



# *Chapter Ten:* **[Transportation + Mobility]**



# Transportation + Mobility

## Overview

### Chapter Purpose

Transportation provides a means to growth and strengthens ties within the existing community by providing access and mobility to residents. This Transportation Chapter is intended to serve as a guide and decision-making tool for planning growth and identifying areas where multi-modal transportation accommodation can strengthen the existing community and future vision.

In support of and in coordination with other plan chapters, the topics included in this chapter serve to address existing and future transportation needs for Bondurant to drive, bike, and walk towards the vision of 2050.

### Chapter Structure

The Transportation Chapter follows the following format:



Review of Ultimate Streets Plan



Collector / Arterial Network



Commuter Loop



Complete Streets



Trails & Sidewalk Analysis



Regional Access



1  
2  
3 Transportation + Mobility Goals, Policies + Action Items



# Transportation + Mobility Public Input

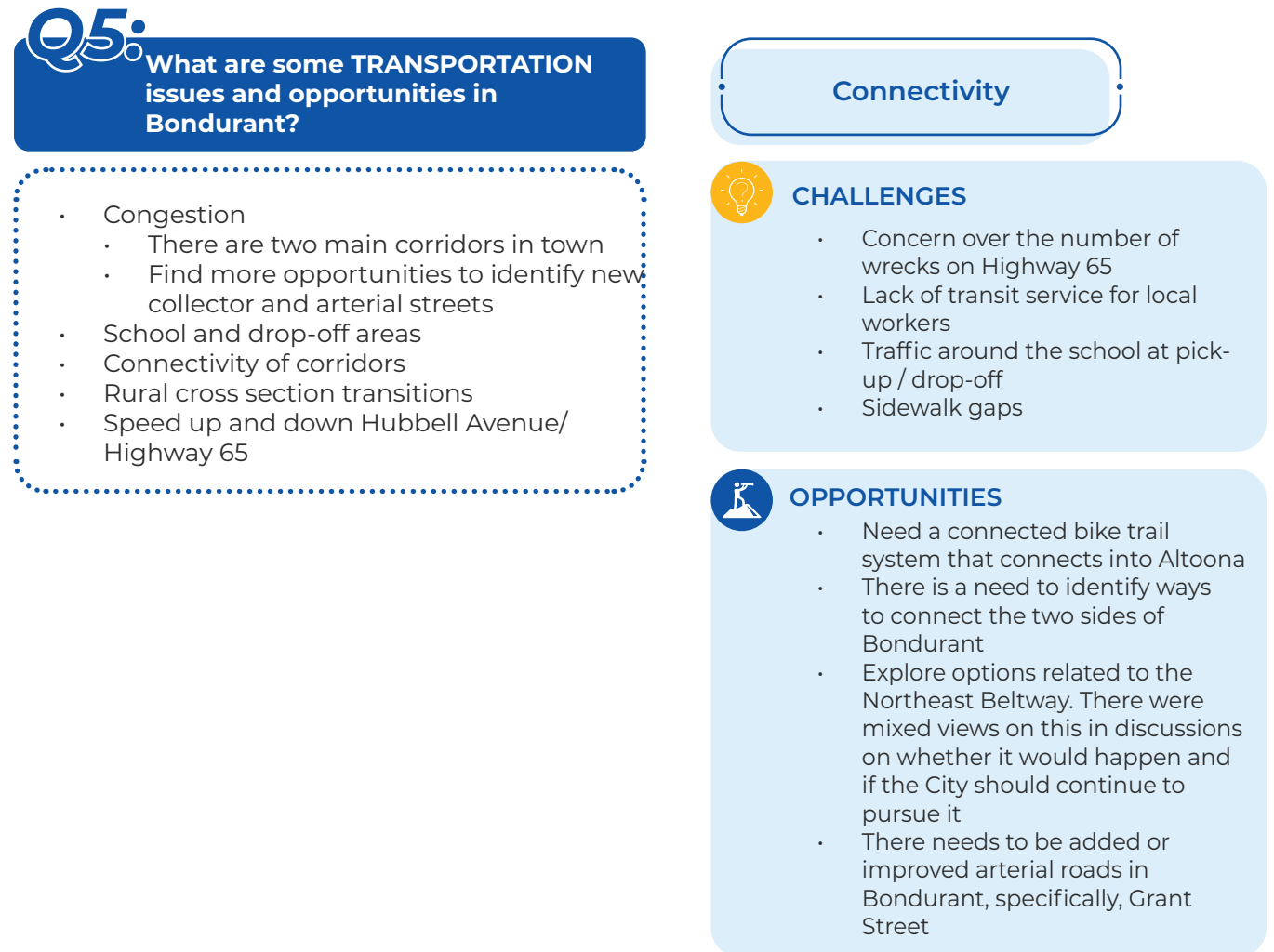
## Public Input on Transportation + Mobility

### Public Input Summary

When the Building Bondurant Advisory Committee was asked to list the transportation issues and opportunities facing Bondurant they mainly listed congestion (too few corridors to get through town), school drop-off areas, and connectivity within town.

When interviewing key stakeholders, several transportation related challenges and opportunities were revealed. Challenges include some concern over the number of wrecks on Highway 65, a lack of transit service for workers, traffic around school pick-up and drop-off, and some sidewalk gaps. Opportunities included a connected bike trail system to Altoona, additional crossings over Highway 65 for pedestrians, the northeast beltway, and the need for more arterial roadways in Bondurant.

**Figure 10.1** Transportation CPAC + Stakeholder Interview Feedback



# Transportation + Mobility Public Input

## Public Input on Transportation + Mobility

### Public Input Summary

At the in-person public workshop and the online interactive engagement website, residents were asked to select images of the type of streetscape improvements most desired in Bondurant. Lighting, street trees, food truck areas, and green infrastructure solutions such as bio-retention streetscapes were identified. Many of these topics will be discussed further in Chapter 7 - Community Character + Downtown.

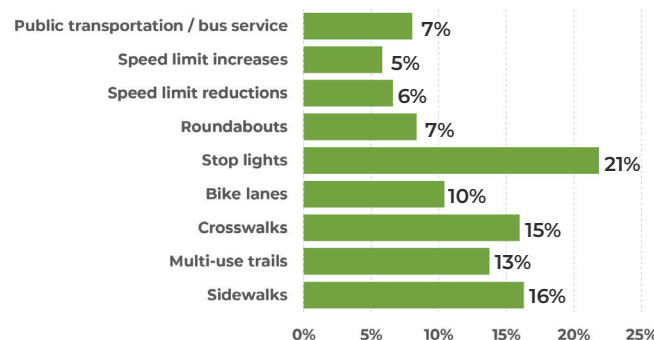
The online survey asked about needed transportation changes in the future and the top selections were stop lights, sidewalks, crosswalks, and multi-use trails. The least voted on options were speed limit changes.

**Figure 10.2** Transportation Public Workshop + Online Engagement Feedback

### Streetscape



**Question 9:** In the next 10-15 years, Bondurant will need more of the following transportation changes:





# Transportation + Mobility Today

## Review of Ultimate Streets Plan

### Ultimate Streets Plan Review

Roadway networks are comprised of three main classifications: arterial, collector, and local roadways. Each classification serves a specific purpose, and it is important to keep that purpose in mind as the city roadway network expands. The map shown in Figure 10.3 showcases the previous ultimate streets plan that was used as the foundation for the updated proposed future streets plan on the following page.

### Local Streets

Local streets are the main source of access to residential land uses. With a smaller footprint and slower speeds local streets provide access from the neighborhoods they serve to the larger roadway network through

### Collector Streets

Collector streets serve the purpose of bringing a regional volume of traffic together often in coordination with land uses such as commercial, office, and industrial. Collector streets exist with a larger footprint, reduced access points, and at higher speeds. Collector streets provide

the buffer between local roads and arterial roads.

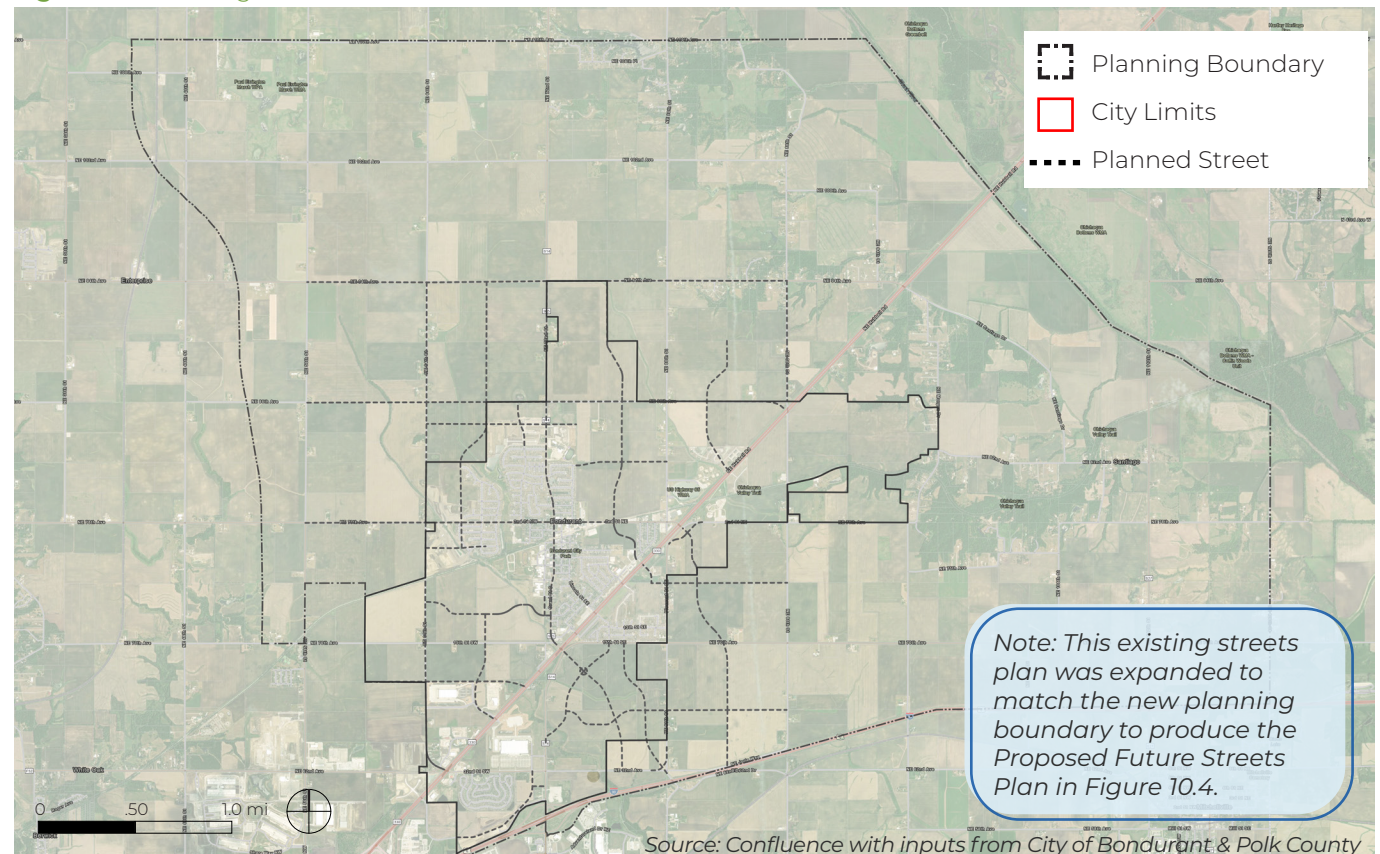
### Arterial Roads

Arterial roads provide the means for regional connectivity within

the roadway system. These are the main travel routes within the network, and the focus of the arterial roadway is to move traffic from one network to another.

Arterial roadways should include the largest footprint, higher speeds, and access is limited to intersections with other arterial roads and collector streets.

**Figure 10.3** Existing Future Streets Plan





# Transportation + Mobility









## Proposed Changes to Ultimate Streets Plan

## Ultimate Streets Plan Proposed Changes

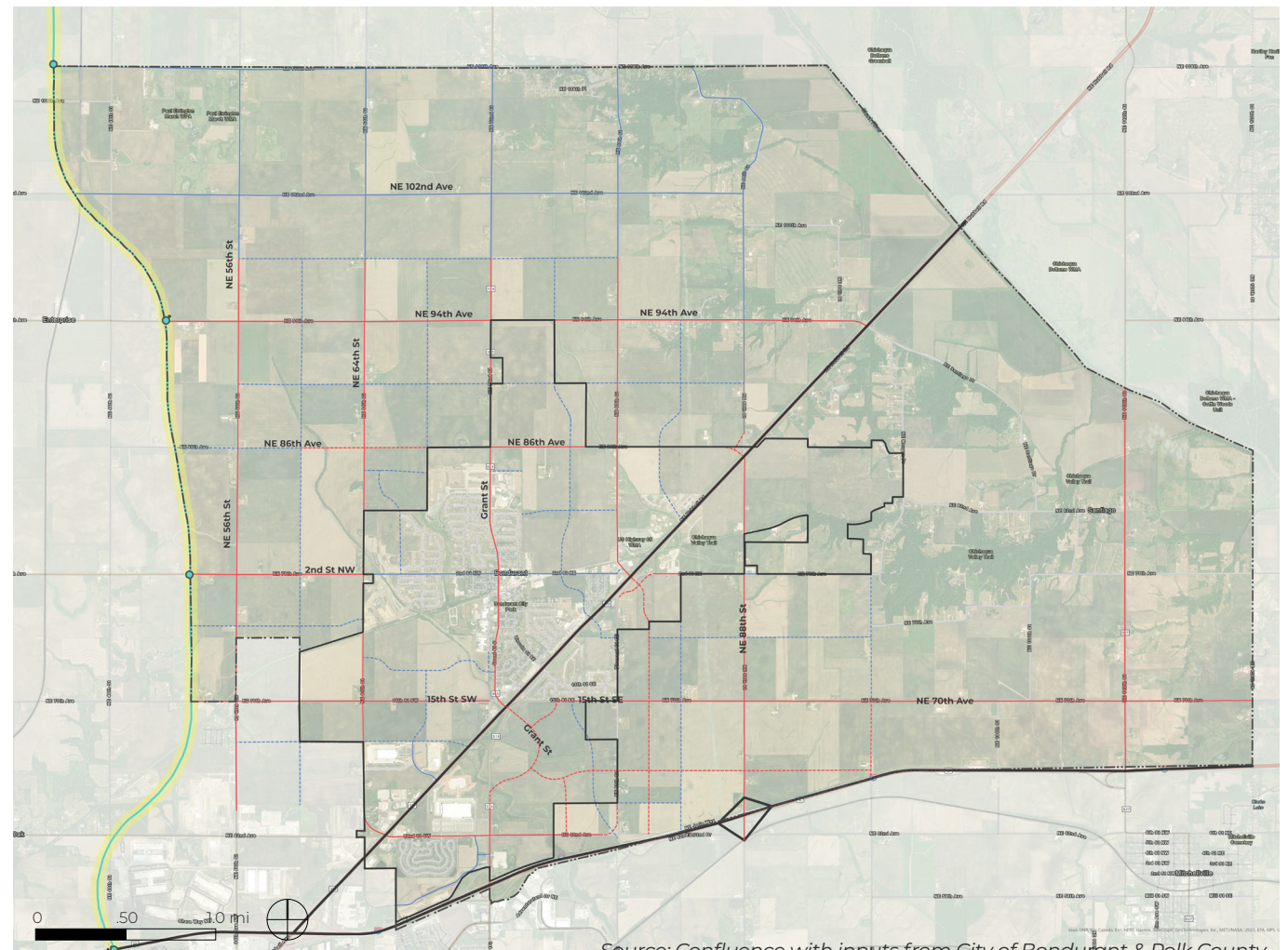
Figure 10.4 shows the proposed new Future Streets Plan for Bondurant. The Future Streets Plan was created using the existing Ultimate Streets Plan as its base, which was then updated based on the Future Land Use Plan created for Chapter 4 - Land Use. It is composed of a series of proposed new collector and arterial roadways with an overall goal of providing multiple north-south and east-west connections for high capacity roadways throughout the planning boundary.

Also shown on the Future Streets Plan are the northeast beltway and a proposed new interchange along Interstate 80. Both transportation projects would be enormous economic development catalysts for Bondurant.

Local streets are not shown as those are presumed to develop over the course of the development review process.

-  Planning Boundary
-  NE Beltway Intersections
-  Existing Interstate / Highway
-  Proposed Interstate / Highway
-  Existing Arterial
-  Proposed Arterial
-  Existing Collector
-  Proposed Collector

### Figure 10.4 Proposed Future Streets Plan



Source: Confluence with inputs from City of Bondurant & Polk County



# Transportation + Mobility Today

## Arterial / Collector Network

### Arterial / Collector Network

The existing minor arterial streets for Bondurant are Grant Street and 2nd Street NE/NW. These corridors are the main transportation routes, and as such experience periods where the demand exceeds the capacity of the roadway and intersections resulting in significant backups and delays. A balanced roadway network needs both arterial and collector roadways to serve their proper functions.

The City of Bondurant should prioritize parallel collector corridors for these arterial streets to provide relief in periods of high demand, and to provide access to the Local Streets. Collector streets should be planned at a  $\frac{1}{4}$  mile to  $\frac{1}{2}$  mile spacing to provide local street connectivity, and adequate intersection spacing where the collector streets connect to the minor arterial corridors. Where feasible existing local street connections to the two arterial streets should be removed and relocated to a functional collector street. As redevelopment occurs along the identified arterial and collector corridors driveways should be removed from the corridors as much as possible. This will allow for less friction within the system which will provide safer roadways with less delay.








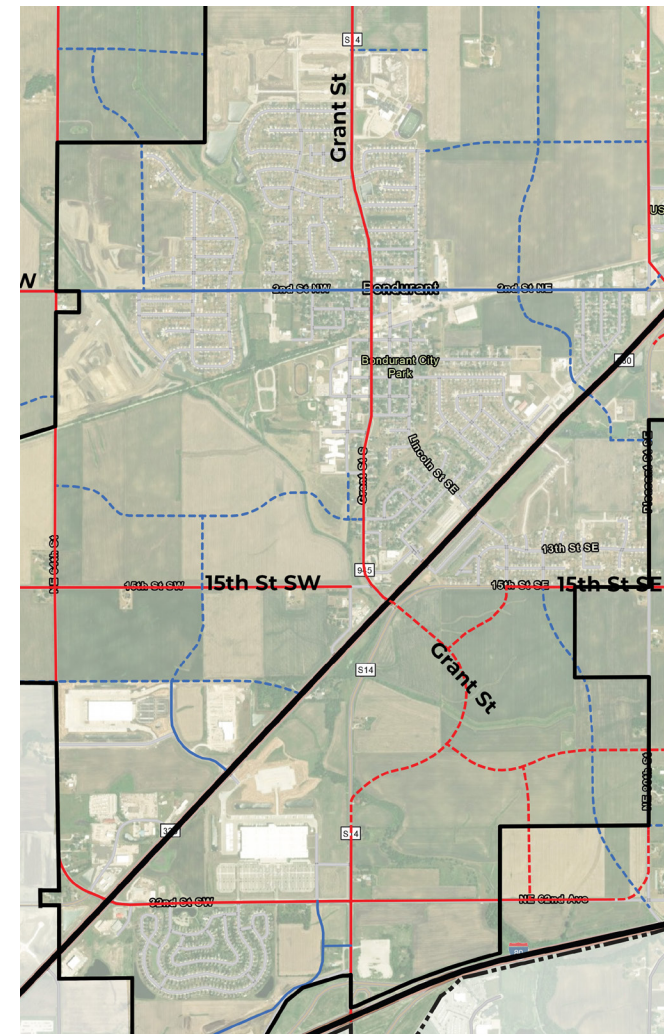
-  Planning Boundary
-  Existing Interstate / Highway
-  Proposed Interstate / Highway
-  Existing Arterial
-  Proposed Arterial
-  Existing Collector
-  Proposed Collector

Figure 10.5 Collector / Arterial Roads in Bondurant



# Transportation Analysis

## Critical Collector Needs

### Commuter Loop

Since the main arterial corridors exist in the heart of the built-out section of town increasing the capacity of the corridor and intersections is a difficult task. To provide relief for these corridors through alternative routes the City can invest in collector functioning roadways along the outside of the current built out environment. The City has identified this need and is currently working towards the widening of Franklin St SW/NE 64th Street from 2nd Street NW to Hubbell Avenue/ Highway 65 to provide a “Commuter Loop” along the west edge of town.

Another collector corridor that should be considered a priority for the City would be a north south connection at approximately NE 78th Street between 2nd Street NE and NE 86th Avenue. This corridor along with connection to existing local streets south of the High School would provide relief to Grant Street, and access for development.

Figure 10.6 Commuter Loop





# Transportation Analysis

## Complete Streets

### Complete Streets

Gone are the days of roadways being only designed for passenger vehicles. Today's transportation network must account for everyone and all modes of transportation. A complete street provides safe mobility for pedestrians, bicyclists, transit riders, and motorists. Accommodations for all modes of movement within the transportation network is key to a vibrant community. The City of Bondurant has adopted a Complete Streets Policy, and are actively

incorporating these principals into the design of the transportation network. Arterial and collector streets within Bondurant should include sidewalks, trails, and, considerations for existing and future transit needs within the corridors. Local streets should provide sidewalk access to connect residential neighborhoods to the larger transportation network provided by the arterial and collector corridors.

**Figure 10.7** Complete Streets Elements



**BIKE LANE**



**PEDESTRIAN TRAIL**



**TRANSIT**

Source: [www.pedbikeimages.org](http://www.pedbikeimages.org) / Dan Burden

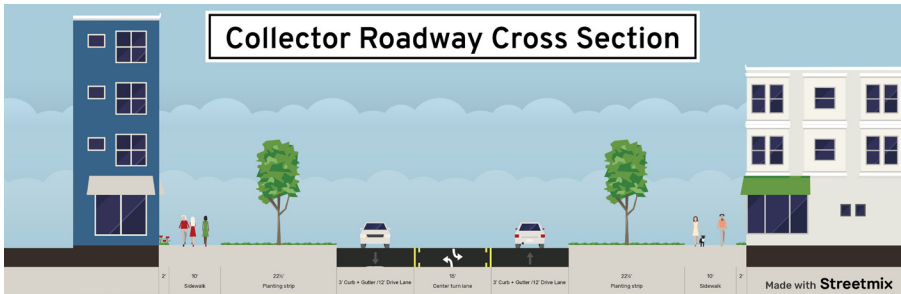
# Transportation + Mobility

## Corridor Cross Sections by Typology

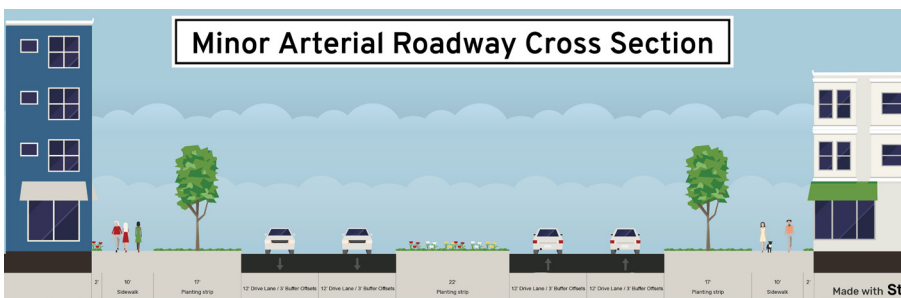
### Corridor Cross Sections

When providing access for all modes of transportation within the corridor, safety needs to be held as a top priority. Speeds and level of comfort varies across the different means of travel, so it is important to consider the goals of each user in design corridor cross sections. Arterial streets provide for a higher speed of travel for motorists, and therefore pose risk and discomfort for cyclists and pedestrians. Arterial street corridors should consider off-street trails and sidewalks. Separation of pedestrians and cyclists should be taken into consideration also based on the overall trail system and cycling routes. Collector corridors promote slightly lower speeds for motorists, so on-street bike lanes may be considered within these routes and serve as a way to buffer the differing modes of transportation.

**Figure 10.8** Collector Roadway Cross Section



**Figure 10.9** Minor Arterial Roadway Cross Section



**Table 10.1** Planning-Level Lane Configuration by AADT

Planning-Level Lane Configuration by Average Annual Daily Traffic (AADT)*	
The following traffic volumes provide planning-level guidance for the needed lane configuration based on AADT:	
Lane Type	AADT
3-Lane Section	10,000-18,000
4-Lane Section	18,000-27,000
5-Lane Section	27,000-36,000

\*Planning-level volumes only based on Highway Capacity Manual for Level of Service D. Actual capacity will depend on access points, desires level of service, speed, etc.



# Pedestrian + Cyclist Connections

## Hubbell Avenue/ Highway 65

### Pedestrian + Cyclist Connections

Hubbell Avenue/ Highway 65 access is set up to provide connection for motorists, but as a major arterial corridor it is not conducive for pedestrian or cyclists. Therefore, the corridor separates the city for pedestrians and cyclists. At-grade crossings of Hubbell Avenue/ Highway 65 are not comfortable for cyclists and pedestrians, and the necessary signalization to provide safe at-grade crossings induces delays for motorists. Underpasses and bridges serve as the best way to connect the community in a safe and desirable manner for pedestrians and cyclists. Location of these crossings should be targeted through accessing the transportation network on each side of the Hubbell Avenue/ Highway 65 to identify logical connections, siting topography that provides for natural underpass or overpass locations, and targeting crossing separations within 1 mile of each other.



# Transit Analysis

## Transit Accommodation / Adoption

As Bondurant grows the use of transit by its residents to commute to work, and outside workforce to commute to local businesses will grow. A complete street approach to the transportation network should provide for existing and future transit riders. Providing adequate space within the corridor cross section to accommodate bus pull-outs and bus stop facilities will provide for an experience that can make transit a desirable option for the residents and workforce of Bondurant. As business locate to Bondurant the City should seize the opportunity to identify transit needs and grow transit in the community through partnership with the business through promotion and financial support.





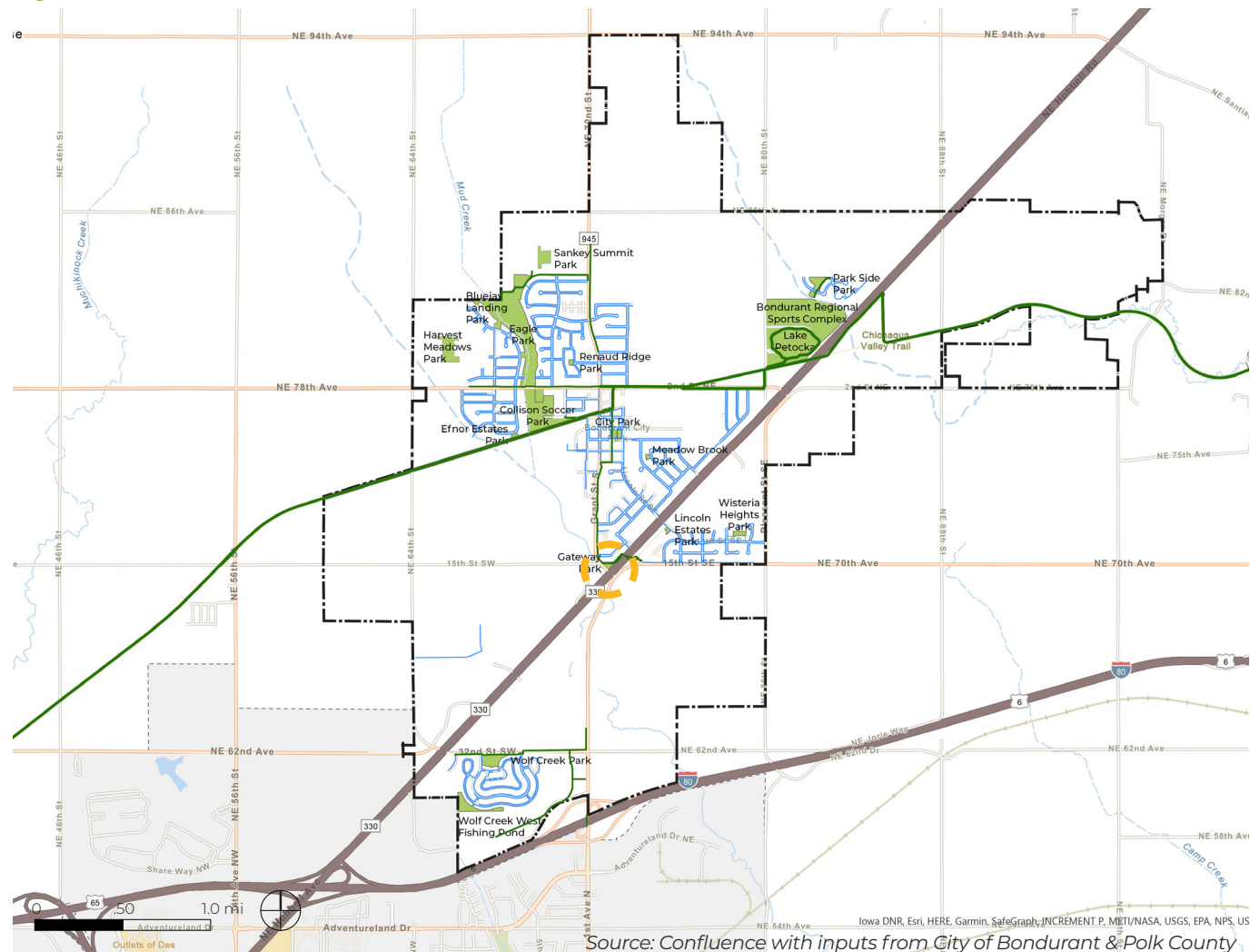
# Trail + Sidewalks Analysis

## Trails + Sidewalks

The City of Bondurant currently has a good network of sidewalks and trails that are appropriate for the local and regional land uses within the developed area of the City. Local Streets within residential neighborhoods should have sidewalk access that connects to the regional network of sidewalks and trails. All new sidewalks and trail connections should meet Public Right-of-Way Accessibility Guidelines (PROWAG), and the City should take inventory of existing facilities to determine if upgrades are needed to bring the entire network into compliance.

In an effort to better link either side of Hubbell Avenue/ Highway 65, the City of Bondurant is constructing a pedestrian underpass between Oleson Dr SE and Grant Street South. The location of the underpass is highlighted with a yellow circle in Figure 10.11. This project began during this comprehensive planning process and is set to be completed in the Fall of 2022.

**Figure 10.11** Trails + Sidewalks



## Regional Access

### Hubbell Avenue/ Highway 65

#### Regional Access

The major arterial roadway regionally connecting Bondurant is Hubbell Avenue/ Highway 65. This major transportation artery bisects the planning boundary for Bondurant and serves as the principal transportation connection for commuters and freight. The highway provides a significant benefit to industrial and warehouse land uses for its connectivity northeast to Highway 30, Interstate 80, and the southern bypass of Des Moines to Interstate 35.

With the proposed land use plan identifying a significant amount of industrial and warehouse use along the southern boundary of the City it will be important for Bondurant to plan how to handle the truck traffic volume that could be generated by these uses. Collectors through these land uses should focus traffic to Hubbell Avenue/ Highway 65 and connections to the northern roadway network should be done in a way to physically limit truck traffic traveling through areas where the land uses conflict with heavy truck traffic. Enforcement is a critical step of limiting truck traffic, but restrictive left turns and roundabouts should be considered as a physical deterrent for trucks on these corridors.



# Northeast Beltway Discussion

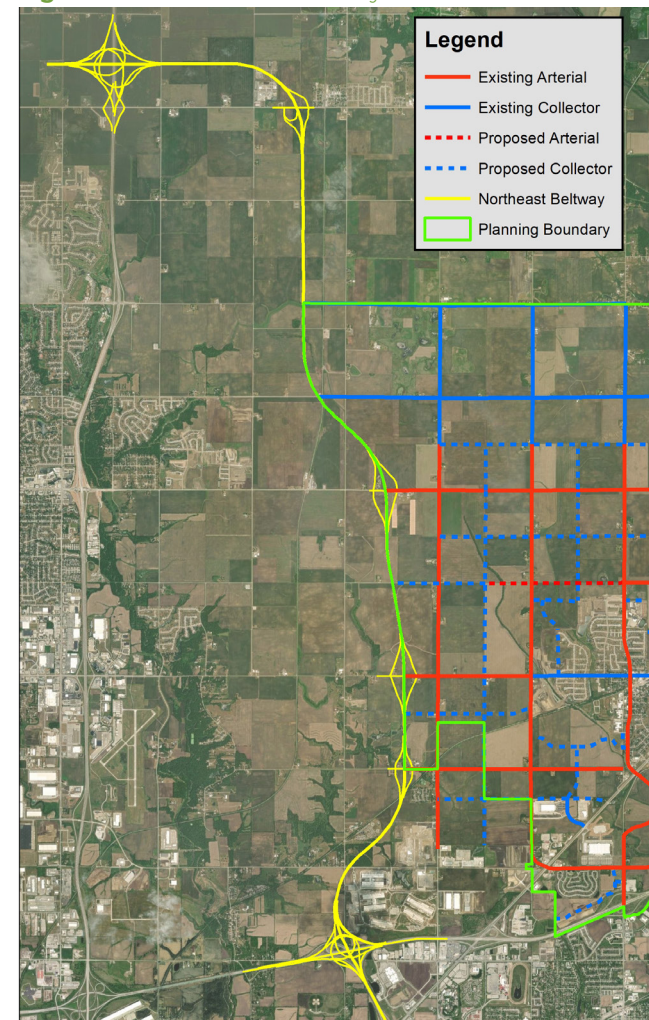
## Pros and Cons

### Northeast Beltway

A north south connection from Interstate 80/Hwy 65 to Interstate 35 between Bondurant and Ankeny has long been envisioned and known as the Northeast Beltway. Planning of the project was spearheaded by Polk County and has been identified in the comprehensive plans for Polk County, Ankeny, and Bondurant. The potential new corridor offers both an improvement to the regional traffic network, and increase opportunity for the communities abutting it. The Northeast Beltway would provide Bondurant with additional Arterial roadway access to reduce congestion on existing corridors. The identified interchanges for the Northeast Beltway at 32nd Avenue SW, 2nd Street NW and NE 94th Avenue would provide nodes for higher density/higher value land uses.

The prospect of the Northeast Beltway also poses some complications for the City of Bondurant. Bringing forward a project of this scale requires a large regional coordination effort and significant funding support. Development within the area of the proposed Beltway will also need to weigh the future of the Beltway in decision making to make sure that decisions made today do not limit or significantly impact the potential Beltway construction in the future which can lead to slower development due to the unknown.

Figure 10.12 Northeast Beltway





# New Interstate 80 Interchange

## Prospective Interchange

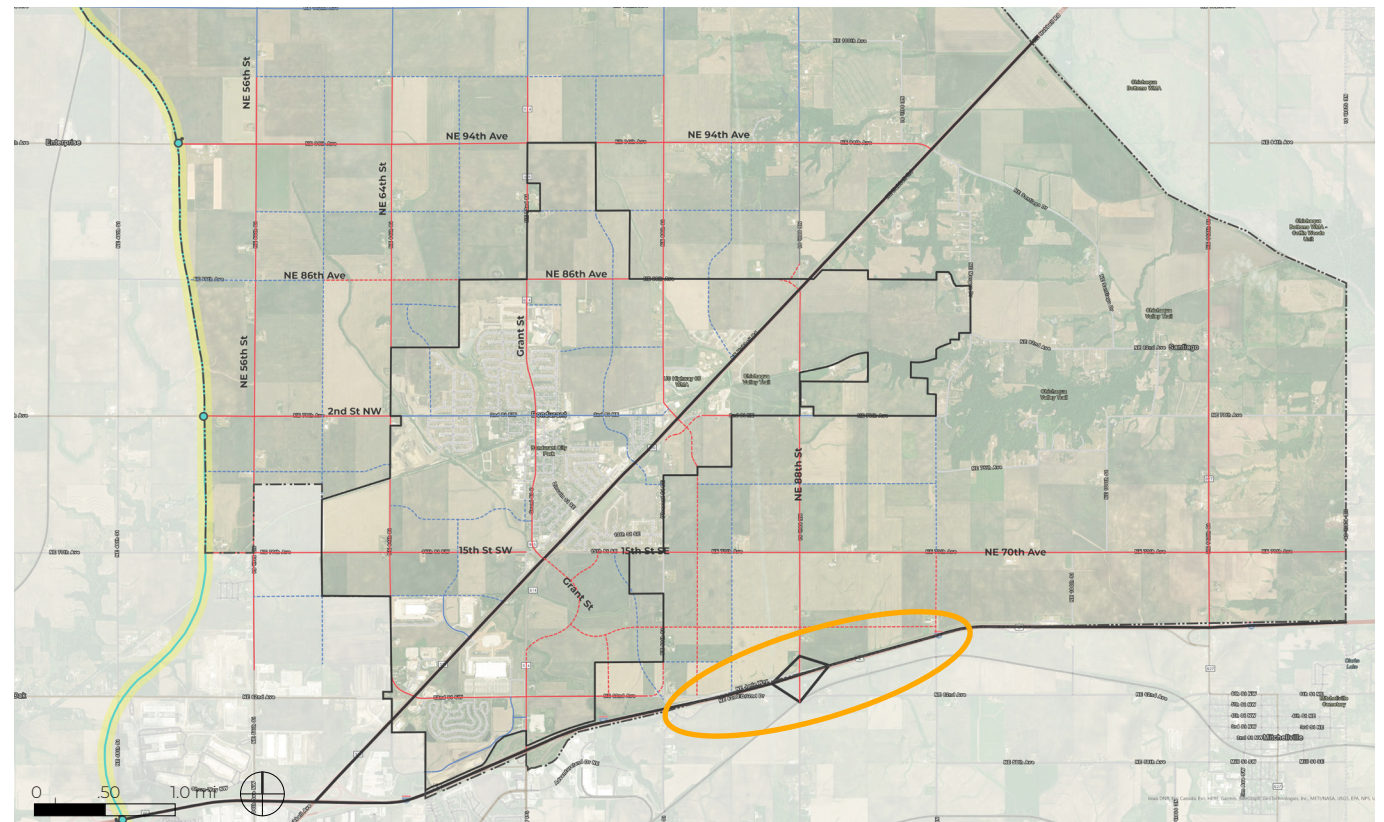
### New Interstate 80 Interchange

There has been regional support and discussion regarding a new interchange on Interstate 80 in the eastern area of the Bondurant Planning Boundary. The location of the potential interchange has been shown near NE 88th Street and NE 96th Street. Much like the Northeast Beltway an eastern interchange on Interstate 80 would provide additional arterial access, connectivity, and a node for commercial type land uses to service the eastern side of the planning boundary.

Bondurant should participate in regional coordination and planning of the proposed interchange to ensure that the needs of Bondurant are considered. The City should also plan for a north-south minor arterial/collector corridor to connect to the interchange, so that development can occur in support of the improvement and not become a roadblock. As planning progresses the

City should begin to identify means of funding support for the project in coordination with regional partners.

**Figure 10.13** Prospective Interchange Location + Proposed Streets



- Planning Boundary
- NE Beltway Intersections
- Existing Interstate / Highway
- Proposed Interstate / Highway
- Existing Arterial
- Proposed Arterial
- Existing Collector
- Proposed Collector
- Perspective Interchange Location

# Transportation + Mobility

## Implementation

A series of goals, policies, and action items have been created for Chapter 10 - Transportation + Mobility.

### Goal

Goals are objectives or aims which may be broad or specific.

### Policies

Policies represent on-going principles by which the City should adhere when approving new development or planning future investments.

### Action Items

Action items are specific steps and activities the City should take.

These goals, policies, and action items were created to further promote the guiding principles and vision statement of the Building Bondurant Comprehensive Plan.

In Chapter 12 - Implementation, a series of matrices will be provided that include each chapter's goals, policies, and action items. In this later chapter, the guiding principle(s) being supported by each policy or action item will be highlighted. Additional items such as priority or potential partners will also be added.

**Figure 10.14** Building Bondurant Guiding Principles



# Transportation + Mobility

## Implementation

### Goal 22

The land use map should serve as not only a guide to the preferred development uses, but also as a guide to the future needs of transportation network. As development occurs the necessary infrastructure can be planned for in advance of full build out.

### Provide a robust transportation network based on the adopted Future Land Use Plan

#### Policy 22A

**Require development to accommodate not only the needs of the local street network, but also future Arterial and Collector streets based on the city's ultimate street map**

Public input revealed a strong desire for additional collector and arterial roadways to help ease congestion along some of the main roads in Bondurant today. New development should accommodate the development of these roadways in addition to local streets.

#### Policy 22B

**Discourage direct driveway access to identified Collector and Arterial corridors. The only driveways allowed should be for land locked parcels, and consideration to limited access should be given**

Residential driveways should not be placed along collector or arterial roadways because of the potential for conflict. Residential driveways are better suited for local roads that will then feed into collector and/or arterial roadways.

#### Policy 22C

**Discourage the use of cul-de-sacs in development**

Cul-de-sacs received several negative comments within the public input in this plan. Cul-de-sacs are not street types that encourage smooth or convenient connectivity or mobility and should be avoided.



# Transportation + Mobility

## Implementation

### Goal 23

**Provide a transportation network that provides a superior experience for all modes of transportation**

Transportation networks should meet the needs of, and consider the experience for, all modes of transportation. Identifying and planning for the mobility and connectivity needs of all users will provide the City of Bondurant with the tools needed to meet the demands of growth.

#### Policy 23A

**Require developers to dedicate the necessary right-of-way for the identified ultimate cross section of the collector and arterial roadway corridors**

It is important to secure proper right-of-way when developing land - this is especially true of collector and arterial roadways. When reviewing development proposals, special care should be given to the location of planned collector and arterial roadways.

#### Policy 23B

**Encourage new businesses locating in Bondurant to support transit service use by its employees through coordination with DART and through financial support of transit needs to the City**

As Bondurant continue to become a larger employment center, coordination between major employers and DART will need to occur in order to adequately plan for demand based on shift changes, employee home destinations, etc.

# Transportation + Mobility

## Implementation

### Goal 23

**Provide a transportation network that provides a superior experience for all modes of transportation**

Transportation networks should meet the needs of, and consider the experience for, all modes of transportation. Identifying and planning for the mobility and connectivity needs of all users will provide the City of Bondurant with the tools needed to meet the demands of growth.

#### Action Item 23A

**Develop standard corridor cross sections for each functional classification that meet “Complete Streets” standards, and offer flexibility on implementation to meet the needs of the surrounding land use**

New standard corridor cross sections will be needed to support a commitment to “complete streets”. The updated cross sections will need to be flexible enough to respond to the context of adjacent land uses, but should have all modes of transportation in mind.

#### Action Item 23B

**Complete a review of potential Hubbell Avenue/ Highway 65 pedestrian and cyclist crossings. Identify potential crossing locations and begin planning for financial expenditures**

Over time, additional Hubbell Avenue/ Highway 65 pedestrian and cyclist crossings will be needed to accommodate the planned growth of both sides of the highway. These sites should be formally identified, studied, planned for, and funded.

#### Action Item 23C

**Complete an analysis of the existing sidewalk and trail system for compliance with Public Right-of-Way Accessibility Guidelines (PROWAG). Develop a plan for coming into compliance with PROWAG for any identified deficiencies**

A high-level inventory of sidewalks in Bondurant was completed as part of this planning process, however, a full scale analysis of sidewalk and trail gaps should be completed to confirm compliance with the Public Right-of-way Accessibility Guidelines (PROWAG).



# Transportation + Mobility

## Implementation

### Goal 24

#### Promote and support regional improvements to the transportation network

Bondurant must continue to partner with neighboring jurisdictions such as Polk County, Ankeny, Iowa DOT, and others to support transportation initiatives in the region. In particular, this should include discussions about the northeast beltway and a prospective Interstate 80 interchange. Corridors within these key transportation areas should be proactively preserved to help make future implementation easier.

##### Action Item 24A

**Combine efforts with local, county and state entities to plan and generate support for the proposed Northeast Beltway**

The Northeast Beltway will provide connectivity enhancements, congestion relief, and economic development opportunities for Bondurant and the metro as a whole. Bondurant should actively seek partnerships to lobby for and generate support for the Northeast Beltway along with ROW preservation.

##### Action Item 24B

**Partner with the City of Altoona to identify and plan for a new east interchange on Interstate 80**

An additional interchange on Interstate 80 would benefit both Bondurant and Altoona - partnering with this neighboring community to plan for this next interchange will be important to the long-term development of the land east of the Regional Commercial Master Plan area.

##### Action Item 24C

**Consider corridor preservation actions to proactively preserve the potential corridor and location of regional improvements, so that development occurs in coordination with the future plans of the City**

Bondurant must continue to preserve corridors for transportation through coordination with nearby entities and jurisdictions. Once lost, transportation corridor right-of-way can make connectivity issues down the line - this should be avoided.