

MEMORANDUM

To: Sasaki
From: Nelson\Nygaard Project Team
Date: January 31, 2012
Subject: The Tomorrow Plan: Transportation Existing and Proposed Conditions

INTRODUCTION

The following report documents existing and proposed conditions for the transportation network, with a profile of each major travel mode (roadway, transit, pedestrian, bicycle), plus a description of the region’s popular trail system.

In the Des Moines Metropolitan Planning Area (MPA), 92percent of person trips are made using a personal vehicle.¹ At the same time, a robust network of transit, including not just local fixed-route but also demand-response service, an active carpool culture, and multiple Transportation Demand Management programs, provide valuable opportunities for a more multimodal future system. Today, the average vehicle trip within the MPA takes 25 minutes and covers a distance of 15 miles. As shown in Figure 1, commute methods to work are overwhelmingly by private auto. The rate of vehicle ownership, in turn, is high, with just 5.1 percent of occupied housing units without a vehicle available. In comparison, the United States overall has 8.9 percent of households that do not have a vehicle.

Figure 1: Mode of transportation to work & vehicle availability, 2005-2010 ACS 5-year estimates

	Dallas County		Polk County		Warren County		3-County Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Labor Force (Employed, Age 16+)	32,782		221,375		24,152		278,309	
Drive Alone	27,396	83.6%	180,449	81.5%	19,019	78.7%	226,864	81.5%
Carpool	3,088	9.4%	22,939	10.4%	2,691	11.1%	28,718	10.3%
Transit	63	0.2%	3,940	1.8%	72	0.3%	4,075	1.5%
Walked	286	0.9%	4,101	1.9%	705	2.9%	5,092	1.8%
Other	331	1.0%	2,100	0.9%	144	0.6%	2,575	0.9%
Worked at Home	1,618	4.9%	7,846	3.5%	1,521	6.3%	10,985	3.9%
Mean Travel Time to Work (minutes)	20.8		18.6		24.2		21.2	
Occupied Housing Units	25,735		180,177		17,931		223,843	
Households without a Vehicle	599	2.3%	10,088	5.6%	601	3.4%	11,288	5.0%

Source: American Community Survey 5-year estimates, 2006-2010

The Des Moines Area Metropolitan Planning Organization’s (MPO) Travel Demand Model simulates current conditions and models impacts of various projects. A traditional travel demand

¹Des Moines Area Metropolitan Planning Organization. Horizon Year 2035 Metropolitan Transportation Plan. Sept. 17, 2009. Page 2-96. Hereafter referred to as HY 2035 MTP.

model includes a four-part process of calculating trip generation, trip distribution, trip assignment, and mode choice. The Des Moines Area TDM uses the National Household Travel Survey as a source of base travel information. The 2001 NHTS determined that transit ridership accounted for less than 1 percent of total trips in the MPA; thus, the MPO does not include the fourth step of travel demand modeling – mode choice – in its model.² Given that transit is now understood to account for 1.2 percent of all work trips, the MPO is in the process of integrating mode choice into its model.

ROADWAY

Existing

The Greater Des Moines Region's roadway network includes highways that connect within and outside of the region, as well as an extensive local, internal roadways network. The regional interstate highway system includes I-35, which travels south from Minneapolis, past Ankeny, then turns and travels west, then south again through Urbandale, Clive, and West Des Moines south to Kansas City. I-80 travels east from Omaha and merges with I-35. I-235 runs along the south border of the Central Business District (CBD) from the southwest to northeast, then I-35 continues north and I-80 heads east to Iowa City. U.S. Highways include U.S. 6, U.S. 65, and U.S. 69. U.S. 6 runs east-west along the border between the Northwest and Southwest Suburbs study areas. U.S. Highway 69 travels north-south along the east side of the CBD and U.S. 65 arrives from the northeast then heads south and west to overlap with Iowa Highway 5. East-west Iowa Highways include numbers 415, 44, 48, and 163, while north-south routes include 141, 28, and 316. At the regional level, streets classified as principal arterials or minor arterials serve medium to long distance trips between neighborhoods or cities. Figure 2 shows the regional road network. The MPA's population is concentrated within the polygon created by I-35, I-80, Iowa Highway 5, and U.S. 65. Employment density is highest in the CBD and around the I-35/80/235 interchange.

The regional system is supported by a network of collectors and local streets. Collectors provide circulation within neighborhoods, and local roads provide direct access to land uses (such as homes). Figure 3 shows the collector and local network. As described, most collectors are short links within cities. The local network helps illustrate the higher use development patterns and developed areas within the region's cities (especially the CBD, West Des Moines, and Ankeny). Places like Norwalk, Bondurant, Grimes, and Waukee contain considerable open space or undeveloped land and, therefore, less dominant roadway networks. A few developed but unincorporated areas exist between the CBD and Ankeny, also with smaller roadway presence.

² HY 2035 MTP, Appendix C-Travel Demand Model

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Figure 2: Regional Roadway Network

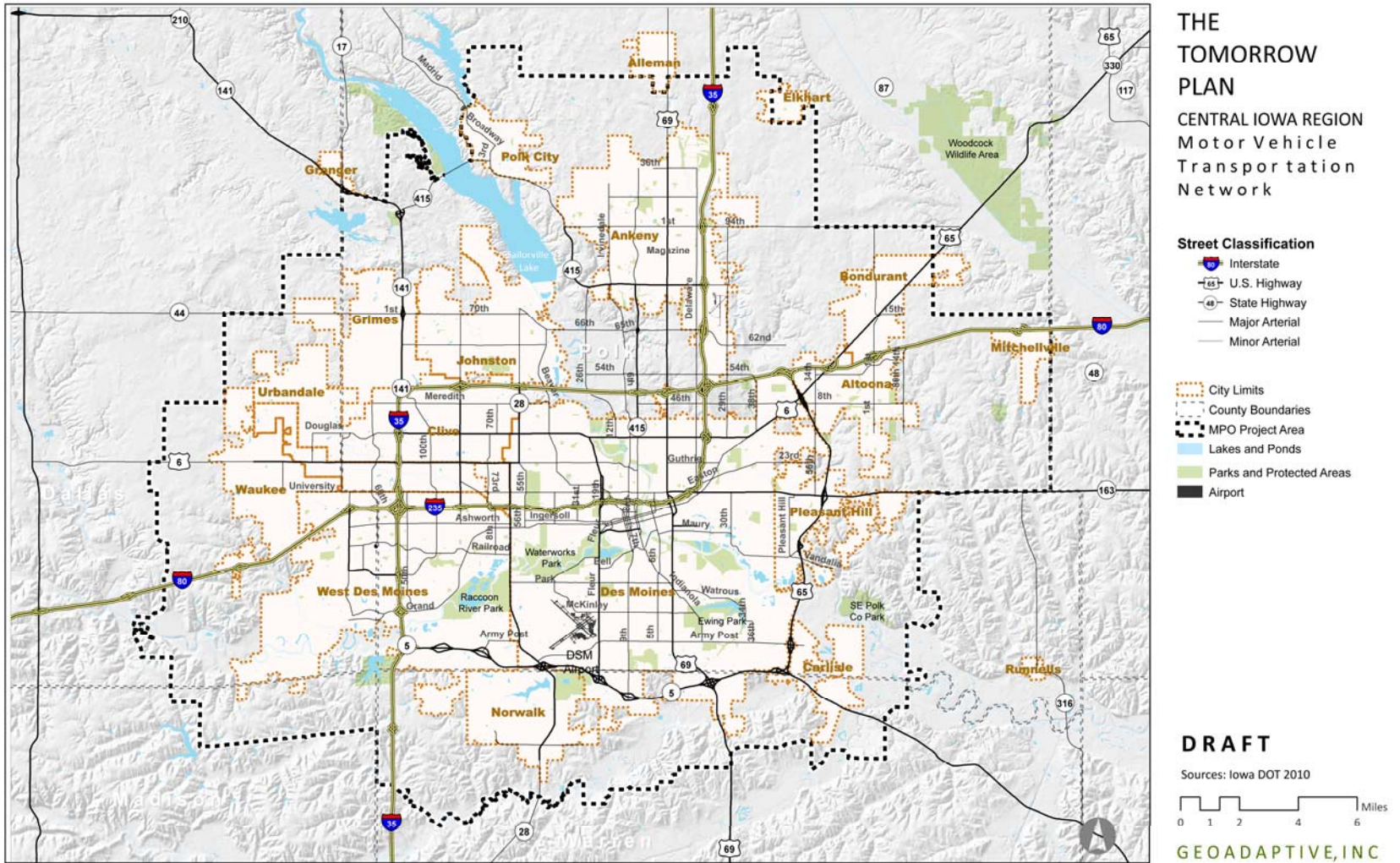
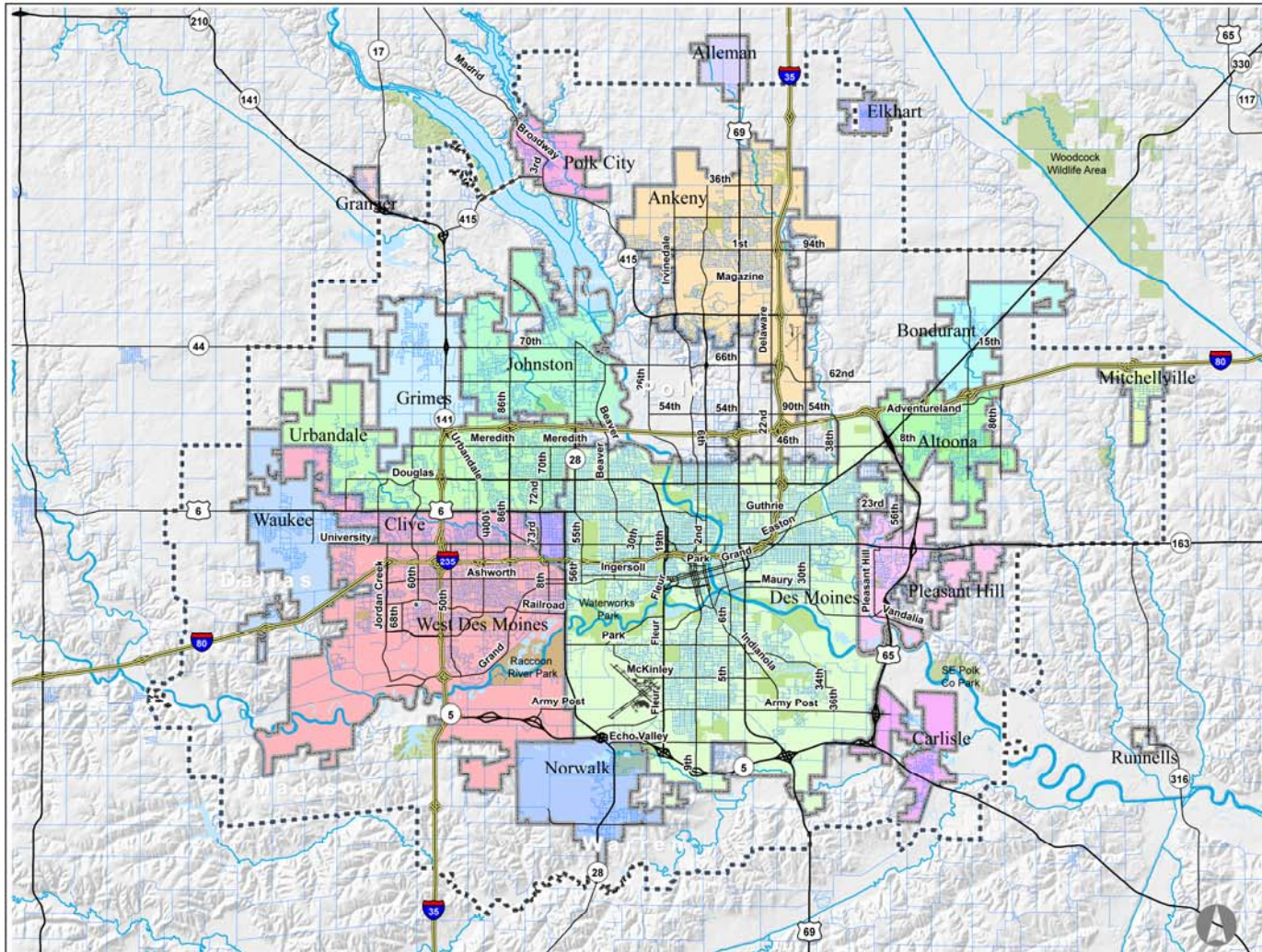


Figure 3: Local Road Network



THE TOMORROW PLAN
CENTRAL IOWA REGION
Motor Vehicle Transportation Network

Local Network

- Collector and Local
- City Limits
- MPO Project Area
- Parks and Protected Areas
- Airport

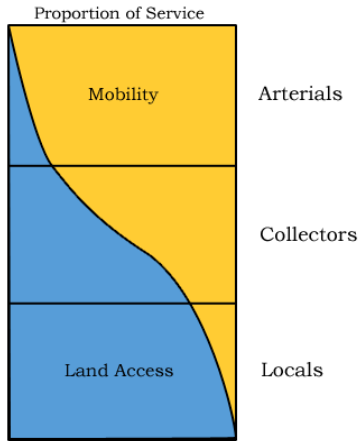
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Sources: Iowa DOT 2010



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The function of the various street types can be summarized as follows:



Source: FHWA Functional Classification Guidelines http://www.fhwa.dot.gov/planning/fcsec2_1.htm#fsiua

Within the MPA, there are a total of 2,286 miles of roads. As with any hierarchy, the various road types make up different percentages of the overall road system. A city of all principal arterials would allow no room for walking, while a city made of only collectors would not provide long-distance mobility. Figure 4 summarizes the percent each functional classification represents in the metropolitan region compared against federal statistics. The figure shows that the Des Moines Area MPA falls within typical functional classification percentages in urbanized areas, with the primary circulation network of local roads comprising more than two-thirds of all roads.

Figure 4: Comparison of MPA road system to FHWA urbanized area standards

Measure	Miles of Roadway	Percent of System	
		MPA	National Average
Principal Arterial	190	8%	5-10%
Minor Arterial	299	13%	10-15%
Collector	211	9%	5-10%
Local	1,586	69%	65-80%

Source: Des Moines MPO LRTP 2035, FHWA Functional Classification Guidelines

Vehicle Miles of Travel (VMT) is a data point collected by Iowa Department of Transportation (DOT) and represents total miles traveled on rural and municipal roads for all users. Figure 5 shows VMT changes from 2005 to 2010 for each county in the Des Moines Area MPA as well as the state. In both Dallas and Warren Counties, rural road VMT decreased, while travel on

municipal roads showed significant increase. Overall VMT change in Polk County was 2.5 percent. Over 5 years, this represents 0.4 percent more VMT per year.

Figure 5: Total Vehicle Miles of Travel by road type, 2005-2010 (all numbers in millions)

	Rural VMT (2005)	Rural VMT (2010)	Percent Change	Municipal VMT (2005)	Municipal VMT (2010)	Percent Change	Total VMT (2005)	Total VMT (2010)	Percent Change
Iowa	18,622,380	18,628,545	0.03%	12,945,382	12,950,811	0.04%	31,567,762	31,579,356	0.04%
Polk County	922,742	990,910	7.39%	3,010,811	3,030,974	0.67%	3,933,553	4,021,884	2.25%
Dallas County	433,216	430,168	-0.70%	191,124	219,672	14.94%	624,340	649,840	4.08%
Warren County	411,494	390,211	-5.17%	130,639	163,367	25.05%	542,133	553,578	2.11%

Source: Iowa Department of Transportation, Vehicle Miles of Travel 2010, <http://www.iowadot.gov/maps/msp/vmt/countyvmt10.pdf>

Level of Service (LOS) is a commonly-used indicator of vehicle delay, as it is a ratio of vehicles to road capacity. The LOS outcome is a letter ranking from A to F, with A designated for road links where less than half the capacity is being used, and F for links where the vehicle to capacity ratio exceeds 1.35. It is important to keep in mind that the A through F ranking does not correspond to a best to worst designation, as that is a judgment based on surrounding land uses and community priorities.

In 2005, 1.3 miles (or 0.1 percent) of MPA's nearly 1,500 miles of streets operated at LOS E or F. Without any future improvements to the street system, the travel demand model forecasts that 22 miles (or 1.5 percent) of the road network will operate at LOS E or F by 2035. Figure 6 shows the LOS changes from 2005 to 2035. The MPO's travel demand model LOS projections for 2010 can be used as a proxy for current conditions, and is shown below in Figure 7. Two links -- 66th Street connecting Johnston to the Northwest Des Moines subarea and University Avenue on the Polk and Dallas County border -- show LOS F. Two streets near University Avenue and a third at the northwest corner of the CBD are projected to be LOS E. All other roads are D or better. A total of 72.1 percent of the roads are projected to operate at LOS A as of 2010, which provides an oversupply of capacity that offers opportunities for growth or reallocation without negatively impacting the transportation network.

Figure 6: LOS changes from 2005 to 2035 under existing conditions

	2005		2035	
	Miles	Percent	Miles	Percent
LOS A	1164.9	80.4%	746.1	51.5%
LOS B	211	14.6%	371.9	25.7%
LOS C	66.7	4.6%	238.3	16.4%
LOS D	4.9	0.3%	70.6	4.9%
LOS E	1	0.07%	16	1.1%
LOS F	0.3	0.0%	5.8	0.4%
Total	1448.8	100.0%	1448.7	100.0%

Source: HY 2035 MTP, Page 5-9

These LOS conditions indicate a roadway network operating with significant capacity—in effect, moving as many people throughout the region as want to move with almost no perceptible delay.

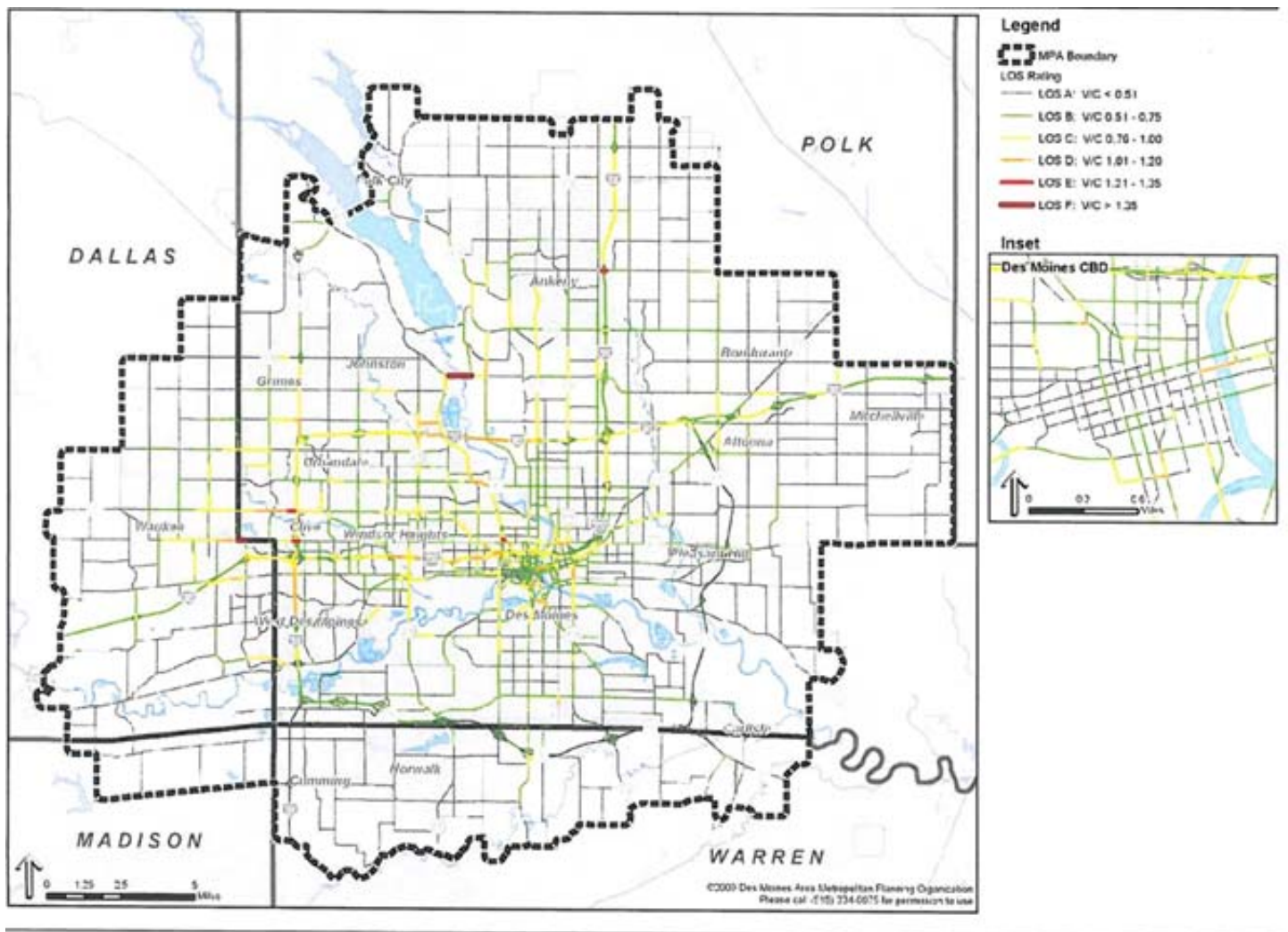
The MPO has completed a Travel Time Survey using actual vehicle drive times tracked via GPS on a sampling of principal arterials (Interstates, US highways, and state highways) since 2002.

Travel times are collected during the morning and afternoon peaks, defined as 6:30-8:30 AM and 4:00-6:00 PM. The survey entails a car equipped with GPS driving the corridors selected for sampling four times per peak period for three consecutive weekdays.³ As shown in Figure 8, travel times show little delay, which mirror the LOS data. For example, travel time on SW 1st Street/S 1st Street (Iowa Highway 28), which measure approximately 12.5 miles in the study area, is 9 minutes total, netting an average speed of 43 mph. On Iowa 5, average speeds are 32.5 mph, as it takes 24 minutes to travel 13 miles.

³Des Moines Area Metropolitan Planning Organization. Travel Time Survey 2007. March 2008. Page 10.

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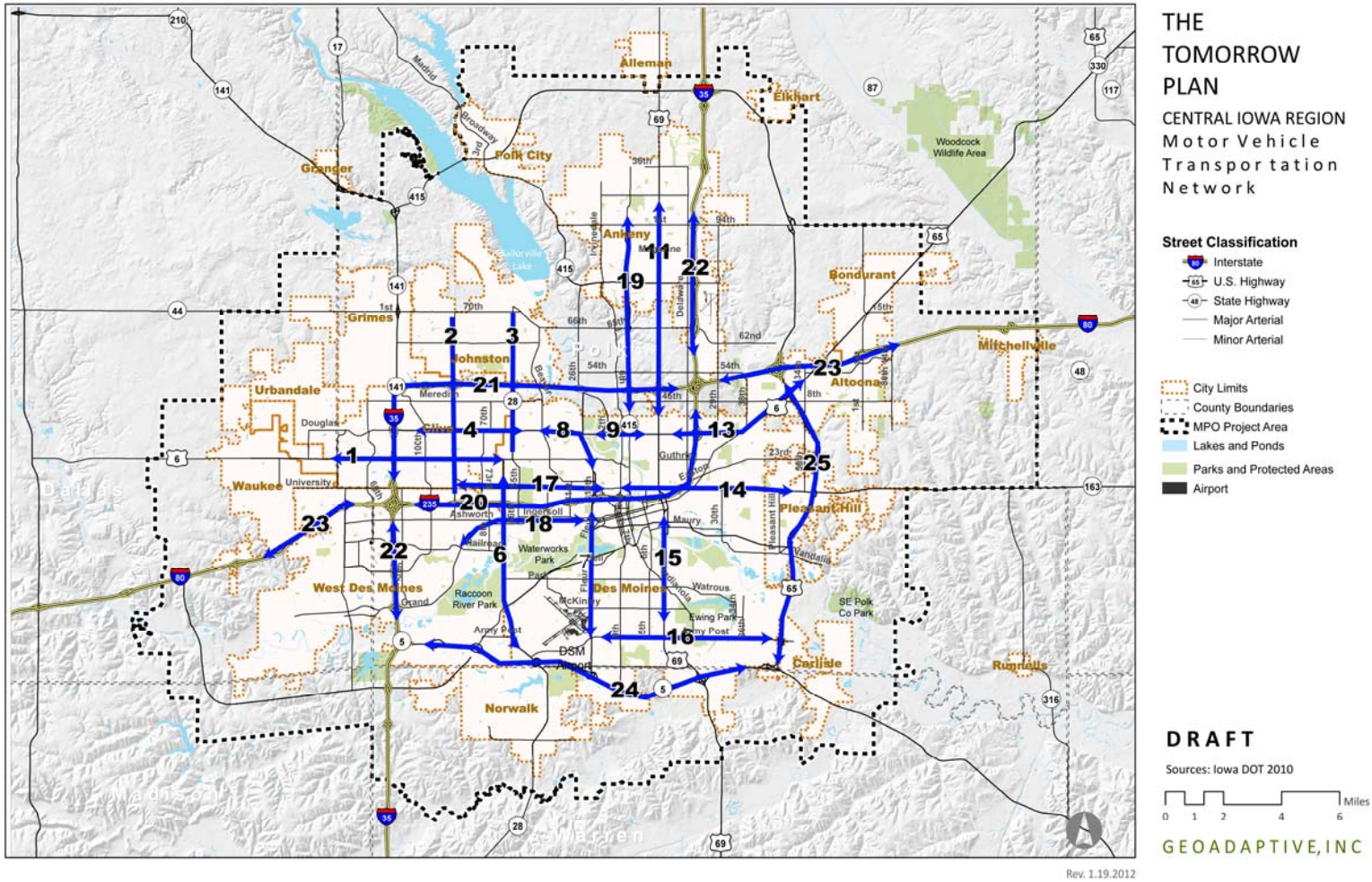
Figure 7: Level of Service 2010



Source: Des Moines Area MPO Metropolitan Transportation Plan, 2035 HY, Page 5-11

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Figure 8: Travel time survey results, 2009



Proposed Changes

The following section describes the future roadway network infrastructure. Since this is a regional project, this section consists of planning studies on corridors, regional transportation enhancement projects listed in the Transportation Improvement Program, and road network expansions identified in the HY 2035 MTP.

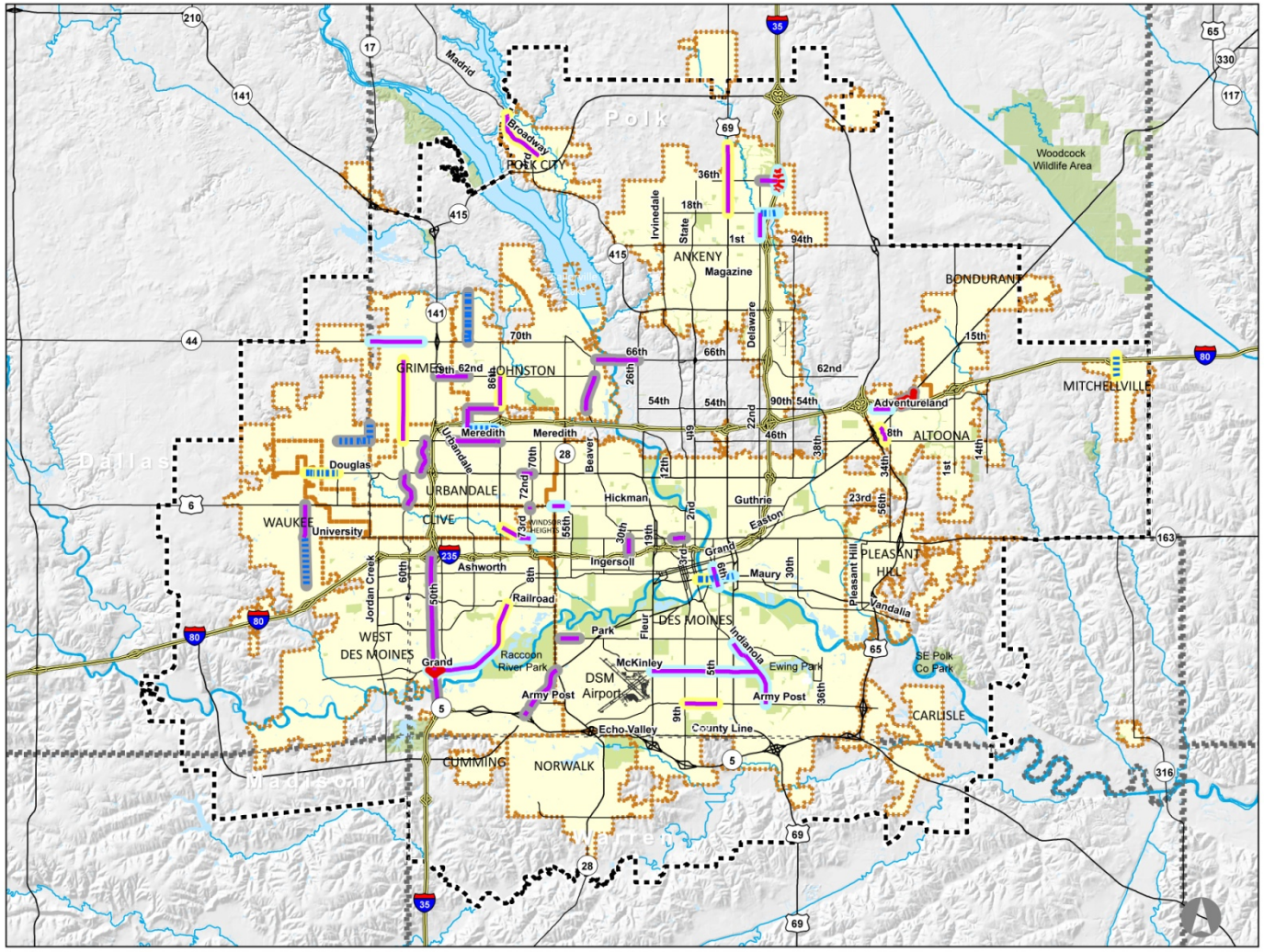
Metropolitan Transportation Plan

The MPO member agencies and governments annually create a Capital Improvement Program listing the various local and federally funded capital investments slated for the region. This plan typically covers a three- to five-year period. The Transportation Improvement Program (TIP), which covers four or more years, is the implementation documentation for capital improvements that are federally funded. This MPO TIP must be coordinated with the statewide TIP and any projects in it must be listed in the MPO's Metropolitan Transportation Plan. Projects that are locally funded, however, are not included in the TIP. The following section describes the committed, planned, and proposed road projects out to 2035 that are listed in the HY 2035 MTP.

Numerous projects are planned for the 2011-2015 timeframe. A total of \$605,880,000 is scheduled to be invested in widening or creating 83 miles of roadway, according to the HY 2035 MTP. Figure 9 shows the location of these planned road projects. Figure 10, the summarizing table includes new road or interchange projects. The status of each project is also included in the map. For Horizon Year 2015 projects, the MPO has information on whether the project is under construction or completed. Projects that are not under construction yet, but for which funding has already been obtained, are also shown as an underlay.

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Figure 9: Capital roadway improvements, 2011-2015



THE TOMORROW PLAN
 CENTRAL IOWA REGION
 Capital Improvement Plan
 projects 2015 Horizon Year

2015 Projects

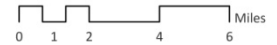
- ▬▬▬ New Road
- ▬▬▬ New Interchange
- ▬▬▬ Realign
- ▬▬▬ Reconfigure Interchange
- ▬▬▬ Widening

Project Status

- Completed
- In Progress
- Not implemented but funding programmed

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Sources: Iowa DOT 2010



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Figure 10: New roads or major projects, 2011-2015

City	Street	Project Work	Project Status
Ankeny	NE 36TH ST INTERCHANGE	Add Interchange	Under Construction
Ankeny	PROP NE 18TH ST	Add 2 lanes undivided	Under Construction
Clive	280TH ST	Add 5 lanes divided	Completed
Clive	DOUGLAS PKWY	Add 5 lanes divided	Completed
Des Moines	PROP M L KING JR PKWY	Add 4 lanes divided	Completed
Johnston	NW 100 ST	Add 2 lanes undivided	Funding Obtained
Mitchellville	COTTON AVE NW	Add 2 lanes undivided	Completed
Mitchellville	NE 112 ST	Add 2 lanes undivided	Completed
Urbandale	DOUGLAS PKWY	Add 5 lanes divided	Completed
Urbandale	PLUM DR	Add 5 lanes divided	Under Construction
Urbandale	142ND ST	Add 2 lanes undivided	Funding Obtained
Urbandale	MEREDITH DR	Add 2 lanes undivided	Funding Obtained
Waukee	DOUGLAS AVE	Add 5 lanes divided	Completed
Waukee	280TH ST	Add 5 lanes divided	Completed
Waukee	PROPOSED ALICES RD	Add 6 lanes divided	Funding Obtained

Source: DMAMPO GIS data

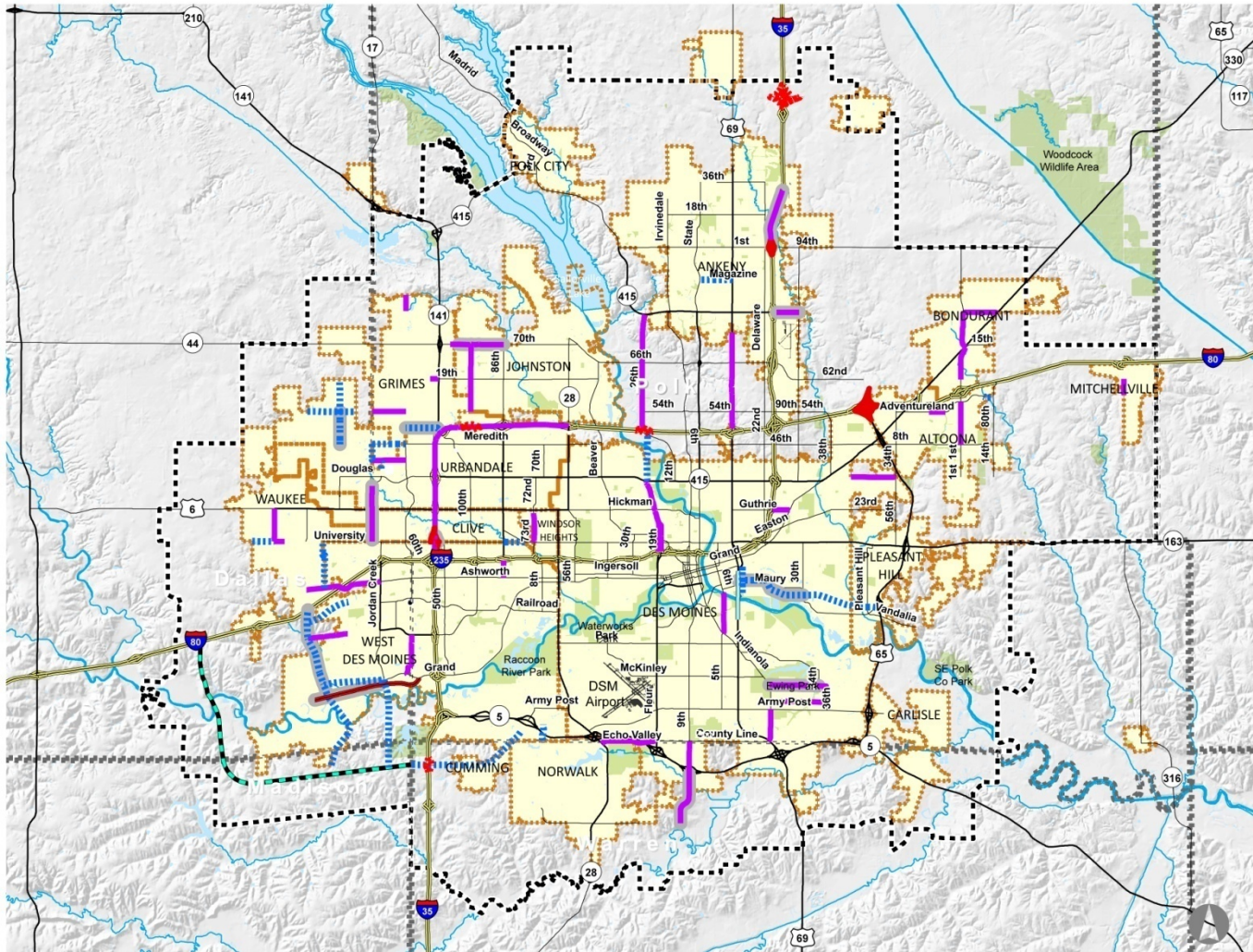
As shown in Figure 10, many of the programmed projects were completed in 2011 or are under construction. Some projects are likely a direct result of LOS and congestion readings, such as the expansion of NW 66th Avenue in Johnston, which has a current LOS F.

In the 2015-2025 period, a total of \$1.96 billion in road projects are planned per the HY 2035 MTP, adding 163 miles to the network, although not all these projects have been funded.⁴ Plans call for widening of I-35 from 63rd Street (Iowa Highway 28) to I-80/235, new interchanges in West Des Moines, Des Moines, and Urbandale, and numerous site-specific road widenings. Figure 11 shows the location of road projects, and Figure 12 lists significant projects that have obtained funding. Projects with funding are symbolized with a gray border in Figure 11.

⁴ HY 2035 MTP, pages 6-42 to 6-45.

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Figure 11: Capital roadway improvements, 2015-2025



THE TOMORROW PLAN CENTRAL IOWA REGION Capital Improvement Plan Projects 2025 Horizon Year

2025 Projects

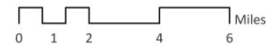
- ▬▬▬ New Road
- ▬▬▬ New Interchange
- ▬▬▬ Realign
- ▬▬▬ Reconfigure Interchange
- ▬▬▬ Widening
- ▬▬▬ Reconstruction
- ▬▬▬ Corridor Preservation
- ▬▬▬ Convert to One-Way

Project Status

- Funding Obtained

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Sources: Iowa DOT 2010



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Figure 12: New roads or major projects, 2015-2025

City	Street	Project Work	Project Status
Clive	NE RAMP, University Ave to I-80 NB	Reconfigure Interchange	Funding Obtained
Des Moines	SCOTT AVE	Add 4 lanes divided	Funding Obtained
Des Moines	SE DIAGONAL	Add 4 lanes divided	Funding Obtained
Grimes	WESTERN ARTERIAL	Add 5 lanes undivided	Funding Obtained
Urbandale	156TH ST	Add 2 lanes undivided	Funding Obtained
Waukee	PROPOSED RD: connecting Alice's Road/105th Street to 335th Street	Add 3 lanes undivided	Funding Obtained
West Des Moines	PROPOSED RD: continuation of Waukee proposed road, continuing south to approximately Bonneville Road	Add 3 lanes undivided	Funding Obtained
West Des Moines	PROPOSED RD: continuation of proposed road narrows to 2 lanes from Bonneville Road to 360th Street	Add 2 lanes undivided	Funding Obtained

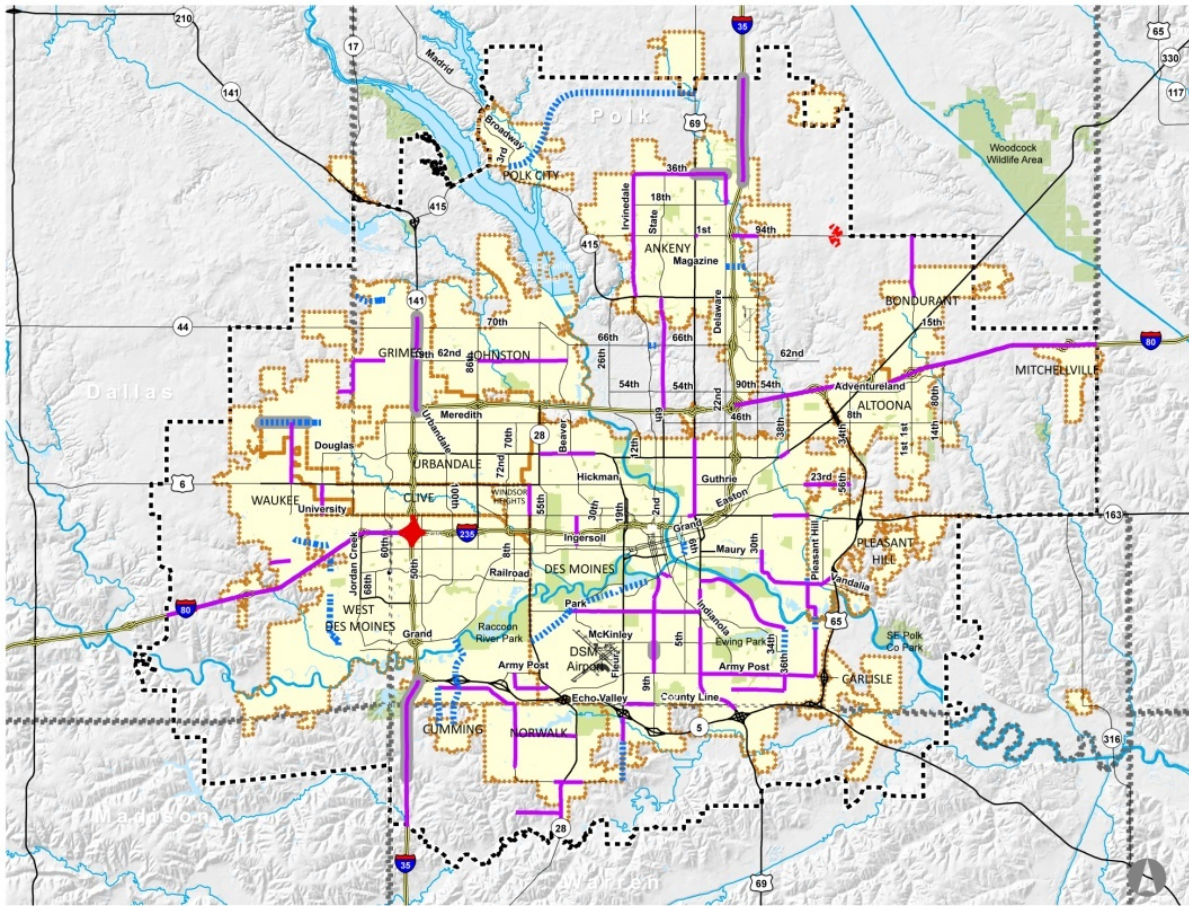
Source: DMAMPO GIS data

From 2025-2035, capital roadway improvements total more than \$2.4 billion, adding 190 miles of roadway.⁵ The map below shows the location of all capital improvements. The only new road that has funding available is Meredith Drive in Urbandale.

⁵ HY 2035 MTP, pages 6-46 to 6-50.

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Figure 13: Capital roadway improvements, 2025-2035



THE TOMORROW PLAN
 CENTRAL IOWA REGION
 Capital Improvement Program
 2035 Horizon Year Projects

2025-2035 Projects

- ▬▬▬ New Road
- ▬▬▬ New Interchange
- ▬▬▬ Reconfigure Interchange
- ▬▬▬ Widening
- ▬▬▬ Convert to One-Way

Project Status

- Funding Obtained

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Sources: Iowa DOT 2010



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Without these capital improvements, the MPO's travel demand model predicts that 0.6 percent of roads will operate at LOS E or F by 2035⁶; whereas, with improvements, that percentage decreases to 0.2 percent.

Figure 14: LOS projections with and without capital improvements

	Projected 2010		2026-2035			
	Without Capital Improvements		Without Capital Improvements		With Capital Improvements	
	Miles	Percent	Miles	Percent	Miles	Percent
LOS A	1044.1	72.1%	873.4	58.4%	1035.9	66.1%
LOS B	274.4	18.9%	364.6	24.4%	362.2	23.1%
LOS C	110.4	7.6%	204.6	13.7%	135.4	8.6%
LOS D	18.6	1.3%	46.3	3.1%	31.3	2.0%
LOS E	0.3	0.02%	5.5	0.4%	3.2	0.2%
LOS F	1	0.1%	2.3	0.2%	0.3	0.0%
Total	1,449	100.0%	1,497	100.0%	1,568	100.0%

Source: HY 2035 MTP, page 6-59

Planning Studies

Highway 5/North River Area Plan⁷

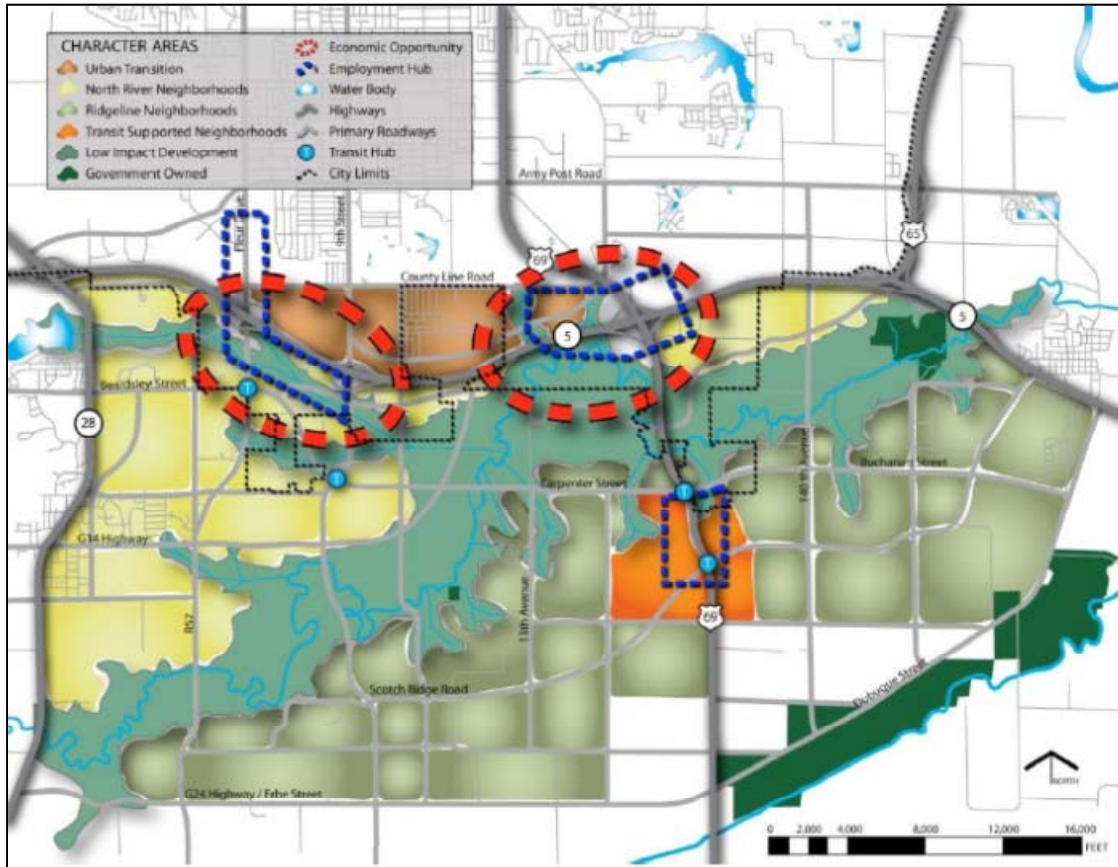
This project created a framework plan for Iowa Highway 5 between US Highway 69 and Iowa Highway 28. Highway 5 runs along the south side of Des Moines, south of the airport, then north along the east side of the city. As shown in Figure 15, the plan defines the corridors and neighborhoods it passes through with consideration for transit users, employment and economic centers (the red and blue dotted circles, respectively), and transition zones.

⁶ This is slightly lower than the previous reported 1.5% which did not include minor capacity increases.

⁷ As of November 2011, the Des Moines Community Development web site states that the final plan report is in the last stages of completion. A summary presentation of the report is available.
<http://www.dmgov.org/Departments/CommunityDevelopment/Pages/Highway5Study.aspx>

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Figure 15: Highway 5 / North River Area Framework Plan



Source: City of Des Moines Community Development

TRANSIT

The Des Moines Area Regional Transit Authority (DART) provides public transportation to Polk County and adjoining member communities. DART is an independent authority composed of 20 local governments. The agency owns 247 active vehicles. DART provides the following services:

- Local Bus - This is the majority of DART's service, with 10 local routes.
- Express Bus - There are nine express routes serving the morning and afternoon peak hours.
- Shuttle - DART runs two free downtown shuttles plus one university shuttle.
- On-Call: Passengers who do not live in a fixed-route service area can call for a pick-up at their home.

Fares are \$1.75 for adult one-way local trips and \$2 for express routes. Transfers between local routes are free. Transfers from local service to on-call service cost \$1.75. In the downtown loop zone, fares are 75 cents. This zone is bounded by I-235 to the north, W. 15th Street to the west, Mulberry Avenue to the south and E. 14th Street to the east. On-call zone trips cost \$3.50. A monthly pass valid on all services costs \$58.

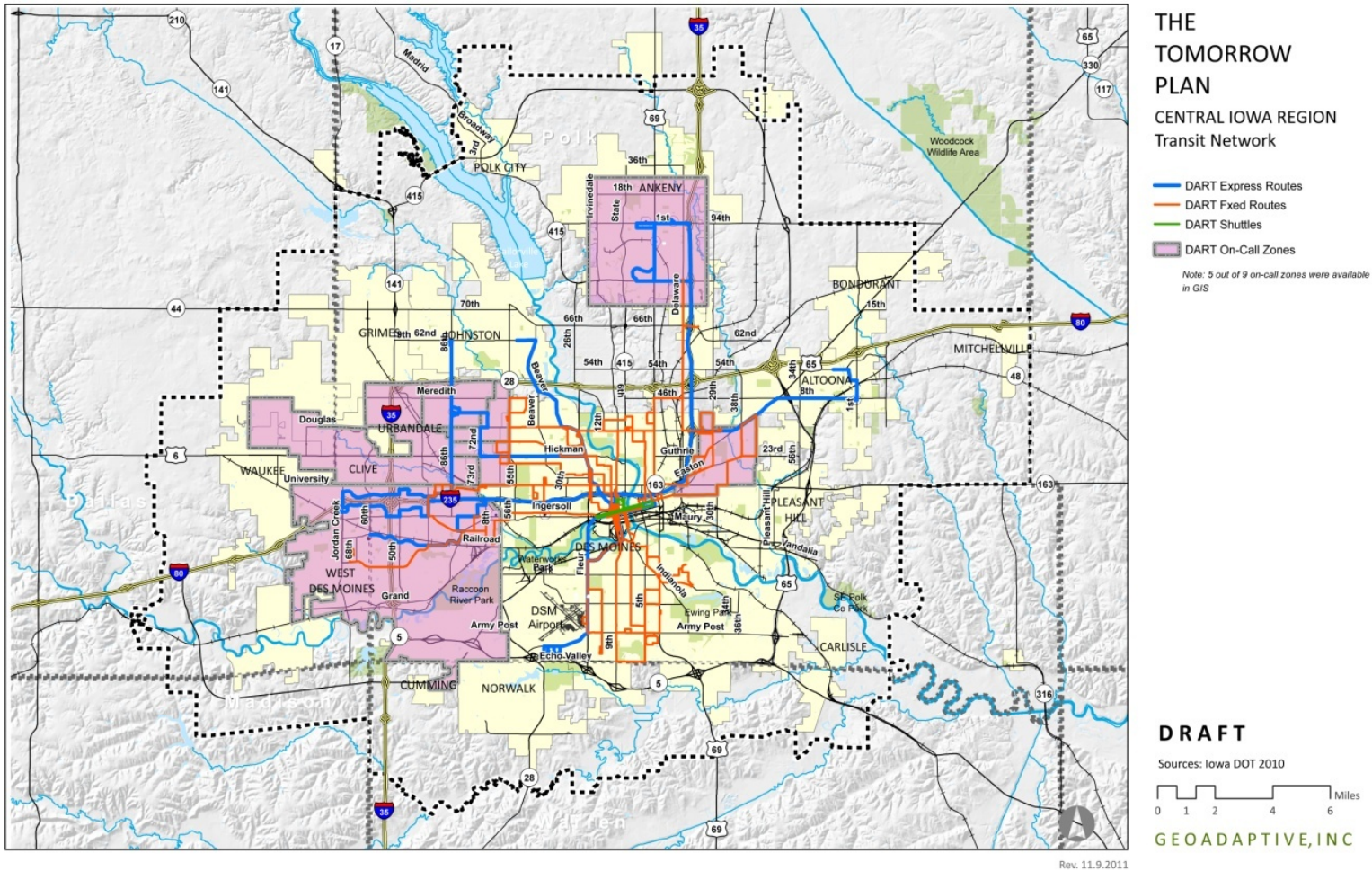
The Walnut Street Transit Mall is a major transfer point, taking up an eight-block section of the street. The transit mall currently contains 10 pedestrian shelters and several access points to the city's Skywalk system but will soon be replaced by a new transfer station (to be discussed in the Proposed Changes section). The bus system has 3,500 bus stops.

DART's major service area lies in the boundary created by I-35/80/235. Currently 54 percent of areas with combined residential and employee density that can support hourly transit are covered by DART's fixed routes when using the Transit Capacity and Service Manual methods.⁸ As Figure 17 shows, the largest opportunities for reaching new transit markets are west of Des Moines in Clive, West Des Moines, and Johnston. Areas of Ankeny and Altoona could also support transit.

⁸ The DMAMPO used the Transit Capacity and Service Manual, 2nd Edition. Transit Cooperative Research Program Report 100. Transportation Research Board, 2003. The MPO's analysis of transit coverage LOS can be found in the HY 2035 MTP, page 5-32. The Transit Capacity and Quality of Service Manual defines transit-supportive places as 4.5 residential units per acre and 4 jobs per gross acre. (Page 3-33).

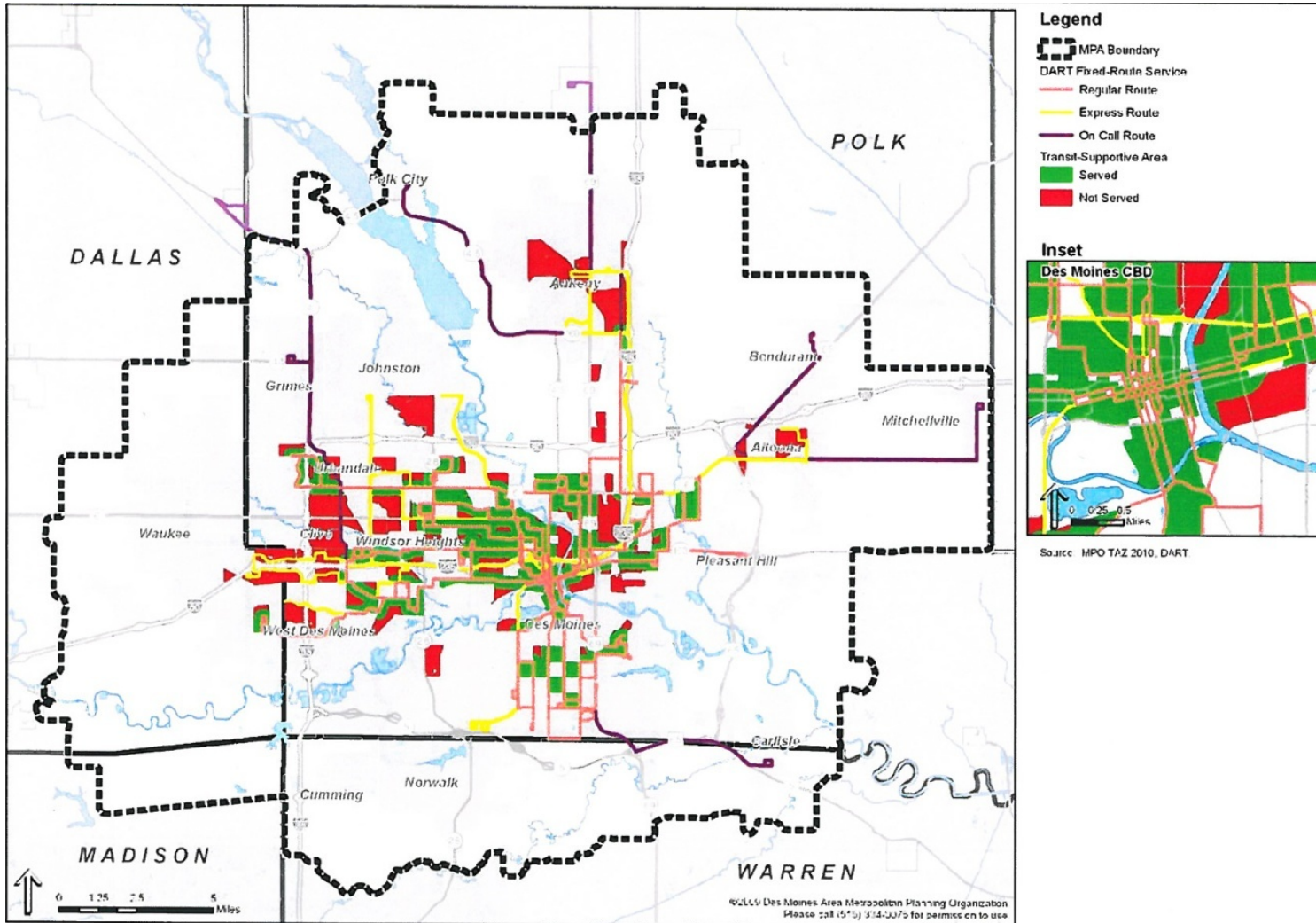
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Figure 16: 2011 DART System Map



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Figure 17: Projected transit-supportive areas and DART current route coverage, HY 2010



Source: HY 2035 MTP, Page 5-35

Local Service

Figure 18 summarizes existing local bus service. These nine local routes carry 10,965 daily weekday boardings. DART's average passengers per revenue hour system-wide is 24; for the local component of service, this number is 25. Express and shuttle service carries 20 passengers per revenue hour.⁹ Several local routes meet this standard; Route 71 has the lowest productivity. On weekends, local service carries 23 passengers per revenue hour on Saturdays and 17 on Sundays. Route 6 has the highest weekend productivity.

Figure 18: Local service characteristics

Route #	Route Name	Length (Miles)	Service Days	Weekday Service Hours	Weekday Peak Headways (minutes)	Boardings per Revenue Hour (2010)
1	Fairgrounds	24	M-F Sa-Sun	5:30 AM-6:30 PM	15	27
3	University/Highland Oak Park	20	M-F Sa-Sun	5:45 AM-10:30 PM	15	26
4	Urbandale/East 14th	20	M-F Sa-Sun	6 AM-10:30 PM	30	23
5	Clark/East 6th & 9th	17	M-F Sa-Sun	5:45 AM-6:45 PM	35	18
6	West 9th-Douglas/Indianola-Laona	20	M-F Sa-Sun	6 AM-10:30 PM	15	28
7	Fort Des Moines/Hubbell	23	M-F Sa-Sun	6 AM-8 PM	30	29
71	Ankeny Delaware Ave	8	M-F	7:30 AM-5:30 PM	64	5
8	SW 14th-Havens/South Union	17	M-F	6 AM-6 PM	50	18
11	Ingersoll Ave/West Des Moines	7	M-F Sa-Sun	5:45 AM-8 PM	30	24

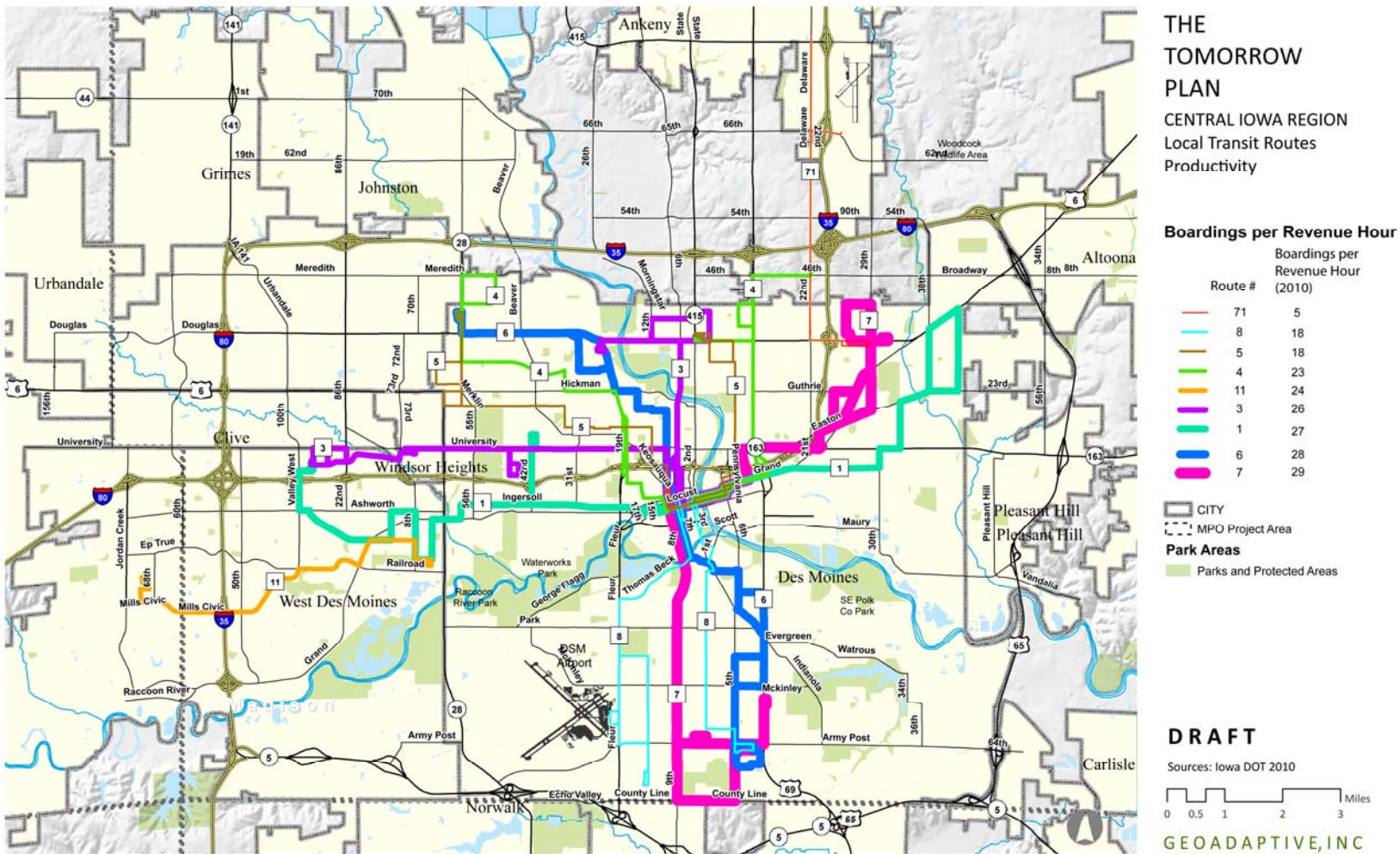
Source: 2035 Transit Services Plan, DART Service Evaluation, DART Web site

Figure 19 shows all local routes weighted by boardings per revenue hour in 2010. Routes 11 and 71 carry very low ridership. The other routes all carry between 18 and 29 passengers per revenue hour.

⁹ DART. "2035 Transit Services Plan: DART Service Evaluation." May 2011. Ridership data was collected via a 100% sample of weekday, Saturday, and Sunday ridership between September 2010 and October 2010.

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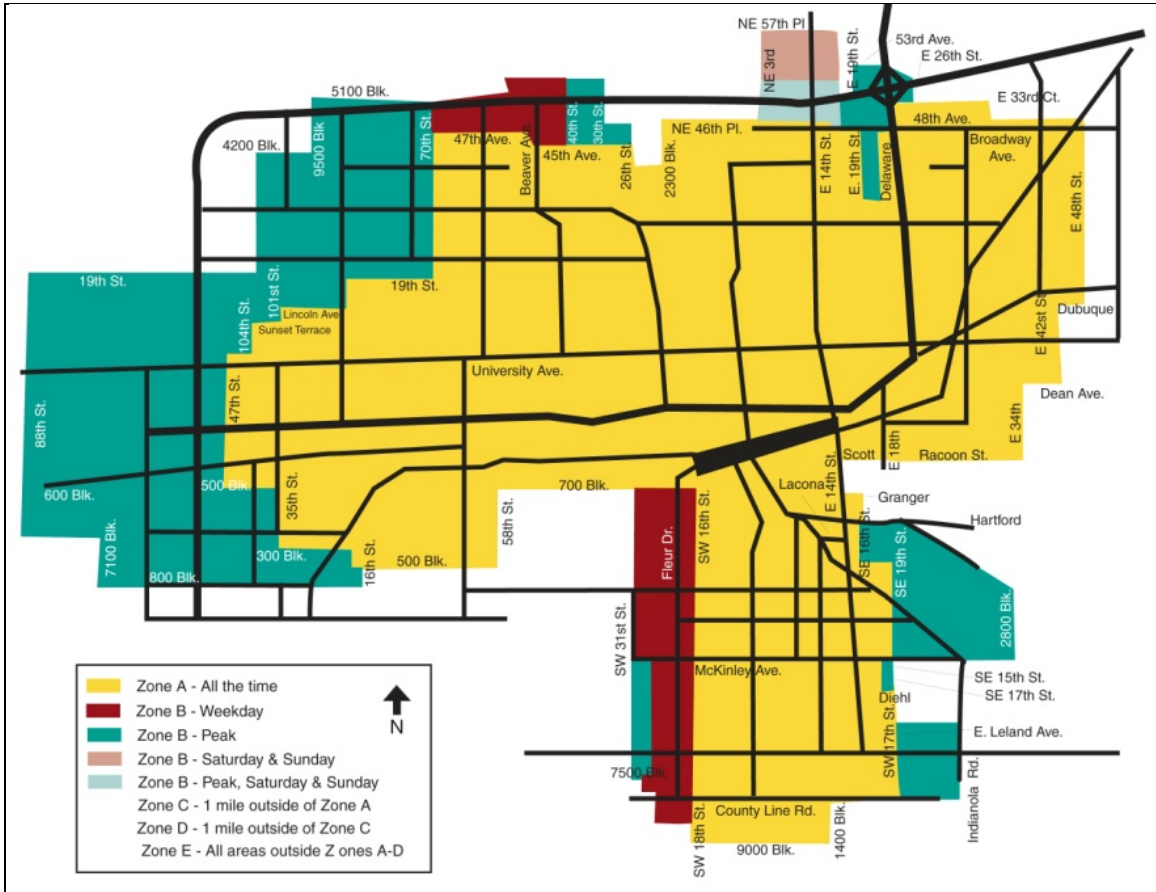
Figure 19: Local route map



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Americans with Disabilities Act (ADA) paratransit is also available in a program called Bus Plus. Service hours are 5:30 AM-10:30 PM Monday through Friday, 7:45 AM-6 PM Saturdays, and 7:45 AM-5:45 PM Sundays. Bus Plus operates on a zone system. Intra-zone trips cost \$3 and out-of-zone trips start at \$3.50 and may reach \$12 depending on trip length. Low-income individuals determined eligible may ride free if sponsored by an agency or a DART member city.

Figure 20: Bus Plus service area



Source: DART Bus Plus guide

Express Service

Figure 21 summarizes express bus services. Most population pockets are served by an express bus route, as shown in Figure 22. Areas without express service include lower density areas throughout the region, though the higher density areas are served by local bus service.

Figure 21: Express service characteristics

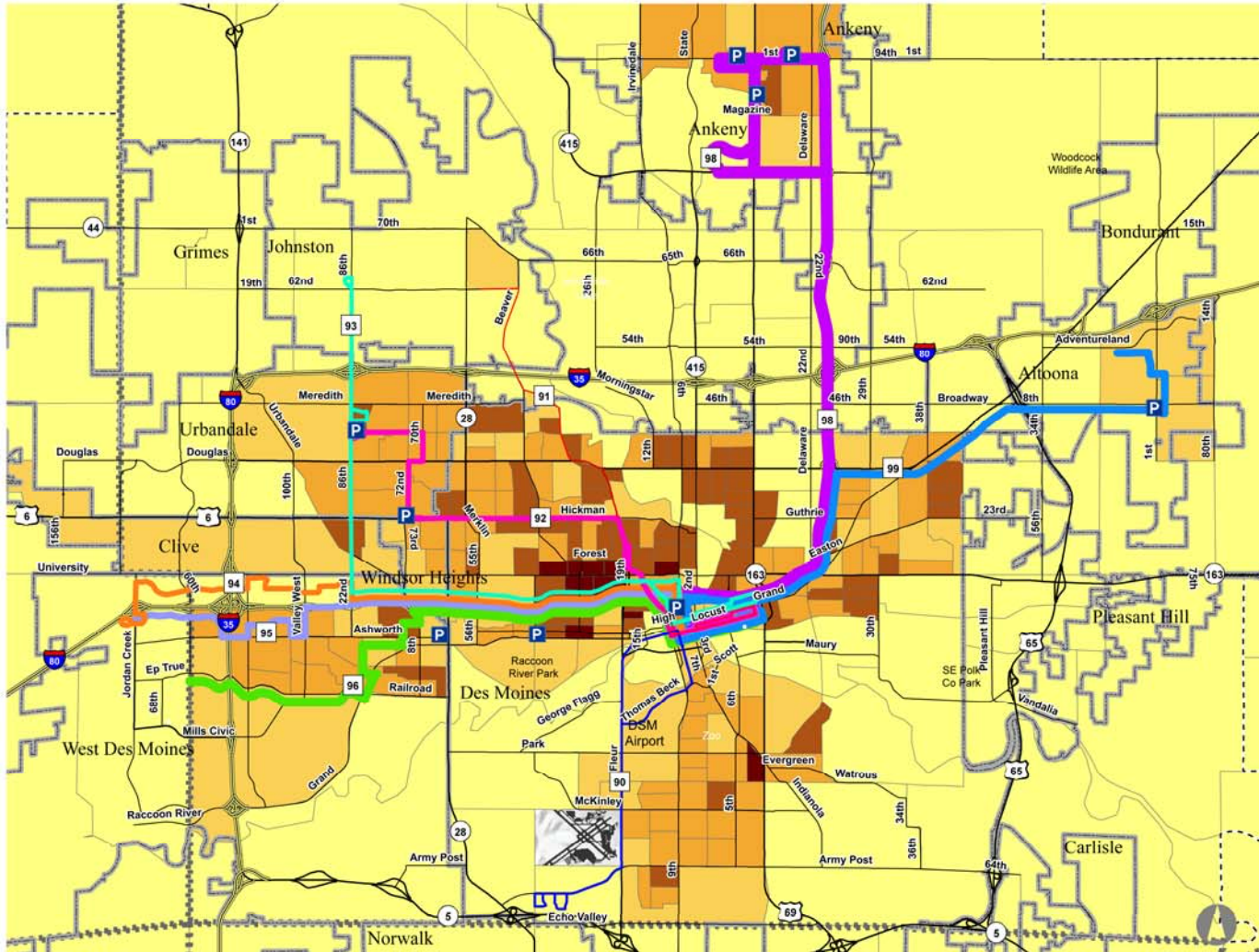
Route #	Route Name	Length (Miles)	Service Days	Weekday Service Hours	Weekday Peak Headways (minutes)	Boardings per Revenue Hour (2010)
90	Airport South	10	M-F	6:30-8:30 AM, 3:30-5:30 PM	45	11
91	Northwest Express	14	M-F	6-8 AM, 4-6:30 PM	35	7
92	Urbandale Express	14	M-F	6-8:30 AM, 3:30-6 PM	35	17
93	NW 86th Express	14	M-F	6-8:45 AM, 1-6 PM	35	15
94	Westown Express	16	M-F	6:30-8 AM, 4-6 PM	30	18
95	Vista Express	16	M-F	6-8 AM, 4-6 PM	30	23
96	E.P. True Express	24	M-F	6-8 AM, 3:30-6 PM	30	31
98	Ankeny Express	17	M-F	6-8 AM, 3:30-6 PM	25	35
99	Altoona Express	16	M-F	6-8 AM, 4-6 PM	30	25

Source: 2035 Transit Services Plan, DART Service Evaluation, DART Web site

Nine Park-and-Ride locations are available for express bus users. Many are parking lots of businesses, churches, or other organizations that DART has made agreements with; thus, DART does not have information on utilization rates. In many cases, the park and ride locations are at the middle of the route rather than at the end, such as on routes 94, 95, and 96. To attract additional express bus users from farther out in the region, park-and-ride locations can be explored at the route ends.

The Tomorrow Plan: Transportation System

Figure 22: Express bus map



THE TOMORROW PLAN CENTRAL IOWA REGION Transit

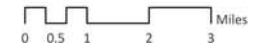
Express Routes

Route #	Boardings per Revenue Hour (2008)
91	7
90	11
93	15
92	17
94	18
95	23
99	31
96	31
98	35

- P** Park & Ride
- CITY
- MPO Project Area

DRAFT

Sources: Iowa DOT 2010



GEOADAPTIVE, INC

Shuttles

Figure 23 summarizes local shuttle services which are also mapped in Figure 24. The DMACC shuttle serves midday trips from the Ankeny Des Moines Area Community College (DMACC) Campus to the downtown Des Moines Campus and costs \$2. The LINK is a free shuttle circulating downtown on 7th and 8th Streets and serving the Center Street Park & Ride. The D-Line is a free downtown shuttle running every 10 minutes in a loop along Grand Avenue and Locust Streets connecting the Western Gateway, Walnut Street area, and East Village. The shuttle is funded by DART and the Downtown Community Alliance. Route 13 is quite productive due to its low number of operating hours. DART also runs two shuttles for area schools: McCombs Middle School and Lincoln High School.

Figure 23: Shuttle service characteristics

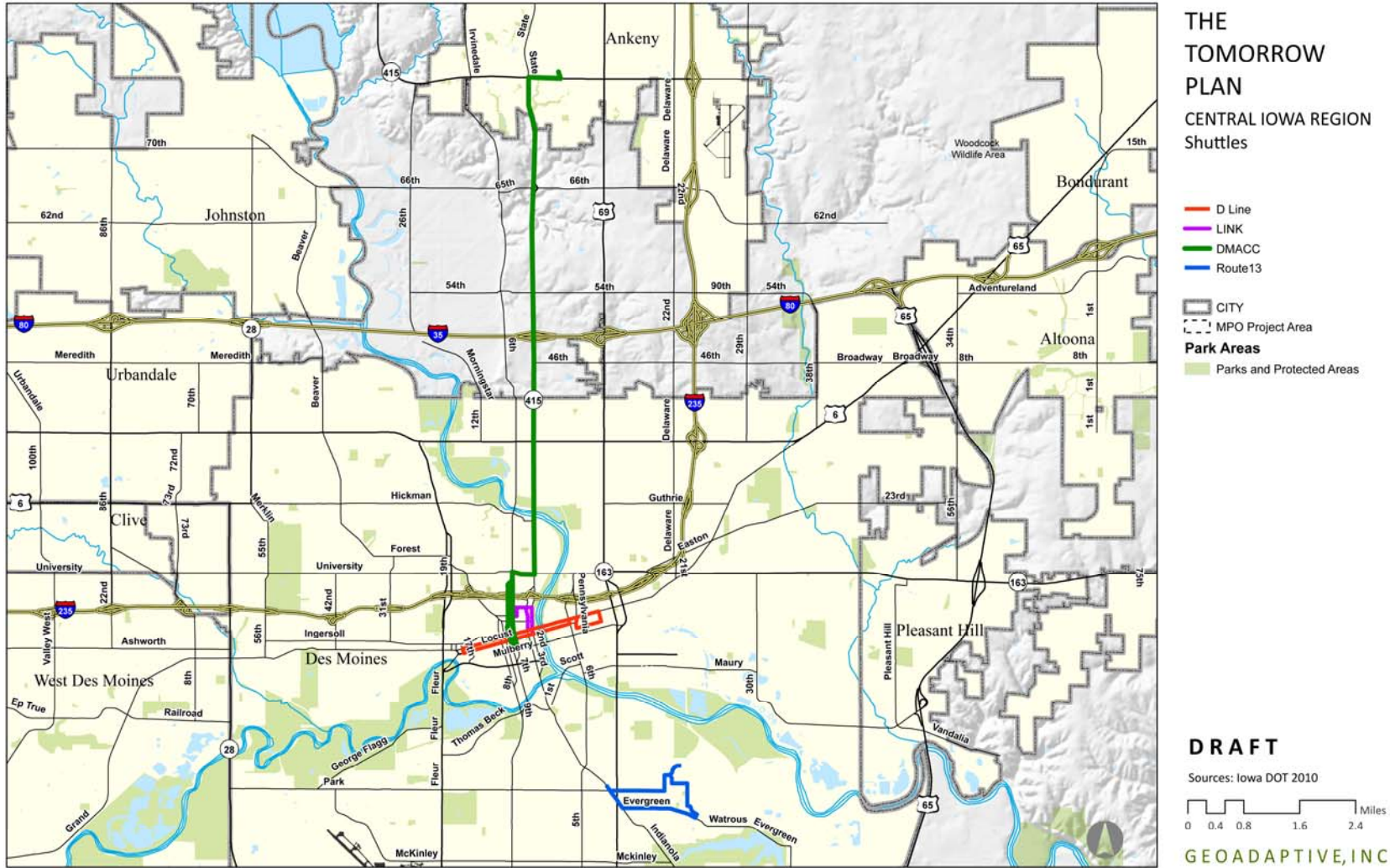
Route Name	Length (Miles)	Service Days	Weekday Service Hours	Weekday Peak Headways (minutes)	Boardings per Revenue Hour, 2010
13: SE Park Ave Circulator	4	M-F	6-8 AM, 3:45-5:30 PM	42	42
DMACC	11	M-F	10:45 AM-12:45 PM	60	4
LINK	3	M-F	5:30 AM-6:30 PM	15	4
D-Line	5	M-F	7 AM-6 PM	10	24 ¹⁰

Source: Passenger Transportation Development Plan, FY 2009-2012 & HY 2035 MTP, 2035 Transit Services Plan: DART Service Evaluation

¹⁰Des Moines Register. <http://blogs.desmoinesregister.com/dmr/index.php/2011/01/06/dart-reroutes-d-line-shuttle-for-2011-legislative-session/>

The Tomorrow Plan: Transportation System

Figure 24: Shuttle route map



On-Call/Demand-Response

Three forms of demand-response general public service are available for those who are not eligible for ADA paratransit on Bus Plus. Regional on-call routes were introduced in August 2007, paid for with New Freedom funding. On-call provides service on select days via demand-response (curb-to-curb), point deviation, or route deviation (flexible route). Same day reservations are accepted, but space is filled on a first-come, first-serve basis and a one-way trip costs \$3.50. Demand-responsive on-call zones are available at times and locations when regular fixed service is unavailable. Currently both services are branded together as "on-call" on the DART web site.

During its initial quarter in 2007, the regional on-call carried 277 total riders; all were older adults or persons with disabilities. Figure 26 shows ridership in the fall of 2010 and Figure 27 shows boardings by zone.

Figure 25: On-Call Zones

On Call	Service Type	Days of Service	Service Span	Service Area
Ankeny	Local	Tues/Wed	9AM-1:30 PM 9 AM-3 PM	Ankeny
Clive	Local	Mon-Fri	5:45-8:45 AM 3:45-6:30 PM	Clive
Des Moines Night Owl	Local	Mon-Fri	6:30-10 PM	East Des Moines
Urbandale Zones 1-4	Local	Mon-Fri	5:45-8:45 AM 3:45-6:30 PM	Urbandale & Windsor Heights
West Des Moines	Local	Mon-Sun	6:30-7 PM	West Des Moines
Granger	Regional	Mon	9 AM-2:45 PM	Granger, Grimes, West Des Moines
Grimes	Regional	Mon-Fri	5:45-8:45 AM 3:45-6:30 PM	Grimes
Bondurant/Mitchellville	Regional	Mon	9:11 AM-4 PM	Bondurant, Mitchellville, Altoona
Carlisle	Regional	Fri	8:45 AM-1:30 PM	Carlisle, Easter Lake, Southridge Mall, SW 14th
Polk City and Alleman	Regional	Thurs	9 AM-3:30 PM	Polk City, Alleman, Ankeny

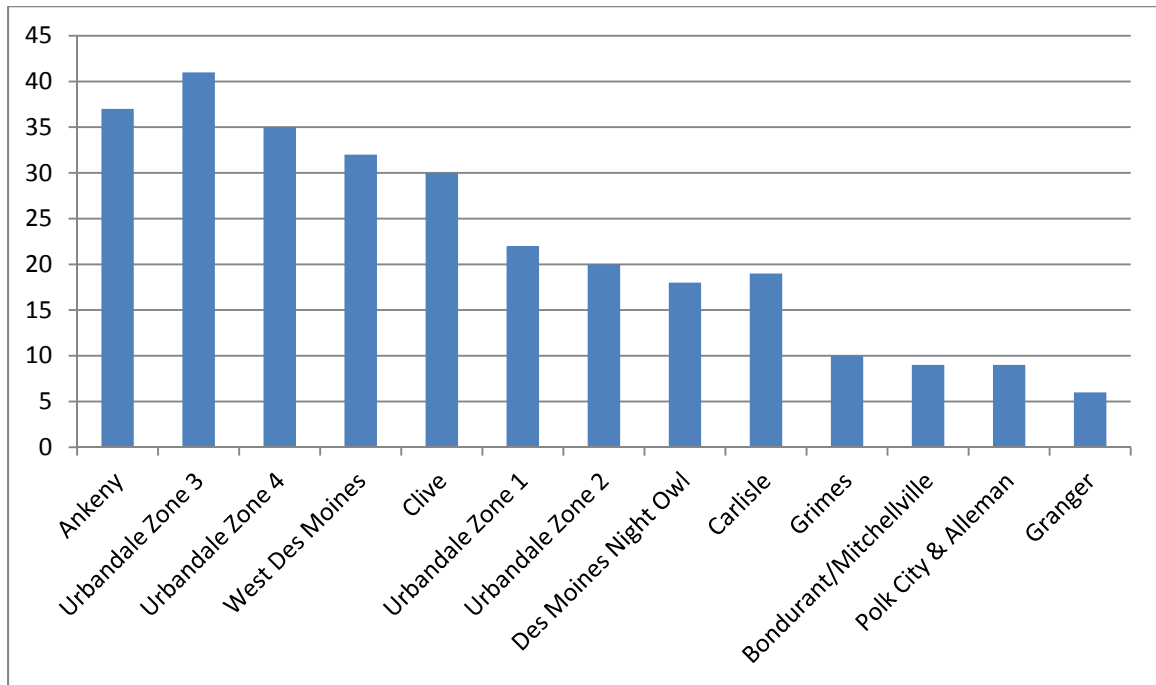
Source: 2035 Transit Services Plan: DART Service Evaluation

Figure 26: DART regional on-call ridership

Month	Weekday	Saturday	Sunday
Sept. 2010	285	23	20
Oct. 2010	243	28	28

Source: 2035 Transit Services Plan: DART Service Evaluation

Figure 27: DART demand-response zone daily ridership, Fall 2010

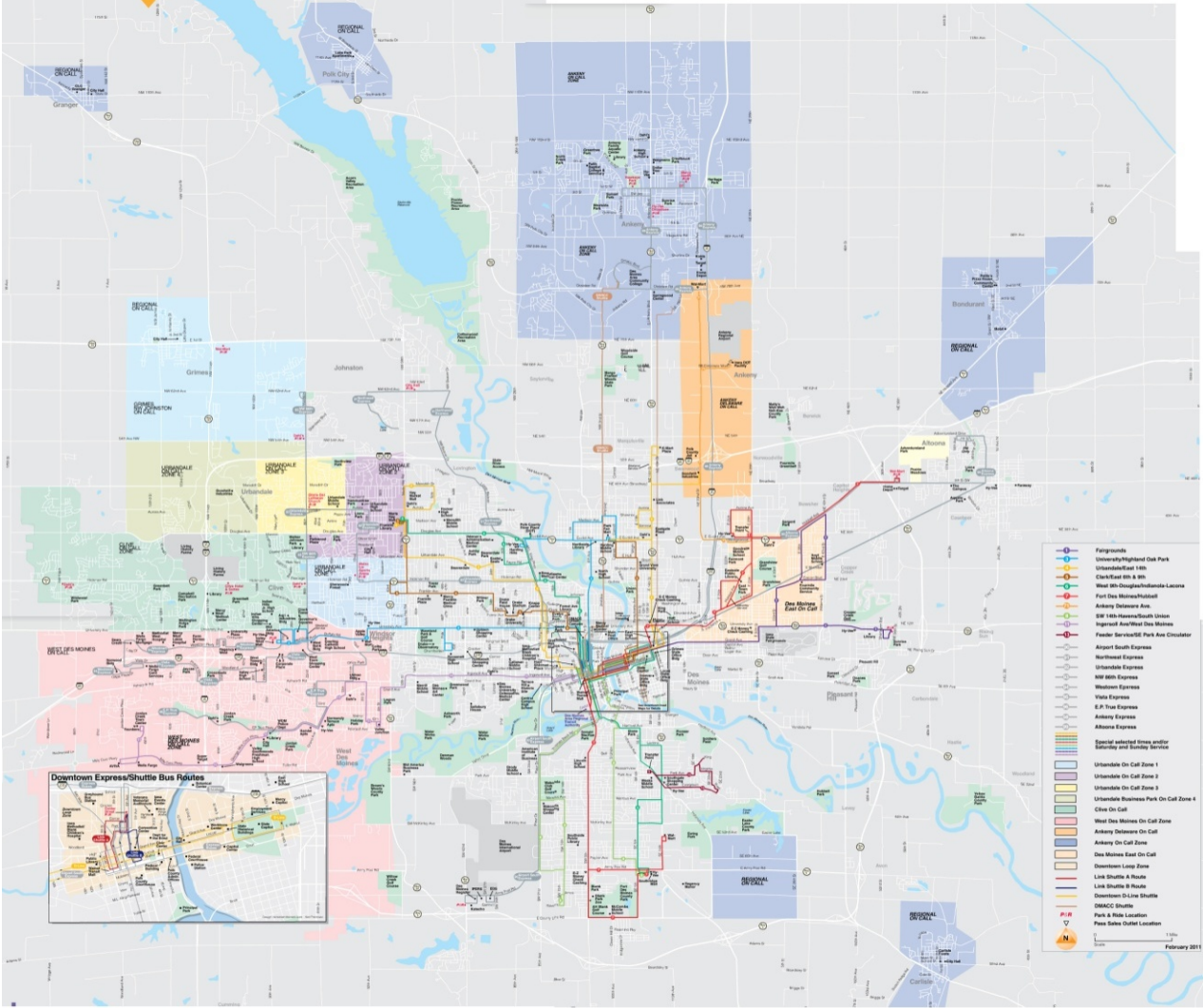


Source: 2035 Transit Services Plan: DART Service Evaluation

Figure 28 shows the general layout of the on-call zones.

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Figure 28: On-call zones shown on system map



Source: DART web site

Additional DART Programs

- Vanpools: DART operates nearly 100 vanpools with up to 15 passengers per van that bring residents from outside the MPA into it for work.¹¹ A Guaranteed Ride Home program is also operated by DART. A vanpool for a 30-mile round trip daily route with a minimum of four passengers costs \$82 per passenger per month.
- DART RideShare: This software program is free to the public and matches up carpool partners.
- Opportunities Through Transit: This program allows those meeting certain income eligibility requirements to ride buses at a reduced fare while traveling to/from work or while looking for work.
- Rest Your Car: Run by Drive Time, Des Moines' Transportation Management Association, this program rewards commuters that use alternate commute options, such as transit, vanpools, carpools, walking, cycling, or telecommuting, at least four times a month. Commuters report their daily travel mode and become eligible to win a \$500 VISA gift card each quarter and monthly \$25 downtown gift cards.
- Unlimited Access: Employers or universities negotiate a set annual payment to DART based on current levels of ridership from the employer or annual bus pass purchases in exchange for free unlimited transit rides. Drake University joined Unlimited Access in 2007;¹² the state ended its participation in the program in 2011.¹³

Additional Transit Providers

- The Heart of Iowa Regional Transit Agency provides general public demand-responsive service to residents of Boone, Dallas, Jasper, Madison, Marion, Story, and Warren Counties. In FY 2007, HIRTA carried 44,629 trips in all of Dallas County.¹⁴ HIRTA charges \$6 each way between towns (e.g. Waukee to Adel) and, depending on distance, \$15 to Des Moines. School trips and trips for those over age 60 are discounted. According to the Des Moines MPO's FY 2012 Passenger Transportation Plan, HIRTA operates a Boone to Des Moines service.¹⁵
- MegaBus, Greyhound, Jefferson Bus Lines, and Burlington Trailways provide intercity bus service.

Proposed Changes

Several major transit plans are underway or recently completed.

DART Forward 2035 Transit Services Plan, September 2011.

Completed in September 2011, this plan lays out a long-range vision for transit service throughout the entire DART service area. Principles include adding service in growing areas, providing faster

¹¹ DART Web site, viewed 11/15/11. <http://www.ridedart.com/rideshare-vanpools/scarpoools.cfm>

¹²<http://www.drake.edu/news/db/official/archive.php?article=2485>

¹³<http://thebusblog.ridedart.com/2011/03/14/unlimited-access-ends-for-state-employees/>

¹⁴ Passenger Transportation Development Plan Fiscal Years 2009-2012, p. 58

¹⁵ Des Moines Area MPO. "Passenger Transportation Plan Fiscal Year 2012 update to the Fiscal Year 2010-2013 Plan." 2011. p.16

travel times, more crosstown service, and more transfer points outside downtown. The phased approach for implementation is laid out as follows:

- Years 1-3: Focus on key corridors and simplify routes and add frequency. Discontinue low performing routes. Create faster connections downtown and to suburban employment centers.
- Years 4-6: More frequent service in urban core, combined with crosstown connections.
- Years 7-10: Expand night and weekend service on routes with demand. Add off-peak and express trips.

Year 1 Recommendations (Figure 29)

Most of the recommendations in Year 1 include modifying major routes, including:

- Route 60 downtown service
- Discontinue Service - Route 8 east, Route 71, Route 90, Clive on-call (will be folded into a realigned Route 92),
- New route 52 connecting Downtown, West Valley, West Des Moines

Year 2 Recommendations (Figure 29)

Major recommendations include:

- Discontinue Des Moines East on-call
- Discontinue Ankeny on-call - roll out new route 74, Ankeny Flex Route

Year 3 Recommendations

- Changes in Year 3 include adding midday service to Route 91 and continuing to restructure certain routes.

Mid-Term Recommendations (Figure 30)

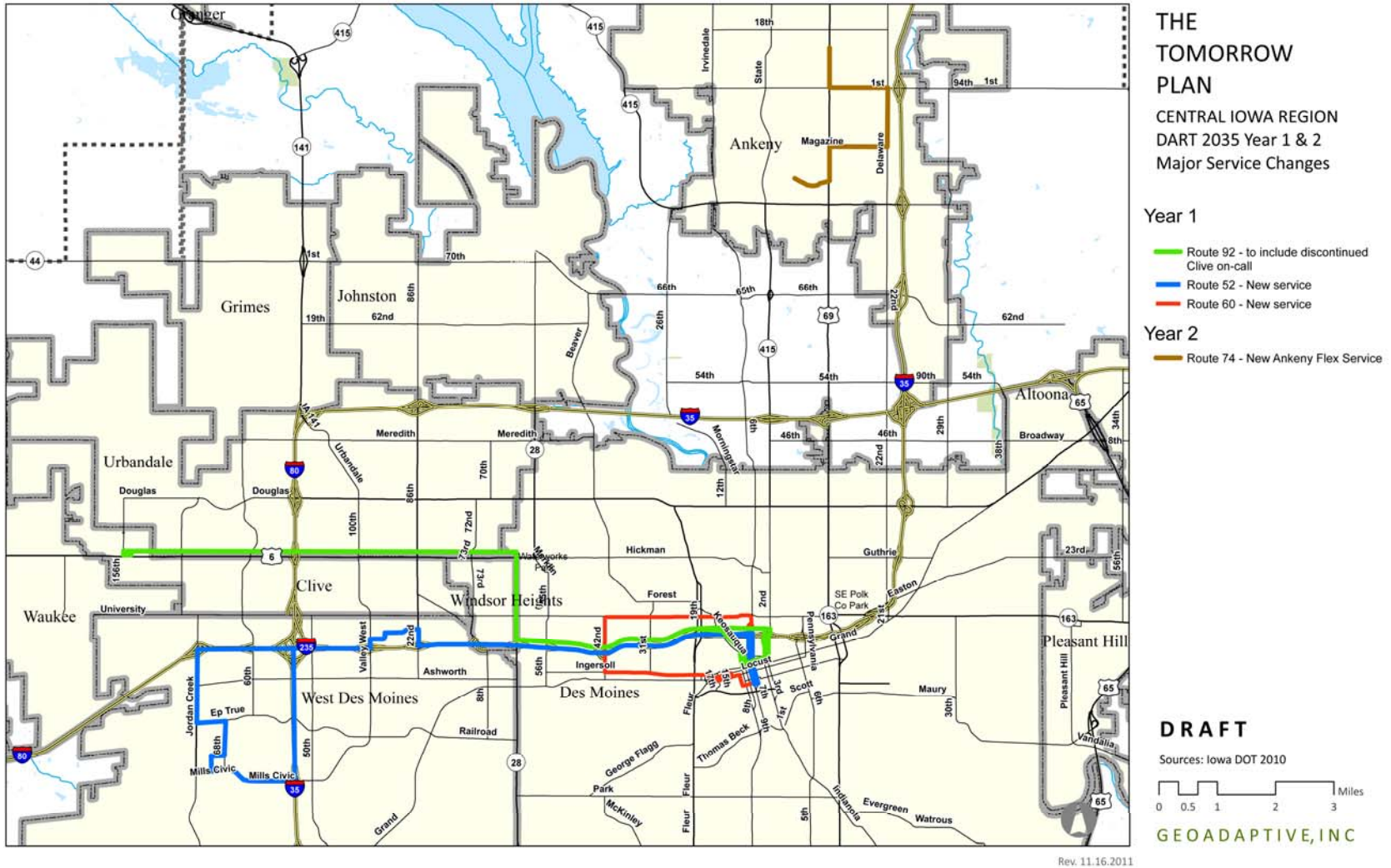
Aside from continuing to improve frequency, recommendations in the mid-term also include a new Route 50 connecting Douglas/Euclid crosstown, and Route 51 connecting Douglas, 86th Street, and University crosstown.

Long-Term Recommendations (Figure 30)

In the long-term, DART will continue improving frequencies and also add Route 97, the Carlisle Express.

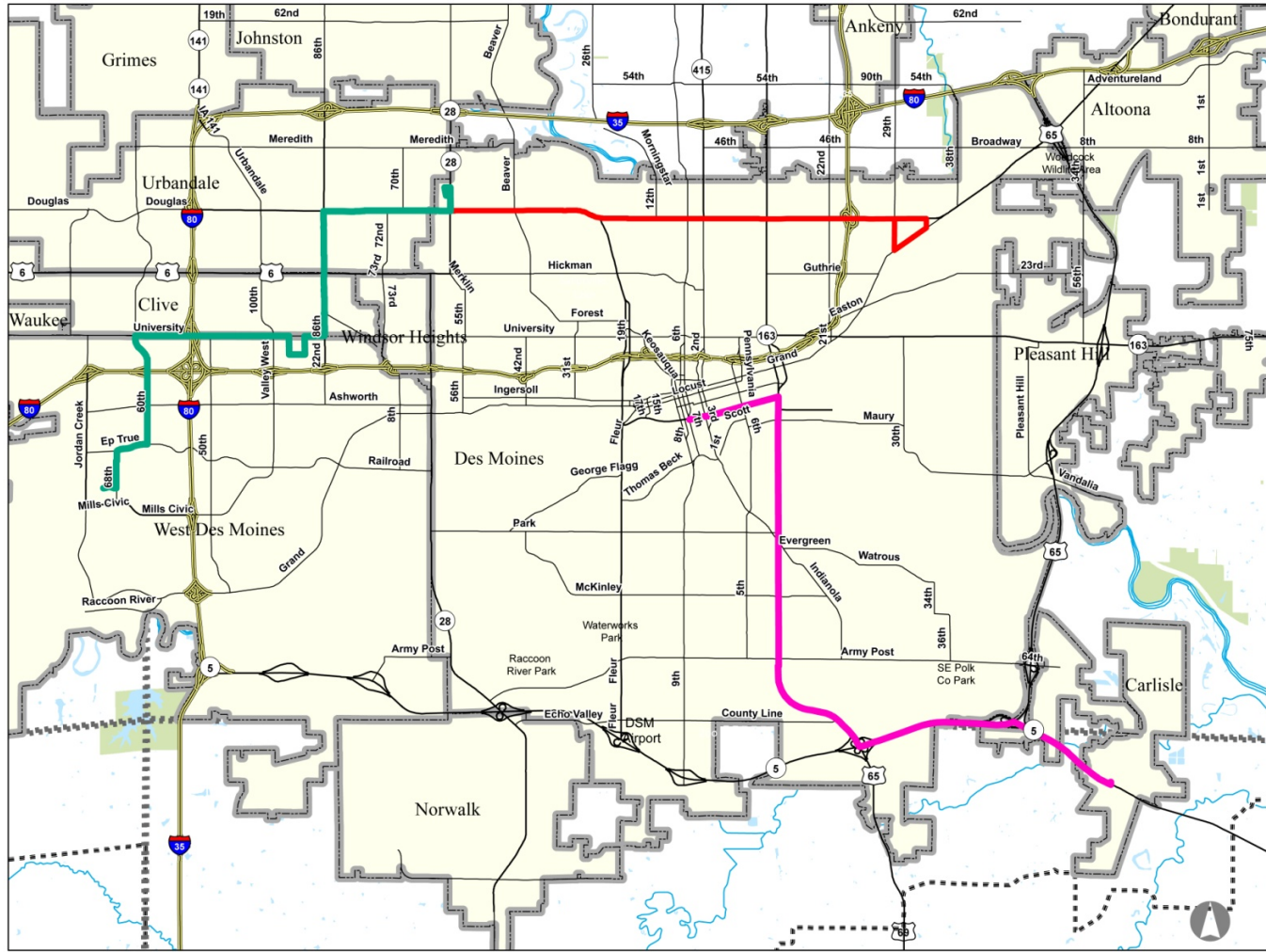
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Figure 29: Year 1 & 2 Major service changes



Source: DART Forward 2035 Transit Services Plan

Figure 30: Mid-Term & Long-Term major service changes



**THE
TOMORROW
PLAN**
CENTRAL IOWA REGION
DART 2035
Mid and Long-Term
Service Changes

- Mid-Term**
- Route 51 - New Service
 - Route 50 - New Service
- Long-Term**
- Route 97 - New Service

DRAFT
Sources: Iowa DOT 2010
0 0.5 1 2 3 Miles
GEOADAPTIVE, INC

Rev. 11.15.2011

Source: DART Forward 2035 Transit Services Plan

DART Bus Rapid Transit Corridor Study, Ongoing.¹⁶

DART is completing an alternative analysis as the first step in future potential Bus Rapid Transit (BRT). Begun in 2006, DART analyzed several corridors (Figure 31) and has selected Route 60, which will run along Ingersoll and University Avenues, as the final candidate (Figure 32). DART will be applying to the Federal Transit Administration (FTA) for a "Very Small Starts" program grant. DART held an open house to discuss alignments and the idea of BRT on October 4, 2011. In 2011, DART received \$150,000 to finalize environmental portions of the analysis.¹⁷

DART's Multimodal Transit Hub.¹⁸

After several years of planning, funding has been secured to build a new transit hub replacing the Walnut Street Transit Mall. DART received \$20.5 million in federal and state funds. The facility should be open by late 2012. The hub, to be called DART Central Station, is located one block from the potential site of a new passenger rail facility connecting Chicago and Omaha. The final site selected is between Cherry and Vine Streets, and between 5th and 6th Avenues (Figure 33). DART Central Station will accommodate 15 bus bays, will provide access to skywalk, and will house bicycle storage and a bike share program.

Additional Projects

- New Burlington Trailways Intercity service connecting Des Moines, Grinnell, Iowa City, and Davenport. \$65,884. Source: DRAFT 2011-2015 Iowa Transportation Improvement Program. May 11, 2010.
- Megabus service extending to Omaha began on August 11, 2011, linking Chicago to Des Moines to the Omaha.
- Ames-Des Moines Commuter Bus Proposal - This project is one under discussion by the MPO's Public Transportation Roundtable. Trans Iowa Charters has proposed operating the service.¹⁹

¹⁶ Project information can be found at <http://www.ridedart.com/alternatives-analysis.cfm>.

¹⁷ Des Moines Area MPO. [Fiscal Year 2011 Unified Planning Work Program and Budget](#). June 24, 2010.

¹⁸ <http://www.ridedart.com/features.cfm>, accessed November 10, 2011.

¹⁹ Des Moines MPO. "Notice of Meeting - Des Moines Area MPO Public Transportation Roundtable Meeting." Friday, April 8, 2011. http://www.dmampo.org/committees/transit/2011_04.pdf

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Figure 31: Rapid Transit Corridors reviewed as part of the study

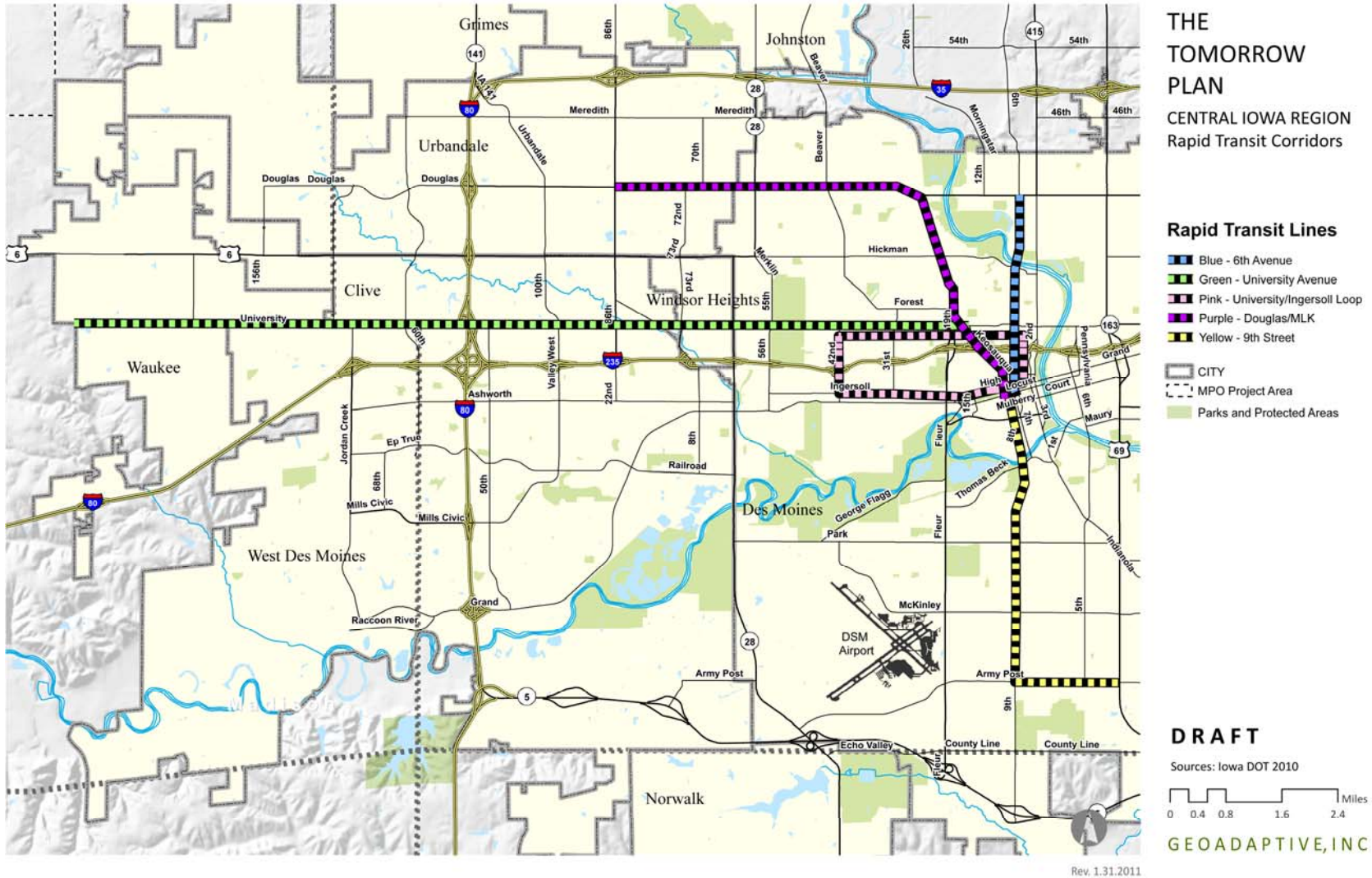
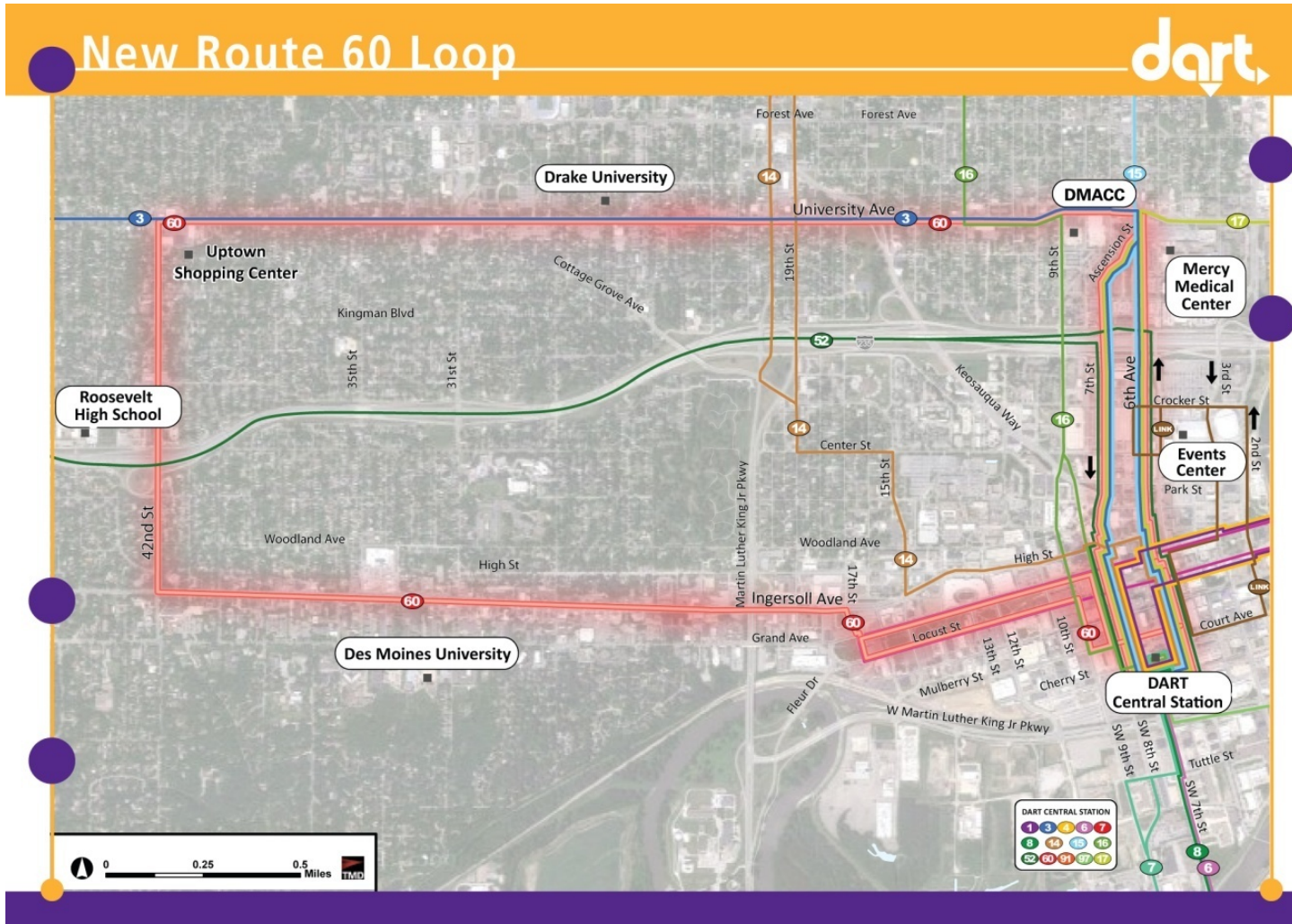


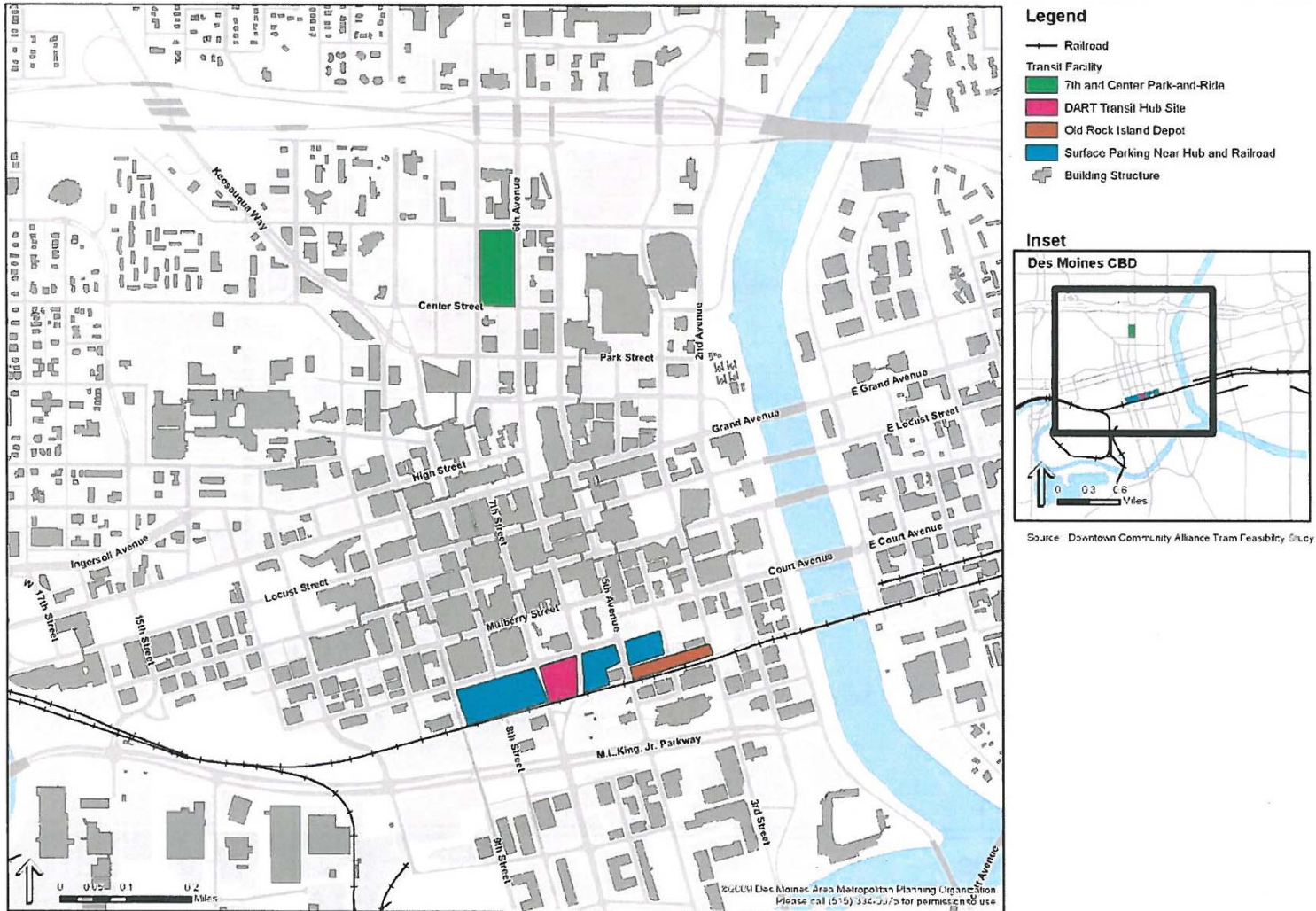
Figure 32: Proposed BRT route



Source: DART Web site: http://www.ridedart.com/pdf/dart_forward_2035/Route_60_PDF.pdf

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Figure 33: Multimodal Hub locations - Pink site chosen



Downtown Community Alliance. Downtown Des Moines Tram Feasibility Study, 2009.

A streetcar study was completed in 2009 that laid out several route alignments. The tram would run west along Grand Avenue, south on 10th Street to Cherry Street, east to Fifth Avenue, then continue east on Court Avenue to East Sixth Street. One leg would branch off and access Gray's Lake and Gray's Landing to the south. This route totals 3 miles in length for an estimated capital cost of \$68 million. Support for the project has lessened, however, and the streetcar is no longer being moved forward.

RAIL

Existing

Regularly scheduled passenger rail service has not served the Des Moines MPA since 1970, when the Rock Island Lines ceased operations between Council Bluffs, Iowa and Chicago. Currently, two long-distance Amtrak trains operate through Iowa, the California Zephyr between Chicago and San Francisco, as well as the Southwest Chief, between Chicago and Los Angeles. The nearest Amtrak station to Des Moines is located in Osceola, approximately 40 miles south, outside the MPA.

Proposed

Des Moines Area MPO. Des Moines Area Passenger Rail Station Feasibility Study. . July 2010.

The Iowa DOT is considering a new passenger rail corridor connecting Omaha and Nebraska via Des Moines. This feasibility study identified six sites as potential Des Moines rail stations (Figure 34):

- Former East Side Union Rail Depot
- Lower East Village
- Former Chicago, Rock Island, and Pacific Railroad
- Future DART Multimodal Transit Facility
- Underdeveloped site at 10th and Cherry Streets
- Valley Junction

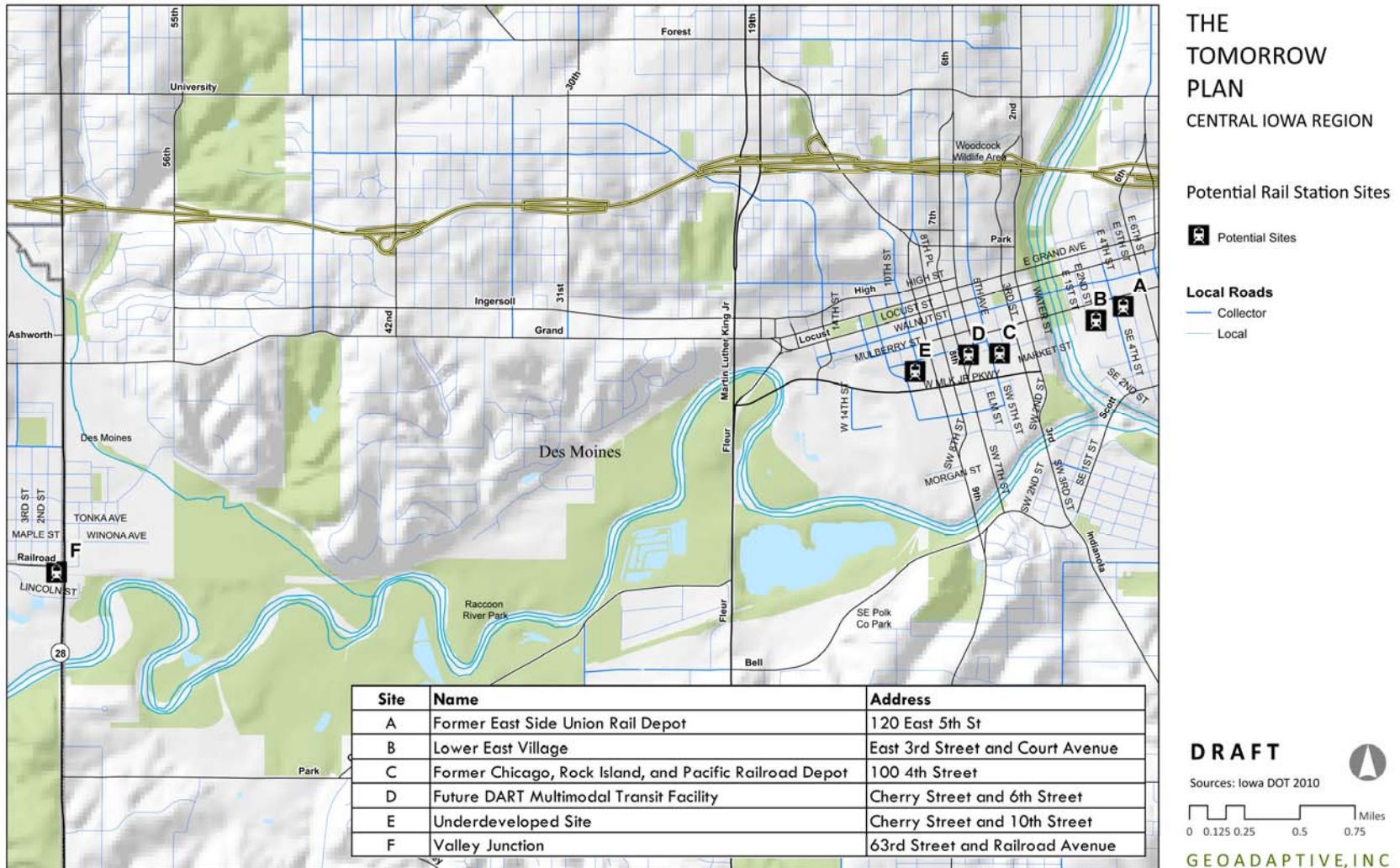
The study recommended the former Chicago, Rock Island, and Pacific Railroad Depot as the rail station location. This site has some remaining rail infrastructure and is very close to the DART multimodal facility. The next step is to have Amtrak review site compatibility.

Greater Des Moines Partnership, Capital Crossroads, September 2011.

Capital Crossroads is a regional planning effort which includes support for the continued study and potential funding of high-speed rail through Greater Des Moines. Building on proposed high-speed rail service between Chicago and the Quad Cities, the plan recommends raising awareness and building support for extending the line through Des Moines to Omaha.

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Figure 34: Draft Rail Station Locations



FREIGHT

Existing

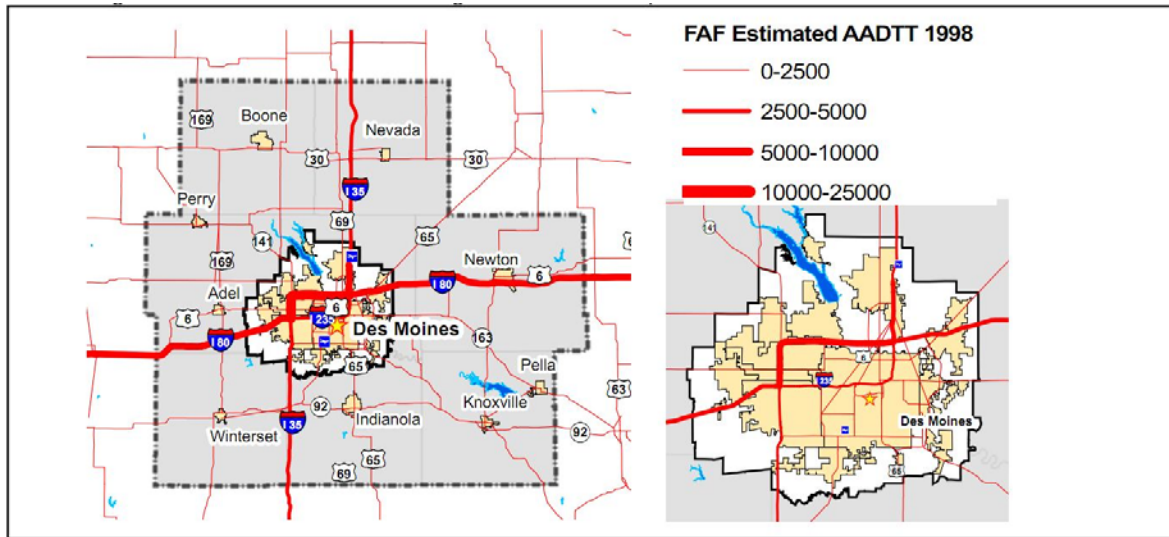
The Des Moines MPA includes an extensive transportation network that supports freight movement both regionally and nationwide. Trucks are the most commonly used freight transportation mode in the Great Des Moines region, moving 93 percent of all inbound and 87 percent of all outbound freight. The second most used freight transportation mode is rail, moving 7 percent of inbound and 13 percent of outbound freight. Less than 1 percent of inbound and outbound freight is moved by air transportation.

The regional interstate highway system includes I-35 and I-80, both important freight corridors which intersect in the Des Moines MPA. I-35 provides a major route for north-south movements between Canada and Mexico. Traveling south from Minneapolis, I-35 passes Ankeny, then turns and travels west, then south again through Urbandale, Clive, and West Des Moines south to Kansas City. I-80 provides a major route for east-west movements, connecting New York City, Cleveland, Chicago, Salt Lake City and San Francisco. I-35 and I-80 are six-lane facilities through the Des Moines MPA, while I-235 is a six-lane facility through the downtown area. Many other U.S. and state highways also play an important role in freight movement across the region and nation, including U.S. Highways 6, 65, and 69, and Iowa Highways 5, 28 (63rd Street), 44 (240th Street), 141 (141st Street), 160 (SE Oralabor Road), 163 (University Avenue) and 415 (NW 2nd Street).

Freight Analysis Framework (FAF) data from the United States Department of Transportation says that much of the projected growth in truck traffic will occur in urban areas and along the Interstate Highway system. Figures 37 and 38 depict information on the FAF road network for average annual daily truck traffic (AADTT) in 1998 and projected for 2020. A high proportion of truck freight growth is expected to travel on I-35, I-80, I-235, U.S. 30, U.S. 65, 2nd Avenue, NE 14th Street, U.S. 6 (Euclid Avenue, Douglas Avenue, Merle Hay Road, and Hickman Road), U.S. 169, Iowa Highway 163, and Fleur Drive.²⁰

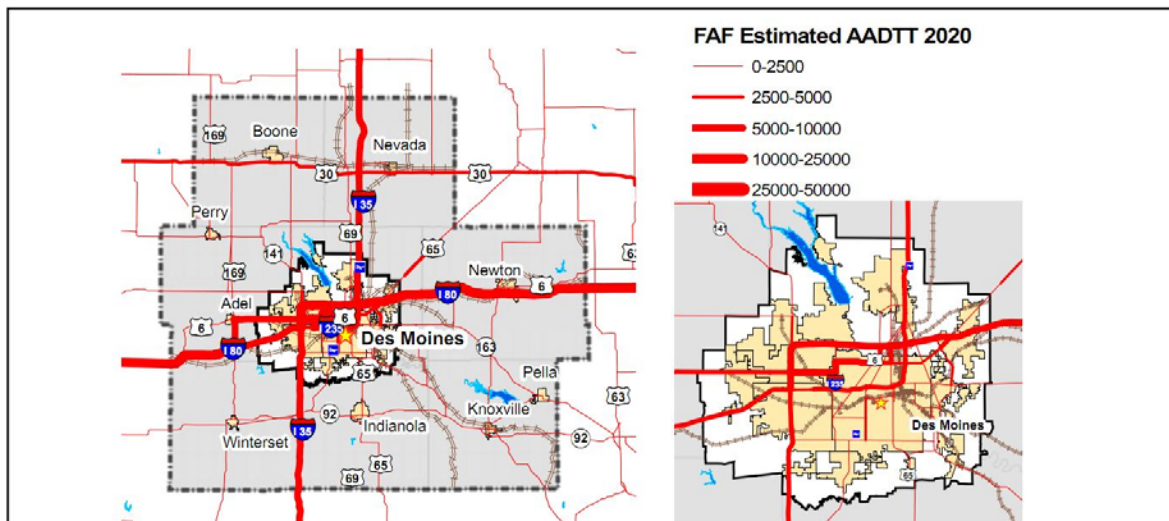
²⁰ Des Moines Area Metropolitan Planning Organization. "Goods Movement in the Des Moines Metropolitan Area: 2006 Update Report."

Figure 35: Estimated Average Annual Daily Truck Traffic: 1998



Source: USDOT Freight Analysis Framework (as cited in Metropolitan Planning Organization (Des Moines, Iowa). (2006). *Goods movement in the Des Moines metropolitan area: 2006 Update Report*. Urbandale, Iowa: Des Moines Area Metropolitan Planning Organization.)

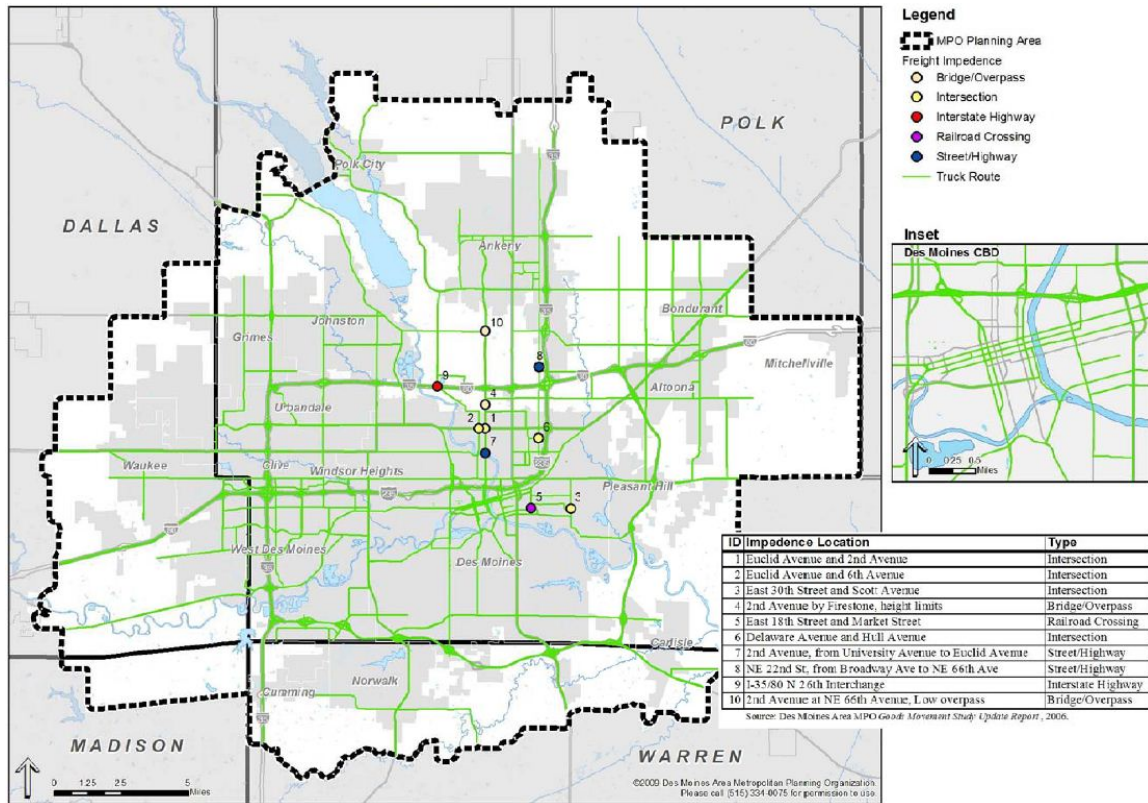
Figure 36: Estimated Average Annual Daily Truck Traffic: 2020



Source: USDOT Freight Analysis Framework (as cited in Metropolitan Planning Organization (Des Moines, Iowa). (2006). *Goods movement in the Des Moines metropolitan area: 2006 Update Report*. Urbandale, Iowa: Des Moines Area Metropolitan Planning Organization.)

Freight transportation inadequacies, including chokepoints and other impediments affecting freight movement, were identified in the 2002 *Goods Movement in the Des Moines Metropolitan Area* study and the 2006 update. Figure 38 presents remaining freight transportation inadequacies identified by the Des Moines MPO in the *Horizon Year 2035 Metropolitan Transportation Plan*, published in 2009. The Freight Roundtable of the Des Moines MPO supports the resolution of these inadequacies as well as the routine update of the *Goods Movement* study to identify problems and improve freight movement in the region.

Figure 37: Freight Transportation Inadequacies, 2009

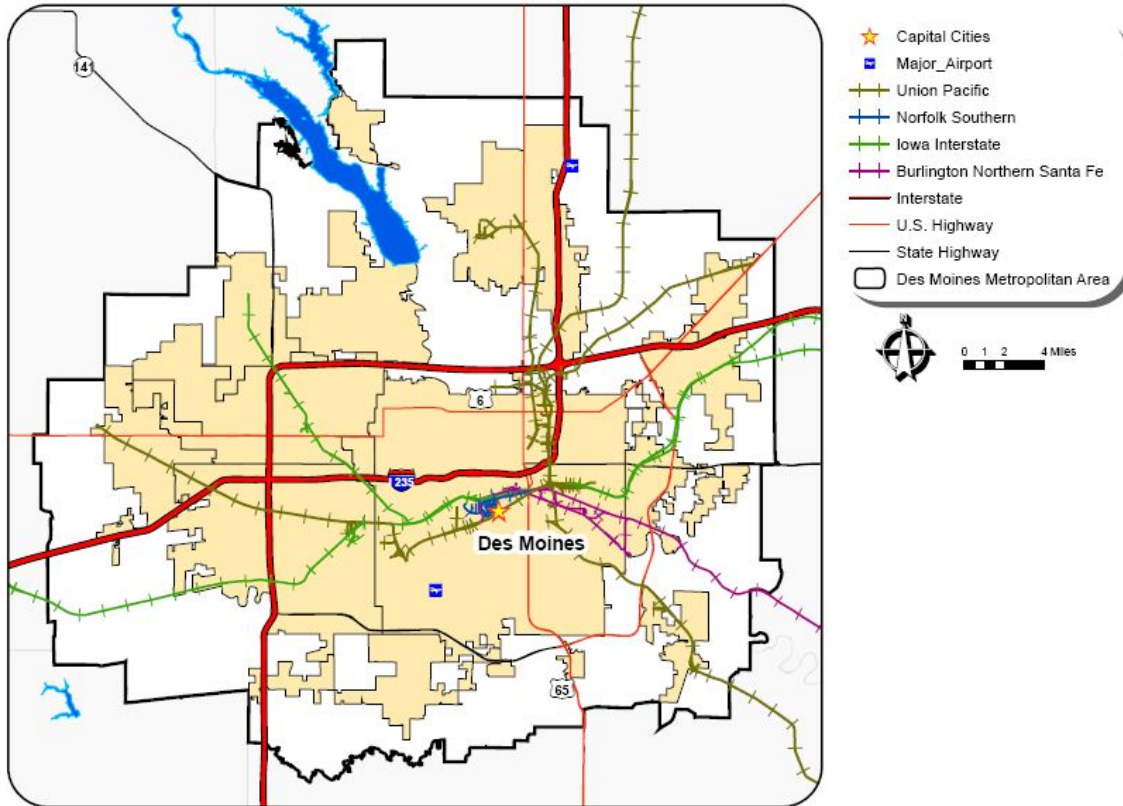


Source: Metropolitan Planning Organization (Des Moines, Iowa). (2009). *Horizon Year 2035 Metropolitan Transportation Plan*. Urbandale, Iowa: Des Moines Area Metropolitan Planning Organization. 5-65.

Rail moves 7 percent of freight transportation in the Greater Des Moines region with 4 railroad companies serving the Des Moines MPA. Three of these railroads are Class I Railway Companies, defined as large freight railroad companies based on operating revenue: BNSF Railway Company, Norfolk Southern Railway Company, and Union Pacific Railroad Company. The fourth railroad, Iowa Interstate Railroad Company, is a Class II Railroad, a mid-sized freight railroad company. Figure 38 depicts the active rail system in the Des Moines MPA. In 2006, the Iowa Interstate Railroad Company received a \$32.67 million grant from the Federal Railroad Administration to rehabilitate the railroad's tracks to a 286,000-pound capacity. With the completion of this rehabilitation, all working railroads in the Des Moines MPA will have a standard rating of 286,000-pound per railcar.²¹

²¹ Metropolitan Planning Organization (Des Moines, Iowa). (2006). *Long Range Transportation Plan 2030*. Urbandale, Iowa: Des Moines Area Metropolitan Planning Organization.

Figure 38: Active Rail System in the Des Moines Metropolitan Area



Source: Metropolitan Planning Organization (Des Moines, Iowa). (2006). *Goods movement in the Des Moines metropolitan area: 2006 Update Report*. Urbandale, Iowa: Des Moines Area Metropolitan Planning Organization.

In the Des Moines MPA, less than 1 percent of inbound and outbound freight is moved by air transportation. Des Moines International Airport (DMIA) was ranked 48th for air cargo by landed weight, according to the Air Carrier Activity Information System in 2010. From 2009 to 2010, DMIA had a decrease in landed weight of 9.41 percent, compared to a decrease of 7.48 percent for the top 50 all-cargo airports. According to the United States Customs and Border Protection (CBP), DMIA is the only Port of Entry located in Iowa. As a Port Of Entry, DMIA is the sole entry point for international goods and passengers to enter Iowa. A Foreign Trade Zone (FTZ) located near DMIA allows for certain goods to be repacked or assembled, then exported without going through formal customs procedures.²²

Proposed

Des Moines Area MPO. Trans-Iowa/Illinois Freight Corridor, May 2007.

The Trans-Iowa/Illinois Freight Corridor study explored use of the corridor (U.S. 34, U.S. 63, and Iowa Highway 163) as a freight alternative to I-74 and I-80 and found the corridor will offer a feasible freight alternative when developed to four lanes between Galesburg, Illinois and Des Moines. The study suggests strategies to coordinate decision-making to develop the Trans-

²² Metropolitan Planning Organization (Des Moines, Iowa). (2006). *Goods movement in the Des Moines metropolitan area: 2006 Update Report*. Urbandale, Iowa: Des Moines Area Metropolitan Planning Organization.

Iowa/Illinois Freight Corridor for freight movement and economic development. Following this study, the Heartland Highway Freight Corridor Consortium was created, including public and private sector representatives, to coordinate corridor performance monitoring, general improvements and decision making as recommended by the study. In 2010, the consortium approved a 28E Access Management Agreement, developed with the Iowa Department of Transportation, for the consideration of local governments along the corridor.²³

Iowa DOT, Iowa Railroad System Plan, 2009.

The 2009 Iowa Railroad System Plan identifies issues facing the state's railroad systems and recommends strategies to address them. The plan seeks to accomplish the following goals, to be implemented if funding is available:

- Upgrade rail lines to handle the heavier rail cars and locomotives;
- Build spur tracks to accommodate new and expanding industries to support industrial development;
- Maintain and upgrade highway-rail crossings to improve safety; and
- Provide viable rail service to Iowa by a mix of Class I, II, and III railroads.

AIR

Existing

The Des Moines MPA is served by eight airports, including both commercial and general aviation airports, illustrated in Figure 42. The two main airports in the MPA are Des Moines International Airport (DSM) and Ankeny Regional Airport (IKV).

Owned and operated by the City of Des Moines, DSM serves as the major air passenger and air freight hub for the region, as well as a base for the Iowa Air National Guard. DSM is equipped with two runways and facilities for general aviation, commercial service. Nine air carriers provide non-stop service to 17 destinations in the United States.²⁴

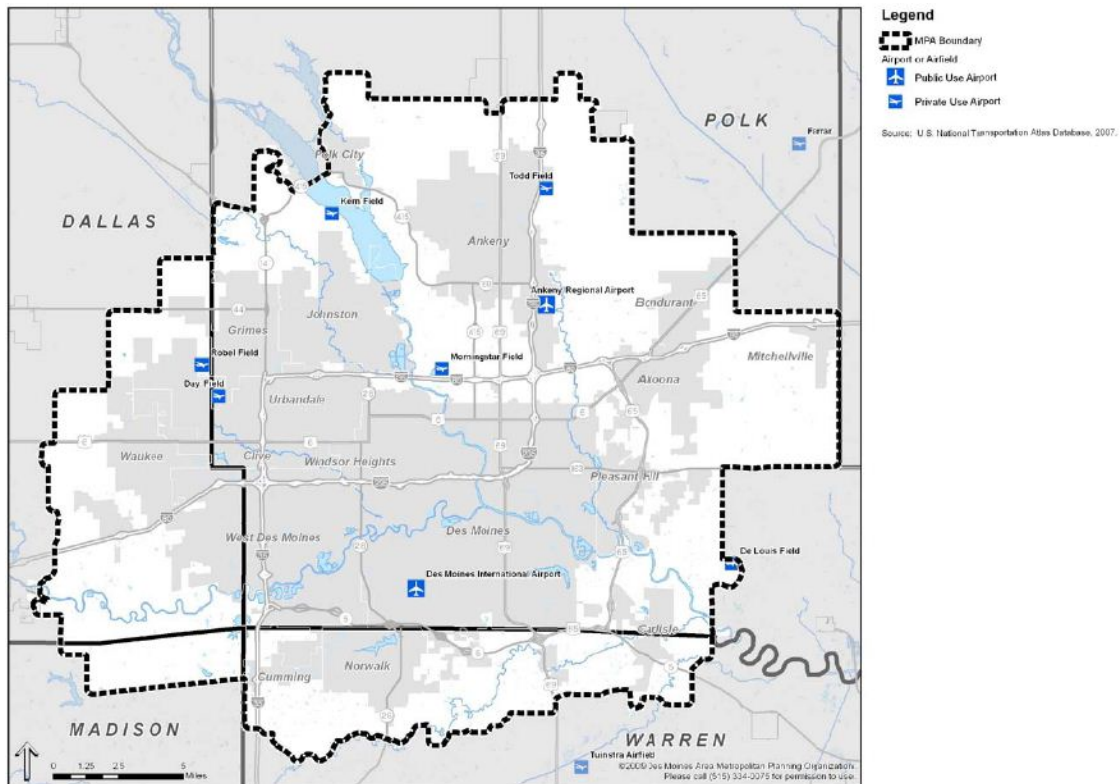
Ankeny Regional Airport is owned and operated by the Polk County Aviation Authority and provides domestic air service for personal and business travel, shipping, and freight. Approximately 110 aircraft are based at the airport.²⁵

²³ DMAMPO Freight Roundtable. "July 6, 2010 Meeting Minutes." http://www.dmampo.org/committees/freight/2010_07.pdf. (accessed January 30, 2012).

²⁴ "Non-stop Flights." Des Moines International Airport. <http://www.dsmairport.com/airlines/nonStopMap/> (accessed January 24, 2012).

²⁵ "Ankeny Regional Airport." City of Ankeny. <http://www.ankenyiowa.gov/Index.aspx?page=417> (accessed January 24, 2012).

Figure 42: Greater Des Moines airports



Source: Des Moines MPO HY 2035 MTP

Proposed

In 2011, DSM received a grant from the Federal Aviation Administration to purchase land for the construction of a third runway. Construction of the new runway is expected to begin in 2012 and be completed for use by 2016 at a cost of \$40 million. The new runway is a replacement for a 3,200-foot general aviation runway closed in 2001, when DSM extended another runway. DSM expects the new runway will improve safety by separating smaller, slower aircraft from faster commercial and military aircraft. The runway will also increase capacity at DSM by allowing for simultaneous takeoffs and landings.²⁶

Iowa DOT, Iowa Air Service Study, 2008.

The Iowa Air Service Study recommends working to increase flight frequency at Des Moines International Airport to markets with two or fewer daily flights. Additionally, the study recommends additional flights and larger aircraft serving trips to the Southeast. The study seeks to increase enplanements from 978,970 to 1,084,730.

²⁶ "Airport moves forward with plan for third runway." Business Record. <http://www.businessrecord.com/main.asp?SectionID=5&SubSectionID=9&ArticleID=9740> (accessed January 30, 2012).

Iowa DOT, 2010-2030 Iowa Aviation System Plan

The 2010-2030 Iowa Aviation System Plan includes recommendations for the future development of Iowa's air transportation system. West Metro Regional Airport, a new enhanced service airport, originally proposed in the 2004 system plan, is recommended for Dallas County, west of Des Moines.²⁷ In 2010, the West Metro Regional Airport and Airport Authority were officially dissolved by the Adel City Council after determining that continuing the authority was not in its best interest.²⁸

Greater Des Moines Partnership. Capital Crossroads, 2011.

Capital Crossroads is a regional planning effort which recommends a comprehensive study of passenger air service in Greater Des Moines to determine whether capacity could be enhanced. In addition to the study of passenger service, Capital Crossroads suggests possible study of air freight service and providing route-subsidies for carriers serving DSM.

PEDESTRIAN

Existing

Sidewalks are pedestrian facilities located along roadways and providing separation between pedestrian and vehicular traffic. This separation, typically provided by grade separation, enhances pedestrian safety and comfort, benefiting safety and utility for all roadway users. The Des Moines Area MPA features nearly 600 miles of sidewalk, counting sidewalks on both sides of streets and covering 30 percent of MPA roadways identified by the Federal Functional Classification System (FFCS). The FFCS classifies street and highway segments eligible for federal aid, using four main hierarchical classifications: principal arterials, minor arterials, collectors, and local streets. Figure 39 displays where sidewalks currently exist in the MPA.

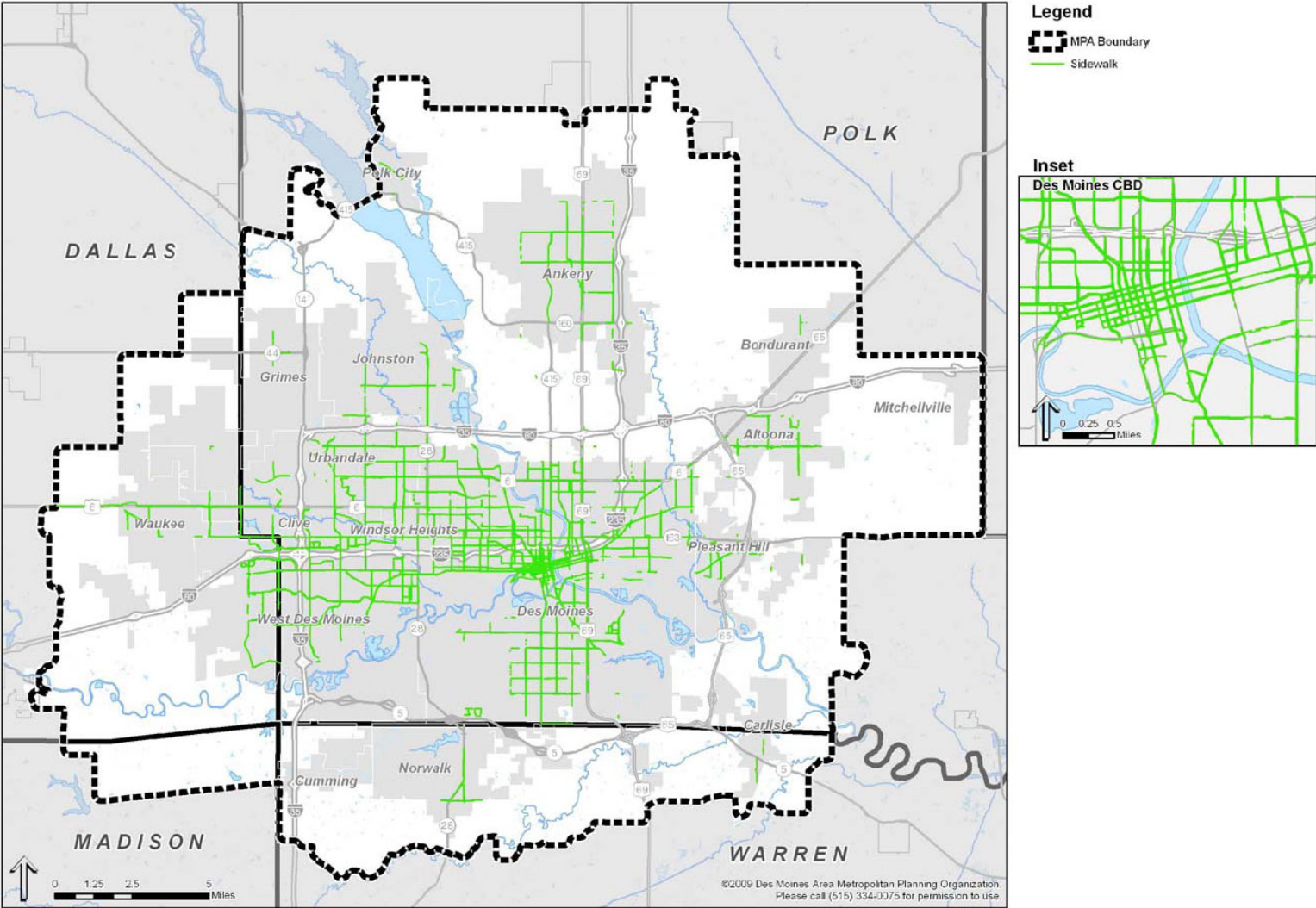
Sidewalks are largely concentrated in the more developed areas, including Des Moines, West Des Moines, and the areas north and west. Outside of this area, pedestrians have limited access along roads and arterials.

²⁷ Iowa DOT. 2010. *Iowa Aviation System Plan 2010-2030*. Ames, Iowa: Iowa Department of Transportation.

²⁸ "West Metro Regional Airport." City of Adel, Iowa. http://adeliowa.org/West_Metro_Regional_Airport.page (accessed January 30, 2012).

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Figure 39: Des Moines MPA Sidewalks



Source: Des Moines MPO LRTP 2035

Proposed

The following section describes the proposed future pedestrian network infrastructure. Since this is a regional project, this section consists of comprehensive local plans, regional transportation enhancement projects listed in the Transportation Improvement Program, and pedestrian - oriented projects identified in the HY 2035 MTP.

Des Moines Area MPO Transportation Improvement Program 2012-2015

The Des Moines Area MPO plans to invest \$13,443,000 in pedestrian and streetscape improvements during the 2012-2015 timeframe.

Figure 44: Proposed Pedestrian Improvements, 2012-2015

Location	Project	Description	Cost (\$000s)	Miles
Des Moines	Beaverdale Village Streetscape	Entrance markers, sidewalks, curb, gutters, street and pedestrian light, pedestrian amenities and cross-walk bump-outs	\$2,629	--
Des Moines	Ingersoll Avenue	Implementation of streetscape improvements: pedestrian safety, traffic calming, and streetlights (Phase 2)	\$3,687	--
Des Moines	Euclid Avenue	Highland Park Streetscape improvements: new sidewalks, vintage street light and flower pots between 6th Avenue and Cornell Street (Phase 2)	\$3,657	.5
Des Moines	Drake Area Streetscape	Pedestrian and streetscape improvements between 31st St to 23rd St	\$3,470	.44
Grandview University	Northeast 14th Pedestrian Overpass	Overpass across East 14th Street north of Grandview Avenue	\$2100	--

Source: Des Moines Area MPO Transportation Improvement Program 2012-2015

Central Iowa Bicycle and Pedestrian Transportation Action Plan 2020 (CONNECT)

As part of its effort to improve bicycling and walking infrastructure in central Iowa, the Des Moines Area MPO created this plan to help develop "cohesive, connected, and continuous" walking environments for pedestrians of all ages and abilities. In support of this goal, CONNECT suggests a number of measures to pursue in local municipalities to add and improve pedestrian facilities:

- By 2020, implement sidewalks along both sides of all central Iowa arterial roadways.
- Remove sidewalk obstructions and install curbs ramps where missing from existing sidewalks

- Review existing zoning ordinances and adopt pedestrian-friendly zoning ordinances to reduce block sizes, provide more frequent pedestrian crossings, and create more direct pedestrian routes between existing and new destinations, including residential and commercial areas.
- Encourage compact and mixed-use land use and development that facilitates walking, provides sidewalk connectivity, and supports walking as a primary mode of transportation to school and work.

Carlisle Comprehensive Plan 2010

This plan seeks redevelopment of Carlisle’s downtown district that is oriented towards pedestrian use. To accomplish this, the plan proposes implementing and improving sidewalks, on-street parking, parking lots located behind or between buildings, denser residential development located near commercial uses, and trails that connect the commercial center to surrounding neighborhoods and the regional trail network, as shown in Figure 40. In addition to filling existing gaps, the plan proposes including sidewalks on both sides of all streets in new development areas and building pedestrian bridge overpasses crossing Highway 5 at 165th Place and Market Street. Pedestrian improvements are proposed along 1st Street and 5th Street, running north and south, to slow traffic, to facilitate safe routes for students walking and biking to school, and to create a comfortable downtown environment.²⁹

Figure 40: Carlisle Proposed Pedestrian Improvements



Source: Carlisle Comprehensive Plan 2010

Grimes Comprehensive Plan 2010

This plan for the City of Grimes' future proposes future land use that supports a more walkable environment. Mixed use residential zones located on existing arterials serve as a destination, as well as a buffer between low density residential and nearby commercial or high density residential

²⁹“Carlisle Comprehensive Plan” (City of Carlisle, Iowa, March 2010).

districts. The plan proposes greater connectivity on the street network, proposing new arterials, collectors, and local streets to fill in the existing gaps. New trails are proposed through greenways and nature preserves to provide convenient connections between destinations for pedestrians and bicyclists.³⁰

City of Ankeny 2010 Comprehensive Plan

The City of Ankeny 2010 Comprehensive Plan created policy guidelines for expanding the network of on-street pedestrian facilities in this suburban city to the north of Des Moines. To support walking as a mode of transportation, the plan recommends pedestrian facilities be provided frequently, preferably spaced 200 to 400 feet apart or closer in areas of high density development to provide direct routes.³¹

Pleasant Hill 2025 Comprehensive Development Plan

The Pleasant Hill 2025 comprehensive plan recommends that transportation networks be designed to maximize the access and mobility of pedestrians, along with bicycle and transit users. To accomplish this goal, the plan recommends that roadway construction include provisions to accommodate non-motorized users. New development should prioritize pedestrians by utilizing shorter block lengths with sidewalks on both sides of the street. As part of a mix of housing types, multi-family and elderly housing units should be located close to commercial districts for convenient pedestrian access.³²

Urbandale Comprehensive Plan 2003

To encourage walking, the comprehensive plan for the City of Urbandale requires sidewalks on both sides of local residential streets, as well as non-residential local streets where there is demand. All major streets will be designed with sidewalks and pedestrian facilities.³³

BICYCLE

Existing

The bikeway network in the Des Moines Area MPA is comprised of shared-used trails and various types of on-street bicycle facilities. Existing on-street bicycle facilities in the MPA include bicycle lanes and bicycle routes. Figure 41 provides a summary of bicycle facilities in the MPA.

³⁰Grimes Comprehensive Plan" (City of Grimes, Iowa, August 2010).

³¹"City of Ankeny 2010 Comprehensive Plan" (City of Ankeny, Iowa, September 2010).

³²"Pleasant Hill 2025 Comprehensive Development Plan" (City of Pleasant Hill, Iowa, 2005).

³³"Urbandale Comprehensive Plan" (City of Urbandale, Iowa, June 2003).

Figure 41: Des Moines MPA Bike Route Network Summary

Bicycle Facilities		Miles	Percent of Network
Trails (Shared-Use Paths)		273	79%
On-street Bicycle Facilities		73	21%
	Bike Lanes	30	9%
	Bike Routes	43	12%
Total		346	

Source: Des Moines MPO LRTP 2035, Des Moines Area MPO

Bicycle lanes are a designated portion of the roadway for the preferential or exclusive use of bicyclists. Separated from vehicle travel lanes, bicycle lanes are delineated with striping and pavement markings. Bicycle lanes help define a designated space for bicyclists and are typically found on arterial and collector streets where higher traffic volumes and vehicular speeds warrant greater separation. Figure 42 lists existing on-street bicycle lanes in the MPA.

Figure 42: On-Street Bike Lane Network

Location	Street	Start and End	Miles
Altoona	1st Ave South	10th St SE to NE 27th Avenue	1.60
Altoona	34th St Southwest	8th St Southwest to East Douglas Avenue	1.00
Des Moines	Cottage Grove Avenue	25th St to MLK Jr. Parkway	0.40
Des Moines	East Walnut St	Water St to East 9th St	0.68
Des Moines	Ingersoll Avenue	Polk Boulevard to MLK Jr. Parkway	1.91
Des Moines	Ingersoll Avenue	MLK Jr. Parkway to 15th St	0.50
Des Moines	SE Connector	2nd Avenue to South Pleasant Hill Blvd	5.33
Des Moines	Urbandale Avenue	Merle Hay Road to 34th St	1.84
Pleasant Hill	NE 56th St	Pleasant Hill City Limits to University Avenue	0.83
Total On-Street Bicycle Lanes			14.1

Source: Des Moines Area MPO

Figure 43: On-Street Bike Lane Network Summary

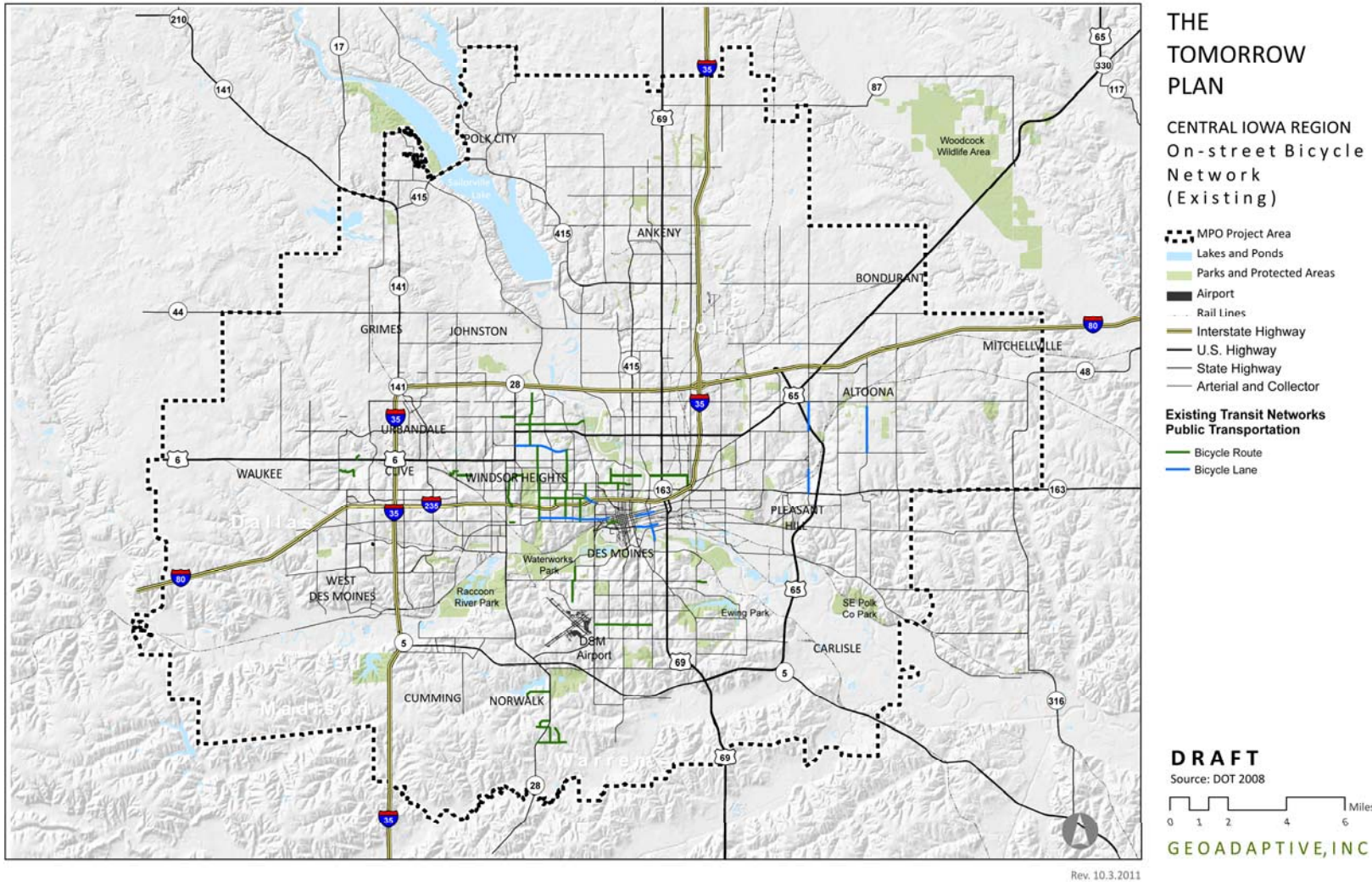
Location	Miles	Percent of System
Altoona	2.6	18%
Des Moines	10.7	76%
Pleasant Hill	0.8	6%
Total On-Street Bicycle Lanes	14.1	100%

Source: Des Moines Area MPO

Figure 439 describes the geographic distribution of bicycle facilities in the MPA region, which are illustrated in the map below. Off-street facilities are the predominant facility throughout the region. The City of Des Moines contains the greatest concentration of bike lanes; however, even in this area, many routes terminate without connections, as evidenced by the terminus of bike lanes on the Grand Avenue and Locust Street corridor, displayed in Figure 449: Existing On-Street Bike Network.

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Figure 449: Existing On-Street Bike Network



Bicycle routes typically mark commonly used routes for bicyclists through high demand corridors and between other bicycle facilities. They may also be used to guide bicyclists away from high volume and high speed roads towards low volume roads with slower speeds. The City of Des Moines classifies these as shared roadways, also known as bicycle boulevards or quiet streets. Shared roadways feature lower posted speed limits (25 mph or less), lower traffic volumes (3,000 average daily traffic volumes or less), and are intended to facilitate important connections in the bicycle network. Quiet streets are created through a combination of traffic calming measures, signage, and streetscape treatments depending on factors such as traffic volumes, motor vehicle and bicycle circulation patterns, street connectivity, street width, and other physical constraints. Changes to the local street network may be used to divert through traffic to arterial roads. In combination, these measures are intended to slow local vehicle traffic and facilitate a safe and comfortable environment for all street users. Figure 50 describes the geographic distribution of bicycle routes within the MPA. On-street bicycles routes are largely concentrated in Des Moines, with shorter sections to the south in Norwalk and to the west in Clive.

Figure 50: On-Street Bicycle Route Network Summary

Location	Facility Type	Miles	Percent of System
Clive	Bicycle Route	1.8	6%
Des Moines	Bicycle Friendly Street	22.9	79%
Norwalk	Bicycle Route	4.0	14%
Urbandale	Bicycle Route	0.5	1%
Total Bicycle Route		29.2	100%

Source: Des Moines Area MPO

Des Moines B-cycle

Des Moines B-cycle launched a pilot bicycle-sharing program in September 2010, providing service in downtown Des Moines. The program provides 18 public bicycles at four stations throughout downtown that are available for short point-to-point trips. Membership is available at the rate of \$5 per day, \$30 per month, and \$50 per year, with reduced rates available to eligible students and seniors. The first hour of use is free, and subsequent use is charged \$1.25 per half-hour.³⁴

Members of the program can borrow a bike from one location, pedal to their destination, and return the bike a different docking station. The current system includes stations along the Grand Avenue corridor between Western Gateway Park to the west and East 4th Street to the east. The bikes are available for use daily, from 5 AM to 11 PM, though the system closes during winter months. In the first three months of service, Des Moines B-cycle registered 359 members and served 736 trips.³⁵ The existing program provides limited coverage, which organizers hope to expand with the addition of 10 more bike sharing stations and a total fleet of 100 bikes in downtown Des Moines.

³⁴ Des Moines B-cycle, <http://desmoines.bcycle.com/> (accessed November 12, 2011).

³⁵ Gunnar Olson, "Stats show B-cycle is off to a solid start," The Bus Blog, <http://thebusblog.ridedart.com/2010/12/10/stats-show-B-cycle-is-off-to-a-solid-start/> (accessed November 12, 2011).

Bike & Ride

In the Fall of 2005, DART began tracking usage of its Bike & Ride program. Every regular and express-route bus is equipped with a bike rack that allows DART passengers to store their bicycle free of charge while they ride. The program extends the reach of the transit system by enabling bus riders to pedal from their origin to the bus stop and from the bus stop to their destination. Figure 51 presents the Bike & Ride program use by route. DART routes with the highest levels of Bike & Ride usage are local service routes:

- Route 1, serving Downtown Des Moines, Iowa State Fairgrounds, the Route 7 corridor from Hubbell to Altoona and Pleasant Hill;
- Route 3, serving Park Fair Mall, Mercy Medical Center, Downtown Des Moines, Drake University and Valley West Mall; and
- Route 4, serving Merle Hay Mall, Methodist Medical Center, Downtown Des Moines, Grandview University and Park Fair Mall.

Figure 51: DART Bike & Ride Usage

	2005	2006	2007	2008	2009	2010	2011
January	-	334	717	718	521	341	636
February	-	425	378	623	973	356	868
March	-	553	833	1,183	1,935	N/A	2,252
April	-	771	1,256	1,904	2,792	2,902	3,075
May	-	1,240	1,934	2,739	3,454	3,333	3,884
June	-	1,718	2,632	3,297	4,228	3,828	4,646
July	-	1,803	2,823	3,968	4,446	4,174	5,046
August	-	2,077	3,202	6,636	4,385	4,425	5,692
September	-	1,898	2,823	3,844	4,156	3,945	4,898
October	485	1,623	5,873	3,797	N/A	3,862	4,777
November	321	1,255	2,282	2,248	2,367	2,623	2,858
December	99	1,064	701	701	910	1,316	2,034
Total	905	14,761	25,454	31,658	30,167	31,105	40,666

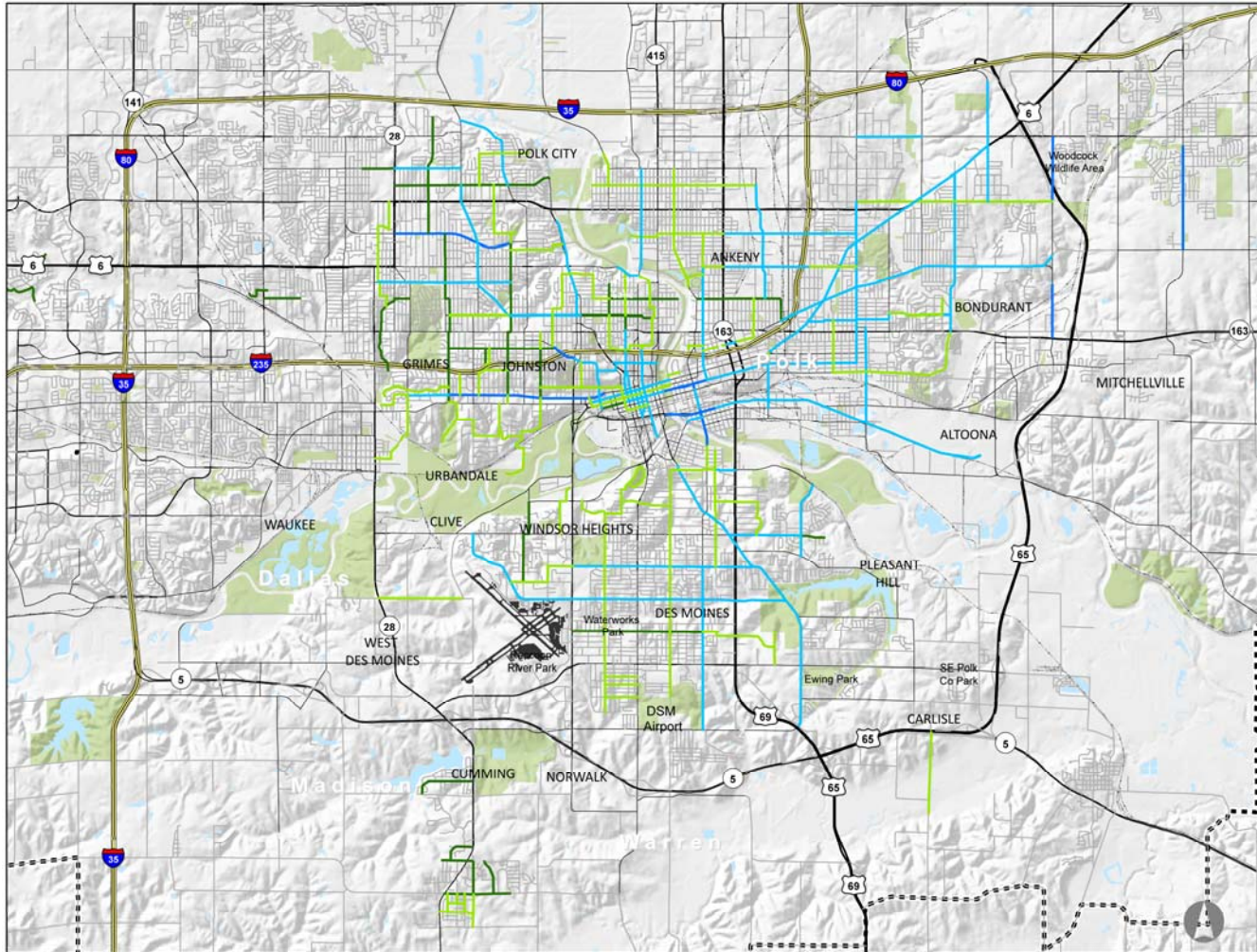
Source: "Central Iowa Bicycle – Pedestrian Roundtable - November 2011." Des Moines MPO. www.dmampo.org/committees/bikeped/2011_11.pdf (accessed January 30, 2012).

Proposed Changes

The following section describes proposed future bicycle infrastructure in the Des Moines Area MPA. As this is a regional project, this section consists of bicycle network expansion identified in the Des Moines Bicycle and Trail Master Plan, and more generalized strategies included in the HY 2035 MTP, illustrated in Figure 52. Although bicycle improvements are included as part of some regional transportation enhancement projects listed in the Transportation Improvement Program, most bike network improvements are shared-use trail projects included in the later section. In addition, proposed changes identified in comprehensive plans are included for municipalities, as available.

The Tomorrow Plan: Transportation System

Figure 52: Proposed On-Street Bike Network



THE TOMORROW PLAN CENTRAL IOWA REGION On-street Bicycle Network (Proposed)

- MPO Project Area
 - Lakes and Ponds
 - Parks and Protected Areas
 - Airport
 - Rail Lines
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - Arterial and Collector
 - Local Roads
- Existing Transit Networks**
- Public Transportation**
- Bicycle Route
 - Bicycle Lane
 - Proposed Bike Lane
 - Proposed Bike Route

DRAFT
Source: DOT 2008

0 0.5 1 2 3 Miles

GEOADAPTIVE, INC

Central Iowa Bicycle and Pedestrian Transportation Action Plan 2020 (CONNECT)

The CONNECT plan, developed by the Des Moines Area MPO, is intended to enhance and expand transportation facilities for bicycling and walking in Central Iowa. The plan aims to identify opportunities to improve the existing bicycle and pedestrian network, close gaps in the network, promote community economic development, establish policies that incentivize increasing bicycling and walking, implement best practices, increase signage, and establish safety programs for bicycle and pedestrian safety. The objectives of CONNECT include:

- Increasing connectivity and connection points between municipalities, destinations, areas of activity, and travel modes by eliminating gaps in the bicycle and pedestrian network, connecting trails to the on-street bike network, and creating crossings over physical transportation barriers.
- Improving accessibility to public transit facilities by increasing number of bicycles that can be carried by DART, installing bicycle racks on DART Vanpool Program vehicles, and expanding DART's Bike & Ride ridership counting methodology to include boarding and departure locations.

Des Moines Bicycle and Trail Master Plan

An element of the Des Moines 2020 Community Character Plan, the Des Moines Bicycle and Trail Master Plan created policy guidelines for growing the network of bicycle facilities and the share of bicycles as a mode of transportation. The Bicycle and Trail Master Plan builds on the Complete Streets Policy adopted by the City of Des Moines and proposes a network of complete streets to connect and enhance the city's trail network. The plan seeks to implement three top-priority projects, described below, between 2011 and 2016.³⁶

- **Northeast Des Moines Bicycle Corridor** - Develop on-street bikeway across northeastern Des Moines, running northeast and southwest, on Hubbell Avenue, East 18th Street, and East Walnut Street. Improvements would include roadway striping to create dedicate lanes, shared lane markings, and bicycle boulevard treatments.
- **Southwest 14th Street Quiet Street** - Install quiet street, also known as bicycle boulevard, treatments along Southwest 14th Street, connecting neighborhoods on the southwest side of Des Moines to the Raccoon River trail network, Blank Park Zoo, proposed Fort Des Moines superblock, and Meredith Trail.
- **Downtown Bicycle Facilities** - Implement bikeway improvements on Crocker Street, 15th Street, Grand Avenue, Locust Street, and Walnut Street to enhance bicycle network connectivity between downtown Des Moines and nearby trails and park spaces.

In addition, the Des Moines Bicycle and Trail Master Plan seeks to implement a broader series of improvements by 2031, summarized in the list below.

- **Bicycle Lanes** - Retrofit existing streets with bike lanes by reallocating street width, not by road widening. Through lane narrowing, road diets, and parking reduction in the City

³⁶ "Des Moines Bicycle and Trail Master Plan," (City of Des Moines, Iowa, June 2011).

of Des Moines, the plan proposes 40.59 miles of new on-street bike lanes along major streets with high vehicle traffic volumes.

- **Shared Lane Markings** - The plan proposes 23.85 miles of bicycle routes marked by shared lane markings. Additionally, 22.19 miles of streets recommended as bicycle routes have varying widths and traffic conditions that could warrant either bike or shared lane markings.
- **Quiet Streets** - Also known as bicycle boulevards, quiet streets are proposed for 58.06 miles of city roadway. These traffic calmed corridors slow vehicle speeds to create a safer and more comfortable shared street environment for bicycle and local motor vehicle traffic.
- **Cycle Tracks** - An on-street bicycle facility which uses grade separation or barriers to physically separate bicycles from motor vehicle and pedestrian traffic, cycle tracks are proposed for .69 miles of roadway on 16th Street, 5th Street (northbound), 6th Street, and Falcon Drive - 15th Street.
- **Area-wide improvements** - In addition to site-specific improvements, the plan proposes area-wide wayfinding signage, as well as upgraded railroad crossings and drainage grates to improve safety for bicyclists.

West Des Moines Bicycle Master Plan

The West Des Moines Bicycle Master Plan builds on previous planning efforts and lays out strategies to encourage the growth of bicycling for transportation. The plan recommends a bicycle network that provides safe and accessible routes to desired destinations. Between 2011 and 2031, the plan proposes to implement a series of improvements, summarized below.³⁷

- **Bicycle Lanes** - Retrofit existing streets with bike lanes by reallocating street width, not by road widening. Primarily through roadway restriping in West Des Moines, the plan proposes 16.87 miles of new on-street bike lanes along major streets with high vehicle speeds and traffic volumes.
- **Shared Lane Markings** - The plan proposes 30.01 miles of bicycle routes marked by shared lane markings.
- **Area-wide improvements** - In addition to site-specific improvements, the plan proposes area-wide wayfinding signage.

West Des Moines Comprehensive Plan

The West Des Moines Comprehensive Plan recommends that streets should be safe, limited in number and location, and design properly, including bicycle facilities where appropriate. According to the plan, all parks and open spaces should be accessible by bicycling, walking, and transit. Bicycle parking facilities should be provided at significant destinations.³⁸

³⁷ "West Des Moines Bicycle Master Plan," (West Des Moines, Iowa, February 2011).

³⁸ "West Des Moines Comprehensive Plan," (West Des Moines, Iowa, September 2010).

City of Ankeny 2010 Comprehensive Plan

The Comprehensive Plan for Ankeny seeks to improve transportation networks to provide safe and continuous facilities for bicycle use. To accomplish this, the plan proposes design concepts and guidelines that support the development of a multi-modal transportation network. An interconnected bicycle network, including trails, side-paths, bicycle lanes, and bicycle boulevards, should be created with parallel routes no further than one-half mile apart.³⁹

Carlisle Comprehensive Plan 2010

This Comprehensive Plan proposes the development of a transportation network that encourages bicycling among other non-motorized transportation. In addition to creating Green Streets, also known as Complete Streets, which accommodate bicycling, the plan seeks to implement new signage to help bicyclists navigate between on-street bicycle routes and trails.⁴⁰

Johnston 2030 Comprehensive Plan

The Johnston 2030 Comprehensive Plan seeks to create a multimodal transportation system, which encourages roadways that can support multiple users. The plan also proposes the identification of roadways that can accommodate recreational and commuter bicyclists. Shared lane markings will be utilized to delineate these on-street bicycle routes. New roadways will include enough width to accommodate bicycle and pedestrian facilities (bike lanes or shared-use trails). The city will continue working with DART to evaluate and expand bicycle and transit connections through the Bike & Ride program.⁴¹

Pleasant Hill 2025 Comprehensive Development Plan

Policy included in the Pleasant Hill 2025 Comprehensive Plan recommends that bicycle networks, along with transit and pedestrian networks, be designed to maximize access and mobility. When streets are built or reconstructed, the plan proposes that additional space be provided along the shoulder or a side path to accommodate bicycle and pedestrian use. The plan proposes that new developments include a mix of housing types with multi-family and elderly housing located closest to commercial areas. Pedestrian connections should be direct – facilitated by sidewalks on both sides of streets and shorter block lengths.⁴²

TRAILS

Existing

The Des Moines Area MPA features an extensive trail system, providing access to many destinations within the city and region. Trails, also known as shared-use paths, are a predominant facility type in the MPA bikeway and pedestrian network, comprising nearly 80 percent, as shown in Figure 536. The more than 270 miles of trails in the MPA are classified by the Trail Level of Significance system: Level 1, State Significance; Level 2, Regional Significance; Level 3, Jurisdictional Significance; and, Level 4, Local/Neighborhood Significance. Figure 53 presents

³⁹"City of Ankeny 2010 Comprehensive Plan" (City of Ankeny, Iowa, September 2011).

⁴⁰"Carlisle Comprehensive Plan" (City of Carlisle, Iowa, March 2010).

⁴¹"Johnston 2030 Comprehensive Plan" (City of Johnston, Iowa, December 2011)

⁴²"Pleasant Hill 2025 Comprehensive Development Plan" (City of Pleasant Hill, Iowa, 2005).

the Trail Level of Significance requirements. Figure 54 presents the Trails' Level of Significance mileage summary.

Figure 53: Des Moines Area MPA Trail Level of Significance Requirements

Level	Significance	Requirements
1	State	Must first meet all of the criteria described in Level 2. Must span two or more counties and be recognized by the State of Iowa/Iowa Department of Transportation as a Level 1 Trail. A decisive knowledge of the trail boundaries must exist. Alternatively, must receive approval by the Central Iowa Bicycle-Pedestrian Roundtable.
2	Regional	Must first meet all of the criteria described in Level 3. Must exist in two or more city or county jurisdictions. Must connect places, streets, or trails of significance to the central Iowa region. Alternatively, must receive approval by the Central Iowa Bicycle-Pedestrian Roundtable.
3	Jurisdiction	Must first meet all of the criteria described in Level 4. Must be a minimum of 8 feet in width. Must connect places, streets, or trails of jurisdictional significance. Alternatively, must receive approval by the Central Iowa Bicycle-Pedestrian Roundtable.
4	Local/Neighborhood	Must meet the minimum criteria to be designated as a Shared-Use Path, Bicycle Lane, or Bicycle Route, as specified in the Manual on Unified Traffic Control Devices.

Source: Des Moines Area MPO Transportation Improvement Program 2012-2015

Figure 54: Des Moines Area MPA Trail Level of Significance Summary

Level	Significance	Miles	Percent of Trail System
1	State	38	14%
2	Regional	51	19%
3	Jurisdiction	81	29%
4	Local/Neighborhood	103	38%
Total		273	100%

Source: Des Moines Area MPO Transportation Improvement Program 2012-2015

Proposed

The following section describes future proposed improvements to the trail network in the Des Moines Area MPA (Figure 5656). As this is a regional project, this section consists of regional transportation enhancement projects, listed in the Transportation Improvement Program, that seek to expand the shared-used trail network.

The Tomorrow Plan: Transportation System

Figure 55: Existing Trail Network

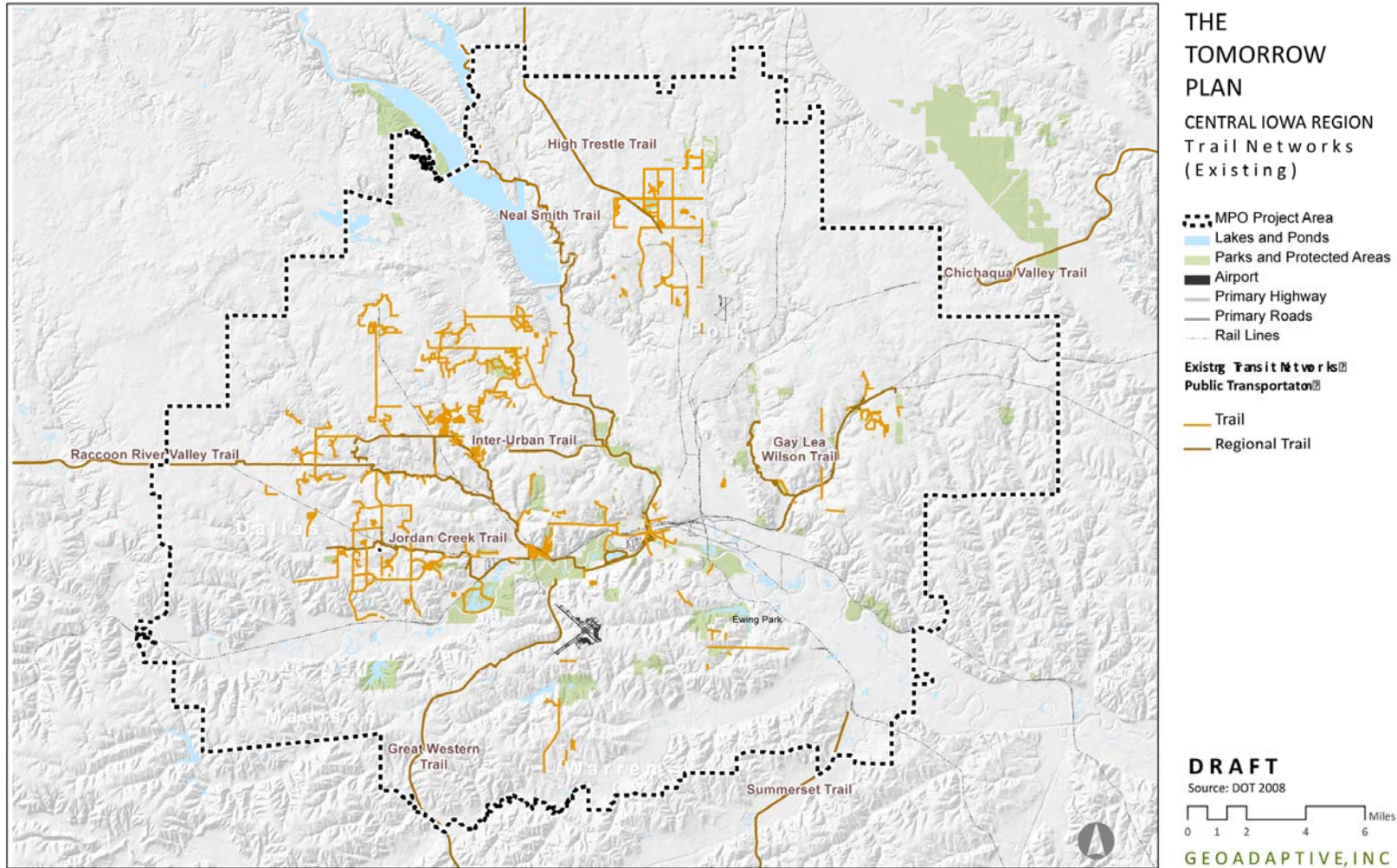
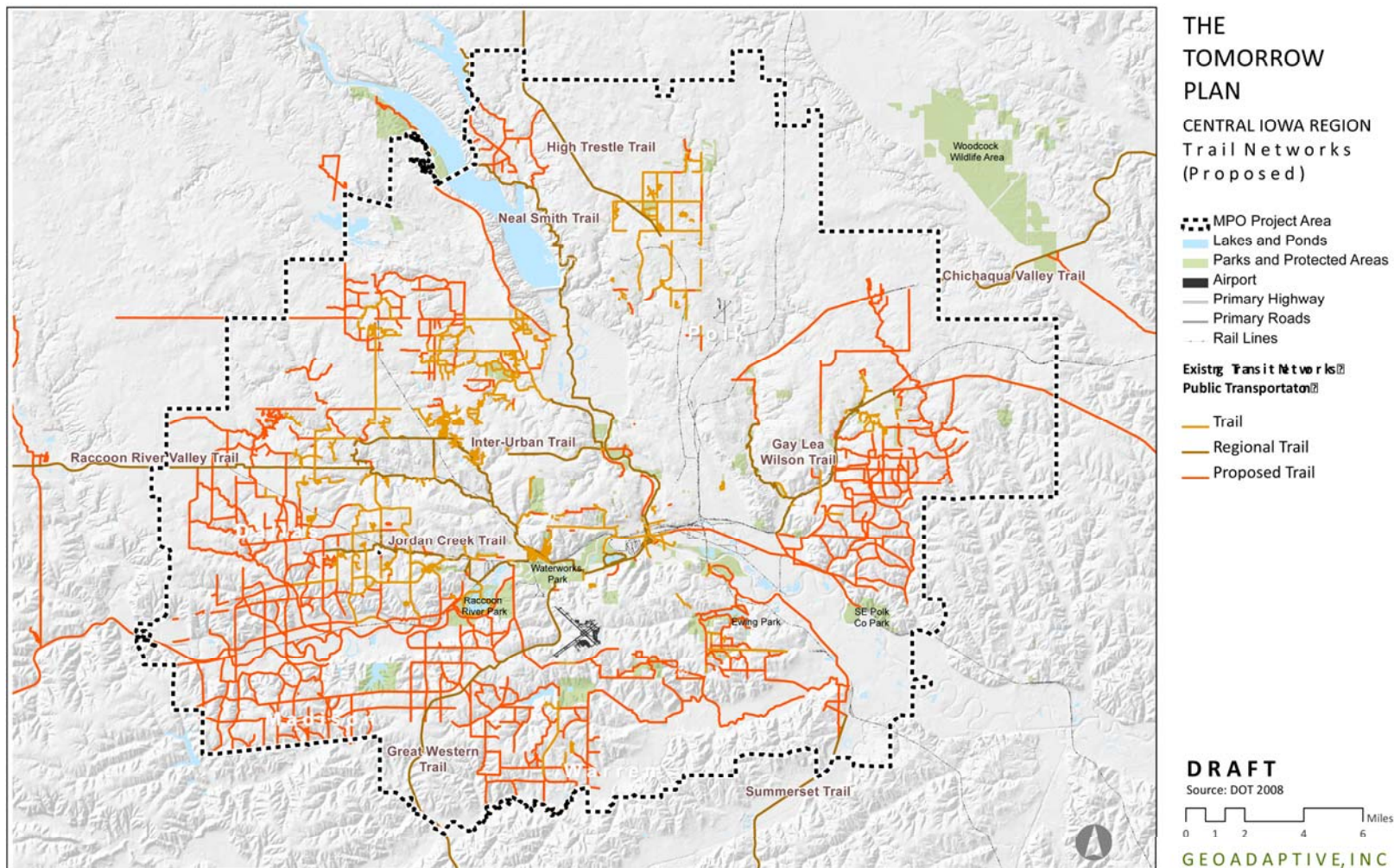


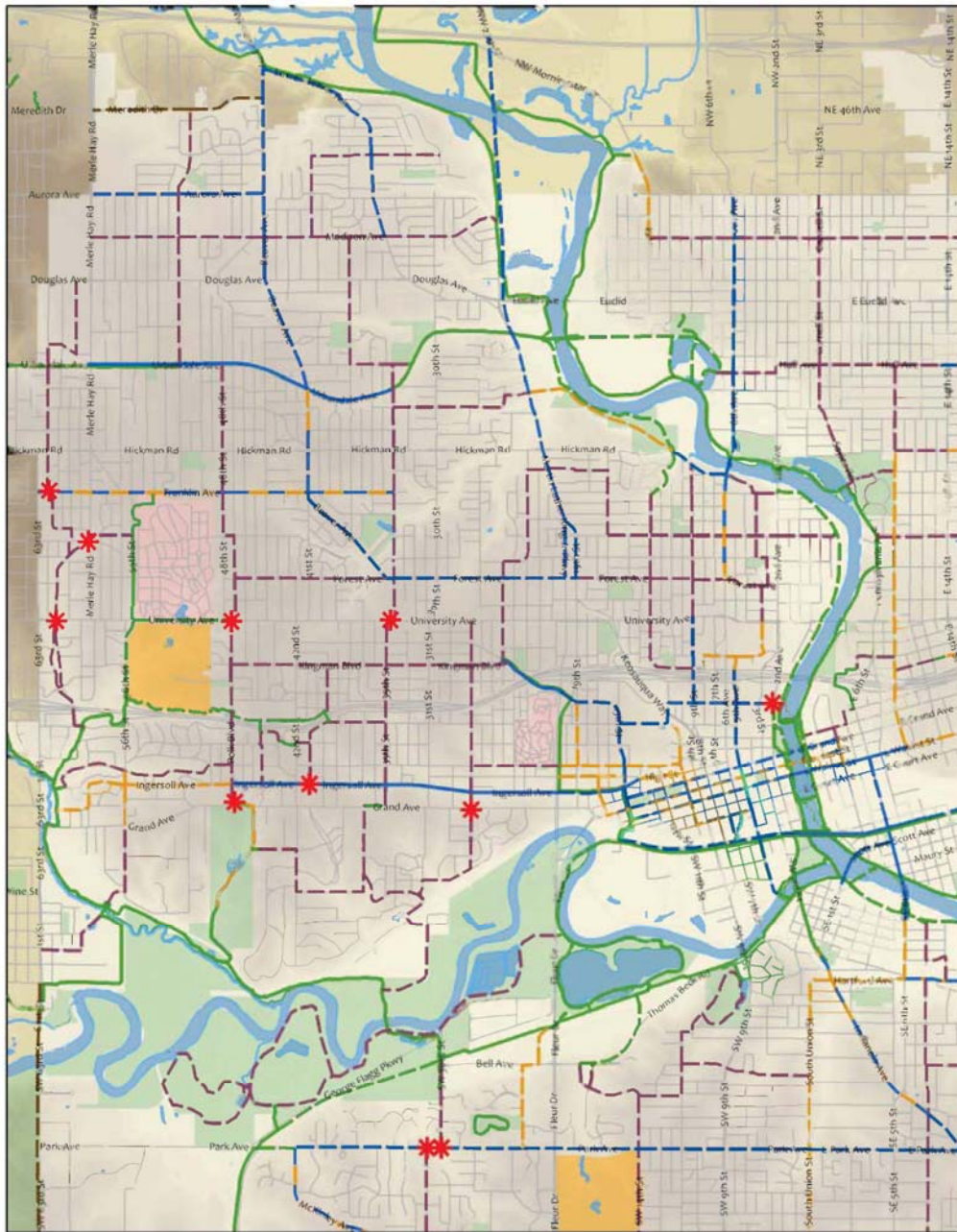
Figure 56: Proposed Trail Network



Des Moines Bicycle and Trail Master Plan

The Des Moines Bicycle and Trail Master Plan proposes the addition of 53.05 miles of shared-use paths, illustrated in Figures 57 through 60, to connect and extend longer trail corridors serving both recreational and transportation purposes. More broadly, the plan proposes maintenance of the trail system by repairing or replacing trail surfaces damaged or otherwise an impediment to the safe and comfortable utilization by users of all abilities.

Figure 45: Existing and Proposed Bicycle and Trail Network in Northwest Des Moines



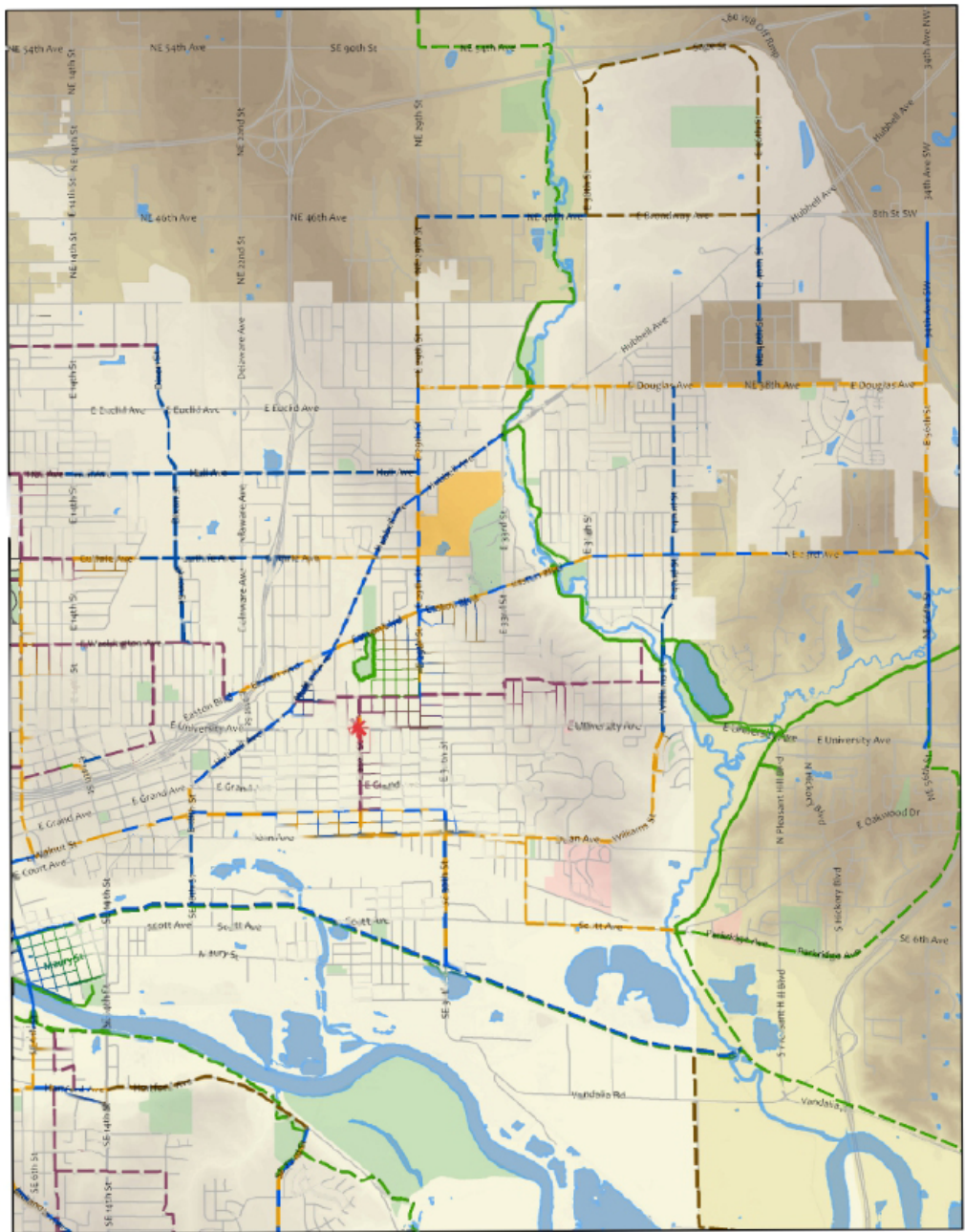
Map 3. Existing and Proposed Bicycle and Trail Network, Northwest

- | | | | | | |
|---|---------------------------|---|--|---|------------------------------------|
|  | Existing, Shared Use Path |  | Proposed, Shared Lane Marking or Bike Lane |  | Existing, Paved Shoulder |
|  | Proposed, Shared Use Path |  | Existing, Shared Lane Marking |  | Proposed, Paved Shoulder |
|  | Existing, Bike Lane |  | Proposed, Shared Lane Marking |  | Proposed, Cycle Track |
|  | Proposed, Bike Lane |  | Proposed, Bicycle Boulevard |  | Proposed Intersection Improvements |



Source: Des Moines Bicycle and Trail Master Plan

Figure 5846: Existing and Proposed Bicycle and Trail Network in Northeast Des Moines



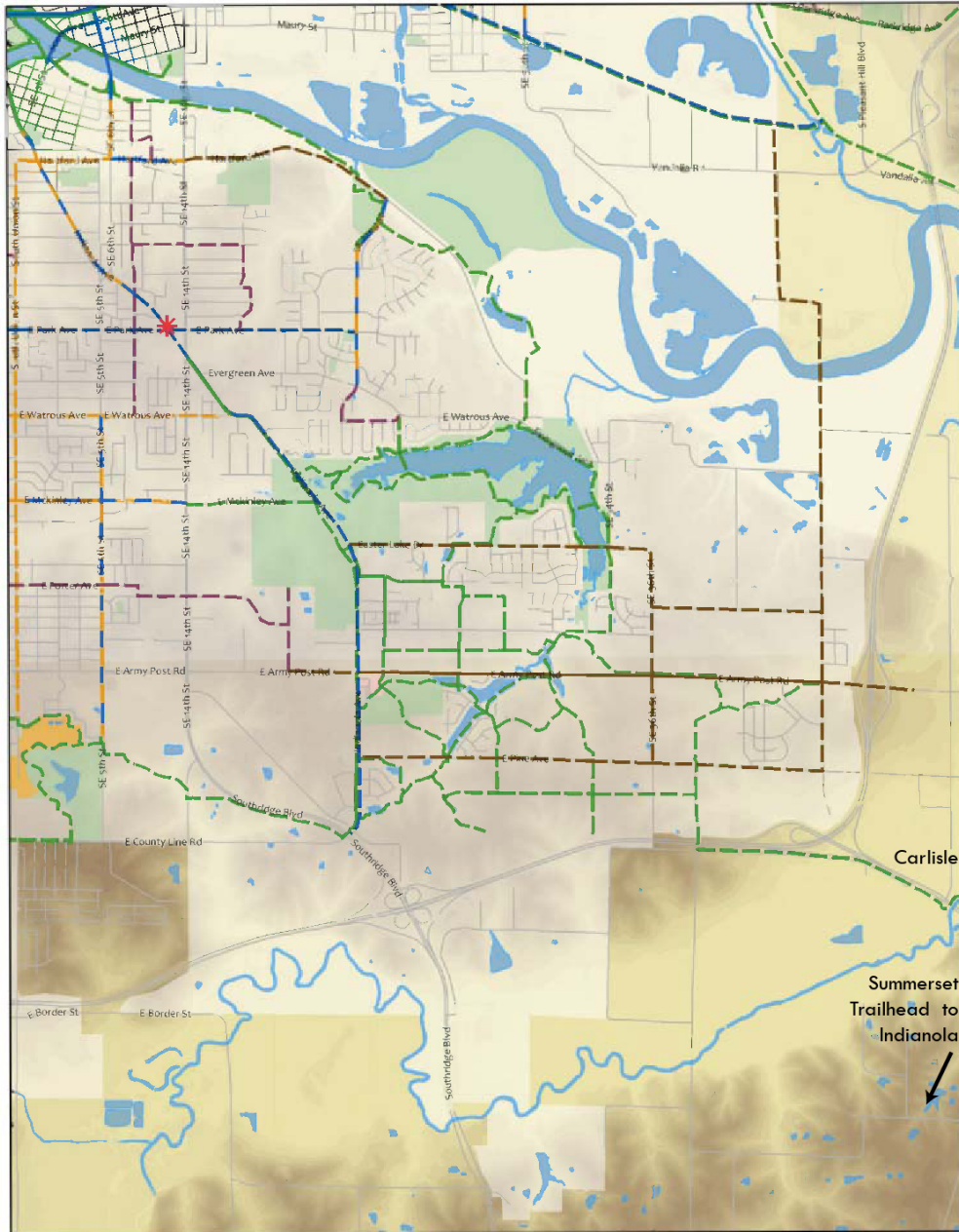
Map 4. Existing and Proposed Bicycle and Trail Network, Northeast

- | | | | | | |
|---|---------------------------|---|--|---|--------------------------------|
|  | Existing, Shared Use Path |  | Proposed, Shared Lane Marking or Bike Lane |  | Existing, Paved Shoulder |
|  | Proposed, Shared Use Path |  | Existing, Shared Lane Marking |  | Proposed, Paved Shoulder |
|  | Existing, Bike Lane |  | Proposed, Shared Lane Marking |  | Proposed, Cycle Track |
|  | Proposed, Bike Lane |  | Proposed, Bicycle Boulevard |  | Proposed, Bicycle Improvements |



Source: Des Moines Bicycle and Trail Master Plan

Figure 59: Existing and Proposed Bicycle and Trail Network in Southeast Des Moines



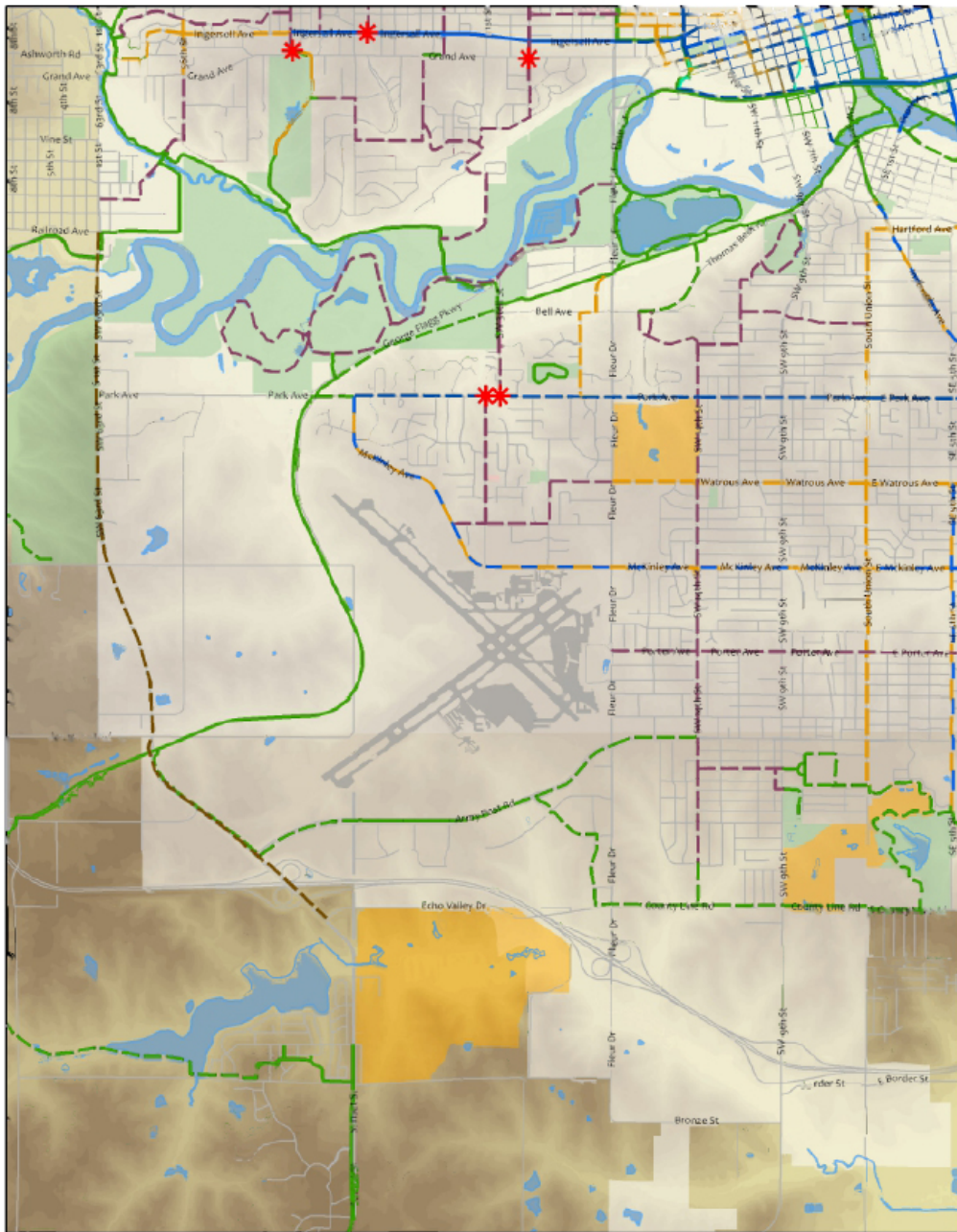
Map 5. Existing and Proposed Bicycle and Trail Network, Southeast

- | | | | | | |
|--|---------------------------|--|--|--|------------------------------------|
| | Existing, Shared Use Path | | Proposed, Shared Lane Marking or Bike Lane | | Existing, Paved Shoulder |
| | Proposed, Shared Use Path | | Existing, Shared Lane Marking | | Proposed, Paved Shoulder |
| | Existing, Bike Lane | | Proposed, Shared Lane Marking | | Proposed, Cycle Track |
| | Proposed, Bike Lane | | Proposed, Bicycle Boulevard | | Proposed Intersection Improvements |



Source: Des Moines Bicycle and Trail Master Plan

Figure 60: Existing and Proposed Bicycle and Trail Network in Southwest Des Moines



Map 6. Existing and Proposed Bicycle and Trail Network, Southwest

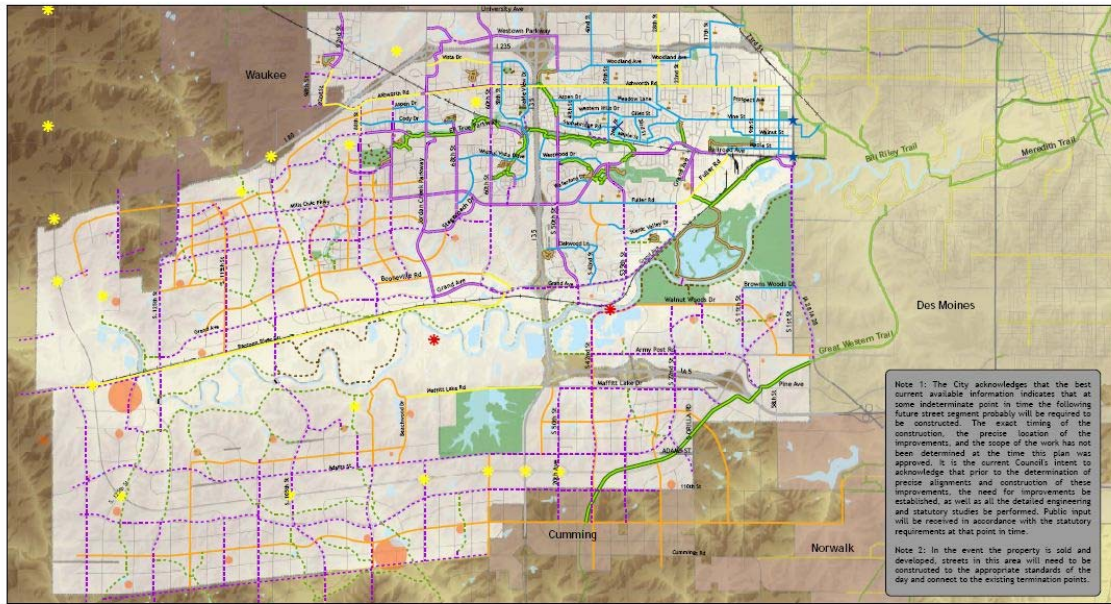
- | | | | | | |
|---|---------------------------|---|--|---|------------------------------------|
|  | Existing, Shared Use Path |  | Proposed, Shared Lane Marking or Bike Lane |  | Existing, Paved Shoulder |
|  | Proposed, Shared Use Path |  | Existing, Shared Lane Marking |  | Proposed, Paved Shoulder |
|  | Existing, Bike Lane |  | Proposed, Shared Lane Marking |  | Proposed, Cycle Track |
|  | Proposed, Bike Lane |  | Proposed, Bicycle Boulevard |  | Proposed Intersection Improvements |

Source: Des Moines Bicycle and Trail Master Plan

West Des Moines Bicycle and Trails Master Plan

The West Des Moines Bicycle Master Plan includes proposed shared-use paths, illustrated in Figure 61, intended to connect and extend longer trail corridors.

Figure 61: Existing and Proposed Bicycle and Trail Network in Southwest Des Moines



Source: West Des Moines Bicycle Master Plan

Des Moines Area MPO Transportation Improvement Program 2012-2015

The Transportation Improvement Program proposes numerous trail projects, illustrated in Figure 56, for the 2012-2015 timeframe. A total of \$18,945,000 is scheduled to be invested in expanding the trail network.

Figure 62: Proposed Trail Projects, 2012-2015⁴³

Location	Project	Description	Cost (\$000s)	Miles
Waukee	Sugar Creek Recreation Area	Trail connecting Centennial Park, Warrior Park and Sugar Creek Golf Course	\$600	--
Ankeny	Gay Lea Wilson Trail	Trail extending from Carney Marsh Nature Preserve on SE 54th Avenue to Des Moines CL at Aurora Ave	\$5,708	--
Ankeny	Gay Wilson Trail Extension	Extension from NE Delaware Avenue to NE 54th Street	\$5,698	--
Ankeny	Gay Lea Wilson Trail	54th Street to NE 54th St	\$606	4.5
Carlisle	Carlisle/Indianola Trail	Trail extension from Somerset to Carlisle (Phase 1)	\$248	--
Des Moines	Easter Lake Trail System	Backbone Trail from Indianola Avenue and Highway 69 to Southeast Corner of Easter Lake at Easter Lake Drive	\$600	--
Des Moines	Ewing Park Trail	Connection across western edge of Easter Lake, including 3 bridges	\$995	.75
Des Moines	Ewing Park to Easter Park Trail Connection	Connection from north side of Yeader Creek around Easter Lake	\$751	--
Urbandale	Walnut Creek Regional Park	Connect Douglas Parkway to Meredith Drive	\$692	--
Polk CCB	4-mile Creek Greenway Trail	Connect Ankeny to Des Moines	\$1,186	2.6
Polk CCB	Easter Lake Trail	Complete sections A and F	\$591	--
Des Moines	Des Moines River Trail	Phase 1: Trail from downtown Des Moines to James W. Cownie Soccer Park	\$1,100	2.5
Carlisle	Summerset Trail Connection	Connection of Summerset Trail with Des Moines River	\$747	9
Carlisle	Great Western Trail	Trail improvements	\$23	--

Source: Des Moines Area MPO Transportation Improvement Program 2012-2015

Iowa DOT Transportation Improvement Program 2011-2015

Figure highlights projects in the Iowa Transportation Improvement Program, intended to expand or improve the trail network within the Des Moines Area MPA, illustrated in Figure 56.

⁴³ Projects funded through 2016 will be announced in spring 2012.

Figure 63: Iowa DOT Proposed Trail Projects, 2011-2015

Location	Project	Description	Cost (\$000s)	Miles
Des Moines	Principal Riverwalk Recreational Trail	Principal Riverwalk Recreational Trail	\$750	--
Des Moines	Des Moines River Regional Trail	Des Moines River Regional Trail - Phase 1	\$73	--

Source: Iowa DOT Transportation Improvement Program 2011-2015

Central Iowa Bicycle and Pedestrian Transportation Action Plan 2020 (CONNECT)

In addition to improving the on-street bicycle and pedestrian network, CONNECT seeks to create a highly connected shared-use trail system that provides comfortable, convenient, and direct routes for all non-motorized users. The plan proposes various strategies to accomplish its objective, including:

- By 2012, complete 20 Level 1 and/or Level 2 trailway projects; by 2020, complete an additional 30 trailway projects.
- Update, complete or adopt county greenway plans in each county by 2016.
- Expand or separate shared-use trail sections with user conflicts or congestion.

Carlisle Comprehensive Plan 2010

This Comprehensive Plan proposes the creation of a wayfinding system to reinforce bicycle and pedestrian routes between the trail network and sidewalks, on-street bicycle facilities, and local destinations.⁴⁴

⁴⁴"Carlisle Comprehensive Plan" (City of Carlisle, Iowa, March 2010).