THE CITY OF
West Des Moines

# Transportation Master Plan

**October 14, 2022**

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# Introduction

The transportation system is a vital part of any city's social, economic, and physical structure. The system's primary objective is to support the movement of people and goods within the City and connect the City to the broader region. It also influences growth, provides access to properties, and enhances quality of life.

According to citizen surveys that are regularly conducted by the City of West Des Moines, transportation issues related to traffic flow, quality of streets, and walking/biking are most commonly the areas of primary importance to residents. Whether someone is going to school or work, shopping, to a doctor appointment, meeting family or friends, or walking/biking for exercise, the transportation system is relied upon daily by the many residents and visitors that travel within the City.

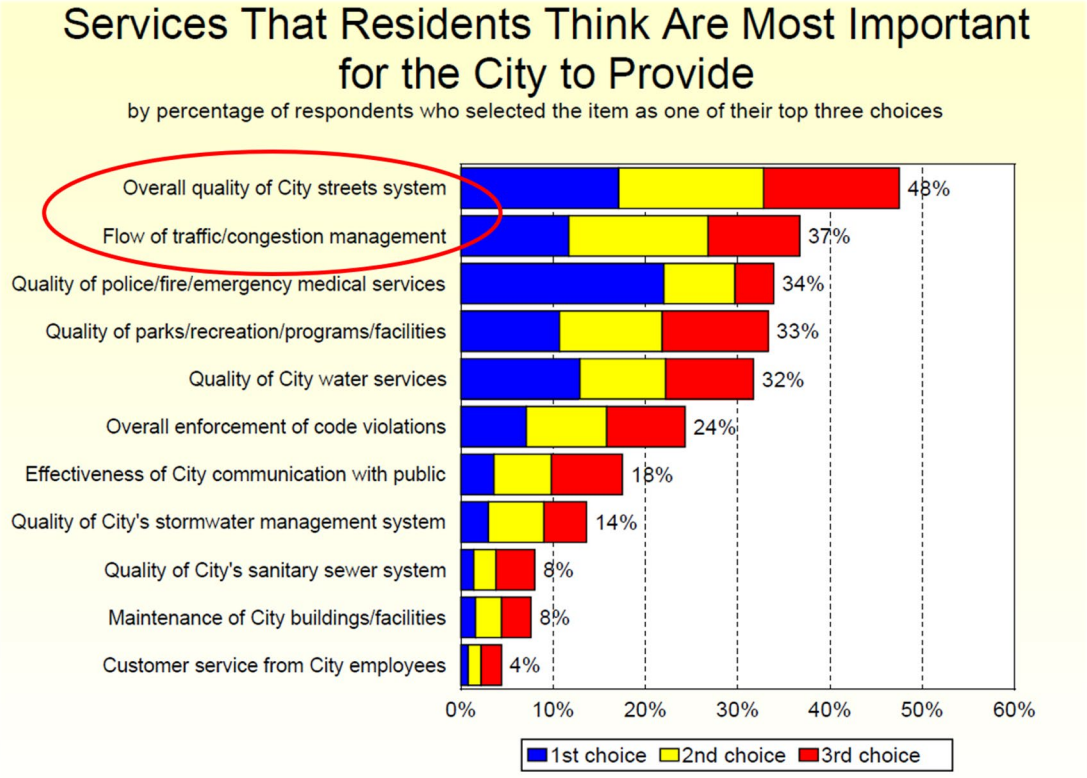



**Figure 1: Importance of transportation to WDM residents (Source: 2020 Citizen Survey, ETC Institute)**

## Purpose

This Transportation Master Plan is an overarching plan for transportation within the City of West Des Moines. The plan gives an overview of the many detailed plans, policies, and strategies to meet the various mobility needs of residents, businesses, and visitors. It is a guide that aides City staff in planning infrastructure which will accommodate the City's ultimate buildout condition once the Comprehensive Plan Land Use Map is fully developed (with the study area shown in Figure 2). This plan is also multimodal, addressing motorized and non-motorized travel, transit, rail, and freight.

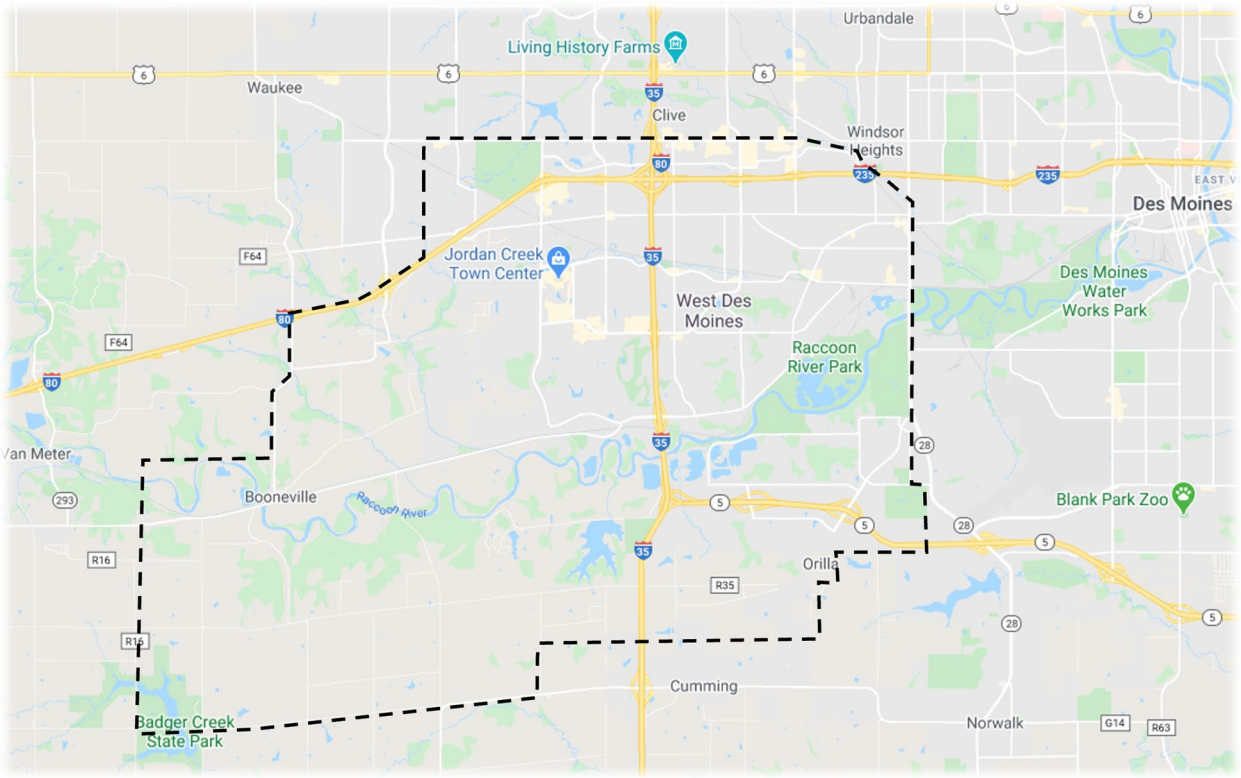



**Figure 2: Study area (Source: Google Maps)**

## Related studies and relationship to Comprehensive Plan

The Transportation Master Plan is influenced by a series of regional and local plans and studies.

*Iowa Department of Transportation (DOT) – Iowa in Motion 2045*
This document addresses federal requirements and guides transportation investments by the Iowa DOT. Transportation needs for state/federal infrastructure and services are forecasted to 2045.

*Des Moines Area Metropolitan Planning Organization (MPO) – 2050 Plan ("Mobilizing Tomorrow")*
This plan is the Des Moines Area MPO's long-range plan for 2050, outlining the anticipated projects for the metro communities, Iowa DOT, and Des Moines Area Regional Transit Authority (DART) over the next 30 years.

*WDM 2036 Plan*
This plan was designed by public and private-sector leaders. It develops a framework of strategies to ensure that West Des Moines is "future ready" and to support a vision for West Des Moines to become "the most vibrant suburban city in North America."

*West Des Moines Comprehensive Plan*
The City of West Des Moines Comprehensive Plan establishes the community's vision for growth and development. It expands on the WDM 2036 plan, focusing on issues such as land use, quality of life, economic development, and public safety. Transportation plays a role in all these issues. Public outreach and surveys related to transportation were conducted as part of the Comprehensive Plan

update. The Comprehensive Plan sets the guiding transportation goals, with the Transportation Master Plan expanding on the transportation strategies and actions that support these goals.

*Other local transportation master plans*
Separate master plans go into more details on specific transportation recommendations. These plans are discussed later in this master plan. Figure 3 illustrates this relationship.

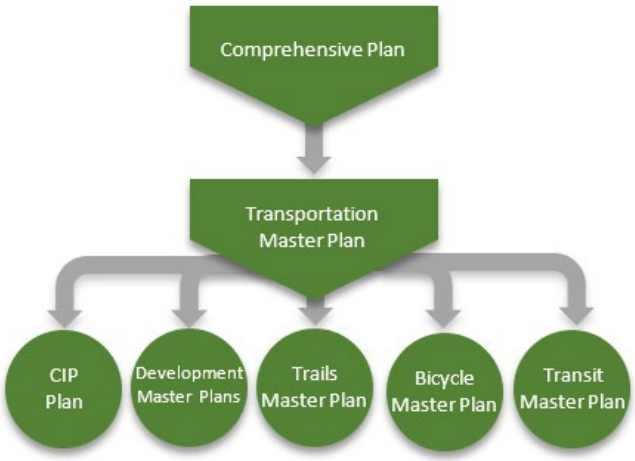



**Figure 3: Relationship of TMP to other master plans**

## Vision for growth

The Transportation Master Plan serves as a framework for efficient growth and development of the transportation system to support the overall Comprehensive Plan. The City's future transportation vision is based on the ultimate "full-build" condition, including the future land uses as designated in the Comprehensive Land Use Plan. Existing developments may also have entitlements that allow for future growth on their site, and this is also considered when planning for future transportation needs.


*Infrastructure planning is critical for rapidly-growing communities such as West Des Moines*

Forecasting the amount of traffic on existing and future roadways is critical to planning infrastructure that is fiscally-conscious. Instead of reacting to a development and only adding stopgap improvements, the master plan's full-build scenario allows for consideration of how each development fits into the bigger picture and considers the long-term transportation needs for the area. The "*Travel demand modeling"* section expands on how this is achieved to support the City's continued growth.

### Vision for a multimodal system

Focusing on a system of multimodal facilities will provide safe transportation options for all users regardless of age or ability. For this reason, the City of West Des Moines has an adopted *Complete Streets Policy*. A "complete street" is a street that is designed and built so that it accommodates travel by all modes. Complete streets are essential for access by people who cannot drive or choose not to drive, as roads without safe access for non-motorized transportation represent a barrier for these individuals. Elements of a complete street may include sidewalks, sidepath trails, shared lane markings, dedicated bike lanes, paved shoulders, pedestrian crossings (at-grade or grade-separated over/underpasses), pedestrian signals, and transit stops and facilities.

Within the transportation system, all transportation modes need to work together in a safe and efficient manner, while also balancing the needs of the community and being fiscally responsible. It is important to note that safe accommodation of all modes cannot always be achieved on every street. Certain factors, such as available right-of-way, street character, terrain, and land use context can limit some modes of travel. The overall goal is to provide a complete network of streets that provide a safe and efficient mobility for multiple modes of travel. In other words, not every street needs to accommodate all modes, but every mode needs to have a reasonable place as part of the system.

## Street Network

The street plan in West Des Moines focuses on a comprehensive network that facilitates safe, multimodal mobility and connectivity throughout the City. As development expands, this network will need to expand with it.

### Functional classification

The West Des Moines street system contains a range of roadway types with different characteristics of volumes, lanes, speeds, operations, and restrictions. Roadway facilities are designated according to their hierarchy within the network, a system known as functional classification. This concept, which is used by the US Department of Transportation, Federal Highway Administration, and cities throughout the country, recognizes that different street designs are needed for different trip purposes.

Street classifications indicate the function of mobility and access on a roadway. This relationship is illustrated in Figure 4. For streets that carry a high amount of through traffic, there is a greater need for mobility and to reduce the number of access points to maintain safe mobility. For other streets where through traffic is low and commonly undesired, such as through residential subdivisions, streets are designed for lower speeds with more access points.

Each facility type is summarized in Figure 5, with more details given in the following sections.

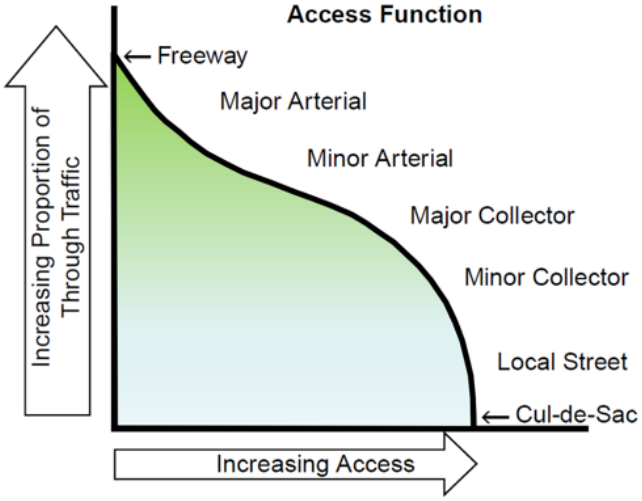



**Figure 4: Access and mobility of functional classifications (Source: Federal Highway Administration)**

## Ultimate street layout

The City's Ultimate Streets Map, located in Appendix A, illustrates the long-range layout of West Des Moines' transportation network. This map shows the existing functional classifications in the City, as well as potential future alignments that will provide for the future movement of people, goods, utilities, and emergency vehicle access. The Ultimate Streets Map is used as:

- A resource to inform decision-making by property owners, developers, and City staff
- A tool to assist in the preservation of adequate rights-of-way for future street corridors
- A tool to assist in planning for connectivity across the City, establishing detour routes and emergency routes, and siting of future public safety buildings
- A tool to ensure City-defined projects remain eligible for consideration for grant funding

As noted on the Ultimate Streets Map, the alignments of future streets are shown as general, "high-level" corridor locations. These alignments are flexible and may have the ability to shift and still provide the necessary connectivity. When an area develops which includes a planned street, further analysis will be needed to refine the alignment and necessary geometry.

| | | |
|---|---|---|
| **Freeways** | Freeways serve medium and long trips, through the City, region, and areas outside of the region. They have the highest speeds, typically carry high volumes, and have limited access that is typically controlled via interchanges.<br><br>Ex: Interstate 80, Highway 5<br>Spacing: varies, related to regional needs<br>Speed limit: 55 mph + |  |
| **Arterials** | Arterials often span a significant length of the City, connecting to the freeways or other arterials. They alleviate pressure on the freeways by removing some medium and long trips, as well as provide possible detour routes.<br><br>Ex: Mills Civic Pkwy (major arterial), Ashworth Road (minor arterial)<br>Spacing: Approx. 1 mile<br>Speed limit: 35-45 mph |  |
| **Collectors** | Collectors typically serve multiple developments, connecting to arterials or other collectors. They alleviate pressure on the arterials by removing some short and medium trips.<br><br>Ex: 81st Street (major collector), Vine Street (minor collector)<br>Spacing: Approx. 1/4-mile<br>Speed limit: 25-35 mph |  |
| **Locals** | Local streets typically serve a single development, with low speeds, low amount of through traffic, and a trip origin or destination in the vicinity.<br><br>Ex: Most single family residential streets, 5th Street<br>Spacing: varies<br>Speed limit: 25 mph |  |

**Figure 5: Functional classifications**

Arterial and collector streets are generally spaced at 1-mile and ¼-mile intervals, respectively. However, these spacings are only used as starting points. The actual alignments will be impacted by manmade and natural constraints, such as interstates, railroads, rivers/creeks, severe topography, environmentally or archaeologically sensitive areas, spacing from existing or future intersections, and other factors.

Collector streets are critical components of the transportation system, with these streets collecting trips from a large area – commonly multiple developments – and distributing them to the arterial streets. They are typically public streets, but some collector streets may be private streets as long as they still function as intended. Collector streets:

- Provide locations for property access, as arterial streets will have greater access control
- Alleviate pressure on arterial streets by giving drivers options when traveling short/medium distances
- Reduce the amount of through traffic and truck traffic on local streets, particularly through residential subdivisions
- Allow for routes that are lower stress and pedestrian/bicycle friendly compared to arterial streets
- Serve as alternative routes for emergency responders, detoured traffic, and public and private utilities

Only roadways that are classified as collector streets or higher are shown on the Ultimate Streets Map. Local streets are not shown since they typically serve a single development, but they are still important for an effective transportation system. The density of these streets will greatly influence the walkability, bikeability, and internal circulation of a development and how the development's trips are distributed to the surrounding collector and arterial streets. Local streets, which may be either public or private, will be studied as part of future traffic studies for each development.

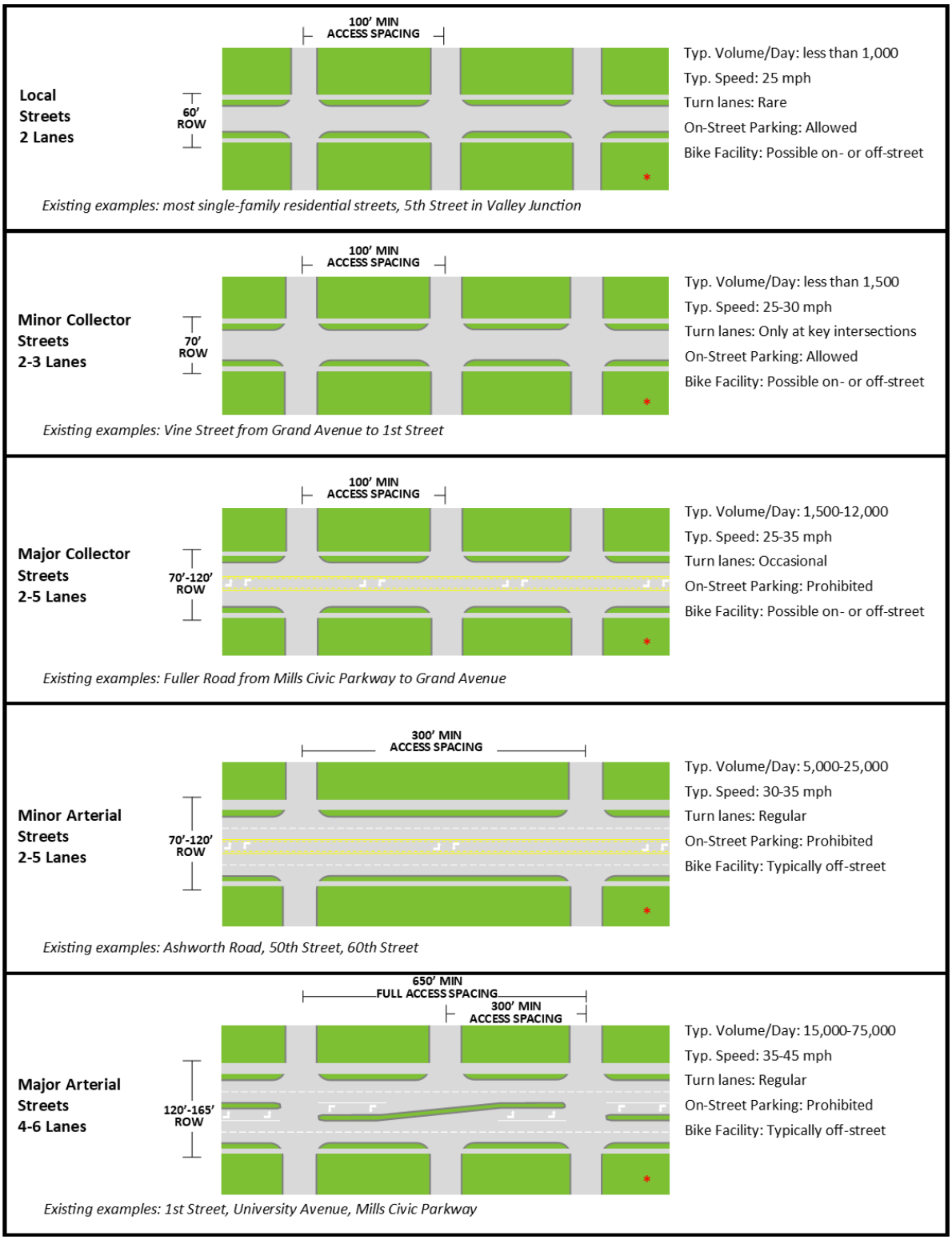
The "*Network connectivity and internal connections"* section expands on why connectivity is important to the quality of the street network.

### Typical street cross-sections

Figure 6 presents visual examples of the different functional classifications. Traffic volumes, number of lanes, availability of on-street parking, and other street characteristics are also noted; however, these will vary from street to street. Two streets with the same functional classification can have significantly different characteristics depending on the land uses in the area and the traffic volumes using the streets. Although higher classification streets will generally be wider streets that carry more traffic at higher speeds, this is not always the case. Land use, forecasted traffic volumes, and pedestrian/bicycle facilities will all be influential factors in the ultimate design of the street.

The "*Design Guidelines & Special Considerations"* section expands on the various components that shape the ultimate street design.

**Figure 6: Example street cross-sections**




**Configurations shown are only examples. Actual lane configurations and widths will vary based on traffic volumes, adjacent land use, pedestrian/bicycle facilities, and other factors. Drawings are not to scale.*

# Non-Motorized Transportation

Non-motorized transportation is an integral component of West Des Moines' transportation system. It includes walking, running, bicycling, and other forms of active transportation that provides greater mobility choices, promotes public health, improves quality of life, and reduces environmental impacts. The following sections discuss the different facilities for non-motorized transportation.

## Sidewalks

Sidewalks are extremely important for pedestrian circulation. Streets that do not have sidewalks can present a major barrier to walking, especially for individuals with mobility restrictions, and may create safety hazards if people choose to walk in the street. Well-designed pedestrian environments encourage walking and separate pedestrians from vehicular traffic. The location and design of crosswalks, curb ramps, and pedestrian signals help to improve the safety and accessibility for pedestrians.

Most roadways within the developed areas of West Des Moines include sidewalks. These sidewalks are intended for pedestrian circulation because their width (commonly 4') is not ideal for both pedestrians and bicyclists. Sidewalks are typically detached with a buffer between the traffic lane and the sidewalks, but they may also be attached immediately behind the curb in some areas.

## Trails

Trail facilities are off-street and may be located alongside the roadway (referred to as a sidepath) or in a separate corridor (such as along rivers, creeks and greenways). They are typically paved and often 10' wide to serve both pedestrians and bicyclists.

Trails are a vital element in the pedestrian and bicycle network for both recreation and commuting. They help connect to popular destinations in the City, such as parks, and connect to trail systems in neighboring communities as well. See the City's *Parks & Trails Master Plan* for more information on how the trail system is planned to be developed.

## On-street bicycle facilities

On-street bicycle facilities may consist of dedicated bike lanes, shared lanes, or paved shoulders. These facilities designate bike routes that connect trails and other destinations, commonly filling gaps where off-street trails are not available. Although bicyclists can ride on all City-owned streets, the on-street bike facilities identify bike routes for bicyclists and remind drivers that bicyclists have a right to use the roadway and may be present.

A complete, connected bike network that is comfortable and safe for people of all ages and abilities is critical to making biking a viable transportation option. As seen in Figure 7, the 2020 Citizen Survey found that 77% of residents who were surveyed said that bicycling was somewhat important, important, or very important for the City to facilitate. See the City's *On-Street Bicycle Facility Plan* for more information on how on-street facilities supplement the off-street trail system to create a bike network in

West Des Moines. Also see the City's *Bicycle Master Plan* for more details and recommendations on ways to enhance bicycling in the City.

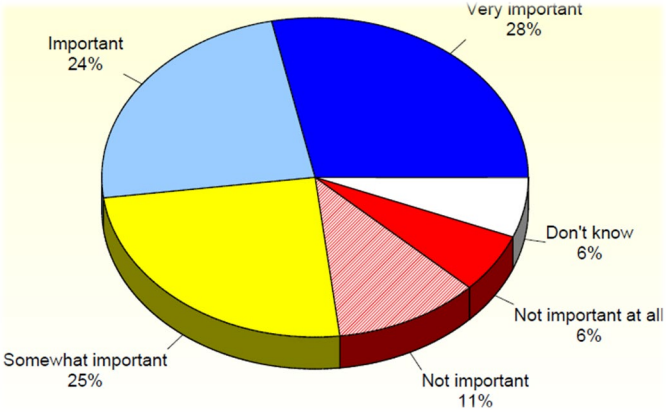



**Figure 7: Importance to residents of facilitating bicycling (Source: 2020 Citizen Survey, ETC Institute)**

## Transit

Transit service is another key component of West Des Moines' transportation system, providing mobility within the City and access to and from the City. Unlike the street and non-motorized systems, West Des Moines does not directly administer transit service. Rather, the City works with the various public transit providers that serve West Des Moines. These providers include:

- Des Moines Area Regional Transit Authority (DART)
- Heart of Iowa Regional Transit Agency (HIRTA)
- Public and Private School Districts

These transit providers offer a variety of fixed routes, paratransit services, student bussing, and on-call services for people traveling in West Des Moines. They also develop their own master plans to provide for future transit expansion. See the websites for the transit providers for more details on available routes and service options that are available.

## Freight

The City is situated at the crossroads of two major interstates – Interstate 80 and Interstate 35 – and has several rail lines passing through the City. This contributes to having more freight-generating land uses along these corridors. Manufacturing, technology, warehouses, distribution centers, and retail are dependent on the ability to move goods and freight.

### Rail freight

The Union Pacific Railroad and Iowa Interstate Railroad have rail lines that run through the City east/west as trains transport goods to, from, and through the Des Moines metropolitan area. The currently active rail lines are shown in Figure 8.

Rail lines affect the mobility of drivers and non-motorized traffic that desire to cross. Since the number of crossings is limited by the railroads, the rail lines act as a barrier that interrupts the connectivity of the street grid. This is similar to other barriers, such as rivers and interstates, where crossings are also limited. As the City continues to develop and the number of people crossing the rail lines increases, at-grade rail crossings are monitored and upgraded to provide safe crossings of the rail lines.

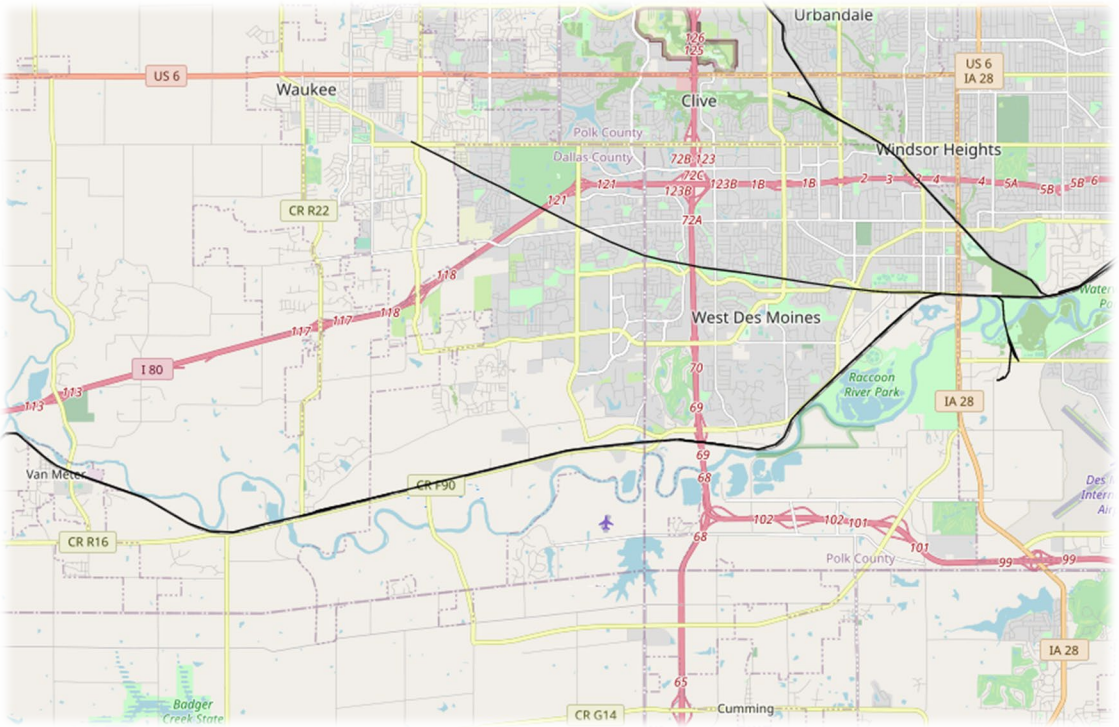



**Figure 8: Active rail lines through West Des Moines (Source: Iowa DOT)**

## Truck freight

The City has designated truck routes for through freight movement to maximize the efficiency of and protect the roadway infrastructure, as well as to minimize the effects of truck traffic using residential streets. Generally, truck routes consist of the freeways and arterials. However, some collector streets may also be designated truck routes when they travel through industrial areas. These streets are designed to different standards and must consider the size, axle loads, and turning paths of the larger, longer, and heavier vehicles. Trucks are allowed to leave the truck route for the purpose of repair, construction of streets, or to deliver goods and services to a location off of the truck route system, but they must use the most direct route when leaving or returning to the truck route.


See the *West Des Moines Truck Routes Map* for the current truck routes in the City.

# Design Guidelines and Other Considerations

There are many factors that are used to determine the ultimate look of a street. Functional classification, by itself, is not enough information to design a street. For instance, one arterial street may look completely different than another arterial street depending on the context of the surrounding land uses, the traffic volumes, the presence of on-street parking or medians, the types of pedestrian, bicycle, and transit facilities, and many other factors. Guidelines and other considerations that affect the ultimate design of the roadway are discussed in the following sections.

### Design standards and specifications

Street design standards and specifications promote traffic safety and continuity in the orderly development of the street system. The primary consideration is that all new roadways and reconstruction of existing corridors provide for safe, efficient, and economic transportation throughout the design life of the roadway. Like standards and specifications that are established for other public improvements (sanitary sewer, storm sewer, bridges, etc.), the street design criteria are to be considered basic design guidelines that serve as a framework for satisfactory design. The ultimate design is based on this framework and tailored to particular situations that are consistent with the general purpose and intent of the design criteria through the exercise of sound engineering judgement. Situations do arise that require special considerations. Therefore, the City may choose to vary the design criteria on a case-by-case basis.

The design framework of the many geometric elements (e.g., street grades, horizontal/vertical curvature, pavement design, curb radii, clear zone, etc.) for the various functional classes and design vehicles are based on national research and local experience. They are also established to meet accessibility requirements of the Americans with Disabilities Act (ADA). Below are some of the guidelines for implementation of the transportation system:

- City of West Des Moines *Standard Construction Specifications for Subdivisions*
- *Des Moines Metro Design Standards & Addendums*
- American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*
- Iowa *Statewide Urban Design Standards and Specifications (SUDAS)*
- Iowa Department of Transportation *Design Manual*
- Transportation Research Board's *Highway Capacity Manual (HCM)*
- AASHTO *Guide for the Design of Bicycle Facilities*
- Federal Highway Administration's *Manual on Uniform Traffic Control Devices (MUTCD)*

### Network connectivity and internal connections

The street layout dictates the directness and convenience of every trip that people make, whether driving, walking, or biking. A street grid with shorter block lengths maximizes access, minimizes trip distances, and increases the number of possible routes between origins and destinations. Conversely, areas with long blocks and cul-de-sacs require longer, less direct trips that funnel more traffic onto fewer roadways. This discourages walking and biking, and it creates longer response times for emergency responders.

As properties are developed, the street network needs to be master-planned with neighboring properties. Arterials, collectors, and local streets all help build the network that will allow people to

easily navigate by multiple modes. Figure 9 illustrates how connectivity impacts circulation. To achieve the best mobility for all transportation users, the street pattern would allow for multiple access points and alternative routes while also shortening the travel distance between origins and destinations.

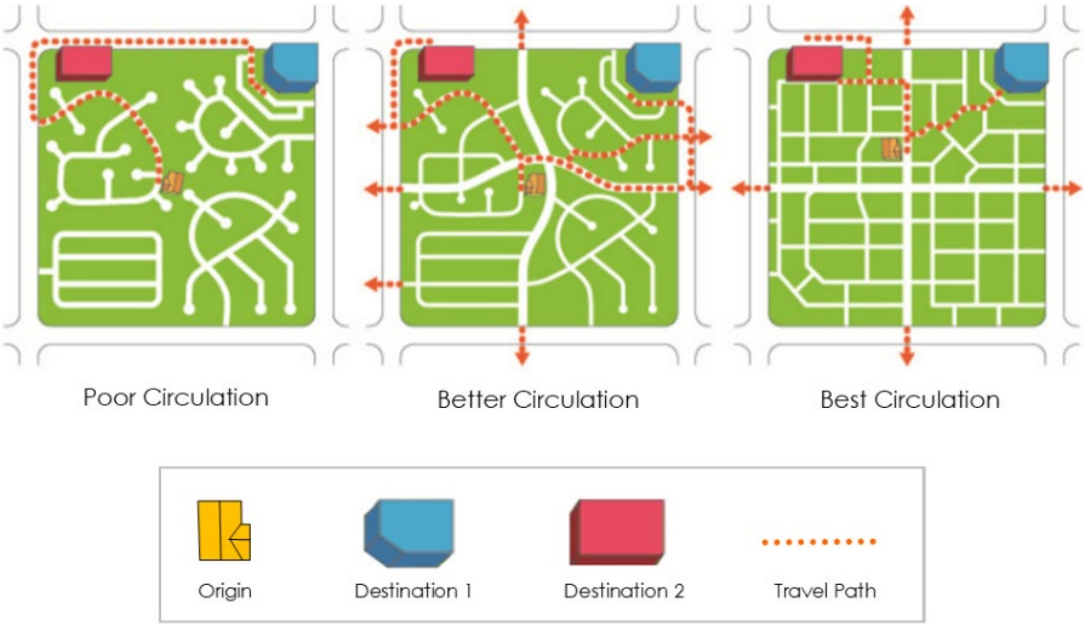



**Figure 9: Street network connectivity**

In addition to connectivity for the street network, internal connections between properties also enhance multimodal connectivity. Neighboring properties that have good internal connections provide the following benefits:

- Multiple route options
  - People can choose to use a more convenient and/or less-congested route.
  - During special events, road work, or incidents, roads may need to be temporarily closed. Having other options keeps access open and shortens detour routes.
  - Additional routes spread out traffic onto more streets. This reduces impacts on intersections and major streets, and it allows for narrower streets with slower speeds.
- Shorter routes and lower delay
  - Shorter paths encourage more walking/biking and less reliance on driving.
  - Trips between neighboring properties can be made without requiring people to use the adjacent streets.
- Improved response time
  - More connections results in better access for emergency responders who can more easily traverse to and through an area.
- Improved business
  - The ability to quickly and easily access nearby businesses may influence drivers to combine trips, leading to more business sales for the area.

## Travel demand modeling

Through the transportation planning process, two different traffic models are used to forecast future travel demand in West Des Moines – the Des Moines Area Metropolitan Planning Organization's long-range travel demand model (with assumed growth over the next 20-30 years) and an ultimate full-build travel demand model (fully developed, with no horizon year).

Figure 10 illustrates how these models link together the anticipated land use plan and the anticipated roadway network to produce a forecast of future traffic demand. This provides the following benefits:

- With estimated traffic volumes, the number of lanes that would be needed to accommodate the demand can be identified.
- With an ultimate roadway cross-section, right-of-way can be reserved in advance of development and soaring land prices.
- Potential areas of traffic congestion can be identified, allowing for the consideration of strategies to avoid or alleviate the congestion before it becomes reality and potentially irreversible.
- The impacts of different land use scenarios on the transportation system can be better analyzed.
- This information is used to help guide future investment strategies and provide decision makers with the best available information about ultimate infrastructure needs.

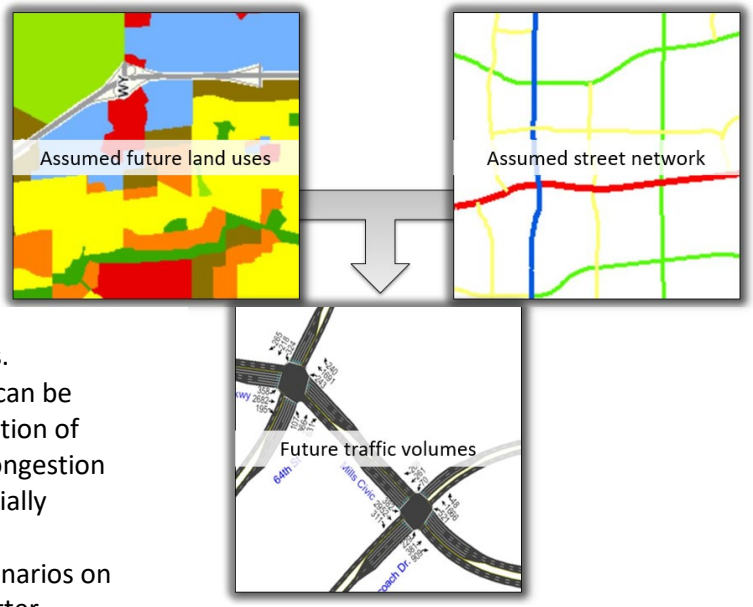



**Figure 10: Modeling future traffic demand**

When and where development will occur is difficult to predict. For rapidly-growing areas of suburbs like West Des Moines, there is a higher potential for 20-30-year projections to be exceeded in only a few years. The City uses the "full-build" model in order to forecast the ultimate demand once all parcels within the planning area have fully developed – whether this occurs in 5 years, 20 years, or 50+ years into the future.

The Transportation Research Board's *Highway Capacity Manual (HCM)* measures the operational performance of a transportation facility, such as a street corridor or intersection, in terms of Level of Service (LOS). LOS is measured on a scale of LOS A to LOS F. Figure 11 expands on the LOS scale.

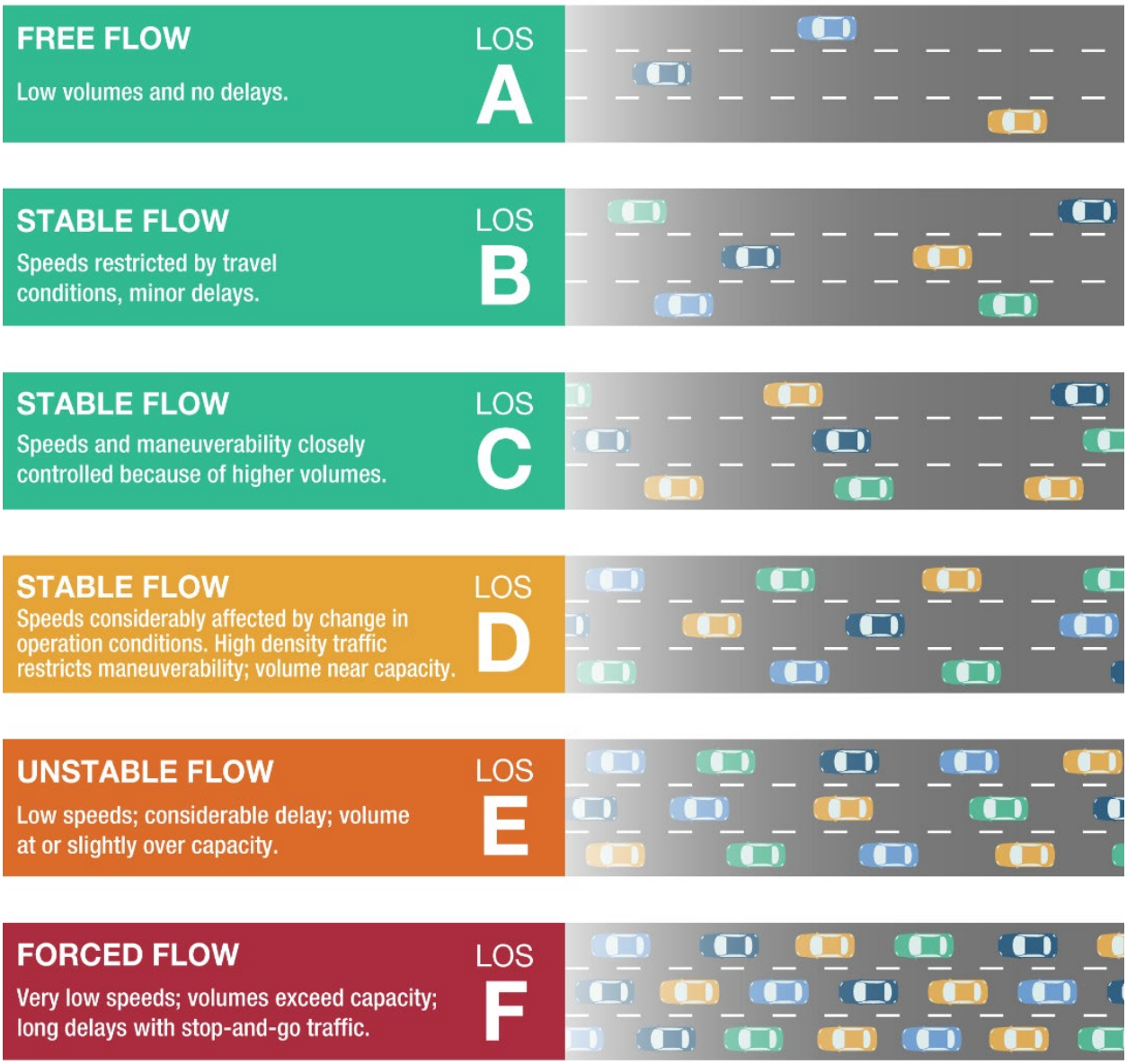



**Figure 11: Levels of Service (Source: Parleyseis.com)**

LOS is one of the measures that the City uses to assess the condition of the transportation network. Roadways and intersections will commonly have a higher LOS at initial construction, with LOS degrading as the community builds out. As in other communities, a LOS D or better has been established as the desired criteria within the City of West Des Moines. Typical roadway corridor capacities are given in Table 1. Intersections are more complex and need deeper analysis, using HCM procedures, to determine LOS during peak periods of a typical day – such as the AM peak hour and PM peak hour.

**Table 1: Daily Capacities for Roadway Corridors**

| Number of Lanes | Turn Lanes | Access Condition (side friction) | | |
|---|---|---|---|---|
| | | Minimal | Moderate | Heavy |
| 2 Lanes Undivided | Gravel | 5,000 | | |
| | Without turn lanes | 12,060 | 11,240 | 10,390 |
| | With left-turn lanes | 15,960 | 13,960 | 13,930 |
| | With center turn lane | 15,910 | 13,910 | 13,880 |
| 4 Lanes Undivided | Without turn lanes | 24,660 | 23,680 | 22,430 |
| | With left-turn lanes | 32,560 | 31,260 | 29,600 |
| 5 Lanes | With center turn lane | 32,510 | 31,210 | 29,550 |
| 4 Lanes Divided | Without turn lanes | 27,490 | 26,430 | 25,230 |
| | With left-turn lanes | 35,960 | 34,590 | 31,240 |
| | With left and right-turn lanes | 38,080 | 36,630 | 34,980 |
| 6 Lanes Divided | Without turn lanes | 41,280 | 39,710 | 37,980 |
| | With left-turn lanes | 54,010 | 51,960 | 49,680 |
| | With left and right-turn lanes | 57,190 | 55,010 | 52,610 |

## Access management

The efficiency and safety of a street depends largely upon the amount and character of interruptions to the movement of traffic. Although one of the key functions of a roadway is to provide access to abutting properties, there is a balance between access and mobility. Vehicles that are turning into and out of driveways introduce friction into the system, which reduces the street's capacity and travel speeds. Research has shown that the density and design of driveways has a direct impact on roadway safety – i.e., the more access connections, the more accidents. Accesses need to be managed to preserve the core functionality of the system, to provide for a supporting street and circulation system, to preserve the functional areas of planned intersections and interchanges, and to limit the number of conflict points along the corridor, while still ensuring convenient and safe access to businesses. A couple ways this is achieved is with driveway consolidation and/or raised medians.

Access spacing is based on recommendations from the Transportation Research Board's *Access Management Manual* and the Iowa *Statewide Urban Design and Specifications (SUDAS)*. Figure 6 illustrated some of the minimum spacing guidelines. See the City's current design standards and City Code for more information on access design criteria.

## Right-of-way and street phasing

Right-of-way widths are established based on the functional classification and considering the size of the corridor needed for travel lanes (including turn lanes), non-motorized transportation facilities, and utility lines for water, gas, electricity, fiber, etc. A range of right-of-way widths was shown for each functional classification in Figure 6 to illustrate the variability of these widths.

Streets are often constructed in multiple stages. Roadways that are ultimately planned to be four-lane urban streets may initially be constructed as two-lane rural streets, for example. Non-motorized

facilities may also be added in stages, such as where sidewalks or trails are planned to be constructed as part of future development of the adjacent properties. This highlights the importance to plan in advance for the future street configuration, where possible, to acquire sufficient right-of-way and locate utilities in a manner that will accommodate the locations of future lanes, medians, sidewalks, trails, on-street bicycle facilities, transit stops, crossings, etc.

## Operations and maintenance

The City of West Des Moines is responsible for the operation and maintenance of nearly all streets within the City, except for private streets, Highway 28, Highway 5, and the interstate system. A variety of maintenance techniques are used to manage, preserve, maintain, and rehab West Des Moines' streets, such as traffic system management, street sweeping, snowplowing, pothole repair, patching, curb and median replacement, and street resurfacing, with the goal of maximizing efficiency and extending the streets' useful lives at the lowest cost.

*Pavement*

The City uses a Street Management System (SMS) to identify existing and anticipated street maintenance and rehabilitation needs. The City's SMS, which is based on pavement data collected by the Iowa Department of Transportation, is a well-developed program that prioritizes work for maintaining the City's street network at the most optimum condition allowed by the available funding and resources. It is also used to determine the overall dollar value of the City's public street infrastructure and the City's annual investment to maintain that value. The City's annual street network value and street maintenance investments are among the factors bonding companies use to determine the City's bond capacity and interest rate.

*Bridges*

Bridges in West Des Moines are inspected on a bi-annual basis in accordance with State and Federal requirements. Any deficiencies to the bridges are noted, with repair or other work done as needed to maintain the integrity of the structures.

*Sidewalks and trails*

The City has an annual sidewalk repair program that reviews the condition of existing sidewalks and the need for new sidewalks throughout the City. A different area of the City is scheduled for inspection every year. The scheduled area is reviewed by staff and notices of any defects are sent to the property owner for repair. See the City's website for more information on this program.

In addition to sidewalks, trails are also regularly inspected for defects. Inspections are conducted annually, and repairs are prioritized and scheduled based on available funding and resources.

Sidewalks, trails, and curb ramps must be built to very specific design standards. When these facilities are constructed, they are designed to meet accessibility guidelines established in the Americans with

Disabilities Act's (ADA) *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)*. When the facilities are reconstructed as part of future projects, the facility must be brought up to date if the design standards have changed since it was originally constructed.

*Transportation system management*
Traffic control devices such as traffic signals, crosswalks, pavement markings, signs, and warning flashers are managed by City staff. These devices are maintained and upgraded as the devices age and as technology improves over time.

The City has a Traffic Operations Center (TOC) located at the Public Services Facility. The TOC is one of the City's key strategies to proactively manage the transportation system by addressing recurring and nonrecurring congestion in real-time. Utilizing the City's large fiber optic network that connects the City's traffic signals to the TOC, traffic cameras can be viewed, and signal changes can be made quickly and easily from one centralized location. Dispatchers from the Westcom Dispatch Center also have access to the City's traffic cameras, allowing them to quickly see and react to emergency situations such as traffic collisions.

The City continues to invest in and expand its Intelligent Transportation Systems (ITS) infrastructure. ITS are information and communication technologies that improve the safety and maximize the efficiency of roadway systems. As these technologies continue to be integrated with vehicles, traffic signals, traffic management networks, cell phone applications, etc., users are better informed and can make better transportation decisions. Signal hardware and software, such as traffic adaptive technology, are key ITS measures that have been shown to improve traffic flow, reduce congestion and stops, improve air quality, and save time and money for all road users.

Traffic control devices – such as traffic signals, signs, and pavement markings – are critical for a safe and efficient transportation network. The City is required to use the Federal Highway Administration's *Manual on Uniform Traffic Control Devices (MUTCD)*, which contains the national standards governing all traffic control devices. For example, the *MUTCD* gives warrants and provides guidance for when traffic signals or 4-way stops are justified. Proper design, construction, and placement of traffic control devices help reduce crashes and congestion and improves the efficiency of the transportation system.

## Transportation Goals and Policies

The West Des Moines Comprehensive Plan sets guiding principles that are used as a backdrop for this Transportation Master Plan. The Comprehensive Plan is divided into Community Design, Housing & Neighborhoods, Sustainability & Resiliency, Transportation & Infrastructure, Engagement & Wellness, Diversity, Equity, & Inclusivity, Economic Prosperity, and Land Use.

Transportation is primarily addressed in the "Transportation & Infrastructure" section of the Comprehensive Plan. However, every topic is affected by transportation and have strategies or actions that interrelate with this Transportation Master Plan. See the Comprehensive Plan for more details on the actions and sub-actions that are being evaluated. Goals and strategies for the desired transportation system are described in the Comprehensive Plan, with supporting transportation policies given in Table 2.

**Table 2: Transportation Goals and Policies**

| | |
|---|---|
| **GOAL**<br>**Provide for the safe and efficient movement of people, goods, and services throughout the city.** | |
| **Alternative Transportation Modes** | |
| **<u>Comp Plan Strategy TI3</u>**<br>**Maintain, improve, and expand an accessible, safe, and efficient transportation network for transit riders, bicyclists, and pedestrians for recreation, commuting and general transportation.** | |
| Policy 1 | Include multimodal network evaluation in comprehensive transportation review (i.e., utilizing Bicycle Master Plan, sidewalk policy, Parks & Trails Master Plan, etc.). |
| Policy 2 | Continually evaluate and update policies in the Bicycle Master Plan to accommodate trends and needs within the bicycle community. |
| Policy 3 | Incorporate on-street and off-street bicycle facilities on roadways where conditions allow, as detailed in the Bicycle Master Plan. |
| Policy 4 | Continually collaborate with neighboring cities to identify connections between neighboring bicycle networks and pathways. |
| Policy 5 | Utilize various pedestrian crossing treatments to enhance safety at key locations where conflicts with another mode of transportation exist. |
| Policy 6 | Continually collaborate with DART and other transit providers to enhance transportation for transit riders. |
| **Roadway Function + Design** | |
| **<u>Comp Plan Strategy TI4</u>**<br>**Design and utilize roadway corridors in a manner that is efficient, reliable, adaptable, accessible, attractive, and safe.** | |
| Policy 7 | Utilize various roadway classifications to identify streets with different levels of access and mobility, with these streets shown on the Ultimate Streets Map. |
| Policy 8 | Maintain flexibility in future street alignments, allowing the market and proposed development to participate in the layout of the street network. |
| Policy 9 | Optimize right-of-way widths while providing sufficient space for multi-modal travel, public and private utilities, streetscape features, and any other appropriate amenities. |
| Policy 10 | Use plans/policies and engineering design/construction standards for various functional classes to enhance safety, accessibility, and mobility for all modes. |
| Policy 11 | Examine impacts of proposed developments and redevelopment to ensure that the existing and future transportation infrastructure has adequate capacity to meet the forecasted demand (i.e., does not fall below the desired LOS D). |
| Policy 12 | Plan for access points onto streets so that they are safe, properly designed, and limited in number and location to ensure the smooth and safe flow of all road users. |
| Policy 13 | Require multiple points of access and interconnections between properties, where practical. |
| Policy 14 | Consider traffic calming measures, road diets, and other roadway reconfigurations, where appropriate. |

| | |
|---|---|
| Policy 15 | Consider roundabouts and other innovative traffic and intersection designs, where appropriate. |
| Policy 16 | Collaborate with the railroad and trucking industries to enhance freight delivery. |
| Policy 17 | Continually evaluate crash patterns, making safety improvements when necessary. |
| **Infrastructure Management** | |
| **<u>Comp Plan Strategy TI5</u><br>Provide and maintain infrastructure and city services necessary to support the continued growth and operation of the City.** | |
| Policy 18 | Optimize traffic signals to provide for safe and efficient traffic flow for all modes and to reduce vehicle emissions. |
| Policy 19 | Monitor the condition and service levels of the transportation infrastructure, including pavement, bridges, sidewalks, trails, and the traffic signal system, making improvements when possible to maintain appropriate levels. |

# Appendix A: Ultimate Streets Map

# West Des Moines Ultimate Street Circulation
## October 2022

Draft

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**Legend**

- Freeway
- Future Freeway *
- Major Arterial
- Future Major Arterial *
- Minor Arterial
- Future Minor Arterial *
- Major Collector
- Future Major Collector *
- Minor Collector
- Future Minor Collector *

***NOTE: Alignments of future streets are general, high-level corridor locations that are flexible and subject to change. As the area develops, further analysis will be conducted to refine the street alignment.**

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W E
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THE CITY OF WEST DES MOINES®

CLIVE
WAUKEE
WINDSOR HEIGHTS
DES MOINES
NORWALK
CUMMING
University Ave
Int 235
Int 80
92nd St
Ashworth Rd
22nd St
8th St
Grand Ave
EP True Pkwy
60th St
Int 35
50th St
Valley West Dr
Railroad Ave
88th St
Jordan Creek Pkwy
Mills Civic Pkwy
1st St
S. Grand Prairie Pkwy
Grand Ave
Hwy 5
Veterans Pkwy
Int 35
Cumming Rd