Demographics and Forecasts

2.1 Historic MAPA Population

Population and employment in the MAPA region have grown steadily for decades. Although the economic recession that began in 2008 has slowed the region's development recently, continued growth is expected to occur for the coming 25 years. Significant changes to the make-up of the region's population will take place that will play an important role in the transportation system and its ability to meet future demands.

The 3-county MAPA TMA [1] is home to approximately 750,000 people (see Figure 2.1). It is the largest metropolitan area in Nebraska and Iowa, and an important economic center in the Midwestern U.S. The total population has increased over 25% from 1970, when the population was nearly 550,000.

Figure 2.1
Historical Population Trends

County	1970	1980	1990	2000	2008
Douglas	389,455	397,038	416,444	463,585	502,032
Sarpy	66,200	86,015	102,583	122,595	150,467
Pottawattamie	86,991	86,561	82,628	87,803	89,647
MAPA Total	**542,646**	**569,614**	**601,655**	**673,983**	**742,146**

Population growth has not been consistent in all three MAPA counties. Sarpy County's population has soared in recent years, averaging over 20% growth each decade. Douglas County's population has tracked closely with the MAPA total, typically ranging between 5 and 12 percent growth per decade. Pottawattamie County's population declined during the 1970s and 1980s, but rebounded for modest growth during the 1990s and 2000s. Figures 2.2 and 2.3 demonstrate these changes by county.

These county growth patterns reflect the overall pattern of population growth along the outer suburban areas and population decline or stability in the older, urban portions of metro area. Figure 2.4 illustrates this pattern average growth rate by Census Tract between 1970 and 2000. Note the red-colored tracts in the outer portion of the Metro Area showing increased population, whereas the light yellow and blue tracts show no growth or population decrease. Overall, the population increases greatly outweigh the

[1] This section uses the entirety of Pottawattamie County in all population statistics and projections. The MAPA TMA only includes the western-most portion of Pottawattamie County (see Section One), but over 80% of the county's population lives within the MAPA TMA.

decreases. Note that the while the blue-colored tracts indicate declines of 1,500 or more persons, the dark red tracts indicate increases of greater than 10,000 persons!
While all three MAPA counties have seen significant new suburban construction in the past decade, the highest concentration of new subdivisions is located along the western edges of the metro area. In 2005, the City of Omaha annexed the former City of Elkhorn. Corridors of continuous development now exist between what were formerly two distinct communities. There is also notable development in the unincorporated area of northwest Sarpy County between Gretna and La Vista.

FIGURE 2.2
TOTAL HISTORICAL POPULATION TRENDS BY COUNTY, 1970 – 2008

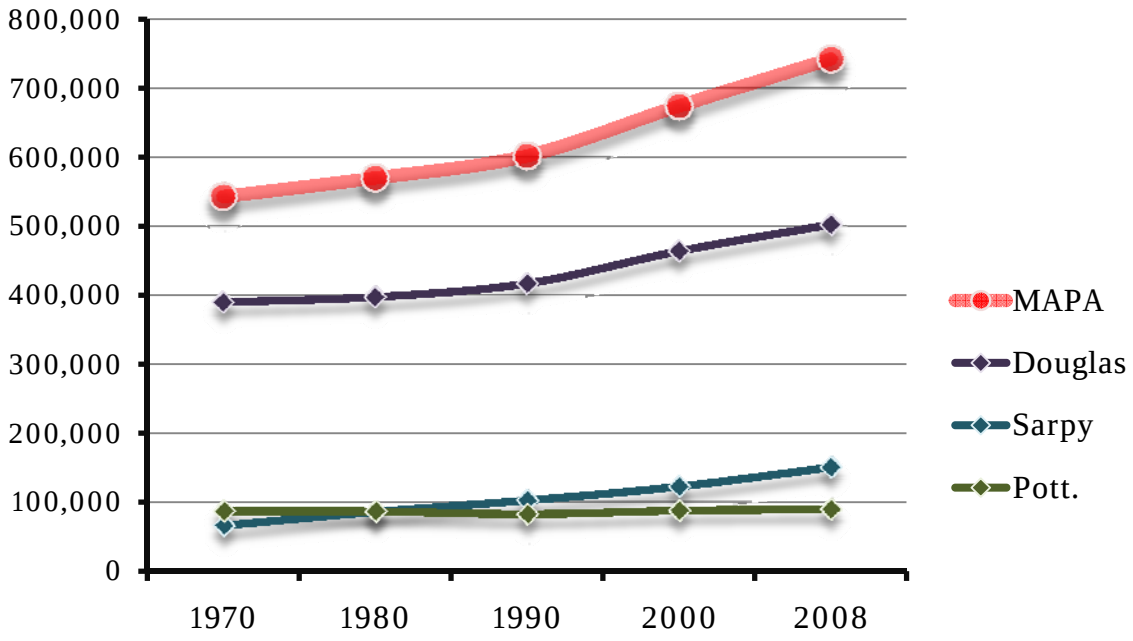


FIGURE 2.3

POPULATION GROWTH RATE BY COUNTY, 1970 – 2008

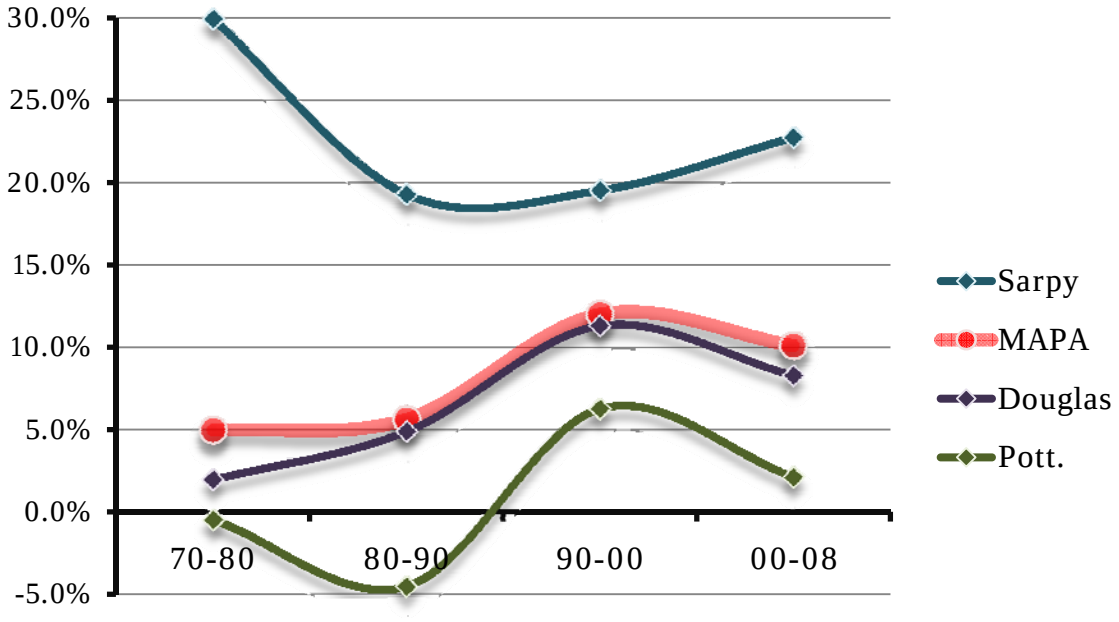
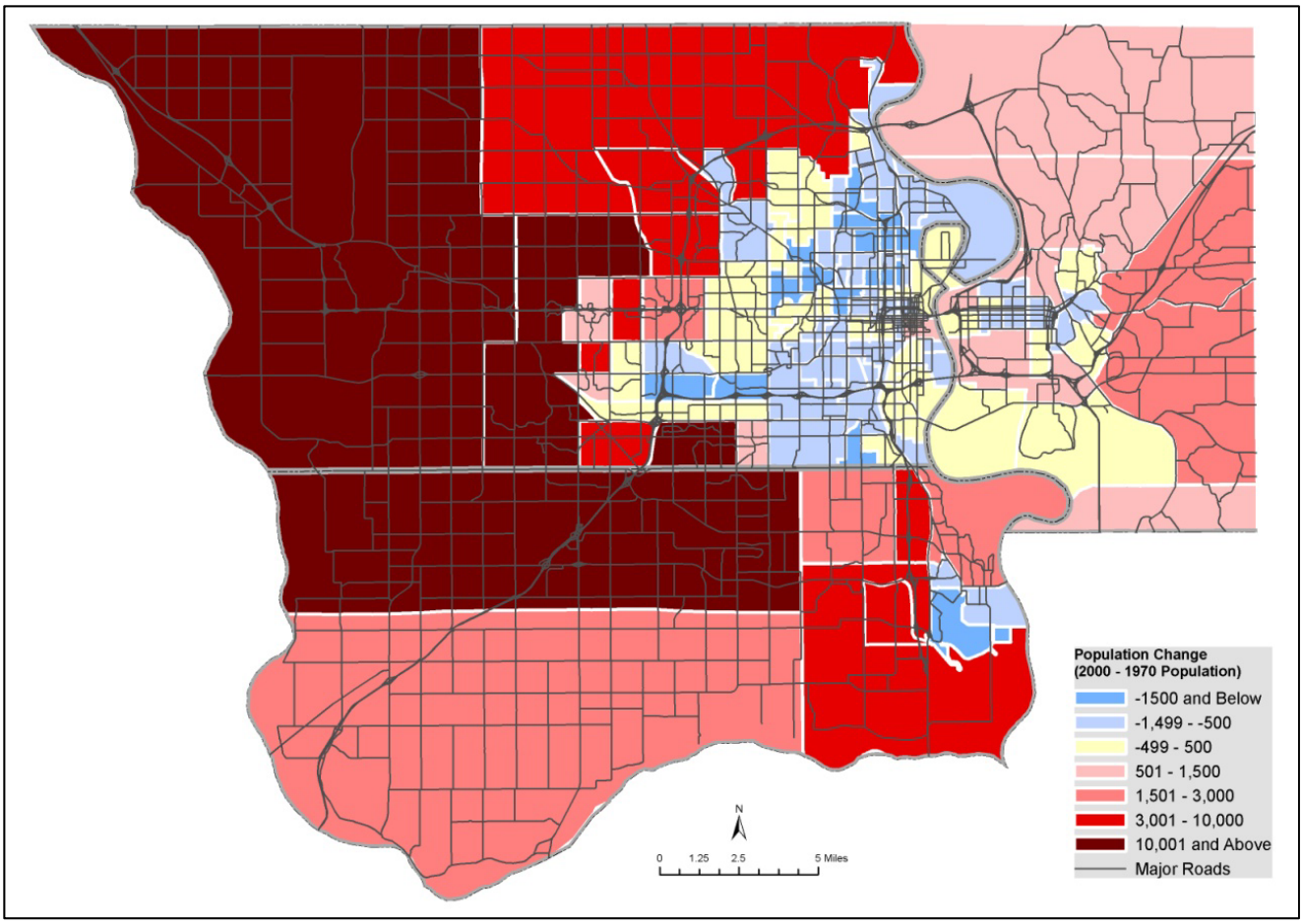


FIGURE 2.4
POPULATION CHANGE 1970 – 2000
DISTRIBUTED BY 1970 CENSUS TRACTS



New development is not confined to the suburbs. Recently, there have been significant redevelopment efforts in the urban core, including the Midtown Crossing, Aksarben Village, and extensive loft and condominium projects downtown and along the Riverfront near the Qwest Center. The City of Omaha is planning more similar projects in future years. Urban neighborhoods such as Dundee and Aksarben in Omaha and downtown Council Bluffs remain very popular for the charm of unique houses, tree-lined streets, and proximity to urban amenities. The City of La Vista undertook a corridor plan for 84th Street that proposed medium and high-density housing along European-style streets.

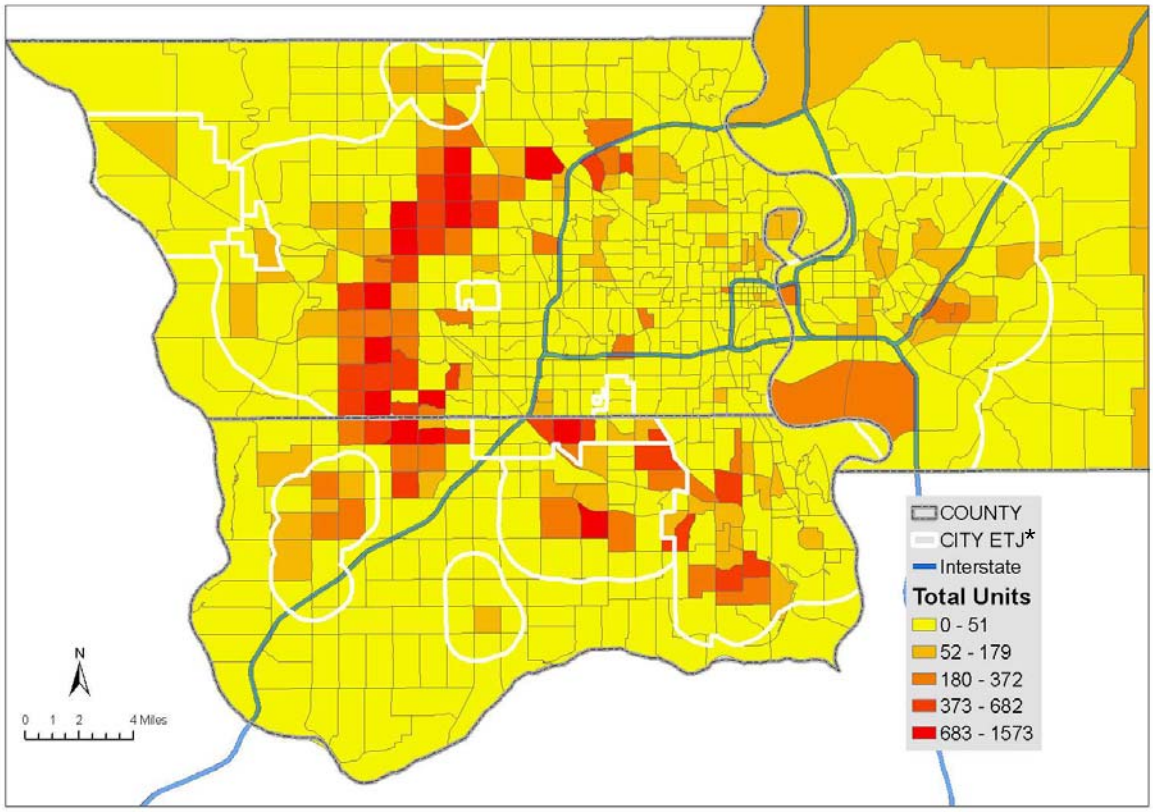
City leaders are trying to bring a revival of new business opportunities to North Omaha through efforts such as the North Omaha Development Project. South Omaha neighborhoods have been growing in the past 20 years thanks to a large influx of immigrants. This wave of immigrants primarily hails from Latin America, but the Omaha region also has a significant Sudanese population.

Much of the anticipated growth in this higher density residential market is due to two factors:

1. Young professionals, many of whom are choosing to live in urban settings where they can be close to work and social activities.
2. Retiring baby boomers that do not mind giving up the required maintenance and work associated with owning a single-family home, and also desire to live near work and social activities available in a more urban setting.

Figure 2.5 shows the current population density and recent building permits in the MAPA TMA:

FIGURE 2.5
RESIDENTIAL BUILDING PERMITS
TOTAL RESIDENTIAL UNITS 2000 – 2008



*City ETJ – Extra Territorial Jurisdiction (The City of Omaha's zoning jurisdiction)

2.2 FUTURE POPULATION GROWTH IN THE MAPA REGION

In order to properly plan for the region's future transportation system, it is important to understand the characteristics of the region's population and how it is likely to change in the next 25 years. In order to estimate the future population, MAPA utilizes a well-known methodology of population forecasting called a "cohort-survival projection method." This process takes into account the number of births and the "survival" rates as well as migration rates for the region's population. Historical and current data trends are used to make reasonable projections into the future (refer to Figure 2.6).

The number of births has always outpaced the number of deaths in the MAPA TMA. The table below shows that between 2000 and 2008, total births more than doubled total deaths. The addition of these new babies contributed over 55,000 in additional population to the MAPA region during these years.

In-migration from outside the MAPA area added over 16,000 new residents between 2000 and 2008. International migration accounted for more than two-thirds, or approximately 11,500 residents, of this growth. Domestic migration added over 5,000 new residents to the region. However, all of the increase in domestic migration occurred in Sarpy County, which offset net declines in domestic migration in both Douglas and Pottawattamie Counties.

FIGURE 2.6
SOURCES OF POPULATION CHANGE IN THE MAPA REGION FROM 2000 - 2008

County	Births	Deaths	Total Natural Increase	Domestic Migration	International Migration	Total In-Migration
Douglas	67,388	29,731	37,657	-7,822	11,022	3,200
Sarpy	19,783	5,164	14,619	13,617	213	13,830
Pottawattamie	9,784	6,800	2,984	-735	344	-391
MAPA Total	**96,955**	**41,695**	**55,260**	**5,060**	**11,579**	**16,639**

The population in the MAPA counties should continue to increase during the next 25 years. Figure 2.7 displays the population projections. By 2035, the population is expected to increase by over 200,000, for a total of nearly 950,000 in 2035. This is an increase of 28%, which is just slightly less than the 30% increase the region has seen over the past 25 years. This expected future growth would result from both domestic and international in-migration from outside the region as well as natural increase (more births than deaths).

FIGURE 2.7
MAPA TMA POPULATION PROJECTIONS BY COUNTY

County	2008	2015	2025	2035
Douglas	502,032	532,000	570,000	603,000
Sarpy	150,467	174,000	207,500	240,000
Pottawattamie	89.647	93,500	98,500	103,500
MAPA Total	**742,146**	**800,000**	**876,500**	**947,5000**

In recent years, the national fertility rate has been rising slightly after decades of decline. In 2006, the U.S. fertility rate reached the replacement rate for the first time since 1971,[2] giving the United States the highest fertility rate among the world's developed countries. Birth rates in Nebraska and Iowa are routinely higher than the

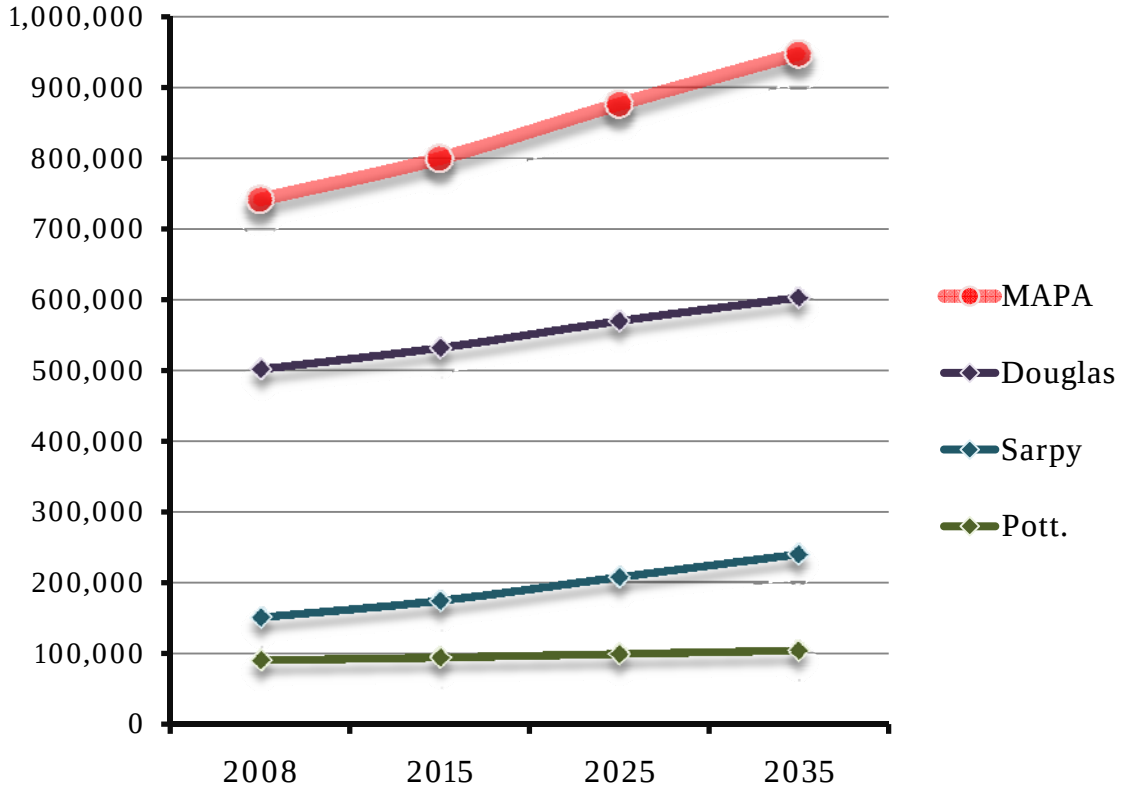
[2]Haya El Nasser & Paul Overberg, "Fertility rate in USA on upswing" *USA Today*, Dec. 20, 2007 (http://www.usatoday.com/news/nation/2007-12-19-fertility_N.htm?loc=interstitialskip)

national average. Nebraska, in particular, ranked as the second highest birth rate in the nation according to one recent study released by the Census Bureau.[3] Given this strong local trend, it is reasonable to assume that natural population growth will continue well into the future.

Another contributing factor to the area's population growth is the relatively stable economy. The greater Omaha Metro Area often scores as one of the most recession-resistant areas in the nation. Several factors account for this. There is significant diversity among local businesses, as well as a strong foundation of businesses related to agriculture, which is a sector that is somewhat insulated from economic downturns. The cost of living is relatively cheap and the workforce boasts a high level of productivity. Recent decisions by employers such as Google, Yahoo, and Ebay to locate in the MAPA region attest to these strengths, which should help propel the area's economic engine.

The majority of the expected growth is likely to occur in Douglas and Sarpy Counties. MAPA forecasts that Sarpy County's recent explosive growth will continue in the coming 25 years, adding more than half of its current population by 2035. Douglas County should also continue to grow at a steady clip, with an additional 100,000 residents forecasted. Pottawattamie County is forecasted to continue modest growth with 12,000 more residents by 2035. Figure 8 illustrates the anticipated growth by county.

FIGURE 2.8
TOTAL PROJECTED FUTURE POPULATION BY COUNTY, 2008 – 2035

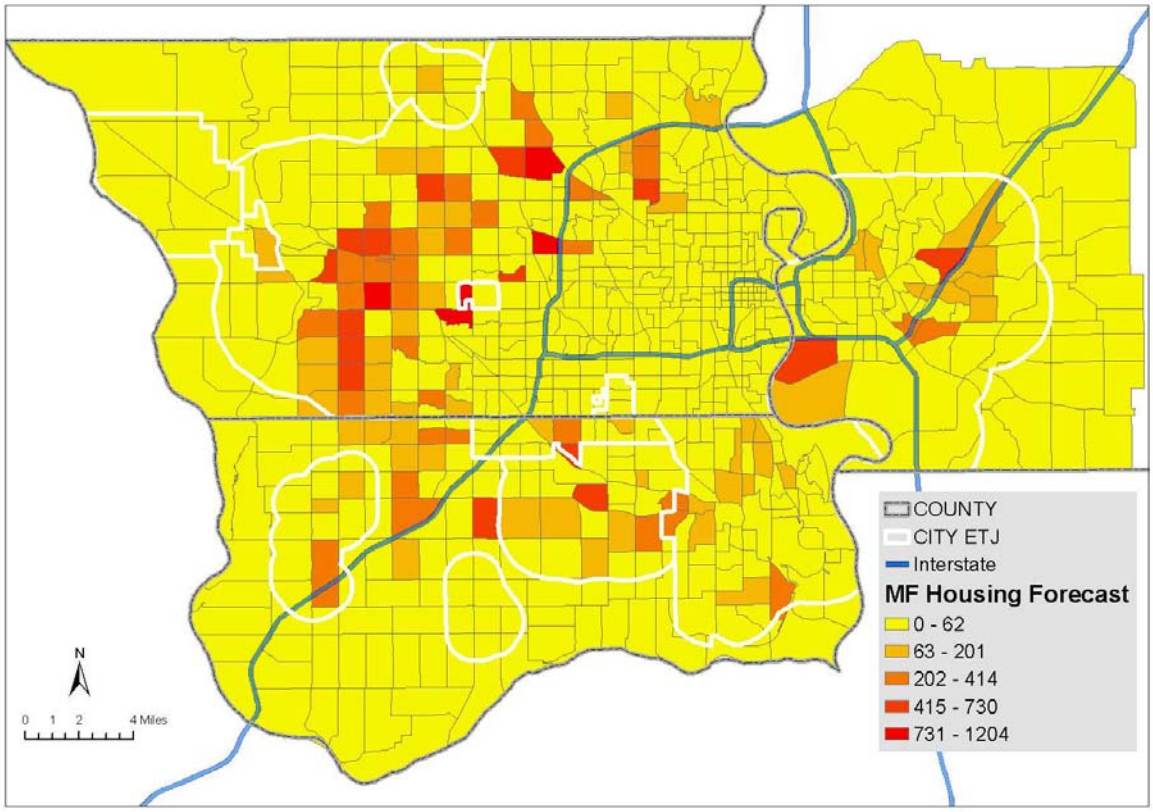


[3]Jane Lawler Dye, "Fertility of American Women: 2006," *U.S. Census Bureau,* Aug. 2008.

The majority of future population growth is anticipated to follow recent trends of continued new growth along the suburban fringe. As demonstrated by Figure 2.9, the perceived benefits of suburban life—namely, good schools, affordable land and housing, and convenient shopping—continue to attract residents. While the downturn in the housing market that began in 2008 has significantly slowed new construction of suburban subdivisions, a substantial market for new greenfield development remains into the foreseeable future, which is reflected in MAPA's 2035 population forecast.

New residential development in the region's urban core, such as Downtown and Midtown Omaha, are also expected to continue to blossom. Many of the metro area's elected officials and other leaders view improving the developed areas as a key goal for the region. In a nod to these trends, MAPA's population forecast shows multi-family housing increases in these developed areas.

FIGURE 2.9
FORECASTED MULTI-FAMILY HOUSING GROWTH: 2005 - 2035



2.3 CHANGING POPULATION CHARACTERISTICS

Diversity

The growing population of the MAPA TMA is changing in more ways than sheer numbers. One notable shift can be seen in the increasing racial and ethnical diversity in the area. Figure 2.10 illustrates this ongoing trend through population changes between 2000 and 2008. In each of the three MAPA counties, the minority, or non white non-

Hispanic, population grew at a significantly faster rate than the majority, or white non-Hispanic, population. As for the total region, the majority population grew by just over 5%, while the minority population grew at the rapid clip of nearly 30% during this eight year period.

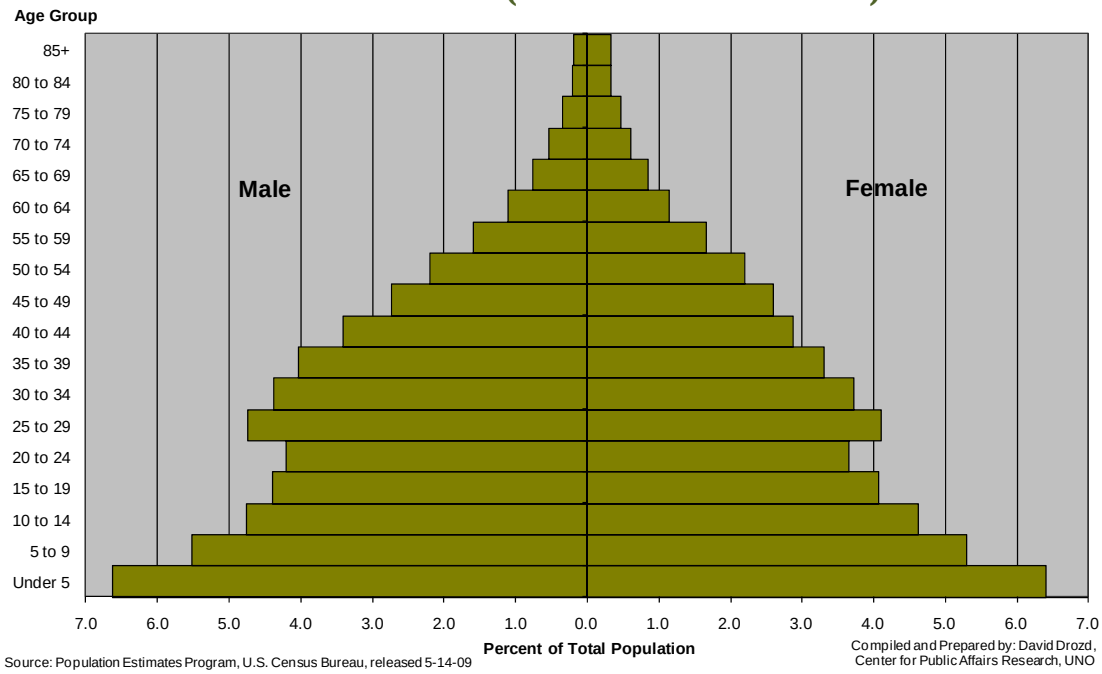
FIGURE 2.10
COMPARATIVE POPULATION GROW BETWEEN MAJORITY WHITE NON-HISPANICS AND MINORITY NON-WHITE NON-HISPANICS

	Majority (White Non-Hispanic) Population			Minority (Non-White Non Hispanic) Population		
County	2000	2008	Percent Change	2000	2008	Percent Change
Douglas	363,620	372,911	2.6%	101,054	129,121	27.8%
Sarpy	107,488	129,567	20.5%	15,664	20,900	33.4%
Pottawattamie	82,957	82,842	-0.1%	5,008	6,805	35.9%
MAPA Total	**554,065**	**585,320**	**5.6%**	**121,726**	**156,826**	**28.8%**

This marked trend is even more pronounced among the youngest population of the MAPA region (see Figures 2.11 and 2.12). If the population is examined by age group distribution, the minority population is weighted much more heavily in the younger age groups, whereas the majority white population is distributed relatively evenly among all age groups, as demonstrated by the charts below. Thus, the population of the future Omaha Metro Area, not unlike the future United States as a whole, will have more racial and ethnic diversity than in previous years.

FIGURE 2.11
2008 NEBRASKA POPULATION BY SEX AND FIVE-YEAR AGE GROUP: WHITE ALONE, NOT HISPANIC/LATINO (MAJORITY POPULATION)

FIGURE 2.12
2008 NEBRASKA POPULATION BY SEX AND FIVE-YEAR AGE GROUP: NON-WHITE OR HISPANIC/LATINO (MINORITY POPULATION)



Household Size

The nearly 750,000 residents of the MAPA region constitute almost 300,000 total households (see Figure 2.13). This number is expected to increase to nearly 400,000 households by 2035. The average household size has been decreasing for decades due to smaller family sizes, an increased number of divorces, and people choosing to wait longer to marry than in previous years.

Nationwide, fewer households have children and there is an increase in single person households. While 44% of all households in the U.S. had children in 1970, that figure was down to 35% in 2006. In contrast, only 17% of households were single person in 1970, but they comprised 26% of all households in 2006. In Omaha, 28% of households included a married couple and children and 25% were single-person households. By 2006, those numbers had essentially flipped, with 23% made up of married couple and children, and 28% single-person.

The extent to which these societal trends continue into the future is a matter of debate. The high local birth rates suggest that decreases in the average number of children from past decades will not continue indefinitely. However, given demographics and societal trends, it is reasonable to expect that a fewer percentage of overall households will include married couple and children, which will contribute to a reduction in average household size.

In forecasting household size, MAPA uses historical trends while taking the above conditions into account. MAPA conservatively estimates that the average household

size for the region will slightly decline from 2.47 persons per household in 2008 to 2.39 persons per household in 2035.

FIGURE 2.13
TOTAL HOUSEHOLDS AND AVERAGE HOUSEHOLD SIZE BY COUNTY

County	2008		2035	
Douglas	206,204	2.43	257,000	2.35
Sarpy	58,130	2.59	96,200	2.50
Pottawattamie	35,651	2.51	43,100	2.40
MAPA Total	**299,985**	**2.47**	**396,300**	**2.39**

Aging

Another notable trend in the future is the growing average age of the population. Due to the large baby-boom generation, which is beginning to enter into retirement years, older persons will constitute a greater share of the total population. For instance, persons aged 65 and up constitute about 10% of the metro area's population today. However, in 2035 they will comprise nearly 16%. Therefore, a smaller percentage of the total future population will be in the workforce. At the same time, it should be born in mind that population is expected to increase for all age groups. Figures 2.14 and 2.15 illustrate this future trend:

FIGURE 2.14
2008 – 2035 COMPARATIVE AGE DISTRIBUTIONS

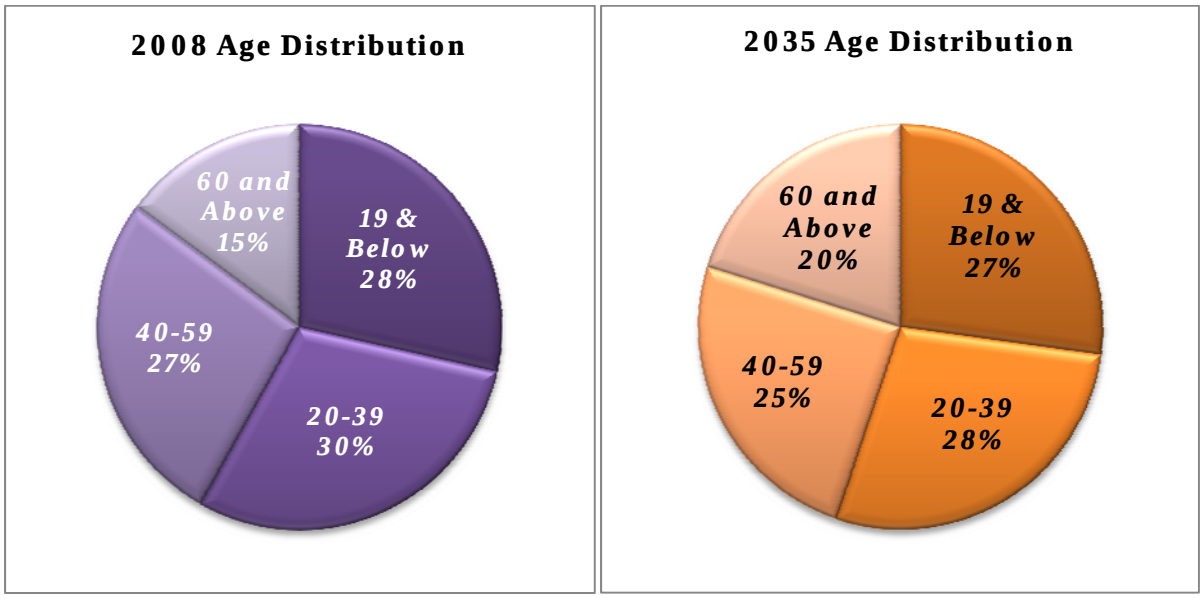
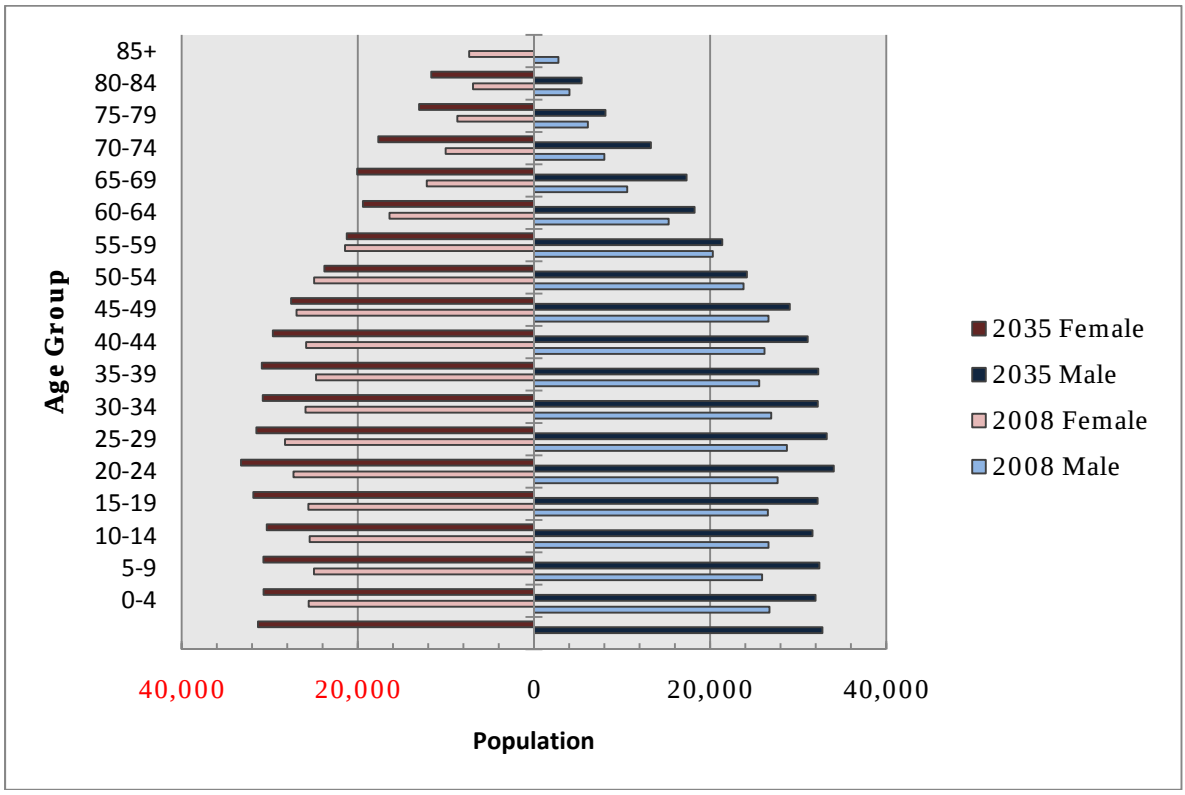


FIGURE 2.15
POPULATION AGE GROUP PROJECTION
COMPARISON OF 2008 TO 2035



What ramifications do these population shifts mean for transportation in the MAPA region? Retirees traditionally have driven less and done more of their driving during the off-peak hours. This would indicate that the increase in traffic accompanying future population growth might not grow at a corresponding rate to the overall population. In other words, while the region's population is expected to grow 30% by 2035, it would be reasonable to argue that traffic will not increase by the same amount since less of the population will be in the workforce, which generates a greater share of the overall trips.

On the other hand, there is a trend among many baby-boomers to not retire completely, but work part-time or work from home. Some have suggested that since baby-boomers' social and economic behaviors have often departed from previous generations, they will also differ by maintaining a greater level of activity into their later years, which could lead to higher traffic levels than those traditionally seen among older age groups.

The aging of the boomers will also require more robust transportation options. There is likely to be an increased demand for transit and coordinated mobility services. The American Association of Retired Persons (AARP) has been advocating for policies that are more friendly to non-vehicular modes of travel such as Complete Streets, which is discussed in Section 4. MAPA and area jurisdictions are working on solutions to meet these challenges, which will only grow in the future.

2.4 EMPLOYMENT IN THE MAPA REGION

The MAPA region is home to a broad array of businesses and industries. Key sectors of the economy include communications, technology, defense, insurance, finance, health care, gaming, professional trades and services, and agriculture among others. The following is a list Figure 2.16 of the largest employers in the MAPA area:

FIGURE 2.16
TOP 25 OMAHA – COUNCIL BLUFFS EMPLOYERS 2009

2009 Largest Employers*	Number of Employees
1. Offutt Air Force Base	9,500
2. Alegent Health	9,200
3. Omaha Public Schools	7,400
4. First Data	5,000
4. Union Pacific	5,000
6. TD Ameritrade	4,660
7. University of Nebraska Medical Center	4,000
8. Methodist Health System	3,800
9. First National Bank	3,700
10. Mutual of Omaha	3,200
11. University of Nebraska at Omaha	3,000
12. Creighton University	3,000
13. West Corporation	3,000
14. Millard School District	2,800
15. City of Omaha	2,580
16. ConAgra Foods	2,500
16. Omaha Public Power District	2,500
18. Douglas County, Douglas-Omaha Civic Center	2,000
19.Omaha Steaks	1,800
20. Nebraska Furniture Mart	1,700
21. Valmont Industries	1,500
22. Boys Town	1,500
23. Wells Fargo	1,300
23. Qwest Communications	1,300
25. Physicians Mutual	900

*Numbers derived from Midland's Business Journal *Omaha Book of Lists* 2009

Some jobs have been shed during the recent recession, but new jobs have also been created. Overall, the region's strong economic position has allowed it to weather economic turmoil relatively well and offers many signs that the Omaha-Council Bluffs Metro Area will continue to grow in the next 25 years.

In 2008, there were nearly 440,000 jobs in the 3-county MAPA TMA. Over 75% of these jobs are located in Douglas County. Downtown Omaha remains the highest concentration of employment in the region. In recent years, the construction of new headquarters for First National Bank and Union Pacific Railroad has helped to solidify the importance of the Omaha C.B.D. The addition of residential development, amenities such as Qwest Center Omaha, the new TD Ameritrade ballpark, Holland Performing Arts Center, and Pedestrian Bridge indicate that downtown Omaha is healthy and growing. The City of Omaha completed a Downtown Master Plan that anticipates aggressive growth in the coming decades.

Nevertheless, jobs in the Omaha-Council Bluffs region have followed the decentralization pattern seen in other metro areas throughout the country. This pattern is one in which jobs and employment options are moving from an urban core to decentralized suburban locations. Significant employment centers include the Old Mill and Miracle Hills Business Parks, which are located to the north and south of West Dodge Road between 120th Street and I-680 in Omaha. Many new industries and businesses have located in La Vista near I-80 and West Giles Road.

New hospitals that have been completed or are under construction include Lakeside at 168th and West Center Road, the new Methodist Women's Hospital at 192nd and West Dodge Road, as well as the Bellevue Medical Center at 25th Street and Highway 370. Some new major shopping areas are the Shadow Lake Shopping Center off Highway 370 and 72nd Street in Papillion, Village Pointe at 168th south of West Dodge Road, and the Power Center along the South Expressway south of I-29/80 in Council Bluffs.

2.5 Future Employment in the MAPA Region

By 2035, the MAPA region is expected to have over 560,000 total jobs (see Figure 2.16). This represents an increase of nearly 28%, which is almost identical to the total population growth. The majority of these jobs should still be in Douglas County, although Sarpy County will likely gain an increasing share as it continues to grow over the next 25 years. The total employment in Sarpy County is forecasted to grow by over 60%, from over 66,000 jobs in 2008 to close to 110,000 in 2035.

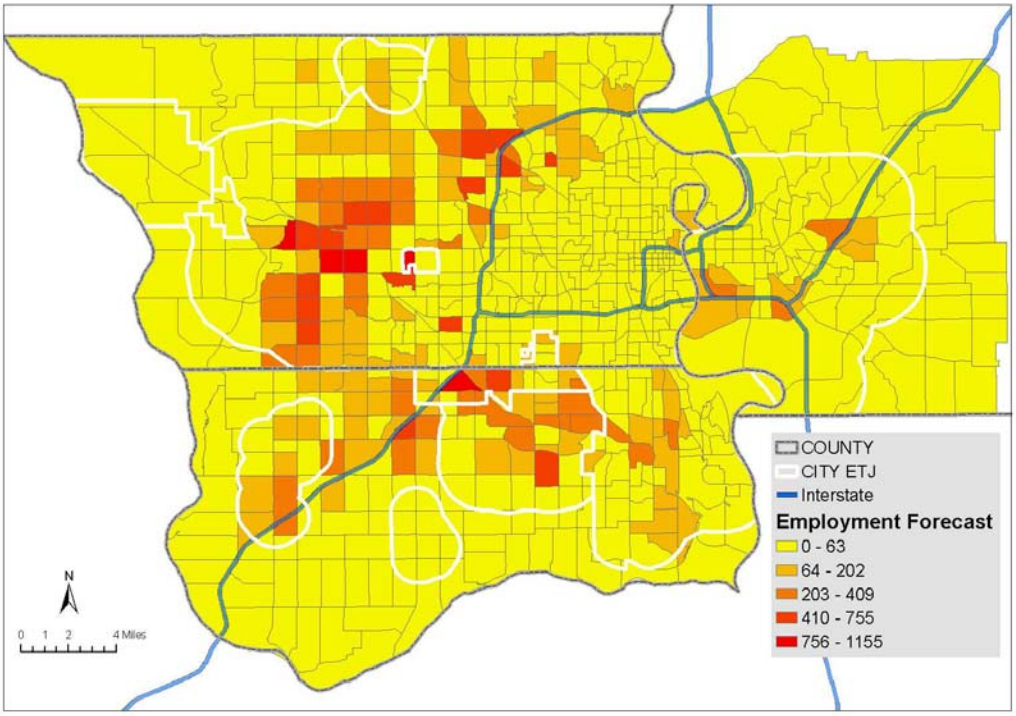
These forecasts are derived from a methodology that begins with total future population by age cohort. Historical trends and anticipated factors are then applied to forecast future labor participation rates for each employment type by age cohort, which results in the employment forecasts.

FIGURE 2.17
FUTURE JOBS PROJECTION FOR YEAR 2035

County	2008	2035	Percent Growth
Douglas	338,500	409,100	20.9%
Sarpy	66,200	108,400	63.7%
Pottawattamie	34,700	43,100	24.2%
MAPA Total	**439,500**	**560,700**	**27.6%**

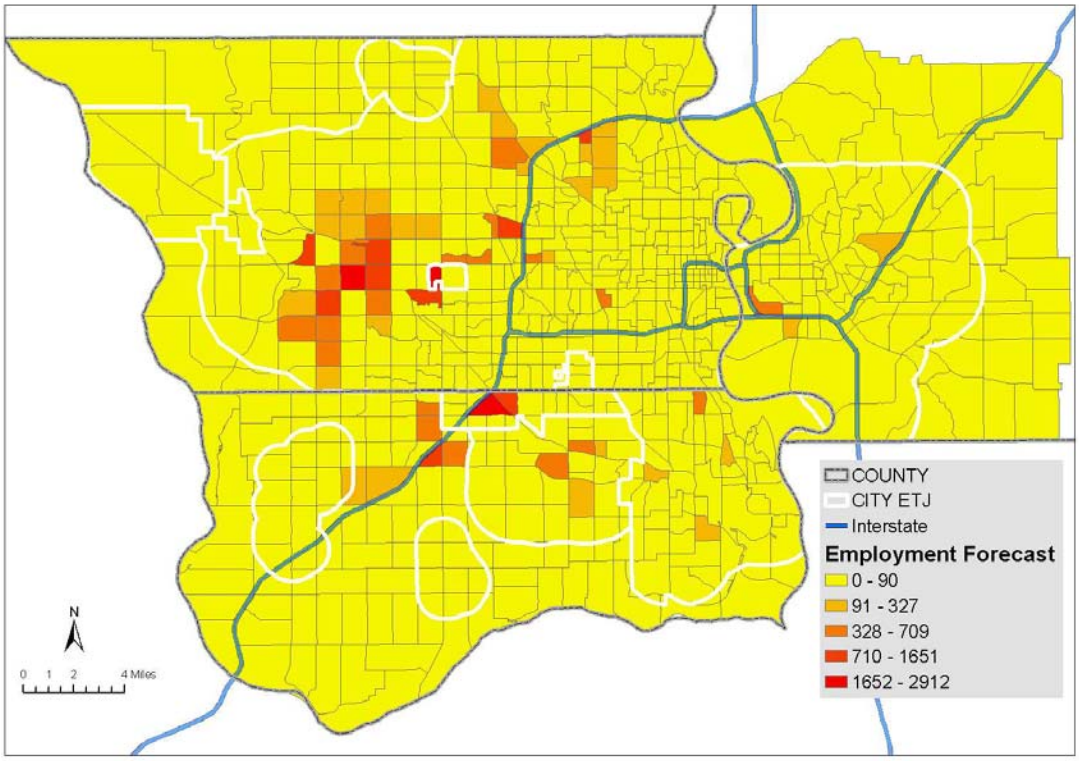
Anticipated future commercial employment growth is identified in Figure 2.18. Growth is likely to be well distributed, with clusters of future development along Blair High Road / Highway 133, West Maple Road, West Dodge Road, and West Center Road corridors in Douglas County. Heavy growth in Sarpy County is anticipated near the current and new I-80 interchanges, Highway 370, 144th Street (N-50), as well as significant new development in the Cities of Bellevue, La Vista, and Papillion.

FIGURE 2.18
FORECASTED COMMERCIAL EMPLOYMENT GROWTH 2005 - 2035



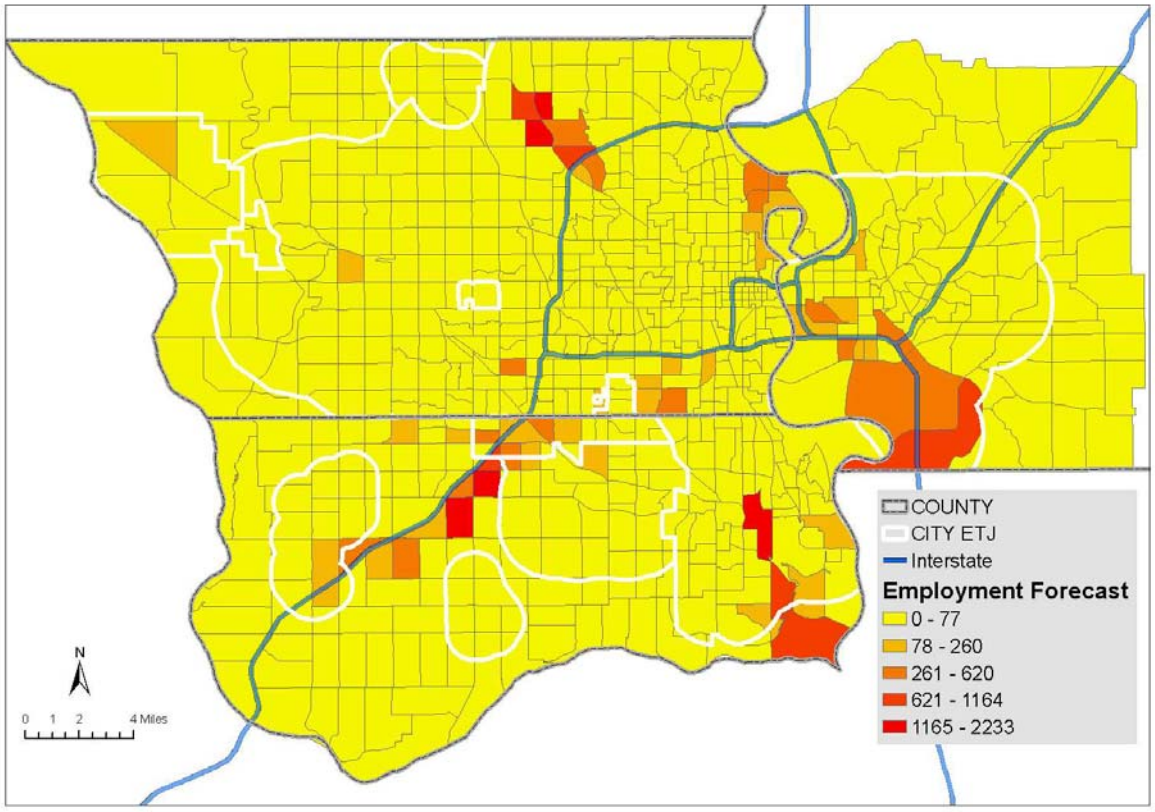
Growth in office employment is limited to a smaller number of locations adjacent to primary transportation arteries (see Figure 2.19). These include the West Dodge Road and West Maple Road corridors, Highway 6/31 in Douglas County, along 72nd Street in far north Omaha, and near the I-80 interchanges in Sarpy County. Smaller areas of office development are also expected in Bellevue, Papillion, Council Bluffs, and developed portions of Omaha.

FIGURE 2.19
FORECASTED OFFICE EMPLOYMENT GROWTH 2005 – 2035



Future industrial employment is slated to occur along a few large industrial corridors throughout the metro area as indicated in Figure 2.20. The largest industrial growth is likely to be located along Blair High Road / Highway 133, along I-80 in Sarpy County, near I-29 in southern Council Bluffs, and along the Kennedy Freeway and Platteview Road near the new US-34 bridge in southeastern Sarpy County. Other industrial growth areas include the Storz Expressway area in the vicinity of Eppley Airfield and various other location sprinkled throughout Omaha and Council Bluffs.

FIGURE 2.20
FORECASTED INDUSTRIAL EMPLOYMENT GROWTH 2005 – 2035



The ability to attract workers to fill these future jobs is a concern for area leaders, especially given the gradual retirement of the baby boomer generation in the coming years. Recall the description above on the increase of the average age in the metro area, which points to the assumption that more people will be working in their later years. Labor shortages in places like Europe and Japan have resulted in increased immigration and government programs that encourage families to have additional children to fill the growing void. While the situation in the MAPA region is not nearly as dire as those seen in some other developed countries, filling the future jobs will undoubtedly pose a real challenge in the years to come.

Regional Goals

3.1 Goals

As the MAPA region plans for the coming 25 years, what principles will guide the development of the region's transportation system? The federal transportation legislation identifies eight planning factors to guide the transportation planning process. The federal planning factors provide a helpful framework for identifying goals and strategies for a region's transportation system. The eight planning factors are listed below:

- "Support the **Economic Vitality** of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency."
- "Increase the **Safety** of the transportation system for motorized and non-motorized users."
- "Increase the **Security** of the transportation system for motorized and non-motorized users."
- "Increase the **Accessibility and Mobility** of people and for freight."
- "Protect and enhance the **Environment**, promote **Energy Conservation**, improve the **Quality of Life**, and promote consistency between transportation improvements and State and local planned growth and economic development patterns."
- "Enhance the **Integration and Connectivity** of the transportation system, across and between modes, for people and freight."
- "Promote efficient system **Management and Operation**."
- "Emphasize the **Preservation** of the existing transportation system."

Many of these goals are interrelated. For example, accessibility and mobility have a direct bearing on a metropolitan area's economic vitality. If it is convenient to travel and distribute a company's products, then they will be more likely to locate in that region. Similarly, efficient management and operation of the system affect its level of accessibility and mobility. The concerns identified by the eight planning factors can be condensed into four overarching categories related to a region's economic vitality and quality of life. Therefore, this LRTP identifies **four general goals** for the MAPA region's transportation system:

Transportation System Goals

1. **Maximize accessibility and mobility.**
2. **Increase safety and security.**
3. **Consider the environment and urban form.**
4. **Keep costs reasonable and sustainable.**

3.2 Regional Objectives, Action Steps, and Measures of Success

Objectives have been identified to move toward achieving the regional goals. These are followed by example action steps associated with the objectives for each category. Also listed are example measures of success that can be used to measure the region's progress toward achieving the regional goals.

3.2.1 – Goal #1: Maximize accessibility and mobility.

- Minimize delay and congestion so that the MAPA region's low travel times and convenient travel continue to be an asset in attracting new business and industry
- Build on the metro area's importance as a trucking and rail freight center
- Create viable transportation alternatives (transit, bicycle, pedestrian) that will attract people from communities with strong alternative forms of transportation
- Increase use of ridesharing, carpooling and other programs to improve vehicle occupancy rates
- Promote inter-modalism and connections between different modes of transportation
- Provide transportation opportunities for elderly, disabled, and low-income individuals
- Educate the public on alternate transportation options

Example Action Steps:

- Identify needed upgrades in traffic signal technology and communications
- Upgrade traffic signal technology and communications to improve traffic flow and adaptability
- Build cooperative relationships with freight companies to pro-actively collaborate, address their needs, and communicate on a continual basis with municipalities
- Develop a major east-west bicycle-only trail
- Implement Complete Streets on selected corridors
- Identify new opportunities for transit service and funding options
- Provide capacity improvements to streets and highways where warranted.
- Grow MAPA's on-line MetrO! Rideshare carpool program
- Study potential new passenger rail options, including a new connection to Chicago via Des Moines
- Develop a regional mobility coordination center to provide more transportation options for the elderly, disabled and low income individuals
- Educate the public about the EPA's ozone standard and the need to lower ozone emissions in the metro area

Example Measures of Success:

- Maintain Level of Service (LOS) "D" or better on region's roadways
  See Section Six, Figure 6.9 for today's LOS.
- Reduce average commute time to below 20 minutes
  Commute times in the MAPA region average near 20 minutes.
- Create on-road bicycle facilities and increase the miles of off-road bicycle facilities by at least 25%. For current bicycle facilities, see Section Ten.

3.2.2 – GOAL #2: INCREASE SAFETY AND SECURITY.

- Develop a transportation system that provides a safe environment for all citizens and travelers
- Properly maintain transportation infrastructure
- Minimize exposure to collisions through growing alternative modes of transportation (transit, bicycle, pedestrian)
- Minimize the consequences for collisions that do occur
- Develop and track safety-related performance measures
- Maintain a secure environment to protect transportation assets in the MAPA TMA
- Coordinate with state and federal agencies to use local transportation assets during times of natural disasters, extreme accidents, or terrorist attacks

Example Action Steps:

- Utilize NDOR's District Operations Center (DOC) and other traffic operations centers in the metro area to assist with incident management
- Preserve and improve aging infrastructure
- Continue and grow the Metro Area Motorist Assist (MAMA) program
- Enforce existing laws concerning travel and travel safety
- Respond to weather incidents in a timely and effective manner
- Continue committees such as the Southwest Iowa Freeway Team (SWIFT) for more efficient use of freeways through incident management, technology, etc.
- Utilize partnerships to address the myriad of conditions that are factors in crashes
- Study locations with highest crash rates and implement safety improvements
- Implement state-of-the-art technology and design to reduce collision impacts
- Secure support from the public and its elected representatives through education and advocacy for safer transportation facilities
- Create disaster response plans in coordination with area municipalities and emergency response agencies
- Coordinate with and implement state safety plans

Example Measures of Success:

- Decrease the annual number of crashes, especially fatalities.
- Continue and grow working groups that coordinate incident management and emergency response efforts between agencies in the MAPA region.

3.2.3 – GOAL #3: CONSIDER THE ENVIRONMENT AND URBAN FORM.

- Avoid, minimize, and mitigate the negative environmental impacts of the transportation system (*e.g.*, air pollution, noise pollution, water run-off, habitat destruction)
- Retain attainment air quality status as designated by the Environmental Protection Agency (EPA)
- Foster energy conservation through the transportation system
- Increase the mode share of alternative modes of transportation (transit, bicycle, pedestrian) to ten percent of all trips by 2035
- Consider aesthetics and urban form in the design process
- Coordinate transportation investments with land use policies to minimize environmental costs
- Achieve the national designation as a "Bicycle Friendly Community" as conferred by the League of American Bicyclists
- Preserve cultural, scenic, and historic resources

Example Action Steps:

- Create a unified, regional development vision for municipalities
- Educate those involved in development in the MAPA region on techniques to create more efficient land use and accessible neighborhoods
- Coordinate with public and private groups to prevent violations of air quality standards
- Implement local and national efforts to create a more balanced, aesthetically-pleasing, and environmentally-friendly transportation system such as "Green Streets for Omaha" and "Omaha by Design"
- Analyze connectivity of sidewalks in the MAPA region to improve accessibility for pedestrian traffic
- Promote alternative-fueled vehicles that reduce emissions
- Identify and implement funding mechanisms for alternative modes of transportation (transit, bicycle, pedestrian)

- Coordinate and collaborate with ongoing planning efforts to achieve "Bicycle Friendly" community status
- Pro-actively and thoroughly follow the NEPA process on all MAPA-area projects
- Promote the Context Sensitive Solutions approach to project development

Example Measures of Success:

- Increase population density for the MAPA region.
  Currently, the Census-defined Omaha urbanized area averages approximately 2,750 persons per square mile (see Section Four).
- Remain in "attainment" air-quality status (*i.e.*, not exceed national ambient air quality standards set by the EPA).
- Maintain or reduce *per capita* vehicle miles traveled (VMT).
  Today, average *per capita* VMT for the Omaha-Council Bluffs metro area is 22 (See Section Six, Figure 6.6)
- Increase the percentage of trips taken by non-vehicular mode of transportation.
  Single-occupancy vehicles and carpools comprise approximately 94% of work trips in the MAPA region. (See Section Six, Figure 6.2)

3.2.4 – GOAL #4: KEEP COSTS REASONABLE AND SUSTAINABLE.

- Maximize the useful life of the streets, highways, bridges, and related transportation devices of the transportation system

- Utilize management strategies and technologies to maximize street and highway efficiency

- Incorporate and coordinate transportation improvements with existing and planned future land use to minimize infrastructure costs

- Efficiently utilize financial resources and investigate new potential revenue sources.

- Coordinate transportation activities across jurisdictional boundaries where appropriate

Example Action Steps:

- Utilize transportation asset management (TAM) strategies to maximize system performance and minimize life-cycle costs
- Prioritize traffic flow improvements to strategically reduce congestion and delay
- Implement Intelligent Transportation Systems (ITS) and upgrade traffic signal equipment and communications and other technology to improve traffic flow with existing capacity in the metropolitan area
- Continue Transportation Systems Management (TSM) committee to coordinate infrastructure construction and planning in the MAPA TMA

- Explore alternate financing options for transportation funding (vehicle mileage road user fees, toll roads, private financing, user fees, fuel taxes, etc.) in the metro area
- Conduct transportation-related studies and projects such as traffic signal coordination or safety studies on a multi-jurisdictional or regional basis to more efficiently use resources
- Actively improve project development process between local, regional, state and federal agencies to reduce costs and increase the speed of project delivery

Example Measures of Success:

- Using asset management principles to reduce long-term roadway maintenance costs, increase the percentage of mileage with "good" or better pavement condition. Currently, 76% of the rated roadways in the MAPA region are rated "good" or "very good" (See Section Five, Figure 5.6).
- Using asset management principles to reduce long-term infrastructure costs, reduce the percentage of bridges rated "structurally deficient" or "functionally obsolete." 25% of bridges in the MAPA region are rated as such today (see Section Five, Figure 5.10)
- Utilize and evaluate benefit-cost analysis in major projects.

Future Growth and Livability

4.1 Introduction

With population in the three-county MAPA TMA expected to approach one million residents by 2035, the region will continue to be dramatically shaped by new growth and development. Mounting concerns surrounding the costs of infrastructure, protecting the environment, and providing a quality urban form are leading to new emphasis placed on "livability" and "sustainability."

Livability and sustainability are directly affected by transportation and land use elements. Transportation and land use are also interrelated. Since travelers use the transportation system in order to arrive at a specific destination, it can be said that land use affects transportation. However, the transportation system also has an influence on development, since a location's accessibility affects its market value and appropriate land use. In spite of these connections, transportation and land use planning processes occur independently, and may not be fully coordinated. If transportation and development projects are undertaken without consideration of one another it can produce unforeseen consequences that cause more congestion and higher costs.

Creating a sustainable transportation system means designing future projects in more environmentally-friendly, multi-modal ways. Sustainable roadways incorporate amenities such as green spaces and planters. Trails and sidewalks provide important connections for non-vehicular transportation and should be a key part of the transportation system.

Efforts to create more livable and sustainable communities are at the forefront of national and local planning discussions. In the MAPA region, this is visible in recent local comprehensive plans, the Omaha by Design study, the Green Streets for Omaha plan, and the MAPA Beltway Feasibility Study, to name a few. Area leaders and citizens are discussing and implementing ways to make the metro area greener and healthier.

4.2 Livability Defined

Livability is most commonly understood as the quality of life experienced by residents within an area. The quality of life can be measured by things such as accessibility, equity, and participation. The quality of life of residents in a city or region can be affected by the city infrastructure, availability and affordability of necessities (such as food and housing), the availability of meaningful employment, and the ability to feel as if input in major decisions is possible for their area. These factors work together to create a livable city with economic, social, cultural, and environmental surroundings that helps to enhance the lives and livelihood of residents.

The current Administration has promoted livability and sustainability as domestic policy goals. Recently, the U.S. Department of Transportation (DOT) partnered with the Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Development (HUD) to focus policies and programs on "sustainable communities" that improve livability.

The federal government also speaks of livability in terms of providing alternatives to the automobile for transportation. In the joint report on this partnership, U.S. DOT Secretary of Transportation, Ray LaHood states, "Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park, all without having to get into your car. Livability means building the communities that help Americans live the lives they want to live—whether those communities are urban centers, small towns, or rural areas."[1]

In the MAPA region, the automobile is anticipated to remain the primary mode of transportation. Some critics have expressed concerns that this emphasis on multi-modalism and land use will detract transportation agencies from their primary responsibility to provide for the efficient movement of people and goods.[2] Nevertheless, the federal government and others' concerns regarding the dominance of the automobile in American transportation merit specific attention.

4.3 CURRENT CONCERNS

It is said that Americans love their cars and the MAPA region is no different. The automobile allows a high degree of mobility and convenience that drivers enjoy. Since automobiles became the dominant mode of travel, our growth patterns have largely developed around the car. For the foreseeable future, this is likely to continue.

However, the auto-oriented development that has ruled since the post-World War II era is not without problems. The following summarize some of the primary concerns with the prevailing form of development.

Dependence on Gasoline

In the summer of 2008, gas prices topped $4.00/gallon in the Omaha-Council Bluffs metro area. This more than doubled the going rate for gasoline from only a few years prior. Faced with this severe shock, many travelers began looking for alternatives in numbers not seen since the energy crises of the 1970s. Commuters took transit,

[1] Partnership for Sustainable Communities Report, HUD, EPA, US DOT.
[2] *cf.* O'Toole, Randal, "Roadmap to Gridlock: The Failure of Long-Range Metropolitan Transportation Planning." Cato Institute Policy Analysis No. 617. May 27, 2008.; Barnes, Fred. "Coercing People Out of their Cars" *The Weekly Standard* Vol. 16 No. 8 November 8, 2010; Will, George "Why Ray LaHood is Wrong", *Newsweek* May 16, 2009.

carpooled, and reduced the number of vehicle trips in significant amounts. Traffic counts showed decreases in many locations and gas tax revenues fell. School districts were forced to quickly supplement their budgets to provide for busing, while many farmers, truckers, and others who have no alternative found their pocketbooks painfully pinched.

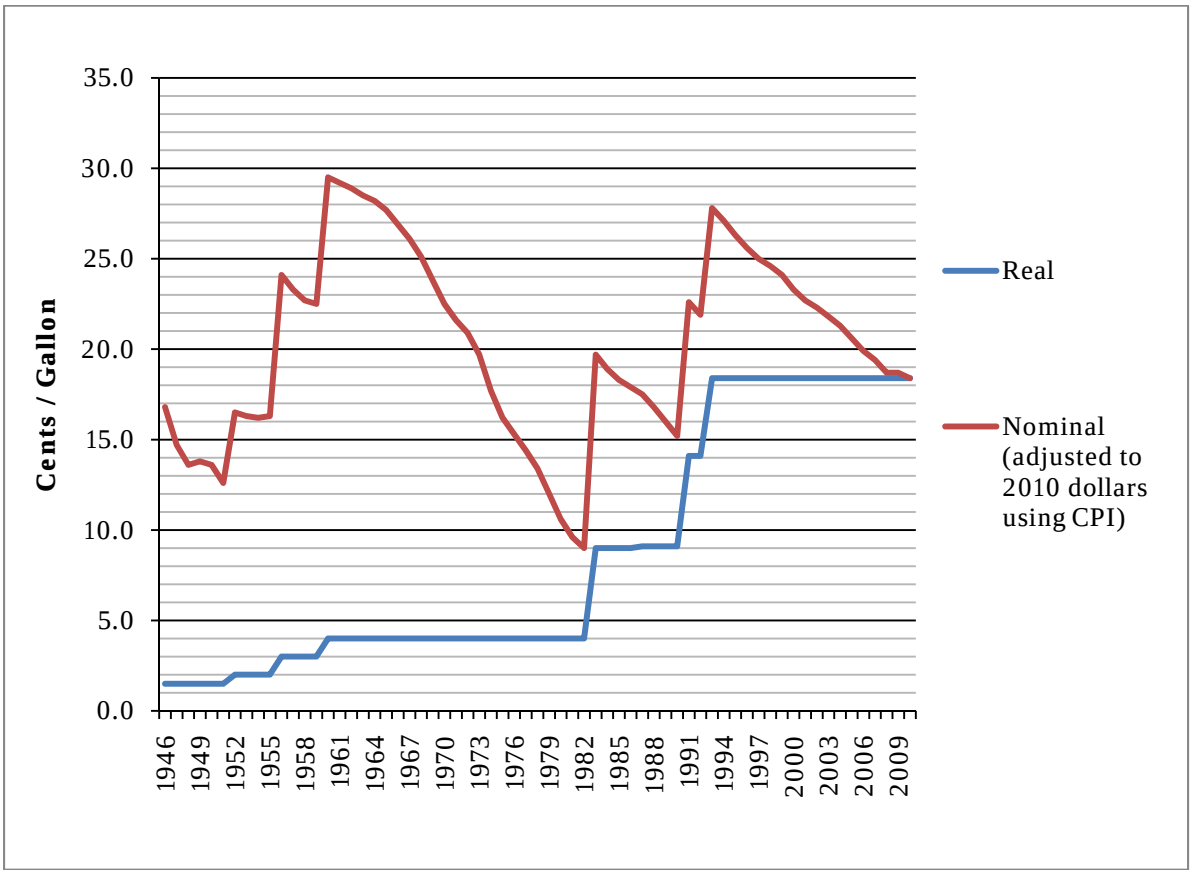
This experience brought increasing attention to the nation's dependence on fossil fuels. A rise in gas prices can quickly create financial hardship for many lower and middle-income people, who often have few feasible transportation options beyond the motor vehicle. In spite of many efforts to improve alternative fuels and alternative modes of transportation, our economy and society remain highly dependent on readily available and affordable petroleum-based fuels. Given the United States' tenuous political relationship with many of the leading oil-producing, the dependence on oil created by an auto-dependent transportation system leaves the U.S. vulnerable from an economic and national security perspective. Consequently, identifying alternative energy sources and developing a more robust multi-modal transportation system have taken on increased importance.

Infrastructure Costs

The rising costs of infrastructure are an increasing concern for governments facing increasing budget constraints. Inflation in the construction sector has outpaced that of other portions of the economy, largely thanks to the rapid industrialization of developing nations such as China and India. Consequently, costs for transportation projects have been climbing steadily in recent years, with no end in sight.

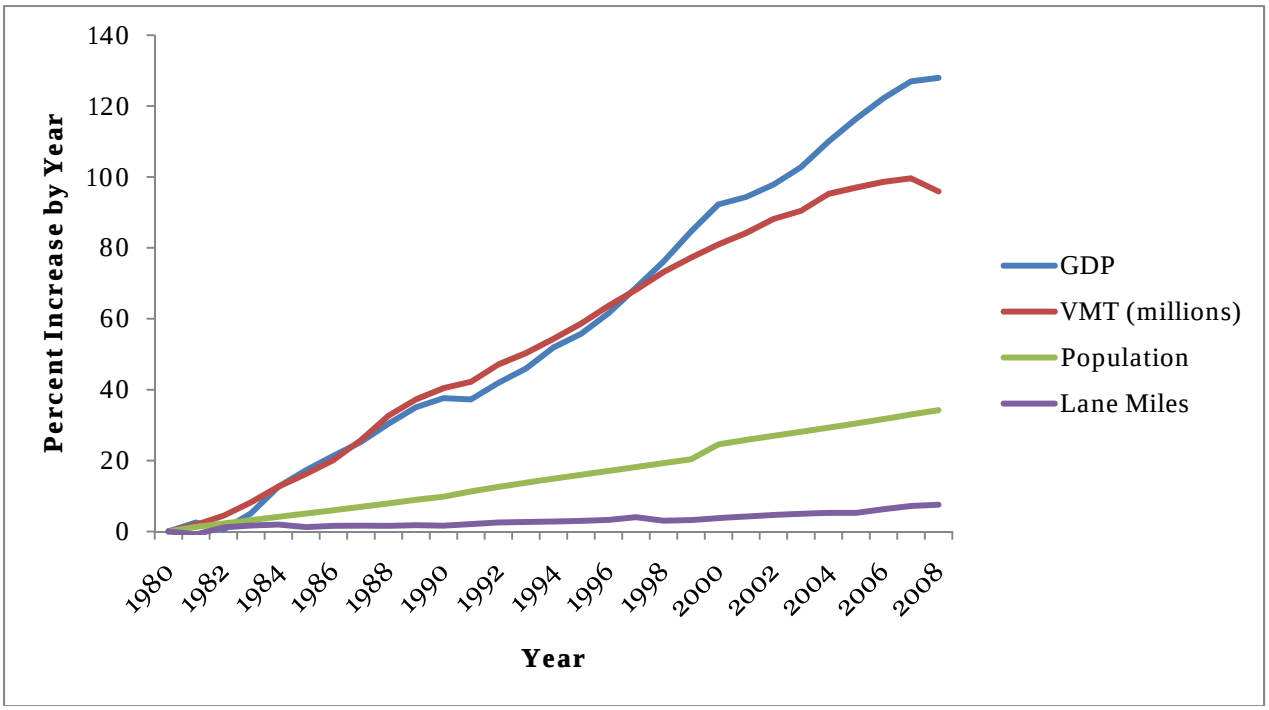
At the same time, there is little to no political support for raising the federal fuel tax, which has remained at 18.4 cents/gallon since 1993. States have modestly increased fuel taxes, but overall revenues have not kept pace with inflation or construction costs. Figure 4.1 shows the historic value of the federal gas tax when inflation is taken into account in 2010 dollars. These fiscal concerns are causing communities to rethink how they grow and look for options to develop in a manner that is fiscally sustainable.

FIGURE 4.1
HISTORIC FEDERAL GAS TAX, 1946 – 2010



In addition, the nationwide supply of roadway capacity has not kept pace with demand. Setting aside the environmental and societal concerns listed here, it is questionable whether jurisdictions have the ability to provide the necessary capacity that a near exclusively auto-centric transportation system requires. Figure 4.2 compares the national growth in vehicle travel (VMT) with growth in population, lane miles, and the economy. Note that VMT growth tracks almost identically with GDP growth. However, the new lane miles do not even approximate the population growth, let alone growth in VMT. Due to these persistent revenue shortfalls, a multi-modal, multi-faceted approach should provide a more effective and balanced transportation system.

FIGURE 4.2
U.S. GROWTH RATE IN ROAD CAPACITY VS. GROSS DOMESTIC PRODUCT (GDP) AND VMT SINCE 1980

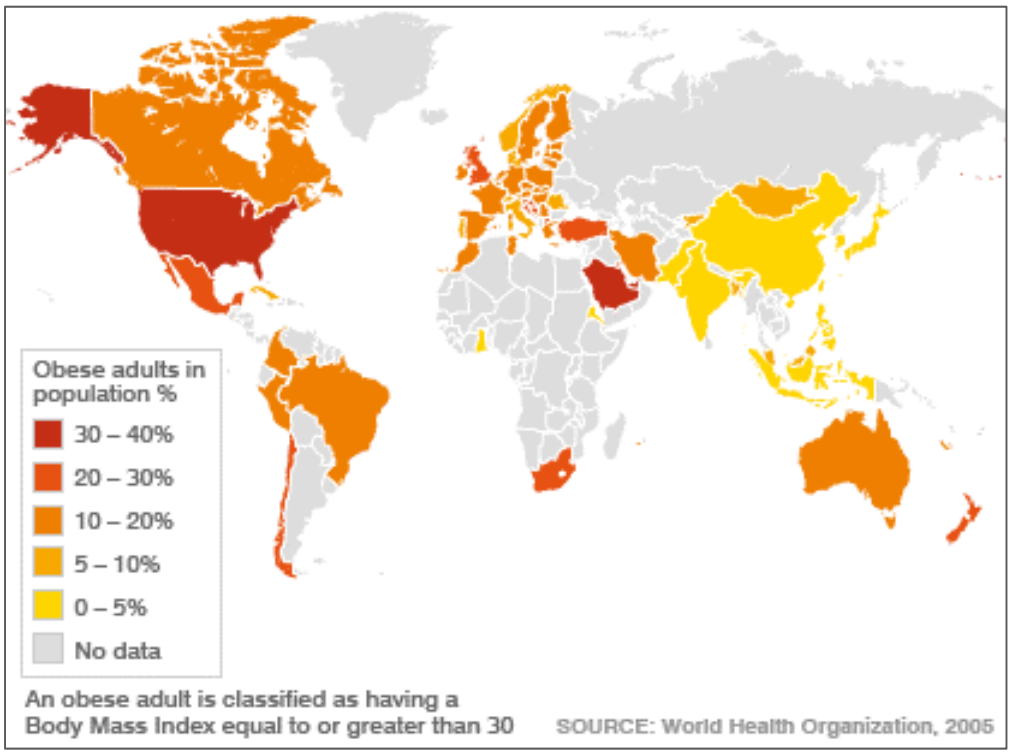


Health and Wellness

The United States is facing a myriad of health concerns. The U.S. ranks among the highest in obesity rates worldwide, as illustrated by Figure 4.3. Many have pointed to the sedentary lifestyle associated with auto-oriented development as a primary factor in this epidemic. Bicycle and pedestrian-friendly communities such as Minneapolis-St. Paul and New York City tend to score higher on health statistics due to higher levels of physical activity. In locations where non-auto travel is difficult or infeasible, health problems are aggravated because physical exercise is not as easily incorporated into daily activities.

Obesity rates are particularly troubling among younger Americans. Many indicators suggest that the current youngest generation will have shorter life spans than their parents on average. The Centers for Disease Control and Prevention (CDC) now recommends healthy community design, active transportation and public transportation, and good air quality in order to promote public health. These troubling signs will be a factor in the development of the future transportation system.

FIGURE 4.3
WORLDWIDE OBESITY RATES



Organizations and communities in the MAPA region such as Live Well Omaha and county health departments are working to improve health in the metro area. In the spring of 2010, Douglas County was awarded a 5.7 million dollar grant to fight childhood obesity. Some of the money will be used for transportation related projects such as community trails, more parks and green spaces, as well as an update to the Transportation Element of the City of Omaha Master Plan with special emphasis on active transportation.

Increasing Retirees

The growing number of senior Americans will dramatically rise in the coming years as the members of the baby-boomer generation enter retirement. Many elderly people are unable to drive or do not own a motor vehicle. Therefore, increasing transportation options is of particular importance to this segment of the population.

In recognition of this, seniors' organizations have taken an interest in transportation and community design. For example, AARP is strongly promoting the Complete Streets approach to road design. Given the high growth of this population segment in the coming decades, the accessibility of the transportation system will continue to be a major issue of concern.

Environment

Motor vehicle transportation results in emissions that decrease air quality. Pollutants caused by vehicles include carbon monoxide (CO), nitrous oxides (NO_x), sulfur oxides (SO_x), hydrocarbons, volatile organic compounds (VOC), and particulate matter (PM).

Ground level ozone (O_3) is currently of particular concern to the MAPA region. Ozone is the result of the combination of NO_x and VOCs. Recent studies show that humans are more negatively impacted by ground-level ozone pollution than previously understood, which has led the EPA to reduce the ozone standard. Given this reduction, the MAPA region is in danger of falling into non-attainment air quality status if ozone levels reached at some points in the past decade are reached again. MAPA is coordinating with the Nebraska Department of Environmental Quality (NDEQ), Iowa Department of Natural Resources (IDNR), and local jurisdictions in a public education and outreach effort to reduce ozone and avoid going into non-attainment. The new standard is expected to be announced in Summer 2011.

If the metro area receives a non-attainment designation, this can have major implications on economic development. Additionally, offsetting technology and measures will need to be put into place to reduce the level of O_3 in the air. Go to www.LittleStepsBigImpact.com for more information on this important issue for the area.

There is also concern about the impact of greenhouse gases (GHGs) in affecting climate change. Motor vehicles produce carbon dioxide, which are presumably partly responsible for increases in carbon dioxide levels in the atmosphere.

As will be discussed in the following segment, decentralized, auto-oriented development also consumes a large amount of valuable farm land that is needed to grow crops and resources. Transportation and land use should be coordinated to minimize development on “greenfields,” which is previously undeveloped land.

Auto makers plan to introduce new alternative-fueled cars into the market in the near future. Of course, some options already exist such as ethanol / E-85, compressed natural gas (CNG), and hybrid electric vehicles such as the Toyota Prius and Honda Insight, among many other models. The introduction of cleaner, “greener” vehicles will help to mitigate some of aforementioned environmental concerns associated with auto-oriented development.

4.4 Urban Form and Transportation

The transportation system influences the character and shape of the region’s urban form. For instance, the role of transportation in decentralization is often cited. In this scenario a new high speed facility such as a freeway or commuter rail line is constructed that decreases travel times between a distant suburb and an urban employment center. This causes the suburban area to become a more viable option for commuters.

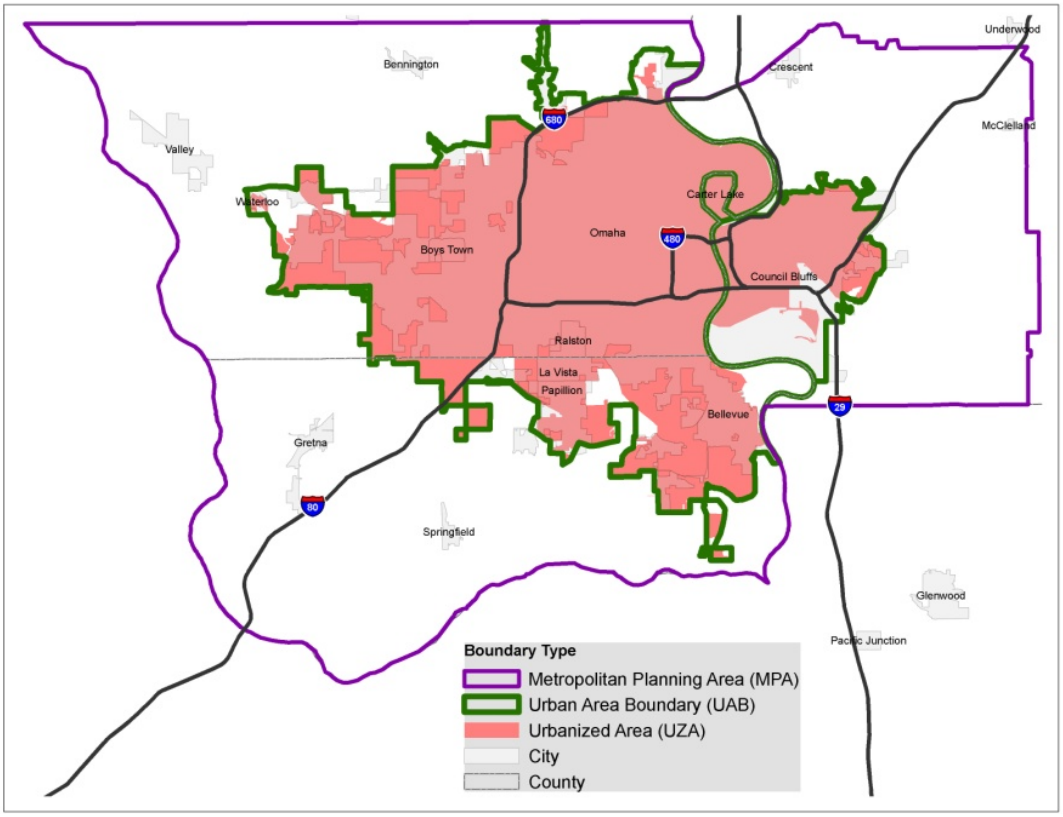
Developers and elected officials respond to the new market demand and create new residential areas, which is followed by retail and commercial services to support the residents. In this example, the new transportation facility became the catalyst to the land use development.

However, the opposite can also occur. A new suburban area might be highly desirable for any number of reasons (*e.g.*, good school district, political boundary, attractive development, etc.), but not have the transportation infrastructure necessary to support the development. Congestion occurs as the population grows, and transportation improvements become necessary to provide for the residents' needs. In this case, the development occurred independent of transportation and the infrastructure must be incorporated later.

Due to the concerns cited above surrounding low-density, auto-oriented development, there are many efforts to increase population densities. This would reduce land consumption and make alternative transportation modes more viable. The City of Omaha and the Omaha by Design organization undertook a policy initiative called "Environment Omaha," which included an Urban Form and Transportation portion. This plan called for Omaha to increase population density from the current 3,650 people per square mile to 4,500 people per square mile within 20 years. In 1950, the City of Omaha had a population density of approximately 6,000 people per square mile.

Urbanized areas are regions defined by the Census Bureau with concentrated development. Specifically, the Census Bureau used the threshold of core Census blocks with a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile. The green lines on Figure 4.4 shows the urbanized area in the greater Omaha-Council Bluffs area.

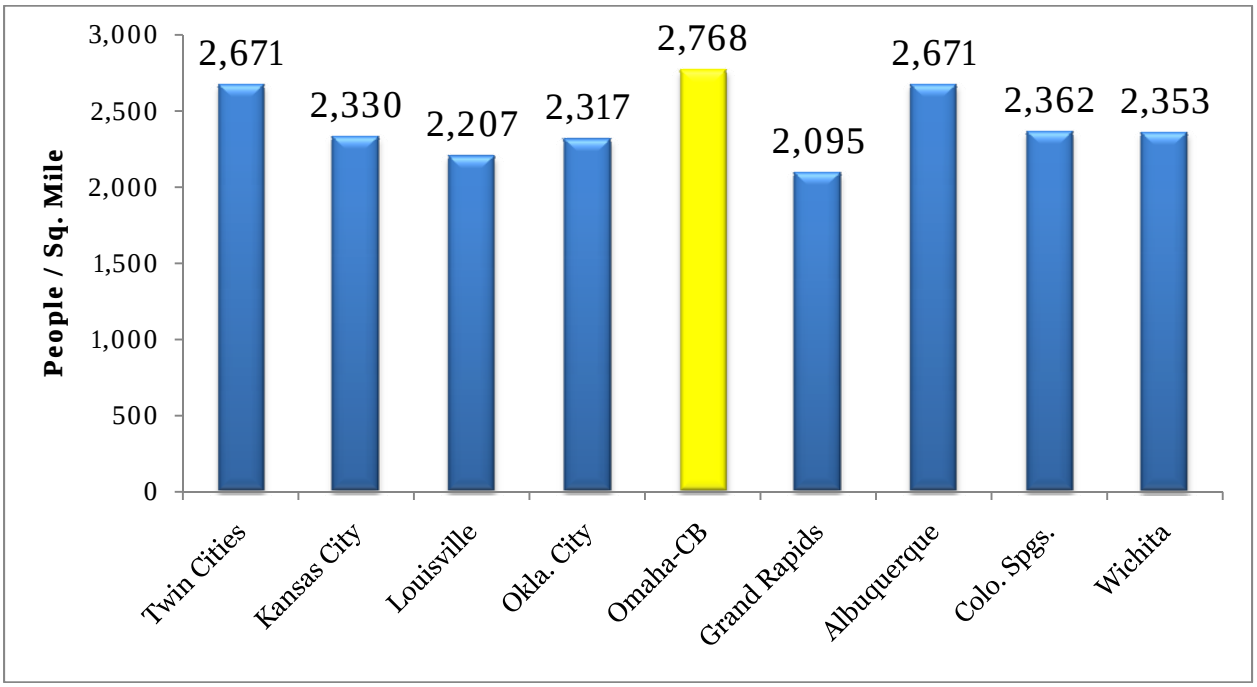
FIGURE 4.4
OMAHA-COUNCIL BLUFFS URBANIZED AREA BOUNDARY



Urbanized area boundaries are often used to measure population densities, because larger definitions of metropolitan areas often include large amounts of rural land. Urbanized areas give a more accurate picture of population density within the developed portion of a region.

The population density in 2000 for the Omaha-Council Bluffs urbanized area was 2,768 people per square mile. This is nearly 900 people per square mile less than the density for the City of Omaha alone cited above. When compared to some peer regions, the Omaha-Council Bluffs urbanized area has a higher population density than our peer urbanized areas, as illustrated in Figure 4.5:

FIGURE 4.5
POPULATION DENSITY VS. PEER REGIONS

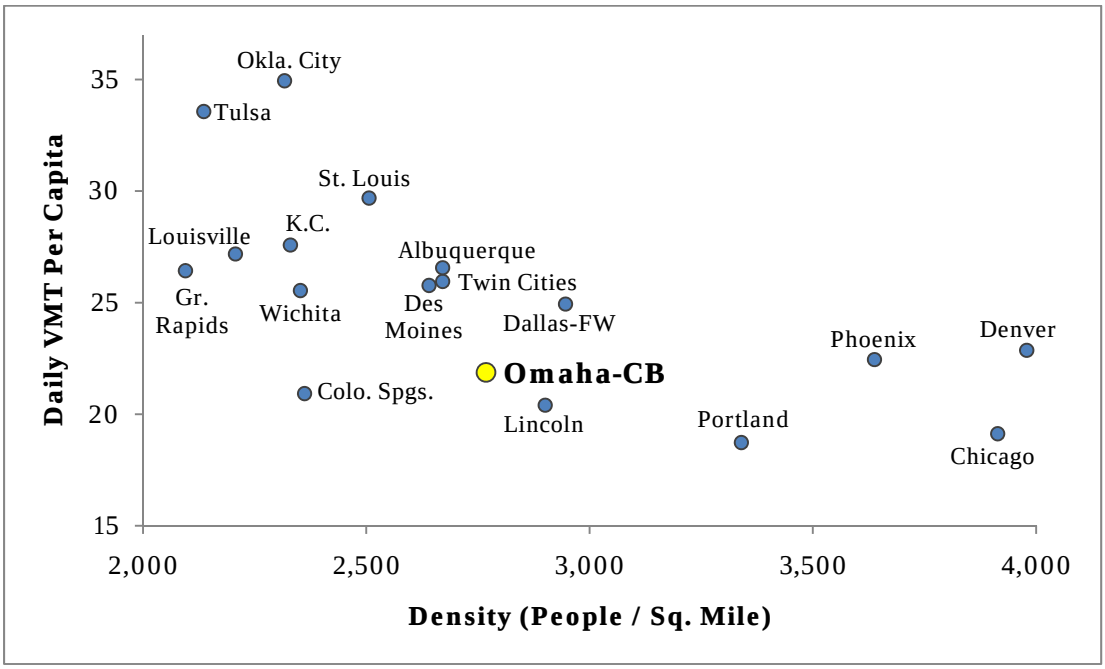


Population densities tend to be higher in the MAPA region than many peer regions due to a multitude of factors. Nebraska State law grants metropolitan class cities (*i.e.*, the City of Omaha) broad annexation powers relative to many other states. The City of Omaha has used this authority to annex formerly autonomous cities such as Benson, Millard, and, most recently in 2007, the former City of Elkhorn. This annexation policy has provided the City with the tools necessary to maintain a contiguous development pattern, and avoided "leapfrog" style development (far-flung islands of development that are not adjacent to existing development) frequently seen in other metro areas. The City of Omaha uses the provision of infrastructure in addition to zoning regulations to control development in this manner. Also, lot sizes in most subdivisions in the MAPA region are relatively modest and large lot (acreage) development is somewhat limited.

Population densities typically affect the amount of vehicle miles traveled (VMT) in a region. Where densities are higher, trip origins are closer together, which results in shorter car trips and makes alternative modes of transportation such as mass transit more effective. Consequently, VMT tends to be lower than in areas with lower population densities.

This relationship is confirmed statistically when population densities are compared with *per capita* VMT for various metro areas. In Figure 4.6 these numbers are shown for the Omaha-Council Bluffs urbanized area and the peer regions that have been used in other figures, as well as other metro areas that are included for the sake of comparison. Note the overall trend downward and to the right, indicating that as population density increases, *per capita* VMT tends to decrease:

FIGURE 4.6
VMT PER CAPITA VS. DENSITY - PEER REGION COMPARISON



While the urbanized portion of the MAPA TMA is already more densely populated than many similarly-sized regions, increasing population densities will help the metro area achieve its goal of creating a more balanced, multi-modal transportation system. This will create benefits for the environment, improving public health, and reducing many costs of infrastructure that accompany auto-dependent development.

On the other hand, while drivers tend to drive less as densities increase, this reduction can be offset by more drivers competing for the same road space. Therefore, in the absence of robust transportation alternatives, higher population densities can exacerbate congestion.[3] The majority of travel in the MAPA TMA for the foreseeable future will continue to be done by motor vehicle, since this occurs even in metro areas with robust alternative transportation options. Consequently, attempts to create a more balanced transportation system should not impede the regional goal of maximizing accessibility and mobility or ignore the reality that the.

4.5 MULTI-MODAL DEVELOPMENTS

There are many actions that communities can take to create developments that are more amenable to alternative modes of transportation. 50% of all trips are three miles or less and over 25% of trips are one mile or less. However of these trips under one mile, 65% are taken by motor vehicle. It is also worth noting that a full one-third of Americans cannot drive. This includes about 20% of Americans over 65, all children under 16, and

[3]Paul Sorensen, "Moving Los Angeles," *Access* 35 (Fall 2009): 16-24.

many disabled and low income Americans who cannot afford automobiles. In order to create a transportation system that serves the needs of all residents, communities in the MAPA region should be truly multi-modal.

By following the following action steps, cities and counties can design developments to accommodate all modes of transportation:

<u>Connectivity</u>

- Sidewalks and trails should connect to nearby developments, shopping areas, and access to mass transit.
- Incorporate context sensitive or Smart Growth principles in the street circulation network and functional classification as proposed by CNU-ITE.[4]
- Shorten block lengths and limit cul-de-sacs as long, isolated streets discourage walking.
- On longer blocks, dedicate right-of-way for pedestrian connections between lots.
- Connect any parks, commons, or green spaces with sidewalks and trails.

<u>Walkability</u>

- Make streets safer for pedestrians by lowering speeds through narrowing streets, reducing speed limits, and using other traffic calming techniques.
- Provide separation between streets and sidewalks, especially on streets with higher speeds (greater than 25 mph).
- Plant trees between sidewalk and street to provide shade and buffer pedestrians from traffic.
- Provide good disability access to streets in all directions.

<u>Bicycle-Friendly</u>

- Construct wide sidewalks (5' or wider) where possible, especially on "collector" streets that connect to external arterial streets or parks and schools within the development.
- Identify bicycle routes with signs and striping on the road such as "sharrows."
- On higher traffic facilities, give consideration to creating segregated bike lanes.

<u>Transit-Friendly</u>

[4] Brian Bochner & Fred Dock, "Street Systems and Classifications to Support Smart Growth," 2nd Urban Street Symposium (Anaheim, CA), July 28-30, 2003.

- Incorporate transit-oriented development (T.O.D.) principles, such as integrating transit stops into new mixed-use centers.
- Create "transit-proximate development" by clustering higher density development within reach of mass transit.
- In suburban areas with lower densities, work with local transit agencies to provide innovative transit uses such as shuttles, jitneys, and bus rapid transit (BRT) lines that are more appropriate to suburban or exurban contexts.

4.6 COMPLETE STREETS

"Complete Streets" is a term used nationally to describe the transformation of vehicle dominated thoroughfares in urban and suburban areas into community oriented streets that safely and conveniently accommodate all modes of travel, not just motorists. Complete street concepts include considerations for better accommodation of all roadway users using the following elements:

- Roadways are designed to relate to their context and land use objectives
- Safer and more convenient walkways, sidewalks, and crosswalks
- Safer and more convenient bikeways
- Access management to improve public safety and reduce congestion (see more in Section 5.5)
- Mixed land uses that have direct frontage to the street and provide easier access for non-motorized modes of travel (especially in urban areas)

Transforming major urban thoroughfares into complete streets is complicated, requiring a diverse range of skill sets and broad support from the community. Fortunately, other metropolitan areas have demonstrated success stories that have been translated into guiding documents.[5] Successful complete street transformations require community support and leadership, as well as coordination between various disciplines. It is also important to have an interconnected network of major and minor streets with some redundancy in traffic capacity on parallel major streets.

[5] Detailed guidance comes from a joint effort of the Institute of Transportation Engineers and Congress for the New Urbanism. Best practices have been published as "Context-Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities."

The Complete Streets principles apply to the Midtown Crossing area in Omaha (pictured above). This area considers pedestrians with plenty of sidewalk space and also provides for mixed land uses.

4.6.1 STREET REALMS

Complete streets can be viewed in terms of three basic zones or realms.

Context Realm

The context realm of a complete street is defined by the elements that frame the major roadway. Identifying distinct qualities of the context realm requires focusing on several key areas. Consideration should be given to all of the following with modifications as appropriate to fit the specific context of the area.

- *Building Form and Massing:* To enhance an already high quality street design and new buildings should be placed close to the street in order to frame the public space.
- *Architectural Elements:* Consider building placement adjacent to the major roadway.
- *Transit Integration:* Land use and zoning policies should foster transit-oriented development (TOD) and increase access to alternative modes of travel.
- *Site Design:* The complete street truly is integrated into the surrounding environment when the interface between the site and the street is complementary to the pedestrian environment created along the entire corridor.

Pedestrian Realm

The pedestrian realm of a complete street extends between the outside edge of sidewalk and the face-of-curb located along the street. Safety and mobility for pedestrians within this realm is predicated upon the presence of continuous sidewalks along both sides of the street built to a sufficient width for accommodating the street's needs as defined by the environment.

Recommended design elements for promoting a healthy pedestrian realm generally focus on one of four areas of concentration: pedestrian mobility, quality buffers, vertical elements, and public open space. Together, these best practices can be implemented in both urban and suburban environments, to varying degrees, for promoting healthy pedestrian environments.[6]

- *Pedestrian Mobility:* The presence of a comprehensive, continuous pedestrian network serves as the foundation for fostering a walkable community that supports active transportation and mode choice. Sidewalks provide clear zones to accommodate pedestrian travel.
- *Quality Buffers:* Providing separation between pedestrians and moving traffic greatly enhances the character of the pedestrian realm.
- *Vertical Elements:* Vertical elements traditionally incorporated into the pedestrian realm include street trees, pedestrian-scale street lighting, and utilities.
- *Public Open Space:* Specific design elements incorporated into the pedestrian environment should reinforce the area as a public space and provide opportunities for visitors to enjoy the character of the corridor.

Travelway Realm

The travelway realm of a street is defined by the pavement area that traditionally accommodates the travel or parking lanes needed to provide mobility for bicycles, transit, and automobiles sharing the transportation corridor. Recommended design elements incorporated into the travelway realm serve to achieve greater balance between travel modes sharing the corridor and favor design solutions that promote human scale for the street and minimize pedestrian crossing distance.

- *Multimodal Corridors:* Balance between travel modes within the same transportation corridor fosters an environment of choice for mobility that could lead to reduced congestion on major roadways and a healthier citizenry.
- *On-Street Bicycle Lanes:* Bicycle lanes (typically 5 to 6 feet wide) should be considered for designated bike routes when vehicle speeds range from 35 to 45 miles per hour.

[6]Institute of Transportation Engineers, "Recommended Practice: Context-Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities," 2006.

- *Median Treatments:* Medians are often incorporated into the travelway realm to provide dedicated left turn lanes, opportunities for landscaping, and pedestrian refuge at crossings.

Geometric Design in Walkable Urban Areas

An important goal of the Complete Streets approach is creating "walkable" or "livable" communities. While some traffic facilities such as freeways and principle arterials are designed for the primary purpose of moving large amounts of vehicle traffic quickly, Complete Streets recommends features that often reduce travel speeds along corridors that have been identified for bicycle and pedestrian travel.

In 1996, the Federal Highway Administration (FHWA) published Flexibility in Highway Design, a guide that provides methods and examples of ways to balance safety and mobility with environmental, cultural, and historical concerns. Furthermore, in 2006 the Institute of Traffic Engineers in cooperation with the FHWA, the U.S. Environmental Protection Agency and the Congress for New Urbanism developed a proposed recommended practice for designing major urban thoroughfares for walkable communities. Geometric design in urban areas should utilize the inherent flexibility contained within existing design guidelines to achieve greater compatibility between transportation and land use.

The following proposed geometric design variables can be incorporated to calm traffic in multi-modal corridors and create walkable urban areas.

- "Design Speed" can be more closely related to the "Actual Speed" reducing the need for overcompensation for errant driving typical for highways.
- Consider design for slower vehicular traffic which would provide smoother flow of vehicles for a safer and more effective traffic flow.
- Consider Road Diets on thoroughfares with available vehicle capacity or too little pedestrian or bicycle capacity. Road diets should be used to balance the needs for multiple modes when necessary.
- Sometimes a slight reduction in level of service may be necessary to accommodate deficiencies in other modes.
- Consider design for a "dense grid network" with suitable block length for pedestrian activity. Traffic modeling should include analysis for the dense grid infrastructure.
- Eliminating free flow right turn lanes should be a consideration.
- Curb extensions can be provided at intersection to shorten pedestrian crossing distance.
- Consider maintaining and/or providing on-street parking to calm traffic and buffer the sidewalk areas.
- Consider utilizing street trees and or a continuous row of pedestrian scaled lighting to narrow the perceived width of the roadway section in order to calm traffic.

- When bike lanes are provided it may be beneficial to use wider outer lanes to accommodate a striped bicycle lane while providing a narrower vehicle lane. The effective lane width serves a dual function of calming vehicle traffic and improving vehicle facilities**.** Bicycle lanes also provide for emergency snow storage during the seasonal extremes.

4.6.2 GREEN STREETS

The MAPA TMA is very street heavy. Omaha alone has over 2,000 miles of streets. Because streets are such a large portion of total public space in the MAPA area, many are finding it vital to make sure streets and corridors are attractive, functional, and efficient.

To help address this need, the Green Streets approach has been adopted. The Green Streets approach for the MAPA TMA includes:

- Improved traffic safety
- Increasing property values
- Increased pedestrian and bicycle access
- Better storm water management
- Upgraded development
- Better image and community marketing

A main view in the Green Streets approach is to consider the function of streets (to move traffic and people) in combination with creating a designed environment that is a positive public space. This can be done in several ways: adding foliage and other green elements to the space, road dieting, etc.

To help address the need for Green Streets in the area a task force has been formed. This group will aid in the process of establishing a Green Streets plan, present standards, and establish a process to help key decision makers implement Green Streets in the area.

There are already some Green Streets in the MAPA TMA. One example is Farnam Street from 10th to 13th Streets. However, many streets can be improved. When contrasting Farnam to Cuming Street from 30th Street to Saddle Creek Road, the differences in environment and look are noticeable.[7]

For more information on Green Streets for Omaha, go to www.OmahaByDesign.Org.

4.6.3 COMPLETE STREETS POLICY FOR THE MAPA REGION

Upon adoption of the Long Range Transportation Plan, multimodal corridors for the MAPA region will be identified by MAPA's Technical Advisory Committee (TTAC) with the approval of the MAPA Board of Directors. After selection of these corridors, any projects in these corridors shall be designed in accordance with Complete Streets principles and considerations. This includes establishing bicycle and pedestrian ways in new construction and reconstruction projects, unless the cost would be excessively

[7] RDG Planning and Design, "Green Streets for Omaha," 2008.

disproportionate to the need or probable use or if additional right-of-way creates an unreasonable impact upon adjacent land use.

MAPA will strive to provide opportunities for local engineers and planners to participate in training in Complete Streets and Context Sensitive Solutions approaches. Future planning efforts should identify desirable areas to "retrofit" with a Complete Streets approach, which limits costs compared to user benefits. This policy leaves open the possibility to implementing Complete Streets on a region-wide basis at a later date, should it be required by federal law or desired by the MAPA region.

Beyond the policy set forth in this update of the Long Range Transportation Plan, other important policy documents that should reflect complete street policies or enabling language include:

- Local Comprehensive Plans
- Local Transportation and "Green Streets" Plans
- Area Plans (for the applicable area served by the complete street)
- Park Master Plans (if adjacent to the corridor)
- Economic Revitalization/ Development Strategies
- Urban Design Standards
- Internal Departmental Policies and Procedures

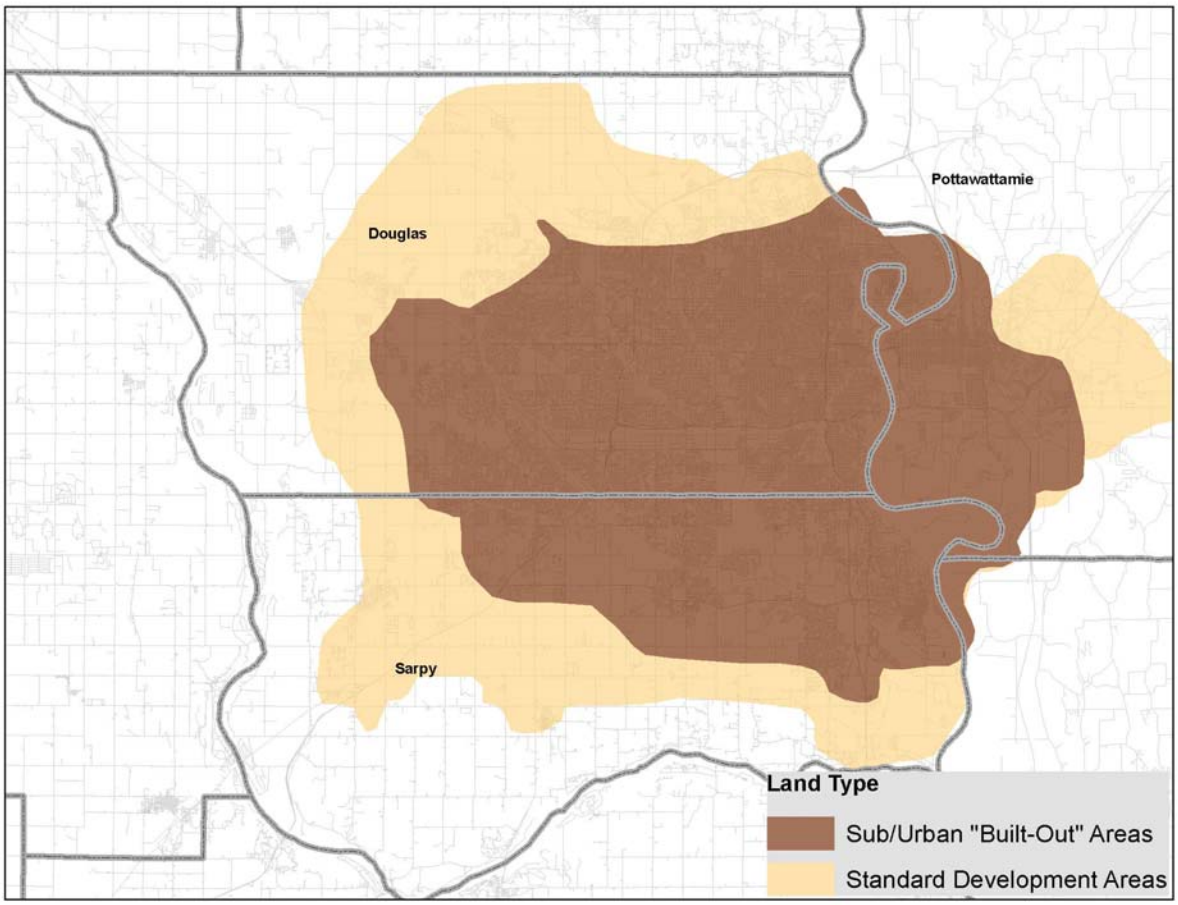
4.7 Future Growth Scenarios

In MAPA's Metro Beltway Feasibility Study, completed in March 2010, several future growth scenarios were developed and analyzed. The assumptions for each scenario are explained below:

Status Quo

Future development and densities follow the local comprehensive plans in the region. These plans show some increases in densities and mixed use developments, but do not differ dramatically from development that has been constructed in recent decades. The assumed densities in this scenario are approximately 3 units per acre. This scenario is the basis of the socio-economic projections utilized in MAPA's travel demand model discussed in Section 7. Figure 4.7 shows a map of Future Land Uses gathered from local comprehensive plans in the MAPA TMA:

Figure 4.7
Status Quo Land Use Scenario

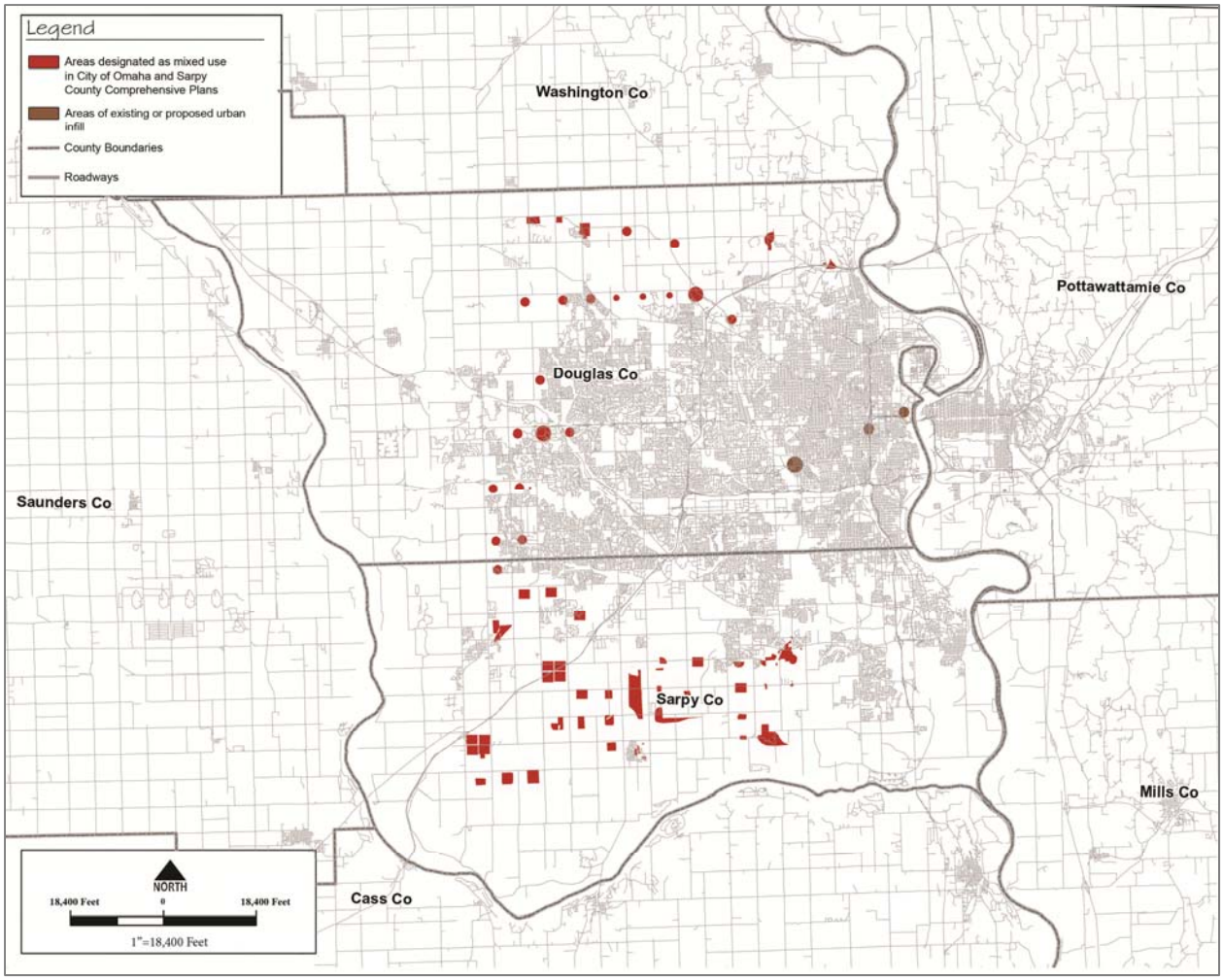


Targeted Density

This scenario includes clustering higher density development around mixed-use nodes. The overall densities for this scenario are about 5 units per acre. Nationwide trends have seen an increase in popularity in these developments that include office, retail, and residential uses within walking distance. Market demand for these is expected to continue to grow due to demographics. Many baby boomers that are entering retirement age that like to forego the maintenance associated with a single-family home and enjoy the activities in a mixed-use center.

Both nationally and locally, the percentage of total households with children has been falling, while the percentage of single person households has been increasing (see discussion of household size in Section 2). This would also indicate a larger demand for this type of development. Recent successful examples of these mixed-used developments in the MAPA region include Aksarben Village, Midtown Crossing, and Riverfront Place. Figure 4.8 identifies the areas designated as mixed-use centers in the City of Omaha and Sarpy County Comprehensive Plans:

FIGURE 4.8
TARGETED DENSITY LAND USE MAP



Transit Oriented

The Transit Oriented scenario looked at what could be expected should the MAPA region undertake a major investment in a 50-mile light rail transit system. Such a project would dramatically alter transportation and land use in the metro area as it is known today. High density development along light rail lines would likely occur, with large mixed use nodes including residential, retail and office uses of at least 12-units per acre surrounding transit stops (this estimate is conservative, as densities around transit stops in Chicago range from 15 to 30 units per acre). Growth in the urbanized areas would presumably be less decentralized in this scenario, although projections outside the urbanized areas were not changed since people choosing to live in a semi-rural/exurban environment would presumably not desire to live in a high-density area along a transit line

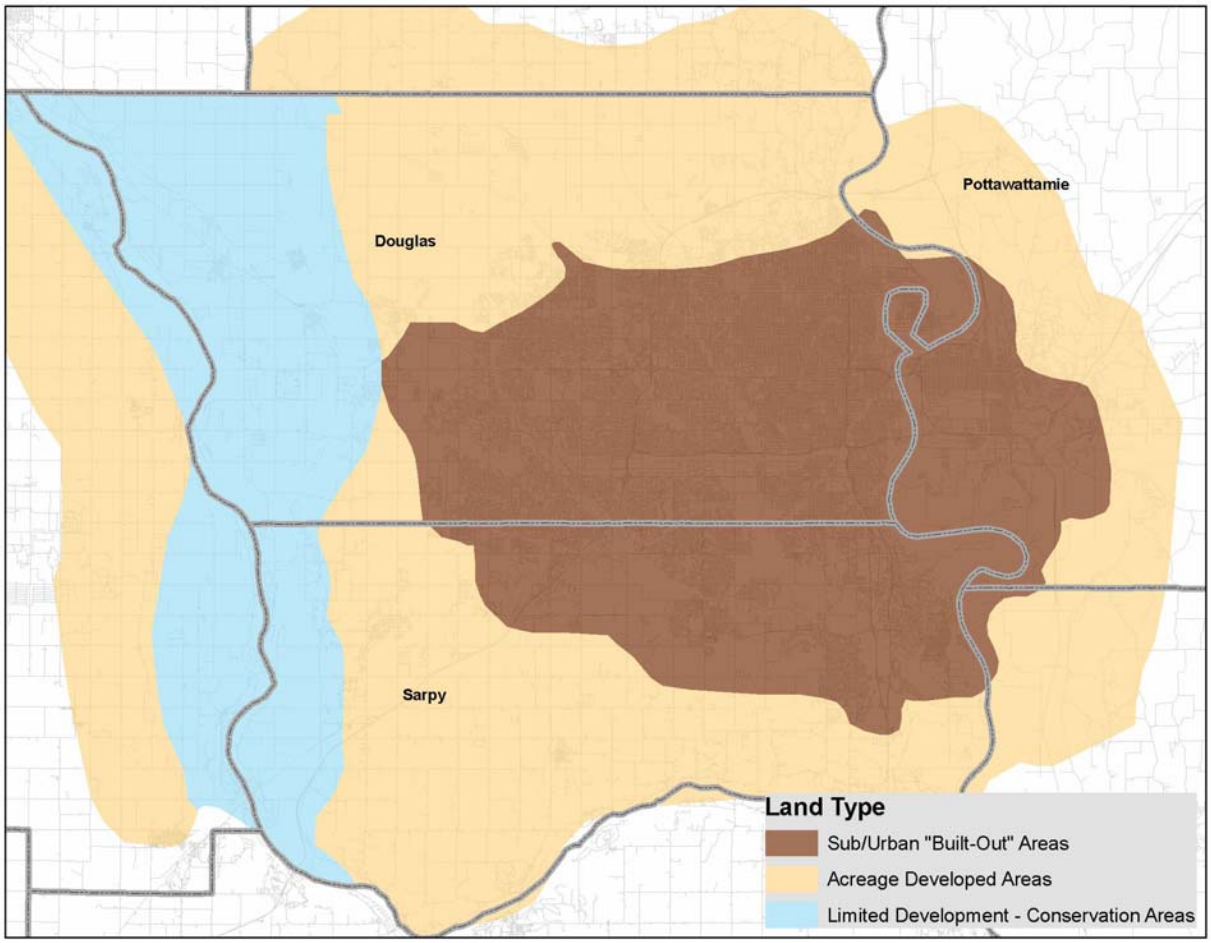
Note that there are no current plans for such a transit project, and that this scenario would require significant political changes and extensive redevelopment costs, which were not included in the analysis performed for the Beltway Study, making the scenario highly unlikely to occur in today's environment.

Sprawl

This scenario examined what would occur if the region developed in a less dense, more suburban or exurban pattern, which is commonly referred to as "sprawl." This scenario would result in a worsening effect on regional goals such as reducing infrastructure costs, creating a more balanced multi-modal transportation system, and decreasing emissions and land consumption. On the other hand, there is still a large market for low-density development, such as acreages. The survey at the completion of the Beltway study indicated that 57% of respondents in the MAPA region would choose a less dense area if they were to change residences. As consumer preferences can sometimes conflict with public policy goals, it is important to analyze the impacts of this scenario even if no governments in the MAPA TMA currently plan to increase low-density development or "sprawl."

Figure 4.10 shows the areas that would be fully built out by 2035 in this scenario versus what would be built out by 2035 in the *Status Quo* scenario. Clearly, the 2035 sprawl scenario in Figure 4.10 compared to the status quo in Figure 4.9 is dramatically different as sprawl is projected to be greatly increased.

FIGURE 4.9
LAND USE AND METRO AREA SPRAWL SCENARIO
YEAR 2035 OUTCOME



Conclusions

The MAPA Beltway study showed that benefits to the transportation system would be derived from a multi-faceted approach to meet the future transportation needs:

- Regional **LAND USE POLICIES** affect transportation, and should be coordinated with transportation investments. Targeted density residential and commercial mixed-use developments and promoting infill will result in a more efficient use of land and make alternative modes of transportation more feasible.

- Enhancing **TRANSIT** ridership in the region would also help to alleviate future congestion and create a more balanced, multi-modal system. A comprehensive transit study should be conducted to test transit opportunities in greater detail and establish reasonable goals and objectives for more robust transit service in the region.

- Without major investments, the transportation system's performance is likely to degrade in the coming decades, resulting in millions of dollars in added costs due to increased travel times and congestion. Maximizing mobility and accessibility has been identified as a regional goal, and land use policies and transit investment will not remove the need for additional investment in the roadway system. Even in cities that emphasize transit and have comparably high transit ridership, the vast majority of travel still takes place using personal vehicles. Therefore, in addition to strategies to create a more robust multi-modal transportation system, investment in additional **ROADWAY CAPACITY** will remain necessary in the future.

Street, Highway, & Bridge

5.1 Introduction

The network of streets, highways, and bridges represents the primary form of transportation in the MAPA TMA. From residential streets to interstate freeways, it is utilized daily by the vast majority of residents in the metro area to get from point A to point B. In recent decades, hundreds of millions of dollars have been spent to construct and maintain the system that exists today. Ensuring that the roadway system continues to be safe and provides a high degree mobility for residents and businesses is critical to the region's future.

The MAPA LRTP provides the metro area with a roadmap for anticipated transportation improvements. While the 25-year planning timeframe inherently carries with it a high level of uncertainty, it is nonetheless important to periodically assess the region's transportation system and evaluate long range plans and goals. Furthermore, projects must be listed in the MAPA LRTP in order to be eligible for federal transportation funds.

As noted in Section 4's discussion of traffic trends, traffic levels have grown rapidly in recent decades in the MAPA region. Traffic growth has slowed of late, and since 2008 has remained essentially stable in most portions of the metro area. Nevertheless, it is anticipated that traffic growth will resume in future years as the region's population and employment continue to expand. Traffic increases will probably never reach the growth seen from the 1970s to the 1990s. During that time women entered the work force in large numbers, which contributed significantly to daily traffic volumes. That increase has since stabilized as the percentage of women entering the workforce has plateaued.

Even with the recent stabilization in traffic volumes, the metro area has failed to keep pace with new suburban growth. Needed improvements to the roadway system still lag behind residential, commercial and retail development. This section will list these current needs, as well as likely future needs to provide an effective transportation system.

5.2 Roadway System in the MAPA Region

As of early to mid-2010, Douglas, Sarpy, and Pottawattamie Counties have approximately 560,000 licensed drivers, (including permits). These three counties cover an area slightly larger than the MAPA TMA, as only the western, more populous portion of Pottawattamie County is contained in the TMA. Of the metro area's drivers, approximately 67% (376,000) are in Douglas County. 21% (118,000) are in Sarpy County, and 12%, or just over 65,000, are in all of Pottawattamie County.

To accommodate these drivers, state and local governments operate and maintain approximately 4,100 centerline miles and 9,200 lane miles of streets, highways, and bridges in the MAPA region. These facilities also serve as the primary thoroughfares for freight and goods movement that the supply the regional and national economies.

5.2.1 FREEWAY SYSTEM

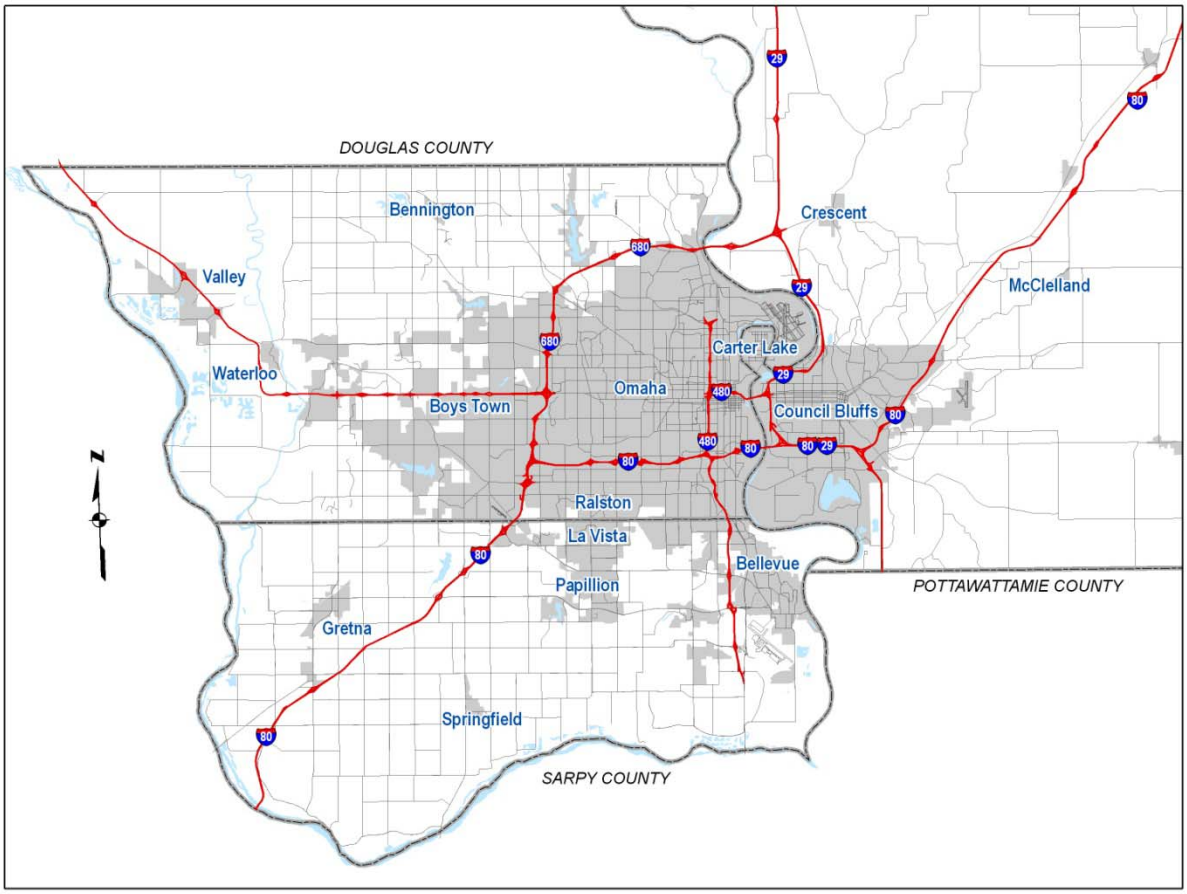
Freeways are roadways characterized by high travel speeds, divided medians and limited access (no at-grade intersections). Most but not all freeways in the metro area part of the national interstate system. Two major interstates bisect the metro area. Interstate 80 is one of the primary east-west corridors in the nation, connecting the San Francisco Bay area on the west coast with the New York City region on the east coast. In the MAPA TMA, I-80 travels from at the Platte River on the southwest to the Underwood Interchange (G-30/Magnolia Road) on the northeast. It carries the highest traffic volumes in the MAPA region, and has averaged as high as 175,000 vehicles per day in some recent years between 72nd Street and the I-480/Kennedy Freeway system interchange. Interstate 29 travels from Kansas City on the south through the Council Bluffs area. Further north it traverses the eastern Dakotas to the Canada border, where a Canadian highway ultimately leads to Winnipeg, Manitoba.

Omaha is also served by I-480, which operates as an interior loop through the downtown area of Omaha across the Missouri River to Council Bluffs. I-680 travels from its junction with I-80 in southwest Omaha and loops to the north side of the metro area before crossing the Missouri River and connecting with I-29. It continuous further to the north along I-29, until just south of the Pottawattamie-Harrison County line, where it becomes an east-west facility that connects I-29 and I-80.

The MAPA region has several other freeways that are not designated as interstates. The Kennedy Freeway runs along US-75 from Fairview Road to the I-80/I-480 junction. The North Freeway is US-75 from the I-480 junction to the interchange with Sorensen Parkway and Storz Expressway.

The West Dodge Elevated Expressway was completed in 2006. This major project created an above-ground freeway to travel from 120th Street to the West Dodge Road/I-680 Interchange. With the extension of improvements along US-6/West Dodge Road in west Omaha and former Elkhorn, this freeway now creates a continuous freeway between Omaha and Fremont along US-6, L-28B (West Dodge Road between US-275 and US-6), and US-275. Figure 5.1 illustrates the freeway system in the MAPA region:

FIGURE 5.1
FREEWAYS IN THE MAPA TMA



5.2.2 U.S. & STATE HIGHWAYS

The MAPA TMA is served by numerous U.S. and State highways. With the exception of where a U.S. or state highway runs along a freeway, these facilities are divided or undivided highways that have at-grade crossings and frequently operate at higher speeds than other arterial roadways (45 mph and higher). These highways supplement the freeway system and provide access to many of the region's large employment and commercial centers.

Prominent examples of these roadways in Nebraska include Nebraska State Highway 370 in Sarpy County and Highway 31, which travels from southern Sarpy County through Gretna, the former City of Elkhorn, and north to Washington County. State Highway 92 travels across the entire breadth of the MAPA TMA, from the Platte River to the junction with US-275, along West Center Road to L Street in Omaha, across the Veteran's Memorial Bridge into Council Bluffs, where it becomes Veteran's Memorial Road and travels east to the edge of the MAPA area just west of Treynor.

In the urbanized area, these highways are sometimes virtually indistinguishable from arterial roadways operated by municipalities. In recent years, jurisdiction along several state highways has been transferred to local governments. Examples include former Iowa Highway 183 (Old Lincoln Highway) between Council Bluffs and Crescent, former Iowa Highway 191 (Railroad Highway) that travels from Council Bluffs through Underwood and Neola to I-680, as well as former Nebraska Highway 38 (West Center Road) in Omaha. Currently, Nebraska Department of Roads (NDOR) is negotiating with local jurisdictions along Highway 85 (84th Street) to potentially remove it from the state system.

5.2.3 Other Major and Local Streets

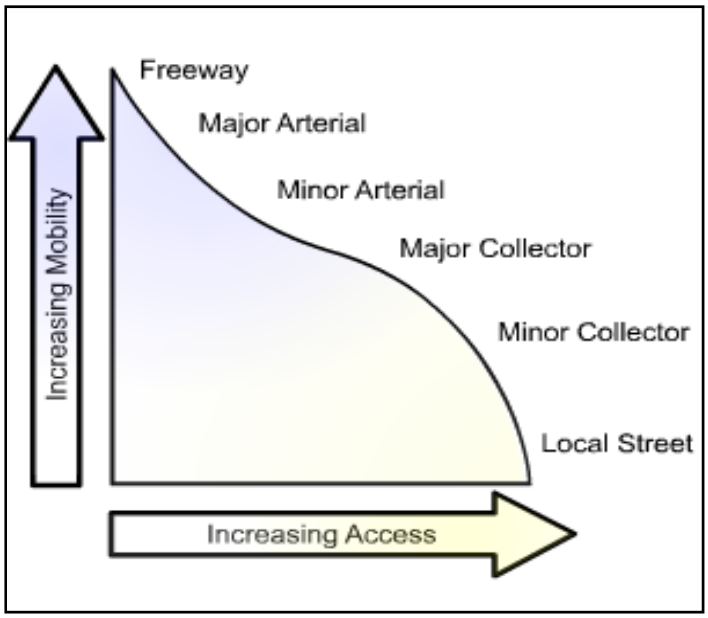
The local jurisdictions in the MAPA TMA operate and maintain several thousand miles of streets and roads. These roadways vary in character from rural gravel roads in unincorporated areas to six-lane divided urban arterials that carry more than 50,000 vehicles per day. Included in these streets are also thousands of miles of residential streets. Although they carry light to medium traffic, they serve as the last link connecting households to the surface street and highway network in the MAPA region.

5.2.4 Functional Classification and National Highway System (NHS)

The Federal Highway Administration (FHWA) groups roadways into classes according to the character of service they are intended to provide. In order to be eligible for federal-aid funding, a roadway must be identified as part of the functionally classified road network.

The functionality of a street is related to traffic mobility and land access. Higher level facilities such as freeways and expressways have lower access which allow for higher speeds and capacities. Conversely, lower level facilities such as local streets and minor collectors allow for greater access, but have reduced mobility due to lower speeds and capacities. This relationship can be seen in Figure 5.2:

FIGURE 5.2
RELATIONSHIP BETWEEN MOBILITY AND ACCESS ON ROADWAYS



Figures 5.3 and 5.4 list the number of center-line and lane miles by each federal functional classification in the MAPA TMA:

FIGURE 5.3
CENTER-LINE MILES BY FEDERAL FUNCTIONAL CLASSIFICATION

County	Interstate (PAI)	Other Principal Arterial (OPA)	Minor Arterial (MA)	Collector	Local (LOC)	Total
Douglas	37.83	198.25	210.17	283.89	1586.25	2316.39
Sarpy	21.2	55.83	68.12	150.05	852.09	1147.29
Pottawattamie (MPO)	36.712	17.477	67.22	137.04	382.907	641.356
MAPA	95.742	271.557	345.51	570.98	2821.247	4105.036

FIGURE 5.4
LANE MILES BY FEDERAL FUNCTIONAL CLASSIFICATION

County	Interstate (PAI)	Other Principal Arterial (OPA)	Minor Arterial (MA)	Collector	Local (LOC)	Total
Douglas	194.95	771.64	591.85	598.01	3170.99	5318.44
Sarpy	104.37	216.6	177.68	307.59	1705.3	2511.54
Pottawattamie (MPO)	150.113	65.109	150.385	274.619	757.615	1397.841
MAPA	449.433	1053.349	919.915	1171.219	5633.905	9227.821

5.3 PAVEMENT CONDITIONS

Both Iowa DOT and NDOR have extensive asset management programs that monitor pavement conditions. The states measure road surface quality annually, and use the data to determine needs on the system. Figures 5.5 and 5.6 show the pavement status in the metro area according to the International Roughness Index (IRI), which is a universal measure of the smoothness of the roadway.

FIGURE 5.5
ROAD SURFACE QUALITY BY FEDERAL FUNCTIONAL CLASSIFICATION

	Very Good	Good	Fair	Poor	Very Poor
Interstate	23%	74%	3%	0%	0%
Freeway/Expressway	7%	85%	7%	0%	2%
Other Principal Arterials	3%	48%	19%	19%	11%
Minor Arterials	0%	82%	14%	4%	1%

FIGURE 5.6
ROAD SURFACE QUALITY BY COUNTY

	Very Good	Good	Fair	Poor	Very Poor
Douglas	2%	66%	17%	12%	12%
Sarpy	3%	78%	12%	5%	2%
Pottawattamie	23%	65%	5%	5%	2%
MAPA REGION	9%	67%	12%	8%	4%

Note that the numbers above represent data collected solely by the state and do not cover the roadway system in its entirety. This also accounts for the discrepancy between the road conditions on the Iowa and Nebraska sides of the region. Therefore, while these numbers are helpful at providing a general idea of pavement conditions, it should be understood that they are incomplete and not precise.

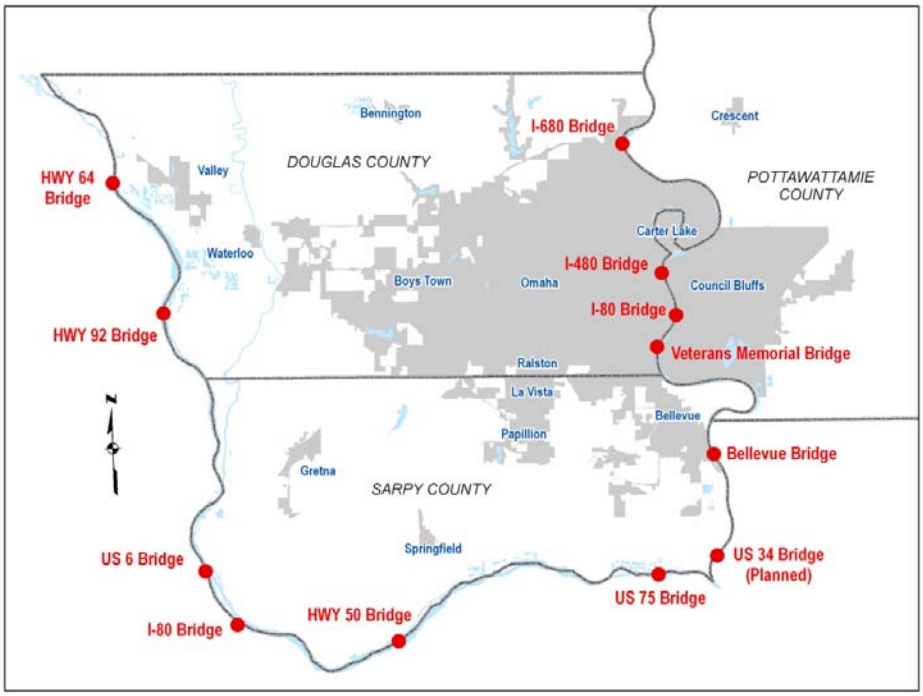
Based on the above pavement conditions, over three-quarters of the roadway system in the MAPA region is rated "good" or "very good." About 12% is rated "poor" or "very poor." These numbers paint a picture of generally good pavement conditions with a smaller portion of trouble-spots.

Some local jurisdictions in the MAPA region, such as the cities of Council Bluffs and Omaha, have their own pavement condition assessment programs. These programs monitor pavement conditions on major streets. Streets are regularly assessed based on a number of criteria. The information is tabulated, and a final condition rating is established and utilized in the project selection process.

5.4 Bridges in the MAPA Region

The two major rivers in the MAPA region are the Missouri and Platte Rivers. Twelve bridges cross these two rivers in the MAPA region. These are shown in Figure 5.7.

Figure 5.7
Major River Crossings in the MAPA Region



The Missouri River is the dominant geographical and political boundary in the MAPA region. It is one of the nation's major waterways and is the state line dividing Iowa and Nebraska (with the exception of Carter Lake, Iowa). There are currently five roadway crossings of the Missouri River, which are listed in Figure 5.8:

FIGURE 5.8
BRIDGE CROSSINGS BETWEEN NEBRASKA AND IOWA

Bridge	Roadway	Lanes	Vehicles/Day
Bellevue Bridge (toll)	Hwy. 370	2-Lanes	3,000
Veteran's Memorial Bridge	US-275 / Hwy. 92	4-Lanes	9,000
I-80 Bridge	I-80	4-Lanes*	76,700
I-480 Bridge	I-480 / US-6	8-Lanes	52,100
I-680 Bridge	I-680	4-Lanes	16,500

*Currently under construction

The Interstate 80 crossing of the Missouri River is currently under construction in a joint project of Iowa DOT and NDOR. Upon completion, the bridge will have two structures of five lanes each for a total of ten lanes. The large capacity on the bridge was chosen to meet anticipated future demand as well as to allow three lanes of traffic in each direction during closure of one of the bridges.

A new US-34 bridge is planned to connect US-75 in southern Sarpy County to I-29 in Mills County. The US-34 designation is currently on the Plattsmouth Bridge, which will be moved to the new bridge. This will be a joint project of Iowa DOT and NDOR. Construction is set to begin in the fall or winter of 2011 with the opening anticipated for summer of 2014.

In addition to the roadway crossings, there is a rail crossing and a pedestrian bridge over the Missouri River. The Union-Pacific Missouri River Bridge is located east of downtown Omaha (south of Leavenworth Street) and south of Harrah's casino in Council Bluffs. The bridge is utilized by a very high volume of rail traffic as it is one of the primary connections in the UP rail network.

The Bob Kerrey Pedestrian Bridge was opened in September 2008. It is open to pedestrian and bicycle traffic. Prior to its construction, there was not a legal or safe bridge over the Missouri River to cross in the MAPA TMA for bicycle and pedestrian traffic. Pedestrians frequently used I-480 even though it is not permitted on an interstate facility in Nebraska or

Fireworks for the unveiling of the Pedestrian Bridge lights on September 13, 2008

Iowa. The bridge is located to the north of the I-480 bridge and features two 200-foot towers. It cost $22 million to construct and was designed to be an iconic structure for the greater Omaha-Council Bluffs metro area. Gallup donated the lights on the bridge. Gallup's corporate headquarters are located adjacent to the Omaha landing of the bridge. Although not without controversy, the bridge has seen high levels of bicycle and foot traffic, particularly on evenings and weekends during warm weather months.

Nebraska Department of Roads and Iowa DOT opened the new Veteran's Memorial Bridge to traffic in May 2010. The bridge is a continuous 625-foot long steel truss structure, which is among the largest in the nation. It provides a ten-foot wide bicycle and pedestrian facility, making it the second such crossing in the MAPA region.

Construction of the new Veteran's Memorial Bridge alongside the old bridge.

The MAPA TMA is bounded on the south and west in Nebraska by the Platte River. There is no barge traffic on the placid Platte, and it is used for recreational purposes as well as commercial and industrial uses, such as the Louisville Ready Mix concrete plant. Figure 5.9 illustrates the crossings over the Platte:

FIGURE 5.9
BRIDGE CROSSINGS OVER THE PLATTE RIVER

Bridge	Lanes	Vehicles/Day (2008)
US-75 Bridge	4-Lanes	15,500
Highway 50 Bridge	2-Lanes	7,700
I-80 Bridge	6-Lanes	38,900
US-6 Bridge	2-Lanes	7,000
Highway 92 Bridge	2-Lanes	7,000
Highway 64 Bridge	2-Lanes	1,900

5.4.1 BRIDGE DEFICIENCIES

There are nearly 1,000 bridges in the MAPA TMA. Of these, 325, or one-quarter, are currently classified as structurally deficient or functionally obsolete. A report by the U.S. DOT to Congress describes these terms as follows: "Structural

deficiencies are characterized by deteriorated conditions of significant bridge elements and reduced load carrying capacity. Functional obsolescence is a function of the geometrics of the bridge not meeting current design standards. Neither type of deficiency indicates that the bridge is unsafe." In other words, these are bridges in need of improvement and can result in congestion or pose inconveniences to large vehicles such as trucks, school buses or emergency vehicles that are forced to take lengthy detours. However, the terms do not necessarily imply that a bridge is unsafe or on the verge of collapse.

The majority—three quarters—of structurally deficient or functionally obsolete bridges are located off the state highway system on municipal and county roads, which typically carry lower traffic volumes. 17 percent of bridges in Douglas County fall into this category as do 28 percent of bridges in Sarpy County. The Pottawattamie County portion of the MAPA TMA has the highest rate of obsolete or deficient bridges at 32 percent. Pottawattamie County also has the highest number of bridges *per capita* within the metro area. Figure 5.10 provides the bridge conditions by county:

FIGURE 5.10
BRIDGE CONDITIONS IN THE MAPA TMA

Bridge Jurisdiction	Sound and Adequate Bridges	Deficient or Obsolete Bridges	Percent Deficient or Obsolete
Douglas State	219	38	15%
Douglas Local	223	50	18%
Douglas Total	**442**	**88**	**17%**
Sarpy State	61	5	8%
Sarpy Local	74	47	39%
Sarpy Total	**135**	**52**	**28%**
Pott. State*	133	39	23%
Pott. Local*	263	146	36%
Pott. Total*	**396**	**185**	**32%**
MAPA Total	**973**	**325**	**25%**

* - Pottawattamie County bridges only represent MPO portion of the county.

5.5 ACCESS MANAGEMENT

Access management aims to preserve traffic flow while providing adequate access to development. It has benefits for the transportation system in terms of safety, capacity, and speed. Access management balances the needs of motorists, pedestrians, and bicyclists using a roadway with the needs of adjacent property owners dependent upon access to the roadway. In an environment with limited

funds for transportation projects and competing agendas, good access management significantly improves the health of the entire transportation network.

Poor access management directly affects the livability and economic vitality of commercial corridors, ultimately discouraging potential customers from entering the area. A corridor with poor access management lengthens commute times, lowers fuel efficiency, and increases vehicle emissions. Corridor with poor access management will see increased crashes between motorists, pedestrians, and cyclists, congestion growth that outpaces traffic growth, spillover cut-through traffic on adjacent residential streets, and reduced property values on adjacent commercial development.

Access management has wide ranging benefits to a variety of users. Improvements through reduced travel time and delays and greater safety help motorists, bicyclists and pedestrians, as well as those delivering goods and services. Business owners see stabilization in property values and additional customer traffic, and improved corridor aesthetics. Government agencies enjoy a lower cost method to achieve transportation goals, while protecting the jurisdiction's investment in infrastructure that reduces the need for constant construction projects such as road widenings.

Although a goal of access management is to reduce delay and increase travel speeds, this should be employed in areas identified for the purpose of moving high volumes of vehicle traffic smoothly and safely. As discussed in Section 4. 5 on Complete Streets, in order to create an environment that is more amenable to non-vehicle modes of travel, it will sometimes be necessary to employ traffic calming strategies. In such contexts, some of the tools listed below may not be appropriate.

5.6 Access Management Toolbox

Access management includes a variety of tools to improve corridor operation and should never be considered a one-size fits all solution. Strategies must be selected that are appropriate to the specific context. The toolbox that follows provides a general overview of various strategies available to alleviate congestion.

5.6.1 On-site Traffic Circulation

Vehicle conflicts can be reduced by on-site traffic circulation and shared-use driveways. The following improvements should be included during development application review for sites along corridors identified for access management programs.

Improved On-Site

Manage driveway throat length, the distance from the edge of the public street to the first internal site intersection. A minimum separation of 100 feet, or more if required by the local agency, should be provided to prevent internal site operations from affecting an adjacent public street, ultimately causing spillback problems.

Number of Driveways

Where new development occurs adjacent to an existing site or to another new development, driveway permit applicants should been encouraged to seek cross access easements/agreements from an existing adjacent property ownership to create interconnected internal circulation systems and shared-use external driveways.

Driveway Placement/Relocation

Relocate or close driveways close to intersections as appropriate to reduce operational and safety issues such as intersection and driveway blockages, increased points of conflict, frequent/unexpected stops in the through travel lanes, and driver confusion as to where vehicles are turning.

As a best planning practice, no driveway should be allowed within 100 feet of the nearest intersection and full movement driveways should be no closer than 300 feet to an intersection in urban areas or 600 feet to an intersection in suburban areas on arterial roadways. Driveways closer than these distances to an intersection on arterial roadways should be restricted to right-in/right-out access only. In all cases, the location of driveways should be in accordance with the standards of the local jurisdiction.

Cross Access

Cross access is a service drive or secondary roadway that provides vehicular access between two or more continuous properties, which prevents the driver from having to enter the public street system to travel between adjacent uses. Cross access can be a function of good internal traffic circulation at large developments with substantial frontage along a major roadway. Similarly, backdoor access occurs when a parcel has access to a parallel street behind buildings and away from the main road. When combined with a median treatment, cross access, and backdoor access ensure that all parcels have access to a median opening or traffic signal for left turn movements.

5.6.2 MEDIAN TREATMENTS

Segments of a corridor with sufficient cross access, backdoor access, and on-site circulation may be candidates for median treatments. Median treatments can improve traffic flow, reduce congestion, increase traffic safety, and provide opportunities for pedestrian buffers. While medians restrict some left-turn movements, access to businesses is enhanced and traffic delays are reduced. Landscaping and gateway features incorporated into median treatments improve the aesthetics of the corridor, in turn encouraging investment in the area.

Non-Traversable Median

These features are raised or depressed cross-section elements that physically separate opposing traffic flows. They should be considered for a new cross-section or retrofit of an existing cross-section along multi-lane roadways with high pedestrian volumes or collision rates as well as in locations where aesthetics are a priority. A non-traversable median requires sufficient cross and backdoor access. As these treatments are considered, sufficient spacing and locations for left-turn bays must be identified.

Advantages of non-traversable medians can include increased safety and capacity by separating opposing vehicle flows, space for pedestrian refuge, and restricting turning movements to locations with appropriate turn lanes. Disadvantages may include increased emergency vehicle response time due at some destinations, inconvenience, increased travel distance for some movements, and potential opposition from the general public and affected property owners.

Left-Turn Lanes/Storage Bays

Where necessary, exclusive left-turn lanes/bays should be constructed to provide adequate storage space exclusive of through traffic for turning vehicles. These bays reduce vehicle delay related to waiting for vehicles to turn and also may decrease the frequency of collisions attributable to lane blockages. In some cases, turn lanes/bays can be constructed within an existing median. If additional right-of-way is required, these can add costs.

Offset Left-Turn Treatment

Exclusive left-turn lanes at intersections of streets with medians many times are configured to the right of one another, which causes opposing left-turning vehicles to block one another's forward visibility. An offset left-turn treatment shifts the left-turn lanes to the left, adjacent to the innermost lane of oncoming through traffic. If permissive left-turn phasing is used, this treatment can improve efficiency and safety by reducing crossing and exposure time and distance for left-turning vehicles. In addition, the positive offset improves sight distance and may improve gap recognition.

5.6.3 Intersection and Minor Street Treatments

The operation of intersections can be improved by reducing driver confusion, establishing proper curb radii, and ensuring adequate laneage of minor street approaches.

Skip Marks (Dotted Line Markings)

These pavement markings can reduce driver confusion and increase safety by guiding drivers through complex intersections. Intersections that benefit from these lane markings include offset, skewed or multi-legged intersections. Skip marks are also useful at intersections with multiple turn lanes. The dotted line markings extend the line markings of approaching roadways through the intersection. The markings should be designed to avoid confusing drivers in adjacent or opposing lanes.

Intersection and Driveway Curb Radii

Locations with inadequate curb radii may cause turning vehicles to use opposing travel lanes to complete their turning movement. Inadequate curb radii may cause vehicles to “mount the curb” as they turn a corner and cause damage to the curb and gutter, sidewalk, and any fixed objects located on the corner. This maneuver also can endanger pedestrians standing on the corner. Curb radii should be adequately sized for area context and likely vehicular usage.

Traffic and Congestion Trends

6.1 Introduction

A look at current traffic trends help to gauge where the MAPA region is heading and how the transportation system is likely to perform over the coming 25 years. It also offers an opportunity to the region to step back and consider what steps will be necessary to meet future transportation needs. Travel data and trends are vital to setting goals, choosing appropriate action steps, and tracking the region's progress toward attaining those goals.

Data and statistics play an important role in this analysis. For instance, travel time studies confirm anecdotal experience that nearly all of the metro area is within a half hour's drive, and most of the area can be reached within twenty minutes. This helps to explain why MAPA's public survey mobility was scored as the strongest asset of the metro area's transportation system by respondents.

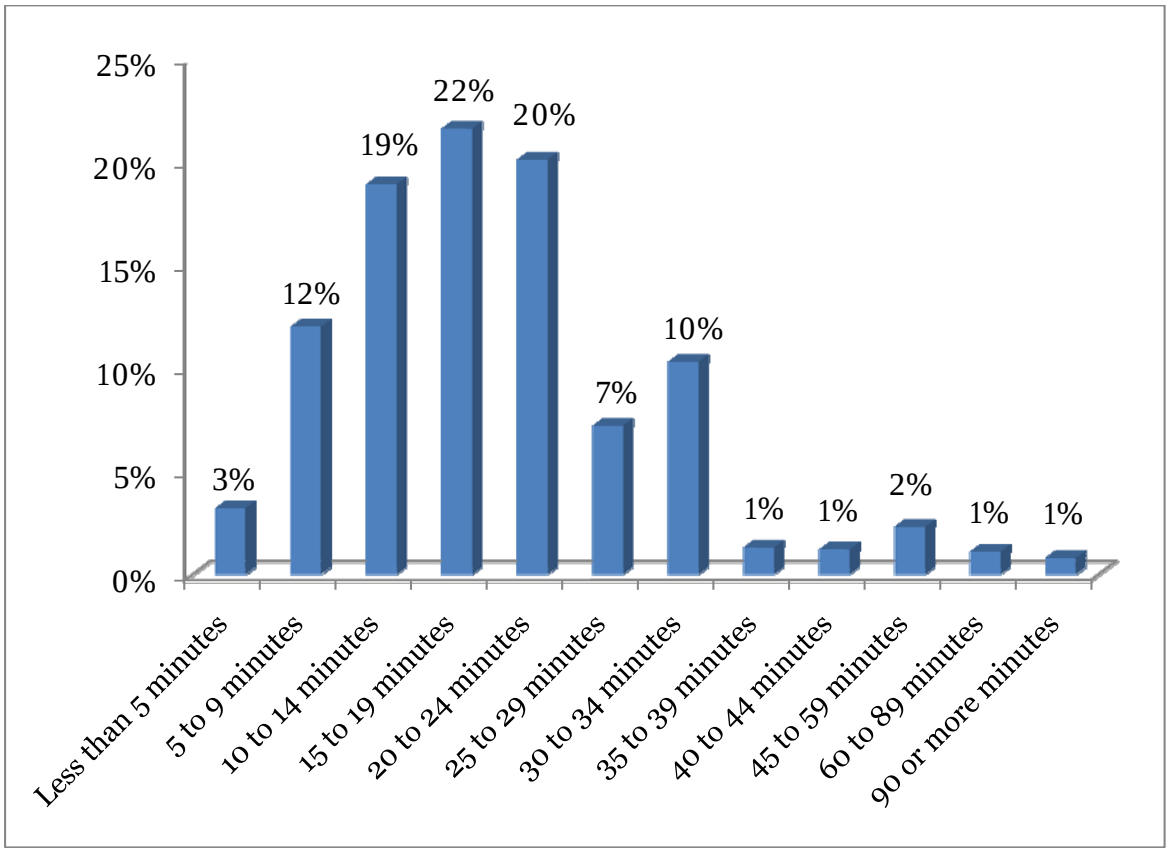
Traffic congestion has grown over recent decades in the MAPA TMA resulting in added delays and costs to area residents and businesses. Traffic Growth (6.3) and Congestion in the MAPA Region (6.4) of this section specifically discuss recent trends and statistics related to congestion. These sections also serve as MAPA's Congestion Management Process (CMP), which SAFETEA-LU requires TMAs to maintain and use in transportation planning efforts. The primary causes of congestion and strategies to alleviate and mitigate them are identified in this part of the section.

6.2 Commuting to Work

Commuting to and from work is one of the most essential functions of the transportation system. The morning and late afternoon peak travel periods generally represent the highest periods of congestion. Much of the transportation planning work is performed with an eye toward improving work trips.

Travel times to work reported by the Census Bureau attest to the Omaha-Council Bluffs region's reputation as being generally convenient for travel. More than half of all commutes to work in the MAPA TMA are less than 20 minutes and three quarters of commutes take less than 25 minutes. Figure 6.1 shows the average travel times for work commutes:

FIGURE 6.1
PERCENTAGE OF DRIVERS PER COMMUTE TRAVEL TIME FOR MAPA TMA



The automobile is the predominant mode by which people get to work in the MAPA region. Over 90-percent of all work trips are made by a car, truck, or van. Of these, about 84-percent are made by people driving alone. Figure 6.2 shows the most recent Census data indicating the means of transportation to work in the MAPA TMA:

FIGURE 6.2
MEANS OF TRANSPORTATION FOR WORK COMMUTES

Transportation Type	Percent
Car, truck or van - drove alone:	84%
Car, truck or van - carpooled:	10%
Public transportation:	1%
Walked:	2%
Taxi, motorcycle, bicycle, or other means:	1%
Worked at home:	3%

Source: 2006-2008 Census ACS Data

These percentages are not uncommon for medium-sized metro areas in the Midwest. The personal vehicle offers a high level of convenience and mobility. Hence, the oft-repeated phrase that Americans have a love affair with their cars, trucks, and SUVs.

While the automobile has advantages to users, a transportation system designed almost exclusively for motor vehicles carries costs, as discussed extensively in Section 4. This is particularly true when auto trips are made by single-occupancy vehicles (SOV). Figure 6.3 provides the percentages of vehicle occupancies for work trips in the MAPA TMA:

FIGURE 6.3
VEHICLE OCCUPANCY FOR WORK TRIPS

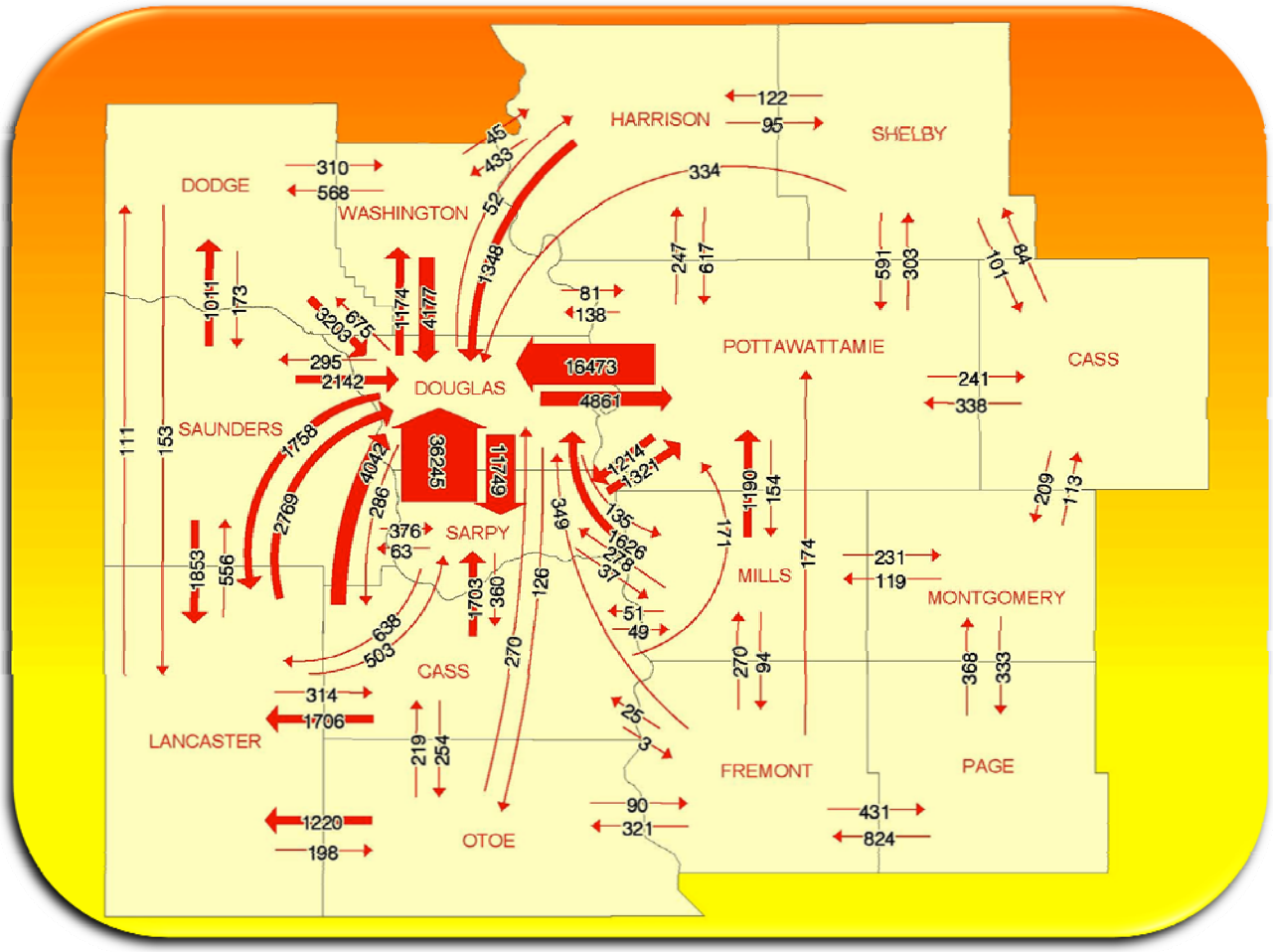
Vehicle Occupancy	Total Travelers	Percent of Drivers
Drove alone	311,061	90%
2-person carpool	29,088	8%
3-person carpool	4,454	1%
4 + person carpool	2,623	1%

Source: 2006-2008 Census ACS Data

Whether the current trend will change in the future in the MAPA region remains to be seen. It is clear that Americans have grown accustomed to the high level of mobility afforded by the automobile and an extensive highway and street network. Any effort to shift transportation modes that reduce the perceived mobility faces many challenges.

Figure 6.4 shows the commute patterns of workers between counties in the greater Omaha metro area based on the 2000 Census. Not surprisingly, the largest movements are into Douglas County from Sarpy and Pottawattamie Counties since many residents of these two counties work in Douglas County, which has the region's highest concentration of employment. However, there is also extensive movement between the surrounding counties. In 2000, over 5,500 commuters traveled between Lancaster County (Lincoln, NE) and the MAPA region. That number has presumably grown during the past decade.

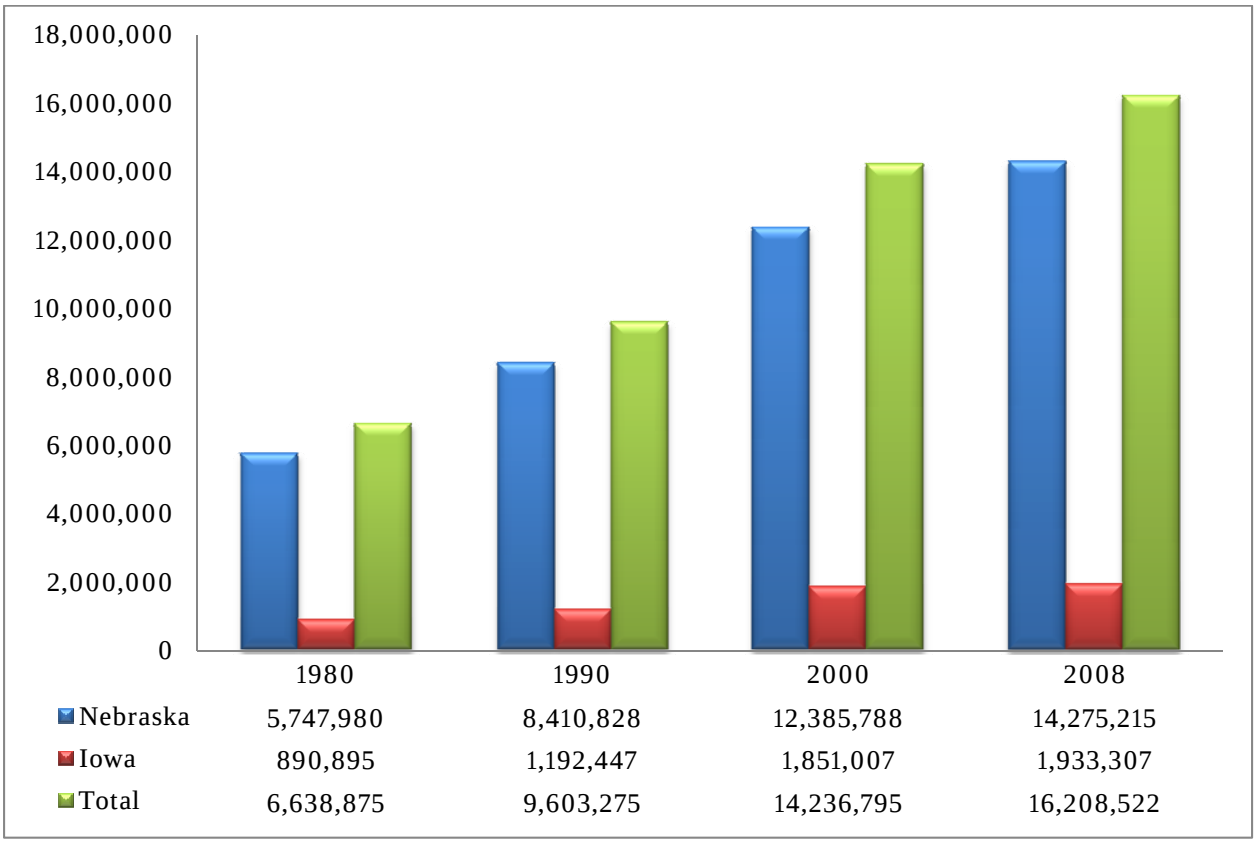
FIGURE 6.4
MAJOR COMMUTE PATTERNS – 2000



6.3 TRAFFIC GROWTH

Traffic levels have grown rapidly over recent decades in the MAPA region. Vehicle Miles Traveled (VMT) is a common statistic used to measure traffic levels, which is calculated by multiplying the length of a road segment by the Average Daily Traffic (ADT) collected through traffic counts. According to MAPA Traffic Growth studies, VMT in the MAPA TMA has experienced an increase of more than two and one-half times in the past 30 years. In 1980, the daily VMT was approximately 6.6 million VMT per day, but in 2008 this amount had grown to over 16.2 million VMT. Figure 6.5 illustrates this growth for both the Nebraska and Iowa portions of the TMA, as well as the regional total:

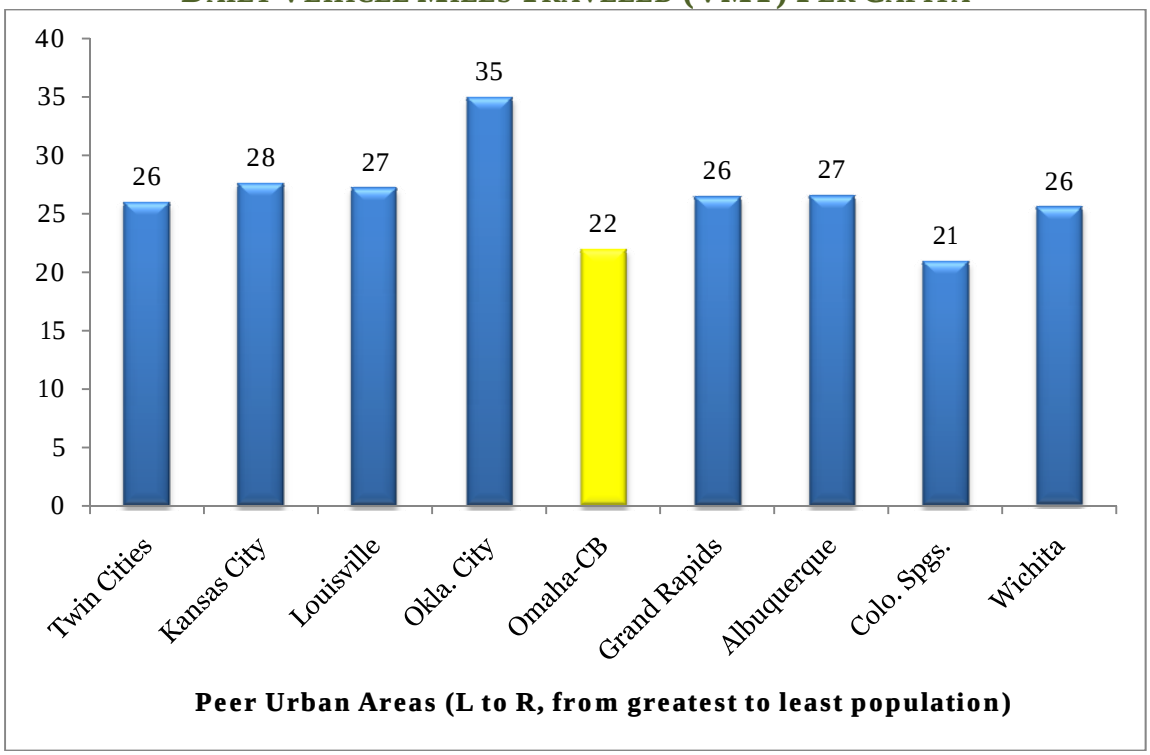
FIGURE 6.5
TOTAL VEHICLE MILES TRAVELED (VMT) IN THE MAPA REGION



	1980	1990	2000	2008
Nebraska	5,747,980	8,410,828	12,385,788	14,275,215
Iowa	890,895	1,192,447	1,851,007	1,933,307
Total	6,638,875	9,603,275	14,236,795	16,208,522

Residents in the MAPA TMA drive less than residents of most other medium-sized areas. As shown in Figure 6.6, residents in the MAPA region drive an average of 22 miles per day. This is lower than the averages of nearly all other comparable metro areas. The Texas Transportation Institute's *Urban Mobility Study* also lists Omaha as having among the lowest *per capita* VMTs in the nation for mid-sized metro areas. This is largely the result of a contiguous and relatively dense urban form and a smaller freeway system than most of MAPA's peer regions. Keeping the *per capita* VMT low, and further reducing it has been identified as a regional goal by groups such as Omaha by Design, which aim to promote active modes of transportation and coordination of transportation with land use. The relationship between population density, land use policies, and transportation is further discussed in Section 4.

FIGURE 6.6
DAILY VEHICLE MILES TRAVELED (VMT) PER CAPITA



Source: FHWA Highway Statistics 2008

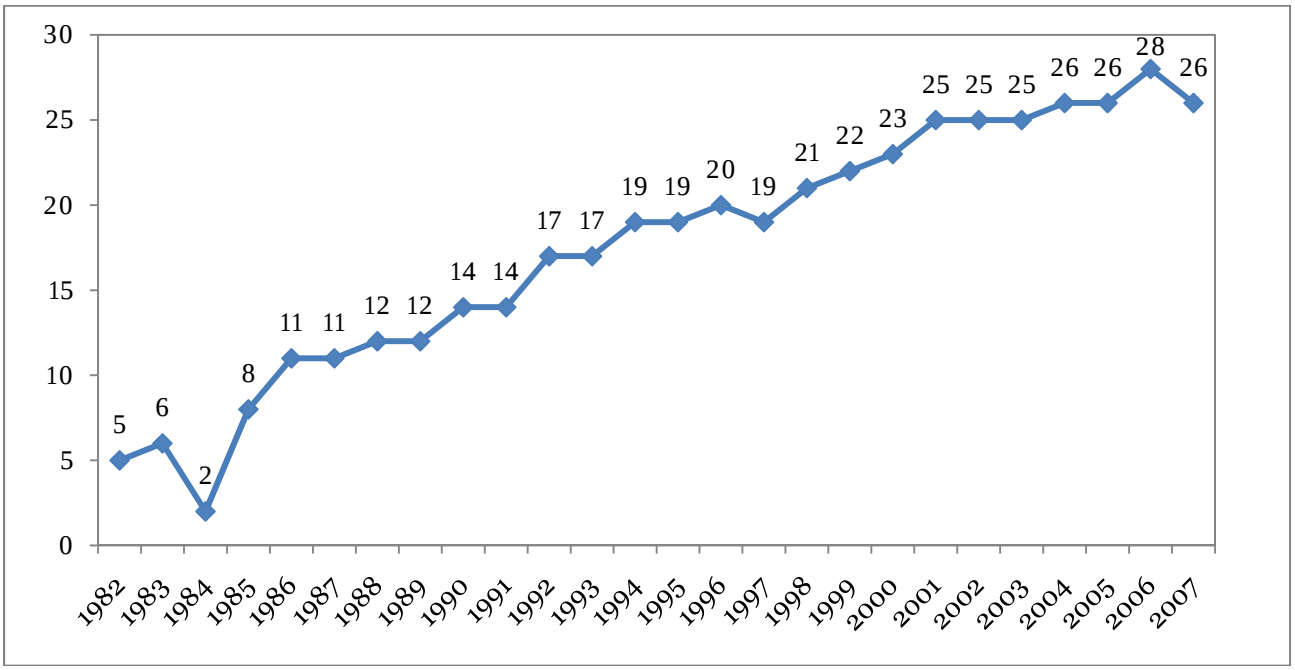
6.4 CONGESTION IN THE MAPA REGION

In order to address traffic congestion, SAFETEA-LU legislation requires TMAs to create and implement a Congestion Management Process (CMP). The CMP aims at providing effective management and operations of the transportation system in order to increase mobility and efficiency and more effectively utilize the region's resources. The following sub-sections explain MAPA's Congestion Management Process.

Congestion has grown significantly in the MAPA region during the past 25 years. The Texas Transportation Institute's annual *Urban Mobility Study* provides a comprehensive look at traffic and congestion across the nation's metro areas. While it is a macroscopic congestion measure that does not necessarily take into account all local factors affecting congestion, it nevertheless provides a reasonable and consistent source of data that that can be tracked and compared over time.

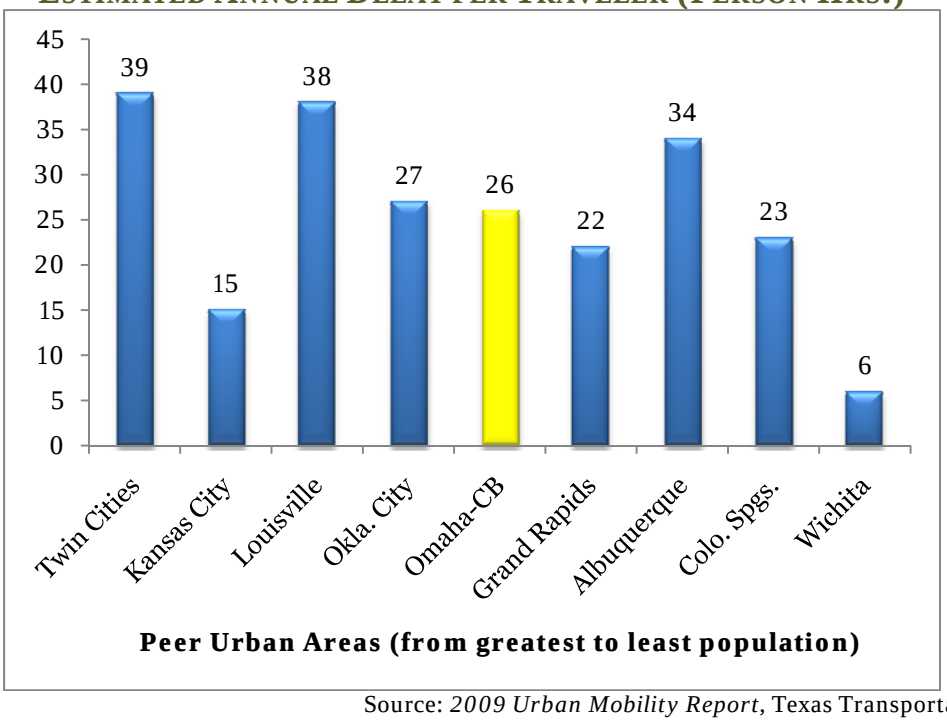
Figure 6.7 shows the TTI study's estimated hours of delay per traveler in the greater Omaha-Council Bluffs metro area between 1982 and 2007. This study's figures show a five-fold increase in delay associated with congestion, growing from five annual hours per person in 1982 to over 25 hours in 2007. Figure 6.8 compares the MAPA region's delay to other similar metro areas. Note that the peer regions have a broad range of average delay. The 26 annual person hours estimated for the Omaha-Council Bluffs metro area is near the average for MAPA's peer regions.

FIGURE 6.7
MAPA REGION ANNUAL DELAY PER TRAVELER (PERSON HRS.)



Source: *2009 Urban Mobility Report*, Texas Transportation Institute

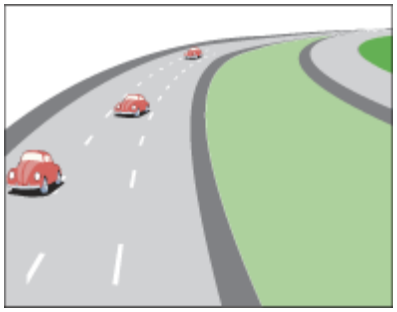
FIGURE 6.8
ESTIMATED ANNUAL DELAY PER TRAVELER (PERSON HRS.)



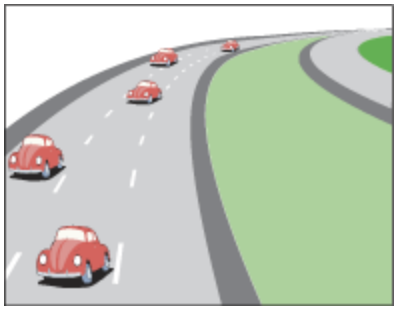
Source: *2009 Urban Mobility Report*, Texas Transportation Institute

In order to monitor congestion levels in the MAPA TMA, MAPA has conducted an ongoing travel time and delay study since 1997. MAPA staff perform travel runs utilizing GPS equipment to systematically collect travel data for a selection of the region's highest volume traffic corridors, including the entire freeway system within the urbanized area. This study provides a consistent source of data to monitor the performance of the street and highway system in the MAPA TMA over time.

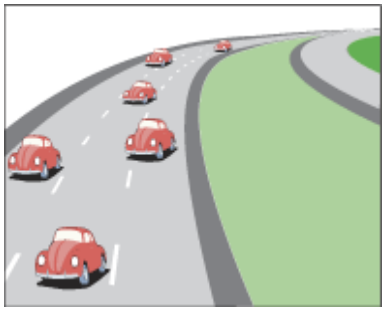
Level of Service (LOS) is one of the measures utilized in the MAPA Travel Time Study to gauge congestion levels. The *Highway Capacity Manual* recommends a method of determining LOS based on average vehicle travel speed for each road segment. The LOS for a road ranges from LOS "A", meaning no congestion and very light volumes, to LOS "F", indicating a complete breakdown in a facility's performance due to very heavy congestion. The pictures below provide visual approximations of the traffic levels experienced in each LOS.



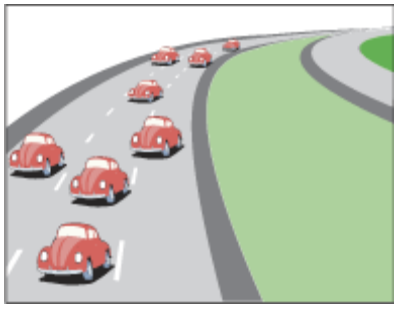
LOS "A"



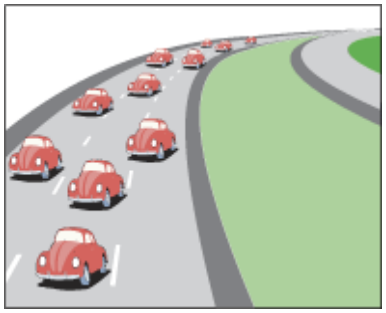
LOS "B"



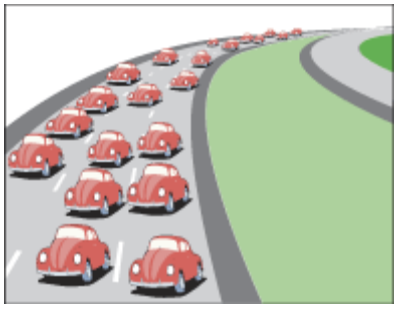
LOS "C"



LOS "D"



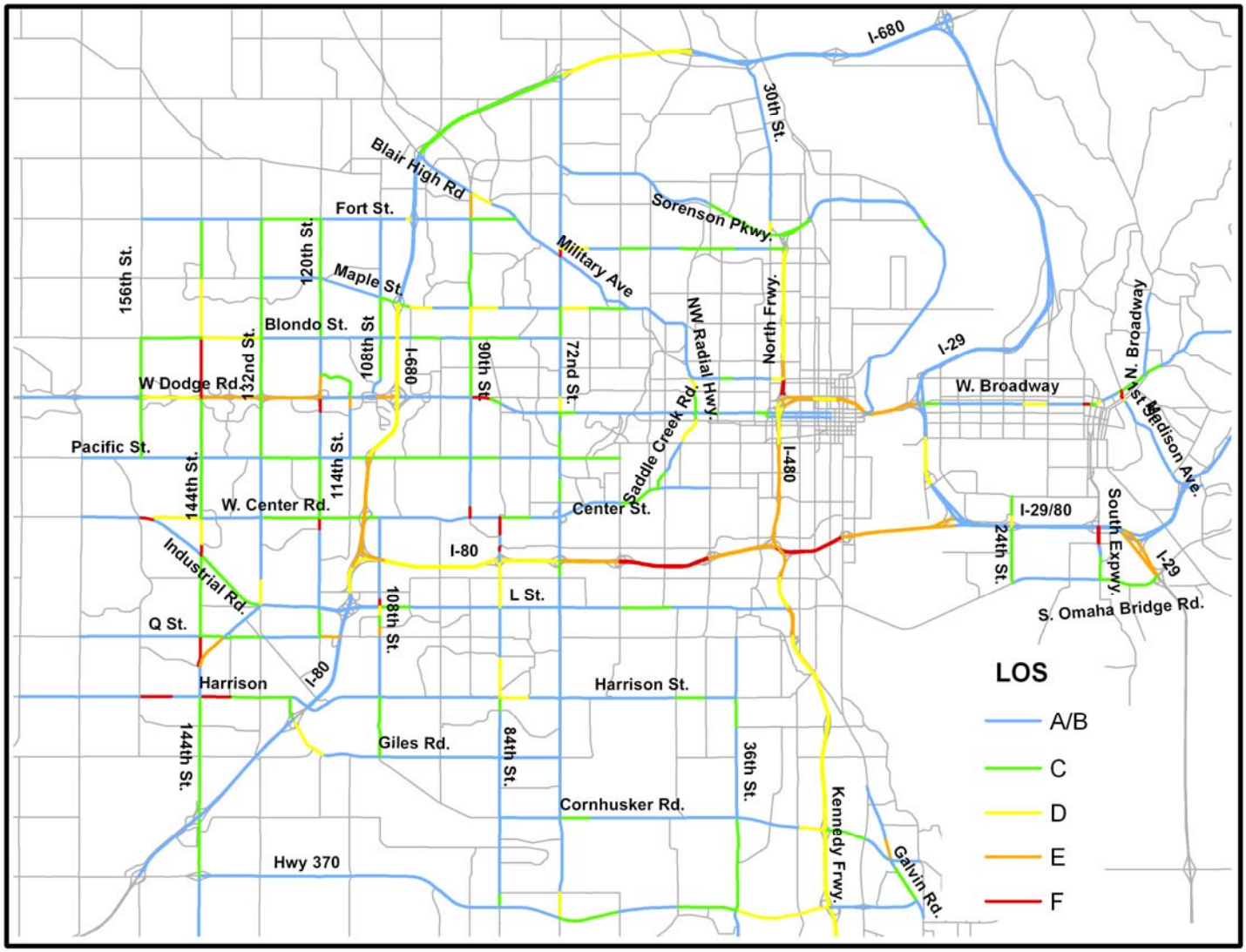
LOS "E"



LOS "F"

Figures 6.9 shows the average Level of Service (LOS) for the PM peak hour in the outbound direction (that is, the direction generally radiating away from downtown Omaha) along segments monitored in the MAPA Travel Time Study between 2007 and 2009. The study data confirms that congestion levels throughout most of the region are relatively low. Nevertheless, some congestion "hot spots" merit specific attention.

FIGURE 6.9
PM RUSH HOUR LEVEL OF SERVICE, 2007 – 2009



The local street system appears to have a generally high LOS rating. It is worth bearing in mind that the LOS ratings in the map above represent an average of several travel time runs recorded between four and six o'clock. Since the peak travel period in Omaha is limited, the worst traffic conditions are not represented here.

Sections with the most congestion include some locations near freeways and several in west Omaha. For instance, 84th Street between Harrison Street and West Center Road

has several sections that are between LOS "D" and "F." Areas of high delay in west Omaha include Harrison Street, West Dodge Road, and 144th Street north of West Dodge Road. In general, the east-west streets appear to perform better than north-south streets. This makes sense since the majority of travel is in an east-west direction, and traffic signals are timed accordingly to maintain traffic flow during the high traffic periods.

Along the freeways, the highest trouble spot occurs along I-80 between 72nd Street and the I-29 west junction in Council Bluffs. Several sections rate an LOS "D", including I-680 between the I-80 junction and Pacific Street and most of I-480.

In general, the segments identified as having an LOS worse than "D" (*i.e.*, sections with orange or red on the map) are fairly limited to particular locations and do not indicate a severe level of congestion on a widespread basis in the MAPA TMA. It should be further noted that projects are either under construction or planned along most of the locations with higher congestion levels that should improve the Level of Service. For instance, the large Council Bluffs Interstate Reconstruction project will improve the Missouri River crossing on I-80. The Nebraska Department of Roads is also constructing or planning improvements along the most severely congested sections of I-80 and I-680. The City of Omaha is also planning projects along 144th and Blondo Streets, while Harrison Street has been widened to a four-lane urban section east of 144th Street.

The Travel Time Study also illustrates the results of recent projects in the MAPA region. Several congestion hot spots from previous years have recently been improved. Prior to 2007, L Street / Industrial Road west of 120th Street was a four-lane facility. The LOS for L Street varied between "C" and "F." During the past few years, it was improved to a 6-lane facility with several intersection modifications. These changes were evident in the most recent round of data collection as the LOS now ranged between LOS "A" and LOS "C." Similar improvements could be seen along Q Street in southwest Omaha. Recent capacity improvements to four-lane arterials directly corresponded to LOS improvements in the Travel Time Study.

It should also be noted that there are a number of segments identified as LOS "C" or "D". While this is to be expected in any major metropolitan area, future growth will likely increase traffic on facilities past their current design capacities. The strategies listed below to reduce and mitigate congestion levels should be utilized in order to avoid a significant decrease in mobility.

6.5 GOALS AND STRATEGIES

The goals of MAPA's Congestion Management Process mirror the four overall goals of the Long Range Transportation Plan. Each of the four goals applies to the congestion management:

1. **Maximize accessibility and mobility –** Reducing congestion helps decrease travel time and delay and improve mobility in the metro area.

2. **Increase safety and security –**Effective management and operation of the system results in a safer, more secure transportation network.

3. **Consider the environment and urban form** – Congestion management strategies aim at reducing single occupancy vehicle (SOV) travel in addition to traditional capital improvement projects to create a more livable, healthy community and reduce air pollution.

4. **Keep costs reasonable and sustainable –** The CMP includes many strategies that are very cost-effective ways of improving efficiencies such as signal improvements, ITS equipment, and incident management programs.

To realize these goals, numerous strategies will be employed in the MAPA TMA. Congestion can be the result of geometric or technological issues, in addition to high traffic demand. Figure 6.10 lists the primary causes of congestion in the MAPA region by category and strategies that will be used to address them:

FIGURE 6.10
CONGESTION CAUSES AND MANAGEMENT STRATEGIES

Congestion Causes		Congestion Management Strategies
Geometric - Capacity Improvements	Inadequate access management	Use access management principles in street and highway design.
	Inadequate capacity	Increase road capacity when necessary.
	Buses slow traffic	Incorporate bus-friendly design features (*e.g.*, bus bays).
	Truck traffic	Design for smooth truck traffic; encourage trucks to use right lanes on freeways.
Technology - Operations	Traffic signal synchronization	Improve traffic signal technology and coordination.
	Traffic incidents	Improve incident management strategies.
Policy	Inappropriate speed limits	Revise speed limits on higher functional streets for more efficient traffic flow and reduced speeding.
	School zones on major arterials	Plan school locations and design to avoid school zones along major arterial streets.
Demand - Alternative Transportation	High SOV (single-occupancy vehicle) travel	Enhance strategies to reduce SOV travel.
	Insufficient road capacity	Widen and channelize roads.
	Insufficient bicycle-pedestrian facilities	Improve bikeways and walkways, expand system, and increase connectivity.

6.5.1 GEOMETRIC IMPROVEMENTS

Use access management principles in street and highway design.

Street and highway design plays an important part in reducing traffic congestion. As discussed in Section 5, access management principles allow for safe and smooth traffic flow. Access management includes the proper spacing of driveways, on-site traffic circulation, median treatments, left and right turn channelization, pavement markings, proper signage, among other actions that improve traffic flow and safety. Incorporating access management into the design for intersections, street sections, and parking management is also critical to diminishing traffic congestion.

Increase road capacity when necessary.

Capacity improvements are necessary to reduce traffic congestion and allow for smooth traffic flow. While the MAPA Long Range Transportation Plan supports the reduction in single occupancy vehicle travel, high traffic congestion results in increased costs and delays to users and higher emissions that worsen air quality. Therefore, the planned street and highway capacity improvements listed in the Street and Highway section are intended to prevent high levels of congestion and maintain mobility in the MAPA TMA.

Incorporate bus-friendly design features.

Streets should be designed in a manner that is conducive to transit and also reduces conflicts with traffic flow. This can include features such as bus bays and incorporating other transit-friendly improvements into the design process. Local jurisdictions are encouraged to cooperate with Metro Area Transit (MAT) in their planning process to ensure that transit is considered. The City of Omaha Planning Department, MAPA, and MAT have recently held periodic meetings to start this type of cooperative planning.

Design for smooth truck traffic; encourage trucks to use right lanes on freeways.

Roads and intersections along designated freight corridors should also be designed with the goal of enhancing the flow of freight movement in mind. For example, right-hand turns on truck routes can be designed with proper turning radii, and acceleration lanes can be longer to accommodate truck traffic. These goals reduce conflicts with non-freight traffic, while also assisting the freight and goods movement industries. See Section 13 for additional information on Freight and Goods Movement.

6.5.2 TECHNOLOGY – OPERATIONS

Improve traffic signal technology and coordination.

Drivers experience stops, delays, and longer travel time due to insufficiently synchronized traffic signals. Traffic signal coordination is dependent upon multiple elements. Traffic engineers use signal timing plans to program how the signals operate. However, the sophistication of the coordination between signals depends on the

available software, hardware (conduit, controllers, etc.), as well as the communications between signals. Signal coordination is limited by the staff and funding available to analyze and coordinate the systems and whether the infrastructure and technology that is necessary to coordinate the signals are in place.

Recently, the MAPA region has been pursuing upgrading its signal technology. Many jurisdictions utilized Recovery Act ("Stimulus") funds to improve traffic signal equipment. The City of Omaha has worked on an Adaptive Traffic Control Systems (ATCSs) along 132nd Street near West Dodge Road and 144th Street near West Center Road. These systems, also known as real-time traffic control systems, use up-to-date technology to continually detect traffic volumes and compute optimized signal timings in response to changing traffic conditions.

MAPA is currently working with several jurisdictions on a traffic signal coordination study for the 84th Street (N-85) corridor from downtown Papillion to West Center Road in Omaha. If the study is successful, other signal coordination studies may be funded in the future.

Expand fiber-optic and other communications infrastructure

Agencies in the metro area are examining ways to expand the communications infrastructure to allow for improved technological solutions that include signal coordination, incident management, and emergency response. The Nebraska Department of Roads (NDOR) is currently prohibited by State law from owning fiber-optic infrastructure cables, which has limited the region's communications resources. However, agencies have various strategies, including working with private providers on public right-of-way to create the necessary infrastructure. These resources should ultimately tie in to the NDOR's District Operations Center (D.O.C.) to coordinate incident management efforts between jurisdictions. Future strategies for developing infrastructure in the region will be planned in a City of Omaha-led functional requirements study for a the development of a traffic control center.

Improve incident management strategies.

Crashes and other incidents can result in significant traffic delays, particularly on freeways where lane closures have the ability to create bottlenecks and congestion on a massive scale during peak hour traffic. MAPA commissioned an *Omaha – Council Bluffs Traffic Incident Management Operations Manual*, which was published in 2005. The Manual identified strategies and opportunities for improvement to incident response in the MAPA region.

Recently, significant additions in Intelligent Transportation Systems (ITS) technology have been made in the MAPA region on both sides of the state line. In Nebraska, the District Operations Center located at Nebraska Department of Roads' District 2 headquarters is open and fully functioning. NDOR and the Nebraska State Highway Patrol are co-located in the facility to foster better communication and coordination.

NDOR has also added numerous cameras along the state highway system in the metro area.

The Iowa Department of Transportation is currently undertaking a large ITS project in the Council Bluffs area. This includes the installation of cameras along Council Bluffs streets and at interchanges with I-29/80 to assist in incident management. In order to ensure that this investment is used effectively, Iowa DOT is leading the Western Iowa ITS Traffic Incident Management ("TIM") effort. This involves stakeholders from across the greater Omaha-Council Bluffs metro area involved with incident management to update the Traffic Incident Management Operations Manual from 2005 and integrate the new ITS technology into the procedures and protocols utilized by incident management personnel. The effort should result in expanding the use and effectiveness of ITS technologies in incident management in the metro area.

For more information on ITS in the MAPA TMA, please consult MAPA's Regional ITS Architecture as well as the ITS sections at both State DOTs.

6.5.3 POLICY

Revise speed limits on higher functional streets for more efficient traffic flow and reduced speeding.

Posted speed limits should correspond with their geometric design speed. When higher functional streets are not posted with appropriate speed limits, there is an increased number of speeding violations and inefficient traffic flow. If a jurisdiction desires a lower travel speed—for instance, to calm traffic and create a more bicycle and pedestrian-friendly environment, then appropriate geometric changes (*e.g.*, median installation, "chokers" to reduce road width, striping, roundabouts, etc.) should be made to reduce the facility's design speed.

Plan school locations and design to avoid school zones along major arterial streets.

Schools attract high volumes of traffic and cause congestion. This is particularly problematic during the morning peak hour, when there is a high level of work commute trips. School districts can reduce traffic congestion by locating schools within residential areas. This prevents congestion by removing the need for school zones along major arterial roads. Auto travel is also reduced because bicycle and pedestrian trips to school are perceived as safer inside a residential area. Schools should be constructed with appropriate geometric designs for smooth traffic circulation and parking management. Complete streets and access management policies (see Section 4.6) should be utilized to reduce conflicts between vehicles and bicyclists and pedestrians.

6.5.4 DEMAND – ALTERNATIVE TRANSPORTATION

Enhance strategies to reduce single occupancy vehicle (SOV) travel.

SOV travel is the predominant mode of transportation in the MAPA region. As noted in Figure 6.2, nearly 85 percent of all work trips are SOV trips. While the ability to transport oneself autonomously provides benefits to travelers in terms of convenience and time, it results in traffic congestion and deteriorating air quality for the metro area, among other problems (see Section 5 for more discussion on this).

Efforts to reduce traffic congestion in the MAPA region must include increasing non-SOV travel, whether it is by alternative transportation such as bicycle, pedestrian, and transit usage or by increasing auto occupancies. Fewer SOVs on the road will lessen congestion, as well as mitigate other transportation related issues such as infrastructure costs, fuel consumption, vehicle emissions, etc. The following is an overview of current strategies as well as potential future tools aimed at reducing SOV travel in the MAPA region:

MetrO! Rideshare

MetroRideshare.Org is a web-based carpool matching system available for those who work or live within the MAPA Region and TMA. Users can use the system for free in order to generate carpool matches that will help cultivate relationships between commuters to help form carpools. The system protects the privacy of users and allows for several preferences to be chosen in order to generate the best possible matches.

Metro Rideshare has been available since October 2007. Since that time, the number of registered users has been as high as 2,500. Currently, the number of registered users is near 1,100. MAPA has also been forming partnerships with area companies, businesses, organizations, schools, and cities to help in the marketing for the services. These relationships also help encourage the use of alternative forms of transportation in the area.

Metro Rideshare and carpooling is typically seen as a viable option for routine commuters who work regular business hours. MAPA would also like to encourage the use of carpooling in conjunction with other forms of alternative transportation such as riding a bike and using MAT services. Carpooling and alternative transportation in general has been promoted through two commuter challenges in 2009 and 2010. The purpose of these challenges were to promote carpooling, transit, and bike riding while reducing single occupancy vehicle commutes to work.

In the future, Metro Rideshare may also be utilized to help reduce traffic congestion with regard to major events in the MAPA region. Events such as the College World Series have large numbers of attendees that can tend to create traffic congestion. Encouraging attendees to carpool, as well as utilize additional forms of alternative transportation, will make traffic more manageable for these major events that call Omaha home.

Mass Transit Service

Metro Area Transit (MAT) is the primary public transit provider in the metro area. As discussed further in Section 8, they operate over 40 routes covering thousands of miles each day. MAPA's public survey results indicate a strong desire in the community for more robust transit system. For instance, more than two-thirds were dissatisfied with current transit service. A regional, more comprehensive transit system would increase transit ridership and decrease SOV travel.

Coordination between Land Use and Transportation Planning

The dominant development trend in recent decades within the MAPA region has been suburbanization built around the automobile. This has made alternative transportation difficult, if not impossible, in some parts of the metro area. Strategies to better coordinate land use with transportation to more easily accommodate non-SOV travel such as transit-oriented development (T.O.D.) or the Complete Streets approach are encouraged. See Section Four for more discussion on the connection between land use and transportation.

Sidewalks and Walkways

Sidewalks in residential areas should have connectivity to provide a continuous link to schools, businesses, and other destinations. Retrofitting to add sidewalks where there is no connectivity in developed areas is encouraged, although it can sometimes be challenging in developed areas. Walkways should provide Americans with Disabilities Act (ADA) accessibility ramps where called for, and should be sufficiently wide to comfortably accommodate multiple pedestrians. See Sections 6 and 11 for more details on sidewalks and walkways.

Trails and Bikeways

Trails and bikeways, such as side paths or shared use paths, provide necessary facilities for alternative modes of transportation. The MAPA region already has an extensive trail network that will form the backbone of future extensions. Trails within the metro area should be sufficiently wide to comfortably accommodate multiple bicyclists and pedestrians. See Sections 6 and 11 for more details on trails and bikeways.

Parking Management

Parking policies have a large influence on travel behavior. In regions such as the greater Omaha-Council Bluffs area where free parking has become the norm, it can be politically difficult and counter-productive to charge parking fees in urban areas. Still parking policies might need to be reassessed to maximize the effectiveness of available parking in harmony with local land use goals and alleviate parking supply-and-demand mismatches. For example, MAPA and the City of Omaha are currently collaborating on a downtown parking study that will analyze parking in the Downtown Omaha / Qwest Center area and identify alternatives for the area.

Tolls and Congestion Pricing

The States of Iowa and Nebraska do not currently allow toll roads on the state highway system. However, many jurisdictions throughout the country facing congestion issues have found these to be among the most effective strategies at reducing congestion and providing sorely needed funding for transportation facilities. In addition to standard toll roads, some locales are implementing congestion pricing that varies the toll rate based on demand. Other toll roads include "HOT" lanes (high occupancy / toll). In contrast with standard "HOV" lanes which require vehicles to have at least more than a single passenger, "HOT" lanes allow SOV travel with a toll. These have proven to be feasible in places where HOV lanes were ineffective.

Social equity concerns are sometimes raised about toll roads and congestion pricing. Low-income populations are perceived to receive a disproportionate share of negative impacts since they presumably have less ability to pay the tolls on a higher speed facility. However, research has suggested that low-income populations have the highest cost-benefit ratio of any income group on facilities with tolling or congestion pricing.[1] While MAPA jurisdictions are not planning on adding tolls and congestion pricing in the near future, they should continue to be studied and considered as potential future funding sources for the MAPA region.

6.6 Measuring CMP Progress

MAPA will collaborate with NDOR, Iowa DOT, and local jurisdictions, in cooperation with FHWA and FTA, to implement the strategies identified above. As part of the ongoing nature of the Congestion Management Process, the success of these strategies will be monitored by MAPA. The following measures and statistics will help the MAPA region gauge whether the strategies employed are achieving the goals of MAPA's CMP.

Travel Times

MAPA's ongoing Travel Time and Delay study will continue to provide a primary source of data for monitoring congestion over time. The use of a GPS receiver allows in-depth analysis of traffic along identified routes by individual sections (*e.g.*, 84th Street from Harrison to Q Street), as well as pinpointing congestion hotspots where queues form. Data from this study will monitor the progress of strategies. Areas showing high levels of congestion will indicate new projects and strategies need to be considered.

Level of Service (LOS)

LOS remains an important measure of overall congestion for the MAPA TMA. Traditionally, LOS "D" has been identified as the minimum acceptable LOS for roadways in the region. However, it should be emphasized that strategies such as improving bicycle and pedestrian facilities and technological improvements should be

[1] Lisa Schweitzer, Brian D. Taylor. "Just pricing: the distributional effects of congestion pricing and sales taxes" *Transportation*; November 2008. Springer Science and Business Media.

utilized in addition to capacity improvements. This is particularly important when considering the MAPA travel demand model, on which it is currently difficult and many times impractical to achieve LOS "D" for the evaluation of peak hour conditions at major intersections along many arterial streets (for more on the travel demand model, see Section 7).

Census and Travel Survey Data

The Census' American Community Survey (ACS) provides many measures related to transportation that help the region monitor performance of the MAPA region's transportation system. Other travel survey data is available for purchase that can provide good information. Performance measures include maintaining or reducing the current average travel times to work and average vehicle miles traveled, as well as increasing the percent of trips taken by active modes of transportation.

Traffic Volume Data

MAPA monitors traffic counts collected in the region from state and local agencies. Every two years MAPA produces traffic reports, including the Traffic Flow map, Traffic Growth report, and Top Intersections and Interchanges reports. These counts provide a consistent measure of traffic growth and performance in the region, and are also used to calibrate MAPA's travel demand model. CMP measures include limiting the growth in overall VMT and reducing *per capita* VMT.

Transit Ridership

Ridership statistics from Metro Area Transit and other transit providers will show the number of trips being made by public transit. This will help gauge whether transit is being successfully utilized to reduce SOV travel and decrease VMT. Currently, transit accounts for approximately 1% of work trips in the MAPA region. Increasing this number is a goal for the MAPA CMP.

Bicycle-Pedestrian

There are currently many local efforts aimed at increasing bicycle and pedestrian modes of transportation. Measures such as bicycle and pedestrian counts, as well as Census and travel survey data will be monitored to gauge the success of these efforts. One example is the U.S. Department of Health and Human Services' Communities Putting Prevention to Work initiative, which awarded a $5.7 million grant as part of the Recovery Act (Stimulus) to Douglas County in March 2010. The grant is aimed at obesity prevention and nutrition education and is funding efforts to promote "active transportation" modes such as bicycle and pedestrian.

Future Streets and Highways

7.1 Introduction

The MAPA TMA is required to identify future street and highway projects as part of its Long-Range Transportation Plan. This section discusses funding for transportation projects and includes the list of anticipated street and highway projects for the MAPA region. These projects are required to be "fiscally-constrained," meaning that the total project costs may not exceed reasonably anticipated revenues. This is further discussed below as well as in Appendix B.

7.2 State of Transportation Funding

Transportation officials have described the lack of funding for transportation projects in the country as nothing less than a "perfect storm," in which costs have skyrocketed while revenues have stagnated, if not declined. The sources of the current funding issues are several. First, inflation in the construction industry has outpaced general inflation, due in large part to increased global competition for construction materials such as steel. Until stabilizing in the recent past, traffic growth has far surpassed population growth, which means that congestion and need for roadway projects has continued to grow at an exponential rate.

On the other hand, revenues have not kept pace with transportation needs. The federal gas tax is a static user fee at 18.4 cents per gallon and not indexed to inflation. It was last increased in 1993, and there appears to be little political will to raise it. In addition, vehicles are becoming more fuel efficient so the amount of money per mile driven has decreased.

The sum total of this is that the federal Highway Trust Fund has been sufficient to fund the transportation programs authorized in SAFETEA-LU, the last transportation bill. Transfers of money from the general fund have been required to finance these programs. As of Fall 2010, the federal transportation programs are operating under a continuing resolution of SAFETEA-LU. It is anticipated that the Highway Trust Fund balance will again run out of funding in the coming months. Whether Congress decides to take up reauthorization of federal transportation legislation or decides to pass additional continuing resolutions, additional Congressional action will be required to fund the federal transportation programs.

Many ideas for future funding of transportation projects have been proposed. Notably, the Final Report of the National Surface Transportation Policy and Revenue Study Commission, a panel created by SAFETEA-LU that was tasked with studying and developing a vision for the nation's surface transportation system, was released in early 2008. This report proposed raising the gas tax twenty-five cents to fund transportation programs for the near future. Eventually, the report foresees transferring funding for the transportation system to other funding mechanisms such as the vehicle miles traveled

(VMT) fee. The VMT fee proposal would utilize technology to assess a fee based on how many miles a vehicle drives (vehicle information would still allow different rates to be charged based on fuel efficiency). Studies across the country, including one at the University of Iowa's Public Policy Center, are researching options for this new concept of transportation funding and identifying potential problems from both technological and public receptivity perspectives. However, it is clear that the VMT-based solutions being studied are long-term in nature, and will not be available within the coming few years.

The transportation funding crisis has been felt in the MAPA region, albeit not as severely as some other regions of the country. Several projects that have been scheduled or planned for years have been pushed back, if not cancelled altogether. This 2035 Long Range Transportation Plan (LRTP) attempts to reflect realistic expectations of future funding based on historic trends. If additional revenues become available, then the future funding projects will be reassessed and potentially increased. As of now, MAPA forecasts approximately $4 billion in funds will be available to the region for transportation projects over the next 25 years. This represents a significant decrease from the $6 billion forecast in MAPA's previous LRTP.

7.3 PROJECT SELECTION

The project selection process for the 2035 Long Range Transportation Plan began with the list of projects from MAPA's previous LRTP. MAPA staff comb over these projects to review whether they have been completed, are in progress, remain planned for the future, or have been cancelled.

Public input is an important aspect of the project selection process. Early in the development of MAPA's 2035 LRTP, MAPA conducted an on-line public survey that garnered nearly 1,000 responses (full details of the public outreach are described in Appendix A). These responses and other input received from the public were considered in the development of the four regional goals that drive the policies recommended in this LRTP. For example, the public frequently emphasized the importance of maintenance and preservation of the existing system. Consequently, MAPA conservatively estimated the amount of funding necessary to maintain and preserve the system in order to provide a cushion that should allow for sufficient funding of this task.

Projects from studies are examined for possible inclusion in the LRTP. The MAPA travel demand model was also utilized in the project vetting process. The model is described in more detail section 7.4.

Staff compiles a draft initial list of projects that is not fiscally constrained and presents the list to MAPA's Transportation Technical Advisory Committee (TTAC) and the Board of Directors for a first-round review. After this initial vetting, the project list is further refined as described below, and this process continues.

The four regional goals listed in Section 3 are taken into account during the project selection process. The initial, unconstrained project list was reviewed to ensure that a balanced mix of projects that addresses all of the regional goals is included in the LRTP.

For example, several millions of dollars have been reserved for Complete Streets improvements in order to address the regional goals of considering the environment and urban form and maximizing accessibility and mobility. Complete Streets projects further these goals by creating a more multi-modal transportation system that reduces emissions, promotes health and wellness, and provides alternatives to the automobile that provide new connections and help reduce traffic congestion (for more information on Complete Streets, please refer to Section 4.6).

Multiple iterations of draft project lists based on the process outlined above were presented to the Transportation Technical Advisory Committee (TTAC). A "final draft" list was presented and approved by TTAC and the MAPA Board of Directors at their October 2010 meetings prior to the public meetings. Comments from the public were received at the meetings and final modifications were made to the project list before the final approval and public comment period.

The projects are divided into various cost bands. The first ten years are divided between the first four years (2011-14), which comprise current MAPA Transportation Improvement Program (TIP), and the remaining six years (2015-20). The second fifteen years (2021 – 2035) is divided into three separate five year bands. Projects anticipated to be started within the next decade should be included in the TIP or 2015-20 group. Projects that not expected to be constructed by 2020, whether due to lack of need or lack of funding, are listed in the long-term bands (2021-35).

Of course, the LRTP is a dynamic document and it is possible to amend the Plan as plans for projects change, which invariably occurs on some projects. The public is welcome to comment on the proposed projects, and revisions to the list can be considered.

Projects must be listed in the LRTP in order to be eligible for MAPA's Transportation Improvement Program (TIP), which lists all federally-funded projects in the region for at least four fiscal years. Projects in the TIP must rank how they address each of the regional goals in MAPA's LRTP. MAPA's TIP provides additional information on the relationship between the LRTP and the TIP, and the process used to select projects for the TIP.

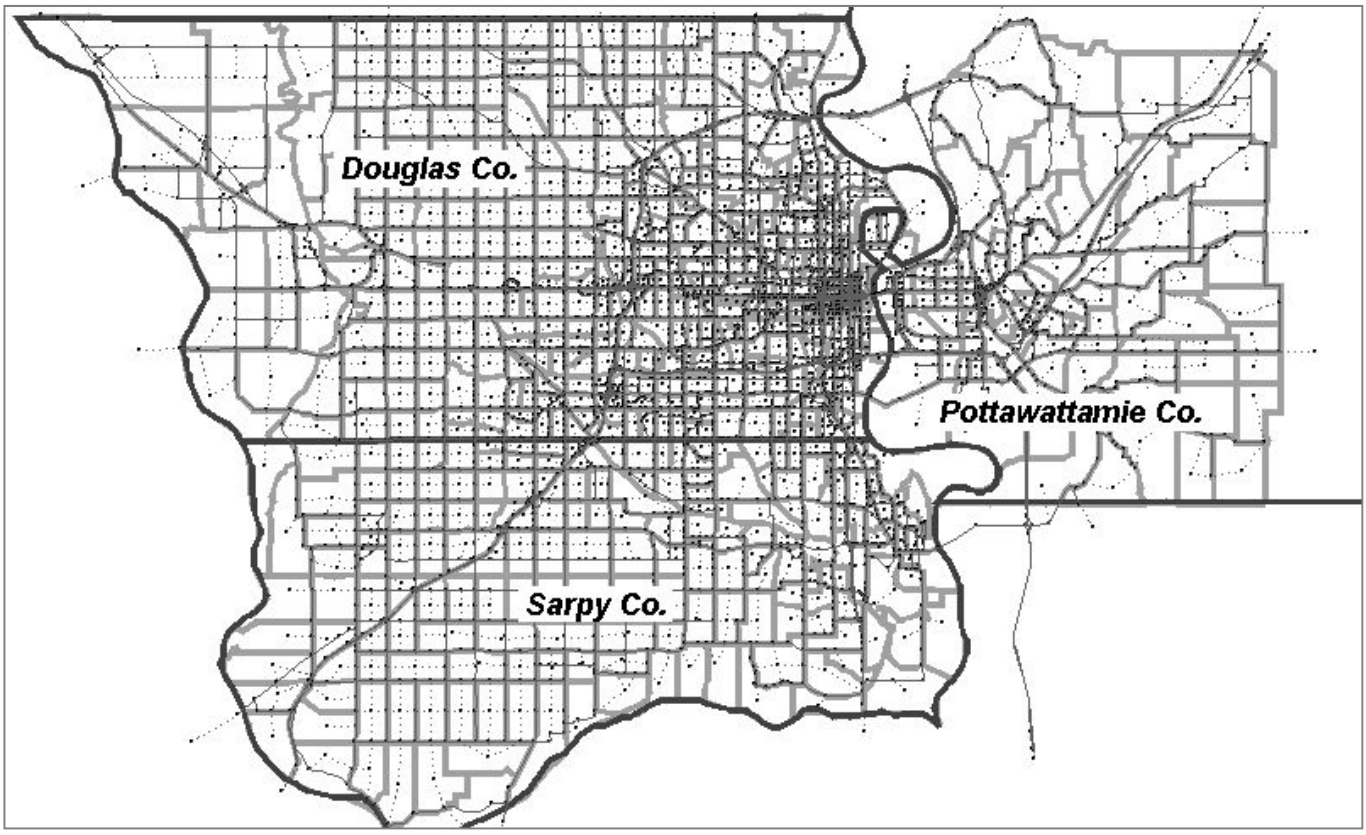
7.4 Travel Demand Model

MAPA utilizes a computer model, known as a "travel demand model," to forecast future traffic in the region. Models can be helpful tools to transportation planners and engineers in analyzing future traffic demand, and MAPA's forecasts are utilized in the project development process.

Travel demand models divide the region into traffic analysis zones, or "TAZs." Socio-economic data is used to estimate the number of vehicles traveling to and from each of the TAZs along a model network that represents the street system. Local streets are not included in the model, but are represented by centroid connectors, which connect the TAZ to the arterial streets. Figure 7.1 below shows the current MAPA model network.

Travel demand modeling traditionally follows a four-step process: trip generation, trip distribution, mode split, and traffic assignment. Not unlike many other metro areas, MAPA's model does not currently include a mode split step to estimate transit trips. However, adding a transit component to the MAPA model is being considered as a future possibility.

FIGURE 7.1
MAPA TRAVEL DEMAND MODEL NETWORK



Trip Generation: The process of determining the number of trips produced by and attracted to each TAZ. Data such as the number of households, employment, or average income are used to determine trips. The MAPA model calculates the number of person trips and later converts these trips to vehicle trips using average vehicle occupancy rates for each trip purpose.

Trip Distribution: The process of linking, of forming complete trips between TAZs. This process is based on the "gravity model," which links trip ends based on their relative attractiveness, which is related to average travel times between the production and attraction TAZs.

Traffic Assignment: The process of "loading" trips onto the roadway network to determine which path is most likely to be taken to complete a trip. Routing is based on determining the minimum time paths available for making a trip. The MAPA model includes a feature that considers the added travel time as a roadway reaches capacity in order to adjust for the effects of congestion.

A base year is used to calibrate and validate the travel demand model. MAPA is currently using a base year of 2006. The model heavily depends on socio-economic data, which is most accurately captured in the decennial Census. Socio-economic becomes less reliable as one gets further removed from the decennial Census. Consequently, the next model update MAPA will utilize 2010 as a base year for calibration and validation.

The MAPA region participated in an add-on to the 2008 National Household Travel Survey (NHTS) that provides valid, regionally specific, trip information. The last known regional study of this nature was conducted in the 1960s. Data from the NHTS did not become available until late 2010. Thus, results are still being analyzed and have not been incorporated into the model to date. However, this data will provide an important source of information in future modeling work.

The model is primarily calibrated by comparing link assignments to traffic counts. This is done by a number of means:

- Cordon and screen line tests to analyze on a corridor-level or sub-regional level;
- Comparing vehicle miles traveled (VMT) in the model to VMT based on count data;
- Statistical analysis such as root-mean squared error (RMSE) and "R-squared" regression analysis;
- Comparing the above by each federal functional classification as well as overall

MAPA's model reached or exceeded standard acceptable calibration values for nearly all functional classifications. For example, Iowa DOT recommends that travel demand models have an RMSE of less than 30. The RMSE for freeways is 16, urban arterials have an RMSE of 20, and for rural arterials the RMSE is near 23.

Other measures utilized in calibration include average trip lengths, percentage of total trips by trip purpose, and travel times. When the model is able to replicate these tests within a reasonable degree of accuracy, the model is considered to be calibrated. Model results are shared with partner State and Federal agencies, which also provide feedback in the calibration process.

After the model has been sufficiently calibrated, the future socio-economic forecasts and transportation projects are entered and run as a separate network. These results provide an estimate of future travel for the region. In November 2010, MAPA participated in the Federal Highway Administration's TMIP Peer Review Program in order to assess and improve its travel demand model. Recommendations from this Peer Review will be implemented on both a short-term and long-term basis.

7.5 ONGOING STREET AND HIGHWAY PROJECTS

This Long Range Transportation Plan includes a list of all regionally significant projects. Per 23 CFR 450.104, "regionally significant" is defined as a transportation project that is on a facility which serves regional transportation needs (such as access to and from the area outside the region; major activity centers in the region; major planned developments such as new retail malls, sports complexes, or employment centers; or transportation terminals) and would normally be included in the modeling of the metropolitan area's transportation network. At a minimum, this includes all principal arterial highways and all fixed guideway transit facilities that offer a significant alternative to regional highway travel.

Federal transportation allows that other projects may be grouped or are exempt as defined in EPA's transportation conformity regulation (40 CFR part 93). Grouped projects in the following categories are planned on an ongoing basis and are reflected in the fiscal-constraint analysis. Regionally-significant future projects for non-roadway projects, such as transit or bicycle / pedestrian improvements are listed in the pertinent sections.

Bridge

The MAPA TMA has hundreds of bridges on the state and local roadway systems. MAPA jurisdictions replace and rehabilitate the region's bridges on an ongoing basis. City and county Projects utilizing Bridge funds are selected on a competitive basis by the State DOTs. Other bridge projects may utilize 100% local funds. The MAPA 2035 LRTP includes two new Missouri River crossings in the new US-34 bridge in southern Sarpy County and Mills County and the "Gateway" Bridge that would extend 16th Street in northeast Omaha north to I-680 in Iowa. MAPA projects that the region will receive a total of $393 million in funding specifically for bridges in the next 25 years. This is an average of $15 million per year.

Intersection and Interchange-Related Improvements

Intersection improvements include projects that make minor improvements to an intersection. Examples of this include adding channelization (turn lanes), extending a turn bay, or similar modifications to improve operations at an intersection. The interchange improvements listed here refer to projects, usually on the local street system, that are adjacent to the freeway system and improve traffic operations at an interchange. Over $55 million of the region's anticipated funding has been budgeted for these projects over the next 25 years. This represents an average of approximately $2 million per year.

Operations and Maintenance / Preservation

Long Range Transportation Plans are required to account for operations and maintenance costs in their financial projections. These projects are sometimes referred to as "3R" projects (resurfacing, restoration, and rehabilitation). MAPA obtained data

from local and state jurisdictions detailing annual revenues and expenditures for operations and maintenance projects. MAPA conservatively estimates that $3,067,288,000 will be necessary to operate and maintain the roadway system over the next 25 years. This is an average of $ 122,691,520 per year.

Planning / Feasibility Studies

Occasionally, planning or feasibility studies are necessary prior to commencing environmental or engineering work on a project. The purpose of these studies is to answer major questions about a corridor, area, or potential new project or to determine whether a concept is feasible. Recent examples of studies conducted in the MAPA region include the Northwest Douglas County / Omaha Arterial Streets Concept Study, the Beltway Feasibility Study, and the 84th Street Corridor Signal Coordination Study. These studies occur occasionally and utilize a relatively small amount of funds compared to larger projects. MAPA includes a modest amount of funding for these studies over the next 25 years, approximately $100,000 per year in today's dollars.

Safety

Safety projects include those projects and programs aimed at the reduction of injuries, deaths, and property damage from accidents. Examples of projects include traffic engineering studies and analyses, roadway safety public outreach campaigns, or collecting and analyzing data related to traffic safety. These projects are not individually listed as they are rarely known by jurisdictions more than a few years prior to doing them. MAPA estimates that the region will spend $ 74,798,000 for safety projects over the next 25 years. This is an average of $ 2,992,000 per year.

Signal and ITS Technology and Infrastructure

While not a specific funding program, this category includes projects that will be directed toward coordinating traffic signals, upgrading infrastructure such as fiber optic connections between intersections. This category also includes projects for Intelligent Transportation Systems (ITS). ITS refers to technological solutions that are utilized to operate the transportation system, manage traffic, and respond to incidents, such as camera equipment or communications between departments. The MAPA TMA has recently been doing a major ITS effort in creating a metro-wide Traffic Incident Management Operations Plan. This has been led by Iowa DOT and involved all relevant jurisdictions and departments in the region. When completed, the Plan will help to identify future ITS projects for the region. . MAPA estimates that the region will spend $ 24,000,000 for signal and ITS technology and infrastructure projects over the next 25 years. This is an average of $ 960,000 per year.

Bicycle-Pedestrian / Trails Facilities

Each year jurisdictions in the MAPA region have projects to create or maintain trails, sidewalks, bikeways, and other bicycle-pedestrian facilities. MAPA anticipates that a growing amount of funding will be used for "Complete Streets," which are described in

Section 4.5. MAPA identifies nearly $1 million of the region's transportation funding annually for Complete Streets improvements, beginning in 2015. In addition, other programs that is specifically dedicated to bicycle-pedestrian projects. The largest of these programs, Transportation Enhancements ("TE"), is awarded annually statewide by committees that review and score candidate projects. MAPA estimates that the region will spend $127,417,000 for trails and bikeways projects over the next 25 years (excluding the funding discussed above for Complete Streets projects). This is an average of $ 5,097,000 per year.

7.6 FISCAL CONSTRAINT OVERVIEW [1]

In order to have a "fiscally-constrained" Long Range Transportation Plan, anticipated revenues and costs over the life of the Plan must be forecasted. For most funding categories, MAPA estimates an annual 4% inflation in costs, as recommended by the Federal Highway Administration (FHWA). Conversely, MAPA conservatively estimates a 2% annual rise in anticipated revenues.

As described above, "grouped" projects, including bridge, intersection and interchange improvements, operations and maintenance, planning / feasibility studies, safety projects, or enhancements and trails projects, are not individually identified unless they are regionally-significant.

The list of street and highway projects eligible for Federal aid funding following in this section is fiscally-constrained to reasonably available local, state, and federal revenues. Project costs take inflation into account and appear in year-of-expenditure dollars. Therefore, project costs for future years appear higher than what they would cost if constructed today. As described in the 2035 LRTP Financial Plan (Appendix B), state projects in the Long Range Transportation Plan demonstrate a commitment by the State to provide funding for the projects from the revenues available to the States.

These projects listed in this LRTP are considered eligible for Federal aid funding by the MPO. In the MAPA region, there is a history of funding some regionally-significant projects using entirely non-federal aid funding sources. Projects will be selected for Federal aid funding as they go through the MPO's project selection and prioritization process for the TIP, while some projects may be advanced using solely local funding sources.

In general, the available funding for projects is based on historic trends derived from past and current revenue sources. Projected project costs do not exceed anticipated reasonably available revenue. Figure 7.2 summarizes fiscal-constraint for the regionally-significant projects listed in the MAPA 2035 LRTP. For more detailed information on the fiscal-constraint analysis conducted for this LRTP, including estimated operations and maintenance costs, please consult Appendix B.

[1] For more details on fiscal constraint, refer to the MAPA 2035 LRTP Financial Plan in Appendix B.

FIGURE 7.2 [2]
SUMMARY OF FISCAL CONSTRAINT

Fiscal Constraint Summary						
Nebraska						
	TIP	**Short Term**	**Long Term**			**LRTP TOTAL**
	2011-2014	**2015-2020**	**2021-2025**	**2026-2030**	**2031-2035**	**2011-2035**
Local Capital Revenue[1]	$373,169	$572,189	$480,257	$473,526	$454,138	**$2,353,278**
STP-Total[2]	$69,688	$101,032	$92,233	$101,833	$112,432	**$477,218**
State Dedicated Revenue[3]	$100,451	$178,614	$308,918	$0	$0	**$613,954**
Total Revenue	**$543,308**	**$851,835**	**$881,408**	**$575,359**	**$566,570**	**$3,444,450**
Total Project Costs (YOE)	**$199,542**	**$673,281**	**$707,704**	**$544,779**	**$541,468**	**$2,512,975**
Balance	**$343,766**	**$178,554**	**$173,704**	**$30,580**	**$25,102**	**$931,475**
[1]Local Capital Revenue is defined as Total Local Revenue less Total Operations and Maintenance Costs.						
[2]STP-Total is the sum of STP-MAPA and STP-Discretionary						
[3]State Dedicated Revenue is defined as the revenue committed by the State DOT to fund planned State DOT projects						
Iowa						
	TIP	**Short Term**	**Long Term**			**LRTP TOTAL**
	2011-2014	**2015-2020**	**2021-2025**	**2026-2030**	**2031-2035**	**2011-2035**
Local Capital Revenue[1]	$28,107	$41,426	$32,756	$29,766	$25,080	**$157,135**
STP-Total[2]	$18,724	$31,020	$28,819	$31,819	$35,131	**$145,514**
State Dedicated Revenue[3]	$310,293	$414,900	$594,813	$0	$0	**$1,320,006**
Total Revenue	**$357,124**	**$487,346**	**$656,388**	**$61,585**	**$60,210**	**$1,622,654**
Total Project Costs (YOE)	**$318,598**	**$483,738**	**$643,785**	**$44,544**	**$54,868**	**$1,545,533**
Balance	**$38,526**	**$3,608**	**$12,603**	**$17,041**	**$5,342**	**$77,121**
[1]Local Capital Revenue is defined as Total Local Revenue less Total Operations and Maintenance Costs.						
[2]STP-Total is the sum of STP-MAPA and STP-Discretionary						
[3]State Dedicated Revenue is defined as the revenue committed by the State DOT to fund planned State DOT projects						

7.7 FISCALLY-CONSTRAINED STREET AND HIGHWAY PROJECT LIST

The projects included in this Long-Range Transportation Plan represent a broad array of projects. The list includes road widening projects along crowded arterial roads, improvements to the freeway system to provide additional capacity and relieve

[2] This Figure also appears as Figure B.1 in Appendix B.

bottlenecks, paving projects on gravel roads, as well as two new Missouri River crossings, among others.

The States are proposing several projects along the freeway system over the next 25 years. The largest project planned for the region is Iowa DOT's Council Bluffs Interstate System Improvements. This series of projects will cover widening the freeway system along I-29 and I-80 around the Council Bluffs area. On the joint section of I-29/I-80, this will include a "dual-divided" facility that will provide three lanes in each direction along the mainline for through traffic. Then additional lanes will be provided along collector-distributor roads for traffic entering and exiting the freeway along the joint section of I-29/I-80. Iowa DOT is dividing this mega-project into several sections that will be constructed over the coming years as funding becomes available.

Nebraska Department of Roads (NDOR) plans to undertake several major improvements along the freeway system on the Nebraska side of the metro area. These include extending the Kennedy Freeway along US-75 south to Plattsmouth. In the long-term, NDOR plans to add capacity to the Kennedy Freeway for four lanes in each direction (eight lanes total) between Highway 370 and the I-80/I-480 system interchange.

Both states are currently in the process of constructing the new I-80 Missouri River crossing on two structures. When completed, the section will have five lanes of traffic in each direction from the I-480/US-75 system interchange in Omaha to the I-29 west interchange in Council Bluffs. In addition to meeting future travel demand, the capacity increase was substantially increased in order to allow for three lanes of travel in each direction when one of the two structures is under construction.

Ground was broken on the new US-34 connection across the Missouri River in Fall 2010. This project is also a bi-state effort that will connect the Kennedy Freeway and Offutt Air Force Base area with I-29 in Mills County.

Another new bridge crossing of the Missouri River in this LRTP is along the current 16th Street in northeast Omaha. This would connect a high-speed facility from Storz Expressway to I-680 in Iowa. It would serve to provide easy interstate access to the airport and surrounding industrial area, while also helping to remove freight traffic that currently travels through the Florence neighborhood along Us-75 (30th Street) to access I-680.

NDOR is planning various improvements along I-80 between Highway 50 (144th Street) and 96th Street. These projects would add lanes to the mainline and auxiliary lanes to improve traffic flow and ease bottlenecks through the corridor, which frequently experiences high levels of congestion during peak periods. I-680 is also slated for capacity improvements between West Center and Pacific Streets as well as between Fort Street and Blair High Road (Highway 133).

NDOR also plans to expand the expressway system. Highway 370 between 84th Street and 36th Street and Highway 31 between Harrison Street and West Dodge Road are

planned to be widened to six lanes in a long-term project. Highway 370 is currently under construction to widen to four lanes between Gretna and I-80. Highway 36 will be widened to four lanes between Highway 31 and I-680, an approximately 14 mile long project. Portions of Highway 92 and US-275 in western Douglas County are also planned for long-term widening.

Sarpy County is planning a new interchange on I-80 and 180th Street. This interchange has previously been in MAPA's LRTP and is a logical location for a future interchange given the current seven mile distance along I-80 between Gretna West (Highway 31) and Gretna East (Highway 370) interchanges. The area in northwest Sarpy County (near Gretna and Chalco) and west Omaha that is expected to utilize a new interchange at 180th Street has seen extensive growth in recent years. It should be noted that this project is not currently in NDOR's plans for the region. Therefore, the project is currently listed solely as a locally-funded project.

Of the local projects in Council Bluffs, there are several major projects planned for the next 25 years. These include the West Broadway reconstruction, completion of Eastern Hills Drive (the "East Beltway"), a new viaduct over the Union Pacific Railroad on 9th Avenue, as well as the reconstruction of the South Expressway (Highway 192) between 5th Avenue and I-29/80.

Future local projects in Omaha and Douglas County include the paving and widening of many arterial roads in the western portion of the metro area. These include 168th and 180th Streets as well as several north-south and east-west arterials in the growing far northwest area of Omaha. The inner portion of the metro area has projects planned for the Saddle Creek realignment and the realignment of the Dodge to Douglas Street "s-curve" near 30th Street.

In Sarpy County, a number of projects are planned for the growth areas of Papillion, La Vista, and Bellevue. Many of these projects are for 3-lane arterials with two-way left-turn lanes (TWLTL). West of I-80 there are a number of projects planned in the growing portion of northwest Sarpy County near Gretna and the unincorporated Chalco area. These projects include widening of Harrison, Giles, and Cornhusker Road as well as many of the north-south streets in that area.

The project list included in this LRTP represents a shortened list from the previous 2030 MAPA LRTP. Altogether, total projects were reduced from approximately $6 billion to approximately $4 billion. This reduced LRTP is more reflective of current fiscal trends and provides a more focused list of priorities for the next 25 years. Nevertheless, if anticipated growth in the region occurs, transportation needs are anticipated to grow. Additional funding will need to be allocated or the region will be unable to maintain its current level of mobility and accessibility.

7.8 BELTWAY

The MAPA Beltway Feasibility study concluded that a Beltway along the edges of the metro area was part of the solution to meet future transportation needs in the MAPA

region and that future study for the project should continue. While a particular alignment was not identified in the Study, a generalized mile-wide swath shows the approximate area that would be considered for a future high speed, limited access facility. This facility would provide mobility around the MAPA region as it grows in future decades. It would also act as alternate routes for external traffic passing through the region along I-80 or I-680, thereby relieving congestion and freight traffic on the freeway system in the inner core of the metro area. Some have raised concerns that this project would accelerate urban sprawl or the decentralization of the region's resources, although land use controls could be utilized to prevent this from occurring.

During MAPA's public input process for this LRTP, significant concern was raised by numerous citizens and public groups regarding the Beltway's potential negative impacts. The issues raised included the potential for worsening the economic deterioration within the urban core of the metro area by accelerating decentralization of employment and population, as well as environmental concerns regarding contributing to urban sprawl with accompanying about auto-dominated suburban development. Some expressed the view that no project of the magnitude of the Beltway should be done until more is done to improve conditions in the urban core.

Whether or not a Beltway facility is built in the MAPA region will ultimately be the decision of elected officials. MAPA recognizes the legitimate concerns related to urban sprawl and siphoning resources away from the urban core. On the other hand, the Beltway study explains that land use policies ultimately govern development, and that jurisdictions have mechanisms to control growth with or without a Beltway. MAPA also intends to undertake a "regional vision" study with a goal of developing regionally acceptable goals and standards for development that could be a great tool for addressing the concerns raised about the Beltway.

Furthermore, development has continued along the suburban fringes of the urban area without accessible freeway facilities. Even in metro areas with robust multi-modal options, travel by personal vehicle remains the dominant mode of transportation. If these suburban development trends continue, simply not providing facilities that allow for mobility and accessibility is a questionable approach, especially given that these characteristics were the most frequently cited positive aspect of the region's transportation system during the public outreach process. The most likely outcome of ignoring future traffic demand would be greater congestion with negative consequences to the environmental as well as the region's attractiveness and economic competitiveness.

The Beltway study included a scientifically-valid survey at both the beginning and end of the study. The percentage of those generally in favor of a Beltway project was over 65% at the beginning of the study. By the study's conclusion, the percentage of respondents in favor of a Beltway had risen to over 75%. Therefore, while the concerns and opposition to the Beltway are acknowledged, strong public support for a Beltway is also evident.

Another concern is that development in or near the corridors in the coming years will result in making a Beltway cost-prohibitive for jurisdictions to purchase the necessary right-of-way. Further study is necessary for potential alignments to be identified and possibly utilize corridor protection to preserve land for the facility. Therefore, if no action is taken in the coming years, the region will jeopardize its ability to construct a Beltway for the foreseeable future.

Current anticipated revenues are not sufficient to construct the Beltway. Therefore, it cannot be included in the region's fiscally-constrained project listing. Projects that cannot be paid for with reasonably available revenues must be listed as "illustrative." These projects are not included in the fiscally-constrained Long Range Transportation Plan and, consequently, are typically not eligible for most federal funding for projects. If additional revenues are identified, or priorities shift, then these projects could potentially be added to the fiscally-constrained project list.

Transit

8.1 Introduction

Public transportation is a vital element of the MAPA region's transportation system. Public transit services represent an affordable and environmentally-friendly transportation alternative for many commuters. For others, including many seniors, students, or physically or economically disadvantaged persons, transit can be the only viable means of transportation. Mass transit services are well-suited to those making traditional suburban-to-urban commutes as well as those who live and work in high density corridors. Like most metro areas in the central and western United States, the majority of the development in the MAPA TMA has been constructed since World War II, and caters to the automobile, which can prove to be a challenge for transit service. Nevertheless, public transit still plays an important role in the region's transportation system. Transit officials and planners in the MAPA region are evaluating transit options to create a more robust transit system, including some services that have proven successful in other communities with similar dynamics.

8.2 Metro

Metro, formerly known as Metro Area Transit, d/b/a "MAT", is operated by Transit Authority of the City of Omaha, a political subdivision of the State of Nebraska. Metro's authority and dedicated taxing boundaries are coincident with those of the City of Omaha which is approximately 120 square miles. Transit services operated outside the Omaha city limits and with private entities are "turnkey" contracts. All transit services operated by Metro are open to the general public with published schedules and fares charged. Current contracting cities are: Council Bluffs, Iowa and Bellevue, La Vista, Papillion and Ralston, Nebraska.

8.2.1 Current Services and Inventories

Metro occupies a unique position as the sole major provider of public transportation services in the Metropolitan area. Currently Metro exclusively operates a surface bus and van fleet. The fleet size inventories include 138 full size heavy-duty transit buses and 24 stretch-roofed body on chaise cut-a-ways ("VANS"). Vans are used in the operation of Metro's MOBY , complementary paratransit service for Americans with Disability Act ("ADA") certified persons who cannot independently use fixed route service because of a disability—see Section 9 for more on Metro's MOBY service.

Currently, Metro operates a timed-transfer bus system for multi-directional travel transferring at six Transit Centers. Figure 8.1 shows a map of Metro's current route system. Metro's Transit Centers include:

- Westroads Transit Center, 1099 North 102nd Street, 68114;
- Benson Park Transit Center, 7098 Military Avenue, 68111;

- Midtown Transit Center, Douglas Street, 42 to 44 Streets;
- North Omaha Transit Center, 4308 North 30 Street, 68103
- Downtown Transit Center, 16 street, Dodge to Harney Streets;
- Metro College Transit Center, 2801 Babe Gomez, 68103;

Collectively Metro is responsible for the operations of 40 routes – 31 fixed, 7 express and 2 downtown circulators. Service is operated seven days a week with service hours generally: Monday – Friday from 4:00 a.m. to 11:30 p.m., on Saturday from 5:30 a.m. to 10:00 p.m., and Sunday from 6:00 a.m. to 7:00 p.m.

On school days, Metro increases service levels by 5 trippers to accommodate student passengers. Fixed routes maximize access by providing frequent stops while commuter/express routes increase speed by including non-stop segments. Commuter/express routes operate on arterials and freeways and provide primarily suburban to Central Business District (CBD) service.

Metro's current routes with the highest ridership are:

- **Route 2** (Dodge Street Corridor, from Westroads Mall to Omaha CBD)
  - Service to: Downtown Omaha, Medical Center, Midtown Transit Center, UNO, Crossroads, Methodist & Children's Hospital and Westroads Transit Center
- **Route 18** (North Omaha "Beltway" to Omaha CBD, along 72nd Street, Ames Avenue, Florence Boulevard)
  - Service to: Downtown Omaha, Crossroads, North Omaha Transit Center, North High School, Central High School, Benson Park Shopping Center, Creighton Prep, Lewis and Clark Middle School and Benson Park Transit Center
- **Route 30** (Omaha CBD to Florence along 30th Street)
  - Service to: Downtown Omaha, Creighton University and Medical Center, Omaha Public Schools, North Omaha Transit Center, Metro Community College - Fort Omaha, Weber Place, Florence Business District and Central High School

Park and ride lots are another option for Metro commuters. Metro shares lot space with public entities to provide this passenger service. Park and ride lot locations are shown on the Metro routes system map (Figure 8.1) and include:

- Village Pointe Shopping Centre - Marcus Village Pointe Theater;
- First National Bank – Surface Lot, 14010 FNB Parkway;
- Lakeside South Professional Center - 168th and Lakeside Hills Plaza;
- Hy-Vee - Oakview Mall, 144th and Center Streets;
- Tara Plaza – Hogan Drive & Tara Road, Papillion;
- Bag N' Save - 90th and Maple Streets;
- No Frills - Childs Road and Hwy 75, Bellevue;

-
- Boulder Creek Amusement Park, 14208 "S" StreetWalnut Grove Bag N' Save - 153rd and Weir Drive;
- St Gerald's – 9602 "Q" Streets;

Since September 2008, all Metro buses have been equipped with bike racks. Each bus accommodates two bikes on a first come, first serve basis. In Calendar Year 2010 total bike rack usage increased 12% over Calendar Year 2009 (7,021 versus 6,267 respectively). Metro works very closely with the metropolitan areas cycling community to both enhance and increase multi-modal travel.

8.2.2 STUDENT PROGRAMS

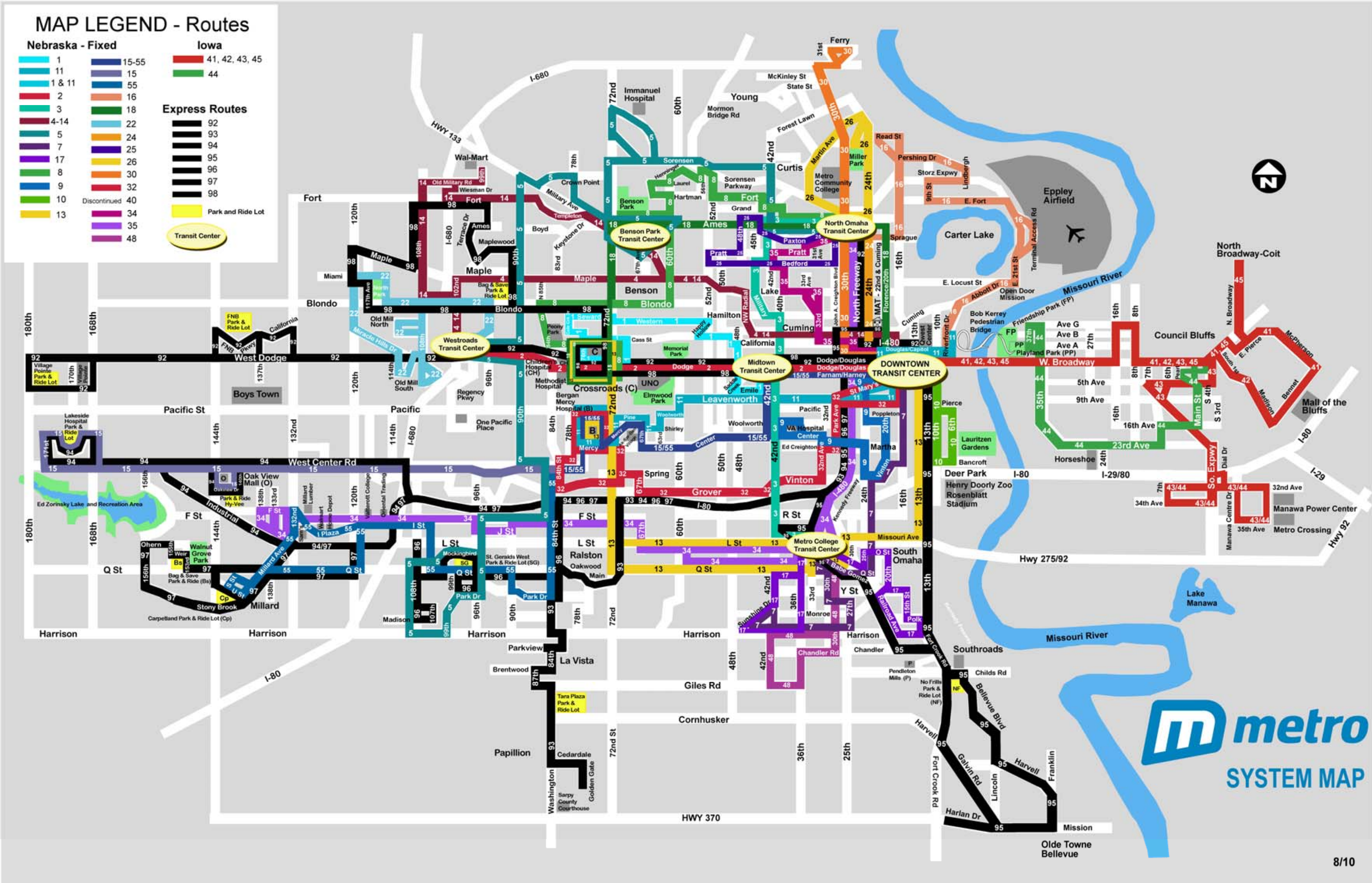
In 2009, Metro, partnered with Metropolitan Community College (MCC) introducing the student Pass to Class Program. This program provides MCC students during each quarter, unlimited rides 7 days a week via a custom designed swipe card. The program has been wildly popular, recording in excess of 244,719 student rides between October of 2009 and January of 2011.

In the spring of 2010, Kaplan College recently instituted a similar program for their students. Instead of a custom designed card, Kaplan purchases and distributes at a small student fee Metro's Swipe'N Ride 30 consecutive day unlimited ride cards for their students travel on Metro.

In February 2011, University of Nebraska at Omaha's Student Government teamed with Metro to provide 400 UNO students free transportation. The MavRide cards, also a custom design were distributed on a first come, first serve basis. The program was initially implemented on a trial basis for the 2011 spring semester. However, the MavRide Program has been extended through, at least, the spring of 2012.

The program design is such that it can be easily adapted to any educational institution, or employer situation. Metro plans to utilize intense marketing efforts 2010-2012 to educate other educational institutions and area businesses of the benefits of such a program.

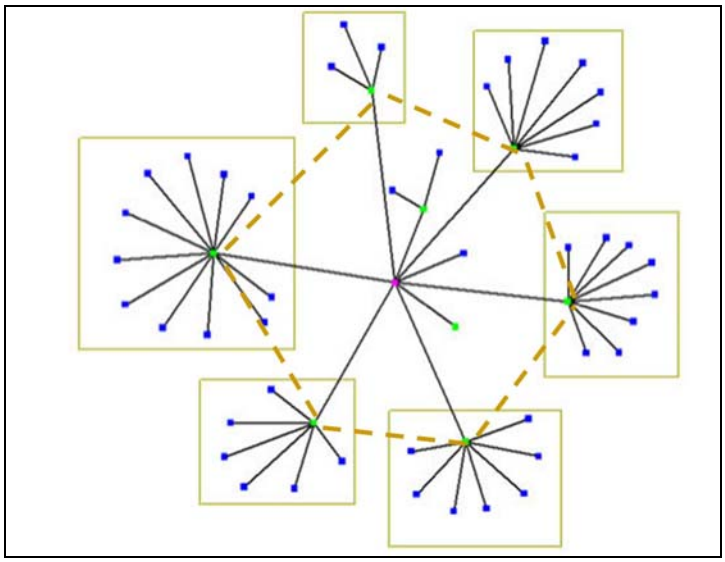
FIGURE 8.1
METRO TRANSIT SYSTEM MAP



8.2.3 HUB-AND-SPOKE SYSTEM

Transit systems have traditionally been oriented toward moving riders to and from dense, centralized portions of a metro area. As regions have grown and employment has decentralized, the need for a new model of transit to serve dispersed population and employment has arisen.

FIGURE 8.2
HUB-AND-SPOKE SYSTEM DIAGRAM



One popular approach is the "hub-and-spoke" system. Not unlike the strategy employed by many airlines, transit systems utilize multiple transit centers that act as hubs to collect and distribute riders throughout the system. Neighborhood circulators transport passengers within the area and to and from the transit center. From the transit center passengers are able to quickly transfer to other buses that travel to regional destinations or other transit centers, as illustrated by the diagram.

In 2004, Metro took steps toward the implementation of a hub-and-spoke system to improve service and attract new riders. Full implementation of the neighborhood circulators and rapid transit services has not yet occurred, however several improvements and route modifications or additions have gradually moved Metro in the direction of a hub-and-spoke system. Examples of such changes include recent route modifications to Routes #7. #17 and #25 which now link to Metro Transit Centers and provide general circulation within the area of operation. Routes #3 and # 5 were expanded to connect to a minimum of two transit centers providing more direct access from the North Omaha Transit Center to the west and southern areas of the service area. Metro analyzes routes, travel patterns, and ridership on an ongoing basis in order to provide more effective transit service.

8.2.4 Alternative Fuels

Transit systems in many regions utilize alternative fuel vehicles to reduce emissions and fuel costs. Metro 2010 and future bus purchases utilize the 2010 clean diesel technologies that significantly reduce emissions. Although Metro currently does not have alternative fuel vehicles, there is an interest in this technology. The Metropolitan Utilities District (MUD) has spearheaded multiple Compressed Natural Gas (CNG) projects in the MAPA region, which continues to be studied as another potential alternative propulsion alternative for Metro buses.

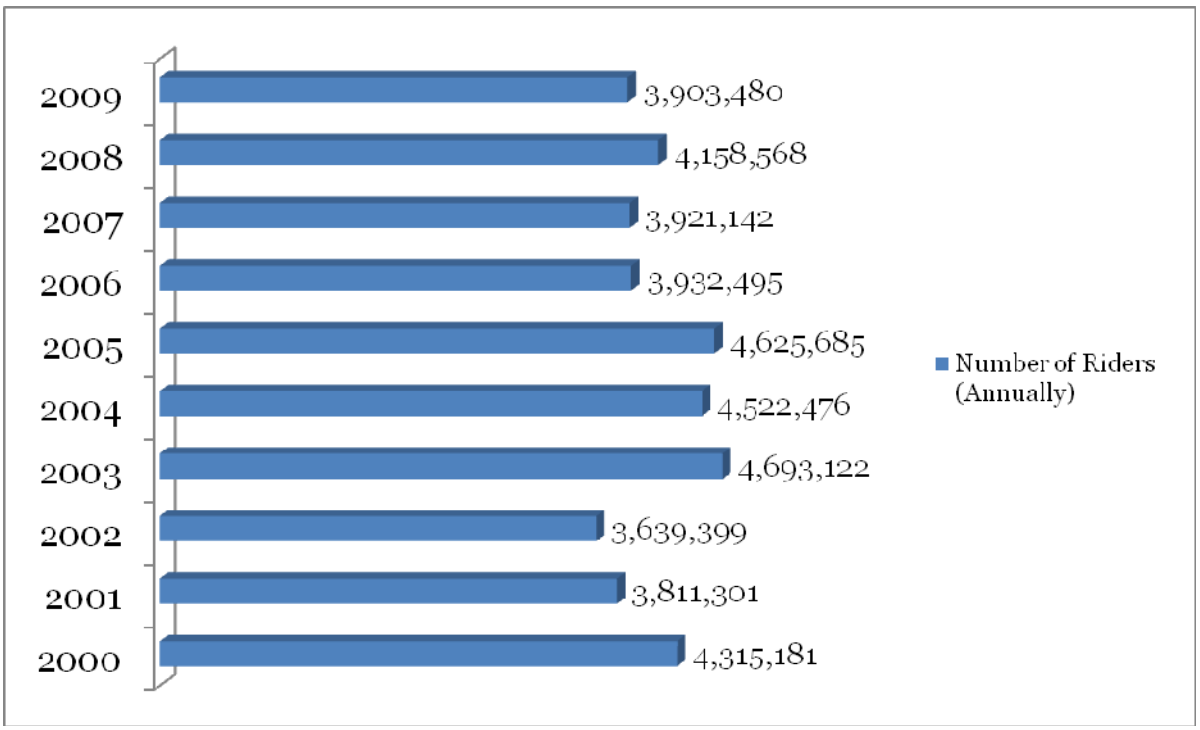
8.2.5 Historical Ridership

Transit ridership has stabilized or slightly increased in recent years after decades of falling ridership. As the metro area has decentralized and vehicle ownership has increased, demand has been reduced for public transit. However, when gas prices soared past four dollars in the summer of 2008 ridership saw a big jump, increasing 15% or more compared with the same months in 2007.

Recently, due to economic conditions and greater concerns about the environment and sustainability, there has been an increased interest in improving transit service. Efforts such as the Environment Omaha Plan, MAPA's Beltway study, among others have recommended studying the possibilities for more robust transit service. Thus, a notable local interest in continuing to grow recent ridership numbers exists in the MAPA region.

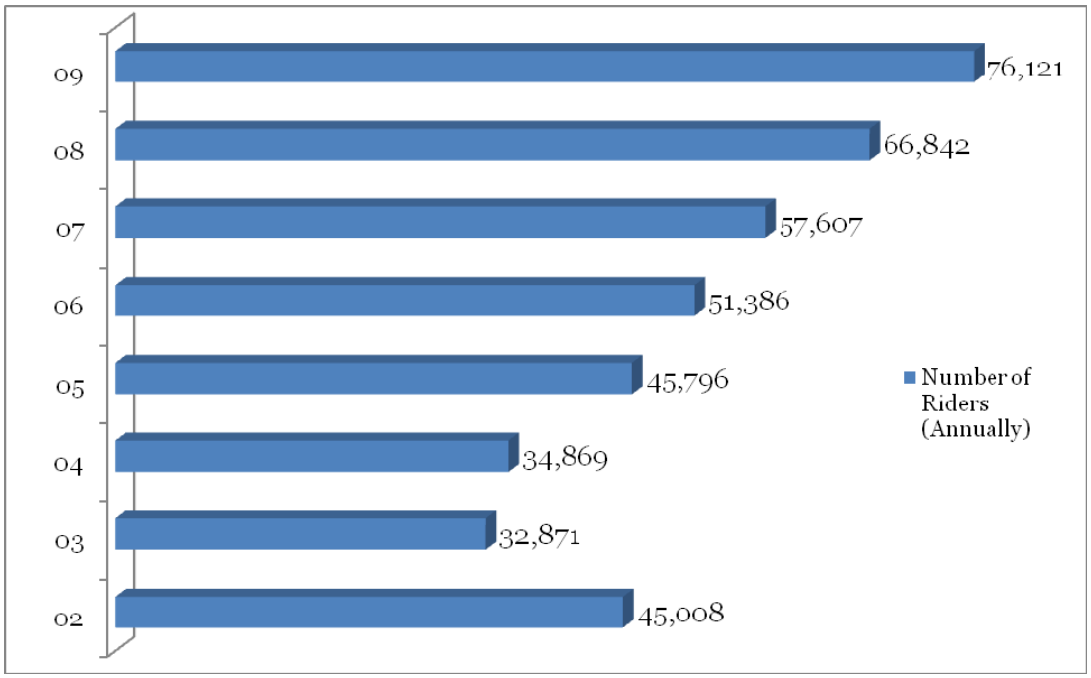
Figures 8.3 and 8.4 show historical ridership numbers for both standard Metro services and MOBY services. While MOBY services have seen an overall yearly increase from 2003 to 2009, standard Metro ridership has remained mostly level with an average of about 4 million riders annually.

FIGURE 8.3
HISTORICAL RIDERSHIP – STANDARD METRO SERVICES



Source: Metro, 2010

FIGURE 8.4
HISTORICAL RIDERSHIP – MOBY SERVICES FROM 2009 TO 2002



Source: Metro, 2010

8.2.6 LOOKING FORWARD

By late 2010, Metro had received 24 replacement buses fueled by 2010 clean-diesel technology, completed the installation of rebuilt engines and/or transmissions in 37 8-year –old buses, purchased 14 additional two-way radios: 10 for fleet installation and 4 for staff use, negotiated the purchase of 6 complementary paratransit vehicles for surrounding communities; purchased two-year inventory of Fleet Video Surveillance System hard drives and a variety of smaller projects. All were funded with a $9.8 million American Recovery and Reinvestment Stimulus Funds.

In late August 2010, the Transit Authority announced a makeover and rededication effort. The rebranding included a new name, Metro from d/b/a MAT (Metro Area Transit), a new logo, fleet graphics, website, installation of Wi-Fi at the Westroads, Benson Park and Metro College Transit Centers, etc.

In October 2010, Metro was awarded $9 million for facility renovations through the Federal Transit Administration's 'State of Good Repair' discretionary grant program.

These updates are part of an effort to expand and appeal to a broader audience, such as young professionals, than has traditionally ridden transit service. New technology possibilities, such as Google Transit and "apps" combined with redevelopment in the urban core and increased environmental consciousness represent a fertile ground for additional transit ridership.

Metro intends to conduct transit system studies, including as part of the proposed MAPA Regional Vision effort. Such studies would include gap analysis to determine unmet demand in the current service area and trend analysis for current routes. It would explore service route expansions and include options for new regional bus service outside the traditional Metro jurisdictional boundaries.

<u>Downtown Transit Center</u>

In the near-future, Metro will relocate its 16th Street Transit Center between Dodge and Harney Streets to 16th and Cass Streets. The 16th Street existing linear on-street transit center no longer functions effectively. This site has been in operation for 26-years and was originally designed as a pedestrian mall, limited to bus, foot and bike traffic. The comingling of buses, cars, and delivery trucks creates congestion and obstacles for on-time performance, especially during rush hours. The relocation will allow for the Transit Center to become a true multi-modal facility that has the capacity to accommodate busses, bicycles, and possible streetcars. Additionally, its central location between the Downtown core, Creighton University, and Events District in the North Downtown area makes the area a preferred location for such a facility. Figure 8.5 shows the transit center conceptual plans:

FIGURE 8.5
CONCEPTUAL PLAN OF NEW METRO TRANSIT CENTER AT 16TH AND CASS STREETS

Source: Downtown Master Plan

Near-Term Future Transit Routes

Some routes have already been identified by Metro for future service expansion. These future routes are listed below. Please note that this route listing in this Long Range Transportation Plan does not formally commit Metro to these additions. Metro also plans to add new shelters and continue to increase and update its bus fleet.

- Sarpy County connecting Bellevue to Western La Vista and Omaha routes;
- A north/south connector west of I-680;
- Bi-directional express routes on the West Maple and Center Street Corridors;
- Bi-directional express route to Blair;
- Bi-directional express route to Fremont;

The following are projected areas for park and ride lots:

- 204th and Dodge Street area
- Blair
- I-80 and Hwy 50 area
- Hwy 75 and Cornhusker area
- West Maple Corridor
- West Center corridor

Ridership & Mileage Projections

FIGURE 8.6
PROJECTED RIDERSHIP 2010 – 2014

Metro Projected Ridership Numbers	
Year	**Number of Riders (Annually)**
2010	3,978,921
2011	4,078,394
2012	4,180,354
2013	4,284,863
2014	4,391,984

Source: Metro, 2010

8.2.7 IDENTIFIED DEFICIENCIES AND OPPORTUNITIES

As part of the planning process for LRTP 2035, a public survey was made available to residents. Over two-thirds of respondents rated public transit system as "unacceptable" or "poor." As part of this public outreach effort, several deficiencies and opportunities for improvement were identified.

Elderly and Disabled Residents

The needs of these residents are described more in Section 9 as well as MAPA's Coordinated Public Transit and Human Services Transportation Plan. In the survey, a combined total of over 75 respondents said that transit services for the elderly and disabled needed to be improved.

Current service includes MOBY, Metro's complementary paratransit curb-to-curb demand response service for passengers who cannot use the fixed route service due to disability. There are no trip purpose restrictions for MOBY trips. MOBY adheres to ADA policy and procedures including, but not limited to, the ¾ mile corridor and ¾ mile terminus of individual routes and days and in-service hours of its fixed route system. MOBY clients complete the ADA eligibility certification process.

Community Planning Needs

Planning of new development and redevelopment could be better coordinated to ensure that transit, pedestrian and multi-modal needs are considered in the development process. The Environment Omaha Plan, if fully implemented, will help to address this. Cooperation with the area Chambers of Commerce is another key to striving to provide feasible transit service to new and relocating businesses. Regular meetings between the

City of Omaha Planning Department, Metro, and MAPA have also begun to work on increased communication and collaboration in the planning process.

Obstacles to Low Income and Transit-Dependent Residents

Residents from lower economic levels and with less education generally use public transit at greater rates than the general population. However, many of these residents in the MAPA region do not utilize transit due to several factors. These include insufficient service and frequencies or routes that require long travel times or transfers.

One of the major deficiencies seen in the current Metro system is the ability to get those who rely on public transit to jobs. To help combat and solve this problem, the North Omaha Navigators Pilot Project has been implemented, which will work to match citizens in need of transportation with vans, cars, drivers, and/or others to solve re-occurring transportation problems.

According to the Greater Omaha Chamber of Commerce's Young Professionals Bus Challenge Final Report, another obstacle that disproportionately affects this group is complexity and difficulty in reading the schedules and route maps. Lack of dependability due to buses not being on time or having mechanical issues represents another major concern.

Attracting New "Choice" Riders

Choice riders are those who can afford to use a personal vehicle or other means of transportation, but choose to use public transit for a multitude of reasons. Transit ridership comprises a relatively low percentage of all trips in the metro area. If public transit is to grow, it must attract these riders in addition to those who utilize transit primarily for economic reasons.

As described above in Section 8.2.5, Looking Forward, a number of organizations have expressed interest in improving transit in the greater Omaha metro area. Multiple incentives can be cited for marketing and attracting new ridership. Certainly, the ability to relax, work, or potentially get online during one's commute is a strong marketing incentive to help attract new riders. Many businesses in the Omaha CBD have parking fees that can be avoided by taking the bus. Others prefer the savings in gas and other auto expenditures that come with using public transit. Environmental concerns such as reducing greenhouse gas (GHG) emissions are another incentive for some riders.

The aforementioned report from the Greater Omaha Chamber of Commerce Young Professionals presented several recommendations to improve transit service. These included seeking out new partnerships with area employers as well as colleges and universities; aggressively seeking new funding opportunities to provide increased service; rebranding to update transit's image; utilizing technology such as providing wireless internet, real-time trip information through social media, as well as listing route times and information on Google transit, among others.

In updating its branding and acquiring new buses, Metro has taken the first steps to implement these recommendations. Future steps in these directions will continue to improve public transit in the MAPA region.

8.2.8 Budgets and Funding

The following figures illustrate Metro's current funding and budget information as well as plans for the upcoming years. A full description of anticipated funding for public transportation is included in Section B.3.10 of the MAPA 2035 LRTP Financial Plan (Appendix B).

Figure 8.7
Metro Funding Sources Breakdown

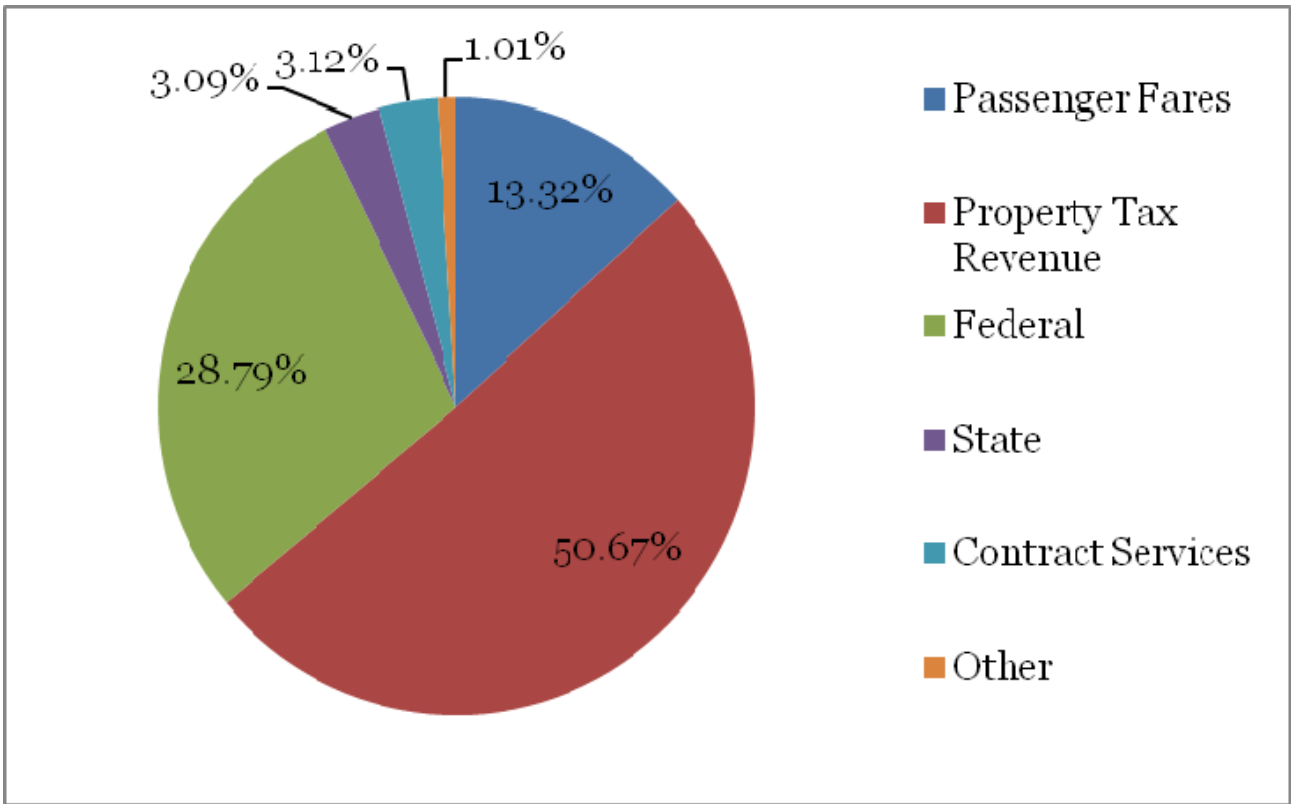


FIGURE 8.8
METRO HISTORICAL REVENUES

Year	Budget Total	Percent +/-
2006	$19,636,791	
2007	$21,645,346	+10.23%
2008	$23,840,293	+10.14%
2009	$25,407,158	+6.57%
2010	$25,124,117	-1.11%
2011	$25,850,603	+2.89%

FIGURE 8.9
METRO PROJECTED REVENUE BY COST BAND[1]

Years	Projected Revenue
2011-14 (TIP)	$112,652,106
2015-20	$193,097,818
2021-25	$186,587,428
2026-30	$213,978,307
2031-35	$245,861,327

Identified Potential Revenue Streams

1) Implement additional university student pass programs;
2) Expand corporate employee subsidy/pass programs;
3) Expand corporate funding assistance of public ridden transit services;
4) Identify and pursue additional joint development opportunities, e.g., Adopt-A-Shelter Program, child daycare centers at transit centers.
5) Aggressively pursue local, state, and federal funding opportunities;

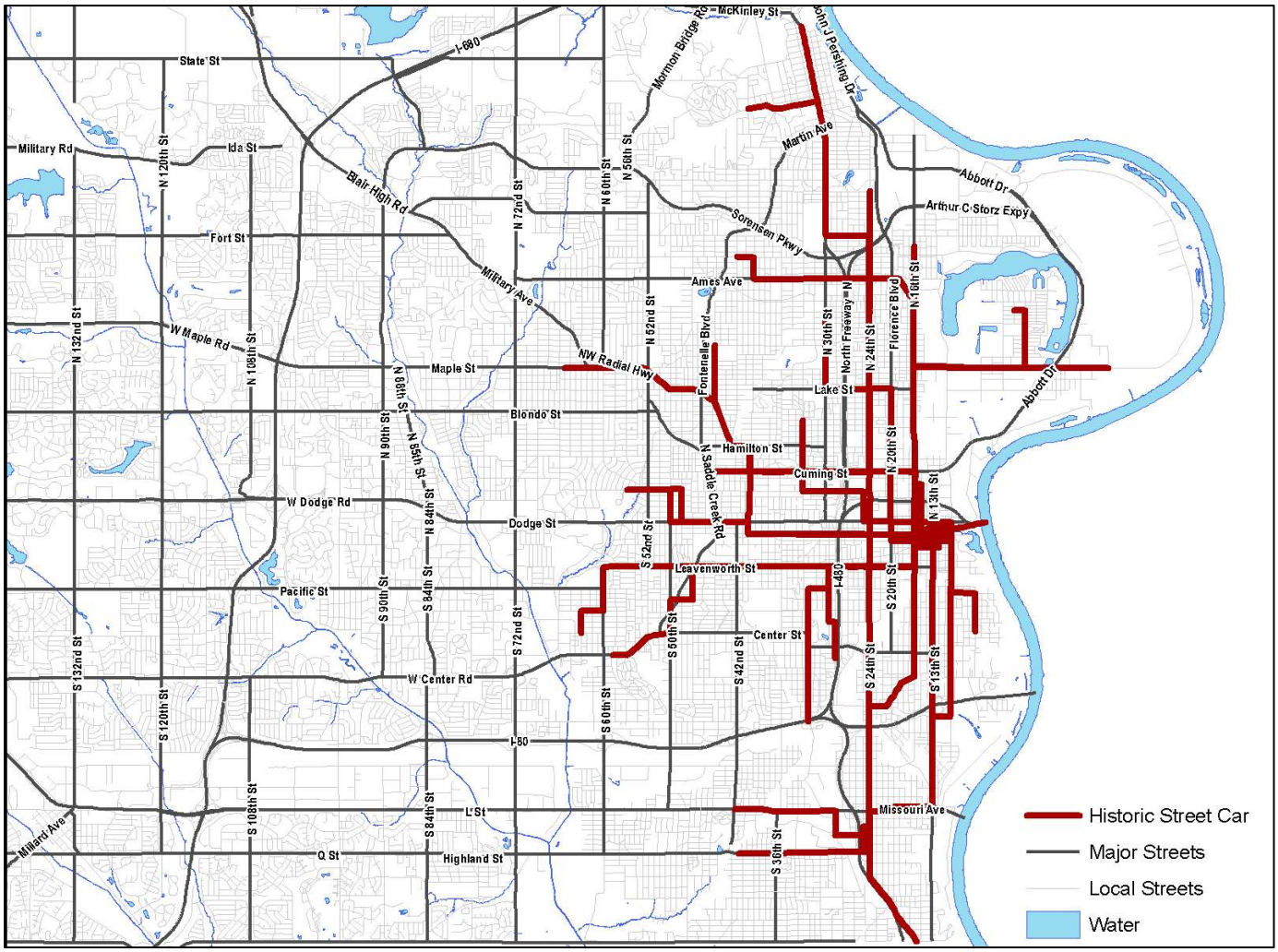
[1] The forecast revenues are shown in detail in Figures B.12 and B.15 in Appendix B.

8.3 Streetcar and Bus Rapid Transit (BRT)

8.3.1 Omaha Streetcar

Streetcar services in the MAPA region began in the late 1860s. In 1955 they were discontinued due to increased access and use of the personal car. They have since been out of service. View the map of the old streetcar lines in Figure 8.10

Figure 8.10
Historical Streetcar map



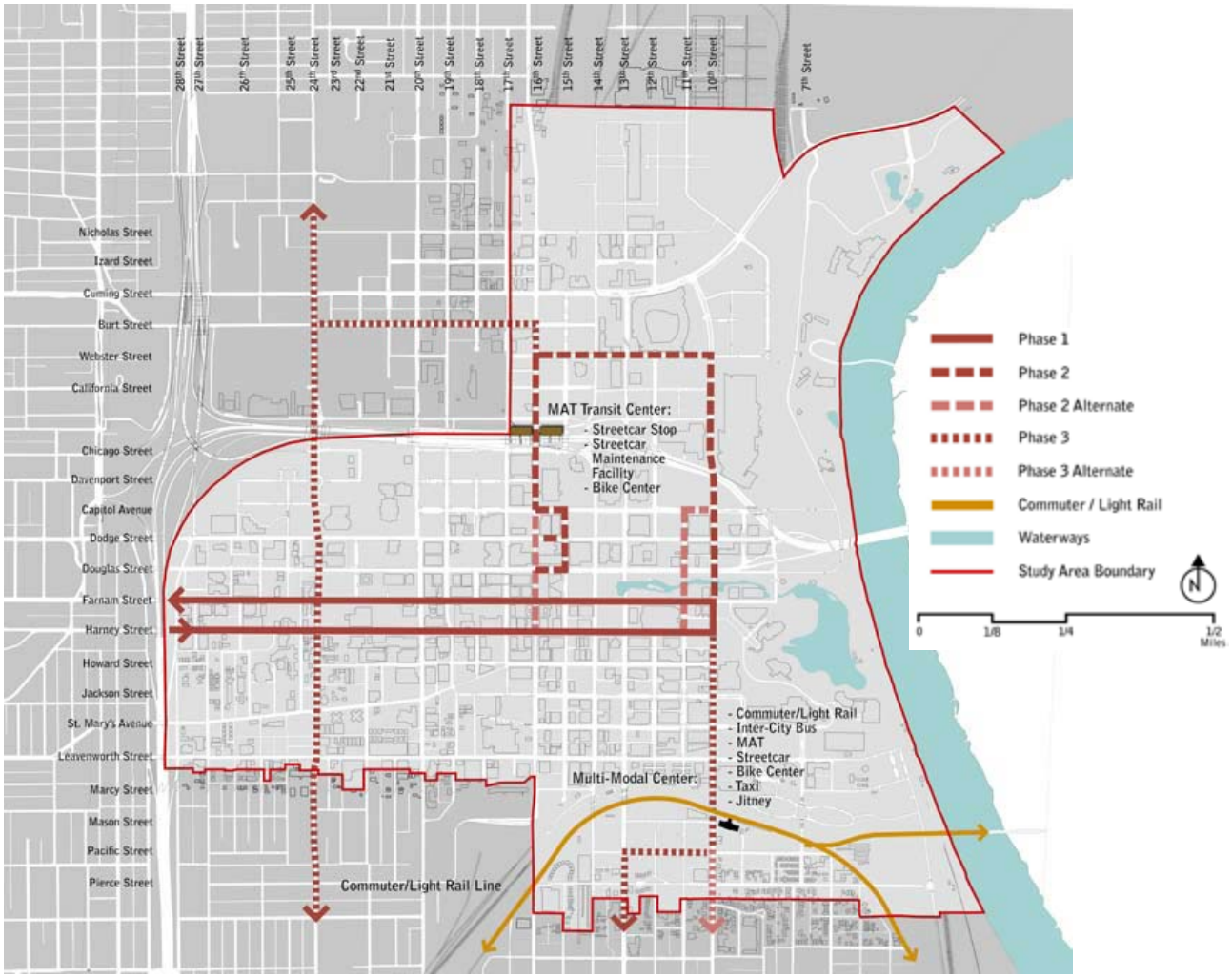
Beginning in the 1990s, interest in reinstating streetcar service in the area has grown. Former Omaha Mayors P.J. Morgan, Hal Daub and Mike Fahey, as well as current Mayor Jim Suttle, have all supported a streetcar program in one form or another. Advocate groups such as Omaha Streetcar have also pushed for the implementation of streetcar services. Proponents of a streetcar view it as a means to improve economic

development in the urban core, increase densities, and also provide a new means of transportation.

In early winter 2011, the City of Omaha and Metro entered into an Interlocal Agreement to conduct an Alternative Needs Analysis ("AA") funded by a Federal Transit Administration 2010 discretionary livability grant. The specific purpose of the grant is to study the Omaha Downtown/Midtown/UNMC corridor and make recommendations as to the preferred transit alternative. The study will examine such transit alternatives such as no build / remain with existing bus services; Bus Rapid Transit; rail options, e.g., historic trolley, light, streetcar, etc.

Figure 8.11 shows a map of the proposed AA study corridors as well as the proposed future downtown transit center. The Downtown Master Plan identifies the Transit Center as a potential multi-modal center for many forms of transportation in the metro area. The potential streetcar/historic trolley, commuter rail or light rail, inter-city buses and standard Metro buses, taxis, jitneys, and bicycles could all utilize the center.

FIGURE 8.11
PROJECTED STREETCAR & COMMUTER RAIL LINES



Public reaction and opinion regarding potential rail option service has been mixed. Some believe it would help spur economic development and provide another more environmentally-friendly means of transportation for residents in the area. Other potential benefits include providing a convenient travel mode that avoids parking hassles in the most densely populated core of the metro area. On the other hand, some have expressed concerns about the cost of constructing and maintain such a project that is not likely to operate without at least some public subsidy. The potential rail option's value as a transportation option is also questioned, given that it will not provide significant if any travel time savings versus the automobile.

8.3.2 Bus Rapid Transit (BRT)

Bus Rapid Transit (BRT) is bus service that operates at a higher speed with greater frequencies than standard bus service. In other metro areas, BRT often operates in exclusive lanes or receives signal priority that preempts traffic signals. It represents an effort to provide many of the benefits often associated with higher speed light-rail or heavy-rail transit using rubber-tired vehicles at a lower cost than rail or streetcars systems.

In 2005, Kansas City Area Transit Authority (KCATA) launched a new BRT service to operate between downtown and the Country Club Plaza known as The Max. This service featured unique station identifiers with real-time information on bus status, frequent headways, and exclusive lanes during the peak hours. Overall, this service has been well-received and met with acclaim. KCATA is currently constructing or planning multiple other BRT routes in the Kansas City metro area.

The success of these and other BRT projects has led some in the MAPA region to discuss the potential for future BRT service locally. While not as expensive or glamorous as a streetcar or light rail system, BRT represents a significant improvement in transit service that would catch the attention of citizens. Critics of BRT note that while it has been successful in many locations in providing transit service, it does not typically create the impacts to development akin to what is seen along successful streetcar and light rail corridors.

Dodge Street would appear to be a natural first choice for a BRT corridor. It could possibly connect to Council Bluffs along the Broadway corridor. Other east-west options for consideration would include Center Street or Saddle Creek / Northwest Radial Highway / Maple Street. Possible north-south corridors include 24th and 30th Streets in South Omaha and North Omaha as well as 72nd Street.

Coordinated Transit & Paratransit

9.1 Introduction & Overview

The Metropolitan Area Planning Agency completed an update to the MAPA Coordinated Public Transit and Human Services Transportation Plan in March of 2009. This plan outlines the demographics and funding sources to assist in the transportation needs of the socially and economically disadvantaged.

Coordinated Transit and Paratransit is covered by three of the four general regional goals for the MAPA 2035 LRTP. Through enhanced Coordinated Transit/Paratransit, MAPA seeks to:

1. Maximize accessibility and mobility
2. Increase Safety and Security
3. Keep costs reasonable and sustainable

MAPA acts as the administrator in charge of New Freedom, Job Access/Reverse Commute, and section 5310 Elderly and Disabled Program grants. These grants are specially targeted to assist the elderly, handicapped, and economically disadvantaged with their transportation needs. The grant award process is carried out through a competitive selection procedure. Applicants are graded based on a demonstration of need, cost effectiveness, project oversight, project coordination, and project equity. The grading for these applications is carried out by a project review committee of the Coordinated Public Transit and Human Services Transportation (CPTHST) committee.

9.2 Mobility Management

MAPA hired a full time Mobility Manager in March 2009. The Mobility Manager serves as a policy coordinator, operations service broker, and customer travel navigator. The Mobility Manager is working to establish partnerships among public and private agencies that provide transportation service to older adults, disabled individuals, and persons needing transportation to work, and is working to institute a centralized process whereby all services can be accessed when available by those in need. The mobility manager will help to coordinate efforts by the public and private entities that have applied for and received New Freedom, Job Access/Reverse Commute, and 5310 Elderly and Disabled Program grants.

This mobility coordination process works to establish a transit “catchment area” of neighborhoods with similar travel patterns and identifies the areas that may benefit from coordinated transit in the pilot areas.

This process seeks to involve interested parties early-on through personal visits and meetings. Interested parties include: area transit agencies, centers for aging or human services with transportation and city/county commissioners and board members.

Next in the process will be a phased roll-out of coordinated services. A phased approach allows coordinated efforts to start small with the most enthusiastic participants, providing a solid foundation to build metro-wide.

One early key pilot effort may be an efficient, customer-friendly centralized one-call reservation center for transportation coordination.

Another early key pilot effort may be the procurement, development, and integration of a management data system including hardware, software, maintenance, and training for an up-t0-date Intelligent Transportation System metro-wide.

A goal of these pilot projects will be to have an operating One-Call Center for transportation coordination. This One-Call Center should be citizen friendly in that its first obligation will be to know how and when public rides can be obtained and to offer each citizen his or her best options. Then, the One-Call Transportation Management Coordination Center will work toward new services for any un-met rides, especially in populations of the disabled, the elderly, and the under-employed.

9.3 Mobility Management User Demographics

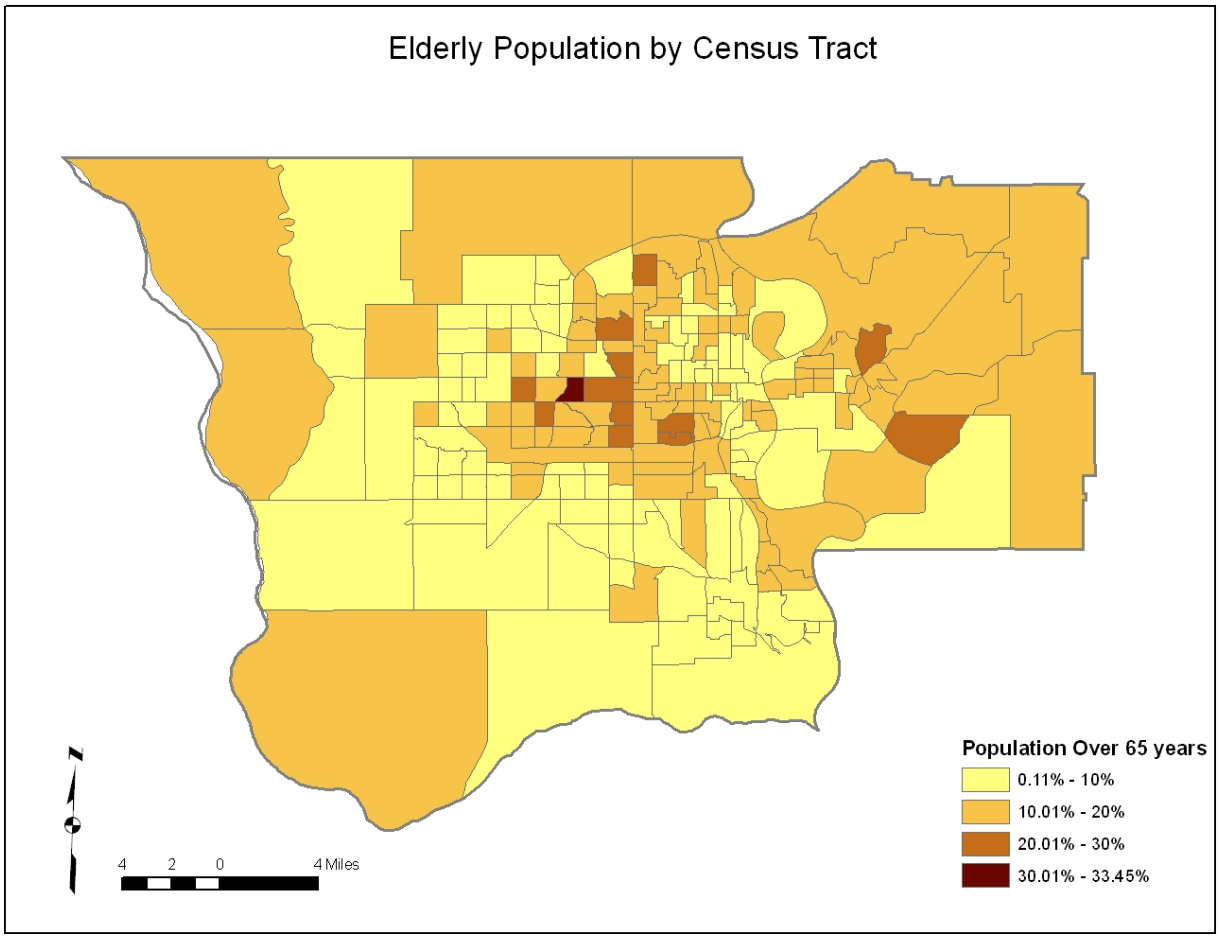
Figures 9.1 – 9.3 show the breakdown by county for each of the following disadvantaged population sets: elderly, disabled, and low income.

9.3.1 Elderly

Figure 9.1 shows the breakdown of individuals over 65 years of age by census tract. The highest percentage of the population that is over 65 years of age is located in midtown Omaha. The area immediately west of 72nd Street –north and south of Dodge Street contain the highest percentage of elderly individuals with many census tracts showing more than 20% of the local population as elderly.

The metro area's elderly population becomes less dense towards the suburbs and the outer ring of the area. Immediately outside the areas of highest density is a ring of moderate density (10-19% of the population over 65 years). The outer ring of the metro is populated with less than 10% individuals over 65 years.

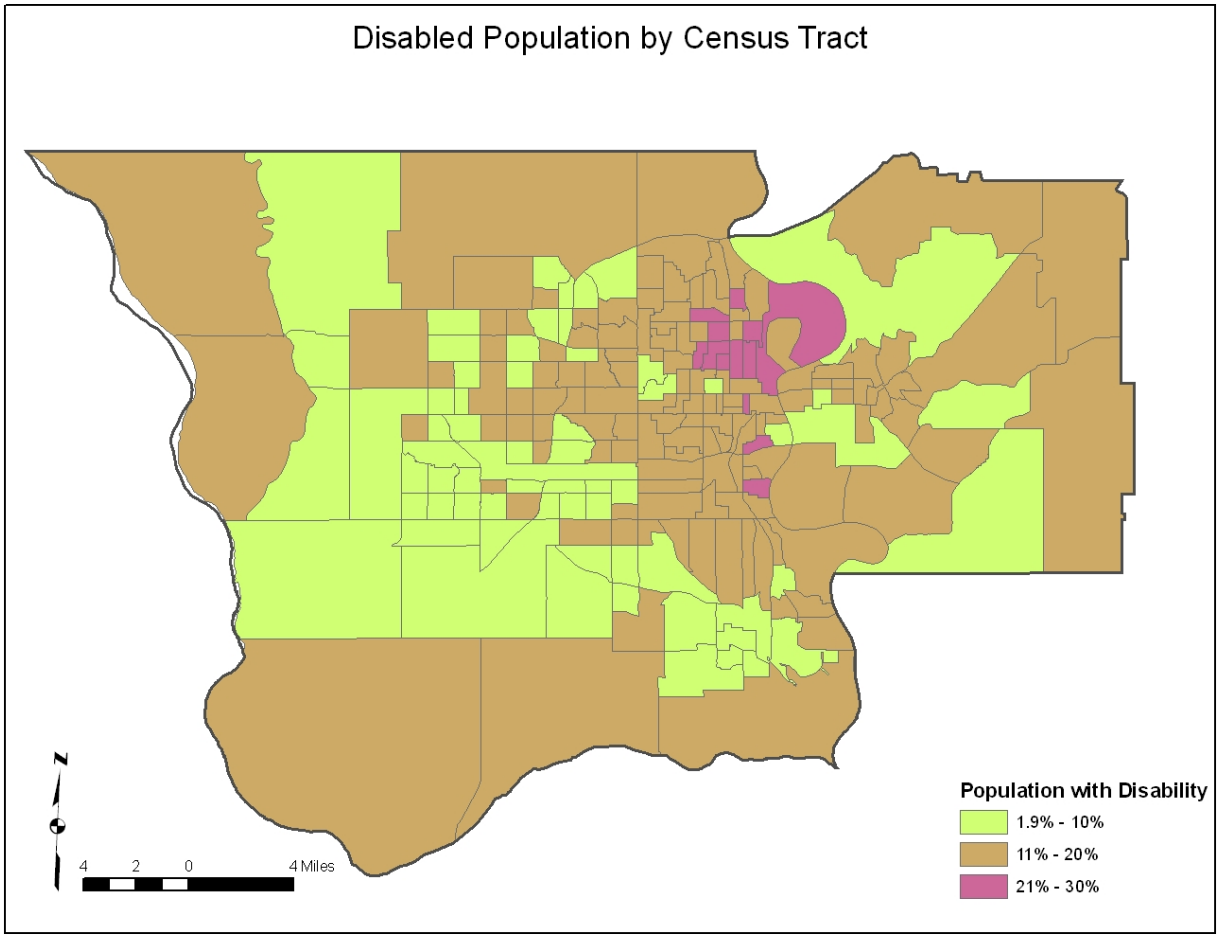
FIGURE 9.1
ELDERLY POPULATION DISTRIBUTION IN MAPA TMA



9.3.2 DISABLED

Figure 9.2 indicates that the highest density of disabled persons in the Omaha-Council Bluffs Metropolitan area is located in the northeast part of Omaha. As with age characteristics, the density of persons with disabilities decreases when moving from the center of the metropolitan area towards the suburbs. Much of the metro area falls under the 11-20% disabled category.

FIGURE 9.2
DISABLED POPULATION DISTRIBUTION IN MAPA TMA

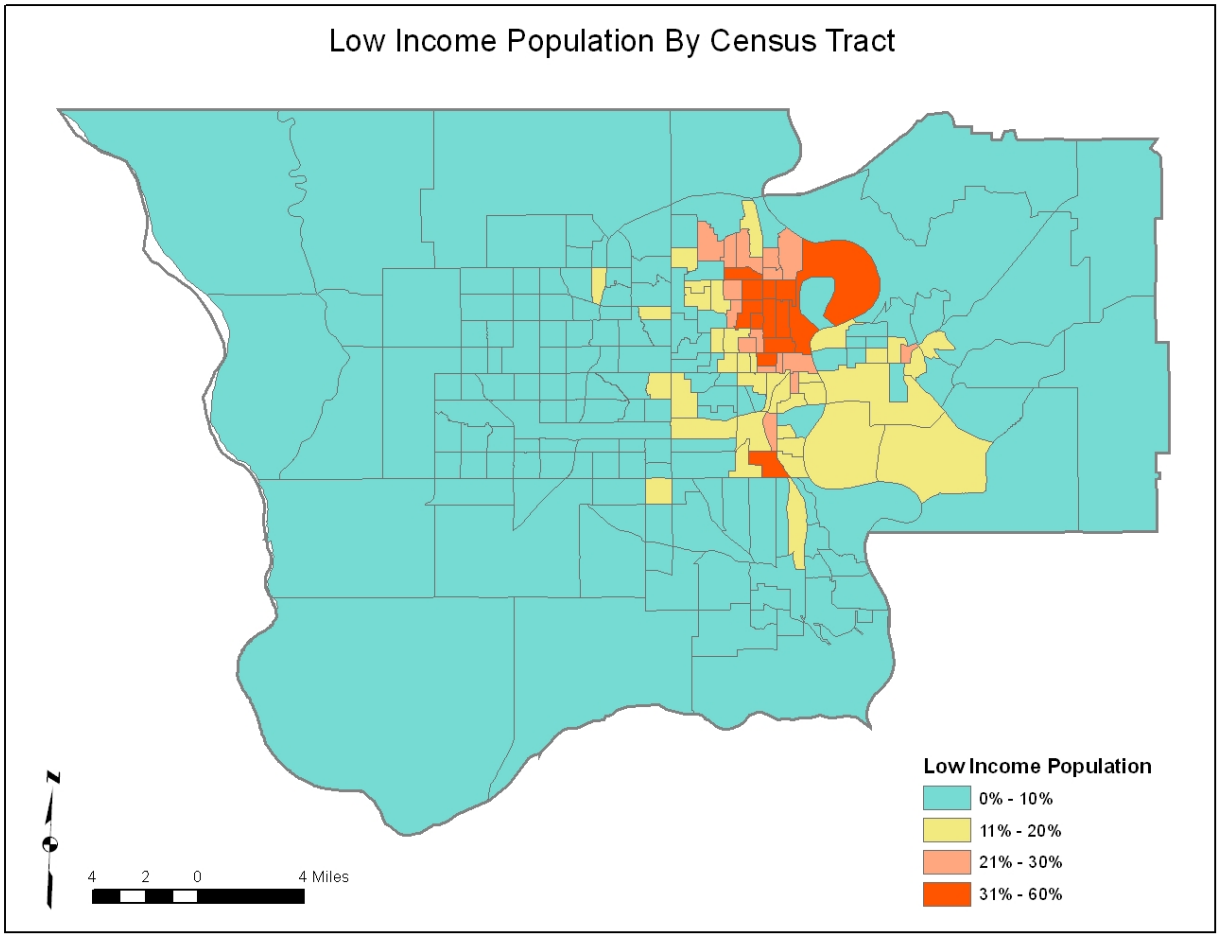


9.3.3 LOW INCOME

The low income population in the Omaha-Council Bluffs metropolitan area is predominantly located in east Omaha (see figure 9.3). The census tracts showing the highest percentage of individuals living below the poverty level are located in northeast Omaha. These tracts (shown in red) indicate that over 30% of the population lives below the poverty line. Immediately surrounding these tracts is a ring of tracts with 20-29% of the population at or below poverty level. Surrounding this area is a broken ring of census tracts with 10-19% of the population below the poverty level.

While much of the low income population is located in northeast Omaha, there are some areas of high density in South Omaha and Council Bluffs.

FIGURE 9.3
LOW INCOME POPULATION DISTRIBUTION IN MAPA TMA



9.4 MOBILITY MANAGEMENT

Metro provides the only large scale public transportation services in the MAPA TMA. Paratransit services are offered by Metro's MOBY Service, Shared Mobility Coach and various other elderly and disabled program operators throughout the metro. A summary of these services follow. For a complete breakdown of Coordinated Transit and Paratransit in the MAPA TMA please refer to MAPA's Coordinated Public Transit and Human Services Transportation Plan. This plan is available from the MAPA website at www.mapacog.org or by hard copy at the MAPA offices at 2222 Cumming Street in Omaha, Nebraska.

9.4.1 METRO MOBY SERVICE

Metro Transit offers on-demand paratransit service to persons who cannot independently use fixed transit due to a disability within the city of Omaha through their MOBY service. This service is mandated of public transit providers by the Americans with Disabilities Act (ADA). MOBY service is limited to areas within .75 miles of an existing bus route within the Omaha city limits.

MOBY vehicles are operated and maintained by Metro and dispatched into service from the central dispatch center at Metro. Clients wishing to use the MOBY service contact Metro in order to schedule trips. In 2007, Metro delivered approximately 58,000 passenger trips accounting for 402,000 vehicle miles for MOBY service inside Omaha.

9.4.2 ELDERLY AND DISABLED PROGRAM OPERATORS

Multiple private paratransit providers operate in the MAPA region. Examples include Omaha Ambulance and other private agencies like American Ambulance and the cab companies. Shared Mobility Coach (SMC) is a non-profit entity that operates a motor coach specifically tasked with assisting disabled persons. SMC is housed in the Metro building.

Several Omaha area retirement communities operate vans and buses that can serve their residents. New Cassel, Immanuel Affordable Living, Friendship Homes, and Skyline Retirement all operate vehicles for elderly use. Quality Living, Florence Homes, Greater Omaha Community Action, Care-A-Van-Valley and the City of Council Bluffs all operate vehicles for the use of elderly persons.

9.4.3 COORDINATED PUBLIC TRANSIT-HUMAN SERVICED TRANSPORTATION COMMITTEE

The Coordinated Public Transit-Human Services Transportation Committee is a group containing transportation providers, social workers, and concerned citizens that works to address transportation issues for the elderly, low-income, and disabled populations in the Metro region. MAPA meets regularly with the CPTHST committee in order to address concerns, upcoming issues, and assist in the administration and delivery of JARC and New Freedom Grants. CPTHST committee meetings are open to the public and are held quarterly.

A mobility management sub-committee of this CPTHST committee with eight sub-committee members meets monthly with the Mobility Manager. This Mobility Steering Sub-Committee has members from United Way, the City of Omaha, Iowa Workforce, Metro transit, Greater Omaha Chamber of Commerce along with human service providers and MAPA representatives.

9.4.4 Nebraska & Iowa Medicaid Non-Emergency Medical Transportation

The largest purchaser of public transportation in each state of Nebraska and Iowa are the Departments of Health and Human Services. Each state is in a process of changing how their Non-Emergency Medical Transportation (NEMT) is handled, changing from trips arranged by the state's human services caseworkers to trips arranged by a statewide brokerage office.

Each state has not had precise data about how many public transportation rides have been purchased in prior years, so there are many unknowns to be handled by the new brokerages. Both states' prospective brokerages will be managed by out-of-state firms with NEMT brokerage experience elsewhere in the USA.

The challenge for Mobility Management in the metro area will be to have electronic coordination between the states' NEMT brokerages and the Metro's One-Call Transportation Management Coordination Center so that maximum efficiencies can be found by coordinating most all the public rides in the metro area each day.

Bicycles and Pedestrians

10.1 Overview

Bicycles are becoming an increasingly popular mode of transportation in the MAPA TMA. There has been a notable increase in walking and biking among citizens nationwide. According to the U.S. Department of Transportation, between 1995 and 2009 there has been an increase of over 20% in cycling trips from 3.3 billion to 4 billion. Additionally, walking trips have increased to a total of 45.5 billion in 2009. This has also lead to an increase in budget allocations devoted to the improvement of pedestrian and bicycle programs. In 2009, $1.2 billion dollars were budgeted for such programs from the Department of Transportation. This figure was increased from $339.1 million in 2001.

While recreational use of bicycles has been popular in the region for many years, some residents are employing bicycles as their primary mode of transportation for the commute to work. Several improvements to the commute system available for bicyclists have been made. However, expansions to bike facilities in the MAPA TMA can be made to increase and enhance bike ridership. Many roads in the region do not have adequate space or signage to provide for safe and accessible travel.

Jurisdictions in the MAPA TMA generally have provisions that require sidewalks in all new developments. However, some major streets do not have sidewalks. An overview of Complete Streets in Section 4 discusses characteristics of Complete Streets and the future need for bicycle and pedestrian facilities in the MAPA TMA. Sidewalks and the trail system in this area act as the primary facilities for pedestrians. In limited situations, bicyclists can utilize sidewalks. However, the strong preference is for cyclists to travel on the road (as a vehicle) or on designated lanes, paths, side paths, and trails.

This LRTP will encourage the incorporation of measures in current and future transportation improvements that will provide for safer pedestrian and bicycle travel for the region.

10.2 FHWA Classifications for Bicyclists

There are multiple classification systems for cyclists. The Federal highway Administration (FHWA) classifies bicyclists into three groups:

- A-Advanced Riders: These are experienced riders, typically commuters and touring riders, that can ride under traffic conditions.
- B- Basic Riders: These are the casual or new adult and teenage riders who are less confident in riding in traffic conditions, typically recreational riders.
- C-Children: These are pre-teen riders who are riding alone without parental supervision.

Potential riders must also be considered. Potential riders include those who are interested in cycling, but may be too fearful to ride. It is important to consider this segment of the population in the planning of bicycle facilities. When facilities are improved or more readily available, potential riders could become active users.

10.3 Types of Bicycle Facilities

The FHWA breaks bicycle facilities down into four categories: shared roadways, signed shared roadways, bicycle lanes, and shared use paths. (See examples of such facilities on the Omaha Metro Area Bicycle Map 2010 listed below and in Figure 10.1.)

- Shared Roadways: A shared roadway is a roadway that was not designed for with the use of bicycles in mind, one that does not have signage delineating the existence of bicycle traffic, and does not have separate space reserved for bicycle traffic only. Most roads in the MAPA TMA fall under this classification.
    - Examples: Howard Street east of Elmwood Park, Maplewood Blvd, Eagle Run Drive, 51st Street between Dodge and Hamilton Streets

- Signed Shared Roadway: These facilities are similar to shared roadways in all areas but one. These roadways have signage that denotes the roadway as a bike route and may include sharrows. These signs may also contain information on destinations, intersections with other bike routes, or other traveler information.
    - Examples: Burt Street from 18th to 40th Street, Capital Avenue (downtown), and Nicholas Street from 40th to 46th Streets

- Bicycle Lanes: Bike lanes are segregated facilities of traffic for the use of bicycles and other non-motorized vehicles. Bike lanes are recommended to follow the flow of traffic and are to be located on the right side of the lane. Bike lanes should be one way facilities in order to encourage safety.
    - Examples: (Omaha) 16th Street between Capital and Cuming Streets, Burt Street from 16th to 40th Streets; (Council

Bluffs) Harry Langdon Blvd, 16th Avenue near Indian Creek Trail

- Shared Use Paths: These paths are generally recreational paths located along waterways and other scenic areas. Shared use paths are generally intended to provide a viable, surfaced, recreational facility for bicyclists, pedestrians, and equestrian traffic.
  - Examples: Keystone Trail and the Iowa Riverfront Trail
- Sidepaths: Side paths are subset of shared used paths. Sidepaths are widened sidewalks or pathways that run along streets. These paths separate pedestrians and cyclists from motor vehicles.
  - Examples: Military Avenue between I-680 and 120th Street

10.4 Current Inventory

Bicycle and pedestrian facilities throughout the MAPA TMA consist of various systems of sidewalks and trail facilities in the urban portions, supplemented by various sections of paved shoulders in rural sections. Recently added bicycle facilities as part of the implementation of the Bike Omaha Pilot Network will greatly enhance mobility and access for cyclists. Metro Area Transit has also taken a proactive role in promoting bicycle traffic by adding bike racks to all of their buses. The bike racks were used over 9,000 times in the year 2009 and 2010 numbers show an increase in use to date.

The Omaha Metro Area Bicycle Map (Figure 10.1) was created by Activate Omaha in partnership with RDG Planning and Design, Papio-Missouri River Natural Resources District, and BlueCross BlueShield of Nebraska and was released in May of 2009. This map displays current bicycle facilities, some planned facilities, as well as bike friendly connector routes that may or may not be signed. The map is available at local bicycle shops, the downtown Omaha library, and online at the following URL:

http://www.activateomaha.org/downloads/OmahaBikeMap%2004-15-08.pdf

Additionally, figure 10.3 shows the current and proposed trail network for the Omaha-Council Bluffs metro area.

FIGURE 10.1
2008 OMAHA-COUNCIL BLUFFS METRO AREA BIKE ROUTES

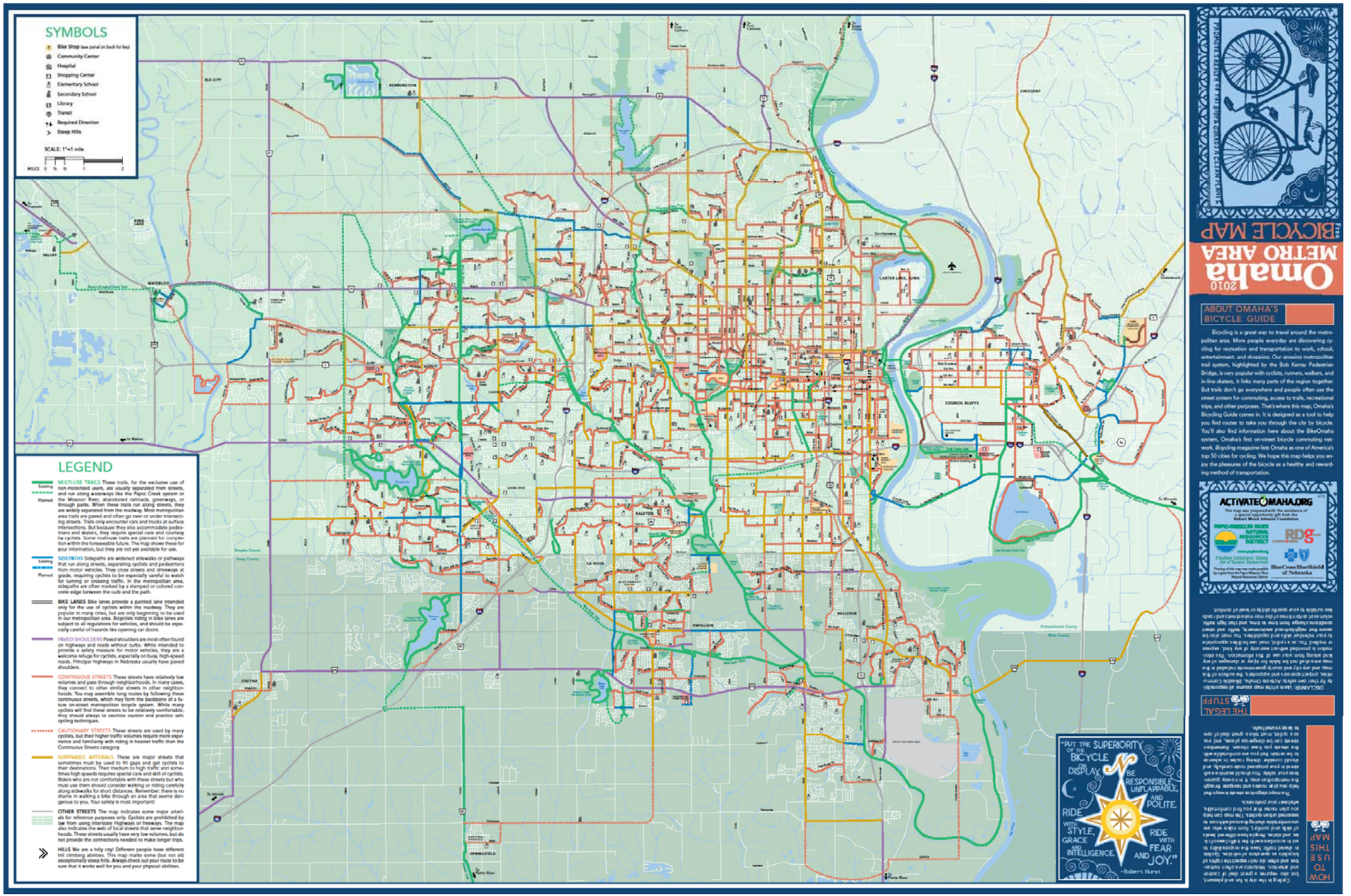
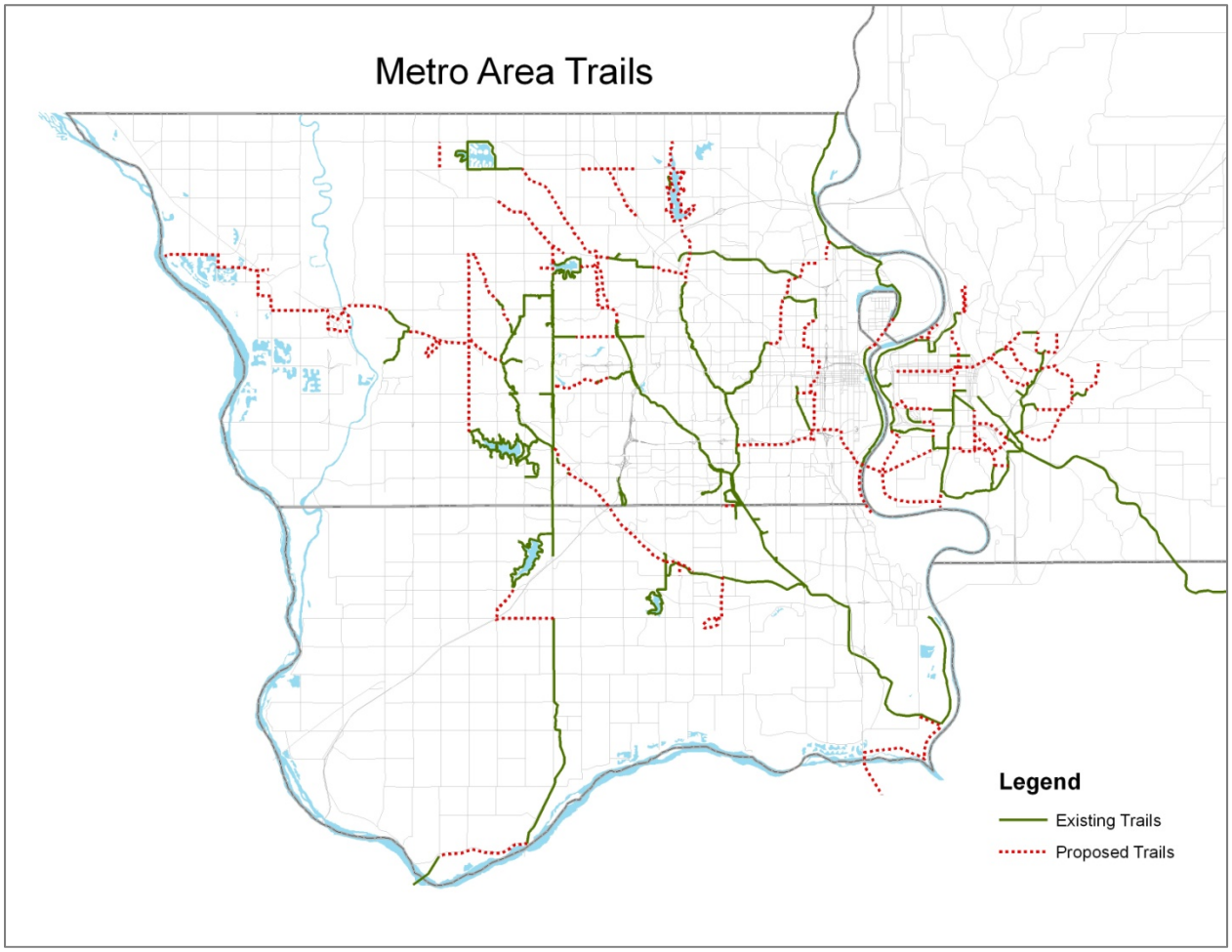


FIGURE 10.2
OMAHA-COUNCIL BLUFFS METRO AREA EXISTING AND PROPOSED TRAIL NETWORK



10.4.1 MULTI-PURPOSE TRAILS

The MAPA TMA contains over 125 miles of multi-purpose trails. These trails are maintained by both public and private entities. On the Nebraska side of the river the majority of recreational trails were developed and are maintained by local jurisdictions and resource agencies. These trails are open to the public and are free to use. Trails on the Iowa side of the river are also maintained by both public and private entities.

The trails follow the local waterways in the MAPA TMA and are also located around the area's flood control reservoirs. The Papio-Missouri River Natural Resources District (PMRNRD) has also refurbished an abandoned rail crossing of the Platte River in order to provide pedestrian and bicycle access across the Platte River and to provide connectivity between the Omaha trails and the Mo-Pac trail system in eastern Nebraska. This will ultimately connect the Omaha metro area to Lincoln, NE. The trail system is currently expanding to improve connectivity between all routes. Some planned expansions include the West Papio Trail near La Vista on the Nebraska side and the Lewis and Clark Trail from Sioux City to Hamburg, Iowa. In general, the metro area

trails flow from the northwest corner of the MAPA TMA to the southeast corner of the region.

The City of Council Bluffs may possibly maintain a 40-mile trail system for both recreational and commuter traffic—however this decision has not been ultimately made. These trails are free to use and are open to the public. The Wabash Trace recreational trail has a trail head in Council Bluffs and is open to the public for us. The trail is owned and maintained by Southwest Iowa Nature Trails Inc. through a group of volunteers and the Iowa Natural Heritage Foundation. The Wabash Trace contains over 63 miles of crushed limestone and the fee for use is $ 1.00 per day per rider.

Interstate bicycle and pedestrian connectivity is now provided for by the Bob Kerrey Pedestrian Bridge, which opened in 2008. This $22 million structure connects the Omaha CBD with Playland Park in Council Bluffs and allows pedestrian and bicycle access to both states free of charge. A separated 10 foot bike/pedestrian lane on the new South Omaha Veterans' Memorial Bridge will also help to increase cross-state connectivity (see Section 5.4 for more information on bridges).

Lewis & Clark Multi-Use Trail

The Lewis and Clark Multi-Use Trail study concluded in 2010 and offered various proposed trail networks connecting Hamburg, IA to Sioux City, IA. The most comprehensive trail design would be over 300 miles at an estimated cost of $66 million in 2010 non-inflated dollars. This particular proposed network would offer trail users a full range of experiences by taking them through various landscapes offered by the area. This "touring" route would be accompanied by express paths to give trail users a more direct route between points along the way to aid in commuting trail users.

Currently, implementation plans call for the Lewis and Clark "Today" trail outlined in the Lewis and Clark Multi-Use Trail Study. This route uses facilities already in place such as roads and side paths that typically have low motor vehicle volumes.

Implementation steps for this project include evaluating the priority criteria and working to develop the trail to meet these criteria, estimating costs, and reviewing potential funding sources.

*Source: Lewis and Clark Multi-Use Trail Study

10.4.2 Commuter Routes

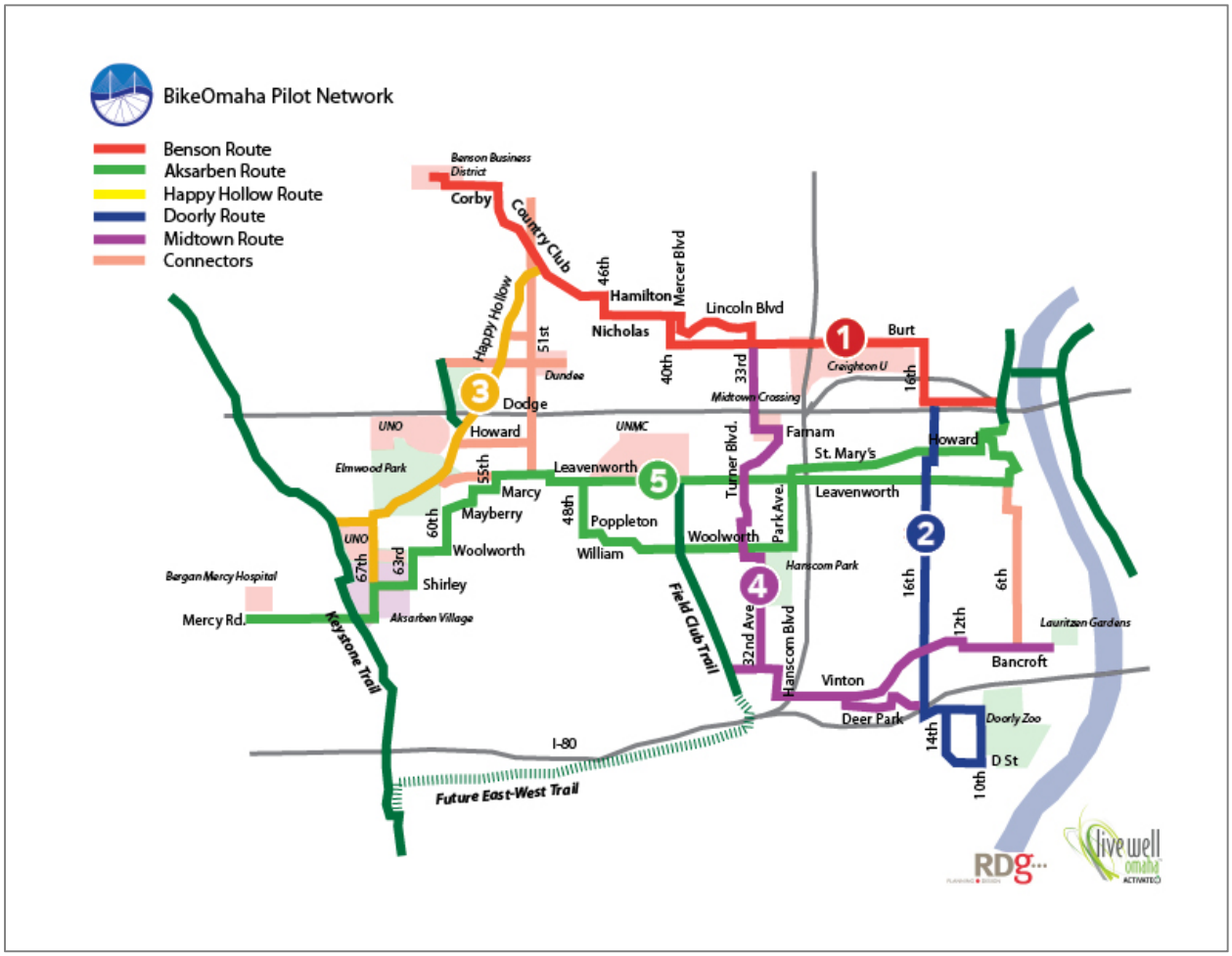
The communities in the MAPA TMA have identified the need for more commuter-based bicycle facilities and are in the process of creating a pilot network of routes to serve the downtown/midtown Omaha area. Currently the Bike Omaha Pilot Network (see Figure 10.3) has plans for five initial routes composing a twenty mile loop. These represent the first portion of a system that could potentially expand to the entire city and elsewhere in the metro area.

- Benson Route - Downtown Omaha to the Benson Business District

- Aksarben Route - Downtown Omaha to the Aksarben Village, then along Mercy Road to 78th Street
- Happy Hollow Route - Links the Benson Route at 48th Street and Miami to the Keystone Trail
- Doorly Route - Downtown Omaha to the Henry Doorly Zoo
- Midtown Route - Creighton University to the Field Club Trail and Lauritzen Gardens

This network was made possible by a combined donation from the Peter Kiewit Foundation and an anonymous donor. The City of Omaha broke ground on the project on August 10, 2009. Several of the routes will be completed by fall of 2010. The project will create bike lanes, remove barriers, and install shared roadway signage creating bike routes where segregated bike lanes are not possible.

FIGURE 10.3
BIKE OMAHA PILOT NETWORK COMMUTER BIKE ROUTES



10.5 Bicycle Pedestrian Coordinator

The City of Omaha in collaboration with MAPA, Alegent Health, and Live Well Omaha created the Bicycle Pedestrian Coordinator position in 2010. The position will be filled during the 2010 calendar year. The Bike/Ped. Coordinator will work with other city departments, elected and administrative officials, and community partners and with all communities in the metro area as MAPA is assisting with the funding of this position.

The Bike/Pedestrian Coordinator will develop, review, and manage the implementation of city and regional master plans, studies, and projects. The goal is to promote balanced and multiple transportation modes including private automobiles, public transportation, and bicycle and pedestrian transportation (see more information on multi-modal communities in Section 4).

10.6 Bicycle Friendly Community

MAPA is actively working with a coalition of bicycle users, activists, planners and government agencies to obtain national designation as a Bicycle Friendly Community. Activities aimed at achieving this designation include the creation and designation of bike routes and paths, offering educational activities that promote biking and bicycle safety, and promoting cycling as an acceptable mode of transportation.

MAPA strives to include bicycle elements into its planning efforts to assist in garnering the Bicycle Friendly Community Designation. Omaha was listed as #42 on *Bicycling Magazine's* "America's Top 50 Bike Friendly Cities" list. As of January, 2010 Omaha was not on the League of American Bicyclist's list of Bicycle Friendly Communities. However, the designation as a top 50 bike friendly community shows definite progress and the City of Omaha or Omaha in combination with Council Bluffs intend to apply for the official Bicycle Friendly Community designation from the League in 2011.

10.7 Funding Resources

Several funding resources are available for Bicycle and Pedestrian enhancements and improvements to the current system. Some potential funding sources include:

- Federal and State Recreational Trails Program
- Federal Transportation Enhancements Program – Statewide
- Federal Supply Service (General Services Administration's Federal Supply Service)
- Economic Development Administration (United States Department of Commerce Economic Development Administration)
- Wildlife Conservation and Appreciation (U.S. Fish and Wildlife Service)
- The National Trails Endowment (American Hiking Society)
- Nebraska Department of Roads
- Metropolitan Area Planning Agency (MAPA)
- Sanitary Improvement Districts (SIDs)

- Local contributions and donations

It is estimated that the improvements to the trail system will cost approximately $500,000/mile. Funding future facilities will largely come from the enhancement dollars outlined in SAFETEA-LU and future transportation legislation as well as other grant programs. Federal financial aid can also be used for trail development when applicable. Sidewalk construction will continue to be financed through local funding mechanisms and private contributions.

For purposes of this fiscal constraint, bicycle and pedestrian projects are grouped and not included in the list of individual regionally-significant projects in this LRTP (see Section B.3.8 in Appendix B). However, it is anticipated that future revenues would go toward many of the project concepts described in this section.

10.8 Future Actions

The most recent bike facility plans call for the construction of an additional 140 miles of facilities and trails to be constructed by 2035. It is standard practice for jurisdictions to continually evaluate current and future needs in the planning for all aspects of transportation in an area—including bicycle and pedestrian facilities. Omaha, Council Bluffs, and Bellevue maintain long term park and recreation plans that address recreational trails. Additionally, the recent launch of the Bike Omaha Pilot Network demonstrates active improvement in area facilities. When considering future actions in pedestrian and bicycle planning, it may also be beneficial to evaluate the quality of service (QOS) as well as the level of service (LOS).

10.8.1 Future Improvements

The following are improvements that should be considered in the long range planning for pedestrian and cycling facilities in the MAPA TMA. These improvements were identified by local citizens and cycling/pedestrian advocates from the MAPA TMA.

These projects are not fiscally constrained and are not necessarily scheduled in the future, but represent opportunities to implement the goals and action steps discussed in this Long Range Transportation Plan.

<u>General improvements:</u>

- End facility improvements and additions (such as lockers, bike racks, etc.)
- Identify streets that can be converted to Complete Streets standards upon completion of LRTP 2035 (see Section 4.5)
- Traffic shaping
    - Work to provide viable alternative options to area residents to reduce single occupancy vehicle trips
- Bike Education and Ordinances
    - It is important to educate both cyclists and motorists on the proper laws and rules regarding bicycling

    - Expand urban bicycling educational and training programs
    - Review and modify current bicycling legislation on a state and local level
- Identify and fill small gaps in current system that improve the continuity and usefulness of the trail system. Examples include:
    - Completion of the West Papio Creek Trail between F Street and L Street
    - Connection between 132nd and Q Street (Millard) to 108th and Giles
    - Northwest corridor connection between Highway 36, Cunningham Lake, and the current Fort Street terminus of the Keystone Trail
    - Northeast Connection between Happy Hollow Boulevard at 50th and the Missouri Riverfront
        - Via Fontenelle Boulevard/Martin Avenue corridor

Trails:

- New crossing over Big Papio Creek between Dodge and Pacific Streets
- Complete West Papio Trail west of Papillion
- Complete Riverfront Trail system, including:
    - Connection south from the Veterans Memorial Bridge to Olde Towne Bellevue
    - Connection north from the terminus of the levee trail at Hickory Street to the Downtown Omaha riverfront
- Link the West Papio Trail to the Elkhorn/Ta-Ha-Zouka Park Trail to Maple
- Link West Maple Corridor to Western Douglas County Trail
- Complete the Western DC Trail to Valley
- Keystone East Trail linking the Field Club and Keystone Trails
- Complete elements of the Lewis & Clark Multi-Use Trail, including:
    - Keg Creek Trail between Glenwood and Mineola
    - Shouldering of L20 (Old Lincoln Highway) between Council Bluffs and Missouri Valley
    - Paving Monument Road and L19 between Lewis and Clark Monument and Crescent
    - Paving L31 from Highway 370 to the Iowa West Trailhead of the Wabash Trace Nature Trail
    - Connections using paths and levees between the trail corridor and the Plattsmouth and new Highway 34 Bridges
    - Complete the Omaha/Lincoln Trail using the Mopac East, Lied Platte River Crossing, Highway 31, and 144th Street Trails
        - Integrate this with the Omaha trail system to connect to the Bob Kerrey Pedestrian Bridge

Douglas County:

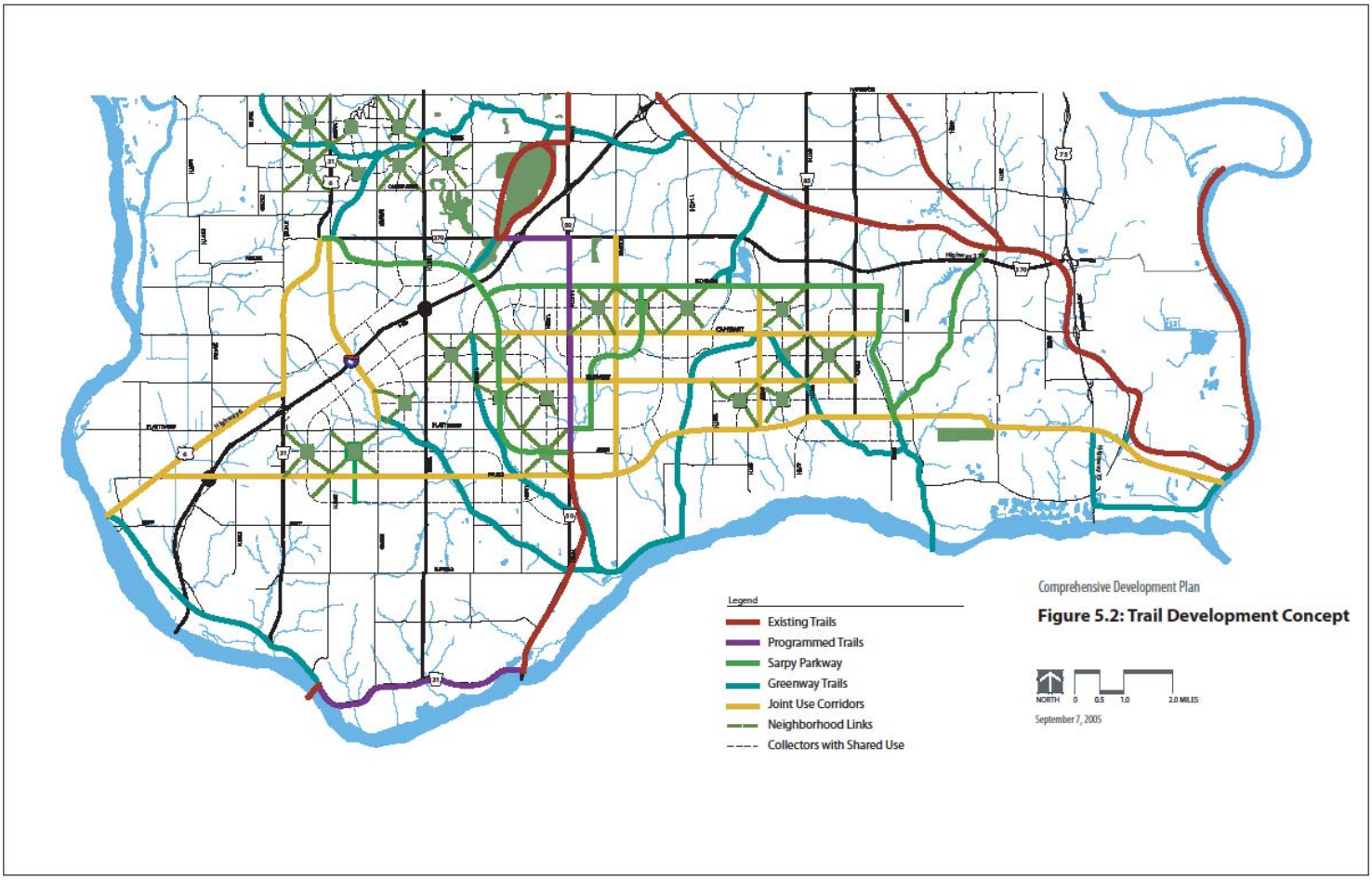
- A major continuous east/west corridor through the city, this may be achieved by (but not limited to):
    - Leavenworth corridor to Complete Street standards between Downtown and Elmwood Park and a bikeway route between UNO and the Big Papio Trail between Dodge and Pacific Streets

    - West Dodge Road frontage roads west to 132nd Street, and on-street routes beyond that
- Complete and extend the on-street BikeOmaha system from its five route pilot to other parts of the city
    - Identify a network of Bicycle Boulevards
- Dodge Street bikeway between 69th Street and 90th Street
- Improve pedestrian and bicycle access to University of Nebraska–Omaha and between UNO campuses and Aksarben Village
- Adapt frontage roads throughout area to include bike lanes

Sarpy County:

- Please view Figure 10.4 for future Trail Development Concepts in Sarpy County

FIGURE 10.4
SARPY COUNTY TRAIL DEVELOPMENT CONCEPT



- Bellevue Loop Trail at Haworth Park, using the Mandan Park/Mount Vernon Gardens alignment along 13th Street to Bellevue Boulevard
- Developing Bellevue Boulevard as a "bicycle boulevard" for shared local traffic/bicycle use

- Ft. Crook Road as a complete street south to Offutt and the Bellevue Loop

Pottawattamie County:
Recently, planning for bicycle and pedestrian facilities in Eastern Iowa received a significant boast. Through an initiative funded by the Iowa West Foundation, a process is underway to develop a County Wide Public Recreation Facilities Analysis and Plan. As part of this process, the trails within Council Bluffs and the County's other communities will be reviewed and opportunities for expansion and connection explored. The objective is to realize a Metro trail system that extends into the more rural areas of Pottawattamie County for the benefit of residents and visitors of both areas.

- Adapt Reichmuth Road (Old US 275) to enhanced bicycle use

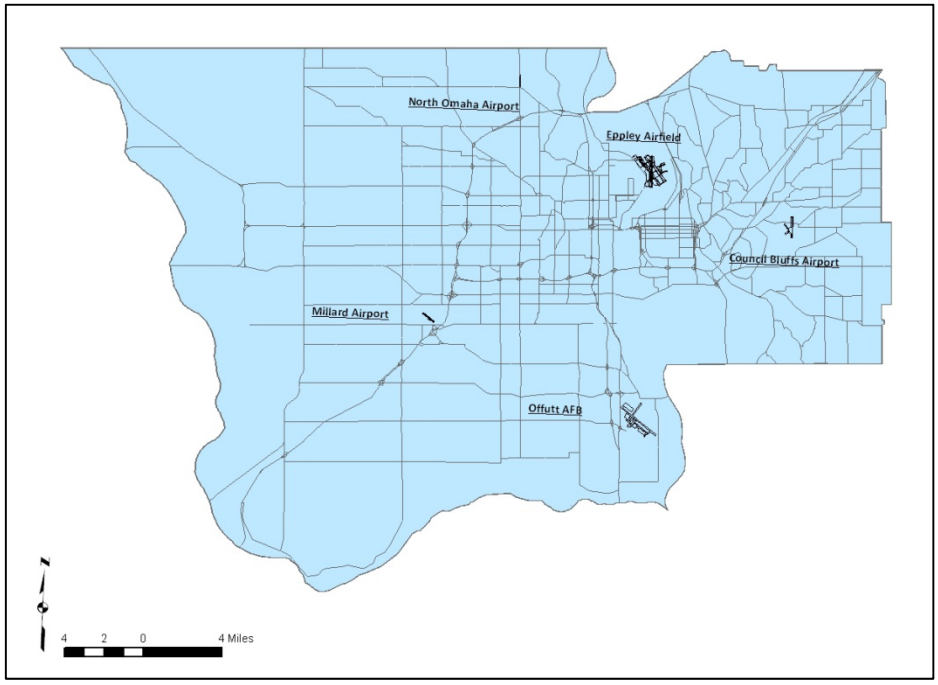
Aviation

11.1 Overview

There are five airport facilities located inside the limits of the MAPA TMA (see Figure 11.1). Three of these facilities are public airports, one is a private facility and the fifth is operated by the United States Air Force.

The vast majority of civilian traffic in the MAPA TMA flows through Omaha's Eppley Airfield. Eppley is the sole commercial airport with regular commercial service in the region. Eppley Airfield is operated by the Omaha Airport Authority. Eppley Airfield offers domestic service to the Nation's major hubs where passengers can connect to destinations across the globe. The City of Omaha's other public airport is the Millard Airport. This single-strip, general aviation facility is also under the control of the OAA. The region's third public airport is located east of Council Bluffs, IA. The Council Bluffs Municipal Airport is a dual-strip general aviation facility and is operated by the Council Bluffs Airport Authority.

Figure 11.1
Airport Facility Locations within MAPA TMA



The North Omaha Airport is a privately owned, public use airport located north of Interstate 680 on 72nd Street. Users pay a fee for operation of the airport. The North Omaha Airport is also the home base for the Omaha Police Department's helicopter fleet.

The United States Air Force operates Offutt Air Force Base in Bellevue, Nebraska. In the past, Offutt was the home of Strategic Air Command or SAC. Currently, Offutt Air Force Base is the home of United States Strategic Command or USSTRATCOM and the 55th Wing of the United States Air Force. There are currently around 10,000 military and federal employees stationed at Offutt in various capacities.

Further connectivity to international destinations is maintained through connecting flights from Eppley Airfield. Citizens in the MAPA TMA are also within reasonable driving distance of Kansas City International Airport, Des Moines International Airport, and to a lesser extent Denver International Airport.

11.2 Eppley Airfield (OMA)

Eppley Airfield is located north of downtown Omaha. This 2,650 acre facility is classified as a Medium Hub Commercial Service Airport by the Federal Aviation Administration and currently serves nine commercial carriers:

- American Airlines
- AirTran Airways
- Continental Airlines
- Delta Air Lines
- Frontier Airlines
- Midwest Airlines
- Southwest Airlines
- United Airlines
- US Airways

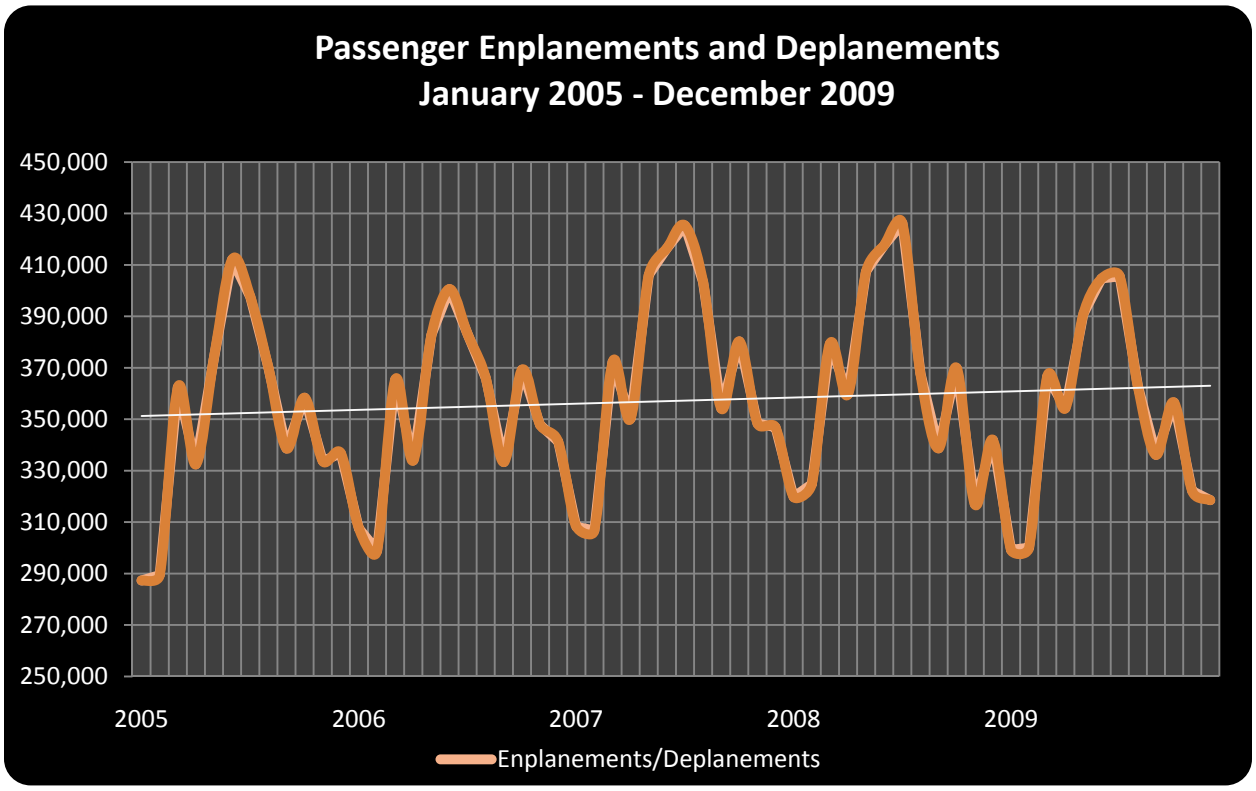
Eppley Airfield operates two concourses with 21 available gates for commercial traffic. Although the number of flights has been on the decline in recent years, the overall number of enplanements and deplanements has risen during recent years.

Eppley Airfield also serves various corporate, charter, and general aviation operations. Eppley Airfield's flight statistics are shown in figures 11.2 and 11.3

11.2.1 Passengers

As shown in Figure 11.2, the general trend for passenger traffic over the past five years is upward. This is an encouraging sign for the airport and the MAPA TMA in general. It is also encouraging to see that passenger enplanements/deplanements continued to increase even during the times when fuel prices were reaching all time highs. The highest annual highs were recorded during July of 2007 and July 2008 when fuel prices were peaking. The effect of the current recession can also be seen in the trend data as 2009 showed an overall decline in enplanements/deplanments across the board.

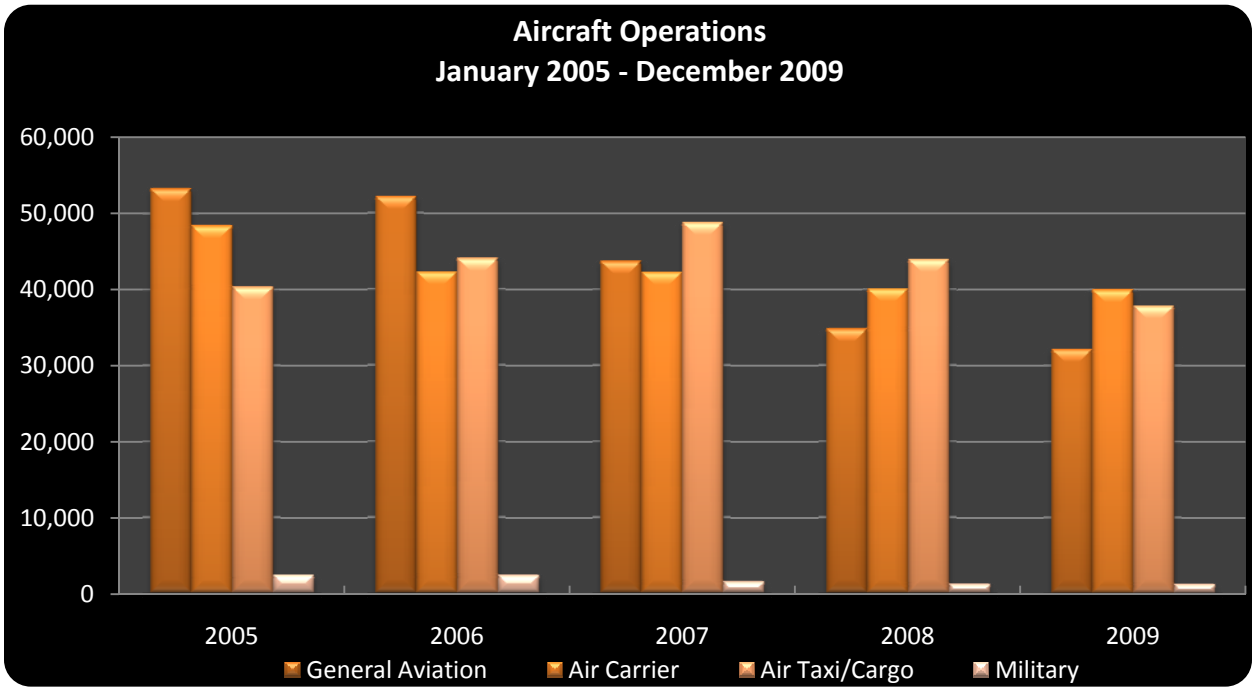
Figure 11.2
Eppley Airfield Passenger Enplanements and Deplanements
January 2005 – December 2009



11.2.2 Total Aircraft Operations

Based on the data shown for passengers, it would seem that Eppley Airfield users have become more efficient over the past five years. The number of flights into and out of Eppley during this time period has fallen dramatically while the total passenger enplanements/deplanements have risen (see Figure 11.3). This shows that the aircraft that do enter and depart Eppley Airfield are operating with higher passenger volumes than they had in the past. It can be assumed that Air Taxi and Cargo operations are operating at similar levels in terms of capacity due to the correlated decline in both categories over the past five years.

FIGURE 11.3
EPPLEY AIRFIELD TOTAL AIRCRAFT OPERATIONS



11.3 MILLARD AIRPORT (MLE)

The Millard Airport is a general aviation facility located northwest of the intersection of Interstate 80 and Harrison Street. Millard Airport does not have a control tower and traffic relies on control service from Eppley Airfield. The Millard Airport is operated by the Omaha Airport Authority. Millard has one concrete lighted runway that is 3,801 feet long by 75 feet wide.

There are currently no plans to upgrade the facility. OAA will continue to maintain the facility as per federal regulations.
The latest data available for traffic at Millard was complied in 2005; traffic averaged 198 departures/arrivals per day.

11.4 Council Bluffs Airport (CBF)

The Council Bluffs Airport is a general aviation facility located 4 miles east of Council Bluffs, Iowa. This facility is owned and operated by the Council Bluffs Airport Authority. Council Bluffs Airport has two runways in operation.

Runway 18/36 is a 5,500 feet by 100 feet concrete facility that was expanded in 2005 to its current length. Runway 14/32 was completely reconstructed in 2008 and now operates as a 3,650 feet by 60 feet concrete runway. As part of this process the ramps around the older hangars were broken up and replaced with new concrete ramps. A new terminal building and ten new T-hangars were built in 2009. Two new corporate hangars are slated to be completed in the spring or summer of 2010. The Instrument Landing System (ILS) will be completed in spring of 2010. Construction of a new itinerant apron will begin in the spring/summer of 2010. Road access to the Council Bluffs Airport has also been improved concurrently with the improvements to the runways.

The Council Bluffs Airport is designated in the National Plan of Integrated Airport Systems (NPIAS) as the reliever airport for Eppley Airfield.

The emergency rescue organization *LifeNet* operates a rescue helicopter out of Council Bluffs Airport. Traffic statistics for the Council Bluffs Airport compiled in 2008 show average of 106 departures and arrivals take place per day.

Council Bluffs Airport is also home to a full service fixed base operator with a certified flight school.

11.5 North Omaha Airport (3NO)

The North Omaha Airport is a privately owned facility located on the northeast corner of the junction of 72nd Street and Bennington Road. There is one runway located at this facility.

Runway 17/35 is a 2,480 feet by 40 feet concrete facility in good condition. The North Omaha Airport also has tie down space and hangar space for rent. There is an overnight parking fee at this airport and the facility is closed to aircraft 8,000 lbs or larger.
North Omaha is also the base of operations for the Omaha Police Department's helicopter operations.

Traffic statistics for the North Omaha Airport show that on average 39 departures and arrivals take place per day; statistics were updated in 2008.

FIGURE 11.4
MAPA TMA AIRPORT MATRIX

Airport Name (LID), Elevation /*Runway*	Control Tower	Dimensions (Feet)		Runway Weight Capacity (x 1,000 lbs)				Lighting Configuration					
		Runway Length	Runway Width	Single Wheel	Double Wheel	Double Tandem Wheel	Runway Surface Type	Approach Lights	REIL	Edge Lights	Visual Guide Slope	Centerline Lights	Touchdown Lights
Eppley Airfield (OMA), 983 feet													
14L/32R	Yes	8,500	150	100	209	345	Asp/Con	MALSR/ALSF2	No/No	HIRL	P4L/P4R	Yes/Yes	No/Yes
14R/32L	Yes	9,502	150	100	184	346	Concrete	ALSF2/MALSR	No/No	HIRL	P4L/P4R	Yes/Yes	Yes/No
18/36	Yes	8,153	150	150	175	260	Asp/Con	MALSR/MALSR	No/No	HIRL	P4L/P4R	Yes/Yes	No/No
***Millard Airport* (MLE), 1,051 feet**													
12/30	No	3,801	75	13	13	n/a	Concrete	None/None	Yes/No	MIRL	P2L/P2L	No/No	No/No
Council Bluffs Airport (CBF), 1,253 feet													
14/32	No	3,650	60	28	48	n/a	Concrete	None/None	Yes/Yes	MIRL	P2L/P2L	No/No	No/No
18/36	No	5,500	100	30	60	n/a	Concrete	None/None	Yes/No	MIRL	P2L/P2L	No/No	No/No
North Omaha Airport (3NO), 1,322 feet													
17/35	No	2,480	40	28	n/a	n/a	Concrete	None/None	No/No	NSLS	None	No/No	No/No

MALSR: Medium Intensity Approach Lighting system with Runway Alignment Indicator Lights
ALSF2: High Intensity Approach Lighting System with Sequenced Flashing Lights, Category II Configuration
REIL: Runway End Identifier Lights
NSLS: Non-Standard Lighting System
HIRL: High Intensity Runway Lights
MIRL: Medium Intensity Runway Lights
Visual Guide Slope: P(x)(y): P= Precision Approach Path Indicator, X= # of Lights, Y= Right or Left Side of Runway

Passenger Rail

12.1 Introduction

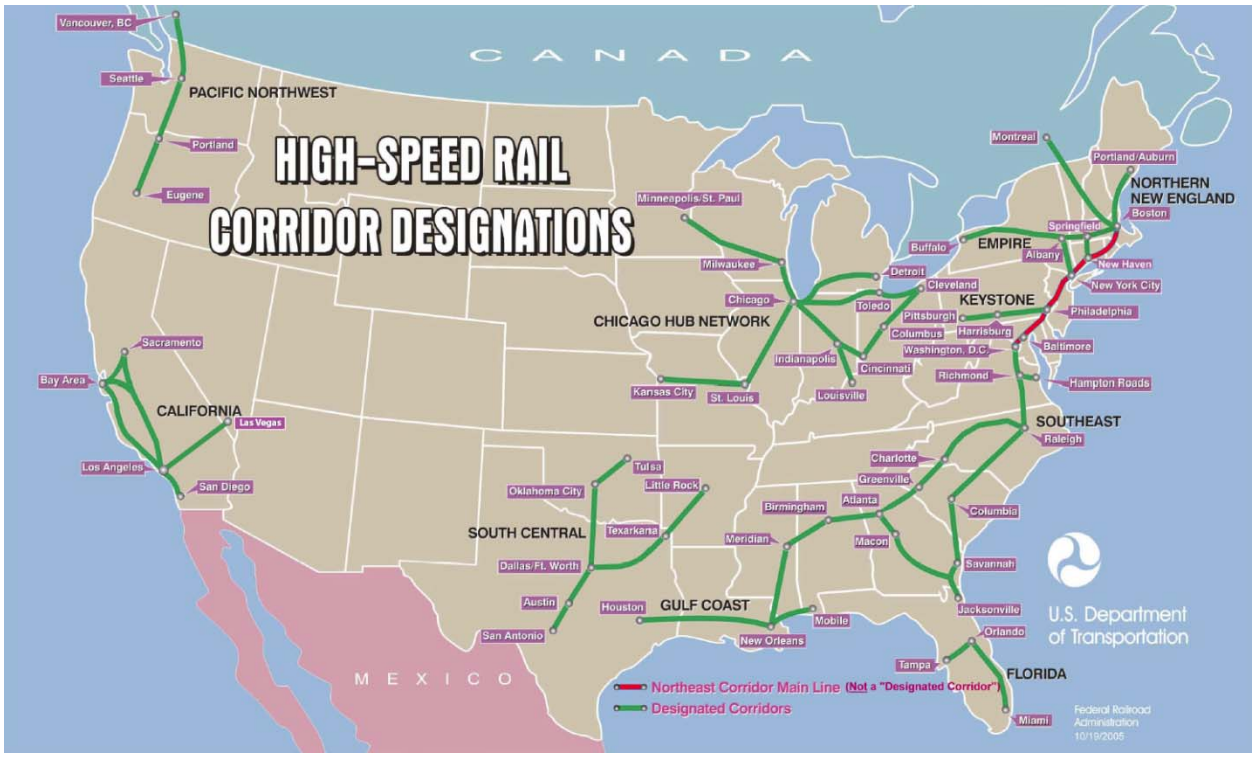
Passenger rail provides an alternate mode of inter-city travel to vehicles and airplanes. Passenger rail usage in the MAPA region has been limited, but large recent federal investments to upgrade the passenger rail network throughout the nation have raised the possibility of resurgence in this mode of transportation.

Proponents of passenger rail point to its value as an environmentally-friendly alternative mode of transportation that carries large numbers of travelers in places like Europe and Japan, where nations have invested heavily in rail. Passenger rail is also seen as providing redundancy in the transportation network. Redundancy can become valuable during weather events (passenger rail is not as susceptible to weather-related issues as air travel) or other concerns such as national security. Rail proponents extol the "romance" factor of train travel, since one is able to watch the countryside and travel comfortably without having to worry about driving. It is also argued that rail subsidies are appropriate since the government is involved in providing funding to the nation's roadway and airport infrastructure. Therefore, passenger rail supporters advocate investing in AMTRAK service and infrastructure in order to provide higher speed train travel in a more reliable fashion.

On the other hand, detractors of passenger rail investment argue that rail cannot compete with air travel since travel times are so much longer. They also note that even the frequently-used rail systems in other nations require substantial subsidies. For several years, opponents of passenger rail funding have unsuccessfully attempted to eliminate nation-wide AMTRAK service and limit passenger rail to a small number of corridors, such as the Northeast. If this were to ever happen, the MAPA region would likely lose its AMTRAK service.

Recently, the federal government has been actively pursuing the development of passenger rail. A nation-wide High Speed Rail Plan (Figure 12.1) was created that includes long-range plans for multiple regional systems of "high speed" and "higher speed" rail lines.

FIGURE 12.1
HIGH SPEED RAIL CORRIDOR DESIGNATIONS THROUGHOUT THE UNITED STATES



Congress has also increased funding for passenger rail investments. In 2008, $2 billion was made available for key upgrades to infrastructure and planning and engineering studies. Through the Recovery Act ("Stimulus"), an additional $8 billion was provided for rail projects around the country.

Recovery Act projects awarded included Iowa DOT's study for a new Chicago to Iowa City to Omaha route, which is further described below. In order to be eligible for federal dollars for passenger rail, States must create a statewide passenger rail plan. While Iowa has aggressively pursued passenger rail planning, the State of Nebraska has yet to draft a passenger rail plan and, consequently, remains ineligible for federal passenger rail dollars.

12.2 CURRENT AMTRAK SERVICE

Passenger transportation via rail in the MAPA TMA is provided by AMTRAK. The California Zephyr Line operates a route from Chicago, IL to San Francisco, CA and all points in between. The California Zephyr utilizes the AMTRAK depot located at 1003 South 9th Street in Downtown Omaha.

The California Zephyr route is comprised of two AMTRAK trains (numbers 5 & 6) providing daily eastbound and westbound service. The eastbound train arrives in Omaha at approximately 5:39 a.m. daily and departs at 5:54 a.m. The westbound train

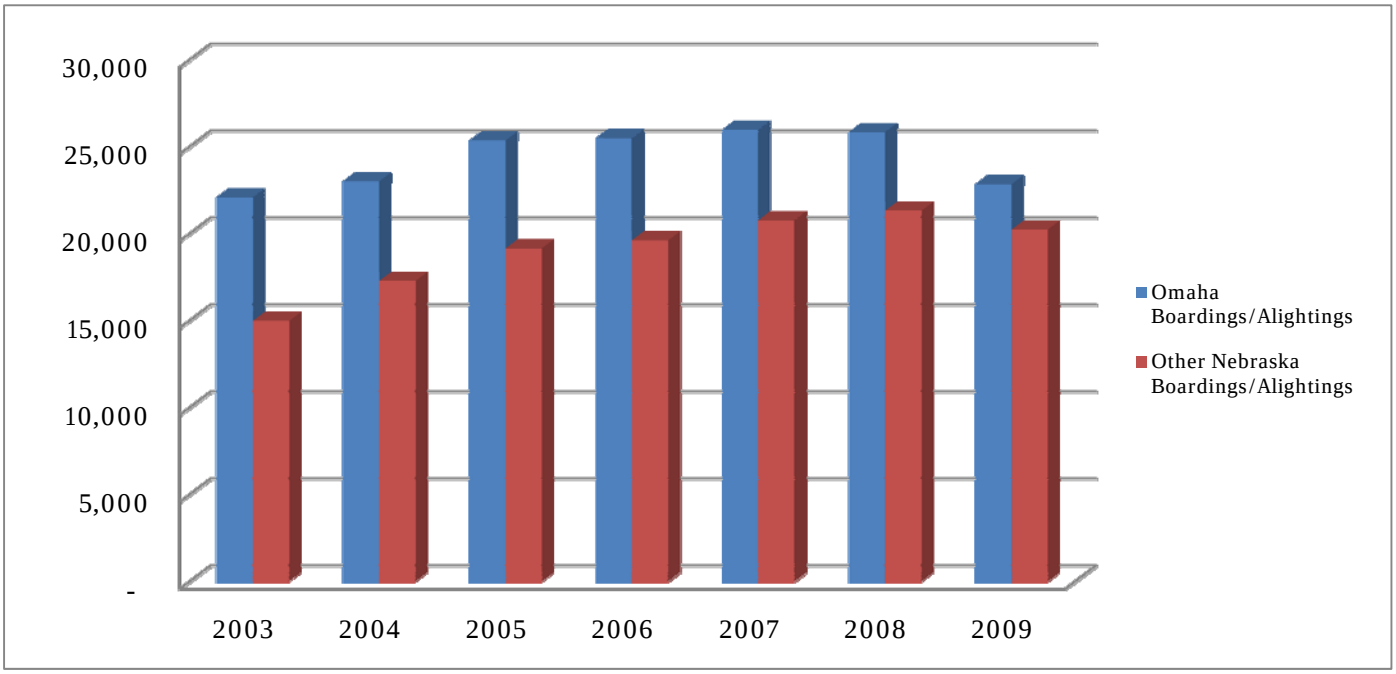
arrives in Omaha at approximately 10:55pm and departs at 11:05pm. In all, it takes approximately 51 hours 20 minutes to complete the entire Chicago to San Francisco Trip.

Overall Nebraska AMTRAK ridership crested in FY 2008 at 47,180; FY 2009 saw a decline in total Nebraska ridership to 43,085. Prior to 2009, AMTRAK ridership in Nebraska had been increasing an average of 5.0% annually.

The MAPA TMA AMTRAK ridership crested in FY 2007 at 25,982; FY 2008 saw that number decrease to 25,841 and FY 2009 ridership fell to 22,846. Prior to FY 2007 Omaha area AMTRAK ridership had been increasing an average of 4.2% annually. Omaha area ridership has decreased by 12.1% since FY 2007.

The following chart shows AMTRAK ridership trends in Omaha as well as the rest of Nebraska from FY 2003 to FY 2009.

FIGURE 12.2
NEBRASKA & OMAHA HISTORICAL AMTRAK BOARDINGS



12.3 MIDWEST PASSENGER RAIL PLANS

Several organizations support plans to increase passenger rail in the Midwest. Representatives from Iowa and Nebraska participate in the Midwest Interstate Passenger Rail Commission (MIPRC), a group from eleven Midwestern states. The MIPRC supports a proposed Midwest Regional Rail System, which would use Chicago as a hub and include a new connection between Chicago and the MAPA region via Des Moines and the Quad Cities. is pursuing the development of a rail network with a hub in

Chicago. In December 2008, the MIPRC's fall meeting was held in Omaha, and future strategies and projects to improve passenger rail service in the Midwest were discussed.

FIGURE 12.3
MAP OF MIDWEST REGIONAL RAIN PLAN

*Indiana DOT is evaluating additional passenger rail service to South Bend and to Louisville.
**In Missouri, current restrictions limit train speeds to 79 mph.

The proposed Midwest Regional Rail Initiative shown in Figure 12.3 was released in 2004 and includes three levels of rail corridors: The highest- speed group could reach top speeds of up to 110 mph; the middle group could reach up to 90 mph; and the third group could reach up to 79 mph. Additional routes with feeder bus service were also identified. Costs to implement the entire Initiative are estimated to approach $10 billion for the entire system.

This Plan identified a passenger rail connection from the MAPA TMA to Chicago via Des Moines and the Quad Cities with a top speed of up to 79 mph, with bus service

connecting from Lincoln, Sioux City, and Kansas City. The speeds were selected based on limitations of current rail infrastructure, and feasible improvements.
True high-speed rail that reaches top speeds above 110 mph, such as the bullet trains in Europe and Asia, requires major infrastructure upgrades and exclusive right-of-way. In the Midwest, this would require the construction of an entirely new, dedicated railroad that would be very costly, and vastly exceed the Midwest Regional Rail System described above, which was developed with the assumption that interim "higher-speed" rail improvements would be a necessary, politically palatable first step to expanding passenger rail service in the Midwest. It should also be noted that the speeds, while not truly high speed rail, represent a vast improvement over existing AMTRAK service, and would make passenger rail service more competitive and, in some cases, superior to auto travel in terms of travel times.

The Midwest Coalition's Plan is being implemented in piecemeal fashion as funding becomes available. Significant projects, especially along the important Chicago to St. Louis route, have been completed or are underway. Other projects, such as the proposed rail connections between Cincinnati, Columbus, and Cleveland in Ohio, have become fodder for controversy and may be cancelled due to fiscal concerns in a weak economy.

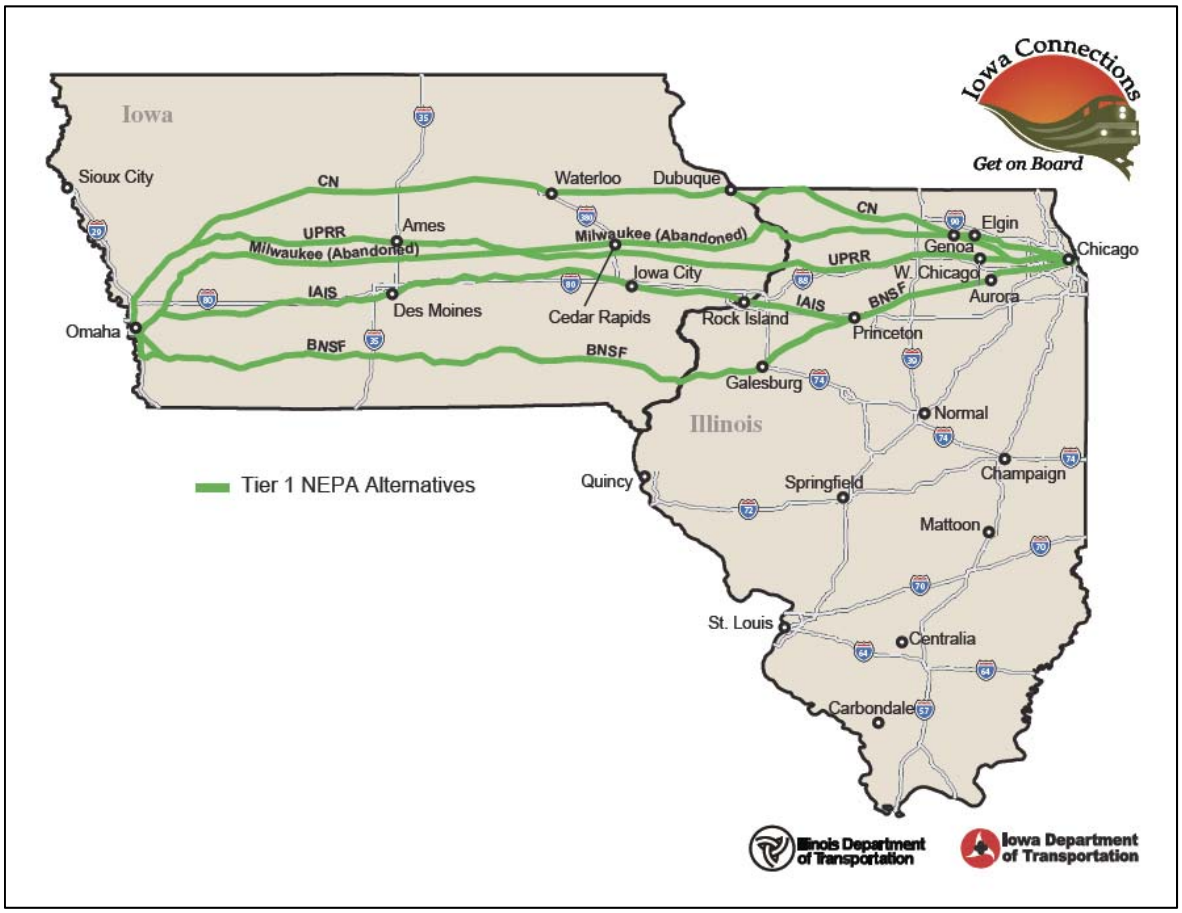
In 2009, the Midwest High Speed Rail Association (MHSRA) and other organizations proposed new studies of rail routes in the Midwest, with a goal of top speeds of 220 miles per hour. This organization advocates for high-speed rail as a means of improving economic competitiveness and reducing dependence on the automobile and foreign oil.

12.4 Chicago to Council Bluffs/Omaha Study

Iowa DOT along with Illinois DOT and the Federal Railway Administration are currently examining the creation and extension of a dedicated AMTRAK route running from Chicago to Des Moines to Omaha. Funding has been secured to construct the route from Chicago to Des Moines but the Omaha extension is still seeking financial support. The Iowa Passenger Rail Advisory Group (of which MAPA is a member) supports this initiative and the expansion of the route from Des Moines to the Council Bluffs/Omaha metro area.

Iowa DOT has secured funding for a planning project to create a Service Level Tier 1 NEPA document for the Chicago to Council Bluffs/Omaha route. Deliverables for this project include a service development plan and completion of preliminary engineering for the selected route. This study examines 5 potential routes from Chicago to the Council Bluffs/Omaha metro area as shown in Figure 12.4. The study will determine a preferred corridor and identify Tier 2 NEPA project segments.

FIGURE 12.4
TIER 1 NEPA ALTERNATIVES FOR RAIL LINES ACROSS IOWA



Service development plan (SDP) will include a capital plan, operating plan, implementation plan, and a preliminary route feasibility study. Through the development of this plan the new route's operating parameters, station stops, time tables, and logical termini will also be determined and discussed. The final document will include preliminary engineering in detail sufficient to define the project, including project footprint, design of critical elements, and determine a reliable cost estimate and project development schedule.

In all, the first stage of this project is scheduled to be completed in April 2011. Throughout the course of the planning study there will be a great deal of public involvement and stakeholder input. The final result of this outreach is expected to be a series of memorandums of understanding (MOUs) between stakeholders and IDOT stating broad parameters of future service agreements and letters of interest in the study.

12.5 Other Future Expansion Possibilities

The California Zephyr currently passes through the MAPA region at nighttime hours, which is not conducive to attracting new ridership. Rail advocates would like to Amtrak add new operations to increase the convenience and attractiveness of passenger rail as a transportation mode.

The current schedule is largely due to the desire to have arrival and departure times during the daytime hours in the larger metro areas of Chicago and Denver. Regardless of the direction, if a train leaves in the early morning hours from either Chicago or Denver, it would not arrive at its destination until the middle of the night. Given this predicament, rail advocates propose a first step of adding a second train between Chicago and Omaha along the current route that would operate during the daytime hours. This is viewed as a short-term solution and not as an alternative in lieu of the new Chicago to Omaha service through Des Moines that is being studied by Iowa DOT.

Beyond the possible new connection between the MAPA region and Chicago, rail supporters point to other possible future expansions. Restoring passenger rail between Omaha and Kansas City is a top priority for rail advocates. A possible boost to this plan would be extending the existing Heartland Flyer, which currently runs between Ft. Worth, Texas and Oklahoma City, north to Kansas City. Transportation officials and lawmakers recently met in Oklahoma City to discuss the proposal, but whether it will be implemented requires funding and remains to be seen. There is no question, however, that if the Heartland Flyer were extended to Kansas City, there would be added incentive to look at extending further north from Kansas City through St. Joseph, Missouri to the Omaha/Council Bluffs metro area.

Another long-term plan that has been discussed is a passenger rail connection to the Twin Cities metro area in Minnesota. This would likely follow a prior connection between Sioux Falls, South Dakota and Minneapolis-St. Paul that does not exist today. If the service to Sioux Falls were commenced, extending the service south to the MAPA region would become more feasible.

If all of the above plans were realized, it would provide rail connections along both a north-south and east-west axis that would provide travelers with passenger rail connections with major population centers throughout the country. Of course, these developments depend on substantial additional funding and political will to invest in passenger rail service. Another essential consideration is the availability of the railroads, which are largely privately owned by freight companies and may not available for passenger rail usage.

12.6 OMAHA TO LINCOLN COMMUTER RAIL

12.6.1 2003 N-TRAC NEBRASKA TRANSIT CORRIDORS STUDY

In 2003 the Nebraska Transit and Rail Advisory Council (N-TRAC) commissioned a study to examine feasible transit corridors in Nebraska. This study examined the possibility of intercity bus and rail routes throughout the state. Included in this document is a Commuter Rail Operating Plan for an Omaha to Lincoln commuter rail route.

The study examined the potential for a commuter rail route utilizing existing Burlington Northern Santa Fe (BNSF) track between Lincoln and Omaha, Nebraska. This track is currently utilized by AMTRAK's California Zephyr. The study assumed that the commuter train would operate a minimum of three locomotives offering a dual mirrored scheduled trip per rush hour per day.

FIGURE 12.6
MINIMUM SERVICE OPTION, 3 TRAIN SETS

Eastbound (Read Down)					Westbound (Read Up)			
#1	#3	#5	#7	Location	#2	#4	#6	#8
6:00a	6:45a	5:00p	5:45p	Lincoln	7:35a	8:20a	6:35p	7:20p
7:05a	7:50a	6:05p	6:50p	Omaha	6:30a	7:15a	5:30p	6:15p

Note: Train #1 turns to #4; Train #5 turns to #8

This route schedule assumes that the total operating time for each train would be 55 minutes. En route stops located in southwest Omaha, Gretna, and east Lincoln each would add about 3 minutes to the trip time bringing the final trip time to 1 hour 5 minutes. Additional options that allow mid-day trips were also examined.

Based upon the minimum service option with three train sets, annual operating expenses were forecast to be just under $5,000,000.00 (2003 dollars). Total capital costs for a complete implementation of a three train system (including track work, stations, sidings, design and contingencies) was estimated to be just over $79,000,000.00 (2003 dollars).

At the time of the study, total annual revenue was also estimated based upon the minimum service option with three train sets. These estimates focused on a fare of $5.50 per rider per trip. Total revenues based upon estimated trip levels and a $5.50 fare totaled between $1,107,000.00 (high side) and $786,000.00 (low side). This would create between a 22% and 16% fare box recovery for the system; requiring a subsidy of 78% to 84% to operate the system. The study estimated that the total subsidy required for daily operation in 2010 would have been between $3.9 million and $4.2 million. The

study also expected that the annual subsidy would decrease over time as ridership increased.

12.6.2 2010 Feasibility Study of a Cornhusker Game Day Commuter Rail Service

In 2010 University of Nebraska at Lincoln Graduate Student Matthew D. Roque conducted a feasibility study to determine the possibility of reinstating the Game Day Special train that operated from the mid 1960s to the mid 1970s. The study was sponsored by Pro-Rail Nebraska, a rail advocacy group.

This independent study assumed that the game day train would operate along the same BNSF track identified in the N-TRAC study above. The game day train would utilize existing AMTRAK stations in both Lincoln and Omaha and would only operate on days when the University of Nebraska Cornhusker football team had a home game.

Operations for the game day train would utilize 15 passenger cars totaling 2,385 passengers in transit via the train. The train would be assumed to leave Omaha prior to the game, stay for the game's duration and return to Omaha sometime after the game's conclusion. Financial data for the operation of the game day train showed that the operation could succeed with a small profit margin. Partnerships would need to be established with the BNSF and a company would need to be contracted with to operate the system, but in the end the game day train is feasible according to the study.

Freight and Goods Movement

13.1 Overview

The movement of freight throughout the United States is a major driving force of the national economy. The crossroads of Interstate 29 and Interstate 80 creates an ideal situation for the movement of freight into and out of the MAPA TMA via truck. Omaha's Eppley Airfield also serves as a major hub for airborne freight. Union Pacific Railroad and the Burlington Northern Santa Fe Railroad both have Class I lines that cross the MAPA region. The Missouri River, when navigable, also can serve as a major highway for barge traffic to carry freight north and south. Freight traffic should not be considered as handcuffed to a single mode of transportation. Currently, the MAPA TMA has two intermodal facilities for transferring train freight into truck freight. There is a great deal of demand in the region for intermodal facilities and two future intermodal sites are being studied for development.

Of the four goals outlined for this LRTP, freight transportation relates to two:

1. **Maximize accessibility and mobility.**
   Increasing the accessibility and mobility of freight inside the region will help to spur future economic growth in the region.

2. **Increase safety and security.**
   Creating a centralized network for freight to enter and exit the region in a more controlled environment will help to enhance the security and integrity of the freight cargo.

13.2 Background

The development of the Omaha-Council Bluffs metropolitan area owes a great deal to the investment of the freight community. During the late 1860s, Council Bluffs, and later Omaha, served as the railhead for the Transcontinental Railroad. Naturally an effort this large created an unprecedented boost in the number of people, goods, and services offered in the communities. In the decade surrounding the authorization and beginning of the Transcontinental Railroad, Omaha's population grew from 1,883 (in 1860) to 16,083 (in 1870) an increase of 754.1%. The Union Pacific Railroad continues to call Omaha home.

13.3 Total Freight Breakdown 2002 – 2035

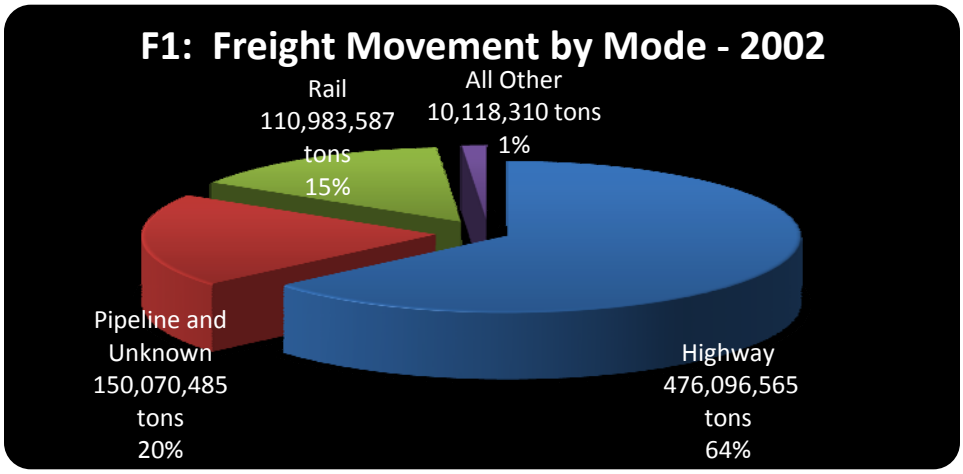
The FHWA conducted a large scale freight analysis in 2002. This product projects freight growth by mode for the entire US as well as on a state by state level. The analysis also shows the origin and final destination for freight traffic by state. This serves as the basis for freight data and projections in the MAPA TMA as there is no local data source

from which to extrapolate trends. It is therefore assumed that the freight characteristics of the MAPA TMA will mirror the characteristics of the states of Iowa and Nebraska.

The following charts will show a breakdown of freight movement by mode in 2002 and 2035. The vast majority of freight transported in Nebraska and Iowa is via highway truck traffic. The MAPA TMA is thought to reflect this same trend of transport. Pipelines and unknown means make up for around 20% of the total transported materials. Goods transported by rail make up 15% of the total tonnage transferred. All other modes constitute the total tonnage transported by the USPS or other currier service, water transport, and unidentifiable intermodal transport.

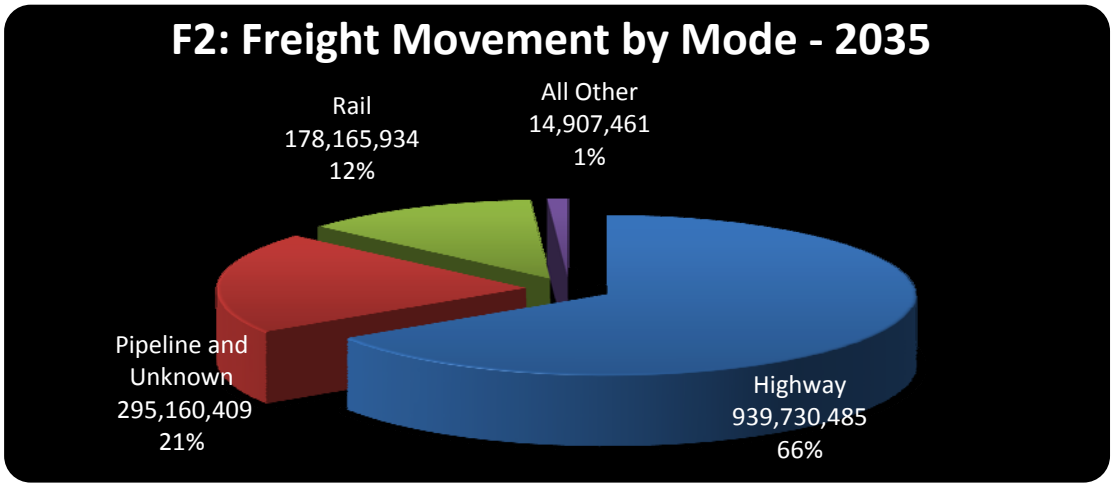
Figure 13.1 illustrates the above breakdown of freight tonnage in 2002. Total tonnage by mode is also shown above the percentage value.

FIGURE 13.1
FREIGHT MOVEMENT BY MODE – 2002



The projected 2035 values for all modes of freight transport are shown in Figure 13.2. The overall growth in tonnage from 2002 to 2035 is projected to be 91%. For the most part, the breakdown by mode will remain the same. There is a small shift that is assumed to place 2% of rail tonnage into highway tonnage and 1% of rail tonnage into pipeline and unknown tonnage.

FIGURE 13.2
FREIGHT MOVEMENT BY MODE – 2035



13.4 HIGHWAY

In addition to Interstates 29 and 80, there are three US Highways in the region that provide additional connectivity for interstate traffic. US-6 (concurrent crossing with I-480) and US-75 provide connectivity across the Missouri River for the MAPA TMA and US-75 allows for north/south traffic on the Nebraska side of the river.

Further intrastate connectivity in the region is provided by the Iowa and Nebraska state highway systems. Iowa 92 and 192 along with Nebraska 36, 50, 64, and 370 provide major secondary facilities for freight traffic in the region.

The data collected via the 2002 FHWA Freight Analysis projects that freight traffic via highway will grow by 98% in Nebraska and Iowa by 2035. According to this analysis, in 2002 64% of all freight traffic utilized the highway system for transport. 2035 projections show that 66% of freight transport is to use trucks on the highway system.

While the percentage increase compared to other modes of transport is only 2%, the 98% increasing in freight traffic will cause a great deal of strain on local infrastructure. The total freight movement via truck is projected to increase by 98%. The total value for this movement is expected to increase by 114% from 2002 to 2035.

13.4.1 FREIGHT SURVEY

A brief non-scientific survey of local freight trucking companies yielded useful information. In terms of good transported the following were indicated: agricultural products, processed foods, mixed freight, parcel/mail products, construction materials, paper and allied products, chemical products, steel, durable consumer products, movie projection equipment, heavy machinery, and manufactured goods and machinery.

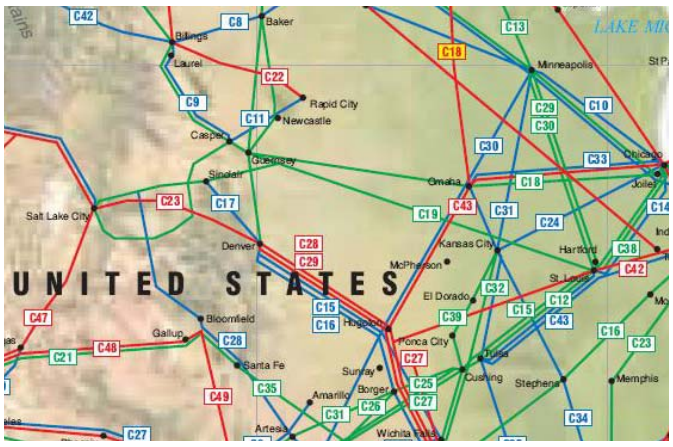
Additionally, a majority of respondents transported goods throughout the Omaha-Council Bluffs metro area and throughout Nebraska. Some also transported goods nationwide and one respondent operates in Canada as well. Several respondents said that they had encountered roadway or bridge deficiencies in the area that made traveling difficult.

In terms of congestion at freight terminals or loading docks, all respondents said they do not experience congestion and few indicated the need for additional intermodal facilities in the area. One indicated the want for port accessibility. Last, respondents named several areas of improvement to make truck travel easier in the area:

- Increase trucking speed limit to match car speed limit on L Street
- Complete construction in the area
- Add another north/south major arterial west of I-680 and east of Highway 31
- Pave Fairview Road west of Highway 31
- Improve signage along truck routes
- Widen intersections

13.5 Pipelines

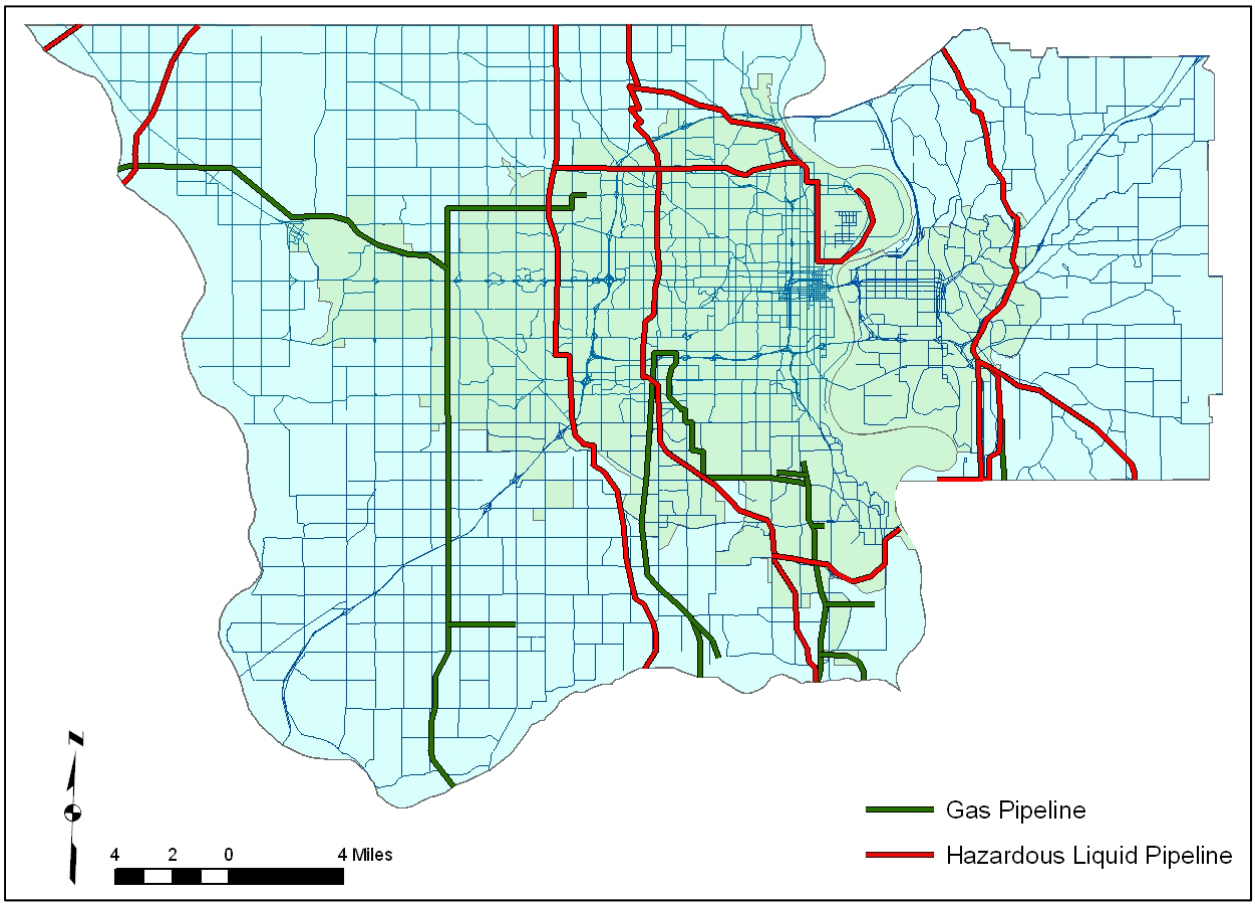
Pipelines are the second largest mover of freight materials in Iowa and Nebraska. Pipelines in the MAPA TMA generally transport crude petroleum, products (gasoline and ethylene), natural gas, or a slurry mix such as pulverized coal. Omaha is a secondary junction center for pipelines throughout the United States. Regionally, there are three products pipelines that transport gasoline and ethylene, two natural gas pipelines, and one crude oil pipeline. These pipelines are listed as follows and displayed on the map below.



C30- Minneapolis/St. Paul to Midland Basin Pipeline (products)
C31- Minneapolis/St. Paul to Tulsa Pipeline (products)
C33- Omaha to Chicago Pipeline (products)
C18- Winnipeg to Omaha Pipeline (natural gas)
C43- Hugoton (KS) to Detroit Pipeline (natural gas)
C18- Guernsey (WY) to Chicago (crude oil)

A more detailed view of pipelines inside the TMA is shown in Figure 13.3. Locations are approximated in order to ensure their security.

FIGURE 13.3
MAPA TMA PIPELINE MAP



Pipelines are expected to increase their freight market share in terms of total tonnage by 1% by 2035. That being said, FHWA estimates that total pipeline transport will increase 97% by 2035. In order to achieve this increase, one or more of the following scenarios would need to happen:

1. The current pipelines would have to operate at a higher speed, that is, a higher pressure,
2. There would need to be an expansion in the diameter of the current pipeline infrastructure,
3. New pipelines would need to be constructed in the region.

Pipelines require a great deal of initial investment capital in order to facilitate construction. Over time, maintenance costs are not as high a percentage of operating totals as with other modes of large scale freight transportation such as trucking or rail. Pipelines also offer a continuous flow of goods to and through the region.

13.6 Rail

In 2002, rail accounted for 15% of the total tonnage shipped during the year. FHWA projections for 2035 show that rail will lose 3% market share in terms of total tonnage shipped. While rail is projected to lose that market share, the overall tonnage is projected to increase 78% by 2035.

There are two Class I railroads in the MAPA TMA. Union Pacific Railroad and Burlington Northern Santa Fe Railroad both have lines that cross the MAPA TMA. Union Pacific is also headquartered in Omaha. Intermodal rail facilities are located on both sides of the Missouri River.

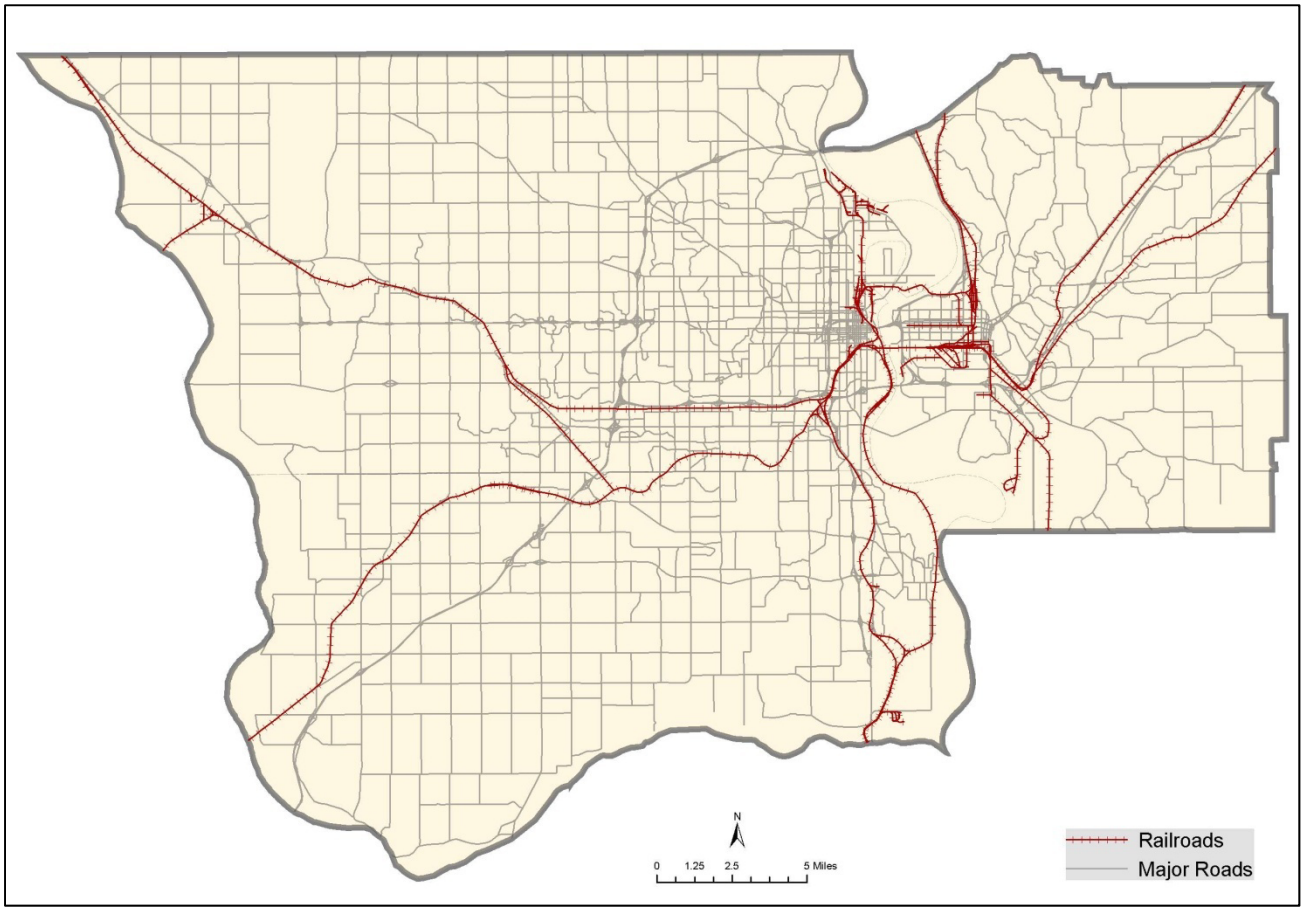
A detailed look at rail freight statistics by carload for Nebraska and Iowa are located in Figure 13.4. (One carload is assumed to be 18 tons per carload.) Additionally, a view of the MAPA TMA rail network can be seen in Figure 13.5.

Figure 13.4
Total Rail Freight Statistics by Carload for NE and IA – 2007

Product	Carloads Terminated 2007		Carloads Originated 2007	
	Nebraska	Iowa	Nebraska	Iowa
Coal	125,967	224,873	n/a	n/a
Chemicals	26,615	42,198	28,973	55,061
Intermodal	11,000	22,560	6,520	23,400
Iron or Steel	8,496	9,180	3,008	11,080
Food Products	8,104	21,532	68,559	168,460
Scrap Paper or Metal	7,400	18,188	4,584	10,360
Railroad Equipment	7,165	9,541	3,526	5,605
Cement	5,404	n/a	n/a	7,152
Grain or other field crops	3,841	28,494	158,470	121,012
All Other	15,792	39,776	6,460	12,232
Fresh Vegetables	n/a	n/a	1,120	n/a
Petroleum or Coal Products	n/a	5,856	n/a	n/a
Gravel, Crushed Stone, Sand	n/a	n/a	n/a	12,232

Source: American Association of Railroads, 2009

FIGURE 13.5
MAPA TMA RAIL NETWORK MAP

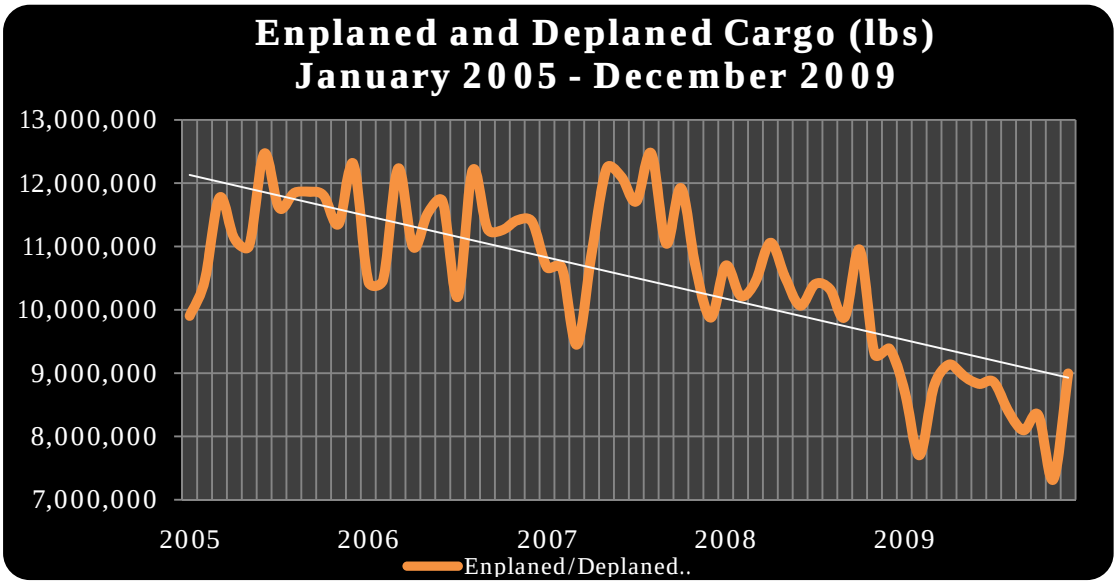


13.7 AIR CARGO

Air cargo in the MAPA TMA flows out of Omaha's Eppley Airfield. Eppley services seven freight carriers that moved over 56 thousand tons of freight in 2008. Freight traffic via air carrier has declined slightly over the past 2 years.

Air cargo numbers have been on a steady decline over the past 5 years as depicted in Figure 13.6. It seems as if the increase in fuel prices that hit the United States did the most damage to the cargo traffic in the MAPA TMA as the trend was upwards until January of 2008. Economic recession coupled with high fuel prices explain the steady decline in cargo enplanements and deplanements since January 2008.

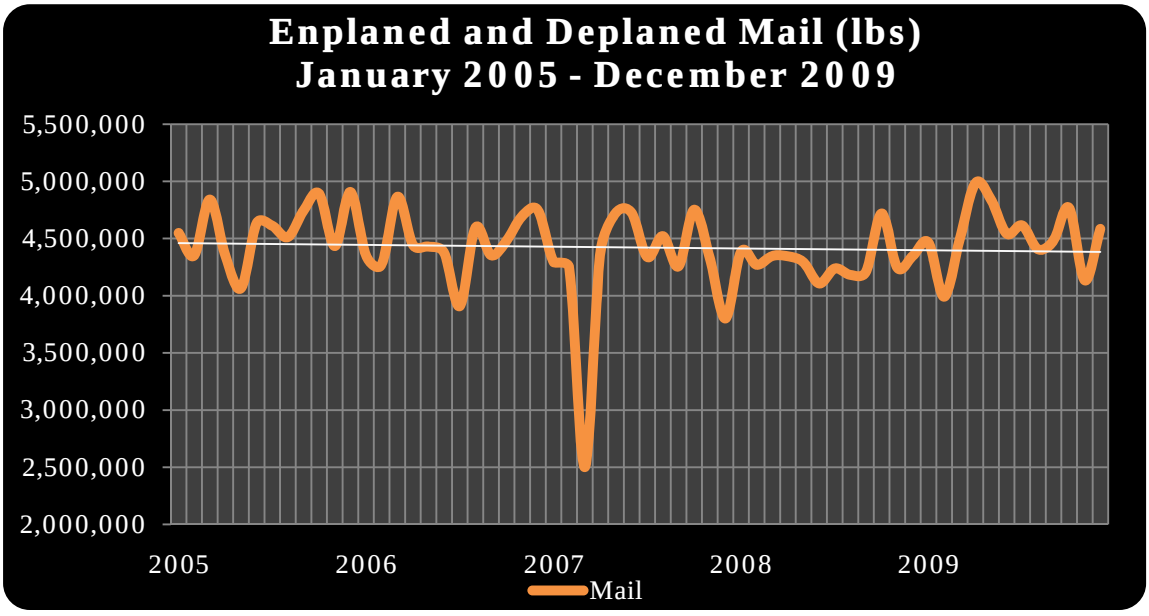
FIGURE 13.6
EPPLEY AIRFIELD ENPLANED AND DEPLANED CARGO (LBS)



13.7.1 MAIL

Total mail has remained fairly steady over the past five years (see Figure 13.7) which is an encouraging trend considering the amount that cargo has fallen during the same time period. In an ideal environment we would expect mail totals to rise in the MAPA TMA due to the expanding population of the area. However, in times of economic downturns it is reasonable to expect that mail, like all other applications, would trend downward.

FIGURE 13.7
EPPLEY AIRFIELD ENPLANED AND DEPLANED MAIL (LBS)



13.8 WATER FREIGHT

Water freight transportation in the MAPA TMA takes place on the Missouri River. Recently, low water levels have caused barge traffic on the Missouri River to decline. Several factors have lead to the decline of barge traffic on the Missouri River. While the Mississippi River has a system of locks in order to support barge traffic, the Missouri River does not. The Missouri River also has a narrower channel than the Mississippi, resulting in higher flow speeds. These higher speeds cause greater resistance and greater fuel consumption on upstream traffic making it less efficient to operate on this waterway.

In order to deal with the low water levels and fast currents of the Missouri, shallow draft Missouri River tugs were designed and built. These tugs can navigate the channel much more efficiently and effectively than their Mississippi River counterparts. However, due to the decrease in overall traffic on the Missouri River, the vast majority of the Missouri River specific tugs were shipped to South America. There is currently one Missouri River specific tug that operates in the United States.

The agricultural profile of the region has also changed. Farmers in Nebraska and Iowa are producing more corn and soybeans than wheat in past years. This change in production further damaged the water freight in the region due to the availability of local corn and soybean processing facilities. It is not cost effective to ship corn or soybeans downriver to processing facilities when they are available locally.
The availability of rail transport is also a contributing factor to the decline of water freight in the region. There are two intermodal facilities that can facilitate land transport of freight at lower prices and faster speeds than water travel can provide.

13.9 FACILITIES INVENTORY

13.9.1 INTERMODAL FREIGHT FACILITIES

There are two Intermodal Freight Facilities in the MAPA TMA:

- Iowa Interstate Railroad Intermodal Freight Facility (2722 South Avenue P.O. Box 1737 Council Bluffs, IA 51501)*
    - **Operator/Owner:** Iowa Interstate Railroad
    - **Operation start date:** 1984
    - **Square feet:** Did not disclose
    - **Major materials handled:** Freight of all kinds: frozen meat, canned goods, animal feed, etc.
    - **Traffic numbers:** 115,000 lifts/year
    - **Capacity:** 500 units
    - **Area to expand:** Did not disclose

*Source: Iowa Interstate RR

- BNSF Omaha Intermodal Freight Facility (4370 Gibson Road, Omaha, NE 68107)*
    - **Operator/Owner:** Burlington Northern Santa Fe
    - **Operation start date:** September 1987
    - **Facility Land Occupancy:** 30 acres
    - **Major materials handled:** Major intermodal carriers
    - **Traffic numbers:** Lifts in 2009 – 10,500
    - **Capacity:** The facility can accommodate volumes significantly higher than current levels
    - **Area to expand facility:** The facility can handle additional volume on its current footprint

*Source: BNSF RR

13.9.2 AIR FACILITIES

Eppley Airport (OMA) is the only air cargo facility in the MAPA TMA. According to the official airport website, the Eppley facilities cover 2,650 acres of land and there are 368,000 sq. ft. in the building. Additionally, there are six runways at Eppley Airfield. OMA currently has eight freight carriers and accommodated over 54 million pounds of mail and over 100 million pounds of cargo in 2009.

13.9.3 PORTS

The U.S. Army Corp of Engineers designates two ports located on the Omaha side of the Missouri River. These facilities include:

- Lafarge Corp. (located at 1106 Ida, Omaha, NE 68112)
    - Port has not been recently utilized
- Kinder Morgan Inc. (located at 6801 No. 9th St., Omaha, NE 68112)
    - Square Feet: 35 acres
    - Barge Volume: Average about 2 barges per year
    - Historically it handled 25-30 barges per year, however since water levels on the Missouri have dramatically decreased due to drought, little barge traffic is handled
    - The facility also uses rail and truck to move product
        - Product mainly arrives by rail (90-95%)
        - 100% of outgoing product is by truck
    - While this facility handles various freight transport options, it is not considered an Intermodal Freight Facility
    - Major products handled: steel, fertilizer, salt

After discussions with managers of these ports, it is clear that barge traffic is very limited to nonexistent. The main methods of transporting freight in the MAPA TMA is via truck, pipe, and rail facilities.

Information from the U.S. Army Corp of Engineers indicates two barge/port facilities are located on the Council Bluffs side of the Missouri River. These facilities are commercial property:

- Cargill (located at 2401 So. 37th St, Council Bluffs, IA 51501)
- Warren Distribution (located 2850 River Road, Council Bluffs, IA 51501)

Contact with these facilities indicates that they are not currently in operation for any commercial barge/port purposes.

While port and barge facilities in the area presently have limited use, water levels on the Missouri River are rising after drought conditions for nearly the past ten years. With this increase in water levels there is a possibility that barge traffic could increase as the Missouri River will be more accessible.

Environmental

14.1 Introduction

23 CFR 450.322(f)(7) requires that MAPA LRTP include the following:

A discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The discussion shall be developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies. The MPO may establish reasonable timeframes for performing this consultation;

Per these guidelines, MAPA offers the following overview of the Environmental Element of this plan.

14.2 Connection to MAPA LRTP Goals

Environmental Stewardship falls under the third goal of this Long Range Transportation Plan:

Goal #3: Consider the environment and urban form.

Possible strategies for implementation of this goal are listed below.

- Avoid, minimize, and mitigate the negative environmental impacts of the transportation system.
- Retain attainment air-quality status, as designated by the EPA.
- Foster energy conservation through the transportation system.
- Increase the mode share of alternative modes of transportation (transit, bicycle, pedestrian) to ten percent of all trips by 2035.
- Consider aesthetics and urban form in the design process.
- Coordinate transportation investments with land use policies to minimize environmental costs.
- Achieve the national designation as a “Bicycle Friendly Community” as conferred by the League of American Bicyclists.
- Preserve cultural, scenic and historic resources.

14.3 ENVIRONMENTAL RESOURCES

14.3.1WATER RESOURCES

The MAPA TMA is abounding in environmental resources. The western edge of the MAPA region is defined by the Platte River. Iowa's Loess hills flank the region on the eastern end. In the middle of the region the Missouri River defines the scenery. The MAPA Region is also home to a multitude of lakes, ponds, creeks and streams.

Included in this watershed are wetlands. Wetlands are defined by the EPA as areas in which water is covers the soil, or is present at or near the surface of the soil during varying times of the year (including the growing season). Wetlands are further separated into two categories based upon their location.

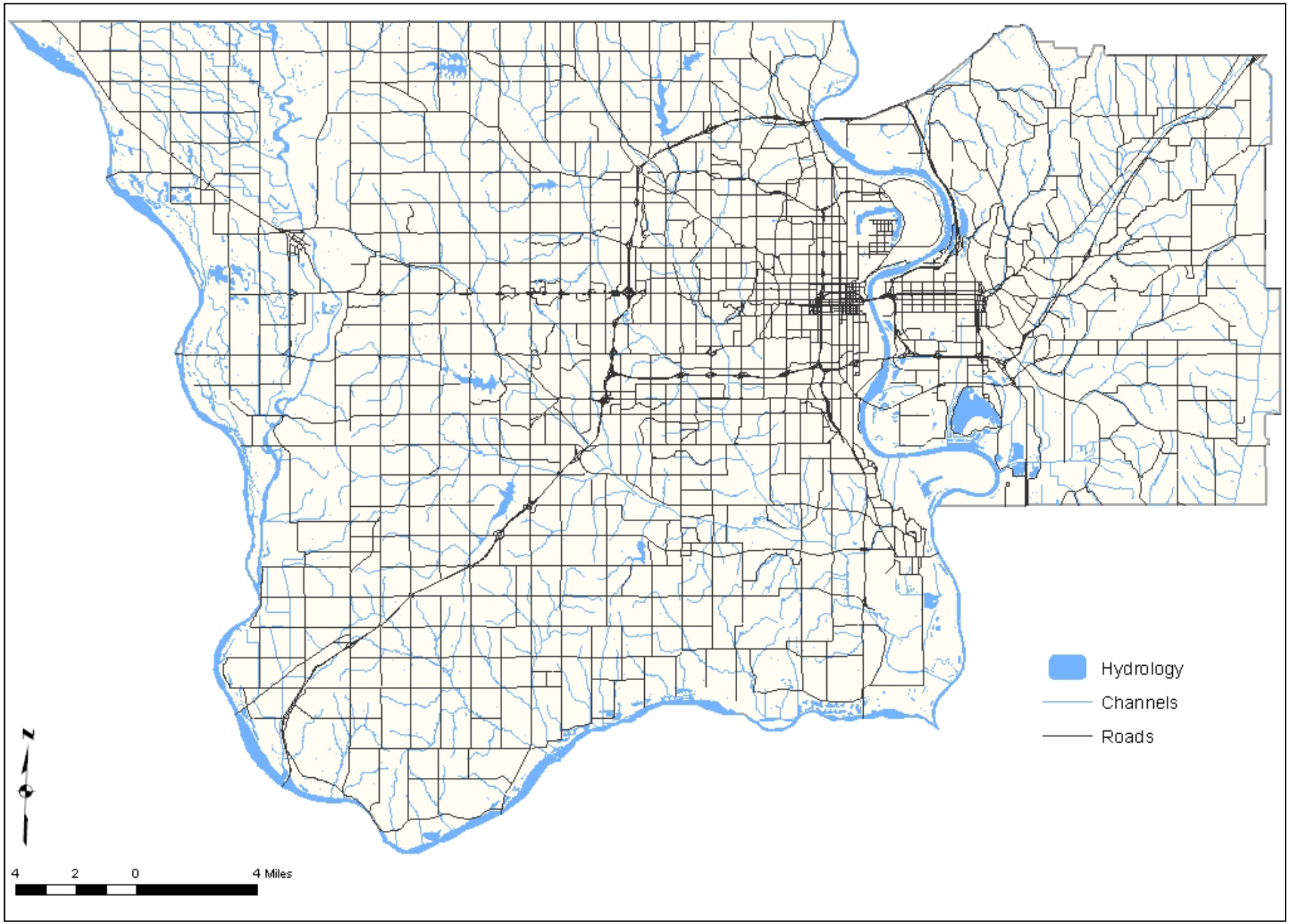
- Coastal Wetlands
  - These wetlands occur along the nation's oceanic coasts. Coastal wetlands are closely linked with estuaries where freshwater rivers mix with oceanic saltwater.
- Inland Wetlands
  - More pertinent for the MAPA LRTP are Inland wetlands. These areas of hydrologic soil are found most commonly around lakes, rivers, and streams (riparian wetlands); isolated wetlands can also be evident in depressions surrounded by dry land. In many cases, wetlands can be dry for much of the year. These vernal wetlands are important because they offer specialized breeding habitat for many plants and animals.

Inside of the above classifications, the US Army Corps of Engineers (USACE) identifies jurisdictional and non-jurisdictional wetlands. The determination of a jurisdictional wetland or waterway is conducted by the Corps of Engineers. Generally, jurisdictional wetlands are under the protection and control of the EPA and USACE.

Where applicable, projects in the MAPA region will comply with all necessary FHWA, USACE, and EPA regulations in dealing with the region's water resources.

Water resources in the MAPA TMA are shown in figure 14.1. It should be noted that all wetlands are not delineated in this figure. Wetlands delineation shall take place as part of the NEPA process for individual applicable projects.

FIGURE 14.1
TMA HYDROLOGY MAP



14.3.2 Threatened and Endangered Species

Consultations were performed with Natural Resource Agencies of both Iowa and Nebraska to identify threatened and endangered species throughout the MAPA TMA. A complete listing of threatened, endangered, and rare species in the MAPA region is shown in figure 14.2.

Figure 14.2
Threatened, Endangered, and Rare Species in the MAPA Region

Common Name	Scientific Name	Federal Status	IA Status	NE Status
American Ginseng	*Panax quinquefolium*			Threatened
Bald Eagle	*Haliaeetus leucocephalus*		Rare species	
Biscuit Root	*Lomatium foeniculaceum*		Endangered	
Cobaea Penstemon	*Penstemon cobaea*		Rare species	
Dusted Skipper	*Atrytonopsis hianna*		Rare species	
Eared Milkweed	*Asclepias engelmanniana*		Endangered	
Great Plains Ladies'-tresses	*Spiranthes magnicamporum*		Rare species	
Great Plains Skink	*Eumeces obsoletus*		Endangered	
Interior Least Tern	*Sternula antillarum athalassos*	Endangered	Endangered	Endangered
Lake Sturgeon	*Acipenser fulvescens*			Threatened
Lance-leaf Scurf-pea	*Psoralidium lanceolatum*		Rare species	
Leonard's Skipper	*Hesperia leonardus*		Rare species	
Narrow-leaved Milkweed	*Asclepias stenophylla*		Endangered	
Ornate Box Turtle	*Terrapene ornata*		Endangered	
Ottoe Skipper	*Hesperia ottoe*		Rare species	
Pallid Sturgeon	*Scaphirhyncus albus*	Endangered	Endangered	Endangered
Piping Plover	*Charadrius melodus*	Threatened	Endangered	Threatened

Plains Pocket Mouse	*Perognathus flavescens*		Endangered	
Pretty Dodder	*Cuscuta indecora*		Rare species	
River Otter	*Lutra canadensis*			Threatened
Scarlet Globe-mallow	*Sphaeralcea coccinea*		Threatened	
Slender Ladies'-tresses	*Spiranthes lacera*		Threatened	
Spreading Yellow Cress	*Rorippa sinuata*		Rare species	
Sturgeon Chub	*Macrhybopsis gelida*			Endangered
Sumpweed	*Iva annua*		Rare species	
Western Prarie Fringed Orchid	*Platanthera praeclara*	Threatened	Threatened	Threatened

These species are associated with several habitats, including wooded river and stream corridors, prairie remnants, and wetlands. To best avoid adversely affecting these species it is recommended that whenever possible these habitats be avoided. The above is a general listing of species that may or may not be found on the location of a particular project inside the TMA. Field surveys should be undertaken to assess the possible impacts to threatened and endangered species as part of project development as additional planning, phased construction, impact studies, or mitigation activities may need to be undertaken.

14.3.3 Section 4(f) Resources

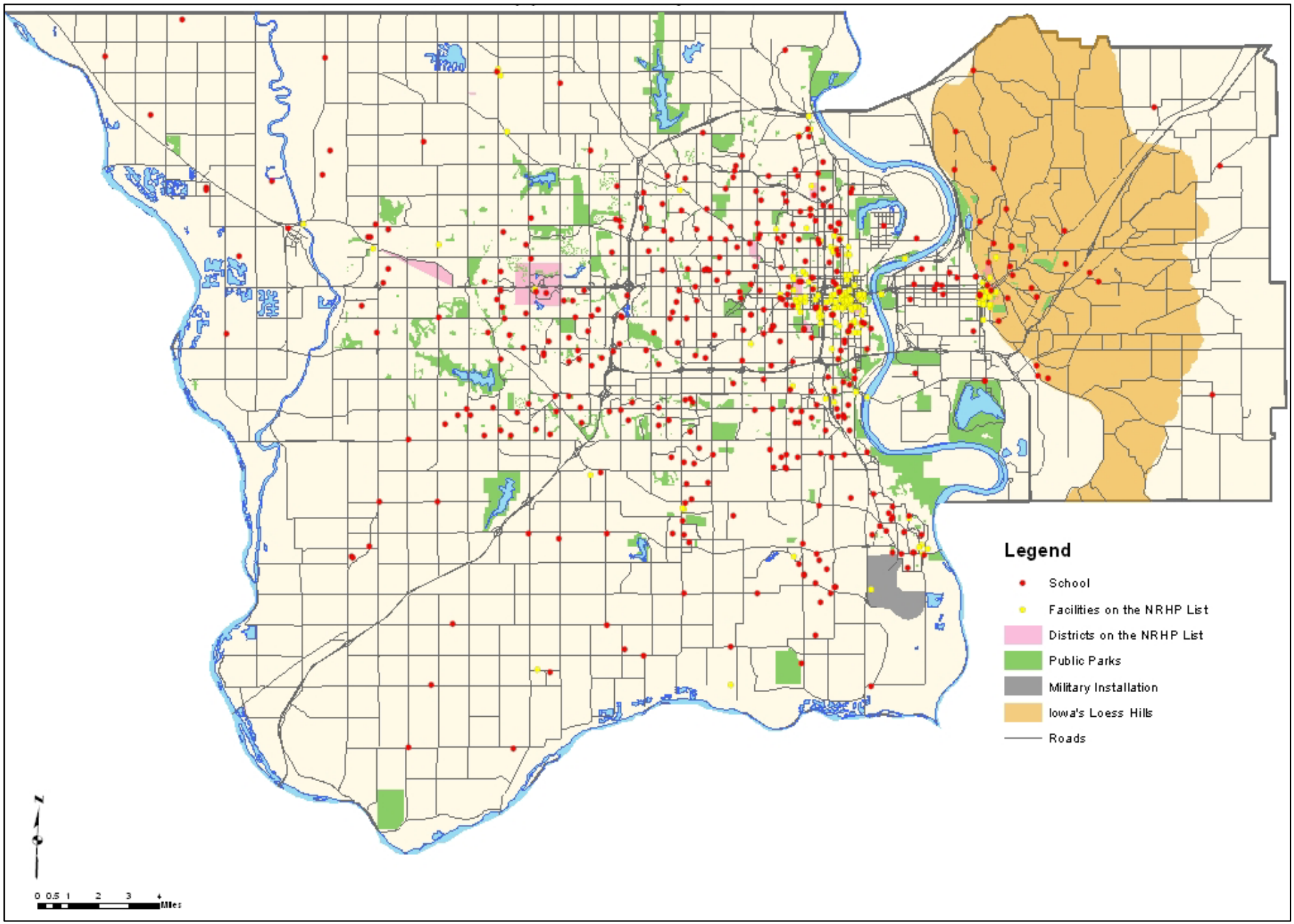
49 U.S. Code 303 Section 4(f) states that a special effort should be made to preserve the beauty of the nation's public parks, recreation lands, wildlife and waterfowl refuges, and historic sites. A map showing the location of Section 4(f) resources inside the MAPA TMA is shown below. This map is not the definitive source for 4(f) resources inside the TMA and individual surveys should be carried out during the planning stages of future projects to ensure the project does not adversely affect the region's 4(f) resources.

For a complete listing of the region's historical sites please see the National Park Service's database (available here: http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome). The National Register of Historic Places is constantly being updated with new sites. In addition, the National Park Service is in the process of digitizing their records to make the Register easier to use.

The region's 4(f) resources as well as other culturally important resources are shown in the following map.

Also shown in figure 14.3 the limits of Iowa's Loess Hills are inside the MAPA TMA. As part of the environmental consultation for this plan, the Iowa Department of Natural Resources (IDNR) identified the Loess Hills as a culturally significant resource. The US National Park Service identifies Iowa's Loess Hills as "the best example of loess topography not only in the Central Lowlands, but in the United States." Due to the uniqueness of this area and in deference to the efforts of a large number of people and organizations to protect this resource it is the policy of this LRTP to avoid utilization of the Loess Hill's material as borrow for construction projects in the MAPA TMA.

FIGURE 14.3
TMA SECTION 4(F) INVENTORY AND LOESS HILLS



14.4 ENVIRONMENTAL STREAMLINING

The protection and enhancement of the environment is a concern shared by most of the transportation community. Planning factors contained in SAFTEA-LU provide the guidance that affords for the protection of the environment. SAFETEA-LU identifies the need for integrating the planning and environmental processes and promotes a streamlined process for reviews and permitting.

The early integration of the planning and the environmental review and approval improves the likelihood that transportation projects and services can be implemented in a timely and environmentally sensitive manner.

The MAPA LRTP offers a coordinated effort to support the protection and enhancement of the environment and a streamlined process to achieve the environmental review set forth by the National Environmental Policy Act (NEPA). Although the integration of the planning and development process will vary for projects included in the LRTP, all efforts should be made to initiate the environmental assessment and to avoid, minimize, and mitigate possible environmental impacts as early in the project developmental phase as possible.

14.4.1 AVOIDANCE, MINIMIZATION, AND MITIGATION

During the planning process, environmental impacts (and therefore potential mitigation costs) can be reduced by avoiding or minimizing areas of potential environmental impacts.

Avoidance Practices

Where possible, this Long Range Plan will seek to avoid potential environmental impacts when planning, designing, and constructing federal infrastructure projects. Examples of possible avoidance activities include but are not limited to the following:

- Alignment Shifts- where possible the alignment of a proposed improvement can be shifted to eliminate possible impacts on protected areas.
    - Example: In the planning stages, wetlands are located adjacent to a proposed alignment. The design team is informed and the wetlands are found to be in a cut area. The alignment can be shifted slightly to avoid impacting this protected area.

- Grade Shifts- where possible the grade of a proposed improvement can be raised or lowered in order to eliminate possible impacts on protected areas.
    - Example: A significant archeological site is identified that warrants preservation in place. During project design it is determined that the entire area can be bridged; impacts are avoided by building the new roadway above the site, preserving it in place.

Minimization Practices

Minimization practices involve the creation or implementation of measures to reduce potential impacts to a protected area or resource. Examples of potential minimization practices could include but are not limited to the following:

- Alignment shifts
- Commitment to off-season construction to avoid habitat used by threatened and endangered species during breeding season
- Incorporation of drainage structures to prevent or control the release of excess runoff into protected water resources
- Construction of sound walls or depressing a section of roadway to minimize noise impacts where justified
- Create landscaping option that serve as a visual screen
- Limiting access to an expressway or interstate facility in order to minimize incompatible development

Mitigation Practices

Mitigation practices include compensation and enhancement measures. Compensation measures make an effort to replace land or facilities to offset damages or displacements due to construction. Examples of compensation activities include but are not limited to the following:

- Adding area to a public park or recreation area to replace lost facilities
- Providing off-site compensation (replacement) for lost wetlands

Enhancement measures add attractive, desirable features to allow a project to blend into the surrounding environment. Enhancements can occur when a project's impact cannot be avoided or minimized. Examples of enhancement measures include but are not limited to the following:

- Developing bicycle and pedestrian trails or paths adjacent to roadways
- Creation of a landscaped gateway boulevard into a community
- Including artistic works (i.e. sculpture, painting, etc.) on an overpass or adjacent to a roadway that requires widening
- Providing signage to recognize specific cultural, scenic, or historical resources
- Naturalizing the look of retaining walls to mimic stone outcroppings
- Creating wildlife overpasses or underpasses

14.4.2 Currently Utilized Mitigation Practices

In addition to the above strategies, When transportation improvement projects cannot avoid environmental consequences the project sponsor is required to mitigate the effect of the project on the environmental resource. In the MAPA region, the most common type of environmental mitigation revolves around wetlands mitigation.

Wetlands Mitigation Banks

The MAPA TMA is divided and bordered by rivers. The Missouri, Platte, and Elkhorn Rivers are all located in the MAPA TMA. In addition to these major waterways, the MAPA Region has an abundance of creeks, streams, lakes and ponds. These water resources are sometimes unavoidably impacted by transportation activities. In these cases, the impacted area must be mitigated for. The Nebraska Natural Resources District and the Iowa Department of Natural Resources both maintain wetlands mitigation banks that offer areas for mitigation activities to occur.

General wetlands mitigation banking practices allow for the constructing jurisdiction to add to an existing mitigation bank, restore a previously-existing wetland, or create a new wetland. Wetlands are often mitigated for in excess of the impacted on-project wetland. This means that if one acre of existing wetland is destroyed through construction, wetlands mitigation would result in the creation, enhancement or restoration of a total more than one acre.

Generally, when projects impact wetlands the constructing jurisdiction approaches willing landowners in order to purchase land to construct isolated wetland mitigation banks. Wetlands banks are located in both Iowa and Nebraska but are usually near to a past or current roadway construction project.

Context Sensitive Solutions

As defined by FHWA in 2007, Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.

CSS is based upon four key principles. These guiding principles shape the way that projects should be developed with respect to their surrounding environment. The four key principles factor in during the planning process, determine outcomes and are key factors in decision-making.

1. Strive towards a shared stakeholder vision to provide a basis for decisions;
2. Demonstrate a comprehensive understanding of contexts;
3. Foster continuing communication and collaboration to achieve consensus;
4. Exercise flexibility and creativity to shape effective transportation solutions, while preserving and enhancing community and natural environments.

The use of CSS results in a windfall of benefits in overall project performance. Some of these potential benefits include: improved predictability in project delivery, the ability to scope and budget the project, environmental stewardship, improved public/stakeholder feedback, increased partnering opportunities, improved opportunities for economic development, and many others.

For a complete breakdown of Context Sensitive Solutions including *NCHRP Report 642-Quantifying the Benefits of Context Sensitive Solutions*, please visit:

http://www.contextsensitvesolutions.org .

This LRTP will seek to promote the use of CSS throughout the planning and design process for infrastructure projects inside the region.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. This law outlines national environmental policy and goals for the protection, maintenance, and enhancement of the nation's environment. Also included in this legislation is guidance for implementing these goals within various federal agencies.

The NEPA process examines the effects of a federally funded undertaking on the surrounding environment. This analysis determines whether or not the federal action would have a significant impact on the environment. Based upon this examination the action can be funneled into one of three categories:

- *Categorical exclusion determination (CE)*
  - Categorical Exclusions are the lowest level of the NEPA Process. Categorical Exclusions are granted to those federal actions that a federal agency has previously performed and found to have no significant impact. Federal agencies have developed lists of actions that are normally eligible for CE determinations under NEPA regulations.
- *Preparation of an Environmental Assessment/Finding of No Significant Impact (EA/FONSI)*
  - If a federal action is not covered under the scope of a CE the administering federal agency prepares a detailed Environmental Assessment. This assessment determines whether or not the action will significantly impact the environment. If the assessment finds that the project will not significantly impact a Finding of No Significant Impact (FONSI) is issued and the project goes forward. The FONSI may also include potential mitigation activities.
- *Preparation of an Environmental Impact Statement (EIS)*
  - If the EA determines that a federal action will significantly impact the environment the administering federal agency will proceed with an Environmental Impact Statement (EIS). An EIS is a highly detailed evaluation of the proposed action and alternatives. During the creation of the EIS the public, other federal agencies and outside parties may provide input and comment on the project.
  - In the case of highly controversial projects, or if a federal agency anticipates the undertaking may significantly impact the environment, a federal agency may prepare an EIS without an EA.

The Council on Environmental Quality (CEQ) is charged with the implementation of NEPA at the federal level. CEQ has interpreted NEPA legislation and modified NEPA's action forcing provisions to create federal regulations and guidance documents to aid in NEPA compliance.

14.4.3 FHWA AND NEPA

The Federal Highway Administration requires that the policies, regulations, and laws of the federal government be interpreted and administered in concert with the goals set forth in NEPA. The FHWA NEPA project development process is meant to balance any and all potential environmental impacts with the public's need for safe and efficient transportation.

FHWA Policy states that (23 CFR §771.105):

- To the maximum possible extent, environmental investigations, reviews and consultations be coordinated as a single process. Compliance with all applicable environment requirements must be reflected in the environmental document required by 23 CFR §771.105.
- Alternative actions must be evaluated as a part of this process. Decisions are to be made in the best interest of the public based on a broad and balanced consideration of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the proposed transportation improvement. The action must also be based on national, state, and local environmental protection goals.
- Public input and a systematic interdisciplinary approach be implemented and considered as part of the development process.
- Mitigation activities for adverse impacts must be included into the action

Federally funded projects inside the MAPA TMA will seek to conform to the NEPA Process in all of stages listed above.

14.4.4 NEBRASKA CONSIDERATIONS

During a project's infancy, Local Public Agencies (LPAs) are required to complete two forms. The first of these forms is the DR530. This form outlines basic project details including location, improvement type, proposed schedule, and project budget. At the same time the DR530 is completed the LPA is required to complete the DR53 form. The DR530 form is available on the NDOR Local Projects website (available here:

http://www.dor.state.ne.us/gov-aff/lpa/chapter-forms/dr530.pdf).

DR53 Form

The DR 53 is also referred to as the "Probable Class of NEPA Action Form." Completing the DR53 helps LPAs to determine the best course for their project to navigate through the NEPA process. The DR53 contains a series of questions that are reviewed by NDOR staff to determine the necessary NEPA determination required for the project. The end result of the DR53 is an indication as to whether the project will require a Categorical Exclusion, Programmatic Categorical Exclusion, Environmental Assessment or Environmental Impact Statement in order to clear the NEPA process. This document can be completed by Local Public Agency Responsible Charge staff. The DR53 is available on the NDOR Local Projects website (available here: http://www.dor.state.ne.us/gov-aff/downloads.htm).

If the DR53 form leads the LPA to believe it may apply for a Categorical Exclusion or Programmatic Categorical Exclusion the LPA completes the Programmatic Categorical Exclusion Form.

Programmatic Categorical Exclusion Form

The PCE form is a four page document containing a series of questions concerning project activities and the impact of these activities on the surrounding environment. LPA staff can complete this form and deliver the form to NDOR staff for review and approval. If LPA staff is able to answer "no" to all questions contained in the PCE form the project is determined to be under a Programmatic Categorical Exclusion and may proceed with no further NEPA documentation required. The PCE form is located on the NDOR Local Projects website (available here: http://www.dor.state.ne.us/gov-aff/downloads.htm).

If the project is not able to meet the criteria of a PCE the project must undergo one of the previously mentioned NEPA actions (CE, EA, or EIS). Local LPA staff is usually not able to satisfactorily complete this level of NEPA documentation; an outside consultant is typically required to satisfy the criteria for CE, EA, and EIS projects.

NDOR On-Call Environmental Consultants

To assist LPAs in completing the necessary NEPA documentation for their projects, the NDOR has prepared a pre-selected and pre-qualified list of environmental consultants. The consultants on this list may be contracted with in order for LPAs to complete NEPA processes and continue on with their project.

The NDOR On-Call Environmental Consultants List is located on the NDOR Local Projects section website (available here: http://www.dor.state.ne.us/gov-aff/pdfs-docs/consultants/CE%20Services/consult-sel-proc-oces.pdf).

The Six Programmatic Agreements

In addition to the standard NEPA determinations above, the Nebraska Department of Roads and Federal Highway Administration-Nebraska Division have come to terms on six Programmatic Agreements (PA's). These agreements cover six basic types of transportation improvement projects and offer a streamlined path to NEPA approval. These agreement categories are listed as follows:

1. Bridge Inspections
2. Lighting and Signal Repair and Replacement Activities
3. Projects Not Leading Directly to Construction
4. Pavement Marking Activities
5. At-Grade Railroad Crossing Improvement Activities
6. Sign Installation and Replacement Activities

A full set of instructions and documentation pertaining to the use of these agreements is available on-line at the Nebraska Department of Roads Local Projects website (available here: http://www.dor.state.ne.us/gov-aff/downloads.htm). These determinations will take place prior to undergoing any of the more complex standard NEPA determinations listed previously.

14.5 CLIMATE CHANGE

In 2008 the American Association of State Highway and Transportation Officials (AASHTO) released a report concerning global climate change. AASHTO's *Primer on Transportation and Climate Change* (available here: http://downloads.transportation.org/ClimateChange.pdf) maintains the validity of climate change, outlines some root causes of climate change (as they pertain to transportation), and offers several strategies for climate change mitigation.

The U.S. DOT and FHWA support and reference the *Primer on Transportation and Climate Change* as a key document that offers climate change guidance for transportation agencies. Additional FHWA guidance on climate change and transportation is available online at FHWA's Climate Change and Transportation webpage (available here: http://www.fhwa.dot.gov/hep/climate/index.htm).

14.5.1 EVIDENCE OF CLIMATE CHANGE AND ROOT CAUSES

AASHTO offers the following points as evidence that global climate change is occurring:

- The global climate is becoming warmer. Average global temperatures have risen markedly in the last century.
- Global warming, if allowed to continue unchecked will cause severe and lasting impacts. Impacts such as rising sea levels, shrinking polar ice, warmer winters, and receding glaciers have been evident for some time and will become more severe if global warming continues.
- Global warming is caused in large part by human activities. Human activities and industries release greenhouse gas. These gasses accumulate in the atmosphere

and prohibit heat from dissipating. Human activities also hamper the earth's ability to absorb greenhouse gas through actions such as deforestation.

The AASHTO report examines the root causes in great detail and the report asserts that hundreds of scientific studies that all point to the same outcome. AASHTO asserts that climate change is real and human factors are contributing to the problem.

Greenhouse gasses are determined to be the primary cause of this issue. In 2006, greenhouse gas emissions from transportation activities comprised 27 percent of total US greenhouse gas emissions. The vast majority of these emissions is the result of fossil fuel combustion.

14.5.2 Climate change Mitigation Strategies

To assist in reducing global greenhouse emissions AASHTO offers the following strategies as templates for implementation:

- **Reduce total vehicle miles traveled (VMT)**
  - Expand transit services or other alternatives to single-occupant vehicles
  - Encourage land use that minimizes the number and length of auto trips
- **Congestion relief**
  - Recent research has demonstrated that the optimal speed for internal combustion engine emission reduction is 45 mph. Reducing congestion and allowing traffic to flow at 45 mph may have a positive impact on greenhouse gas emissions
- **Alter driver behavior**
  - The manner in which many people operate their vehicles is inefficient and can lead to an increase in greenhouse gas emissions. AASHTO recommends education campaigns that would help to promote more efficient vehicle operation.

AASHTO has also examined larger policy strategies to assist in lowering greenhouse gas emissions on a national stage. These strategies center around the increased research and development of alternative fuel sources, higher efficiency engines, and punitive tax policies to encourage motorists to reduce their VMT. These strategies are broken down in a greater amount of detail in the full document.

14.5.3 Local Implementation of Climate Change Mitigation Strategies

The above recommended strategies and positions of AASHTO, FHWA, and the U.S. DOT complement other MAPA initiatives to promote environmental stewardship and create a more balanced multi-modal transportation policy, including:

- Local efforts to increase the efficiency of the transportation system are being implemented through signal coordination and other intelligent transportation system (ITS) projects.
- Congestion relief through intersection and corridor improvements are also taking place through construction efforts.

- MAPA is also supporting changes in existing land use policies to encourage more dense development.
    - Recently, large mixed use developments such as Midtown Crossing and Aksarben Village have opened to the public with positive reviews.
- MAPA is currently examining transit trips not taken in North Omaha in order to gain knowledge of how to better serve constituents in that area.
- The Metro Transit and the City of Omaha have been awarded a grant to perform an alternatives analysis, which will analyze transit options, including a potential streetcar circulator system running from midtown to downtown Omaha.
- MAPA offers carpool matching services through the *MetrO! Rideshare* program (available here: http://www.mapacog.greenride.com/). This service allows carpoolers to match up based upon common starting and ending points.
- MAPA has also conducted public education campaigns to increase citizen awareness of greenhouse gas (discussed under section 14.6.1).

14.6 Air Quality

The Clean Air Act, as amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants deemed harmful to humans and the environment. The EPA lists the following 7 pollutants as harmful. Figure 14.4 identifies the maximum allowable value of these pollutants and also the time frame in which the pollutants are measured.

- **PM_{10}:** Fine Particulates less than 10 microns in diameter.
- **$PM_{2.5}$:** Fine Particulates less than 2.5 microns in diameter.
- **O_3:** Ground level Ozone gas.
- **CO:** Carbon Monoxide gas.
- **SO_2:** Sulfur Dioxide gas.
- **TRS:** Total Reduced Sulfur.
- **NO_2:** Nitrogen Dioxide gas.

Figure 14.4
NAAQS

National Ambient Air Quality Standards				
	Primary Standards		Secondary Standards	
Pollutant	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None	
	35 ppm (40 mg/m^3)	1-hour (1)		

Lead	0.15 µg/m3 (2)	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m^3	Quarterly Average	Same as Primary	
Nitrogen Dioxide	53 ppb (3)	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour (4)	None	
Particulate Matter (PM10)	150 µg/m^3	24-hour (5)	Same as Primary	
Particulate Matter (PM2.5)	15.0 µg/m^3	Annual (6) (Arithmetic Average)	Same as Primary	
	35 µg/m^3	24-hour (7)	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour (8)	Same as Primary	
	0.08 ppm (1997 std)	8-hour (9)	Same as Primary	
	0.12 ppm	1-hour (10)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour (1)
	0.14 ppm	24-hour (1)		
	75 ppb (11)	1-hour	None	

Per federal regulations, states are required to monitor the ambient air quality inside their borders. Air quality sensors in both Nebraska and Iowa continuously monitor the levels of harmful gasses, particulates, and elements contained in the ambient air of the MAPA TMA.

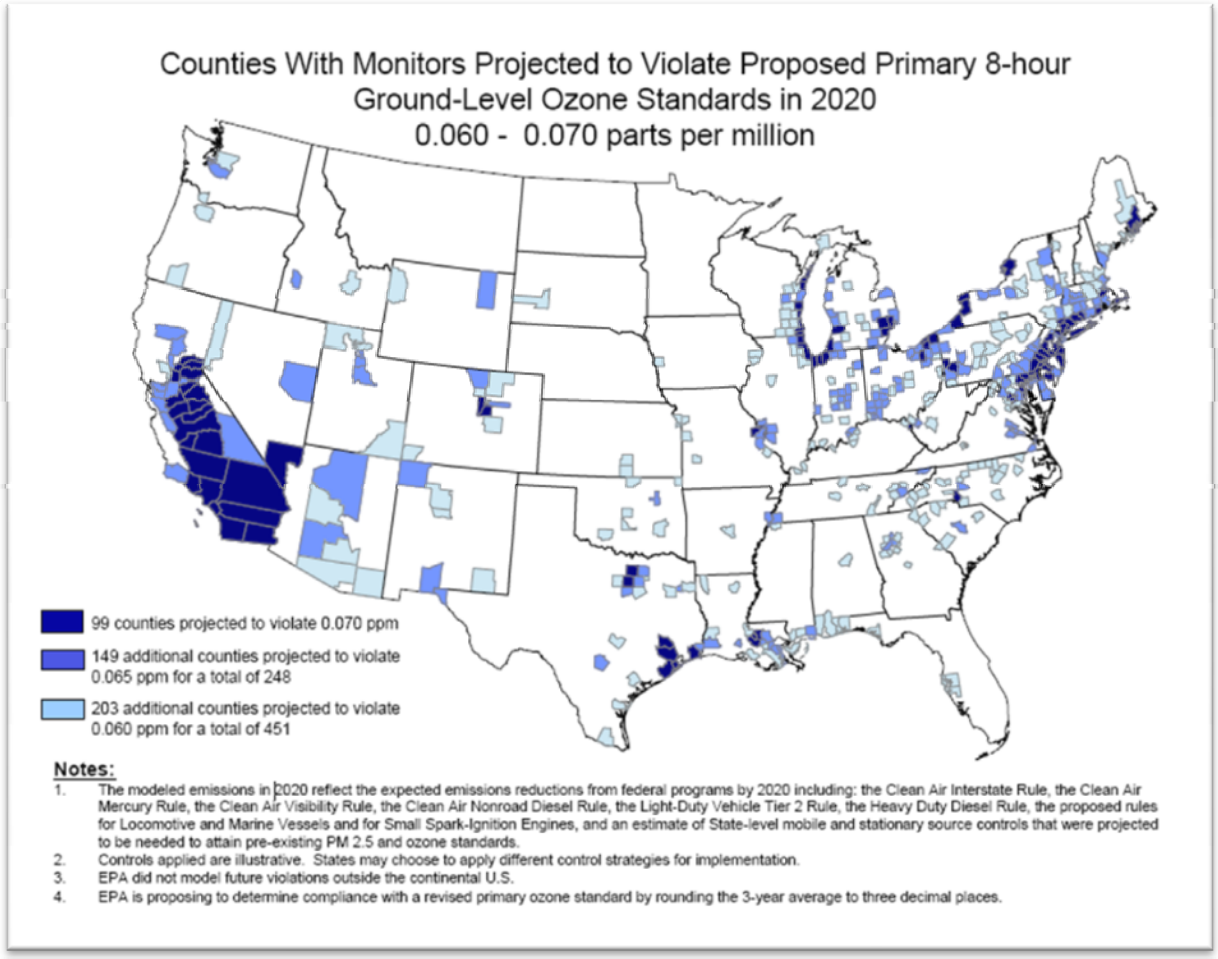
As of January 1, 2011 the entire MAPA TMA is in attainment for the above air quality standards.

14.6.1 New Legislation

Currently the MAPA TMA is in attainment for greenhouse gasses, ozone, and other emissions. However, the Center for Environmental Quality (CEQ) and EPA are currently seeking to change the acceptable standards for ozone and other emissions to a lower level.

The current standard for Ozone emissions is .075 parts per million. The CEQ is seeking to lower this standard somewhere between .075 and .06 parts per million. Should the standard be lowered to 0.06 ppm the MAPA TMA would most likely enter non-attainment for ozone. Figure 14.5 illustrates areas that would be in non attainment depending on the new standard in 2020.

FIGURE 14.5
PROJECTED GROUND LEVEL OZONE VIOLATIONS

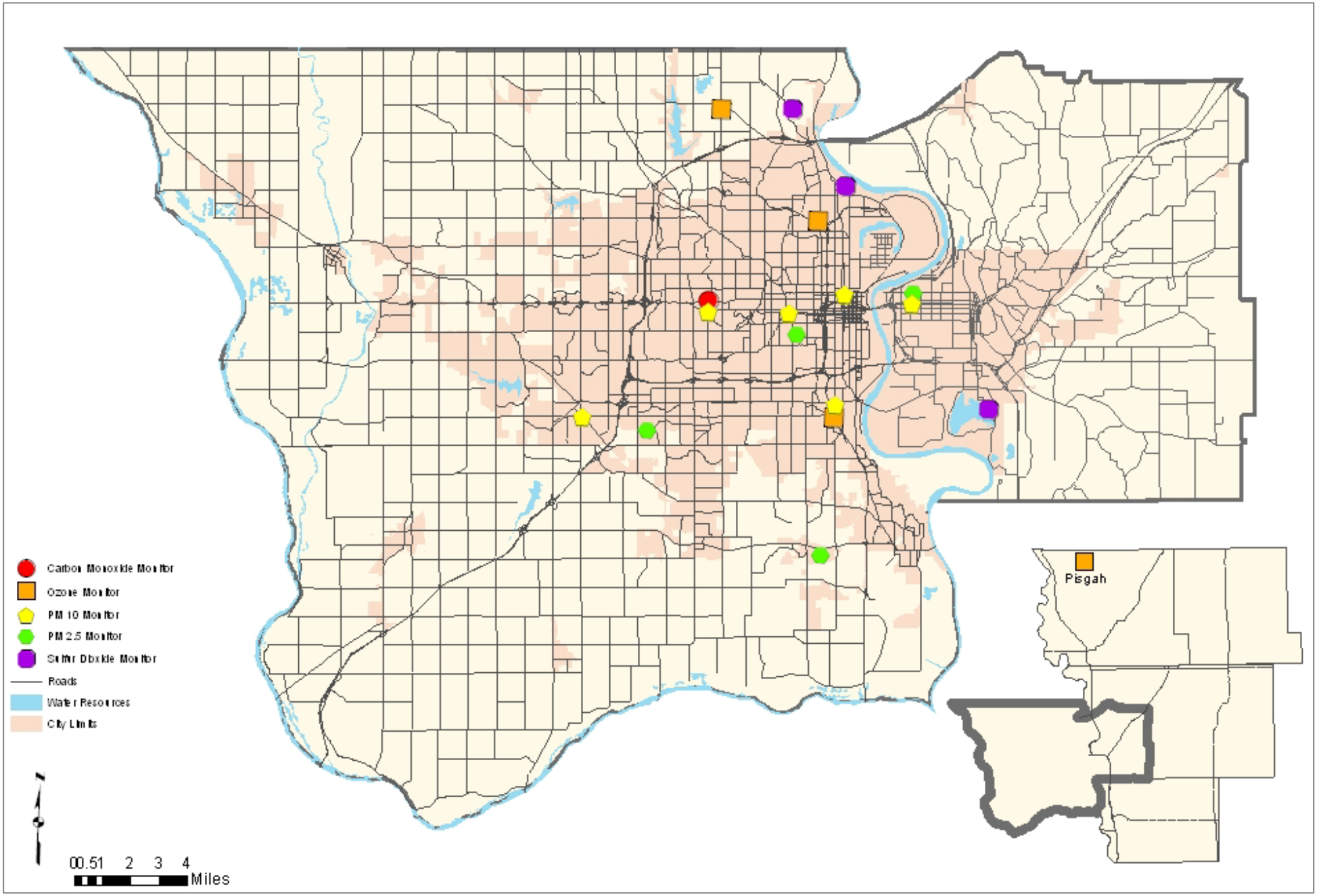


The CEQ and EPA are currently studying the proper level at which to set the Ozone standards. A determination of the national standards for Ground-Level Ozone has been delayed until July 2011. This delay will allow the EPA to examine air quality data collected during 2010 when finalizing their standards.

The MAPA region contains air quality monitors that are shown in Figure 14.6. These monitors currently show the region in attainment for air quality standards. Figure 14.5 shows that there is a monitor to the north of the MAPA TMA that would be projected to violate Ozone standards if they were to be set at 0.060 ppm. This monitor is located in Harrison County, Iowa near the town of Pisgah. The location of this monitor is shown in the lower right-hand corner of Figure 14.6. Due to the direction of prevailing winds, it is

thought that the Pisgah monitor reflects the air quality (or lack thereof) of the MAPA region and the pollutants the region creates through emissions.

FIGURE 14.6
MAPA REGION AIR QUALITY MONITORS



Since July 2010, MAPA has been working with Nebraska Department of Environmental Quality (NDEQ), Iowa Department of Natural Resources (IDNR), the City of Omaha, Douglas County, and various other organizations and jurisdictions to address the potential Ground Level Ozone issue in the Omaha-Council Bluffs metropolitan area. In the summer of 2011 the Environmental Protection Agency is expected to lower the ground level ozone standard to between 60 – 70 ppb. The lowering of this limit could potentially push the Omaha-Council Bluffs metro area into non-attainment.

MAPA has been working with the various agencies and jurisdictions mentioned above to organize a proactive response to the possible lowering of the ozone standard. These efforts are two-fold. First, a public education campaign increasing public awareness of the health issues involved with ground level ozone and reduction actions that households and individuals can take was implemented in August 2011. This campaign will resume in the summer of 2011. Second, a Community Based Planning Process to indentify voluntary reductions is currently being used to bring together community stakeholders and major emitters. This group of stakeholders is actively working together to identify activities and actions that can be taken to reduce ozone emissions.

For more information on the ground level ozone reduction efforts in the Omaha-Council Bluffs metro area, please go to www.littlestepsbigimpact.com

Social & Environmental Justice

15. 1 Introduction

In 1994, federal Executive Order 12898 directed every federal agency to make environmental justice part of its mission by identifying and addressing the effects of all programs, policies and activities on "minority populations and low-income populations." The order reads: "Each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations."

The order reinforces Title VI of the Civil Rights Act of 1964, which reads: "No person in the United States shall, on the ground of race, color or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs or activity receiving federal financial assistance." The executive order requires all government agencies receiving federal funds to address discrimination as well as the consequences of all their decisions or actions that might result in disproportionately high and adverse environmental and health impacts on minority and low-income communities.

In 1997, the United States Department of Transportation (DOT) issued its Order to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order). The DOT Order addresses the requirements of Executive Order 12898 and sets forth DOT's policy to promote the principles of environmental justice in all programs, policies and activities under its jurisdiction.
Since the DOT Order was issued, the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) have been working with their state and local transportation partners to make sure that the principles of environmental justice are integrated into every aspect of their mission.

The three fundamental environmental justice principles include:

1. To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction of or significant delay in the receipt of benefits by minority and low-income populations.

15.2 TERMS

Low-Income

Means a person whose median household income is at or below the U.S Department of Health and Human Services poverty guidelines. For the purposes of this analysis Census Bureau 2009 American Community Survey 2005-2009 five year aggregate data on poverty level within the MPO area was used.

Minority

Means a person, as defined by the U.S. Bureau of Census, who is a: (1) Black American (a person having origins in any of the black racial groups of Africa); (2) Hispanic person (a person of Mexican, Puerto Rican, Cuban, Central or South American, or Spanish culture or origin, regardless of race); (3) Asian American or Pacific Islander (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or (4) American Indian or Alaskan Native (a person having origins in any of the original people of North America and maintaining cultural identification through tribal affiliation or community recognition).

Environmental Sensitive Areas

Means areas where any readily identifiable groups of minority or low-income persons reside at a higher percentage than the TMA average.

15.3 METHODOLOGY

15.3.1 IDENTIFYING ENVIRONMENTAL JUSTICE POPULATIONS

All analysis was done at the census tract level, using data from the Census Bureau 2009 American Community Survey 2005-2009 five year aggregate. The first step in the analysis looked at the MAPA Transportation Management Area (TMA) to evaluate whether there are areas with disproportionate minority and low-income populations. The percentage of the population within each census tracts identified as low-income or minority was compared to the TMA average, using a normal range of one-standard deviation above and below the average; 68 percent of all measurements fall within one standard deviation of the average. Those census tracts with a score greater than one standard deviation above the average have a concentrated minority or low income population.

Figure 15.1 below illustrates the locations of the aforementioned areas within the TMA. The map indicates census tracts with minority populations and low-income populations higher than the TMA average. The figure highlights areas with high concentrations of minority or low-income populations as defined by percentages higher than one (1) standard deviation above the average. These census tracts were determined to be environmental justice areas of concern for evaluation purposes. It should also be noted

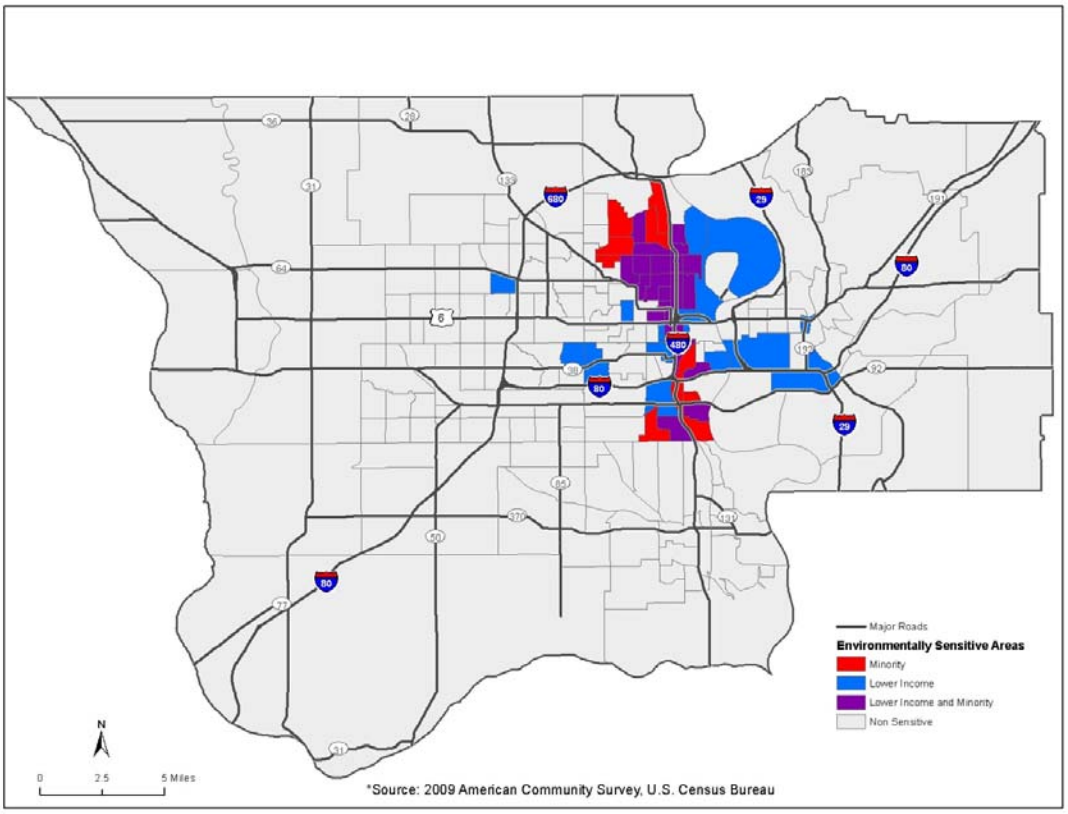
that the analysis of future projects was done using current environmentally sensitive areas and does not include forecasts of changes in low-income and minority populations.

15.3.2 Analyzing Externalities, Equity, and Access

The environmentally sensitive areas were examined in relationship to the recommended future roadway projects for potential externalities that may affect these areas adversely. Furthermore, the locations of roadway projects were analyzed for equitable distribution of funding relative to the needs of the region. The analysis compared the environmentally sensitive areas to the planned projects. The areas were mapped with planned projects to better show the location of each project relative to the areas with environmentally justice concerns. The map overlay can be seen in Figure 15.2

Additionally, since lower income individuals are less likely to have access to personal transportation, environmentally sensitive areas were analyzed for their spatial relationship to public transportation bus routes. Similarly, these areas were mapped to evaluate proximity (1/4 mile) and access to the metro transit system. This map overlay can be seen in Figure 15.3.

Figure 15.1
Environmentally Sensitive Areas Distributed By Census Tract



15.4 FINDINGS

15.4.1 NEGATIVE EXTERNALITIES

MAPA cannot find any reasonable negative impacts that would result from the proposed roadway projects listed in the plan. The major projects in the environmentally-sensitive areas include the new Missouri River crossing known in this Plan as the Gateway Bridge, the Council Bluffs Interstate Reconstruction, the Saddle Creek Road reconstruction as well as several projects along I-80 and Kennedy Freeway. All of these projects are anticipated to utilize existing right-of-way. Furthermore the NEPA process provides significant protections to these populations. For instance, analysis of cultural and historical resources is required to identify negative impacts to environmental justice populations. Also, noise studies are required to determine whether additional noise created from the project will necessitate noise reduction measures. Therefore, any negative impacts from these projects will be considered during the environmental process and are not expected to be significant.

15.4.2 DISTRIBUTION OF EQUITY

Analyzing the distribution of the recommended projects listed in the plan, the Project overlay map (Figure 15.2), it is apparent that in terms of geographical distribution, most location-specific projects fall outside of any environmentally sensitive area. Considering the region's anticipated future growth, most of the region's capital roadway projects are located in the suburban and developing areas where new development will require new capacity. The environmentally-sensitive areas are located in fully developed urban areas, and MAPA forecasts little need to increase roadway capacities in these regions. In fact, many traffic counts in the environmentally sensitive areas have been declining or remaining stable in recent years.

However, as already mentioned several major projects are within or adjacent to environmentally-sensitive areas. Many of the region's largest and most expensive capital projects fall in environmental justice areas, totaling over $2.5 billion in investment over the next 25 years. Although a full listing of projects in these areas follows below in Figure 15.5, the following major projects are highlighted as significant investments into environmentally sensitive areas:

<u>I-80 Expansion Projects, Missouri River – 60th Streets</u>

NDOR, in coordination with Iowa DOT, is in the process of widening the I-80 crossing of the Missouri River and plans to do a series of projects to improve traffic flow west to 60th Street. This has been a bottleneck that has been identified in the MAPA Congestion Management Process for years as a severe issue in the MAPA TMA, and is highly utilized by commuters crossing the state line to go to and from work. These projects represent a total cost of over $250 million. In addition to relieving congestion for local traffic, this will also assist with reducing pollution for the environmentally sensitive areas.

Saddle Creek Road

The University of Nebraska Medical Center, in collaboration with the City of Omaha, is planning the reconstruction of the Saddle Creek Road area from Leavenworth Street to north of Dodge Street. This will reduce frequent flooding in the area, improve the Saddle Creek and Dodge interchange, and create a green space with bicycle-pedestrian trails alongside Saddle Creek. This project represents an investment of over $40 million into the City of Omaha's urban core.

Dodge to Douglas "S-Curve" Realignment at 31st Street

The City of Omaha plans to reconfigure the existing tight curves from Dodge to Douglas Street at 31st Street. The project will create more gentle curves for the roadway and help to improve the surrounding context. Mutual of Omaha has recently invested heavily in its Midtown Crossing redevelopment to provide residential, commercial and entertainment destinations in an environmental justice area.

Council Bluffs Interstate Reconstruction

The Iowa DOT has begun a massive reconstruction of the Interstate System in the Council Bluffs area. The majority of these projects occur in environmentally sensitive areas. The total project costs in these areas approach $2 billion, and represent the largest investments in the MAPA 2035 LRTP. The improvement in traffic flow and access to adjacent employers will provide substantial economic benefits to this area.

9th Avenue Viaduct

The City of Council Bluffs has long-range plans to construct a new viaduct across the railroad lines on 9th Avenue between 8th and 19th Streets, which is along the edge of an environmental justice area. This will remove traffic impediments on 9th Avenue and provide immediate safety benefits. By benefiting the railroad, it also strengthens Council Bluffs as a rail hub, which provides many good jobs for the metro area.

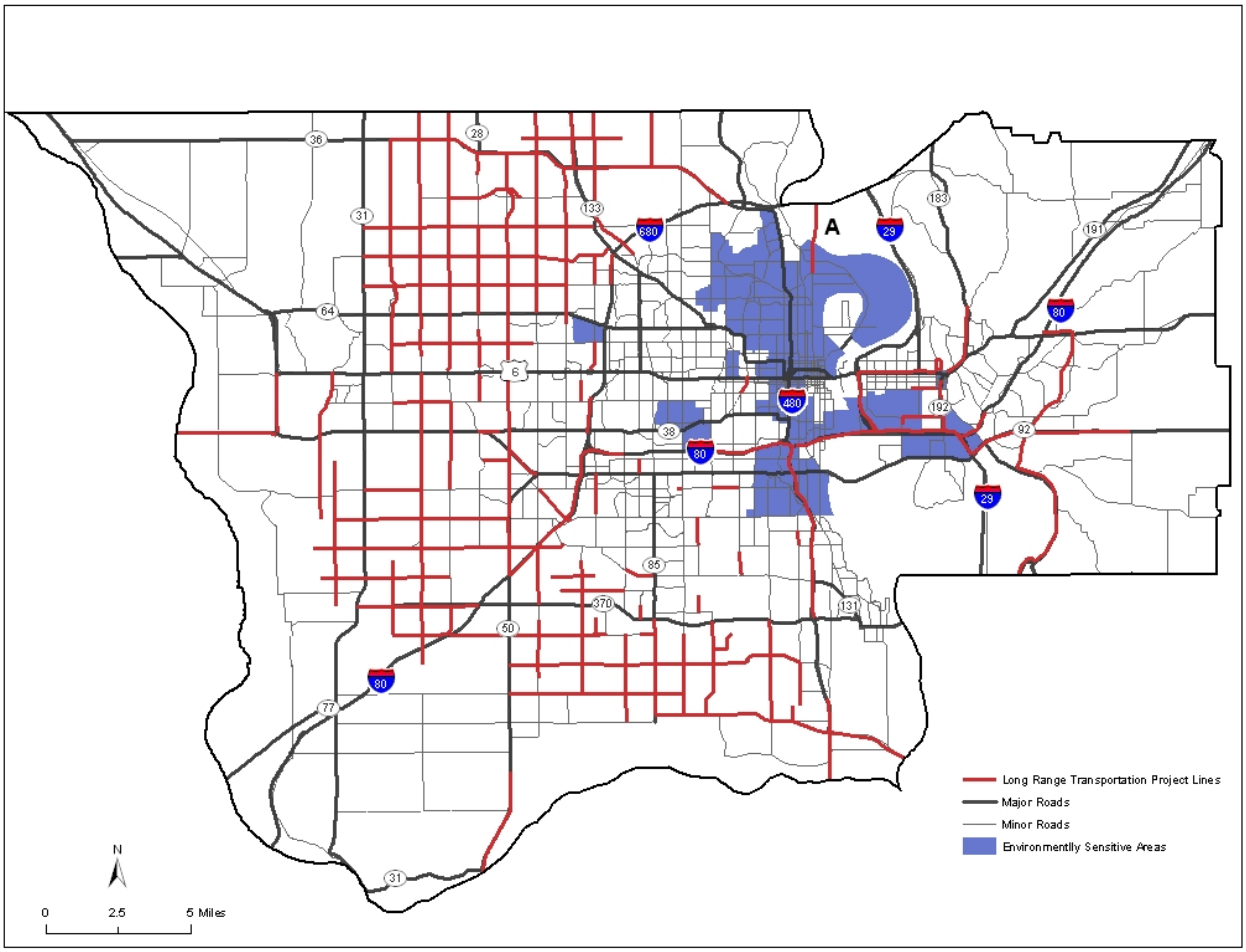
"Gateway Bridge" Missouri River Crossing

This proposed new bridge across the Missouri River would provide multiple benefits, including providing industries and businesses in northeast Omaha with a direct freeway connection to I-680, potentially opening land in Pottawattamie County to development, and reducing the large volume of truck traffic that travels through the Florence neighborhood along 30th Street (US-75). The potential of attracting new economic development is of particular importance for revitalizing the environmentally sensitive areas in north and east Omaha and Carter Lake. The Gateway Bridge project is estimated to cost approximately $60 million to construct.

Kennedy Freeway (US-75) Widening

NDOR plans to rebuild and widen the Kennedy Freeway to four lanes in each direction between Highway 370 in Sarpy County and the I-80/US-75/I-480 junction in Douglas County. These projects would be built in existing right-of-way and not negatively impact the surrounding area, but will provide improved traffic flow and attractiveness for nearby businesses and residents. These projects entail an investment of approximately $115 million.

FIGURE 15.2
TRANSPORTATION PROJECT OVERLAY – ENVIRONMENTALLY SENSITIVE AREAS



In addition to the capital projects (see Figure 15.5), there are many projects that are not location-specific that provide enhancements to the environmentally sensitive portions of the TMAMAPA. Due to the fact that these areas are located within fully developed portions of the region, most local projects in these areas tend to be of this nature. These projects do not appear in Figure 15.2 and are usually not included individually in the project listing (unless they are currently part of the MAPA TIP), although the metro area will spend hundreds of millions of dollars on these types of projects in the coming 25

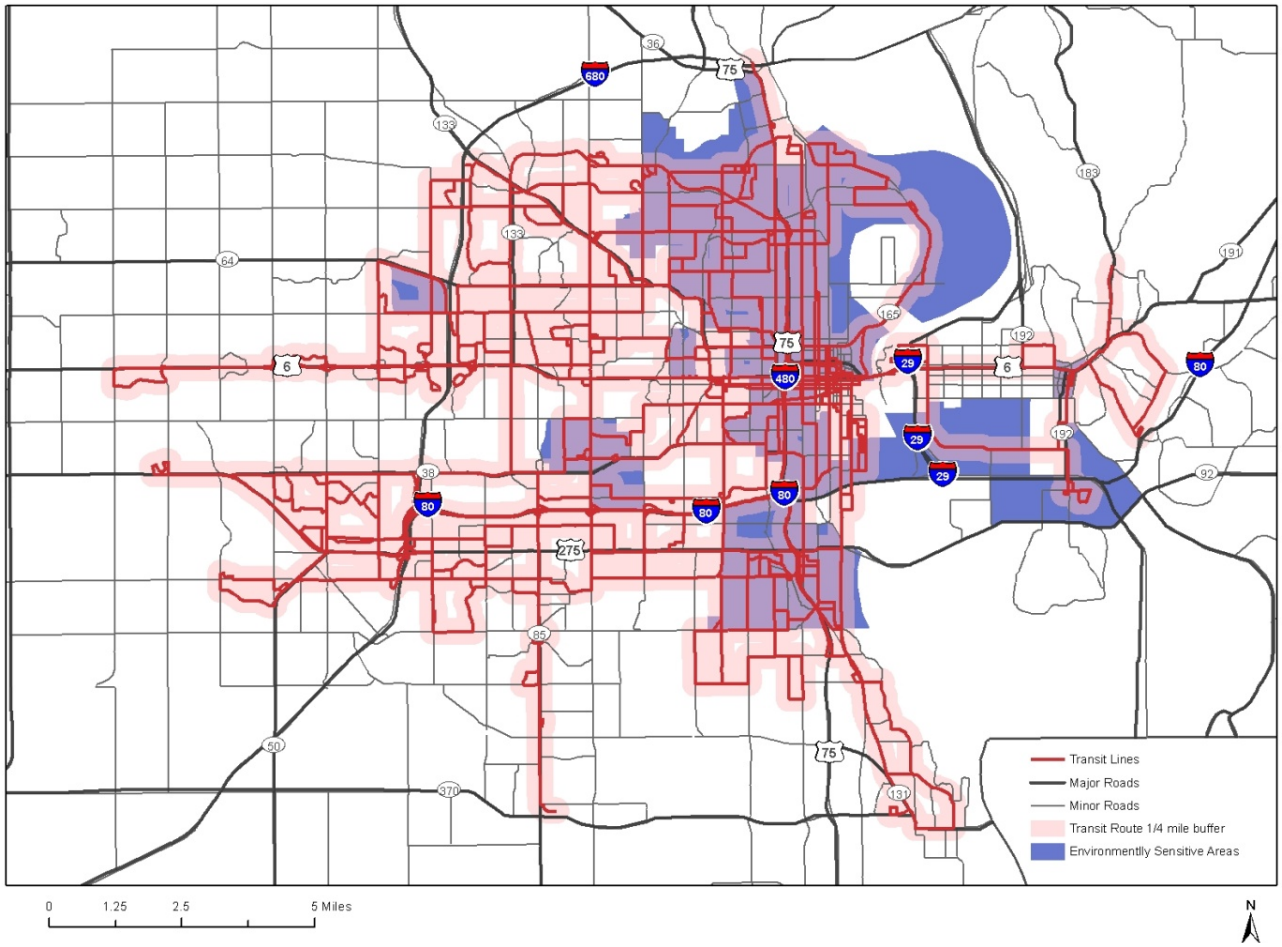
years. Here are the categories of these projects, many of which occur in environmentally-sensitive areas:

- Operations and Maintenance
- Intersection and Interchange Improvements
- Safety-Related Projects
- Resurfacing, Restoration, and Rehabilitation
- Technology and signal coordination
- Bicycle-Pedestrian and Complete Streets improvements

15.4.3 Access to Public Transportation

Public transit service in the MAPA region provides much of its service in environmentally-sensitive areas. Almost all the residential land area in these areas is covered by the ¼ mile proximity buffer to transit lines. Figure 15.3 below illustrates the transit lines as compared to the environmentally sensitive areas.

Figure 15.3
Transit Overlay – Environmentally Sensitive Areas



The Job Access Reverse Commute (JARC) and New Freedom (NF) programs providing access to jobs and services for lower-income and other vulnerable populations. These programs are described in detail in Transit Section (Eight) of this LRTP. Many of these operate in the environmental justice areas and provide benefits to the MAPA region. A list of these services follows in Figure 15.4.

FIGURE 15.4
TRANSIT OVERLAY – ENVIRONMENTALLY SENSITIVE AREAS

Project	Location	Improvement Type	Jurisdiction	Federal Funding Source	Federal (1,000's)	State (1,000's)	Local (1,000's)	Total Costs (1,000's)
Black Hills Workshop FY2011	Service to Offutt AFB from various locations in Omaha. Operate a reverse commute demand response system	Continuation of existing grant, 3rd year	MAPA BHW	Sec. 5316	$81.30	$0.00	$0.00 $81.30	$162.61
Heartland Family Service JARC Grant	Omaha Metro Area	Operate Funding and Loan Program Backup Funding	MAPA HFS	Sec. 5316	$160.49	$0.00	$0.00 $118.18	$278.63
MAPA Mobility Manager New Freedom Grant	Eastern Nebraska and Southwest Iowa	Continuation of funding for a mobility manager position to coordinate public transit and human services transportation systems, 2nd year	MAPA MAT United Way / Omaha Chamber	Sec. 5317 Sec. 5317	$41.63 $57.37	$0.00 $0.00	$0.00 $0.00 $24.75	$123.75
MAPA TMCC New Freedom Grant	Omaha/Council Bluffs Metro Area	Provides coordination with 3 senior centers to identify elderly individuals wishing to attend mid-day meals and activities.	MAPA Senior Centers Contracts	Sec. 5317 Sec. 5317	$76.00	$0.00 $0.00	$0.00 $22.00	$98.00
North Omaha Cares FY2010	North Omaha Location	Hire 3 people for 6 months to help residents in North Omaha to find appropriate public transportation resources	MAPA	Sec. 5317	$45.82	$0.00	$11.46	$57.28
NOTC to Village Pointe JARC Grant	NOTC to downtown Omaha to Village Pointe Mall	Operate a reverse commute fixed-lin bus route. Continuation of existing grant, 3rd year.	MAT	Sec. 5316	$98.81	$0.00	$98.81	$197.62
MAT JARC Administration	Omaha Metro Area	Administration of MAT JARC program	MAT	Sec. 5316	$55.14	$0.00	$0.00	$55.14
MAPA New Freedom Administration Grant FY 2010	MAPA TMA	Administration of FTA New Freedom grants for the MAPA Region	MAPA	Sec. 5317	$15.00	$0.00	$0.00	$15.00
MAPA JARC Administration Grant FY 2011	MAPA TMA	Administration of FTA JARC grants for the MAPA Region	MAPA	Sec. 5316	$15.00	$0.00	$0.00	$15.00

* The 5316 & 5317 grants listed above represent the grants currently active in the MAPA TMA. They are funded with the 5316 & 5317 funding approved by the Coordinated Public Transit Stakeholders Committee (CPTHST), in cooperation with FTA. The projects listed above utilize FTA funding from multiple federal fiscal years and are not approved beyond the available obligation authority.

15.5 CONCLUSION

Based on the analysis presented above, environmentally sensitive populations are not being adversely affected by the MAPA 2035 Long Range Transportation Plan. No projects are anticipated to have significantly negative impacts on the EJ populations. Furthermore, the MAPA region plans to invest over $2.5 billion over the coming 25 year in EJ areas. This includes some of the region's most significant projects in the LRTP, including the Gateway Bridge, the Council Bluffs Interstate Reconstruction, the Saddle Creek Road project, and reconstruction and widening along I-80 and Kennedy Freeway. Projects in the EJ areas represent nearly 50% of the total investment in capital projects in the Region. The total population in environmentally sensitive areas is approximately 180,000, which constitutes 24% of the total population in the MAPA TMA (742,000). Therefore, it cannot be said that the needs in environmentally sensitive areas are being ignored.

This becomes even more evident when it is taken into account that projects that are not specifically identified in the LRTP by location, such as intersection and safety improvements, signal coordination projects, and operations and maintenance projects, occur in these areas. In addition, the public transit system provides its highest levels of service to riders in the EJ areas. Therefore, this LRTP's benefits are not adversely skewed toward non-minority and non-low income populations, and the LRTP can be said to be in compliance with federal regulations concerning environmental justice.

FIGURE 15.5
MAPA LRTP PROJECTS IN ENVIRONMENTAL JUSTICE AREAS

Project Name	Lead Agency	Description	Total Cost
10th St Bridge	Omaha	Widen Bridge	$3,404,907
23rd Ave Trail	Council Bluffs	Ped/Bike Grade and Pave	$850,000
23rd Avenue (24th - 16th St)	Council Bluffs	4-Lane Divided	$5,181,000
24th Street - Project 2	Council Bluffs	Reconstruct 4-lane roadway to 5-lanes	$4,180,000
30th St / Mckinley St	NDOR	Intersection	$463,000
42nd St @ Q Street	Omaha	Replace Interstection	$5,920,000
58th Street (Maple & NW Radial Hwy)	Omaha	Reconfigure Intersection, Install New Signals	$630,600
7th St, Kanesville - Ave G	Council Bluffs	3-Lane with TWLTL	$3,504,000
Broadway (1st St - Kanesville Blvd)	Council Bluffs	3-Lane with TWLTL	$3,948,000
CCTV Cameras	Council Bluffs	CCTV Traffic Camera Installation	$2,000
Complete Streets	Region wide	Bike/Ped/Complete Street Improvements	$4,000,000
Dodge St S-curve	Omaha		$13,665,000
Howard Street	Omaha	Pedestrians and Site Distance Enhancments	$160,940
I-480/US-75 Interchange	NDOR	Landscaping with trees, schrubs and seedlings	$220,000
I-680, Fort St. - Missouri River	NDOR	Mill, inlay dual 24' rwdy outside shld, 10' surf	$2,743,000
I-80	Iowa DOT	Grade and pave, Bridge replacement, ROW.	$230,965,000
I-80 EB Ramp Bridge to US-75 SB	NDOR	Widen Ramp Bridge	$2,355,000
I-80, 24th St - 13th St	NDOR	Gr, culv, add'l lane (EB & WB) thru 13th St in Omaha	$11,741,000
I-80, WB Br over I-80 EB to I-480 NB Ramp	NDOR	Add'l WB lanes	$648,000
I-80, WB Bridge over 50th	NDOR	Add'l WB lanes	$805,000
I-80, WB Brige over 42nd	NDOR	Add'l WB lanes	$1,396,000
I-80/480 - 60th St (WB)	NDOR	Add'l WB lanes	$6,557,000
Ia Riverfront Trail III	Council Bluffs	Ped/Bike Grade and Pave	$870,000
Intersection and Interchange Improvements	Region wide	N/A	$5,000,000

Interstate Reconstruction Utility Relocation (I-80 - 23rd Ave)	Council Bluffs	Relocate Sanitary Sewer in conflict w/ Intst. reconstruction	$9,636,000
ITS/Signal Project	Region wide	Signal technology/coordination	$5,000,000
Mid City Trail	Council Bluffs	Ped/Bike Grade and Pave	$840,000
N 30th Ave	Omaha	Safety project-channelization, lane additions	$481,540
Saddle Creek Rd.	UNMC	New alignment of roadway	$43,033,280
Sorenson Parkway	Omaha	Extend Right-Turn Lane/Ramp, Add Additional Lane to Ramp	$490,000
South Expressway Improvements (I-80/29-16th Ave)	Council Bluffs	Reconstruct Shoulders, Pavement Repair, Drainage Impvmt.s	$1,345,000
Spring Lake Road	Omaha	Reconstruction of Intersection into a roundabout	$495,000
Traffic at Various Locations-Package 4	Omaha	Replace Existing Traffic Signals	$284,480
Traffic Control Center	Omaha	Construction of a Traffic Control Center	$4,500,000
Traffic Oper. and Signal Sys. Planning Study	Omaha	Funtional Requirement Study for Traffic Control Center	$175,000
Traffic Signals	Omaha		$2,670,000
Traffic Signals at 13th & Howard & Harney	Omaha	Replace Existing Traffic Signals	$151,200
Traffic Signals at 15th & Farnam St	Omaha	Replace Existing Traffic Signals	$67,480
Traffic Signals at 42nd & Dodge St	Omaha	Replace Existing Traffic Signals	$100,464
Traffic Signals at Var Locations - Pck. 6	Omaha	Replace existing traffic signals.	$292,364
Traffic Signals at Var Locations-Pck.5	Omaha	Replace Existing Traffic Signals	$386,420
W Broadway Reconstruction, Phase II (32nd-28th St)	Council Bluffs	Reconstruct 5 Lane Roadway	$4,548,000
WB I-80 from I-480/US-75	NDOR	Gr, culv, surf for add'l 3 lanes, loop/ramp reconst, lighting	$6,774,000
		Short-Term EJ Project Sub-Total	$390,479,675
Long-Term Projects:	**Lead Agency**	**Description**	**Total Cost**
"Gateway Bridge" Connector Frwy, Storz Expwy - Mo River	Omaha	4-Lane Freeway	$5,280,000
"Gateway Bridge" Frwy New Interchange @ Pershing Drive	Omaha	New Interchange Under Study	$5,280,000

"Gateway Bridge", New Missouri River Bridge	Omaha	New Bridge	$50,000,000
23rd Ave, 24th St - South Expwy	Council Bluffs	4-Lane Divided with LTLs	$13,694,000
9th Avenue Viaduct and Approach, 19th-8th St	Council Bluffs	4 Lane Viaduct and approach	$39,906,000
Complete Streets	Region wide	Bike/Ped/Complete Street Improvements	$10,000,000
I-29 Segment 2/3 Interim,	IDOT	From US-275 to n/o I-29-I-80 W intchg.	$1,132,167,000
I-29 Segment 2/3 Ultimate	IDOT	From n/o I-29-80 W intchg. To I-80 s/o Madison	$330,251,000
I-29 Segment 4	IDOT	I-29/480/Broadway Systems Intchg.	$382,109,000
I-29, I-80 - I-480	IDOT	4 Lanes NB, SB	$18,356,000
Intersection and Interchange Improvements	Region wide	N/A	$50,000,000
Iowa 92, I-29 East to County Road L-45	IDOT		$7,509,000
ITS/Signal Project	Region wide	Signal technology/coordination	$20,000,000
South Expressway , I-80 - 5th Ave	Council Bluffs	4-Lane Viaduct and Roadway	$24,562,000
US-75, "W" Street" - I-80	NDOR	4 Lanes NB, SB	$35,000,000
US-75, N-370 - "W" Street"	NDOR	4 Lanes NB, SB	$80,000,000
		Long-Term EJ Project Sub-Total	$2,204,114,000
		Capital Projects in EJ Areas Total:	**$2,594,594,000**
		Total Project Costs in MAPA LRTP:	**$5,247,700,000**

Safety

16.1 Overview

23 CFR 450.322 (h) requires: "The metropolitan transportation plan should include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects for the MPA contained in the Strategic Highway Safety Plan required under 23 U.S.C. 148, as well as (as appropriate) emergency relief and disaster preparedness plans and strategies and policies that support homeland security (as appropriate) and safeguard the personal security of all motorized and non-motorized users."

16.2 AASHTO Strategic Highway Safety Plan

First prepared in 1997 and revised in 2005, the American Association of State Highway Transportation Officials (AASHTO) Strategic Highway Safety Plan (SHSP) presents a comprehensive approach to reduce vehicle-related fatalities and injuries on the nation's highways. Created with the cooperation of all levels of government (federal, state, and local), coupled with public and private input the SHSP focuses on 22 specific safety challenges or "emphasis areas" (EA's). Strategies addressed in these EA's seek to improve safety in all areas of transportation. Detailed guidance for the implementation of these strategies is contained in the NCHRP Report 500 series of Guidance for Implementation of the AASHTO SHSP (located here: http://safety.transportation.org/guides.aspx).
The 22 emphasis areas as outlined in the AASHTO SHSP are shown as follows:

- Graduated drivers licensing
- Licensed, competent drivers
- Older drivers
- Aggressive driving
- Impaired drivers
- Keeping drivers alert
- Driver safety awareness
- Seatbelts and air bags
- Pedestrians
- Bicyclists
- Motorcyclists
- Heavy trucks
- In-vehicle enhancements
- Vehicle-train crashes
- Keeping vehicles on the road
- Minimizing consequences of leaving road
- Intersections
- Head-on and cross median crashes
- Work zones
- Increasing EMS capabilities
- Improving decision support system s processes and safety management systems

The full plan (located here: http://safety.transportation.org/doc/Safety-StrategicHighwaySafetyPlan.pdf) includes general strategies and development plans for each of the above emphasis areas.

This plan serves as the basic template and guidance document for State Strategic Highway Safety Plans.

16.3 NEBRASKA STRATEGIC HIGHWAY SAFETY PLAN: GUIDANCE FOR 2007 – 2011

The Nebraska Department of Roads in cooperation with their partners in the Nebraska Interagency Safety Committee created the Nebraska Strategic Highway Safety Plan in order to address the frequency, rate, and factors contributing to fatal and serious injury crashes in Nebraska. The plan was developed through the coordinated effort of the public in addition to the over 90 safety professionals representing education, enforcement, engineering and EMS services.

The Federal Highway Administration mandated that states address three key objectives in their SHSP. First, States must set a safety goal; states must then identify a short list of the highest priority safety strategies as listed in the AASHTO SHSP; finally, states must analyze their safety investment practices and determine the best way to achieve their safety goal.

Based upon the above requirements the Nebraska Interagency Safety Committee and NDOR selected the following 5 focus areas:

1. Increase Safety Belt Usage
2. Keeping vehicles on the Roadway, Minimizing the Consequences of Leaving the Roadway, and Reducing Head-On and Across-Median Crashes
3. Reducing Impaired Driving
4. Improving the Design and Operation of Highway Intersections
5. Addressing the Over Involvement of Young Drivers

By focusing the NSHSP on these five factors NDOR was able to reduce the strategy set from over 500 to around 160 directly related safety strategies. From these 160 strategies the Nebraska Interagency Safety Committee further focused the list to include 20 Critical Strategies in five areas.

- <u>Education</u>
  - Encourage parental involvement and remove diversion programs to discourage underage drinking and driving
  - Consider required server training and perform general public education campaigns
  - Enhance public education to groups with lower than average restraint use rates and host community inspections for child safety seat installations
  - Conduct public information campaigns focused on young drivers
  - Expand driver training and improved training materials
  - Develop community coalitions programs focused on young drivers
- <u>Data Systems</u>

  - Identify intersections with a high number of fatal and disabling injury crashes
- EMS
  - Expand involvement of EMS personnel in child safety seat installation inspections
- Engineering
  - Keep vehicles in their lane
  - Eliminate shoulder drop offs
  - Install median barriers on roads with narrow medians
  - Install, update and improve attenuation systems and guardrail
  - Provide access management
  - Increase intersection sight distance
  - Increase driver awareness when approaching an intersection
  - Utilize non-conventional intersection designs
- Enforcement
  - Employ coordinated and publicized DUI checkpoints and patrols
  - Enforce Zero Tolerance laws for underage drivers
  - Perform compliance checks of alcohol retailers to reduce sales to underage persons
  - Perform publicized seatbelt enforcement campaigns
  - Adopt a primary safety belt law and stronger penalties
  - Use targeted speed enforcement on intersection approaches, including automated enforcement
  - Enhance existing GDL system
  - Conduct enforcement campaigns focused on young drivers

State of Nebraska seeks to utilize the above strategies in order to achieve the following goal:

Reduce the statewide fatality rate by 38%, from a rate of 1.6 fatalities per 100 million vehicle miles of travel (VMT) in 2003 to a rate of 1.0 in 2011 (4.75% reduction annually).

Achieving this reduction would result in 80 lives saved per year. The full Nebraska Strategic Highway Safety Plan: Guidance for 2007-2011 is available here: http://www.dor.state.ne.us/highway-safety/docs/strat-hwy-sfty-plan.pdf .

16.4 IOWA COMPREHENSIVE HIGHWAY SAFETY PLAN: SEPTEMBER 2006

The Iowa Department of Transportation in coordination with their safety stakeholders created a Comprehensive Highway Safety Plan in 2006. IDOT And the safety stakeholders chose to replace “Strategic” with “Comprehensive” in the title of this plan to highlight the broad and collaborative approach utilized in this plan’s development. This plan serves as the State of Iowa’s Strategic Highway Safety Plan as mandated by SAFETEA-LU. Iowa’s stated goal in this plan is to reduce the death toll on the state’s highways from 445 to 400 by the year 2015. This constitutes an overall reduction of 10.1% (1.01 % annually).

The Iowa DOT selected five policy (legislative) strategies and eight program (administrative) strategies.

16.4.1 Top Five Safety Policy Strategies (Legislative)

- Young Drivers - Strengthen minor school license (MSL) and graduated license (GDL) laws with stronger Provisions that are proven to reduce specific risks and save lives.
- Occupant Protection - Require occupant restraints in all automotive vehicle seating positions.
- Motorcycle Safety - Restore a motorcycle helmet law.
- Traffic Safety Enforcement - Support traffic safety enforcement and adjudication with adequate resources.
- Traffic Safety Improvement Program - Increase Iowa Traffic Safety Improvement Program funding from .5 percent to a full 1 percent of Iowa's Road Use Tax Fund.

16.4.2 Top Eight Safety Program Strategies (Administrative)

- Lane Departure - Enhance lane departure-related design standards and policies (e.g. paved shoulders, rumble strips, and median barriers).
- Safety Corridors - Identify safety corridors and use multidisciplinary strategies to mitigate specific crash causes such as impairment, speeding, driver inattention, and other factors.
- Intersections - Promote innovative intersection designs, such as roundabouts and other configurations.
- Local Roads - Create local multidisciplinary safety reams to identify and resolve local crash causes.
- State Traffic Records - Enhance data availability and use by all stakeholders.
- Senior Mobility - Develop a single point of contact to help older persons and their caregivers navigate existing programs for professionals and the driving public.
- Unpaved Rural Roads - Promote public awareness of the risks of driving on unpaved rural roads.

The Iowa Comprehensive Highway Safety Plan is available here:
http://www.iowadot.gov/traffic/chsp/pdfs/chsp_final_20070420.pdf

16.5 Synthesized Safety Goals and Strategies for the MAPA TMA

As a bi-state jurisdiction, the MAPA TMA seeks to employ all of the above strategies from each of the respective Strategic Highway Safety Plans. MAPA has combined the two plans to establish the following TMA Safety Goals for this Long Range Plan.

- Increase Safety Belt Usage
    - Enhance public education to groups with lower than average restraint usage rates.
    - Support and publicize seatbelt enforcement campaigns (e.g., click-it or ticket campaigns).
    - Advocate primary safety belt laws and stronger penalties.
    - Support the expanded involvement of EMS personnel in child safety seat installation inspections.

- Keeping Vehicles on the Roadway, Minimizing Consequences of Leaving the Roadway, Reducing Head-On and Across Median Crashes
    - Support engineering based solutions (e.g., pave shoulders, eliminate shoulder drop offs, install median barriers on roads with narrow medians, improve attenuation systems and guardrails, etc.)
- Reduce Impaired Driving
    - Support the employment of coordinated and publicized DUI checkpoints and patrols.
    - Support compliance checks of alcohol retailers to reduce sales to underage persons.
    - Encourage the removal of diversion programs to discourage drinking and driving.
- Improve the Design and Operation of Intersections
    - Provide access management to freeway, highway and interstate highways.
    - Increase sight distance at intersections.
    - Increase driver awareness when approaching an intersection.
    - Utilize nonconventional intersection designs (e.g., roundabouts).
- Address the Over Involvement of Young Drivers in Fatal Crashes
    - Encourage parental involvement and the removal of diversion programs to discourage underage drinking and driving.
    - Support public information campaigns focused on young drivers.
    - Expand driver training and improved training materials.
    - Support the development of community coalitions focused on young drivers.
    - Support the enforcement of zero tolerance laws for underage drivers.
    - Support the enhancement of existing Graduated Drivers License programs in both states.
    - Support and publicize enforcement campaigns focused on young drivers.
- Improve Data Resources
    - Support enhanced data availability and use by all stakeholders.
    - Assist in identification of intersections with a high number of fatal and disabling crashes.

16.6 Existing Regional Programs

16.6.1 Southwest Iowa Freeway Team (SWIFT)

The Southwest Iowa Freeway Team was established in 1999 as an incident management committee for southwest Iowa. Traffic incidents create region-wide transportation problems that need to be addressed on a regional basis. SWIFT Primarily serves the Pottawattamie County/Council Bluffs Metro Area but also serves southwest Iowa in general.

The mission of SWIFT is twofold: provide a forum to actively communicate and discuss issues related to transportation incident management and to coordinate efforts of

transportation, public safety, emergency services, and other stakeholders to respond to traffic incidents and activities.

In large part SWIFT is being phased out by the ongoing Traffic Incident Management forum and plan that is being developed as a joint venture of the Iowa Department of Transportation, the Nebraska Department of Roads, MAPA, local jurisdictions, law enforcement, EMS, and other interested parties.

16.6.2 MAPA Traffic Incident Management Manual (TIMM) 2004

The 2004 MAPA Traffic Incident Management Manual (TIMM) to provide a standard reference for local public works departments, state transportation agencies (Iowa DOT and Nebraska Department of roads), police, fire, emergency 911 operators, tow operators, and other public safety and transportation stakeholders. The manual incorporates recommendations from these stakeholders to prove a coordinated effort at mitigating crashes and accidents on the MAPA region's transportation systems. This effort contributes to the general safety of those involved as well as those who respond to the incident. The coordination and increased communication among the multiple agencies and organizations provides for a quicker resolution to the incident and gets traffic moving and back to normal sooner.

The TIMM is available upon request at the MAPA offices. This manual will be replaced in early 2011 by the new TIM manual currently under development.

16.6.3 Metro Area Motorist Assist Program (MAMAP)

Metro Area Motorist Assist is a program that provides responsive assistance to motorists on the freeway and principal arterial system in the Omaha/Council Bluffs Metropolitan Area. MAMAP volunteers operate three well equipped emergency response vans during the morning and evening rush hours on the freeway system in the metro area. Hours of operation are from 6:00am to 10:00am and 3:00pm to 7:00pm Monday through Friday.

Trained MAMAP volunteers provide a variety of services including:

- Servicing disabled vehicles with fuel, oil and other fluids
- Helping with flat tires
- Clearing debris from driving lanes
- Arranging to have vehicles towed
- Providing jump starts
- Giving advice and directions

MAPA administers this program with the assistance of AAA Nebraska, the Nebraska Department of Roads, the Iowa Department of Transportation, and the Nebraska Office of Highway Safety.

Further information of MAMAP can be found here: http://mapacog.org/mamap.pdf

MAMAP is available at the following number 1-800-525-555 or *55 on your mobile phone.

16.6.4 2010 Traffic Incident Management Manual

The Iowa Department of Transportation, the Nebraska Department of Roads, MAPA, local jurisdictions, law enforcement, EMS, and other interested parties are finalizing a new Traffic Incident Management (TIM) Manual for the MAPA region. This new TIM Manual contains matrices and routing maps that identify the acceptable (preferred) reaction to a variety of incidents on the region's interstate highway system.

Incidents are categorized by their severity in terms of the duration of the closure and the number of lanes affected. Based upon these conditions, a responder will implement the preferred response that is listed in the TIM Manual. Typically, there are primary and at least two secondary detour routes for a given lane closure.

The TIM Manual also lists contact information for various responders, NDOR, IDOT, and Public Works personnel who may be required to assist in the implementation of the detour routes.

The TIM Manual operates via Adobe Acrobat through hyperlinks. In this way, the file size is small enough to operate on portable laptops. It is the hope of the overall project group that these manuals be downloaded to police mobile laptops for full deployment of the plan. The structure of the TIM Manual allows for a responder to navigate from the main screen to a specific detour plan in as few as three mouse clicks.

16.7 MAPA TMA Traffic Collision Statistics 2006 – 2008

Accident rates in the MAPA TMA have been somewhat unstable recently. Fatal accidents have been declining annually while the total number of accidents has fluctuated. Figure 16.1 shows the total number of traffic collisions inside the TMA from 2006 through 2008 (2008 being the most recent year available at this time).

The States of Nebraska and Iowa do not categorize collisions in the same manner. This causes difficulty in comparing statistics across state lines. Therefore, traffic collision statistics for the Iowa portion of the TMA are shown as totals in the various Nebraska categories. A complete listing of traffic collision statistics for Iowa is located here: http://www.iowadot.gov/crashanalysis/city.htm for city statistics and here: http://www.iowadot.gov/crashanalysis/county.htm for county statistics.
For a complete listing of traffic collision statistics in Nebraska please see the following website: http://www.dor.state.ne.us/highway-safety/#factsbook

FIGURE 16.1
TOTAL TRAFFIC COLLISIONS IN MAPA TMA FROM 2006 - 2008

	2008				2007				2006			
Douglas County	**Fatal**	**Injury**	**PDO**	**Total**	**Fatal**	**Injury**	**PDO**	**Total**	**Fatal**	**Injury**	**PDO**	**Total**
Collision Involving: Pedestrian	2	163	1	**166**	3	147	0	**150**	2	126	0	**128**
Collision Involving: Motor Vehicle in Transport	7	3175	4936	**8118**	17	3447	4716	**8180**	18	3415	4125	**7558**
Collision Involving: Parked Motor Vehicle	0	72	643	**715**	0	74	641	**715**	0	72	542	**614**
Collision Involving: Railroad Train	0	0	0	**0**	0	1	0	**1**	0	1	0	**1**
Collision Involving: Pedalcyclist	0	71	0	**71**	0	60	1	**61**	0	55	1	**56**
Collision Involving: Animal	0	13	134	**147**	0	12	130	**142**	0	12	128	**140**
Collision Involving: Fixed Object	4	405	872	**1281**	13	444	875	**1332**	11	378	689	**1078**
Collision Involving: Other Object	0	7	30	**37**	0	5	28	**33**	0	8	23	**31**
Non-collision Overturned	4	79	47	**130**	2	76	41	**119**	7	62	39	**108**
Other Non-collision	0	12	21	**33**	0	8	22	**30**	0	7	18	**25**
Unknown	0	0	1	**1**	0	2	1	**3**	0	0	0	**0**
Total	**17**	**3997**	**6685**	**10699**	**35**	**4276**	**6455**	**10766**	**38**	**4136**	**5565**	**9739**
Sarpy County	**Fatal**	**Injury**	**PDO**	**Total**	**Fatal**	**Injury**	**PDO**	**Total**	**Fatal**	**Injury**	**PDO**	**Total**
Collision Involving: Pedestrian	0	7	0	**7**	0	11	0	**11**	0	6	1	**7**
Collision Involving: Motor Vehicle in Transport	7	660	828	**1495**	8	648	840	**1496**	4	603	667	**1274**
Collision Involving: Parked Motor Vehicle	0	12	129	**141**	0	13	119	**132**	1	12	103	**116**
Collision Involving: Railroad Train	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**
Collision Involving: Pedalcyclist	0	9	0	**9**	0	5	0	**5**	0	7	0	**7**
Collision Involving: Animal	0	13	106	**119**	0	14	135	**149**	0	10	122	**132**
Collision Involving: Fixed Object	0	100	182	**282**	1	96	219	**316**	7	55	126	**188**
Collision Involving: Other Object	0	0	2	**2**	0	0	8	**8**	0	2	1	**3**
Non-collision Overturned	1	41	24	**66**	2	57	18	**77**	2	50	29	**81**
Other Non-collision	0	3	16	**19**	0	2	13	**15**	0	4	15	**19**
Unknown	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**
Total	**8**	**846**	**1287**	**2141**	**11**	**848**	**1352**	**2211**	**14**	**751**	**1064**	**1829**
Pottawattamie County*	**Fatal**	**Injury**	**PDO**	**Total**	**Fatal**	**Injury**	**PDO**	**Total**	**Fatal**	**Injury**	**PDO**	**Total**
Combined	19	339	1495	**1853**	11	324	1494	**1829**	12	246	1118	**1376**
Regional Total	**44**	**5182**	**9467**	**14693**	**57**	**5448**	**9301**	**14806**	**64**	**5133**	**7747**	**12944**

* Pottawattamie County includes both the urbanized and rural areas of the county.

16.8 RECENT LEGISLATION

16.8.1 TEXTING WHILE DRIVING

During 2010 both the Iowa and Nebraska State Legislatures passed bills banning texting while driving. Iowa House File 2456 (available here: http://www.votesmart.org/billtext/29106.pdf) specifies that texting while driving in Iowa is a secondary offense. A graduated enforcement system in this law will not allow teens from 14-18 years of age to use their mobile devices in any capacity (including to place and receive calls); fines for using a mobile device while driving in this age bracket include a $50.00 ticket plus court costs. Those over 18 years of age are prohibited from texting while driving; fines include a $30.00 ticket plus court costs.

Nebraska LB 945 (http://uniweb.legislature.ne.gov/FloorDocs/Current/PDF/Intro/LB945.pdf) also specifies that texting while driving in Nebraska is a secondary offense. This law bans all drivers from texting while driving. Violations of this law are punishable by a $200.00 fine and the loss of three points on the offender's driver's license; second offense results in a $300.00 fine, third or greater offense $500.00. Nebraska also has a previous law (effective July 1, 2008) prohibiting those under 18 from placing and receiving calls while driving.

Security

17.1 Introduction

Threats to the transportation infrastructure system have become more apparent in recent years. An attack on major transportation facilities could have adverse effects on the national economy even after the initial shock of the attack has passed. The transportation sector has multiple segments that may be targeted by terrorist activity. Airports, harbors and transit facilities, as well as major bridges and roadways are susceptible to terrorist activities. The best way to combat the effectiveness of an attack is to prepare for the possibility of attack by coordinating a response effort.

This plan will seek to continue and enhance local preparedness in planning efforts by:

- Providing resources for transportation-related homeland security projects that would be identified through the regular transportation planning process, including those aimed at prevention, mitigation, response and recovery

- Providing resources to improve security at Intermodal facilities, airports and ports, and military facilities

- Providing resources to expedite urgent highway and public transportation security projects to address an imminent threat or to repair damage caused by a terrorist attack, including structural hardening, relocation of roads form sensitive areas, property acquisition to create secure zones or replace or repair damages or destroyed structures as a result of a terrorist attack

- Encouraging the use of monitoring systems (Intelligent Transportation Systems-ITS) to check the status or condition of key surface transportation facilities

17.2 Local Coordination for Disaster Preparedness

17.2.1 Nebraska

Douglas County Emergency Management Agency

The Douglas County Emergency Management Agency (DCEMA) was established to help coordinate local response to disasters. The Douglas County Emergency Management Agency is the primary response agency for Douglas, Sarpy, and Washington Counties in Nebraska.

Emergency Operations Center

The DCEMA maintains a dedicated emergency operations facility in the bottom two floors of the Omaha Civic Center. The EOC is a 25,000 square foot facility containing a main communications room, briefing and planning room, a radio room as well as a kitchen facility. Immediately adjacent to the EOC is a back-up 911 call center. The EOC is manned daily by three full time employees but has the capacity to support up to 120 people during times of crisis. There are over 50 dedicated phone lines and two message systems linked to this facility.

The facility has the capacity to be self sufficient for an unknown period of time. The EOC is linked to a back-up power source and has kitchen facilities to support those working in the EOC during an emergency.

Local Emergency Operations Plan

The Douglas County Local Emergency Operations Plan (LEOP) was written in 2005 to outline the procedures to be followed when the region is confronted with an emergency incident. The LEOP outlines the local government's response based on the various sectors of governmental control (i.e. police, fire, health, public works, etc.). The Douglas County Local Emergency Operations Plan is available here:
http://www.nema.ne.gov/content/e_plan_pdf/Douglas_eLEOP.pdf

Nebraska Emergency Management Agency

The State of Nebraska also operates the Nebraska Emergency Management Agency (NEMA) which will help to coordinate disaster prevention and recovery on intrastate and interstate levels. NEMA maintains a website with all applicable information, located here:
http://www.nema.ne.gov/

17.2.2 IOWA

Pottawattamie County Emergency Management Agency
Emergency Operations Center / Pottawattamie County Multi-Hazard Emergency Operations Plan

The Pottawattamie County Multi-Hazard Emergency Operations Plan (EOP) was revised in October 2004. The EOP focuses on prevention of disasters along with minimizing the vulnerability of Pottawattamie County to disasters. Enhancing Homeland Security is also a key feature of the EOP. The EOP outlines key facilities and responses to all manner of emergency situations. The Pottawattamie County Multi-Hazard Emergency Operations Plan is available here:
http://www2.pottcounty.com/pdf/EM/Basic%20Plan.pdf

Iowa Homeland Security and Emergency Management Division

Statewide preparedness and prevention for emergency incidents in Iowa are covered by the Iowa Homeland Security and Emergency Management Division (IHSEMA). IHSEMA works to coordinate with local jurisdictions, other states, and the federal government. IHSEMA maintains a website located here:

http://www.iowahomelandsecurity.org/

17.2.3 Regional Evacuation Plans

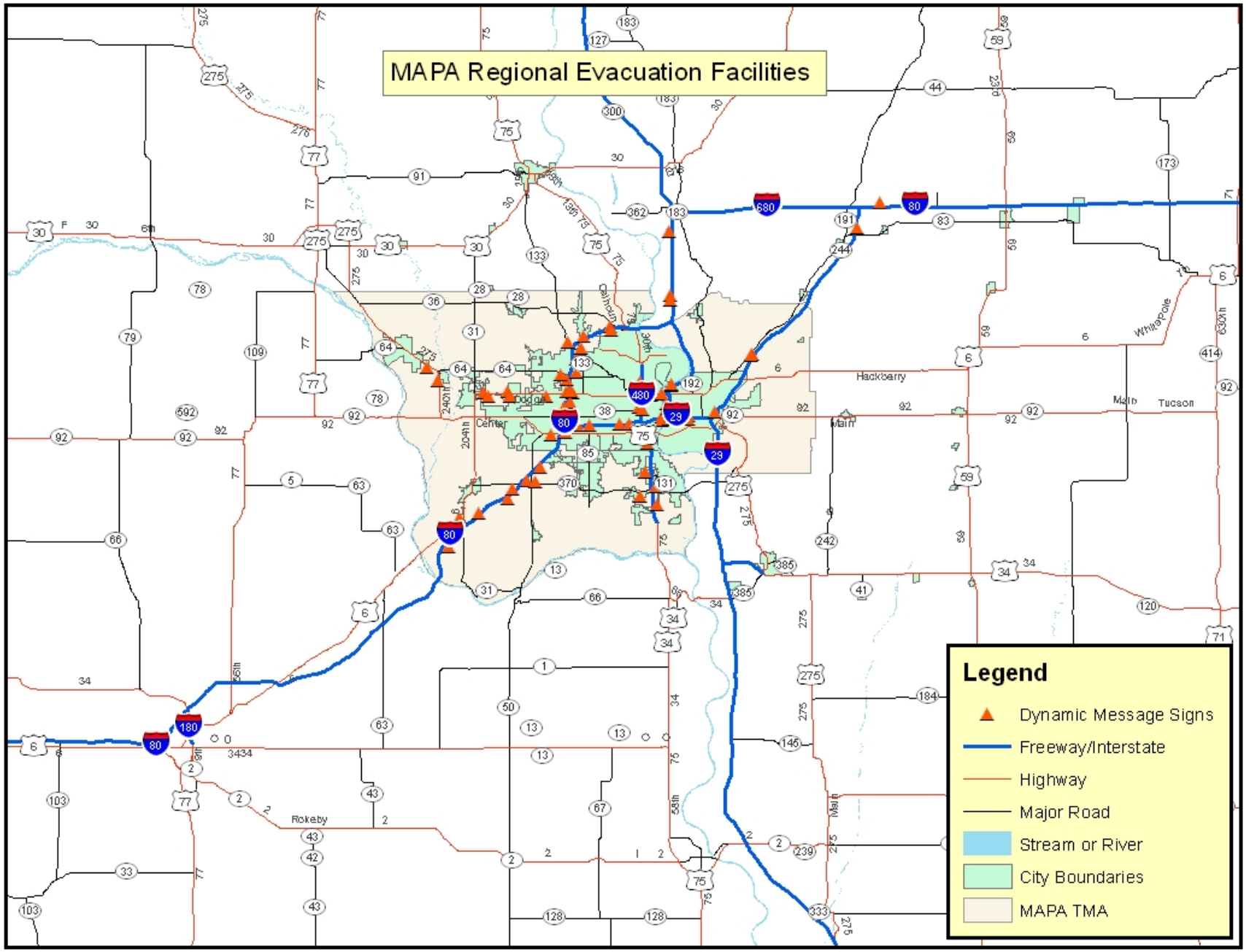
Emergency management agencies on both sides of the river have developed operational frameworks to facilitate large scale evacuations of the urban population of the MAPA region. These frameworks do not contain a specific routing plan for the evacuation of the urban population. It is understood that the evacuation would be a coordinated effort of law enforcement, Iowa DOT, Nebraska DOR, and the regional emergency operations centers. Control of the operation would be delegated to local law enforcement agencies via command from regional emergency operations centers with assistance from local public works and state department of transportation personnel.

These frameworks delegate roles and responsibilities for evacuation based upon Department of Homeland Security best practices and national frameworks. It is expected that the 2011 Traffic Incident Management Manual (TIM Manual) would be utilized to create detours and routing for evacuation traffic in the event of a large scale evacuation. While this document (referenced in section 16.6.2 of this plan) is not expressly designed for large scale evacuations, the basic framework allows for detour routes to be established in short order to deal with traffic incidents on major regional transportation facilities. These detour routes could feasibly be utilized in order to facilitate a large scale evacuation.

The vast majority of urbanized evacuation traffic is expected to be channeled to the region's interstate highway facilities (I-80 and I-29). Exits would be closed and monitored in order to further channelize traffic flow out of the metro region. In the event that a major river crossing (such as the Interstate 80 bridge between Council Bluffs and Omaha) is not operational, detours utilizing the region's other crossings (I-680, I-480, US-275, US-34) would be established.

Dynamic message signs (DMS) located away from the MAPA region and operated by the Nebraska DOR and Iowa DOT would reroute traffic around the area in order to better facilitate the flow of evacuation traffic. Major transportation facilities that would be utilized in the event of a large scale regional evacuation are shown in Figure 17.1 on the following page. Regional DMS signs are also illustrated in this figure.

FIGURE 17.1
MAPA REGIONAL EVACUATION FACILITIES MAP



17.3 NATIONAL SCOPE

In order to prepare the nation to combat the threat of attack, the federal government has set the National Preparedness Goal to "engage Federal, State, Territorial, tribal and local entities, their private and nongovernmental partners and the public to achieve and sustain risk-based target levels of capability to prevent, protect against, respond to and recover from major events..."

Preparedness goals for the transportation sector include plans to implement three specific programs:

- The National Infrastructure Protection Program (NIPP)
  - Sector Specific Plans (SSP)
- The National Incident Management System (NIMS)
- The National Response Framework (NRF)

National Infrastructure Protection Program (NIPP)

The NIPP establishes the nation's ready-state level of protection by focusing resources where investment yields the largest reduction in national risk relative to cost. The NRP addresses prevention, preparedness, response, and recovery in the context of domestic threat and incident management of Incidents of National Significance. The goal of the National Infrastructure Protection Program (NIPP) is to:

Build a safer, more secure, and more resilient America by preventing, deterring, neutralizing, or mitigating the effects of deliberate efforts by terrorists to destroy, incapacitate, or exploit elements of our Nation's Critical Infrastructure and Key Resources (CIKR) and to strengthen national preparedness, timely response, and rapid recovery of CIKR in the event of an attack, natural disaster, or other emergency.

The NIPP defines an infrastructure asset as something of importance or value belonging to one of 17 sectors that if targeted, exploited, destroyed, or incapacitated could result in large-scale injury, death, economic damage, destruction of property and could profoundly affect the nation's prestige or confidence. Elements of the transportation system fall into this category.

The NIPP defines a program management approach that provides for collecting and validating sector requirements; prioritizing the allocation of federal resources through the annual budget process, measuring national results and performance, and continuously improving critical infrastructure/key resource protection based on results and performance.
Resource allocation consists of four phases:

- Establish sector requirements
- Prioritize requirements according to criticality to the nation
- Protective programs are the recommended that have the greatest potential to reduce risk as per the NIPP risk management framework

- HSC reviews proposed funding, resolves issues, finalizes recommendations to be passed to OMB for President's budget recommendation

The NIPP is available here:
http://www.dhs.gov/xlibrary/assets/NIPP_Plan.pdf

In 2009 the Department of Homelands Security released Sector Specific Plans (SSP) for the 17 different sectors of the National Infrastructure. Each of these plans outlines the specific goals and objectives of the DHS in protecting the CIKR for each sector.

The SSP for Transportation lists three sector security goals:

1. **Prevent and deter acts of terrorism using or against the transportation system.**
   Under this goal the DHS along with transportation partners will seek to develop a flexible, layered and effective security program based on risk management principles. It is important to increase the vigilance of travelers and transportation workers in order to enhance their role in reporting suspicious activity. The traveling public along with public employees will serve as force multipliers to law enforcement in combating terrorist attacks. Finally, this goal seeks to enhance the communication between the various transportation partners in order to share best practices as well as intelligence information and threats.

2. **Enhance resilience of the U.S. transportation system.**
   Currently there are many points in the transportation system that if damaged could cripple the U.S. transportation system. This goal seeks to improve the U.S. transportation system's ability to accommodate and absorb damage from any source, natural or otherwise. This goal also seeks to manage and reduce the risk associated with key points in the transportation network. Finally this goal seeks to improve the capacity for rapid and flexible response and recovery to all-hazards events.

3. **Improve the cost-effective use of resources for transportation security.**
   Transportation resources should be allocated to deal with the highest priority transportation security risks; economic analyses should also be considered when making these decisions. Enhanced participation from all levels in the transportation sector should also take place. Efforts need to be coordinated in order to ensure the best outcome.

Resources of potential risk in the MAPA TMA include portions of the National Defense Highway (interstates I-80 and I-29), major bridges across the Missouri River, active rail, pipeline and telecommunication corridors and facilities.

The Sector Specific Plan for Transportation is available here:
http://www.dhs.gov/xlibrary/assets/nipp-ssp-transportation.pdf

National Incident Management System (NIMS)

The National Incident Management System (NIMS) was last updated in December 2008. NIMS is not an operational manual. However, NIMS does provide a basic framework and guidelines for the collaboration of agencies in effective incident management. The NIMS document contains a set of acceptable practices as used by various jurisdictions for incident management. NIMS integrates these best practices into a comprehensive framework that is flexible enough to be applicable across a broad array of incidents.

The NIMS consists of a five-component, systems approach aimed at integrating existing best practices into a multi-jurisdictional incident management plan. The components of the NIMS plan are listed on the following page.

NIMS Components

- Component I- Preparedness
- Component II- Communications and Information Management
- Component III- Resource Management
- Component IV- Command and Management
- Component V- Ongoing Management and Maintenance

The NIMS Document is available here:
http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf

National Response Framework

The National Response Plan was replaced by the National Response Framework (NRF) in 2008. The NRF establishes a set of guidelines comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents. The NRF outlines general roles for the different levels of government: local, state and federal.

Local Government:

- Individual Awareness- prepared communities start with prepared individuals. It is important that individuals prepare emergency kits and plans.
- Coordination of Responders- Local police, fire, emergency and medical services are often the first to arrive and the last to leave an incident scene. Senior local officials should create local emergency frameworks in order to effectively respond to incidents.
- Coordination with Business Partners- Business partners in the community are a key resource for threat awareness and response. Local government officials should consult with these organizations in order to help them understand their community better.
- Coordination with NGO and NP- Nongovernmental and Nonprofit organizations are also a key resource to help identify threats and hard to reach populations when supplying emergency services. Local officials need input from NGO and NP

actors in order to address the needs of the entire community in case of a hazardous incident.

State, Territorial, and Tribal Government:

- Local-State Coordination- States are the first in line to offer support to local communities dealing with incidents.
- State Agencies- State police, emergency management, health, and homeland security agencies are a great resource. These agencies can provide additional resources, coordination and expertise to assist a local government with managing an incident.
- National Guard- The governor has the authority to call out a State's National Guard troops in order to assist with disaster relief. These troops can help to provide security and assistance after an incident occurs.
- Federal-State Assistance- If a State anticipates that its resources will be exceeded the Governor of that State can request assistance from the federal government as well as other States.

The Federal Government

- Larger Scope- When an incident's scope is larger than a local or state government's ability to respond the federal government can offer assistance at the request of the governor of the effected state.
- Lands Under Federal Jurisdiction- In the case of federally owned lands or military bases, federal government representatives will most likely be the first to respond. These first responders will coordinate with local and state actors.
- Oversight- Pursuant to the Homeland Security Act of 2002 and Homeland Security Presidential Directive (HSPD) 5, the Secretary of Homeland Security is the principal Federal official for domestic incident management. Incident management refers to how incidents are managed across all homeland security activities, including prevention, protection, and response and recovery.

The National Response Framework is available here:
http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf

The NRF incorporates best practices and procedures from incident management disciplines—homeland security, emergency management, law enforcement, firefighting, public works, public health, responder and recovery worker health and safety, emergency medical services, and the private sector—and integrates them into a unified structure. It forms the basis of how the federal government coordinates with state, local, and tribal governments and the private sector during incidents.

Incorporation of new priorities into the transportation planning stage should include input from:

- Police and sheriff departments
- Fire departments, rescue squads

- Federal and State response agencies
- Elements of the Department of Homeland Security (TSA, FEMA, US Coastguard, etc)

This LRTP hopes to provide guidance in using National Security measures in the planning, engineering and implementation of transportation projects in the MAPA TMA.