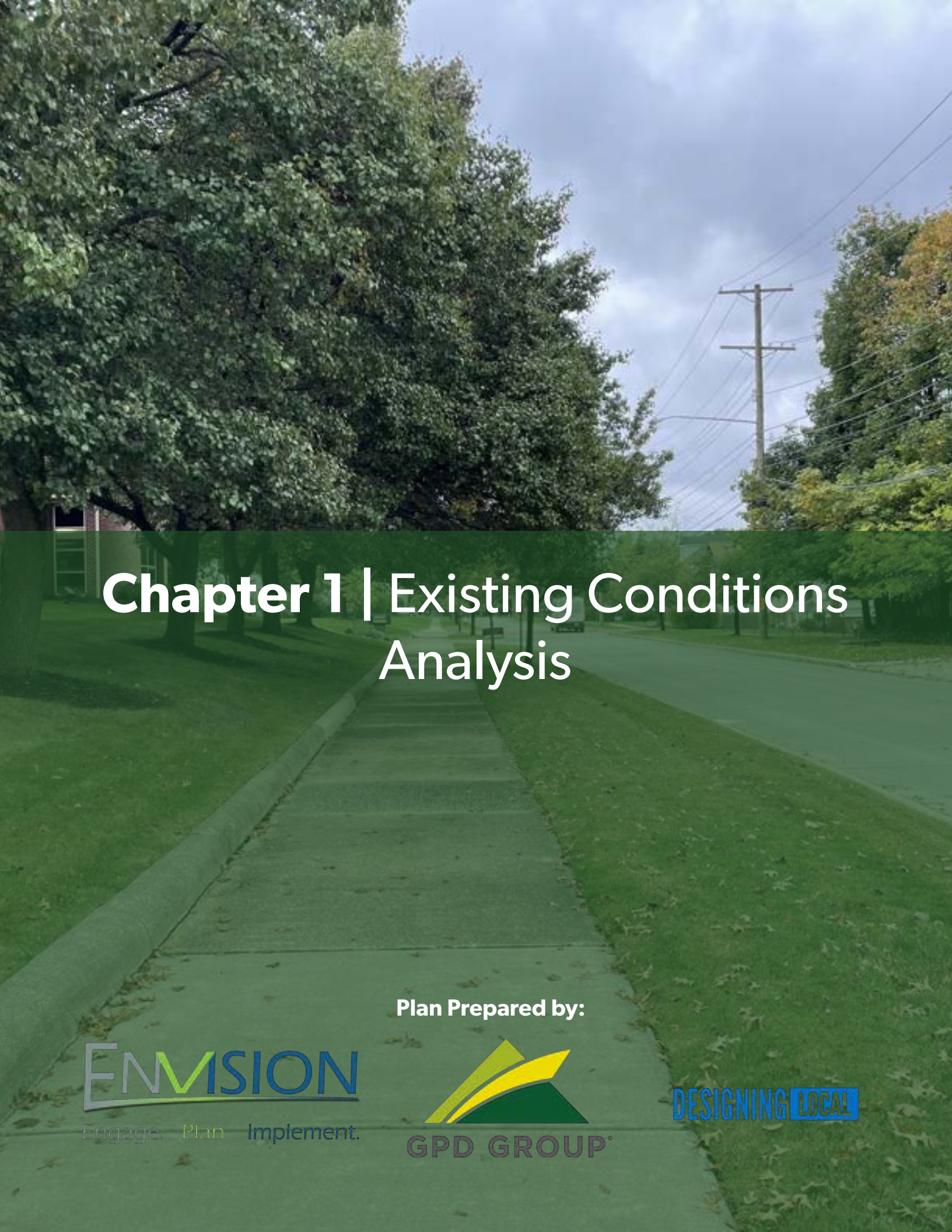


Chapter 1 | Existing Conditions Analysis

Plan Prepared by:

ENVISION
Engage. Plan. Implement.

GPD GROUP

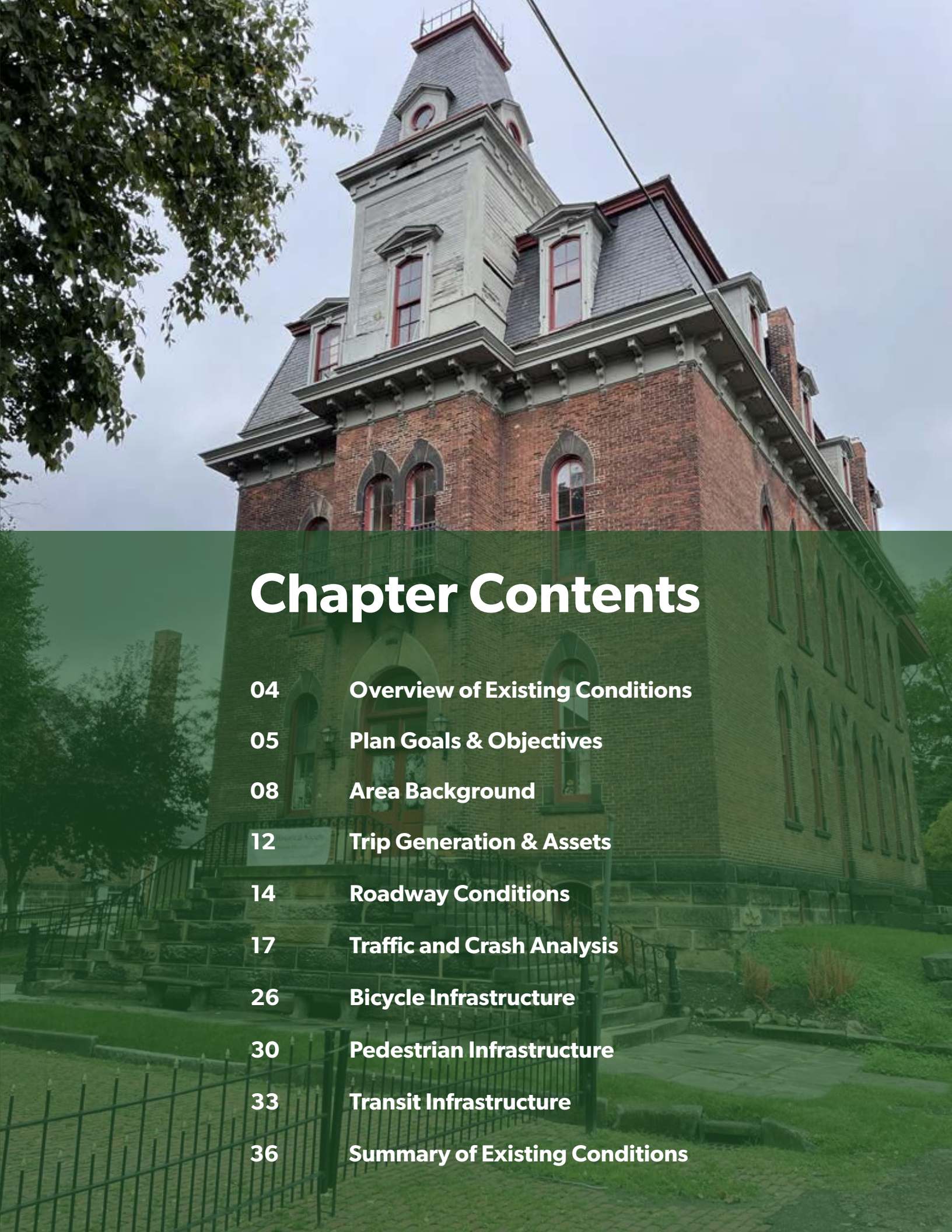
DESIGNING LOCAL

Figures, Charts, & Maps

Figures

Charts

Maps



Chapter Contents

Overview

This chapter discusses the existing conditions of all modes of transportation within the study area. The study area is focused on the City of Bedford's Downtown Historic District along Broadway Avenue (State Route 14) between Union Street and Columbus Road. The plan goals were to improve mobility and connectivity between origins and destinations for bicycle, pedestrian, and transit travel modes in the study area.

Bedford Commons

Existing demographic and transportation conditions were analyzed to help quantify multi-modal disconnections and needs within the study area. This analysis illuminated disconnections in both the bicycle and pedestrian network to/from Downtown Bedford. Strava data was used to analyze how bike and pedestrian travelers move throughout the study area. This data illustrated that travelers on the Metroparks Trail do not travel into Downtown Bedford, confirming the public's and stakeholder's concerns that Downtown Bedford was "being bypassed" by regional Metroparks trail travelers. Gaps in the pedestrian network were also prevalent to the south and west of the railroad tracks that bisect the study area. This area also has pedestrian crossings that lack sufficient pavement markings and curb ramp improvements.

Vehicular speeding and pedestrian safety along Broadway Avenue were also topics of concern expressed by the steering committee. Many pedestrian travelers felt unsafe crossing Broadway Avenue even at marked crossings. To verify this concern, Streetlight Data was used to analysis 85th percentile speeds of vehicular traffic along Broadway Avenue. The results shown that vehicular speeds far exceeded (9MPH to 14MPH) the posted speed limit.

Plan Goals & Objectives

The plan was driven by the following goals:

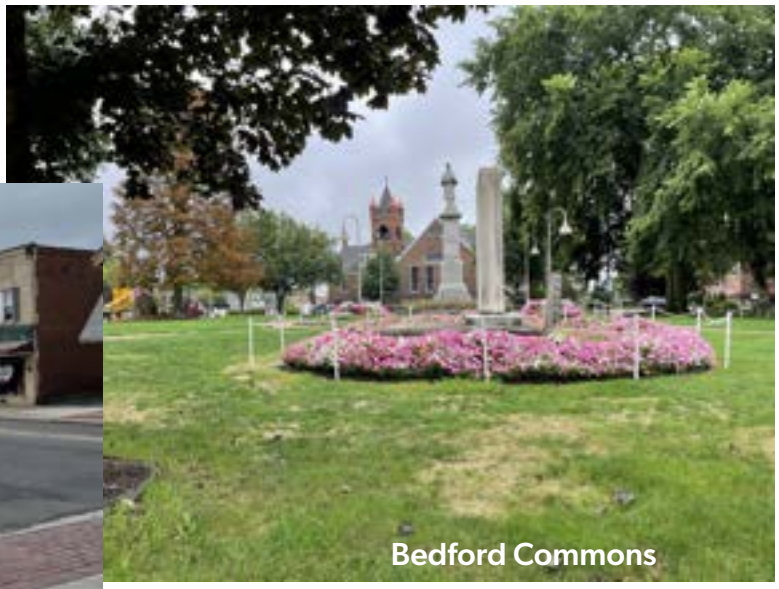
- **Improve accessibility and mobility for all modes of travel in the study area**
- **Improve non-motorized connectivity between origins and destinations**
- **Create a safer environment for cyclists and pedestrians**
- **Create accessible and inviting transit connections**
- **Encourage equitable economic development and investment.**

And objectives:

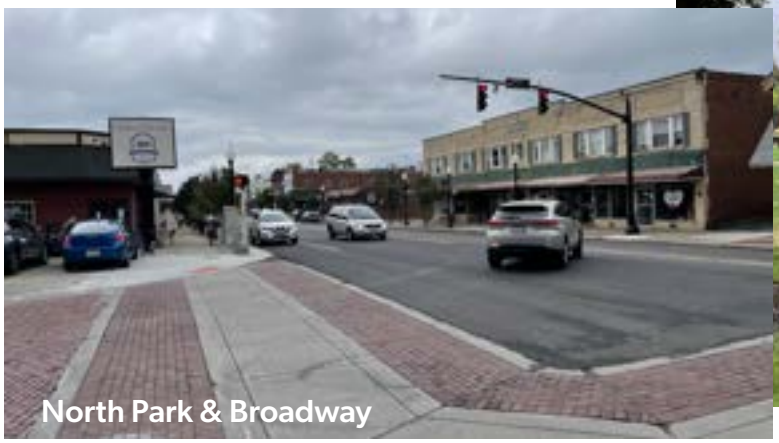
- *Connect most trip origins and destinations inside the study area and surrounding residential areas, particularly Environmental Justice (EJ) neighborhoods, by adding convenient, comfortable, and safe walking infrastructure and bike facilities with low Level of Traffic Stress (LTS)*
- *Estimate the expected average crash frequency involving vehicles, motorcycles, bicycles and pedestrians along streets and at intersections in the study area and reduce crashes by recommending safety countermeasures*
- *Improve transit access by increasing trip production and attraction locations within ¾ of miles of stops*
- *Improve transit waiting environments by placing stops in convenient, comfortable and safe locations*
- *Redevelop underutilized storefronts in the Historic District, and*
- *Incorporate new development adjacent to the Cleveland Metroparks Bedford Reservation that integrates bike and pedestrian connections and complete streets infrastructure.*

Study Area

The study area is focused on the City of Bedford's Downtown Historic District along Broadway Avenue (State Route 14) between Union Street and Columbus Road. The study area also extends north along Center Road to connect to Bedford's Recreation Center and south along Willis Street and Union Street to connect to the Cleveland Metroparks Bedford Reservation. An illustration of the study area is shown on the following page. There are many assets within and around the study area including Bedford's Downtown Historic District, Ellenwood Recreation Center, Bedford's Municipal Center, the Bedford Public Library, The Buckeye Trail, Viaduct Park, and the Cleveland Metroparks Bedford Reservation.



Bedford Commons



North Park & Broadway

Map 1 - Study Area Map (NOACA TLCI Scope 2024)

Area Background

To gain a sense of the community, area demographics and housing were analyzed. Per the 2020 U.S. Census, the City of Bedford has a total population of 13,149. Bedford's population has remained relatively steady since 2010 (13,074). Age cohorts within the City mimic that of Cuyahoga County and the State of Ohio with 20.3% of the population under 18 years old (20.3% Cuyahoga County, 21.8% State of Ohio) and 17% of the population over 65 years old (19.6% Cuyahoga County, 18.4% State of Ohio). The City has a racially diverse population with 52% of the population identifying as Black and 39.9% as White.

Housing

There are roughly 4,500 single family homes within the City of Bedford. A large percentage of homes are rental units with only 53.3% owner-occupied.

Ownership

As this plan seeks to improve multi-modal connections to local and regional assets, it is important to understand where land is owned by public entities. The map on the following page illustrates land owned by public entities and churches in and around the study area. This information was influental in developing alternatives for trail routes though the study area.

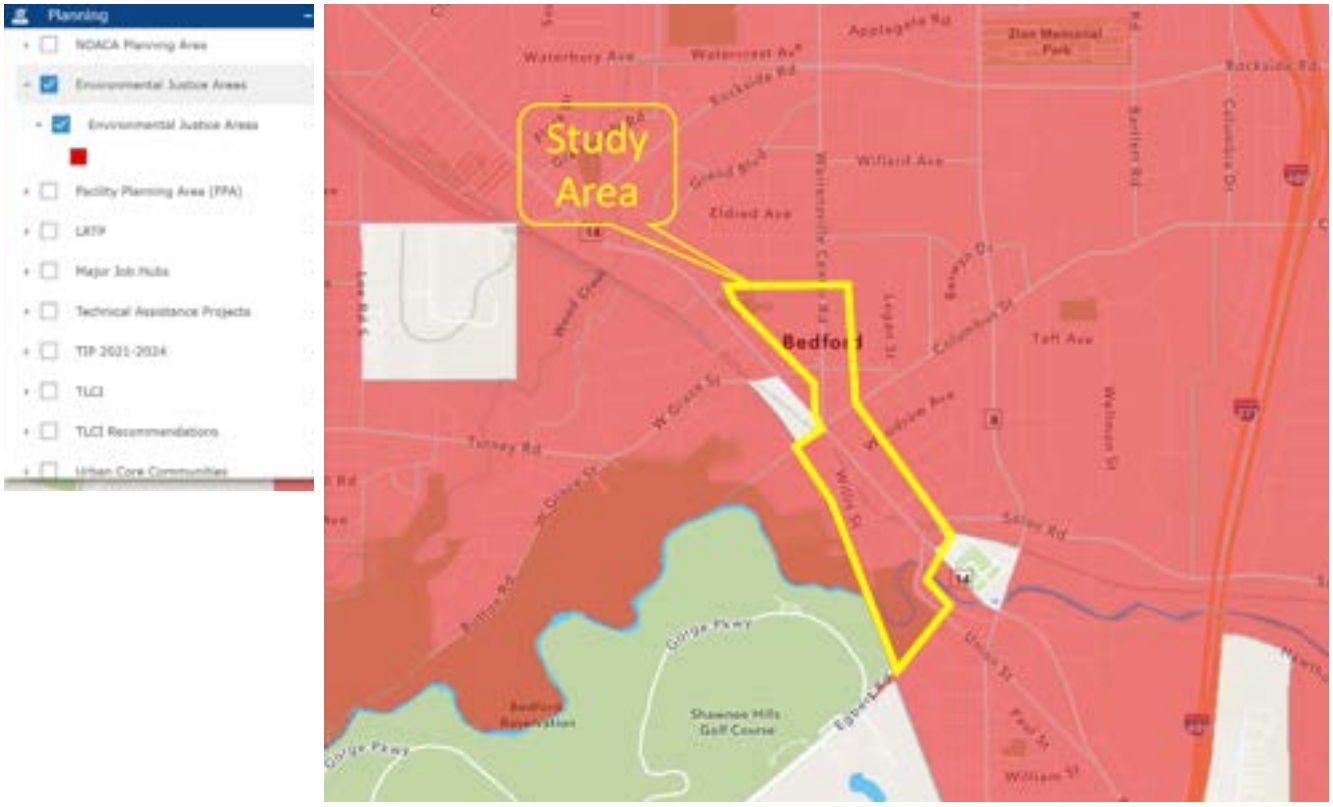
Map 2 - Ownership Map (Cuyahoga County GIS 2023)

Zoning

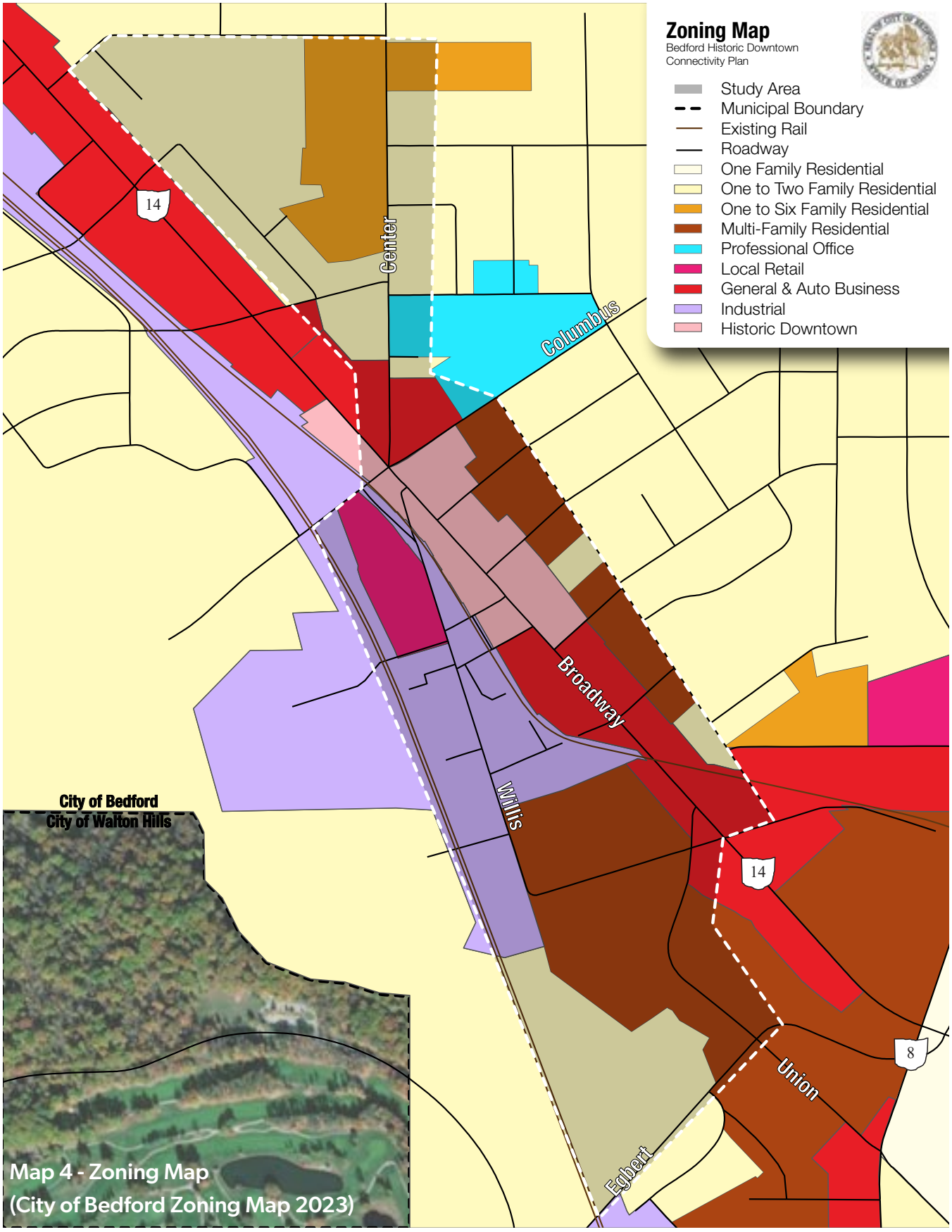
The study area encompasses a variety of zoning districts. The northern portion of the study area includes single and multi-family residential districts along Center Road. Multi-Family Residential zoning is also prominent within the southern portion of the study area along Union Avenue. The Broadway Avenue corridor is largely zoned for commercial uses including Local Retail and General Business. The area along Willis Road is largely zoned for industrial uses. Professional Office uses are designated between Center and Columbus Road on the former University Hospitals site.

Environmental Justice

The entire study area is within an Environmental Justice area according to NOACA's GIS mapping and as illustrated below.



Map 3 - Environmental Justice Map - NOACA GIS 2023



Map 4 - Zoning Map
(City of Bedford Zoning Map 2023)

Trip Generators & Assets

The study area has multiple destinations that attract visitors and or workers to the area. The Historic Downtown is a commercial center for the City and also an attraction for visitors and residents during community events hosted within the Commons. Viaduct Park is a generator of visitor traffic to the southern portion of the study area. Multiple industrial facilities are active along Willis Road and generate truck and work traffic in the area. The Ellenwood Recreation Center and City Hall Complex generate both work and leisure traffic to the northern portion of the study area. Directly adjacent to the study area lies the Cleveland Metroparks Bedford Reservation, Central Primary School, and Bedford Public Library, each of these destinations attracts residents from the area. All destinations are shown in Map 1 - Study Area Map.

Per NOACA's 2024 Vehicular Trip Summary Data, the study area generates 149 Work Trips, 612 Non-Work Trips, and 9 Truck Trips and attracts 135 Work Trips, 574 Non-Work Trips, and 9 Truck Trips a day. The study area is highlighted in red by Traffic Analysis Zone (TAZ) to the right.

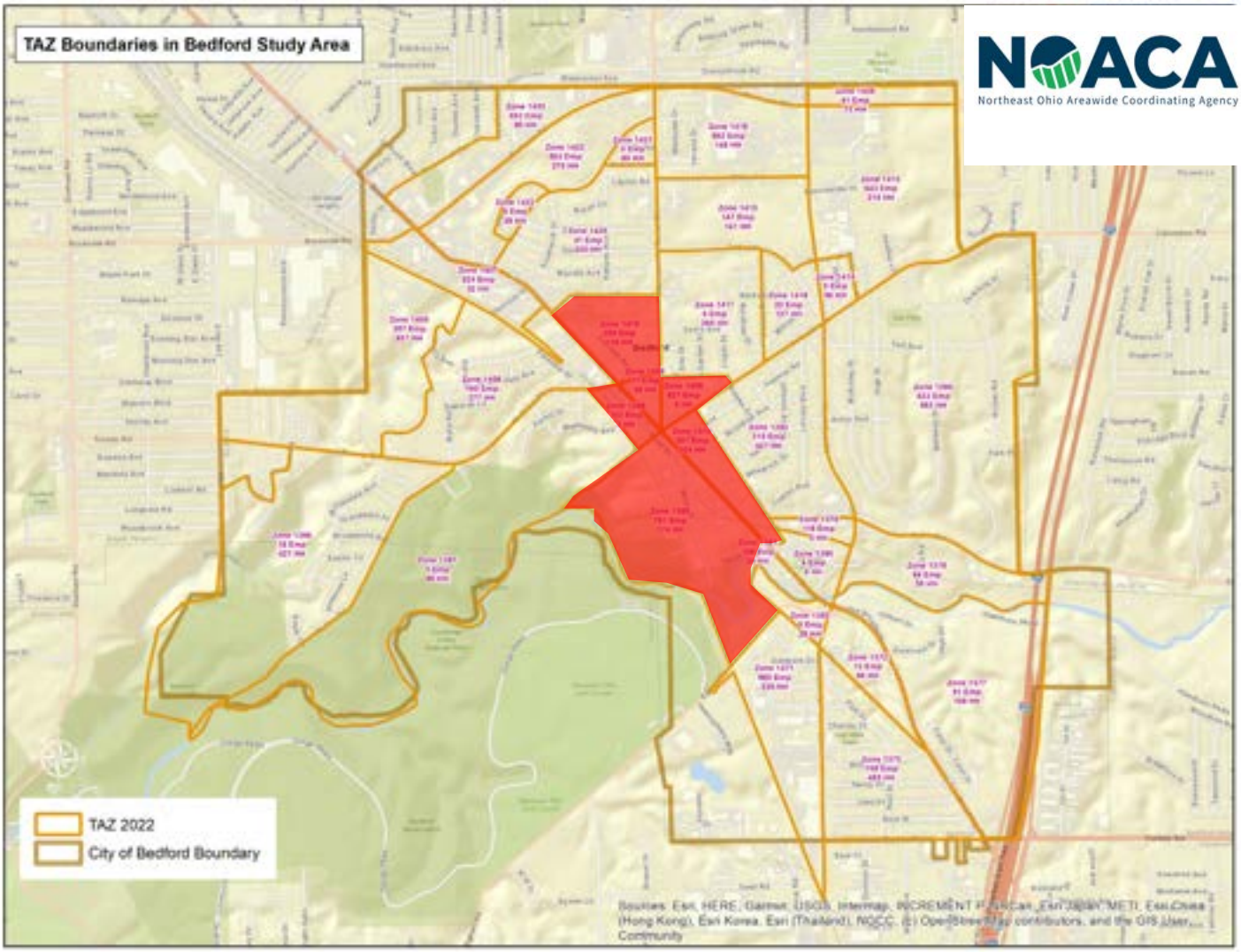
2024 Vehicular Trip Summary Data by Traffic Analysis Zones (TAZ)

TAZ	Truck Trip Generations	Work Trip Generations	Non-Work Trip Generations	Truck Trip Attractions	Work Trip Attractions	Non-Work Trip Attractions
1385	5	46	198	5	43	188
1386	0	6	22	0	6	19
1408	1	55	149	1	45	130
1409	0	5	26	0	5	27
1410	3	21	138	3	20	125
1419	0	16	79	0	16	85
Total	**9**	**149**	**612**	**9**	**135**	**574**

2040 Vehicular Trip Summary Data by Traffic Analysis Zones (TAZ)

TAZ	Truck Trip Generations	Work Trip Generations	Non-Work Trip Generations	Truck Trip Attractions	Work Trip Attractions	Non-Work Trip Attractions
1385	4	37	165	4	34	157
1386	0	6	22	0	5	18
1408	1	55	161	1	46	140
1409	0	4	24	0	4	26
1410	4	24	160	4	22	142
1419	0	16	79	0	16	85
Total	**9**	**142**	**611**	**9**	**127**	**568**

Figure 1 - 2024 & 2040 TAZ Vehicular Trip Summary for Study Area - NOACA



Map 5 - 2024 TAZ Map - NOACA 2023

Roadway Conditions

To gain an understanding of the existing roadway network a variety of roadway conditions were analyzed.

Functional Class is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. There are seven functional classifications: Interstates, Principal Artierials (Freeway), Principal Arterial (Other), Minor Arterial, Collector, Minor Collector, and Local. Functional classification is used to determine which roads, streets and highways are eligible for federal transportation funds and used to establish design criteria for various roadway features.

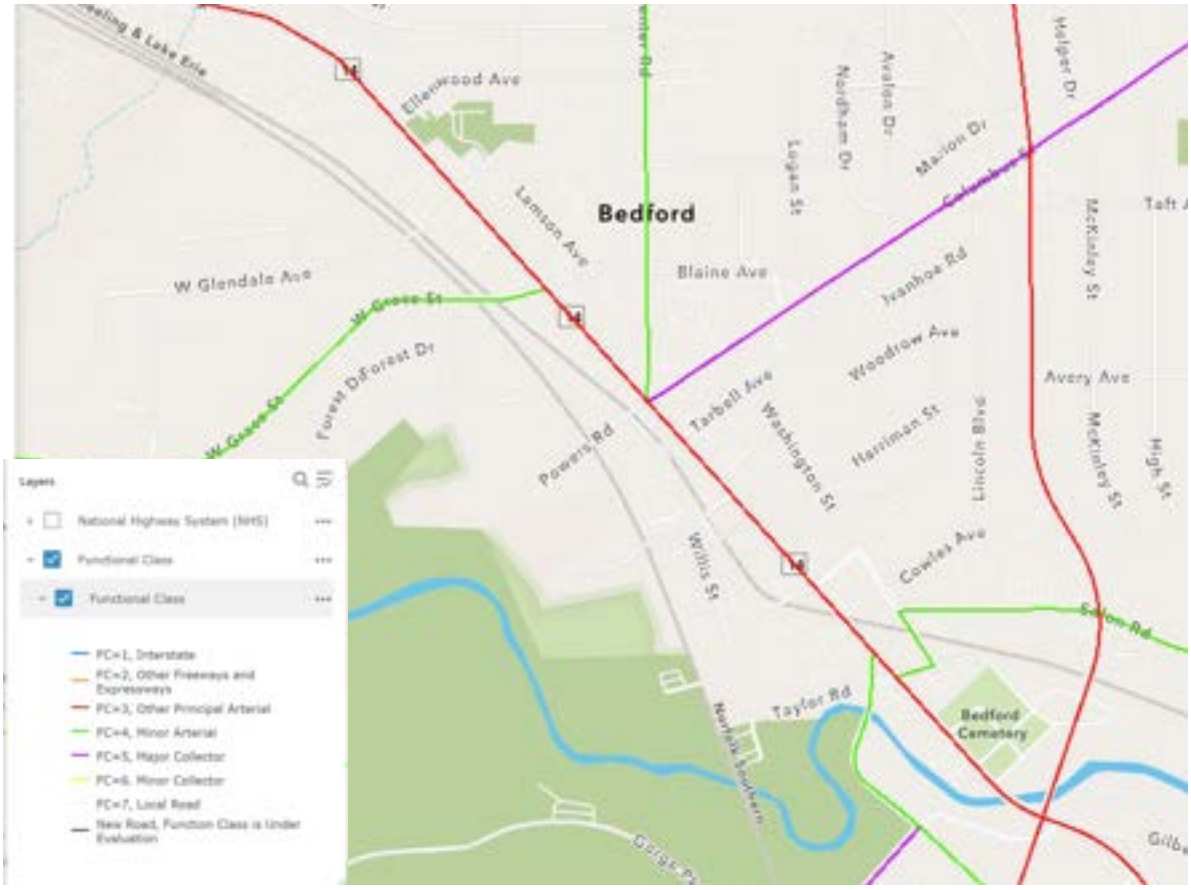
As shown on Map 6 - Functional Classification Map, Broadway Avenue is the only Principal Arterial within the study area. Columbus Road is considered a Major Collector and Center Road and Union Street are considered Minor Arterials.

Pavement Condition

Per NOACA's 2023 Pavement Condition Report, illustrated in Map 7 - Pavement Condition Rating most roadways within the study area are in Fair condition. Only Union Street is in Poor condition. Broadway Avenue was undergoing a pavement resurfacing as this study was being completed.

Parking

There is an ample amount of public parking within the study area. There are 55 designated on street parallel parking spots along Broadway Avenue within the Historic Downtown. In addition, there are roughly 320 additional surface parking spots within parking lots within the study area. Based on public feedback from the 2023 Community Survey conducted for this plan and summarized on Page 35, roughly 80% of respondents thought that there was generally "sufficient parking within the Historic Downtown". Map 8 - Downtown Parking Facilities Map illustrates public parking locations within the Historic District.



Map 6 - Functional Classification Map (NOACA GIS October 2023)

Map 7 - Pavement Condition Rating (NOACA 2023)

Map 8 - Downtown Parking Facilities Map (Cuyahoga County GIS 2023)

Traffic & Crash Analysis

For this traffic analysis, turning movement traffic counts were provided by NOACA at the Broadway Avenue / Center Road / Columbus Road / Powers Road and Broadway Avenue / Park Street intersections. The counts were performed from 6:00 AM – 7:00 PM on Tuesday, October 4th, 2022 for the Broadway Avenue / Center Road / Columbus Road / Powers Road intersection and from 6:00 AM – 7:00 PM on Thursday, October 5th, 2023 for the Broadway Avenue / Park Street intersection. See Figure 2 below for the raw peak hour turning movement traffic counts for both intersections.

Figure 2 - Raw Traffic Counts Peak Hour Volumes

Traffic Volume Development

Design Hour Volumes (DHVs) were developed for the study area using the peak hour to design hour factors that are published by the ODOT Office of Statewide Planning and Research. The design hour factors utilized to develop the DHVs are dependent upon the roadway's functional classification as well as the day of the week and month the count was performed. These design hour factors were then applied to the raw turning movement counts to convert the existing volumes to Design Hour Volumes. The Design Hour Volumes will serve as the 'Existing Year' 2023 volumes. For this study, a design hour factor of 1.12 was applied to the study area as this data was obtained on a Tuesday in October.

Typically the 'Design Year' would be 2043 (20-year design criteria). However, according to ODOT's Traffic Forecast Modeling System (TFMS), the Broadway Avenue section located within the study area is expected to experience no growth in traffic per year over the next 20 years. Therefore, the

Figure 3 - Existing Year 2023 Peak Hour Volumes

Existing Year 2023 volumes will also serve as the Design Year volumes. See Appendix C for a printout of the TFMS report. See Figure 3 on the previous page for the Existing Year 2023 peak hour traffic volumes.

HCS Intersection Capacity Analysis

Intersection capacity analyses were performed for the Existing Year 2023 scenario to determine the operating conditions that would be expected at each study intersection. The quality of the operating conditions experienced by an intersection is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F. Level-of-Service A, B, C, D and E are considered acceptable in an area within the Metropolitan Planning Organization (MPO) for movements and approaches while the overall intersection must operate at LOS D or better. Level-of-Service F is considered unacceptable with significant levels of delay experienced by vehicles. The thresholds related to average control delay for signalized intersections are as follows:

Level-of- Service	Delay Threshold – Signalized (Sec)
A	< 10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

Figure 4 - Level of Service Table (Transportation Research Board. Highway Capacity Manual 2000. National Academy of Sciences, Transportation Research Board, Washington, D.C., 2000)

The analysis for the Broadway Avenue / Park Street intersection was performed utilizing the computer program HCS 2023 which is developed by McTrans Corporation and based on the Highway Capacity Manual, 6th Edition. Based on criteria established by ODOT, Highway Capacity Software (HCS) is used to determine the required number of lanes and the lane assignments at intersections (i.e. the needed intersection capacity). The existing peak hour factors and heavy vehicle percentage were utilized throughout the capacity analysis.

Due to the complexity of the Broadway Avenue / Center Road / Columbus Road / Powers Road intersection, this intersection's analysis was performed utilizing the computer program Synchro (Version 11), developed by Trafficware, and is based on the Highway Capacity Manual (HCM), 6th Edition. This Synchro model was analyzed using the HCM 2000 analysis printouts as this method allows intersections with five or more approaches to be analyzed.

Existing Year 2023 Capacity Analysis

The HCS Intersection Capacity Table below summarizes the results of the capacity analysis for the signalized intersections within the study area under the Existing Year 2023 traffic conditions. See Appendix C for the HCS Intersection Capacity Analysis printouts.

Table 1: HCS Intersection Capacity Analysis Summary Existing Year 2023 – Signalized Intersections

Intersection / Movement	Existing Year 2023			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)
Broadway Avenue / Center Road / Columbus Road / Powers Road				
Southeast Left	B	14.6	C	24.4
Southeast Thru	B	18.8	C	30.5
Southeast Right	B	13.4	C	20.2
Southeast Approach (Broadway)	*B*	*18.0*	*C*	*29.0*
Northwest Left	B	15.7	C	22.1
Northwest Thru-Right	C	29.9	D	46.1
Northwest Approach (Broadway)	*C*	*29.7*	*D*	*45.4*
Northeast Left-Thru-Right	D	47.9	E	58.4
Northeast Approach (Powers)	*D*	*47.9*	*E*	*58.4*
Southwest Left	D	41.2	D	45.5
Southwest Thru-Right	D	49.1	E	60.8
Southwest Approach (Columbus)	*D*	*48.2*	*E*	*59.2*
Southbound Left-Thru-Right	D	46.8	E	65.6
Southbound Approach (Center)	*D*	*46.8*	*E*	*65.6*
Intersection Total	***C***	***28.8***	***D***	***43.4***
Broadway Avenue / Park Street				
Southeast Thru-Right	A	3.1	A	4.0
Southeast Approach (Broadway)	A	3.1	A	4.0
Northwest Left-Thru	*A*	*3.0*	*A*	*3.3*
Northwest Approach (Broadway)	A	3.0	A	3.3
Northeast Left-Right	D	37.7	D	38.1
Northeast Approach (Park)	D	37.7	D	38.1
Intersection Total	***A***	***6.5***	***A***	***6.5***

Figure 5 - HCS Intersection Capacity Table

As shown in Figure above, all movements and approaches at the Broadway Avenue / Center Road / Columbus Road / Powers Road and Broadway Avenue / North Park Street intersections are anticipated to operate with acceptable Levels-of-Service under the Existing Year 2023 conditions during both the AM and PM peak hours.

Crash Analysis & Vehicular Speeds

Crashes within the study area were analyzed from 2019 through 2023 using ODOT's TIMS GCAT viewer. There was a total of 149 crashes over the five-year period with 1 fatal crash and 5 serious injury crashes. The fatal crash was a fixed-object crash along Center Road where the driver departed the roadway and struck a tree. Speeding was not a factor in this crash.

Crashes are summarized by year in the following table. Crashes in the study area were slightly higher post COVID as compared to 2019. The most crashes occurred in July (25) which was an outlier as compared to other months as December had the second-most frequency with 15. The most frequent crash type was Angle (40) followed by Rear End (35) which in total accounted for roughly half of all crashes in the study area. Roughly 60% of all crashes occurred along roadway segments. While the speed of traffic along Broadway was cited as a concern by the steering committee, speeding related crashes only account for 10% to 17% of all crashes within the study area per year. Map 9 - Crashes by Severity 2019-2023 visualizes crash locations and severity over the last five years.

Of the 149 crashes only two involved a pedestrian and none involved a cyclist. One of the two pedestrian crashes was a serious injury crash involving a child on a scooter inadvertantly entering the roadway and being struck. Neither crash was related to vehicular speeding.

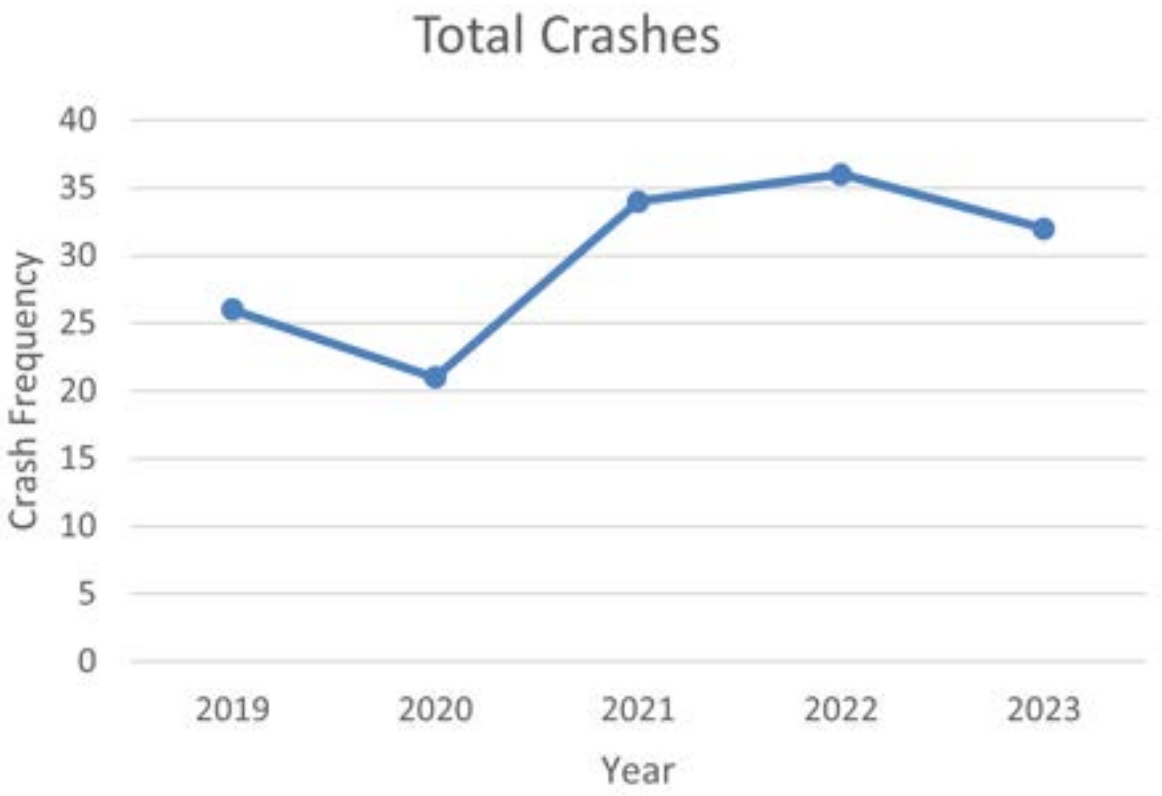


Chart 1 - Total Crashes 2019 - 2023 - ODOT GCAT

The crash data was analyzed with regard to peak hour crashes. During the AM peak hours (7-9 AM) there were a total of 12 crashes, with 11 property damage collisions and 1 injury collision. These include 7 angle crashes, 2 rear-end, 2 sideswipe passing, and 1 fixed object crash. During the PM peak hours (4-6 PM) there were a total of 21 crashes, including 14 property damage and 7 injury crashes. The most common crash types were rear-end (6), angle (5), and sideswipe (3). There are no discernible patterns to the peak hour crashes.

There were two bus-related crashes, one that identifies a GCRTA bus and one that just indicates that a bus was involved. The GCRTA crash involved another motorist changing lanes improperly and sideswiping the bus. The unidentified bus was stopped at the railroad tracks and was rear-ended. Neither crash involved injuries to the bus driver or passengers.

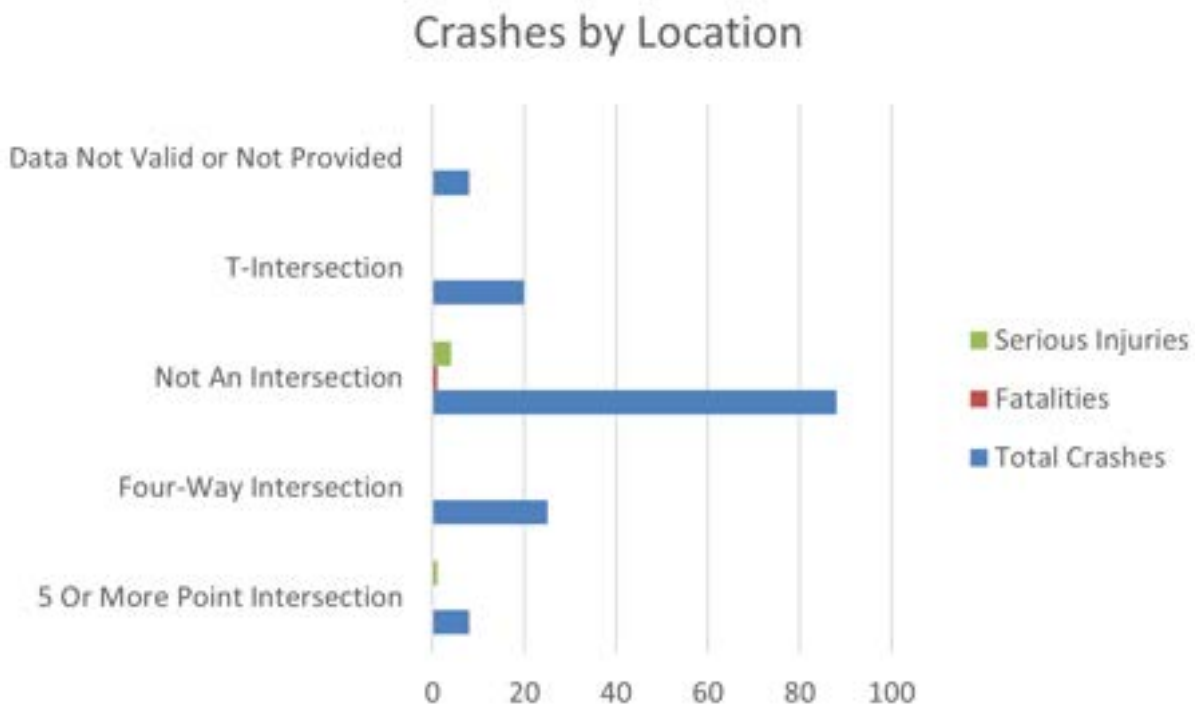


Chart 2 - Crashes by Location - ODOT GCAT

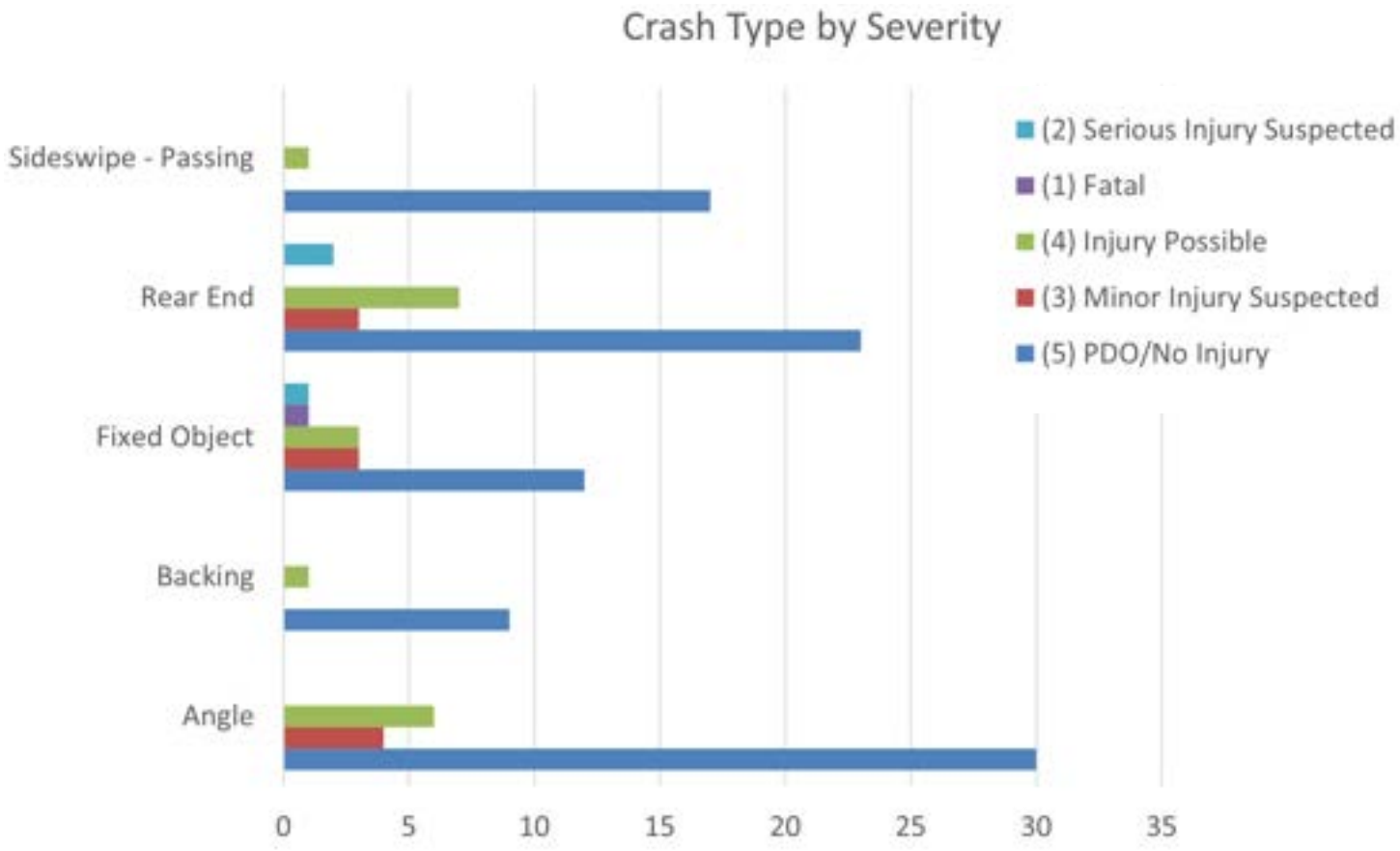
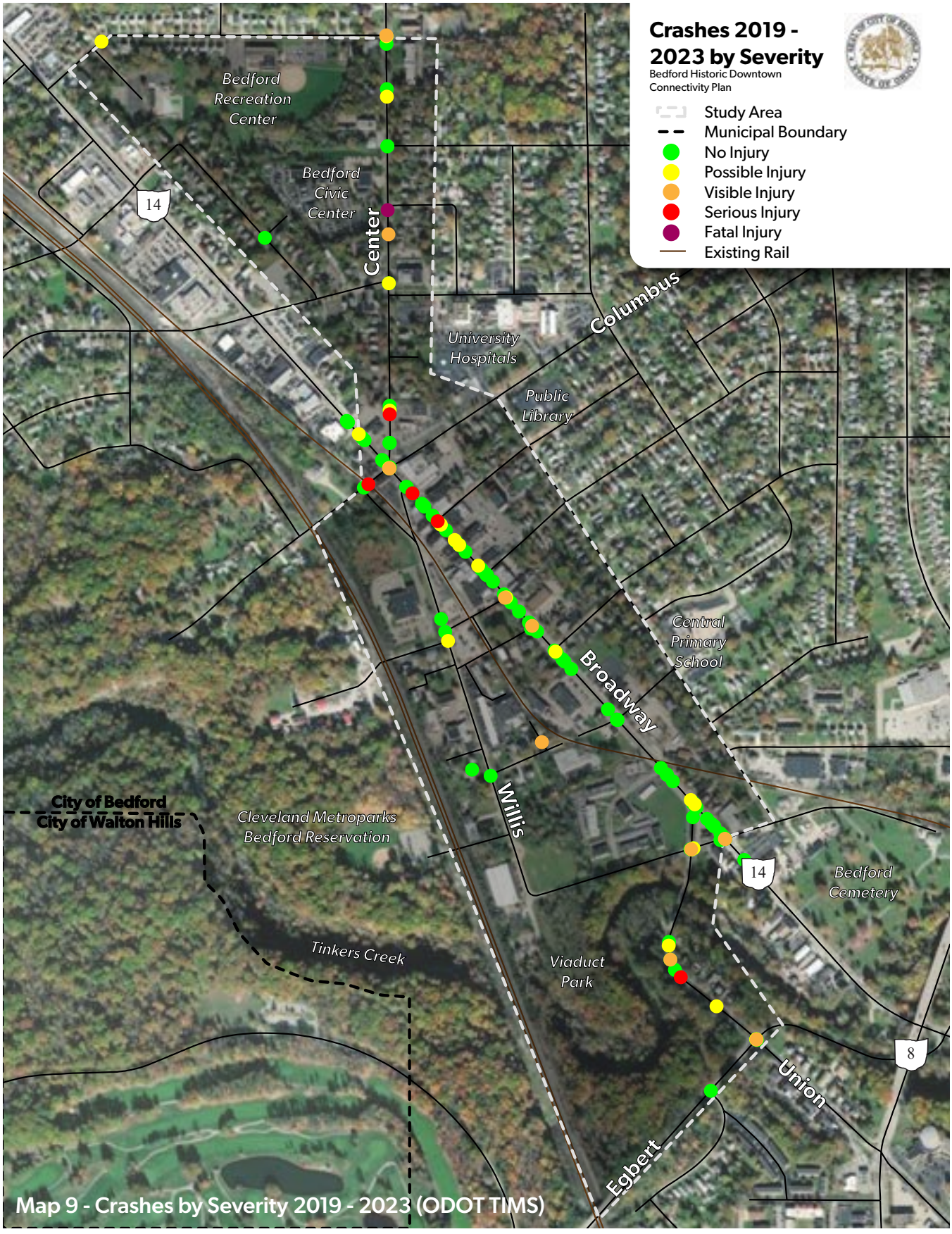
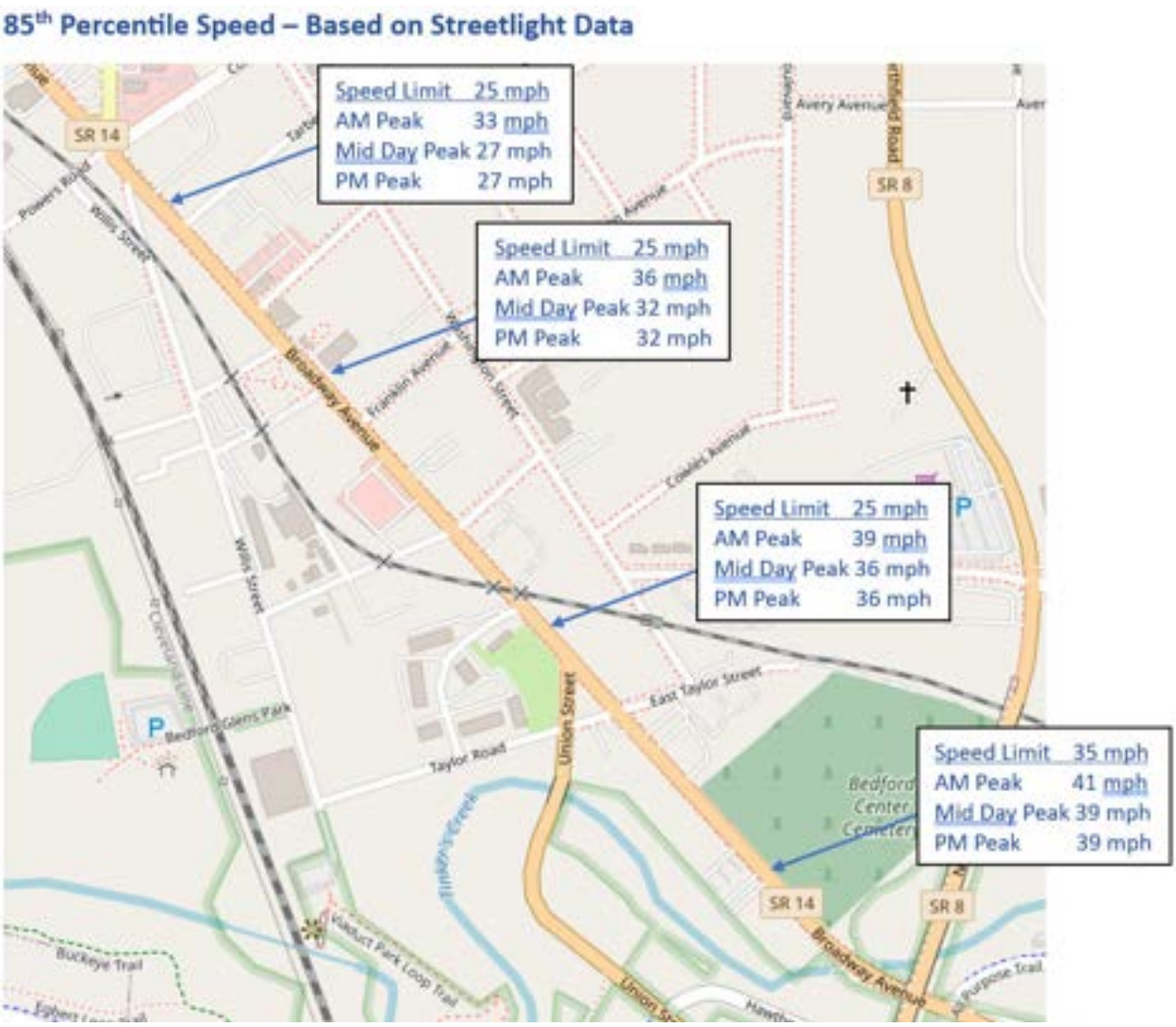


Chart 3 - Crash Type by Severity - ODOT GCAT



Map 9 - Crashes by Severity 2019 - 2023 (ODOT TIMS)



Map 10 - 85th Percentile Speed Map (Streetlight Data November 2023)

Vehicular speeds along Broadway Avenue were expressed as a concern by both steering committee members and the public throughout the planning process. Using Streetlight Data, Broadway Avenue was analyzed for 85 Percentile speeds along various locations within the study area. Map 11 illustrating speed information is illustrated above. In general, vehicular speeds along Broadway throughout the day exceed the speed limit. The AM Peak had the highest variance from posted speed limits with speeds ranging from 8 to 14 MPH over speed limits.

Although there were very few pedestrian or bike crashes, high speeds in the corridor are a concern. The likelihood of serious injury or death for pedestrians and cyclists increases dramatically as vehicular speeds increase. The 85th percentile speeds along Broadway Avenue are 30-55% above the posted speed and in ranges that have a 40-73% chance of serious or fatal injury. Based on the GCAT data, approximately 10% to 17% of crashes were related to speed.

Bicycle Infrastructure

The City of Bedford has limited access to bikeways. Only 6.5% of the City's population lives within a quarter of a mile from a bikeway per Cuyahoga County's assessment of bicycle access. Limited access to the trail network within the study area is prevalent as well. Walking trails link the Bedford City Pool with the Ellenwood Recreation Center and Civic Center Complex but do not extend out into the surrounding neighborhoods. Along Egbert Road runs the Cleveland Metroparks Bedford Reservation Trail. This trail links Metroparks Reservations to the east with the Bedford Reservation and Towpath Trail along the Cuyahoga River. This trail is also part of the statewide Buckeye Trail. The Buckeye Trail is over 1,400 miles long and is primarily used for hiking. Linking Downtown Bedford and the study area to this regional trail is paramount. Direct linkages to this trail could provide Bedford with the opportunity to become a "trail town".

A Trail Town is a community through which a regional trail passes that supports trail users with services, promotes the Trail to its citizens and embraces the Trail as a resource to be protected and celebrated. The Ohio Buckeye Trail Association designates Buckeye Trail Towns along the Buckeye Trail. Some examples of Buckeye Trail Towns include Chardon, Wakeman, Milford, and Loveland. As Bedford's trail network grows, the City should consider becoming a Buckeye Trail Town.

Map 11 - Buckeye Trail Route Map (Ohio Buckeye Trail Association 2023)

Great Allegheny Passage Trail Towns

The most well know example of the trail town concept can be found along the Great Allegheny Passage (GAP), a 150-mile multi-use rail-trail between Pittsburgh, Pennsylvania, and Cumberland, Maryland. The Progress Fund created the Trail Town Program® in 2007 to help revitalize communities along the GAP. The program's activities include conducting economic impact studies and trail counts, producing consistent trail-wide marketing, establishing a business network, coaching business owners and providing them needed capital. These actions have allowed the program to register measurable successes: since its inception, visitors to the GAP have increased tenfold, and 65 new businesses and 270 new jobs have been created. The overall economic impact of the GAP now reaches a remarkable $50 million each year.

Level of Stress

Level of traffic stress (LTS) is an approach that quantifies the amount of discomfort that people feel when they bicycle close to vehicular traffic.

The LTS methodology assigns a numeric stress level to streets and trails based on attributes such as traffic speed, traffic volume, number of lanes, frequency of parking turnover, ease of intersection crossings, and others.

When people bicycle on roadways, they encounter varying levels of stress from traffic. A quiet residential street with a 25-mile-per-hour speed limit is considered a very low-stress environment for cyclists. But a six-lane suburban highway with a 40-mile-per-hour speed limit represents a high-stress environment for cyclists who must share the roadway with traffic. As a result, fewer people are likely to bicycle on the highway.

When a street has a moderate or high level of stress, it may be a sign that bicycle infrastructure, like separated bike lanes or shared use paths, is needed to make it a place where more people will feel comfortable riding.

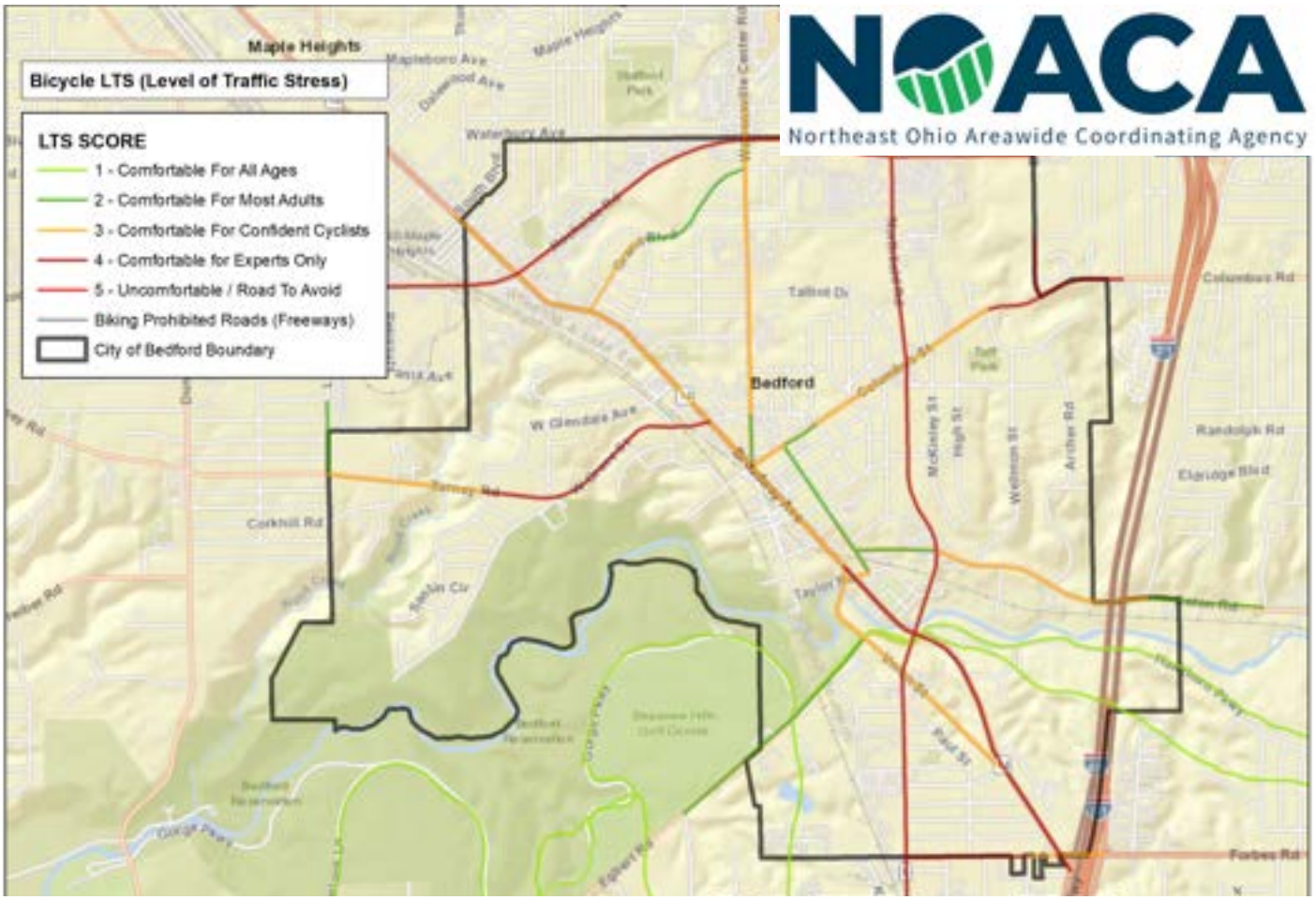
The analysis applies a "weakest link" logic, wherein the stress level is assigned based on the lowest-performing attribute of the street. For example, even if a segment has mostly low-stress characteristics, the occurrence of one higher-stress attribute (e.g., frequent bike lane blockage) dictates the stress level for the segment.

The Level of Traffic Stress methodology identifies five stress levels:

- LTS 5 – Uncomfortable/Road to avoid.
- LTS 4 – Comfortable for experts only. High stress.
- LTS 3 – Comfortable for confident cyclists. Moderate traffic stress.
- LTS 2 – Comfortable for most adults. Low traffic stress.
- LTS 1 – Comfortable for all ages. Very low traffic stress.

The Northeast Ohio Areawide Coordinating Agency (NOACA) assesses the LTS along roadway corridors throughout the five-county region. Below is a LTS map for the City of Bedford. Corridors highlighted in green represent Low Stress (LTS 1) roadways while red highlighted corridors represent High Stress (LTS 4 or 5) roadways.

LTS within the study area ranged from LTS 1 along Center and Washington Roads, to LTS 3 along Broadway and portions of Columbus Road.

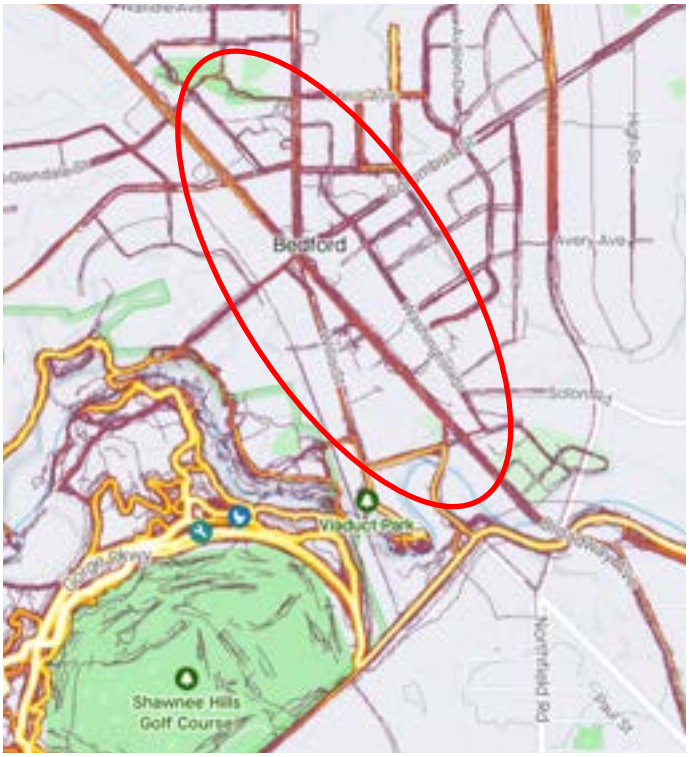


Map 12 - Level of Stress Map - NOACA GIS 2023

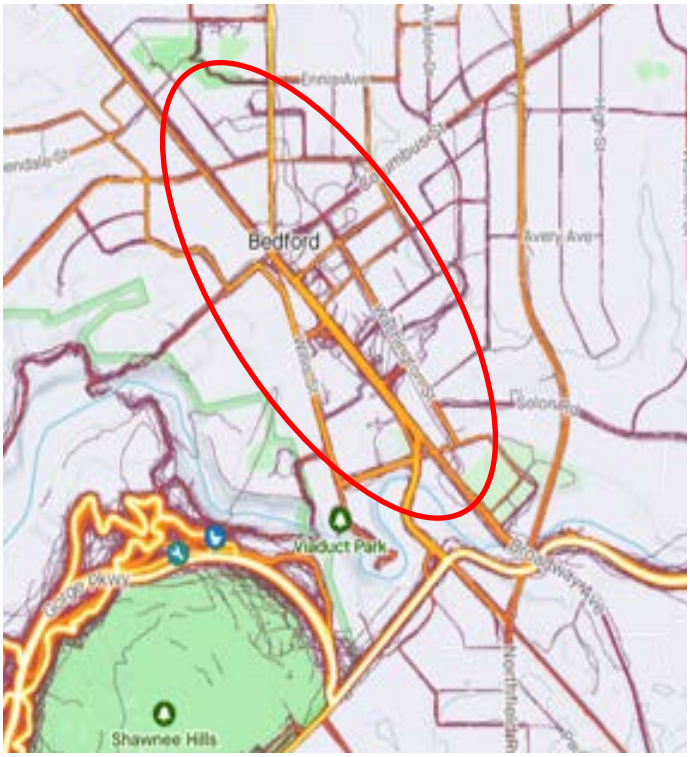
Strava Data

The Strava app is a social network that is extremely popular among athletes with hundreds of thousands of clubs utilizing the app across the world. Strava uses the recreational activities recorded by their users to create heat maps of the routes traveled both while walking/running and cycling. This information is created for users to gain an idea of where heavily traveled routes are located within their area. Bright white areas are heavily traveled, while dark reds are lightly traveled by users. This is one tool to identify where people are traveling by foot and bike.

What is evident with both the walking and biking maps illustrated below is that Strava users are bypassing Downtown Bedford and staying on the Cleveland Metroparks Trail. This is consistent with public feedback received at public meetings throughout this plan.



Map 13 - Walking Data Map (Strava October 2023)



Map 14 - Bicycle Data Map (Strava October 2023)

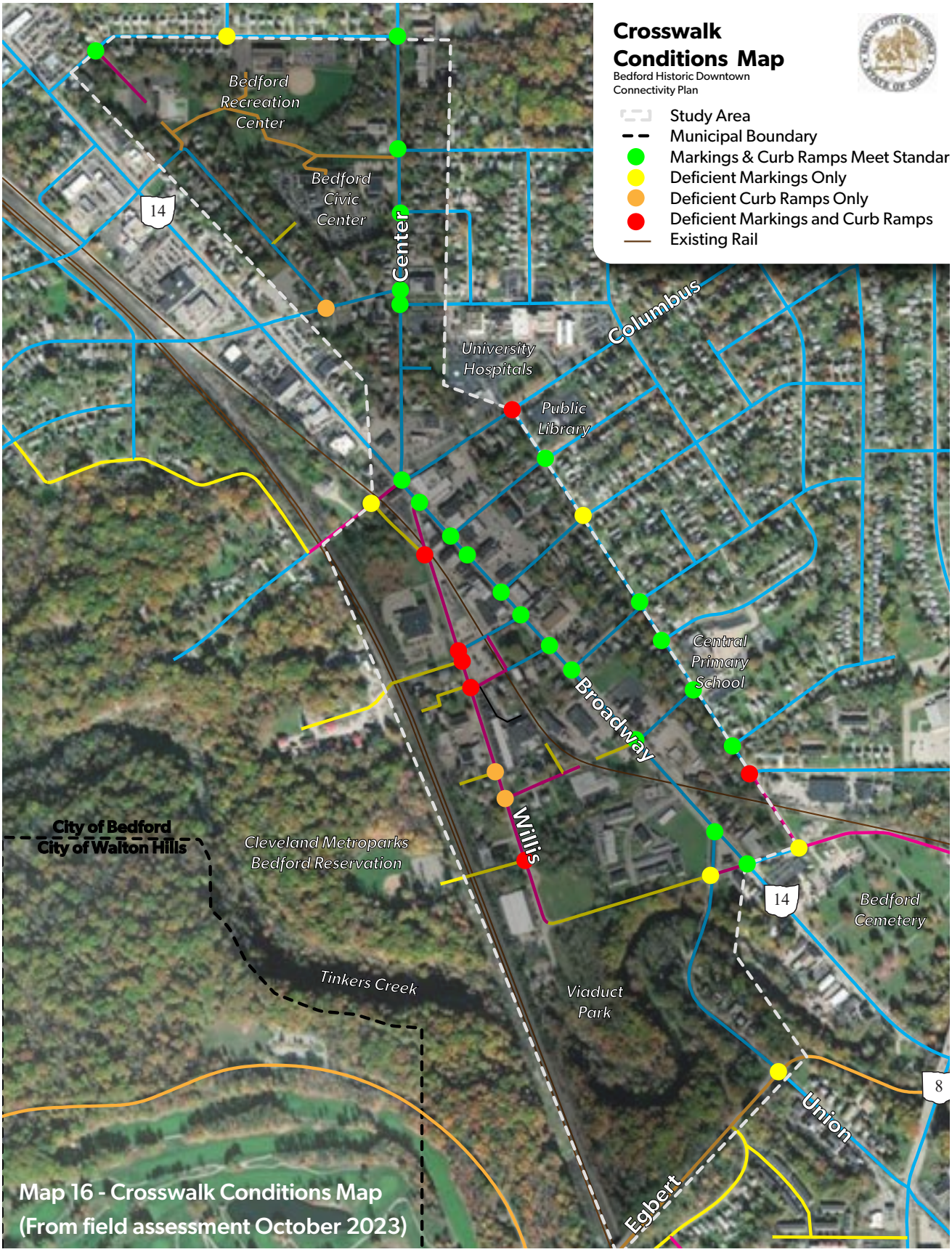
Pedestrian Infrastructure

As shown in the Bike & Pedestrian Facilities Map on the following page, most roadways within the study area, and within the City as a whole, have sidewalk on both sides of the road. One area where sidewalk is limited is south of the existing rail line that bisects the study area. Some at grade roadway and pedestrian crossings (South Park Drive and Monroe Street) of the existing rail line have been closed, further limiting pedestrian access in this area. Other roadways that connect residences and businesses south of the rail line, like Taylor and Niver having no sidewalks. Access to this area is limited and feels isolated from the remainder of the study area. This area is located within an Environmental Justice area and has multiple apartment complexes with residents that need improved pedestrian access to get to jobs and amenities. Lack of sidewalks in this area also limit pedestrian access to Viaduct Park for the rest of the City.

Existing crosswalks along Center, Broadway, and Washington Roads are in good condition and meet standards. Crossings along Willis are deficient in both markings and curb ramps. This area has a mix of industrial and residential uses adjacent to multiple parks. To alert drivers and protect pedestrians looking to travel along this corridor, improved crosswalks are needed. Map 16 - Crosswalk Conditions Map summarizes existing crosswalk conditions within the study area as illustrated on Page 33.

Taylor Road - Looking East


Bike & Pedestrian Facilities Map
Bedford Historic Downtown Connectivity Plan
Study Area
Municipal Boundary
Existing Trail/Path
Existing Walk - Both Sides
Existing Walk - One Side
No Walk
Existing Rail
Bedford Recreation Center
Bedford Civic Center
14
Center
Columbus
University Hospitals
Public Library
Central Primary School
Broadway
Willis
City of Bedford
City of Walton Hills
Cleveland Metroparks Bedford Reservation
Tinkers Creek
Viaduct Park
Bedford Cemetery
14
8
Union
Egbert
Map 15 - Bike & Pedestrian Facilities Map
(From field assessment October 2023)



Map 16 - Crosswalk Conditions Map
(From field assessment October 2023)

Transit Infrastructure

Per 2020 American Community Survey data, roughly 86% of Bedford residents use a car to commute to and from work. This is 8th highest among Cuyahoga County communities. Only 2.4% of residents use public transit.

Only one RTA bus route runs through the study area (Route 19A). The route runs down Broadway, north along Columbus Road, down Blain Avenue and then north along Center Road. Per RTA's December 2023 Bus Schedule, buses arrive roughly every 30 minutes from 5:30 AM through 7:30 PM and every hour through 10:30 PM on weekdays. On weekends buses arrive every hour from 6:30 AM to 11:30 PM. There are six bus stops (3 northbound and 3 southbound) within the study area. Transit waiting environments within the study area consist of signage only. There are no benches, trash cans, or shelters. Route 90 runs north and south along Northfield Road, just east of the study area. Both routes terminate into at the Southgate Transit Center, north of the study area. In general, RTA ridership has been lower since the COVID-19 Pandemic. The closure of University Hospital in the area will also have a direct impact on ridership along Route 19A.

Map 17 - RTA Fixed Route Bus Service Map - Bedford (GCRTA October 2023)

Community Survey Summary

The community survey received 220 responses from a broad cross section of age cohorts within the City. The survey asked questions regarding how respondents travel to Downtown Bedford, what mobility challenges they have while there, and what types of mobility improvements they would like to see Downtown. Major themes are highlighted below. Detailed responses are in Appendix A.

1

Pedestrian safety along Broadway

Respondents noted that they feel unsafe while walking along and crossing Broadway Avenue within the Downtown. See chart on next page.

2

Desire for improved multi-modal connections

Respondents highly desired improved connections to regional assets including the Cleveland Metroparks Bedford Reservation

3

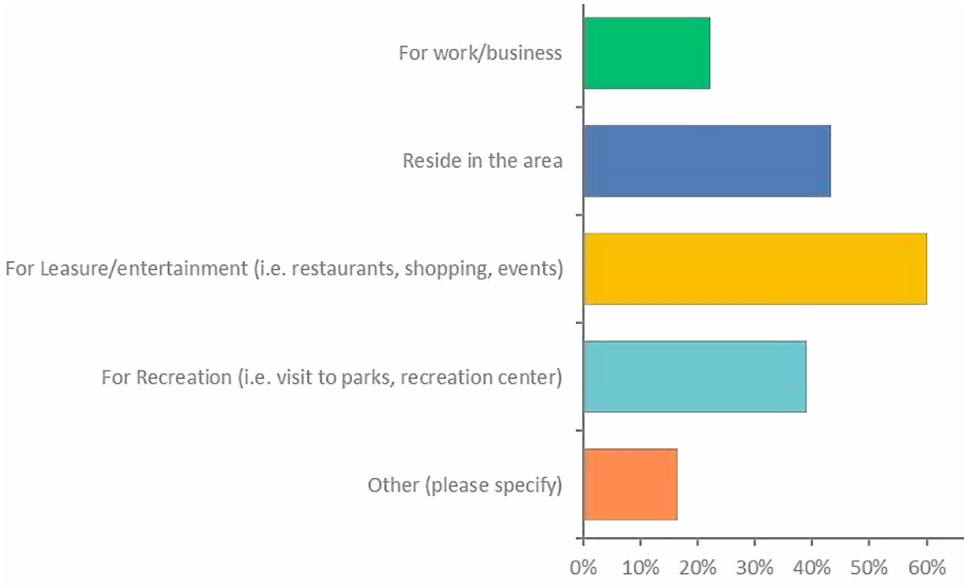
Public parking is sufficient

Over 80% of respondents said that public parking is generally "easy to find" within Downtown Bedford

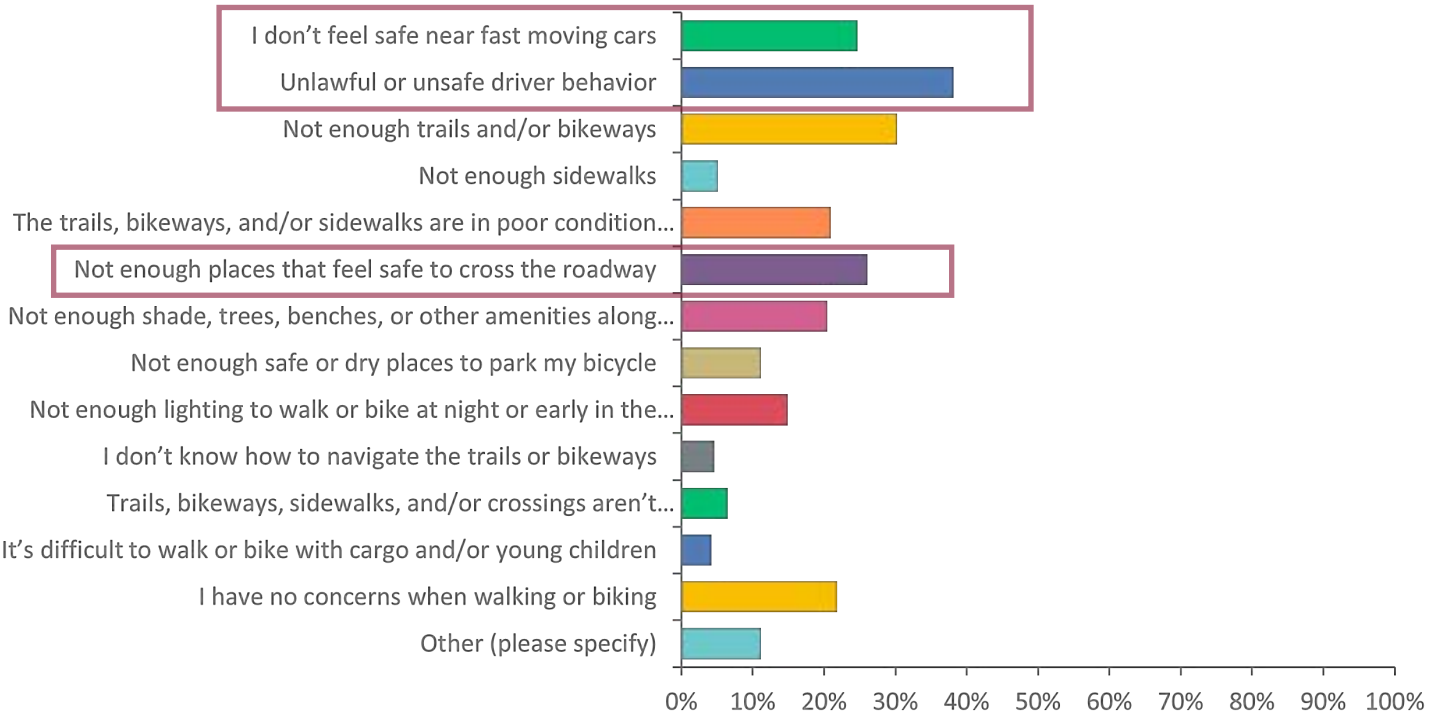
Why people travel to Downtown Bedford

Over 80% of respondents stated they currently drive a personal vehicle to Downtown Bedford multiple times a week. While some reside in the area, the majority of respondents stated they go to Downtown Bedford "For Leisure/ entertainment".

Why do you travel to Downtown Bedford? (check all that apply)



What are your concerns when walking or biking in Downtown Bedford? (Choose all that apply).



Three of the top four most selected responses to the question above are directly related to concerns over vehicular speeding within Downtown Bedford (#1 - Unlawful or unsafe driver behavior, #3 Not enough places that feel safe to cross the roadway, and #4 I don't feel safe near fast moving cars). The concern over pedestrian safety due to speeding was reinforced by feedback from the first public meeting as well.

Summary

The existing conditions analysis focused on four elements for improving multi-modal transportation: vehicular traffic calming, bicycle network connections, pedestrian network connections, and transit waiting environments.

Traffic Calming

Vehicular speeding and pedestrian safety along Broadway Avenue were topics of concern expressed by the steering committee and public. Committee members cited the existing mid-block crossing of Broadway specifically as an unsafe crossing, mostly due to vehicular speeds and driver's failure to yield to pedestrians. Due to these concerns, an analysis of traffic volumes, traffic speeds, and crash data was conducted.

Traffic volumes and capacity were analyzed throughout the study area. Design Hour Volumes (DHVs) were developed for the study area using the peak hour to design hour factors that are published by the ODOT Office of Statewide Planning and Research. For this study, a design hour factor of 1.12 was applied to the study area as this data was obtained on a Tuesday in October. Typically, the 'Design Year' would be 2043 (20-year design criteria). However, according to ODOT's Traffic Forecast Modeling System (TFMS), the Broadway Avenue section located within the study area is expected to experience no growth in traffic per year over the next 20 years. Therefore, the Existing Year 2023 volumes also served as the Design Year volumes. HCS Capacity analysis at each intersection within the study area showed that all movements and each intersection operate at an acceptable level of service in the existing and future conditions.

With the study area experiencing low to moderate levels of traffic volumes, opportunities for vehicular speeding increase and the ease for travellers to use a vehicle to travel rather than bike or walk also increase. This data supports the concerns of the steering committee.

It is well documented that the likelihood of serious injury or death for pedestrians and cyclists increases dramatically as vehicular speeds increase. Vehicular speeds along Broadway Avenue were analyzed using Streetlight Data. In general, vehicular speeds along Broadway throughout the day exceed the speed limit. The AM Peak had the highest variance from posted speed limits with speeds ranging from 8 to 14 MPH over speed limits. The 85th percentile speeds along Broadway Avenue are 30-55% above the posted speed and in ranges that have a 40-73% chance of serious or fatal injury. This data reinforced the speeding concerns expressed by the steering committee and the public.

Crashes within the study area were analysed from 2019 through 2023 using ODOT's TIMS GCAT viewer. There was a total of 149 crashes over the five-year period with 1 fatal crash and 5 serious

injury crashes. Of the 149 crashes only two involved a pedestrian and none involved a cyclist. One of the two pedestrian crashes was a serious injury crash involving a child on a scooter inadvertently entering the roadway and being struck. Neither crash was related to vehicular speeding. Based on the GCAT data, only approximately 10% to 17% of crashes within the study area were related to speed. Based on this analysis, the crash data does not suggest that speeding and pedestrian and/or cyclist crashes are a major issue in the study area.

That being said, crash data alone should not be the sole justifying reason to recommend traffic calming improvements to encourage pedestrian activity and safety, particularly in a location like Downtown Bedford. Traffic volumes/capacity, the results of Streetlight Data, and the concerns of both the steering committee and the public all speak to a traffic speeding problem. These data sources and input are enough justification to warrant traffic calming improvements in this area.

Bicycle Network Connections

The existing conditions analysis illuminated disconnections in both the bicycle and pedestrian network to/from Downtown Bedford. Strava data was used to illustrate that trail users along the Metroparks Trail were shown to not travel into Downtown Bedford, confirming the public's and stakeholder's concerns that Downtown Bedford was "being bypassed" by regional Metroparks trail travelers. The study area lacks trail infrastructure as only the Ellenwood Recreation area has walking trails. None of the roadways in the area have bicycle infrastructure. The lack of trail infrastructure is consistent with data collected by Cuyahoga County that shows only 6.5% of residents within the City of Bedford live within ¼ mile of an existing trail.

Multiple trip generating assets were identified to provide multi-modal linkages to/from including the Ellenwood Recreation Center, Public Library, Historic Downtown, and Viaduct Park. To induce more bicycle trips, enhanced facilities within the study area that links these assets together and to the Cleveland Metroparks Bedford Reservation are critical.

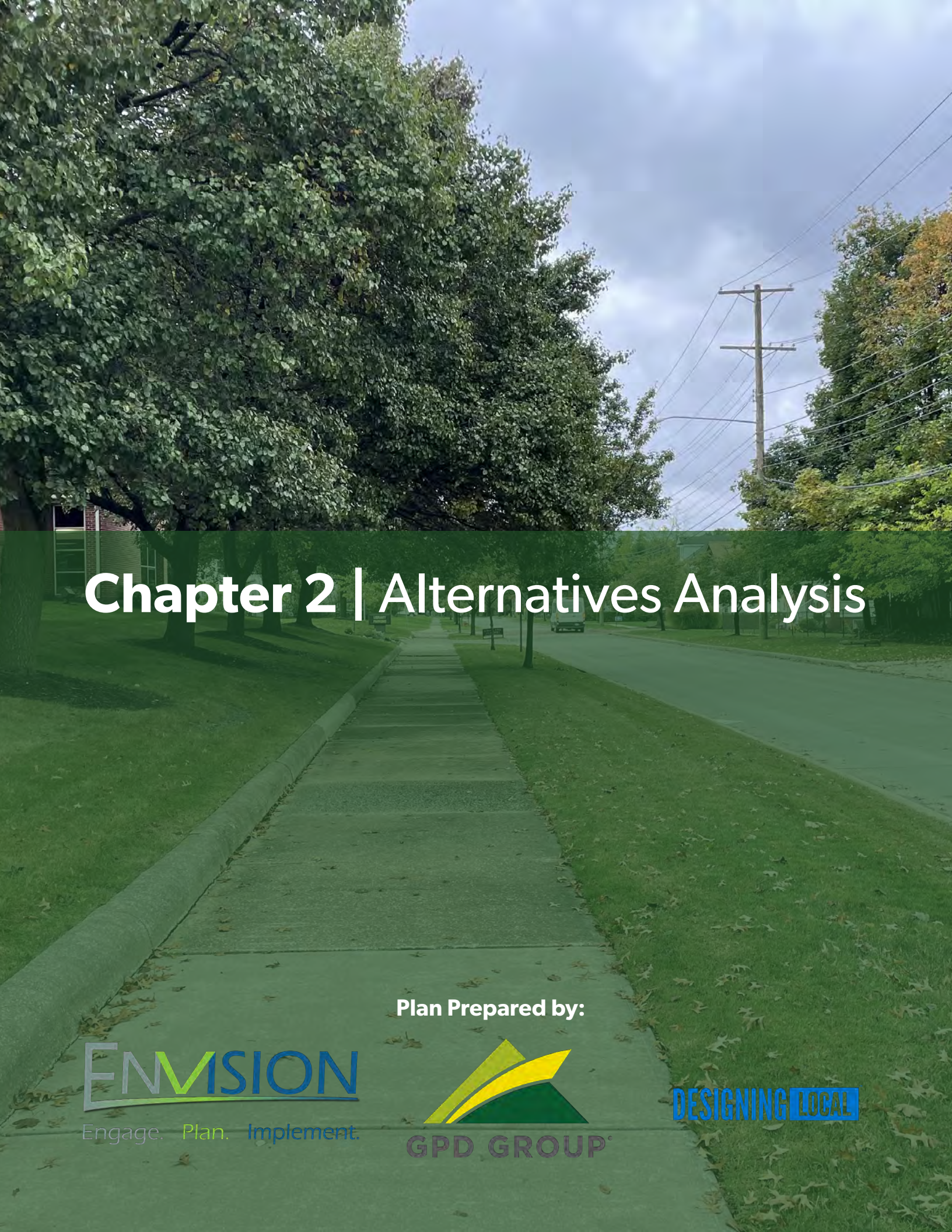
Pedestrian Network Connections

The existing pedestrian network throughout the study area is generally in good condition with sidewalks along both sides of most roadways, sufficient crosswalk locations, and ample signage. But some critical gaps in the pedestrian network were identified to the south and west of the railroad tracks that bisect the study area. Pedestrian crossings in that area also lack sufficient pavement markings and curb ramp improvements. This area is home to several low-to-moderate income apartment complexes, light industrial developments, and area assets that are currently disconnected from the broader pedestrian network. Improvements in this area should focus on expanding access to local residents and providing safe facilities to cross area roadways.

Transit Waiting Environments

Fixed route transit service is limited within the study area with only one dedicated route that bisects the study area. Transit waiting environments in the study area lack support amenities (i.e. benches, trash cans, etc.) that could encourage further transit use. Providing these amenities will improve rider experience and encourage usage.

Center Road - Existing Transit Waiting Environment



Chapter 2 | Alternatives Analysis

Plan Prepared by:

ENVISION
Engage. Plan. Implement.

GPD GROUP

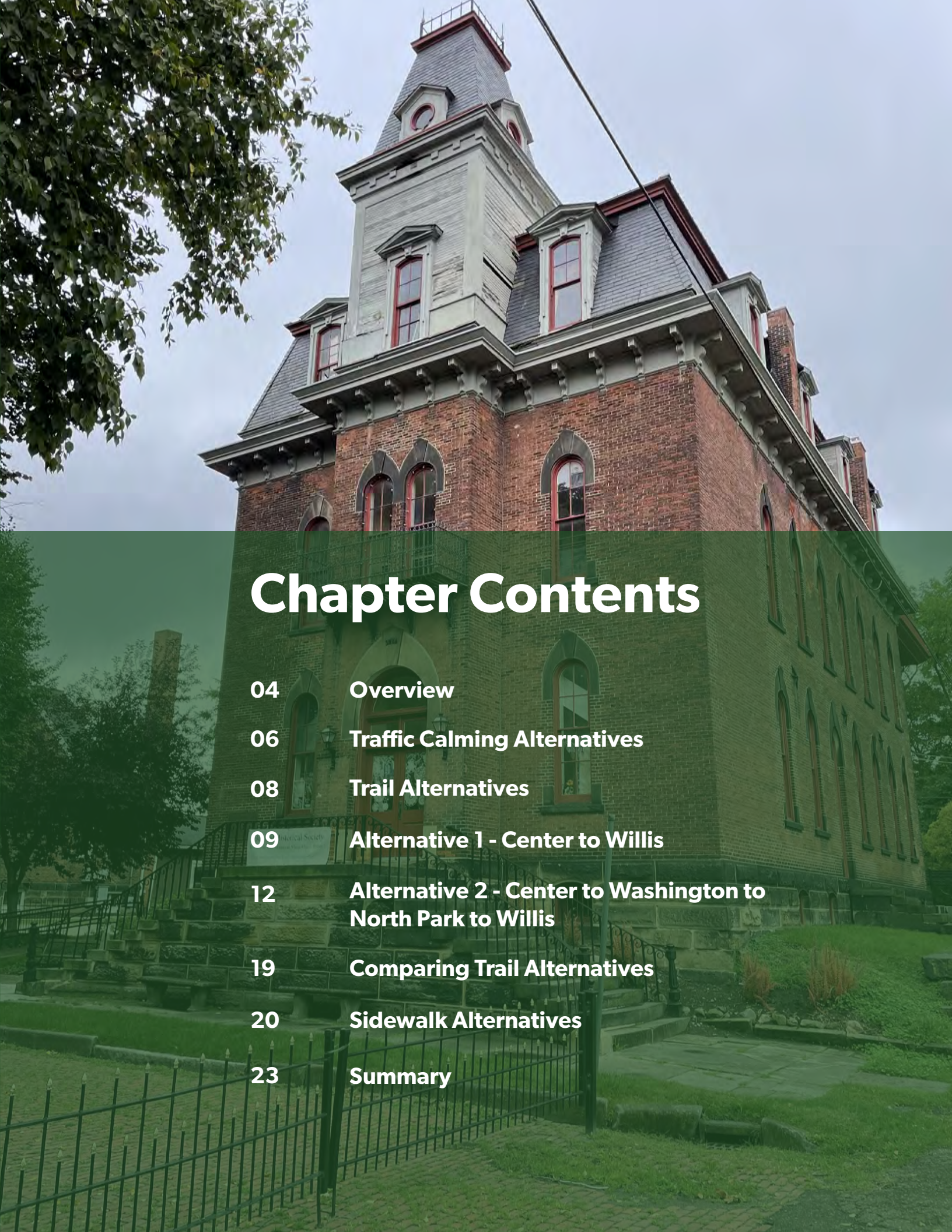
DESIGNING LOCAL

Figures, Charts, & Maps

Figures

Charts

Maps



Chapter Contents

Overview

This chapter discusses the challenges for each mode of transportation and analyzes traffic calming improvements along Broadway Avenue, trail alternatives for the Downtown Connector Trail, and sidewalk improvements.

Traffic calming alternatives were proposed along the Broadway Avenue corridor and at the existing mid-block crossing within Downtown Bedford to encourage pedestrian activity. Vehicular speeding and pedestrian safety along Broadway Avenue were topics of concern expressed by the steering committee and public. Committee members cited the existing mid-block crossing of Broadway specifically as an unsafe crossing, mostly due to vehicular speeds and driver's failure to yield to pedestrians. Improvement alternatives included reducing lane widths (14' wide lanes to 12' wide lanes), constructing curb bump-outs at intersections where they do not already exist, restriping the four-lane section south of the Downtown to three lanes, and/or installing speed tables within the Downtown.

The Downtown Connector Trail will improve connectivity from Downtown Bedford to the Ellenwood Recreation Center and the Cleveland Metroparks Bedford Reservation. Two trail alternatives were developed and presented to the steering committee to gather feedback.

Alternative 1 proposed a trail connection that began at the Ellenwood Recreation Center/City Hall trail, and continued down Center Road, through the five points intersection and along Willis Road to Viaduct Park (See Map 1 - Alternative 1 Route Map). This alternative provided a direct route from the Ellenwood Recreation Center, through the heart of Downtown Bedford, to Viaduct Park. While this alternative provides the most direct route to desired assets, it has significant impacts to downtown businesses, impacting on street dining and streetscaping and traverses the confusing and congested five points intersection (Broadway/Center/Columbus intersection).

Alternative 2's alignment is similar to Alternative 1 along portions of Center and Willis Roads but differs in how it navigates and connects to the Historic Downtown. Instead of providing a direct connection through the five points intersection, this alignment routes the trail east along Washington Street, down Woodward and through Bedford Commons, to Willis (See Map 3 Alternative 2 Route Map). This alternative connects a variety of assets including the Ellenwood Recreation Center/City Hall, Bedford Public Library, Historic Downtown, and Viaduct Park. While this alternative avoids the five points intersection, it does require the need for private right-of-way from one private owner and is more expensive than Alternative 1.

Alternatives were compared by the magnitude of their quantitative and qualitative impacts to the study area. Factors considered included: impacts to on-street parking, impacts to the downtown

walkability/streetscaping, linkages to desired assets, user experience, right-of-way impacts, and preliminary costs. Once trail alignments were refined per steering committee comments, both alternatives were presented to the public to determine a preferred alternative.

After both alternatives were presented to the steering committee and public and feedback was gathered and summarized, Alternative 2 was selected as the preferred alternative. Though more costly, this alternative has less impact to downtown businesses, avoids the congested five points intersection of Broadway/Center/Columbus, and links more assets directly to the trail network.

Sidewalk improvements were concentrated in areas south and west of Broadway Avenue within the study area as many roadways in this area lack sufficent sidewalk facilities. Improvement alternatives were considered on roadways where no sidewalk facilities exist today (nine streets in total). As the City has a limited budget to allocate towards sidewalk improvements, this plan focused on prioritizing the most needed sidewalk improvements rather than recommending sidewalks on all streets. From this assessment, four corridors were recommended for sidewalk improvements: Taylor Street, Bedford Glens, Niver Road, and Mapledale Road.

Willis Picnic Area (Bedford Glens) - Looking South

Traffic Calming Alternatives

Existing Challenges

Vehicular speeds along Broadway Avenue were expressed as a concern by both steering committee members and the public throughout the planning process. Using Streetlight Data, Broadway Avenue was analyzed for 85th Percentile speeds along various locations within the study area. In general, vehicular speeds along Broadway throughout the day exceed the speed limit. The 85th percentile speeds along Broadway Avenue are 30-55% above the posted speed and in ranges that have a 40-73% chance of serious or fatal injury. The AM Peak had the highest variance from posted speed limits with speeds ranging from 8 to 14 MPH over speed limits.

Broadway Avenue at Mid-block crossing

Although there were very few pedestrian (2 in last five years) or bike crashes (0 in last five years), high speeds in the corridor are a concern. Based on the GCAT data, approximately 10% to 17% of crashes were related to speed. The likelihood of serious injury or death for pedestrians and cyclists increases dramatically as vehicular speeds increase.

Traffic Calming Alternatives

Encouraging Pedestrian Traffic along Broadway

As expressed in Chapter 1, speeding along Broadway Avenue within the study area is a concern. To address this issue and improve walkability within Downtown Bedford a series of alternatives were proposed. For the corridor throughout the study area, improvement alternatives included reducing lane widths (14' wide lanes to 12' wide lanes), constructing curb bump-outs at intersections where they do not already exist, restriping the four-lane section south of the Downtown to three lanes, and/or installing speed tables within the Downtown.

Broadway Avenue at North Park Drive

The existing mid-block crossing within Downtown Bedford was also a location of concern for pedestrians crossing the roadway. For this location a series of improvement alternatives were also proposed. These improvements included upgrading the existing crosswalk signage to pedestrian actuated signage, extending the existing curb bump-outs, and/or installing a raised crosswalk to slow traffic.

All of these improvement alternatives were presented to the steering committee and public for feedback. For the corridor-wide improvements, all improvements but restriping the four-lane section south of the Downtown to three lanes were desired. For the mid-block crossing all improvements proposed were desired.

Trail Alternatives

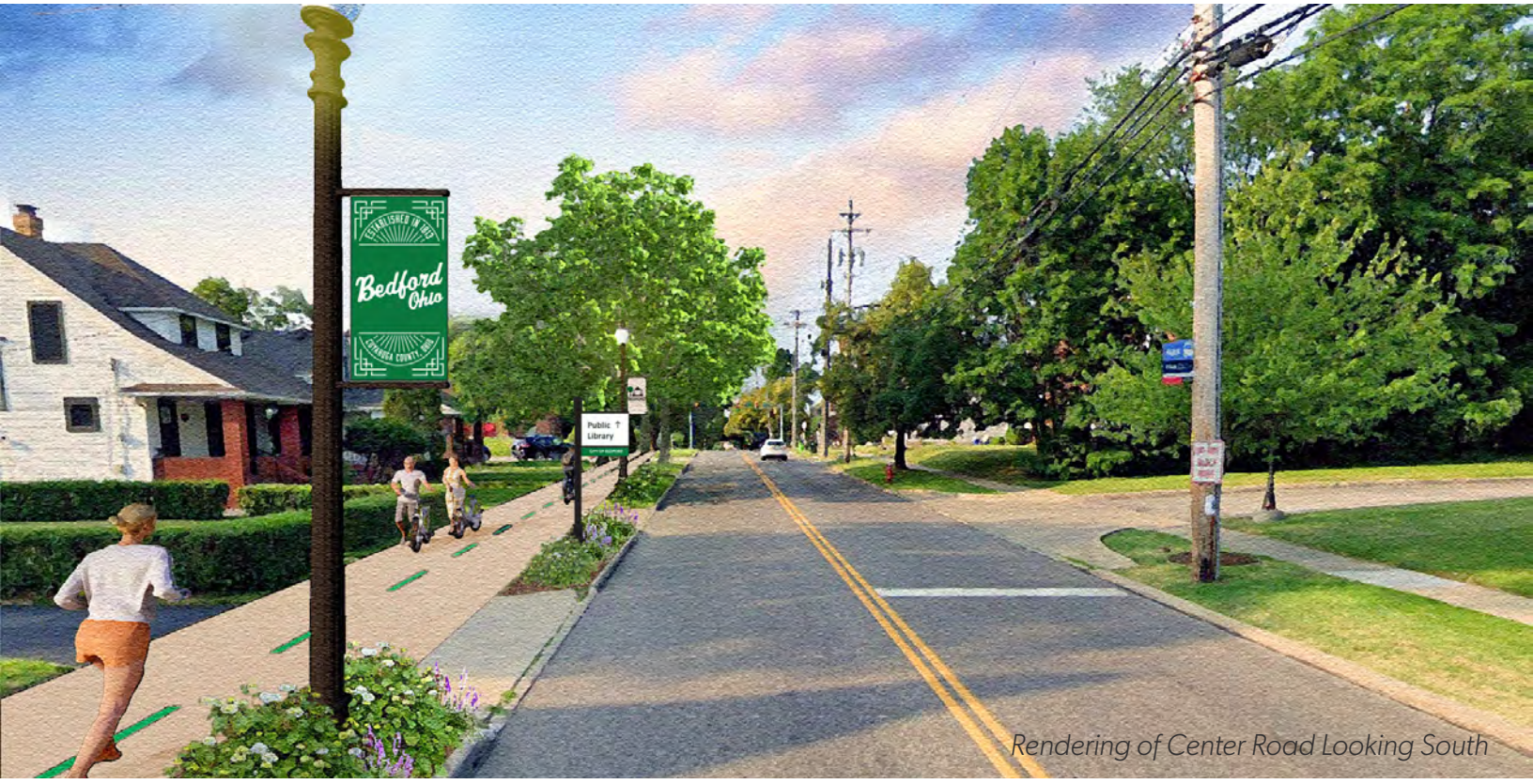
Existing Challenges

As discussed in the previous Chapter, the City of Bedford and the study area have limited access to bikeways. Only 6.5% of the City's population lives within a quarter of a mile from a bikeway. That places Bedford in the bottom quartile of for bikeway access as compared to other Cuyahoga County cities. Existing trails within the study area are limited. Walking trails link the Bedford City Pool with the Ellenwood Recreation Center and Civic Center Complex but do not extend out into the surrounding neighborhoods. Along Egbert Road runs the Cleveland Metroparks Bedford Reservation Trail. This trail links Metroparks Reservations to the east with the Bedford Reservation and Towpath Trail along the Cuyahoga River.

There are many pedestrian and bicycle trip generators within the study area that are not connected to the regional trail network including Viaduct Park, Downtown Bedford, and the Ellenwood Recreation Center. Linking these locations within the study area would provide residents within adjacent neighborhoods alternative and safe travel options. The entire study area is located within existing environmental justice areas.

Egbert Road Looking South

Trail Alternatives
Downtown Connector



Rendering of Center Road Looking South

Alternative 1 - Center to Willis

Alternative 1 proposed a trail connection that began at the Ellenwood Recreation Center/City Hall trail, and continued down Center Road, through the five points intersection and along Willis Road to Viaduct Park. This alternative provided a direct route from the Ellenwood Recreation Center, through the heart of Downtown Bedford, to Viaduct Park.

The route begins with extending the existing walking trail with a mid-block crossing of Center Road. The crossing is proposed to include high-visibility pavement markings, advanced warning signage, and a pedestrian actuated hybrid beacon. The trail continues along the eastern treelawn of Center Road, south to the Broadway intersection. As shown on the proposed typical sections illustrated on page 40 the improvement will remove the existing sidewalk along the east side of Center Road and replace it with a 10-foot-wide multi-use trail. Both the eastern and western treelawns were analyzed to determine the best route for the proposed trail. The western treelawn


Alternative 1
Center to Willis
Proposed Route
Temporary Route
Permanent Route
Existing Trail
Bedford Historic District
Municipal Boundary
Existing Rail
Bedford Recreation Center
Center
Add actuated pedestrian crossing
Bedford Civic Center
14
See typical sections
A
A
University Hospitals
Columbus
Public Library
Alt 1 Detail
Historic Downtown Bedford
Existing parking lots encroach on right-of-way
Central Primary School
Broadway
B
B
Add trail along southside of Taylor for Temporary Route
Willis
City of Bedford
City of Walton Hills
Cleveland Metroparks Bedford Reservation
14
Bedford Cemetery
Add Bike Lanes along Union for Temporary Route
Tinkers Creek
Viaduct Park
Link to planned Viaduct Park trail
Permanent Route through Viaduct Park via trail and bridge over Tinkers Creek
8
Union
Egbert
Map 1 - Alternative 1 Route Map

contains both fire hydrants and large utility poles, relocation of these impediments would be cost prohibitive, and for that reason the eastern side was chosen.

As shown in Willis Detail on page 12, the trail is proposed to cross the five point intersection along the north and east side crosswalks. Pavement markings, signage, and curb ramps will need to be upgraded to accommodate the proposed trail. The trail will then run along the southern sidewalk along Broadway to the Willis Road intersection. This improvement will impact on-street dining and streetscaping along Broadway.

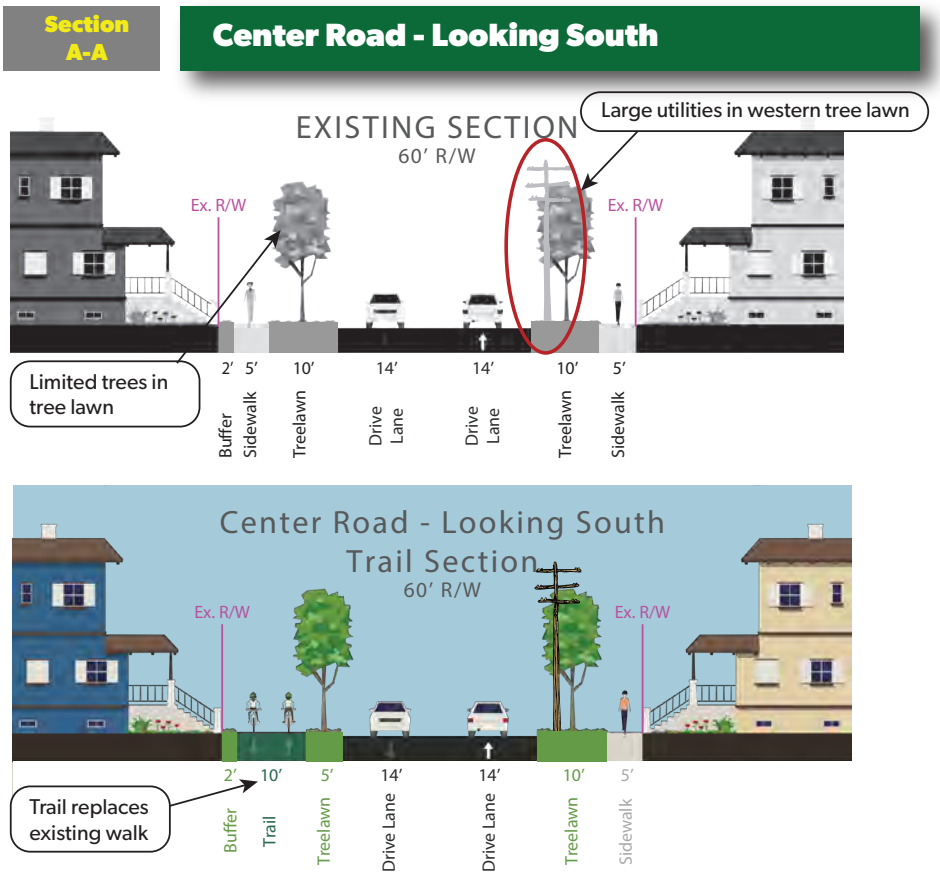


Figure 1 - Center Road Typical Section

As the trail continues south along Willis Road, a portion of Willis Road, north of the railroad tracks will need to be reconstructed to accommodate the proposed trail facility. To avoid impacts with parked cars, the trail is proposed to run on the far eastern side of the Willis Road right-of-way (see Willis Detail). Existing angled parking along the east side will be relocated slightly to the west to accommodate the proposed trail. Only five parking spaces are anticipated to be removed with this improvement and all are on the western side of Willis Road. To allow for the additional width of the trail, the western

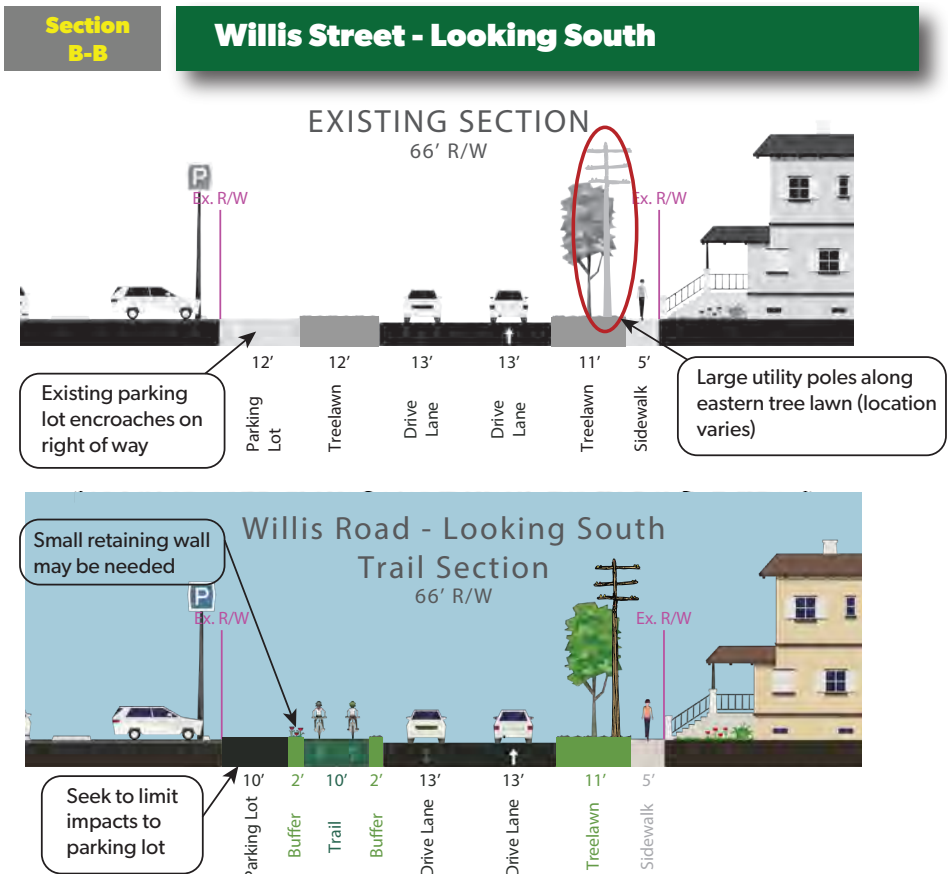
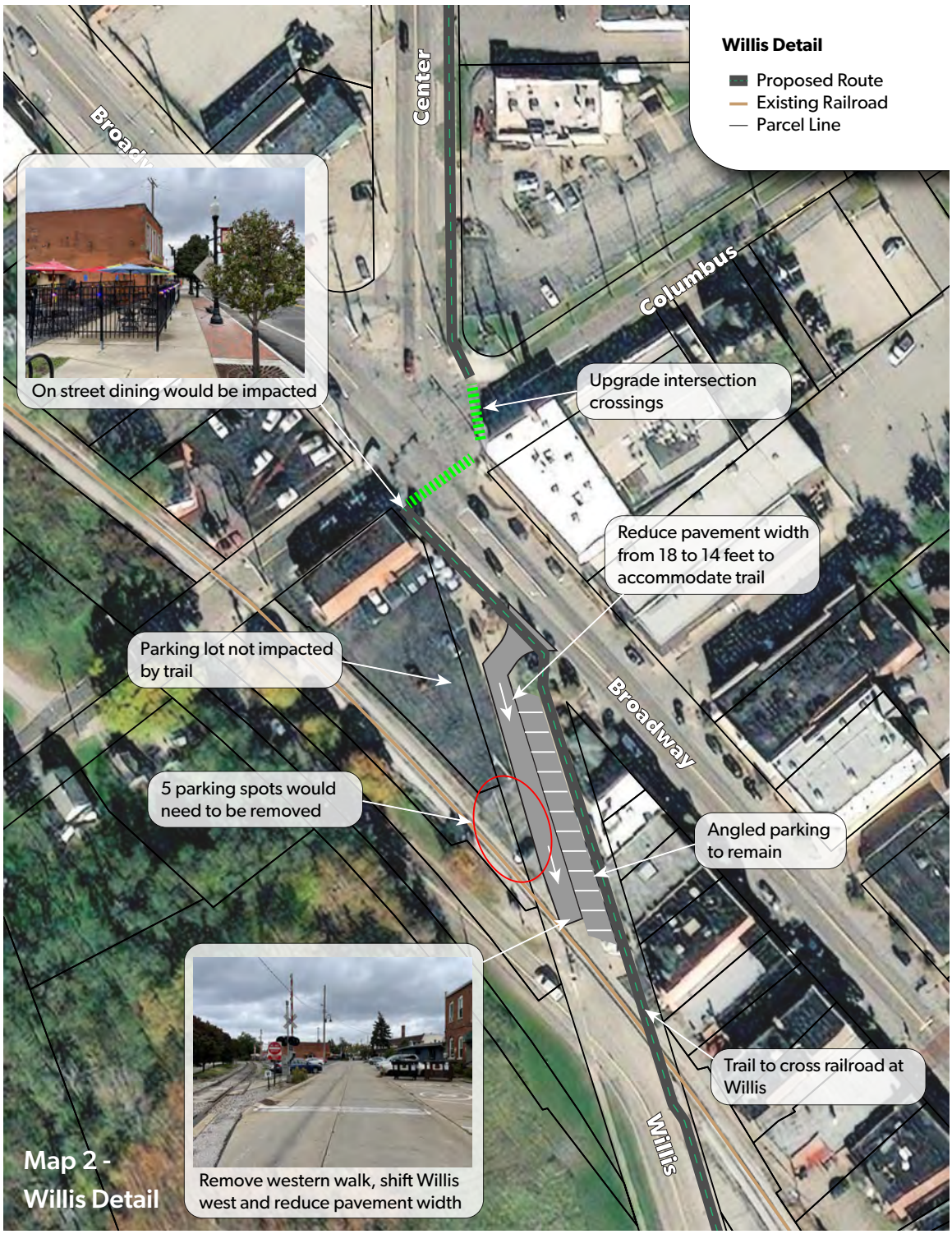


Figure 2 - Willis Street Typical Section

sidewalk will be removed (6 feet wide) and Willis Road's pavement will be reduced from 18 feet to 14 feet. The proposed roadway width will still be sufficient to accommodate one-way traffic.

The trail will continue within the eastern treelawn of Willis Road until it terminates into Viaduct Park. As illustrated in typical section B-B on page 40, Willis Road has sufficient treelawn width along it's eastern side to accommodate the proposed trail. In some areas along Willis, existing parking lots encroach into the roadway right-of-way. To limit the impacts to these parking lots, small retaining walls are anticipated to maintain private parking lots south of South Park Road. Proposing the trail within the eastern treelawn is most advantageous as it avoids large utility impacts and the need for private right-of-way while maintaining the trail's connection to the Historic Downtown.



Rendering of North Park Looking East

Alternative 2 - Center to Washington to North Park to Willis

Alternative 2's alignment is similar to Alternative 1 along portions of Center and Willis Roads but differs in how it navigates and connects to the Historic Downtown. Instead of providing a direct connection through the five points intersection, this alignment routes the trail east along Washington Street, down Woodward and through Bedford Commons, to Willis. This alternative connects a variety of assets including the Ellenwood Recreation Center/City Hall, Bedford Public Library, Historic Downtown, and Viaduct Park.

Similar to Alternative 1, the route begins with extending the existing walking trail with a mid-block crossing of Center Road. The crossing is proposed to include high-visibility pavement markings, advanced warning signage, and a pedestrian actuated hybrid beacon. The trail continues along the eastern treelawn of Center Road, south to Dawson Road. Dawson Road is a dead end street that terminates into University Hospital's parking lot. The trail would run within the Dawson Road right-of-way to its terminus and then head south. As shown in the Dawson Road Detail on page 16, for approximately 400 feet private property easements would be needed from three private property owners (including University Hospitals) to link with Columbus Road. The trail would run alongside existing surface parking lots to minimize parking impacts. If private right-

Map 3 - Alternative 2 Route Map

of-way easements become difficult to obtain, the trail alignment could be altered to impact the surface parking lots and then only one private easement would be needed from University Hospitals.

Once along Columbus Road, the trail will continue to the Washington Road intersection and head south along Washington. As illustrated in typical section C-C, the eastern treelawn of Washington Road is adjacent to the Bedford Public Library, is free of large utilities or trees, and has sufficient width to accommodate a 10-foot-wide trail. Similar to Center Road, sidewalks along the east side of Washington Road would be removed and replaced with the trail.

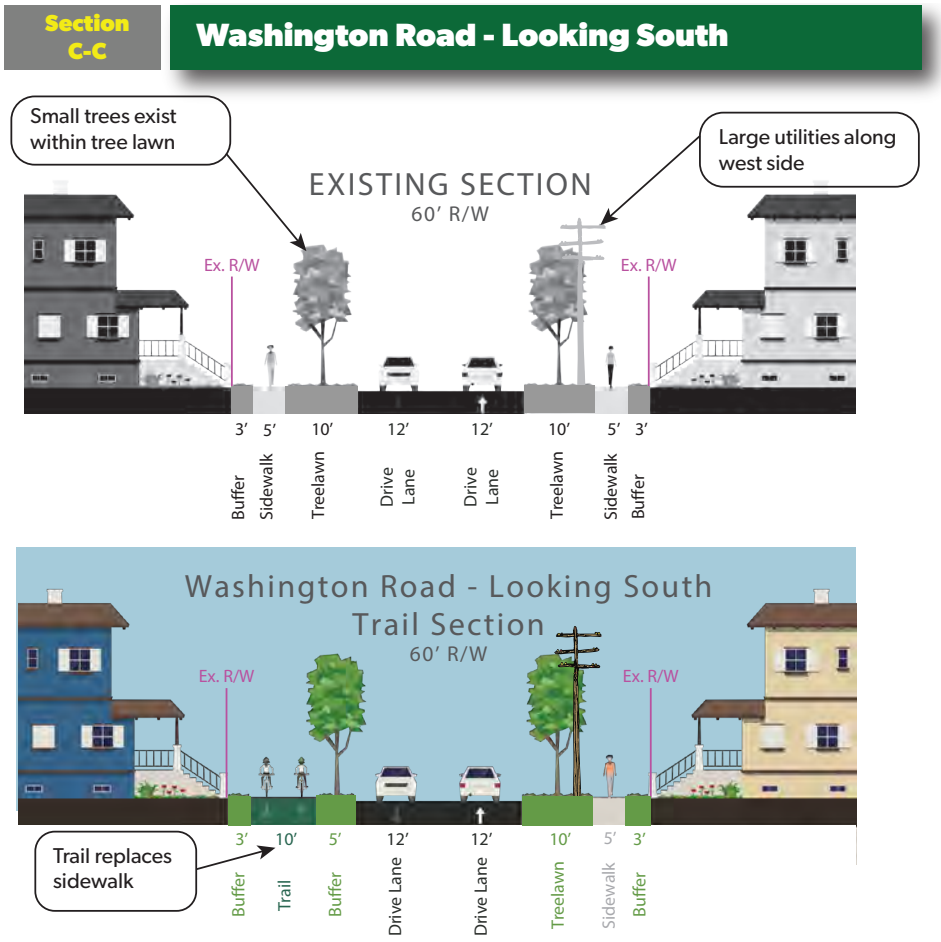
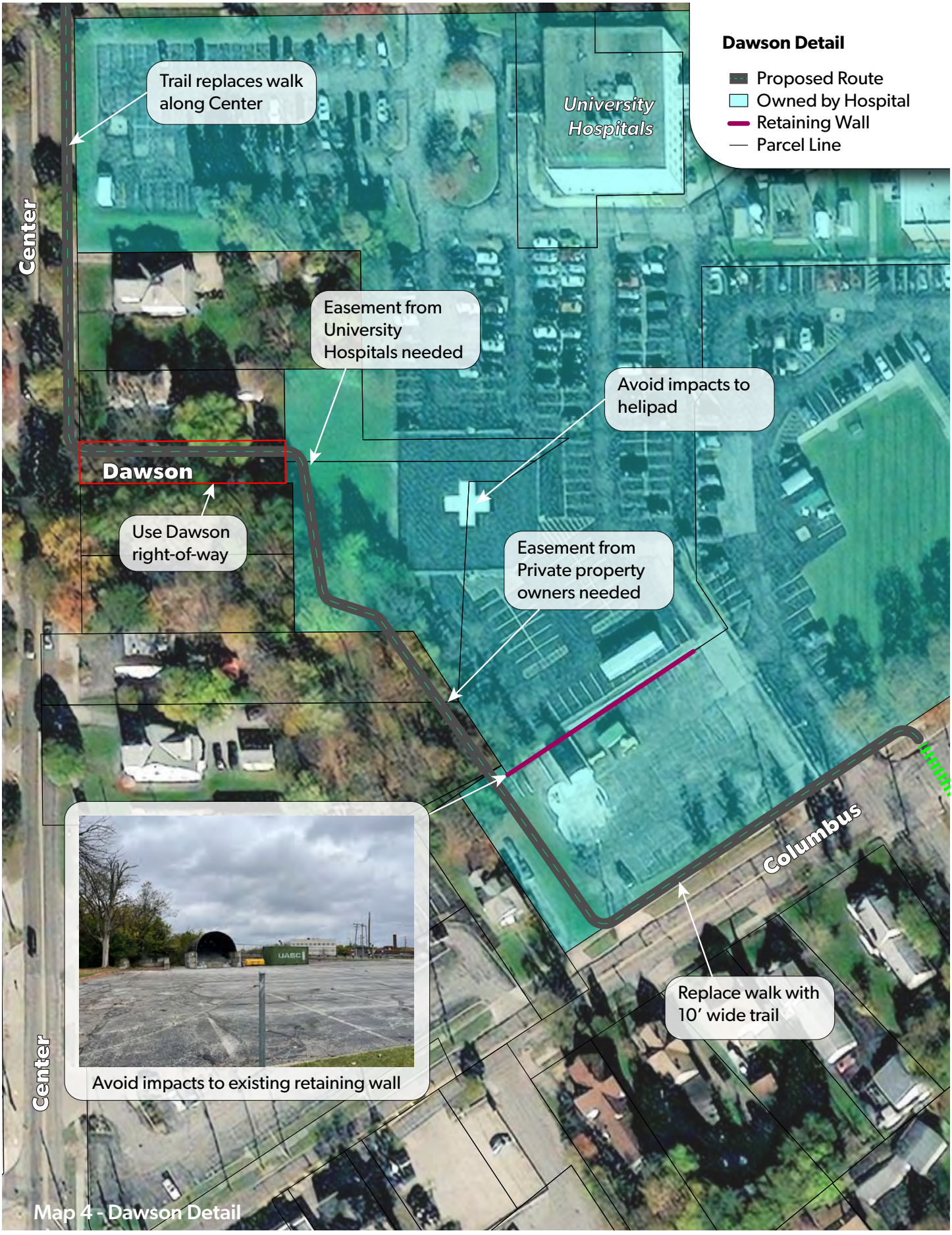


Figure 3 - Washington Road Typical Section

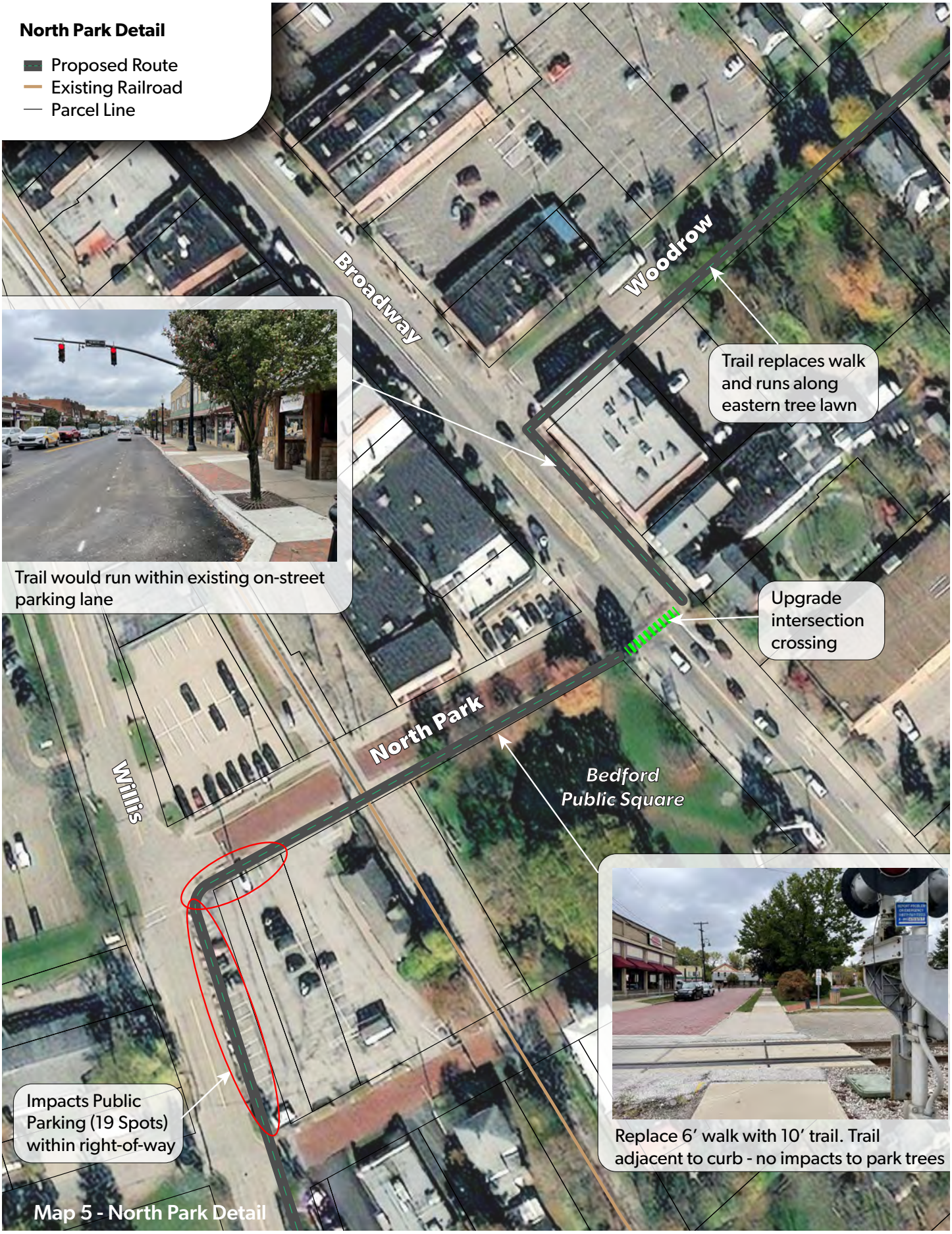
The trail will run along Washington Road to Woodrow Road and then turn south along Woodrow to Broadway. Similar to Washington Road, the trail will run within the south treelawn of Woodrow, removing the sidewalk and replacing it with a 10-foot-wide trail.

Once along Broadway, the trail will run south for one block to North Park Drive. The trail in this section will run within the pavement footprint, removing on-street parking along the east side of the roadway. The trail will cross Broadway at the existing signalized intersection at North Park Drive. As illustrated in the rendering on page 13, the trail will run along the south side of North Park Drive and replace the existing sidewalk. No impacts to the park are anticipated with this improvement since all widening can be completed within the existing treelawn. The trail will continue south to Willis Road and will be incorporated into park improvements planned by the City for the existing surface parking lot.

Once along Willis Road the trail will mimic Alternative 1's alignment, running within the eastern treelawn and terminating into Viaduct Park.



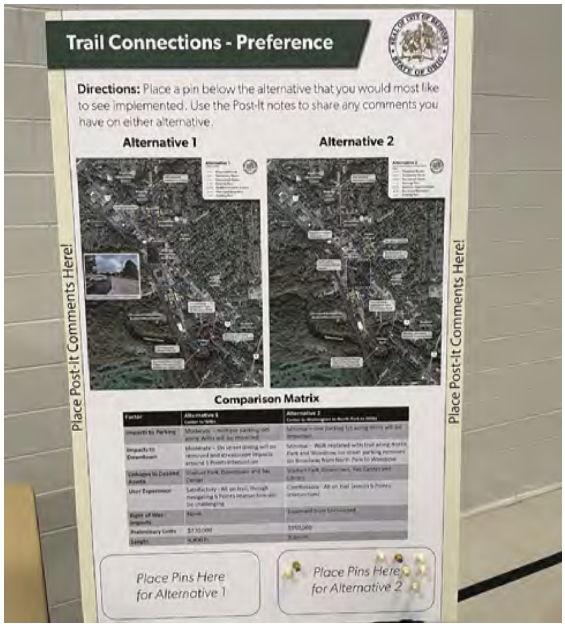
Map 4 - Dawson Detail


North Park Detail
Proposed Route
Existing Railroad
Parcel Line
Broadway
Woodrow
Trail replaces walk and runs along eastern tree lawn
Trail would run within existing on-street parking lane
Upgrade intersection crossing
North Park
Willis
Bedford Public Square
Impacts Public Parking (19 Spots) within right-of-way
Replace 6' walk with 10' trail. Trail adjacent to curb - no impacts to park trees
Map 5 - North Park Detail

Public Feedback

Public Meeting 2
November 2023

This meeting reviewed draft recommendations by travel mode (bicycle, pedestrian, and traffic calming). During the open house portion of the meeting, activity boards asked participants to select their preferred bicycle trail alternative and most desired sidewalk improvement within the study area. The results of the Trail Connections activity board are shown to the right. Public meeting participants unanimously desired Alternative 2 as the preferred Downtown Connector alignment.



Activity Board - Public Meeting 2

Recommendations Survey

To gather additional feedback on plan recommendations, a Recommendations Survey was posted online from December 2023 through January 2024. Recommendations Survey questions mimicked the activity board questions presented at the second public meeting. In total, 92 individual responses were gathered on plan recommendations. As shown below, approximately 79% of respondents preferred Alternative 2 for the Downtown Connector Trail route. All public engagement feedback gathered throughout this planning process can be found in Appendix A.

Q1: Which trail Alterative would you most like to see implemented?

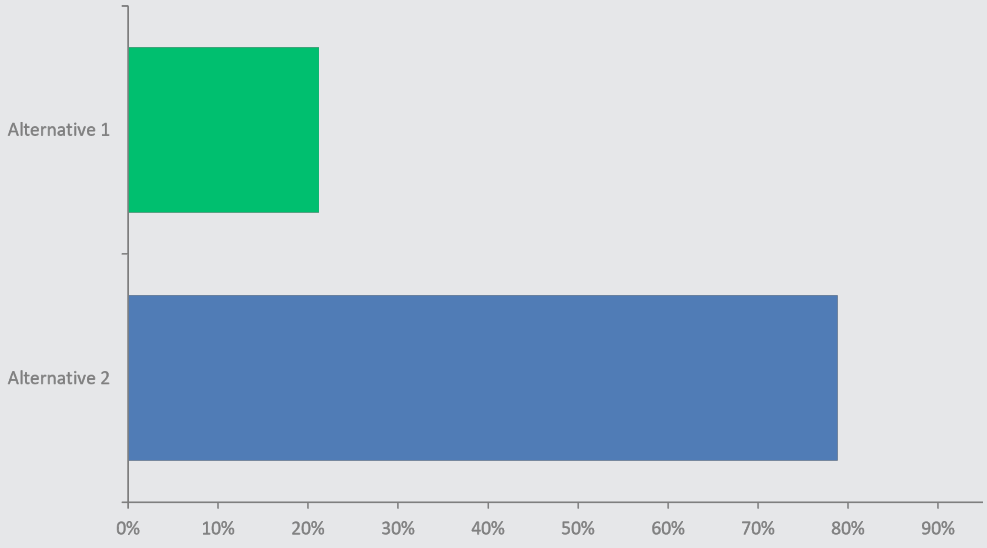


Chart 1 - Recommendations Survey Question 1 Results

Comparing Alternatives

To objectively present each alternative to the public and steering committee, a comparison table was developed and is shown below. The table included a variety of factors to assess the benefits and impacts of each proposed alternative. Factors include: impacts to parking, impacts to Downtown, linkages to desired assets, user experience, right-of-way impacts, preliminary costs, and overall length.

While Alternative 1 is more cost effective, its route through the five points intersection impacts user safety, the overall user experience, and has more impacts to on-street dining and parking than Alternative 2.

While Alternative 2 is more expensive than Alternative 1 and requires at least one private property easement to construct, the alignment links more assets, is safer for users, and has less impacts to Downtown Bedford.

Both the steering committee and public were presented with this information, and each preferred Alternative 2. For all of these reasons, Alternative 2 was selected as the preferred Alternative.

Factor	Alternative 1 Center to Willis	Alternative 2 Center to Washington to North Park to Willis
Impacts to Parking	Moderate – multiple parking lots along Willis will be impacted	Minimal – one parking lot along Willis will be impacted
Impacts to Downtown	Moderate – On-street dining will be removed and streetscape impacts around 5 Points intersection	Minimal – Walk replaced with trail along North Park and Woodrow, on-street parking removed on Broadway from North Park to Woodrow
Linkages to Desired Assets	Viaduct Park, Downtown and Rec Center	Viaduct Park, Downtown, Rec Center and Library
User Experience	Satisfactory - All on trail, though navigating 5 Points intersection will be challenging	Comfortable - All on trail (avoids 5 Points intersection)
Right of Way Impacts	None	Easement from UH needed
Preliminary Costs	$770,000	$950,000
Length	4,400 Ft.	5,500 Ft.

Figure 4 - Alternatives Comparison Table

Sidewalk Alternatives

Existing Challenges

Sidewalk connectivity is limited south of the existing rail line that bisects the study area. This area is located within an Environmental Justice area and has multiple apartment complexes with residents that need improved pedestrian access to get to jobs and amenities. These residents live within a short distance of many walking trip destinations including Viaduct Park, the Bedford Glens, and local businesses. The mix of land uses in this area (light industrial, residential, and commercial) also creates challenges for pedestrian safety. Lack of sidewalks force pedestrians to walk along roadways, like Taylor Road, which is also utilized by heavy truck traffic. Existing pedestrian crossings in this area are also deficient in both markings and curb ramps. To alert drivers and protect pedestrians, improved crosswalks are needed.

Niver Road Looking East

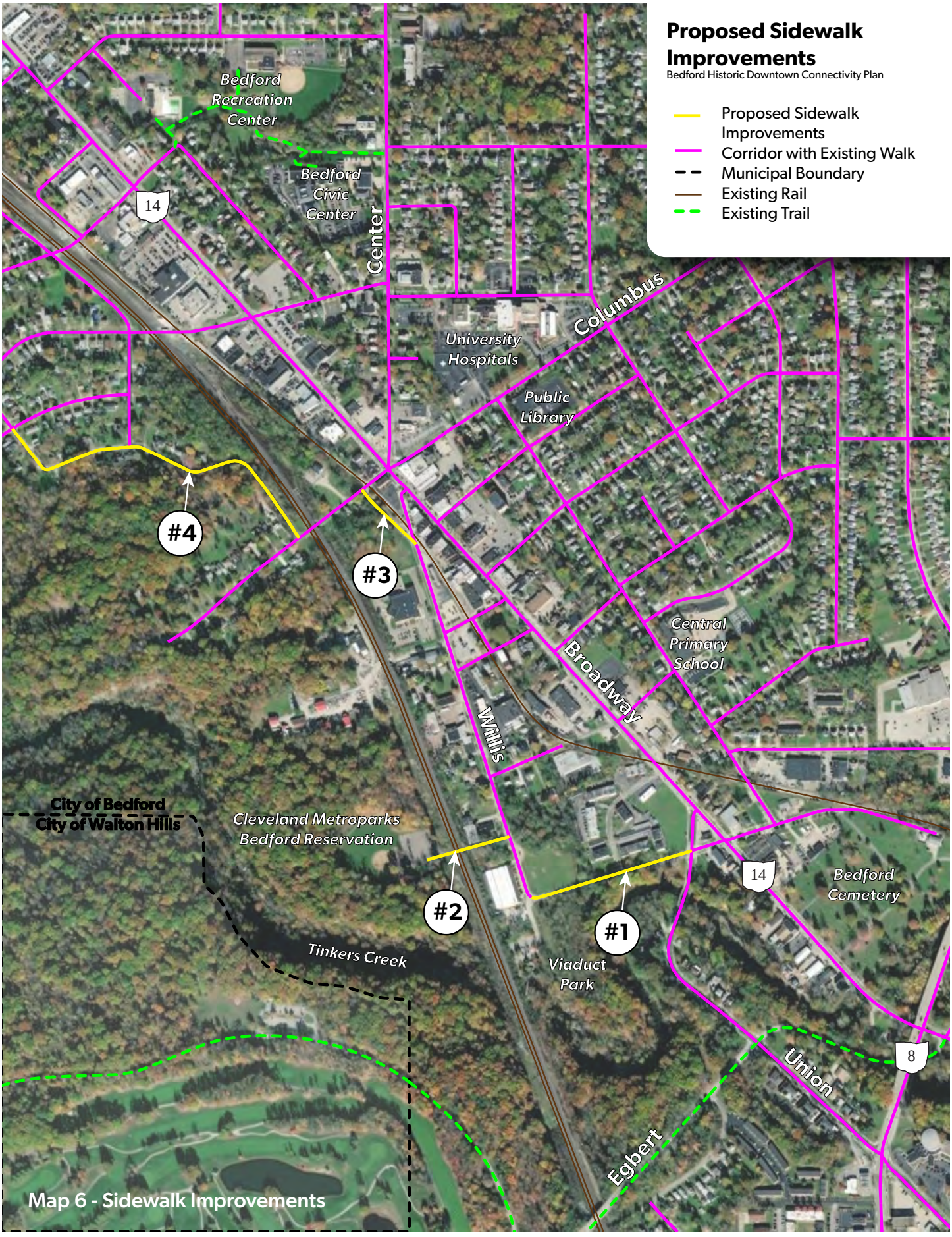
Sidewalk Alternatives

Identifying Priority Connections

Ideally, all roadways would have sidewalks on both sides of the roadway, with sufficient width and safe roadway crossings. On the majority of streets within the study area, this is the case. But on streets south and west of the existing railroad tracks that bisect the study area, many streets lack proper sidewalk facilities. This area, primarily along the Willis Road corridor, is further isolated from the City as Tinkers Creek and the Norfolk Southern rail line create a barrier to the south, completely limiting connectivity. The only way in or out of this area is from the north or east from Broadway Avenue. This area has a mix of lower income residential and industrial uses.

Willis Road Looking North

Sidewalk improvements were considered on roadways where no sidewalk facilities exist today (nine streets in total). As the City has a limited budget to allocate towards sidewalk improvements, this plan focused on prioritizing the most needed sidewalk improvements rather than recommending sidewalks on all streets. To determine which roadways were a priority a multitude of factors were considered, including: land uses along the corridor, assets the corridor connected, linkages to Broadway Avenue, low-income populations served, and physical barriers to construct (utility relocations, right-of-way needs, grading, etc.). From this assessment, four corridors were recommended for sidewalk improvements: Taylor Street, Bedford Glens, Niver Road, and Mapledale Road. These improvement recommendations were presented to both the steering committee and the public to gather their feedback and determine if other locations for sidewalk were desired. Both groups supported sidewalk improvements at these locations.


Proposed Sidewalk Improvements
Bedford Historic Downtown Connectivity Plan
Proposed Sidewalk Improvements
Corridor with Existing Walk
Municipal Boundary
Existing Rail
Existing Trail
Bedford Recreation Center
Bedford Civic Center
Center
14
Columbus
University Hospitals
Public Library
#4
#3
Broadway
Central Primary School
Willis
City of Bedford
City of Walton Hills
Cleveland Metroparks Bedford Reservation
#2
#1
14
Bedford Cemetery
Tinkers Creek
Viaduct Park
8
Union
Egbert
Map 6 - Sidewalk Improvements

Summary

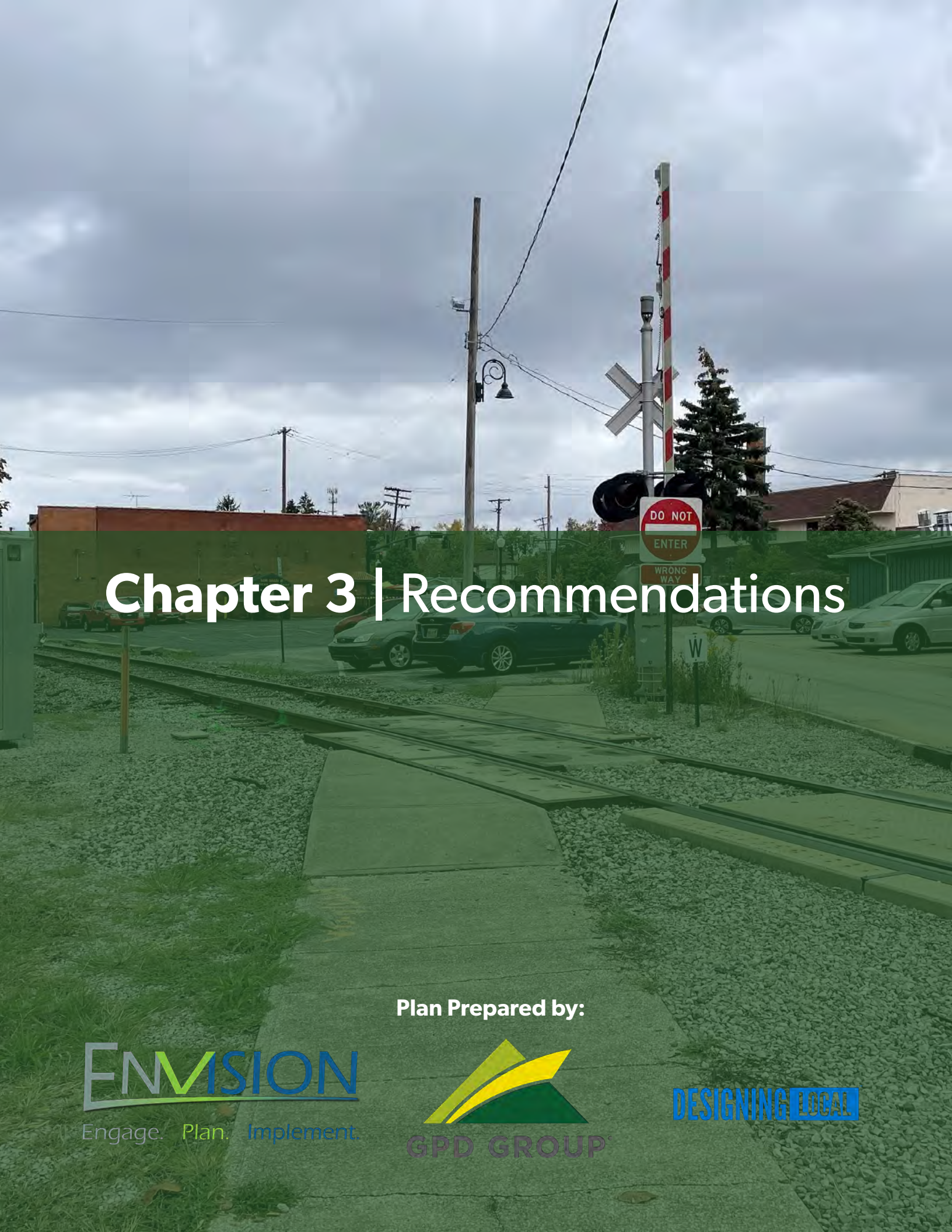
In summary, two trail alternatives for the Downtown Connector Trail were developed to improve connectivity from Downtown Bedford to the Ellenwood Recreation Center and the Cleveland Metroparks Bedford Reservation. These alternatives were compared using a variety of factors including: impacts to on-street parking, impacts to the downtown walkability/streetscaping,

linkages to desired assets, user experience, right-of-way impacts, and preliminary costs.

Each alternative was presented to both the steering committee and public to gather feedback on a preferred alternative. The results of this feedback were overwhelmingly in favor of Alternative 2 as the preferred alternative. The City and the consultant team agreed with steering committee and public feedback and elected to move forward with Alternative 2 as the planned route for the Downtown Connector Trail.

Sidewalks improvements were assessed along all corridors south and west of Broadway Avenue within the study area. Each corridor was assessed based on factors including the land uses along the corridor, assets the corridor connected, linkages to Broadway Avenue, low-income populations served, and physical barriers to construct (utility relocations, right-of-way needs, grading, etc.). Improvement alternatives were proposed along four corridors: Taylor Street, Bedford Glens, Niver Road, and Mapledale Road.

Traffic calming alternatives were proposed along Broadway Avenue to encourage pedestrian activity. Improvement alternatives included reducing lane widths (14' wide lanes to 12' wide lanes), constructing curb bump-outs at intersections where they do not already exist, restriping the four-lane section south of the Downtown to three lanes, and/or installing speed tables within the Downtown.



Chapter 3 | Recommendations

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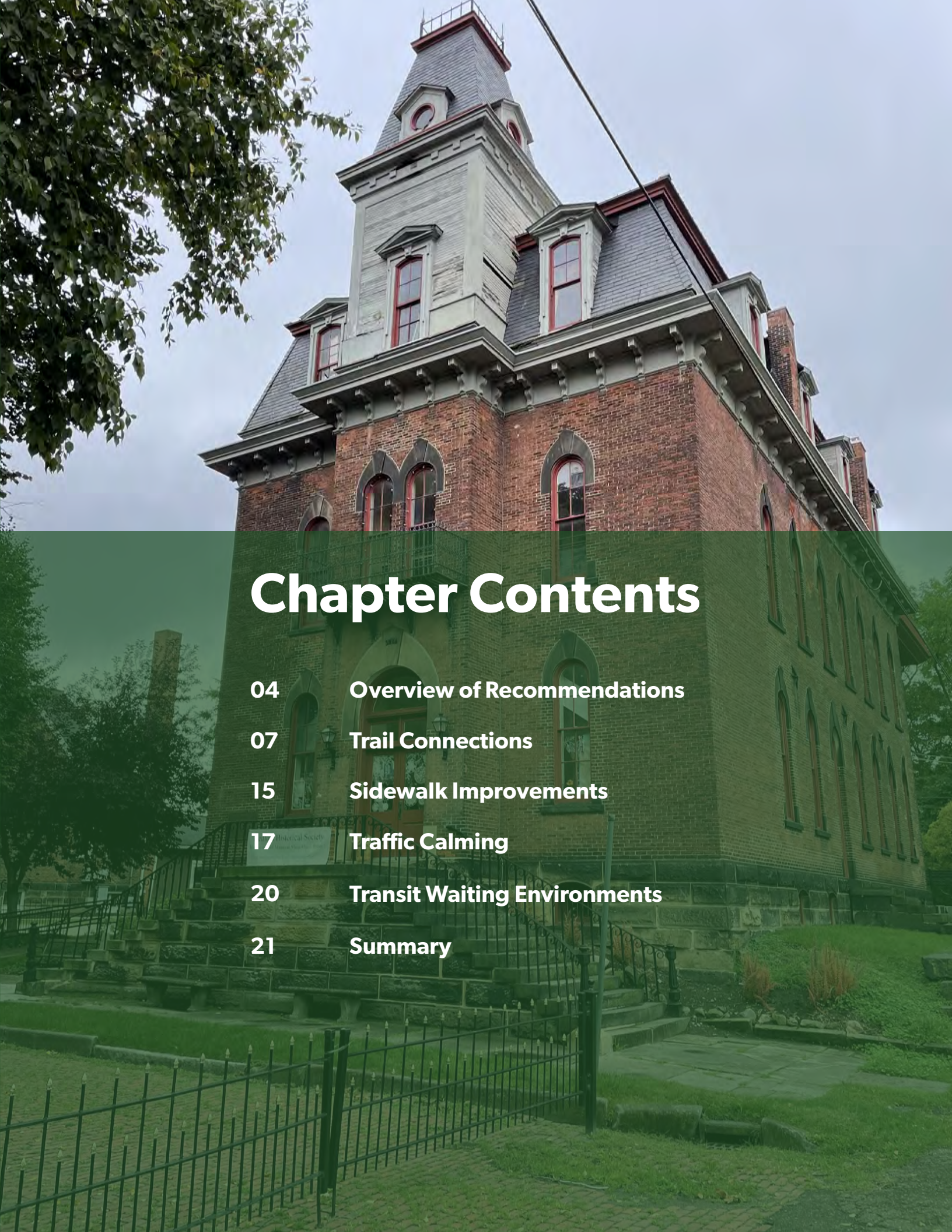
DESIGNING LOCAL

Figures, Charts, & Maps

Figures

Charts

Maps



Chapter Contents

Overview

This Chapter discusses recommendations segregated by travel mode (Trail Connections, Sidewalk Improvements, Traffic Calming, and Transit Waiting Environments). Recommendations were developed based on a combination of factors including an analysis of existing conditions within the study area as well as feedback from the steering committee, stakeholders, and the public. All recommendations aim to achieve the goals of this plan which includes

- Improve accessibility and mobility for all modes of travel in the study area
- Improve non-motorized connectivity between origins and destinations
- Create a safer environment for cyclists and pedestrians
- Create accessible and inviting transit connections
- Encourage equitable economic development and investment.

In Chapter 2 alternatives for each mode of transportation (bicycle, pedestrian, and traffic calming) were analyzed to determine plan recommendations.

Two alternatives were analyzed for the Downtown Connector Trail. This trail will improve connectivity from Downtown Bedford to the Ellenwood Recreation Center and the Cleveland Metroparks Bedford Reservation.

Alternative 1 proposed a trail connection that began at the Ellenwood Recreation Center/City Hall trail, and continued down Center Road, through the five points intersection and along Willis Road to Viaduct Park. This alternative provided a direct route from the Ellenwood Recreation Center, through the heart of Downtown Bedford, to Viaduct Park. While this alternative provides the most direct route to desired assets, it has significant impacts to downtown businesses, impacting on-street dining and streetscaping and traverses the confusing and congested five points intersection (Broadway/Center/Columbus intersection).

Alternative 2's alignment is similar to Alternative 1 along portions of Center and Willis Roads but differs in how it navigates and connects to the Historic Downtown. Instead of providing a direct connection through the five points intersection, this alignment routes the trail east along Washington Street, down Woodward and through Bedford Commons, to Willis. This alternative connects a variety of assets including the Ellenwood Recreation Center/City Hall, Bedford Public Library, Historic Downtown, and Viaduct Park. While this alternative avoids the five points intersection, it does require the need for private right-of-way from one private owner and is more expensive than Alternative 1.

Alternatives were compared by the magnitude of their quantitative and qualitative impacts to the study area. Factors considered included: impacts to on-street parking, impacts to the downtown

walkability/streetscaping, linkages to desired assets, user experience, right-of-way impacts, and preliminary costs. Once trail alignments were refined per steering committee comments, both alternatives were presented to the public to determine a preferred alternative.

After both alternatives were presented to the steering committee and public and feedback was gathered and summarized, Alternative 2 was selected as the preferred alternative.

Recommendations for trail connections include the Downtown Connector (Alternative 2 route) as well as creating an interim trail connection to the through Viaduct Park along Taylor Road. Ultimately, a trail through Viaduct Park will include a pedestrian bridge over Tinker's Creek, but this alignment is costly and will take time to secure funding. In lieu of this, an interim connection was recommended along Taylor Road which will link Viaduct Park to the Cleveland Metroparks Bedford Reservation.

Sidewalk improvements were concentrated in areas south and west of Broadway Avenue within the study area as many roadways in this area lack sufficient sidewalk facilities. In Chapter 2 improvement alternatives were considered on roadways where no sidewalk facilities exist today (nine streets in total). As the City has a limited budget to allocate towards sidewalk improvements, this plan focused on prioritizing the most needed sidewalk improvements rather than recommending sidewalks on all streets.

A series of sidewalk improvements were proposed within the study area to increase connectivity of low-income populations to Downtown Bedford. Locations of sidewalk improvements include: Taylor Road from Willis to Union Avenue, the Bedford Glens entrance driveway, Niver Road from Willis to Center Road, and Mapledale Road east of Powers Road.

In Chapter 2 traffic calming alternatives were proposed along the Broadway Avenue corridor and at the existing mid-block crossing within Downtown Bedford to encourage pedestrian activity. Improvement alternatives included reducing lane widths (14' wide lanes to 12' wide lanes), constructing curb bump-outs at intersections where they do not already exist, restriping the four-lane section south of the Downtown to three lanes, and/or installing speed tables within the Downtown.

Traffic calming recommendations were proposed along Broadway Avenue within Downtown Bedford. This area is prone to speeding and has a high volume of pedestrian activity. Traffic calming improvements were suggested along the corridor as well as at the existing mid-block crossing downtown. Recommendations included installing pedestrian actuated signals, extending curb bump-outs, and considering speed tables.

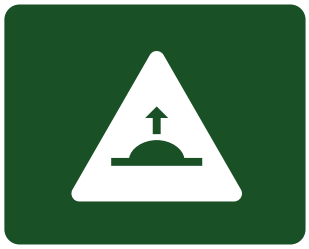
To encourage transit usage, enhancements to existing transit waiting environments were proposed. These recommendations included adding seating, trash cans, and concrete pads.

Recommendations by Mode

Recommendations centered around various modes of multi-modal transportation that will improve access to Historic Downtown Bedford. Recommendations for each mode are detailed within this Chapter:

TRAIL CONNECTIONS

SIDEWALK IMPROVEMENTS



TRAFFIC CALMING

TRANSIT WAITING ENVIRONMENTS

Trail Connections
Downtown Connector

Rendering of North Park Looking East

Alternative 2 - Center to Washington to North Park to Willis

Alternative 2 was selected as the preferred alternative for the Downtown Connector Trail. This trail route connects a variety of assets including the Ellenwood Recreation Center/City Hall, Bedford Public Library, Historic Downtown, and Viaduct Park.

The trail route begins with extending the existing walking trail with a mid-block crossing of Center Road. The crossing is proposed to include high-visibility pavement markings, advanced warning signage, and a pedestrian actuated hybrid beacon. The trail continues along the eastern treelawn of Center Road, south to Dawson Road. Dawson Road is a dead end street that terminates into University Hospital's parking lot. The trail would run within the Dawson Road right-of-way to its terminus and then head south. As shown in the Dawson Road Detail, for approximately 400 feet private property easements would be needed from three private property owners (including University Hospitals) to link with Columbus Road. The trail would run alongside existing surface parking


Alternative 2
Center to Washington to North Park to Willis
Proposed Route
Temporary Route
Permanent Route
Existing Trail
Bedford Historic District
Municipal Boundary
Existing Rail
Bedford Recreation Center
Center
Add actuated pedestrian crossing
Bedford Civic Center
14
University Hospitals
Columbus
Easements needed along parking lot
Public Library
See typical sections
C
C
Historic Downtown Bedford
Route avoids 5 points intersection
Route gets to Downtown without impacts
Alt 2 Detail
Central Primary School
Broadway
B
B
Add trail along southside of Taylor for Temporary Route
Willis
City of Bedford
City of Walton Hills
Cleveland Metroparks Bedford Reservation
14
Bedford Cemetery
Tinkers Creek
Add Bike Lanes along Union for Temporary Route
Viaduct Park
Permanent Route through Viaduct Park via trail and bridge over Tinkers Creek
8
Union
Egbert
Map 1 - Downtown Connector Route Map

lots to minimize parking impacts. If private right-of-way easements become difficult to obtain, the trail alignment could be altered to impact the surface parking lots and then only one private easement would be needed from University Hospitals.

Once along Columbus Road, the trail will continue to the Washington Road intersection and head south along Washington. As illustrated in typical section C-C, the eastern treelawn of Washington Road is adjacent to the Bedford Public Library, is free of large utilities or trees, and has sufficient width to accommodate a 10-foot-wide trail. Similar to Center Road, sidewalks along the east side of Washington Road would be removed and replaced with the trail.

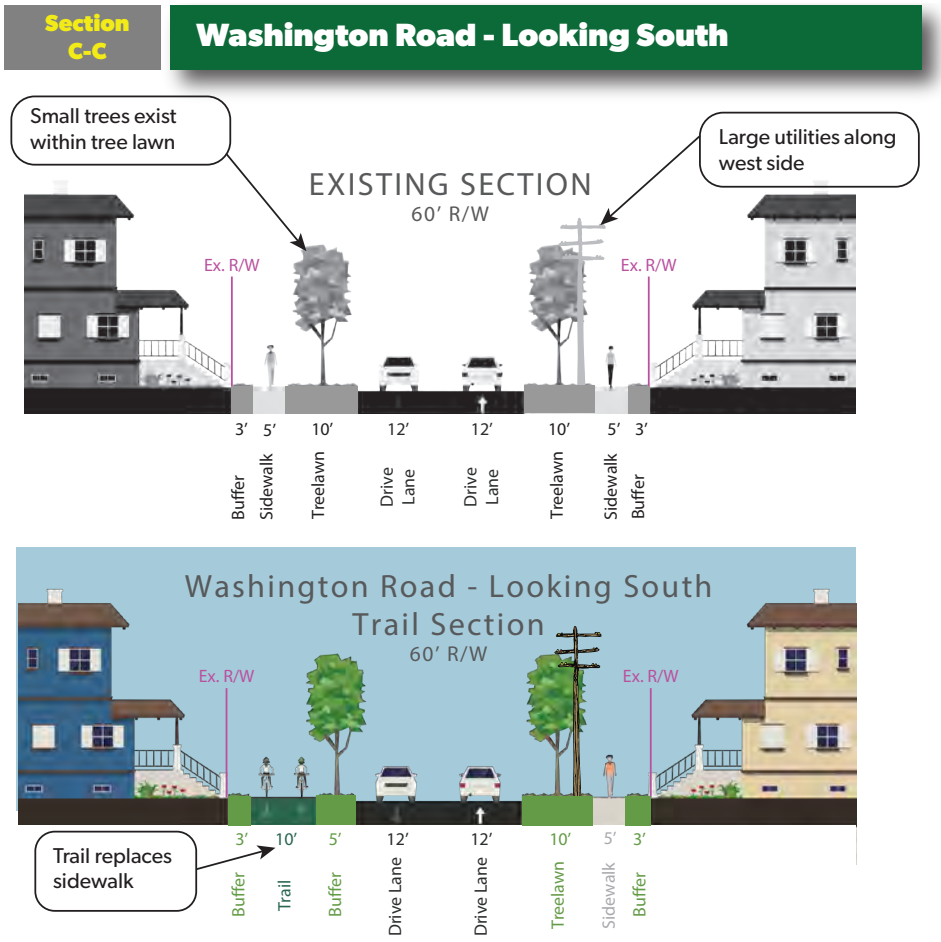
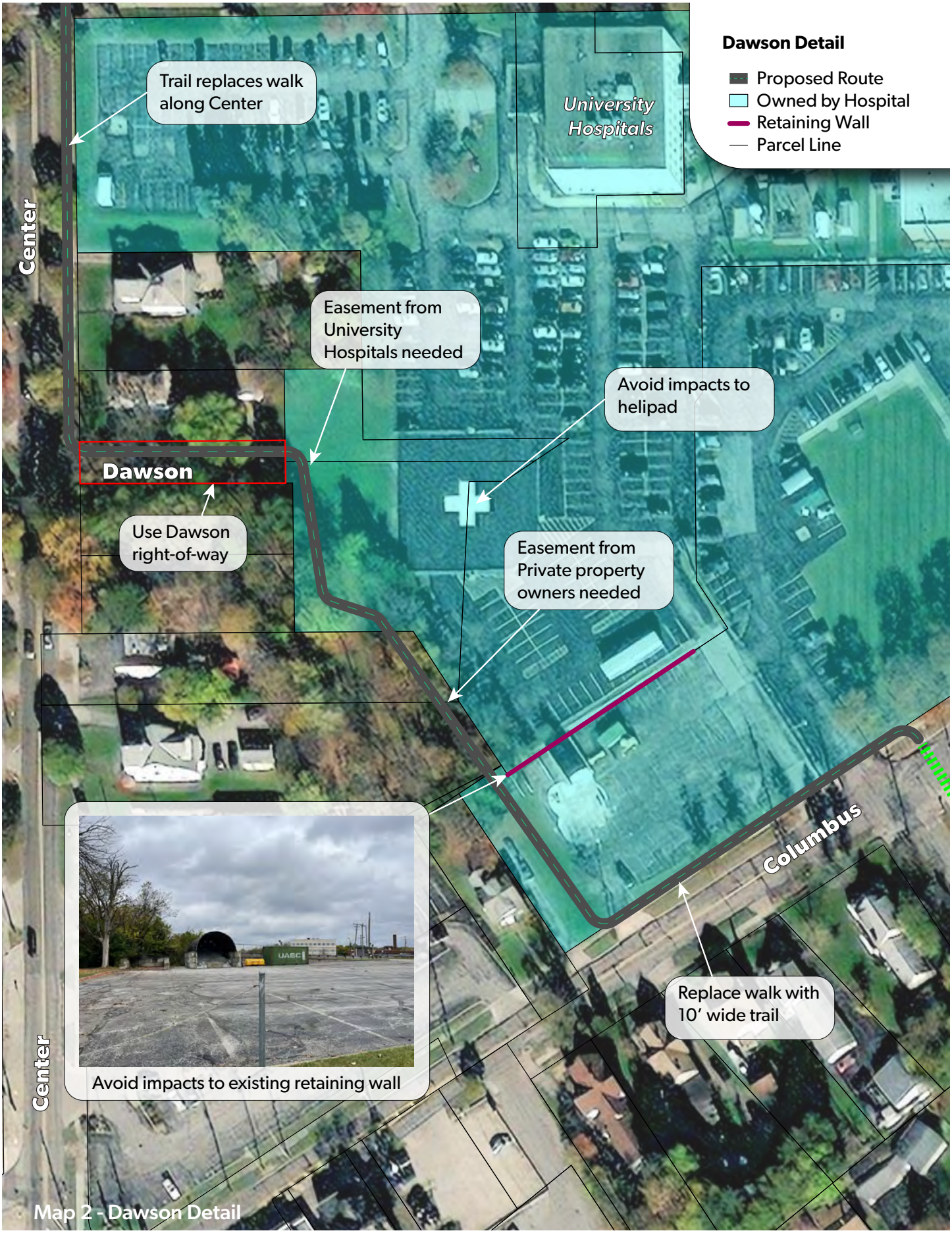


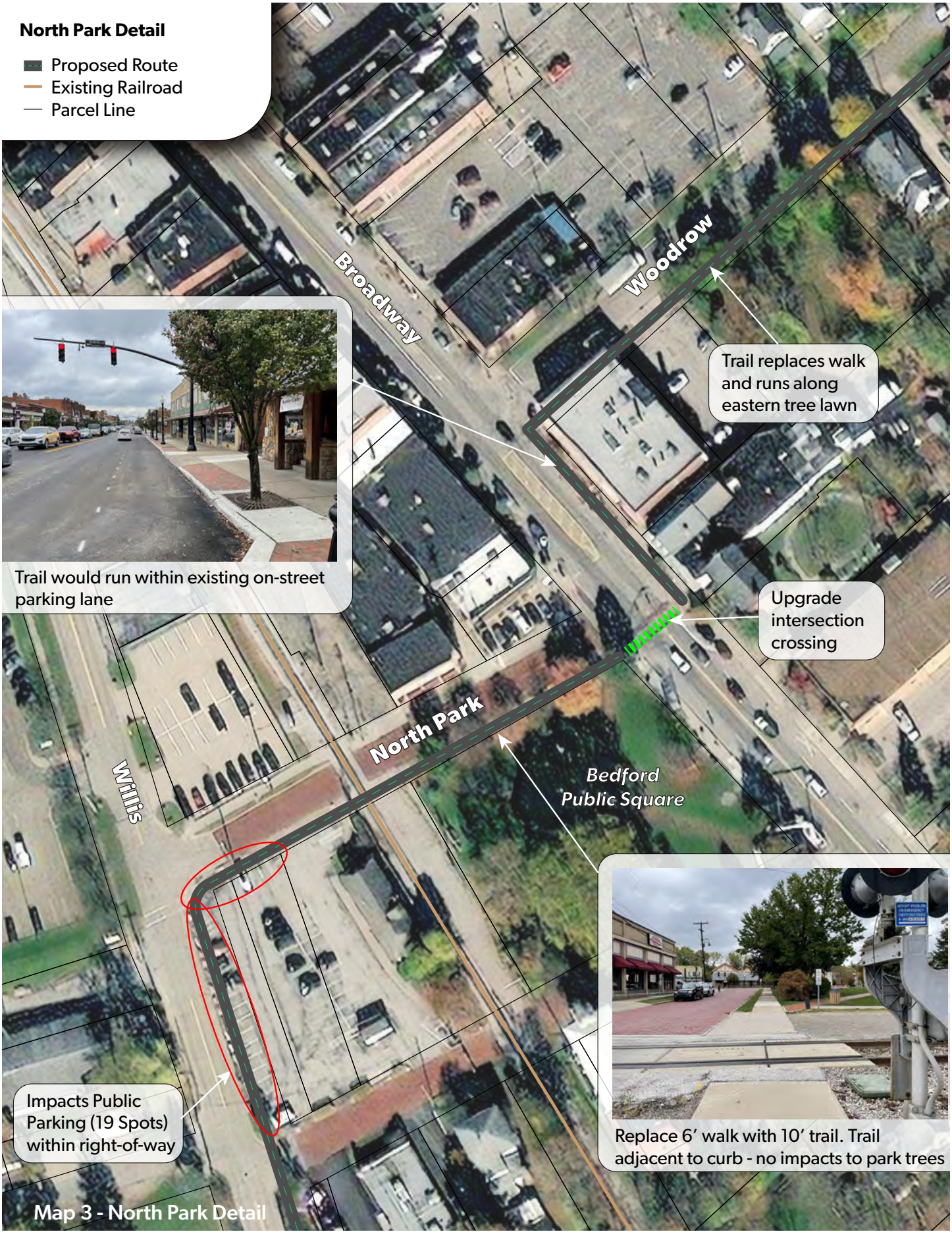
Figure 1 - Washington Road Typical Section

The trail will run along Washington Road to Woodrow Road and then turn south along Woodrow to Broadway. Similar to Washington Road, the trail will run within the south treelawn of Woodrow, removing the sidewalk and replacing it with a 10-foot-wide trail.

Once along Broadway, the trail will run south for one block to North Park Drive. The trail in this section will run within the pavement footprint, removing on-street parking along the east side of the roadway. The trail will cross Broadway at the existing signalized intersection at North Park Drive. As illustrated in the rendering on page 7, the trail will run along the south side of North Park Drive and replace the existing sidewalk. No impacts to the park are anticipated with this improvement since all widening can be completed within the existing treelawn. The trail will continue south to Willis Road and will be incorporated into park improvements planned by the City for the existing surface parking lot.



Map 2 - Dawson Detail


North Park Detail
Proposed Route
Existing Railroad
Parcel Line
Broadway
Woodrow
Trail replaces walk and runs along eastern tree lawn
Trail would run within existing on-street parking lane
Upgrade intersection crossing
North Park
Willis
Bedford Public Square
Impacts Public Parking (19 Spots) within right-of-way
Replace 6' walk with 10' trail. Trail adjacent to curb - no impacts to park trees
Map 3 - North Park Detail

Metroparks Trail Connections

Viaduct Park Trail

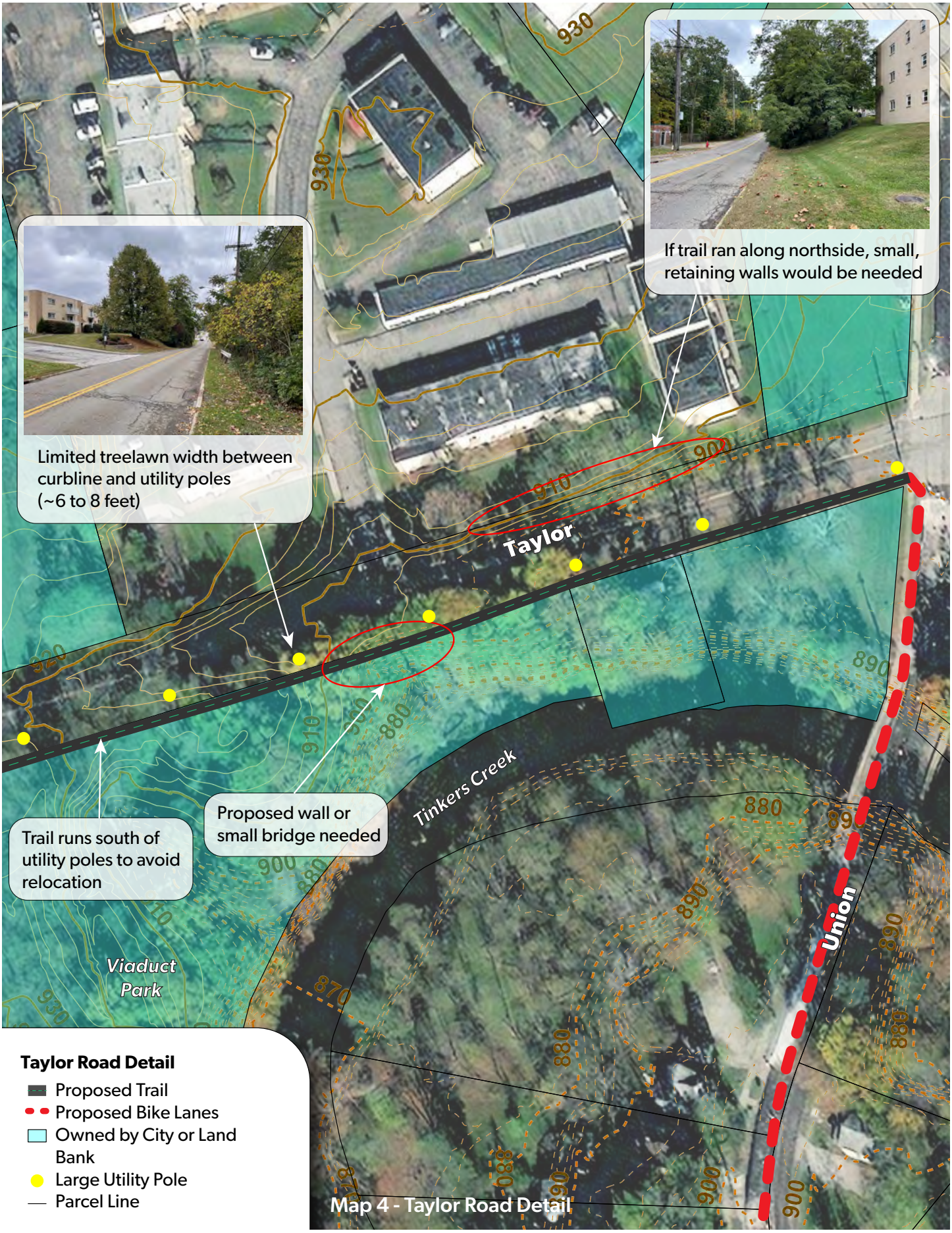
Ultimately, the City is seeking to construct a multi-use bridge over Tinker's Creek within Viaduct Park that will link the proposed trail network directly to the Cleveland Metroparks Trail along Egbert Road. The City, outside of this planning effort, has developed preliminary drawings and a cost for this alignment. Due to the high cost of the project, it is anticipated that construction for this section will be years in the future. To develop a direct connection to the Cleveland Metroparks trail in the short term, an interim connection has been proposed as part of this plan.

Taylor Road Interim Connection

To link Alternative 2's trail alignment directly with the Cleveland Metroparks trail while funding for Viaduct Park's trail project is being acquired, an interim connection is proposed along Taylor and Union Roads. Taylor Road provides an ideal connection as all of the property south of Taylor Road, abutting Tinker's Creek is owned by the City of Bedford. This allows for some flexibility in the trail's alignment to be outside of Taylor Road's right-of-way. The south side of Taylor Road has large utilities and the proposed alignment is shown running south of these utilities to avoid relocation. There is a location where a small retaining wall or small bridge over a tributary to Tinker's Creek will be needed. The trail along Taylor Road will be a great mobility addition as there are currently no pedestrian facilities along this section of the corridor.

The interim route will then run south along Union Avenue, for approximately 1,200 feet, intersecting with the Cleveland Metroparks trail. Bike lanes (6 feet wide) are proposed along Union Avenue as the existing pavement width for the two-lane roadway is 34 feet. A proposed typical section along Union Avenue is shown to the right.

The Taylor Road interim connection requires no private right-of-way and is relatively cost effective to implement.



Map 4 - Taylor Road Detail

Support Infrastructure

While creating quality multimodal connections to desired destinations is most critical to enhancing an area's walkability and bikability, supporting infrastructure also needs to be considered. Detailed below are improvements that should be considered when constructing the multimodal improvements.

PEDESTRIAN WAYFINDING

Pedestrian wayfinding systems are navigational systems that help pedestrians determine where they are and where they need to go to reach a destination. Traditionally consisting of signs, wayfinding systems can now also involve GPS systems and mobile technology. Wayfinding systems can be designed for entire cities or specific districts within a city.

BICYCLE PARKING

Installing bike racks at key intersections and adjacent to desired destinations allow a cyclist the ability to take extended trips. Bike parking can generally be accommodated within the sidewalk or treelawn. In some cases, where sidewalk width is limited, bicycle parking can be placed on the street, typically within on-street parking lanes.

BICYCLE REPAIR STAND

A bike repair stand includes all the tools necessary to perform basic bike repairs and maintenance, from changing a flat to adjusting brakes. The tools and air pump are securely attached to the stand with stainless steel cables and tamper-proof fasteners. Hanging the bike from the hanger arms allows the pedals and wheels to spin freely while making adjustments.

Sidewalk Improvements

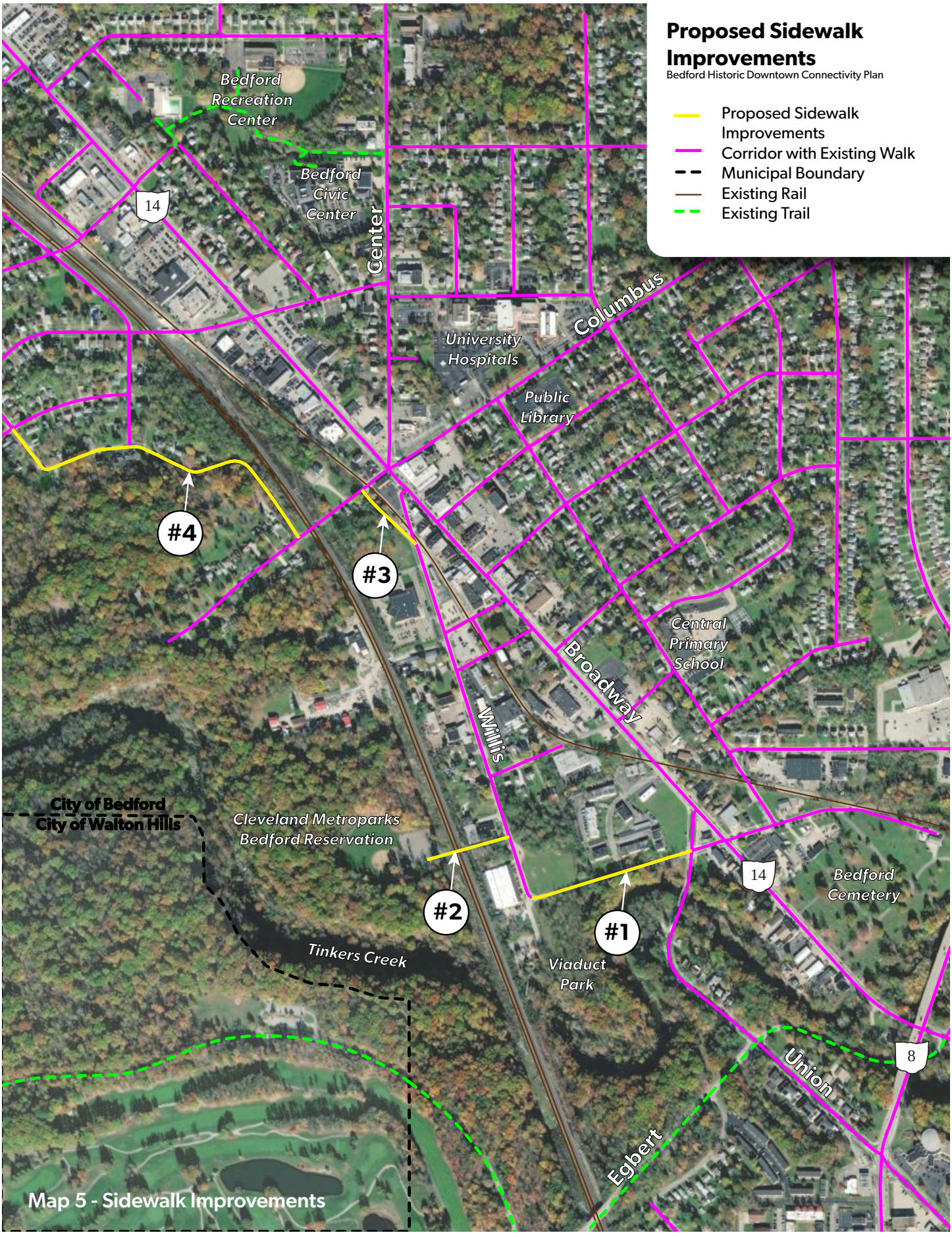
As shown in the Existing Conditions Chapter of this plan, the majority of roads within the City of Bedford have sidewalk facilities along both sides of the roadway. Only in areas south and west of the existing railroad that bisects the Historic Downtown are there roads with limited pedestrian facilities. To improve pedestrian linkages in these area, four sidewalk improvements are recommended and illustrated on the following page.

#1 Taylor Road Adjacent Walk
Walk improvements along Taylor Road are proposed along the north side of the roadway to directly link the Glen Valley Apartment complex to walks along Willis and Broadway. Due to the existing grades adjacent to the roadway, an eight-foot-wide adjacent sidewalk is proposed. There will be a need for some small retaining walls by Glen Valley Apartments.

#2 Bedford Glens Adjacent Walk
The Bedford Glens is a popular park destination within the area and has no pedestrian connection. While the existing railroad underpass limits potential improvements, an adjacent walk can be constructed along one side of the roadway. The walk is proposed along the southside and will run from Willis Road to the existing walking paths within the park.

#3 Niver Road Walk
Niver Road links vehicular traffic from Willis Road to Powers Road. This 400 foot section of roadway has no sidewalks. Walks are proposed along the north side of the road in between the road and railroad.

#4 Mapledale Road Walk
Walk is also proposed along Mapledale Avenue to link this neighborhood directly to the Historic Downtown. A separated walk is proposed along the northside of Mapledale Avenue within the existing neighborhood. The final 700 feet west of Powers Road will be 8-foot-wide adjacent sidewalk to limit grading and utility impacts.



Map 5 - Sidewalk Improvements

Traffic Calming

Broadway Avenue

In addition to the mid-block crossing, additional improvements are proposed to further slow down traffic within the Historic Downtown. Curb bump-outs should be added in locations where none exist today (Woodrow and North Park intersections), and extended further into the traveled way at current locations. Similar to the mid-block crossing, existing curb bump-outs still allow for 14-foot-wide lanes along Broadway Avenue. Extending the curb bump-outs and reducing the lane width to 12 feet, will improve vehicular speeds.

Additional speed tables should also be considered along Broadway if vehicular speeding persists. One speed table should be placed at the Willis Road intersection and a second speed table just south of North Park Drive. A series of three speed tables (Willis, mid-block crossing, and south of North Park) within the Historic Downtown will reduce vehicular speeds. The City should consider working with NOACA and utilizing their Street Supplies Program to temporarily test speed tables along Broadway Avenue. This is a low-impact, and cost effective way to measure the impact speed tables have on vehicular speeds and pedestrian safety.

Broadway Avenue - Looking West

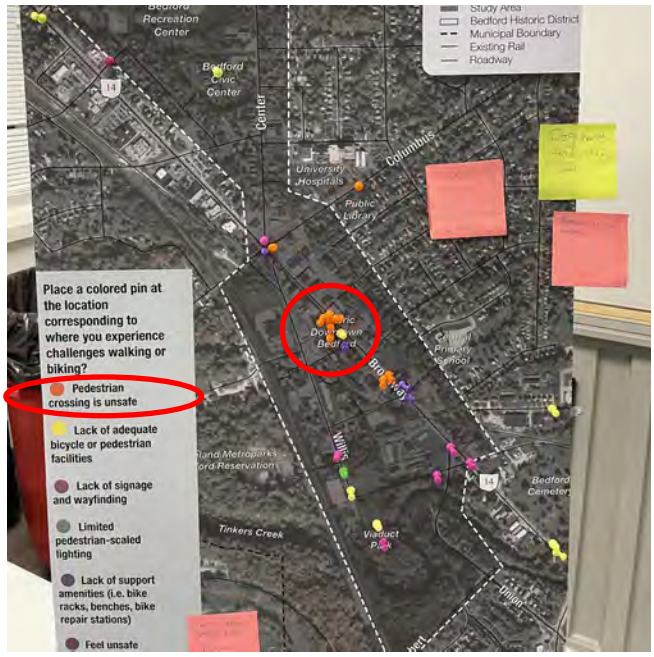
Map 6 - Proposed Speed Table & Bump Out Locations

Traffic Calming

Broadway Mid-Block Crossing

The existing mid-block crossing along Broadway Avenue has multiple features that aid in creating a safe pedestrian crossing, decorative crosswalk, flashing overhead signage, and curb bump-outs, but vehicular speeding and safety concerns at this crossing still persist. At the first public meeting, residents highlighted this mid-block crossing as "unsafe" and wrote in many comments about vehicle speeding in this area. Traffic analysis along Broadway confirms that the 85th percentile speeds greatly exceed the speed limit. While enforcement can help to quell speeding, physical improvements to this crossing can also improve safety for pedestrians.

Existing Mid-Block Crossing - Broadway



Feedback from Public Meeting 1

Actuated Pedestrian Beacons

An easy first step is to change the existing flashing signage to pedestrian actuated flashing beacons. Pedestrian actuated beacons are more effective at alerting vehicular traffic that a pedestrian is ready to cross the roadway, as opposed to signage that continuously flashes.

Extend Curb Bump-outs

Extending the existing curb bump-outs further into the traveled way would also work to slow traffic. The existing curb bumps-outs allow for 14-foot-wide travel lanes. Though Broadway is a Primary Aid Federal Route, lane widths could still be reduced to 12-feet-wide to shorten the crossing and slow traffic.

Install Raised Crossing/Speed Hump

Finally, constructing a raised crossing or speed table would create a physical impediment to slow traffic to the speed limit. Speed tables are midblock traffic calming devices that raise the entire wheelbase of a vehicle to reduce its traffic speed. Speed tables are longer than speed humps and flat-topped, with a height of 3–3.5 inches and a length of 22 feet. Vehicle operating speeds for streets with speed tables range from 25–45 mph. This recommendation should be implemented either with the previous mentioned improvements or as the final improvement if those recommendations fail to slow traffic.

Pedestrian Crossing Treatments

Street crossings are points of conflict between vehicle and pedestrian traffic. To ensure that pedestrians are visible and safe at intersections, several proposed treatments are recommended.

RECTANGULAR RAPID FLASH BEACONS (RRFB)

Rectangular Rapid Flash Beacons (RRFBs) use an irregular flash pattern similar to emergency flashers on police vehicles and can be installed on either two-lane or multi-lane roadways. Beacons can be actuated either manually by a push-button or passively through detection. Active warning beacons should be used to alert drivers to yield where bicyclists have the right-of-way crossing a road.

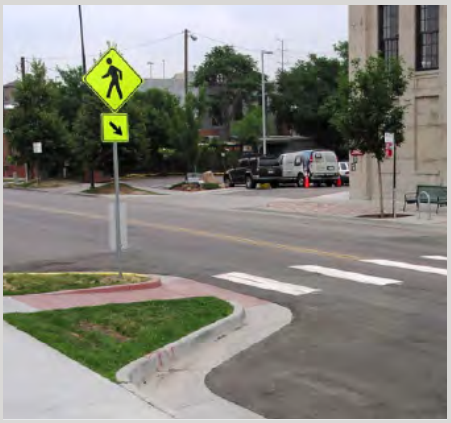
RRFB's are usually implemented at high-volume pedestrian crossings or priority bicycle route crossings. RRFB's promote safe crossing environments at locations where bicycle facilities cross roads at mid-block locations or at intersections where signals are not warranted or desired.

RAISED MID-BLOCK CROSSING/SPEED HUMPS

Unlike speed bumps, speed humps are longer and tend to be lower to the roadway. Humps can have a rounded or flat top, and the shape may depend on the length of the speed hump.

While both speed bumps and speed humps can be difficult for bicyclists to overcome, both can be designed with cuts at the side to allow for easy passage for riders. Multiple bumps or humps are needed at intervals of 300 to 600 feet apart to achieve lower vehicle speeds for an entire roadway. Speed humps are cost effective and are plowable during snow events.

CURB BUMP OUT/EXTENSION



Curb extensions are traffic calming devices that physically narrow the roadway, while also giving the appearance of a much narrower roadway. They can create shorter crossings for pedestrians and also reduce vehicle speeds leading to a safer environment for both drivers and pedestrians.

Transit Waiting Environments

The existing transit waiting environments within the study area lack support amenities like benches and trash cans. Given that this plan proposes improved access to these transit stops by developing a connected trail system, improvements to these waiting areas should also be implemented.

The provision of seating at transit stops should be prioritized with the goal of improving comfort for the greatest number of passengers. Stops with a moderate or high number of boardings should be furnished with seating, as should stops with long wait times and stops with relatively high use by senior and child passengers. Implementing something similar to the picture shown at the bottom right side of this page would be sufficient.

When adding seating the following should be considered.

Seating shall not conflict with paths, leaving 3 to 4 feet of clear distance on all sides where pedestrians are expected.

Benches shall be at least 43 inches long, and 20–24 inches wide, with the seat 17–19 inches above ground level (ADAAG §903).

Ensure benches are designed to prevent accumulation of water.

At small stops, provide several individual seats or a bench with raised separation between seats.

Existing Bus Stop along Center Road

Transit Waiting Environment with Benches Denver , Colorado

Summary

This chapter details recommendations by travel mode. Recommendations for trail connections included the Downtown Connector (Alternative 2 route) as well as creating an interim trail connection to the through Viaduct Park along Taylor Road. Bicycle support infrastructure including bike racks, bike repair stations, and signage are recommended along all proposed trails to further encourage usage. A series of sidewalk improvements were proposed within the study area to increase connectivity of low-income populations to Downtown Bedford. Traffic calming recommendations were proposed along Broadway Avenue within Downtown Bedford. This area is prone to speeding and has a high volume of pedestrian activity. Finally, enhancements to existing transit waiting environments were proposed to enhance rider experience.

Chapter 4 | Implementation

Plan Prepared by:

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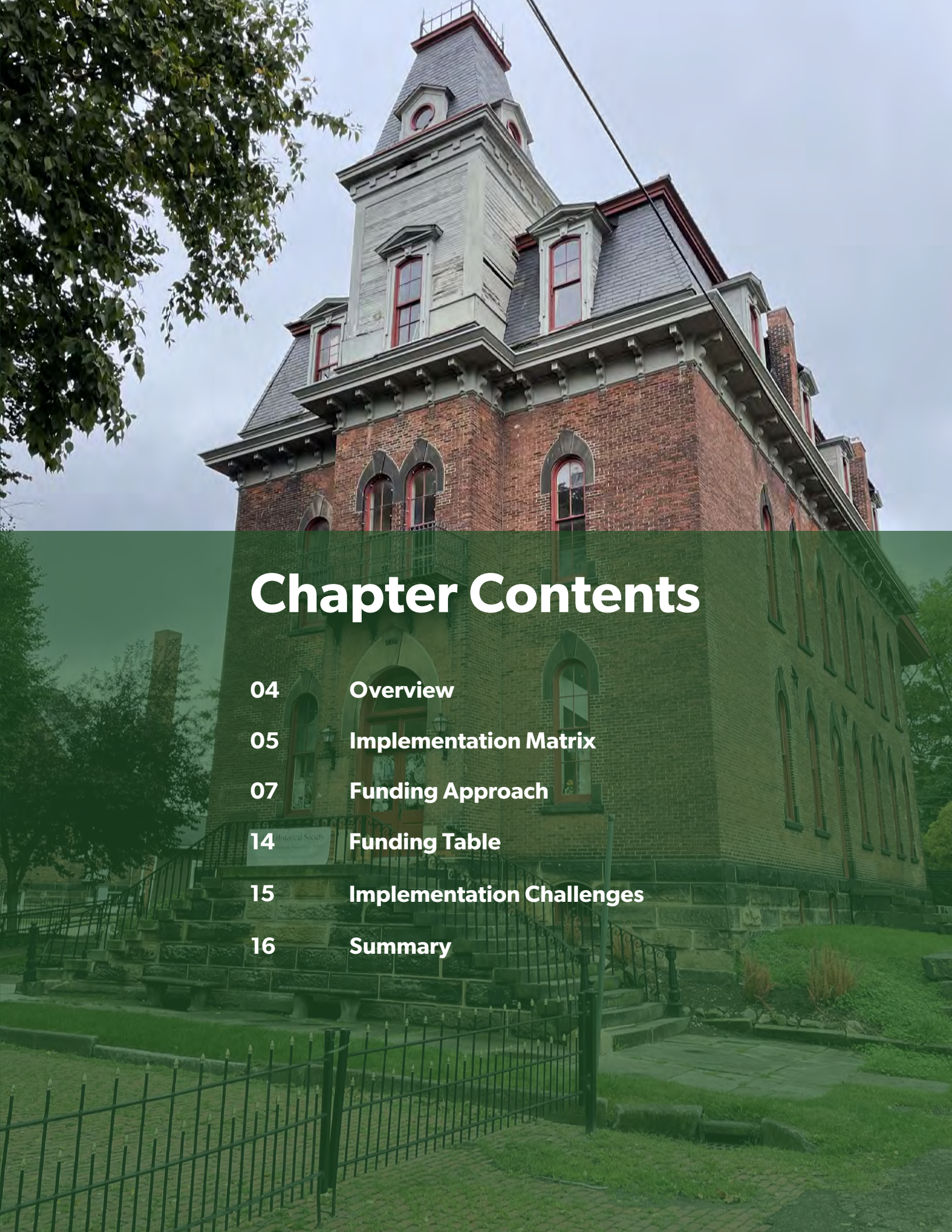
DESIGNING LOCAL

Figures, Charts, & Maps

Figures

Charts

Maps



Chapter Contents

Overview

This Chapter provides the City with implementation to prioritize and pursue funding sources. To assist the City with implementation, preliminary cost estimates, potential partnership opportunities, and best grant funding sources were compiled for each recommendation. Recommendations are segregated into “short”, “medium”, or “long” term priority improvements. These prioritizations are meant to assist the City make decisions when seeking to allocate resources to specific projects. An implementation matrix summarizing this information is shown on the following page. Due to the scale of the proposed trail improvements, this recommendation was divided into two phases. Each phase proposes logical temporary end termini and allows the City to maximize potential grant funding to construct the trail. A phasing diagram is illustrated on page 6. Complete preliminary estimates for each recommendation can be found in Appendix B.

A detailed funding approach is also summarized within the chapter. Potential funding sources are summarized and segregated into categories: Primary Grant Funding, Secondary Grant Funding, Formula Funding, Public-Private Partnerships, USDOT Discretionary Grants, and Economic Development Tools. Any of these funding sources could be used to assist in the development of recommendations from this plan. In addition, a funding table is provided summarizing each funding source’s local match, maximum award, funding cycle, and links to more information.

The City should review the implementation and funding matrices to determine which improvements are a priority and follow the funding approach to pursue specific funding sources.

Rendering of Taylor Road Looking East

Implementation Matrix

Improvement Project	Project Lead	Partners	Estimated Costs (2024)	Best Funding Source(s)	Priority
Trail Improvements					
Downtown Connector - Alternative 2 Total	City of Bedford	Cleveland Metroparks, NOACA	$1,000,000	ODNR Clean Ohio Trails, ODNR Recreational Trails, TLCI Implementation	Medium
Downtown Connector - Phase 1	*City of Bedford*	*NOACA*	*$660,000*	*ODNR Clean Ohio Trails, ODNR Recreational Trails, TLCI Implementation*	Medium
Downtown Connector - Phase 2	*City of Bedford*	*Cleveland Metroparks, NOACA*	*$340,000*	*ODNR Clean Ohio Trails, ODNR Recreational Trails, TLCI Implementation*	Medium
Taylor Trail and Union Bike Lanes	City of Bedford	Cleveland Metroparks, NOACA	$410,000	ODNR Clean Ohio Trails, ODNR Recreational Trails, TLCI Implementation	Short
Viaduct Park Trail and Bridge	City of Bedford	Cleveland Metroparks, NOACA	$1,910,000	ODNR Clean Ohio Trails, ODNR Recreational Trails, TLCI Implementation	Long
Walk Improvements					
Taylor Road - 8' Wide Adjacent Walk	City of Bedford	NOACA	$190,000	TLCI Implementation, Transportation Alternatives	Short
Bedford Glens - 8' Wide Adjacent Walk	City of Bedford	Cleveland Metroparks, NOACA	$90,000	TLCI Implementation, Transportation Alternatives	Short
Niver Road - 6' Wide Walk	City of Bedford	NOACA	$70,000	TLCI Implementation, Transportation Alternatives	Medium
Mapledale Road - 6' Wide Walk	City of Bedford	NOACA	$470,000	TLCI Implementation, Transportation Alternatives	Long
Traffic Calming Improvements					
Broadway Mid-Block Crossing	City of Bedford	ODOT, NOACA	$80,000	Abbreviated Pedestrian Safety Funding	Short
Speed Tables along Broadway (two in total)	City of Bedford	ODOT, NOACA	$40,000	NOACA Street Supplies Program, Abbreviated Pedestrian Safety Funding	Short
Curb Bump Outs (two intersections)	City of Bedford	ODOT, NOACA	$60,000	NOACA Street Supplies Program, Abbreviated Pedestrian Safety Funding	Medium

Figure 1 - Implementation Matrix

Map 1 - Downtown Connector Phasing Diagram

Funding Approach

Primary Grant Funding

While a funding table detailing all potential funding sources is provided on page 14, the City should focus their efforts annually towards a handful of funding sources. These sources are described in detail below.

TLCI Implementation Funding – This is an annual funding source offered by NOACA that does not require a local match (though a local match is encouraged). NOACA is looking for projects that exceed $100k and typically fund projects within the $300k to $500k range. These funds would be ideal to pursue sidewalk improvements along Taylor or Mapledale Roads as sidewalks are difficult to fund with other discretionary funding sources.

ODNR Clean Ohio Trails Funding – This is an annual funding source offered by ODNR that requires a 25% local match. These funds are ideal for off-road trail projects that link a new trail network to community assets. These funds will not fund trail upgrades but should be considered to help construct the proposed trail connection through Downtown Bedford.

ODNR Recreational Trails Funding - This is an annual funding source offered by ODNR that requires a 20% local match. These funds are ideal for smaller (shorter) off-road trail projects that link to community assets. These funds can be used for trail upgrades but have a maximum funding award of $150k. These funds would be ideal for proposed trail improvements along Taylor and within Viaduct Park.

ODOT Systematic and Abbreviated Pedestrian Safety Funding – These funding sources through ODOT provide up to $2M and $500k respectively to address known pedestrian safety issues with proven pedestrian safety improvements. Each source requires a 10% local match. There has to be a documented pedestrian safety issue in the area and high demand for pedestrian traffic. Abbreviated funds are meant for “quick fix” pedestrian improvements that require no private right-of-way and can be constructed within two years of award. Both funding sources should be considered to leverage improvements along Broadway, specifically for improvements to the mid-block crossing (abbreviated funding).

Secondary Funding

Some of the funding sources listed are relevant only in specific scenarios. These sources should be considered when those specific scenarios arise, leaving the primary funding sources listed previously for other improvements.

ODOT Safe Routes to School Funding – This funding source through ODOT provides up to $400k in design and construction funding with a 20% local match. Improvements need to focus on pedestrian and bicycle safety to and from school buildings and must be within 2 miles of an active school. To be competitive for funding the City must have an up-to-date Safe Routes to School Plan (completed within the last 5 years) and illustrate how the proposed improvements will improve bicycle and pedestrian safety. In addition, the proposed recommendations must be utilized by school aged children.

OEPA Recycling & Litter Prevention Program – Scrap Tire Grant – This funding source through OEPA provides up to $300k in construction funding with an 100% local match. This source utilizes recycled scrap tires as the surface course for the trail. There are examples throughout Ohio where recycled scrap tires are used to construct trails. The goal of OEPA with this grant is to provide educational opportunities to users of the benefits and reuse of scrap tires. For a competitive application, OEPA is looking for highly visible trails to promote this program. Trails within Viaduct Park could be competitive for this source.

ODNR Land & Water Conservation Funding - This is a biannual (every two years) funding source offered through ODNR that requires a 50% local match. While this grant can fund a variety of park improvements, it can also fund recreational trails and support facilities, including trail bridges, trailheads and restrooms. These funds can be also used for land acquisition for trail development and have a maximum funding award of $500k.

Formula Funding

There are a handful of formula funding programs that are offered through NOACA (Transportation Alternatives Set-Aside (TASA), Congestion Mitigation and Air Quality (CMAQ), Surface Transportation Block Grant (STBG)) that seek to allocate funding in future years within the five-county region for bike and pedestrian improvements. NOACA accepts project applications on a biannual (every two years) basis for these funding sources. Funding requests for these sources typically far exceed the amount of money available in future years. Even once a project is programed to one of these sources, it will be multiple years until construction funding is available. These are still viable funding sources for the City to pursue, particularly on projects that require time to allocate local match funding, or are reliant on another improvement to be constructed.

Public-Private Partnerships

Traffic Calming and pedestrian improvements along Broadway lend themselves to the possibility of public-private partnerships between the City and local businesses. These partnerships can take many forms including financial contributions, naming rights, easements, or maintenance assistance.

USDOT Discretionary Grants

With the passage of the Bipartisan Infrastructure Law in November of 2021 there has been a vast expansion of funding for federal discretionary grants. These grants are highly competitive, take a significant investment to develop, and require a large project that would connect major regional assets for these funding sources to be considered. A few of the funding sources that could fund future trail projects are listed on the next page.

Safe Streets and Roads for All (SS4A) Program - The primary goal of the SS4A grants is to improve roadway safety by supporting communities in developing comprehensive safety action plans based on a Safe System Approach, and implementing projects and strategies that significantly reduce or eliminate transportation-related fatalities and serious injuries involving pedestrians, bicyclists, public transportation, and micromobility users.

The SS4A program has three funding opportunities: an Action Plan Grant, Demonstration Projects, and an Implementation Grant. The Action Plan Grant is a planning grant designed to create a well-defined strategy to prevent roadway fatalities and serious injuries in a locality. Demonstration projects are projects developed under an Action Plan that area easy to implement and/or test a safety solution. The Implementation Grant funds recommendations defined in the Action Plan which improve roadway safety and reduce serious or fatal injuries for pedestrians, cyclists, public transportation, or micromobility users.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE) - The RAISE program invests in multimodal and multi-jurisdictional road, rail, transit and port projects that are typically harder to support through traditional U.S. Department of Transportation (USDOT) programs. These competitive grants are intended to make significant investments in projects that achieve national objectives. RAISE grants require a 20% local match and have a maximum funding award of $25 million.

Economic Development Tools

In certain scenarios where development is anticipated and future property tax values are anticipated to increase, either a Tax Increment Financing (TIF) District or a Downtown Revitalization District (DRD) could be created and could fund streetscape, pedestrian, or trail improvements within the proposed district. These tools could make sense within the Historic Downtown and areas to the southeast along Broadway and Taylor where greenfields exist. More information regarding each tool is detailed below.

Tax Increment Financing

Tax Increment Financing ("TIF") is an economic development tool that enables local governments, including municipalities, townships and counties to finance public infrastructure improvements and, in select circumstances, privately owned economic development projects and residential projects.

Size and Boundary

An Incentive District may span multiple parcels and comprise an area no larger than 300 contiguous acres.

Characteristics of Economic Distress

O.R.C. 5709.40(A)(5) requires that Incentive District TIFs demonstrate one or more of the following seven characteristics of economic distress:

- More than half of the residents' incomes in the district are less than 80% of the median income of the residents in the political subdivision where the TIF district is located ;
- The average unemployment rate over the last year for the district is equal to 150% of the average rate of unemployment for Ohio over the same year;
- More than a quarter of the population living in the district has an income below the federal poverty line;
- The district is blighted;
- The district is located in a substantially distressed area;
- A certified engineer certifies that the public infrastructure in the district is inadequate to meet the potential development needs of the district; or
- The district consists of entirely unimproved land.

How it Works?

TIF captures the increase in property value of real property. As shown below, an existing assessed value is established prior to the TIF's enactment. This sets the taxable value of the property for the life of the TIF. In addition, extensive economic analysis is completed to establish projected future property values based on proposed public improvements within the district. These projections are the basis for the economic development plan that must be completed to justify a TIF. As improvements are made to the public infrastructure in the district and/or development occurs,

property values should increase. That projected increase in property value is used to fund the aforementioned public improvements throughout the district.

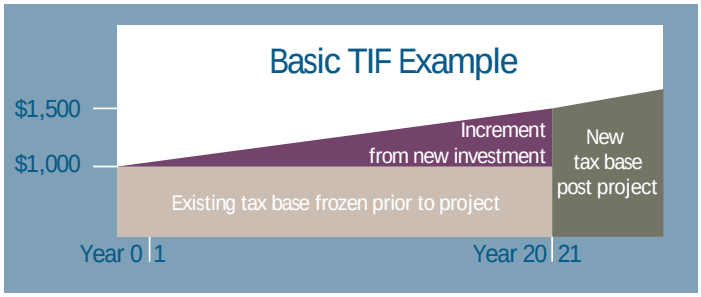


Figure 2 - TIF Example

TIF is not a tax increase! The additional assessed value of the properties within the TIF district are paid by the property owner as payments in lieu of taxes (PILOTs).

Taxes and TIFs

Local legislative authorities may exempt up to 75% of the value of improvements to real property from taxation for up to ten years without local school board approval.

In general, any government desiring to exempt more than 75% of the value of the improvements from real property taxation or seeking a TIF term greater than 10 years must receive prior approval from the local board of education and statutorily required additional government entities. With those approvals a political jurisdiction may exempt up to 100% of the improvements for up to 30 years. The jurisdiction that authorizes the tax incentive must specify the rate (100% maximum) and the length (30-year maximum term) of the property tax exemption.

What Qualifies as a Public Improvement?

Any of the following improvements are eligible for TIF funding.

- Traditional Public Infrastructure Projects: roads, bridges, streetscaping, water & sewer improvements
- Redevelopment Projects: land acquisition & environmental remediation
- New Development: gas, electric & communication facilities

Above all, the improvement must generally benefit the TIF district.

Downtown Revitalization District

A Downtown Revitalization District (DRD) is one way to leverage future investment within the Historic Downtown to help improve storefronts or infrastructure within the district.

The Ohio General Assembly recently enacted H.B. 233 which enables municipalities to create Downtown Redevelopment Districts (DRD). A DRD functions similarly to a Tax Increment Financing (TIF) District, but offers municipalities additional options in funding projects and programs with funds generated by the DRD.

Property owners within the DRD make service payments in lieu of taxes on a tax exemption up to 70% of the increased value of real property over the course of the 10-year DRD period. A DRD may have a 30-year term with approval by the local school board.

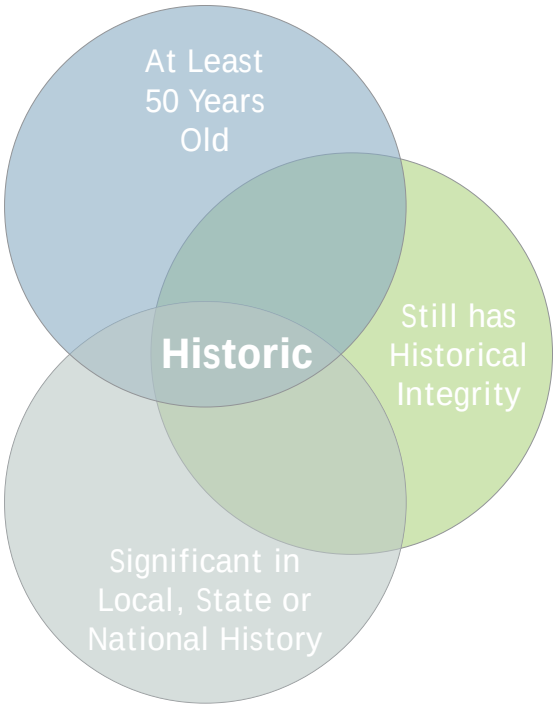
An Economic Development Plan must specify the proposed uses of DRD service payments which may include:
1) loans or grants to owners of buildings within the DRD for the purpose of rehabilitating historic buildings;
2) loans to owners of buildings within the DRD for the purpose of making repairs or improvements to buildings that are not historic buildings;
3) contributions to a Special Improvement District (SID), Community Improvement Corporation (CIC) or nonprofit corporation for use to rehabilitate a historic building or promote or enhance the DRD; or financing public infrastructure improvements (similar to TIF districts) within the DRD.

Example DRD Districts

The illustration shown to the right is a hypothetical DRD districts within the Historic Downtown. The areas highlighted are roughly 10 acres and contain more than one historic structure and potential redevelopment sites. In the example, hypothetical development of greenfields owned by the City would potentially generate increased tax value that could be leveraged to supplement funding for other improvements within the district including streetscape improvements or other building renovations.

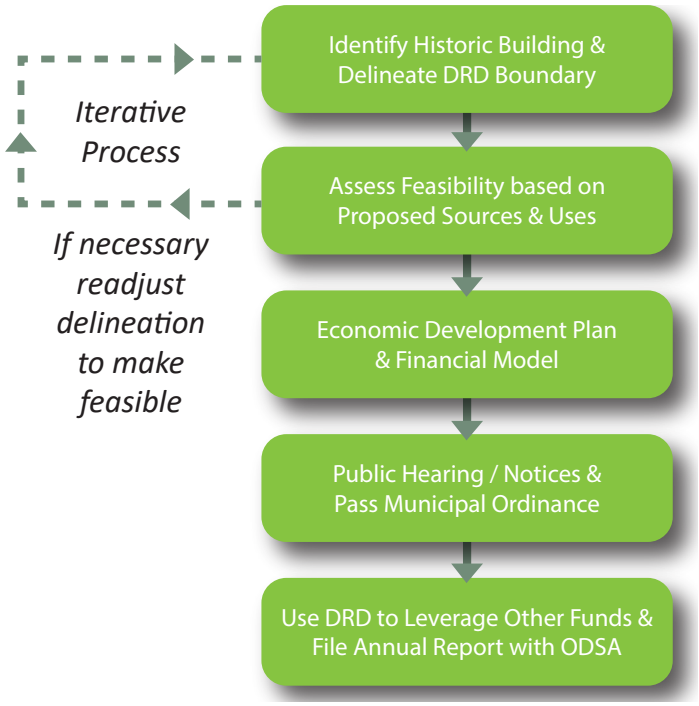
Map 2 - Example DRD Districts in Downtown Bedford

The name Downtown Redevelopment District is in itself misleading. A DRD does not have to be located in a Central Business District or densely populated area. The only requirements in delineating a DRD is that it must:
1) be located within a municipality;
2) be no more than 10 acres of contiguous area; and
3) include one historic building (as defined by O.R.C. 149.311) that is being rehabilitated or will be rehabilitated.



A DRD must not be comprised exclusively of residential uses. In addition, a DRD may not be comprised of any parcels that are part of an active or former TIF District.
To qualify as historic a building must be either:
1) listed on the National Register of Historic Places (NRHP);
2) contribute to a National Register Historic District;
3) located in a National Park Service Certified Historic District; or
4) located in a Certified Local Government Historic District.

A building may still potentially qualify for historic certification even if it is not currently certified under one of the four categories listed above. If you have a building that is at least 50 years old, still has its historical integrity intact, and is significant in local, state or national history, it may be eligible to undergo a historic certification process.



Implementation

Remember that a DRD may be used in conjunction with other funding sources as part of a project funding plan. As with a TIF, a DRD can be an excellent source of local match funding for state and federal-funded infrastructure projects. Unlike a TIF, a DRD provides additional flexibility in funding investments to privately-owned structures. For example, DRD proceeds could be directed to storefront renovation loans (or grants for historic buildings), while also funding streetscape enhancements within the public right-of-way.

Funding Table as of January 2024

Source	Agency	Eligible Project Types	Eligible Phase	Max. Award	Local Match	Due Date
TLCI Implementation https://www.noaca.org/community-assistance-center/funding-programs/transportation-for-livable-communities-initiative-tlci	NOACA	Bicycle & Pedestrian Facilities, Traffic Calming	Construction	$100k Min. - No Max.	0%	Early Fall
Transportation Alternatives Set-Aside Program https://www.noaca.org/community-assistance-center/funding-programs	NOACA	Bicycle & Pedestrian Facilities	Design Construction Right of Way	No Max.	20%	Dates Vary
Congestion Mitigation and Air Quality https://www.noaca.org/community-assistance-center/funding-programs	NOACA	Bicycle & Pedestrian Facilities, Traffic Congestion Mitigation	Design Construction Right of Way	No Max.	20%	Spring
Clean Ohio Greenspace Conservation Program https://www.pwc.ohio.gov/Programs/All-OPWC-Funding-Programs	OPWC	Open Space Acquisition, Trail Development	Design Construction Right of Way	No Max.	50%	August - October
State Capital Improvement Program https://www.pwc.ohio.gov/Programs/All-OPWC-Funding-Programs	OPWC	Sidewalks - if paired with roadway improvement	Design Construction Right of Way	No Max.	10% Repair 50% Expansion	August - October
Safe Routes to School Program https://www.transportation.ohio.gov/programs/safe-routes-srts/apply-srts-funding	ODOT	Bicycle and Pedestrian Facilities, Traffic Calming	Design Construction Right of Way	$400k	20%	Early March
Nature Works Grant http://realestate.ohiodnr.gov/outdoor-recreation-facility-grants	ODNR	Park land Acquisition, Walking Trails	Design Construction Right of Way	Generally $75k to $100k	25%	May 1st
Recreational Trails Program http://realestate.ohiodnr.gov/outdoor-recreation-facility-grants	ODNR	Land Acquisition for Trails, Trail or Trail head Construction	Design Construction Right of Way	$150k	20%	February 1st
Clean Ohio Trails Program http://realestate.ohiodnr.gov/outdoor-recreation-facility-grants	ODNR	Land Acquisition for Trails, Trail or Trail head Construction	Design Construction Right of Way	$500k	25%	February 1st
Land & Water Conservation Fund http://realestate.ohiodnr.gov/outdoor-recreation-facility-grants	ODNR	Land Acquisition for Open Space or Trails, Trail Construction	Design Construction Right of Way	$500k	50%	November (Even Years)
Recycling & Litter Prevention Program - Scrap Tire Grant https://epa.ohio.gov/Portals/41/grants/ROG.pdf	OEPA	Use of Recycled Tires for Trail Development	Construction	$300k	100%	January
Systematic Safety Funding (Pedestrian) ODOT Systematic Safety Funding	ODOT	Systematic Pedestrian Safety Improvements	Construction	$2M	10%	January 31st
Abbreviated Safety Funding (Pedestrian) ODOT Abbreviated Safety Funding	ODOT	Quick Fix Pedestrian Safety Improvements	Construction	$500k	10%	Quarterly
RAISE Grant https://www.transportation.gov/RAISEgrants/about	USDOT	Large Multimodal Improvements	Design Construction Right of Way	$25M	20%	Spring

Figure 3 - Funding Table

Implementation Challenges

Implementation of connectivity improvements can be filled with many challenges. These challenges, which can range from "not in my backyard" (NIMBY), funding or land access to political, environmental or other issues, can seem like perpetual barriers. The goal of this planning process was to anticipate and/or eliminate as many of these challenges as possible. Summarized below are some challenges that still remain and how to address these challenges.

Galvanizing Momentum

This planning process brought together City staff, the public, business owners, stakeholders, and potential project partners. All expressed interest in improving connectivity within the Downtown. To maintain positive momentum, prioritizing a recommendation that can be implemented quickly (i.e. mid-block crossing improvements) can go a long way in maintaining interest in the plan and furthering other recommendations. The City should continue to meet with the steering committee every six months to continue dialogue on implementation and maintain public support.

Funding

This Chapter provides a detailed funding strategy to compete for State, Federal, and Regional funding for connectivity projects. But these funding sources are highly competitive and may take several funding rounds (i.e. years) to be successful in acquiring funds. The City will most likely need to "stack" multiple funding sources together to fund larger recommendations or consider additional phases for larger projects depending on available funding. The City should also be prepared to provide a 20% to 25% local match for awarded grant funds. Some grant sources allow for staff hours, right-of-way easements, and/or construction materials to contribute to local matching requirements. The City should consider these options to lower cash contributions.

Right-of-Way Needs

While this plan strived to limit the need for private right-of-way easements to complete connectivity projects, there are a few locations where private right-of-way is needed. The City should reach out to property owners well ahead of pursuing funding to ensure the private property owners are interested in providing an easement. If negotiations to provide an easement stall, the City should pursue other connectivity improvements or consider an alternative route that avoids the property in question altogether.

Summary

This Chapter provides the City with implementation to prioritize and pursue funding sources. To assist the City with implementation, preliminary cost estimates, potential partnership opportunities, and best grant funding sources were compiled for each recommendation. A detailed funding approach is also summarized within the chapter. Potential funding sources are summarized and segregated into categories: Primary Grant Funding, Secondary Grant Funding, Formula Funding, Public-Private Partnerships, USDOT Discretionary Grants, and Economic Development Tools. The City should review the implementation and funding matrices to determine which improvements are a priority and follow the funding approach to pursue specific funding sources.