



Wyoming Bicycle & Pedestrian Transportation Plan



2016

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Wyoming Bicycle and Pedestrian Transportation Plan 2016

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1.0 Introduction

1.1 Purpose of the Plan

The United States Department of Transportation (USDOT) has policy in place that promotes the planning and development of bicycle and pedestrian components within the transportation system. The USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations states that:

"The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide - including health, safety, environmental, transportation, and quality of life - transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes."¹

Within the USDOT, the Federal Highway Administration (FHWA) offers several guidance documents to assist agencies, at the state and local level, in developing a plan that integrates all modes of transportation into their systems.

Title 23 of the United States Code (U.S.C.) lists requirements regarding transportation planning. Title 23, U.S.C. 135 (a)(2) requires that the statewide transportation plan and transportation improvement program "shall provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the State and an integral part of an intermodal transportation system for the United States."² Title 23, U.S.C. 135 (d)(1)(B) declares that each State shall carry out a statewide transportation planning process that provides for consideration and implementation of projects, strategies, and services that will increase the safety of the transportation system for motorized and nonmotorized users.

In addition, the Americans with Disabilities Act of 1990 (ADA) requires transportation agencies to "include design measures for persons with disabilities, including, but not limited to, mobility, visual, hearing, cognitive, or other impairments."³

The Wyoming Department of Transportation (WYDOT) also has policy in place that promotes bicycle and pedestrian facilities within their transportation system. WYDOT Operating Policy 7-4 states that:

"WYDOT will accommodate bicycle and pedestrian transportation to the highest practical extent as components of the state's intermodal transportation system. The Department will consider appropriate facilities for bicyclists and pedestrians on all federal-aid and state-funded highway construction, reconstruction, or rehabilitation projects."⁴

¹ FHWA (September 2014) *Statewide Pedestrian and Bicycle Planning Handbook*

² (October 2012) *Title 23, United States Code*

³ FHWA (September 2014) *Statewide Pedestrian and Bicycle Planning Handbook*

⁴ WYDOT (September 2010) *Operating Policy 7-4*

Wyoming Bicycle and Pedestrian Transportation Plan

The overall objectives of this plan are:

- To increase safety for pedestrians and bicyclists via engineering, enforcement, and education
- To provide mobility for all transportation users, including disabled persons
- To increase economic development opportunities via bicycle and pedestrian facilities

To meet these objectives, the specific goals of this plan are:

- To set guidelines and make policy recommendations for WYDOT to include bicycle and pedestrian facilities within their transportation system
- To provide assistance to local entities who are interested in implementing bicycle and pedestrian features into their street/road networks
- To provide project design personnel a resource for guidelines and standards
- To identify critical gaps in the nonmotorized system
- To assist communities with information on available funding programs
- To summarize safety data and provide recommendations on enhancing bicycle and pedestrian safety in Wyoming

1.2 WYDOT's Role

The Planning Program located at WYDOT headquarters in Cheyenne maintains and updates this plan. They also serve to assist other WYDOT Programs and local agencies in the selection and design of bicycle and pedestrian facilities and upgrades within their transportation projects. The office of Local Government Coordination can be contacted at:

WYDOT Planning
5300 Bishop Blvd
Cheyenne, WY 82009-3340
(307) 777-4438

1.3 Users of the Plan

The users of this plan include:

- WYDOT project design & District personnel
- County Road & Bridge personnel
- City/Town Public Works and/or Planning personnel
- Metropolitan Planning Organization (MPO) personnel
- Community organizations & transportation partners

2.0 The Current State of Bicycle and Pedestrian Transportation

2.1 Trends in Usage

Walking and bicycling are important parts of the overall transportation system in Wyoming. Many times, when the transportation system is mentioned, people automatically think of motorized vehicles. While motorized vehicles make up the majority of traffic in the system, pedestrians and bicyclists are an important segment that is growing.

An organization known as the Alliance for Biking and Walking produces a summary of bicycle and walking in a biennial report. In their *Bicycling and Walking in the United States, 2016 Benchmarking Report*, the data indicates that while "only 1% of all trips taken in the U.S. are by bicycle, 10% are on foot"¹, these numbers represent a gradual increase in bicycling and walking. Trips made by motorized vehicles may also include walking for a portion of the trip, such as parking in a downtown to visit businesses. From this standpoint, the pedestrian environment is important to downtown businesses.

Riding a bicycle and walking are two low-cost modes of travel that also provide proven health benefits to those who participate. "Many medical conditions, such as high blood pressure, diabetes, and obesity are preventable, in part, through more active lifestyles. Researchers can measure the cost of physical inactivity in terms of increased medical costs and lost productivity from chronic disease or premature death"² These measurements translate health benefits into economic benefits. The benchmarking report also indicates the connection between activity and health indicators. "Levels of diabetes, high blood pressure, and obesity are all lower in cities with higher shares of commuters bicycling or walking to work."³ Statistics point to higher rates of those 3 conditions within the adult population across the nation for the period between 2005 and 2012. In Wyoming, the percentage of obese adults in 2015 was 29.0%, compared to the median for the United States of 27.8%.

Also of interest in recent statistics is the fact that fatality rates for bicycle and pedestrian related crashes is generally lower in cities with higher rates of bicycling and walking. Advocates for biking and walking typically explain this by pointing out that drivers become more aware of bicycles and pedestrians when there are a greater number of them around.

For Wyoming specifically, the benchmarking report provides some positive statistics. The report shows that among the fifty states, Wyoming is:

- Ranked 9th highest in terms of commuter bicycling and walking levels with 3.7% of commuters walking to work, and 1.0% biking to work.
- Ranked 7th highest in terms of per capita spending on bicycle/pedestrian projects
- Ranked 8th lowest in terms of bicyclist/pedestrian fatality rates

Within the transportation industry, decisions made regarding design standards for a project are often based on recently gathered traffic data, and some reasonable projection for what the traffic might look like at some designated point in the future. Things like traffic volumes, average speed, and crash rates provide planners and designers with objective criteria to compare projects and determine priorities. With regard to

¹ Alliance for Biking & Walking (2016) *Bicycling and Walking in the United States, Benchmarking Report*

² FHWA (September 2014) *Statewide Pedestrian and Bicycle Planning Handbook*

³ Alliance for Biking & Walking

vehicular traffic, this has been fairly standard practice for decades. As a result, most agencies have an abundance of this data available.

When it comes to bicycle and pedestrian traffic however, very little, if any, of that data exists. That makes it difficult for transportation planners to prioritize the addition of bicycle and/or pedestrian features to their projects. Some larger cities, and some states have begun to gather pedestrian and bicycle traffic volume data to help them make more informed decisions regarding their transportation systems. This increase in data collection in many cases is being driven by a community's increased emphasis on evaluating all modes of transportation in their system.

2.2 Analysis of Crash Data

To better understand the overall picture of current bicycle and pedestrian use, crash statistics can be utilized. Pedestrian and bicyclist fatalities and injuries represent a growing percentage of all traffic fatalities and injuries in the United States. “Pedestrian fatalities comprised 10.9% of all traffic deaths nationwide in 2004, but represented 14.5% of all traffic fatalities in 2013...pedestrian injuries represented an estimated 2.4% of all traffic injuries in 2004, but an estimated 2.9% in 2013. Likewise, bicyclist fatalities comprised 1.7% of all United States traffic deaths in 2004, but represented 2.3% of all traffic fatalities in 2013. Bicyclists represented an estimated 1.5% of traffic injuries in 2004, and increased to an estimated 2.1 % of all traffic injuries in 2013.”⁴

For Wyoming, statistics were gathered for the five year period of 2010-2014 and are shown in Table 2-1. The data includes any crash in the State of Wyoming database that occurred between a vehicle and a bicycle, or a vehicle and a pedestrian. There are some limitations to this data, as it is directly related to vehicle crashes, and does not include any types of bicycle-bicycle or bicycle-pedestrian crashes or injuries. WYDOT’s crash data shows that while overall traffic fatalities decreased between 2010 and 2014, the numbers of both pedestrian and bicycle fatalities have not experienced that same decline.

The number of pedestrian and bicyclist fatalities per year in Wyoming, has ranged from 3 to 6, and 0 to 5, respectively, in the past five years. The number of pedestrian injuries per year has ranged from 65 to 101, and bicyclist injuries per year have ranged from 68 to 97. Over the five year period, there does not appear to be a consistent increasing or decreasing trend in either of the pedestrian or bicyclist categories. It can be seen that the total traffic fatalities and injuries have a slight decreasing trend.

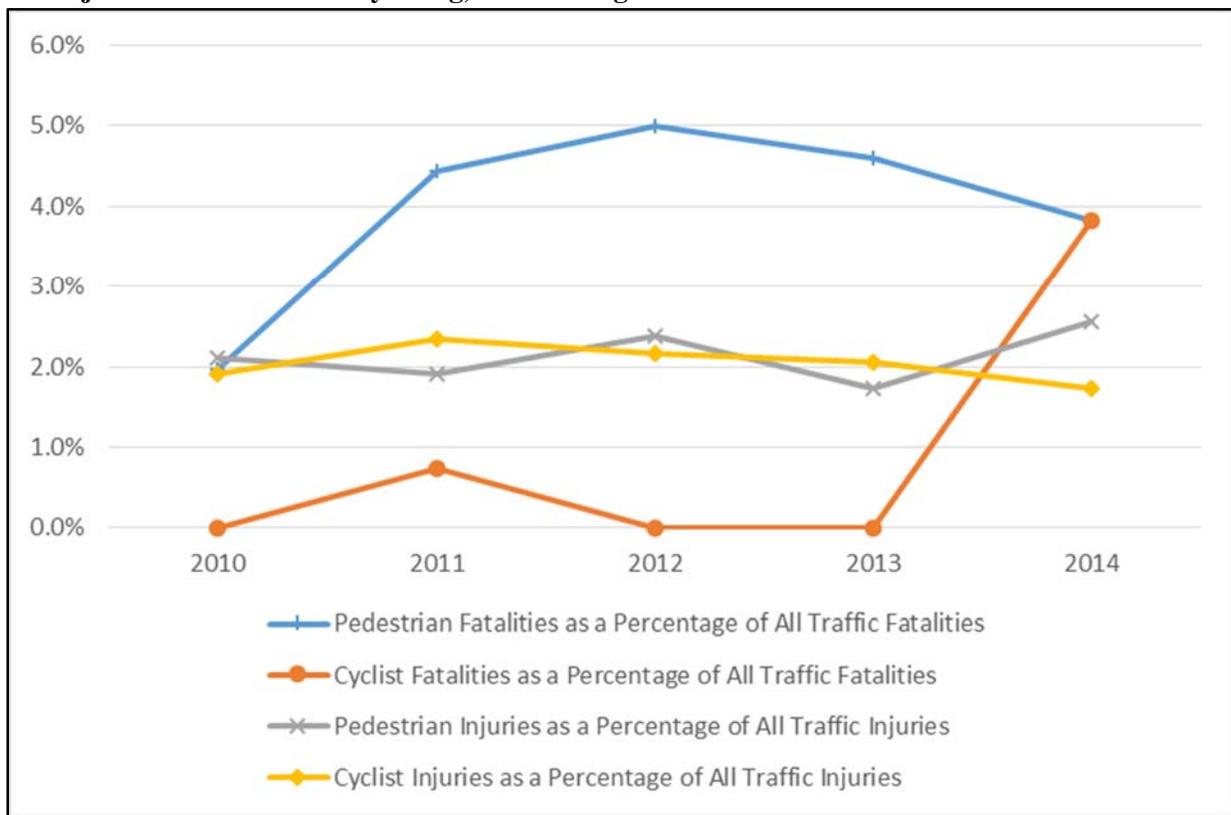
Table 2.1: Wyoming Pedestrian, Bicyclist, and All Traffic Fatalities and Injuries, 2010 through 2014

Year	Fatalities					Injuries				
	Total Traffic Fatalities	Pedestrian		Cyclist		Total Traffic Injuries	Pedestrian		Cyclist	
		Ped Fatalities	Percentage of Total	Cyclist Fatalities	Percentage of Total		Ped Injuries	Percentage of Total	Cyclist Injuries	Percentage of Total
2010	153	3	1.96%	0	0.00%	4462	87	1.95%	85	1.90%
2011	135	6	4.44%	1	0.74%	4154	76	1.83%	96	2.31%
2012	120	6	5.00%	0	0.00%	3829	90	2.35%	82	2.14%
2013	87	4	4.60%	0	0.00%	3759	65	1.73%	76	2.02%
2014	150	5	3.33%	5	3.33%	3944	100	2.54%	66	1.67%
Total	645	24	3.72%	6	0.93%	20148	418	2.07%	405	2.01%

⁴ United States Government Accountability Office (November 2015) *Pedestrians and Cyclists: Cities, States, and DOT Are Implementing Actions to Improve Safety*

As can be seen in Figure 2-1, the percentages of pedestrian and bicyclist fatalities and injuries when compared to all traffic fatalities and injuries do not have a clear trend in the State of Wyoming. Averaged over the five year period, pedestrian fatalities accounted for 3.72% of all traffic fatalities, while bicyclist fatalities accounted for under 1% of all traffic fatalities. These numbers are lower than those for the overall United States, as stated above. According to the *Wyoming Safety Facts 2010 to 2014* published by the State of Wyoming in August 2015, urban locations accounted for 67% of the bicyclist fatalities and only 50% of the pedestrian fatalities. The majority of the fatal crashes for bicyclists (67%) and pedestrians (71%) occurred outside of intersections and drugs or alcohol were involved in 33% of the fatal bicyclist and pedestrian crashes.⁵

Figure 2.1: Pedestrian and Bicyclist Fatalities and Injuries as a Percentage of all Traffic Fatalities and Injuries in the State of Wyoming, 2010 through 2014



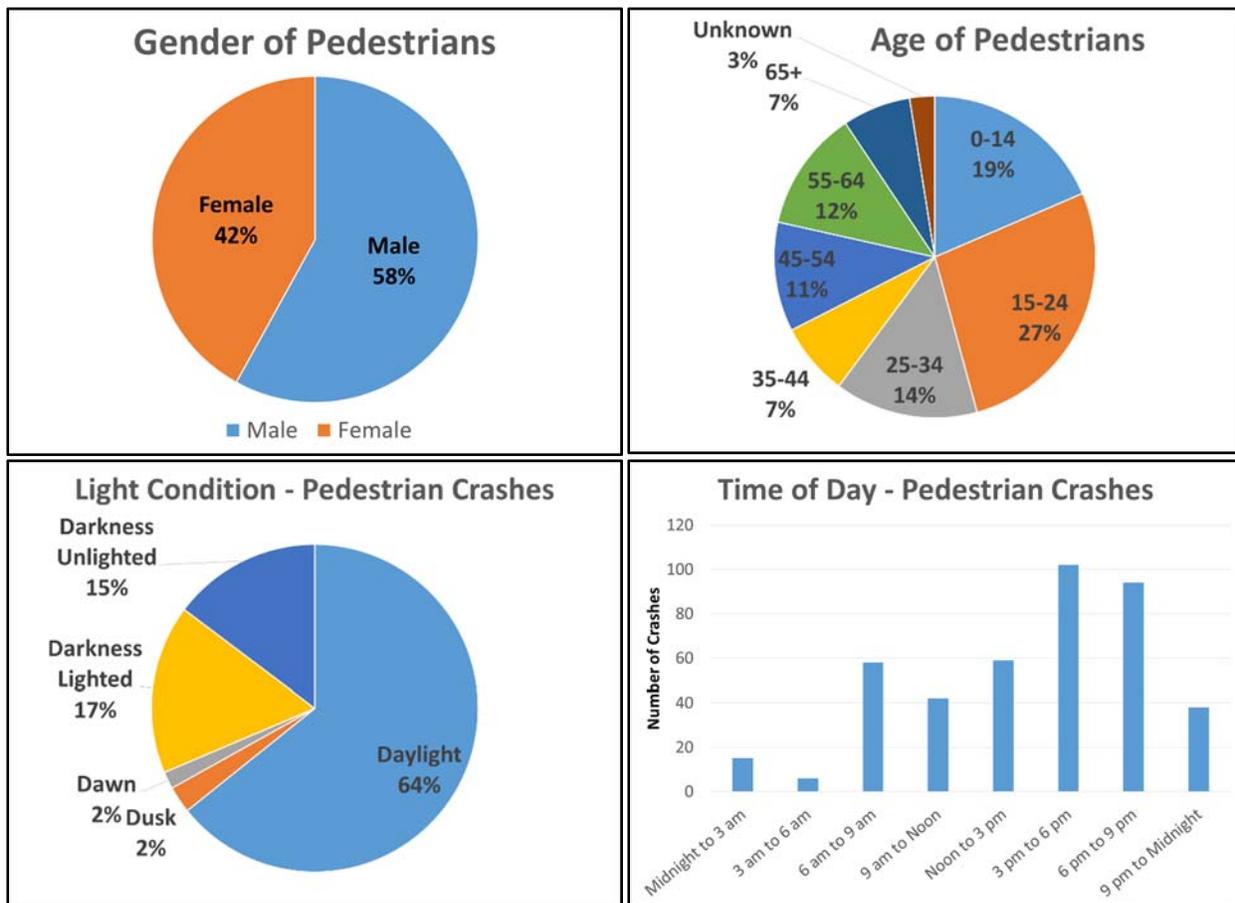
⁵ State of Wyoming; Joint Travel, Recreation, Wildlife and Cultural Resources Interim Committee (August 2015) *WYOMING Safety Facts 2010 to 2014*

2.2.1 Pedestrian Crashes in Wyoming

In looking at the five year period from 2010 through 2014 in Wyoming, 24 pedestrians died and 430 were injured. The average age of a pedestrian killed in a traffic crash was 48, while the estimated average age of a pedestrian injured was 32. More than half (58%) of the pedestrians who were involved in a traffic crash were male. Men aged 15 to 24 made up the largest demographic of pedestrians involved in a traffic crash at 17% (74 crashes). Male and female children under the age of 14 made up 19% (81 crashes) of pedestrians involved in a traffic crash.

Most traffic crashes that resulted in a pedestrian death or injury occurred in clear weather conditions with dry road conditions, and between the hours of 3:00 pm to 6:00 pm and 6:00 pm to 9:00 pm. Figure 2-2 summarizes some of the characteristics of pedestrian crashes from 2010 to 2014. Twenty-two percent (92 crashes) involved a “hit and run,” where the driver of the vehicle fled the scene. Sixty percent (246 crashes) took place at an intersection or a junction with a driveway, alley, or trail. Sixty-five percent (269 crashes) took place during daylight hours, while 87% occurred during clear weather and dry road conditions. Twenty-nine percent took place at signalized intersections. The vehicles involved were driving 30 miles per hour or less in 71% of the pedestrian crashes.

Figure 2.2: Pedestrian Crashes by Gender, Age, Light Condition, and Time of Day, 2010 through 2014



In general, the majority of pedestrian crashes do not appear to be caused by high speeds, unfavorable weather conditions, or nighttime conditions. For the period of 2010 to 2014, any city in Wyoming with three or more pedestrian crashes is shown in Figure 2-3, with the total number of pedestrian crashes over the five year period. It can be seen that the cities with a higher population such as Casper, Cheyenne, and Gillette have a larger number of pedestrian crashes. Figure 2-4 takes into account the current population of the cities, by showing the rate of crashes per 1000 people in each city. From this figure, it can be seen that the cities with higher crash rates are Evansville, Casper, Glenrock, and Kemmerer. Additional statistics regarding the pedestrian crashes in Wyoming cities can be found in Appendix A.

Figure 2.3: Total Pedestrian Crashes by City, 2010 through 2014

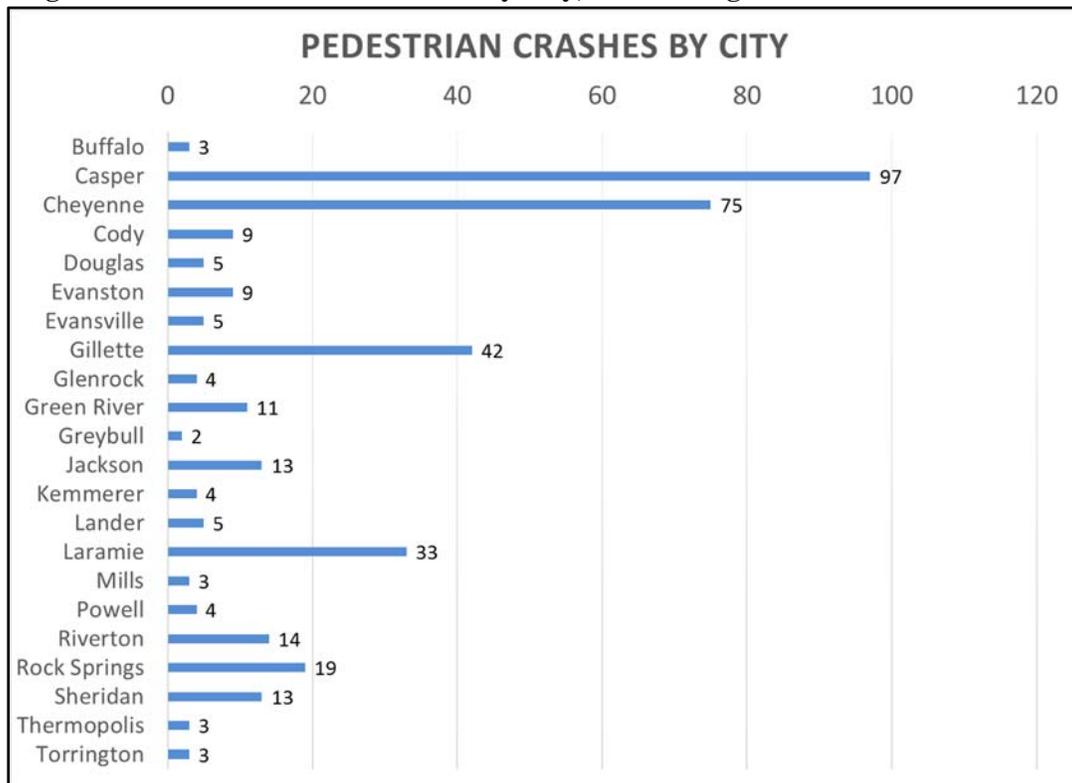
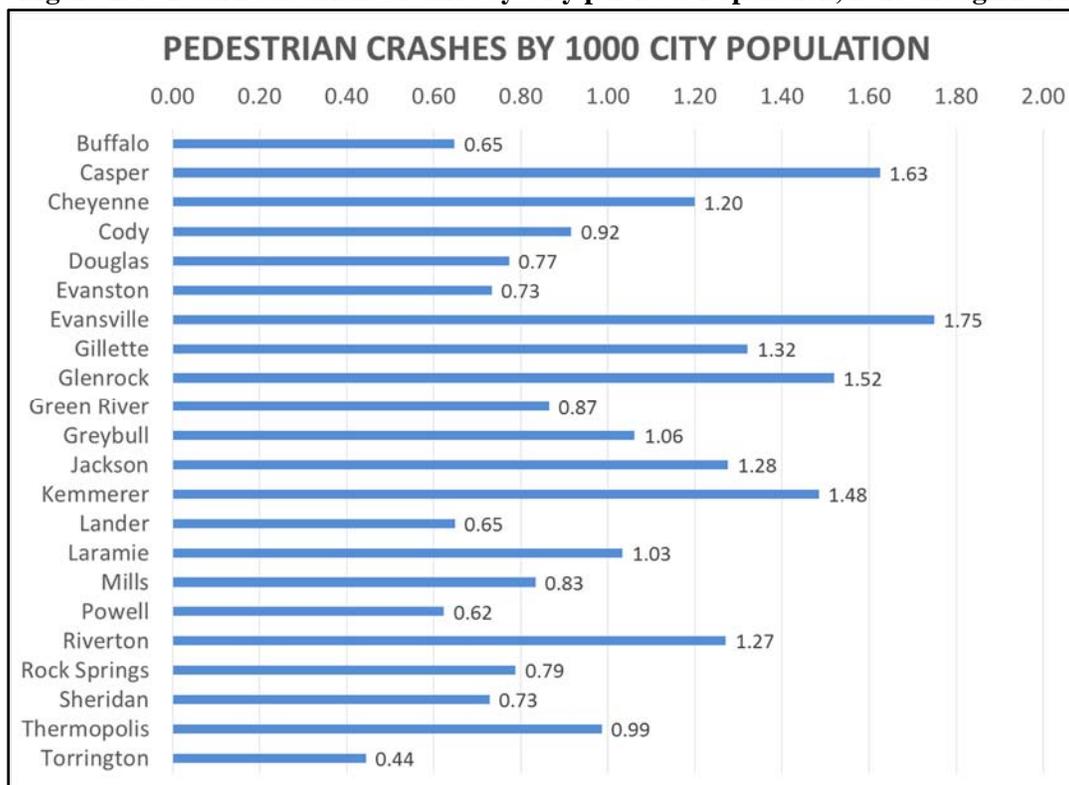


Figure 2.4: Total Pedestrian Crashes by City per 1000 Population, 2010 through 2014

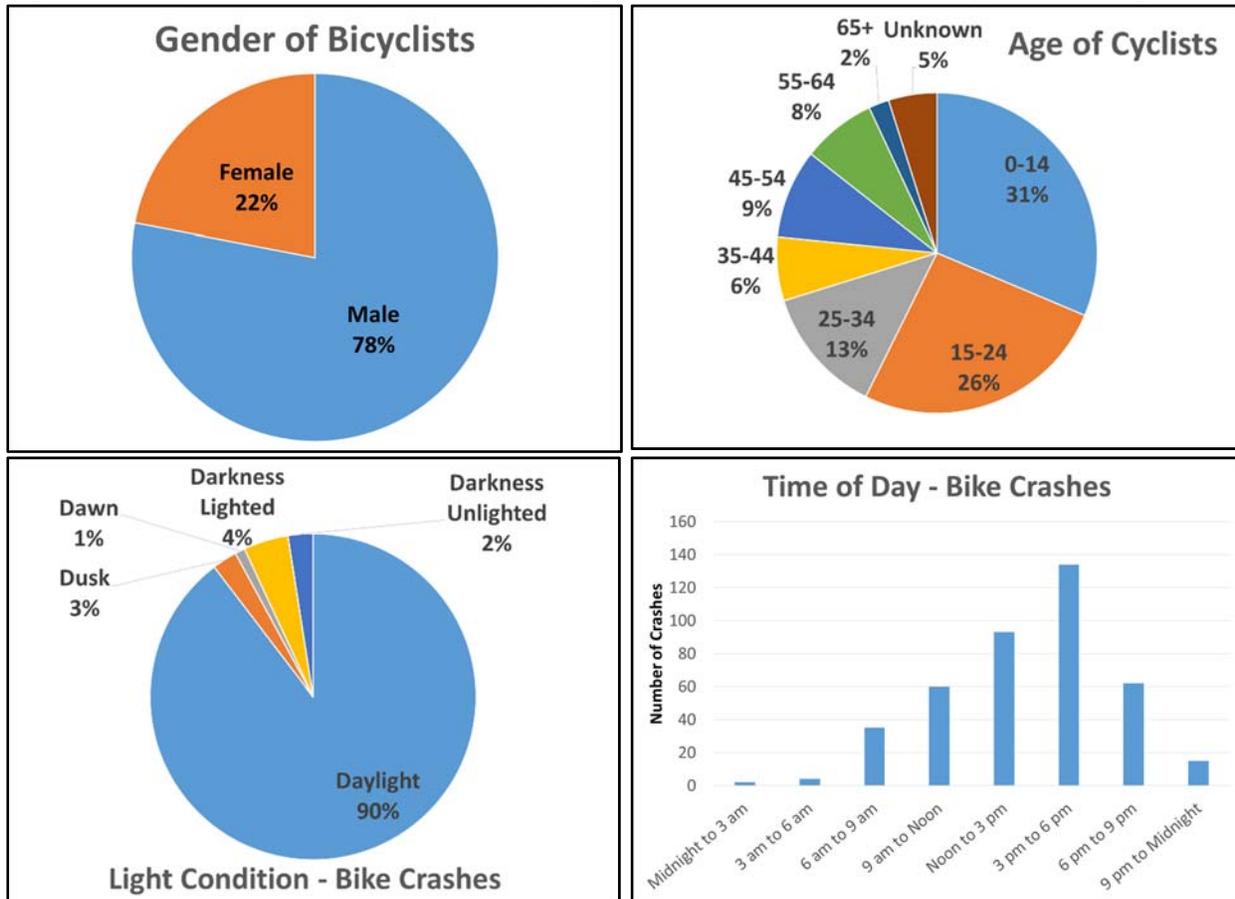


2.2.2 Bicycle Crashes in Wyoming

In looking at the five year period from 2010 through 2014 in Wyoming, 6 bicyclists died and 410 were injured. The average age of a bicyclist killed in a traffic crash was 51, while the estimated average age of a bicyclist injured was 26. More than three-fourths (78%) of the bicyclists who were involved in a traffic crash were male. Males aged 0 to 14 made up the largest demographic of bicyclists involved in a traffic crash at 26% (101 crashes). Male and female children under the age of 14 made up 31% (122 crashes) of bicyclists involved in a traffic crash.

Most traffic crashes that resulted in a bicyclist death or injury occurred in clear weather conditions with dry road conditions and in the daylight between the hours of 3:00 pm to 6:00 pm and noon to 3:00 pm. Figure 2-5 summarizes some of the characteristics of bicycle crashes from 2010 to 2014. Fifteen percent (61 crashes) involved a “hit and run,” where the driver of the vehicle fled the scene. Eighty-five percent (343 crashes) took place at an intersection or a junction with a driveway, alley, or trail. Ninety percent (363 crashes) took place during daylight hours, while 95% occurred during clear weather and dry road conditions. Twenty-nine percent took place at signalized intersections. The vehicles involved were driving 30 miles per hour or less in 54% of the bicycle crashes.

Figure 2.5: Bicycle Crashes by Gender, Age, Light Condition, and Time of Day, 2010 through 2014



For the period of 2010 to 2014, any city in Wyoming with three or more bicycle crashes is shown in Figure 2-6, with the total number of bicycle crashes over the five year period. It can be seen that the cities with a higher population such as Casper, Cheyenne, and Gillette have a larger number of pedestrian crashes. Figure 2-7 takes into account the current population of the cities, by showing the rate of crashes per 1000 people in each city. From this figure, it can be seen that the cities with higher crash rates are Jackson, Laramie, Gillette, and Lander. Additional statistics regarding the pedestrian crashes in Wyoming cities can be found in Appendix B.

Figure 2.6: Total Bicycle Crashes by City, 2010 through 2014

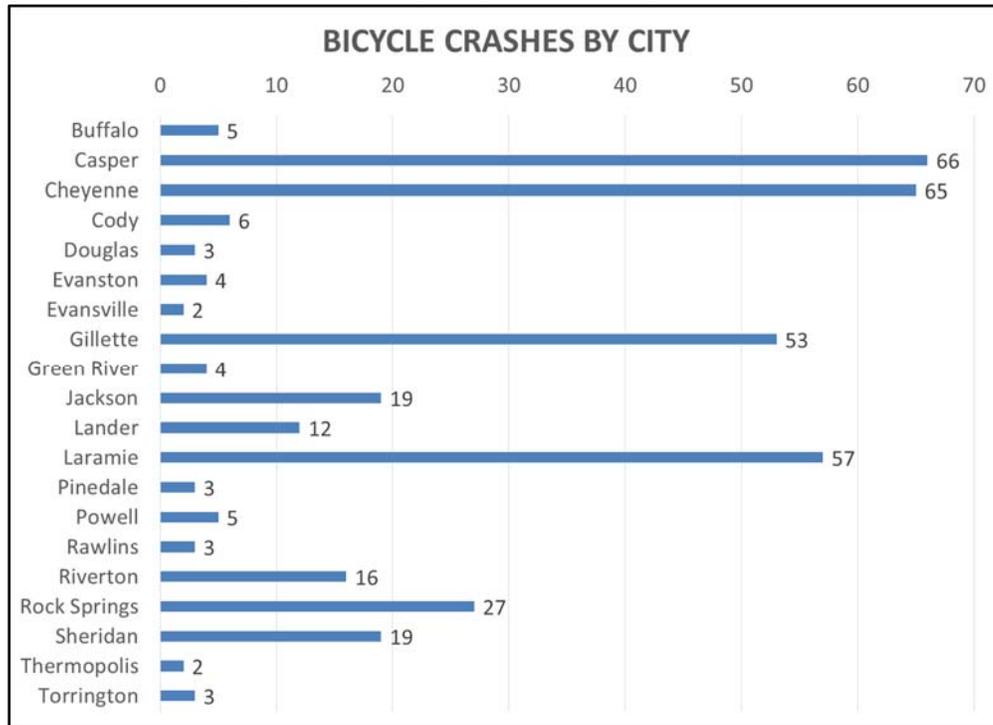
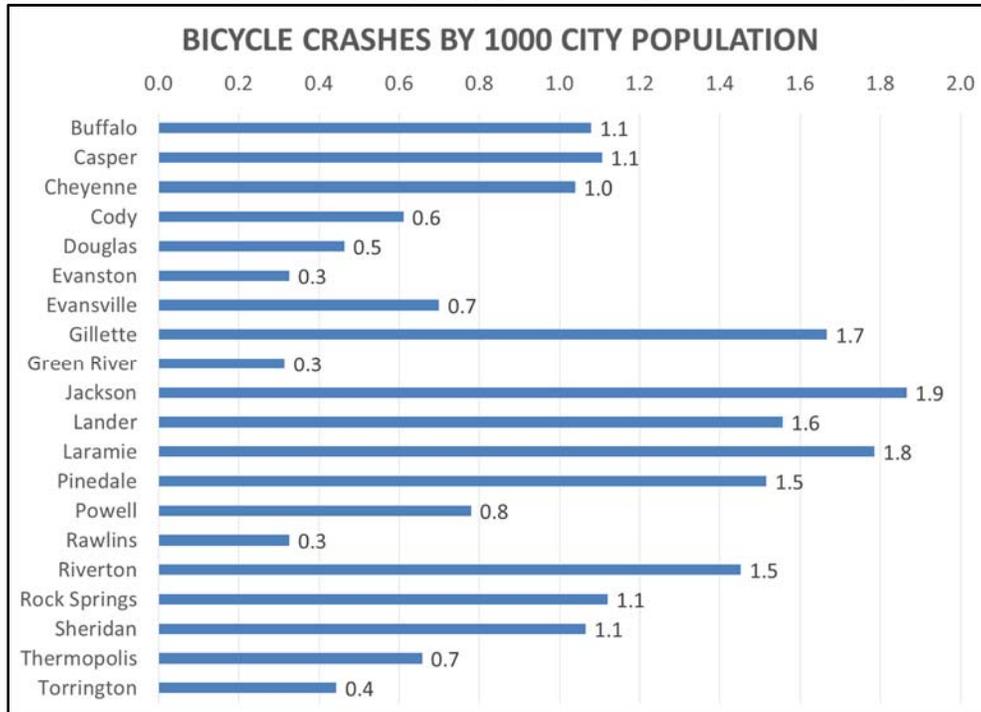


Figure 2.7: Total Bicycle Crashes by City per 1000 Population, 2010 through 2014



2.3 Clustered Crash Data

Crash data was clustered into groups according to city, and then again by specific locations within the cities to determine any locations that had a higher number of crashes over the five year period. Any location with three or more crashes of the same type (pedestrian or bicycle) was identified and can be seen in Table 2-2. In order to analyze these cluster locations, site visits were made to 14 locations in Casper, Cheyenne, Gillette, and Laramie in April 2016. In Table 2-2, site visit locations are identified with an asterisk.

In general, the most common conflict between vehicles and pedestrians or bicycles observed was when the vehicle was making a right turn on a green light. When the vehicle has the green light, the pedestrian or bicyclist also has a WALK signal. Because the drivers have a green light, they are less likely to come to a stop or be on the lookout for pedestrians in their path. It was observed that drivers near the campus of the University of Wyoming in Laramie appear to be more aware of pedestrians and bicycles, due to the large number of them (when compared to the other observed intersections across the state). It was observed that very few locations had stop bars to encourage vehicles to stop behind the crosswalk. Suggested upgrades to improve bicycle and pedestrian use can be found in Section 7. Each location that was reviewed with a site visit is explained in detail on the following pages.

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Table 2.2: Wyoming Locations with Three or More Crashes, 2010 through 2014

Cluster ID	Location	Notes	Number of Crashes
Casper			
P2*	2nd St. & Center St.	Signalized intersection w/ 4 marked crosswalks; downtown; daytime, clear, dry conditions	4
P4*	1st St. & Center St.	Signalized intersection w/ 4 marked crosswalks; downtown; daytime, clear, dry conditions	4
P3*	2nd St. & Wolcott St.	Signalized intersection w/ 4 marked crosswalks; downtown; daytime, clear, dry conditions	3
P5*	2nd St. & Kimball St.	Signalized intersection w/ 4 marked crosswalks; downtown; daytime (except 1), clear, dry conditions	3
B1*	2nd St. & Wyoming Blvd.	Signalized intersection w/ 4 marked crosswalks and no bike lanes; large intersection (2nd & WY Blvd); all daytime, clear, dry conditions	3
Cheyenne			
B8*	S. Greeley Hwy between Jefferson Rd. & Allison Rd.	All crashes occurred within a 0.3 span, within one block; no bike lanes; daytime, clear, and dry conditions	4
P11*	Pershing Blvd. & Windmill Rd.	Signalized intersection w/ 3 marked crosswalks (all legs); daytime (except 1), clear, dry (except 1 ice) conditions	3
P15*	Dell Range Blvd. & Windmill Rd.	Signalized intersection w/ 3 marked crosswalks; daytime, clear, dry conditions	3
B7*	Pershing Blvd. & Ridge Rd.	Signalized intersection w/ 4 marked crosswalks and no bike lanes; daytime, clear, and dry conditions	3
B4*	Dell Range Blvd. & Windmill Rd.	Signalized intersection w/ 3 marked crosswalks and no bike lanes; daytime (except 1), clear, dry conditions	2
B9*	Pershing Blvd. & Windmill Rd.	Signalized intersection w/ 3 marked crosswalks and no bike lanes; daytime, clear, dry conditions	2
Gillette			
B13*	WY Hwy 59 & Boxelder Rd.	Signalized intersection w/ 4 marked crosswalks and no bike lanes; all daytime, clear, dry conditions	7
P19*	WY Hwy 59 & 7th St.	Signalized intersection w/ 4 marked crosswalks; daytime (except 1), clear, dry (except 1 wet) conditions; near Meadolark Elementary School	3
B14*	WY Hwy 59 & I-90 EB Ramps	Signalized intersection w/ 2 marked crosswalks and no bike lanes; daytime (except 1), clear, dry conditions	3
Jackson			
B17	W. Broadway Ave. & Meadowlark Ln.	Unsignalized intersection w/ no marked crosswalks and no bike lanes; 2 dark, all clear, dry conditions	3
Laramie			
B21*	9th St. & Grand Ave.	Signalized intersection w/ 4 marked crosswalks and sharrows on 9th Street; daytime, clear, dry conditions	4
B22*	Reynolds St. between 11th St. & 15th St.	Non-junction; near Laramie high school; bike lanes present; 2 are driveway-related; all daytime, clear, dry conditions	3
Rock Springs			
B25	Dewar Dr. northeast of the South Side Belt Loop intersection	All crashes in a block; daytime, clear, dry conditions	3

* Denotes location of site visit

The intersection of Pershing Blvd and Windmill Road in Cheyenne is shown in Figure 2-8. At this intersection, there were three pedestrian crashes and two bicycle crashes over the five year analysis period. It was observed that there were a number of pedestrians and bicycles during the morning peak traffic hour due to the proximity of East High School. There are not any bike lanes on either street, but there is access to sidewalks in all directions. It was observed that there are pedestrian ramps on the northwest and northeast corners for the east-west traveling pedestrians, but they are not up to current ADA standards. There are no ramps present for the north-south traveling pedestrians. There are pedestrian-activated signal heads on each corner, allowing north-south pedestrians to obtain a WALK signal. The pedestrian signal heads all include countdown timers. There are marked crosswalks on all three legs of this intersection, but no stop bars are present for the vehicles. Therefore, vehicles often pull up into the crosswalk. There is a sign for the business on the northeast corner that does appear to be within the sight triangle for southbound, right-turning vehicles. This sign forces the vehicles to pull forward into the crosswalk in order to look for oncoming traffic from the east.

Figure 2.8: Pershing Blvd and Windmill Road in Cheyenne



The intersection of Dell Range Blvd and Windmill Road in Cheyenne is shown in Figure 2-9. At this intersection, there were three pedestrian crashes and two bicycle crashes over the five year analysis period. A handful of pedestrians and bicyclists were observed utilizing this intersection during the noon peak traffic hour. There are not any bike lanes on either street, but there is access to sidewalks in all directions. There are ramps present at each corner, but they do not appear to be up to current ADA standards. There are pedestrian-activated signal heads on each corner for pedestrians traveling north-south. When activated, the pedestrian receives a WALK signal. There is no activation button for pedestrians traveling east-west, but they receive a WALK signal whenever the light is green. None of the pedestrian signal heads include countdown timers. There are marked crosswalks on the east and west sides of the intersection. The south side contains a crosswalk for half of the crossing, and there are no markings on the north side. There are no stop bars present for the vehicles on any of the legs. The greenway multimodal, separated pathway is along the south side of this intersection, which includes stop signs for the pathway users before crossing Windmill Road.

Figure 2.9: Dell Range Blvd and Windmill Road in Cheyenne



The intersection of Pershing Blvd and Ridge Road in Cheyenne is shown in Figure 2-10. At this intersection, there were three bicycle crashes and zero pedestrian crashes in the five year analysis period. A few pedestrians were observed at this intersection during the school afternoon peak traffic hour due to the proximity of East High School to the west, but no bicyclists were observed. There are not any bike lanes on either street, but there is access to sidewalks in all directions. There are ramps on all four corners that appear to be up to date with current ADA standards. There are pedestrian-activated signal heads on each corner for pedestrians traveling north-south. When activated, the pedestrian receives a WALK signal. There is no activation button for pedestrians traveling east-west, but they receive a WALK signal whenever the light is green. Countdown timers are present on all legs. There are crosswalks on all four legs, but no stop bars are present for the vehicles.

Figure 2.10: Pershing Blvd and Ridge Road in Cheyenne



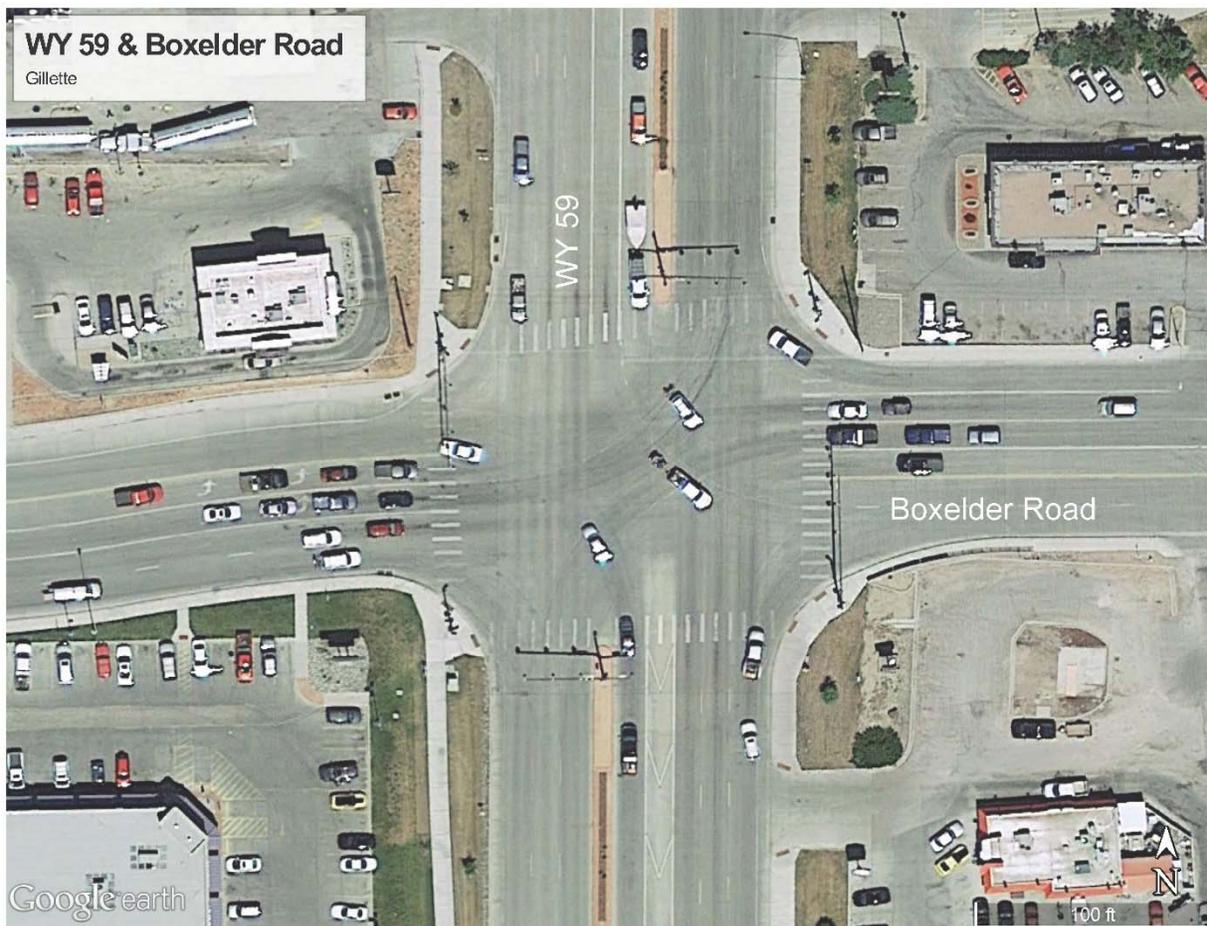
One block of South Greeley Highway in Cheyenne is shown in Figure 2-11. Along this road, there were four bicycle crashes and one pedestrian crash between Jefferson Road and Allison Road during the five year analysis period. It was observed that there are a number of businesses on this block that appear to be trip generators, such as Safeway, Town & Country Liquor, gas station, pizza shop, sandwich shop, nail salon, etc. These all are located on the west side of the roadway, while residential homes are located on the east side of the roadway, especially on Jefferson Road. However, during the morning peak traffic hour of observations, there were no pedestrians or bicyclists present. There is not a traffic signal or pedestrian crossing at Jefferson Road, only at Allison Road. The next pedestrian crossing to the north is located at Fox Farm Road, which is located over a quarter of a mile to the north of Jefferson Road. Jefferson Road and Allison Road are also approximately a quarter of a mile apart. These are long distances for pedestrians or bicycles to travel in order to cross South Greeley Highway safely, which may encourage them to cross mid-block. South Greeley Highway is a five-lane, high traffic roadway which is posted at 40 miles per hour. There are not any marked bicycle lanes on South Greeley Highway, but there are shoulders in both the north and south directions that are approximately 8 feet wide. There are ramps at all corners of the Jefferson Road and Allison Road intersections, but none appear to be up to current ADA standards.

Figure 2.11: South Greeley Highway in Cheyenne



Figure 2-12 shows the intersection of Wyoming Highway 59 and Boxelder Road in Gillette. At this intersection, there were zero pedestrian crashes and seven bicycle crashes in the five year analysis period. Several pedestrians were observed crossing this intersection during the noon peak traffic hour. This is a larger intersection with five lanes in the southbound direction, and four lanes in the northbound, eastbound, and westbound directions. Each direction has a protected left turn phase, and the southbound lane also allows for a U-turn movement during the protected left turn phase. There are not any bike lanes on either street, but there is access to sidewalks in all directions. There are marked crosswalks on all legs, but no stop bars are present for the vehicles. Therefore, vehicles often pull up into the crosswalk, especially right turning vehicles. It was observed that there are ADA ramps on all corners that appear to meet the current ADA standards. Along the west side of this intersection, the sidewalk is a separated pathway. This pathway contains stop signs for the pedestrian and bicycle traffic before crossing Boxelder Road. There are pedestrian activated signal heads with countdown timers on each corner. No pedestrian WALK signals are given in any direction unless the button is activated.

Figure 2.12: WY Highway 59 and Boxelder Road in Gillette



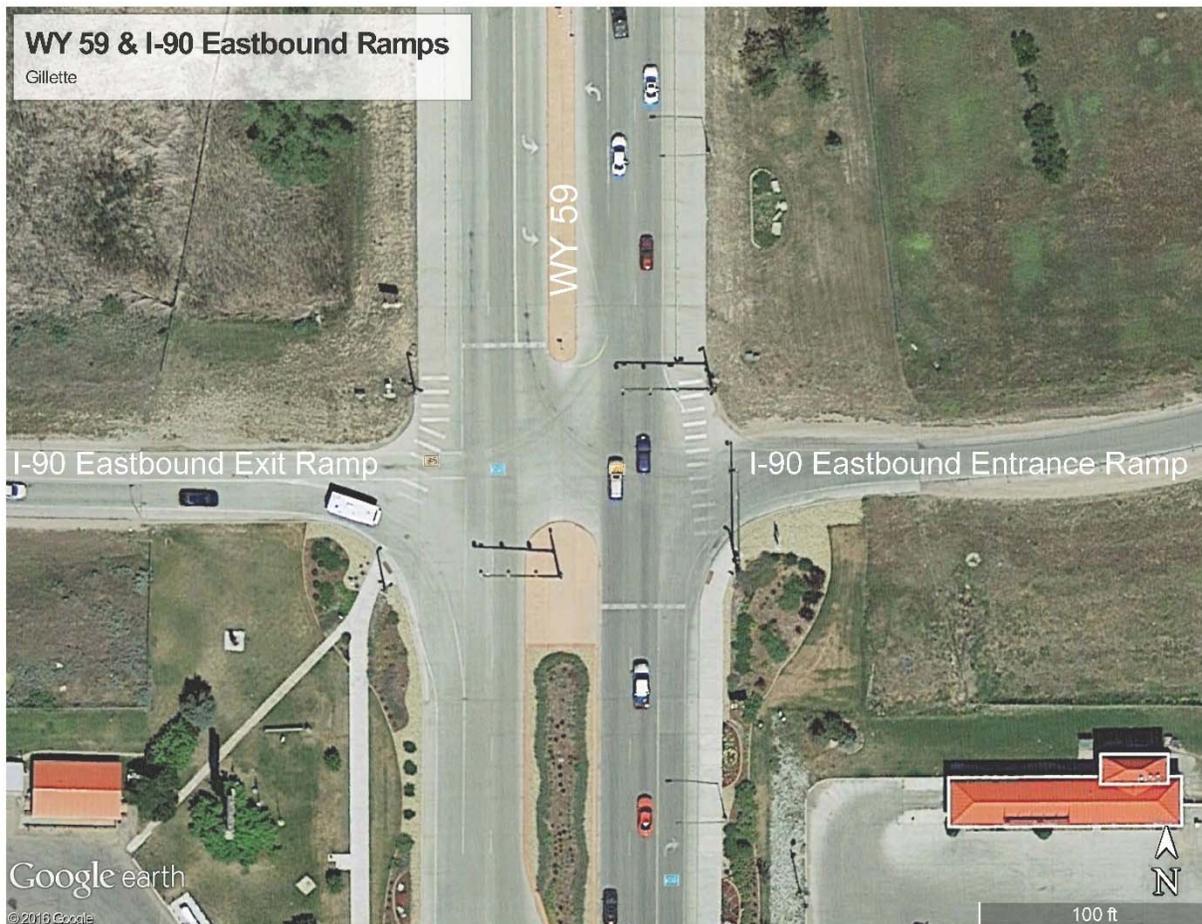
The intersection of Wyoming Highway 59 and 7th Street in Gillette is shown in Figure 2-13. At this intersection, there were three pedestrian crashes and zero bicycle crashes in the five year analysis period. Several pedestrians were observed crossing this intersection during the afternoon peak traffic hour due to the nearby elementary school on 7th Street. There are not any bike lanes on either street, but there is access to sidewalks in all directions. There are marked crosswalks on all legs, but stop bars are only present for the vehicles on the west and east sides of the intersection. Therefore, vehicles often pull up into the crosswalk on the north and south sides. It was observed that there are ADA ramps on all corners that appear to meet the current ADA standards. On the northwest corner, there is a building that is clearly in the sight triangle for eastbound right turning vehicles. There is no visibility for these vehicles from behind the crosswalk, so they are forced to pull up in front of the crosswalk to look for oncoming traffic. There are pedestrian activated signal heads on each corner for the pedestrians traveling east-west. When activated, the light changes and the pedestrian receives a WALK signal. There are no activation buttons for the pedestrians traveling north-south. The north-south pedestrian activated signal heads on the northeast and northwest corners appear to be non-functioning. There are not countdown timers on any of the legs.

Figure 2.13: WY Highway 59 and 7th Street in Gillette



Figure 2-14 shows the intersection of Wyoming Highway 59 and the Interstate 90 eastbound ramps in Gillette. At this intersection, there were three bicycle crashes and zero pedestrian crashes in the five year analysis period. A few pedestrians were observed crossing this intersection during the afternoon peak traffic hour, but no bicyclists were observed. There are not any bike lanes on either street. There is access to sidewalks in only the north and south directions. There are not sidewalks in the east and west directions, because these are interstate exit and entrance ramps, where pedestrians are discouraged. There are marked crosswalks for the pedestrians in the north and south directions, but stop bars are only present for the north and southbound vehicles. There are no crossing options for pedestrians wanting to cross east to west at this location. There are no crosswalks present and no pedestrian signals for these movements. Vehicles traveling eastbound that have just exited the interstate have a free right turn option, which means they are not required to stop and may not see any pedestrians or bicycles in the crosswalk. This could be a good location for a pedestrian activated signal, to make drivers alert when a pedestrian is in the crosswalk. Also, a channelization island could be installed between the right and left turning vehicles. This could serve as a pedestrian refuge island and slow down the vehicles making the free right turn.

Figure 2.14: WY Highway 59 and I-90 Eastbound Ramps in Gillette



The intersection of Grand Ave. and 9th Street in Laramie is shown in Figure 2-15. At this intersection, there were four bicycle crashes and one pedestrian crash during the five year analysis period. Numerous pedestrians and bicyclists were observed crossing this intersection during the noon peak traffic hour. There are no bicycle lanes on Grand Ave., but there is a marked, shared bicycle and vehicle lane on 9th Street in both directions (also known as sharrows which are described further in Sections 5.1.1 and 5.3.5). Further north and south of this intersection, there are separate bike lanes on 9th Street. From observation, it appeared that vehicles were very cautious and aware of pedestrians in this area, due to the large number of them. Bicyclists appeared to be more sporadic with their movements, as some would take full advantage of the sharrows and ride in the middle of the travel lane, some would ride on the sidewalks, and some would do a combination of the two. There are marked crosswalks on all legs, but no stop bars present for the vehicles. There are ramps on all four corners, but they do not appear to be up to date with current ADA standards. There are pedestrian activated signal heads on each corner for pedestrians traveling north-south. When activated, the pedestrian receives a WALK signal. There is no activation button for pedestrians traveling east-west, but they receive a WALK signal whenever the light is green. There are not countdown timers on any of the legs.

Figure 2.15: Grand Ave. and 9th Street in Laramie



Reynolds Street in Laramie is shown in Figure 2-16. Along this roadway, there were three bicycle crashes and zero pedestrian crashes between 11th Street and 15th Street during the five year analysis period. A number of bicycles and pedestrians were observed along this road during the school afternoon peak traffic hour due to the close proximity to Laramie High School. During observation, a handful of pedestrians crossed Reynolds St. mid-block near 13th Street. Along Reynolds Street, there is on-street parking and bike lanes in both directions. There is a school zone speed limit designated by a flashing beacon system that slows vehicles down near the intersection with 11th Street. It may be beneficial for the authorities to increase this speed zone to include the intersection with 13th Street and possibly 15th Street, as there was a fair amount of bicycle and pedestrian traffic along this entire block during the school peak time.

Figure 2.16: Reynolds Street in Laramie



The intersection of 2nd Street and Center Street can be seen in Figure 2-17. In the five year analysis period, there were four pedestrian crashes and zero bicycle crashes. Numerous pedestrians were observed crossing this intersection during the noon peak traffic hour due to the downtown nature of this location. There are no bicycle lanes on either roadway. There is access to sidewalks in all directions. There are crosswalks marked with colored concrete on all legs, but there are not stop bars for the vehicles on any of the legs. It was observed that there are ADA ramps on all corners that appear to meet current ADA standards. There are pedestrian signal heads with countdown timers and pedestrian activated buttons on each corner. For the pedestrian traveling east-west, the pedestrian head gives a WALK signal during the corresponding green phase of the traffic light. The pedestrian traveling north-south must activate the pedestrian button to get a WALK signal.

Figure 2.17: 2nd Street and Center Street in Casper



The intersection of 2nd Street and Wolcott Street can be seen in Figure 2-18. In the five year analysis period, there were three pedestrian crashes and zero bicycle crashes. Numerous pedestrians were observed crossing this intersection during the afternoon peak traffic hour due to the downtown nature of this location. There are no bicycle lanes on either roadway. There is access to sidewalks in all directions. There are crosswalks marked with colored concrete on all legs, but there are not stop bars for vehicles on any of the legs. It was observed that there are ADA ramps on all corners that appear to meet current ADA standards. There are pedestrian signal heads with countdown timers and pedestrian activated buttons on each corner. For the pedestrian traveling east-west, the pedestrian head gives a WALK signal during the corresponding green phase of the traffic light. The pedestrian traveling north-south must activate the pedestrian button to get a WALK signal.

Figure 2.18: 2nd Street and Wolcott Street in Casper



The intersection of 1st Street and Center Street in Casper is shown in Figure 2-19. At this intersection, there were four pedestrian crashes and one bicycle crash during the five year analysis period. Numerous pedestrians and bicyclists were observed crossing this intersection during the noon peak traffic hour due to the downtown nature of this location. There are no bicycle lanes on either roadway, but there are signs on the traffic signal poles that state, “NO BICYCLE RIDING ON SIDEWALKS.” There is access to sidewalks in all directions. There are marked crosswalks on all legs, but there are no stop bars for the vehicles on any of the legs. It was observed that there are ADA ramps on all corners that appear to meet the current ADA standards. There are pedestrian signal heads with countdown timers on each corner, however, none of them are pedestrian activated. Each pedestrian signal head gives a WALK signal during the corresponding green phase of the traffic light.

Figure 2.19: 1st Street and Center Street in Casper



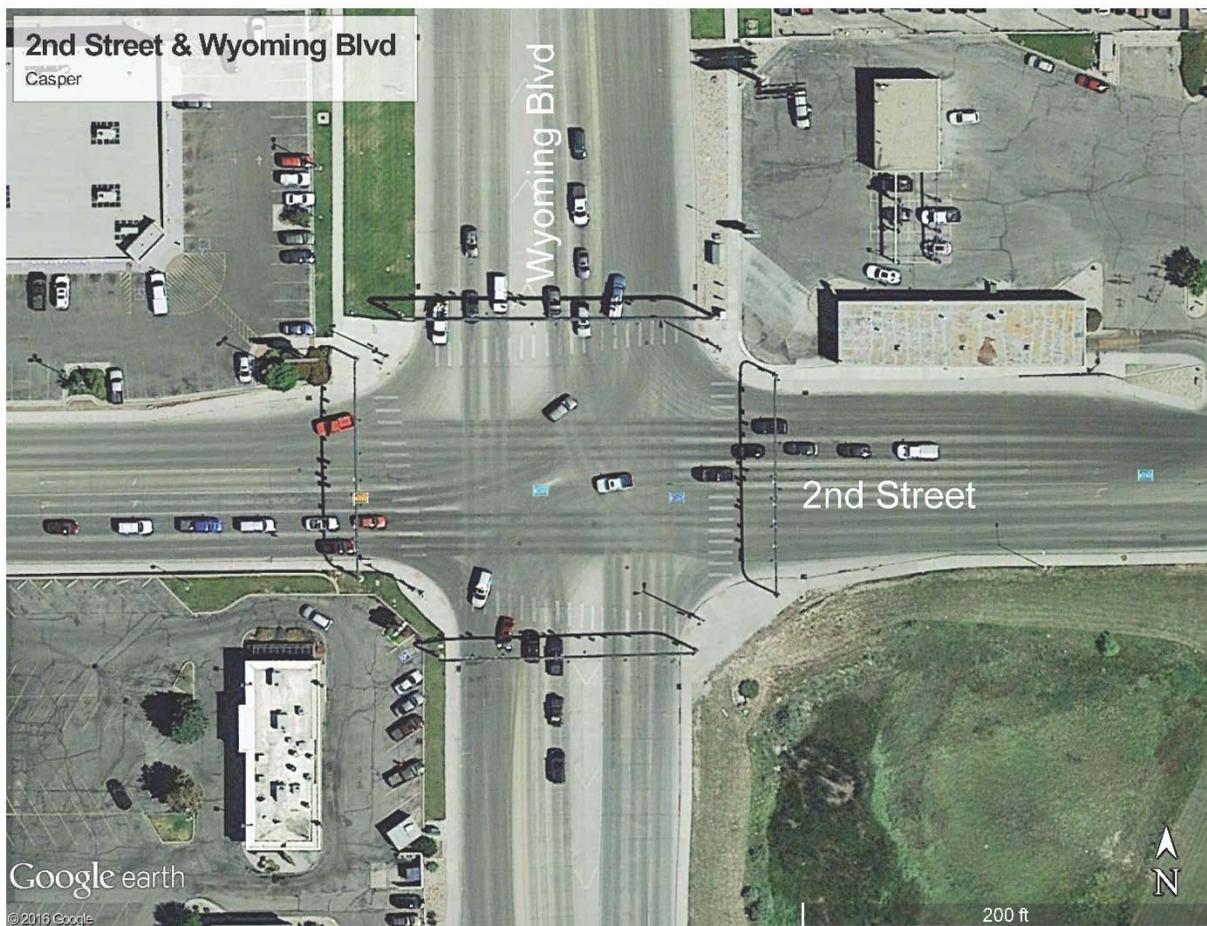
The intersection of 2nd Street and Kimball Street is shown in Figure 2-20. East Yellowstone Highway also converges at this location, at a skew. In the five year analysis period, there were 3 pedestrian crashes and zero bicycle crashes. There were several pedestrians and a few bicycles observed crowding this intersection during the afternoon peak traffic hour. There are no bicycle lanes in any direction. There is access to sidewalks in every direction. There are ramps at each corner, but they do not appear to be up to current ADA standards. There is a pedestrian refuge island on the southeast corner due to the channelized free right turn for vehicles. All four corners have pedestrian heads with pedestrian activated buttons. There are protected left turns in the westbound and eastbound directions.

Figure 2.20: 2nd Street and Kimball Street in Casper



The intersection of 2nd Street and Wyoming Blvd can be seen in Figure 2-21. At this intersection, there were three bicycle crashes and zero pedestrian crashes in the five year analysis period. A handful of pedestrians were observed during the afternoon peak traffic hour, but no bicyclists were observed. During observations, many drivers were seen using cell phones in this area. This is a larger intersection with five lanes in the southbound, northbound, and westbound directions, and four lanes in the eastbound direction. Each direction has a protected double left turn phase. There are no bicycle lanes in any direction. There are no stop bars present on any leg of this intersection. There are painted crosswalks, access to sidewalks in all directions, and all corners have ADA ramps that appears to meet current ADA standards. There are pedestrian signal heads with countdown timers on each corner, and all of them are pedestrian activated. No pedestrian WALK signals are given in any direction unless the button is activated. When the button is activated, the pedestrian receives a WALK signal after the protected left turn phases have completed.

Figure 2.21: 2nd Street and Wyoming Blvd in Casper



3.0 Existing Facilities

3.1 Statewide Inventory

In 2015, Morrison Maierle was selected to assist WYDOT with updating the last edition of this plan from 2002. One of the tasks involved with updating the plan was an "inventory of bicycle paths and routes that have been designated and built by a public agency."¹ Gathering information for the inventory involved contacting all of the communities, plus the State and National parks in Wyoming.

The first step in this process was to develop a contact list for each of the 99 communities and 23 counties in Wyoming. The Wyoming Association of Municipalities (WAM) website was used to develop an initial database for city/town contact information. Numerous telephone calls and e-mails helped refine the list in terms of identifying the correct individual within each entity who could provide information on the pathways in their area. In several cases, counties were working in conjunction with local towns to develop the pathway system. The Town of Jackson and Teton County are an example of this cooperation.

Teton National Park was contacted, but their pathway system is already included in the Teton County data.

Morrison Maierle is a regular attendee of the annual WAM Convention. In addition to making contact by telephone and e-mail, Morrison Maierle developed a questionnaire that was distributed to people who stopped at the Morrison Maierle booth during the convention. Sixteen responses were gathered with that method to further refine the database.

Contacts with the various entities produced a broad range of responses. A large number of communities, especially those with smaller populations, did not have a pathway system at the time of the inquiry. Others who did have, or were planning a pathway system, possessed various levels of information. That information ranged from verbal descriptions that were verified with Google Earth, to planning documents that may have had sketches of the proposed systems, to full blown Geographic Information System (GIS) data.

The various forms of information were gathered, and placed into a GIS database. For the deliverables required for the inventory, an ESRI File Geodatabase was created. Features within this geodatabase include:

- Pathways
- National Corridor Routes (Transamerica, Northern Tier, Cheyenne/Laramie)
- State Parks Trails Systems
- County Boundaries
- City Boundaries
- State Parks Boundaries
- County Roads
- State Highways

¹ WYDOT (May 5, 2015) *Agreement for Consulting Services*

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The main layer for data collected is the Pathways layer. On initial discussion and determination of scope, basic fields were set up in this layer to attribute the line segments for the GIS. The basic fields include:

- Path_Type This includes "Shared Use Path", "Striped Bike Lane or Sharrows", "Non Qualifying", and "Future" types
- Width Width of path for those 8 feet or wider
- Surface Type of surfacing on the path - Asphalt, Concrete", or Asphalt or Concrete, or Wood (if bridge is present), Road, Sidewalk, Gravel, or Dirt
- Ownership Who owns the pathway
- Source Who supplied the data
- STR_Name If the route is a Bike Lane, the street name is listed
- STR_Class If the route is a Bike Lane, what is the functional classification of the street it's on,: Collector, Local, Principal Arterial, or Minor Arterial
- LenMiles Length of the pathway route in miles

A more detailed description of the GIS data collection and setup is included in Appendix C.

As data was collected, agency-supplied details on the data was used as much as possible to help determine the path type category for each pathway. Maps for each individual community are included in Appendix D.

The original scope of the inventory was to gather data on facilities that were either paved pathways 8 feet wide, or designated bicycle lanes painted on streets. As the inventory progressed, data was obtained on other types of paths that fell outside of the two initial criteria. These were typically narrower, recreationally-focused trails like those found in Glendo and Curt Gowdy State Parks. This data was included in the database, and designated as "non-qualifying". While this data was included if received, not all data on paths of this type was pursued. Therefore, there are numerous recreation type trails that were not included in this database.

The following is a summary of the statewide totals derived from the pathway inventory.

- Shared Use Pathway = 394 miles
- Striped Bike Lane = 56 miles
- Non-Qualifying Paths = 235 miles*

*Number of non-qualifying paths that were included in the inventory if reported, but complete data on this type was not solicited.

The full table showing each entity that owns pathways within Wyoming, as well as total mileage for each community, is included in Appendix E.

According to the *2016 Benchmarking Report*, Wyoming has over 10,000 total miles of non-motorized natural surface trails in state parks/lands, with over 7,000 of those miles being open to off-road cyclists. Forty-six of these miles are converted "rails to trails."²

² Alliance for Biking & Walking (2016) *Bicycling and Walking in the United States, Benchmarking Report*

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The GIS database from the Morrison Maierle inventory was submitted to WYDOT's Local Government Coordination Office. It is recommended that this data be maintained so as new pathway segments are constructed, they can be added, and the database kept current. It is also recommended that the database be made available to the public via the internet. From a tourism point of view, having this information available to the general public would increase the appeal of the areas of the state with pathways. This would assist those travelling to locations in Wyoming, either from inside or outside the state, to decide whether a bicycle and/or walking shoes should be included in the gear they bring along.

While they have not yet been officially designated, WYDOT does recognize a series of routes along the state highway system that are a part of larger, interstate bicycle routes called the United States Bicycle Route System. A map of this entire system is shown in Figure 3.1 at the end of this section. The purpose of this system is to provide opportunities for cross-country travel, regional bicycle touring, and commuting by bicycle, while also growing bicycle tourism and local economies. This system brings road bicyclists from all over the world through the state. The routes through Wyoming are listed below, and shown in Figure 3.2 at the end of this section, highlighted in grey.

- Transamerica Bicycle Route - This route begins at the Idaho/Wyoming state line in Yellowstone National Park and runs towards the southeast along several routes until it enters Colorado south of Encampment.
- Northern Tier East/West Route - This route begins at the eastern entrance of Yellowstone National Park, and runs towards the east along several routes until it enters South Dakota east of Aladdin.
- Cheyenne/Laramie/Snowy Range Route - This route provides access to Cheyenne from the Transamerica Route. This route begins at the junction of WYO 130 and WYO 230 south of Saratoga, and runs towards the east along WYO 130 and WYO 210 until it ends in Cheyenne.

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In addition to the cross country routes, WYDOT has established routes designated as "High Bicycle Use Areas". These routes receive the highest priority for sweeping and shoulder maintenance by District maintenance crews, and are also shown in Figure 3.2, highlighted in yellow. These designated routes are as follows:

- Buffalo to Sheridan, US 87
- Casper to Glenrock, US 20/26
- Casper Mountain Road, WYO 251
- Cheyenne North I-25 Service Road
- Cheyenne to Horse Creek, WYO 211
- Cheyenne to Lincoln Monument, WYO 210 (Happy Jack Road)*
- Cody to Powell, US 14A
- Cody to South Fork, WYO 291
- Evanston to Utah State Line, WYO 150
- Evanston to Utah State Line, WYO 89
- Evanston to Kemmerer (I-80), US 189
- Green River to Flaming Gorge, WYO 530
- Gillette to Savageton, WYO 50
- Jackson to Hoback Canyon, US 191/189
- Hoback Jct to Alpine, US 26/89
- Lander to Sinks Canyon, WYO 131
- Sheridan to Beckton, WYO 331
- Sundance to Newcastle, WYO 585/US 85
- Wilson to Moose, WYO 390
- Wilson to Jackson, WYO 22

* This route also included in the Cheyenne/Laramie/Snowy Range Route.

3.2 Future Facilities

There are new technologies that take advantage of the prevalence of smart phones and other GPS-enabled devices. Strava is an app that allows users to track their progress path from a person's walk, run, or bike ride. This information is easily transmitted online and can be another source of determining high use bicycle and pedestrian areas via global "heatmaps." This data can be analyzed not only by route information, but also by the time of day or day of week. It is important to note that the data only represents users of the app, which may miss a portion of the population who do not use the app. Strava data can be found at <http://labs.strava.com>.³

³ Alliance for Biking & Walking (2016) *Bicycling and Walking in the United States, Benchmarking Report*

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From analysis of the Strava data, additional routes beyond those designated by WYDOT were determined to have higher bicycle usage:

- Afton to Smoot, US 89
- Beartooth Pass Hwy, US 212
- Cody to 3Fk Rd, US 14/16
- Devils Tower Jct. to Aladdin, WYO 24
- Jackson to Moose, US 89/191
- Laramie to Snowy Range, WYO 130
- Moran Jct. to Dubois, US 287/26
- Mountain View to I-80, WYO 414
- Rock Springs to Middle Baxter Road, WYO 430
- Sundance to Devils Tower Jct., US 16
- Jackson to Idaho state line, WYO 22

WYDOT's Operating Policy 7-4, Bicycle Accommodation and Multiple-Use Transportation Facilities (included in Appendix F), requires that when a roadway section is reconstructed along designated routes, the desirable width for shoulder is 8 feet or more. The minimum width is 6 feet. For the three named interstate routes listed above, shoulder width data was obtained from the WYDOT Planning Program. For each route, a summary was generated to determine which sections of those routes need to be widened to achieve the 6 foot minimum shoulder width.

DESIGNATED BICYCLE ROUTES **Estimated Shoulder Widening Costs**

Route Name	Total Length	Length to Widen	Estimated Cost
Transamerica Route	406 MI	152 MI	\$29,100,000
Northern Tier East/West Route	462 MI	209 MI	\$59,000,000
Cheyenne/Laramie/Snowy Range Route	130 MI	90 MI	\$26,700,000

TOTAL = \$114,800,000

As the table shows, a substantial investment is required to bring shoulder widths along these routes up to the minimum standards designated in Operating Policy 7-4. While the deficiency in shoulder width may not be the main impetus for a project, widening the shoulders to the minimum standards for bicycle use should be considered when a section of roadway is selected for improvement in the future.

As interest in walking and biking increases, many communities have developed plans for a system of pathways and designated routes that tie together. Such a system provides opportunities for use that is both destination related or recreational in nature. A number of communities, including Cheyenne, Casper, and Sheridan, provided pathway data that included routes for future pathways that are planned for their systems. These routes were separated in the GIS inventory, and labeled as "future" routes.

Figure 3.1



The goal of The United States Bicycle Route System is to connect America through a network of numbered interstate bicycle routes.

NATIONAL CORRIDOR PLAN

October 2015

Adventure Cycling Association
America's bicycle travel experts

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AAASHTO
THE VOICE OF TRANSPORTATION

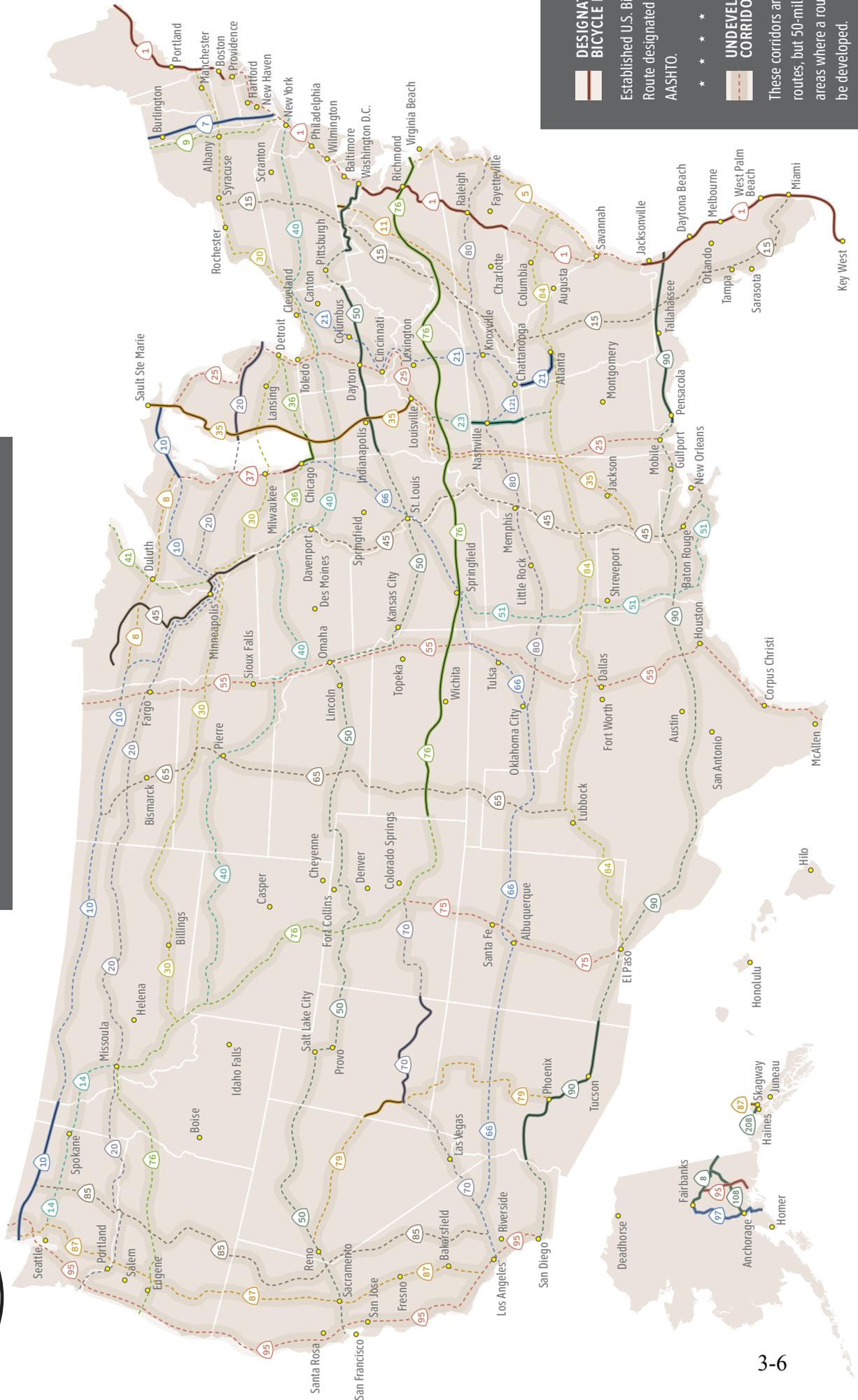
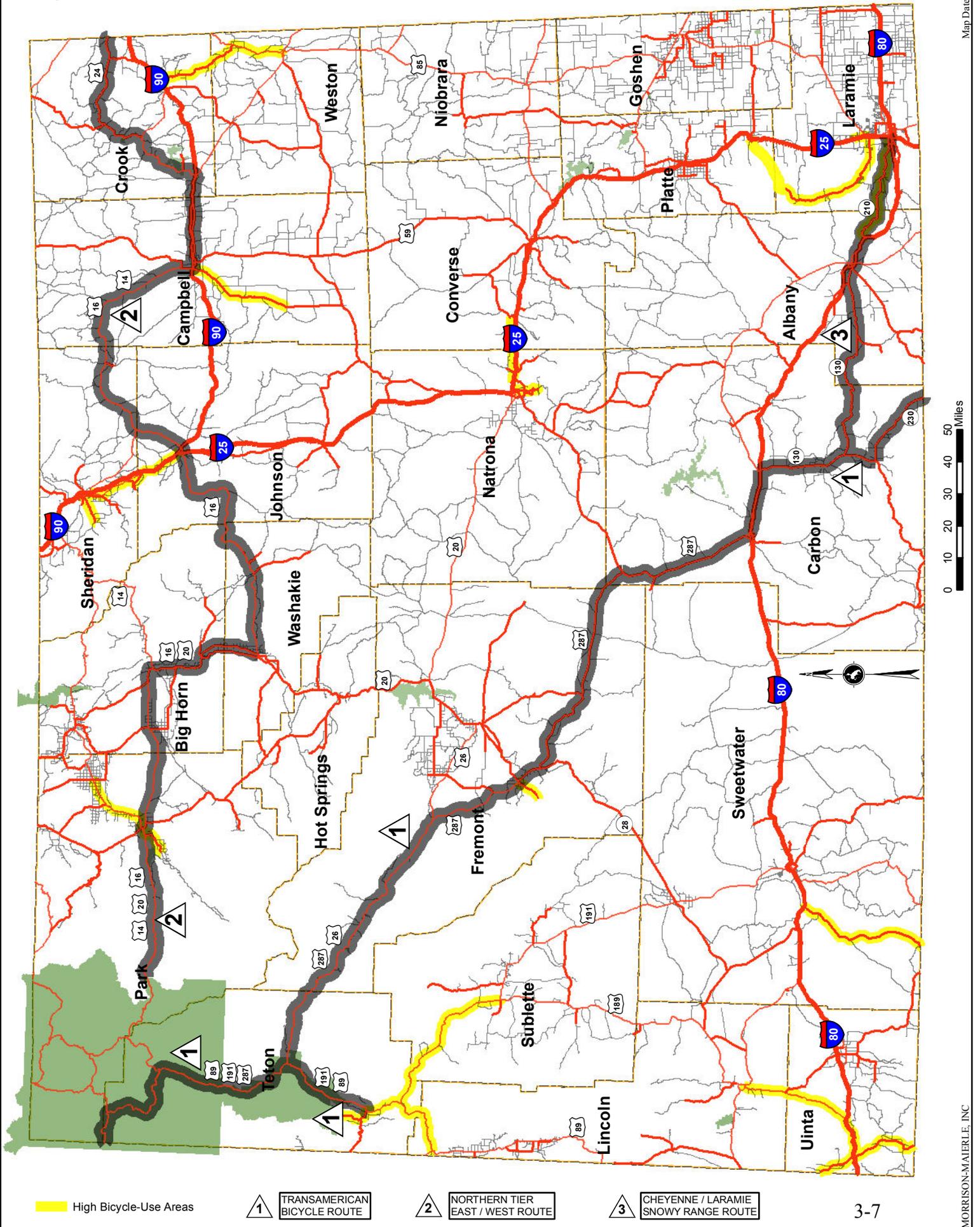


Figure 3.2

MAJOR BIKE ROUTES ACROSS WYOMING



4.0 Standards & Guidance

4.1 National Guides

The American Association of State Highway and Transportation Officials (AASHTO) has numerous design guides available for use on transportation projects. A Policy on Geometric Design of Highways and Streets, commonly known as the "green book", is widely accepted as the primary standard in the design of streets and roads. Agencies at both the state and local level refer to this guide in their design policies.

Two additional AASHTO manuals are The Guide for the Development of Bicycle Facilities, and The Guide for the Planning, Design, and Operation of Pedestrian Facilities. Each provides recommended standards for each type of facility, which have been widely adopted. The bicycle guide also contains a chapter on Shared Use Paths, which are a common type of facility for entities that don't have the means or need to construct separate facilities for pedestrians and bicycles.

In 2010, the Department of Justice, published their latest edition of ADA Standards for Accessible Design. This guide contains the requirements that must be met for a project to be designed and constructed for ADA compatibility. In 2011, the United States Access Board published the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way. Although this document has yet to be officially adopted, it contains guidelines for design, construction, and alteration of pedestrian facilities that fall within the public right-of-way.

4.2 Local Guides

For roadway or street projects that fall within or near urban boundaries, it is recommended that design personnel review local documents to determine what standards are in place. Smaller communities may not have their own design guides, but may defer to the established AASHTO standards.

4.3 Miscellaneous References

The following are useful references for the design of pedestrian and bicycle facilities:

- Pedestrian and School Traffic Control Manual, Wyoming Department of Transportation, 2014
- Americans with Disabilities Act Title II: Self-Evaluation and Transition Plan, Wyoming Department of Transportation, 2015
- Guide for the Planning, Design, and Operation of Pedestrian Facilities, American Association of State Highway and Transportation Officials, 2004
- Guide for the Development of Bicycle Facilities, Fourth Edition, American Association of State Highway and Transportation Officials, 2012
- A Policy on Geometric Design of Highways and Streets, Sixth Edition, American Association of State Highway and Transportation Officials, 2011
- Manual on Uniform Traffic Control Devices for Streets and Highways, Federal Highway Administration, 2009

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- ADA Standards for Accessible Design, Department of Justice, 2010
- Separated Bike Lane Planning and Design Guide, Federal Highway Administration, 2015
- Urban Bikeway Design Guide, Second Edition, National Association of City Transportation Officials, 2014.
- Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, Institute of Transportation Engineers, 2010
- Developing an Effective Shoulder and Centerline Rumble Strips/Stripes Policy to Accommodate All Roadway Users, FHWA-WY-15/02, 2015
- FHWA Bicycle and Pedestrian Program website: www.fhwa.dot.gov/environment/bicycle_pedestrian

The following are useful references for the planning of a local pedestrian and bicycle network:

- Statewide Pedestrian and Bicycle Planning Handbook, Federal Highway Administration, 2014
- Bicycling and Walking in the United States, 2016 Benchmarking Report, Alliance for Biking & Walking
- Wyoming Pathways website: www.wyopath.org
- Cycle Wyoming website: www.cyclewyoming.org
- MTB Project website: www.mtbproject.com
- International Mountain Bicycle Association website: www.imba.com

The following are useful references regarding the health benefits of accessible pedestrian and bicycle facilities:

- The Guide to Community Preventive Services: Environmental and Policy Approaches to Increasing Physical Activity (<http://thecommunityguide.org/pa/index.html>)
- Physical Activity Guidelines for Americans: Chapter 8: Taking Action: Increasing Physical Activity Levels of Americans, 2008, United States Office of Disease Prevention and Health Promotion (<http://health.gov/paguidelines/guidelines/chapter8.aspx>)
- Healthy Weight: Physical Activity for a Healthy Weight, United States Centers for Disease Control and Prevention (http://www.cdc.gov/healthyweight/physical_activity/index.html)

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- National Prevention Strategy: Priorities: Active Living; United States Department of Health & Human Services (<http://www.surgeongeneral.gov/priorities/prevention/strategy/active-living.html>)
- National Physical Activity Plan: Transportation, Land Use, and Community Design (<http://www.physicalactivityplan.org/theplan/transportation.html>)
- Active Living Research: Active Transportation to Prevent Obesity and Improve Health (http://activelivingresearch.org/files/ALR.Resources.Summary_Transport_06.12.13.pdf)

5.0 Facility Planning & Design

5.1 Planning Phase

The United States Department of Transportation (USDOT) has policy in place that promotes the planning and development of bicycle and pedestrian components within the transportation system. The USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations states that:

"The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide - including health, safety, environmental, transportation, and quality of life - transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes."¹

Within the USDOT, the Federal Highway Administration (FHWA) offers several guidance documents to assist agencies, at the state and local level, in developing a plan that integrates all modes of transportation into their systems. These documents should be referenced during the scoping or reconnaissance phase of a project to decide what, if any, pedestrian or bicycle facilities will be included in a project.

Once the initial scoping phase has been completed, project design personnel must become familiar with the standards that govern pedestrian facilities before commencing a project. Just a few examples of various standards are:

- The Manual on Uniform Traffic Control Devices (MUTCD) defines a pedestrian as "a person on foot, in a wheelchair, on skates, or on a skateboard."²
- The ADA Standards for Accessible Design have requirements for "accessible routes", which "shall consist of one or more of the following components: walking surfaces with a *running slope* not steeper than 1:20, doorways, *ramps*, *curb ramps* excluding the flared sides, elevators, and platform lifts."³
- WYDOT has developed and refined a standard plan (608-1A) that provides guidance on the construction of ADA compliant pedestrian facilities within their projects.

Designers and engineers must also be aware of the general characteristics for pedestrians, which can vary greatly, depending on age. Projects that are adjacent to elementary schools or nursing homes should accommodate pedestrians that move at a slower rate than an average pedestrian. An example of this would be the timing used for a pedestrian crossing signal. The AASHTO Green Book recommends using a walking speed of 3.5 feet/sec in the determination of pedestrian clearance time in a signalized crosswalk. However, a rate of 2.8 feet/sec can be used for slower pedestrians.

¹ FHWA (September 2014) *Statewide Pedestrian and Bicycle Planning Handbook*

² FHWA (2009) *Manual on Uniform Traffic Control Devices for Streets and Highways*

³ Department of Justice (2010) *ADA Standards for Accessible Design*

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A few of the challenges facing transportation planners when it comes to bicycle facilities are:

- Trip purpose
- Skill levels of the users

Understanding the characteristics of bicyclists will help planners and engineers design better facilities. "Among the most common are comfort level, physical ability, and trip purpose."⁴ The purpose of a bicycle trip can generally be broken into two types: utilitarian or recreational.

Utilitarian trips are those needed as a part of the bicyclist's daily activities. Two common types would be commuting to and from work, and errands. Also included in this category would be school trips for children. In areas around schools, the type of school must be taken into account, because of the variability in the size and ability of the bicyclist.

Recreational trips are those made for exercise and/or leisure. These trips cover all groups, and can vary widely in terms of length - from children riding with friends within their neighborhood, to adults using the local shared use pathway system for exercise, to people doing long-distance cross country trips.

In some cases, trip types may overlap. For instance, someone may ride their bicycle to work for the exercise benefit as well. The same transportation system will be used for both purposes, and will need to account for both types of trips.

Bicyclists can be categorized into two groups - Experienced/Confident and Casual/Less Confident. Knowing the user skill level can affect the type of facility being considered. For example, the experienced bicyclists typically won't have an issue using the shoulder of a busy highway, whereas the casual bicyclists might not be comfortable in that setting. Casual bicyclists include a majority of the population, and may primarily use facilities that are separated from vehicular traffic.

5.1.1 Statewide Planning

WYDOT's Operating Policy 25-3 (included in Appendix F) outlines their requirements for the consideration of pedestrian facilities within their projects during the design phase. Sidewalks will be included "where appropriate in new highway construction, highway reconstruction, and major rehabilitation projects within urban boundaries or incorporated areas."⁵ The policy also outlines the fact that the inclusion of sidewalks will be based on the acceptance of maintenance responsibilities by the local entity. WYDOT's Operating Policy 40-2 (included in Appendix F) outlines the process of developing an agreement that defines these responsibilities.

Similar to Operating Policy 25-3, WYDOT's Operating Policy 7-4 indicates that WYDOT "will consider appropriate facilities for bicyclists and pedestrians on all federal-aid and state-funded highway construction, reconstruction, or rehabilitation projects."⁶ For rural projects, the policy calls out the **designated bicycle routes** or other **high bicycle-use areas** as having a preferable shoulder width of 8 feet, with a minimum of 6 feet. These are also areas where rumble stripes should be considered rather than rumble strips (see Section 5.3.5 for more information on rumble stripes and rumble strips). For urban projects, wide curb lanes are

⁴ AASHTO (2012) *Guide for the Development of Bicycle Facilities, Fourth Edition*

⁵ WYDOT (May 1999) *Operating Policy 25-3*

⁶ WYDOT (September 2010) *Operating Policy 7-4*

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preferred, and striped bike lanes may be considered. The policy encourages the designer to refer to local planning documents for the proper type of bicycle facility in urban projects.

With regard to highway shoulders, and as mentioned in Section 3.1, WYDOT has three recognized routes for interstate bicycle travel along the state highway system. For projects that go through the communities which lie along these routes, special consideration should be given to providing facilities that are bicycle friendly. The following is a list of the routes, and the towns or cities that they pass through.

Transamerica Bicycle Route

(West to East) passes near or through these Cities/Towns

- Jackson
- Dubois
- Lander
- Rawlins
- Saratoga
- Encampment

Northern Tier East/West Route

(West to East) passes near or through these Cities/Towns

- Cody
- Greybull
- Basin
- Worland
- Ten Sleep
- Buffalo
- Clearmont
- Gillette
- Moorcroft
- Hulett

Cheyenne/Laramie/Snowy Range Route

(West to East) passes near or through these Cities/Towns

- Centennial
- Laramie
- Cheyenne

Section 3.2 summarizes sections of highway along these routes that require shoulder widening to bring them up to the 6 foot minimum width that WYDOT requires. Appendix G summarizes projects currently in the WYDOT State Transportation Improvement Program (STIP) for the years 2017 - 2021 along the recognized routes. While there are a handful of future projects along these routes, only one in the list is a widening project. Many of the projects will improve the surfacing, but only one will improve the shoulder width deficiencies. That one project covers less than 6 miles of the 450+ miles shown as deficient in Section 3.2.

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While these routes rely on the roadway shoulders to provide space for bicycle operation, wide shoulders are just one type of facility that can be included in a transportation project to accommodate pedestrians and bicycles. Other types of facilities include:

- Shared Use Paths
- Attached Sidewalks
- Bicycle Lanes
- Shared Lanes

Shared use paths are becoming more popular in Wyoming, as indicated by the inventory mentioned in Section 3.1. As the name implies, shared use paths accommodate both pedestrians and bicyclists. Depending on their location and connectivity, they may not get a lot of use by commuters. However, they are popular with users looking for the recreational and fitness benefits. They provide a safer environment for operating a bicycle in respect to conflicts with vehicles, which makes them more attractive to less experienced users.

Figure 5.1: Shared Use Path



Shared use paths offer a lower cost alternative to separate facilities for pedestrians and bicycles, which is an advantage for public agencies with limited budgets. For projects in WYDOT's transportation system, shared use paths are typically paid for and maintained by a local agency that has requested this type of facility be included in the project.

Attached sidewalks are the most common type of facility for urban projects in WYDOT's system. The standard width of 5 feet is typically increased in downtown areas where the sidewalk ties into building fronts. This type of facility is usually only for pedestrians, since most municipalities discourage the use of bicycles on sidewalks in downtown areas. Outside of downtown commercial districts, detached sidewalks are preferable from pedestrian quality of service, comfort, and safety standpoints. A buffer between the sidewalk and roadway enhances the safety and comfort of sidewalks by providing lateral separation

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between pedestrians and vehicular traffic. During the winter, the boulevard area provides a location for snow storage. WYDOT's standard plans (included in Appendix H) provide guidelines for designing sidewalks to meet ADA requirements.

Bicycle lanes provide space within a roadway that is designated for use by bicyclists only. They are typically one-way so that bicycles are travelling in the same direction as the adjacent vehicular traffic. Roadway shoulders can be designated as bike lanes with the installation of appropriate pavement markings and signage. The advantage of bicycle lanes versus shared lanes is that they allow bicyclists to ride at their own speed, rather than having to blend with the speed of vehicular traffic. Bicycle lanes can also have a barrier to increase the space between the bicycle and the vehicle travel lane. Often referred to as buffered bicycle lanes or cycle tracks, these bicycle lanes have been installed in Jackson and are being proposed in Laramie.

Figure 5.2: Cycle Track and Detached Sidewalk in Jackson



Shared lanes are by far the most common type of bicycle facility, since bicyclists have the same rights as the operator of any vehicle, and can use any roadway. Low speed, low volume roads can provide a comfortable bicycling experience for even less experienced bicyclists with shared lanes. However, depending on the speed and/or volume of vehicular traffic, less advanced bicyclists may not be comfortable riding amongst motor vehicles. The advantage to this type of facility is the fact that they already exist, and don't take additional right of way or funding to construct. The disadvantage is in locations where vehicle speed and/or volumes are higher, and usage may be lower due to safety concerns by bicyclists. In areas of high bicycle traffic, shared lanes can be officially designated by pavement markings known as “sharrows.”

Figure 5.3: Shared Lane Sharrow Marking



5.1.2 Local Planning

Appendix I summarizes the projects currently in the WYDOT STIP for the years 2017 - 2021 within urban boundaries. As with the rural projects along the designated bicycle routes, the urban projects consist primarily of resurfacing work, which provide little opportunity for improving bicycle facilities. However, many times ADA upgrades can be included in resurfacing projects for the adjacent sidewalks. So within these projects, there may be opportunities to at least improve the pedestrian facilities.

Some states list the pedestrian and bicycle facility projects separately in their improvement program. This makes it easier to track where those types of improvements are being planned. This could be something WYDOT does in the future to make it easier to keep track of those types of projects.

This plan can be used by community personnel as a resource for documents with design standards, if those communities do not have their own. Most communities in Wyoming do not have design standards. However, many communities do have some type of planning document.

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For roadway or street projects that fall within or near urban boundaries, it is recommended that design personnel review local planning documents to determine what goals, if any, have been established for that area. If the local community has completed a Safe Routes To School plan, this document should also be reviewed. The following is a list of communities with planning documents in place. This list should not be considered fully complete, as these were simply the documents provided during the inventory gathering stage of this plan. Local agencies should be contacted during the planning phase to acquire current local planning documents.

Afton	Lincoln County Comprehensive Plan (Appendix 7)
Alpine	Town of Alpine Municipal Master Plan, 2006
Basin	Town of Basin, Wyoming 2012 Master Plan
Buffalo	Buffalo Wyoming Comprehensive Plan 2007 (Chapter 12: Transportation and Circulation)
Casper	City of Casper, 2014 Park and Opens Space Improvement Plan Casper Area Trails, Path, and Bikeway Master Plan, 2013
Cheyenne	Cheyenne On-Street Bicycle Plan and Greenway Plan Update, 2012
Cody	Cody Master Plan, 2014
Douglas	Douglas Master Plan, 2014
Evanston	Evanston 2010 Plan, A Community Vision
Gillette	A Parks and Pathways Master Plan for the City of Gillette, 2009
Green River	Green River Wyoming Comprehensive Master Plan, 2012
Jackson	Pathways Master Plan, The Town of Jackson & Teton County Wyoming, 2007
Lander	Lander Master Plan 2012
Laramie	City of Laramie Parks & Recreation Master Plan, 2016
Lovell	Lovell Town Master Plan, 2006
Moorcroft	Moorcroft Pedestrian Pathways Master Plan, 2011 (Exhibit 1 - Proposed Pathway System)
Newcastle	Safe Routes to School Study, City of Newcastle Wyoming
Powell	City of Powell Master Street Plan (Appendix D)
Ranchester	Ranchester Safe Routes to School Master Plan, 2009
Rawlins	City of Rawlins Comprehensive Master Plan (2012-2030) - Forward Vision
Riverton	Riverton Master Plan, 2009
Rock Springs	The City of Rock Springs, 2012 Master Plan
Sheridan	City of Sheridan Parks and Recreation Master Plan, 2015
Star Valley Ranch	Town of Star Valley Ranch Municipal Master Plan, 2014
Wright	Town of Wright Master Community Development Plan

5.2 Reconnaissance Phase

The USDOT policy mentioned in Section 1.0 of this plan requires the inclusion of walking and bicycling facilities into transportation projects. The best time to consider these types of facilities is early in the project scoping effort, or what WYDOT refers to as the Reconnaissance phase. This phase of the project involves identifying key design issues, and the scope of the design.

As a part of the Reconnaissance phase, a field inspection is typically performed, so that members of the various WYDOT programs can have an on-site review of the physical characteristics of the project. During this process, the traffic Level of Service (LOS) is determined. This should be supplemented by

analyzing multimodal “quality of service,” which looks at the convenience, comfort, and security of transportation travel by various modes (i.e. multimodal LOS). Afterwards, a Reconnaissance Report is issued, which lists both the existing features of the project, as well as recommendations for the proposed project. WYDOT's Bicycle Coordinator should be involved in the Reconnaissance Phase to provide input on recommended pedestrian and bicycle features or upgrades to be included in the project. Local government agencies should also be involved at this stage of the project, including cities and counties, to represent the interest of the local communities. The Reconnaissance Phase should also contain review of the community's existing sidewalks that need to be improved.

5.2.1 Urban Projects

For urban projects, things that might be considered during this phase in regard to pedestrians and bicyclists are:

- If there are sidewalks incorporated into the project, is the 5 foot standard width (WYDOT Standard Plan 608-1A) adequate, or would the local government entity be interested in additional width? Typically this requires a cooperative agreement, which specifies that the local entity is responsible for the cost of the additional width.
- Are designated bicycle lanes warranted?
- Are there any locations that may warrant a signalized pedestrian/bicycle crossing?
- Does the local government entity have their own pathway system that the proposed project should tie into?
- If the local government entity has pathway work which lies outside of the project right of way they would like to accomplish, a cooperative agreement will become necessary to outline how the project costs will be allocated.
- Maintenance of the sidewalks will be responsibility of the local government entity.
- Are the current facilities up to ADA Standards?

5.2.2 Rural Projects

For rural projects, typically pedestrian traffic is not accounted for, but bicycle traffic carried on the shoulder of the roadway should be considered. For rural projects, things to be analyzed in the Reconnaissance phase are:

- If the existing shoulder width is inadequate, is the roadway being widened?
- What is the proposed roadway/shoulder width?
- Are rumble strips or rumble stripes being proposed?
- Is this section of highway either a recognized bicycle route or a high bicycle use corridor?
- Can this route be tied to any separated pathway system?
- Will a separated pathway be added to the project?

5.3 Design Phase

For transportation projects that include pedestrian and bicycle facilities, planners and designers need to determine what type of facility will work best in their location, using the information gathered during the planning and reconnaissance phases.

5.3.1 *Shoulders*

On major rural highways, it is preferred to provide paved shoulders, if width allows it. On reconstruction projects on highways that are on the National Highway System (NHS), WYDOT encourages shoulders to be no less than 4 feet wide. WYDOT's Operating Policy 7-4 calls out the **designated bicycle routes** or other **high bicycle-use areas** as having a preferable shoulder width of 8 feet, with a minimum of 6 feet.

On highways with paved shoulders, it is likely that there will be rumble strips or stripes on the shoulders. WYDOT's Operating Policy 7-3 discusses shoulder rumble strips as a method to enhance motor vehicle safety while accommodating bicycle traffic to the highest possible extent. Rumble strips are 16 inch side strips milled into paved, rural shoulders that are at least two feet wide. The offset location of the rumble strip varies, depending on the width of the shoulder. Gaps of 12 feet are provided every 48 feet to allow bicyclists to maneuver in and out of the rumble strips. In addition to Operating Policy 7-3, WYDOT's Standard Plan 418-1 covers the details of rumble strip design and installation.

Figure 5.4: Rumble Strips



WYDOT has begun to install rumble stripes on rural highways, where the milled surface is co-incident with the travel lane edge that is painted white. The rumble stripes are narrower at 8 inches wide and do a better job of accommodating bicyclists. They provide more space for bikes and alert drivers sooner if they start to drift out of the traveled lane. Providing periodic gaps in the rumble stripes of at least 12 feet every 40 to 60 feet are preferred to enhance cyclists' maneuverability. It is recommended that the high use bicycle highways be converted to rumble stripes.

Figure 5.5: Rumble Stripes



5.3.2 Shared Use Paths

Shared use paths are becoming more popular with many locations in Wyoming, as shown by the inventory completed in conjunction with the creation of this guide.

The following are some of the things to consider when designing a shared use pathway system:

- Width and Clearance
- Speed
- Horizontal Alignment
- Cross Slope
- Vertical Alignment
- Drainage
- Lighting
- Pavement Markings & Signs

The AASHTO Guide for the Development of Bicycle Facilities has a complete list of design elements to consider in Chapter 5, Design of Shared Use Paths.

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The minimum width for a two-directional, shared use path is 10 feet. AASHTO allows for a path width of 8 feet for short distances where physical constraints of the site do not allow for a wider path. In this case, warning signs should be installed. The reduced width of 8 feet can also be used where usage is expected to be low. Wider paths should be considered where usage is expected to be high. Similar to the clear zone concept on a highway, AASHTO recommends a pathway be constructed with a graded shoulder area of 3 to 5 feet in width with slopes 1V:6H or flatter. If this cannot be achieved, then some type of barrier, such as railing, should be considered.

There is an obvious discrepancy between the speed at which most people walk, and the speed at which they ride a bicycle. Planners and designers need to consider the types of users a pathway will likely serve. For shared paths with a high percentage of pedestrian use, the design should not encourage high speed use by bicycles. This could create a safety issue. However, a minimum design speed of 18 mph is recommended for the path to prevent abrupt changes in direction that might become a safety issue for bicyclists as well.

Directly related to design speed is the horizontal alignment. For safe operation of bicycles, changes in direction of the path should be gradual. AASHTO recommends that for the 18 mph design speed, a minimum radius of 60 feet should be used for horizontal curves.

The maximum allowable cross slopes for pedestrian facilities is 2.0%. However, the ADA Guidelines do not allow for a construction tolerance. With that in mind, designers should consider using 1.5% cross slope to give contractors a margin to ensure compliance.

Vertical alignments on shared use pathways should not exceed 5%, according to ADA Guidelines. However, if the pathway runs along a roadway with a profile grade that exceeds 5%, the pathway profile may exceed 5% provided it doesn't exceed the roadway profile grade.

Drainage for a shared use path is typically accomplished with the cross slope of the pavement, as long as it is 1% or more. Having a smooth surface should minimize the chances for ponding and/or icing. If the path is designed on the side of a slope, a ditch on the uphill side of the path should be included in the design to intercept runoff. Locations along pathways that cross low areas should be evaluated for the placement of a culvert to pass runoff underneath. However, it may not be economical for a facility such as a pathway to be designed to handle a very large precipitation event.

Lighting along the entire length of a pathway is desirable, but again may not be economical. High use areas, intersections with streets, or underpasses are spot locations that should be evaluated for lighting systems. This, of course, assumes that nighttime use of the pathway is allowed. If lighting is installed, the fixtures should not be the standard height used on roads and streets. The fixtures can be shorter, and emit a lower level of illumination. Fixtures should be chosen to comply with local "dark sky" requirements, if necessary.

The MUTCD should be referenced for guidelines dealing with pavement markings. Pavement markings for shared use pathways serve the same function as those on a road. For instance, a centerline stripe is used to separate traffic traveling in opposite directions. A solid line can be used in areas where passing is discouraged. A dashed line can be used in areas where passing sight distance is adequate. Agencies constructing pathways may want to consider the use of pavement markings only in areas of high usage, as they add to both the initial cost and future maintenance costs. Chapter 9 of the MUTCD is the preferred resource for pathway pavement markings.

Similar to pavement markings, signage serves the same function on a pathway that it does on a roadway. The pathway designer should apply similar criteria used for the placement of signs along a highway. For instance, if a sharp curve exists along a pathway alignment, bicycle users should be warned in advance of the curve, so they have time to slow down, and navigate the curve safely. Or, using signs to warn pathway users of an upcoming street intersection may be necessary, if sight distance is not adequate. Chapter 9 of the MUTCD is the preferred resource for sign types and placement.

5.3.3 Sidewalks

Attached sidewalks are common on urban projects in Wyoming. However, municipalities typically don't allow for the intermingling of walkers and bicyclists, if the sidewalk width doesn't safely allow for both modes. To improve the comfort, safety, and usability of attached sidewalks for pedestrians, the presence of a curb defines the area intended for vehicles and the area intended for pedestrians.

Detached sidewalks can provide additional comfort and safety for pedestrians by providing a boulevard, or buffer between the roadway curb and the sidewalk. Detached sidewalks are often preferred in urban areas, if the right of way width allows room for them. The boulevard area of a detached sidewalk may serve as a place for beautification items such as grass, trees, bushes, and benches, as well as functional items such as fire hydrants, lighting, utility poles, and mailboxes.

Figure 5.6: Detached Sidewalk and Bike Lane



Although the specific details of attached and detached sidewalk installation can vary from project to project, all new and reconstructed sidewalks must be accessible to and usable by persons with disabilities.⁷ The minimum clear width for a sidewalk is 4 feet. Where sidewalks are less than 5 feet wide, passing spaces should be provided at reasonable intervals. The width necessary can vary from 5 feet to 15 feet, depending on pedestrian volume. Chapter 18 of the Transportation Research Board's *Highway Capacity Manual* (HCM) provides procedures to assess the sidewalk width needed to accommodate particular volumes of pedestrians.

⁷ AASHTO (2004) Guide for the Planning, Design, and Operation of Pedestrian Facilities

Where a driveway crosses an attached or detached sidewalk, the ADA requirements must still be met in order to maintain accessibility for pedestrians with disabilities. There are several design options shown in the WYDOT Standard Plans (included in Appendix H) for sidewalks through driveways to ensure that the cross slopes, widths, and grade all still meet requirements. It is often easier to meet these ADA requirements with detached sidewalks than attached sidewalks.

5.3.4 Bike Lanes

Bike lanes are not currently as popular in Wyoming, but should be considered for each project, since they provide separation from vehicular traffic for bicycle users. Bike lanes are located within or directly adjacent to the roadway. A separated bike lane is physically separated from motor vehicle traffic with a vertical element, while an on-street bike lane is separated from motor vehicles by only pavement markings. There are four general categories that make up the design of a separated bike lane:

- Establish directional and width criteria
- Select forms of separation
- Identify midblock design challenges and solutions
- Develop intersection design, incorporating turning movements

Separated bike lanes can operate as one-way or two-way facilities and they can be designed at roadway grade, sidewalk grade, or at an intermediate grade. Guidelines on the design of separated bike lanes can be found in FHWA's Separated Bike Lane Planning and Design Guide (May 2015). Separated bike lanes should be designed so users do not face uncertainty regarding the beginning or end of the facility. In general, designers should attempt to minimize bicycle conflicts with vehicle traffic and/or pedestrians and create clear pathways to safely enter and exit the separated facility.

On-street bike lanes are located adjacent to motor vehicle lanes and flow in the same direction as the motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge, or parking lane. On-street bike lanes are most helpful on streets with > 3,000 vehicles per day and a posted speed > 25 mph.⁸ The desirable bike lane width adjacent to curb is 6 feet. The desirable width adjacent to a street edge or longitudinal joint is 4 feet, with a minimum of 3 feet. If a bike lane is adjacent to guardrail or another vertical physical barrier, it is desirable to add 2 feet of width to the bike lane. A solid white lane marking shall be used to separate vehicle traffic from the bike lane.

Signs and pavement markings supplement good design and reinforce appropriate behavior for all users, for both separated and on-street bike lanes. Chapter 9 of the MUTCD is the preferred resource for bike lane sign types and placement, as well as pavement markings.

⁸ NACTO (2014) *Urban Bikeway Design Guide*

5.3.5 Shared Lanes

Shared lanes are very common, since bicycles are allowed on most types of roadways; on local neighborhood streets, city streets, and on urban, suburban, and rural highways. Unlike a bike lane, with a shared lane, bicyclists and motor vehicles share the same travel lanes. There are no bicycle-specific designs or dimensions for shared lanes or roadways.⁹ Generally, roadways that carry low vehicle volumes, and may have low speed traffic, may be suitable as shared lanes.

Figure 5.7: Shared Lane



When a vehicle passes a bicyclist in an area with lane width of 13 feet or less, the vehicle will most likely encroach into the adjacent lane. Lane widths that are 14 feet or greater allow vehicles to pass bicyclists without encroaching into the adjacent lane. If there is a gutter present, its width should not be included in this width measurement.

Roadways with shared lanes narrower than 14 feet may still be designated for bicycles, but should be marked with proper shared-lane markings and signage. Chapter 9 of the MUTCD is the preferred resource for bike lane sign types and placement, as well as pavement markings.

⁹ AASHTO (2012) Guide for the Development of Bicycle Facilities

6.0 Facility Funding

6.1 Past Spending Levels

Spending on bicycle and pedestrian projects has been a relatively low percentage of overall transportation budgets. Overall, states spend just 2.0% of their federal transportation dollars on bicycle and pedestrian projects (based fiscal years 2012-2014). This amounts to just \$2.47 per capita for bicycling and walking each year.¹ Wyoming has been above average when it comes to the amount spent per capita, but below average in terms of percentage of budget dollars, with the following levels being spent:

<i>Fiscal Years</i>	<i>Amount spent per capita</i>	<i>Percent of federal transportation dollars</i>
2006-2008	\$5.79	1.3%
2009-2011	\$7.22	1.3%*
2012-2014	\$4.57	1.0%

* The dollars spent peaked in 2009-2010 due to additional funding provided by the American Recovery and Reinvestment Act (ARRA).

6.2 Programs in the FAST Act

On December 4, 2015, President Obama signed the Fixing America’s Surface Transportation (FAST) Act into law. This legislation was the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes \$305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs.² Federal-Aid highway funds are authorized by Congress to assist the States in providing for construction, reconstruction, and improvement of highways and bridges on eligible Federal-Aid highway routes and for other special purpose programs and projects.³

Projects for bicycle and pedestrian facilities are eligible through numerous Federal-Aid programs. The list of primary programs are as follows:

- Surface Transportation Block Grant Program (STBG)
- Transportation Alternatives (TA)
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Highway Safety Improvement Program (HSIP)
- National Highway Performance Program (NHPP)

The FAST Act converts the long-standing Surface Transportation Program into the **Surface Transportation Block Grant Program**, acknowledging that this program has the most flexible eligibilities among all Federal-Aid highway programs and aligning the program’s name with how FHWA has historically administered it. The FAST Act provides an estimated annual average of \$11.7 billion for STBG, which states and local government entities may use for projects to preserve or improve conditions and performance on any Federal-Aid highways, bridge projects on any public road, facilities for non-motorized

¹ Alliance for Biking & Walking (2016) Bicycling and Walking in the United States, Benchmarking Report

² FHWA Website

³ FHWA (2016), A Guide to Federal-Aid Programs and Projects

transportation, transit capital projects, and public bus terminals and facilities.⁴ The FAST Act eliminated the previous Transportation Alternatives Program, and replaced it with a set-aside of the Surface Transportation Block Grant program for funding **Transportation Alternatives** (TA). These set-aside funds include projects such as pedestrian and bicycle facilities, recreational trails, and safe routes to schools.

The **Congestion Mitigation and Air Quality Improvement Program**, continued in the FAST Act at an estimated average annual funding level of \$2.4 billion, provides a funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act.⁵ Eligible project types under this program include public transit, as well as bicycle and pedestrian facilities.

The **Highway Safety Improvement Program** was continued in the FAST Act, and emphasizes safety improvements to problem areas identified by a data-driven, strategic safety system. Some activities were added to the list of eligible projects, including certain pedestrian safety improvements.

The **National Highway Performance Program (NHPP)** was continued in the FAST Act and provides support for the condition and performance of the National Highway System (NHS). Each State receives an apportionment of funds that can be used for the construction of new facilities on the NHS (including pedestrian and bicycle facilities) and to support the progress toward the achievement of performance targets established in a State's asset management plan for the NHS.

6.3 Sources of State Funding

Specific details on the federal funding allotted through the FAST Act to the State of Wyoming were not available at the time of this report. Contact WYDOT's Local Government Coordinator and District personnel to get information on funding available for bicycle and pedestrian facilities. Current contact information is found in Appendix J.

⁴ FHWA Website

⁵ FHWA Website

7.0 Facility Maintenance & Upgrades

7.1 Existing Facility Maintenance

Maintenance of pedestrian and bicycle facilities is important in order to provide a surface free of debris. Loose sand or gravel can make a paved surface treacherous, and more difficult to traverse. For example, during the winter months highway shoulders can accumulate sand from snow plowing operations. Sweeping the shoulders in the spring removes the sand that can pose a safety hazard to bicycles, especially road bikes with narrow tires. The buildup of excessive debris can cause cyclists to avoid the shoulders, and ride in the traveled way of a road. This creates potential conflicts with motor vehicles, and may be uncomfortable for some riders. In addition, sidewalks along roads that are plowed can become covered during the winter. This can pose a hazard to some pedestrians, especially those with physical disabilities.

Responsibility for the sweeping and cleaning of debris off of shoulders along rural sections of highways belongs to WYDOT. WYDOT's Operating Policy 7-4 designates that **high bicycle use areas**, as identified in Chapter 3, will receive the highest priority for sweeping. **Statewide bicycle routes** will receive second priority. The policy states that excessive accumulations of debris should be removed from the rural highway shoulders at the end of the winter season and during the normal bicycling season of May to October, subject to personnel and equipment availability. For urban routes, municipalities with populations greater than 1,500 are responsible for removal of debris on streets and sidewalks, as well as multiple-use pathways. WYDOT's Operating Policy 40-2 outlines the process to be used for establishing a maintenance agreement between WYDOT and the local agency on a project. Municipalities should be encouraged to establish a regular sweeping schedule for streets and walks within their area.

Other maintenance activities could include the resurfacing of shoulders under an overlay project. New pavements provide a smoother surface for bicycles to ride on, which can improve safety. In addition, the paving of driveway approaches can reduce the amount of dirt and gravel tracked onto the pavement, which lessens the need for sweeping operations.

Keeping crosswalk and pavement markings up to date and visible is another important maintenance activity for bicycle and pedestrian safety. Along with crosswalk markings, stop bars for vehicles are important to indicate to vehicles where they should be stopping behind the crosswalk at signalized and unsignalized intersections. It is recommended that design standards be modified to require a stop bar in advance of a crosswalk. Colored pavement crosswalks are also a method of clearly marking possible conflict points between vehicles and bicycles or pedestrians.

7.2 Facility Upgrades

7.2.1 Sidewalks

Upgrades to sidewalks can be accomplished under a roadway project or as a standalone project. Providing sidewalks along urban corridors reduces conflicts between pedestrians and vehicles, particularly when the sidewalk connects pedestrians to a signalized or other enhanced crossing location. Bringing sidewalks up to current ADA standards is one type of work that can be rolled into a roadway project. WYDOT's Standard Plan 608-1A has been included in Appendix H, and should be referenced when designing pedestrian facilities within a roadway project. Sidewalk maintenance or replacement should be done for existing sidewalks that are cracked, uplifted, or have other poor surface conditions, such as spalling. Vertical misalignment between slabs of more than ½ inch can create tripping hazards and accessibility problems.

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7.2.2 Signs

Upgrades to roadway signage dealing with pedestrian and bicycle traffic may improve safety in areas with higher usage. Some signage included the *Manual on Uniform Traffic Devices* (MUTCD) is Yield Here to Pedestrians and Stop Here for Pedestrians. Signage can also be directed towards the bicycle and pedestrian traffic, if they are required to stop or yield for motor vehicle traffic.



There are numerous signs in Chapter 9B in the MUTCD directed towards drivers that pertain to bicyclists using the full lane (shared lanes) and bike lanes.



There are also signs in Chapter 9B of the MUTCD directed at bicyclists and pedestrians utilizing bike lanes and shared use paths.

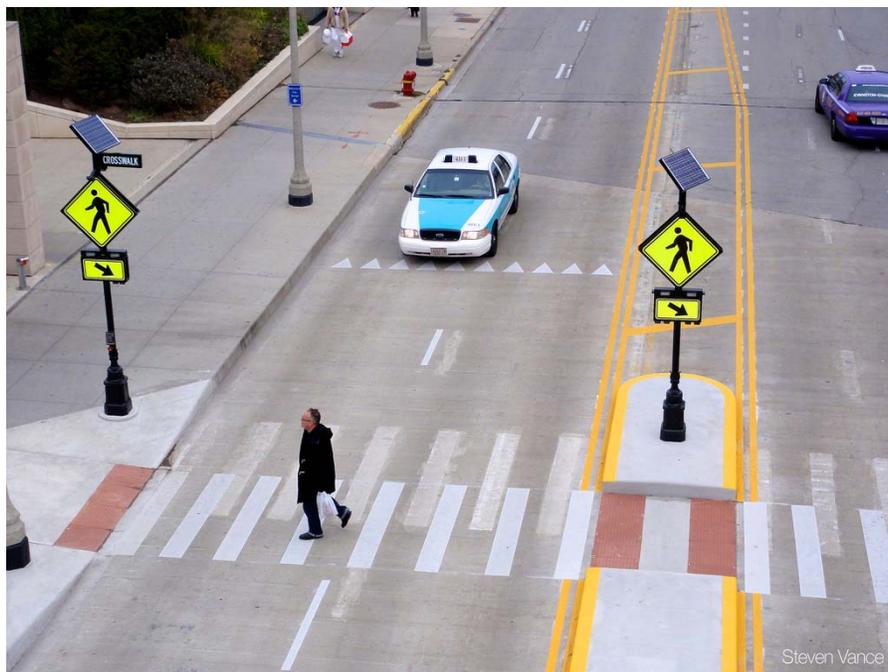


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7.2.3 Signals

Upgrades to existing traffic signals can be made, such as adding pedestrian countdown timers or modifying the signal timing and phasing to include a leading pedestrian interval or a pedestrian-only interval, in areas of very high pedestrian traffic. The leading pedestrian interval adjust the signal phasing to provide a walk display 3 to 5 seconds prior to the vehicle green display for that direction of travel. It releases pedestrians prior to the green light for vehicles so pedestrians can enter and occupy the crosswalk before turning drivers enter it.

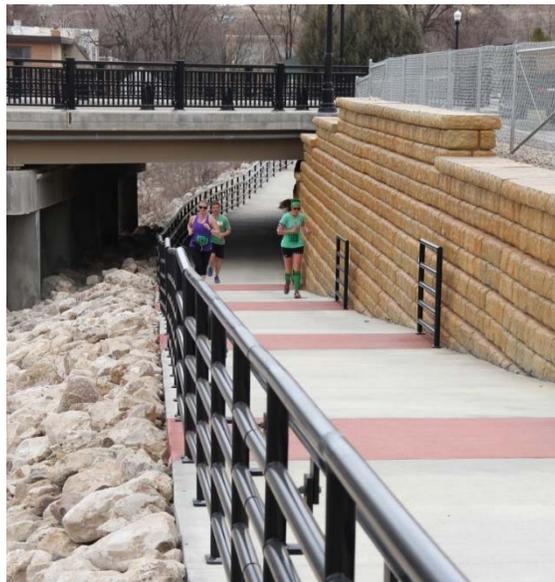
Additional upgrades to pedestrian facilities could include the installation of a pedestrian hybrid beacons. Warrants and guidance on the planning and design of these devices can be found in the WYDOT Pedestrian and School Traffic Control Manual. With these systems, the pedestrian activates flashing beacons at a mid-block crossing. Some of the newer systems with signals mounted over the traveled lanes can cost \$150,000 or more, so they should be used only at the busiest crossing locations. These costs reflect not only the signal itself, but the necessary signage and pavement markings. Unsignalized crossings installed on busy, multi-lane roadways (60 feet or wider) sometimes include a raised median island to provide a refuge, while pedestrians wait for acceptable gaps in the vehicular traffic. Pedestrian refuge islands can also be used at signalized crossings, providing storage for slower pedestrians that require a multi-cycle crossing.



7.2.4 *Access Management*

Access management is another tool that can be used to minimize the number of conflict points between turning traffic and bicyclists and pedestrians. For instance, in Laramie and Gillette, raised medians were installed to control access of vehicles. By raising the medians further with planters, the medians also limit the crossing locations for pedestrians or bicycles.

Grade separated crossings are not as common for bicycle and pedestrian facilities due to cost. However, some recent projects have been designed to utilize a box structure for pedestrians to travel underneath a busy street. This is usually less expensive than constructing a bridge that spans over a roadway, and takes less right of way. Adding pedestrian pathways underneath a roadway bridge is another cost effective method for providing a grade separated pedestrian crossing.



Only minor modifications are required to a bridge to allow for a pathway to cross underneath. Cheyenne has installed a larger number of grade separated crossings and Casper has a number of pathways along the river that pass under roadway bridges.

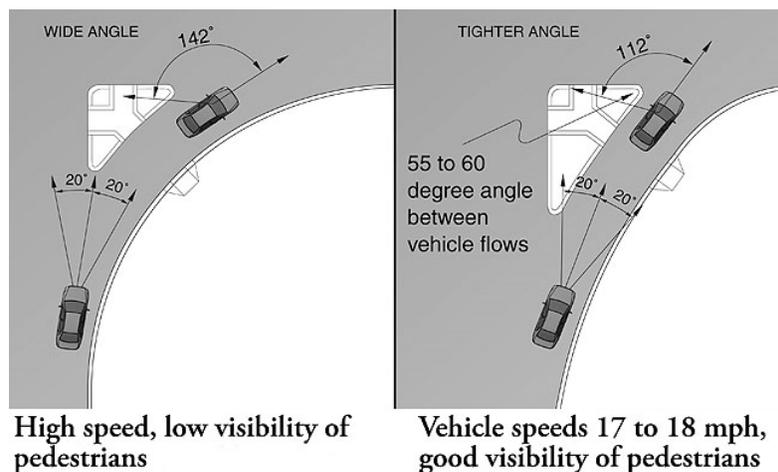
7.2.5 *On-Street facilities*

Upgrades to on-street bicycle facilities could include bike boxes, in urban areas where warranted. A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a way to get ahead of queuing traffic during the red signal phase. They help increase visibility of bicyclists, facilitate bicyclist left turn positioning, and limit “right-hook” conflicts with turning vehicles.



In urban areas, high bicycle traffic may warrant a “road diet,” in which multiple lanes are converted into less vehicle lanes and additional bike lanes. It could also possibly add on-street parking, if space allows. In addition to “road diets,” lane widths can be modified to increase space for bike lanes without reducing the number of travel lanes.

In areas where there are channelized right turns, upgrades can be made or integrated into design to assist in the compatibility with pedestrians and bicyclists. The crosswalk location should be located to optimize sight lines with the upcoming vehicles. Because vehicles are not required to slow and yield to oncoming traffic, it is important that the crosswalk is highly visible, with signage and high-visibility, longitudinal crosswalk striping. It is also important to clearly delineate the crosswalk so pedestrians are aware of the proper location to cross. As shown in the figure below, it is best to keep the angle at which the right-turn lane intersects the street relatively low to both lower the speed of motor vehicles and make it easier for drivers to see oncoming traffic over their left shoulder.



8.0 Wyoming Laws & Policies

8.1 State Statutes

In Wyoming, bicycles are legally classified as vehicles and can be ridden on all public roadways. Wyoming Statutes related to bicycles and pedestrians are found in Title 31, Section 5 (Motor Vehicles). All of these statutes can be found in Appendix K of this report.

An important bicycle statute that was passed in 2015 is the three foot law; W.S. 31-5-203 (c). This law states that “the driver of a motor vehicle overtaking and passing a bicycle, which is operating lawfully, proceeding in the same direction shall, when space allows, maintain at least a three (3) foot separation between the right side of the driver’s motor vehicle, including all mirrors and other projections from the motor vehicle, and the bicycle.”¹ This is an important law for bicycle safety that has been passed in about half of the states across the country.

In regards to crosswalks at stop-controlled or yield-controlled intersections, vehicles are required by W.S. 31-5-222 to stop or yield before entering the crosswalk and shall yield the right-of-way to pedestrians within the crosswalk. Similarly, W.S. 31-5-403 discusses how vehicles turning left or right at signalized intersections shall yield right-of-way to pedestrians lawfully within the intersection or crosswalk, even if the vehicle has a circular green signal or a green arrow signal. According to W.S. 31-5-704, bicyclists may not ride more than two abreast and they shall not impede the normal and reasonable movement of traffic. Bicyclists riding at night shall be equipped with a white light on the front and a red light or reflector on the rear.

Pedestrians also have a duty to follow certain laws. W.S. 31-5-403 and 31-5-601 discuss that pedestrians must obey the traffic control devices. If there are no pedestrian signals present, pedestrians may proceed across a roadway within a marked or unmarked crosswalk when they are facing any green signal, except a green turn arrow. When a pedestrian signal is present, a pedestrian facing the signal may proceed across the roadway during a flashing or steady WALK signal. During a flashing or steady DON’T WALK signal, a pedestrian shall not start to cross the roadway. Pedestrians shall not suddenly leave a curb or other place of safety and move into the path of a vehicle. Pedestrians crossing a roadway at a point other than an intersection or crosswalk shall yield the right-of-way to all vehicles. If there is not a sidewalk provided, pedestrians shall walk on the left side of the roadway, facing traffic.

Other states across the country have additional legislation in place referred to as vulnerable road user laws and trip reduction laws. Vulnerable road user laws vary state-by-state and are intended to increase protection for pedestrians, bicyclists, and other non-car users. They often increase penalties for violating existing laws that impact vulnerable road users and prohibit certain actions on being taken towards them such as throwing an object or harassment.² It is recommended that Wyoming do additional research on these vulnerable road user laws to determine if they are appropriate for this state. Trip reduction laws are implemented as way to encourage alternative forms of transportation to manage traffic congestion, but may not be appropriate in Wyoming at this time.

¹ State of Wyoming Statutes (2016)

² Alliance for Biking & Walking (2016) *Bicycling and Walking in the United States, Benchmarking Report*

In 2015, WYDOT published an update to their Americans with Disabilities Act (ADA) Self-Evaluation and Transition Plan. This plan states the specific laws and policies that WYDOT must comply with to meet all of the requirements of the ADA and the relationships to other laws. As a part of this document, WYDOT completed an inventory of ADA curb ramps on their system. This inventory is available for public viewing at http://www.dot.state.wy.us/home/business_with_wydot/civil_rights/americans_with_disabilities.html.

8.2 Signage & Pavement Markings: Practices & Policies

The WYDOT Signing Manual published by the WYDOT Traffic Program Operations & Design in 2013 states that “the following signing practices are to serve as a guide for WYDOT, apply to all State (not necessarily county, city, or private) roadways and are to help set statewide standardization and consistency.”

³ The manual states that yellow or fluorescent yellow may be used as the background for pedestrian warning signs. The manual suggests using TURNING VEHICLES YIELD TO PEDESTRIANS for high volume pedestrian areas. More details on the warrants for this sign can be found in the WYDOT Pedestrian and School Traffic Control Manual.

The WYDOT Pedestrian and School Traffic Control Manual was published in 2014 and contains additional policies and practices with regards to pedestrians. It states that “pedestrian traffic control is normally only provided at locations where motorists do not expect pedestrians to be crossing the roadway, at complex or confusing crossings, or at traffic control signalized intersections.”⁴ Pedestrian traffic control devices can consist of the following, used alone or in combination:

- Marked crosswalk
- Pedestrian Warning Assembly (Advance Pedestrian Crossing sign with supplemental plaque AHEAD or distance)
- Pedestrian Crossing Assembly (Advance Pedestrian Crossing sign with supplemental diagonal downward pointing arrow)
- Pedestrian signal indications and pushbutton control
- Flashing beacons or pedestrian hybrid beacons



Details and warrants on each of these traffic control devices can be found in the WYDOT Pedestrian and School Traffic Control Manual. Other devices that are also covered in this manual include no parking restrictions, pedestrian pavement word markings, stop lines, yield lines, curb extensions (also known as bulb-outs), midblock crosswalks, grade-separated crossings, special traffic control for pedestrians with disabilities, and school traffic control.

The WYDOT Pavement Marking Manual published by the WYDOT Traffic Program in 2012 states that “pavement markings must be readily recognized and understood by the motorist. This is accomplished by providing uniform standard pavement markings throughout the state highway system and using them only to convey the meaning prescribed in this manual.”⁵ Due to higher traffic volumes, more complex pavement markings, pedestrian traffic, and multi-lane roadways, the manual recommends that urban striping be done as needed, to the extent practical, and to complete a double coating, to increase the durability of the markings.

³ WYDOT (2013) *WYDOT Signing Manual*

⁴ WYDOT (2014) *WYDOT Pedestrian and School Traffic Control Manual*

⁵ WYDOT (2012) *WYDOT Pavement Marking Manual*

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Crosswalk markings provide guidance for pedestrians who are crossing roadways by delineating the appropriate path. They also serve to alert the driver of a designated pedestrian crossing point. The WYDOT Pavement Marking Manual suggests using crosswalks at intersections where there are substantial conflicts between vehicles and pedestrians or where the proper pedestrian path may be confusing to the pedestrian or driver. An engineering study should be completed before crosswalk lines are used at locations other than at intersections not controlled by a traffic signal or STOP or YIELD sign. Crosswalk markings shall be used at all designated school crossings.

During field observations made for the analysis of crash data in Section 2, it was determined that stop bars (or stop lines) appear to increase the safety of pedestrians in crosswalks by encouraging the drivers to stop in a proper location. According to the WYDOT Pavement Marking Manual, stop lines should be placed a minimum of 4 feet and a maximum of 30 feet in advance of and parallel to the nearest crosswalk line. They can also be placed if there is not a marked crosswalk. It appears that stop bars are often not used where there is a crosswalk. Design standards should be modified to require stop bars.

Marked crosswalks shall consist of solid white longitudinal lines that are 12 to 24 inches wide and 12 feet in length. They are normally spaced 6 feet center-to-center and should be placed to avoid the vehicle wheel path to decrease the wear. According to the WYDOT Pavement Marking Manual, placing and maintaining bicycle related pavement markings is the responsibility of the local jurisdiction. “No special pavement markings are required for a bike route. Bicycle lane or route designation on state highways requested by local jurisdictions, shall be reviewed and approved.”⁶

⁶ WYDOT (2012) *WYDOT Pavement Marking Manual*

9.0 Education & Enforcement

Education of both drivers and users of bicycle and pedestrian facilities is an important part to the overall safety picture. There are rules and regulations that should be followed by all users to ensure that driver and user expectations are not broken. These rules and regulations also need to be properly enforced by law enforcement officers, otherwise they will not be obeyed.

Bicyclists are considered vehicle operators. Especially when traveling on shared roadways, bicyclists are required to obey the same rules of the road as other vehicle operators, including obeying traffic signs, signals, and lane markings. When riding in the roadway, bicyclists must ride in the same direction as traffic. Bicyclists should increase their visibility to drivers by wearing fluorescent or brightly colored clothing during the day, at dawn, and at dusk. To be noticed when riding at night, bicyclists shall use a front light and a red reflector or flashing rear light, and use retroreflective tape or markings on equipment or clothing.

Pedestrians should walk on a sidewalk or path when one is available. If no sidewalk or path is available, they should walk on the shoulder, facing traffic. Pedestrians should be cautious night and day when sharing the road with vehicles and never assume that a driver sees them. Pedestrians should be predictable and cross streets at crosswalks or intersections when possible. Pedestrians should increase their visibility to drivers by wearing bright colors during the day, at dawn, and at dusk. While walking at night, pedestrians should wear reflective materials.

Drivers of motor vehicles need to share the road with bicyclists. They must allow at least three feet of clearance when passing bicyclists on the road, look for bicyclists before opening a car door or pulling from a parking space, and yield to bicyclists at intersections and as directed by signs and signals.

Drivers should look for pedestrians everywhere, as they may not be walking where they should be or may be hard to see. Drivers should always stop for pedestrians in the crosswalk or where pedestrian crosswalk signs are posted. Drivers should be prepared to stop when turning or otherwise entering a crosswalk.

Educating drivers, bicyclists, and pedestrians of the above listed rules and regulations can be done through various means. According to the *2016 Benchmarking Report*, education efforts that are currently in place in Wyoming include:

- Share the Road campaign
- Driver's license test that includes motorists rights and responsibilities towards bicyclists
- State commercial driver's license test with questions on motorists rights and responsibilities towards bicyclists
- Information on the rights and responsibilities of the motorist/bicyclist interaction in the state drivers' manual



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Other education efforts in place across the country that Wyoming does not currently have in place include:

- Share the Road driver training for state employees
- Safety guide on motorist/bicyclist interaction
- State bicycle riders' manual or pocket guide
- Diversion programs for traffic offenders, including bicyclists and pedestrians, which contains information on properly sharing the road with other users
- Law Enforcement training on state vehicle code as it applies to bicyclists.¹

The Share the Road campaign is a program sponsored by the USDOT Federal Motor Carrier Safety Administration and it strives to improve the knowledge of all highway users to minimize the likelihood of a crash with a large truck, and reduce the magnitude of those that do occur.

Properly training law enforcement officials on the laws pertaining to pedestrians and bicyclists can help to improve the enforcement of these laws. Enforcement of motorist violations, as well as pedestrian and bicycle violations, can improve the overall safety for all parties. According to the National Highway Traffic Safety Administration, targeted enforcement is most effective as a strategy when paired with education initiatives directed to pedestrians, bicyclists, and drivers, as well as training for law enforcement officers, prosecutors, and judges.²

¹ Alliance for Biking & Walking (2016) *Bicycling and Walking in the United States, Benchmarking Report*

² Alliance for Biking & Walking (2016) *Bicycling and Walking in the United States, Benchmarking Report*

10.0 Conclusion & Recommendations

In conclusion, this plan follows with the USDOT and WYDOT policies that promote the planning and development of bicycle and pedestrian facilities into the transportation system. Walking and biking are important parts of the system and are growing in popularity in Wyoming.

It is advised that WYDOT continue to research the most efficient and safe ways to incorporate bicycle and pedestrian facilities into their transportation system. It was found that some of the WYDOT operating policies had not been updated for many years. It is recommended that WYDOT implement a practice to review their operating policies a minimum of every ten years to ensure that their policies are taking into account the most current and commonly accepted practices.

10.1 Crash Data Analysis & Observations

Analyzed crash data for Wyoming from 2010 to 2014 showed that when compared to nationwide statistics, Wyoming's bicycle and pedestrian crash and fatality rates are low and the majority of crashes occur during clear weather and dry road conditions. Specific locations around the state with higher crash rates were observed in the field. At these intersections, a few key items were noted at the majority of the intersections:

- The absence of stop bars prior to the crosswalk was prevalent throughout the cities observed. By adding this stop bar, vehicles are more aware that they are entering into the intersection and of possible conflicts with pedestrians or bicycles. It is recommended that WYDOT's design standards be reviewed and modified to require stop bars.
- Another common issue observed was the absence of ADA ramps that meet current standards. By providing accessible sidewalks and crosswalks, pedestrians are more likely to cross at designated areas, where drivers expect them to cross.

Many issues were seen with right-turning vehicles not yielding to pedestrians in the crosswalks. If an intersection were to have high pedestrian traffic and/or a high rate of pedestrian crashes, it is recommended to add signage regarding the presence of pedestrians. NO RIGHT TURN ON RED signage could also be added, to encourage vehicles to stay out of the intersection when faced with a red light. At some intersections, there are not currently pedestrian countdown timers. By adding countdown timers, pedestrians are able to make an informed decision on if they have time to cross the roadway or not. The signal phasing could also be adjusted to utilize leading pedestrian intervals, allowing pedestrians to enter the crosswalk prior to drivers getting a green light.

In Cheyenne, the South Greeley Highway location is faced with a high traffic, high-speed roadway that is difficult for pedestrians to cross at intersections without traffic signals. If the pedestrian traffic became high enough to warrant it, locations like these could be well served by a pedestrian crossing signal. This similar issue is happening on Reynolds Street in Laramie. There are a lot of pedestrians and bicycles crossing Reynolds Street mid-block. For this location, it is also recommended that the school speed zone be extended to include the intersection with 13th Street and possibly 15th Street.

Specifically at the intersection of WY 59 and the I-90 eastbound ramps in Gillette, the crossing of the exit ramp along the west side of WY 59 could utilize some improvements such as a pedestrian activated signal or a channelization island that could serve as a pedestrian refuge island.

10.2 Existing & Future Facilities

An inventory of all pathways in the state of Wyoming was gathered as a part of this project by contacting all communities. The information gathered was placed into a GIS database and provided to WYDOT's Local Government Coordination Office. It is recommended that this data be maintained so as new pathway segments are constructed, they can be added, and the database kept current. It is also recommended that the database be made available to the public via the internet.

Utilizing new data sources, such as Strava, that collects GPS data from pedestrian and bicyclist users, it was determined that additional facilities should be added to WYDOT's list of high bicycle use areas. A list of these additional routes can be found in Section 3.2.

10.3 Planning, Design, & Funding

Planning for new facilities is an important part of implementing more biking and walking into the state. Planning should be completed at both the state and local levels, with all agencies working together for the greater good of all users of the transportation system. It is recommended that WYDOT track pedestrian and bicycle facility projects separately in their improvement program to easily see where improvements are being made.

For the design of new bicycle or pedestrian facilities, there are many design guides and references available, as are listed in Section 4.0. New facilities need to be designed to the current ADA Standards for Accessible Design, as well standards set forth in the AASHTO design manuals and the Manual on Uniform Traffic Control Devices.

It is recommended that WYDOT continue to utilize the rumble stripes on rural highways, where the milled surface is co-incident with the travel lane edge. It is also recommended that the high use bicycle highways be converted from the traditional rumble strips to the rumble stripes, to better accommodate bicyclists.

WYDOT's Signing Manual and Pedestrian and School Traffic Control Manual, contains guidance on their local practices for bicycle and pedestrian facility design. These manuals contain details and warrants to encourage consistency across the state. It is recommended that these practices be more widely utilized to increase the standardization of pedestrian and bicycle facilities. Consistency in facility design increases the driver and user expectation at certain types of facilities.

There is often federal funding that can be utilized for new bicycle and pedestrian facilities, as well as upgrades to existing facilities. There are programs in the current transportation bill, the FAST Act, that are specific to bicycles and pedestrians. It is recommended that any local agencies or community organizations contact WYDOT's Local Government Coordinator and District personnel to get up to date information on available funding.

10.4 Maintenance & Upgrades

Maintenance of pedestrian and bicycle facilities is important in order to provide a smooth surface free of debris. Responsibility for the sweeping of shoulders along rural sections of highways belongs to WYDOT. Municipalities should be encouraged to establish a regular sweeping schedule for streets and walks within their area.

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Upgrades to roadway signage dealing with pedestrian and bicycle traffic may improve safety in areas with higher usage. It is recommended that Chapter 9 of the Manual on Uniform Traffic Control Devices be utilized as a resource for signage directed towards bicycles and pedestrians, as well as motorized vehicles.

Upgrades to existing traffic signals can be analyzed, such as adding pedestrian countdown timers or modifying the signal timing and phasing to include a leading pedestrian interval or a pedestrian-only interval, in areas of very high pedestrian traffic. Additional upgrades to pedestrian facilities could include the installation of a pedestrian hybrid beacons or pedestrian refuge islands.

Access management is another tool that can be used to minimize the number of conflict points between turning traffic and bicyclists and pedestrians. Access management can be achieved with raised medians or grade separated crossings.

10.5 Laws, Policies, Enforcement, & Education

Laws and policies are set in Wyoming to achieve the highest safety for all transportation users, including bicyclists and pedestrians. Wyoming has implemented many laws specifically relating to bicycles and pedestrians, such as the three-foot rule, where vehicles must stay a minimum of three feet away from a bicyclist. However, there are states that currently have additional laws and policies in place to improve the safety for pedestrians and cyclists, and it is recommended that Wyoming do additional research on these laws to determine if they are appropriate for this state. The rules and regulations must also be appropriately enforced by law enforcement officers, otherwise they will not be obeyed. All law enforcement officers should be properly trained and educated on the laws pertaining to pedestrians and bicyclists.

Education of both drivers and users of bicycle and pedestrian facilities is an important part to the overall safety picture. There are rules and regulations that should be followed by all users to ensure that driver and user expectations are not broken. Education efforts could be increased via diversion programs for traffic offenders, including bicyclists and pedestrians, which contains information on properly sharing the road with other users.

Appendix A

Pedestrian Crash Statistics by City

STATE & CITIES NUMBER OF PEDESTRIAN CRASHES & SEVERITY

								Crash Severity		
	Pedestrian Crashes	Vehicles	Drivers	Persons	Motorists	NonMotor	Pedestrian	Injured	Killed	Hit&Run
STATEWIDE	414	438	409	1,048	597	451	440	430	24	92
BUFFALO	3	3	3	7	4	3	3	3	0	0
% of Statewide Totals	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.0%	0.0%
CASPER	97	103	97	237	131	106	104	101	6	29
% of Statewide Totals	23.4%	23.5%	23.7%	22.6%	21.9%	23.5%	23.6%	23.5%	25.0%	31.5%
CHEYENNE	75	79	74	181	100	81	75	76	4	12
% of Statewide Totals	18.1%	18.0%	18.1%	17.3%	16.8%	18.0%	17.0%	17.7%	16.7%	13.0%
CODY	9	10	8	23	10	13	10	7	2	0
% of Statewide Totals	2.2%	2.3%	2.0%	2.2%	1.7%	2.9%	2.3%	1.6%	8.3%	0.0%
DOUGLAS	5	5	4	10	4	6	6	6	0	1
% of Statewide Totals	1.2%	1.1%	1.0%	1.0%	0.7%	1.3%	1.4%	1.4%	0.0%	1.1%
EVANSTON	9	10	8	22	12	10	10	10	0	1
% of Statewide Totals	2.2%	2.3%	2.0%	2.1%	2.0%	2.2%	2.3%	2.3%	0.0%	1.1%
EVANSVILLE	5	5	5	11	6	5	5	5	0	3
% of Statewide Totals	1.2%	1.1%	1.2%	1.0%	1.0%	1.1%	1.1%	1.2%	0.0%	3.3%
GILLETTE	42	44	43	107	61	46	46	47	1	15
% of Statewide Totals	10.1%	10.0%	10.5%	10.2%	10.2%	10.2%	10.5%	10.9%	4.2%	16.3%
GLENROCK	4	4	4	31	27	4	4	4	0	1
% of Statewide Totals	1.0%	0.9%	1.0%	3.0%	4.5%	0.9%	0.9%	0.9%	0.0%	1.1%
GREEN RIVER	11	11	11	23	12	11	11	11	0	3
% of Statewide Totals	2.7%	2.5%	2.7%	2.2%	2.0%	2.4%	2.5%	2.6%	0.0%	3.3%
GREYBULL	2	2	2	4	2	2	2	2	0	0
% of Statewide Totals	0.5%	0.5%	0.5%	0.4%	0.3%	0.4%	0.5%	0.5%	0.0%	0.0%
JACKSON	13	14	13	46	31	15	15	15	0	2
% of Statewide Totals	3.1%	3.2%	3.2%	4.4%	5.2%	3.3%	3.4%	3.5%	0.0%	2.2%
KEMMERER	4	4	3	7	3	4	4	4	0	1
% of Statewide Totals	1.0%	0.9%	0.7%	0.7%	0.5%	0.9%	0.9%	0.9%	0.0%	1.1%
LANDER	5	5	5	11	6	5	5	5	0	0
% of Statewide Totals	1.2%	1.1%	1.2%	1.0%	1.0%	1.1%	1.1%	1.2%	0.0%	0.0%
LARAMIE	33	36	33	77	41	36	36	36	0	3
% of Statewide Totals	8.0%	8.2%	8.1%	7.3%	6.9%	8.0%	8.2%	8.4%	0.0%	3.3%
MILLS	3	3	3	10	7	3	3	3	0	1
% of Statewide Totals	0.7%	0.7%	0.7%	1.0%	1.2%	0.7%	0.7%	0.7%	0.0%	1.1%
POWELL	4	4	3	10	6	4	4	4	0	0
% of Statewide Totals	1.0%	0.9%	0.7%	1.0%	1.0%	0.9%	0.9%	0.9%	0.0%	0.0%
RIVERTON	14	14	14	37	22	15	15	15	0	2
% of Statewide Totals	3.4%	3.2%	3.4%	3.5%	3.7%	3.3%	3.4%	3.5%	0.0%	2.2%
ROCK SPRINGS	19	19	19	46	27	19	19	19	1	6
% of Statewide Totals	4.6%	4.3%	4.6%	4.4%	4.5%	4.2%	4.3%	4.4%	4.2%	6.5%
SHERIDAN	13	17	13	30	16	14	14	14	0	2
% of Statewide Totals	3.1%	3.9%	3.2%	2.9%	2.7%	3.1%	3.2%	3.3%	0.0%	2.2%
THERMOPOLIS	3	3	3	7	3	4	4	4	0	1
% of Statewide Totals	0.7%	0.7%	0.7%	0.7%	0.5%	0.9%	0.9%	0.9%	0.0%	1.1%
TORRINGTON	3	3	3	8	4	4	4	4	0	0
% of Statewide Totals	0.7%	0.7%	0.7%	0.8%	0.7%	0.9%	0.9%	0.9%	0.0%	0.0%

STATE & CITIES PEDESTRIAN CRASH STATISTICS

	Junction Related					Injury Crash Severity				Light Conditions				Weather Conditions					
	Intersection	Driveway	Alley	Trail	Non-Junct	Possible	Non-Incap	Incap	Fatal	Dark	Dark/Light	Dusk/Dawn	Day	Rain	Snow	Cloudy	Fog	Wind	Clear
STATEWIDE	216	26	2	2	165	137	183	69	24	61	68	16	269	9	16	22	1	2	366
	52.6%	6.3%	0.5%	0.5%	40.1%	33.2%	44.3%	16.7%	5.8%	14.7%	16.4%	3.9%	65.0%	2.2%	3.8%	5.3%	0.2%	0.5%	88.0%
BUFFALO	3					1	2					1	2						3
Percentages of Total	100.0%	0.0%	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
CASPER	59	6	1		30	40	43	8	6	10	11	2	74	2	3	2			90
Percentages of Total	61.5%	6.3%	1.0%	0.0%	31.3%	41.2%	44.3%	8.2%	6.2%	10.3%	11.3%	2.1%	76.3%	2.1%	3.1%	2.1%	0.0%	0.0%	92.8%
CHEYENNE	49	5			20	31	28	11	4	9	13	3	50	3	2	7			63
Percentages of Total	66.2%	6.8%	0.0%	0.0%	27.0%	41.9%	37.8%	14.9%	5.4%	12.0%	17.3%	4.0%	66.7%	4.0%	2.7%	9.3%	0.0%	0.0%	84.0%
CODY	4				5		6	1	2	1	3		5		2				7
Percentages of Total	44.4%	0.0%	0.0%	0.0%	55.6%	0.0%	66.7%	11.1%	22.2%	11.1%	33.3%	0.0%	55.6%	0.0%	22.2%	0.0%	0.0%	0.0%	77.8%
DOUGLAS	3	1			3	1	3	3			3		4						7
Percentages of Total	42.9%	14.3%	0.0%	0.0%	42.9%	14.3%	42.9%	42.9%	0.0%	0.0%	42.9%	0.0%	57.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
EVANSTON	5				4	2	5	2		3	2		4			1			8
Percentages of Total	55.6%	0.0%	0.0%	0.0%	44.4%	22.2%	55.6%	22.2%	0.0%	33.3%	22.2%	0.0%	44.4%	0.0%	0.0%	11.1%	0.0%	0.0%	88.9%
EVANSVILLE	4	1				3		2		3	1		1			1			4
Percentages of Total	80.0%	20.0%	0.0%	0.0%	0.0%	60.0%	0.0%	40.0%	0.0%	60.0%	20.0%	0.0%	20.0%	0.0%	0.0%	20.0%	0.0%	0.0%	80.0%
GILLETTE	19			1	22	14	18	9	1	5	7	1	29	2	1	5			34
Percentages of Total	45.2%	0.0%	0.0%	2.4%	52.4%	33.3%	42.9%	21.4%	2.4%	11.9%	16.7%	2.4%	69.0%	4.8%	2.4%	11.9%	0.0%	0.0%	81.0%
GLENROCK	1				3	1	2	1			2		2						4
Percentages of Total	25.0%	0.0%	0.0%	0.0%	75.0%	25.0%	50.0%	25.0%	0.0%	0.0%	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
GREEN RIVER	6	1	1		3	3	7	1		2	3	1	5						11
Percentages of Total	54.5%	9.1%	9.1%	0.0%	27.3%	27.3%	63.6%	9.1%	0.0%	18.2%	27.3%	9.1%	45.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
GREYBULL	1				1	2							2						2
Percentages of Total	50.0%	0.0%	0.0%	0.0%	50.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
JACKSON	6	2			5	3	8	2		5	1	1	6		1				12
Percentages of Total	46.2%	15.4%	0.0%	0.0%	38.5%	23.1%	61.5%	15.4%	0.0%	38.5%	7.7%	7.7%	46.2%	0.0%	7.7%	0.0%	0.0%	0.0%	92.3%
KEMMERER	1				3	1	3			1	1	1	1		1			1	3
Percentages of Total	25.0%	0.0%	0.0%	0.0%	75.0%	25.0%	75.0%	0.0%	0.0%	25.0%	25.0%	25.0%	25.0%	0.0%	20.0%	0.0%	0.0%	20.0%	60.0%
LANDER	2	1			2		5						5						5
Percentages of Total	40.0%	20.0%	0.0%	0.0%	40.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
LARAMIE	21	1			11	13	14	6		2	7	2	22		2				31
Percentages of Total	63.6%	3.0%	0.0%	0.0%	33.3%	39.4%	42.4%	18.2%	0.0%	6.1%	21.2%	6.1%	66.7%	0.0%	6.1%	0.0%	0.0%	0.0%	93.9%
MILLS	1				2	1	1	1		1	1		1		1				2
Percentages of Total	33.3%	0.0%	0.0%	0.0%	66.7%	33.3%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%	33.3%	0.0%	33.3%	0.0%	0.0%	0.0%	66.7%
POWELL	1				3	1	2	1					4		1				3
Percentages of Total	25.0%	0.0%	0.0%	0.0%	75.0%	25.0%	50.0%	25.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	25.0%	0.0%	0.0%	0.0%	75.0%
RIVERTON	6				8	5	5	4		3	3		8			2			12
Percentages of Total	42.9%	0.0%	0.0%	0.0%	57.1%	35.7%	35.7%	28.6%	0.0%	21.4%	21.4%	0.0%	57.1%	0.0%	0.0%	14.3%	0.0%	0.0%	85.7%
ROCK SPRINGS	7	3			9	6	8	4	1	1	4	4	10	1	1	1			16
Percentages of Total	36.8%	15.8%	0.0%	0.0%	47.4%	31.6%	42.1%	21.1%	5.3%	5.3%	21.1%	21.1%	52.6%	5.3%	5.3%	5.3%	0.0%	0.0%	84.2%
SHERIDAN	8	1			4	4	8	1		1	2		10		1	1			11
Percentages of Total	61.5%	7.7%	0.0%	0.0%	30.8%	30.8%	61.5%	7.7%	0.0%	7.7%	15.4%	0.0%	76.9%	0.0%	7.7%	7.7%	0.0%	0.0%	84.6%
THERMOPOLIS	2	1				1	2			1	1		1						3
Percentages of Total	66.7%	33.3%	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	0.0%	33.3%	33.3%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
TORRINGTON	2				1		3				1		2						3
Percentages of Total	66.7%	0.0%	0.0%	0.0%	33.3%	0.0%	100.0%	0.0%	0.0%	0.0%	33.3%	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

STATE & CITIES PEDESTRIAN CRASH STATISTICS

	Road Conditions					Vertical Alignment			Horizontal Alignment			Traffic Control							
	Wet	Snow	Ice	Gravel	Dry	Level	Uphill	Downhill	Straight	Curve RT	Curve LT	None	Signal	Flash	Stop	Yield	PedXing	Marks	Other
STATEWIDE	21 5.1%	19 4.6%	15 3.6%	2 0.5%	357 86.2%	358 86.9%	27 6.6%	27 6.6%	397 96.4%	7 1.7%	8 1.9%	155 36.7%	121 28.7%	4 0.9%	41 9.7%	2 0.5%	18 4.3%	69 16.4%	12 2.8%
BUFFALO				1 33.3%	2 66.7%	2 66.7%	1 33.3%	0.0%	3 100.0%	0.0%	0.0%	1 33.3%	1 33.3%	0.0%	0.0%	1 33.3%	0.0%	0.0%	0.0%
CASPER	7 7.2%	3 3.1%	3 3.1%	0.0%	84 86.6%	80 82.5%	9 9.3%	8 8.2%	92 94.8%	2 2.1%	3 3.1%	32 33.0%	35 36.1%	1 1.0%	11 11.3%	1 1.0%	4 4.1%	11 11.3%	2 2.1%
CHEYENNE	2 2.7%	3 4.0%	2 2.7%	0.0%	68 90.7%	67 90.5%	2 2.7%	5 6.8%	74 100.0%	0.0%	0.0%	18 24.3%	33 44.6%	1 1.4%	8 10.8%	0.0%	5 6.8%	8 10.8%	1 1.4%
CODY			1 11.1%	0.0%	8 88.9%	8 88.9%	1 11.1%	0.0%	9 100.0%	0.0%	0.0%	4 44.4%	3 33.3%	0.0%	0.0%	0.0%	0.0%	2 22.2%	0.0%
DOUGLAS	1 14.3%	0.0%	0.0%	0.0%	6 85.7%	6 85.7%	1 14.3%	0.0%	6 85.7%	0.0%	1 14.3%	5 71.4%	0.0%	0.0%	0.0%	0.0%	2 28.6%	0.0%	0.0%
EVANSTON			1 11.1%	0.0%	8 88.9%	8 88.9%	0.0%	1 11.1%	9 100.0%	0.0%	0.0%	5 55.6%	3 33.3%	0.0%	0.0%	0.0%	0.0%	1 11.1%	0.0%
EVANSVILLE	1 20.0%	1 20.0%	0.0%	0.0%	3 60.0%	5 100.0%	0.0%	0.0%	5 100.0%	0.0%	0.0%	5 100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GILLETTE	3 7.1%	0.0%	1 2.4%	0.0%	38 90.5%	41 97.6%	0.0%	1 2.4%	39 92.9%	1 2.4%	2 4.8%	15 35.7%	13 31.0%	0.0%	5 11.9%	0.0%	1 2.4%	7 16.7%	1 2.4%
GLENROCK		2 50.0%	0.0%	0.0%	2 50.0%	4 100.0%	0.0%	0.0%	4 100.0%	0.0%	0.0%	3 75.0%	0.0%	1 25.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GREEN RIVER	2 18.2%	0.0%	0.0%	0.0%	9 81.8%	8 72.7%	3 27.3%	0.0%	9 81.8%	2 18.2%	0.0%	5 45.5%	2 18.2%	0.0%	2 18.2%	0.0%	0.0%	1 9.1%	1 9.1%
GREYBULL	1 50.0%	0.0%	1 50.0%	0.0%	0.0%	2 100.0%	0.0%	0.0%	2 100.0%	0.0%	0.0%	1 50.0%	1 50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
JACKSON		3 23.1%	0.0%	0.0%	10 76.9%	10 83.3%	2 16.7%	0.0%	12 100.0%	0.0%	0.0%	4 18.2%	3 13.6%	0.0%	2 9.1%	0.0%	0.0%	13 59.1%	0.0%
KEMMERER		1 25.0%	0.0%	0.0%	3 75.0%	4 100.0%	0.0%	0.0%	4 100.0%	0.0%	0.0%	4 100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LANDER					5 100.0%	5 100.0%	0.0%	0.0%	4 80.0%	0.0%	1 20.0%	2 40.0%	1 20.0%	0.0%	1 20.0%	0.0%	0.0%	1 20.0%	0.0%
LARAMIE	1 3.0%	0.0%	1 3.0%	0.0%	31 93.9%	29 87.9%	1 3.0%	3 9.1%	32 97.0%	1 3.0%	0.0%	10 30.3%	13 39.4%	1 3.0%	5 15.2%	0.0%	1 3.0%	3 9.1%	0.0%
MILLS	1 33.3%	0.0%	0.0%	0.0%	2 66.7%	3 100.0%	0.0%	0.0%	3 100.0%	0.0%	0.0%	1 33.3%	1 33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1 33.3%
POWELL			1 25.0%	0.0%	3 75.0%	4 100.0%	0.0%	0.0%	4 100.0%	0.0%	0.0%	4 100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RIVERTON	1 7.1%	0.0%	1 7.1%	0.0%	12 85.7%	13 92.9%	0.0%	1 7.1%	14 100.0%	0.0%	0.0%	9 64.3%	4 28.6%	0.0%	0.0%	0.0%	0.0%	0.0%	1 7.1%
ROCK SPRINGS	1 5.3%	2 10.5%	0.0%	0.0%	16 84.2%	15 78.9%	4 21.1%	0.0%	19 100.0%	0.0%	0.0%	8 42.1%	5 26.3%	0.0%	2 10.5%	0.0%	2 10.5%	1 5.3%	1 5.3%
SHERIDAN		3 23.1%	0.0%	0.0%	10 76.9%	12 92.3%	1 7.7%	0.0%	13 100.0%	0.0%	0.0%	6 46.2%	3 23.1%	0.0%	2 15.4%	0.0%	1 7.7%	0.0%	1 7.7%
THERMOPOLIS		1 33.3%	0.0%	0.0%	2 66.7%	3 100.0%	0.0%	0.0%	3 100.0%	0.0%	0.0%	1 33.3%	0.0%	0.0%	1 33.3%	0.0%	0.0%	0.0%	1 33.3%
TORRINGTON					3 100.0%	2 66.7%	0.0%	1 33.3%	2 66.7%	0.0%	1 33.3%	2 66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1 33.3%

STATE & CITIES PEDESTRIAN CRASH STATISTICS

	Speed Limit								
	<20	25	30	35	40	45	50	55	>60
STATEWIDE	83	46	195	15	16	9	4	6	81
	18.2%	10.1%	42.9%	3.3%	3.5%	2.0%	0.9%	1.3%	17.8%
BUFFALO	3								
Percentages of Total	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CASPER	27	1	64		1				2
Percentages of Total	28.4%	1.1%	67.4%	0.0%	1.1%	0.0%	0.0%	0.0%	2.1%
CHEYENNE	16	4	31	5	9	1	3	2	2
Percentages of Total	21.9%	5.5%	42.5%	6.8%	12.3%	1.4%	4.1%	2.7%	2.7%
CODY		2	5	1					1
Percentages of Total	0.0%	22.2%	55.6%	11.1%	0.0%	0.0%	0.0%	0.0%	11.1%
DOUGLAS	1		5						
Percentages of Total	16.7%	0.0%	83.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EVANSTON	6		3			1			
Percentages of Total	60.0%	0.0%	30.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%
EVANSVILLE	4		1						
Percentages of Total	80.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GILLETTE	9	8	17	2	1	2	1		2
Percentages of Total	21.4%	19.0%	40.5%	4.8%	2.4%	4.8%	2.4%	0.0%	4.8%
GLENROCK	1	3							
Percentages of Total	25.0%	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GREEN RIVER			5	2					3
Percentages of Total	0.0%	0.0%	50.0%	20.0%	0.0%	0.0%	0.0%	0.0%	30.0%
GREYBULL	1		1						
Percentages of Total	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
JACKSON		6	2	2					2
Percentages of Total	0.0%	50.0%	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%
KEMMERER		2	2						
Percentages of Total	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LANDER		4	1						
Percentages of Total	0.0%	80.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LARAMIE	2		29	1					1
Percentages of Total	6.1%	0.0%	87.9%	3.0%	0.0%	0.0%	0.0%	0.0%	3.0%
MILLS					3				
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
POWELL		4							
Percentages of Total	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RIVERTON		1	11			1			
Percentages of Total	0.0%	7.7%	84.6%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%
ROCK SPRINGS	4	6	5	2					1
Percentages of Total	22.2%	33.3%	27.8%	11.1%	0.0%	0.0%	0.0%	0.0%	5.6%
SHERIDAN	5		7		1				
Percentages of Total	38.5%	0.0%	53.8%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%
THERMOPOLIS			2						
Percentages of Total	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TORRINGTON		2	1						
Percentages of Total	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Appendix B

Bicycle Crash Statistics by City

STATE & CITIES NUMBER OF BIKE CRASHES & SEVERITY

								Crash Severity		
	Bike Crashes	Vehicles	Drivers	Persons	Motorists	NonMotor	Pedacycle	Injured	Killed	Hit&Run
STATEWIDE	405	411	409	931	519	412	411	410	6	61
BUFFALO	5	5	5	10	5	5	5	5	0	0
% of Statewide Totals	1.2%	1.2%	1.2%	1.1%	1.0%	1.2%	1.2%	1.2%	0.0%	0.0%
CASPER	66	68	67	158	92	66	66	66	1	17
% of Statewide Totals	16.3%	16.5%	16.4%	17.0%	17.7%	16.0%	16.1%	16.1%	16.7%	27.9%
CHEYENNE	65	65	65	157	91	66	66	67	0	4
% of Statewide Totals	16.0%	15.8%	15.9%	16.9%	17.5%	16.0%	16.1%	16.3%	0.0%	6.6%
CODY	6	6	6	12	6	6	6	6	0	2
% of Statewide Totals	1.5%	1.5%	1.5%	1.3%	1.2%	1.5%	1.5%	1.5%	0.0%	3.3%
DOUGLAS	3	3	3	9	6	3	3	3	0	0
% of Statewide Totals	0.7%	0.7%	0.7%	1.0%	1.2%	0.7%	0.7%	0.7%	0.0%	0.0%
EVANSTON	4	4	4	9	5	4	4	4	0	0
% of Statewide Totals	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.0%	0.0%
EVANSVILLE	2	2	2	4	2	2	2	2	0	0
% of Statewide Totals	0.5%	0.5%	0.5%	0.4%	0.4%	0.5%	0.5%	0.5%	0.0%	0.0%
GILLETTE	53	54	54	122	69	53	53	53	0	12
% of Statewide Totals	13.1%	13.1%	13.2%	13.1%	13.3%	12.9%	12.9%	12.9%	0.0%	19.7%
GREEN RIVER	4	4	4	9	5	4	4	4	0	1
% of Statewide Totals	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.0%	1.6%
JACKSON	19	20	19	39	20	19	19	18	1	2
% of Statewide Totals	4.7%	4.9%	4.6%	4.2%	3.9%	4.6%	4.6%	4.4%	16.7%	3.3%
LANDER	12	12	12	25	12	13	13	13	0	1
% of Statewide Totals	3.0%	2.9%	2.9%	2.7%	2.3%	3.2%	3.2%	3.2%	0.0%	1.6%
LARAMIE	57	57	57	127	68	59	58	59	0	7
% of Statewide Totals	14.1%	13.9%	13.9%	13.6%	13.1%	14.3%	14.1%	14.4%	0.0%	11.5%
PINEDALE	3	3	3	6	3	3	3	3	0	0
% of Statewide Totals	0.7%	0.7%	0.7%	0.6%	0.6%	0.7%	0.7%	0.7%	0.0%	0.0%
POWELL	5	5	5	10	5	5	5	5	0	0
% of Statewide Totals	1.2%	1.2%	1.2%	1.1%	1.0%	1.2%	1.2%	1.2%	0.0%	0.0%
RAWLINS	3	3	3	10	7	3	3	3	0	0
% of Statewide Totals	0.7%	0.7%	0.7%	1.1%	1.3%	0.7%	0.7%	0.7%	0.0%	0.0%
RIVERTON	16	16	16	35	19	16	16	15	1	2
% of Statewide Totals	4.0%	3.9%	3.9%	3.8%	3.7%	3.9%	3.9%	3.7%	16.7%	3.3%
ROCK SPRINGS	27	27	27	60	33	27	27	27	0	8
% of Statewide Totals	6.7%	6.6%	6.6%	6.4%	6.4%	6.6%	6.6%	6.6%	0.0%	13.1%
SHERIDAN	19	19	19	41	21	20	20	20	1	2
% of Statewide Totals	4.7%	4.6%	4.6%	4.4%	4.0%	4.9%	4.9%	4.9%	16.7%	3.3%
THERMOPOLIS	2	2	2	4	2	2	2	2	0	0
% of Statewide Totals	0.5%	0.5%	0.5%	0.4%	0.4%	0.5%	0.5%	0.5%	0.0%	0.0%
TORRINGTON	3	3	3	6	3	3	3	3	0	0
% of Statewide Totals	0.7%	0.7%	0.7%	0.6%	0.6%	0.7%	0.7%	0.7%	0.0%	0.0%

STATE & CITIES BIKE CRASH STATISTICS

	Junction Related					Injury Crash Severity				Light Conditions				Weather Conditions					
	Intersection	Driveway	Alley	Trail	Non-Junct	Possible	Non-Incap	Incap	Fatal	Dark	Dark/Light	Dusk/Dawn	Day	Rain	Snow	Cloudy	Fog	Wind	Clear
STATEWIDE	267	71	3	2	61	141	217	41	6	10	18	14	363	7	1	12	0	0	385
	66.1%	17.6%	0.7%	0.5%	15.1%	34.8%	53.6%	10.1%	1.5%	2.5%	4.4%	3.5%	89.6%	1.7%	0.2%	3.0%	0.0%	0.0%	95.1%
BUFFALO	3	1			2	2	3						6						6
Percentages of Total	50.0%	16.7%	0.0%	0.0%	33.3%	40.0%	60.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
CASPER	51	7	1		7	31	30	4	1	1	2	2	61			1			65
Percentages of Total	77.3%	10.6%	1.5%	0.0%	10.6%	47.0%	45.5%	6.1%	1.5%	1.5%	3.0%	3.0%	92.4%	0.0%	0.0%	1.5%	0.0%	0.0%	98.5%
CHEYENNE	43	14	1		7	25	37	3			4	1	60	1		5			59
Percentages of Total	66.2%	21.5%	1.5%	0.0%	10.8%	38.5%	56.9%	4.6%	0.0%	0.0%	6.2%	1.5%	92.3%	1.5%	0.0%	7.7%	0.0%	0.0%	90.8%
CODY	3	1		1	1	2	4						6						6
Percentages of Total	50.0%	16.7%	0.0%	16.7%	16.7%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
DOUGLAS	3	1					3	1					4			1			3
Percentages of Total	75.0%	25.0%	0.0%	0.0%	0.0%	0.0%	75.0%	25.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	25.0%	0.0%	0.0%	75.0%
EVANSTON	2	1			1		4						4						4
Percentages of Total	50.0%	25.0%	0.0%	0.0%	25.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
EVANSVILLE	1				1		2			1			1						2
Percentages of Total	50.0%	0.0%	0.0%	0.0%	50.0%	0.0%	100.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
GILLETTE	38	9			6	22	28	3			1	1	51	2		2			49
Percentages of Total	71.7%	17.0%	0.0%	0.0%	11.3%	41.5%	52.8%	5.7%	0.0%	0.0%	1.9%	1.9%	96.2%	3.8%	0.0%	3.8%	0.0%	0.0%	92.5%
GREEN RIVER	1	2			1	1	3			1		1	2			1			3
Percentages of Total	25.0%	50.0%	0.0%	0.0%	25.0%	25.0%	75.0%	0.0%	0.0%	25.0%	0.0%	25.0%	50.0%	0.0%	0.0%	25.0%	0.0%	0.0%	75.0%
JACKSON	11	4			4	3	11	4	1	2	1	1	15						19
Percentages of Total	57.9%	21.1%	0.0%	0.0%	21.1%	15.8%	57.9%	21.1%	5.3%	10.5%	5.3%	5.3%	78.9%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
LANDER	7	2			3	7	5			2	2		8						12
Percentages of Total	58.3%	16.7%	0.0%	0.0%	25.0%	58.3%	41.7%	0.0%	0.0%	16.7%	16.7%	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
LARAMIE	47	4	1		4	18	31	8			7	2	48	2	1				54
Percentages of Total	83.9%	7.1%	1.8%	0.0%	7.1%	31.6%	54.4%	14.0%	0.0%	0.0%	12.3%	3.5%	84.2%	3.5%	1.8%	0.0%	0.0%	0.0%	94.7%
PINEDALE	1				2	3						1	2						3
Percentages of Total	33.3%	0.0%	0.0%	0.0%	66.7%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
POWELL	5					1	3	1					5						5
Percentages of Total	100.0%	0.0%	0.0%	0.0%	0.0%	20.0%	60.0%	20.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
RAWLINS	2	1					2	1					3						3
Percentages of Total	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
RIVERTON	7	4			5	1	7	7	1			3	13						16
Percentages of Total	43.8%	25.0%	0.0%	0.0%	31.3%	6.3%	43.8%	43.8%	6.3%	0.0%	0.0%	18.8%	81.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ROCK SPRINGS	18	7			2	14	12	1		1	1	1	24						27
Percentages of Total	66.7%	25.9%	0.0%	0.0%	7.4%	51.9%	44.4%	3.7%	0.0%	3.7%	3.7%	3.7%	88.9%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
SHERIDAN	11	6			2	3	14	1	1	2			17	1					18
Percentages of Total	57.9%	31.6%	0.0%	0.0%	10.5%	15.8%	73.7%	5.3%	5.3%	10.5%	0.0%	0.0%	89.5%	5.3%	0.0%	0.0%	0.0%	0.0%	94.7%
THERMOPOLIS	2					1		1					2						2
Percentages of Total	100.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
TORRINGTON	2	1				1	1	1					3	1					2
Percentages of Total	66.7%	33.3%	0.0%	0.0%	0.0%	33.3%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	100.0%	33.3%	0.0%	0.0%	0.0%	0.0%	66.7%

STATE & CITIES BIKE CRASH STATISTICS

	Road Conditions					Vertical Alignment			Horizontal Alignment			Traffic Control																				
	Wet	Snow	Ice	Gravel	Dry	Level	Uphill	Downhill	Straight	Curve RT	Curve LT	None	Signal	Flash	Stop	Yield	PedXing	Marks	Other													
STATEWIDE	9 2.2%	2 0.5%	4 1.0%	1 0.2%	389 96.0%	328 85.2%	22 5.7%	35 9.1%	369 96.1%	11 2.9%	4 1.0%	124 32.3%	112 29.2%	2 0.5%	103 26.8%	1 0.3%	1 0.3%	37 9.6%	4 1.0%													
BUFFALO	6					5			3			4																				
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	75.0%	0.0%	25.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%													
CASPER	1				65					48		4		9			59		2		16			16		19		1		8		1
Percentages of Total	0.0%	0.0%	1.5%	0.0%	98.5%	78.7%	6.6%	14.8%	96.7%	3.3%	0.0%	26.2%	26.2%	0.0%	31.1%	0.0%	1.6%	13.1%	1.6%													
CHEYENNE	3		1		1		60			48		5		7			59		1		18			22		1		10		8		1
Percentages of Total	4.6%	1.5%	0.0%	1.5%	92.3%	80.0%	8.3%	11.7%	98.3%	0.0%	1.7%	30.0%	36.7%	1.7%	16.7%	0.0%	0.0%	13.3%	1.7%													
CODY	6					6			6			3																				
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	50.0%	16.7%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%													
DOUGLAS	4					4			4			2																				
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%													
EVANSTON	4					3		1	2			2		2			1		1													
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	75.0%	25.0%	0.0%	50.0%	50.0%	0.0%	50.0%	25.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%													
EVANSVILLE	2					2			2			1																				
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%													
GILLETTE	2		51			43		2	5			48		2		9			1													
Percentages of Total	3.8%	0.0%	0.0%	0.0%	96.2%	86.0%	4.0%	10.0%	96.0%	4.0%	0.0%	30.0%	50.0%	0.0%	18.0%	0.0%	0.0%	2.0%	0.0%													
GREEN RIVER	1	3				1	1	2		3		1	2			1		1														
Percentages of Total	25.0%	0.0%	0.0%	0.0%	75.0%	25.0%	25.0%	50.0%	75.0%	25.0%	0.0%	50.0%	0.0%	0.0%	25.0%	0.0%	0.0%	25.0%	0.0%													
JACKSON	19					17			16			7		2		6			1		1											
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	94.1%	5.9%	0.0%	41.2%	11.8%	0.0%	35.3%	5.9%	0.0%	5.9%	0.0%													
LANDER	11					11		1	12			3		4		5			0													
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	91.7%	8.3%	0.0%	100.0%	0.0%	0.0%	25.0%	33.3%	0.0%	41.7%	0.0%	0.0%	0.0%	0.0%													
LARAMIE	1	1	1	54		55		1	56			11		25		18			1		1											
Percentages of Total	1.8%	1.8%	1.8%	0.0%	94.7%	98.2%	0.0%	1.8%	100.0%	0.0%	0.0%	19.6%	44.6%	0.0%	32.1%	0.0%	0.0%	1.8%	1.8%													
PINEDALE	3					3			1			1		1		1			1													
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	33.3%	33.3%	33.3%	33.3%	0.0%	0.0%	33.3%	0.0%	0.0%	33.3%	0.0%													
POWELL	5					4			4			2		1		1			0													
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	50.0%	25.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%													
RAWLINS	3					3			3			2		1		0			0													
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%													
RIVERTON	16					13		3	15			6		1		7			2													
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	81.3%	0.0%	18.8%	93.8%	6.3%	0.0%	37.5%	6.3%	0.0%	43.8%	0.0%	0.0%	12.5%	0.0%													
ROCK SPRINGS	1		26			19		2	4		24		13		6		1	4		1												
Percentages of Total	0.0%	0.0%	3.7%	0.0%	96.3%	76.0%	8.0%	16.0%	96.0%	4.0%	0.0%	52.0%	24.0%	4.0%	16.0%	0.0%	0.0%	4.0%	0.0%													
SHERIDAN	1	18				15		2	2		19			1		3		12			2											
Percentages of Total	5.3%	0.0%	0.0%	0.0%	94.7%	78.9%	10.5%	10.5%	100.0%	0.0%	0.0%	5.3%	15.8%	0.0%	63.2%	0.0%	0.0%	10.5%	5.3%													
THERMOPOLIS	2					2			2			1																				
Percentages of Total	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%													
TORRINGTON	1	2				3			3			2		1		1			0													
Percentages of Total	33.3%	0.0%	0.0%	0.0%	66.7%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	66.7%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%													

STATE & CITIES BIKE CRASH STATISTICS

	Speed Limit								
	<20	25	30	35	40	45	50	55	>60
STATEWIDE	33 6.3%	44 8.4%	210 40.2%	11 2.1%	20 3.8%	13 2.5%	3 0.6%	2 0.4%	186 35.6%
BUFFALO	2								2
Percentages of Total	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%
CASPER	7		46		4	1			1
Percentages of Total	11.9%	0.0%	78.0%	0.0%	6.8%	1.7%	0.0%	0.0%	1.7%
CHEYENNE	8	5	30	4	9	2			
Percentages of Total	13.8%	8.6%	51.7%	6.9%	15.5%	3.4%	0.0%	0.0%	0.0%
CODY			5						
Percentages of Total	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DOUGLAS			3						
Percentages of Total	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EVANSTON	2		2						
Percentages of Total	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EVANSVILLE	1		1						
Percentages of Total	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GILLETTE		8	25	2	1	3	1		7
Percentages of Total	0.0%	17.0%	53.2%	4.3%	2.1%	6.4%	2.1%	0.0%	14.9%
GREEN RIVER			3						1
Percentages of Total	0.0%	0.0%	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%
JACKSON	1	10	2		2				2
Percentages of Total	5.9%	58.8%	11.8%	0.0%	11.8%	0.0%	0.0%	0.0%	11.8%
LANDER		4	5						2
Percentages of Total	0.0%	36.4%	45.5%	0.0%	0.0%	0.0%	0.0%	0.0%	18.2%
LARAMIE	3		50		1				1
Percentages of Total	5.5%	0.0%	90.9%	0.0%	1.8%	0.0%	0.0%	0.0%	1.8%
PINEDALE		1				1			
Percentages of Total	0.0%	50.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%
POWELL		2	1	1					
Percentages of Total	0.0%	50.0%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RAWLINS		1	2						
Percentages of Total	0.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RIVERTON	1		11	1		1			2
Percentages of Total	6.3%	0.0%	68.8%	6.3%	0.0%	6.3%	0.0%	0.0%	12.5%
ROCK SPRINGS		9	5	3	1				6
Percentages of Total	0.0%	37.5%	20.8%	12.5%	4.2%	0.0%	0.0%	0.0%	25.0%
SHERIDAN	3		11		2	1			2
Percentages of Total	15.8%	0.0%	57.9%	0.0%	10.5%	5.3%	0.0%	0.0%	10.5%
THERMOPOLIS			1						
Percentages of Total	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TORRINGTON	1	1	1						
Percentages of Total	33.3%	33.3%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Appendix C

Pathway Inventory Guide

Collection of Data

Morrison Maierle was contracted by WYDOT to conduct a Bicycle/Pedestrian Study. This included collecting inventory data for as many pathway systems as possible within the state.

For WYDOT, pathways are being defined as paved 8 foot wide or wider for bicycles or shared use of bicycles and pedestrians. Also included are designated bicycle lanes striped on roadways specifically for bicycles.

Cities, counties, the University of Wyoming, community colleges, state parks, and national parks were among the agencies contacted to request data. The focus was primarily on cities, and city-county agencies, as they tended to have the majority of the data.

An ESRI file Geodatabase was created for the features that would hold the data. As data was collected it was evaluated and put into a feature. The Pathway data was put into a line feature class called "BikePaths". Data was cleaned up and classified as to how it would fit in the confines of the needed data requested by WYDOT. As the study progressed, Morrison Maierle discussed with WYDOT non-qualifying data and it was agreed that if it could easily be collected (and not hand drawn), the non-qualifying data would be included.

Data was provided in GIS format, CAD format, PDF, and hand drawn from conversations on the phone while looking at Google Earth and tracing what was being described. For the CAD data, coordinate systems sometimes made this data unusable. If a custom coordinate system was used, and no information was available on the system, the data was unusable. Attributes in the GIS data were converted to a best match with the Pathways data, using information supplied by the agency.

In some cases a best interpretation was needed to decide if a pathway was qualifying or not. This may have been from a phone call where the person knew there was a pathway but was not sure if it was wide enough. Google Earth may have given us enough information to then determine a width, but this would be approximate if the pathway was close to eight feet wide.

Morrison Maierle was also asked to include the Trans Continental Routes that are shown on the "Wyoming Bicycle Guidance Map 2013". Because of the scale of this map and the lack of detailed information on these routes the location of these routes was determined as close as possible to the map. These routes include the "Transamerica Bicycle Route", "Northern Tier East / West Route", and "Cheyenne / Laramie Snowy Range Route". In dense areas, such as Laramie, it was assumed the route would follow highways but this may not be the case.

State Parks also supplied their mountain bike trails data. **They asked that it not be shared outside of this project for WYDOT without contacting them first.** This data included all the trails in the state parks that allow mountain bikes to ride on them as well as some pathways that are paved.

Data Setup

The various forms of information were gathered, and placed into a GIS database. For the deliverables required for the inventory, an ESRI File Geodatabase was created. Features within this geodatabase include:

- *BikePaths* – The main layer for data collected
- *BikeRouteMajor* – National Corridor Routes (*Transamerica, Northern Tier, Cheyenne/Laramie*)
- *SPHST_Biking_HikingTrails* – State Parks Trails Systems
- *WY_Counties* – County Boundaries
- *WY_Municipal_Bndy* – City boundaries
- *WY_State_Parks* – State Parks boundaries
- *WYDOT_County_Roads* – County Roads layer from WYDOT
- *WYDOT_Highways* – State Roads layer from WYDOT

The main layer for data collected is the BikePaths layer. On initial discussion and determination of scope, basic fields were set up in this layer to attribute the line segments for the GIS. The basic fields include:

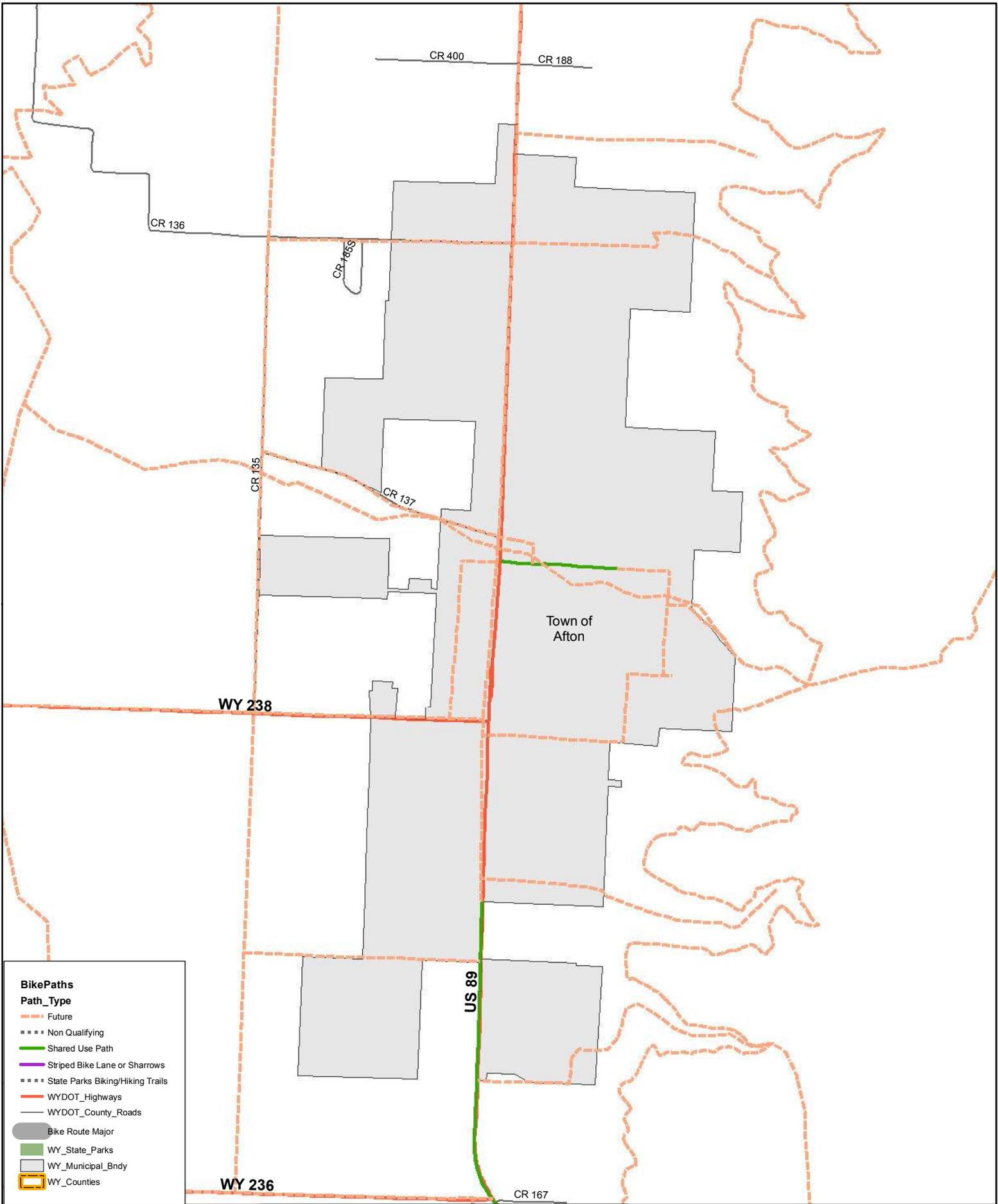
- "Path_Type" (Text, 48) ("Shared Use Path", "Striped Bike Lane or Sharrows", "Non Qualifying", "Future")
- "Width" (Integer, 4) (Width of path in feet, 8 ft or wider)
- "Surface" (Text, 48) ("Asphalt", "Concrete", or "Asphalt or Concrete", or "Wood" [if bridge], "Road", "Sidewalk", "Gravel", "Dirt")
- "Ownership" (Text, 128) (Who owns the data)
- "Source" (Text, 255) (Who supplied the data)
- "STR_Name" (Text, 48) (If Bike Lane what street is it on, Path name for Mountain Bike Trails if known)
- "STR_Class" (text, 48) (If Bike Lane what is the class of street is it on: "COLLECTOR", "LOCAL", "PRINCIPAL ARTERIAL", "MINOR ARTERIAL") if known
- "LenMiles" (Double) (Length in miles calculated in GIS)

Some default feature class fields are also in the database.

An ESRI MXD file was created to map all the features together and create map documents. Using data driven pages inside ArcGIS maps were created using the cities (census) as boundaries for the maps. This allowed ArcGIS to generate 99 maps showing data collected on a city by city basis. These are quick maps and designed for reference only.

Appendix D

Pathway Inventory Maps



City Maps:
Town of Afton



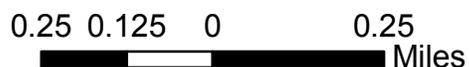
Map Date: 6/21/2016



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 F: 307.672.9311
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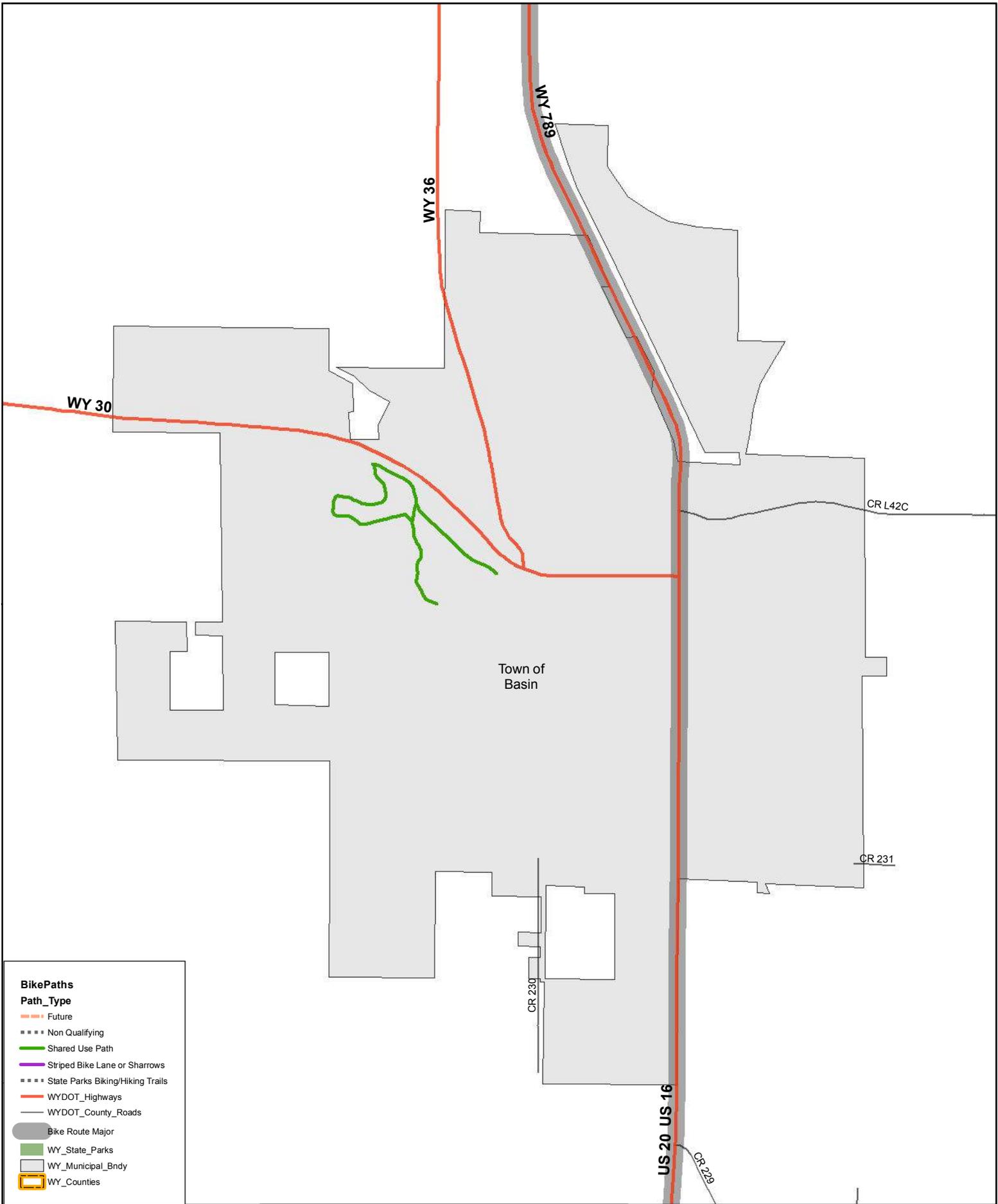
City Maps:
Town of Bar Nunn



Map Date: 6/21/2016



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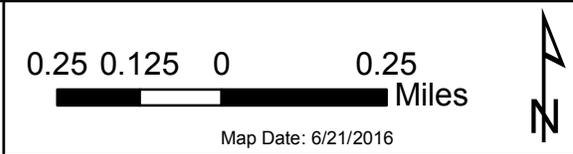


BikePaths

Path_Type

- Future
- Non Qualifying
- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

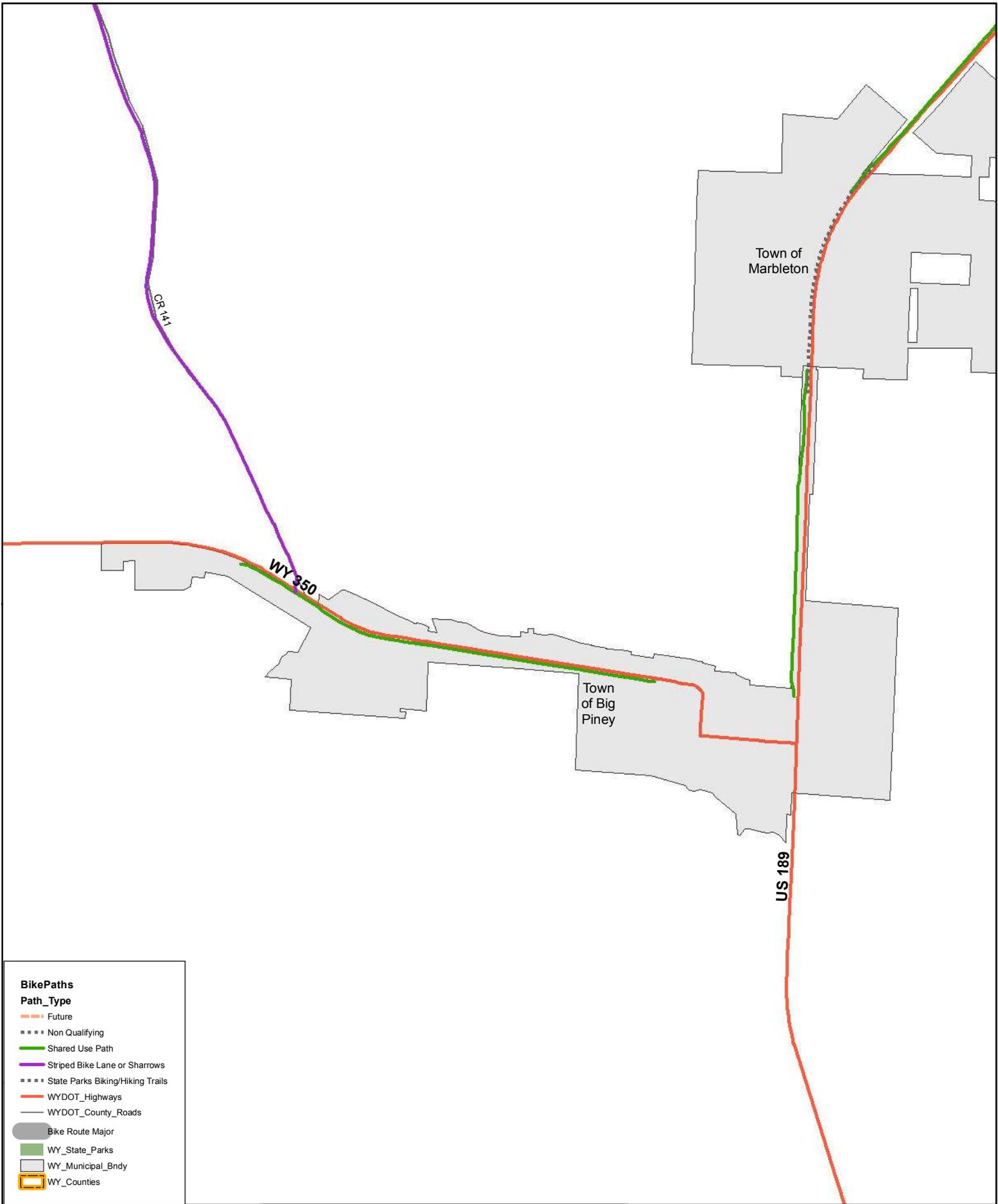
City Maps:
Town of Basin



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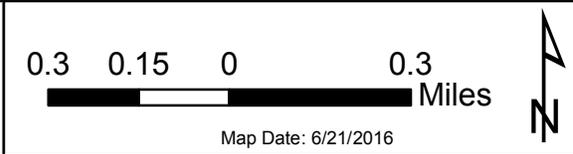
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BikePaths
Path_Type

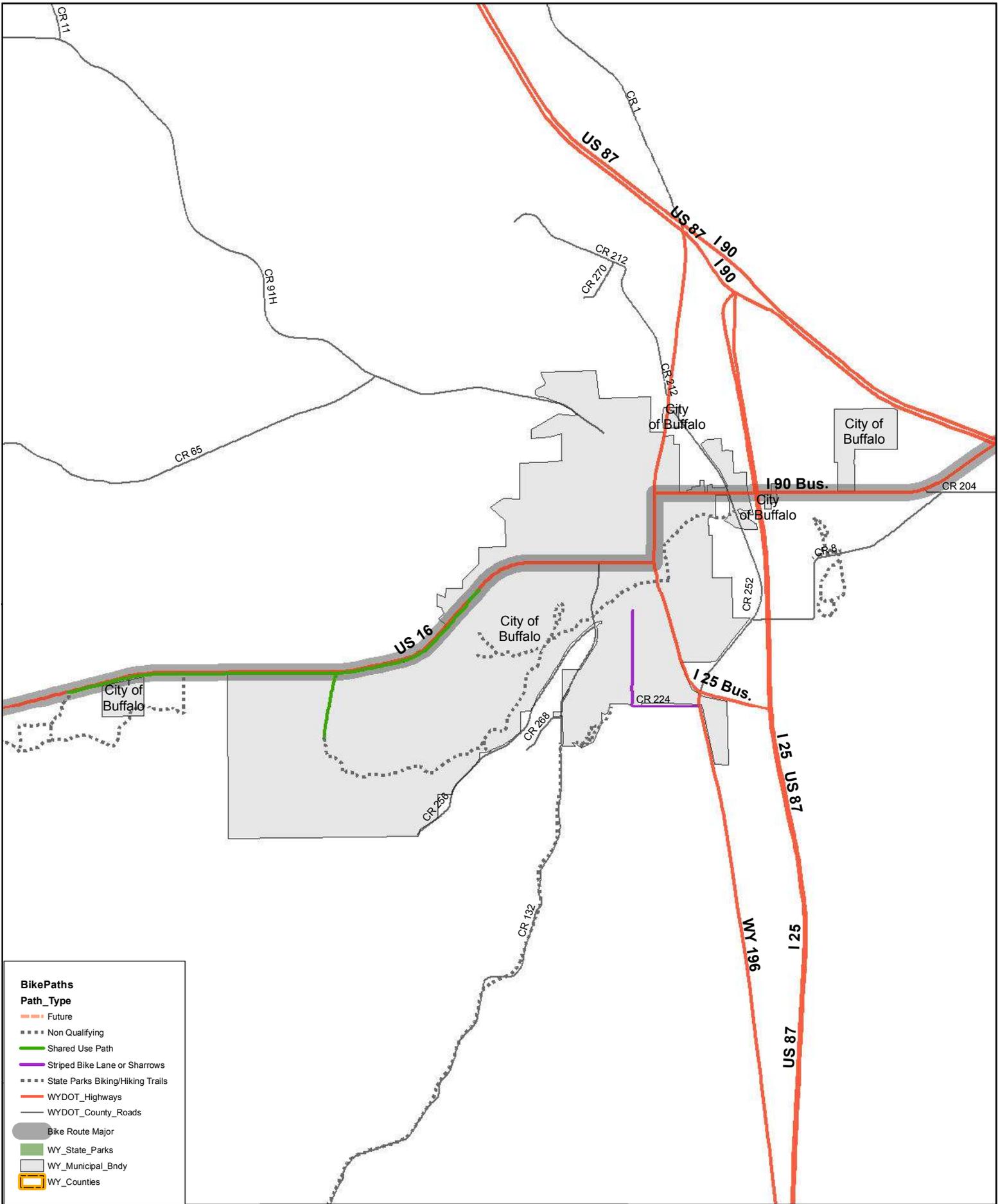
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- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- █ Bike Route Major
- █ WY_State_Parks
- █ WY_Municipal_Bndy
- █ WY_Counties

City Maps:
 Town of Big Piney



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City Maps:
City of Buffalo

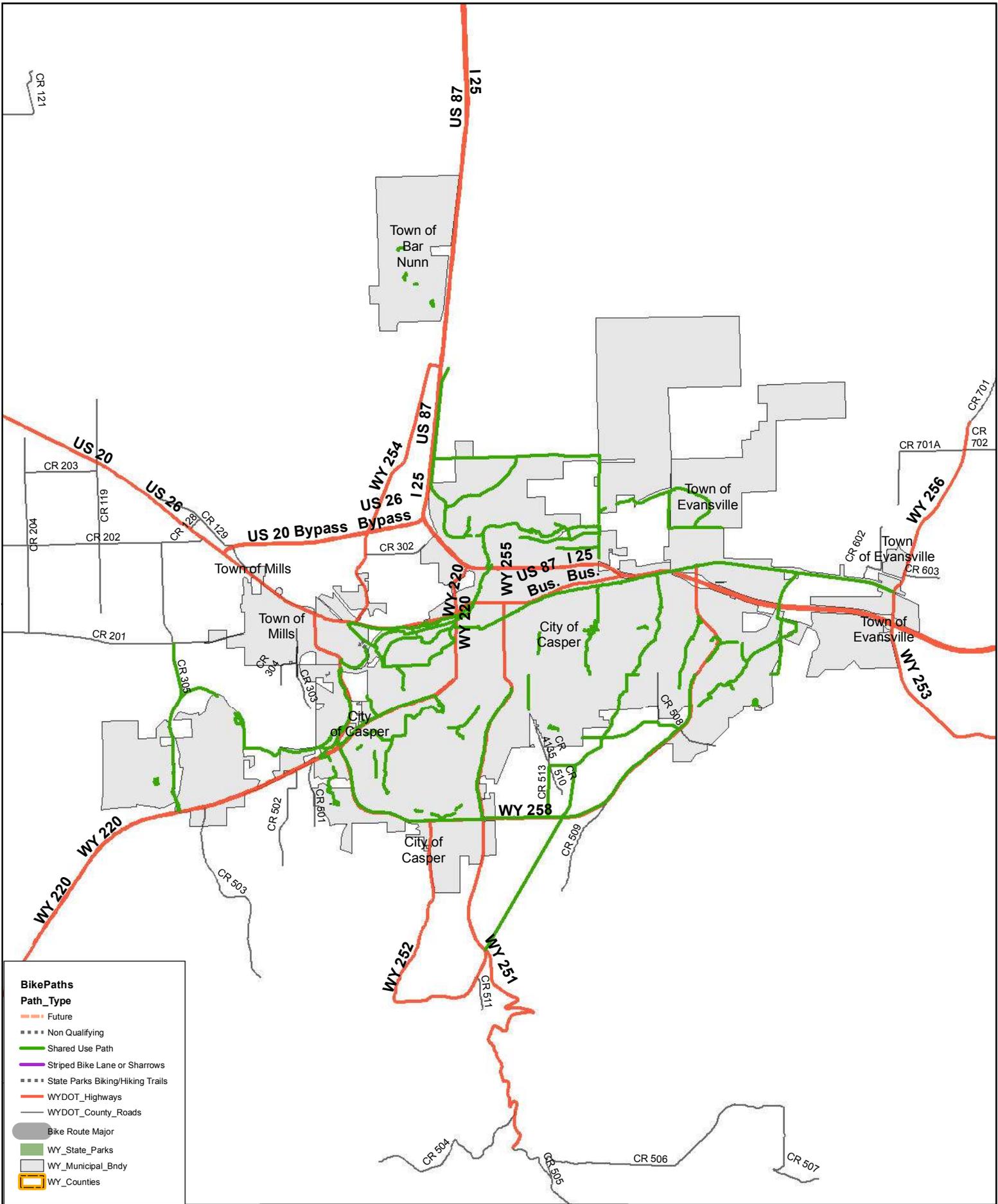


Map Date: 6/21/2016



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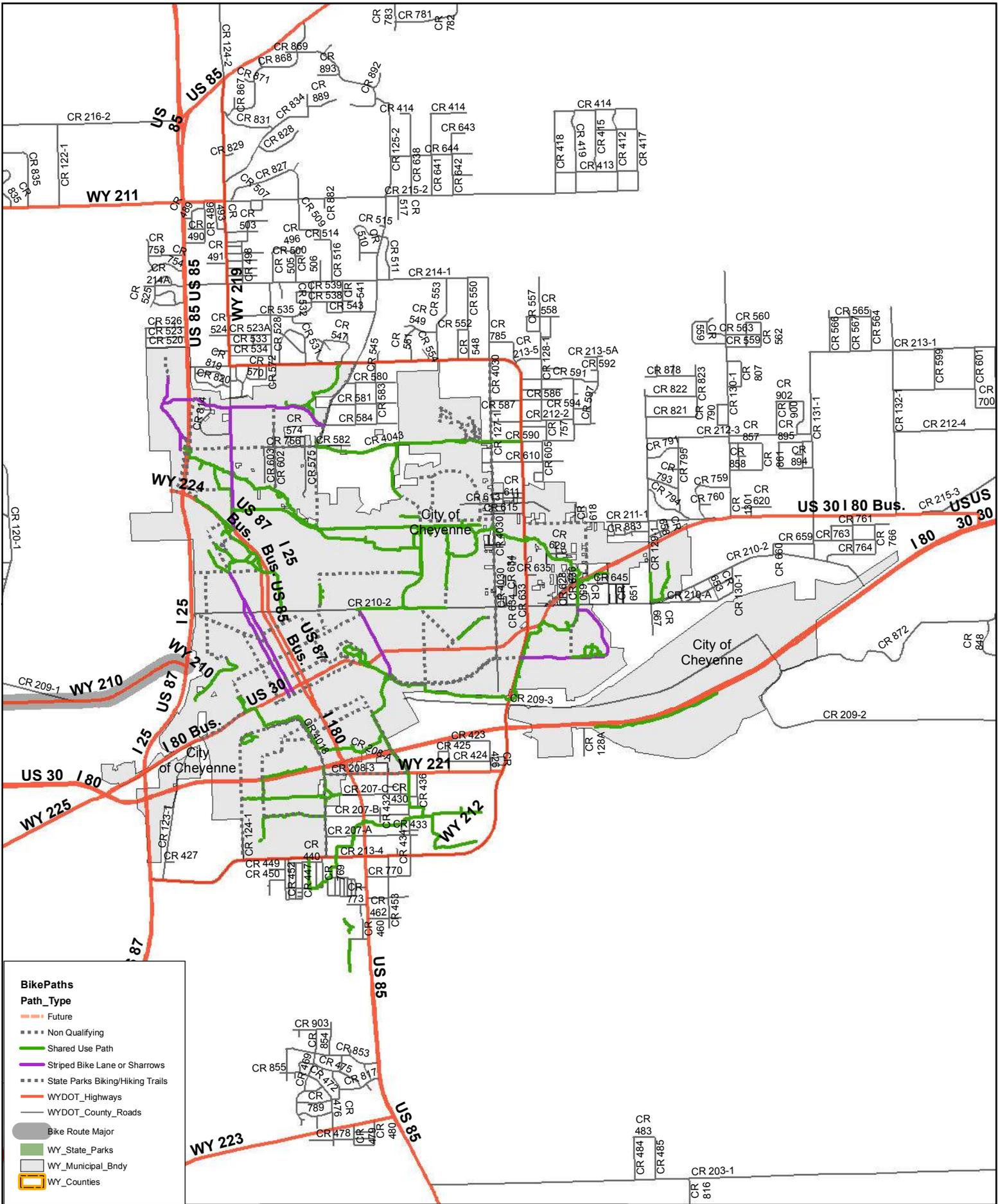


City Maps:
City of Casper



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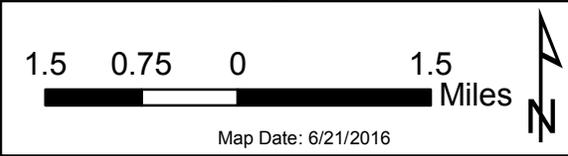


BikePaths

Path_Type

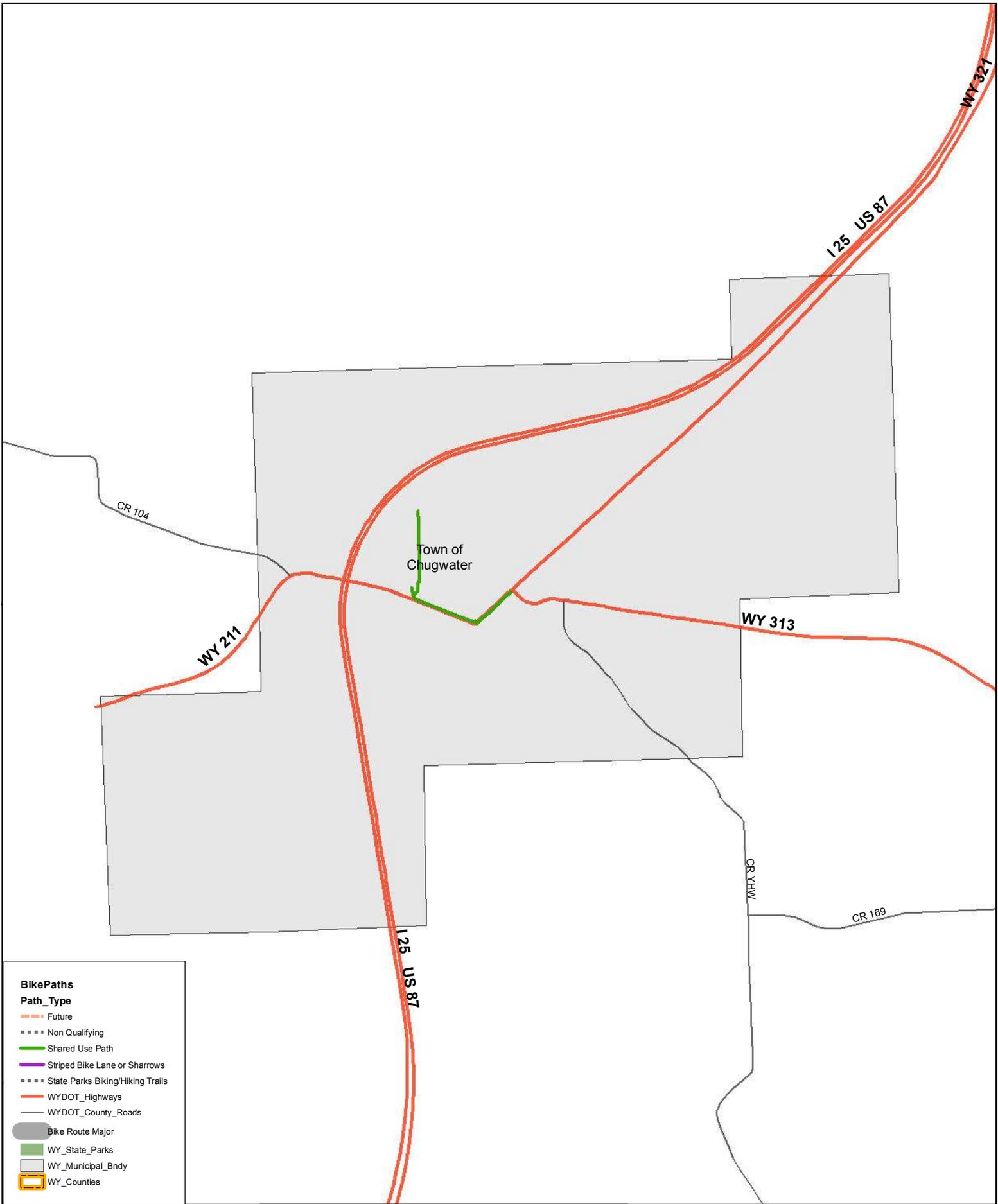
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- Shared Use Path
- Striped Bike Lane or Sharrows
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Cheyenne

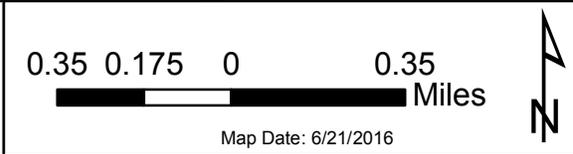


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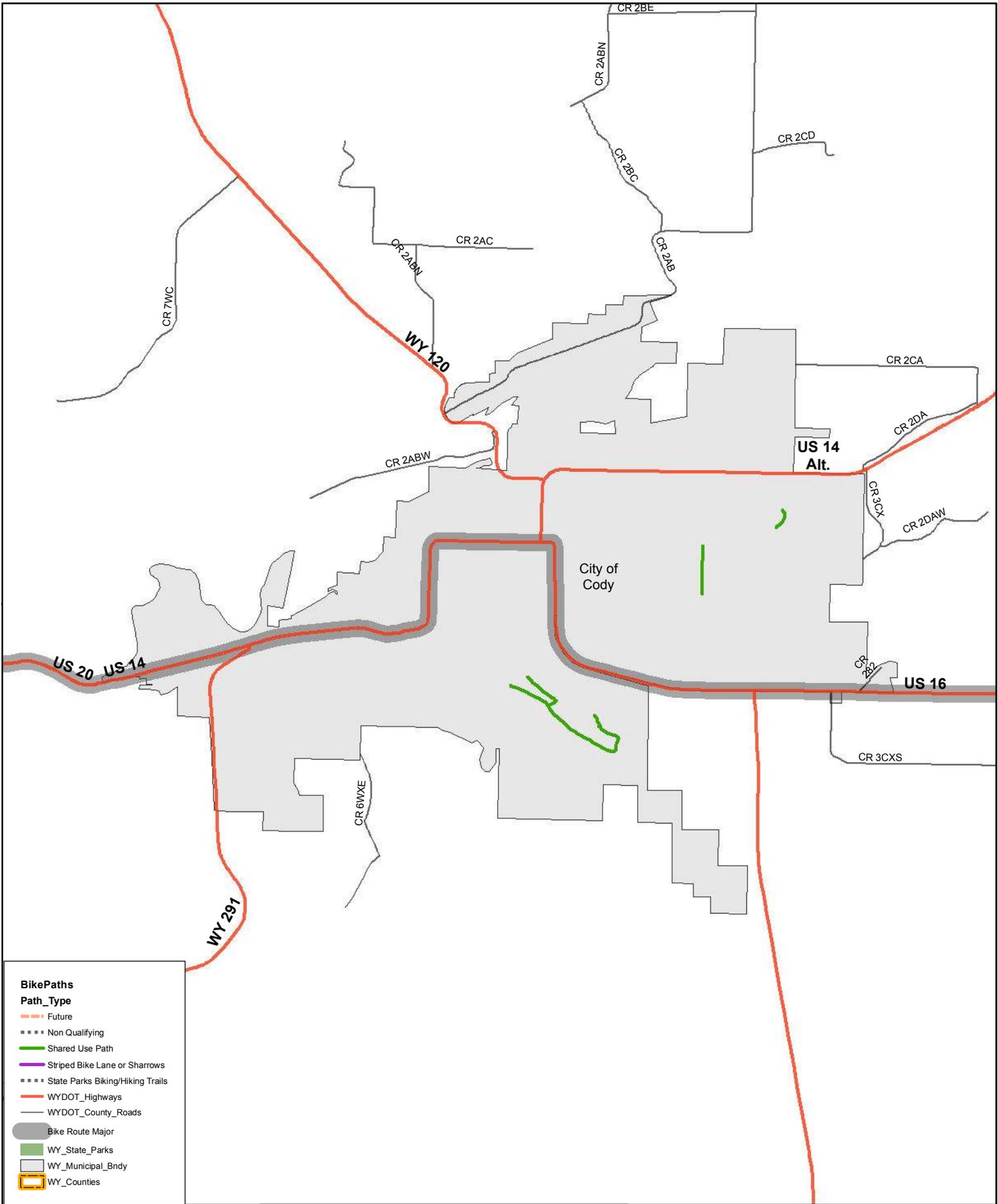


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Town of Chugwater



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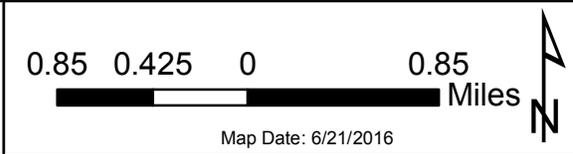


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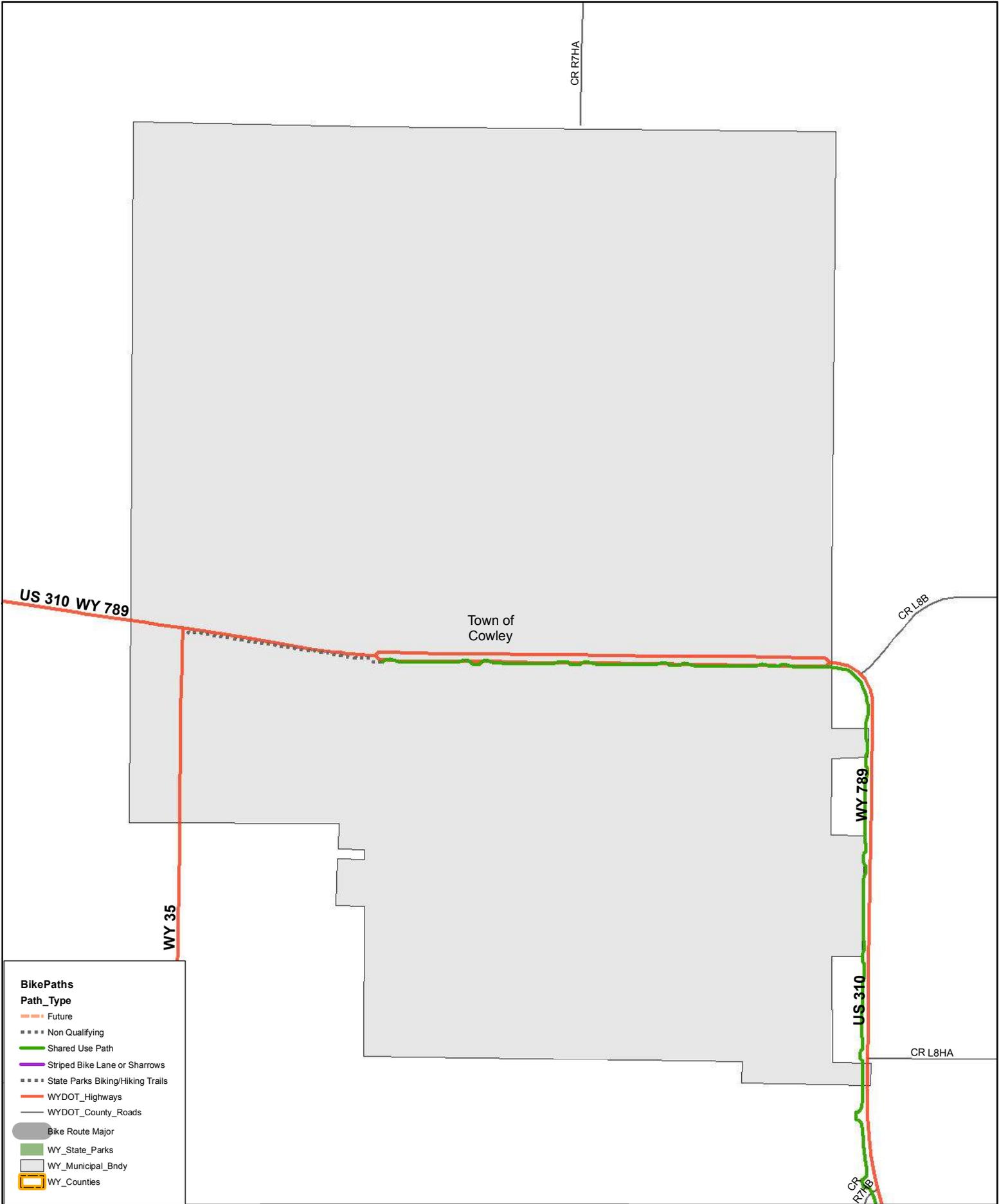
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Cody



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BikePaths

Path_Type

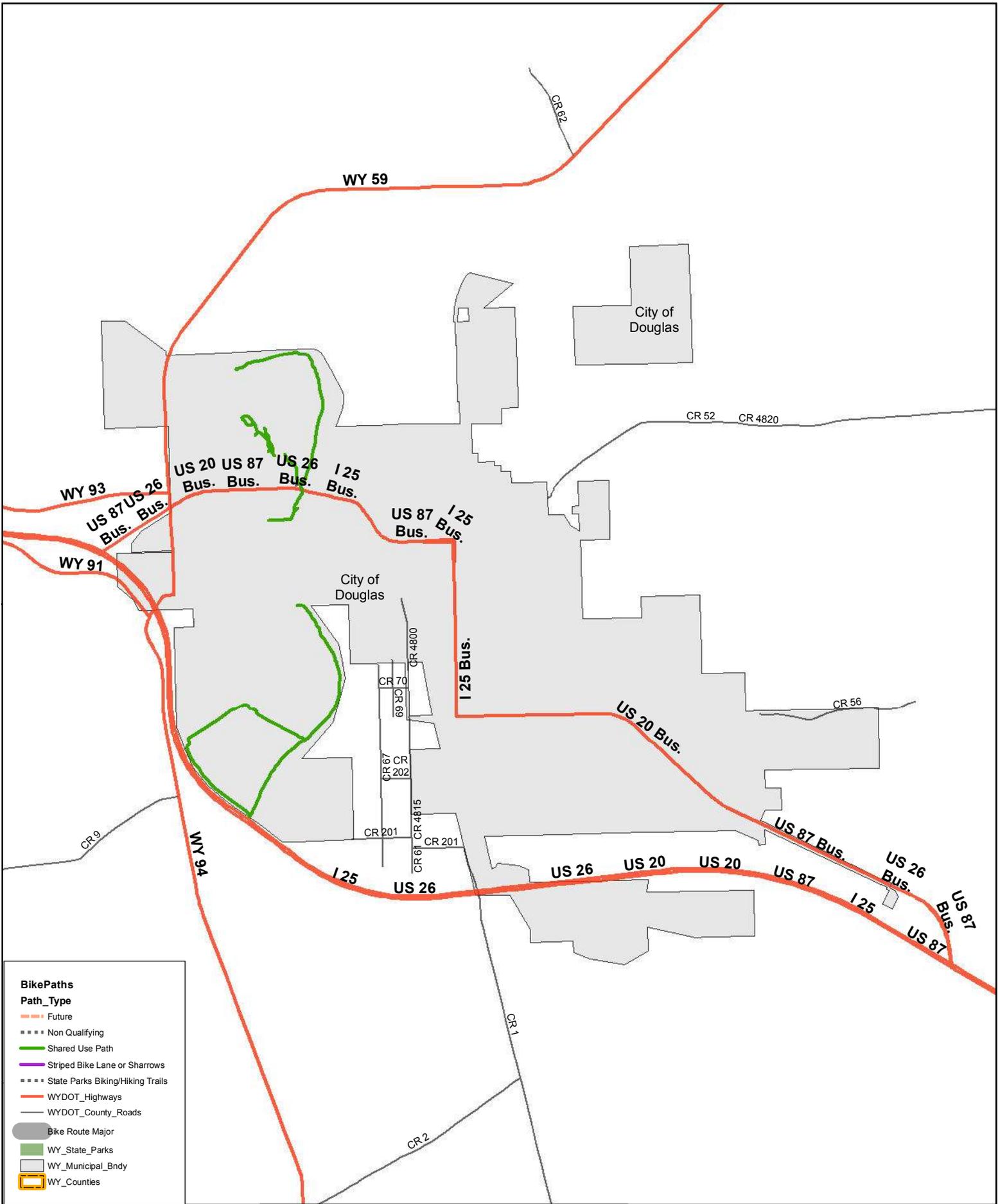
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Cowley



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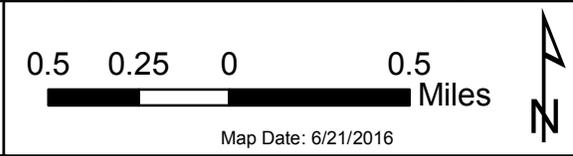


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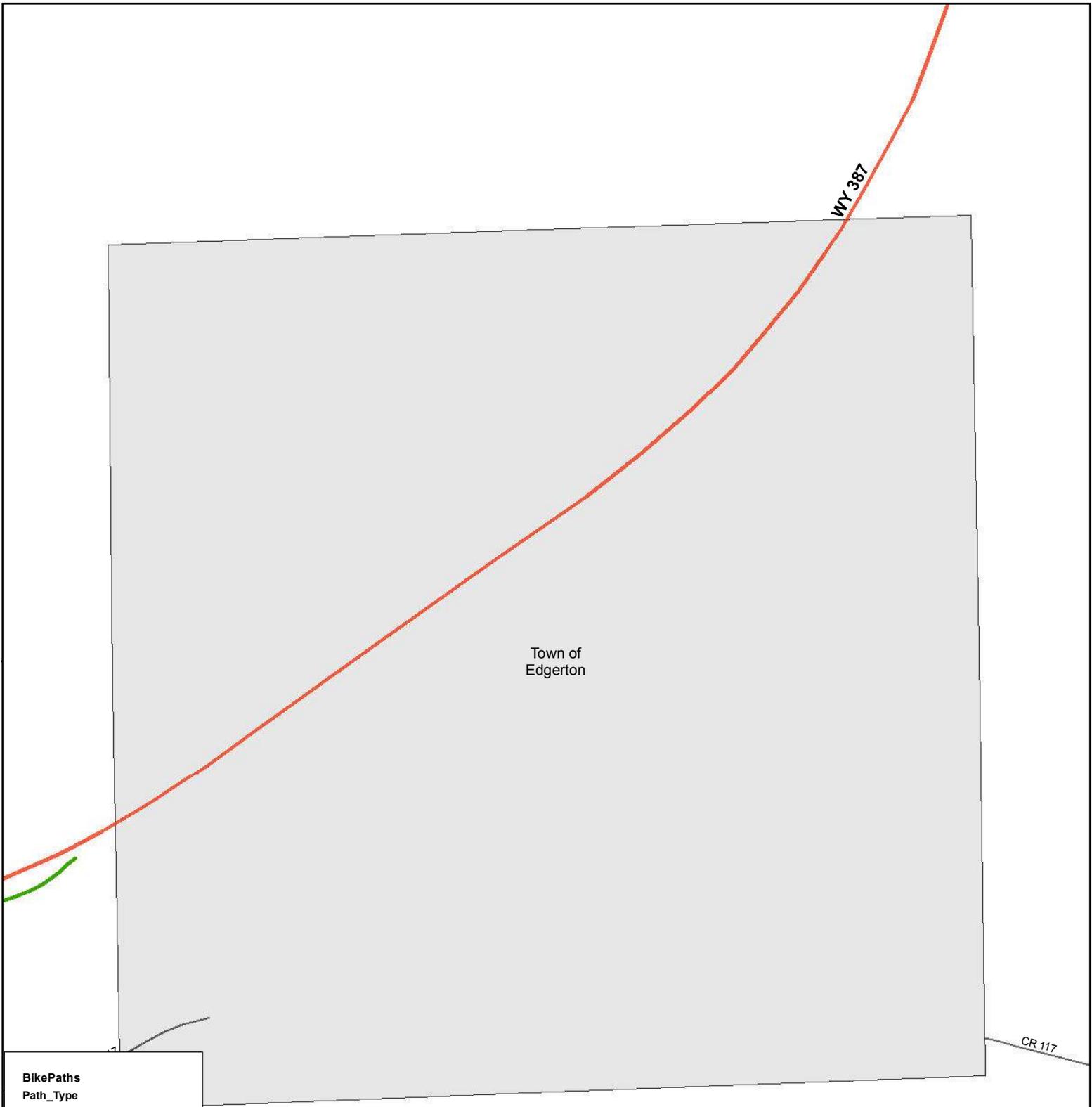
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Douglas



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Town of Edgerton

WY 387

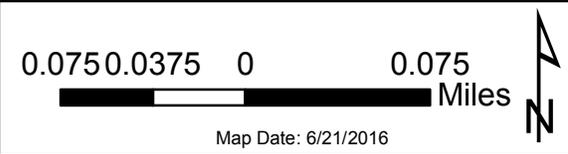
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BikePaths

Path_Type

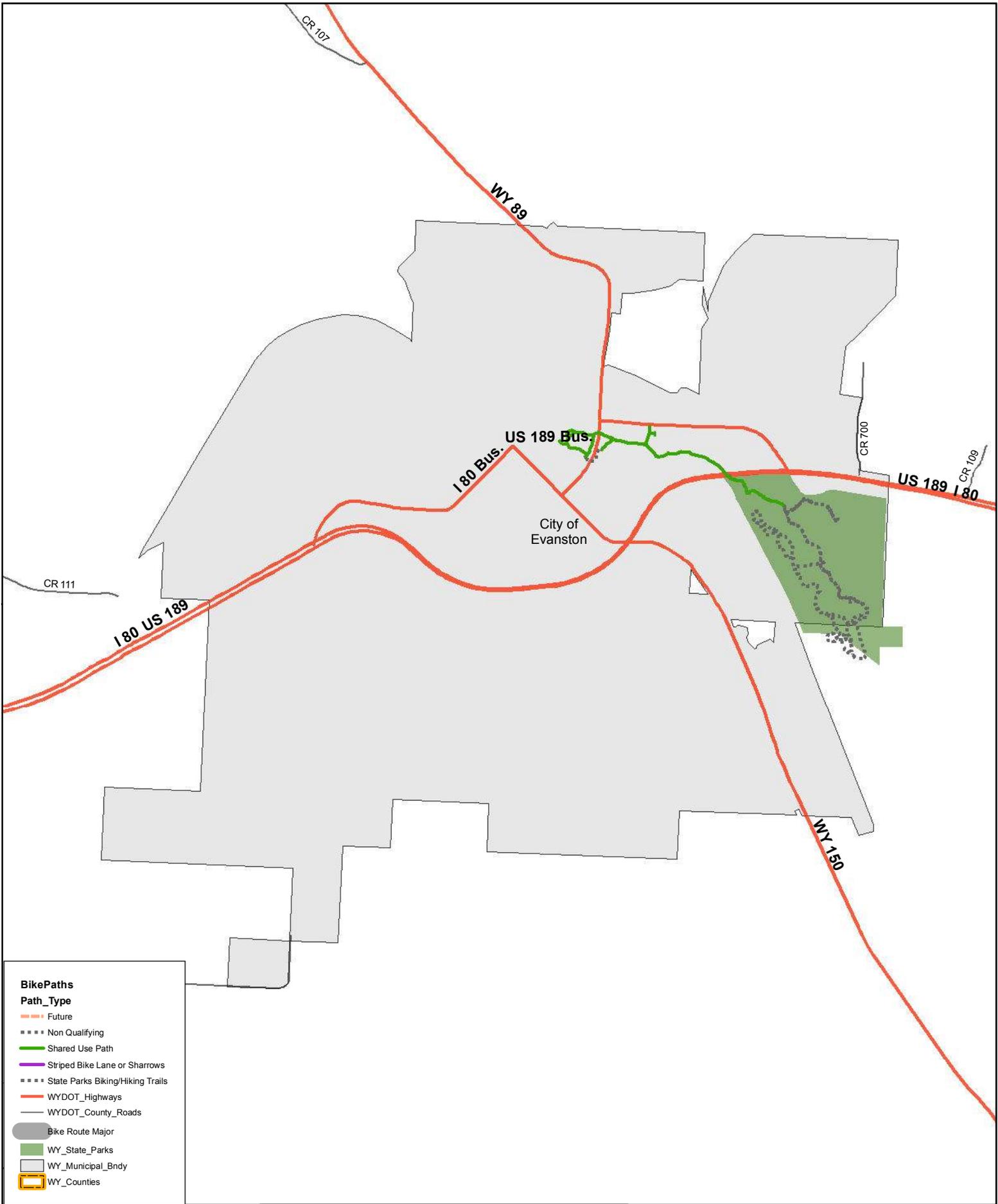
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-  Shared Use Path
-  Striped Bike Lane or Sharrows
-  State Parks Biking/Hiking Trails
-  WYDOT_Highways
-  WYDOT_County_Roads
-  Bike Route Major
-  WY_State_Parks
-  WY_Municipal_Bndy
-  WY_Counties

City Maps:
Town of Edgerton

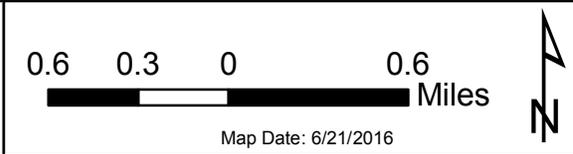



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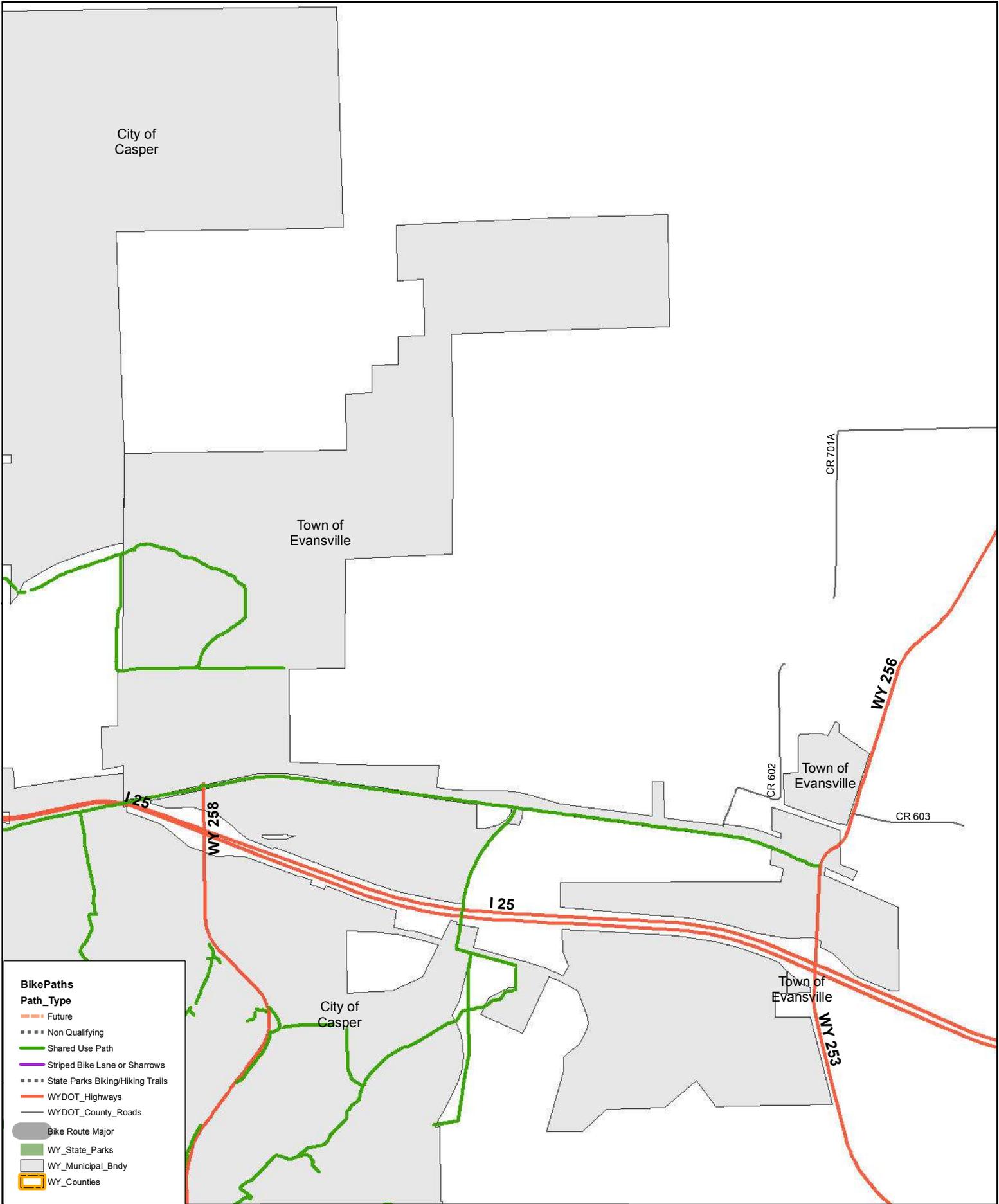
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City Maps:
City of Evanston



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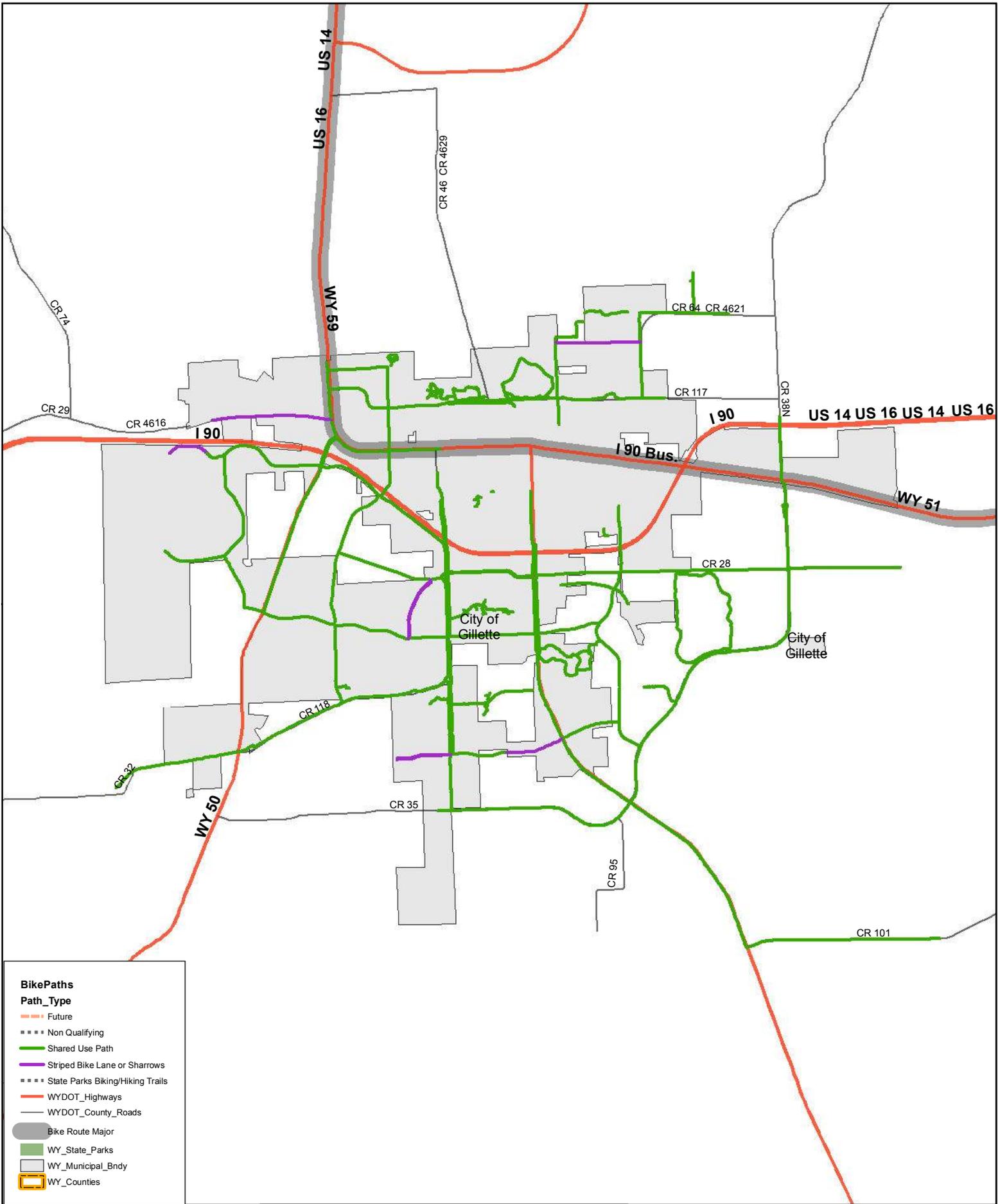
City Maps:
Town of Evansville



Map Date: 6/21/2016



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BikePaths

Path_Type

- Future
- Non Qualifying
- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Gillette



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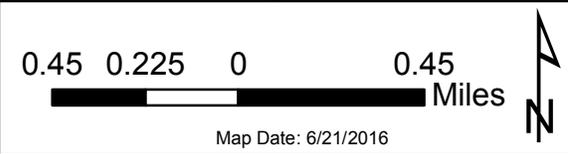


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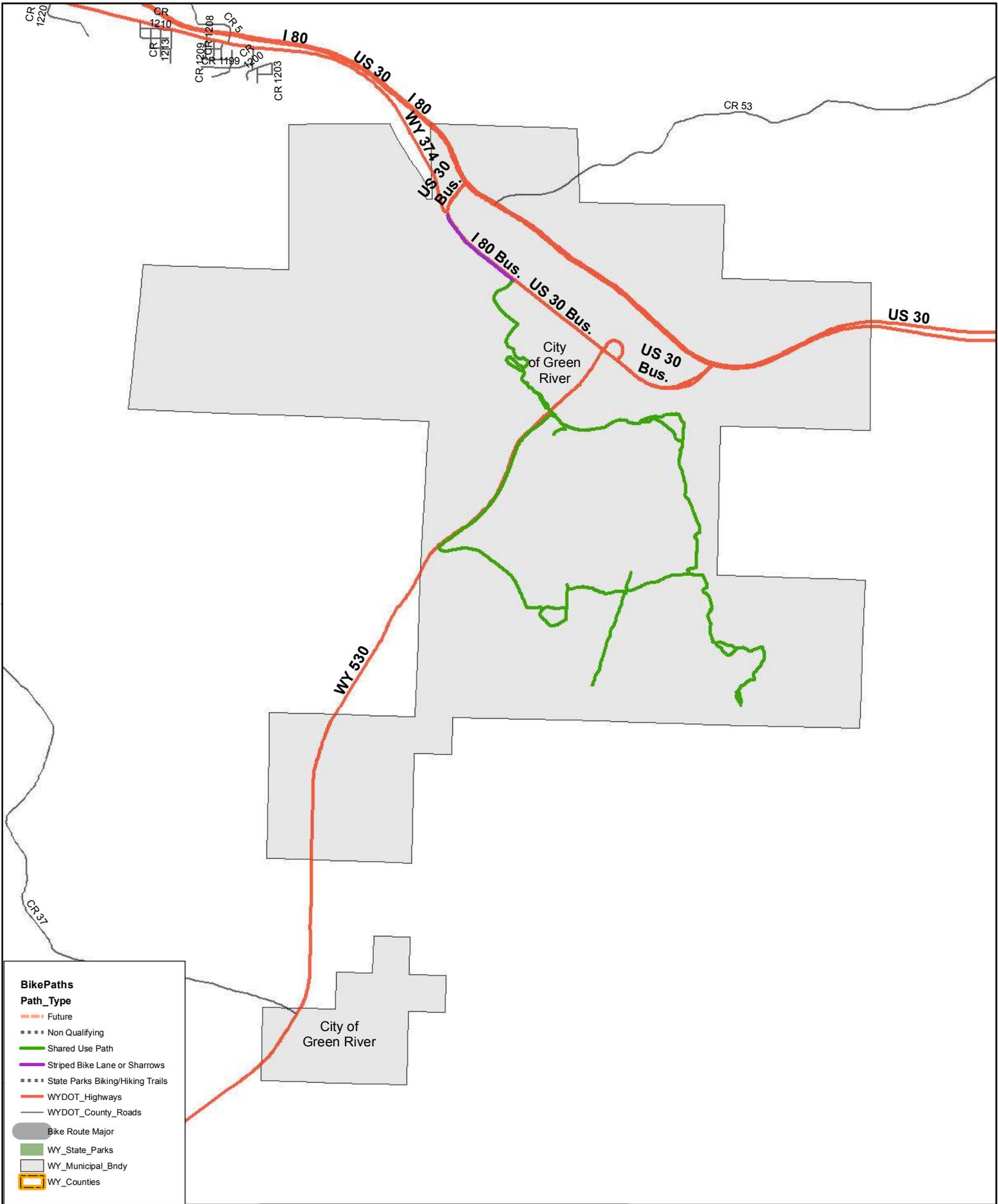
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- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Glenrock

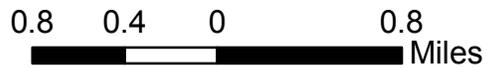


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City Maps:
City of Green River

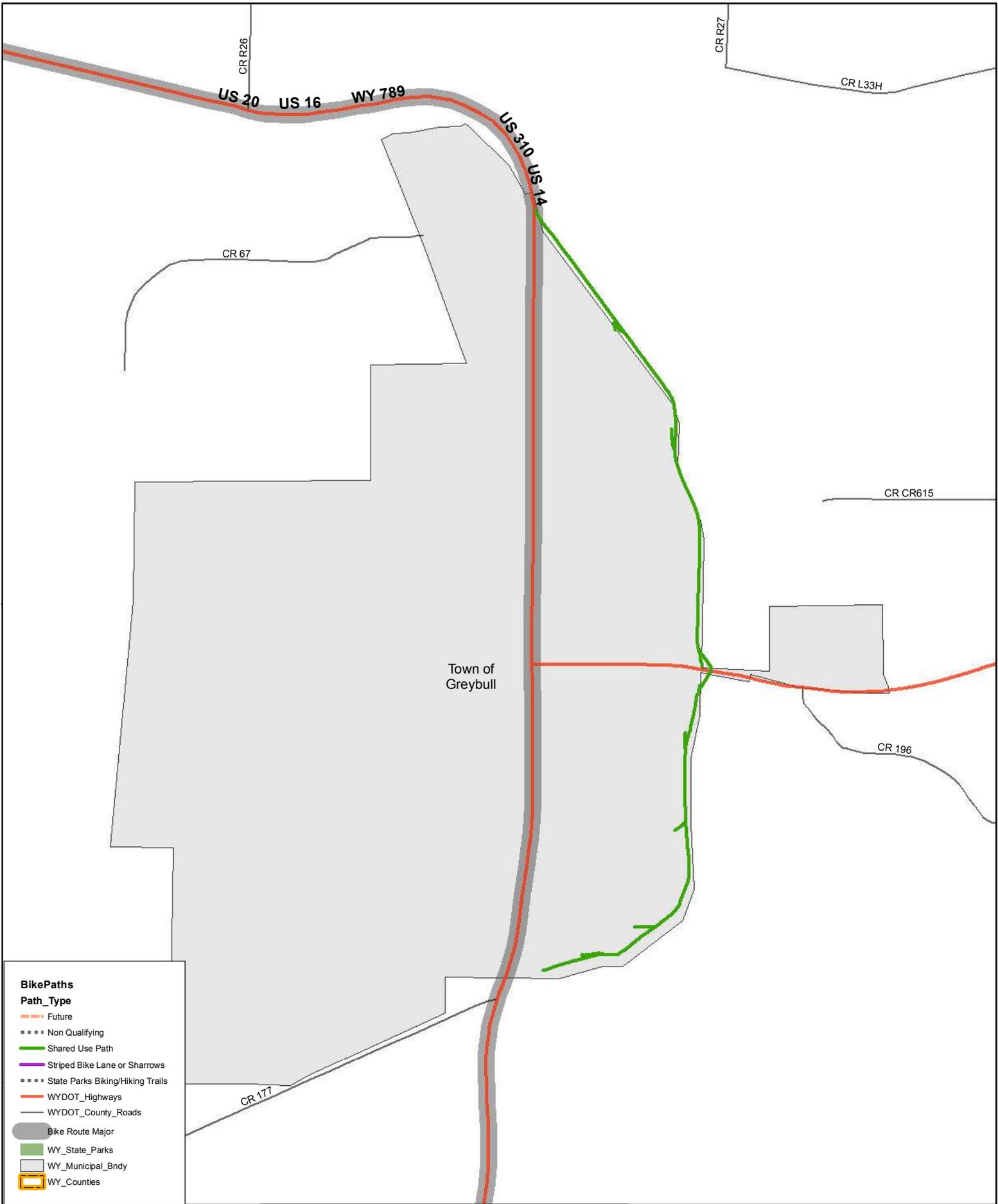


Map Date: 6/21/2016



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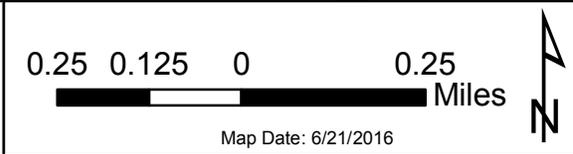


BikePaths

Path_Type

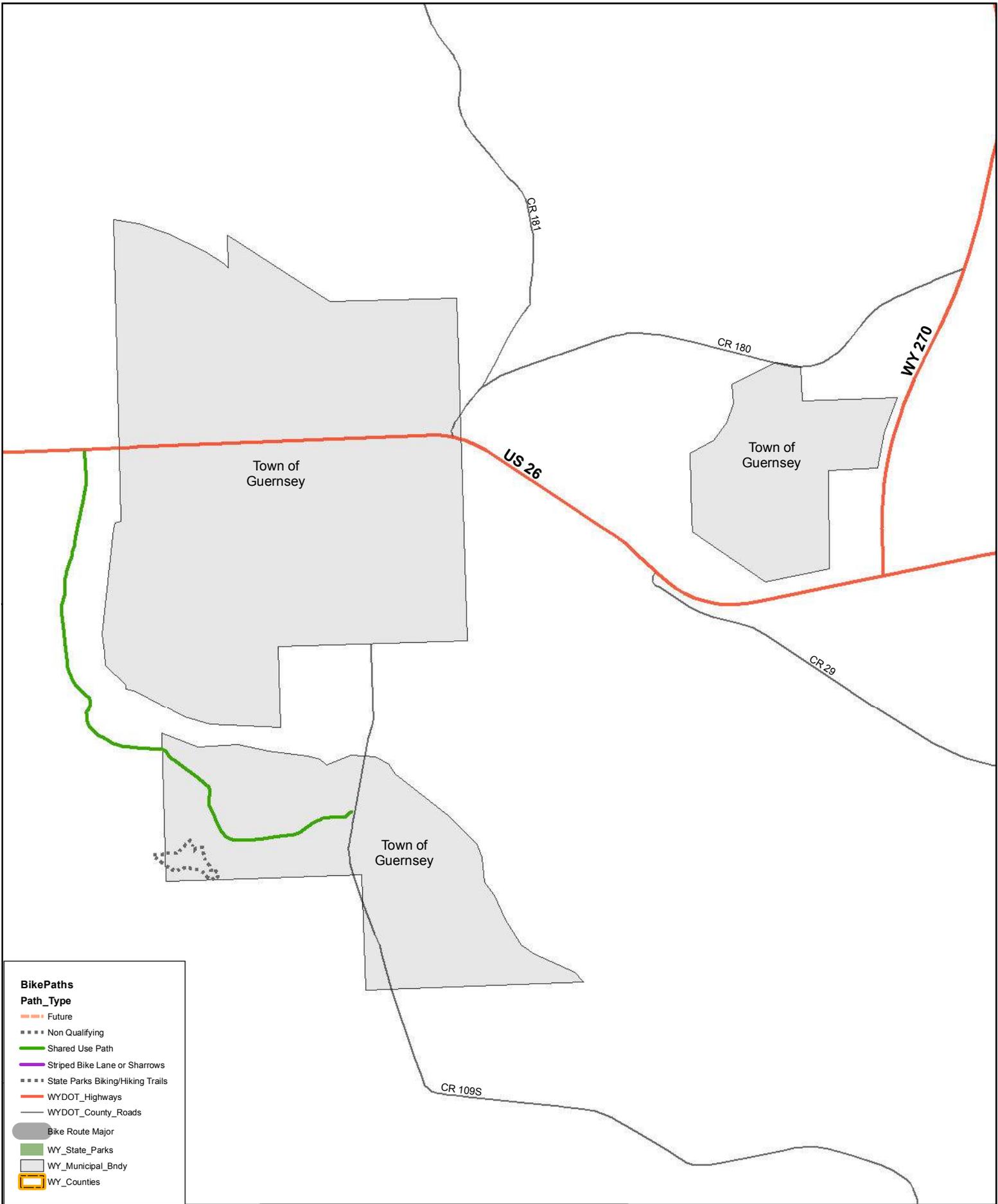
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Greybull



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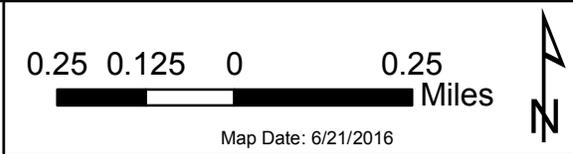


BikePaths

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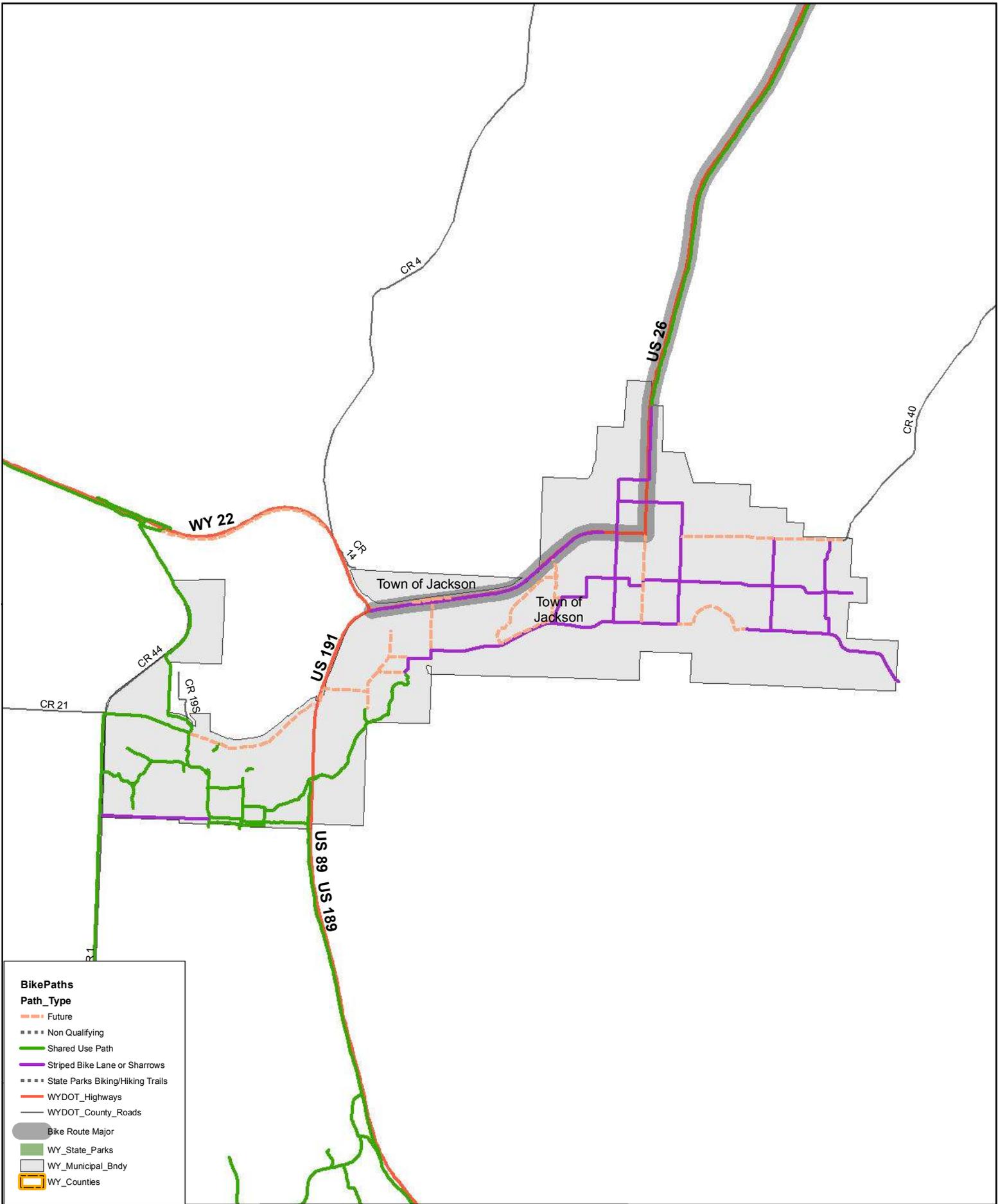
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Guernsey

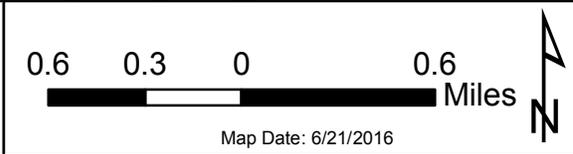


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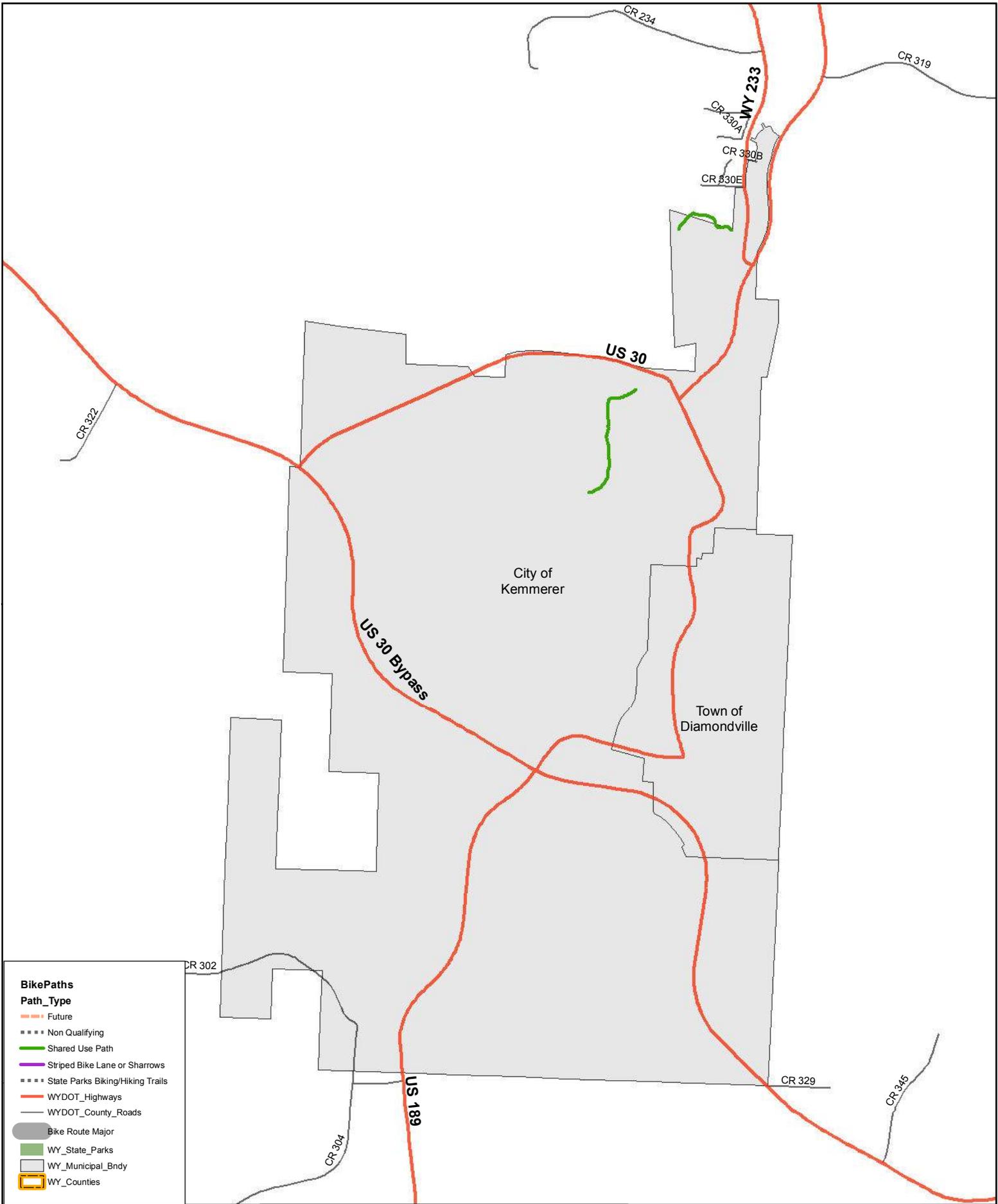


City Maps:
Town of Jackson

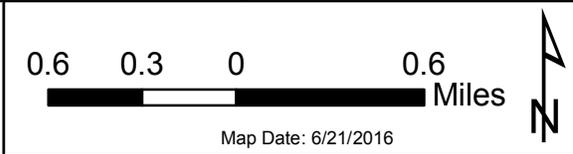


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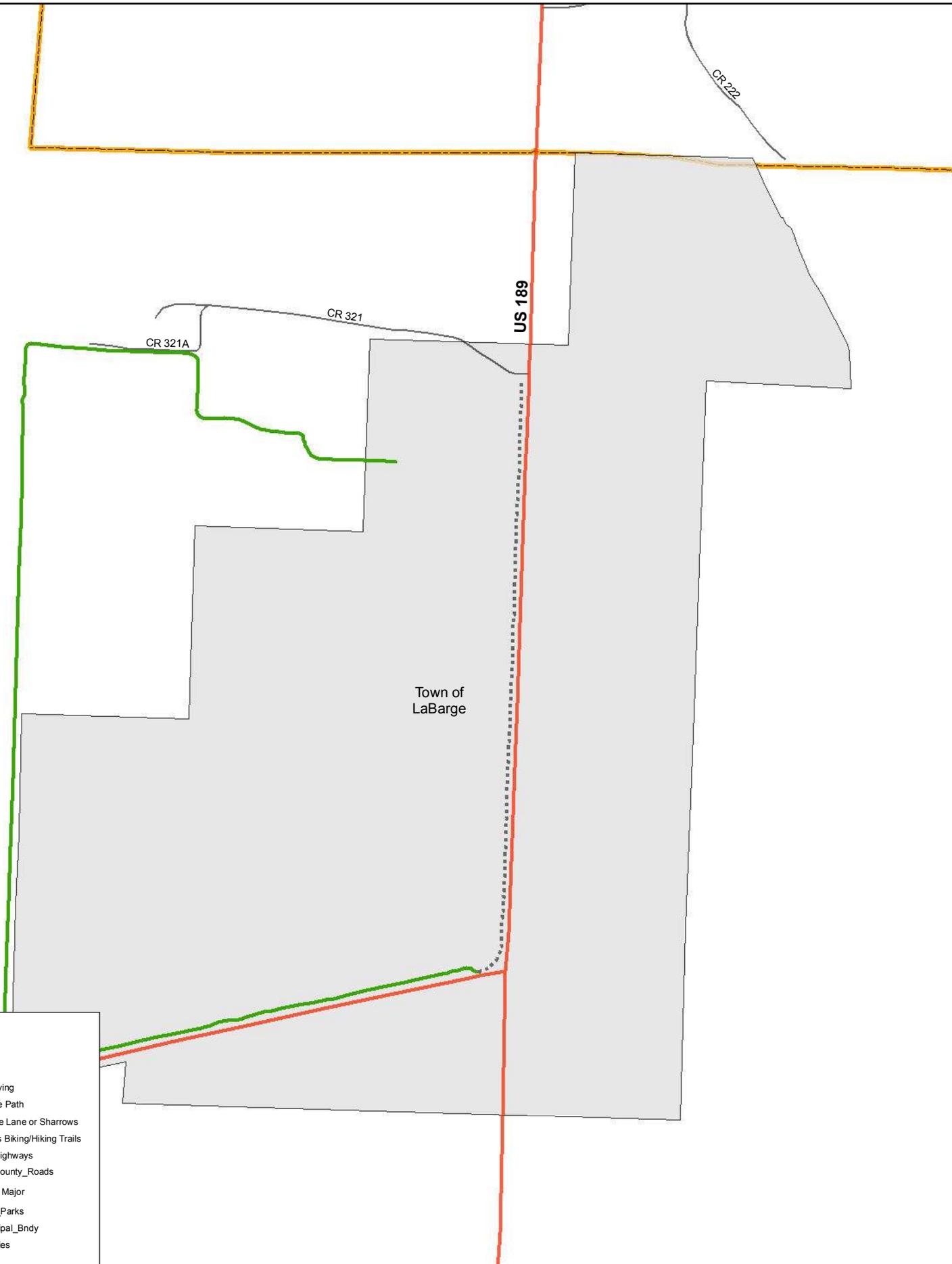


City Maps:
City of Kemmerer



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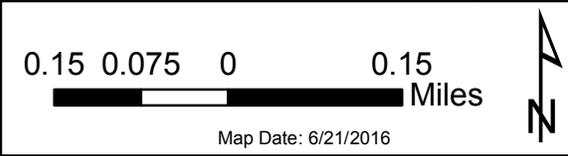
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BikePaths
Path_Type

- Future
- Non Qualifying
- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
 Town of LaBarge



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CR 51A

Town of LaGrange

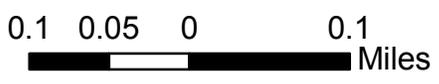
WY 151

BikePaths

Path_Type

-  Future
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-  Shared Use Path
-  Striped Bike Lane or Sharrows
-  State Parks Biking/Hiking Trails
-  WYDOT_Highways
-  WYDOT_County_Roads
-  Bike Route Major
-  WY_State_Parks
-  WY_Municipal_Bndy
-  WY_Counties

City Maps:
Town of LaGrange

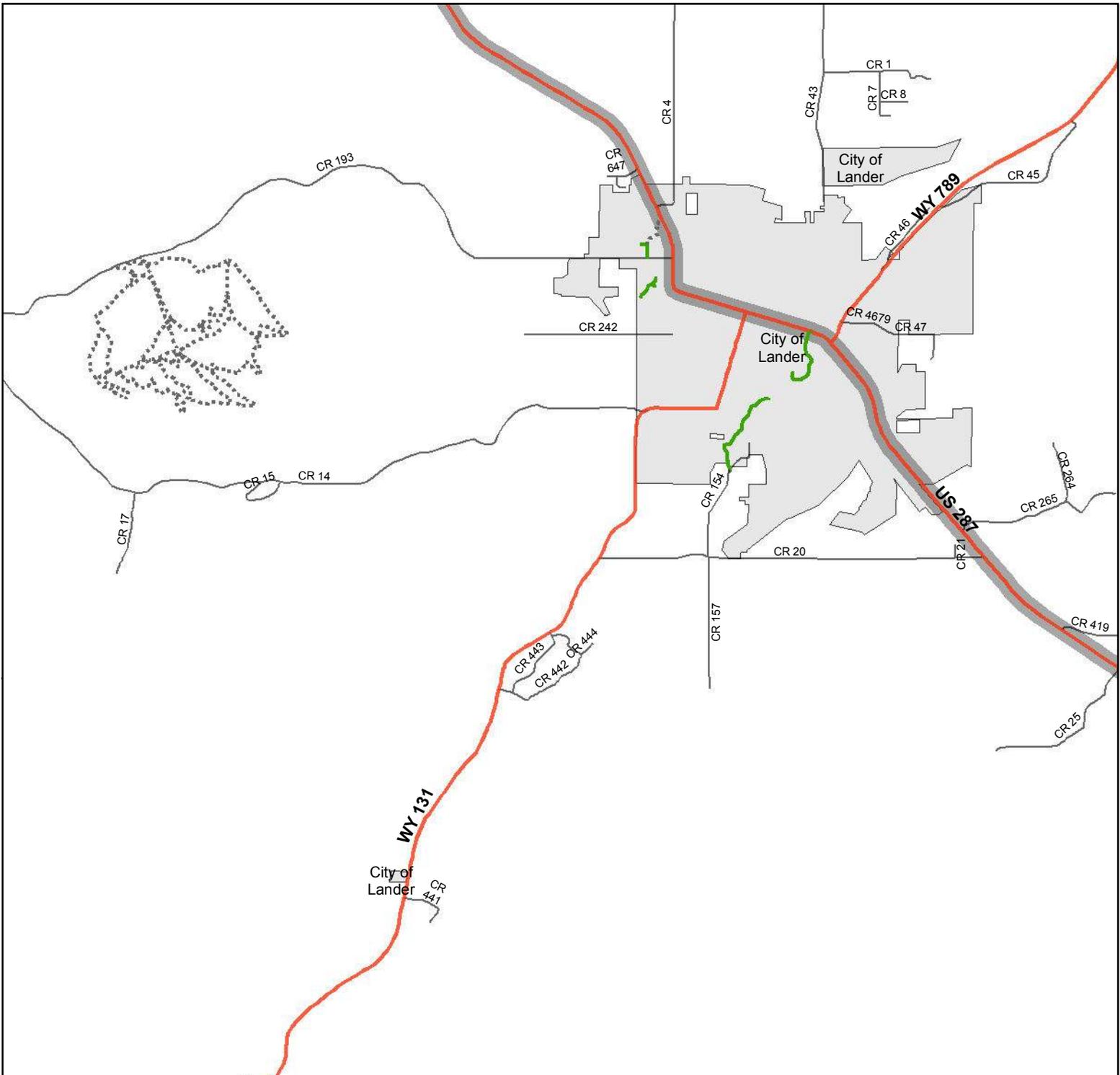


Map Date: 6/21/2016




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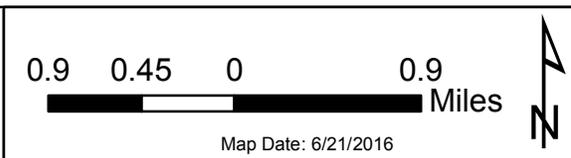


BikePaths

Path_Type

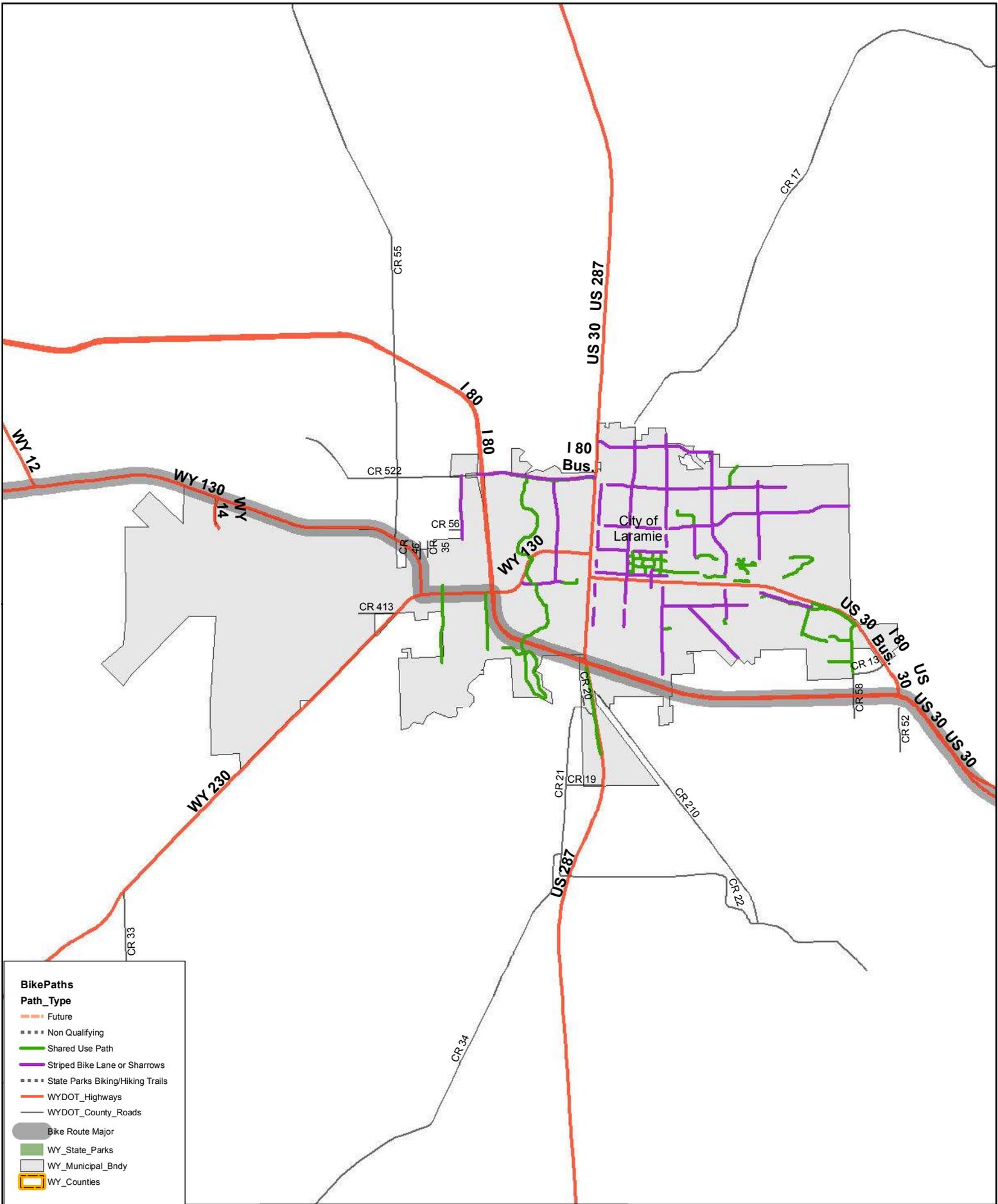
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Lander



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BikePaths

Path_Type

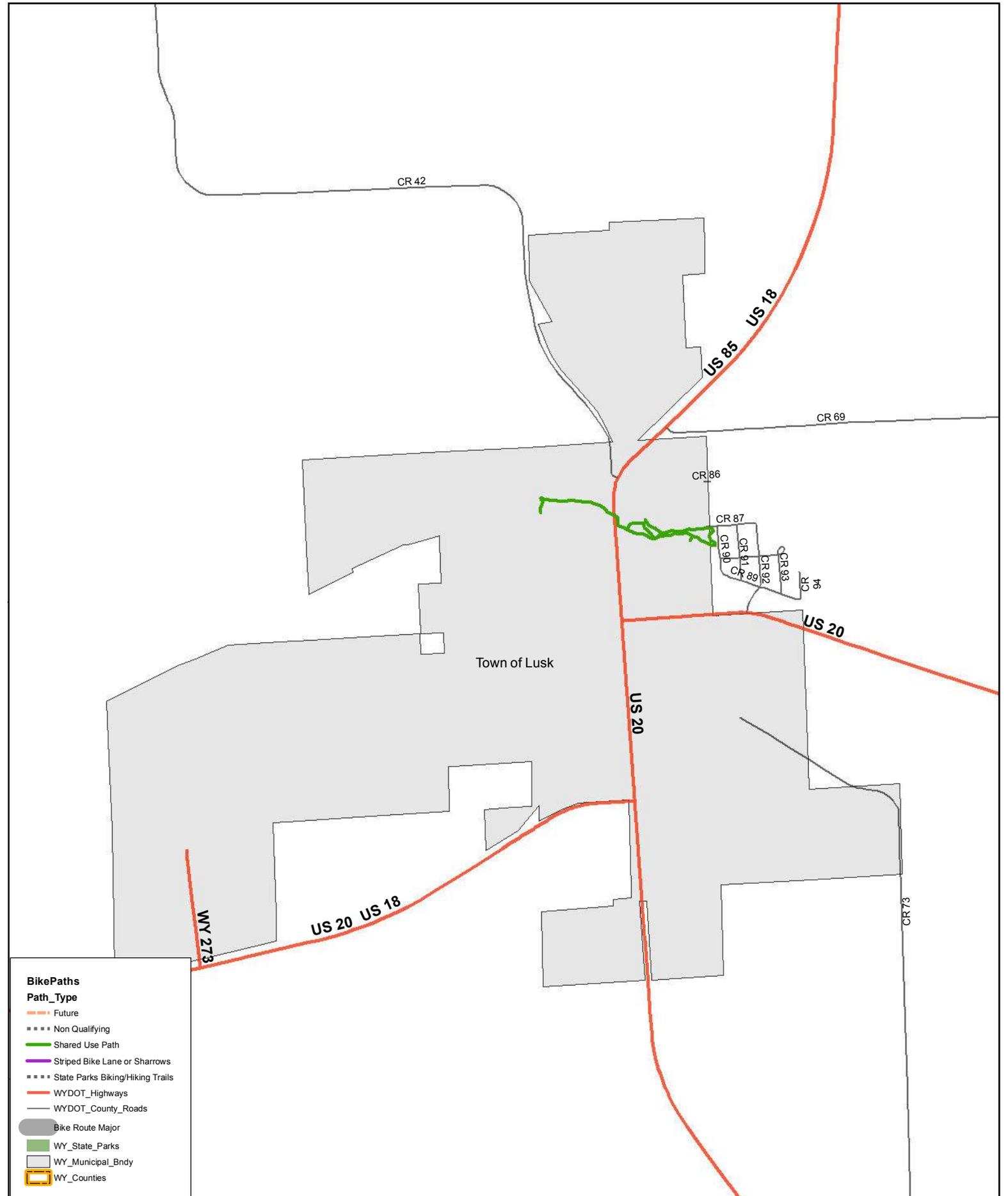
- Future
- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Laramie



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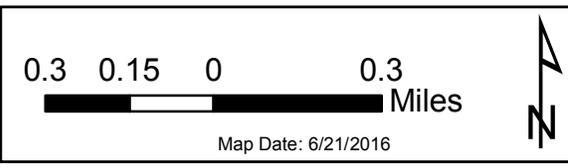


BikePaths

Path_Type

- Future
- Non Qualifying
- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

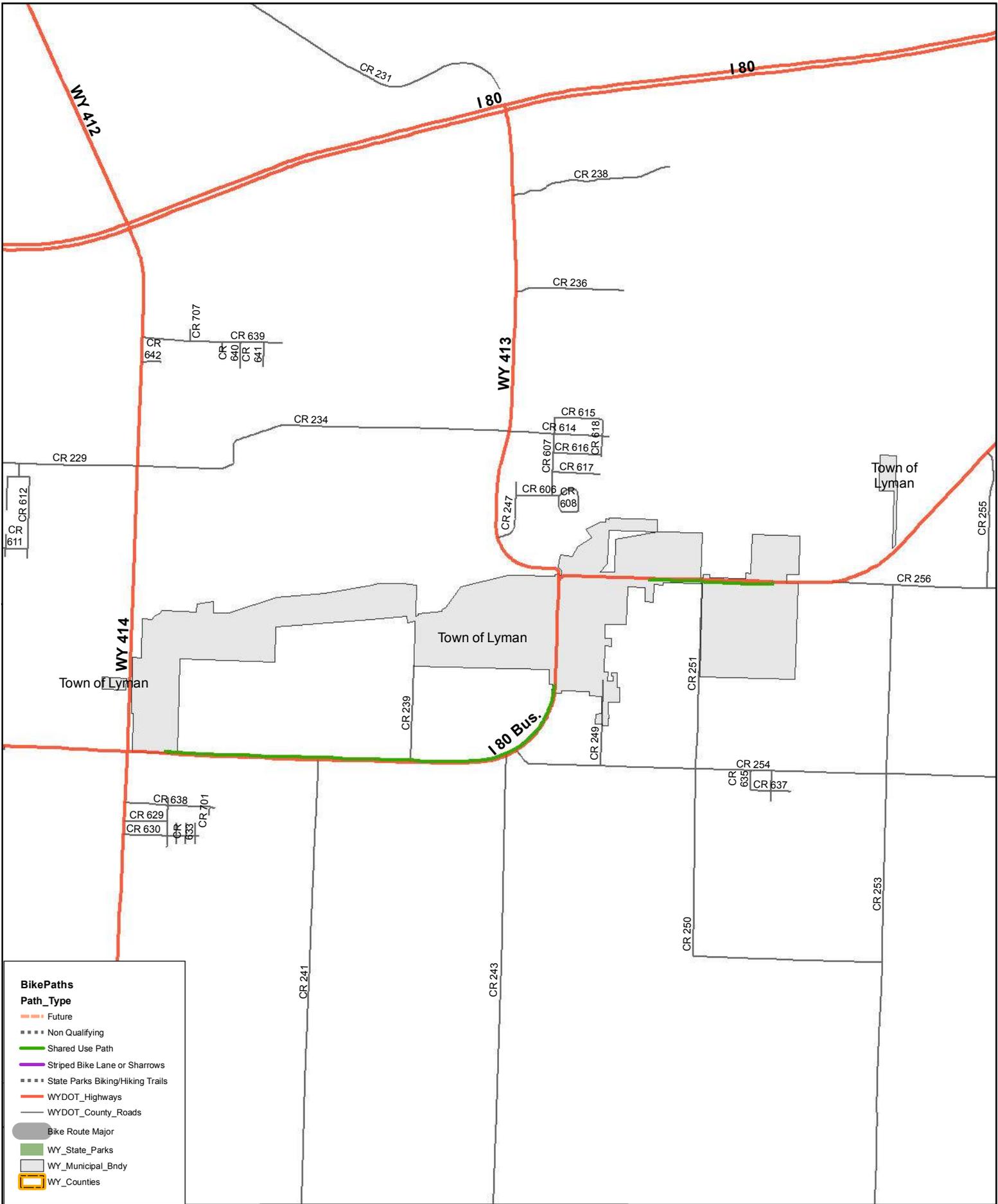
City Maps:
Town of Lusk



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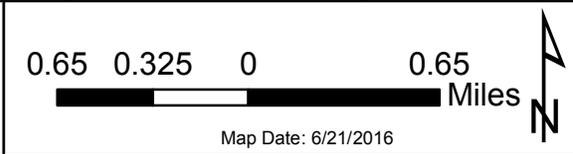


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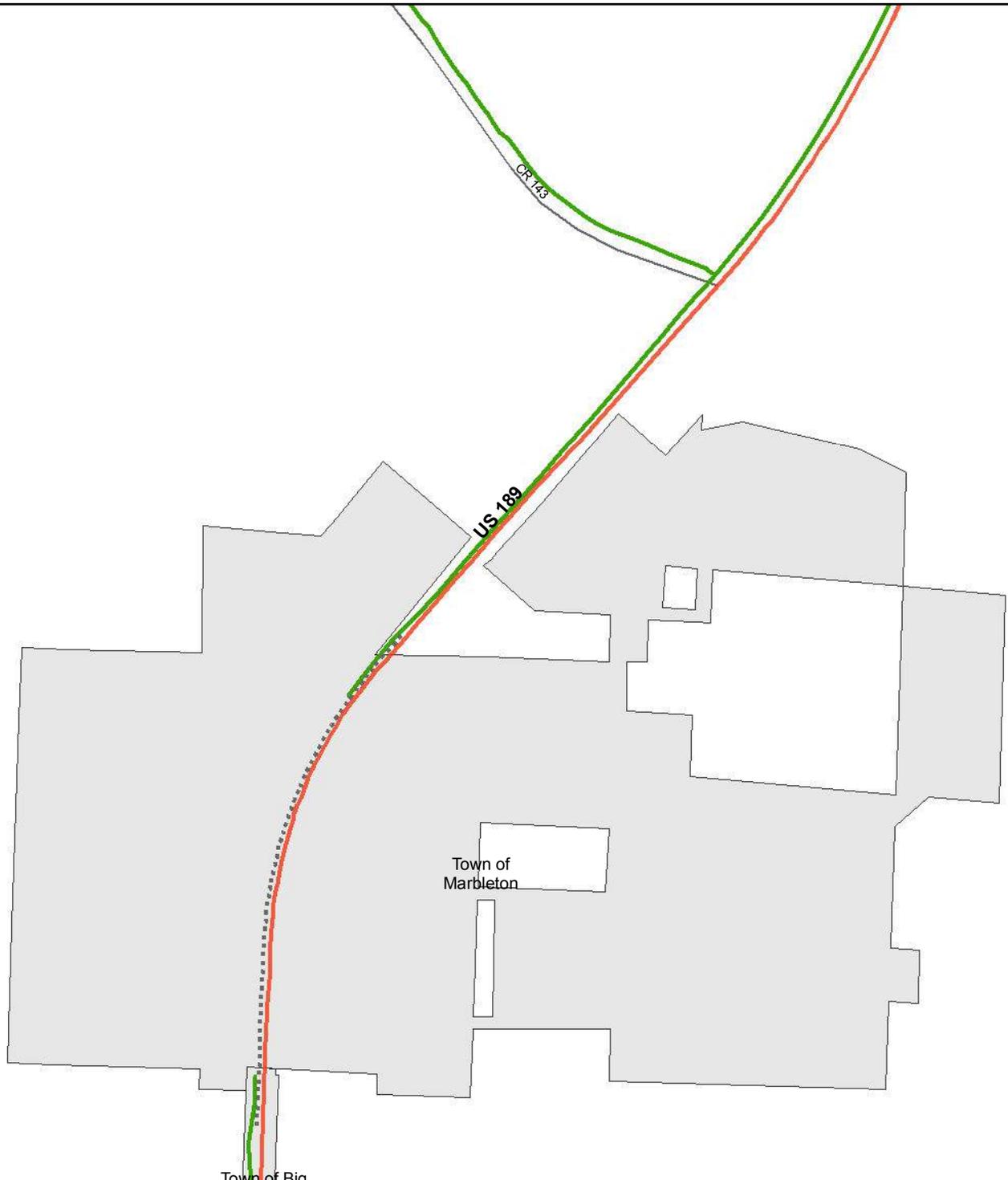
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Lyman



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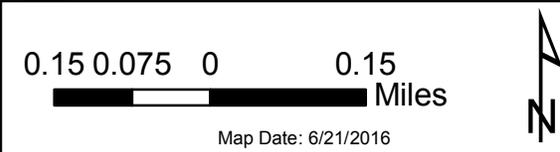


BikePaths

Path_Type

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- Shared Use Path
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Marbleton



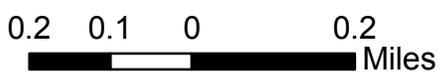
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- BikePaths**
- Path_Type**
- Future
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 - Shared Use Path
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 - WY_Municipal_Bndy
 - WY_Counties

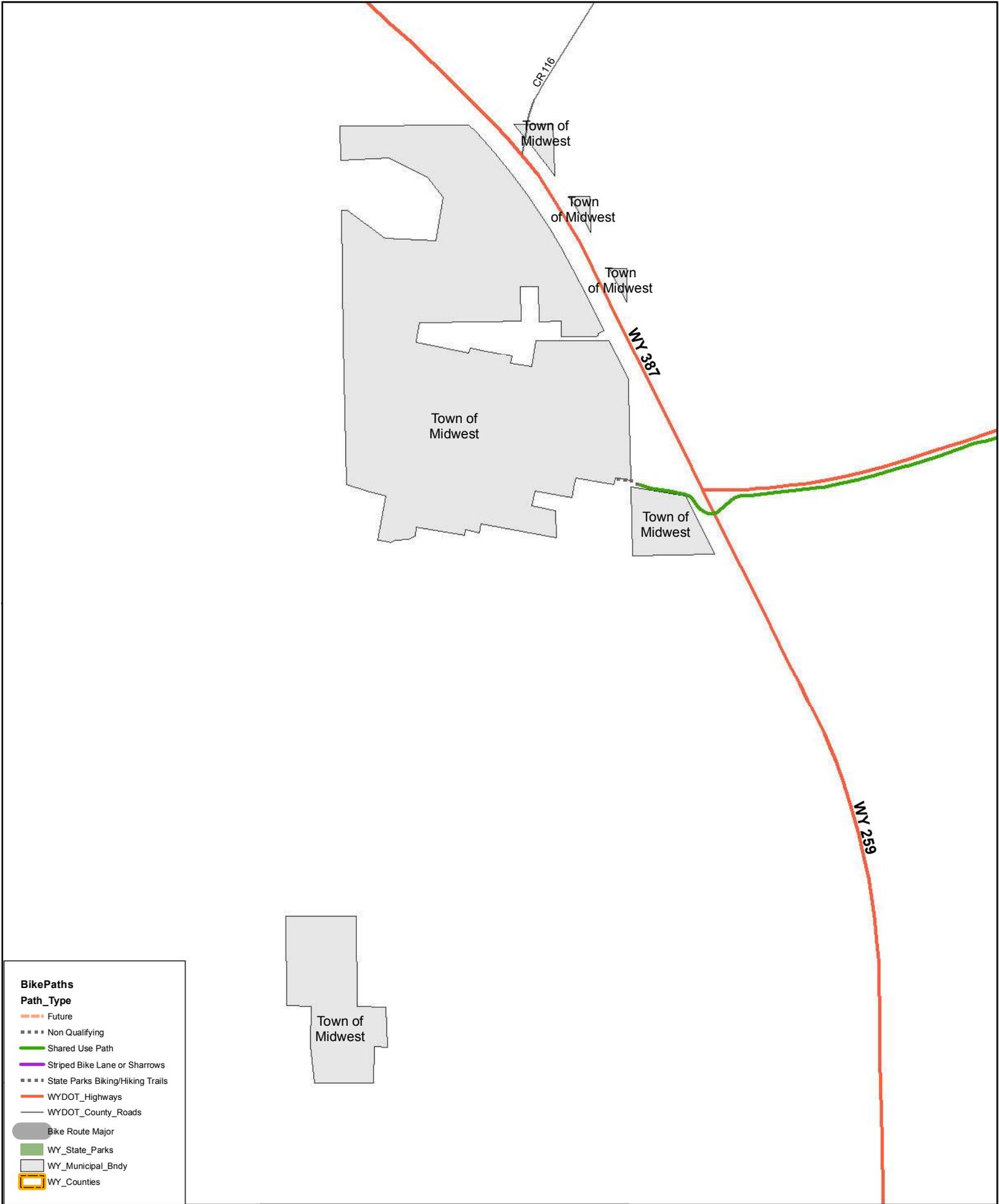
City Maps:
Town of Meeteetse



Map Date: 6/21/2016



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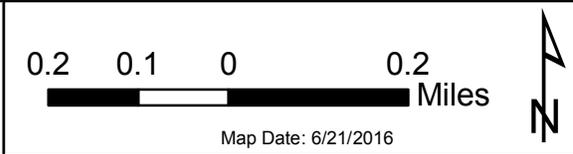


BikePaths

Path_Type

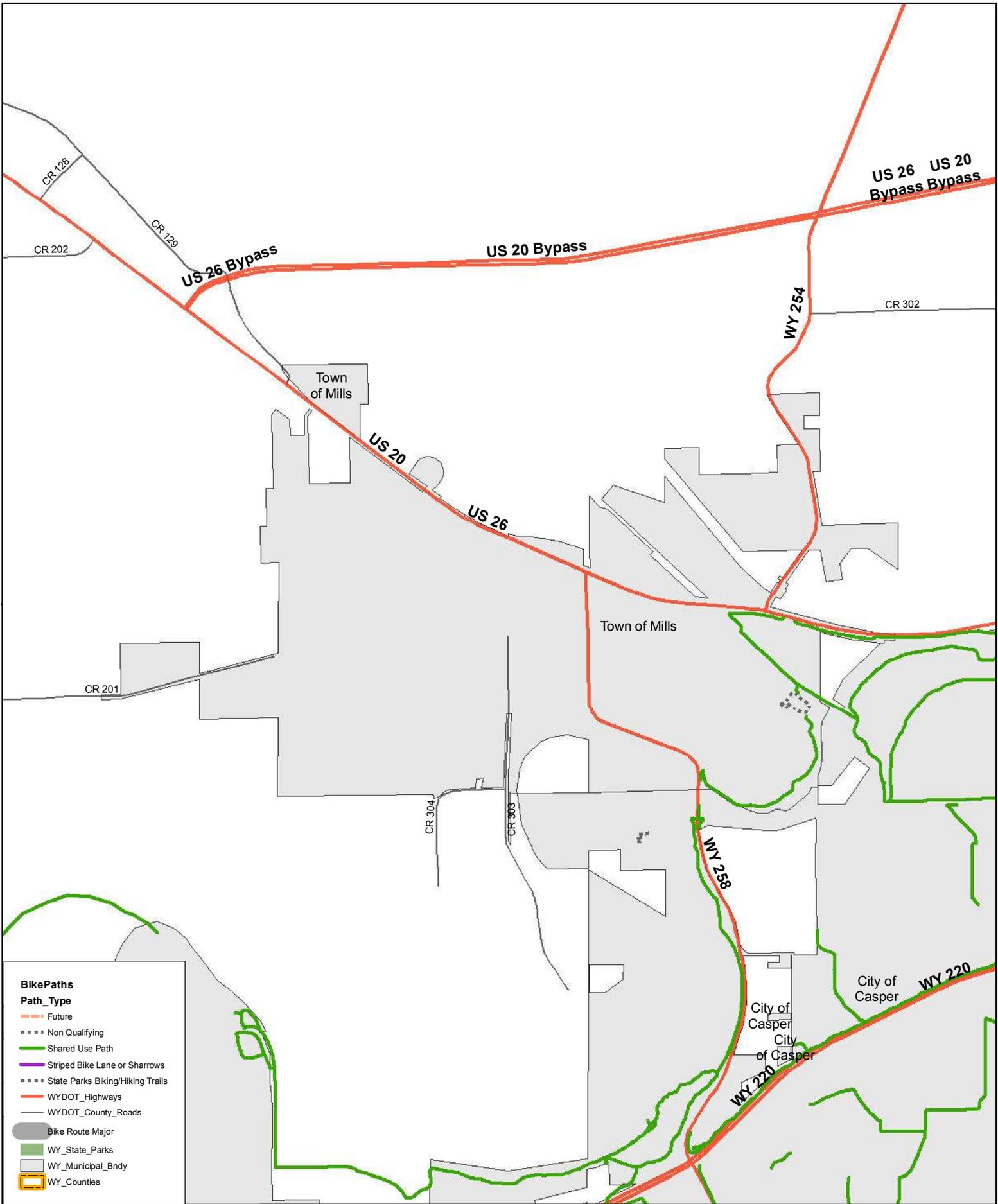
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Midwest



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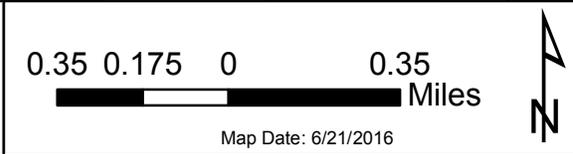


BikePaths

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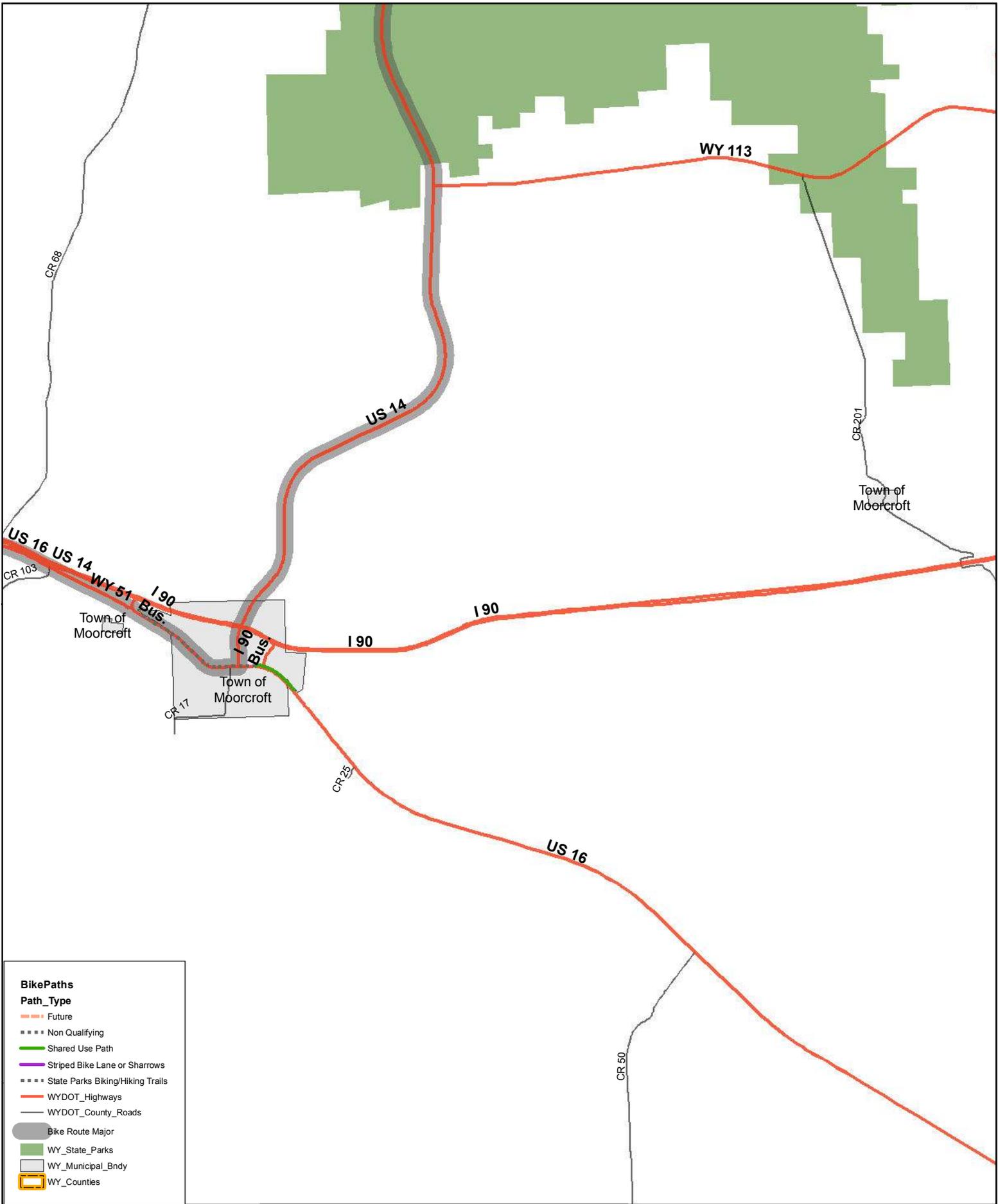
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- Shared Use Path
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- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Mills

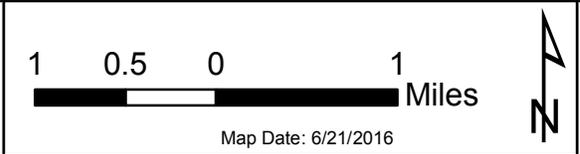


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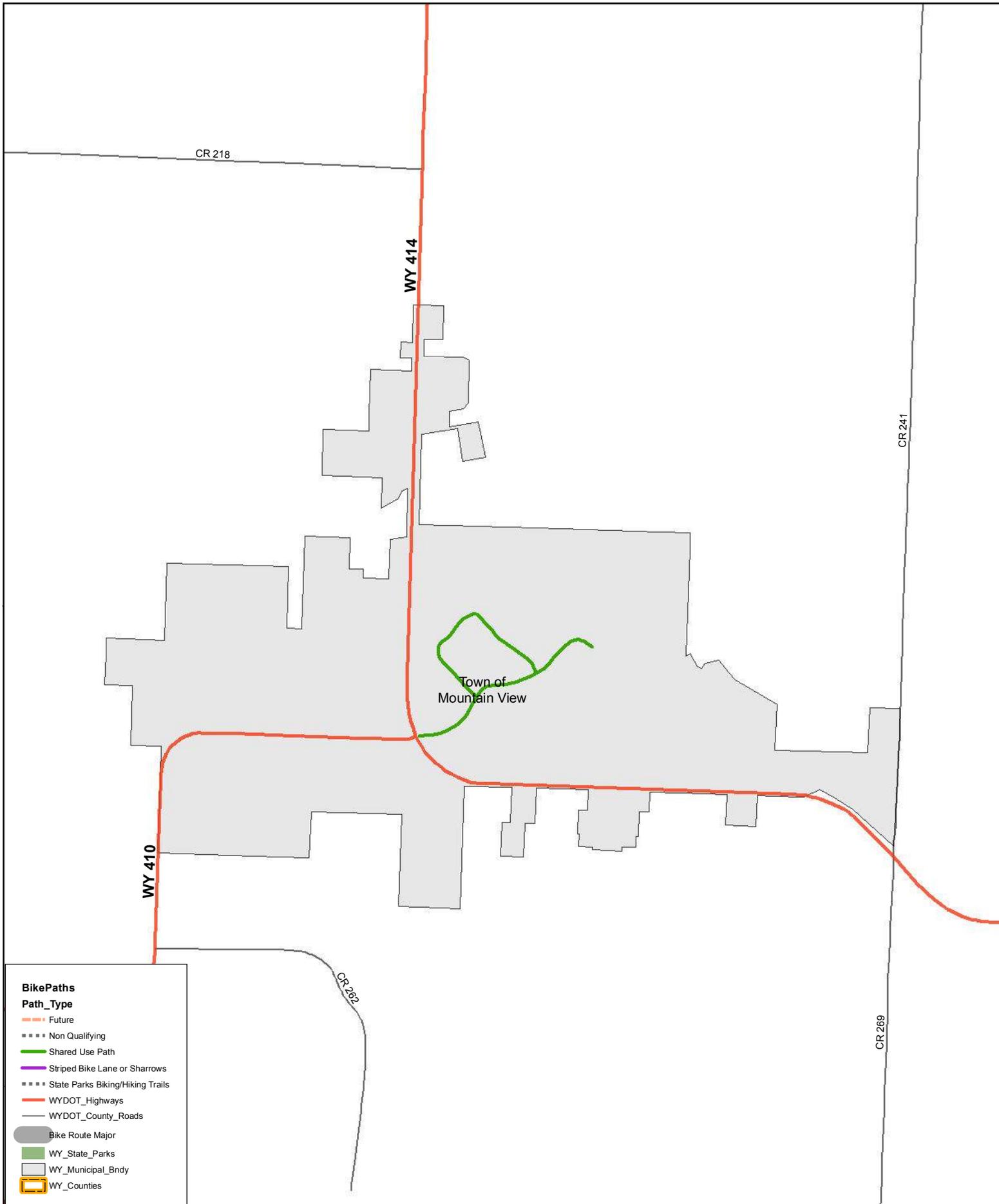


City Maps:
Town of Moorcroft



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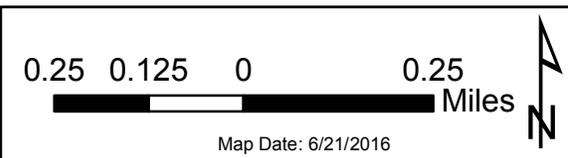


BikePaths

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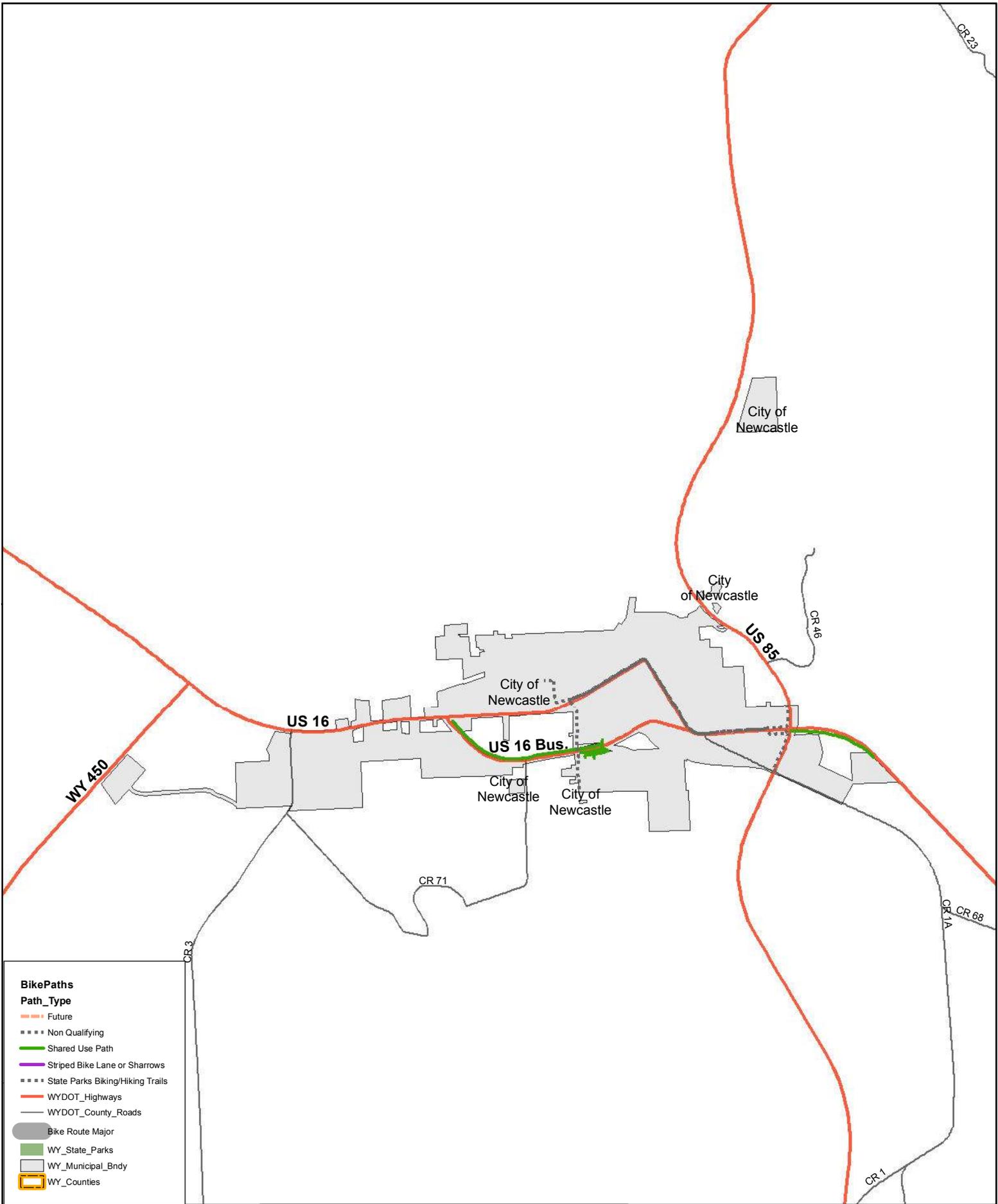
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- WYDOT_Highways
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- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Mountain View

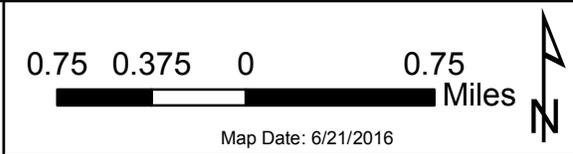


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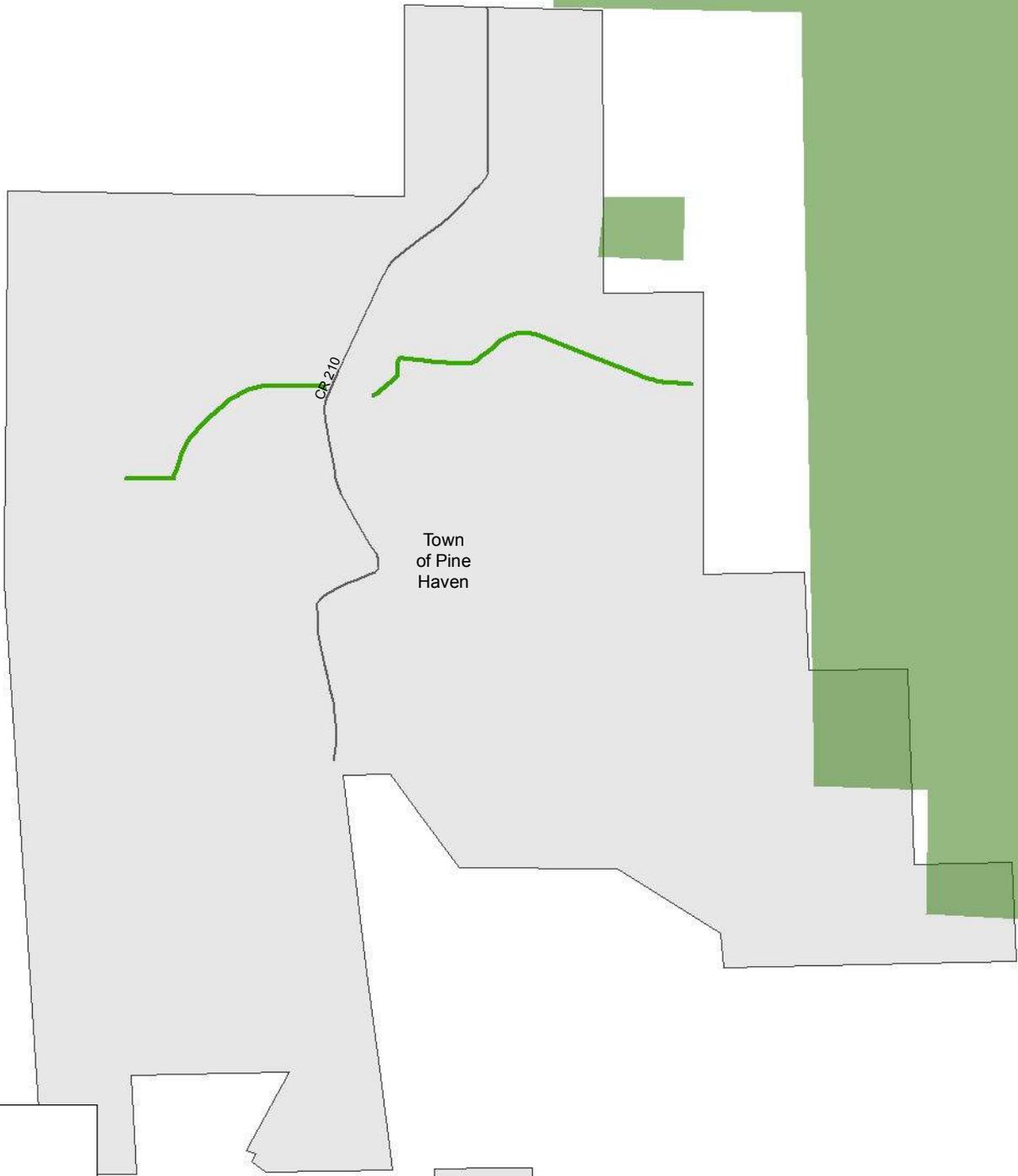


City Maps:
City of Newcastle



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Town of Pine Haven

Town of Pine Haven

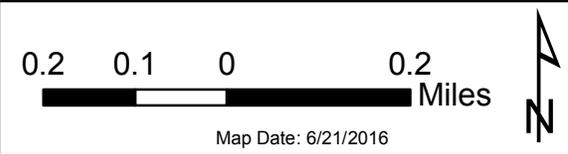
CR 210

BikePaths

Path_Type

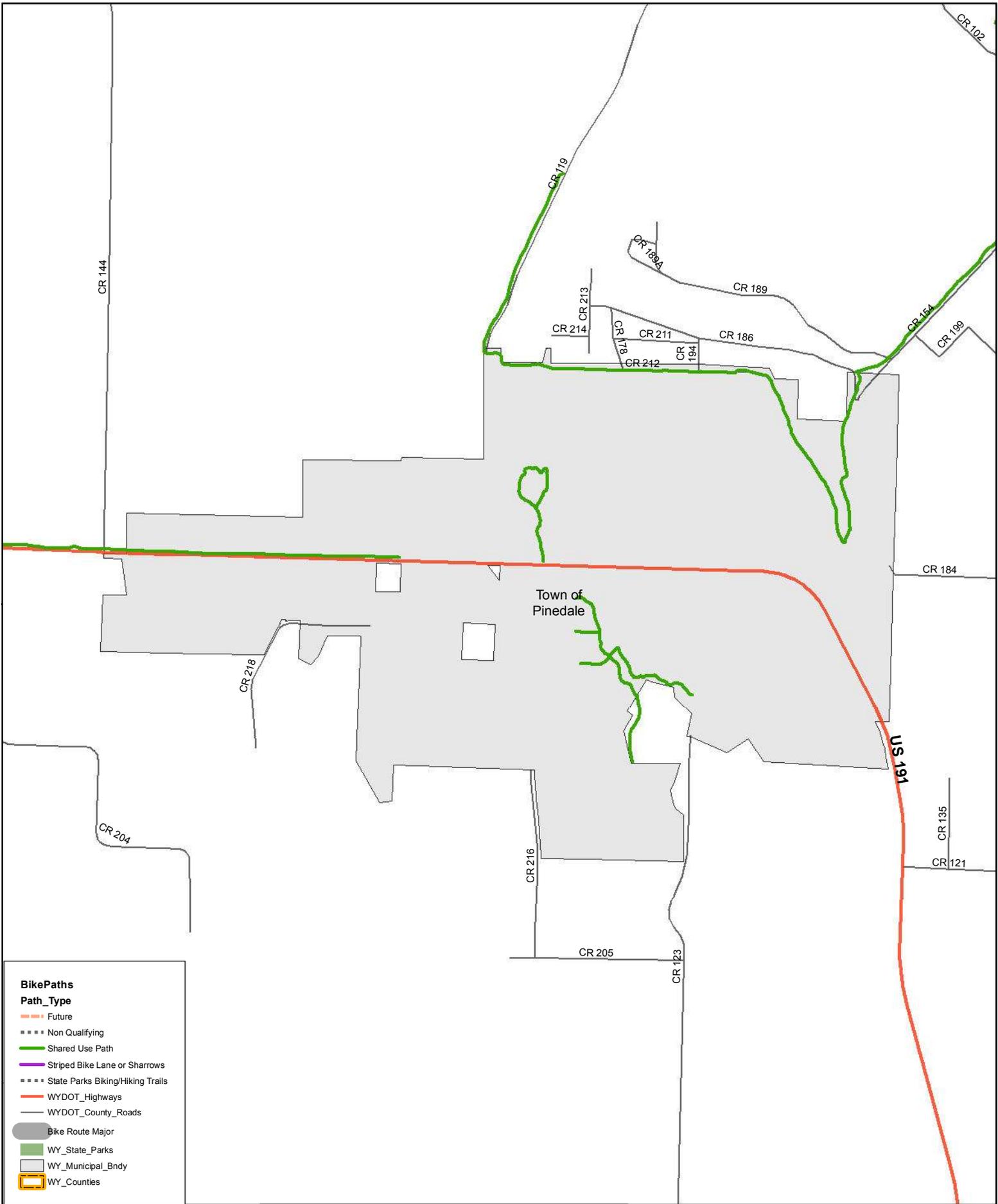
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Pine Haven

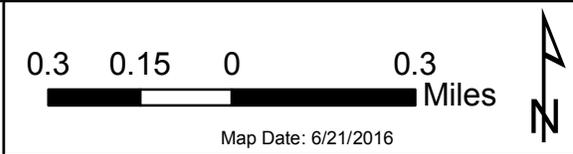


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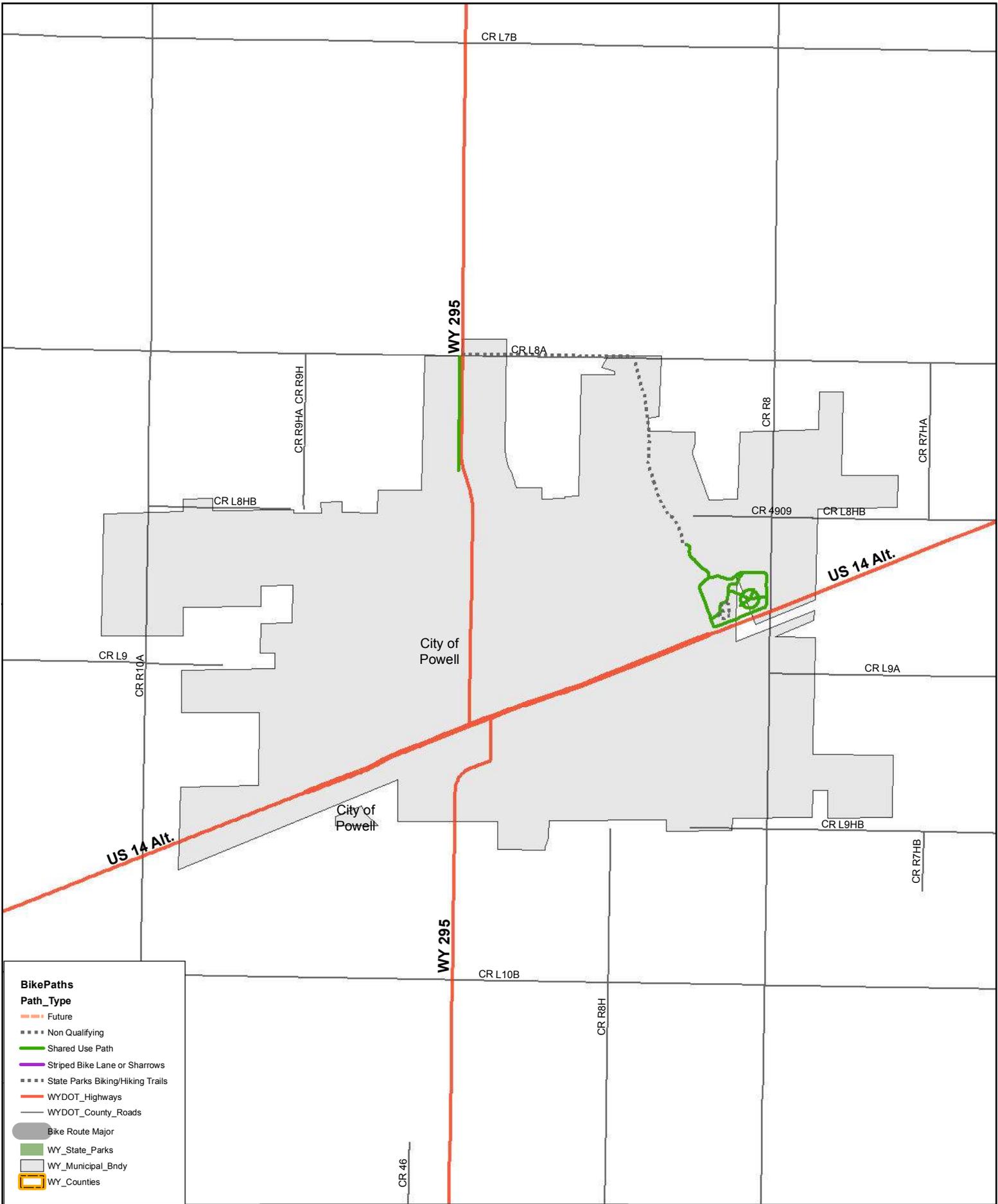


City Maps:
Town of Pinedale



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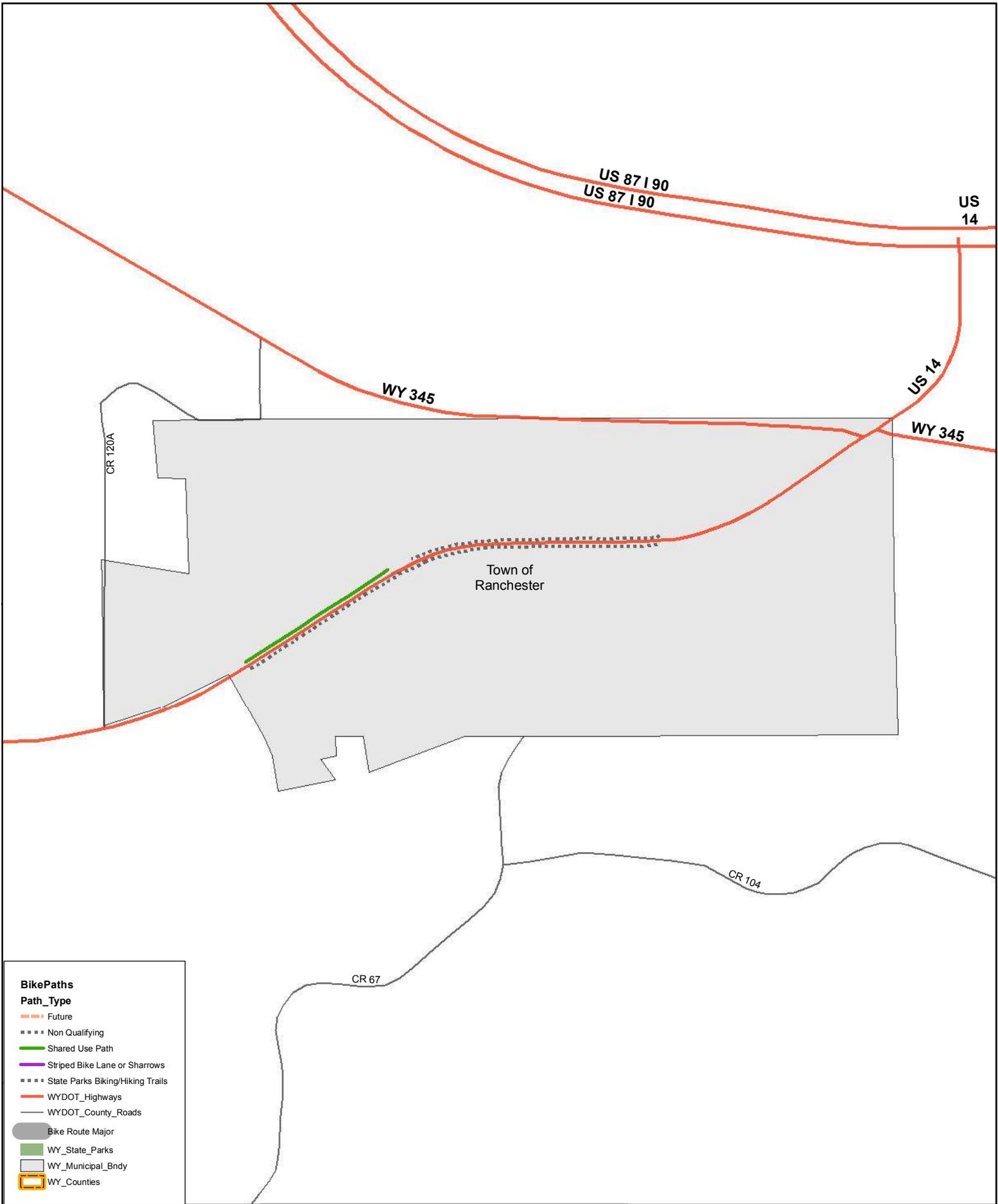
City Maps:
City of Powell



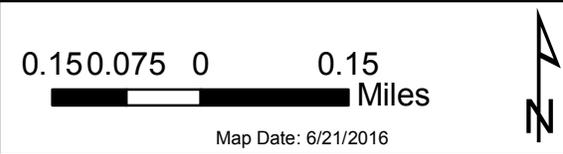
Map Date: 6/21/2016



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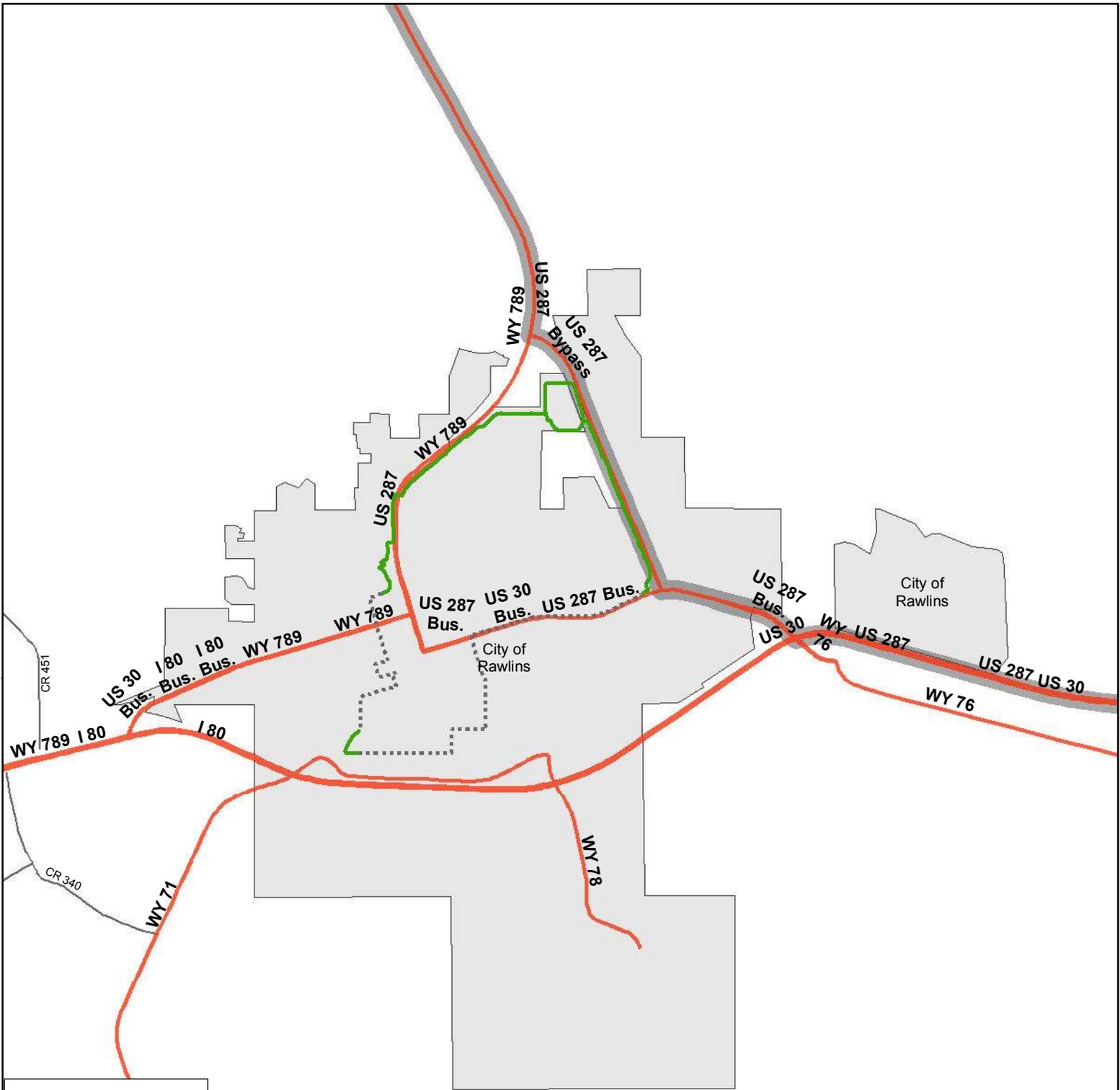


City Maps:
Town of Ranchester



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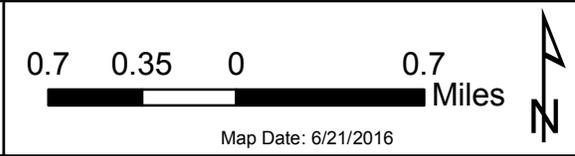


BikePaths

Path_Type

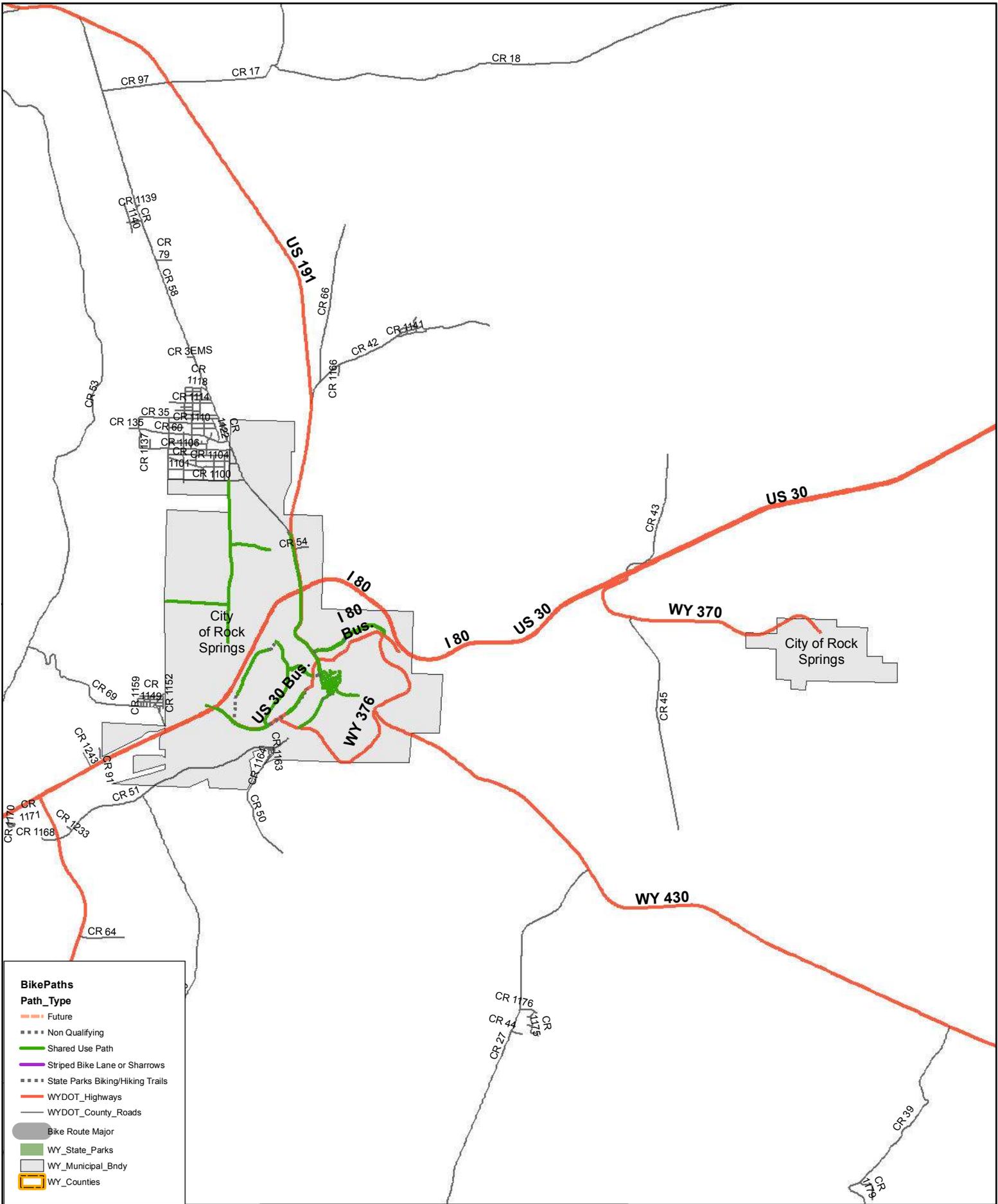
- Future
- Non Qualifying
- Shared Use Path
- Striped Bike Lane or Sharrows
- State Parks Biking/Hiking Trails
- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Rawlins



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City Maps:
City of Rock Springs



Map Date: 6/21/2016



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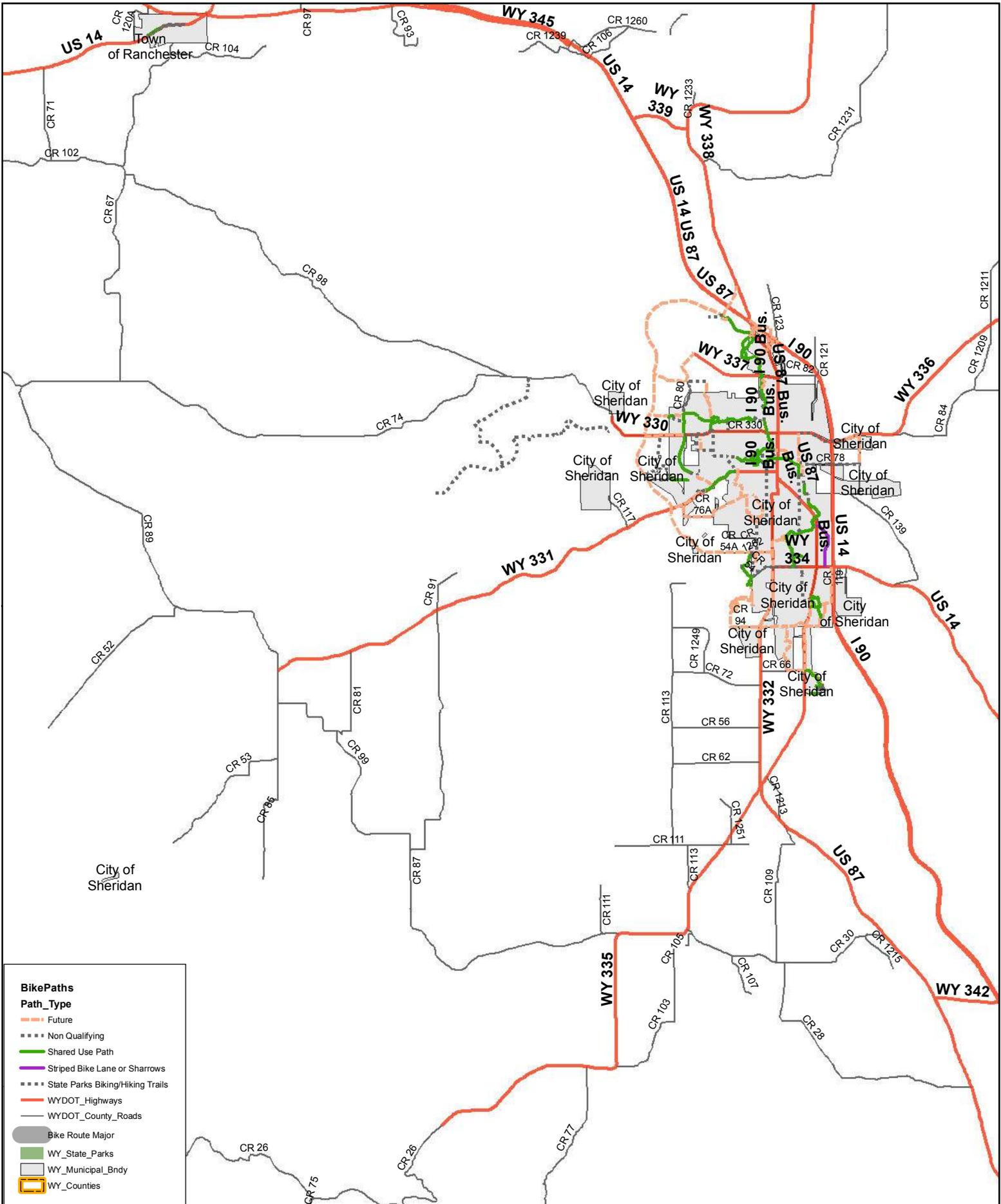
City Maps:
Town of Rolling Hills



Map Date: 6/21/2016



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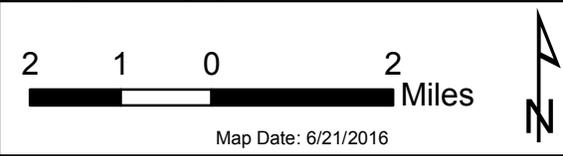


BikePaths

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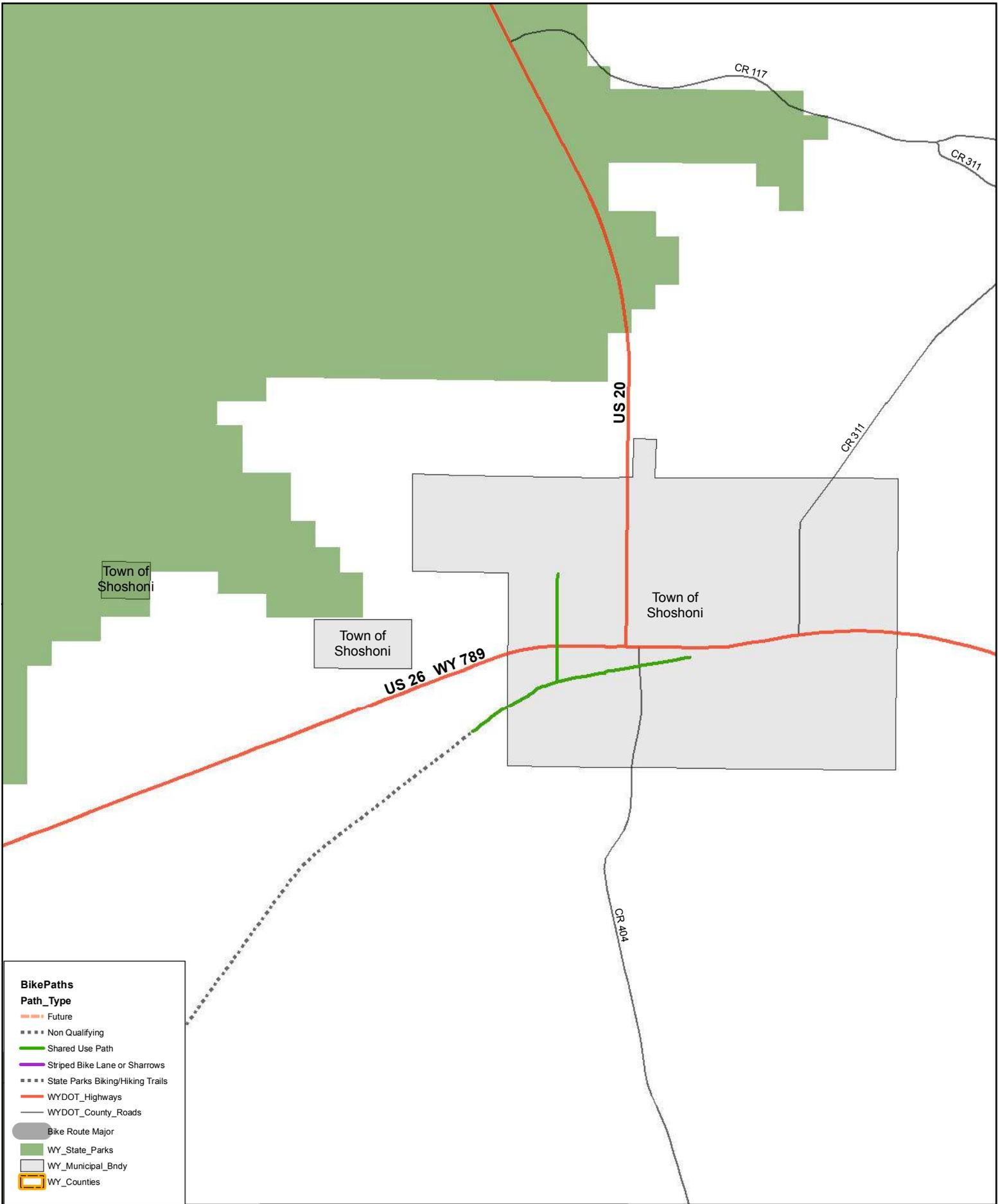
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- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
City of Sheridan

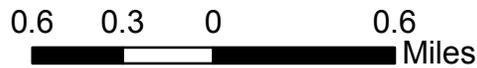


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City Maps:
Town of Shoshoni

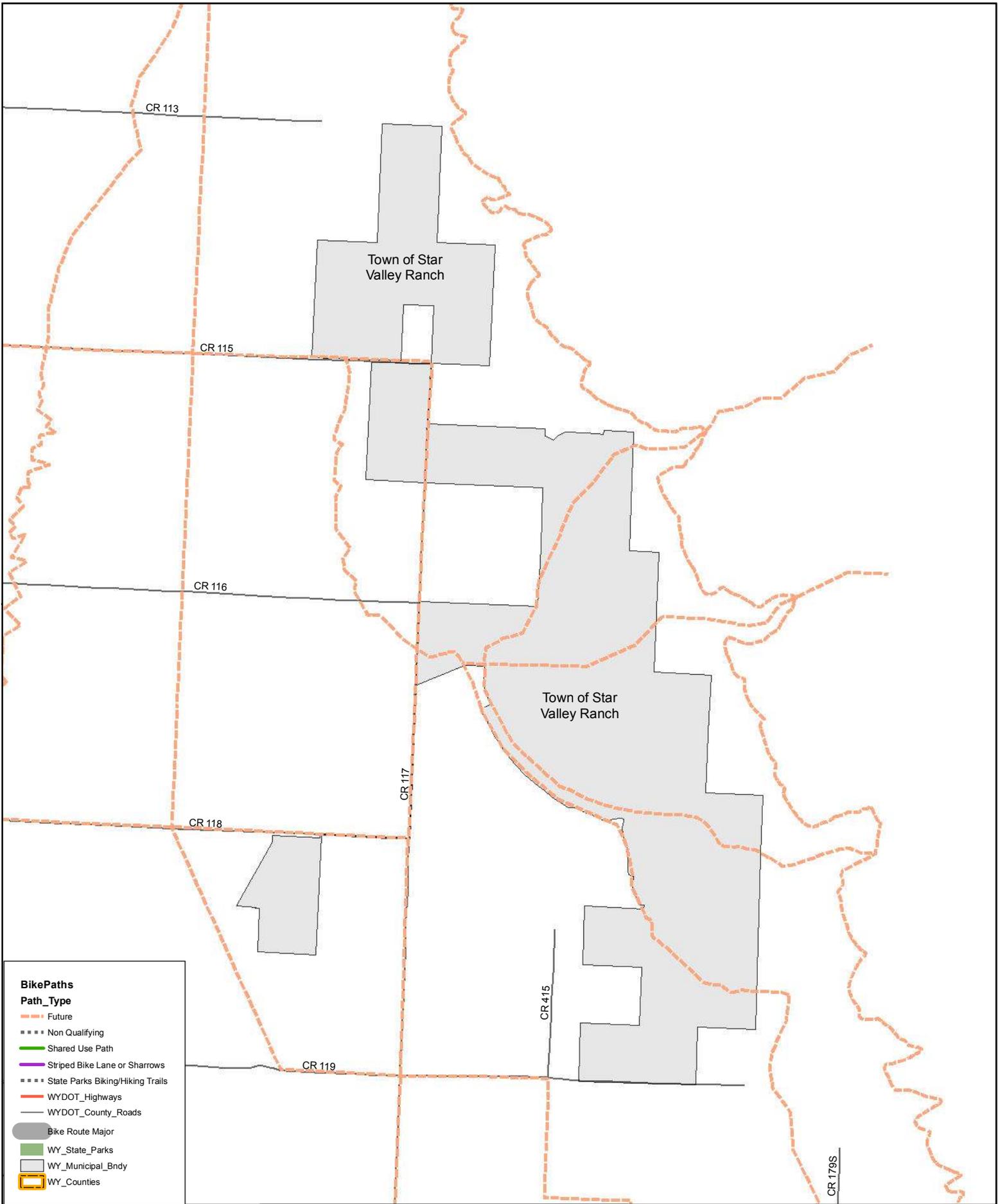


Map Date: 6/21/2016



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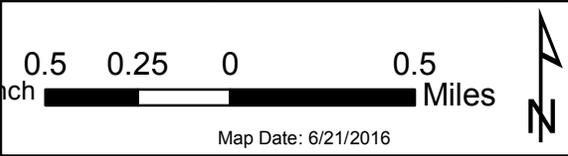


BikePaths

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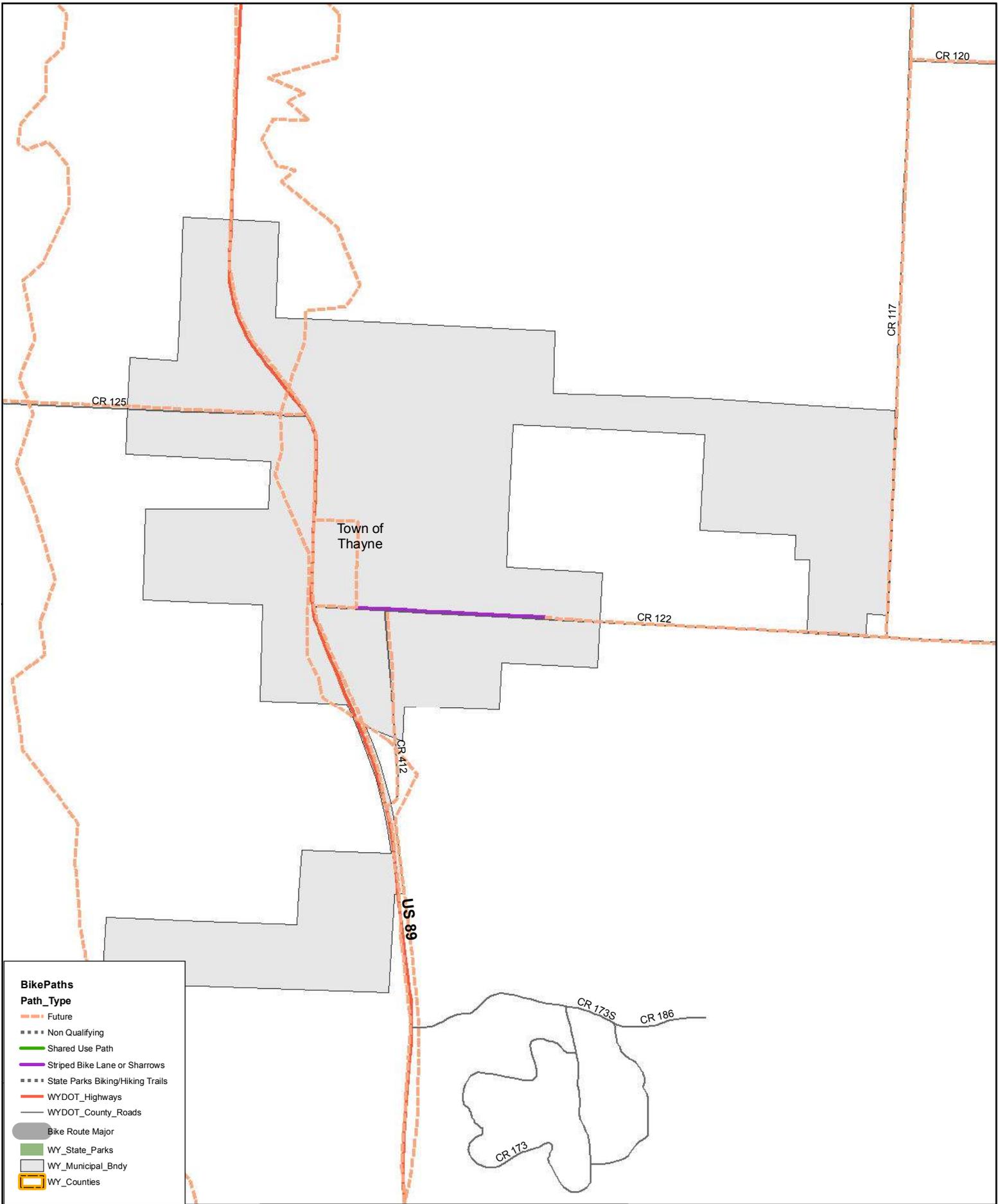
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- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Star Valley Ranch



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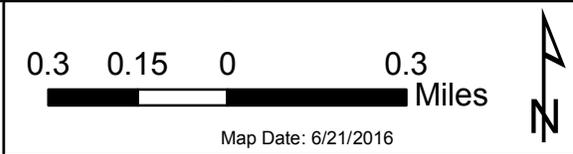


BikePaths

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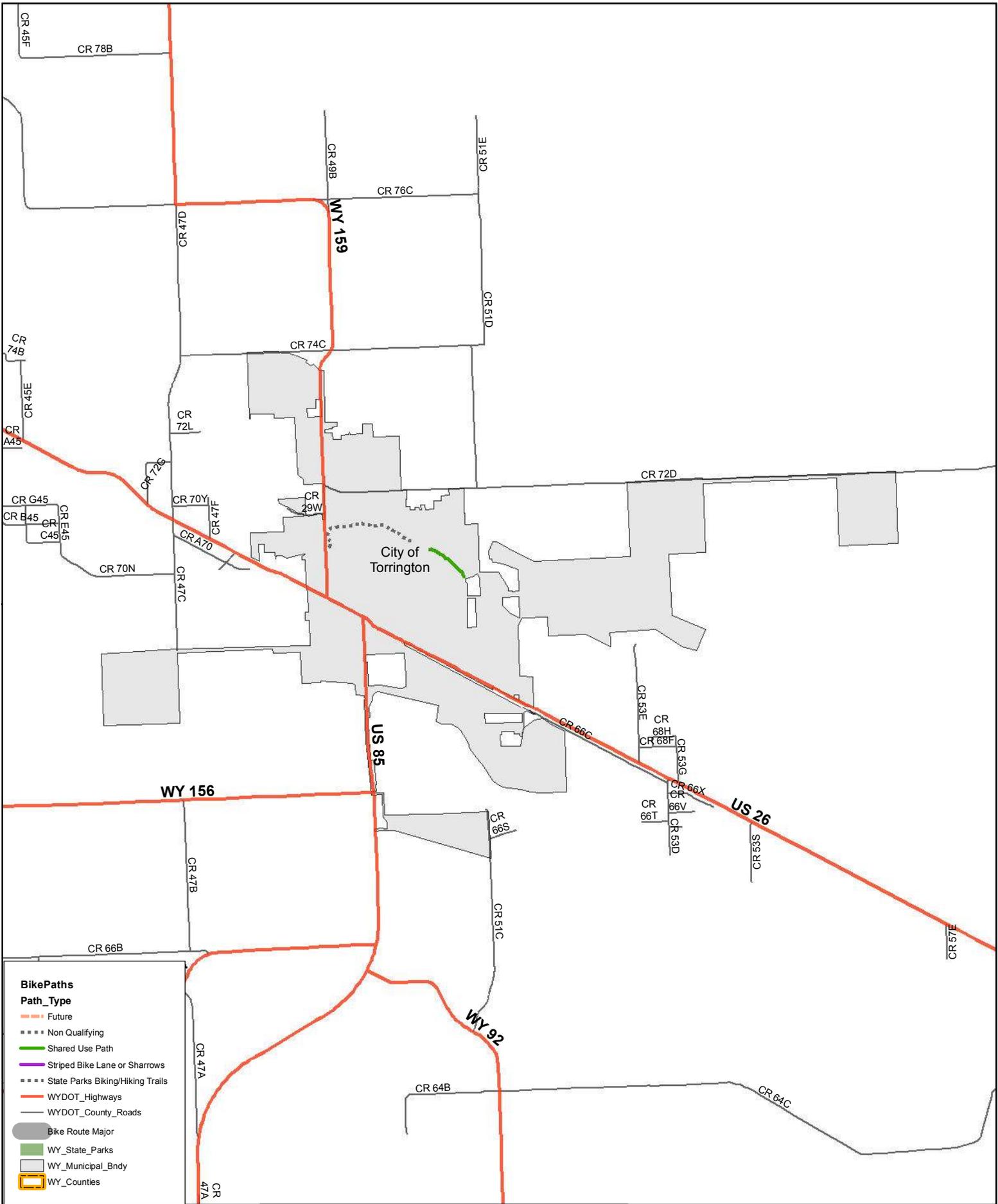
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City Maps:
Town of Thayne



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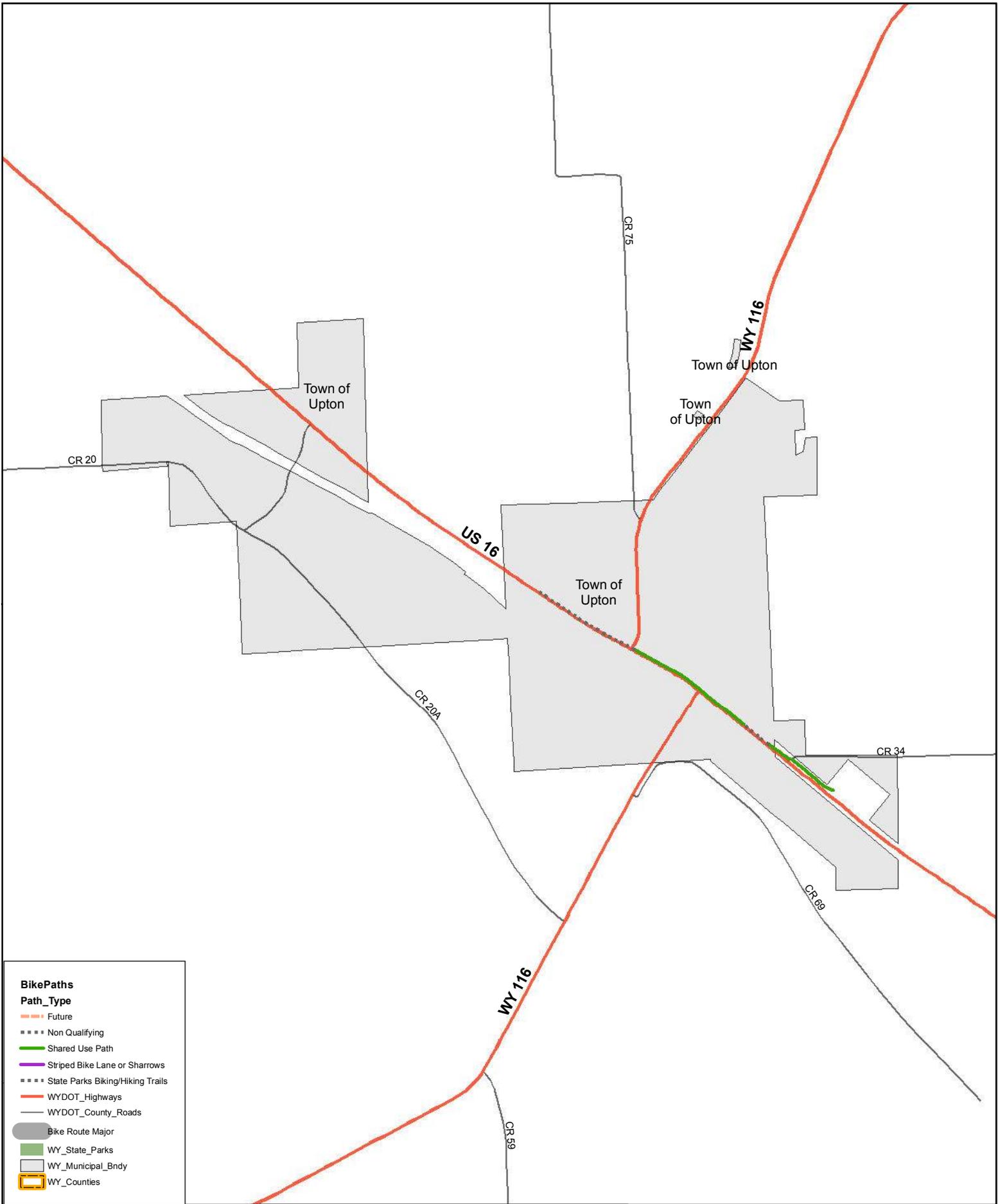
City Maps:
City of Torrington



Map Date: 6/21/2016



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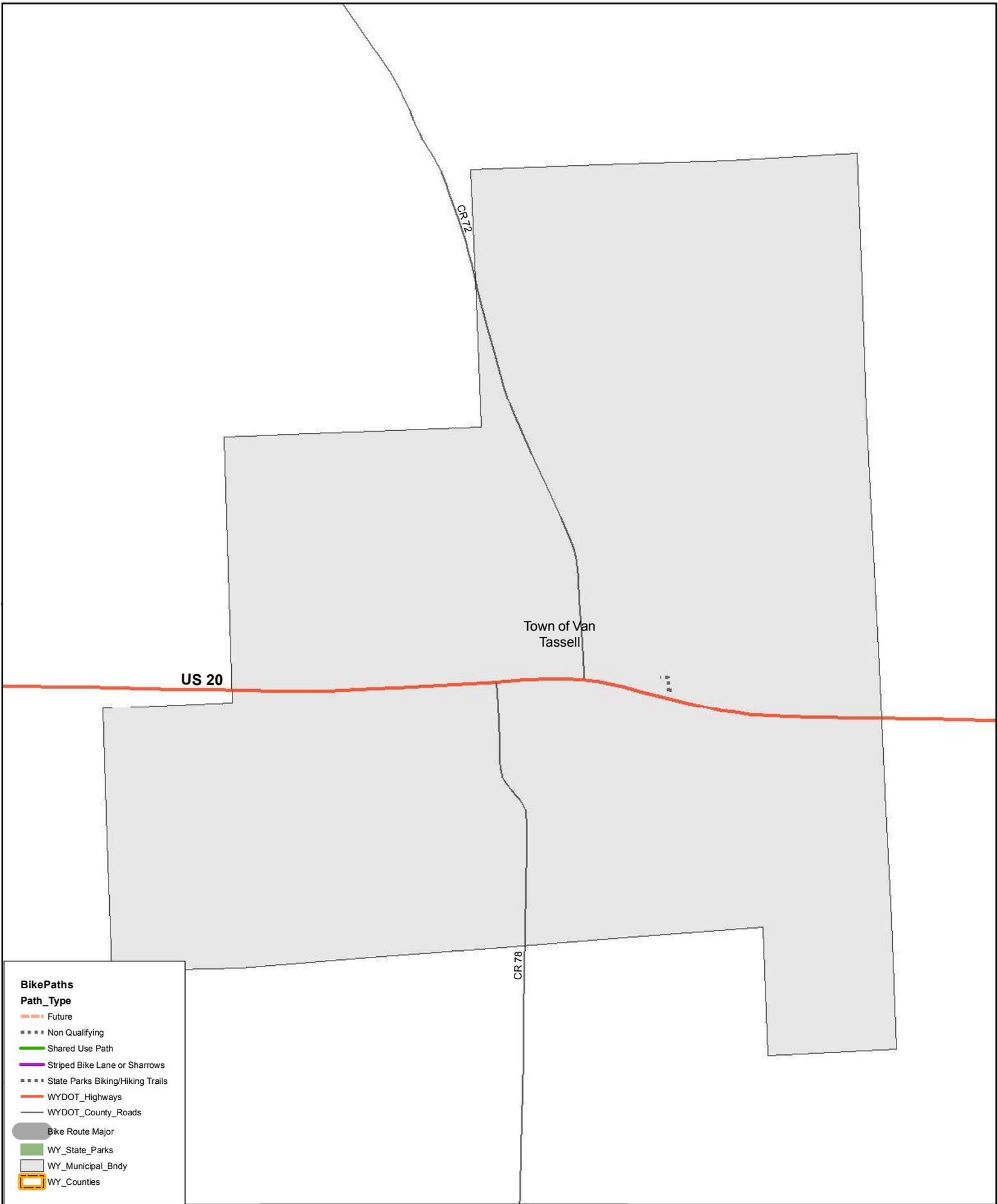
City Maps:
Town of Upton



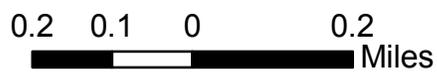
Map Date: 6/21/2016



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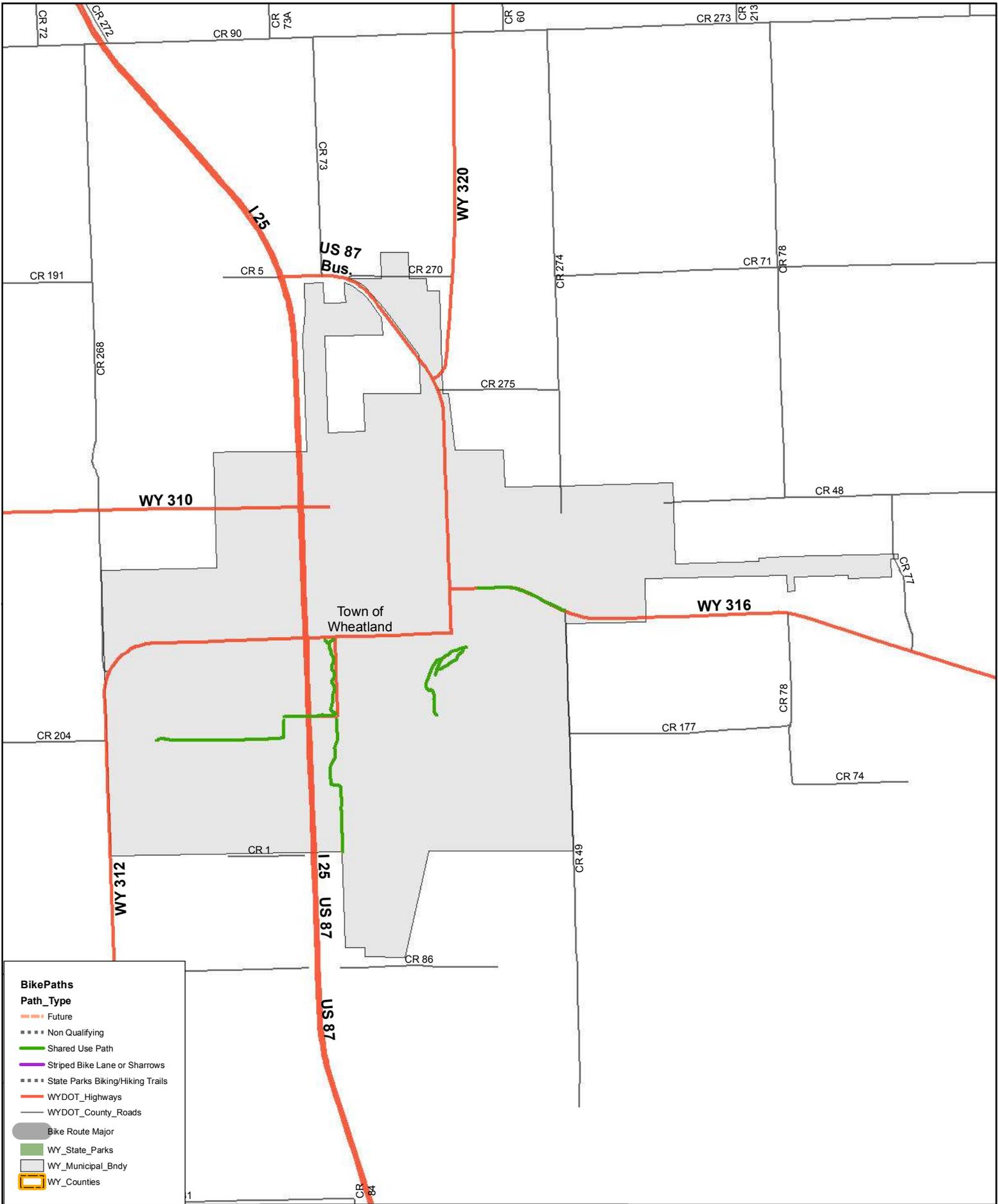
City Maps:
Town of Van Tassell



Map Date: 6/21/2016



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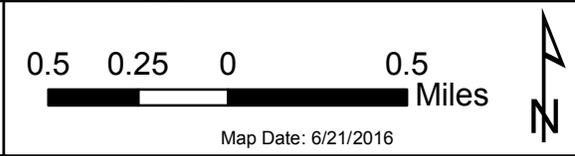


BikePaths

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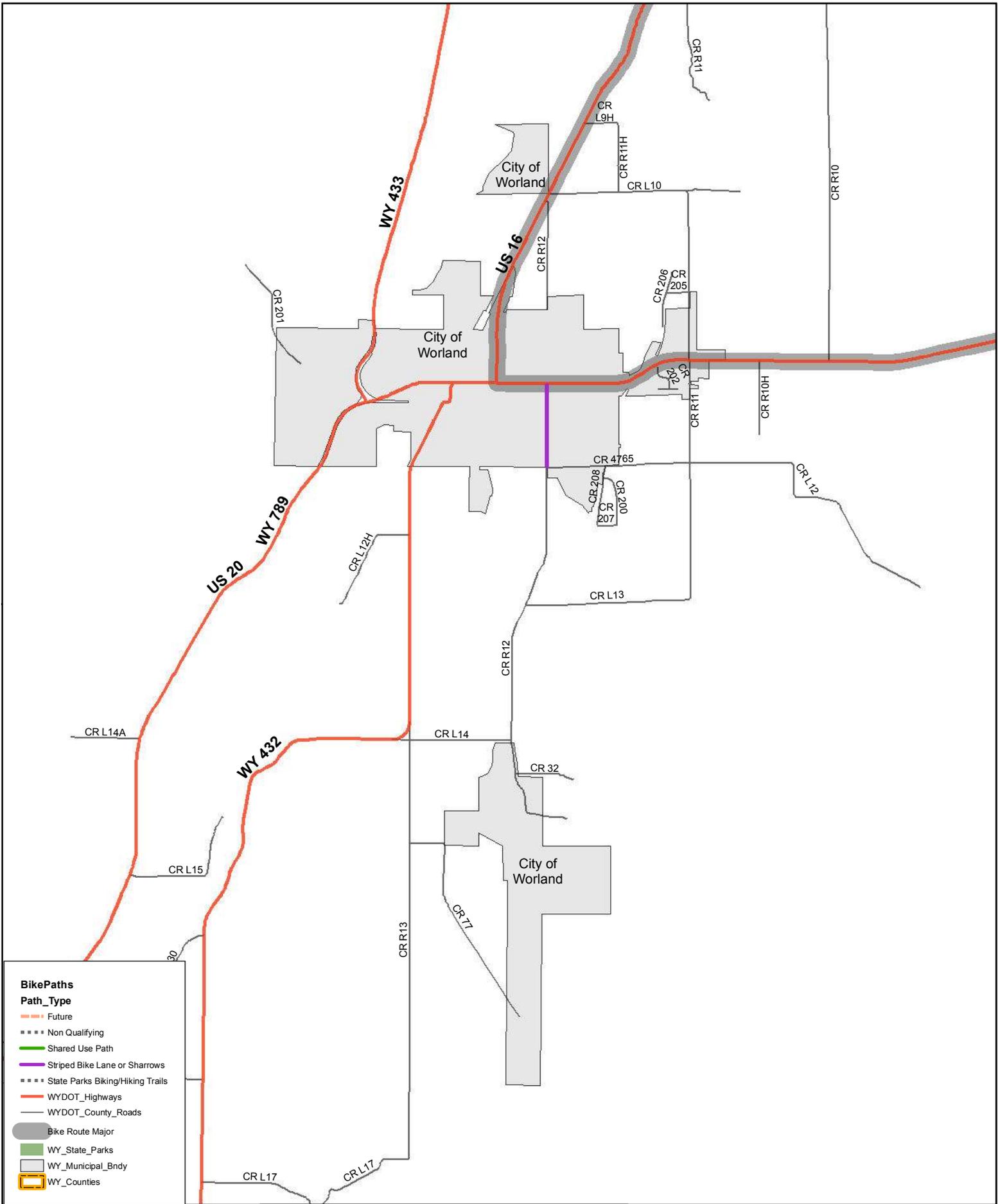
- Future
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Wheatland



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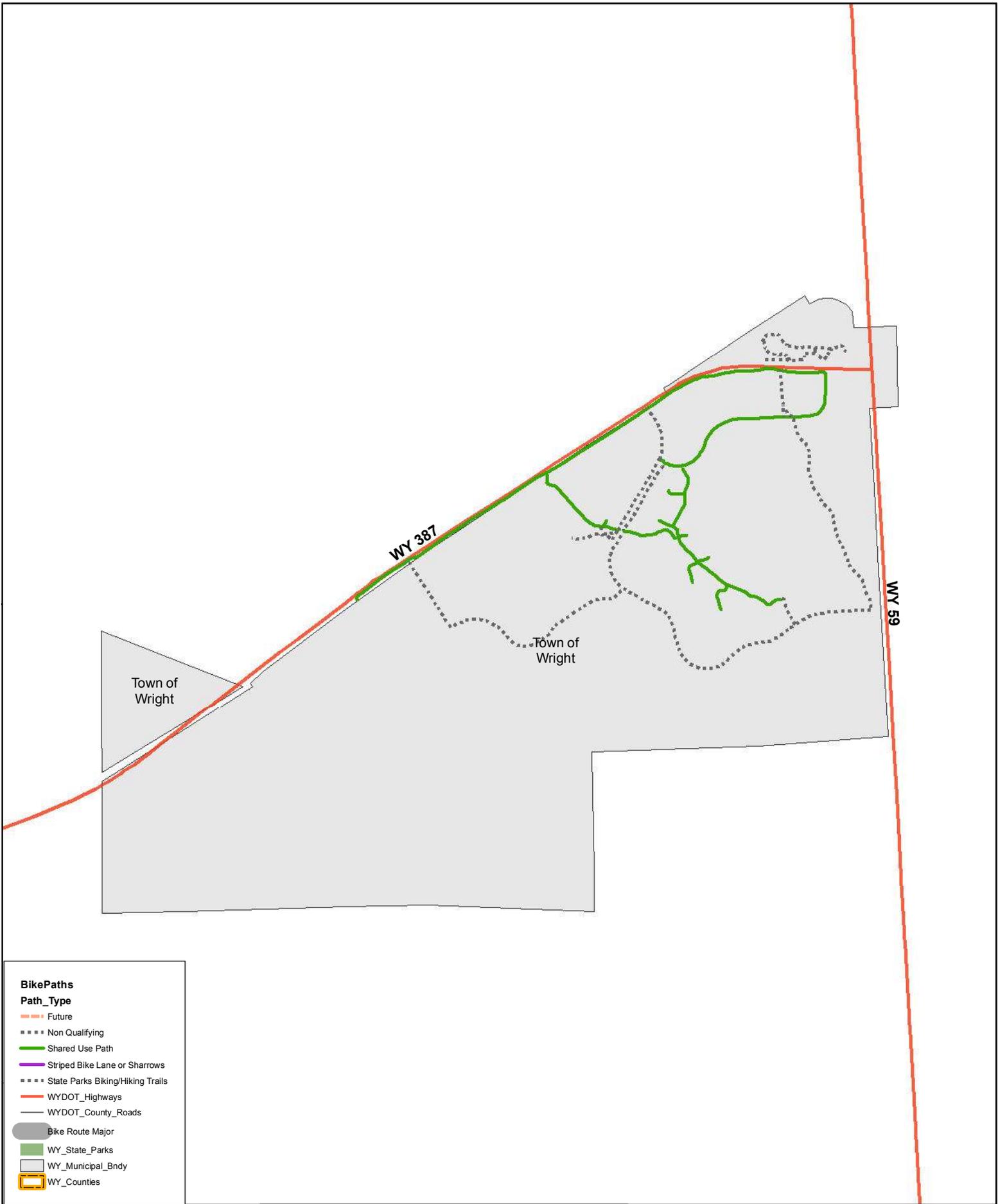
City Maps:
City of Worland



Map Date: 6/21/2016



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BikePaths

Path_Type

- Future
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- WYDOT_Highways
- WYDOT_County_Roads
- Bike Route Major
- WY_State_Parks
- WY_Municipal_Bndy
- WY_Counties

City Maps:
Town of Wright

0.35 0.175 0 0.35 Miles

Map Date: 6/21/2016

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Appendix E

Statewide Pathway Inventory Summary

Wyoming Bicycle and Pedestrian Transportation Plan

Ownership	Length Miles				Comments
	Shared Use Path	Bike Lane	Non-Qualifying*	Future	
Bar Nunn	0.50				
Basin	1.14				
Big Piney	7.84	3.89			
Buffalo	3.05	0.95	17.73		
Casper	69.60				
Cheyenne	49.90	10.23	48.90		
Chugwater	0.67				
Cody	2.06				
Cowley	1.20		0.21		
Douglas	4.06		0.09		
Edgerton	0.99		0.04		
Evanston	1.94		1.29		
Evansville	5.73				
Gillette	64.83	4.85			
Glenrock	1.80				
Green River	10.66	0.63			
Greybull	2.22				
Guernsey	1.35				
Hulett			0.63		
Jackson - Teton County	57.77	8.73		22.48	
Kemmerer	1.01				
LaBarge	2.12		0.77		
LaGrange	0.61				
Lander	1.46		0.21		
Laramie	16.10	21.34			
Lincoln County	2.71	0.49		587.17	
Lusk	1.01				
Lyman	2.95				
Marbleton			0.64		
Mills	0.38				
Moorcroft	0.41		1.12		
Mountain View	0.85				
MTB Project			7.72		
Newcastle	1.99		4.69		
Pine Haven	0.78				
Pinedale	10.18	2.05			
Powell	1.74		1.33		
Railroad Trail			40.14		Rails to Trails
Ranchester	0.27		1.09		
Rawlins	3.61		3.31		
Riverton	14.52	0.74	0.92		
Rock Springs	18.95		1.82		

Wyoming Bicycle and Pedestrian Transportation Plan

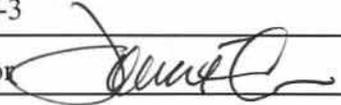
Ownership	Length Miles				Comments
	Shared Use Path	Bike Lane	Non-Qualifying*	Future	
Roling Hills	0.96				
Sheridan	14.68	0.79	15.46	30.25	
Sheridan Community LT			6.47		Land Trust
Shoshonie	1.77				
The Bikemill			75.03		
Torington	0.31		0.74		
Upton	0.81		0.55		
Van Tassell			0.05		
Wheatland	2.93				
Worland		1.20			
Wright	3.85		4.56		
WYDOT	0.46				Meeteetse
TOTALS	394.73	55.89	235.51	639.90	

* Number of non-qualifying paths that were included in the inventory if reported, but complete data on this type was not solicited.

Appendix F

Relevant WYDOT Operating Policies

<u>Policy Number</u>	<u>Subject</u>	<u>Issued</u>
Operating Policy 7-3	Shoulder Rumble Strips	5/7/07
Operating Policy 7-4	Bicycle Accommodation and Multiple-Use Transportation Facilities	9/10/10
Operating Policy 25-3	Pedestrian Facilities	5/17/99
Operating Policy 25-5	Road Closures For Special Events	4/10/98
Operating Policy 40-2	Construction Agreements and Maintenance Responsibilities with Cities and Towns for Streets on the State Highway System	11/1/10

WYOMING DEPARTMENT OF TRANSPORTATION		OPERATING POLICY
ISSUED: May 7, 2007	POLICY NUMBER: 7-3	
	AUTHORITY: Director 	

SUBJECT: Shoulder Rumble Strips

To improve intermodal transportation, the Wyoming Department of Transportation (WYDOT) adopts this shoulder rumble strip policy. The goal of this policy is to enhance motor vehicle safety along Wyoming's highways while accommodating bicycle travel to the highest practical extent.

I. General Recommendations:

- A. Rumble strips will conform to the latest standard plan for milled rumble strips. WYDOT's rumble strip designs will be evaluated regularly against other designs having different width, depth, or patterns. It is important to provide rumble strips that are as easy as possible for bicyclists and other users of the system to negotiate while still maintaining or improving effectiveness at warning motorists of impending dangers, except for conditions described in following Section II subsection B.
- B. When rumble strips are present, all future chip seal work will be limited to the traveled way plus no greater than one foot of shoulder.
- C. Rumble strips will not be placed at locations where major surfacing work is anticipated within the next three years.
- D. When used with roads having shoulders two to four feet wide, rumble strips will be placed to protect the structural integrity of these narrow shoulders as allowed in Section II B of this policy.
- E. When a project is resurfaced, the shoulder paint stripe will be moved to the edge of the designed traveled way. The rumble strips will be placed according to standard plans to maximize the warning time for motorists and provide additional shoulder width for bicyclists.
- F. Funds for statewide rumble strip projects will be programmed into the State Transportation Improvement Program (STIP). Specific locations will be determined by the Safety Management System Committee in consultation with the district engineers and the state bicycle coordinator.

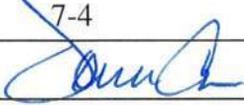
II. Specific Recommendations:

- A. Interstate roadways:
 - Rumble strips will be milled into both the inside and outside shoulders of all existing rural interstate highways.

- All future highway sections will include WYDOT's standard rumble strips. It may be more cost effective to combine this work into a large statewide contract as opposed to using individual projects.
- Within urban limits, rumble strips will be installed on the inside shoulder only.

B. Two-way and divided (noninterstate) roadways (two or more lanes):

- Rumble strips will be milled into rural highway sections having paved shoulder widths six feet and greater as deemed appropriate by the Safety Management Committee in consultation with the district engineer and the bicycle coordinator. The decision about whether to install rumble strips will take into account crash statistics, bicycle use, pavement condition, and future pending surface work for the section. On shoulders of at least six feet, rumble strips will be installed so that a minimum of four feet of clear space is available for bicyclists outside the rumble strips.
- Rumble strips may be installed at locations with shoulder widths of less than six feet if determined necessary by the Safety Management System Committee in consultation with the district engineer and the bicycle coordinator. The decision about whether to install rumble strips will take into account crash statistics, bicycle use, pavement condition, and future pending surface work for the section. On shoulders of less than six feet, an alternative rumble strip design may be used to balance the needs of motorists and bicyclists.
- Rumble strips will not be installed on highways with a shoulder width of less than two feet.
- Rumble strips will not be installed within urban limits, in developed suburban areas, where posted speed limits are 45 mph or less, or when roads include a curb and gutter cross section.

WYOMING DEPARTMENT OF TRANSPORTATION		OPERATING POLICY
ISSUED: September 10, 2010	POLICY NUMBER:	7-4
	AUTHORITY: Director	

SUBJECT: Bicycle Accommodation and Multiple-Use Transportation Facilities

General: The Wyoming Department of Transportation (WYDOT) will accommodate bicycle and pedestrian transportation to the highest practical extent as components of the state's intermodal transportation system. The Department will consider appropriate facilities for bicyclists and pedestrians on all federal-aid and state-funded highway construction, reconstruction, or rehabilitation projects.

I. General Recommendations

A. Rural Highways

Highway shoulders are generally considered the most effective means of accommodating bicyclists on rural highways. Bicycle transportation on rural highways will usually be accommodated by providing adequate clear shoulders according to American Association of State Highway and Transportation Officials (AASHTO) standards or WYDOT Operating Policy 7-1, Design Standards and Tolerable Controls; Operating Policy 7-2, Shoulders for State-Funded Surface Rehabilitation Projects on the Non-Interstate, National Highway System (NHS); and Operating Policy 7-3, Shoulder Rumble Strips.

Whenever a two-way road section is reconstructed along specifically **designated bicycle routes** or other **high bicycle-use areas**, as defined in the State Bicycle and Pedestrian Transportation Plan, shoulder width should be eight feet or greater. A minimum shoulder width at these locations will be not less than six feet.

B. Urban State Highways

Wide curb lanes are preferred to accommodate bicycle transportation on state highways in urban areas and incorporated communities. Striped bicycle lanes may be considered in special cases where parking use is substantial and turnover is high. Local bicycle and pedestrian transportation plans, the State Bicycle and Pedestrian Transportation Plan, and the bicycle and pedestrian coordinator should be consulted in identifying the proper facility type to accommodate bicyclists in urban settings.

C. Pathways

Multiple-use pathways may be considered in urban or developed areas where they may serve transportation needs for bicyclists and pedestrians and where the

pathway can be physically separated from nearby roadways. Separated pathways are most appropriate when they can follow a separate alignment such as a waterway or abandoned rail corridor. This type of facility is generally not recommended if the number of roadway or approach crossings is significant.

When a pathway crosses an arterial or major collector street, the proper crossing design should be selected. Pathway crossing designs may range from signs and pavement markings to separated-grade facilities. Factors to consider in selecting an appropriate design treatment include but need not be limited to the following:

1. Current and future motor vehicle traffic volumes.
2. The average speed of motor vehicle traffic.
3. Current and future non-motorized traffic volumes.
4. The types of non-motorized traffic (the number of children, elderly, disabled, and so forth) using the crossing.
5. The amount of added out-of-direction travel for pedestrians and bicyclists required for a separated-grade facility.
6. The cost of the proposed structure.
7. The construction feasibility for the structure.
8. The traffic operations impact of the design treatment.

II. Design Standards for Non-motorized Facilities

Bicycle transportation facilities—including wide curb lanes, bicycle lanes, and multiple-use pathways—should be designed in accordance with the *Guide for the Development of Bicycle Facilities*, 1999, published by AASHTO.

III. Maintenance of Non-motorized Facilities

A. Rural Highway Shoulders

Subject to personnel and equipment availability, excessive accumulations of debris should be swept from rural highway shoulders at the end of the winter season on **high bicycle use areas** (listed in the State Bicycle and Pedestrian Transportation Plan). Second priority should be given to designated **statewide bicycle routes** (also listed in the State Bicycle and Pedestrian Transportation Plan). Depending on the availability of personnel and equipment, excessive accumulations of debris should be removed from routes used by bicyclists during the normal bicycle season (May through October).

B. Urban Streets

Municipalities are encouraged to keep streets reasonably clear of debris for bicyclist safety. Cities and towns with populations under 1,500 may request assistance from WYDOT for removing excessive accumulations of debris on state highways, but assistance will depend on the availability of personnel and equipment.

C. Pathways

Cities, towns, or counties are responsible for maintaining separated multiple-use pathways and sidewalks. The Department and the appropriate local government shall sign a written maintenance agreement (see Operating Policy 40-2, Construction Agreements and Maintenance Responsibilities with Cities and Towns for Streets on the State Highway System).

References: Operating Policy 7-1, Design Standards and Tolerable Controls.
Operating Policy 7-2, Shoulders for State-Funded Surface Rehabilitation Projects on the Non-Interstate, National Highway System (NHS).
Operating Policy 7-3, Shoulder Rumble Strips.
Operating Policy 40-2, Construction Agreements and Maintenance Responsibilities with Cities and Towns for Streets on the State Highway System.

WYOMING DEPARTMENT OF TRANSPORTATION		OPERATING POLICY
ISSUED: May 17, 1999	POLICY NUMBER: 25-3	
AUTHORITY: Director 		

SUBJECT: Pedestrian Facilities

Purpose: This policy outlines the responsibility for construction and maintenance of pedestrian transportation facilities adjacent to a state highway.

I. Pedestrian Facility Consideration

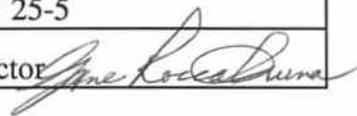
The appropriate accommodation of pedestrian transportation shall be considered in developing program study reports and in the reconnaissance inspection for each new highway construction, highway reconstruction, or major rehabilitation project.

II. Sidewalks

- A. The Wyoming Department of Transportation (WYDOT) recognizes the transportation safety benefits to pedestrians that continuous sidewalks provide in cities and towns. Sidewalks are considered a necessary transportation facility along highways in cities and towns and in developed settings within urban boundaries or incorporated areas where substantial pedestrian traffic is expected. The construction of sidewalks, though, will be contingent on acceptance of maintenance responsibilities by the appropriate local government entity.
1. WYDOT will include sidewalks where appropriate in new highway construction, highway reconstruction, and major rehabilitation projects within urban boundaries or incorporated areas.
 2. Sidewalks may be excluded on portions of highway construction projects through areas where pedestrian traffic is not permitted or anticipated. This exception should be based on analysis of adjacent land uses and the likelihood that pedestrian traffic will not begin using the area within the design life of the project.
 3. WYDOT will consider sidewalks where appropriate in new highway construction projects and highway reconstruction projects in developed areas outside urban boundaries or incorporated areas if, based on a traffic operation study, substantial pedestrian traffic is expected. Areas to be considered may include but need not be limited to developed residential areas, reduced speed limit areas, and curb and gutter roadway sections.
- B. WYDOT will replace existing sidewalks disturbed by highway construction activities.

- C. Funding for sidewalks will be limited to the cost of WYDOT's standard sidewalk design. If a local government entity requests a more costly design, the local government must agree to pay any additional construction cost.
- D. All sidewalk maintenance including snow removal shall be the responsibility of the local government entity where the sidewalk is located as outlined in Operating Policy 40-2, Construction Agreements and Maintenance Responsibilities with Cities and Towns for Streets on the State Highway System.
- E. If a local authority desires a sidewalk in an area where a traffic operation study does not justify it, WYDOT may negotiate and execute a construction and maintenance agreement with the local authority as outlined in Operating Policy 40-2.

- References:
- Operating Policy 40-2, Construction Agreements and Maintenance Responsibilities with Cities and Towns for Streets on the State Highway System.
 - W.S. 24-2-111, Cooperation with cities in construction of streets connecting state highways and construction of storm sewers along streets designated as state highways.

WYOMING DEPARTMENT OF TRANSPORTATION		OPERATING POLICY
ISSUED: April 10, 1998		POLICY NUMBER: 25-5
		AUTHORITY: Director 

SUBJECT: Road Closures For Special Events

Purpose: To provide uniform and understandable interpretation of W.S. 24-1-106 and to establish uniform statewide criteria for permitting state highway closures, including partial closures, for special or athletic events. General road closure authority and procedure are outlined in Operating Policy 25-4.

I. General Guidelines

- A. The Department issues permits to close state highways for special events upon terms and conditions relating to the safe and orderly movement of traffic. All applications for special event road closures are contingent upon the concurrence of county governmental authorities if the closure restricts the use of any county road in the unincorporated area of the county.
- B. If an event calls for closing a state highway within an incorporated city or town, for which there is no readily accessible alternate route, the city or town shall request Department approval for the closure.
- C. The Department, in issuing permits for the use of state highways, shall not be responsible for the conduct or operation of the permitted activity.
- D. The permit applicant shall agree to indemnify and hold harmless the state against any and all claims, for acts or omissions committed by other than state employees, arising out of any activity for which the permit is issued.
- E. Special event permits will **not** be issued for the Interstate highway system.
- F. Events on state highways outside incorporated limits of a city or town requiring a permit will be allowed only during daylight hours.
- G. The permitting process is not limited to single event applications, provided that applications specifically address multiple events scheduled throughout the year.
- H. No permit is required for any special event in which participants comply with all applicable traffic statutes and highway traffic is not stopped, delayed, or detoured.

II. Permit Required

- A. Authorization to conduct a special event on the state highway system requires a permit from the appropriate district engineer at least 60 days prior to the event. The district engineer shall respond not later than 30 days after receiving an application.

- B. The district engineer may waive the 60-day requirement provided the permit process can be completed, without compromise, within a shorter time period.
- C. No state highway closure outside the incorporated limits of a city or town shall be authorized without an approved special event permit.

III. Permit Conditions

- A. Approval of special event permits shall be granted only under conditions which:
 - 1. Provide reasonable safety for all event participants, spectators, and other highway users.
 - 2. Prevent unreasonable interference with traffic flow that would seriously inconvenience other highway users.
- B. Requests for approval of special events must include:
 - 1. An event description stating all information pertinent to understanding the event.
 - 2. A map showing the highways on which the event will be held.
 - 3. Completion of a Department special event permit application.
- C. If the special event's course only crosses a state highway, the district engineer may limit permit requirements to crossing control measures.
- D. The permittee, if not an incorporated city or town, or a county insured by or consistent with the state self-insurance program, shall provide insurance coverage in an amount and to the extent required in the permit.
- E. The permittee shall agree to pay actual Department costs in providing any personnel beyond that normally available for conducting the closure. Such costs shall include any regular or overtime salaries and will be predetermined upon issuing the permit.
- F. All litter that results from the event will be removed from state highway and rights-of-way immediately after the event by the permittee.
- G. Failure by the permittee to comply with all permit conditions shall be cause to disqualify the permittee from future event applications.

IV. Traffic Control

- A. The permit applicant shall provide a traffic control plan adequately describing all traffic control measures deemed necessary. The traffic control plan must comply with the national *Manual on Uniform Traffic Control Devices*.
- B. A detour route for an event requiring a permit must be provided if closure of a state highway exceeds 30 minutes or if the Department determines that the driving public is unduly inconvenienced regardless of the duration of closure.

V. Variance

- A. The district engineer may, on the advice and with the consent of the appropriate Wyoming Highway Patrol (WHP) supervisor, permit any special event that in the district engineer's professional opinion will not compromise the traveling public's safety.

VI. Permit Cancellation

- A. The appropriate WHP supervisor may immediately cancel any special event for reasons of public safety or if the highway closure is not implemented in a manner consistent with the special event permit terms and conditions.

References: W.S. 24-1-106, Closing or restricting use; when necessary.
Rules and Regulations, Chapter 23, Road Closures for Special Events.

WYOMING DEPARTMENT OF TRANSPORTATION		OPERATING POLICY
ISSUED: November 01, 2010	POLICY NUMBER: 40-2	
	AUTHORITY: Director	

SUBJECT: Construction Agreements and Maintenance Responsibilities with Cities and Towns for Streets on the State Highway System

Purpose: This policy pertains to: (1) the preparation of construction plans and agreements between the Wyoming Department of Transportation (WYDOT) and incorporated cities and towns with 1,500 or more people (according to the latest federal census) and (2) the maintenance responsibilities for streets on the state highway system. This policy does not apply to unincorporated towns.

I. Construction Agreements

- A. Plans for any proposed improvements within the incorporated limits of any city or town with a population of at least 1,500 must be submitted to the city or town 60 days prior to the project's advertising date.
- B. For the improvement or continued maintenance of any streets on the state highway system, WYDOT prepares and sends an agreement to the benefitting city or town for its consideration and acceptance. The agreement will contain the following stipulations:
 - 1. The city or town will have enacted or will enact model ordinances as approved by the Department, including but not limited to the following:
 - a. Control and placement of commercial advertising signs and devices.
 - b. Adoption of parallel parking or elimination of parking on any streets on the state highway system.
 - c. Control of access and curb cuts.
 - d. Street excavation and backfill control for all utility cuts.

Failure of the city or town to comply with model ordinances in the future or failure to stop violations will result in a WYDOT recommendation that no further funds be expended in that city or town.

- 2. Reimbursement to the Department for the city or town's share of construction costs is paid monthly in accordance with the engineer's progress estimate.

3. The Wyoming Department of Transportation has sole authority for signing and controlling traffic, and the town or city may not place any signs or traffic control devices on any streets on the state highway system without first receiving clearance from WYDOT. (See Operating Policy 25-1 for specific requirements pertaining to traffic control devices and lighting.)
 4. The Department determines the participation required from the city or town for the various items of work proposed.
 5. For projects on the state highway system, WYDOT pays the entire cost of acquiring all necessary rights-of-way, relocation assistance, utility adjustments, and the construction of streets and highways within the incorporated city limits. If the city or town decides to connect a storm sewer with an existing Department storm sewer, the Department pays only that part of the cost for additional storm sewer needed to provide drainage for the street on the state highway system. If WYDOT's storm sewer system becomes overloaded by city additions to the system after initial connection, the city or town is liable for the entire upgrading or replacement cost.
- C. The contracts and estimates engineer prepares the construction agreement for all projects proposed within the incorporated limits of any city or town.

II. Maintenance Responsibility of the Department

- A. The Wyoming Department of Transportation is responsible for maintenance, as outlined in the following paragraphs, for all highways on the state highway system within incorporated cities and towns, provided they constitute direct connections between sections of established state highways, except as provided under Section III, "Maintenance Not the Responsibility of the Department."
1. Surface maintenance includes maintaining structures and any other maintenance effort necessary to protect the original investment and structural integrity of the pavement and structures. This paragraph is not intended to relieve the responsibilities outlined in Paragraph 6 of this section.
 2. WYDOT maintains all traffic control and traffic control devices, except parking control and roadway lighting. This maintenance includes electrical and traffic signal interconnection power as well as physical maintenance. (See Operating Policy 25-1 for maintenance responsibilities of roadway lighting at traffic signal installations.) Maintenance of traffic control devices is limited to those devices installed by the Department for which proper warrants for installation have been established.

3. No change or addition in traffic control or traffic control devices, including parking control or roadway lighting, is made without the WYDOT's prior approval.
4. All traffic control and traffic control devices erected must conform to the Wyoming Traffic Code and the latest edition of the *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD) or other manual as adopted by the Transportation Commission of Wyoming.
5. Cities and towns must enact and enforce ordinances acceptable to the Department as listed in Section I, "Construction Agreements." The city or town is responsible for enforcing these ordinances. If the city or town wishes to allow any deviation from these ordinances, it must obtain the WYDOT's prior approval.
6. Cities and towns must clear away all obstructions to the satisfaction of the Department before any maintenance will be assumed.

III. Maintenance Not the Responsibility of the Department

- A. For cities and towns over 1,500 in population, the Department will **not** be responsible for:
 1. Snow removal, including control of snow pushed into the travel-way, and sanding ice.
 2. Cleaning, sweeping, and washing streets.
 3. Cleaning litter between the curb line and the property line.
 4. Maintaining sidewalks, bike paths, storm sewers, open drain ditches, natural drainage channels, and the curb and gutter.
- B. For cities and towns under 1,500 in population, the Department will **not** be responsible for:
 1. Cleaning litter between the curb line and the property line.
 2. Maintaining sidewalks and the curb and gutter.

References: Operating Policy 25-1, Traffic Control and Roadway Lighting Devices
Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)
W.S. 24-2-109, Designation of state highways

- W.S. 24-2-111, Cooperation with cities in construction of streets connecting state highways...
- W.S. 24-6-101 through 110, Access Facilities
- W.S. 31-5-112 and 113, Adoption of uniform system of traffic-control devices
- W.S. 31-5-302, Establishment of specific maximum speed limits by superintendent
- W.S. 31-5-303, Alteration of maximum speed limits by local authorities
- W.S. 31-5-512, Parking alongside curbs or on edge of roadways

Appendix G

Summary of Designated Bike Route STIP Projects

2017-2021

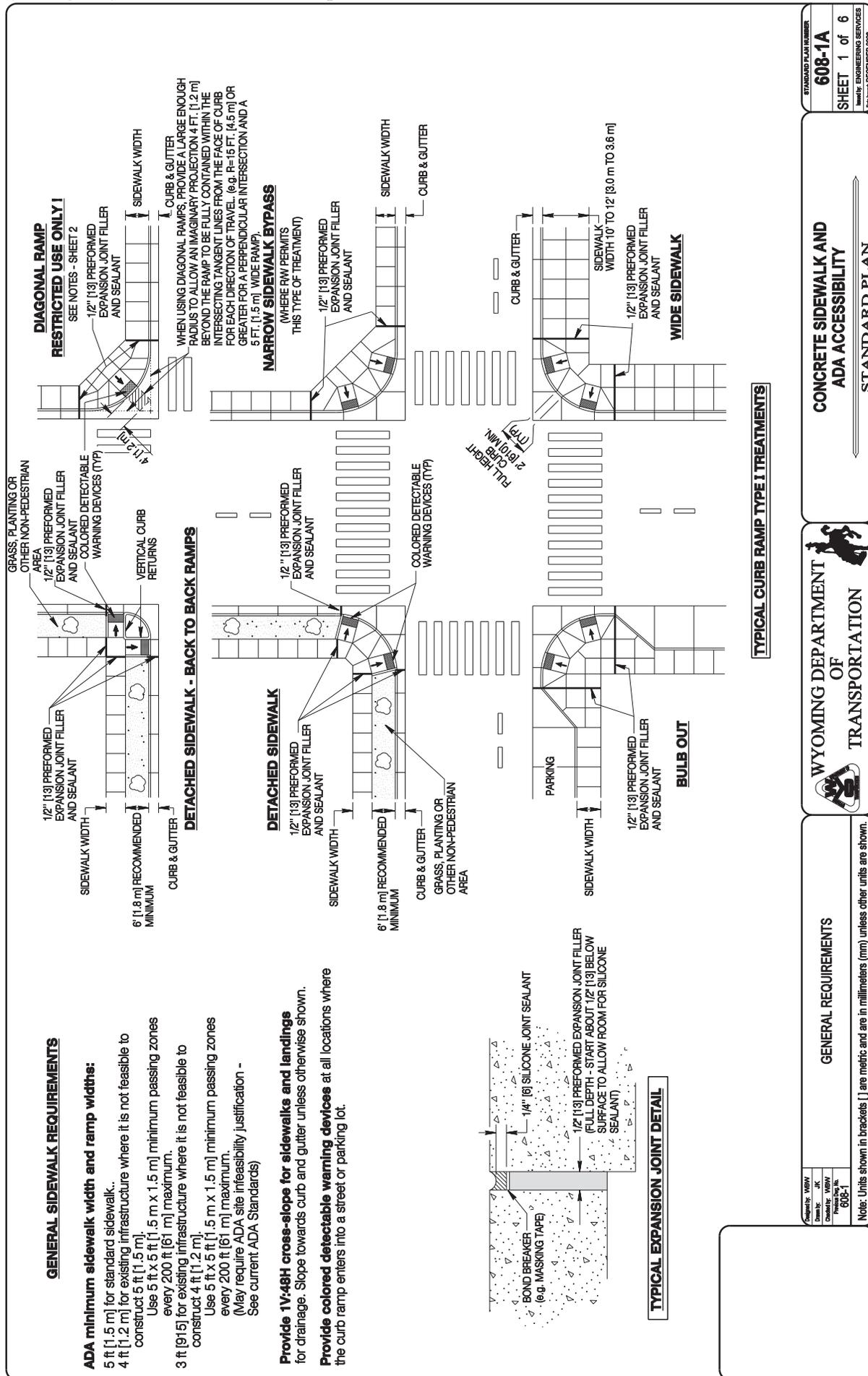
Wyoming Bicycle and Pedestrian Transportation Plan

Years: 2017 - 2021

Highway No.	Project No.	R.M. to R.M.		Year	Description
Transamerica Bicycle Route					
U.S. 191/89/287		188.80	211.62		No projects in STIP
U.S. 26/287	N302054	56.40	67.25	2020	Overlay
U.S. 287	N151027	10.00	24.17	2021	Overlay
WYO 789/U.S. 287	N202068	41.14	47.11	2017	Overlay
I-80	I804260	227.50	233.70	2018	Overlay
WYO 130	B171015	23.20	23.20	2017	Chip Seal
WYO 230					No projects in STIP
Northern Tier East/West Route					
WYO 291					No projects in STIP
U.S. 14/20/16					No projects in STIP
U.S. 16/20					No projects in STIP
U.S. 16	N361062	18.00	23.74	2021	Widening
	B165022			2017	Guardrail
	N361063	34.08	41.70	2017	Overlay
	N362035	44.01	52.47	2017	Overlay
U.S. 14/16					No projects in STIP
I-90	I903100	135.43	145.20	2021	Overlay
U.S. 14					No projects in STIP
WYO 24					No projects in STIP
Cheyenne/Laramie/Snowy Range					
WYO 210					No projects in STIP
WYO 130	0103091	0.00	10.00	2019	Overlay

Appendix H

Relevant WYDOT Standard Plans



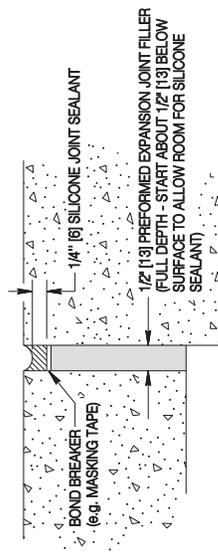
GENERAL SIDEWALK REQUIREMENTS

ADA minimum sidewalk width and ramp widths:

- 5 ft [1.5 m] for standard sidewalk.
- 4 ft [1.2 m] for existing infrastructure where it is not feasible to construct 5 ft [1.5 m].
- Use 5 ft x 5 ft [1.5 m x 1.5 m] minimum passing zones every 200 ft [61 m] maximum.
- 3 ft [915] for existing infrastructure where it is not feasible to construct 4 ft [1.2 m].
- Use 5 ft x 5 ft [1.5 m x 1.5 m] minimum passing zones every 200 ft [61 m] maximum.
- (May require ADA site infeasibility justification - See current ADA Standards)

Provide 1V-48H cross-slope for sidewalks and landings for drainage. Slope towards curb and gutter unless otherwise shown.

Provide colored detectable warning devices at all locations where the curb ramp enters into a street or parking lot.



TYPICAL EXPANSION JOINT DETAIL

TYPICAL CURB RAMP TYPE I TREATMENTS

STANDARD PLAN NUMBER
608-1A
SHEET 1 of 6
WYDOT ENGINEERING SERVICES
REVISED: DECEMBER 2008

CONCRETE SIDEWALK AND ADA ACCESSIBILITY
STANDARD PLAN

WYOMING DEPARTMENT OF TRANSPORTATION

GENERAL REQUIREMENTS
Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

TYPE I (PERPENDICULAR) CURB RAMP REQUIREMENTS

- ① **RAMP SLOPE:** Do not exceed 1V:12H ramp slope.
- ② **RAMP LENGTH:** Use ramp length(s) as follows for a 6" [150] curb:

RAMP LENGTH TABLE

L ₁	L ₂	Change in Elev from E ₀ to:		Remarks
		E ₁	E ₂	
8' [2.4 m]	NA	8" [205]	NA	Curb height plus cross slope rise of adjacent sidewalk - See section A-A.
6' [1.8 m]	NA	6" [150]	NA	Curb height change only (level planting) See section B-B
5' [1.5 m]	2.5' [0.75 m]	5" [130]	7.5" [190]	*Modified Type I combined ramps.
4' [1.2 m]	3' [0.9 m]	4" [100]	7" [180]	
3' [0.9 m]	4' [1.2 m]	3" [75]	7" [180]	

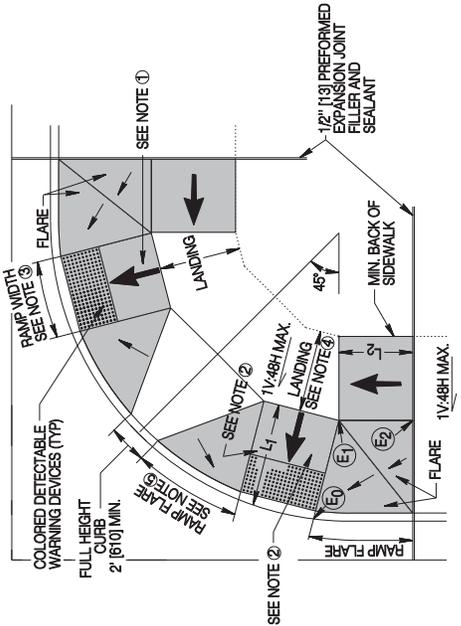
* Warp the intersection with a combined ramp system to reduce the length of the perpendicular ramp (L₁).

③ **RAMP WIDTH:** Ensure a perpendicular ramp width of 5 ft [1.5 m] except where the engineer determines that it is not feasible; then use no less than 3 ft [915] where site feasibility exists.

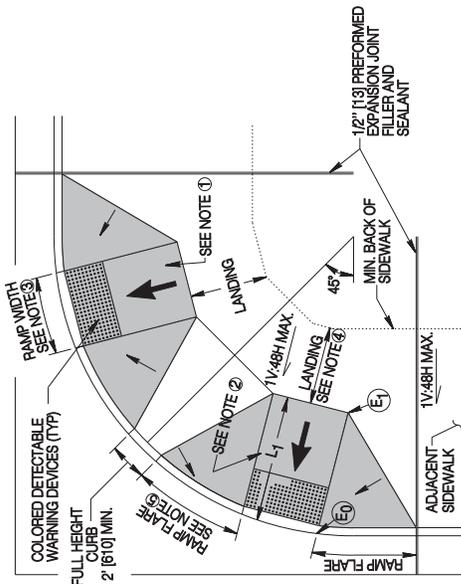
④ **LEVEL LANDINGS:** Provide landing with a maximum slope of 1V:48H and 4 ft [1.2 m] wide to accommodate wheel chair turning at the top of the ramp. If a 4 ft [1.2 m] landing cannot be provided at the top of a perpendicular curb ramp, provide a 3 ft [915] landing and use flares with a 1V:12H slope.

⑤ **FLARED VS. VERTICAL CURB RETURNS:** Construct flared side returns when sidewalk is adjacent to the ramp. Do not exceed 1V:10H ramp flare. For a 6 in [150] curb, provide a 5 ft [1.5 m] ramp flare. If ramp sides are adjacent to an appearance which precludes pedestrian use, curb returns may be vertical.

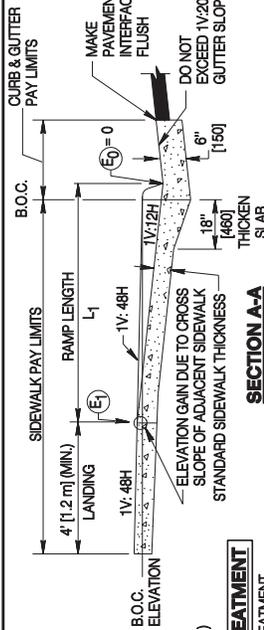
⑥ **DIAGONAL RAMPS:** Do not use single diagonal ramps unless shown in plans or approved by the engineer. Single diagonal ramps create greater conflicts between pedestrians and motor vehicles. These ramps are discouraged due to ADA and pedestrian concerns.



MODIFIED TYPE I (COMBINED) CORNER RAMPS

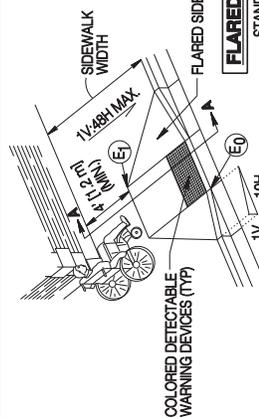


TYPICAL TYPE I (PERPENDICULAR) CORNER RAMPS



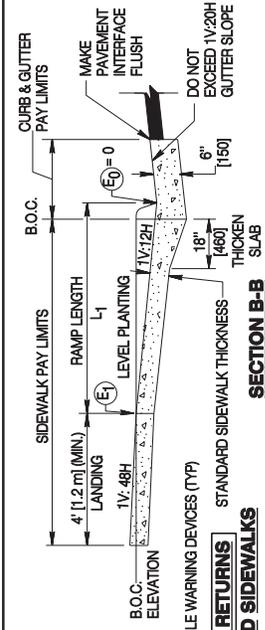
FLARED CURB TREATMENT

STANDARD RAMP TREATMENT



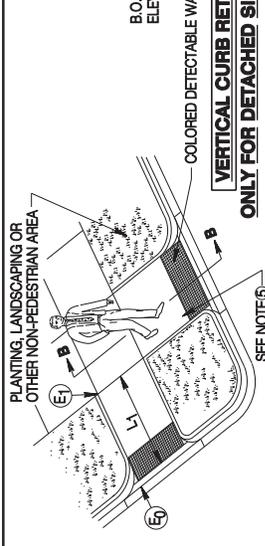
VERTICAL CURB RETURNS

ONLY FOR DETACHED SIDEWALKS



VERTICAL CURB RETURNS

ONLY FOR DETACHED SIDEWALKS



Approved by WYDOT
Checked by WYDOT
Prepared by WYDOT
608-1

TYPE I (PERPENDICULAR) CURB RAMPS

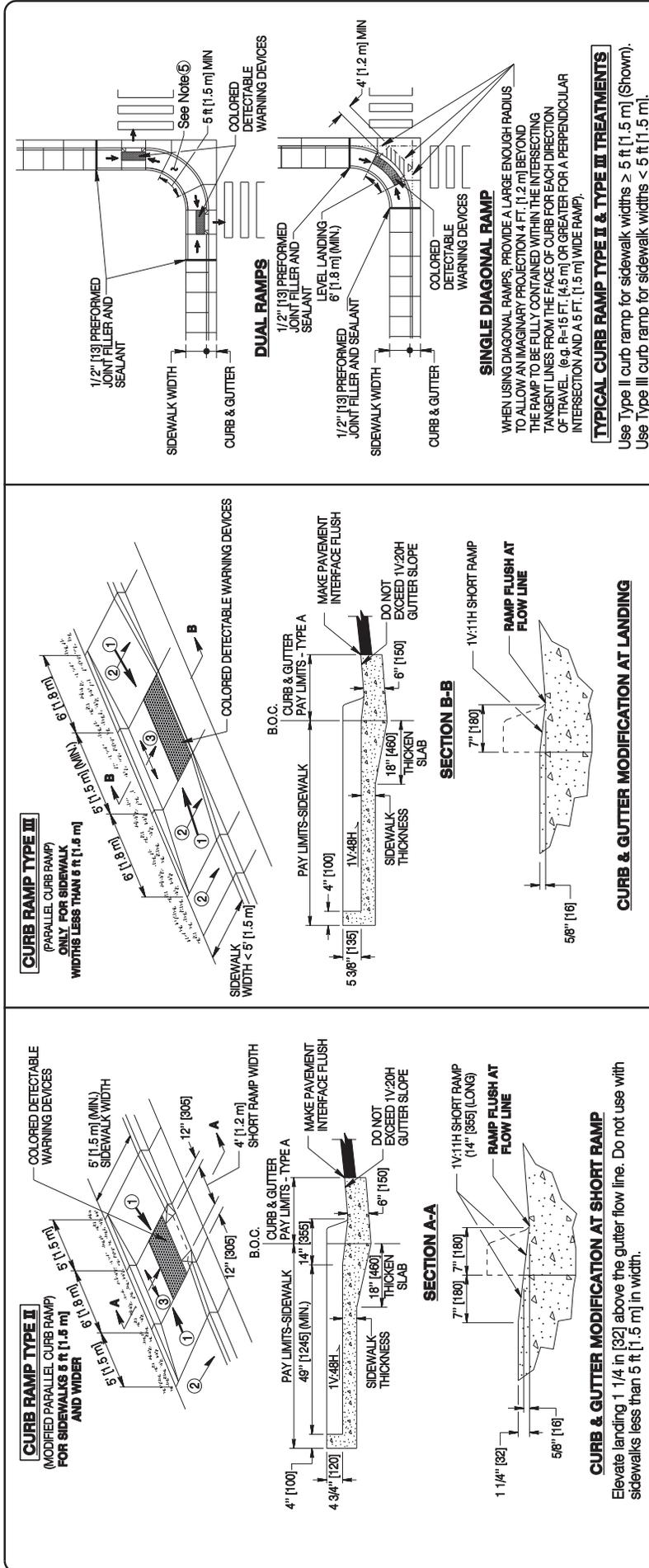


WYOMING DEPARTMENT OF TRANSPORTATION

CONCRETE SIDEWALK AND ADA ACCESSIBILITY
STANDARD PLAN

STANDARD PLAN NUMBER
608-1A
SHEET 2 of 6
ISSUED: DECEMBER 2000

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



TYPE II & TYPE III (PARALLEL) CURB RAMP REQUIREMENTS

Type II & III ramps are less desirable due to strained turning movements in wheelchairs and drainage (including icing) problems associated with the landing area.

Construct Type II ramps only when sidewalk width at ramp location is 5 ft [1.5 m] or greater. When sidewalk width is between 4 ft [1.2 m] and 5 ft [1.5 m] construct a Type III ramp.

RAMP SLOPE: Except as shown in the short ramp detail, do not slope ramps greater than 1V:12H.

CROSS SLOPE: Slope sidewalk and/or ramp towards the street at 1V:48H. Do not exceed 1V:48H.

LANDING SLOPE: Do not exceed a slope of 1V:48H in any direction. Provide positive drainage toward the street. Slope landing in either direction, parallel to the street.

SINGLE DIAGONAL VS. DUAL CURB RAMP: Do not use single diagonal ramps unless shown in plans or approved by the engineer. Single diagonal ramps create conflicts between pedestrians and motor vehicles. These ramps are discouraged due to ADA and pedestrian concerns.

Approved: WYDOT Checked: JK Created: WYDOT Printed On: WYDOT 608-1	STANDARD PLAN NUMBER 608-1A SHEET 3 of 6 WYDOT ENGINEERING SERVICES REVISED: DECEMBER, 2000
CONCRETE SIDEWALK AND ADA ACCESSIBILITY STANDARD PLAN	
WYOMING DEPARTMENT OF TRANSPORTATION	

DETECTABLE WARNING AREA
3/16" [5] TARGET
7/32" [6] MAX.
5/32" [4] MIN.

TRUNCATED DOME DETAIL
1/2" [13] DIA.
7/8" [22] DIA.

TRUNCATED DOME SPACING
2 3/8" [60] C.C. (UNLESS OTHERWISE SPECIFIED)

COLORED DETECTABLE WARNING DEVICES

Colored Detectable Warning Devices

Provide colored detectable warning devices at all curb ramps and other locations where there are no vertical drop offs to cue visually impaired that they are entering into a traffic area (excluding driveways and approaches). Provide only those devices which meet ADA requirements and are of the type and color specified in the contract.

PROTRUDING OBJECTS (such as trees, canopies, etc):
Avoid placing protruding objects within the pedestrian way. Provide headroom of 8 ft. [2440] or greater where possible, ADA specifies a minimum of 6' - 8" [2030].

Lateral Protrusions (such as signs, water fountains, street furniture, etc):
Where necessary, ADA permits objects to protrude no greater than 4 in. [100] laterally from a wall when they are located above the cane detection line. Objects with their leading edges below the cane detection line may protrude as necessary as long as it does not restrict minimum accessible route widths. Care should be used however to prevent tripping or other impediments to general pedestrian traffic. Objects mounted on a pole may protrude up to 12 in. [305] laterally if mounted above the cane detection line, but it is recommended to limit that distance to 4 in. [100] laterally from the pole unless mounted 7 ft. [2130] or greater above the pedestrian way.

PROTRUDING OBJECTS

Overhead Protrusions (such as trees, canopies, etc):
Avoid placing protruding objects within the pedestrian way. Provide headroom of 8 ft. [2440] or greater where possible, ADA specifies a minimum of 6' - 8" [2030].

Lateral Protrusions (such as signs, water fountains, street furniture, etc):
Where necessary, ADA permits objects to protrude no greater than 4 in. [100] laterally from a wall when they are located above the cane detection line. Objects with their leading edges below the cane detection line may protrude as necessary as long as it does not restrict minimum accessible route widths. Care should be used however to prevent tripping or other impediments to general pedestrian traffic. Objects mounted on a pole may protrude up to 12 in. [305] laterally if mounted above the cane detection line, but it is recommended to limit that distance to 4 in. [100] laterally from the pole unless mounted 7 ft. [2130] or greater above the pedestrian way.

CONCRETE SIDEWALK AND ADA ACCESSIBILITY

STANDARD PLAN

WYOMING DEPARTMENT OF TRANSPORTATION

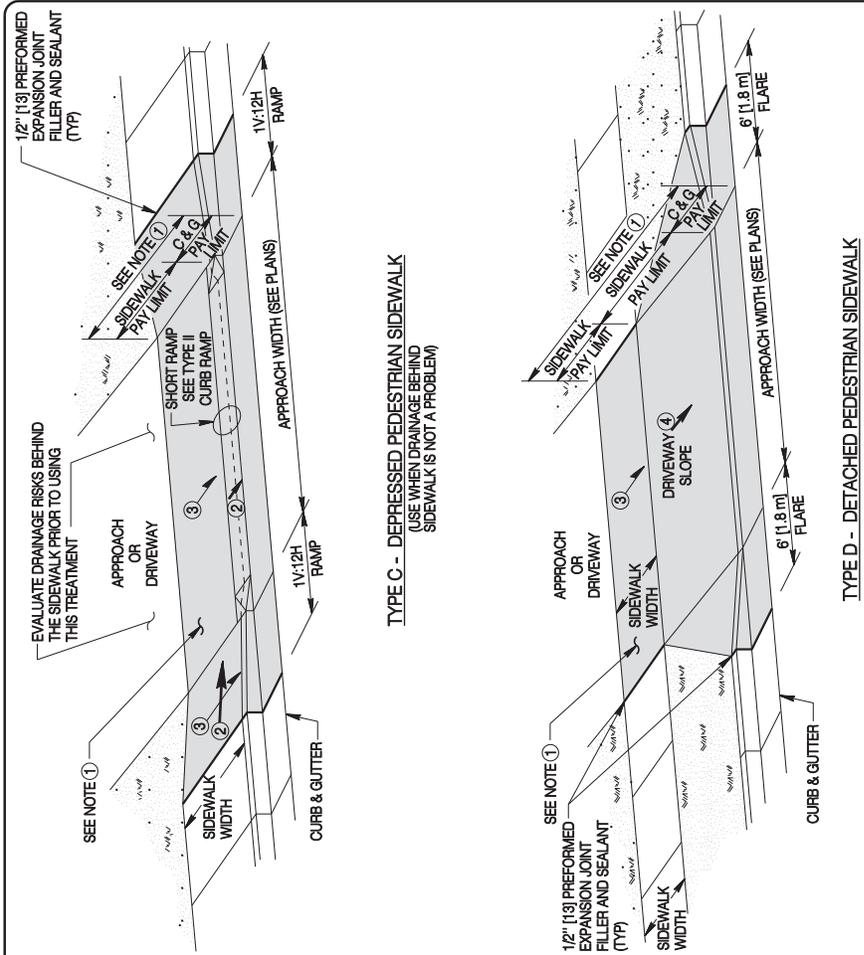
PROTRUDING OBJECTS & COLORED DETECTABLE WARNING DEVICES

608-1A

SHEET 4 of 6

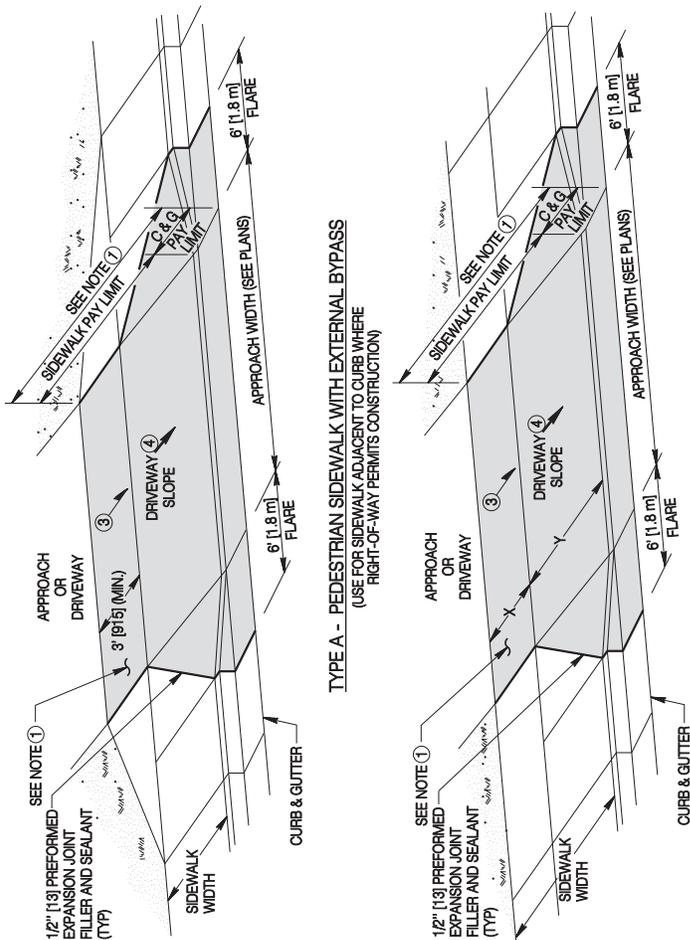
WYDOT ENGINEERING SERVICES
REVISED DECEMBER, 2008

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



TYPE C - DEPRESSED PEDESTRIAN SIDEWALK
(USE WHEN DRAINAGE BEHIND SIDEWALK IS NOT A PROBLEM)

TYPE D - DETACHED PEDESTRIAN SIDEWALK
(MOST DESIRABLE TREATMENT)



TYPE A - PEDESTRIAN SIDEWALK WITH EXTERNAL BYPASS
(USE FOR SIDEWALK ADJACENT TO CURB WHERE RIGHT-OF-WAY PERMITS CONSTRUCTION)

TYPE B - PEDESTRIAN SIDEWALK WITH INTERNAL BYPASS
(USE WITH SIDEWALK WIDTHS 8 ft (2.4 m) AND WIDER. PROVIDE FOR NARROWER SIDEWALKS WHEN EXTERNAL BYPASS OR DEPRESSED SIDEWALK IS NOT FEASIBLE DUE TO AVAILABLE RIGHT-OF-WAY OR DRAINAGE CONCERNS)

SIDEWALK WIDTH	X		Y	
	ft	mm	ft	mm
5'	1.5	457	2'	610
6'	1.8	549	2'	610
7'	2.1	640	3'	915
8'	2.4	731	4'	1220
9'	2.7	823	4.5'	1370
>9'	>2.7	VARIABLE	5'	1525

TYPICAL SIDEWALK AND/OR DOUBLE GUTTER TREATMENT AT APPROACHES

NOTES:

- ① **DRIVEWAYS AND APPROACHES:** When double gutter is specified, the flares and/or ramps shall be of the same thickness as double gutter. Shaded areas represent pay limits for double gutter.
- ② **RAMP SLOPE:** Do not exceed a 1V:12H ramp slope.
- ③ **CROSS SLOPE:** Slope sidewalk towards street. Do not exceed 1V:48H.
- ④ **DRIVEWAY SLOPE:** The driveway slope may exceed the slope required for a ramp when it is not used as a combined driveway and wheelchair ramp. A by-pass must be provided around driveway slopes exceeding 1V:48H so pedestrians don't encounter steeper cross-slopes.

Standard Plan Number
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Sheet 5 of 6

WYDOT ENGINEERING SERVICES
REVISED DECEMBER, 2000

CONCRETE SIDEWALK AND ADA ACCESSIBILITY

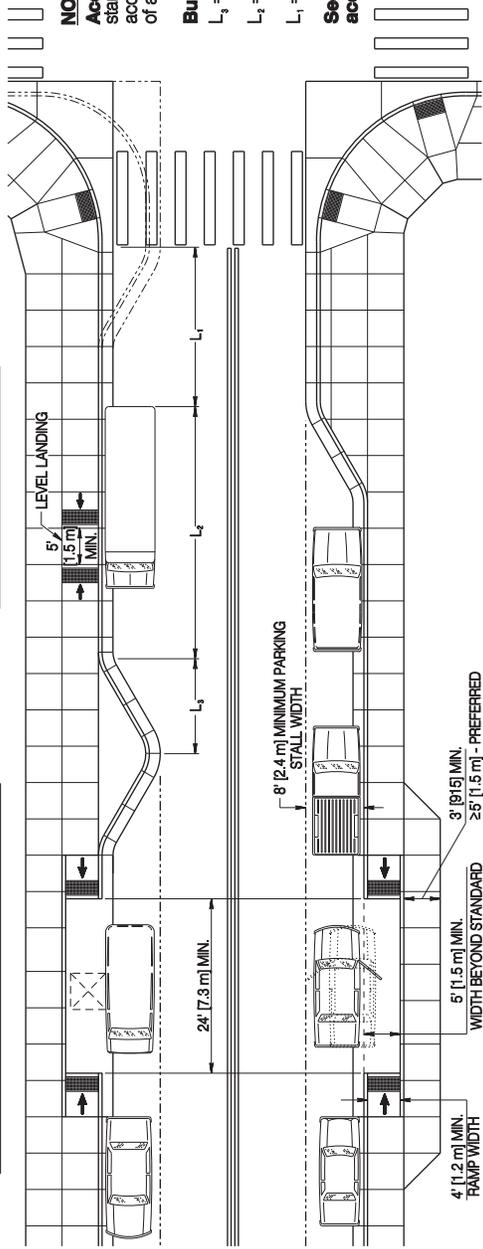
STANDARD PLAN

Wyoming Department of Transportation

DRIVEWAYS & APPROACHES

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

BUS / TRANSIT PULLOUTS



NOTES:

Accessible Parallel Parking Spaces should consist of the standard parking stall (8 ft [2.4 m] min. width) plus 5 ft [1.5 m] to accommodate van wheelchair lifts and access from either side of a vehicle.

Bus Pullouts:

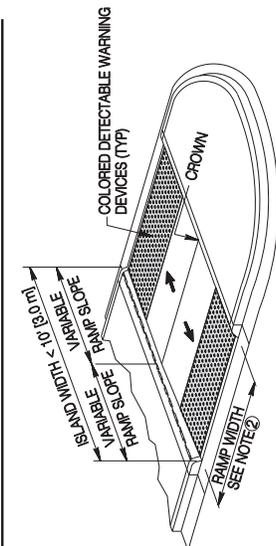
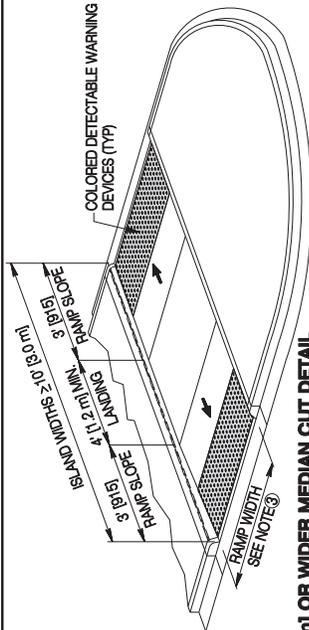
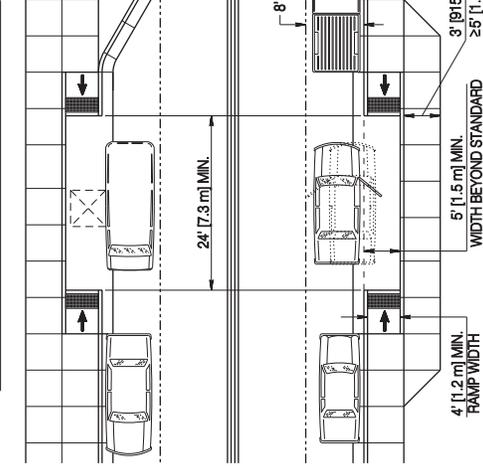
L_3 = Length required for bus to maneuver out of pullout

L_2 = Length of bus + 10 ft [3.0 m]

L_1 = Length required for bus to maneuver into pullout

See plans for locations and actual dimensions of accessible parking stalls and/or bus pullouts.

ACCESSIBLE PARALLEL PARKING SPACES



10' [3.0 m] OR WIDER MEDIAN CUT DETAIL

LESS THAN 10 FT [3.0 m] WIDE MEDIAN CUT DETAIL

- ① Provide pedestrian cuts through medians that are aligned for all directions of travel.
- ② For median cuts less than 10 ft [3.0 m] wide, provide a crown at the center of the median. Slope ramps toward the street. Do not exceed a slope of 1V:20H. Use a ramp width of 5 ft [1.5 m] when possible. If not, maintain an absolute minimum ramp width of 3 ft [0.9 m].
- ③ For median cuts 10 ft [3.0 m] and wider, provide a level landing. Do not exceed a 1V:12H ramp slope. Ramp slopes 3 ft [0.9 m] or less are desirable for ADA concerns. Use a ramp width of 5 ft [1.5 m] when possible. If not, maintain an absolute minimum ramp width of 3 ft [0.9 m].
- ④ Use a 4 ft [1.2 m] minimum landing. Do not exceed a slope of 1V:48H in any direction.

MEDIAN OR ISLAND CUT

ISLAND CUT DETAIL

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REVISED: DECEMBER, 2000

CONCRETE SIDEWALK AND ADA ACCESSIBILITY
STANDARD PLAN



WYOMING DEPARTMENT OF TRANSPORTATION
PARALLEL ON-STREET PARKING & MEDIAN OR ISLAND CUTS
Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

Appendix I

Summary of Urban STIP Projects

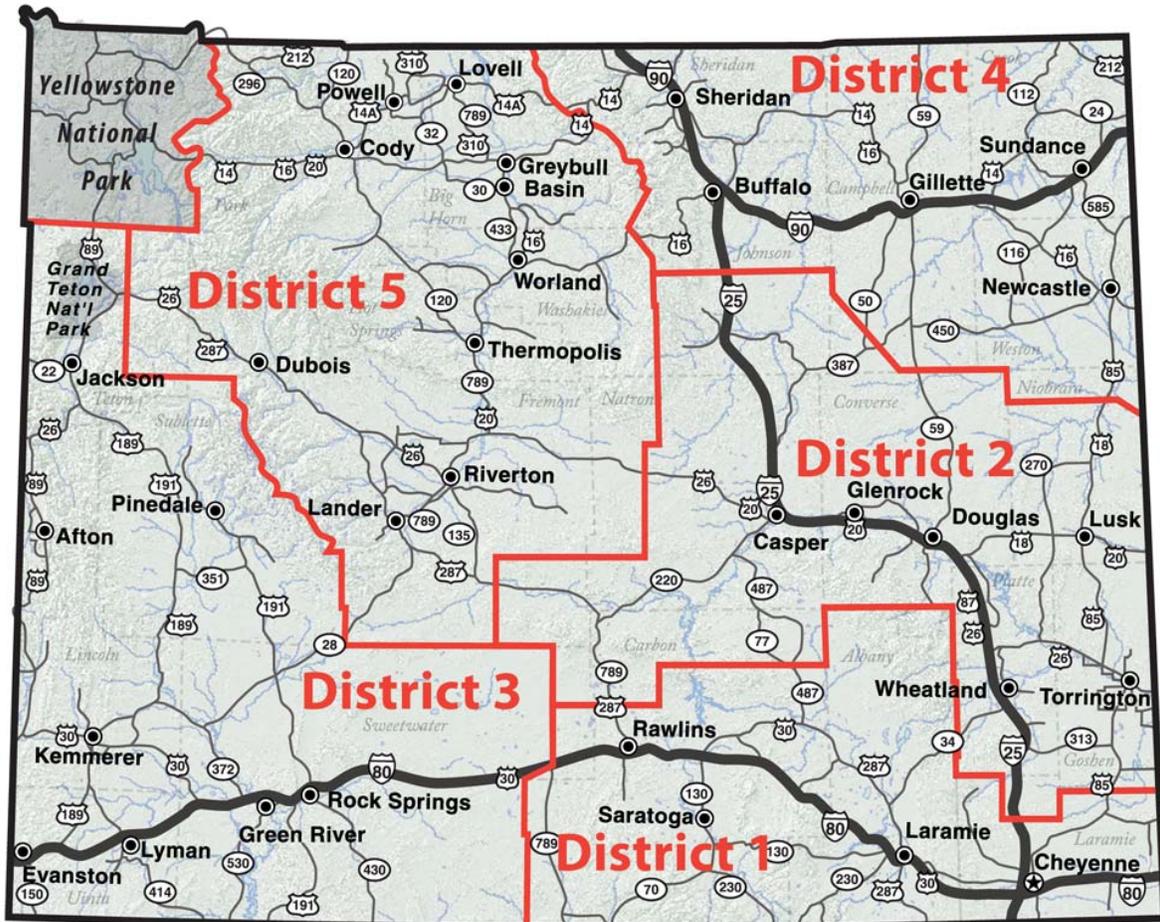
2017-2021

Wyoming Bicycle and Pedestrian Transportation Plan
Years: 2017 - 2021

City/Town	Project No.	Route	Year	Description
City of Casper	N212110	WYO 220	2017	Overlay
	N212109	Poplar St	2017	Overlay
	W258A02	Wyo Blvd	2017	Utility Work
	W258023	Wyo Blvd	2017	Intersection Modification
	N212118	Poplar St	2018	Structure Work - BNSF Bridge
	N212120	WYO 220	2018	Traffic Signals
City of Cheyenne	CN02101	20th St	2017	Railroad Work
	CN02100	21st St	2017	Railroad Work
	CN02099	22nd St	2017	Railroad Work
	I180021	Warren Ave	2021	Overlay
City of Cody	N311097	US 14/16/20	2020	Pavement Rehabilitation
City of Kemmerer	P112023	US 189	2018	Overlay
City of Lander	B185001	Jefferson St/E. Main	2018	Reconstruction
City of Laramie	P551021	Grand Ave	2019	Overlay
	N232067	3rd St	2020	Resurface
City of Newcastle	N442077	Marginal	2018	Overlay
	N855047	US 85	2020	Overlay
City of Riverton	N203070	N. Federal	2017	Enhancements
	N203A03	N. Federal	2017	Reconstruction
	N203057	N. Federal	2017	Reconstruction
	N302053	Main St	2019	Pavement Rehabilitation
	N303057	Main St	2020	Intersection Modification
City of Rock Springs	N131055	US 191	2021	Overlay
	N531019	Dewar Dr	2021	Overlay
City of Sheridan	N601042	Main St	2017	Railroad Work
	0302087	I-90 Inter/US 14	2017	Lighting
City of Worland	B155027	Various	2017	ADA Improvements
Town of Bar Nunn	4123001	Salt Cr Hwy	2018	Overlay
Town of Big Piney	1800015	WYO 350	2019	Overlay
Town of Byron	P292003		2019	Resurface
Town of Cokeville	1217001	WYO 89	2021	Overlay
Town of Diamondville	P112023	US 189	2018	Overlay
Town of Dixon	0401037	WYO 70	2020	Overlay
Town of Elk Mountain	0404014	WYO 72	2020	Overlay
Town of Hanna	0412008	WYO 72	2020	Overlay
Town of Hudson	N203069		2019	Overlay
Town of Sundance	2303016		2017	Microsurfacing
Town of Ten Sleep	B165022	Various	2017	Guardrail
Town of Van Tassell	N403008		2017	Overlay
Town of Wright	P423030		2017	Overlay

Appendix J

WYDOT Contact Information

**District 1**

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(307) 745-2100

District 2

Mark Williams, P.E.
District Traffic Engineer
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Casper, WY 82601
(307) 473-3200

District 3

Darin Kaufman, P.E.
District Traffic Engineer
3200 Elk St
Rock Springs, WY 82901
(307) 352-3000

District 4

Jim Evensen, P.E.
District Traffic Engineer
10 E. Brundage Lane
Sheridan, WY 82801
(307) 674-2300

District 5

Randy Merritt, P.E.
District Traffic Engineer
218 West C
Basin, WY 82410
(307) 568-3400

WYDOT Local Government Coordination Office

Taylor Rosetti
Local Government Coordinator
5300 Bishop Blvd
Cheyenne, WY 82009-3340
(307)777-4438

Sara Ellis
Local Programs Coordinator
5300 Bishop Blvd
Cheyenne, WY 82009-3340
(307)777-3938

Appendix K

Wyoming Bicycle and Pedestrian Statutes

Bicycles are legally classified as vehicles, and can be ridden on all public roadways in Wyoming. Wyoming Statutes related to bicycles and pedestrians are found in Title 31, Section 5 (Motor Vehicles), in the following articles:

ARTICLE 1 DEFINITIONS

31-5-102. Definitions.

(iii) "Bicycle" means every vehicle propelled solely by human power upon which any person may ride, having two (2) tandem wheels except scooters and similar devices;

(xxviii) "Pedestrian" means any person afoot;

(xxix) "Pedestrian vehicle" means any self-propelled conveyance designed, manufactured and intended for the exclusive use of persons with a physical disability, but in no case shall the vehicle:

(A) Exceed forty-eight (48) inches in width.

(B) Repealed by Laws 1989, ch. 155, § 2.

(C) Repealed by Laws 1989, ch. 155, § 2.

(xxx) "Physical disability" means any bodily impairment which precludes a person from walking or otherwise moving about easily as a pedestrian;

(xxxix) "Right-of-way" means the right of one (1) vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian approaching under such circumstances of direction, speed and proximity as to give rise to danger of collision unless one grants precedence to the other;

(xli) "Safety zone" means the area or space officially set apart within a roadway for the exclusive use of pedestrians and which is protected or is so marked or indicated by adequate signs as to be plainly visible at all times while set apart as a safety zone;

(xliv) "Sidewalk" means that portion of a street between curb lines, or the lateral lines of a roadway, and the adjacent property lines, intended for use of pedestrians;

(xlix) "Street or highway" means the entire width between the boundary lines of every way publicly maintained or if not publicly maintained, dedicated to public use when any part thereof is open to the use of the public for purposes of vehicular travel;

(lviii) "Vehicle" means every device, in, upon, or by which any person or property is or may be transported or drawn upon a highway, except devices used exclusively upon stationary rails or tracks;

(lii) "Traffic" means pedestrians, ridden or herded animals, vehicles and other conveyances either singly or together while using any highway for purposes of travel;

(lxii) "Motorized skateboard" means a self-propelled device which has a motor or engine, a deck on which a person may ride and at least two (2) wheels in contact with the ground and which is not otherwise defined in this act as a "motor vehicle", "motorcycle", "motor-driven cycle" or "pedestrian vehicle";

31-5-115. Operation of motorcycles and pedestrian vehicles.

(p) Any person operating a motorcycle or pedestrian vehicle shall have the headlamps of the motorcycle or pedestrian vehicle activated at all times, including daylight hours.

31-5-119. Clinging to vehicles.

(a) No person riding upon any bicycle, coaster, roller skates, sled or toy vehicle shall attach it or himself to any vehicle upon a roadway.

(b) This section does not prohibit attaching a bicycle trailer or bicycle semitrailer to a bicycle if the trailer or semitrailer was designed for the attachment.

(c) No person operating a vehicle shall permit a passenger to ride on the fender or running board of the vehicle nor shall any passenger ride on the fender or running board of a vehicle. This subsection does not apply to a commercial vehicle or a vehicle operated by or for a political subdivision of this state designed to permit a passenger to ride on a fender or running board, such as a fire department or trash collection truck.

ARTICLE 2 OPERATION OF VEHICLES GENERALLY

31-5-203. Rules governing overtaking on the left.

(a) The following rules shall govern the overtaking and passing of vehicles proceeding in the same direction, subject to those limitations, exceptions and special rules hereinafter stated and those contained in subsection (c) of this section:

(i) The driver of a vehicle overtaking another vehicle proceeding in the same direction shall pass to the left thereof at a safe distance and shall not again drive to the right side of the roadway until safely clear of the overtaken vehicle;

(ii) Except when overtaking and passing on the right is permitted, the driver of an overtaken vehicle shall give way to the right in favor of the overtaking vehicle on audible signal and shall not increase the speed of his vehicle until completely passed by the overtaking vehicle.

(b) A driver of a passenger car, motorcycle or pickup truck, not towing any other vehicle, may exceed the speed limit by up to ten (10) miles an hour while passing another vehicle traveling at less than the legal maximum speed, in order to safely pass the vehicle. The overtaking vehicle shall return to the right-hand lane and reduce speed to the posted speed limit as soon as practicable. This subsection shall be applicable only upon roadways divided into two (2) lanes for two (2) way movement of traffic and where the posted speed limit is fifty (50) miles per hour or greater. This subsection shall not be applicable in construction zones. Passing a vehicle pursuant to this subsection shall be subject to all other applicable motor vehicle laws. A driver of a vehicle exceeding the ten (10) mile per hour limitation of this subsection shall be subject to the full penalty or penalties applicable to exceeding the posted speed limit by the actual speed of the vehicle. As used in this section, "motorcycle," "passenger car," "pickup" and "vehicle" mean as defined in W.S. 31-1-101.

(c) The driver of a motor vehicle overtaking and passing a bicycle, which is operating lawfully, proceeding in the same direction shall, when space allows, maintain at least a three (3) foot separation between the right side of the driver's motor vehicle, including all mirrors and other projections from the motor vehicle, and the bicycle.

31-5-222. Stop signs and yield signs.

(a) Preferential right-of-way may be indicated by stop signs or yield signs as authorized in W.S. 31-5-503.

(b) Except when directed to proceed by a police officer, every driver of a vehicle approaching a stop sign shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection, or if none, then at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway before entering it. After having stopped the driver shall yield the right-of-way to any vehicle in the intersection or approaching on another roadway so closely as to constitute an immediate hazard during the time when the driver is moving across or within the intersection or junction of roadways. The driver shall yield the right-of-way to pedestrians within an adjacent crosswalk.

(c) The driver of a vehicle approaching a yield sign shall in obedience to the sign slow down to a speed reasonable for the existing conditions and, if required for safety to stop, shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection, or if none, then at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway before entering it. After slowing or stopping, the driver shall yield the right-of-way to any vehicle in the intersection or approaching on another roadway so closely as to constitute an immediate hazard during the time the driver is moving across or within the intersection or junction of roadways. The driver shall yield the right-of-way to pedestrians within an adjacent crosswalk. If the driver is involved in a collision with a pedestrian in a crosswalk or a vehicle in the intersection or junction of roadways, after driving past a yield sign without stopping, the collision shall be deemed prima facie evidence of his failure to yield the right-of-way.

ARTICLE 4 TRAFFIC CONTROL DEVICES

31-5-403. Signal legend generally.

(a) Whenever traffic is controlled by traffic-control signals exhibiting different colored lights, or colored lighted arrows, successively one (1) at a time or in combination, only the colors green, red and yellow shall be used, except for special pedestrian signals carrying a symbol or word legend, and the lights shall indicate and apply to drivers of vehicles and pedestrians as follows:

(i) Green indication:

(A) Vehicular traffic facing a circular green signal may proceed straight through or turn right or left unless a sign prohibits either turn. But vehicular traffic, including vehicles turning right or left, shall yield the right-of-way to other vehicles and to pedestrians lawfully within the intersection or an adjacent crosswalk at the time the signal is exhibited;

Wyoming Bicycle and Pedestrian Transportation Plan

(B) Vehicular traffic facing a green arrow signal, shown alone or in combination with another indication, may cautiously enter the intersection only to make the movement indicated by the arrow, or such other movement as is permitted by other indicators shown at the same time. The vehicular traffic shall yield the right-of-way to pedestrians lawfully within an adjacent crosswalk and to other traffic lawfully using the intersection;

(C) Unless otherwise directed by a pedestrian-control signal, as provided by W.S. 31-5-404, pedestrians facing any green signal, except when the sole green signal is a turn arrow, may proceed across the roadway within any marked or unmarked crosswalk.

(ii) Steady yellow indication:

(A) Vehicular traffic facing a steady circular yellow or yellow arrow signal is thereby warned that the related green movement is being terminated or that a red indication will be exhibited immediately thereafter;

(B) Pedestrians facing a steady circular yellow or yellow arrow signal, unless otherwise directed by a pedestrian-control signal as provided by W.S. 31-5-404, are thereby advised that there is insufficient time to cross the roadway before a red indication is shown and no pedestrian shall then start to cross the roadway.

(iii) Steady red indication:

(A) Vehicular traffic facing a steady circular red signal alone shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection or, if none, then before entering the intersection and shall remain standing until an indication to proceed is shown except as provided in subparagraph (C) of this paragraph;

(B) Vehicular traffic facing a steady red arrow signal shall not enter the intersection to make the movement indicated by the arrow and, unless entering the intersection to make a movement permitted by another signal, shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection, or if none, then before entering the intersection and shall remain standing until an indication permitting the movement indicated by the red arrow is shown except as provided by subparagraph (C) of this paragraph;

(C) Except when a sign is in place prohibiting a turn, vehicular traffic facing any steady red signal may cautiously enter the intersection to turn right, or to turn left from a one-way street into a one-way street after stopping as required by subparagraphs (A) and (B) of this paragraph. The vehicular traffic shall yield the right-of-way to pedestrians lawfully within an adjacent crosswalk and to other traffic lawfully using the intersection;

(D) Unless otherwise directed by a pedestrian-control signal as provided by W.S. 31-5-404, pedestrians facing a steady circular red or red arrow signal alone shall not enter the roadway.

(b) If an official traffic-control signal is erected and maintained at a place other than an intersection, this section is applicable except as to those provisions which by their nature can have no application. Any stop

required shall be made at a sign or marking on the pavement indicating where the stop shall be made, but in the absence of any sign or marking the stop shall be made at the signal.

31-5-404. Pedestrian-control signals.

(a) Whenever special pedestrian-control signals exhibiting the symbols or words "Walk" or "Don't Walk" are in place the signals shall indicate as follows:

(i) Flashing or steady walk: Any pedestrian facing the signal may proceed across the roadway in the direction of the signal and every driver of a vehicle shall yield the right-of-way to him;

(ii) Flashing or steady don't walk: No pedestrian shall start to cross the roadway in the direction of the signal, but any pedestrian who has partially completed his crossing on the walk signal shall proceed to a sidewalk or safety island while the don't walk signal is showing.

ARTICLE 6 PEDESTRIANS' RIGHTS AND DUTIES

31-5-601. Obedience to traffic-control devices; general privileges and restrictions.

(a) A pedestrian shall obey the instructions of any official traffic-control device specifically applicable to him unless otherwise directed by a police officer.

(b) Pedestrians are subject to traffic-control signals at intersections as provided by W.S. 31-5-403 and 31-5-404.

(c) At all other places pedestrians shall be accorded the privileges and are subject to the restrictions stated in this act.

31-5-602. Right-of-way in crosswalks.

(a) When traffic-control signals are not in place or not in operation, the driver of a vehicle shall yield the right-of-way by slowing down or stopping if need be to yield, to any pedestrian within or entering a crosswalk at either edge of the roadway.

(b) When traffic-control signals are not in place or not in operation at a school crosswalk, the driver of a vehicle shall yield the right-of-way to any pedestrian within or entering a school crosswalk at either edge of the roadway by slowing down or stopping.

(c) No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close as to constitute an immediate hazard.

(d) Subsection (a) of this section does not apply under the conditions stated in W.S. 31-5-603(b).

(e) Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass the stopped vehicle.

31-5-603. Crossing at other than crosswalks.

(a) Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway.

(b) Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right-of-way to all vehicles upon the roadway.

(c) Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk.

(d) No pedestrian shall cross a roadway intersection diagonally unless authorized by official traffic-control devices. When authorized to cross diagonally, pedestrians shall cross only in accordance with the official traffic-control devices pertaining to the crossing movements.

31-5-604. Use of right half of crosswalks.

Pedestrians shall move, whenever practicable, upon the right half of crosswalks.

31-5-605. Walking along roadways or highways.

(a) Where a sidewalk is provided and its use is practicable it is unlawful for any pedestrian to walk along and upon an adjacent roadway.

(b) Where sidewalks are not provided any pedestrian walking along and upon a highway shall, when practicable, walk only on the left side of the roadway or its shoulder facing traffic which may approach from the opposite direction as far as practicable from the edge of the roadway.

(c) Except as otherwise provided in this act, any pedestrian upon a roadway shall yield the right-of-way to all vehicles upon the roadway.

31-5-606. Soliciting on streets and highways.

(a) No person shall be on a highway for the purpose of soliciting employment, business or contributions from the occupant of any vehicle.

(b) No person shall stand on or in proximity to a street or highway for the purpose of soliciting the watching or guarding of any vehicle while parked or about to be parked on a street or highway.

31-5-607. Exercise of due care by drivers.

Notwithstanding other provisions of this act or the provisions of any local ordinance, every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian or any person propelling a human powered vehicle and shall give an audible signal when necessary and shall exercise proper precaution upon observing any child or any obviously confused, incapacitated or intoxicated person.

31-5-608. Driving through or within safety zone.

No vehicle shall at any time be driven through or within a safety zone.

31-5-609. Right-of-way on sidewalks.

The driver of a vehicle crossing a sidewalk shall yield the right-of-way to any pedestrian and all other traffic on the sidewalk.

31-5-610. Yielding of right-of-way to authorized emergency vehicles.

(a) Upon the immediate approach of an authorized emergency vehicle making use of an audible signal meeting the requirements of W.S. 31-5-952 and visual signals meeting the requirements of W.S. 31-5-928, or of a police vehicle properly and lawfully making use of an audible signal only, every pedestrian shall yield the right-of-way to the authorized emergency vehicle.

(b) This section shall not relieve the driver of an authorized emergency vehicle from the duty to drive with due regard for the safety of all persons using the highway nor from the duty to exercise due care to avoid colliding with any pedestrian.

31-5-611. Blind pedestrian right-of-way.

The driver of a vehicle shall yield the right-of-way to any blind pedestrian carrying a clearly visible white cane or accompanied by a guide dog.

31-5-612. Pedestrians under influence of alcohol or controlled substances.

A pedestrian who is under the influence of alcohol or any controlled substance to a degree which renders himself a hazard shall not walk or be upon a highway.

31-5-613. Passing through railroad crossing gate or barrier.

No pedestrian shall pass through, around, over or under any crossing gate or barrier at a railroad grade crossing or bridge while the gate or barrier is closed or is being opened or closed.

ARTICLE 7 BICYCLES

31-5-701. Prohibited acts.

(a) It is a misdemeanor for any person to do any act forbidden or fail to perform any act required in W.S. 31-5-701 through 31-5-706.

(b) The parent of any child and the guardian of any ward shall not authorize or knowingly permit the child or ward to violate any provision of this act.

31-5-702. General rights and duties of riders.

Every person propelling a vehicle by human power or riding a bicycle has all of the rights and all of the duties applicable to the driver of any vehicle under this act, except as to special regulations in this act and except as to those provisions which by their nature can have no application.

31-5-703. Number of riders.

No bicycle shall be used to carry more persons at one (1) time than the number for which it is designed or equipped except that an adult rider may carry a child securely attached to his person in a backpack or sling.

31-5-704. Riding on roadways and designated paths.

(a) Every person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable exercising due care when passing a standing vehicle or one proceeding in the same direction.

(b) Persons riding bicycles upon a roadway shall not ride more than two (2) abreast except on paths or parts of roadways set aside for the exclusive use of bicycles. Persons riding two (2) abreast shall not impede the normal and reasonable movement of traffic and, on a laned roadway, shall ride within a single lane.

(c) Repealed By Laws 2007, Ch. 112, § 1.

31-5-705. Carrying articles.

No person operating a bicycle shall carry any package, bundle or article which prevents the use of both hands in the control and operation of the bicycle. A person operating a bicycle shall keep at least one (1) hand upon the handle bars at all times.

31-5-706. Lamps and other equipment.

(a) Every bicycle when in use at nighttime shall be equipped with a lamp on the front which shall emit a white light visible from a distance of at least five hundred (500) feet to the front and with a red reflector on the rear of a type approved by the highway department which shall be visible from six hundred (600) feet to the rear when directly in front of lawful lower beams of head lamps on a motor vehicle. A lamp emitting a red light visible from a distance of five hundred (500) feet to the rear may be used in addition to the red reflector.

(b) A bicycle shall not be equipped with nor shall any person use upon a bicycle any siren or whistle.

(c) Every bicycle shall be equipped with a brake which will enable the operator to stop the bicycle within twenty-five (25) feet from a speed of ten (10) miles per hour on dry, level, clean pavement.

