

Appendix B

State of Bicycling in Fort Collins



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Acknowledgements

Lead Agency:



City of Fort Collins FC Moves
FC Bikes Program

Consultant Team:



Toole Design Group
Felsburg Holt & Ullevig

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Introduction

Fort Collins is a shining example of how to “do it right” in virtually all aspects of cycling.
- *League of American Bicyclists*¹

Fort Collins is one of the best places in the country to ride a bicycle. Because of the exemplary bicycle-related education, enforcement and encouragement programs, and the substantial amount of bicycle infrastructure, it was awarded the Platinum Bicycle Friendly Community designation by the League of American of Bicyclists (LAB) in 2013, joining only three other cities in the United States.

The 2008 *Bicycle Plan* (2008 Plan), 2011 *Bicycle Safety Education Plan* (BSEP), and 2013 *Paved Recreational Trail Master Plan* (2013 Trails Plan) helped lay the groundwork for the current bicycling environment. The City is building on those previous efforts by developing the 2014 Bicycle Master Plan. The 2014 Master Plan starts from a place of strength, yet seeks to create an even safer and more inviting bicycling environment in Fort Collins—where people of all ages and abilities can safely and comfortably ride a bicycle.

One of the first steps of the 2014 Bicycle Master Plan is to establish a baseline understanding of the current state of bicycling in Fort Collins, which will directly inform recommendations for the Plan.

This report includes information, data, and analysis about the following:

- History of bicycling in Fort Collins
- Ridership and safety
- Existing bicycle infrastructure/facilities
- Bicycle-related programs and policies
- Investments in bicycling

¹ League of American Bicyclists, Fort Collins, CO Bicycle Friendly Community Feedback Report, 2013.

History

Bicycling in Fort Collins has evolved over the past several decades. The City began to plan for and build its infrastructure in the 1970s, when social awareness caused the City to stripe its first bike lane and to plan for a paved trail system. The Transportation Master Plan of 1980, along with subsequent updates, identified bicycle improvements, and in 1995, the City developed its first comprehensive bicycle plan. Since then, the City has consistently worked to improve its bicycling environment.

Fort Collins’ environmental awareness, progressive land use and transportation leadership, and expanding bicycle infrastructure and supportive programs have contributed to the steady growth of bicycling in the City. Other factors include the temperate climate, plentiful sunshine, flat terrain, and relatively wide streets.²



FIGURE 1: CORNER OF WALNUT AND PINE, 1890

Source: Fort Collins History Connection

² City of Fort Collins, 2008 Bicycle Plan, 2008, Page 8.

Since the early 2000s, the City has made great strides in adding infrastructure and, most notably, developing bicycle-related programs. The City first focused on encouragement programs, such as citywide events, media outreach, and partnerships with local businesses. These efforts led to Fort Collins now having 15 LAB Bicycle Friendly Businesses, including New Belgium Brewing Company, which was awarded the program's highest designation of Platinum in 2009.³ The City invested in education and safety with the adoption and early implementation of the Bicycle Safety Education Plan, the creation of the Bicycle Ambassador Program, and the Safe Routes to School position within the City's FC Moves department.

The City also added infrastructure during the 2000s, including paving many of the trails and installing on-street bicycle parking, bike lanes, underpasses, and a bike box at the Shields and Plum Streets intersection. Another important element of the City's bicycle culture, the Fort Collins Bike Library, was created in 2008 and remains an important source of community pride and a catalyst for increasing bicycling.⁴



FIGURE 2: BIKE LIBRARY BIKES AT THE BEST WESTERN UNIVERSITY INN

³ www.bikeleague.org/bfa#business (visited April 2014). The City, one of the largest employers with 1,500 employees, was awarded Gold in 2011.

⁴ Kemp, Dave, Personal Interview, April 7 2014.

Partnerships with organizations such as Bike Fort Collins, the Bicycle Advisory Committee, the Fort Collins Bicycle Co-Op, Colorado State University (CSU), ClimateWise, Bicycle and Pedestrian Education Coalition (BPEC), and Bicycle Colorado, among others, have been a major part of the City's success.

Finally, the City was able to develop a high-quality bicycle environment because it and its partners were strategic in obtaining and leveraging federal grants and local funding such as Congestion Mitigation and Air Quality Improvement (CMAQ) funds. This is discussed in more detail in the Investment section of this report.

The City's deliberate efforts to create a strong bicycle culture in Fort Collins have been nationally recognized. In 2003, the LAB recognized the City as a Silver Bicycle Friendly Community, and in 2008, as Gold. In 2013, LAB awarded Fort Collins Platinum-level designation, joining only three other cities in the United States.

Existing Related Plans

The state, region, and City have adopted numerous plans that have helped create and support the current bicycling environment. The section that follows discusses existing plan recommendations that will inform the 2014 Bicycle Master Plan.

Statewide Bicycle and Pedestrian Plan

The Colorado Department of Transportation's (CDOT's) 2012 *Statewide Bicycle and Pedestrian Plan* outlines an approach to deciding which bicycle and pedestrian projects to fund based on the following goals:

- Enhance safety
- Increase bicycling and walking activity
- Expand recreational opportunities and enhance quality of life
- Improve public health

- Improve the environment, air quality, and fossil fuel dependence
- Provide transportation equity
- Maximize transportation investments
- Improve statewide and regional economy

The *Statewide Bicycle and Pedestrian Plan* focuses on what CDOT has jurisdiction over and therefore, does not make specific recommendations for facilities or programs in Fort Collins. The *Statewide Bicycle and Pedestrian Plan* includes several action items for CDOT including adopting appropriate multimodal level of service (LOS) targets and studying statewide bicycle and pedestrian crashes.

NFR MPO Regional Bicycle Plan

The North Front Range Metropolitan Planning Organization (NFRMPO), which includes the City of Fort Collins, completed a bicycle plan in 2013. The *NFR MPO Regional Bicycle Plan* identifies several regional bicycle corridors that comprise a network. Corridors that connect to or travel through Fort Collins include: Poudre River Trail, Front Range Trail (West), and BNSF Fort Collins/Berthoud. The *NFR MPO Regional Bicycle Plan* documents the following planned or future on-street bicycle projects associated with these corridors:

- Bike lanes along Harmony Road connecting to Harmony Park and Ride
- Connection along East Prospect Road from Timnath to Fort Collins
- Local connection from Front Range Trail (West) to BNSF Corridor (Mason Trail)

The *NFR MPO Regional Bicycle Plan* also makes programmatic recommendations that relate to Fort Collins. These include the placement of temporary or permanent bicycle counters (at Taft/Shields between Fort Collins and Loveland along the Front Range Trail (West) and BNSF Fort Collins/Berthoud (Mason Trail), and on the Poudre River crossing of I-25) and the exploration of bike sharing locations.

City Plan & Transportation Master Plan

City Plan, Fort Collins' comprehensive plan, was updated in 2011, concurrent with the last *Transportation Master Plan* (TMP) update. *City Plan* is built on a community vision with three themes: innovate, sustain, and connect; these themes relate to bicycling in various ways. *City Plan*, by its nature, provides broad goals to support and shape specific recommendations typically contained in other planning documents.

One of the major goals of *City Plan* is community and neighborhood livability. The goals and principles related to bicycling include a "complete streets" approach to commercial districts and the promotion of bicycling along Enhanced Travel Corridors (ETCs).⁵

The transportation section of *City Plan* contains several goals related to bicycling, including:

- Flexible standards, policies, and operational strategies to accommodate innovative modes
- Promotion of transportation that supports active lifestyles
- Establishment of bicycling as a safe, easy, and convenient mobility option for all ages and abilities
- Promotion of transportation safety awareness.⁶

The TMP aims to achieve a variety of outcomes consistent with the core values discussed in *City Plan*. Goals to enhance bicycling appear throughout the TMP: increasing awareness of healthy transportation; promoting bicycle safety and enforcement; designing high-quality and environmentally sustainable trails and streets; making bicycling safe, easy, and convenient for all; and encouraging land use planning and development to support bicycling.

⁵ City of Fort Collins, *City Plan*, 2011, Pages 81 and 95.

⁶ City of Fort Collins, *City Plan*, 2011, Pages 126-144.

City Plan and the TMP include the following action items that relate to bicycling.⁷

Achievements of these actions are noted, where applicable.

Near-Term Actions:

- Evaluate the existing on-street bicycle system and update the LOS criteria
- Implement additional pedestrian and bicycle safety education programs (*Addressed with early implementation of BSEP*)
- Update the Master Street Plan Classifications and Larimer County Urban Area Street Standards to address needs for context-sensitive elements
- Update bicycle/pedestrian trail design standards to address use of trails for commuting/transportation purposes (*Addressed with 2013 Trails Plan*)
- Evaluate/improve bicycle wayfinding (*In progress*)
- Plan for and design a “green street” demonstration project (*Currently being addressed for the Remington Corridor*)

The only longer-term action that specifically relates to bicycling is to update the bicycle plan.

The City’s ultimate goal with *City Plan* is to create a world-class city. One of the ways to do that is to maintain Fort Collins’ high-performing government and its processes such as the triple bottom line (TBL) sustainability approach and the budgeting for outcomes (BFOs) process. The 2015/2016 BFO process includes an interdisciplinary process to allocate project funds based on desired goals and outcomes.

2008 Bicycle Plan

The 2008 Plan presents a broad set of recommendations for on-street engineering improvements, expanding already-strong bicycling programs, strengthening the community’s tie to bicycling, and increasing connections with other modes of travel.

The primary goals of the 2008 Bicycle Plan were to:

- Create a community wherein choosing bicycling as transportation is an easy choice.
- Expand opportunities for the residents and visitors to Fort Collins to incorporate bicycling into their daily lives.

The recommendations of the 2008 Plan are summarized in Table 1. Many of the recommended actions have since been taken, resulting in considerable improvement in the City’s bicycling environment.

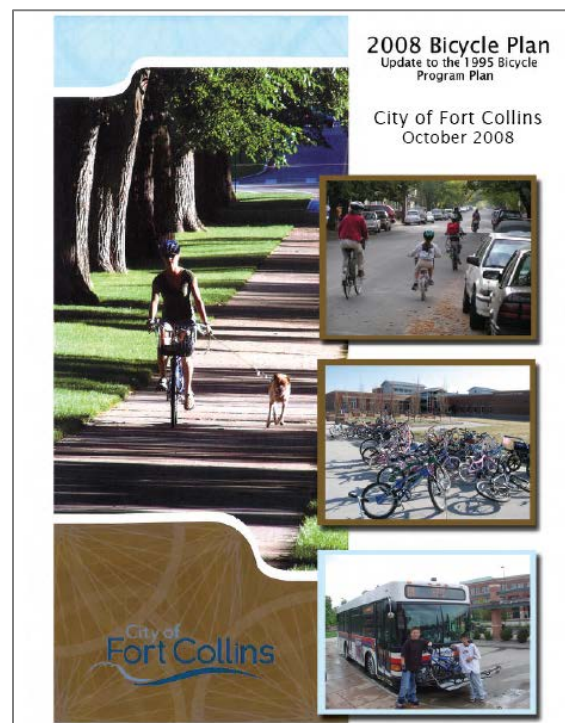


FIGURE 3: PLANNED BIKEWAY NETWORK FROM 2008 PLAN

⁷ City of Fort Collins, *City Plan*, 2011, Pages 144, 146, and 153.

TABLE 1: SUMMARY OF RECOMMENDATIONS FROM THE 2008 BICYCLE PLAN

Engineering and the Proposed Bikeway Network	Continued implementation of projects identified on Hot List I
	Pursue implementation of projects identified on Hot List II
	Identify and implement interim solutions
	Continued implementation of the Transportation Master Plan and the Master Street Plan
	Continue and improve maintenance of Priority Commuter Routes
	Improve signal detection loops
	Examine innovative bicycle traffic solutions such as bike boxes and bike boulevards
Promoting Bicycling through Education, Encouragement	Maintain existing education and encouragement programs and solicit more participation
	Continue to develop and implement innovative education and encouragement programs, campaigns, and events
	Continue to foster relationships between non-profits, advocacy, and community groups and build public-private partnerships
	Consider the implementation of car-free events
	Reinforce yield and safety education programs pertaining to bicyclists and other bike lane and trail users
Enforcement	Work closely with local enforcement agencies to create innovative, proactive, educational campaigns
	Bridge the gap of understanding between bicyclists and local enforcement agencies by providing current and consistent information
	Coordinate training sessions to ensure knowledge on current local, regional, and national bicycle policies and ordinances
	Establish enforcement techniques for handling special events and protests
	Explore the creation of a Share the Road Safety Class
	Establish “sting” operations in coordination with local enforcement agencies to address bicycle theft and traffic-law evasion by bicyclists
Recognizing Economic, Environmental and Community Benefits	Continue to support and encourage infrastructure development, bicycle sporting events, recreational biking, and bicycle facilities
	Use the local bicycle culture to attract employers, new residents, business, and visitors
	Encourage bicycle-related businesses and manufacturers
	Establish measurement methods for environmental benefits
	Coordinate with other City initiatives to measure environmental benefits
	Pursue the formation of a Bicycle Advisory Committee (BAC)
	Pursue the Platinum Level designation with the League of American Bicyclists
	Establish performance measures for bicycle programs and facilities
Maintain support for existing programs	
Multimodal Connectivity	Expand opportunities for bicycle-transit/bicycle-pedestrian/bicycle-car auto linkage
	Incorporate bicycle parking at transit stops and stations
	Improve and expand bicycle parking throughout the City
	Encourage installation of showers and changing facilities at workplaces

Source: City of Fort Collins, 2008 Bicycle Plan

Though BSEP was a separate effort completed in 2011, it is considered an additional element of the 2008 Plan. The BSEP recommends specific programmatic actions to address safety and educational needs for the following entities: youth, college students, commuters, motorists, and law enforcement. It makes numerous policy, programmatic, and bike facility recommendations related to education and safety improvements. The City's progress on implementing BSEP is discussed in the Policies and Programs Section of this report.

Finally, the 2013 Trails Plan made recommendations for enhancements to the City's paved trail system, including connections between trails and on-street bicycle facilities (see Figure 4). Although the focus of that plan was on recreational trails, it recognized that those trails are used by a large number of commuters and for many utilitarian bicyclist trips. Although the focus of the 2014 Bicycle Master Plan is on-street bicycle facilities, the new Plan will incorporate and build upon the recommendations from the 2013 Trails Plan regarding trails and trail connections.

Land Use and Character

Fort Collins has a relatively dense grid of streets in Old Town and the surrounding neighborhoods. Similarly, the land uses, population, and employment in this central part of the city are also dense and mixed use. In the majority of the city, however, the street network is sometimes curvilinear and not well connected, and the land uses have been developed at a suburban scale. The suburban nature of much of Fort Collins is reflected in many of the current transportation issues and policies, impacting how well the bicycle facilities function.

However, the city's transportation and land use landscape is changing. The introduction of Colorado's first bus rapid transit (BRT) service, MAX, in May of 2014 is anticipated to spur

compact development around stations. Additionally, MAX and the city's bicycle network are intended to work together to encourage multimodal travel throughout Fort Collins.

Map 2 Trail-Street Connections

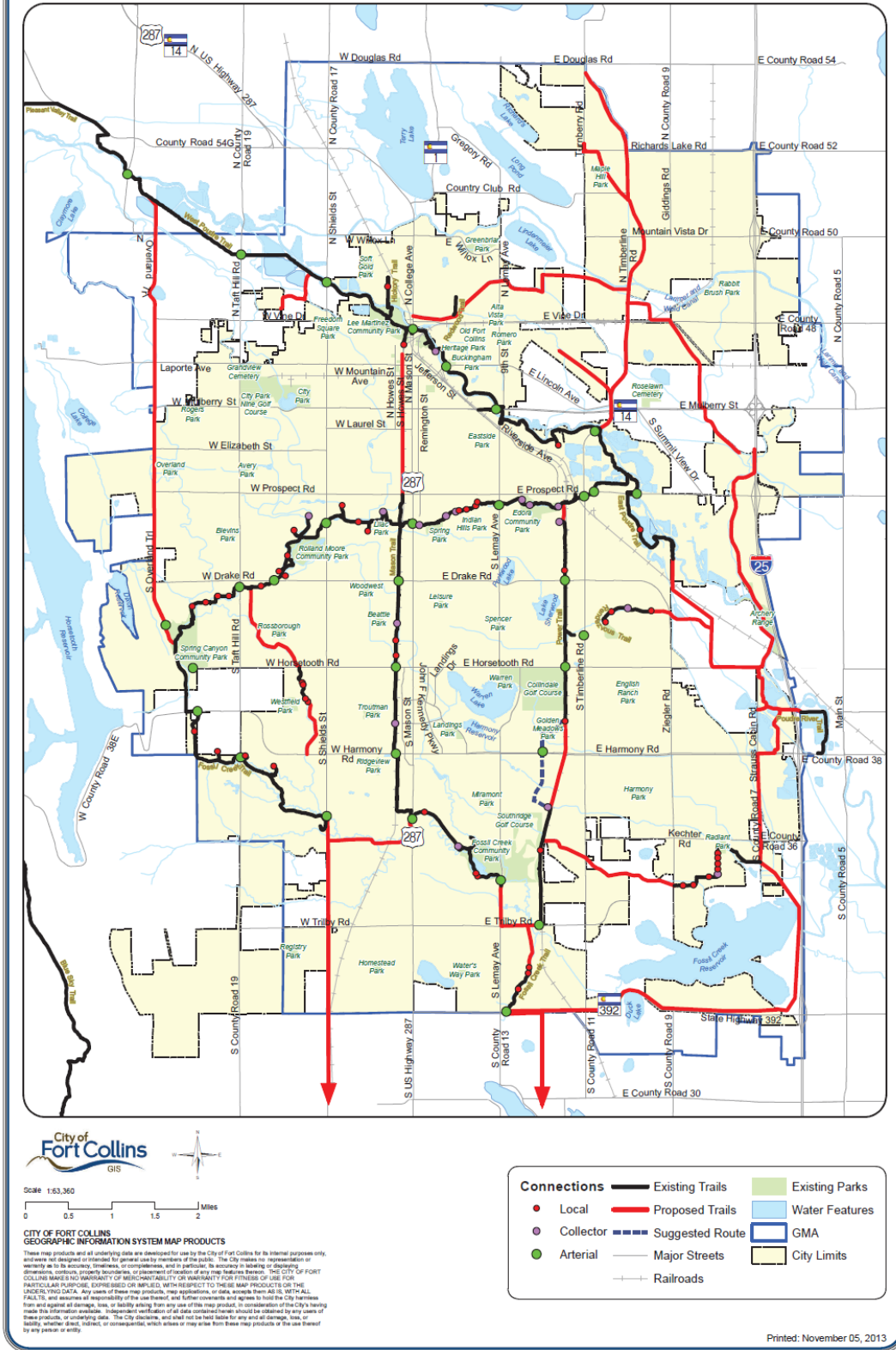


FIGURE 4: PROPOSED TRAIL-STREET CONNECTIONS FROM 2013 TRAILS PLAN

Ridership & Safety

In a recent community survey, 83 percent of Fort Collins residents reported that the ease of traveling by bicycle is *good* or *very good*, making it the mode of travel with which residents are most satisfied. Only 20 percent of residents rated the city's level of traffic congestion as *good* or *very good*. Forty-nine of the survey's write-in responses were related to bicycle travel or infrastructure.⁸ City residents clearly have bicycling on their minds.

Ridership

Bicycling in Fort Collins has increased over the past ten years. Anecdotally, residents and visitors see more riders on the streets and trails, including a variety of types of bicyclists from daily commuters to families. Government-collected data back up these observations. As shown in Figure 5, data collected by the United States Census Bureau (Census Bureau) shows an increase in commute mode share over the past decade. Using the Census Bureau three-year estimates, the 2012 bicycle commute mode share was 6.4 percent. The 2012 Census Bureau one-year estimates report a 7.9 percent bicycle commute mode share; however, the data has a margin of error of +/-1.7. Three-year estimates are used in this report instead of one-year, because they typically have a smaller margin of error. Bicycle commute share was higher for males than females, which is typical of American cities.

This data only pertains to work trips and does not capture other types of trips; therefore, these numbers may underrepresent the amount of bicycle trips taken in Fort Collins.

⁸ City of Fort Collins, Citizen Survey Report of Results, December 2013, Pages 18 and 64-90. The survey was completed by 535 people.

All bicycle trips, including non-commute trips, are evaluated as part of the Household Survey conducted decennially by the North Front Range Metropolitan Planning Organization (NFRMPO). The 2009 survey indicates that 6.7 percent of all trips in Fort Collins were taken by bicycle, up from 4.4 percent in the 2000. The average length of these trips was 18 minutes, or about four miles at the speed of a typical rider. The same survey found that 13.3 percent of commute trips in Fort Collins were taken by bicycle, which is a much higher rate than reported in the Census Bureau data.⁹

According to the 2009 NFRMPO survey, households in Fort Collins have higher-than-average bicycle ownership compared with the rest of the region, with an average of 2.18 bicycles per household. The average household size is 2.52 people.

Colorado State University (CSU) recently collected ridership information through a survey associated with their Parking and Transportation Master Plan. As the largest employer in Fort Collins, CSU's commuter travel represents a large share of daily trips in the City. Approximately 8 percent of respondents—both students and staff—arrive at CSU on bicycle. There appears to be an opportunity to increase bicycling to campus, as nearly 64 percent of respondents live within five miles of campus¹⁰ and for those who reported that they typically drive alone to work, bicycling was their most preferred second choice.

Fort Collins also collects data on school-based travel for elementary and middle school students through parent and student surveys at schools throughout the Poudre School District. These surveys are conducted every few years

⁹ North Front Range Metropolitan Planning Organization, Front Range Travel Counts: NFRMPO Household Survey Final Report, 2010.

¹⁰ Colorado State University, Parking and Transportation Study, 2013, Pages 41-50.

based on the availability of resources. Since 2007, these surveys have shown that an estimated 9 percent of elementary and middle school students bicycle to school.

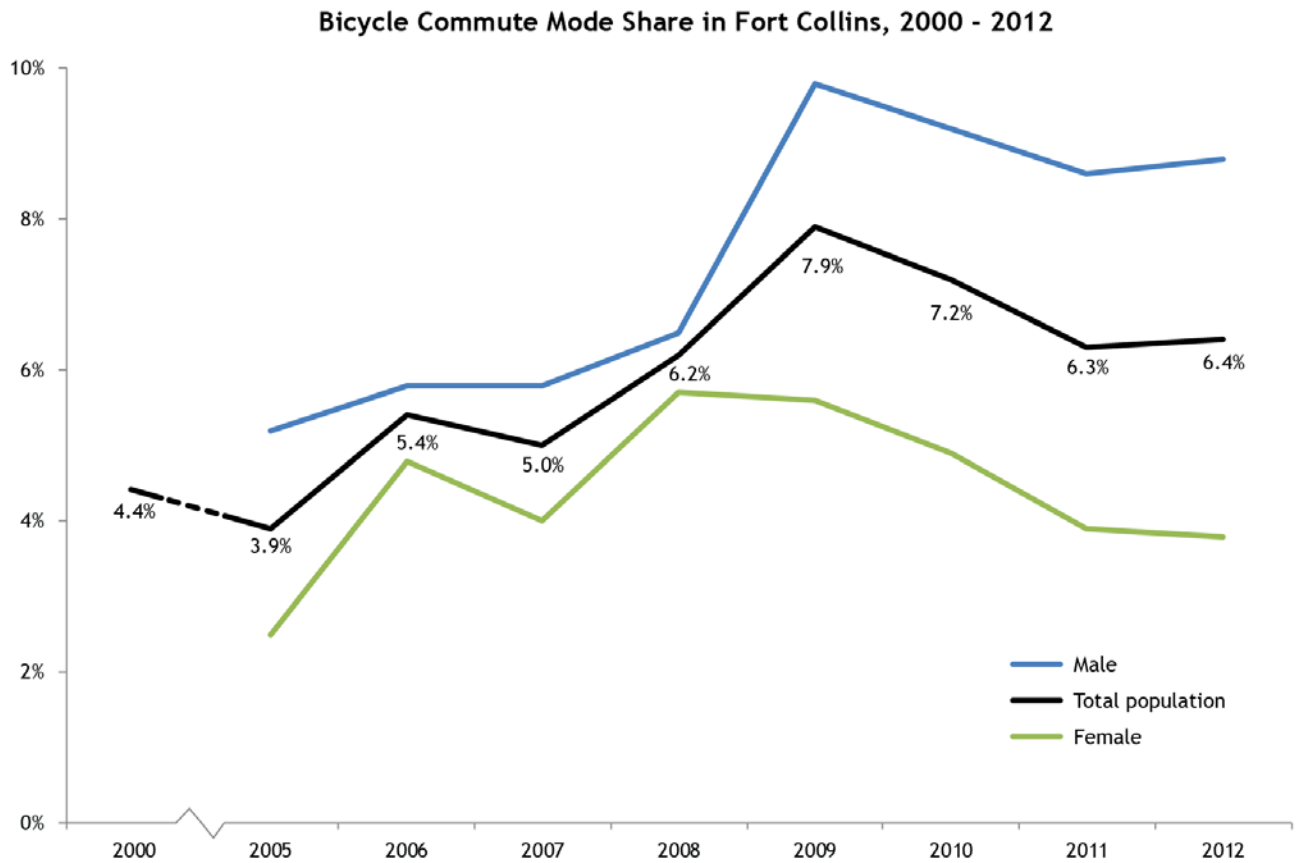


FIGURE 5: BICYCLE COMMUTE MODE SHARE, 2000-2012

Note: Data for 2000 is from the Decennial Census, and a breakdown by gender was not available. All other data points are from the American Community Survey: from 2005-2006 are one-year estimates, and from 2007-2012 are three-year estimates. All estimates have a margin of error; the 2009 estimate's is +/- 1.8.

Bicycle Counts

Fort Collins' bicycle count data comes from two sources: the Traffic Department and FC Moves.

The Traffic Department collects bicycle counts as part of their Intersection Turning Movement Report program. These counts are done regularly for all 180 of the city's signalized intersections. As part of these counts, the department notes bicyclists riding on the sidewalk and whether they traveling with or against traffic flow as they enter intersection crosswalks. The department does not currently count bicyclists riding against traffic flow within the street, but may begin to do so in the future.

A review of this data from July 2010 and November 2013 finds 74.1 percent of bicyclists were riding in the road compared with 25.9 percent riding on sidewalks.¹¹ Of the 25.9 percent riding on sidewalks, 59 percent are riding in the same direction as traffic with 41 percent riding in the opposite direction as traffic. Due to the overrepresentation of sidewalk riding in crashes, it is a focus area of this plan, as discussed in the Safety section of this report. Sidewalk riding indicates a lack of comfort with the on-road accommodation or intersection treatment or a need for education outreach to modify the behavior.

The City started collecting trail counts in 2012. FC Moves began conducting manual bicycle counts in 2013, following the methods of the National Pedestrian and Bicycle Documentation Project (NPBDP). These counts are organized by FC Moves and conducted by trained volunteers. The count locations were distributed at intersections throughout the city, specifically at sites of upcoming projects and important bicycle corridors. The first counts were

¹¹ A number of intersections with high percentages of sidewalk riding were located on the sections of College Avenue where bicycles are prohibited from riding in the roadway, which may skew the percentages.

conducted on Saturday, September 21 and Tuesday, September 24, 2013 at 10 locations throughout the city.¹²

The September counts identified a 65 percent male to 35 percent female ratio, with 40 percent of riders observed wearing helmets.¹³ In the United States, it is typical to see a ratio of 2 or 3 male per female bicyclists—and Fort Collins is no exception—while in the Netherlands the ratio is close to 1 to 1.¹⁴ A balance of male to female bicyclists is an indicator of a bicycle friendly community.

Using the trail counts and the counts conducted by FC Moves, the consultant team applied procedures recommended by the NPBDP to estimate the daily ridership and geographic distribution of bicycling at selected intersections, as shown in Figure 6. Estimated daily counts range from a low of 200 bicyclists at Ketcher Road and Ziegler Road, to a high of 1,800 bicyclists at East Prospect Road and Remington Street. It is difficult to draw conclusions from these counts at this time; many of the locations were deliberately chosen because they are high ridership, and the program is in its infancy.

¹² Counts were conducted on Tuesday, Wednesday or Thursday during fair weather in September over two-hour periods in the AM and PM peaks.

¹³ The data is not scientifically-valid due to the limited sample size.

¹⁴ www.scientificamerican.com/article/getting-more-bicyclists-on-the-road/ (visited April 2014)

DAILY BICYCLE VOLUME ESTIMATES, 2013

* ESTIMATES ARE EXTRAPOLATED FROM SEPTEMBER 2013 TWO-HOUR COUNTS

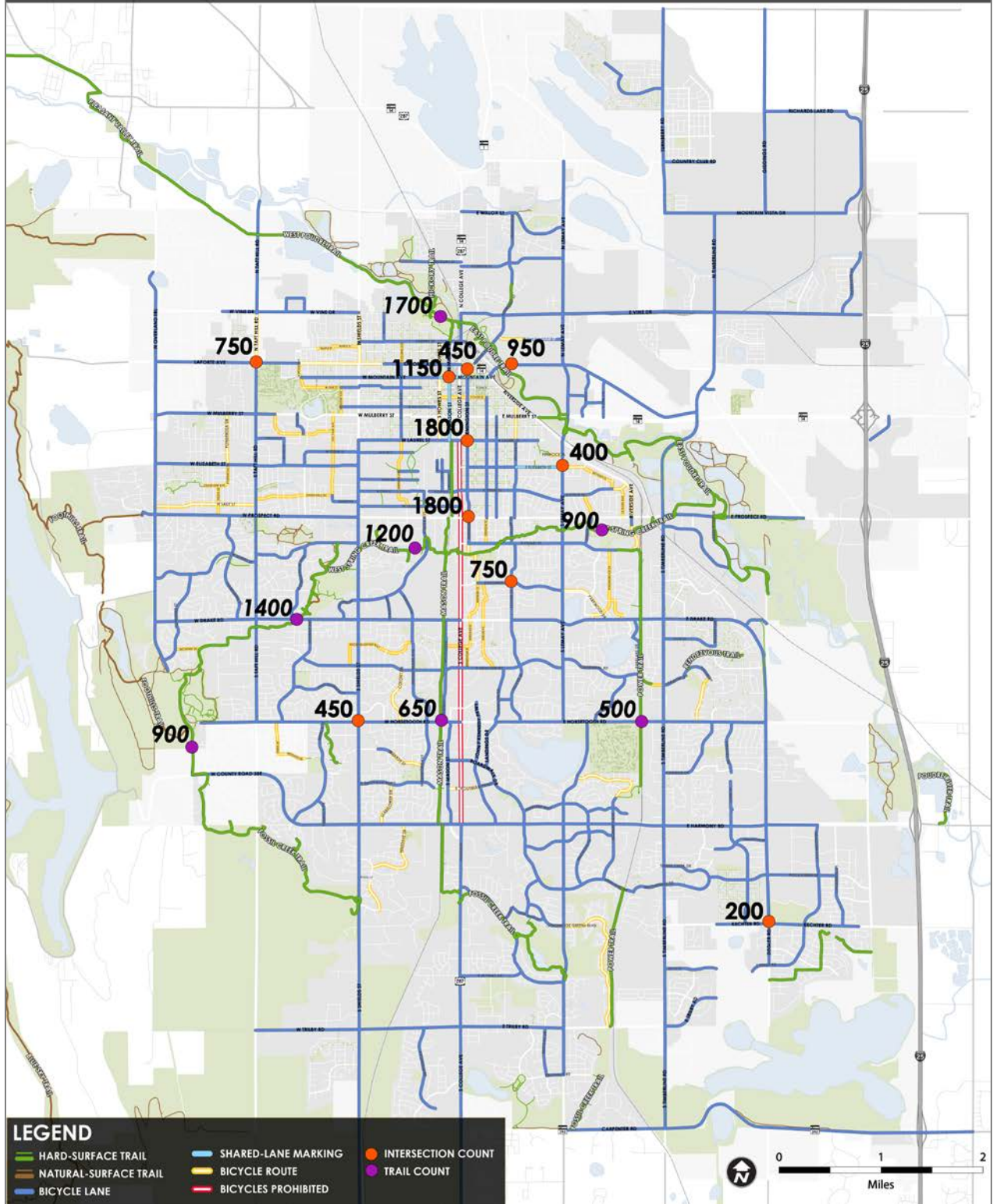


FIGURE 6: ESTIMATED DAILY BICYCLE COUNTS

Bicycle Rider Typology

Generally, bicycle planning professionals accept that there is a large percentage of the American population that is interested in cycling for transportation purposes but do not currently cycle for a variety of reasons. People typically have positive memories of bicycling in their youth and associate bicycling with expanded personal freedom and adventure. But as they have grown older, most have come to consider bicycling to be a recreational activity that is safest on trails, or to perceive riding on the streets as unsafe and unappealing.

A number of research studies have shown that a bicyclist's perception of their personal safety riding on a roadway is greatly influenced by their proximity to and interaction with motorized traffic. At low volumes and speeds of traffic, many people feel safe and comfortable sharing the roadway with traffic. As traffic speed and volumes increase, a bicyclist's perceived safety degrades significantly, resulting in a feeling of increased stress and discomfort on the roadway.

A seminal 2012 survey in Portland, Oregon questioned residents about their level of comfort riding on various street types with and without bicycle facilities.¹⁵ Respondents were sorted into four categories, shown in Figure 7 and Table 2, based upon their stated comfort level riding on various street types and on their safety concerns. The study found that nearly 60 percent of the population is interested in bicycling, but concerned for their safety.

The 2014 Bicycle Master Plan is considering the needs, skills, and desires of a range of bicyclists, with an emphasis on people who fall into the *Interested but Concerned* - those who

are concerned about safety and have a low tolerance for stressful street conditions.

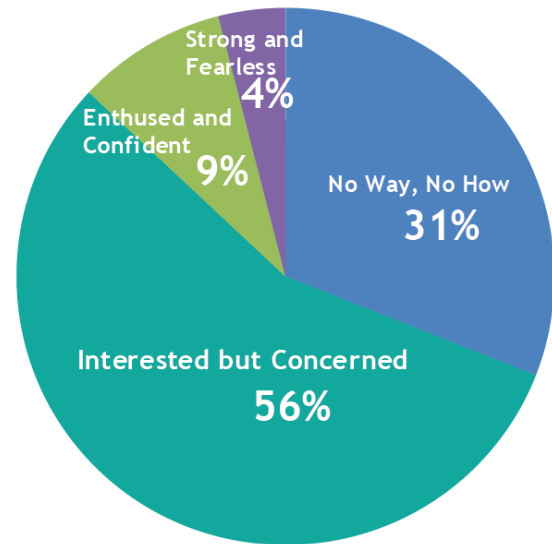


FIGURE 7: TYPICAL BICYCLIST TYPOLOGY

TABLE 2: BICYCLIST TYPOLOGY DEFINITIONS

Bicyclist	Definition
No Way, No How	Not interested in riding for transportation.
Interested but Concerned	Little tolerance for traffic stress with major concerns for safety. Prefer separation from traffic on arterials with protected bike lanes, trails, & bike lanes.
Enthused and Confident	Some tolerance for traffic stress. Confident riders who prefer separation on arterials with protected bike lanes, trails, or bike lanes.
Strong & Fearless	High tolerance for traffic stress. Experienced riders who are comfortable sharing lanes on higher speed and volume arterials. Less interested in protected bike lanes and trails.

Note: A 2012 Portland survey questioned residents about their level of comfort riding on various street types; respondents were sorted into four categories. Data is specific to Portland, Oregon, and is assumed to be similar for Fort Collins.

¹⁵ Dill, Jennifer and McNeil, Nathan, "Four Types of Cyclists? Examining a Typology to Better Understand Bicycling Behavior and Potential" (Transportation Research Board, January 2013).

Safety

Safety is a priority of the City and a focus of the 2014 Bicycle Master Plan. Figure 8 shows the bicycle-automobile crash trends for a 13-year period —overlaid with the rates per bicyclist and rates per 10,000 people—, using data obtained from the Traffic Operations Department.

To gain a detailed understanding of the current safety environment with respect to bicycling, crash data for the past five years were analyzed. The data discussed in this section are from police-reported crashes from 2009 to 2013. These reports are generated from two sources: officer reports at the site of the crash and reports filed by citizens after crashes occur (counter reports). Police reports are entered into a database by Traffic Operations staff and reviewed at the time of entry for accuracy and consistency. For example, a staff member may amend the data if s/he reads the crash narrative and concludes that the incorrect code was used to catalog a harmful event sequence.

The overall number of bicycle-related crashes per year in Fort Collins has risen 13 percent over the past five years, compared to an approximately 11 percent increase in population over the same time. There were 178 reported bicycle crashes in 2013 compared to 151 in 2009. The number of bicyclists has also been increasing; depending on the location, it is likely that the overall crash rate is decreasing. Rates are difficult to assess since each corridor and intersection is a unique case, and consistent count data is not available for every location.

The bicyclists involved in crashes are not evenly distributed throughout the population. They are more likely to be male (69.9 percent) and between the ages of 20 and 24 (30.3

percent).¹⁶ This suggests that a significant portion of the crashes may involve CSU students.

While crash data provides critical insight into bicycle safety, it is also important to note that many crashes go unreported and that many near-misses do not result in a crash. These circumstances also represent an important safety issue.

Crash data is also compiled by local hospitals when a bicyclist receives treatment for injuries. These incidents may be solo crashes or they may involve additional parties such as an automobile. Counting bicycle crashes at the hospital level results in a higher total number than police reported crashes, in some years as much as three times as many. This data set is not currently coordinated with Fort Collins Police Services data, but there is an effort underway to do so.

Typical Crash Types

Four types of crashes represent nearly half of all bicycle crashes in Fort Collins, as shown in Table 3. Crashes were categorized by vehicle movement, bicycle movement, direction and location prior to the crash, and cardinal direction of travel by both parties. This typing method results in similar conclusions to those gathered by Traffic Operations staff in past analyses. However, some further details that are important to understand in crash situations are gained through the crash typing used in this report, and may be incorporated into future City crash analysis.¹⁷

¹⁶ Gender data was available for 778 crashes and age data for 746 bicycle crashes.

¹⁷ Crash data were amended for this analysis in the following manner: All bicycle movements coded as "Drove Wrong Way" were recoded as "Going Straight." The Bikeaction field already captures direction of travel.

Bicycle-Automobile Crashes in Fort Collins, 2000 - 2013

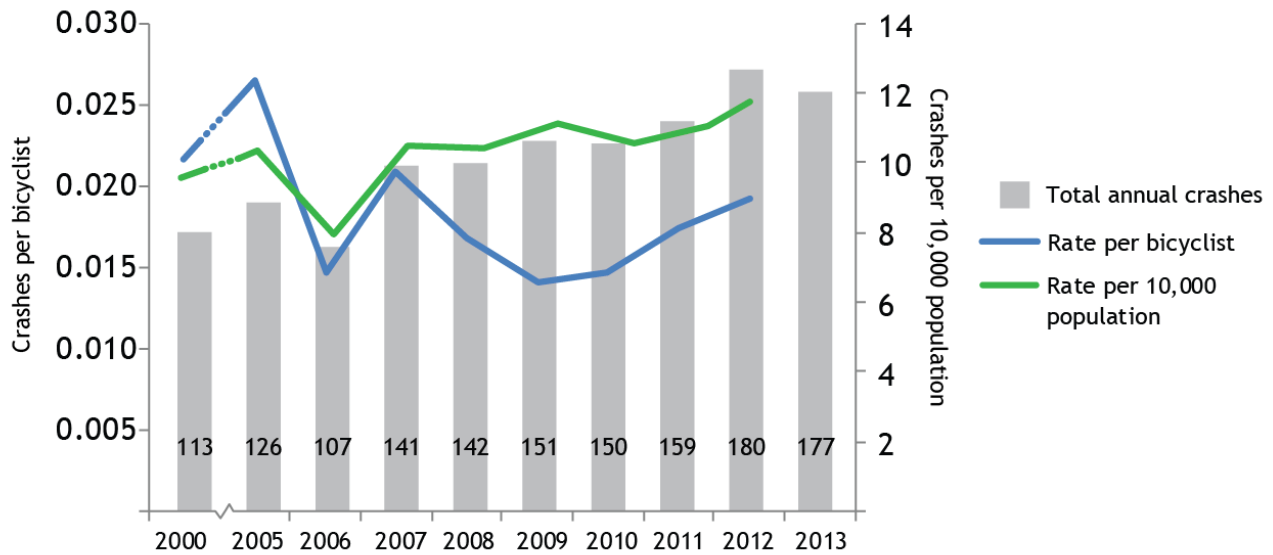


FIGURE 8: BICYCLE-AUTOMOBILE CRASHES RELATIVE TO BICYCLIST COUNTS AND POPULATION, 2000-2013

Source: TDG, with data obtained from the City of Fort Collins Traffic Department. Bicyclist count data is from the Census Bureau commute mode share estimates.

TABLE 3: MOST COMMON BICYCLE CRASH TYPES, 2009-2013

Crash Type	Car Movement - Bicycle Location	Percent of Total Crashes
1	Bicyclist riding against traffic on sidewalk/right-turning automobile arriving at right angle	15.0%
2	Bicyclist riding in street with traffic/left-turning automobile arriving in opposite direction (Left hook)	10.0%
3	Bicyclist riding in street with traffic/right-turning automobile arriving in same direction (Right hook)	9.0%
4	Bicyclist riding against traffic in street/right turning automobile arriving at right angle	6.4%
	Total	40.4%

Nearly all (98%) of these most prevalent crash types occurred at intersections or driveways. Overall, 87.5% of crashes occurred at intersections or driveways.

The first most common type of crash (Type 1) involved a bicyclist riding against traffic on the sidewalk, and being struck by a right-turning vehicle while in the crosswalk. In the second most common type of crash (Type 2), a bicyclist riding with traffic in the roadway was struck by an oncoming left-turning vehicle. Type 3 crashes occurred when a bicyclist rode with traffic in the roadway, and a vehicle traveling in the same direction turned right into the bicyclist's path of travel. Type 4 crashes were similar to Type 1 except that the bicyclist was riding in the roadway against traffic rather than on the sidewalk.

For the entire set of crashes, bicyclists made errors in 49 percent of crashes and motorists in 68 percent.¹⁸ These numbers total to more than 100 percent because a bicyclist and driver can both be at fault in a crash.

Sidewalk Riding

Bicyclists commonly ride on the sidewalk throughout Fort Collins. Sidewalk riding is prohibited in downtown and within the CSU campus, but it is legal throughout the rest of the city. Approximately 32 percent of all crashes involve sidewalk riding. Of the sidewalk-riding crashes:

- 2/3 involved a bicyclist riding against traffic relative to the to the direction of the turning motorist
- 2/3 included right-turning motor vehicles
 - 80 percent of those involved a vehicle failing to yield the right of way
 - 50 percent involved a bicyclist failing to yield the right of way

¹⁸ These figures reflect the total number of crashes for which an action was listed on the police report which is less than the total number of crashes in both cases.

A review of traffic count data indicates against-traffic riding occurs more often on the sidewalk than on the roadway in Fort Collins. Based on the crash data, the majority of crashes that involved a bicyclist riding against traffic were bicyclists riding on the sidewalk.

Reducing bicyclist riding against traffic on the sidewalk, and on the sidewalk in general, will be an emphasis of the 2014 Bicycle Master Plan.

Crash Locations

Bicycle crashes are more common in locations with more bicycling (e.g., in downtown and near the CSU campus perimeter), as shown in Figures 10-13. Table 4 lists the top 10 bicycle crash locations in the city. The corridors vary in length, and are defined not by the entire limits of the street but by the extent of the crash locations along the street.

TABLE 4: TOP 10 CRASH CORRIDORS, 2008-2013

Corridor	Total Crashes ¹⁹	Crashes per Mile
Shields Street	142	27.3
College Avenue	80	10.0
Elizabeth Street	73	24.3
Drake Road	51	11.3
Prospect Road	49	9.4
Horsetooth Road	47	9.4
Timberline Road	46	8.7
Taft Hill Road	38	5.8
Harmony Road	36	8.0
Lemay Avenue	34	4.3

All of these corridors except College Avenue have bike lanes. Crashes occurring on College Avenue most often included a bicyclist riding on the sidewalk/crosswalk either with or

¹⁹ Crashes that occur at intersections have been double counted so that it appears within both intersecting street corridor's count.

against traffic. Nearly half of the crashes that occurred on Shields Street involved bicyclists riding on the sidewalk, with 40 percent of crashes including a bicyclist who was riding the wrong way on the sidewalk.

Table 5 shows the intersections with 10 or more crashes during this period. All of the intersections include bike lanes on either one or both streets.

TABLE 5: TOP INTERSECTION CRASH LOCATIONS, 2008-2013

Intersection	Total Crashes
W Elizabeth Street + City Park Avenue	21
W Elizabeth Street + S Shields Street	14
Drake Road + College Avenue	11
W Prospect Road + S Shields Street	11
Drake Road + S Shields Street	10
Laurel Street + College Avenue	10



FIGURE 9: SIDEWALK DISMOUNT ZONE ON COLLEGE AVENUE IN DOWNTOWN

Considerations for the Bicycle Plan

To evaluate the impact of infrastructure and programmatic initiatives to improve bicycling, the collection of consistent and accurate bicycle counts and crashes is essential. A systematic bicycle counting methodology will allow the City to develop correction factors to mitigate shortcomings inherent in national or regional data sources. Year-to-year changes in counts can also help the City evaluate ridership and safety impacts at specific locations where new infrastructure has been built. By continuing the detailed manual count program, the City will also be able to track gender and helmet use over time, which can help gauge the impact of outreach activities. Finally, counts will enable Fort Collins to assess its progress toward the Plan goal of increasing the amount of bicycling for all trip purposes.

The City should also consider conducting regular travel behavior surveys as a way to track behavior over time for all modes.

BICYCLE CRASHES, 2009-2013

* THESE ARE POLICE-REPORTED BICYCLE-VEHICLE CRASHES ONLY

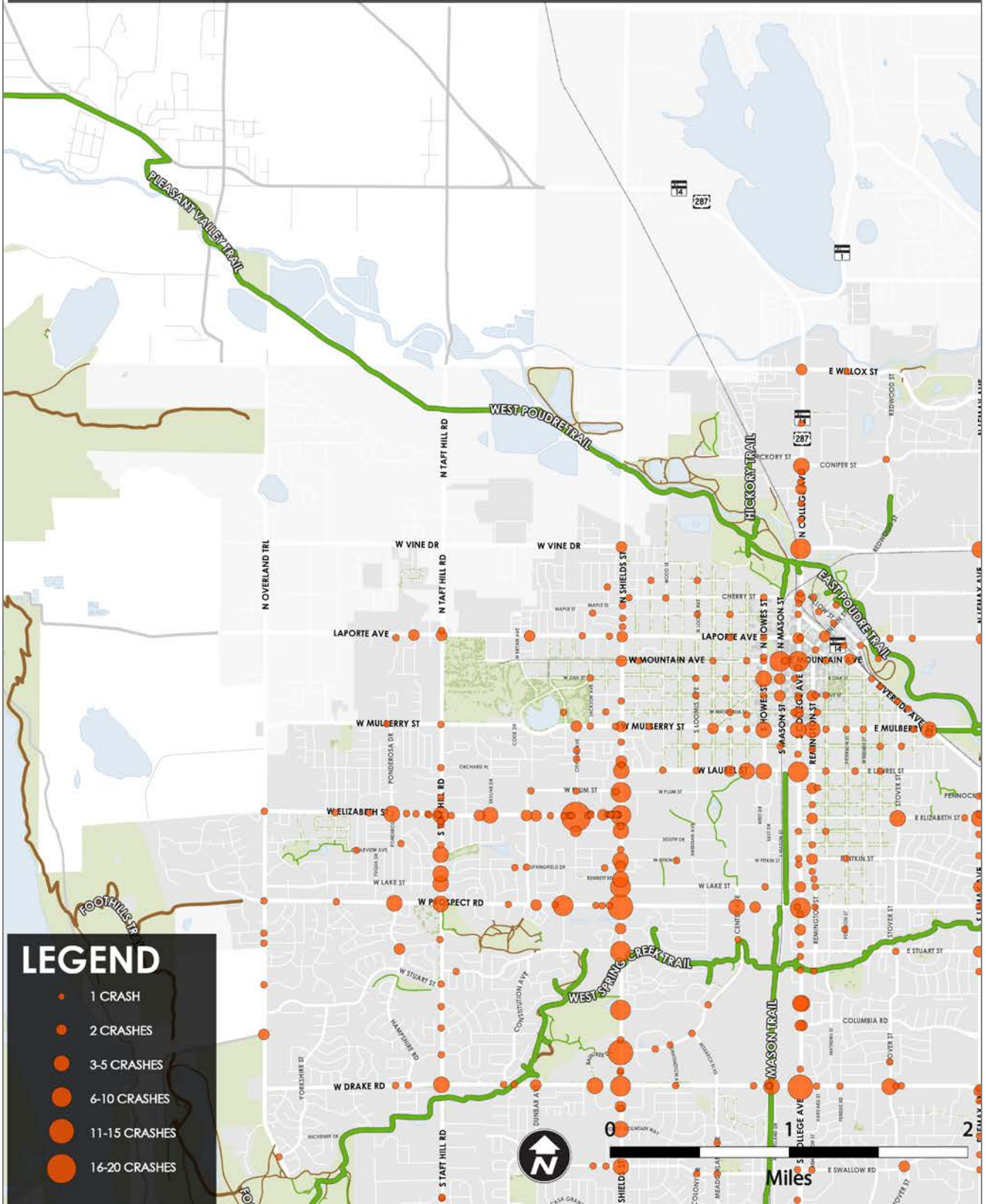


FIGURE 10: NORTHWEST FORT COLLINS BICYCLE CRASH LOCATIONS, 2009-2013

BICYCLE CRASHES, 2009-2013

* THESE ARE POLICE-REPORTED BICYCLE-VEHICLE CRASHES ONLY

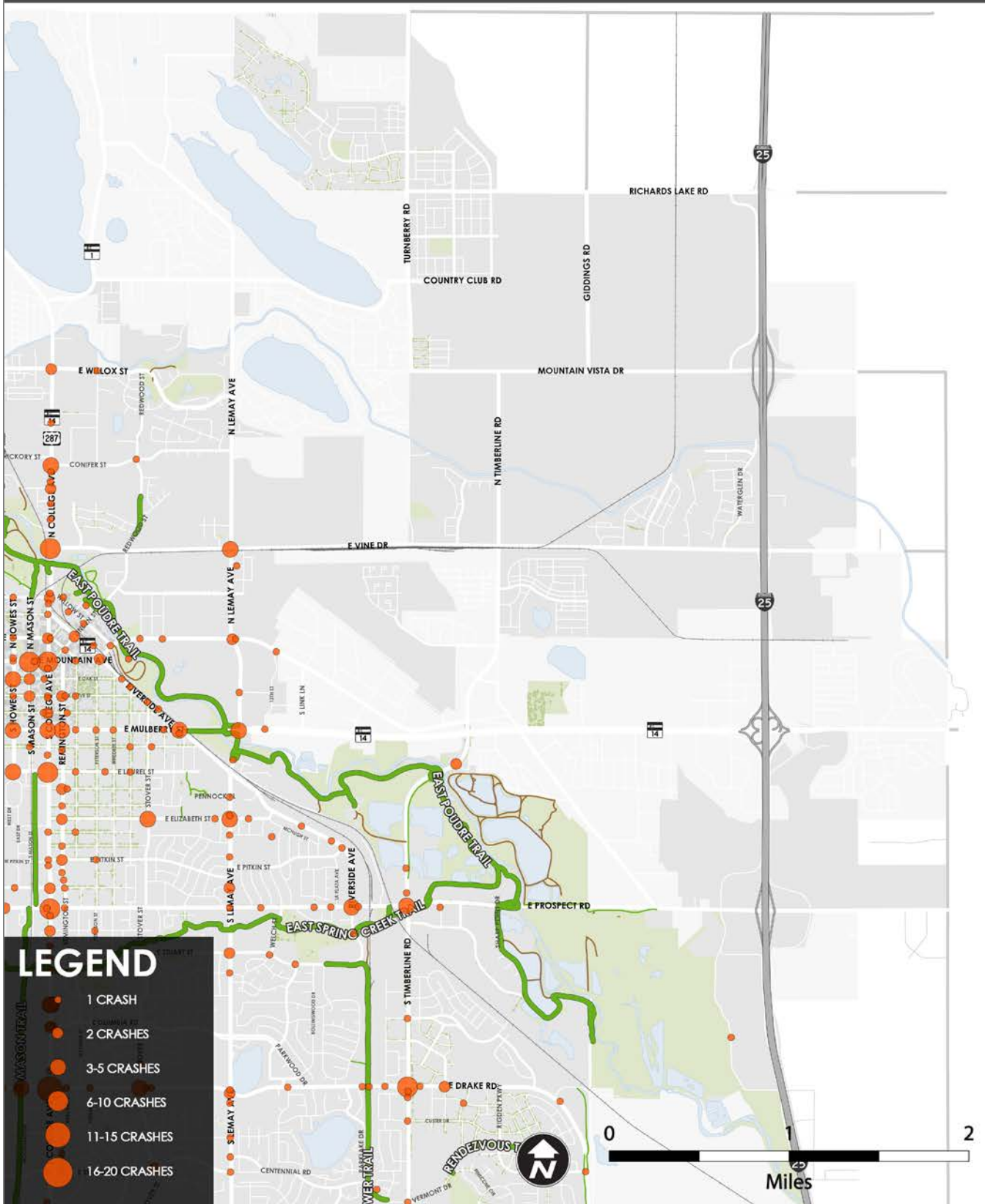


FIGURE 11: NORTHEAST FORT COLLINS BICYCLE CRASH LOCATIONS, 2009-2013

BICYCLE CRASHES, 2009-2013

* THESE ARE POLICE-REPORTED BICYCLE-VEHICLE CRASHES ONLY

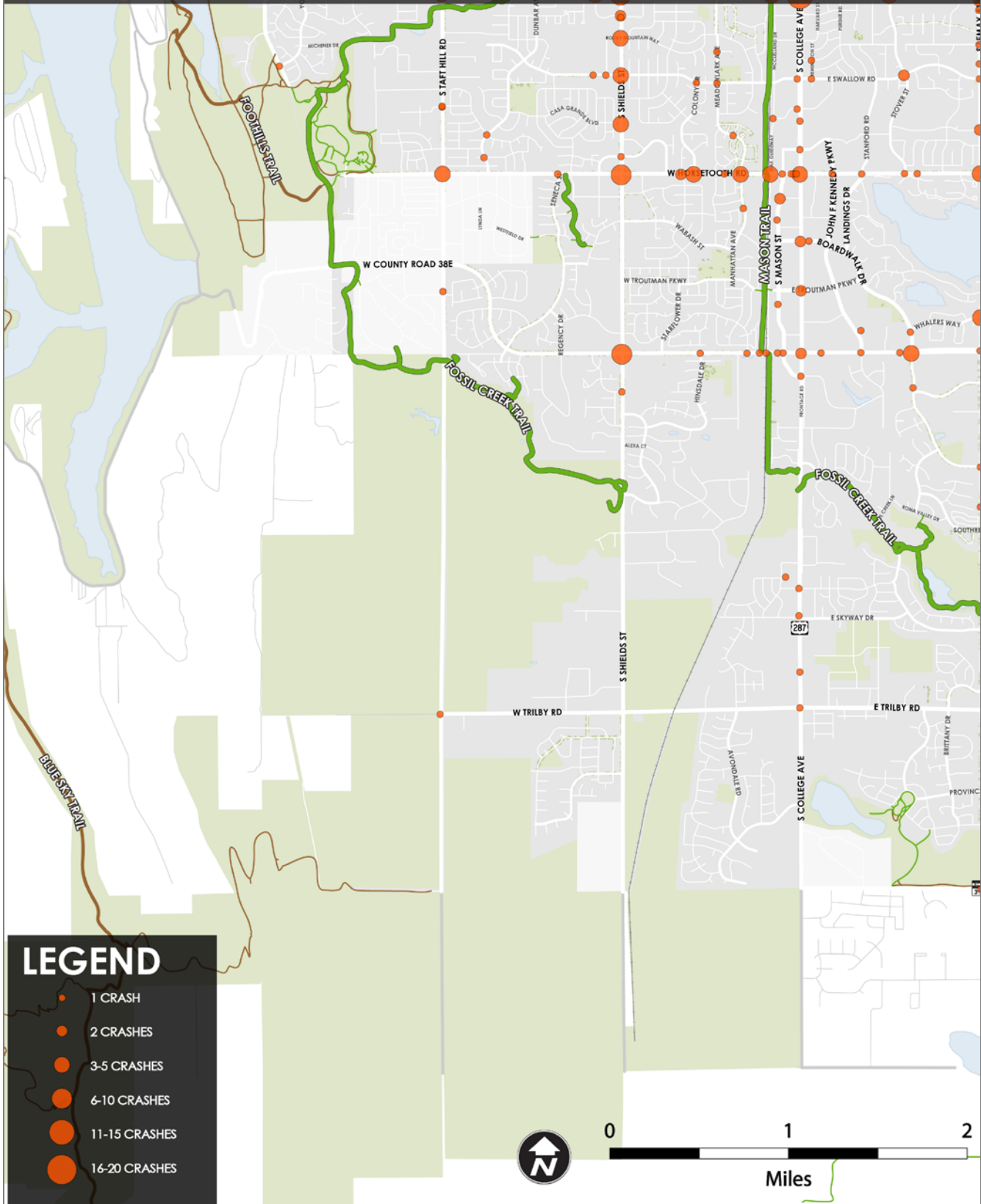


FIGURE 12: SOUTHWEST FORT COLLINS BICYCLE CRASH LOCATIONS, 2009-2013

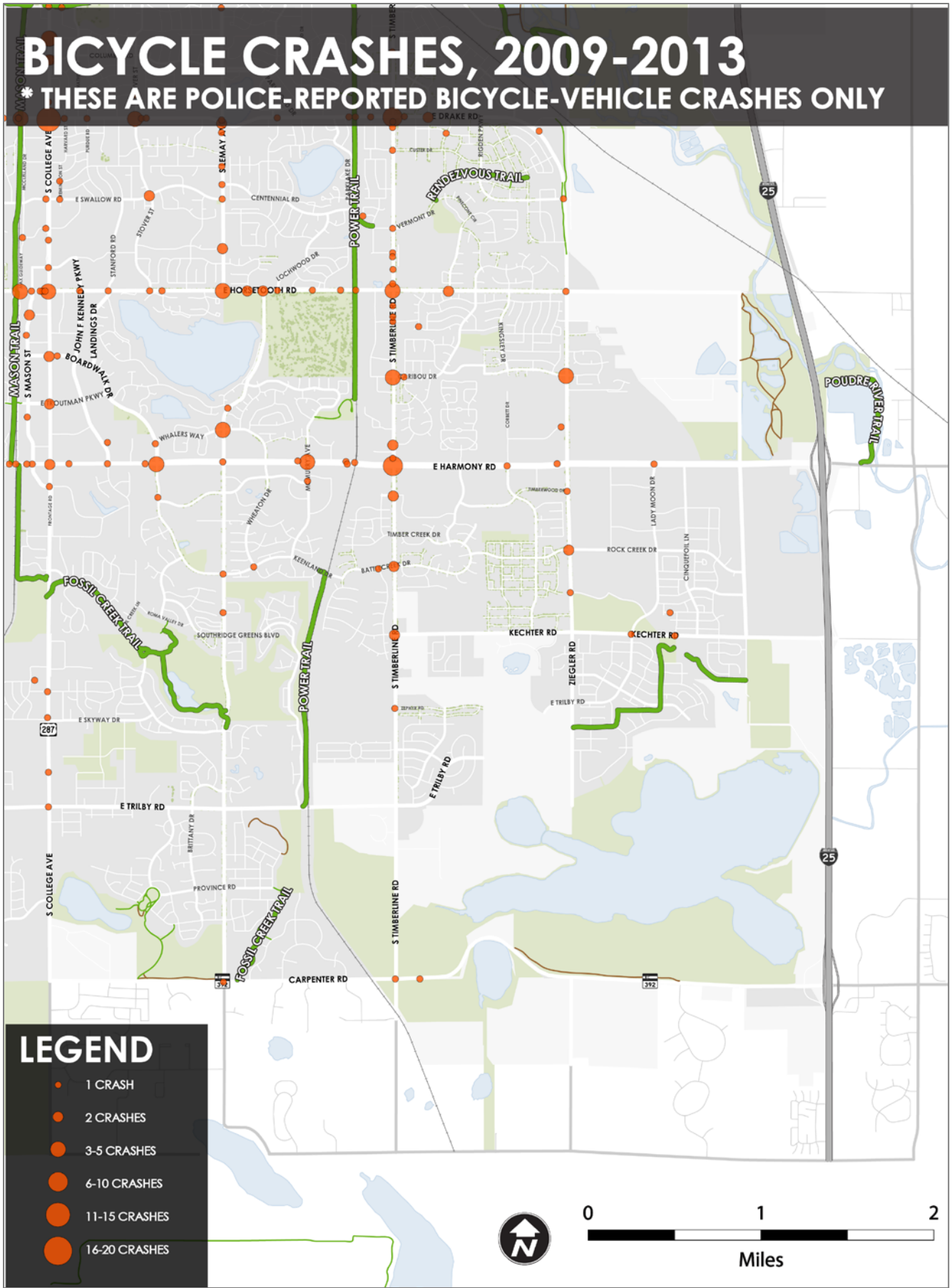


FIGURE 13: SOUTHEAST FORT COLLINS BICYCLE CRASH LOCATIONS, 2009-2013

Bicycle Network and Infrastructure

This section describes bicycle facilities in Fort Collins, including the type, location, and mileage, as well as prior engineering efforts, and recent accomplishments. This section concludes with a discussion of how the facilities perform with respect to the level of stress experienced by bicyclists.

Existing Facilities

Bicycle Network

The existing bicycle network consists of on-street facilities (e.g., bike lanes, shared lane markings, and signed routes), as well as off-street trails, creating an approximately 280 mile network. Figure 14 illustrates the types of facilities by street type, and Figures 15 and 16 show the existing Fort Collins bicycle network.

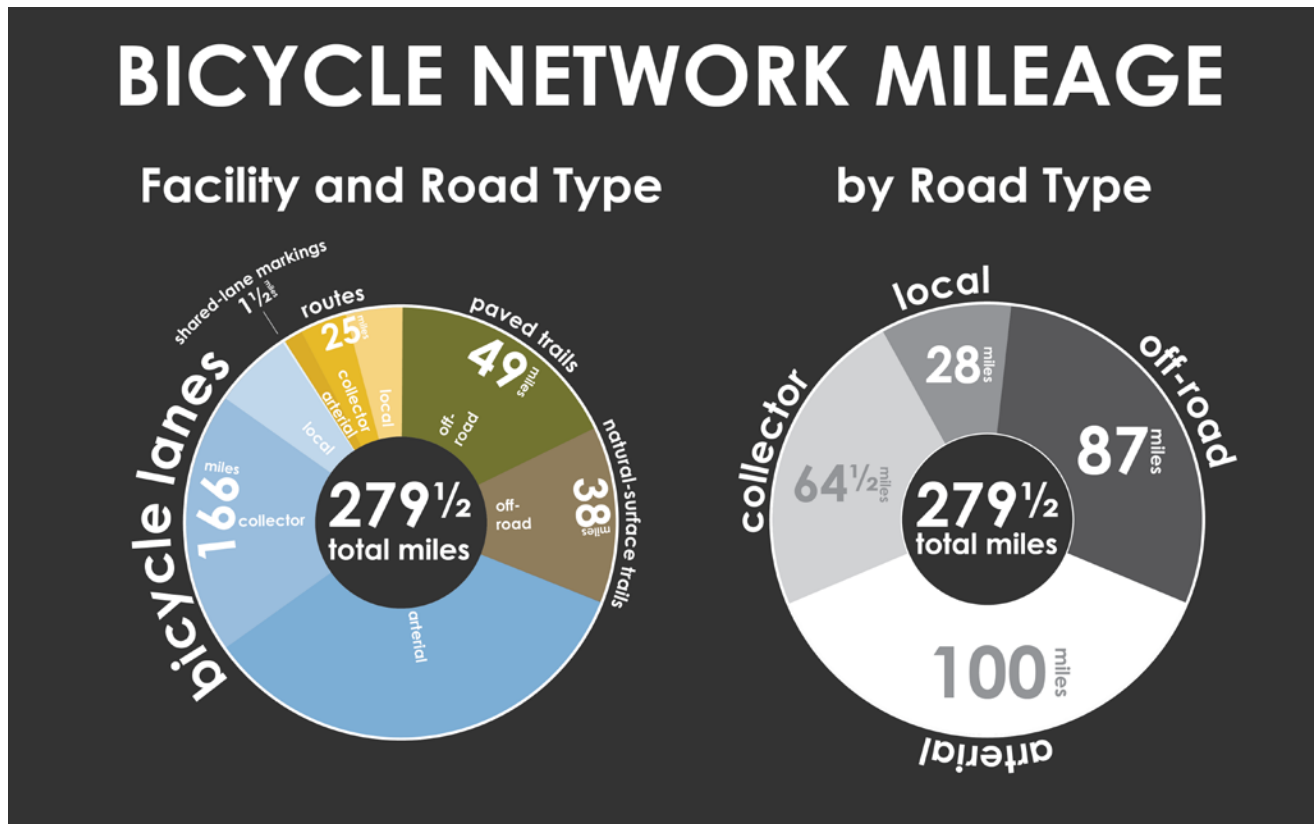


FIGURE 14: EXISTING BICYCLE FACILITIES BY ROAD TYPE

Note: Facilities measured include all of those within the Growth Management Area, and are measured by centerline-miles.

CITY OF FORT COLLINS BICYCLE FACILITIES

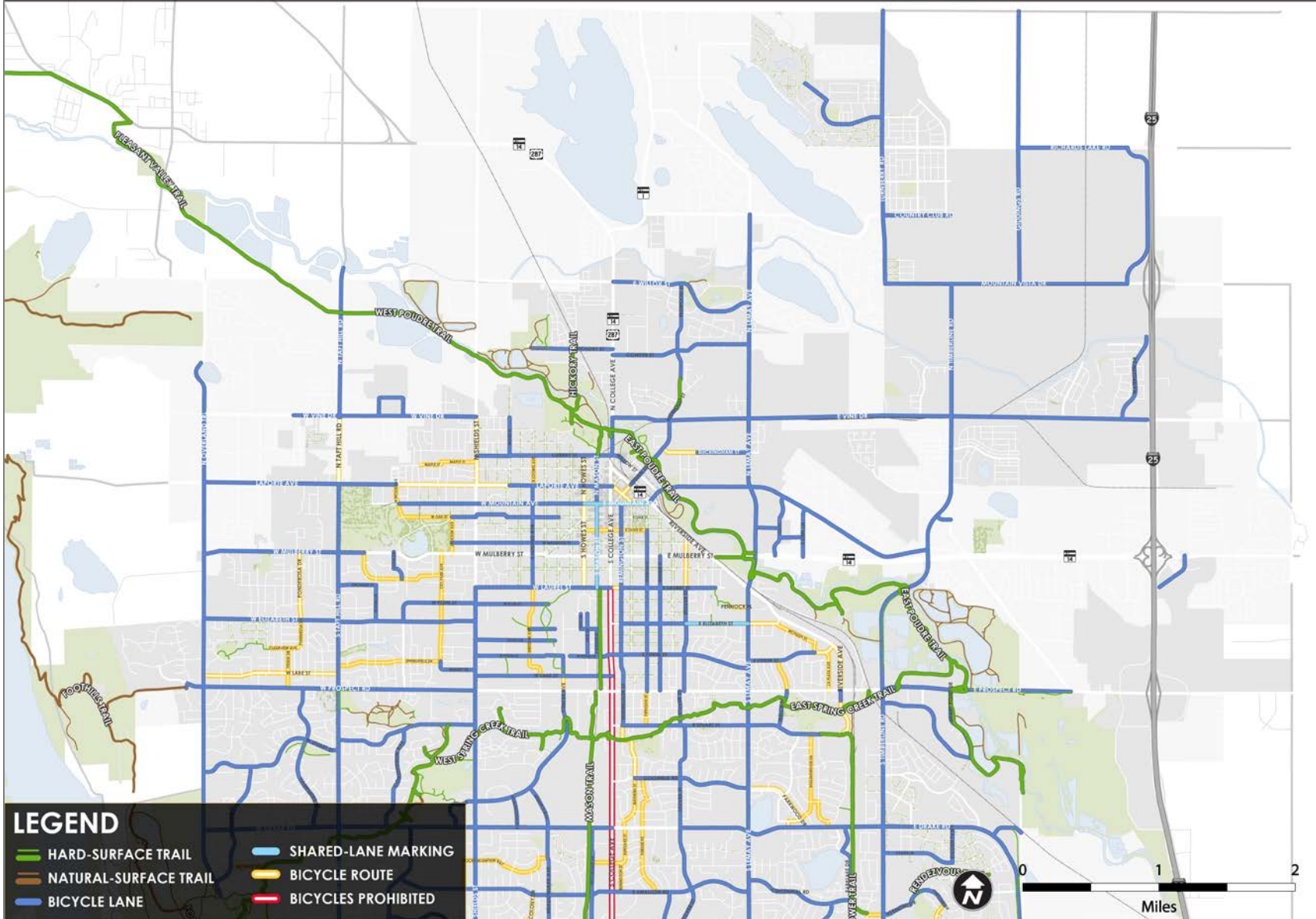


FIGURE 15: NORTHERN FORT COLLINS BICYCLE FACILITIES

CITY OF FORT COLLINS BICYCLE FACILITIES

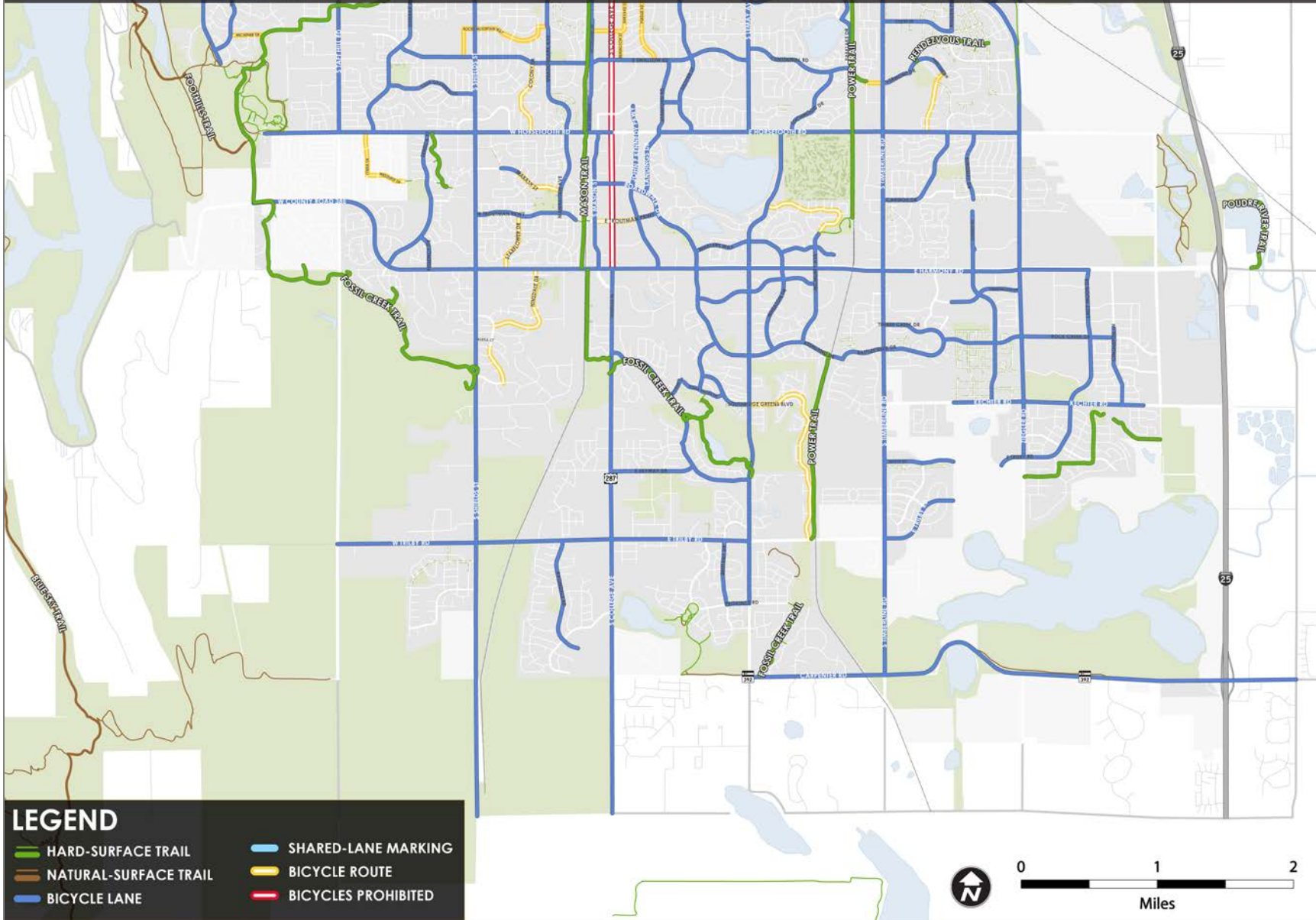


FIGURE 16: SOUTHERN FORT COLLINS BICYCLE FACILITIES

Roadway Bicycle Treatments

Bike Lanes

Bicycle lanes have been a part of the Fort Collins roadway system since 1977. Since then, the City has continuously retrofitted collector and arterial streets with bike lanes as opportunities arose. As a result, the existing bike lane network covers approximately 166 miles²⁰ of streets within the city's Growth Management Area (GMA).

TABLE 6: PERCENT OF ROADWAY TYPES WITH BIKE LANES

Roadway Type	Bike Lane Mileage	Percent with Bike Lanes
Arterial ²¹	95.3	58.5%
Collector	54.3	62.0%
Local	16.2	3.0%



As a result of the iterative nature of roadway improvements and evolving design guidance, there are multiple configurations of

bike lanes throughout the city. These lanes are typically striped with one four-inch lane line separating bicycle traffic from motorized traffic. Bike lane symbols vary; treatments include a bicycle symbol, bike with rider symbol, a directional arrow, a diamond, or a combination of the above spaced every 400 to 500 feet. Some lanes are supplemented with a bike lane sign (MUTCD R3-17). Where parking is allowed, a second four-inch parking lane line

²⁰ Since, with rare exception, all streets in Fort Collins are two-way, the 2014 Bicycle Master Plan will tally the centerline miles of streets. Using this method, the 2008 baseline is most likely closer to 140 miles of bike lanes.

²¹ Though many of the city's arterials have bike lanes, streets such as College Avenue, Mulberry Street, Riverside Avenue, and parts of Taft Hill Road and Prospect Road do not.

typically is present, although this is not consistent throughout the city.

In May 2014, a green bicycle lane was painted on Harmony Road as a first step in the *Harmony Road Enhanced Travel Corridor Master Plan*. This is the only green bicycle lane in the city.



FIGURE 17: HARMONY ROAD GREEN BIKE LANE

The most typical bike lane configurations are:

- **Bike lane with no parking:** This is the most common configuration in Fort Collins. Bike lane widths range from four to eight feet. Eight feet is the current standard width.
- **Bike lane with parking:** These lanes typically have a parking lane line and range from five to six feet wide. Six feet is the current standard width.
- **Shared parking/bike lane:** These lanes typically do not have a parking lane line and range in width from 11 to 13 feet wide. These do not meet current 14 foot total minimum width standard.
- **Bike lanes adjacent to curb and gutter**

The presence of concrete curbing with an 18-inch concrete gutter is common throughout Fort Collins. Where bike lanes are adjacent to a curb with a gutter pan, the width of the bike lane is effectively narrowed at locations where the seam is uneven between the asphalt and concrete surfaces, as shown in Figure 18, reducing the effective width of the bike lane by 12 to 18 inches.



FIGURE 18: GUTTER SEAM WITHIN BIKE LANE ON WEST LAUREL STREET AT LOOMIS AVENUE

On W Elizabeth Street and on Taft Hill Road, the City has implemented a solution to this issue: the gutter pan is six feet wide and covers the entire bike lane, leaving the seam at the left edge of the lane, where a bicyclist is less likely to be riding.



FIGURE 19: GUTTER ON EDGE OF BIKE LANE ON ELIZABETH STREET

Shared Lane Markings, or “Sharrows”

Fort Collins has begun to pilot shared lane markings (sharrows). These markings let bicyclists know where to position themselves, and let motorists know to share the road with bicyclists. Sharrows currently exist only on Mountain Avenue, East Elizabeth Street, and Mason Street.



FIGURE 20: SHARROW ON MOUNTAIN AVENUE

Share the Road Signage

Signs indicating that drivers should “Share the Road” exist in a number of places throughout the city. On College Avenue in downtown, these signs advise motorists that bicyclists should be expected on the roadway.



FIGURE 21: COLLEGE AVENUE SHARE THE ROAD SIGN

Bicycle Routes

There are a number of designated bicycle routes throughout Fort Collins. In some cases, these routes are marked with signs, and in other cases, bicyclists only know of their presence from the City Bike Map. These streets have been designated as bicycle-friendly streets, and many run parallel to higher-volume streets.



FIGURE 22: BICYCLE ROUTE SIGN

Trails

The approximately 50 miles of paved trails in Fort Collins are a backbone to the bicycle network, as shown in Figure 23. The city's paved trails are primarily managed by the Park Planning Department, which has overseen their development since 1980. An updated master plan for paved trail development was adopted in 2013 that included projects for trail and underpass construction. One action item of the 2013 Trails Plan was to construct connections between trails and streets at no greater than one-half-mile intervals to improve their transportation use. The trails are a critical component of the total bicycle system as they close street network gaps and provide alternatives to arterials that do not have bicycle accommodations.

CITY OF FORT COLLINS RECREATIONAL TRAILS SYTEM

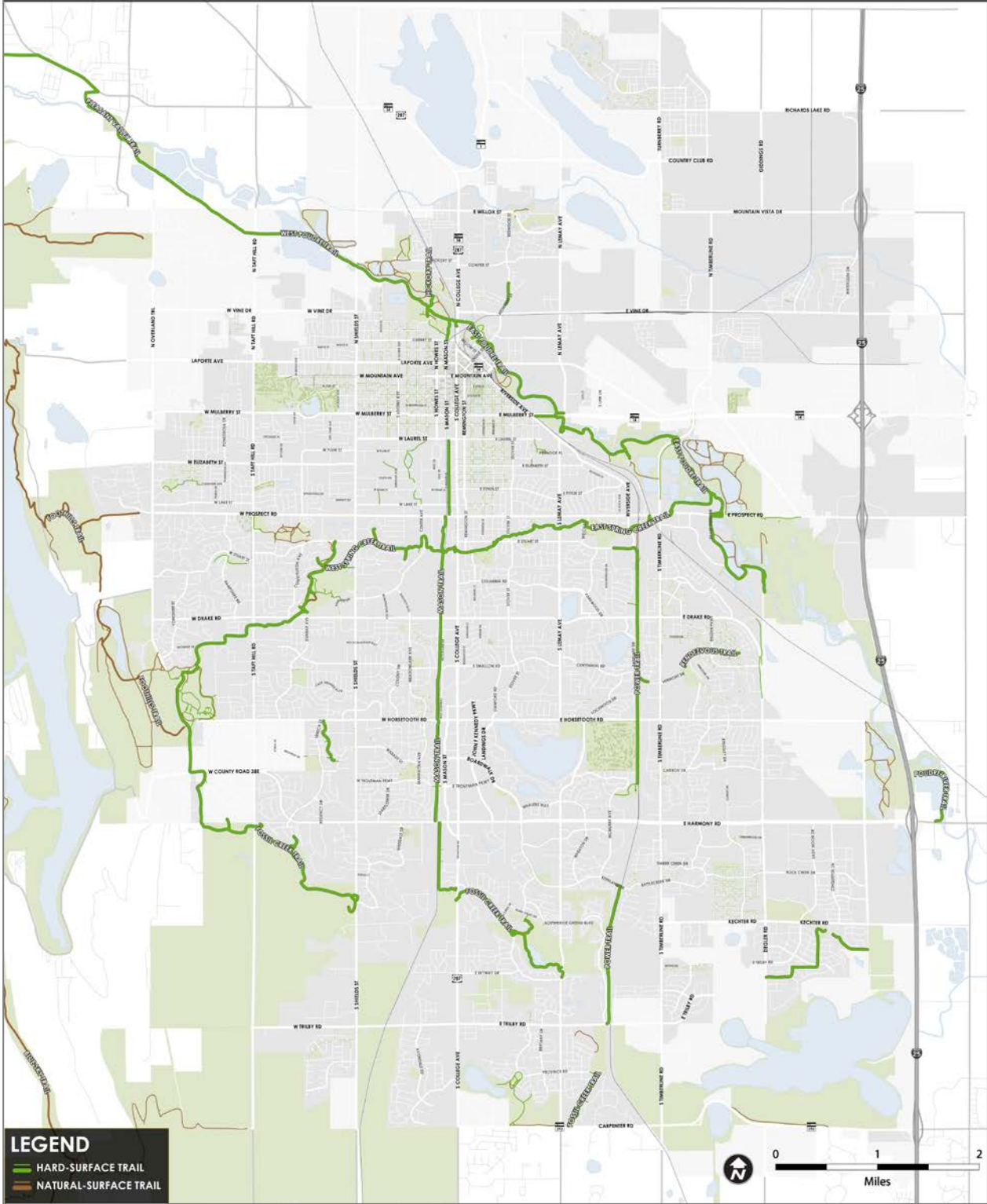


FIGURE 23: TRAILS IN FORT COLLINS

Intersection Bicycle Treatments

Bike Lanes

On streets with bike lanes, there are many intersection configurations bicyclists encounter, providing varying levels of bicyclist accommodation and comfort. The types are described below.

- **Bike lane drop:** The bike lane ends prior to the intersection to accommodate an added right or left turn lane.
- **Bike lane shift:** The bike lane shifts from the rightmost edge of the roadway to the left of a right-turn lane.
- **Bike lane continues:** The bike lane continues through the intersection, but a right-turn lane is added, through roadway widening or by dropping a parking lane, to the right of the bike lane.



In most locations, a dashed section of striping indicates where vehicles are intended to cross the bike lane. In some cases, a “Begin Right

Turn Lane Yield to Bikes” (MUTCD R4-4, as shown on the left) sign is located at the beginning of the right-turn lane.

Roundabouts

There are a number of roundabout intersections in Fort Collins. Roundabouts are installed to replace traffic signals and/or stop signs. They are designed to slow vehicle speeds, improve safety, and reduce delay to traffic (including bicycles). Roundabouts at two intersecting neighborhood streets, such as Custer Drive and Rigden Parkway, are designed so that bicycles stay within the travel lanes as they navigate the roundabout. Roundabouts at the intersection of two arterial streets are designed to give bicyclists the option of traveling on the roadway or diverting to the sidewalk via curb cuts aligned with the approaching bike lanes. This option is indicated with “Alternate Bicycle Route” or “Merge or Use Path” signs.

Bike Box

A bike box provides riders a head start through the intersection by allowing them to place themselves in front of stopped traffic and begin moving before the vehicles behind them. Fort Collins is piloting its first bicycle box on the eastbound approach of Plum Street at Shields Street.



FIGURE 24: BIKE BOX AT PLUM STREET AND SHIELDS STREET

Additional Bicycle Infrastructure

Bicycle Parking

Public parking for bicycles is mostly located in downtown, though there are also public racks located at schools, bus stops, and commercial sites throughout the city. Racks are installed by the City on public land in the right-of-way and can be requested through an online form on the City’s website. City staff maintains the racks. Bike racks outside of the right-of-way are currently the purview of the property owner, but the City is planning to offer grants to businesses, schools, and organizations to help fund the placement of racks on their land.

Most bicycle parking in the city is in the form of long inverted U racks. According to City data, there are currently 1,279 bicycle racks in downtown, where most of the racks are concentrated. These only represent City-owned racks in this part of town; other racks are

present at other City facilities such as libraries and at private properties.

In 2009, the City partnered with New Belgium Brewery to install six on-street bicycle parking corrals in Old Town. These corrals fit at least 12 spaces for bicycles within one car parking space. The City is currently evaluating potential locations for additional on-street corrals.



FIGURE 25: ON-STREET BICYCLE CORRAL

Speed Detection

There are a number of locations throughout Fort Collins with automatic automobile speed detection with driver feedback signs. These displays show the posted speed limit and actual vehicle speed, and are a traffic-calming measure. Low vehicle speeds increase comfort and reduce stress for bicyclists who are adjacent to or sharing the same roadway space. The average speed on neighborhood streets is approximately 26 miles per hour (mph), which is very close to the speed limit of 25 mph.²² Speeds on other types of streets, where the majority of bike lanes and bicycle facilities are present, is unknown.

²² City of Fort Collins, 2011 Community Scorecard, Page 4.

Signal Timing and Bicycle Detection

Post-World War II suburban development in Fort Collins favored a grid of arterials designed to carry high traffic volumes at relatively high speeds. The street network was supplemented by a mixture of curvilinear and sometimes disconnected collector and local streets, designed to serve lower traffic volumes and speeds in residential areas. Because suburban communities are designed around the automobile, residents do not expect traffic congestion. The 2013 Fort Collins Citizen Survey illustrates this expectation but in a mixed manner: while only 14 percent of residents think that the ease of driving is bad or very bad, 34 percent stated that traffic congestion was bad or very bad.²³ The City has proactively worked to address traffic congestion issues, having evaluated and updated citywide signal timing in 2010.

The City is working hard to balance the need to move high volumes of traffic with creating a connected and comfortable bicycle network. There are inherent challenges in reaching this balance, as prioritizing traffic flow along major corridors to reduce delay results in more delay for those trying to cross the corridors—motorists, bicyclists, pedestrians, and buses. Additionally, arterials with high traffic volumes and speeds are uncomfortable and stressful routes for bicyclists.

Since the completion of the 2008 Bicycle Master Plan and 2010 Signal Timing Project, the City has made significant strides to improve the safety and efficiency of its traffic signal system, including: upgrading many of its intersections from in-pavement loop detectors to video detection; retiming all major corridors to improve progression; and updating nearly 80 percent of its traffic signal controllers.

²³ City of Fort Collins, Citizen Survey Report of Results, December 2013, Pages 18 and 43.

This section of the report discusses current efforts related to cycle lengths, minimum green times, and detection.

Cycle Lengths

The signal timing in the city, particularly the cycle lengths (i.e., the total time for the traffic light to be green for all approaches), is largely driven by the need to maintain progression (i.e., 'green wave' or continuous flow) for motorists along major arterials. Traffic volumes are higher along major north-south arterials such as College Avenue and Shields Street, and progression is generally favored for those roadways. At most intersections, cycle lengths during the AM, midday, and PM peak hours are relatively long (e.g., 110 seconds in the AM and 120 seconds in the midday and PM). While these cycle lengths are needed to process traffic during peak commuting hours where two major roadways cross, they result in relatively long wait times at other intersections at times with lower traffic volumes. On the other hand, numerous intersections near CSU and downtown, including intersections along and north of Laurel Street, have shorter cycle lengths between 70 and 80 seconds.

Longer cycle lengths can increase delay for crossing traffic and can also result in unused green time, which can be problematic for bicyclists for two reasons. First, a bicyclist who arrives at an intersection may become impatient as wait time increases, resulting in an increased likelihood of risk-taking behavior. Second, this same bicyclist may believe that the signal has not detected them because the signal remains green for the street they are trying to cross, even though they observe no conflicting traffic on the roadway. This frequently leads to risk-taking behavior such as red-light running. This is partially mitigated during evening periods when the cycle length is reduced to 85 seconds. The City is currently exploring opportunities for reduced or alternate cycle lengths to further reduce delay

while still maintaining necessary peak period progression.

Minimum Green Times

Because bicyclists travel at lower speeds and are slower to accelerate compared to automobiles, they often require longer minimum green times. The City is currently updating all controllers at signalized intersections to allow bicycle-specific timing when a bicyclist is detected. This includes providing a bicycle minimum green and bicycle extension time, which allows bicyclists to safely cross the roadway and allows more bicyclists to cross during a signal phase. To date, approximately 80 percent of the signals are completed.

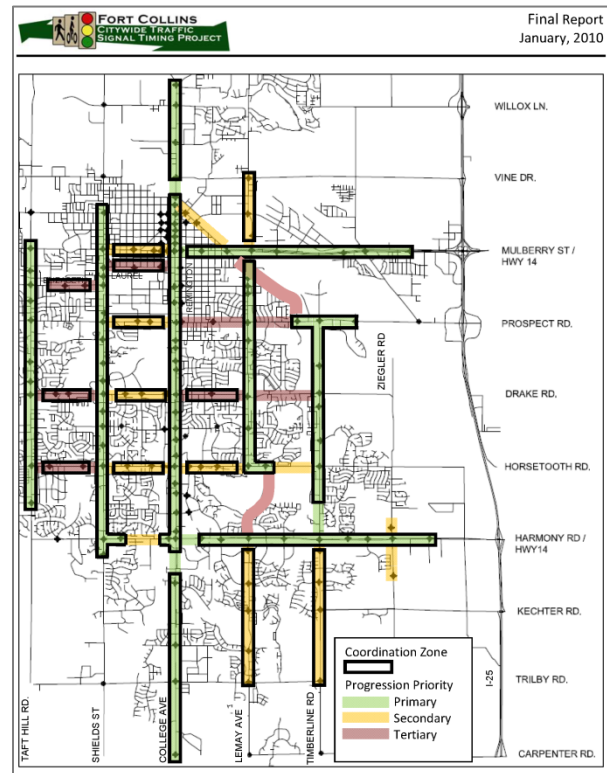


FIGURE 26: COORDINATION ZONES AND PROGRESSION PRIORITY IMPLEMENTED FROM THE 2010 CITYWIDE TRAFFIC SIGNAL TIMING PROJECT

Bicycle Detection

Loop detectors are being phased out in favor of video detection. Video detection locations are unmarked except at the intersection of Shields Street and Elizabeth Street. Figure 29 shows the locations of video detection throughout the city, and shows that a substantial number of signalized intersections have this technology. Approximately half of the video detection locations have detection in all four cardinal directions; the remainder cover one to three approaches.

When the video detection senses a bicyclist, a message is relayed to the traffic signal to extend the length of the green indication, in some cases to allow a slower-moving bicyclist to clear the intersection before the signal change. In other cases, the detection merely indicates that the light should change. Cameras are quite accurate in detecting bicyclists, but they are sometimes compromised in low-angle sun conditions where shadows are long, and they do not always detect in low light situations.

The City is working with their detection vendor to explore technologies that can overcome these challenges and also differentiate between a motorist and a bicyclist in a shared-lane situation.

The City is also investigating the use of infrared detection as an alternative or supplement to the camera detection system.

An additional challenge in detection for bicyclists is communicating that the detection has been activated. In response to concerns from bicyclists that they are not getting detected, the City has piloted a detection confirmation light at the intersection of Lemay and Stuart that is illuminated once a bicyclist is sensed by the detector.



FIGURE 27: EXAMPLE SCREEN DISPLAY SHOWING DETECTION ZONES PROVIDED WITH VIDEO DETECTION EQUIPMENT

The bicycle lane is at the far left of the photo. The green highlights successful detection.



FIGURE 28: THE DETECTION CONFIRMATION LIGHT IS LOCATED BENEATH THE PEDESTRIAN SIGNAL HEAD.

VIDEO DETECTION LOCATIONS

*NOT ALL LOCATIONS HAVE FOUR-WAY DETECTION

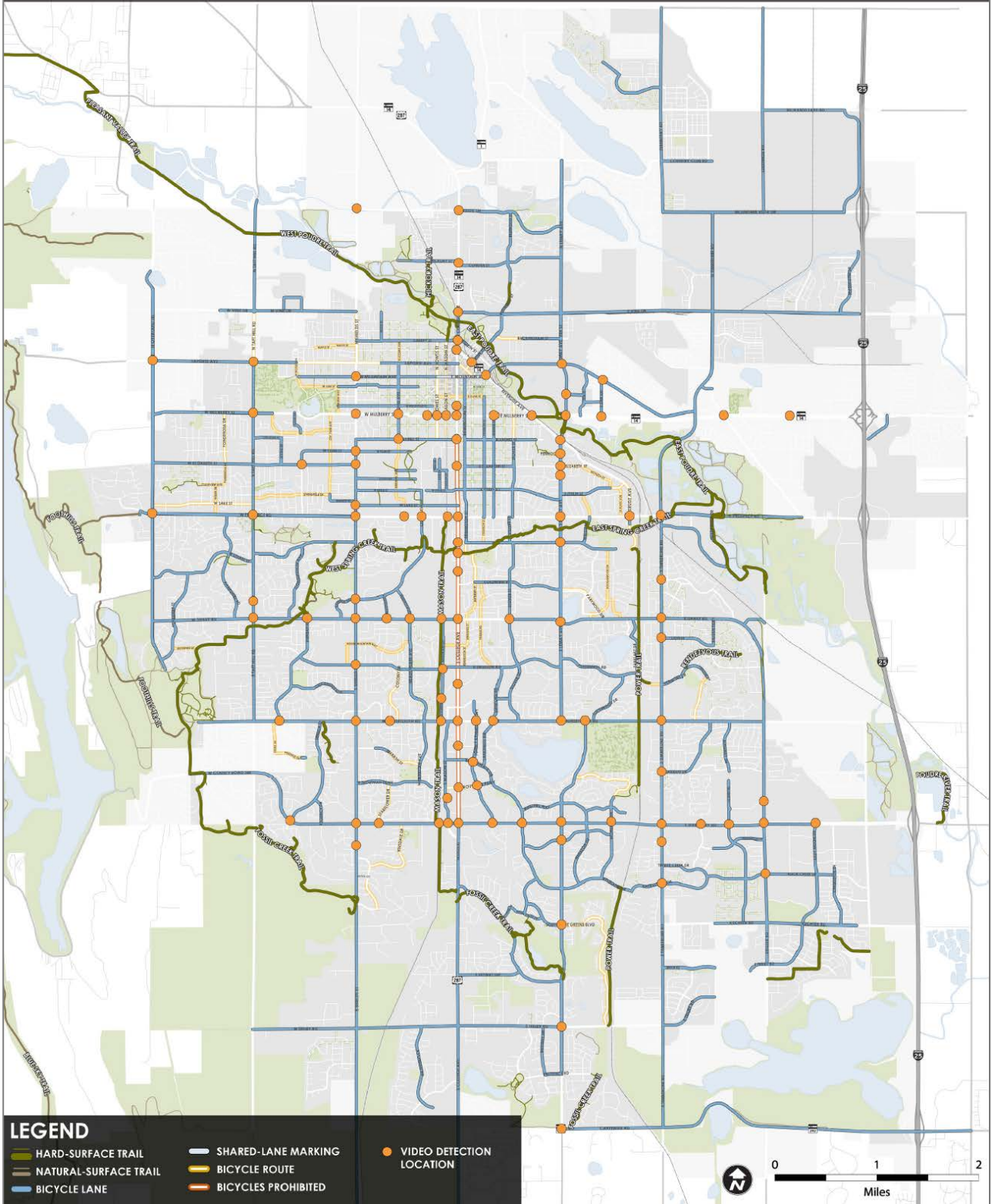


FIGURE 29: CITYWIDE VIDEO DETECTION LOCATIONS

Status of 2008 Bicycle Plan Engineering Recommendations

The 2008 Plan recommended many key engineering projects, shown in Table 7. The City has made significant progress on the 2008 Plan, and continues to work on some of the projects. The 2014 Bicycle Master Plan will provide updated recommendations along with an implementation framework, including prioritization strategies.

TABLE 7: PROGRESS ON 2008 PLAN

Recommendation	2014 Status
Implement Hot List I projects	Not complete
Implement Hot List II projects	Partially complete
Provide interim routes for key corridor gaps	Not complete
Continue implementation of Transportation and Street Master Plans	Ongoing
Maintain priority commuter routes	Ongoing
Improve signal detection loops	Underway
Examine bike boulevards and bike boxes	Underway

Bicycle Comfort

As stated in the Ridership & Safety section of this report, the 2014 Bicycle Master Plan will address the needs, skills, and desires of a range of bicyclists, with a special focus on the *Interested but Concerned* population—those who would like to ride a bicycle more but who have concerns about their personal safety. A bicyclist's perception of their personal safety riding on a roadway is greatly influenced by their proximity to and interaction with motorized traffic. At low volumes and speeds of traffic, many people feel safe and comfortable sharing the roadway with traffic. As traffic speed and volumes increase, their perception of safety degrades significantly, resulting in a feeling of increased stress and discomfort on the roadway.

Bicycle Network Stress Assessment Methodology

The Mineta Level of Traffic Stress (LTS) methodology²⁴ (hereinafter referred to as "LTS assessment") was chosen as a planning tool to analyze existing and potential future conditions because it measures bicyclist stress with factors such as intersection crossings, traffic speeds, traffic volumes, and separation from vehicle lanes. The methodology is described in more detail in a separate memorandum, an Appendix to the 2014 Bicycle Plan.

The low-stress bicycling concept is premised on the experience of the Dutch, who have focused on building a connected bicycle network that minimizes bicyclist interaction with motorized traffic.

Their approach targets mainstream adult bicyclists as a design user (the equivalent of the *Interested but Concerned* population) by providing the following types of facilities:

- Shared lanes on low-volume, low-speed, local streets (sometimes requiring traffic calming)
- Bike lanes on moderate-volume and moderate-speed streets
- Protected bike lanes (also known as cycle tracks) on high-volume or high-speed streets
- Comfortable intersection crossings which minimize bicyclist stress and clarify right-of-way

This low-stress approach results in approximately 80 percent of the Dutch population riding at least once per week and normal bicycle commute mode shares ranging from 25 to 50 percent in larger cities. For bicycling to be an appealing transportation choice for the *Interested but Concerned* population, there must be an interconnected system of low-stress bikeways on streets and trails to get people from point A to B without significant additional mileage or delay.

The LTS assessment scores individual street segments and intersection crossings. Segment scores are influenced by intersection crossing scores, thus if an intersection is stressful to cross, the adjacent roadway segment stress will be considered equally stressful, even if the individual segment in isolation is less stressful to ride on. The LTS assessment is also very sensitive to traffic speeds and volumes. For example, where traffic speeds equal or exceed 35 mph, the resulting LTS score is lower even if there is a bike lane.

²⁴ Low-Stress Bicycling and Network Connectivity. Mekuria, Furth, and Nixon. Report 11-19. May 2012. Mineta Transportation Institute. San Jose State University, San Jose, California.

The stress assessment requires collection of the following data:

- Posted traffic speed
- Number and widths of travel lanes
- Location and widths of bike and parking lanes²⁵
- Length of right-turn lanes
- Right-turn lane configuration at intersections
- Locations of controlled and uncontrolled crossings
- Location and width of medians

The LTS score is used in this report is classified into five levels of traffic stress, shown in Table 8, with “LTS 1” being the least stressful and “LTS 5” being the highest stress situation for a bicyclist.²⁶

TABLE 8: LEVEL OF TRAFFIC STRESS DEFINITION

Level of Traffic Stress	U.S. Bicyclist Typology
LTS 1 (Low Stress)	Suitable for <i>children</i>
LTS 2 (Low Stress)	<i>Interested but Concerned</i> adults
LTS 3	<i>Enthusied and Confident</i> adults
LTS 4 (High Stress)	<i>Strong and Fearless</i> adults
LTS 5 (High Stress)	<i>Strong and Fearless</i> adults

²⁵ For this analysis, roads with hard shoulders were assessed in the same manner as those with bike lanes.

²⁶ The method used here is an amendment of that in the Mineta Institute’s study. In response to feedback from the 2014 Bicycle Plan Technical Advisory Committee, a factor was added to more accurately reflect the experience of bicyclists on arterial roadways. This factor decreased the stress level of arterials by 1 with bike lanes 7 feet or wider, and increased the stress level by 1 of arterials with bike lanes less than 4 feet.

Most of the data inputs required for the LTS assessment were available in the City’s existing GIS database. Key missing features such as lane widths and presence of right turn lanes were gathered through a desktop review of Google Earth satellite imagery, dated 2012. Additional data on facilities implemented after 2012 was gathered through field visits and conversations with City staff and subsequently incorporated into the analysis.

Stress Assessment Results

The existing low-stress network (LTS 1 or 2) in Fort Collins currently consists primarily of paved trails and low-volume local streets which have signal-controlled crossings of arterial streets. Despite the fact approximately 50 percent of Fort Collins arterial and collector streets have bicycle lanes on them, almost all considered higher stress (LTS 4 or 5) routes due to the higher posted speeds (30 to 45 mph typical), multiple travel lanes, and high traffic volumes. Arterial crossings without signals or medians also score as high stress. Arterials with bike lanes of 4 feet or less, or those without bike lanes, scored 5 in the analysis. Figures 31 through 34 show the results of the analysis (maps show results as of August 2014).

Table 9 shows the LTS for all arterial, collector, and local streets in Fort Collins.

TABLE 9: FORT COLLINS LTS RESULTS BY ROADWAY TYPE

	Level of Traffic Stress				
	Low-est				High-est
	1	2	3	4	5
Arterials (212 miles)	2.4%	5.2%	21.4%	28.2%	42.7%
Collector (96 miles)	10.1%	59.2%	26.6%	4.1%	0.0%
Locals (630 miles)	99.9%	0.1%	0.0%	0.0%	0.0%

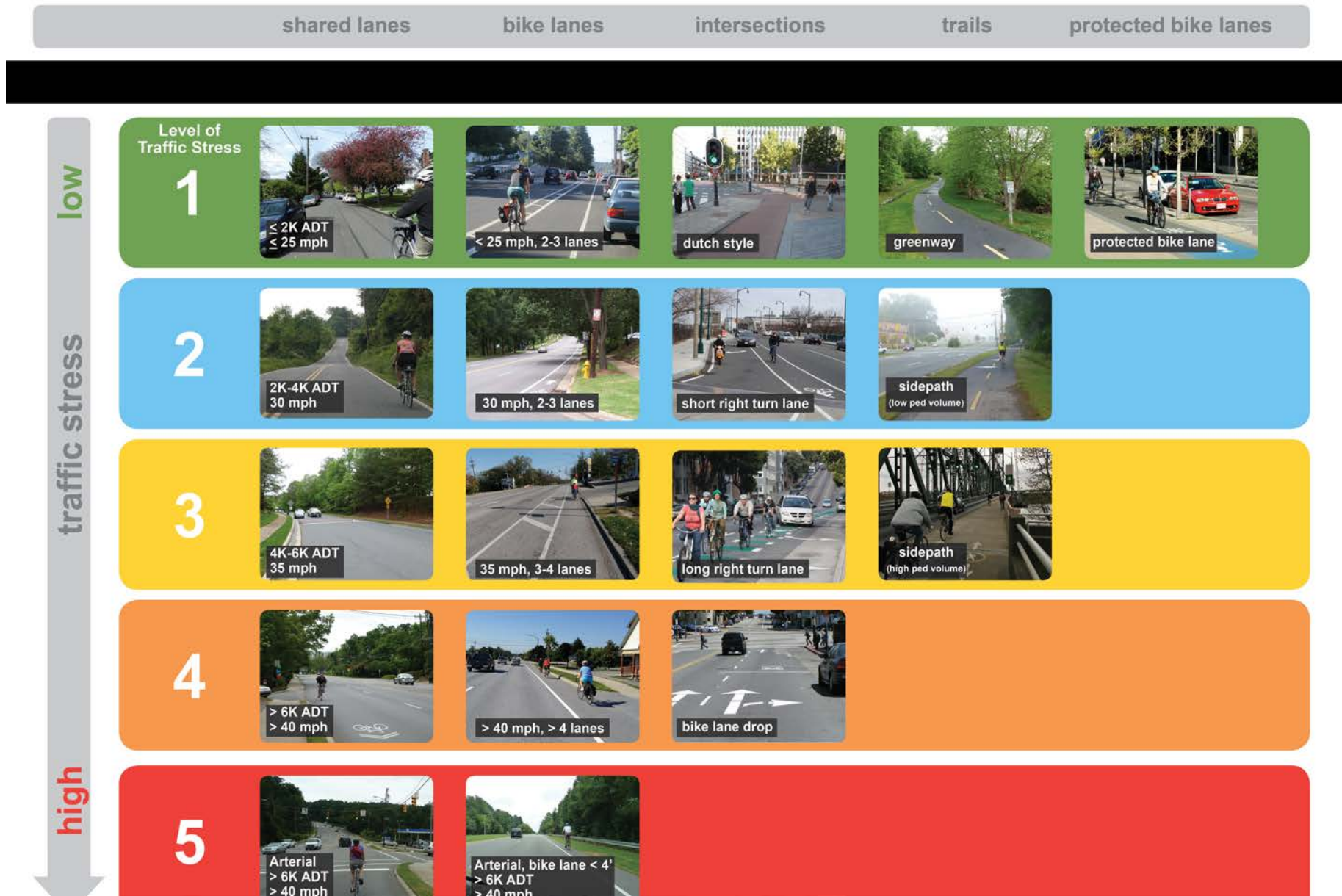


FIGURE 30: GRAPHICAL REPRESENTATION OF LTS SCORES BY BIKEWAY TYPE

BICYCLE LEVEL OF COMFORT ANALYSIS: NE

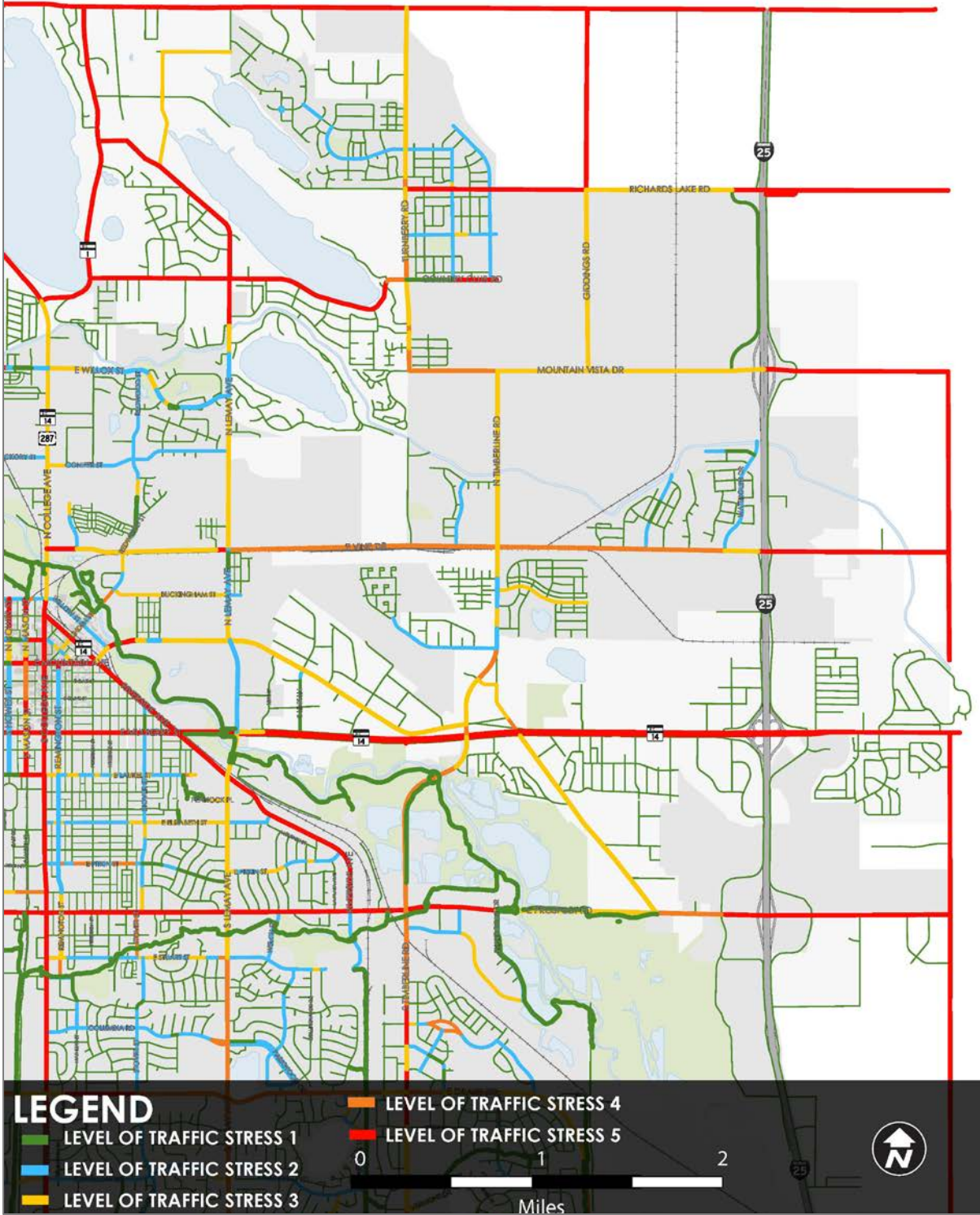


FIGURE 31: NORTHEAST FORT COLLINS - EXISTING BICYCLE LEVEL OF COMFORT MAP

BICYCLE LEVEL OF COMFORT ANALYSIS: NW

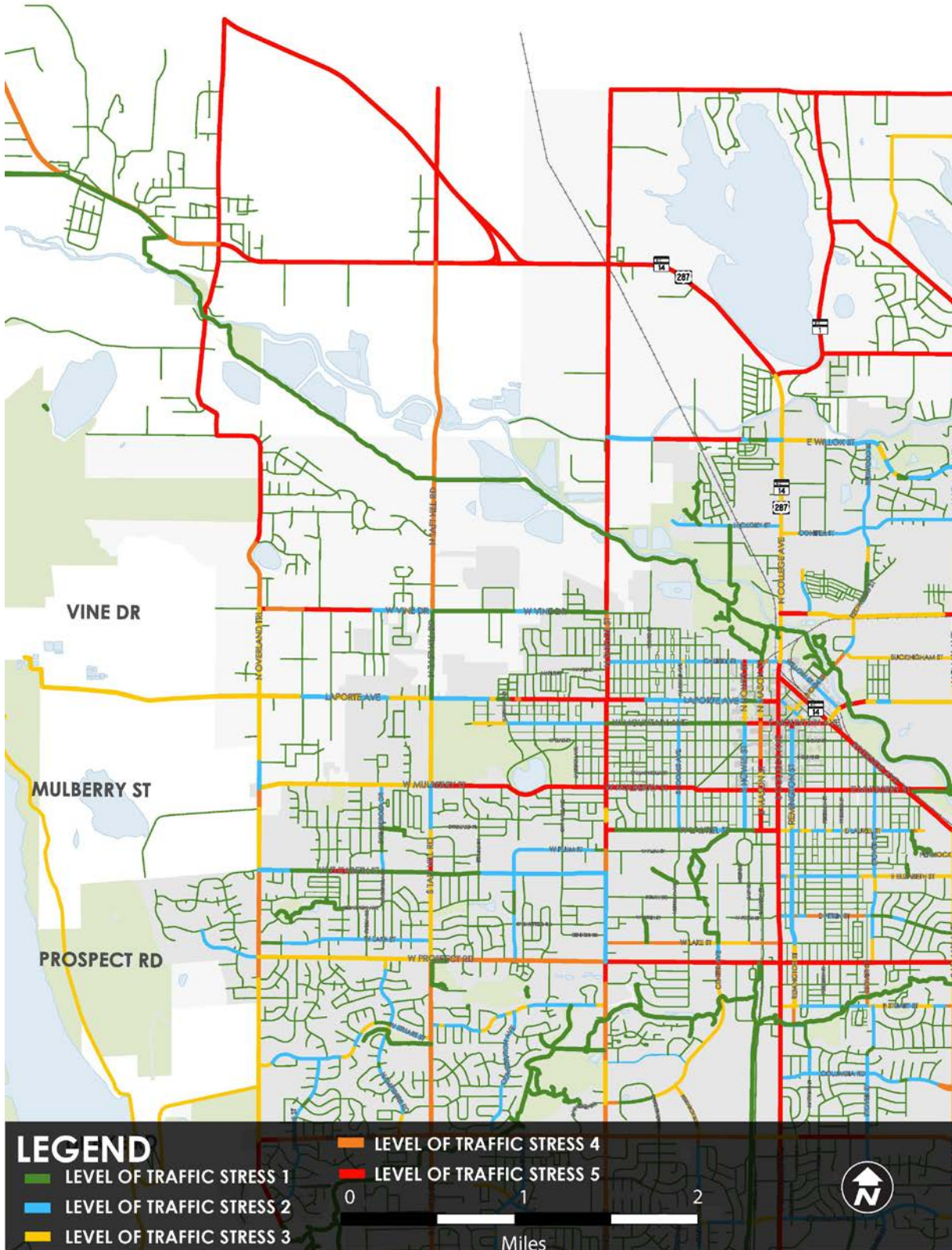
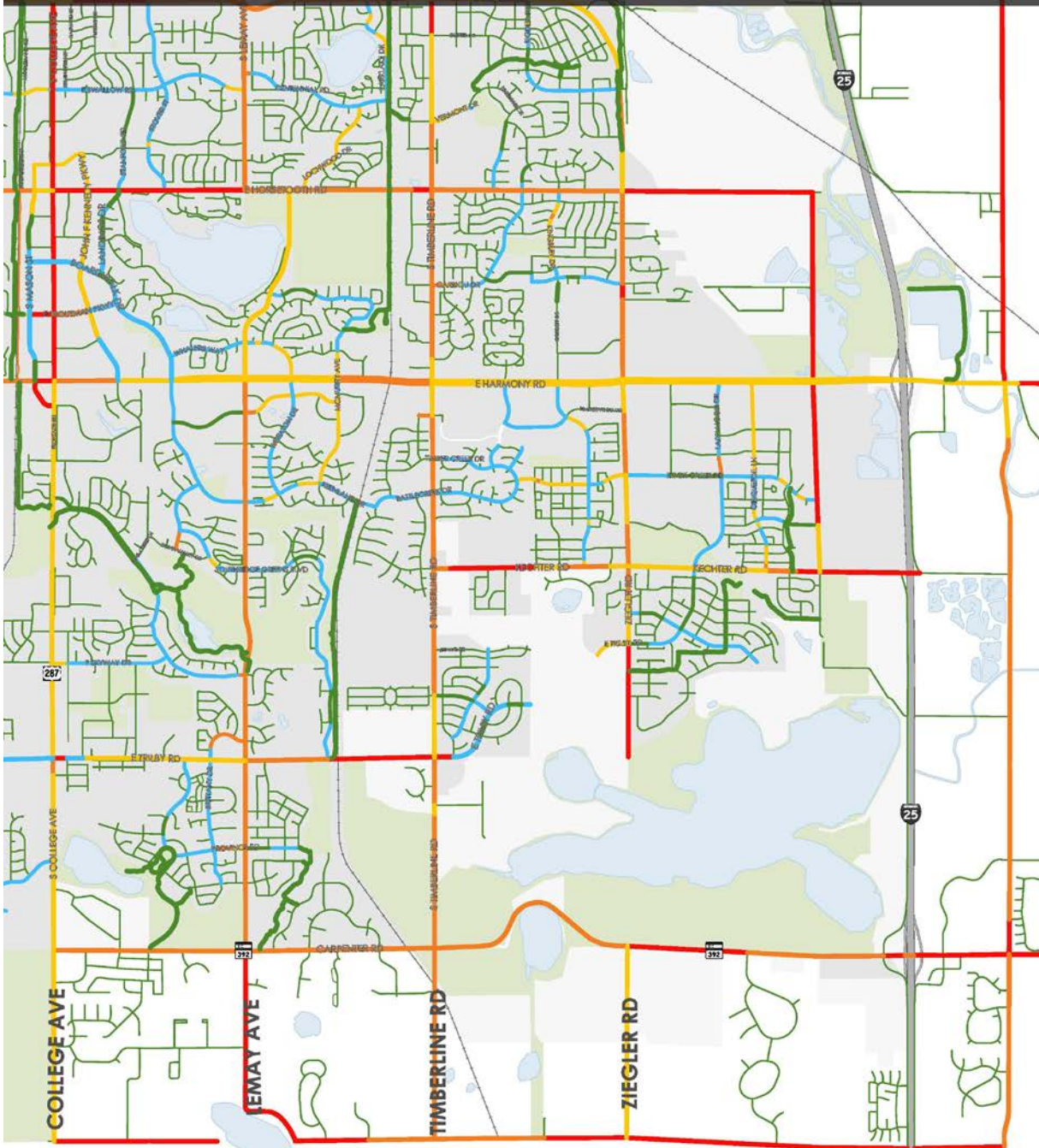


FIGURE 32: NORTHWEST FORT COLLINS - EXISTING BICYCLE LEVEL OF COMFORT MAP

BICYCLE LEVEL OF COMFORT ANALYSIS: SE



LEGEND

- █ LEVEL OF TRAFFIC STRESS 1
- █ LEVEL OF TRAFFIC STRESS 2
- █ LEVEL OF TRAFFIC STRESS 3
- █ LEVEL OF TRAFFIC STRESS 4
- █ LEVEL OF TRAFFIC STRESS 5

0 1 2
Miles



Figure 33: Southeastern Fort Collins - Existing Bicycle Level of Comfort Map

BICYCLE LEVEL OF COMFORT ANALYSIS: SW

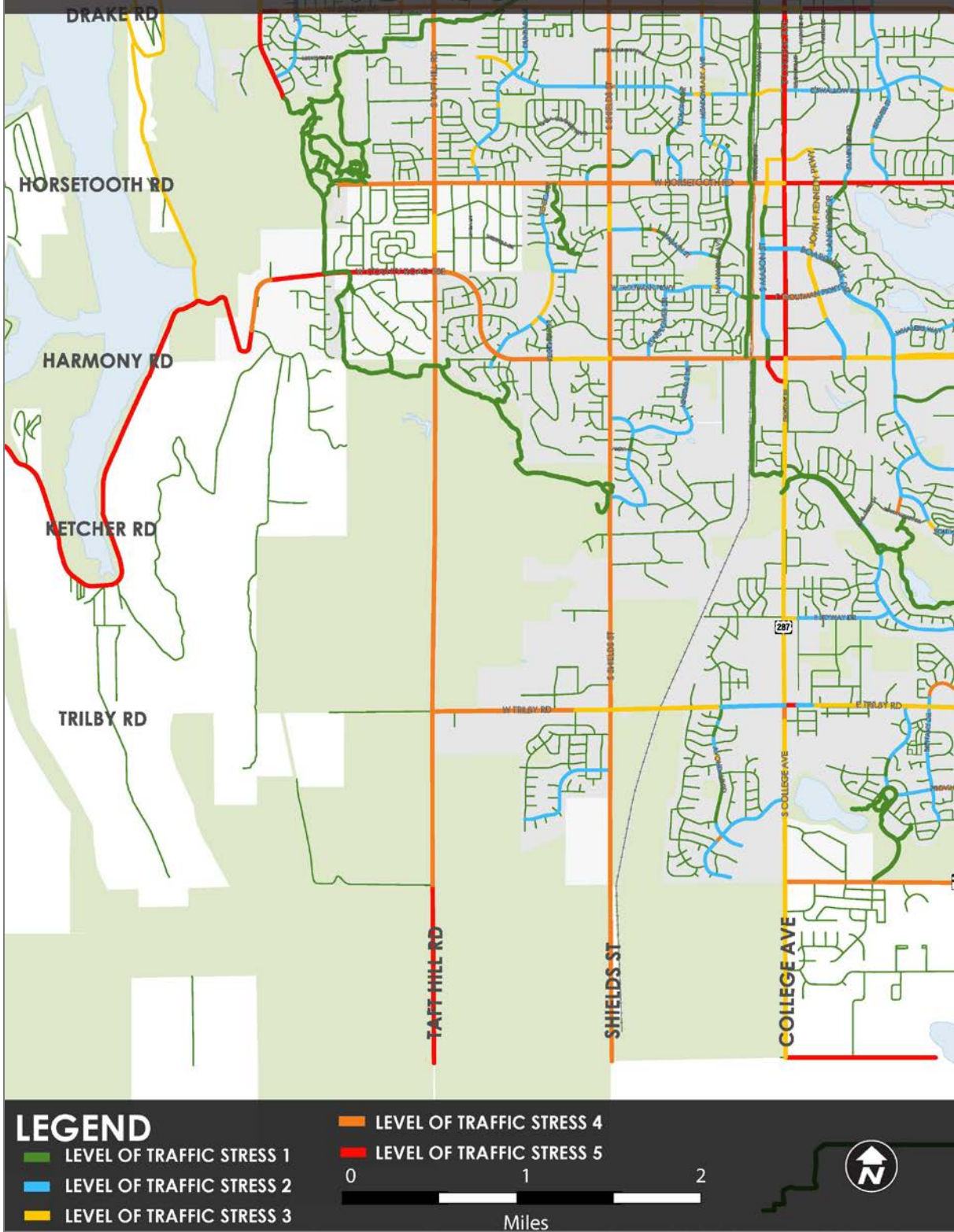


Figure 34: Southwestern Fort Collins - Existing Bicycle Level of Comfort Map

Stress Island Effect

By displaying only the existing network of LTS 1 streets and greenways, it is possible to visualize the low-stress islands throughout the city that the 2014 Bicycle Master Plan will seek to connect. For a network to be attractive to the *Interested but Concerned* (LTS 1 or 2) population, it must provide a seamless level of stress not only along the proposed route, but also at each street crossing. Figure 33 shows the importance of the trail system to connect various neighborhoods throughout Fort Collins and the importance of the local street system. It also highlights the fragmented nature of the local street grid and the cul-de-sac style development pattern which is predominant outside of downtown Fort Collins. A lack of continuity in the street grid funnels more traffic - automobile and bicycle - onto those few streets that provide cross-city connections.

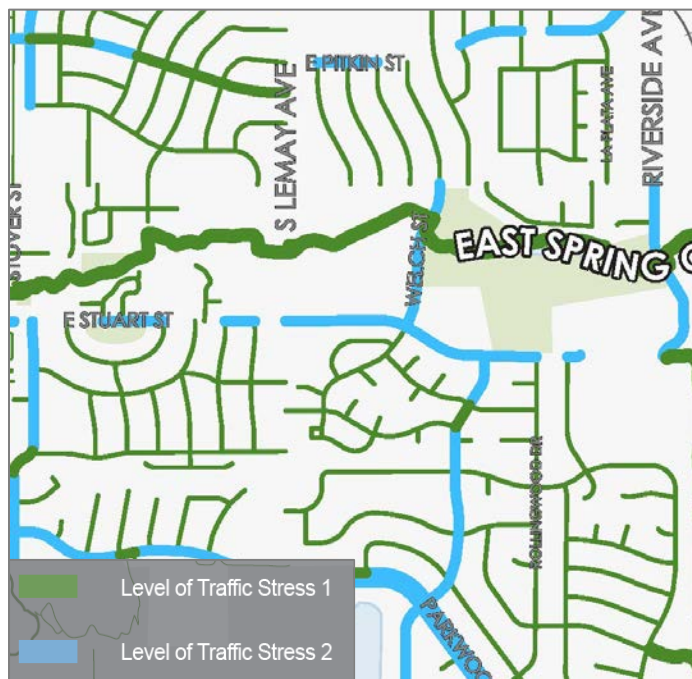


FIGURE 35: STRESS ISLAND SNAPSHOT - SPRING CREEK TRAIL

Most LTS 1 or 2 facilities do not connect.

LEVEL OF COMFORT ANALYSIS: LEVEL OF TRAFFIC STRESS 1

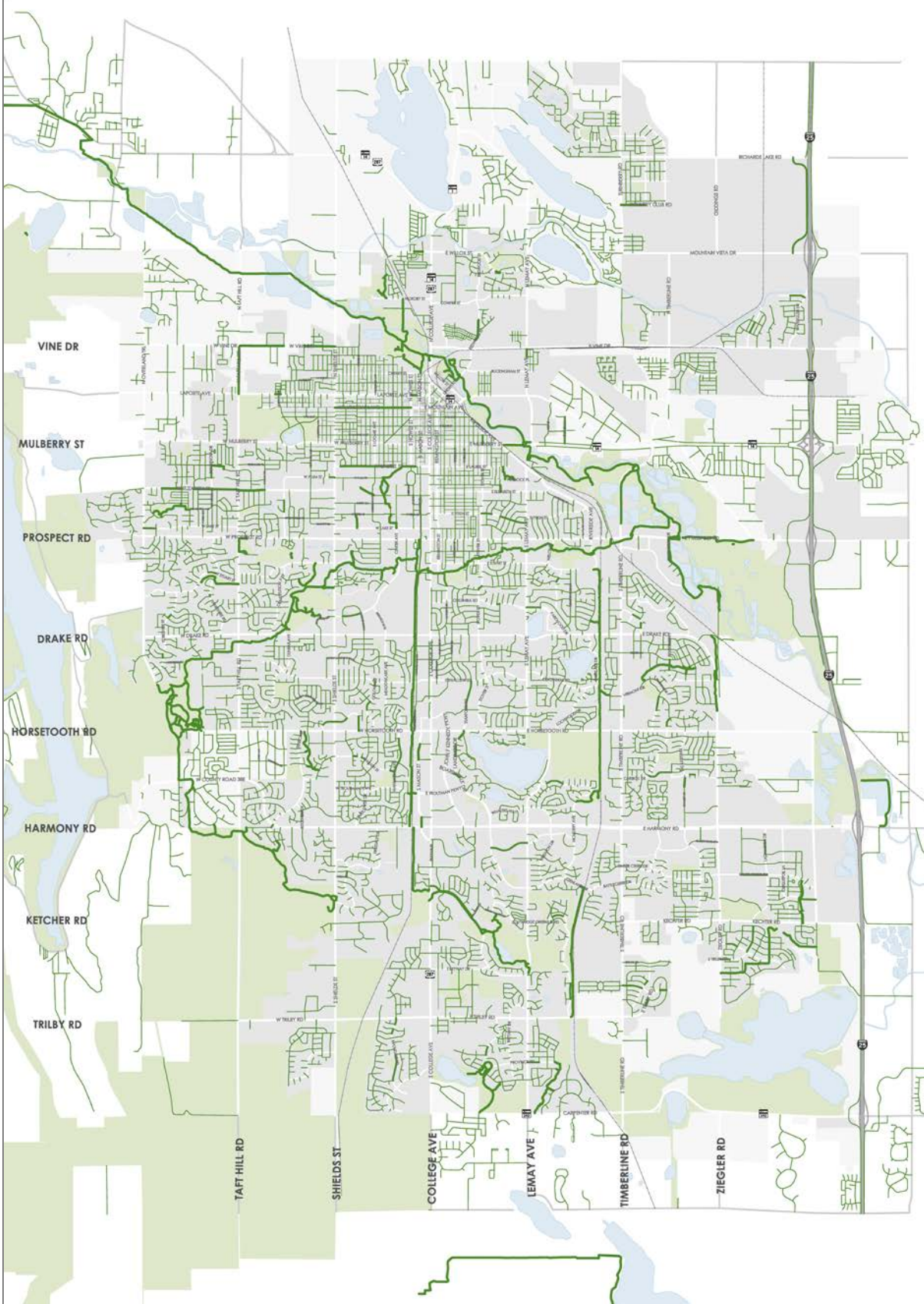


FIGURE 36: EXISTING LOW-STRESS (LTS 1) STREET AND TRAIL MAP

Programs and Policies

Standards and Policies

Design Standards

The primary design standard for the City is the Larimer County Urban Area Street Standards (Standards). There are three parts of the Standards that pertain to bicycle facilities: bike lane width, travel lane width, and parking width. The required widths for each are shown in Table 10.

The Standards provide adequate or generous space for bike lanes in all scenarios, and specify wider bike lanes than the AASHTO *Guide for the Development of Bicycle Facilities* minimum recommendation.²⁷

Much of the street infrastructure in Fort Collins was developed before these Standards existed. If a new local neighborhood street were to be constructed using the Standards, it would be built to be 30' wide. Many roadways in the older part of the city are 58' to 60' wide, including local and collector neighborhood streets. This dimension is much larger than most other American or European cities. While wide streets allow space for generous bicycle, parking, pedestrian, and streetscape elements, if not managed well, they can encourage high vehicular travel speeds.²⁸

In areas of the city that were developed more recently, many residential roadways are approximately 40' wide.



FIGURE 37: WIDE NEIGHBORHOOD STREET (STOVER STREET)

Many Fort Collins streets include front-in angled parking. Front-in angled parking is convenient for drivers and is a good way to maximize the capacity of parking on streets. However, it can create safety problems due to poor visibility for drivers. In this configuration, when a driver begins to pull out of a parking space, it is difficult to see behind the car—including whether bicyclists, pedestrians, or other vehicles are present—until a driver has already pulled out. To improve safety, many cities have implemented back-in angled parking. For example, Boulder, Colorado, is currently piloting the treatment in one of its multimodal corridors and has used education and enforcement techniques to encourage compliance with the new design.

²⁷ AASHTO, *Guide for Development of Bicycle Facilities*, 2012.

²⁸ Along with transportation impacts, wide paved streets include impervious surfaces and corresponding stormwater runoff.

TABLE 10: LARIMER COUNTY URBAN AREA STREET STANDARDS - FACILITY WIDTHS BY STREET TYPE

	6-Lane Arterial	4-Lane Arterial	2-Lane Arterial	Major Collector (without parking)	Minor Collector (with parking)	Commercial Local	Connector Local
Travel Lane Width	12'	12'	12'	12'*	11'	11' or 12' w/ left	10'
Bike Lane Width	8'	8'	8'	8'	6' w/parking 8' w/LT turn	6' or 7' **	0' or 6' ***
Parking Lane Width	None	None	None	None	8' or None****	8' or None****	8' or None****

Source: Larimer County Urban Area Street Standards, 2007

* To provide left-turn lanes at intersections, 10' additional roadway width is required to provide an 11' wide left turn lane with 6' bike lane and 11' travel lanes.

** A 7' wide bike lane is provided when parking is removed for a left turn lane.

*** If bike lanes are required, additional street width will be required to provide 6' wide bike lanes.

**** To provide left turn lanes at intersections, parking shall be removed.

Bicycle Parking Policy

Fort Collins has bicycle parking requirements for all new building developments. The City of Fort Collins Land Use Code, Article 3.2, Section C specifies bicycle parking space requirements based on land use and indicates the percent of parking that should be enclosed (e.g., indoors or bicycle lockers) as well as the percent that can be provided by fixed bicycle racks. For example, developers of multifamily housing are to provide one bicycle parking space per bedroom, with 60 percent of the total enclosed and 40 percent via bicycle rack. For most land uses, a minimum of four bicycle parking spaces is required.

There is no guidance provided in the code regarding the physical location of the bicycle parking on the property, for example recommending a location with adequate lighting and convenient to the building entrance. While there is no regulation governing the design of the bicycle racks provided, the City of Fort Collins' website recommends following the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guidelines, 2nd Edition.²⁹

²⁹ Association of Pedestrian and Bicycle Professionals, Bicycle Parking Guidelines, 2nd Edition.

Bicycling Programs

Fort Collins has become an exemplary bicycle-friendly community owing in large part to the programs and policies that have helped build a strong bicycle culture. These non-engineering elements of a bicycle-friendly community are typically broken down into four "E's": encouragement, education, enforcement, and evaluation. Engineering, discussed in the Bicycle Network and Infrastructure section of this report, is the fifth "E" typically included in bicycle planning.

The LAB defines non-engineering E's as follows:

- Encouragement: Creates a strong bike culture that welcomes and celebrates bicycling.
- Education: Gives people of all ages and ability levels the skills and confidence to ride.
- Enforcement: Ensures safe roads for all users.
- Evaluation and Planning: Plans for bicycling as a safe and viable transportation option.³⁰

Encouragement and education programs are run by both the City, through the FC Bikes Program, and by the many vital community groups focused on improving bicycling in Fort Collins. A few of the most active groups are profiled below. Enforcement, evaluation and planning are conducted by many City departments working together.

³⁰ <http://www.bikeleague.org/content/5-es>

Community Bicycle Organizations

Fort Collins Bicycle Co-op

The Co-op began in 2003 with the goal of enabling more Fort Collins residents to ride a bicycle. They operate a volunteer-run community bike shop that accepts donated bicycles and parts and gives refurbished bicycles to lower-income residents. The Co-op also runs maintenance classes, an earn-a-bike program, mountain biking trips for underserved youth, and a number of other initiatives.

Bike Fort Collins

Bike Fort Collins is a member-based nonprofit organization begun in 2005 to encourage safe and enjoyable cycling. They operate the Bike Library, conduct adult education classes, run marketing campaigns, coordinate encouragement events, and advocate for bicycle projects in Fort Collins.

Bicycle and Pedestrian Education Coalition

This coalition consists of 17 bicycle- and pedestrian-related groups from throughout Larimer County, including Fort Collins. BPEC's mission is to "reduce the number of motor vehicle/bicycle/pedestrian crashes in our community, and increase knowledge and awareness about how to safely share roads." BPEC currently operates the Bicycle Ambassador Program (BAP) discussed in the section that follows.

Education

Education is broadly defined in this report, to include everything from skills classes for youth to elevating awareness and responsibility among all transportation system users, including bicyclists. The majority of bicycle education classes, events, campaigns, and other activities are run by the City, or by other organizations such as Bike Fort Collins. Education has always been a part of the FC Bikes program,

but a renewed effort to focus on education has taken place since the development of the BSEP in 2011.

Bicycle Safety Education Plan

Many of the City's current education efforts are a direct result of recommendations in the Bicycle Safety Education Plan (BSEP). The creation of the BSEP was spurred by three bicyclist fatalities and by a wider recognition that with more bicyclists on the road, there was a greater need for concerted education efforts related to the safety of all road users. Overall, the BSEP vision is to see a decrease in reported bicycle crashes. In the long term, the City committed to *Vision Zero*: reducing citywide bicyclist deaths and serious injuries to zero. The plan's program recommendations were targeted at four audiences: youth bicyclists, adult bicyclists, motorists, and the law enforcement community. These audiences represent all of the parties who will need to be educated to reach the plan's stated vision. The City has recently summarized its progress on the implementation of BSEP; that information is contained in Appendix A.

Bicycle Ambassador Program (BAP)

The BAP trains citizen volunteers to provide encouragement and education about bicycling and road safety. The BAP is run by FC Bikes and the BPEC. BAP started in 2012 and today has over 40 trained volunteers who give "Lunch & Learn" presentations, teach the City's Traffic Skills 101 courses, provide information at community events, and serve as courtesy patrol on roads and trails. Ambassadors also offer one-hour safety education presentations for any group of citizens of six or more people.

A high school BAP is being launched in 2014. SRTS and FC Bikes are launching the program because they recognize that peer-to-peer bicycle education and encouragement (as compared to messages from adults)

may result in more and safer bicycling among youth.



FIGURE 38: BAP NEIGHBORHOOD OPEN GARAGE

Source: FC Bikes

Adult Bicycling Education

FC Bikes sponsors monthly 7.5-hour Traffic Skills 101 classes for any Fort Collins adult resident. Classes equip attendees with information on bicyclists' rights and responsibilities on the road, bicycle safety checks, riding skills, and crash-avoidance maneuvers. Participants also practice riding skills on their bike. Starting in 2014, the City will offer Learn to Ride classes for adults, which are two hours in length and will teach the basics of riding a bike.

The Women on a Roll program provides classes on bicycle skills and maintenance, rides, and events that focus on reducing barriers to bicycling for women.

Together with the BAC, the City offers diverse education options by request such as Lunch and Learn presentations and outreach to businesses.

Finally, the City hosts one League Cycling Instructor (LCI) course per year, and together with CSU offers scholarships to train community members to be safe-cycling instructors.

Youth Bicycling Education

Youth bicycling education falls largely under the Fort Collins Safe Routes to School (SRTS) program, which provides walking and bicycling education to as many Pre-K through 12th grade students as possible every year. Trained educators teach bicycle-pedestrian safety during physical education classes and after-school programs that cover bike-handling skills, rules of the road, and helmet fitting, among other topics.

SRTS also organizes bicycle skills rodeos with curriculum specific to elementary and middle school students. This type of high-quality educational contact reached 5,828 students in 2013. Overall, the program had contact with a total of approximately 14,000 people in 2013. The SRTS program has a goal of a three-year rotation schedule for educational activities which will enable them to reach every student at each level: elementary, middle, and high school.



FIGURE 39: SRTS IN ACTION

Source: FC Bikes

Law Enforcement Education

The BSEP made a recommendation to assist Fort Collins Police Services with training for officers to help them understand typical behaviors, as well as rights and responsibilities of bicyclists on the road. Currently, Police Services offers a two-hour course on these topics every two years, required of all new recruits and optional for others. Additionally, Police Services uses the spring and fall increase in bicycling as an opportunity to educate its officers about rules of the road and how to cite bicycle infractions. The City is planning to launch a diversion program in 2014, where bicyclists who get infractions would be able to get their fine reduced by participating in a traffic skills training course.

Encouragement

The first six years of the FC Bikes program focused mostly on encouragement programs, and succeeded in building a strong bicycle culture in Fort Collins, where residents and visitors welcome and celebrate bicycling. Encouragement programs consist of special programs like the Fort Collins Bike Library, events, and marketing.

FC Bike Library

The Bike Library was launched by the City in 2008 and is operated by Bike Fort Collins. Bicycles are available from April to December annually for free checkout for the first day; a \$10 charge is applied each day after. The fleet of 170 bicycles includes a wide range of bicycle types, with 40 of those bicycles housed at the main Library location at the Downtown Transit Center. Other bicycles are available for checkout at one hotel, and a second hotel location is being planned, as well as a location at CSU.

The Bike Library has been a boon for bicycling in Fort Collins as it enables more people to take part in bike culture without owning a bicycle. While the majority (75

percent) of Bike Library users are visitors, the Bike Library is an important source of community pride. The facility itself gives a large, public presence to bicycling in the downtown area. With its move to the Downtown Transit Center in 2014, it will be visible to many local and regional transit users and more accessible to those riders for combining bike and bus trips. The City is currently planning to expand its Bike Library with automated, self-checkout bike share stations.



FIGURE 40: FORT COLLINS BIKE LIBRARY

Source: FC Bike Library

Boltage Incentive Program

This pilot program is being implemented at Leshar Middle School in 2014 to incentivize biking and walking to school. The program uses an RFID reader to log a child's unique ID and his or her trip to school. These trips are tallied and students (or groups of students) are rewarded based on the number of trips taken. The program will eventually be in place at three additional schools in the Poudre School District.

Events

The City acts as an umbrella organization to coordinate community groups and develop a regular calendar of bicycling events. Some of the major annual events that the City leads include:

- **Bike to Work Day:** Part of Colorado's Bike to Work Month, this event works with individuals and employers to encourage people to bike for transportation, experience the benefits of riding a bike, highlight Fort Collins' extensive bike routes, and demonstrate that bicycling is an easy, fun and healthy means of traveling around the city. BTWD is held twice a year in June and December. The 2013 Summer BTWD, the 26th annual, had 108 sponsors and 3,551 total participants—and over 1,000 bicyclists and 20 businesses were new participants. The 2013 Winter BTWD was the 7th annual and despite cold temperatures, had 63 hosts and over 600 bicyclists—200 of which were new participants.³¹
- **Bike Winter:** This month-long series encourages riders to bike year-round and helps disseminate information about how to do this successfully with classes like Winter Cycling 101, as well as bike light giveaways.
- **International Walk to School Day and National Bike to School Day:** The City's Safe Routes to School (SRTS) program works with local schools to encourage student participation in these annual events. An estimated 5,000 K-12 students participated in these events during the 2013-14 school year.
- **B.I.K.E. Camp:** The City's SRTS program co-sponsors (with the City's Recreation Dept.) several weeklong bike camps for children ages 6-11 over the summer.
- **Family Bike Rodeos:** The SRTS program sets up bike-safety skills trainings, known as "bike rodeos" year-round at venues throughout the community.

³¹ www.fcgov.com/bicycling (visited April 2014).

The City helps lead or supports many other regular events. These include:

- **Tour de Fit, Tour de Cat, Tour de Olander, Kruse Bike Day:** Many local schools have created their own signature events to celebrate bicycling, some of which play off the "Tour de Fat" theme. Each of these school events attracts hundreds of students and are supported by the SRTS program.
- **Walkin' and Wheelin' Wednesdays:** Many local schools hold active-transportation encouragement programs throughout the school year by giving prizes to students who walk or bike to school each Wednesday.
- **Bike Field Trips:** A growing number of schools are arranging for students to take field trips by bike rather than by school bus. One of the biggest annual events is the ECO Bike Trip for about 80 fifth-graders at Traut Elementary, who ride their bikes to and from the Environmental Learning Center to learn about ecology. Another notable field trip is Olander Elementary's Bike Field Trip for 160 fourth- and fifth-graders.
- **Meals on Two Wheels and Food Finders:** These two programs are part of an innovative juvenile diversion program involving the Center for Family Outreach, The Growing Project, and SRTS. At-risk youth participate in these bike-based community-service programs to deliver meals to seniors and transport healthful produce from local farms to a homeless shelter, all accomplished via bikes and bike trailers.
- **Tour de Fat:** This festival is put on each August by New Belgium Brewery and is a family-friendly event that raises money for local bicycle nonprofits. It drew an estimated 25,000 participants in 2013.

Additional events such as bike-in outdoor movies, Open Streets events planned for 2014 and 2015, and women-focused bicycling events are effective ways to get more people out on bicycles, including groups underrepresented among typical bicycle commuters, like women and families.

Business, community organization, and school partners are vital to making all of these events happen.

Marketing

Posters, bus advertisements, stickers, fliers, the FC Bikes website, newsletters like Momentum, the CoExist campaign, articles in the Coloradoan, publications like *Ride*, and other materials are used to communicate a positive message about bicycling in Fort Collins. Marketing is supported by groups like Bike Fort Collins who developed the nationally-recognized “You Know Me, I Ride a Bike” campaign.

The City has also encouraged local media outlets to cover bicycle events, programs, and infrastructure improvements. This coverage raises awareness of bicycling and bicyclists among community members who might not otherwise have exposure to this part of Fort Collins.

Enforcement

Enforcement of traffic laws in Fort Collins is done by a number of overlapping police forces: Fort Collins Police Services, Larimer County Sheriff's Office, CSU Police Department, Colorado State Patrol, School Resource Officers, and, to a small extent, Federal Protective Services. The majority of traffic enforcement is done by Fort Collins and CSU officers within the City boundaries. CSU officers are empowered to enforce traffic laws on and off campus, since they are state police officers, and they may also write University-specific citations and warnings on campus.

Bicycle Laws

Bicyclists' actions on roadways are subject to the same traffic laws as other vehicles in the state of Colorado. Bicyclists are required to obey all posted signs and signals and ride with traffic. Sidewalk and crosswalk riding is allowed under Colorado Revised Statutes § 42-4-1412.10, except in marked dismount zones. However, bicyclists are required to yield the right-of-way to pedestrians in these situations and to give an audible signal when passing. When riding in a crosswalk, the bicyclist has all of the same rights and responsibilities as a pedestrian and is not required to dismount.

In general, Colorado laws pertaining to bicyclists are considered to be among the friendliest to bicyclists in the country. For instance, a bicyclist's ability to take a lane to avoid hazards in the roadway is spelled out in code, as is the requirement for any vehicle to pass at least three feet from a bicyclist.

The Fort Collins Traffic Code includes the following key provisions related to bicyclists:

- Requirement for a headlight and rear reflector in low light or low visibility, along with other equipment requirements
- Prohibition for vehicles within bicycle lanes, except for merging or parking movements
- Requirements for bicycle placement (right hand lane except when turning left, when avoiding a right-turn lane, or when otherwise unsafe)
- Prohibition of bicyclists riding more than two abreast on streets
- Requirement to signal
- Prohibition of bicycles along sidewalks, roadways, and crosswalks where official traffic control devices or local ordinances prohibit their presence (e.g. College Avenue and on downtown sidewalks)

Many other bicyclist-related laws are also included in the Traffic Code.

Bicycle Officers

The above laws and all traffic laws pertaining to bicyclists can be enforced by any officer. However, Fort Collins Police Services currently have eight bicycle officers who are typically responsible for bicyclist enforcement actions. These eight officers have other duties, too, and thus are not consistently focused on bicyclist enforcement. Bicycle officers perform targeted enforcement actions to capture bicyclist infractions, typically at the start of the CSU academic year.

Bicyclist Citation

If an officer sees a bicyclist disobeying traffic law, and if he/she is able to reach the bicyclist in time, the officer has discretion as to whether to issue a citation. Citations carry the same monetary penalties as motor vehicle infractions. According to Police Services, the current City Code makes it difficult for an officer to process a bicycle violation citation, which may deter some

officers. The Code change is reportedly simple, and is being discussed with City officials.³²

Bicycle Registration

Bicycle owners in Fort Collins can register their bicycles with the City or with CSU. These registrations are used in the event of a stolen bicycle, to aid in recovery and return of the bicycle to its owner. The City works with local bicycle shops to distribute bicycle registration cards to the public.

Evaluation and Planning

City staff implements programs and policies related to evaluation and planning. The evaluation of existing programs takes place through annual documentation such as the SRTS Annual Report and Traffic Safety Summary. The SRTS Program also collects data through the National Center for SRTS (NCSRTS) parent surveys and student travel tallies.

FC Bikes staff conduct regular surveys and monitor regional and national data sources such as those mentioned related to ridership earlier in this report. The count program is also a form of evaluation and tracking of bicycle trends in the city.

Planning for bicycle infrastructure and programs is done by the FC Bikes staff and other staff within Planning, Development and Transportation, and Park Planning. Updates to the *City Plan*, *TMP*, *Master Street Plan*, *Pedestrian Plan*, *Transfort Strategic Operating Plan*, and the *Capital Improvement Plan* can all have an impact on the bicycling environment in Fort Collins.

Bicycle Advisory Committee

The Bicycle Advisory Committee (BAC) is a key entity in planning for and implementing improvements to bicycling in Fort Collins.

The BAC is a subcommittee of the Transportation Board and was formed in 2009 to review and recommend bicycle projects, policies, and to aid in implementing the Bicycle Master Plan. Members of this committee are drawn from other bicycle-related organizations in Fort Collins, related advisory boards, CSU, Poudre School District, and the business community; there are also three at-large members from the community. The overall goal of the BAC is to promote safe, efficient bicycling in Fort Collins and the surrounding region.

³² Trombley, Michael, Personal Interview, March 11, 2014.

Investment

Fort Collins has funded its bicycle program through grants, City funds, state and federal funds, and development fees.

Fort Collins has rigorously pursued grant monies for bicycle improvements from sources such as Congestion Mitigation and Air Quality (CMAQ), Transportation Enhancements (TE), and Great Outdoors Colorado (GOCO) lottery funds. Between 1995 and 2008, the City secured over \$20 million in federal grants.

In response to 1995 Bicycle Plan, the City hired a Bicycle Coordinator in 1996. Beginning in 2003, due to budget cuts the position remained unstaffed. In 2006, City Council responded to a tremendous outpouring of public support for the position and once again funded a Bicycle Coordinator for the City. The implementation component of the 1995 Plan and the 2008 Bicycle Plan is known as FC Bikes and is overseen by a program manager. The FC Bikes Program and the Bike Library have historically been primarily funded by a Congestion Mitigation and Air Quality (CMAQ) Grant administered by the NFRMPO.

The FC Bikes Program is funded through a combination of City funds, federal funding sources, and other grants.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The City was recently awarded an \$850,500 CMAQ grant (including the required 17.21 percent local match) that will fund 75 percent of two FC Bikes positions along with other bike programs over a three-year period beginning in the spring of 2014. The grant includes funding for education and encouragement programs, training for the FC Bikes Program staff, regional bike

coordination, end-of-trip facilities, a business and implementation plan for a new bike share system, bike counters, and a portion of the 2014 Bicycle Plan.

Transportation Alternatives Program (TAP)

The TAP (formerly the TE Program) is a federal funding source that is also administered by the NFRMPO. In recent years, Fort Collins has been awarded TE/TAP grants for bicycle and pedestrian infrastructure projects on SH 14 (a bicycle/pedestrian bridge relocation), North College (US 287), and a Mason Trail railroad crossing.

Building on Basics (BOB)

Fort Collins voters approved Building on Basics (BOB), a quarter-cent sales and use tax which extends from January 2006 through December 2015. FC Bikes currently receives \$125,000 each year toward implementation of the Bicycle Plan. The City is considering a ballot initiative for fall 2015 for the BOB 2; if the initiative is realized and the voters approve it, FC Bikes intends to apply for \$200,000 per year beginning in 2016 to be used toward implementation of Bicycle Plan projects and programs.

Keep Fort Collins Great (KFCG)

In November 2010, Fort Collins voters passed Keep Fort Collins Great (KFCG), a 0.85 percent sales tax to fund critical services for the community (2011-2020). Through KFCG, the FC Bikes program received \$669,917 in funding for 2013 and 2014, including \$50,000 in support of the USA Pro Challenge. Historically funded through a CMAQ grant, as of 2013, the Bike Library is funded through KFCG funds at \$80,000 per year. Additionally, \$146,372 in KFCG funds were used as the local match for the 2014-2016 CMAQ grant.

Budgeting for Outcomes (BFO) Process

Fort Collins has a two-year budgeting process—Budgeting for Outcomes (BFO)—that is designed to create a government that works better, costs less, and is focused on desired results. Budget offers are developed by City departments and work teams and subsequently vetted and ranked according to organizational and community priorities. In addition to the annual allocation to the FC Bikes program, the Remington Greenway project was also funded through the 2013/2014 BFO process (\$450,000), and construction is planned to begin in 2014.

Kaiser Permanente Grant

The City of Fort Collins was recently awarded a \$94,100 Walk and Wheel grant from Kaiser Permanente which will be used over the next two years (2014-2015) for several FC Bikes programs including the bike share business plan, an open streets event, education programs, an update to the bike map based on level of comfort, and a new Eco-Totem bike counter.

Operations and Maintenance (O&M) Funds

Operations and Maintenance (O&M) expenditures for roads and bridges and bicycle and pedestrian services are funded with Transportation Services Fund revenues. The primary sources of revenue are the State Highway User Tax Fund, County Road and Bridge Fund, motor vehicle registration fees, and transfers from the General Fund. Fort Collins has successfully added bike facilities on many city streets as a part of regularly scheduled pavement overlay projects.

Multimodal Roadway Improvement Projects

Bicycle facilities in Fort Collins have also been added as a part of larger multimodal roadway improvement projects; the funding sources vary (federal, state, local, and other

grants) and the bicycle facilities often represent a small portion of the overall project costs.

Street Oversizing (SOS) Fees

When land development causes a need for transportation improvements, the developer is required to finance those improvements. This financing, called Street Oversizing (SOS) Fees, has funded many of the city's existing bike lanes.

Trails Funding

The City received about \$50,000 in Lottery revenue (Conservation Trust Fund) in 1984 and today receives about \$1,200,000 annually. The Conservation Trust Fund has funded the majority of the paved trail system. Historical records indicate the Conservation Trust has contributed about \$18,000,000 since 1984 toward the development of the trail system.³³ The Natural Areas Department has contributed about \$350,000 annually to trail construction since 2003. The Natural Areas Program contribution to trails may not to be available after 2014 due to program funding needs. In addition to the Conservation Trust Funds, the City has received 11 grants over the years totaling \$2,731,312, primarily from GOCO which is also funded by the Lottery.

³³ FC Paved Recreational Trails Master Plan

Next Steps

The City will use the momentum and progress made from previous bicycling-related efforts, the data and information contained in this report, community input, and the project goals to develop a blueprint for the future of bicycling in Fort Collins. The City has the following vision:

The Bicycle Master Plan envisions Fort Collins as a world-class city for bicycling. It is a city where people of all ages and abilities have access to a comfortable, safe, and connected network of bicycle facilities, and where bicycling is an integral part of daily life and the local cultural experience.

The 2014 Bicycle Master Plan will build upon the City's past and current efforts and create a blueprint for an even safer and more inviting bicycling environment in Fort Collins.

Appendices

Appendix A: Bicycle Safety Education Plan
Progress

2011 BICYCLE SAFETY EDUCATION PLAN RECOMMENDATION	COMPLETED	ONGOING/ UNDERWAY
<i>YOUTH EDUCATION</i>		
PROVIDE WALKING AND BICYCLING EDUCATION TO AT LEAST 11,000 STUDENTS FROM KINDERGARTEN THROUGH HIGH SCHOOL STUDENTS ANNUALLY	x	x
ENCOURAGE FORT COLLINS' SCHOOLS TO REVIEW AND ADOPT STATEWIDE BICYCLE AND PEDESTRIAN EDUCATION URRICULUM UNDER DEVELOPMENT BY THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT)		x
EXPAND BICYCLE SAFETY EDUCATION TO HIGH SCHOOLS WITHIN THE CITY OF FORT COLLINS		x
DEVELOP A SUSTAINABLE WALKING AND BICYCLING SCHOOL BUS PROGRAM FOR INTERESTED SCHOOLS		x
ENCOURAGE ONE TEACHER PER SCHOOL TO PARTICIPATE IN THE SAFE ROUTES TO SCHOOL TRAIN THE TRAINERS PROGRAM		x
DEVELOP A BICYCLE AND PEDESTRIAN SAFETY TOWN TO SERVE CHILDREN		x
HIRE FULL TIME EQUIVALENT SAFE ROUTES TO SCHOOL COORDINATOR	x	
IMPLEMENT A COLLABORATIVE COMMUNITY APPROACH TO OFFERING BIKE CAMPS TO CHILDREN DURING THE SUMMER MONTHS	x	x
<i>ADULT EDUCATION</i>		
EDUCATE COLLEGE STUDENTS ON BICYCLE SAFETY AND AWARENESS		x
PROVIDE BICYCLE SAFETY EDUCATION TO FAMILIES		x
TEACH RECREATIONAL & COMPETITIVE CYCLISTS HOW TO RESPECTFULLY SHARE THE ROAD AND TRAILS		x
PROVIDE BICYCLE COMMUTERS BICYCLE SAFETY EDUCATION AND INCENTIVES		x
ENGAGE SENIOR CITIZENS IN BICYCLING ACTIVITIES		x
TRANSLATE BICYCLE SAFETY EDUCATION INTO SPANISH	x	x
<i>ENFORCEMENT</i>		
ASSIST FORT COLLINS POLICE SERVICES IN PROVIDING ON-GOING BICYCLE TRAINING OPPORTUNITIES FOR OFFICERS	x	x
COMMUNITY POLICING AGREEMENT		
DIVERSION PROGRAMS		x
ENCOURAGE FORT COLLINS POLICE SERVICES TO CONDUCT TRAFFIC ENFORCEMENT AT THE HIGH CRASH AREAS AND TYPES OF CRASHES IDENTIFIED IN SECTION VI		x

2011 BICYCLE SAFETY EDUCATION PLAN RECOMMENDATION	COMPLETED	ONGOING/ UNDERWAY
<i>INFRASTRUCTURE</i>		
UPDATE TO THE FORT COLLINS BIKE ROUTE NETWORK (BIKE WAYS)		x
INSTALL BIKE BOXES WHERE APPROPRIATE	x	x
INSTALL SHARED LANE MARKINGS	x	x
EXPLORE CONTINUED USE OF BUFFERED BIKE LANES		x
EXPLORE USE OF CYCLE TRACKS ALONG SPECIFIC CORRIDORS		x
EXPLORE THE USE OF BICYCLE BOULEVARDS AND COMMUNITY GREENWAYS		x
EXPLORE USE OF SCRAMBLE CROSSINGS AT SPECIFIC INTERSECTIONS		
INSTALL SIGNAL ACTUATION FOR CYCLISTS	x	x
<i>GENERAL</i>		
IMPLEMENT SHARE THE ROAD COLLABORATIVE RECOMMENDATIONS	x	x
DISSEMINATE UNIVERSAL BICYCLE SAFETY MESSAGES AND CRASH TERMINOLOGY	x	x
REVIEW THE FORT COLLINS TRAFFIC CODE - AMENDMENT TO SECTION 1412 (10) (A)		
DISCOURAGE IRRESPONSIBLE USE OF ALCOHOL WHILE CYCLING	x	x
MAINTAIN DATABASE OF HIGH PROFILE BICYCLE CRASHES	x	x
IMPLEMENT THE NEIGHBORHOOD BICYCLE AMBASSADOR PROGRAM	x	x
DEVELOP AND IMPLEMENT A MASTER CYCLIST PROGRAM	x	x
INSTILL A SENSE OF SECURITY FOR ALL CYCLISTS		x
ADDRESS ELECTRIC BIKE USE ON BIKE TRAILS	x	x