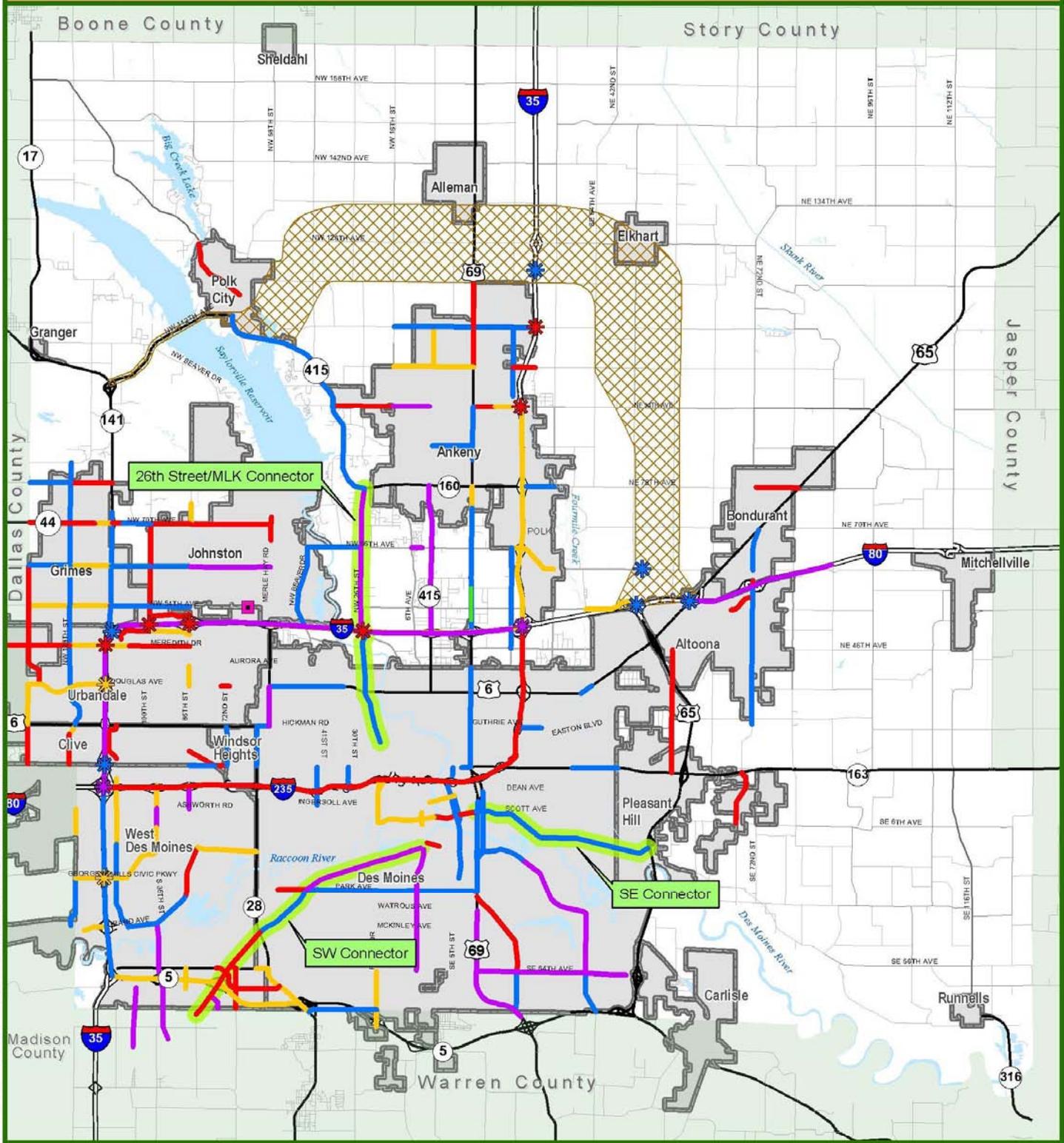
Luther King Jr. Parkway (MLK) at SW 2<sup>nd</sup> Street in the heart of Des Moines to US 65 in the eastern metro.

Development of the Southeast Connector is intended to provide an attractive, convenient and efficient travel corridor from which other adjacent development and redevelopment will be encouraged, as well as improved goods distribution via quick access to Highway 65 and the Interstate system

- Martin Luther King Parkway / 26<sup>th</sup> Street Extension: Providing the MLK Extension from 19<sup>th</sup> Street to I-80/I-35, including a new interchange and improving NW 26<sup>th</sup> Street from I-80/I-35 to Iowa 415 (NW 78<sup>th</sup> Avenue) provides a continuous relief corridor between Polk City, Ankeny and downtown Des Moines. Currently, the route between Polk City and Des Moines is circuitous and the two-lane route is congested. The proposed 4-lane divided corridor will provide substantial relief to Iowa 415 (NW 2<sup>nd</sup> Street) and NW 6<sup>th</sup> Drive.
- Iowa 141 Improvements: Iowa 141 is proposed to be widened from a four-lane to a six-lane divided highway from the I-35/80 interchange north to IA 44. The improvement will provide additional capacity to serve growing areas of Grimes and Johnston. There is still concern that access to the highway in parts of the Northwest planning area presents safety hazards and delays. Access management needs to be implemented in order to prevent further degradation of the facility.

Interchange Improvements: Economic development in the region is closely linked to the ability to move within and through the region, and this in turn is tied to access to the Interstate routes. The 2030 Long Range Transportation Plan includes a number of new and or substantial improved Interstate accesses that will support economic development in the county, including:

- I-80/I-35/Meredith Drive: Interchange improvements to the south to reduce congestion at the tight loop ramp.
- I-80/I-35/MLK Extension/26<sup>th</sup> Street: A new interchange proposed as part of the MLK to 26<sup>th</sup> Street extension project.
- I-80/I-35/100<sup>th</sup> Street: A new interchange intended to relieve congestion at the 86<sup>th</sup> Street and IA 141 interchanges and provide additional access to developing areas in Johnston and Urbandale.



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**Road Improvements    Interchange Improvements**

- |  |  |
|--|--|
| <span style="color: yellow;">—</span> 2005 | <span style="color: yellow;">★</span> 2005 |
| <span style="color: red;">—</span> 2010    | <span style="color: red;">★</span> 2010    |
| <span style="color: blue;">—</span> 2020   | <span style="color: blue;">★</span> 2020   |
| <span style="color: purple;">—</span> 2030 | <span style="color: purple;">★</span> 2030 |

  NE Beltway Corridor



**Figure 4.7**

Data Sources: DMA MPO, Polk County

### Northeast Beltway

The Northeast Polk County Beltway is a roadway concept included in the LRTP and currently under study by Polk County. The corridor is characterized as a circumferential route linking the I-80 and 5/65 corridors to IA 141 via the Mile Long Bridge and IA 415. Planning for the corridor began prior to the Comprehensive Plan effort, and will continue into the future. A feasibility study for the corridor was completed in 2005, focusing on identifying the corridor and various options for roadway design. The focus of the analysis was corridor preservation, not development or immediate acquisition of adjacent lands, or changes to land use or zoning.

The general alignment proposed as part of the concept is displayed in Figure 4.7 and on the Future Land Use Plan, Figure 3.2. The feasibility study was focused on evaluating the need for a beltway facility and, should a need be supported, identifying basic parameters such as the number of lanes and general access locations.

Forecasted traffic estimates along the identified alignment for the 2030 horizon are:

- Mile Long Bridge: 17,400 vehicles per day
- Iowa 415 to NW 161<sup>st</sup> Street: 11,600 vehicles per day
- NW 161<sup>st</sup> Street to I-35: 17,500 vehicles per day
- I-35 to NE 102<sup>nd</sup> Avenue: 25,000 vehicles per day
- NE 102<sup>nd</sup> Avenue to NE 78<sup>th</sup> Avenue: 31,000 vehicles per day
- NE 78<sup>th</sup> Avenue to I-80: 46,000 vehicles per day

Based on the volume estimates for 2030, the following facility types are an alternative for the Northeast Beltway Feasibility Study:

- NW 44<sup>th</sup> Street to US 69: Four-lane principal arterial with at-grade access points at one mile spacing. For the purposes of providing for a consistent design throughout the corridor, a four-lane, full access control facility (freeway) could be provided.
- US 69 to I-80/US 65: Four-lane, full access control principal arterial (freeway) with interchange access provided at the following locations:
  - NE 62<sup>nd</sup> Avenue
  - NE 78<sup>th</sup> Avenue
  - NE 94<sup>th</sup> Avenue

- NE 110<sup>th</sup> Avenue
- NE 126<sup>th</sup> Avenue
- US Highway 69

If the full access control concept is extended to the west terminus, interchanges are also recommended at the following junctions:

- NW 16<sup>th</sup> Street
- NW 44<sup>th</sup> Street

In the full access control concept of the Northeast Beltway corridor, additional county and municipal routes on the one-mile grid cross the identified freeway corridor. To provide and/or maintain continuity along these routes, grade-separated crossings are anticipated. Crossings are anticipated at the following locations:

- NE 70<sup>th</sup> Avenue
- NE 102<sup>nd</sup> Avenue
- NE 118<sup>th</sup> Avenue
- NE 38<sup>th</sup> Avenue
- NE 29<sup>th</sup> Avenue
- NE 22<sup>nd</sup> Avenue
- NW 2<sup>nd</sup> Street

The land use plan shows continued preservation of the highway corridor, but does not assign any additional development to the area adjacent to the corridor or the interchanges proposed as part of the concept. Essentially, this means that the corridor would be preserved in agricultural use until further studies, including environmental impact studies, are complete.

#### Improvements Outside the MPO Boundary

The Des Moines Area MPO jurisdiction does not cover the entire limits of Polk County. Current and/or planned land uses in areas within the County but outside MPO limits largely fall into the following categories:

- Agriculture
- Agricultural Transition
- Countryside and Estate residential (densities of one unit per 10 acres and one per 3 acres respectively)
- Open Space – County Conservation Board and DNR lands, as well as lands with the 100-year flood zone of the Des Moines River, Skunk River, Indian Creek and other waterways.

Therefore, development in the areas outside the MPO boundaries will be limited in scale and extent. The majority of the land will remain in agriculture, with limited low-density residential development and agriculture-related commercial development. Thus, improvements to the county transportation system to support the anticipated development will be limited to:

- Paving projects as development is completed.
- Traffic signals at key intersections where traffic, pedestrian or crash experience results in meeting warrants.
- Extension of the trail systems.

The road improvements are relatively minor and would likely be completed by developers as part of development of the adjacent areas or incorporated in the Capital Improvement Program as development occurs. Trail system extensions are being pursued at a County and regional level, as discussed earlier in this section.

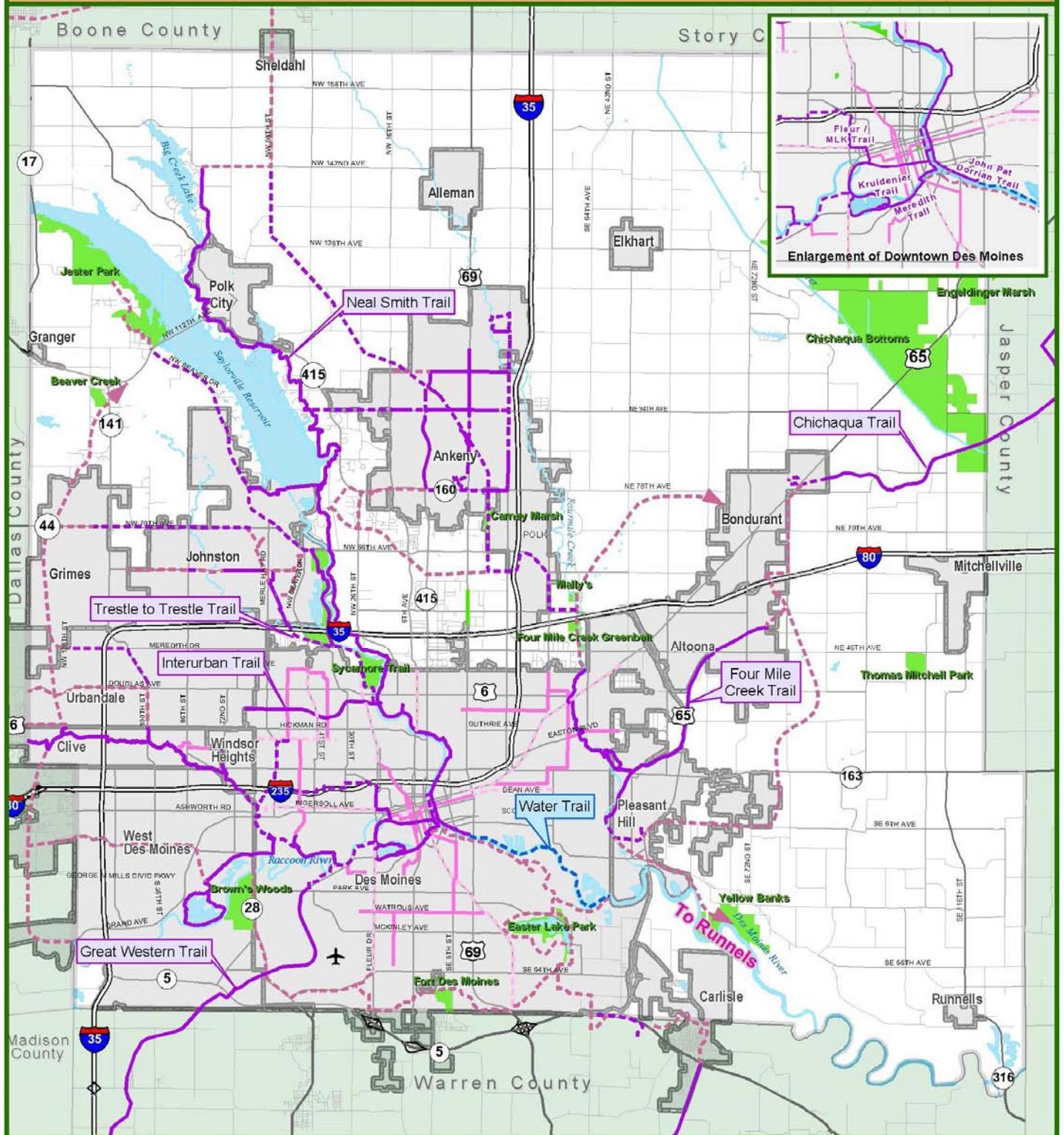
#### Trail Improvements

Trails play a vital role as both transportation corridors and as linear open space, also characterized as “green infrastructure.” As discussed in Chapter 5, Environmental Quality, trails are planned and proposed to link County and State parks and natural features. Trails are also part of the transportation system, especially when they can be used for commuting or to replace other trips that would otherwise be made by car.

The Trails map (Figure 4.8) includes three categories of off-street multi-use trails: existing, proposed, and planned. Planned trails are those trail corridors that have been identified and for which funding is likely available. Proposed trails do not have a specific right-of-way or corridor, but merely an approximate corridor or identified end points, and may need funding before specifics can be identified. Proposed trails include priorities for filling gaps, such as between Ankeny and the Chichaqua Trail in Bondurant, the Four Mile Creek Trail connection to the Chichaqua Trail, the Trestle to Trestle Trail between Des Moines and Johnston and the planned connection from Des Moines, through Ankeny and Sheldahl, to the Heart of Iowa Trail in Boone County.

# Polk County 2030 Comprehensive Plan

## Existing and Planned Trails and Bicycle Facilities



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- Trail, Existing
- - - Trail, Planned Regional
- - - - - Trail, Proposed Regional
- - - - - Bicycle Lane, Planned
- Bicycle Route, Existing



0 2 4  
Miles

Prepared by  
**URS**

**Figure 4.8**

Data Sources: DMA MPO, Polk County

The current 2006-2008 Transportation Improvement Program prepared annually by the MPO lists 11 trail projects, of which two in particular would provide needed linkages in Polk County:

- Four-Mile Creek Greenway Trail, from Ankeny to the Neal Smith Trail (at the Des Moines River)
- Trestle-to-Trestle Trail, paralleling the west bank of the Des Moines River from Johnston to Des Moines.

Other listed trails would help complete the American Discovery Trail loop through Des Moines, with connections to the Clive Greenbelt and other trails in the western suburbs.

Regional Transit

As part of the Transit 2030 Committee visioning process, five key regional transit ideas were developed:

- Transit will be a world leader in providing multi-modal mobility solutions for the entire region.
- Transit will be an important and proactive partner in planning a great metropolitan area composed of a vibrant downtown Des Moines, a comfortably dense urban core and outstanding suburban communities.
- Transit will coordinate with other transportation modes to insure that commutes to work in the region never exceed twenty (20) minutes.
- Transit will be attractive to all potential customers by striving for excellence in providing safe, convenient, clean and comfortable service.
- Transit will enhance quality of life by making it easier for people to enjoy all facets of culture, entertainment and education.

Through discussions with MTA staff, eight general rapid transit corridors that extend the system to growing areas of the county and enhance current capacity within developed areas of the central core have been identified. Specific definitions of rapid transit have not been established and will be the focus of a study to be conducted by MTA in the near future. In general, rapid transit encompasses the concepts of:

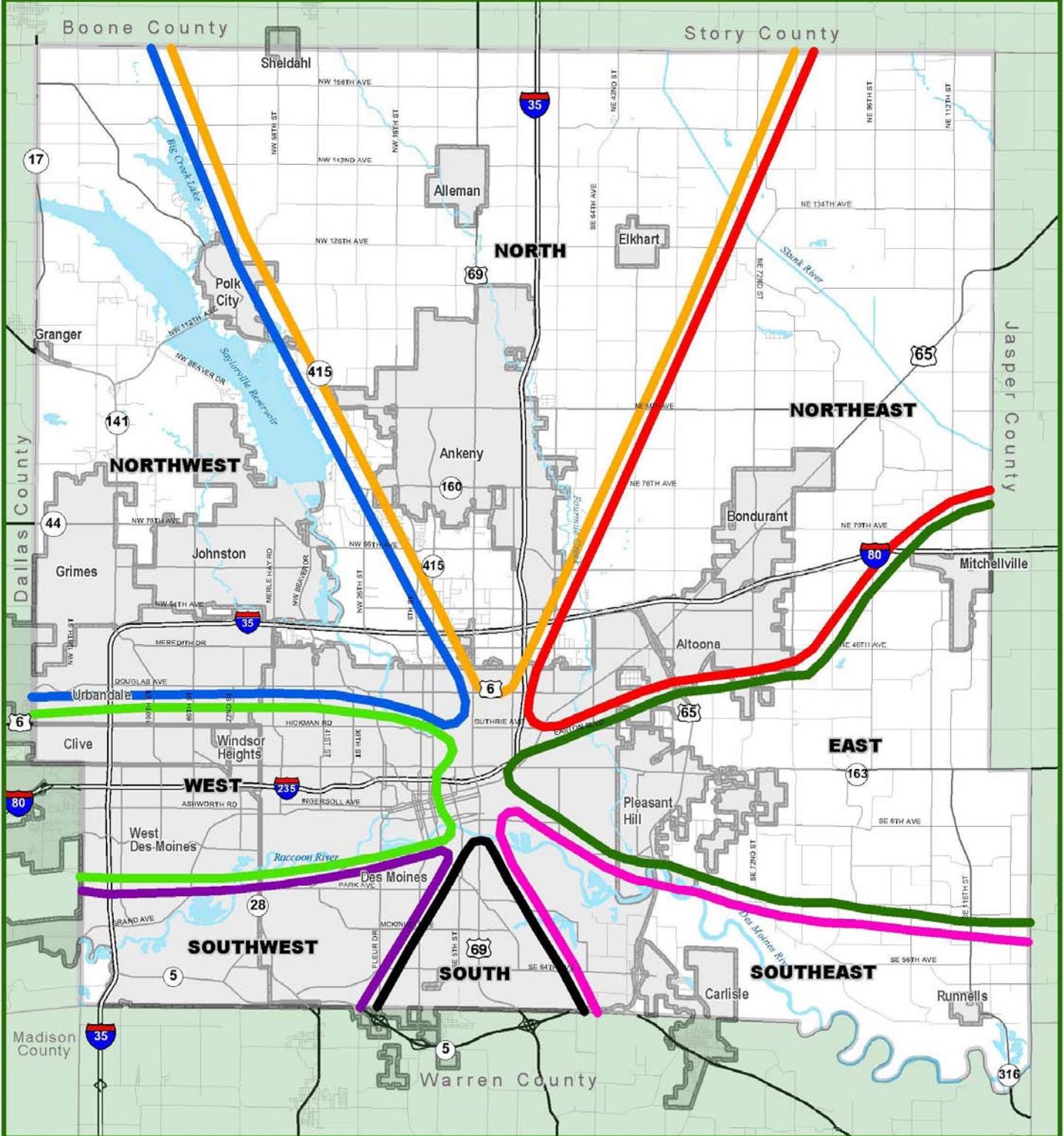
- Bus Rapid Transit: Limited stop service between higher intensity stations, generally containing park and ride facilities and served by feeder routes. Line haul segments could be in shared or transit-only (dedicated) right-of-way.
- Light Rail Transit: Limited stop, high volume service provided using single or multiple unit vehicles running on a fixed rail track in a dedicated or shared right-of-way.

“The Des Moines Area Metropolitan Planning Organization (MPO) was proud to be part of the Transit 2030 process and is excited about the Vision the group created. This Vision will challenge all of us to think more regionally as we develop transportation and land use plans.”

*Tom Kane, Executive Director, Des Moines Area MPO*

“Through an active partnership with the community, customers and stakeholders, the MTA will be developing a strategic plan that will help us develop the efficient and productive transportation system that will be needed to meet the mobility challenges of 2030”.

*Christine Hensley, MTA Board Chair*



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**Transit Enhancement Corridors**

- North
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest



0 2 Miles

Prepared by  
**URS**

**Figure 4.9**

Data Sources: Des Moines Metropolitan Transit Authority

The general coverage of each of the corridors is displayed in Figure 4.9. Corridor opportunities within each of the eight corridors include:

- Existing highways and roadways that would be modified to incorporate rapid transit. Modifications may include reassignment of current lanes for dedicated rapid transit use, development of new alignments within the current or an expanded right-of-way, expansion of current roadway width to provide for a rapid transit lane, shared rapid transit and general purpose travel lanes.
- Use of rail corridors as shared rapid transit and freight corridors or dedication of corridors for rapid transit.
- Establishment of a new corridor dedicated to rapid transit use.

The Land Use Plan identifies three road corridors within the County as Transit/Access Management Corridors: Iowa Highway 141, Iowa Highway 163, and NW Second Street/Highway 415. Of these, NW Second Street is particularly significant since it links the proposed large mixed-use Prairie Trail development in Ankeny with developing areas of Saylor Township, I-80/35 and downtown Des Moines.

All three corridors appear to have potential as routes that combine rapid transit with general vehicular travel, and are recommended for further study.

#### Corridor Access Management

Access management policies along the three road corridors listed above are controlled by the Iowa Department of Transportation, but land use policies should be focused on centralizing access points and coordinating land uses around them, to create better connections between uses and parcels for pedestrians as well as vehicles.

A variety of access management, location, and design practices and policies can be used to improve the safety and operations of the roadways within the county's jurisdiction. Detailed descriptions of the management techniques are included in the Iowa Statewide Urban Design and Specifications (SUDAS) manual. Of the range of potential techniques, the following should be included as part of the implementation of the Comprehensive Plan:

1. Limiting the number of conflict points between vehicles, vehicles and pedestrians and vehicles and bicycles.
2. Increase driveway spacing. Recommended driveway spacing along county routes, by functional

classification, is displayed in Table 4-3. Recommended spacing along state routes is documented in Table 4-4.

Table 4-3: Recommended Driveway Spacing on County Roads by Functional Classification

County Road Route Type	Minimum Spacing Between Driveways (Feet)	Number of Driveways Per Mile
Minor Arterials	600	9
Collectors	300	18
Local Traffic Service	150	36

Table 4-4: State Highway Access Spacing Recommendations

State Highway Priority	Minimum Spacing Between Driveways	Number of Driveways Per Mile	Comments
Priority I - Full Access Control	Interchanges at roads	NA	
Priority II - Four Lane Divided	2,640' (minimum)	2	Access allowed only at interchanges and selected at-grade locations
	5,280' (preferred)	2	
Priority III	1,000' rural (minimum)	4	Access allowed only at interchanges and selected at-grade locations
	1,320' rural (preferred)	4	
Priority IV(a)*	600' rural ( $\geq 45$ mph)	8	
Priority IV(b)*	300' urban ( $\leq 40$ mph)	16	
Priority V - Access Right Acquired Between 1956 to 1966	1 Access per 1,000 feet of frontage not exceeding 2,000 feet	5	
Priority VI	Function of safety and need	Varies	

\* Refer to SUDAS Manual Section 5C-1, Tables 1 and 2 for application of Priority III and IV (a) and IV (b) access control.

3. Driveway design criteria. These criteria allow drivers to maneuver on to the major roadway more efficiently and safely.

4. Removing turning vehicles from the through traffic lanes.
5. Reducing the number of turning movements at mid-block points.
6. Improving traffic operations on the roadway.
7. Improve pedestrian safety through reducing the number of driveways per block, providing sidewalks or detailed trails, reducing the roadway crossing width, etc.

Other access spacing considerations to be incorporated into the corridor planning process include:

1. At a bare minimum, the upstream corner clearance should be longer than the longest expected queue at the adjacent intersection.
2. High speed, high volume roadways need longer corner clearances whereas the corner clearance on a local street can be quite short.
3. Residential streets - driveways on corner lots should be located on the lesser street and near the property line most distant from the intersection.
4. Commonly requires that all elements of an access drive, including the radii be within a property frontage.
5. At a minimum, all driveway geometrics should be along the frontage of the property served by the driveway.
6. On major roadways, the corner clearance should be at least as long as the stopping sight distance so that vehicles turning corners can make safe stops when encountering entering traffic.
7. Encourages owners of adjacent properties to construct joint-use driveways in lieu of separate driveways.
8. Encourages a property owner to replace two or more driveways with a single driveway (or fewer driveways).
9. Adjacent properties: Joint access is located on the property line. Reciprocal easements must be executed.

**Conflicts Can Arise if Access Points/Driveways are Too Close to Intersections**

Potential Conflicts:

- Congestion/Traffic Flow Problems Due to Blocking Access
- Rear-end Crashes

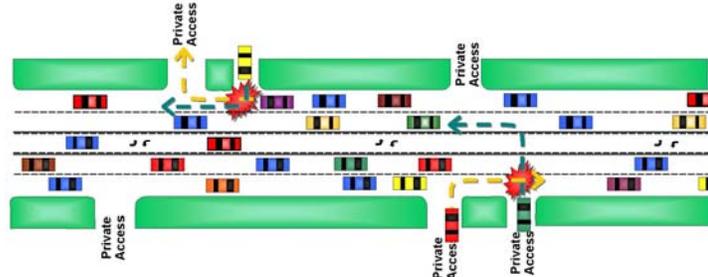
**Action:**

Set Access Back from Intersection

### Conflicts Can Arise as the Number of Access Points Grows

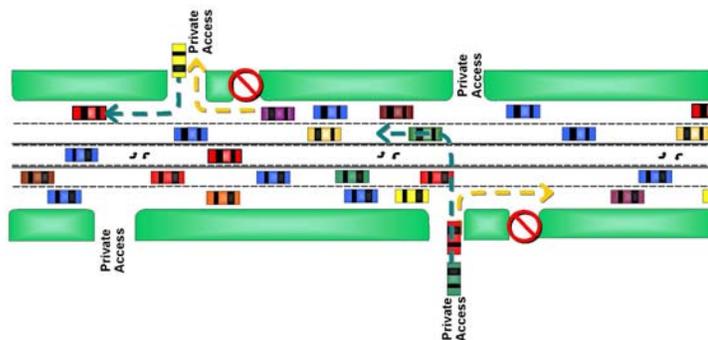
Potential Conflicts:

- Right Angle Crashes
- Traffic Flow Problems due to Turning Vehicles



Action:

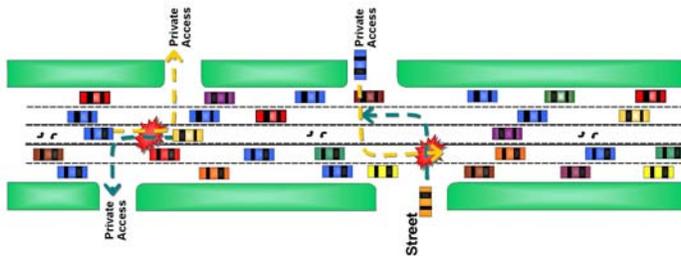
- Consolidate Drives to Reduce Total Number



Conflicts Can Arise if Access Points/Driveways are Not Properly Aligned

Potential Conflicts:

- Head on Crashes
- Right Angle Crashes
- Traffic Flow Problems due to Blocking Access



Action:

- Align Drives Opposite Each Other

