# APPENDIX B: STATE OF THE TRANSPORTATION SYSTEM

# STATE OF THE TRANSPORTATION SYSTEM

**Appendix B** documents existing conditions for the transportation network, with a profile of each major mode – roadway, bicycle, transit, aviation, and rail. In the Des Moines Metropolitan Planning Area (MPA), 88 percent of person trips are made using a personal vehicle. At the same time, a robust network of transit, including not just local fixed-route but also demand-response service, an active carpool culture, extensive regional trail and bicycle network, and multiple Transportation Demand Management programs provide valuable opportunities for a more multimodal future system.

As shown in **Figure B1**, commute methods to work are overwhelmingly by single occupancy vehicles. **Figure B2** shows that when all trips are considered, the share of single occupancy vehicles fall in favor of other modes, especially carpooling.

#### FIGURE B1: MODE OF TRANSPORTATION TO WORK

MODE	PERCENT
Single Occupancy Vehicles	77
Carpool	19
Transit	1
Walk/Bike/Other	3

Source: 2018 National Household Travel Survey

FIGURE B2: MODE OF TRANSPORTATION FOR ALL TRIPS

MODE	PERCENT
Single Occupancy Vehicles	42
Carpool	46
Transit	1
Walk/Bike/Other	11

Source: 2018 National Household Travel Survey

# Roadway and Bridges

# **Existing Roadway Network**

The MPA'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 and I-80. I-35 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 north. I-235 runs along the north border of the Central Business District (CBD) subarea then curves north and turns into I-80 again after crossing I-35, then heads east to Iowa City.

U.S. Highways include 6, 65, and 69. U.S. Highway 6 runs east-west along the border between the Northwest and Southwest Suburbs. U.S. Highway 69 travels north-south along the east side of the CBD and U.S. Highway 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 B3** shows the regional road network. The MPA's population is concentrated within the polygon created by I-35, I-80, Iowa Highway 5, and US Highway 65. Employment density is highest in downtown Des Moines 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 residential uses. **Figure B4** 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 Des Moines, West Des Moines, and Ankeny). Places such as 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 Des Moines and Ankeny, also with smaller roadway presence.

Within the MPA, there are a total of 3,437 miles of roadway center lines. 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.



Legend

# Vehicle Miles Traveled

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 B5** shows VMT changes from 1990 to 2017 for each county in the Des Moines Area MPA. The region reached peak VMT in 2004. Since that time, the region has seen a decline in the number of miles driven per capita. The decline is likely being driven by a number of categories including demographic changes, car ownership, fuel prices, desire for compact mixed-use neighborhoods, and saturated highways. **Figure B5** shows VMT changes compared to population.









# FIGURE B6: PER CAPITA VMT CHANGES BY CITY, 2014-2018

СІТҮ	2014	2015	2016	2017	2018	PERCENT CHANGE
ALTOONA	5938	5792	5483	5441	5611	-5.5%
ANKENY	6119	5987	5759	6213	5948	-2.8%
BONDURANT	4761	4645	4239	4047	3810	-20.0%
CARLISLE	1945	1953	2120	2147	2098	7.9%
CLIVE	8648	8572	8711	9167	8894	2.8%
CUMMING	3156	3166	4457	4457	3251	3.0%
DES MOINES	6626	6758	6622	6691	6469	-2.4%
GRIMES	6601	6067	5899	5560	5168	-21.7%
INDIANOLA	3717	3758	3865	3859	3796	2.1%
JOHNSTON	3521	3527	3577	3621	3638	3.3%
MITCHELLVILLE	1166	1151	1170	1182	1159	-0.5%
NORWALK	2789	2857	3203	3038	3049	9.3%
PLEASANT HILL	8513	8472	9009	9123	8756	2.9%
POLK CITY	2976	2937	3584	3484	3254	9.3%
URBANDALE	9014	9109	9272	9219	8825	-2.1%
VAN METER	1263	1286	1568	1549	1413	11.9%
WAUKEE	2482	3307	3065	3826	3587	44.5%
WEST DES MOINES	9873	10112	10071	10944	10831	9.7%
WINDSOR HEIGHTS	10526	10829	10163	10505	9932	-5.6%

# Network Reliability

The majority of major roadways in Greater Des Moines are without congestion and have underutilized capacity. This surplus capacity could be used for alternative modes of transportation as a means of meeting the region's long-term goal of decreasing trips by single-occupancy vehicles and increasing trips by active modes of transportation such as walking, biking, and transit. Real-time traffic data for 2015 indicated 88 percent of monitored roadways in Greater Des Moines are uncongested. **Figure B8** shows the reliability of the network.

**Travel Time Reliability**: The majority of major roadways in the MPA have a travel time index of 1.5 or below. The travel time index compares the average observed travel time along the roadway to the free-flow travel time. For example, a roadway with a roadway with a free-flow travel time of 10 minutes takes a commuter 15 minutes due to additional traffic. The travel time index for the roadway is 1.5. Congestion begins to occur as the travel time index approaches 1.5.

**Planning Time:** The majority of major roadways in the MPA require users to plan additional time into trips equal to or greater than half the free-flow travel time. The planning time index measures the total time travelers should anticipate to arrive on-time to their destinations. For example, a roadway segment has a travel time of 10 minutes, but the commuter decides to leave 17 minutes prior to their scheduled arrival. The roadway has a planning time of 17 minutes and a planning time index of 1.7.



# FIGURE B9: BASE YEAR NETWORK RELIABILITY - NON-INTERSTATE SYSTEM



# 6 Pavement Condition

The Institute for Transportation at Iowa State University (InTrans) collects pavement condition data for roads in Iowa. As part of this data collection, InTrans records cracking, defects, surface type, and other roadway attributes that are used to manage the roadway network. With the collected data, InTrans provides a Pavement Condition Index (PCI), ranging from zero to one hundred, which represents the level of quality users should expect while driving on the roadways.

Starting with the 2017 data there are new calculations for how PCI is measured for cities. The Iowa Pavement Management Program Users' Group is made up of various members from local municipalities, consultants, and other users that discuss and review pavement data collection and analysis. Through this group, it was determined that a new PCI calculation was needed because the use of pavement differs between cities and counties. A subcommittee was formed and came up with new weights to be used in the new City PCI calculation.

# FIGURE B10: CAHNGES TO PCI MEASEMENT FOR CITIES

# **Old PCI Weights**

Original Concrete Pavement	<u>Weights</u>	
IRI (ride)	35	
Transverse Cracking	25	
D' Cracking and Spalling	40	

Original Composite Pavement	<u>Weights</u>
IRI (ride)	35
Transverse Cracking	20
Longitudinal Cracking (non wheel path)	15
Longitudinal Cracking (wheel path)	15
Alligator Cracking	7.5
Patching	7.5

Original Asphalt Pavement	<u>Weights</u>	
IRI (ride)	35	
Transverse Cracking	10	
Longitudinal Cracking (non wheel path)	5	
Longitudinal Cracking (wheel path)	10	
Alligator Cracking	20	
Patching	20	

# **New PCI Weights**

New Concrete Pavement	<u>Weights</u>
IRI (ride)	15
Transverse Cracking	20
D' Cracking and Spalling	30
Logitudinal Cracking (Total)	10
Patching	25

New Composite Pavement	<u>Weights</u>
IRI (ride)	5
Transverse Cracking	10
Longitudinal Cracking (Total)	40
Alligator Cracking	20
Patching	25 (Bad Only)

# No Change

A November 2016 report by TRIP, a national transportation research group, examined the cost of additional vehicle maintenance due to roads in fair or worse conditions. The report finds that nationally, the average motorist spends \$532 annually due to poor road conditions. In the Des Moines region, the report found that motorists pay \$705 in additional maintenance, approximately \$173 more than the national average.





## FIGURE B12: PAVEMENT CONDITION BY CITY, 2017

# **Bridge Condition**

In January 2017, the Federal Highway Administration (FHWA) published it's final ruling on how bridge conditions are analyzed under the FAST Act. Bridges are given a rating of Good, Fair, or Poor based on the lowest rating between the bridge deck, superstructure, and substructure as reported in the Nation Bridge Inventory (NBI). FHWA has proposed the use of two performance measures - percentage of deck area for bridges in Good Condition and percentage of deck area for bridges in Poor Condition.

Figure B13 shows the current condition of all the bridges in the Des Moines Area MPO plannign area.

# FIGURE B13: BRIDGE CONDITON MAP



FIGURE	B14:	BRIDGE	CONDITON	I BY

CITY

								Total	Structurally
100%							Jurisdiction	Bridges	Deficient
10070							Urbandale	9	0
100%							Carlisle	1	0
100%							Windsor Weights	3	0
100%							Ankeny	6	0
100%							Pleasant Hill	2	1
100%							Clive	6	0
100%							Bondurant	1	0
99%						1%	West Des Moines	5	1
98%						2%	Johnston	4	0
92%					4	1%	lowa DOT	263	6
91%					7%	<mark>2%</mark>	Dallas County	8	4
90%					3%	7%	Warren County	7	2
67%			2	8%		5%	Polk County	44	9
58%			39%			<mark>3%</mark>	Des Moines	49	12
56%			44%				Norwalk	2	0
100%							Madison County	1	0
100%							Grimes	1	1
0%	20%	40% Good Fa	60%	80%		100	<sup>0%</sup> Jurisdictiontota Inventory's info	  swereca rmation	llculatedusi on mainte

 2
 0
 0
 74

 ty
 1
 0
 69

 1
 1
 0
 14

 otals were calculated using the National Bridge information on maintenance responsibility.

POOR

GOOD

Component defects are limited to minor problems.

Structural capacity of the component is not affected by minor deterioration, section loss, spalling, cracking, or other deficiency.

Structural capacity of the component is affected or jeopardized by significant deterioration, section loss, spalling, cracking, or other deficiency.

Source: Iowa DOT, National Bridge Inventory, 4/3/2017 of deck area classified in poor condition

Average

Sufficiency

Rating

97

96

94

89

89

83

84

75

67

87

73

64

69

74

Functionally

Obsolete

0

0

1

1

0

3

0

0

1

33

0

0

6

4

87%

of deck area classified in good condition

180

# **Assessing Safety Through Crash Data**

The Des Moines Area Metropolitan Planning Organization (MPO) analyzes crash data to identify multimodal safety needs throughout the planning area based on conditions that increase risk of crashes. Using crash data provided by the Iowa Department of Transportation, the MPO pinpoints problem streets with higher crash densities and with more severe crashes. Current federal guidance on crash performance states crash data should analyze crashes per 100 million vehicle miles travelled (VMT) and total number of crashes. Additionally, non-motorized fatailities and serious injuries are reported to determine the safety of pedestrian and bicyclists in the planning area.

#### FIGURE B15: VEHICLE FATALITIES, 2013-2017







# Bicycle

# **Bicyle Facility Network and Condition**

The central lowa trail network is a robust and mature system of paved and unpaved trails connecting people to nature, destinations, and neighboring cities. The conditions on the trail are traditionally difficulty to monitor since the span long distances and the tools used to monitor road conditions typically cannot work on trails. However, in 2017 the MPO began a new monitoring system that can be attached to an electric bicycle that collects pavement condition data as it passes over trails. With this new data, the MPO will be able to provide an accurate portrait of current trail conditions.

Network connectivity is another important trail issue. The Bicycle and Pedestrian Roundtable has identified 18 gaps in the Statewide Trail Network in Greater Des Moines. These 18 gaps represent the final connections needed to fully complete the regional trail network, though not all of these gaps can be feasibly completed in the near- to medium-term. Local connections will also be needed to fully leverage the trail network and provide mobility and recreation opportunities to all communities.

#### FIGURE B18: TRAIL NETWORK



## FIGURE B19: TRAIL NETWORK CONDITON



■ Very Smooth ■ Smooth ■ Fair ■ Rough ■ Very Rough



The MPO planning area has an extensive trail network, but only a handful of on-street bicycle facilities. In 2016, the extent of the on-street bicycle network spanned 45 miles of disjointed facilities. This often leaves trails inaccessible except by automobile. On-street facilities can provide key connections to destinations and better leverage existing investments in the trail network. High quality, low-stress designs will improve usage while also making existing streets safer for all users through traffic calming. An on-street network will provide choices to individuals based on their needs and create greater mobility opportunities to the entire region.

# **Public Transportation**

# **Public Transportation Facilities**

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 12 local governments. The agency owns 247 active vehicles. DART provides the following services:

- Local Bus This is the majority of DART's service, with 17 local routes.
- Express Bus There are 7 express routes serving the morning and afternoon peak hours.
- Shuttle DART runs two free downtown shuttles.
- On-Call: Passengers who do not live in a fixed-route service area can call for a pick-up at their home.
- Vanpool/rideshare

Fares are \$1.75 for adult one-way local trips and \$2 for express routes. Flex route fares cost \$1.75 for adult and flex zone fares are \$3.50. On-call zone trips cost \$3.50. A monthly pass valid on all services costs \$58.

DART Central Station is the heart of the transit network in Greater Des Moines. Located in downtown Des Moines at 620 Cherry Street, it is the primary transfer location between routes and includes the Customer Service Department and Administrative Offices. The bus system has 3,500 bus stops.

# **Local Service**

DART runs 17 local routes that provide service in Altoona, Des Moines, Pleasant Hill, West Des Moines, and Windsor Heights. DART's local routes operate on Mondays through Fridays with some limited service on evenings and weekends. **Figure B20** summarizes existing local bus service.

# **Express Service**

DART runs 7 express routes that provide service in Altoona, Ankeny, Clive, Des Moines, Johnston, Urbandale, West Des Moines and Windsor Heights. Routes operate Monday through Friday during the morning and evening rush hours, picking up passengers at limited stops and providing direct, non-stop service to and from downtown Des Moines. **Figure B22** summarizes existing express bus service.

## FIGURE B20: DART LOCAL ROUTES

ROUTE #	ROUTE NAME	DESCRIPTION
1	Fairgrounds	DART Central Station, Downtown, Iowa State Fairgrounds, Four Mile Community Center, Hubbell Ave and Pleasant Hill
3	University Avenue	DART Central Station, Downtown, Children & Family Services, Department of Human Services, Drake University, Windsor Heights Walmart and Valley West Mall
4	East 14th Street	DART Central Station, Downtown, State Capitol, Grandview University, Goodwill Industries, Polk County Jail and Park Fair Mall
5	Franklin Avenue/ Johnston	DART Central Station, Downtown, Drake University, Mercy-Franklin Medical Center, Franklin Public Library, Merle Hay Mall, Johnston City Hall and the Johnston Public Library
6	Indianola Avenue	DART Central Station, SE 5th Street, SE 14th Street Walmart and Southridge Mall
7	SW 9th Street	DART Central Station, South Side Public Library, Blank Park Zoo, Fort Des Moines and Southridge Mall
8	Fleur Drive	DART Central Station, AIB College of Business, Wakonda Shopping Center and Airport South Park & Ride
10	East Universtiy	DART Central Station, the Broadlawns Clinic on East University and Pleasant Hill.
11	Ingersoll Ave/Valley Junction	DART Central Station, Downtown, Ingersoll Ave and Valley Junction
13	SE Park Avenue	SE Park Ave, Forest Glen Apartments, SE 22nd Street, Evergreen Avenue, Southgate Shopping Center and service to Local Route 6
14	Beaver Avenue	DART Central Station, Downtown, Methodist Medical Center, Westchester Evangelical Free Church Park & Ride and Merle Hay Mall
15	6th Avenue	DART Central Station, Downtown, Wells Fargo Events Center, Mercy Medical Center and Park Fair Mall
16	Douglas Avenue	DART Central Station, Downtown, Broadlawns Medical Center, IOWA Department of Transportation and Merle Hay Mall
17	Hubbell Avenue/ Altoona	DART Central Station, Downtown, East Side Public Library, Goodwill Industries and Altoona Walmart Park & Ride
50	Euclid/Douglas Crosstown	E 42nd Street and Merle Hay Road along Euclid and Douglas Avenues. Route serves Merle Hay Mall, Polk County River Place, Park Fair Mall, Euclid & E. 14th and the E. Euclid Hy-Vee.
52	Valley West/Jordan Creek Crosstown	DART Central Station, Downtown, Valley West Mall, Athene, Wells Fargo and Jordan Creek Town Center
60	University/Ingersoll	DART Central Station, Downtown, Drake University, Department of Human Services, Children & Family Services, Mercy Medical Center, Wells Fargo Event Center



#### FIGURE B22: DART EXPRESS ROUTES

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ROUTE #	ROUTE NAME	DESCRIPTION
92	Hickman	Operates between 156th Street in Clive and downtown Des Moines
93	NW 86th Street	Operates between John Deere Financial in Johnston and downtown Des Moines
94	Westown	Operates between Wells Fargo in West Des Moines and downtown Des Moines
95	Vista	Operates between Jordan Creek Parkway in West Des Moines and downtown Des Moines
96	EP True	Operates between Jordan Creek Town Center in West Des Moines and downtown Des Moines
98	Ankeny	Operates between DMACC campus in Ankeny and downtown Des Moines
99	Altoona	Operates between Altoona and downtown Des Moines





#### Flex Service

DART runs three flex routes that provide service in Clive, Urbandale, West Des Moines and Windsor Heights. Routes operate as a fixed-route that flexes between scheduled stops, deviating up to one mile from the fixed route. This service is demand responsive requiring customers to schedule trips. **Figure B25** summarizes existing flex service.

## FIGURE B25: DART FLEX ROUTES

ROUTE #	ROUTE NAME	DESCRIPTION
72	West Des Moines/Clive	Jordan Creek Town Center area, University Avenue medical corridor, Valley West Mall and the Valley Junction area
73	Urbandale/Windsor Heights	Gloria Dei Lutheran Church Park & Ride and Ice Arena Park & Ride
74	NW Urbandale	Valley West Mall, Mercer/Marsh and the business parks in northwest Urbandale

# **On-Call Service**

DART runs five on-call zones that provide service in Alleman, Ankeny, Bondurant, Carlisle, Easter Lake, Granger, Grimes, Mitchellville, northwest Johnston and Polk City. This service is demand responsive requiring customers to schedule trips. The service picks up passengers at their doors and takes them to destinations within specific zones. **Figure B26** summarizes existing on-call service.

#### FIGURE B26: DART ON-CALL SERVICE

SERVICE	DESCRIPTION
Alleman/Bondurant/Mitchellville	Alleman, Altoona, Ankeny, Bondurant and Mitchellville
Ankeny	City of Ankeny
Carlisle/Easter Lake	Altoona, Carlisle, Des Moines (Southridge Mall and Wal-Mart) and Easter Lake
Granger/Grimes/Polk City	Ankeny, Granger, Grimes, Polk City and West Des Moines (Valley West Mall)
Grimes/Johnston	Grimes and northwest Johnston area, including service the Wal-Mart Park & Ride

#### 192

# Shuttle Routes

DART runs two shuttle route that provide service in downtown Des Moines and the Deer Ridge Shuttle which provides rides to the Walmart in Windsor Heights. **Figure B27** summarizes existing shuttle routes.

## FIGURE B27: DART SHUTTLE ROUTES

ROUTE #	ROUTE NAME	DESCRIPTION
40	The LINK	Center Street Park & Ride and destinations along 7th and 8th Streets in downtown Des Moines.
42	D-Line Downtown	East Village and the Western Gateway along Grand Avenue and Locust Street.
	Deer Ridge Shuttle	DART offers two bus trips a day each Tuesday and Thursday from the Deer Ridge Apartment Complex to Walmart in Windsor Heights.

# Ridership

**Figure B29** breaks down total Fiscal Year (FY) 2019 ridership. **Figure B30** shows annual ridership for express bus routes. Areas without express service include lower density areas throughout the region, though the higher density areas are served by local bus service.

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. **Figure B28** shows ridership for DART's shuttle service in FY 2019.

# FIGURE B28: DART SHUTTLE RIDERSHIP FISCAL YEAR 2019

ROUTE #	ROUTE NAME	RIDERSHIP
40	LINK Shuttle	8,064
42	D-Line Downtown	166,019
	Deer Ridge Shuttle	148
Total Ridership		174,231

#### FIGURE B29: DART LOCAL ROUTE RIDERSHIP FISCAL YEAR 2019

ROUTE #	ROUTE NAME	RIDERSHIP
1	Fairgrounds	413,595
3	University Avenue	372,809
4	East 14th Street	190,001
5	Franklin Avenue/Johnston	112,053
6	Indianola Avenue	309,561
7	SW 9th Street	388,403
8	Fleur Drive	44,704
10	East Universtiy	34,301
11	Ingersoll Ave/Valley Junction	22,722
13	SE Park Avenue	59,812
14	Beaver Avenue	204,721
15	6th Avenue	282,073
16	Douglas Avenue	385,602
17 Hubbell Avenue/Altoona		269,519
50 Euclid/Douglas Crosstown		44,499
52 Valley West/Jordan Creek Crosstown		150,899
60 University/Ingersoll		360,617
Total Ridership		3,645,891

#### FIGURE B30: DART EXPRESS ROUTE RIDERSHIP FISCAL YEAR 2019

ROUTE #	ROUTE NAME	RIDERSHIP
92	Hickman	27,965
93	NW 86th Street	33,351
94	Westown	10,386
95	Vista	12,604
96	EP True	23,990
98	Ankeny	71,816
99	Altoona	15,748
Total Ridership		195,860

# Aviation

# **Aviation Network**

The Des Moines region is served by two public airports. **Figure B31** identifies the location of airports in the region. The following section will focus on the two principal airports in the MPA – the Des Moines International Airport and the Ankeny Regional Airport. The Iowa DOT's Iowa Aviation System Plan 2010-2030 includes individual airport summaries for Iowa airports.

# FIGURE B31: AIRPORT LOCATIONS



#### Ankeny Regional Airport

The Ankeny Regional Airport (IKV) is considered an Enhanced Service facility that provides general aviation needs for the Des Moines region as a business airport and as a reliever to the Des Moines International Airport. The IKV is owned and operated by the Polk County Aviation Authority and accounts for personal and business travel, as well as just-in-time shipping, law enforcement, agricultural, and medical transport.

**Facilities:** The Ankeny Regional Airport has two concrete runways – a 5,500 foot runway and a 3,855 foot runway. Both runways are accessible under less-than-visual meteorological conditions, using Instrument Flight Rules (IFR). The IKV's facilities include a terminal building with a passenger lounge and meeting rooms. The fixed base operator (FBO) is located in the terminal building.

**Services:** The FBO provides charter service, flight department management, aircraft sales, aircraft rental, aircraft storage and maintenance, aircraft fueling, and pilot training.

#### **Des Moines International Airport**

The City of Des Moines owns and operates Des Moines International Airport (DSM). The airport is governed by a fivemember Airport Authority Board, composed of representatives appointed by the Des Moines Mayor and approved by the Des Moines City Council. DSM serves as the major air passenger and airfreight service center for central Iowa. In addition, DSM serves as a base for the Iowa Air National Guard.

**Facilities**: DSM supports two concrete runways that are accessible under less-than-visual meteorological conditions, using Instrument Flight Rules (IFR). Terminal facilities include a passenger terminal complex, U.S. Customs and Immigration facility, air cargo facilities, general aviation facilities, military facilities, an aircraft rescue and firefighting facility, an air traffic control tower, and maintenance facilities.

Services: DSM provides general aviation and commercial services. General aviation services include hanger rental, charter, aircraft rental, fuel, power and airframe repair, aircraft sales, avionics sales and repair, and pilot instruction. Figure B33 shows passenger boarding for the Des Moines International Airport.

#### FIGURE B32: NON-STOP COMMERCIAL FLIGHT DESTINATIONS

CARRIER	NON-STOP DESTINATION
Delta Airlines	Atlanta
American Airlines	Charlotte
American Airlines	Washington D.C.
Frontier Airlines   United Airlines	Denver
American Airlines	Dallas
Delta Airlines	Detroit
United Airlines	Houston
Allegiant Air   Frontier Airlines   Southwest Airlines	Las Vegas
Delta Airlines	New York City
Allegiant Air	Los Angeles
Delta Airlines	Minneapolis
American Airlines   United Airlines	Chicago (O'Hare)
Allegiant Air	Punta Gorda
American Airlines	Philadelphia
Allegiant Air   American Airlines   Frontier Airlines   Southwest Airlines	Phoenix
Allegiant Air	Tampa Bay - St. Petersburg
Allegiant Air	Orlando
Delta Airlines	Salt Lake City
Allegiant Air	Sarasota-Bradenton
Southwest Airlines	St. Louis
Allegiant Air	Eglin AFB

Source: Des Moines Airport Authority

# **Passenger Data**

Since 2003, the Des Moines International Airport has experienced a 3.3 percent annual growth rate in total passengers. **Figure B33** shows total passenger boarding's for the previous 16 years.

YEAR	TOTAL
2003	1,821,915
2004	1,990,167
2005	1,903,573
2006	1,959,393
2007	1,982,633
2008	1,896,389
2009	1,752,469
2010	1,831,062
2011	1,912,996
2012	2,080,162
2013	2,201,388
2014	2,319,431
2015	2,363,643
2016	2,483,924
2017	2,578,308
2018	2,773,207
Annual Growth Rate	3.3%

FIGURE B33: PASSENGER BOARDINGS, 2003-2018

# Railroad

# **Railroad Network**

Four railroad companies operate within the MPA. Three of these railroads are Class I railroads and the other is a Class II railroad. The U.S. DOT's Surface Transportation Board classifies railway companies based on their operating revenue. Class I railroads possess yearly operating revenues in excess of \$250 million, while Class II railroads retain operating revenues between \$20 million and \$250 million.

# FIGURE B34: RAILROADS SERVING THE MPA

CLASS	RAILROAD COMPANY
I	Burlington Northern Santa Fe (BNSF)
	Norfolk Southern (NS)
	Union Pacific (UP)
Ш	Iowa Interstate (IAIS)

#### FIGURE B35: RAILROAD NETWORK MAP



#### FIGURE B36: RAILROAD NETWORK MAP BY OWNERSHIP



#### Des Moines Transload Facility

The Des Moines and central Iowa markets are largely dependent on moving goods via truck. Access to rail intermodal options exist through intermodal facilities located in Kansas City, Chicago, Omaha, and Minneapolis. However, the distance to these facilities adds time and cost to shippers that wouldn't exist if there was a facility in Des Moines. Currently, there are limited opportunities to move non-intermodal railcars to industries in the market.

The transload facility will provide direct movement of goods via railcar into and out of the area, allowing for more efficient and ecologically friendly freight movement. The existing goods movement system provides established lines of distribution for products to move into and out of the market, but it lacks efficiencies that could be achieved by moving more goods by rail.

The existing challenges the proposed facility addresses is to provide railcar movement of freight into the market, removing long haul truck traffic from congested roadways, reducing overall carbon emissions for each ton of freight moved into the market, providing efficient and cost-effective goods movement to businesses, and reducing significant existing drayage costs required to move goods 2-5 hours from Des Moines to access rail intermodal service.

The MPO was awarded an \$11.2 million-dollar BUILD grant in the fall of 2018. The project is currently underway and is expected to be operational in 2021. **Figure B37** shows the location of the proposed transload facility.



## FIGURE B37: DES MOINES TRANSLOAD FACILITY LOCATION

#### 200

# **Freight Reliability**

Goods movement is the transportation of for-sale products from where they are manufactured and/or harvested to where they will be sold. In Greater Des Moines, goods movement centers on rail and trucks. Though goods movement wouldn't be possible without it, our transportation system presents some challenges to this process.

The following provides a summary of existing barriers to the freight network, including a look at freight impediments as well as bottlenecks on the region's highway and rail corridors.

# **Impediments to the Freight Network**

INRIX traffic speed data was used to identify bottlenecks on interstates, U.S. routes, and Iowa routes. INRIX determines bottlenecks by comparing the current reported speed to the reference speed for each segment of road. If a reported speed is below 60 percent of the reference speed for five minutes or longer, it is considered a bottleneck. DOT traffic data was used to select bottleneck locations that had greater than 5,000 total trucks per day or greater than 30 percent truck traffic and experienced at least 100 bottlenecks during 2016. All locations meeting these criteria were identified as a freight highway bottleneck and are shown in **Figure B38**.



# **Intercity Bus**

# **Intercity Bus Network**

The Des Moines region is served by three intercity bus companies that provide transportation to other destinations in Iowa and to surrounding states. These companies include, Jefferson Lines, Burlington Trailways, and Megabus. Figure B39 provides an overview of intercity bus options in the Des Moines region.

COMPANY	TERMINAL LOCATION	IOWA DESTINATIONS	TRANSPORTATION CONNECTIONS
Jefferson Lines	1501 2nd Avnue Des Moines, IA 50313	Lamoni, Osceola, Ames, Mason City	Kansas City, Minneapolis
Burlington Trailways	1501 2nd Avnue Des Moines, IA 50313	Council Bluffs, Atlantic, Ames, Marshalltown, Grinnell, Oskaloosa, Waterloo, Cedar Rapids, Iowa City, Ottumwa, Fairfield, Mount Pleasant, Keokuk, Burlington, Muscatine, Davenport, Bettendorf, Dyersville, Dubuque	Omaha, Chicago
Mega Bus	Eastbound Side of Cherry Street, between 7th and 8th Street.	Iowa City	Lincoln, Omaha, Moline, Chicago

# FIGURE B39: INTERCITY BUS SERVING DES MOINES REGION

# **Intercity Bus Connections**

Intercity bus provides a cost-effective option for traveling to other cities in Iowa and to major transportation hubs like Omaha, Kansas City, Minneapolis, and Chicago. These key transportation connections link up with major Greyhound terminals that provide intercity bus routes to destinations across the country.