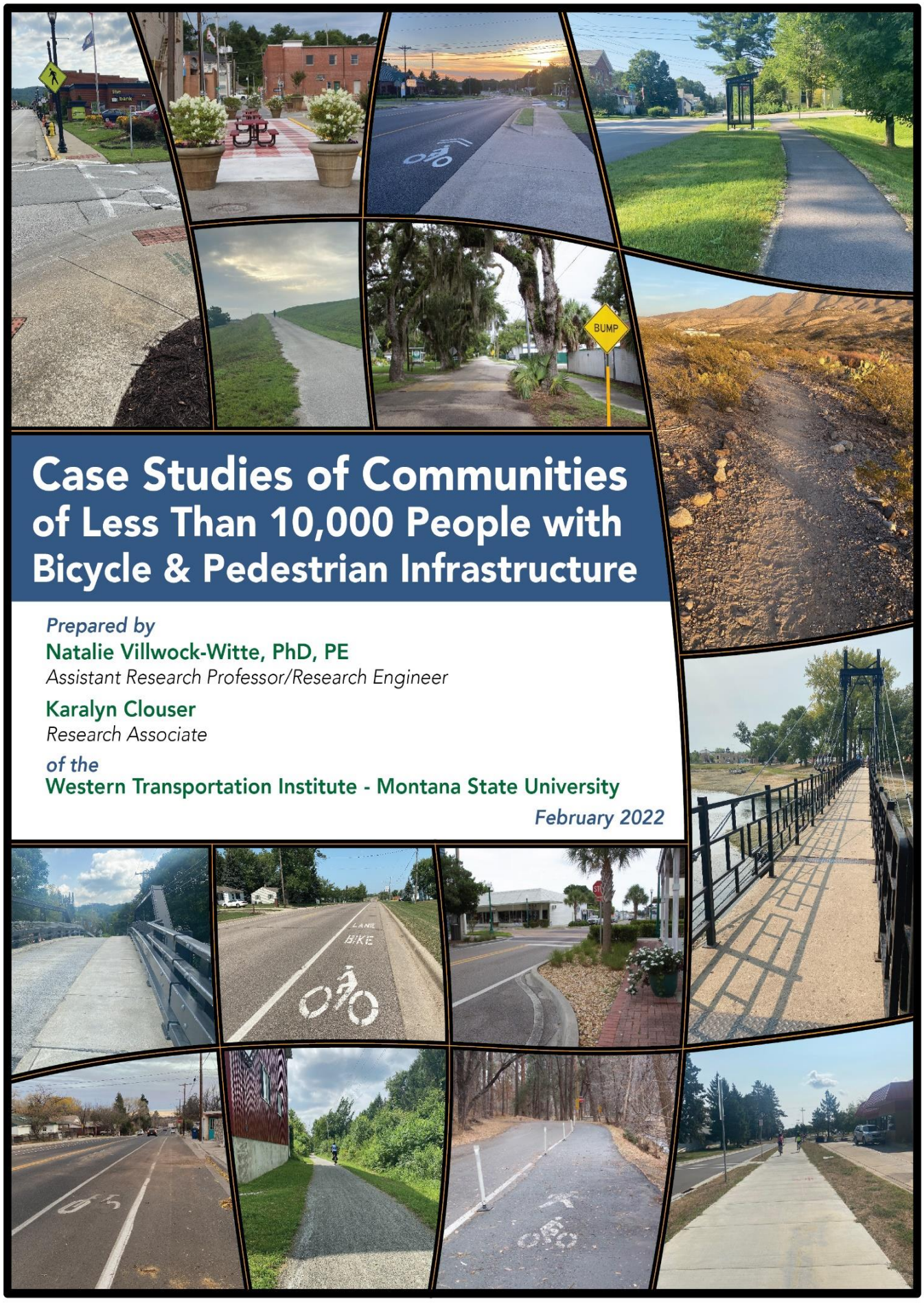

Case Studies of Communities of Less Than 10,000 People with Bicycle & Pedestrian Infrastructure

Prepared by
Natalie Villwock-Witte, PhD, PE
Assistant Research Professor/Research Engineer
Karalyn Clouser
Research Associate
of the
Western Transportation Institute - Montana State University

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Cover Images

Images, top, left to right, then down: Morehead, Kentucky's Downtown Walking Route; Corbin, Kentucky's parklet; Calvert City, Kentucky's shared lane marking; Fair Haven, Vermont's multi-use pathway to a bus stop; Taylor Creek, Florida's multi-use pathway; LaBelle, Florida's speed hump and sidewalk on Fraser Avenue; Truth or Consequences, New Mexico's Healing Waters Trail; Wilder (a Village within the Town of Hartford), Vermont's one-lane for pedestrians and one-lane for motor vehicles on a bridge over a rail line; Pipestone, Minnesota's bicycle lane, part of the Indian Lake Trail; Arcadia, Florida's curb extensions in the historic downtown; Pelican Rapids, Minnesota's pedestrian Mill Pond Suspension Bridge; Silver City's bicycle lane; Morristown, Vermont's Lamoille Valley Rail Trail; Ruidoso, New Mexico's sidepath; and Walker, Minnesota's Shingobee Connector Trail.

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1 Introduction

There are 19,495 cities and towns in the United States; more than eighty-four percent of them (16,411) have fewer than 10,000 people (1). Despite the large number of communities of this size, multimodal facilities such as bicycle and pedestrian infrastructure are not common (or at least not well-documented) in very small communities. Therefore, this research effort focused on developing case studies of bicycle and pedestrian infrastructure in communities of fewer than 10,000 people within five states, representing five regions within the U.S. (northeast, north-central, south-gulf, south-Atlantic, and the west) (Figure 1).

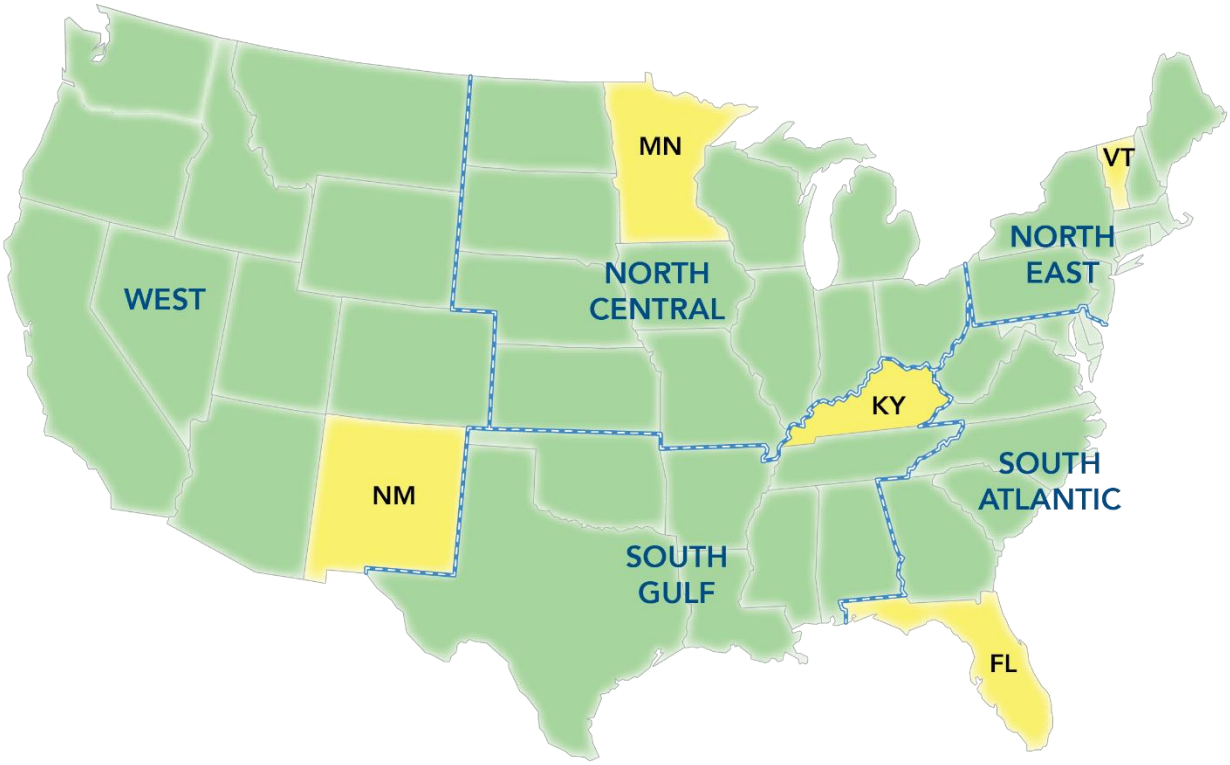


Figure 1. States included in the study and the regions they represent.

The goal of these case studies is to highlight lessons learned to support broader implementation of bicycle and pedestrian infrastructure in other peer rural communities.

This study builds upon prior work in the area including: *Mobility Mindset of Millennials in Small Urban and Rural Areas* (2) and *Bicycle & Pedestrian Infrastructure Improvements Realized in Communities of Less Than 10,000 People* (3). The former research study obtained responses from residents in rural areas who suggested that there was good bicycle and pedestrian infrastructure already in place. The second worked to more specifically identify what bicycle and pedestrian infrastructure may exist, although details regarding what that infrastructure looked like was limited without on-site data collection by the researchers. Staff of local communities have many job responsibilities so obtaining more details would have added more responsibilities on top of their already busy schedules.

The idea for this study was envisioned prior to the coronavirus pandemic. Consequently, the ultimate data collection period, summer of 2021, was modified from the originally proposed summer of 2020. The on-going impacts of the pandemic could have potentially impacted people's willingness to respond to the surveys administered as a part of the study (likely a decrease) as well as the number of people walking and biking (potentially an increase). As the impacts of the pandemic on the prevalence of walking and biking is an area of on-going study, it is hard to understand the specific impacts. Yet, potential unknown impacts should be acknowledged.

The following sections of this report discuss:

- The methodology used to determine communities chosen for case studies,
- A cross-comparison of the communities,
- Business and resident surveys, administered on-site and online,
- The GIS tool used to collect data in each community, including the advantages and limitations,
- Discussion of results, including lessons learned, challenges and opportunities, and
- Conclusions and recommendations for future research.

2 Methodology

The following steps were followed to conduct the research:

1. Identify communities of fewer than 10,000 people in each state
2. Remove communities within Metropolitan Statistical Areas (MSAs)
3. Rate the remaining communities
4. Group the communities into tiers, with the top three tiers for a specific state being the priority focus
5. Create summary tables
6. Select three communities for each state from the top three tiers
7. Reach out to elected officials, community leadership, and advocates to conduct interviews, concurrently sharing business and resident surveys
8. Travel on-site to each community to collect data on bicycle and pedestrian infrastructure and further distribute business and resident surveys
9. Write-up case studies

2.1 Communities of Fewer Than 10,000 People in Each State

As mentioned in the introduction, there are more than sixteen thousand communities with fewer than 10,000 people across the United States. Consequently, the researchers needed a way to remove communities that had no bicycle and pedestrian infrastructure as well as better group the remaining communities.

First, communities of fewer than 10,000 people must be identified in each state. For Minnesota and Vermont, the U.S. Census Bureau uses minor civil divisions (MCDs) as the defined county subdivision. In these states the MCD serves as a general-purpose local government (4). For this reason, two different data sources from the U.S. Census Bureau were used to obtain population information for this effort. The lists of communities that had fewer than 10,000 people in each state were generated from annual estimates of resident population for MCDs (Minnesota and Vermont) and 2010 Decennial Census data (Florida, Kentucky, and New Mexico). These data sources best matched with the state department of transportation's (DOT's) understanding of rural communities in their state. For the former, a challenge encountered was that some communities in Minnesota spanned two counties. Minnesota also had townships and "unorganized territories." The researchers sought the input from the Minnesota Department of Transportation stakeholder, who indicated a preference for removing unorganized territories from further consideration, noting that they have limited public works staff. In addition, considering that the previous U.S. Census was conducted in 2010 (2020 data was not available when decisions regarding communities were made), and a well-known concern for rural areas is the attrition of population, communities with 5% over the population (i.e. 10,500 people) were included. A few families moving out of town (i.e. a family of four leaving annually) along with natural annual deaths with no new families moving into a community can easily drop the population below the focus threshold. In summary, for the five focus states (Florida (District 1), Kentucky, Minnesota, New Mexico, and Vermont), there were 133, 481, 726, 414, and 247 communities with fewer than 10,000 people, respectively. The numbers show hints of the impact of the township designation in Minnesota (i.e. 726 is a lot larger than 481, the next closest

count). It also shows the impact of the inclusion of only District 1 in Florida (133 is smaller than 247, the next closest count).

2.2 Remove Communities within Metropolitan Statistical Areas

Since the idea behind developing the case studies was that peer communities could see themselves in the selected communities, communities within Metropolitan Statistical Areas (MSA) were removed. The main thought behind using this filter is that there is a possibility that additional resources are available to communities that are within counties that are part of an MSA. This could be additional staff that can help move grant requests forward or oversee implementations of bicycle and pedestrian infrastructure (i.e. project management) or it could be additional funding that may be more accessible to these communities. These additional resources also include specific planning support from metropolitan planning organizations (MPOs); MPOs are required for urban areas with a population of 50,000 people or greater (5). An MPO is a federally mandated transportation planning and policy making organization that supports regional transportation planning and allocation of funding resources. Applying this filter resulted in 28, 312, 578, 307, and 234 communities remaining for Florida (District 1), Kentucky, Minnesota, New Mexico, and Vermont, respectively.

2.3 Rate the Remaining Communities

There is no nationwide database that describes bicycle and pedestrian infrastructure installations or other related data. (Note: NCHRP 07-31 State DOT Usage of Bicycle and Pedestrian Data: Practices, Sources, Needs, and Gaps is expected to start in the near future, although it will likely minimally consider small, rural areas.) As such, the researchers used Google searches to quickly review the types of information that came up for each remaining community. Based on what types of information were found for each community, a rating of 0 to 3 (with 3 being the best) was assigned. Ratings were based on the amount and relevancy of Google search results (6) for each community.

The rating of all of the communities was conducted between October 25, 2020, and November 23, 2020, by one researcher. Having one researcher apply these ratings ensured consistency. As communities implement more bicycle and pedestrian infrastructure, these ratings can expect to change. So, it is important to rate all of the communities within a sample during a defined, relatively condensed, time period. To conduct a rating, a Google search of the: 1) community name, 2) state, and 3) bicycle (or pedestrian) was conducted. For example, for Fordsville, Kentucky, the following would be typed in the Google search engine for pedestrian: “Fordsville Kentucky pedestrian”. Then the following would be typed into the Google search engine for bicycle: “Fordsville Kentucky bicycle.”

The first three pages of results were reviewed. Relevant information for the rating included: a) community website with information about parks and trails, b) news articles about existing or planned bicycle/pedestrian infrastructure, c) bicycle/pedestrian advocacy groups, d) bicycle/pedestrian master plans, and e) Safe Routes to School, Complete Streets, and Main Street America™ references. See **Appendix A – Community Ranking Results** for an example of a 0, 1, 2, and 3 rating. Non-relevant information included: a) Facebook Marketplace advertisements for bicycle gear, b) travel blog posts, and c) generic bicycle and walking trail “near me” websites.

As data for bicycling and walking becomes more sophisticated, researchers expect that the data used to rate each community can be more complex. Each community was assigned one of the following ratings, with the first number relating to the rating for "bicycle" and the second number related to the rating for "pedestrian": (0,0), (0,1), (0,2), (0,3), (1,0), (2,0), (3,0), (1,1), (1,2), (1,3), (3,1), (2,1), (2,2), and (3,3). A (3,1) would mean that the community rated well from a bicycle facility perspective (i.e., a 3) but not as well from a pedestrian facility perspective (i.e. a 1). The distribution of the ratings varied by each state included in the research study. Overall, ratings were higher for pedestrian-related infrastructure. This finding is not unexpected; it was seen in the data collected for the *Mobility Mindset of Millennials in Small Urban and Rural Areas* (2) where there was more reported support and awareness of those walking and walking infrastructure.

2.4 Group the Communities into Tiers

First, looking at the distribution of the communities in each state by their ratings tended to show trends that were somewhat state specific. Communities with (0,0), (0,1), and (1,0) ratings were typically removed. The remaining communities were then grouped into one of three tiers (upper, middle, and lower). This left 19, 18, 38, 17, and 34 communities in Florida (District 1), Kentucky, Minnesota, New Mexico, and Vermont, respectively.

Generally, an upper tier community ranked highly for both bicycle and pedestrian infrastructure (either both 3's or a mix of 2's and 3's). A middle tier community tended to rank high in one category and low in the other or would rank twos for both bicycle and pedestrian infrastructure. A lower tier community reflected numbers that suggested that it was just starting out, so potentially a mix of ones and twos or maybe even a 3 and a 0. Figure 2 through Figure 6 show the top three categories for Florida's District 1, Kentucky, Minnesota, New Mexico, and Vermont.

The primary item to note is that the method allows the top three categories to be created even though there are different experiences across the states regarding bicycle and pedestrian infrastructure implementation. As an example, for Florida's District 1, the top tier community was ranked three for both pedestrian and bicycle infrastructure whereas for New Mexico, the top tier had communities that had a combination of twos and threes. Table 1 summarizes the number of communities as one steps through the aforementioned filters.

Table 1: Community filtering results.

State	Identify Communities of Fewer Than 10,000 People in Each State	Communities Remaining after Removing Communities within Metropolitan Statistical Areas	Group the Communities Into Tiers, Retaining Those in the Top 3 Tiers
Florida (District 1)	133	28	19
Kentucky	481	312	18
Minnesota	726	578	38
New Mexico	414	307	17
Vermont	247	234	34

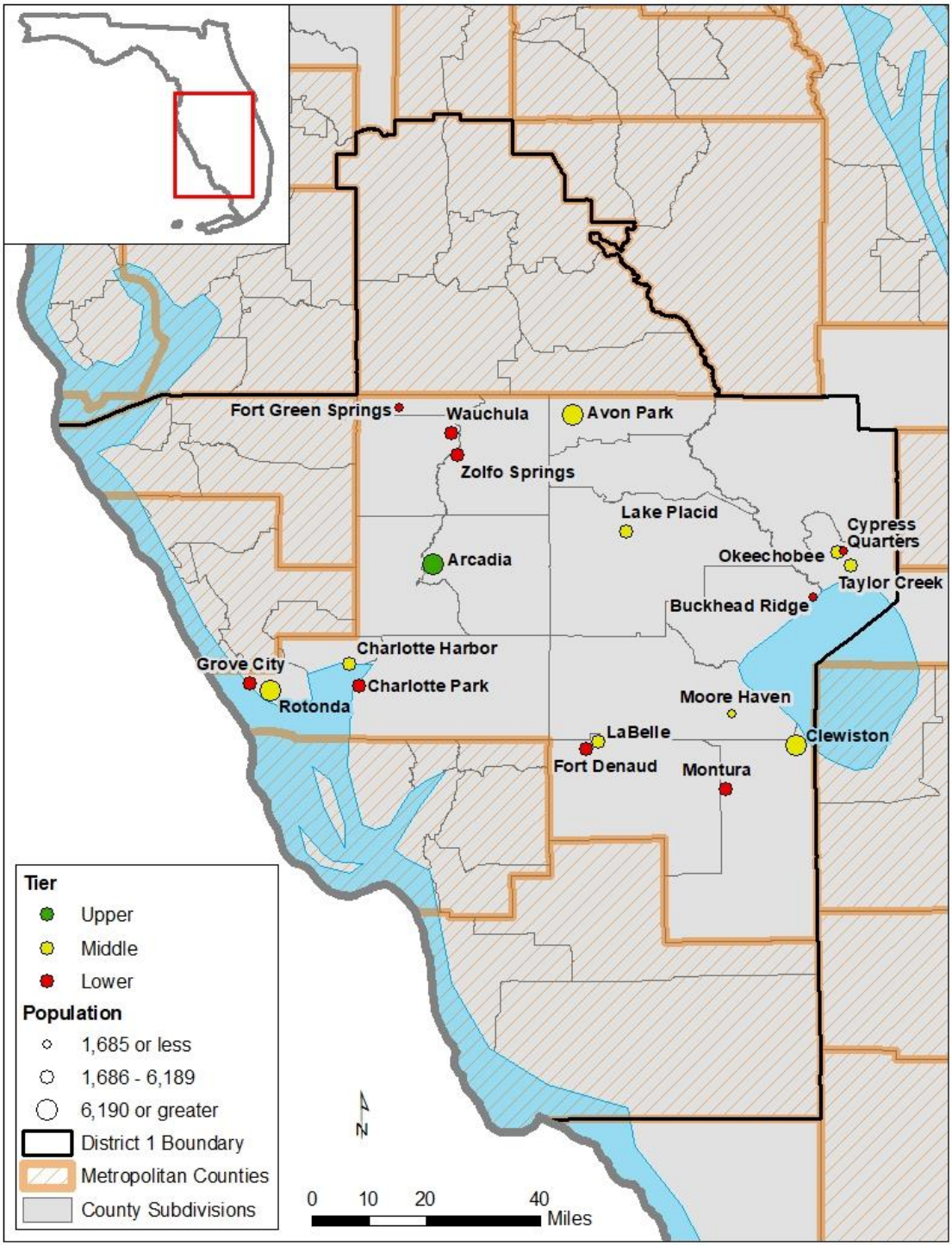


Figure 2. Florida, District 1, top three tiers of non-metro communities.

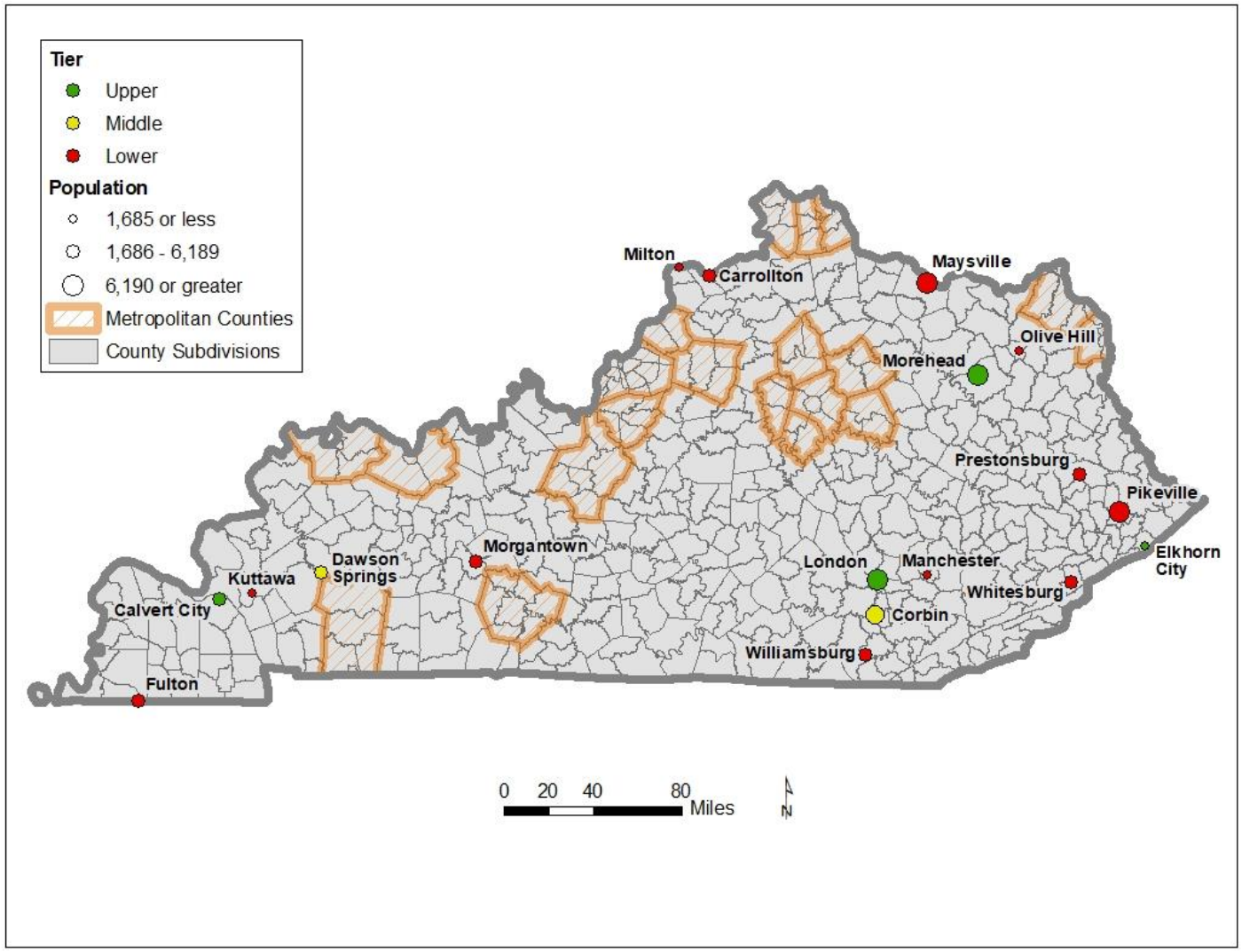


Figure 3. Kentucky, top three tiers of non-metro communities.

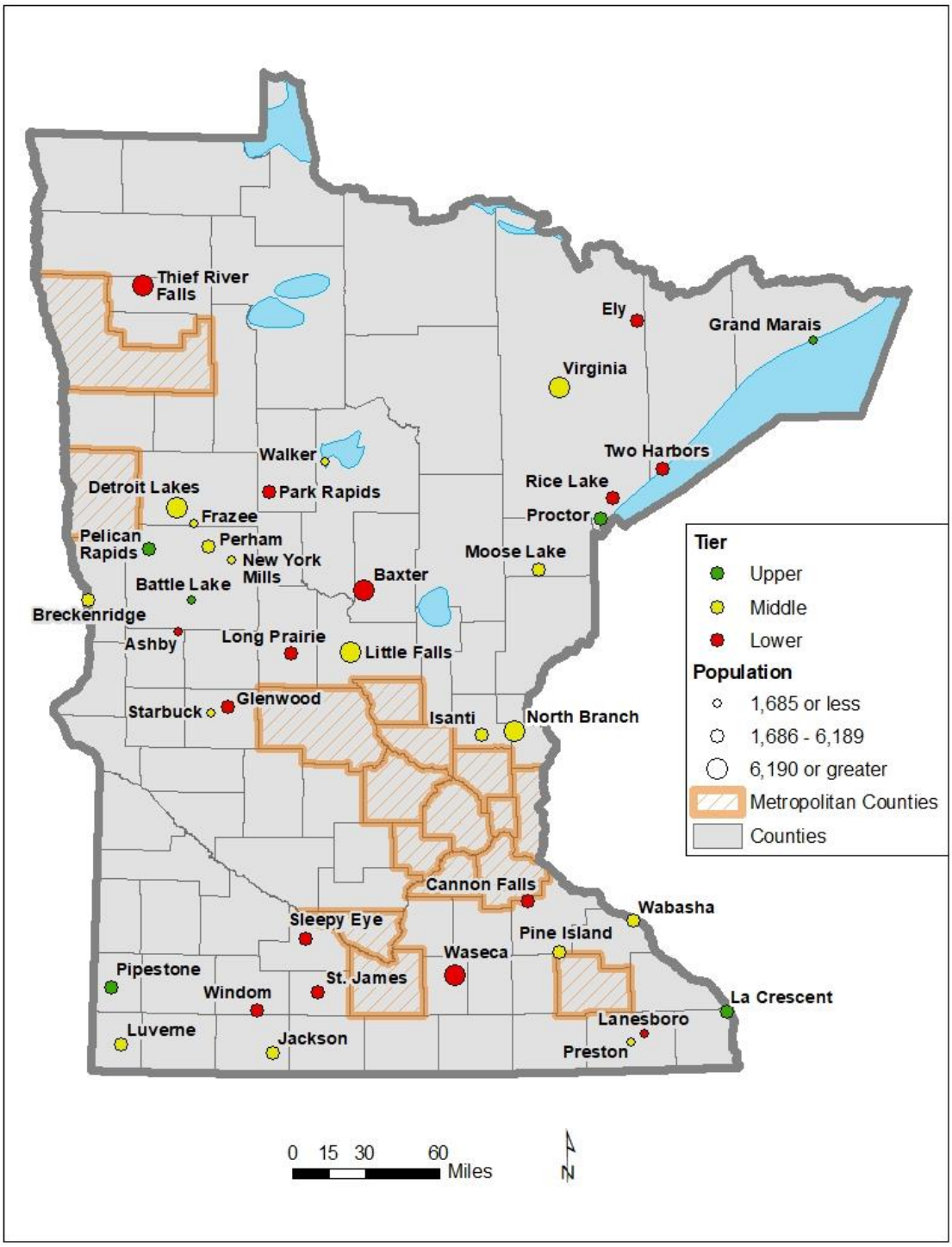


Figure 4. Minnesota, top three tiers of non-metro communities.

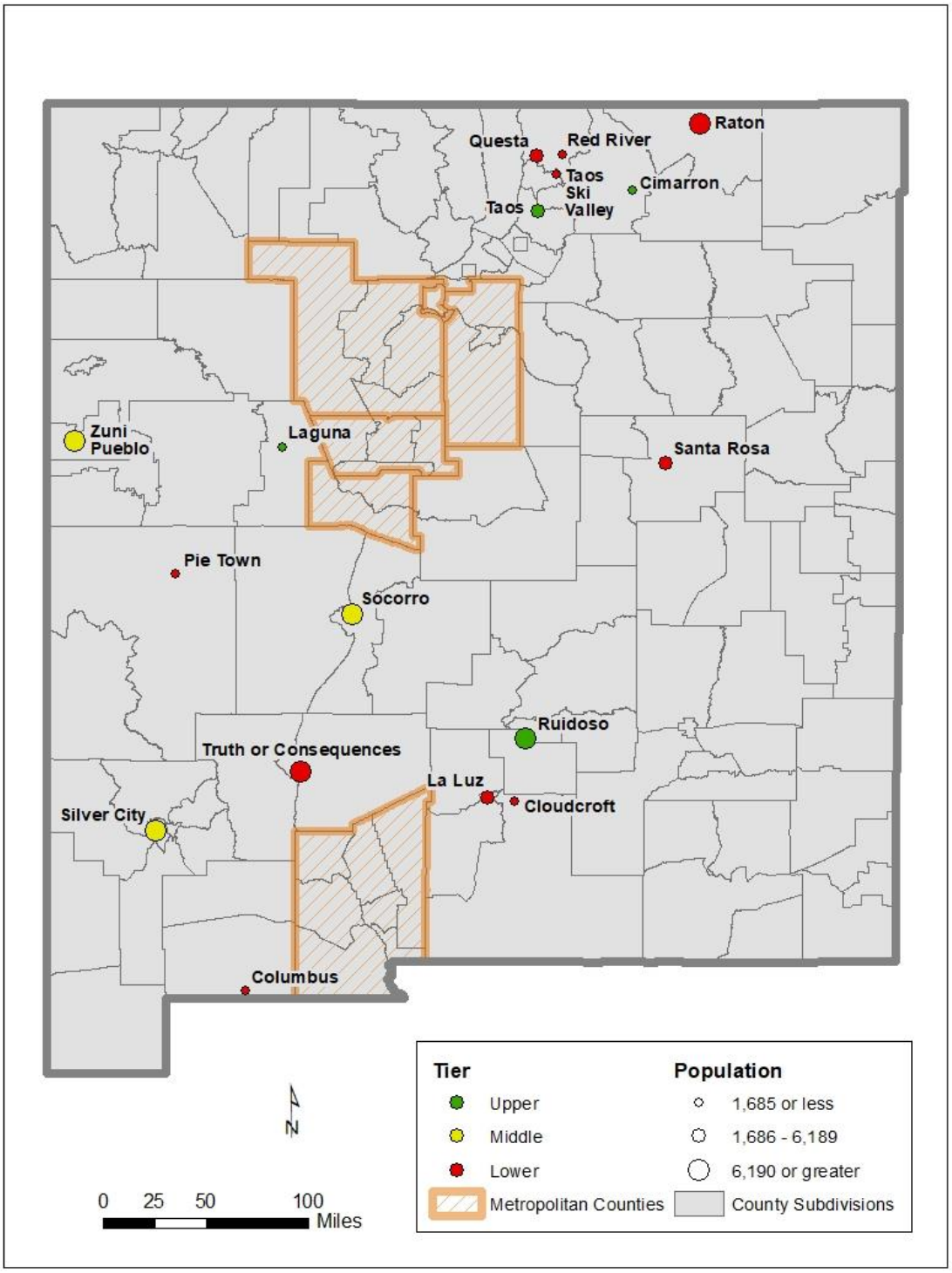


Figure 5. New Mexico, top three tiers of non-metro communities.

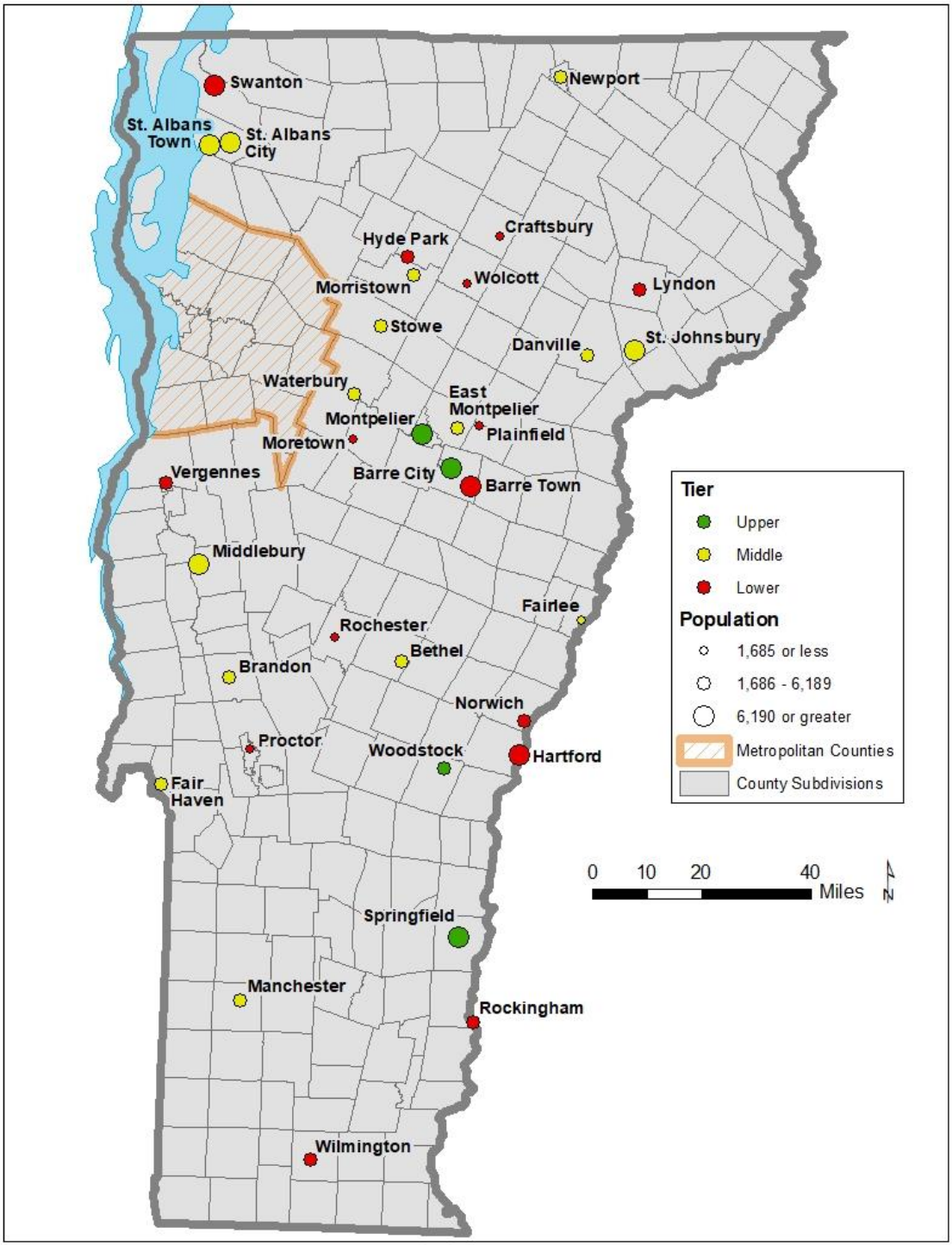


Figure 6. Vermont, top three tiers of non-metro communities.

2.5 Summary Tables

To better understand how the communities that fell within the top three tiers were similar and different, and what might be expected from bicycle and pedestrian infrastructure and programs within the community, researchers created a table with the following information for each state:

1) Tier of bicycle/pedestrian infrastructure development,
2) Population (2010, 2019, and population change),
3) County,
4) County typology,
5) State capital (yes or no; specific to Montpelier, Vermont),
6) Availability of a Safe Routes to School reference,
7) Pedestrian and Bicycle Information Center (PBIC) reference,
8) National Park Service's Rails, Trails, and Conservation Assistance (NPS RTCA) project,
9) Bicycle Friendly categorization (community, business, and/or university),
10) Advocacy group,
11) Bicycle/pedestrian planning documents,
12) Complete streets reference,
13) Main Street America™ reference,
14) Educational entity (i.e., college, university, private high school),
15) Trail town designation,
16) Bike shop,
17) Employment statistics,
18) Socioeconomic statistics (median age; persons in poverty; median household income; unemployment rate),
19) Potential indicators of second homes,
20) Potential indicator of tourism,
21) Walk and bike scores,
22) Number of pedestrians and bicyclists involved in fatal crashes by year,
23) Health metrics (i.e., obesity rate), and
24) AARP projects.

More details about these data sources are provided hereafter.

2.5.1 Tier of Bicycle/Pedestrian Infrastructure Development

Based on the numbers assigned to pedestrian and bicycle, each community was assigned one of three "tiers." Green is the highest rated category, with yellow being in between and red the worst. Figure 2 through Figure 6 show the communities that had each of these categorical ratings.

2.5.2 Population

The U.S. Census population from 2010 and from 2019 were provided, as well as the population change that was observed between these data collection periods (7).

2.5.3 County

County names were provided via the 2010 decennial census data that was downloaded from the U.S. Census Bureau (8).

2.5.4 County Typology

County typologies are drawn from a recently completed categorization of county types to try to better describe rural America (9). County types could hold any of the following eight rural classifications:

1. Fringe – Adjacent to a metro county
2. Micropolitan – City/town population 10K to 50K
3. Destination – Offer recreational opportunities; popular among retirees
4. Rural Towns – City/town population under 20K
5. Agriculture & Extraction – Mining- or farming-orientated
6. Older-Age – One-third of population over 60
7. Tribal – Half of land area is Tribal
8. Remote – Less than 10 people per square mile; no towns over 2,500

County typologies had an order of operations from Metropolitan to Tribal to Agriculture & Extraction to Older Age to Destination County to Remote to Rural Towns to Micropolitan to Fringe. Consequently, the Town of Hartford, Vermont, which is part of a bi-state micropolitan (10), was categorized within the Rural Towns county typology, as it came before the Micropolitan county typology.

Table 2 identifies the selected communities, the county (or counties) that they reside within, and the associated county typology.

Table 2: County typology for each community.

State	Community	County	County Typology
Florida	Arcadia	DeSoto	Destination
	LaBelle	Hendry	Micropolitan
	Taylor Creek	Okeechobee	Destination
Kentucky	Calvert City	Marshall	Rural Towns
	Corbin	Whitley & Knox	Rural Towns
	Morehead	Rowan	Rural Towns
Minnesota	Pelican Rapids	Otter Tail	Micropolitan
	Pipestone	Pipestone	Fringe
	Walker	Cass	Older-Age
New Mexico	Silver City	Grant	Older-Age
	Truth or Consequences	Sierra	Remote
	Ruidoso	Lincoln	Older-Age
Vermont	Fair Haven	Rutland	Micropolitan
	Hartford (Town of)	Windsor	Rural Towns
	Morristown	Lamoille	Destination

2.5.5 State Capital

Montpelier, Vermont is somewhat unique when considering all five states included in the study in that its population is small, but it also serves as the capital of the state. Similar to the MSA filter, it was expected that the resources available to this community would be different than

those for peer communities. Consequently, a filter was applied to remove this community from further consideration.

2.5.6 Availability of Safe Routes to School Reference

Availability of a Safe Routes to Schools reference would indicate that there is a completed or on-going project related to bicycle or pedestrian access for school children in the community. This information was gathered via a Google search for key terms like "Community Name", "Safe Routes to School" and through a search of the Safe Routes to School websites.

2.5.7 Pedestrian and Bicycle Information Center Reference

The Pedestrian and Bicycle Information Center's (PBIC's) website provides resources related to current bicycle and walking information including case studies, reports, and data. The PBIC website includes a list of resources which could be searched by community. Very limited information was found on the chosen communities, reaffirming the purpose behind the research project.

2.5.8 National Park Service's Rails, Trails, and Conservation Assistance (NPS RTCA) Project

The National Park Service's Rails, Trails, and Conservation Assistance Program (NPS RTCA) provides technical assistance to support conservation and outdoor recreation projects. The researchers requested a list of the focus communities within each state from NPS.

2.5.9 Bicycle Friendly Categorization

The League of American Bicyclists runs the Bicycle Friendly America Program which allows communities, businesses, and universities to apply to achieve "Bicycle Friendly" status. This status is achieved through an application process which grades general categories of engineering, education, encouragement, enforcement, and evaluation (11). A bicycle friendly community "welcomes bicyclists by providing safe accommodations for bicycling and encouraging people to bike for transportation and recreation" (11). The League of American Bicyclists website provides an award database for the program.

2.5.10 Advocacy Group

The presence of an advocacy group related to bicycle and pedestrian infrastructure or challenges indicates on-going efforts or local champions in a community.

2.5.11 Bicycle/Pedestrian Planning Documents

The presence of specific bicycle and/or pedestrian planning documents for a community indicate on-going efforts to envision or prioritize this type of infrastructure.

2.5.12 Complete Streets Reference

Complete Streets is a design approach that "integrates people and place in the planning, design, construction, operation, and maintenance of our transportation networks" (12). Through a Complete Streets approach, a transportation network is designed to ensure the safety of all users. A reference to Complete Streets would indicate a road or route that accommodates pedestrians and bicyclists.

2.5.13 Main Street American Reference
The researchers identified whether or not the community was part of the Main Street America™ program (13).

2.5.14 Educational Entity
Educational entities like colleges and universities tend to have bicycle and pedestrian infrastructure in order to accommodate student access to campus. The presence of a post-secondary educational entity may indicate the presence of more active transportation infrastructure.

2.5.15 Trail Town Reference
A Trail Town is a community that has a trail passing through or nearby and that provides supports to trail users and encourages use of the trail (14). The goal of a Trail Town is to entice people off the trail and into a community to spend money at local businesses.

2.5.16 Bike Shop Presence
The presence of a bicycle shop indicates that bicycle activity is present in a community. It also enables easier access to a bicycle by community members. A search of bicycle shops was completed via a Google search for each community.

2.5.17 Unemployment Rate, Median Household Income, Household Income Extremes
Unemployment rate, median household income, and household income extremes (less than $10,000 and greater than $200,000) where obtained from the U.S. Census Bureau's American Community Survey Data ((15), (16)). This information helped to provide an understanding of the economic characteristics of a community and helped to compare/contrast communities to ensure that case study communities showed a variety of socioeconomic backgrounds. This information can also enable peer communities to consider how their community may be similar or different than a community described in a case study.

2.5.18 Socioeconomic Statistics
Socioeconomic statistics including median age and persons in poverty were also obtained from the U.S. Census Bureau's American Community Survey Data ((7), (17)). Again, this information helped to provide an understanding of the socioeconomic background of each community to ensure that the final case studies represented a variety of socioeconomic backgrounds. This information can also enable peer communities to consider how their community may be similar or different than a community described in a case study.

2.5.19 Potential Indicators of Second Homes
The percent of vacant housing units was obtained from the U.S. Census Bureau's American Community Survey Data (18). Vacant housing units include seasonal housing, vacant housing for rent/sale, and vacant housing held off the market. The Vermont Agency of Transportation reported that this particular metric held great interest to the State of Vermont as a potential means to describe second home/vacation homes in Vermont communities.

2.5.20 Potential Indicators of Tourism

Employment statistics from the U.S. Census Bureau's American Community Survey Data were used to provide a basic understanding of potential tourism in a community (15). The percent of people employed in the "Arts, Entertainment, & Recreation, & Accommodation & Food Services" sector were pulled for each community. This sector would employ people working for local lodging, recreation services, etc. and a greater percentage of people working in this sector may indicate that tourism is a large draw for the community.

2.5.21 Walk and Bike Score

Walk Score and Bike Score provide an easy metric to evaluate walkability and bikeability of a community. The walk score is based on distance to amenities, population density, block length, and intersection density (19). The score ranges from 0 (car dependent) to 100 (walker's paradise). The bike score is based on the presence of bike lanes, hills, distance to amenities, road connectivity, and bike commute mode share (20). The score ranges from 0 (somewhat bikeable) to 100 (biker's paradise). Bike scores are not provided for every community. The walk and bike scores can be obtained from the Walk Score website.

2.5.22 Number of Pedestrian and Bicyclists Involved in Fatal Crashes by Year

Historic crash data from was queried from the National Highway Traffic Safety Administration's (NHTSA's) Fatality and Injury Reporting System Tool (FIRST) (21). It was reviewed for the 2005-2019 time period to gain an understanding of the number of pedal cyclists and pedestrians involved in a fatal traffic crash within each community.

2.5.23 Health Metrics

Health metrics like obesity rate, rate of physical activity, heart disease deaths, and county health ranking for health outcomes and health factors were obtained from the County Health Rankings & Roadmaps (22) and Interactive Atlas of Heart Disease and Stroke (23). These health metrics may help provide insight on communities with a more active lifestyle.

2.5.24 AARP Projects

A Vermont AARP partner was part of the stakeholder group. Consequently, the researchers were put into touch with AARP representatives in each state. These individuals were provided with the names of the focus communities to identify if they were aware of any active transportation projects that may have been supported by AARP.

2.6 Select Three Communities from Each State

Finally, the lists of potential communities along with their ratings and supplemental data were provided to the state DOT stakeholders. This allowed for input from those with more local, on-the-ground knowledge. Communities were ultimately chosen because they were expected to have more bicycle and pedestrian infrastructure when compared with peer communities. This allowed for visuals of what this looked like to be captured through this research effort. The following communities were chosen for each state (

Table 3).

Table 3. Chosen case study communities.

State	Community	County(ies)
Florida – District 1	Arcadia	DeSoto
	LaBelle	Hendry
	Taylor Creek	Okeechobee
Kentucky	Calvert City	Marshall
	Corbin	Whitley & Knox
	Morehead	Rowan
Minnesota	Pelican Rapids	Otter Tail
	Pipestone	Pipestone
	Walker	Cass
New Mexico	Ruidoso	Lincoln
	Silver City	Grant
	Truth or Consequences	Sierra
Vermont	Fair Haven	Rutland
	Hartford (Town of)	Windsor
	Morristown	Lamoille

It should be noted that originally, the New Mexico Department of Transportation and the researchers had identified the Zuni Pueblo as a potential case study community. Unfortunately, as a result of concerns with the coronavirus pandemic, the Zuni Pueblo was not included as a case study.

2.7 Conduct Interviews

After the communities were selected, the researchers reached out to interview an advocate, an elected official, and a planner/administrator/engineer from each community. This can provide a good understanding of the enthusiasm (advocate), the level of support by the governing body (elected official), and how walking and bicycling infrastructure and programs fit into on-going and future plans that the community may have (planner/administrator/engineer). Overall, it was particularly difficult to engage elected officials. Furthermore, in many communities, it was clear that discussions were going on amongst those contacted, and there was a perception that speaking with one individual within a community was sufficient (i.e., the elected official spoke with a community administrator who indicated that they would respond to the inquiry). As was found in the preceding study (3), each individual within a community often has unique knowledge that another community member may be unaware of. Therefore, every effort was made to interview an individual from the community that represented every category. As an example, often times community plans were not available online. They were provided as a result of the interview that was conducted. In addition, in at least one state, the legislative requirements of freedom of information seemed to influence participation. The researcher also shared digital copies of the business and resident surveys (PDF) with interviewees, including QR codes, as well as links.

There were at least two communities in two different states where a regional entity was heavily involved in working with the community to advance walking and bicycling opportunities (Pelican Rapids, Minnesota; Corbin, Kentucky). These individuals helped virtually introduce the

researchers to individuals that were already identified as desired interviewees and also facilitated input from the community. These communities provided some of the richest sources of information.

2.8 Collect Data

Approximately one week was used to collect data from each state. Data was collected in June for Florida and Kentucky; in August for Minnesota and Vermont; and in December for New Mexico. With drive time between each of the three communities in a state, this resulted in approximately one day spent in each community.

A GIS tool was used to capture visuals of what was identified along with locations; more details about the GIS tool can be found in **Section 5. GIS Tool**. In addition, a digital camera and cell phone were used to collect additional overall photos as well as photos of people walking and bicycling within each community. The back cover of each case study shows the results of these efforts. The researchers also personally went to offices of individuals who did not reply to make them aware of the research project and request their participation. It was found that emails did not always reach the intended recipient. In some cases, this also allowed for interviews to be conducted on-site.

Researchers also shared both business and resident surveys with those they had met on-site. The researchers almost always went to the library within each community to ask if resident surveys could be made available. One library followed up asking for additional surveys to distribute. For rural areas, in-person contact is important. As an example, in one community an email and follow-up call resulted in a minimal level of engagement. However, when the researcher was on-site and dropped by the office, that same individual expressed a willingness to share the survey with some community members.

2.9 Develop Case Studies

After all of the aforementioned data was collected, case studies were created of each focus community. Information from interviews was combined with a review of community, regional, and statewide plans. Pamphlets collected on-site and online articles were also used to better describe the community and the implementation of bicycle and pedestrian infrastructure within the communities. The photos captured were integrated within a map showing locations of select bicycle and pedestrian infrastructure, as well as photos that related to discussions of plans.

At the end of each case study are multiple photos of individuals walking and bicycling within the communities on the back cover. Recall that these photos were collected by only one day on-site. Therefore, it is clear that people are walking and biking within *all* of the case study communities. Ultimately, state departments of transportation and all community members who were interviewed were invited to review the draft case studies. Feedback from these reviews were incorporated into each case study prior to finalization.

3 Communities

This section first identifies when the researchers were present within each case study community, then discusses similarities and differences of the chosen case study communities when considering population size and the incorporated boundaries of the community. It also compares the infrastructure found in each community and the funding sources used.

Communities were visited by one or two researchers on the dates shown in Table 4. Data collection in New Mexico was somewhat unique in that it took place in December. This was during a time period when one might expect lower rates of people out bicycling and walking; however, since the data was collected in the southern part of the state, the winter temperatures are often much more appealing for walking and bicycling. One challenge of collecting data in December, however, is that this time coincided with shorter daylight hours. This limited the time period during which data could be collected each day.

Table 4. On-site data collection dates (organized by date).

State	Community	On-site Data Collection Dates
Florida	Arcadia	June 14, 2021
	LaBelle	June 16, 2021
	Taylor Creek	June 18, 2021
Kentucky	Calvert City	June 28, 2021
	Corbin	June 30, 2021
	Morehead	July 2, 2021
Minnesota	Pipestone	August 16, 2021
	Pelican Rapids	August 18, 2021
	Walker	August 20, 2021
Vermont	Morristown	August 9, 2021
	Hartford (Town of)	August 11, 2021
	Fair Haven	August 13, 2021
New Mexico	Truth or Consequences	December 6, 2021
	Silver City	December 8, 2021
	Ruidoso	December 10, 2021

This section summarizes high level findings from these on-site visits. For an in-depth discussion of each community, please reference the case studies that were developed as a part of this research effort, which can be found here: https://westerntransportationinstitute.org/research_projects/case-studies-of-communities-of-less-than-10000-people-with-bicycle-pedestrian-infrastructure/

3.1 Community Findings

Case study communities ranged in population from 946 people (in 2010) (Walker, MN) to 10,315 people (Silver City, NM) (Table 5). Considering population size and community size, communities in Florida, Kentucky, and Minnesota were expected to be generally compact whereas communities in New Mexico and Vermont, where the square mileage is much larger, were more spread out.

Table 5: Population and size of community (square miles). (24)

State	Community	Population	Square Miles
Florida	Arcadia	7,637	4.4
	LaBelle	4,640	15.6
	Taylor Creek	4,348	4.2
Kentucky	Calvert City	2,566	18.5
	Corbin	7,304	7.9
	Morehead	6,845	9.6
Minnesota	Pelican Rapids	2,461	2.7
	Pipestone	4,325	4.2
	Walker	946	1.5
New Mexico	Silver City	10,315	10.1
	Truth or Consequences	6,475	28.1
	Ruidoso	8,029	16.1
Vermont	Fair Haven	2,568	18.2
	Hartford (Town of)	9,672	45.9
	Morristown	5,439	51.7

Table 6 demonstrates the level of use of public transportation (whose trips often start with a user walking or bicycling), walking, and bicycling as a means of transportation to work for individuals sixteen years of age or older; shaded cells are those with larger percentages. These percentages do not take into account any walking or biking trips that are not explicitly commuting to work. Examples of excluded trips include transportation to and from school, running errands, or recreational trips. It also does not consider the trips made by children in a community. The percent of people walking to work ranged from 0 percent (Calvert City) to 19.5 percent (Pelican Rapids). The percentage of people bicycling to work was much lower, ranging from 0 percent (Arcadia, Taylor Creek, Corbin, Pipestone, Ruidoso, Fair Haven) to 3.7 percent (LaBelle).

Table 6: Means of transportation to work. (25)

State	Community	Means of Transportation to Work		
		Public Transportation	Walked	Bicycle
Florida	Arcadia	6.9.%	4.9%	0.0%
	LaBelle	0.3%	0.1%	3.7%
	Taylor Creek	0.0%	1.4%	0.0%
Kentucky	Calvert City	0.0%	0.0%	0.6%
	Corbin	0.6%	3.0%	0.0%
	Morehead	0.0%	10.5%	2.1%
Minnesota	Pelican Rapids	1.9%	19.5%	1.1%
	Pipestone	0.0%	0.7%	0.0%
	Walker	5.4%	7.5%	1.8%
New Mexico	Silver City	1.0%	3.0%	1.8%

State	Community	Means of Transportation to Work		
		Public Transportation	Walked	Bicycle
	Truth or Consequences	0.3%	5.6%	0.7%
	Ruidoso	0.0%	4.2%	0.0%
Vermont	Fair Haven	1.4%	6.8%	0.0%
	Hartford (Town of)	2.2%	2.3%	0.2%
	Morristown	1.2%	4.9%	0.5%

Data collected on-site found a wide range of bicycle and pedestrian infrastructure (see Table 7). Maps showing the bicycle and pedestrian infrastructure data collected for each community are provided in below Appendix C – Survey123 Data Collected for Each Community. It should be reiterated that while the researchers attempted to collect as much data as possible regarding on-site infrastructure, the intent of the study was not to comprehensively collect and map out all bicycle and pedestrian infrastructure; the scope did not allow for such field data collection. In addition, there are examples where bicycle and pedestrian infrastructure was in the process of being built (Town of Hartford). Consequently, this table represents a data capture in time. Sidewalks, crosswalks, and mid-block crossings were the most common type of bicycle and pedestrian infrastructure found within all case study communities, along with a wide variety of bicycle racks (Figure 7). Maps showing bicycle racks and mid-block crossing locations found within each community are provided in **Appendix D – Bicycle Rack Maps** and **Appendix E – Mid-Block Crossing Maps**. As these were some of the most common types of bicycling infrastructure found, maps could be created. As more bicycle and pedestrian infrastructure is potentially implemented in small communities in the future, it would be notable to determine if similar maps could be provided as a reflection of infrastructure more commonly found (i.e., curb extensions). Other common types of infrastructure included trails, bridges that enabled walking/bicycling, and benches.

Figure 7. Examples of bicycle racks.

Provision of bicycle racks can improve accessibility for bicyclists (allowing for a place to park one's bike safely). Less common were things like sidepaths, pedestrian and bicyclist

underpasses, and various signage including bicycle/pedestrian crossings with Light Emitting Diode (LED) lights, Please Slow Down signs, Bicycle May Use Full Lane signs, and weight limitation signs. Signs restricting vehicles of a certain weight may be impactful for bicyclists and pedestrians because the removal of these types of vehicles can impact the comfort level of bicyclists and pedestrians. Community size did not seem to correspond with the bicycle and pedestrian infrastructure seen while on-site. For example, Walker, Minnesota was the smallest community in both population and square mileage but had the widest variety of bicycle and pedestrian infrastructure seen among the case study communities.

Table 7. Bicycle and pedestrian infrastructure observed while on-site.

Bicycle and/or Pedestrian Infrastructure Found	Florida			Kentucky			Minnesota			New Mexico			Vermont		
	Arcadia	LaBelle	Taylor Creek	Calvert City	Corbin	Morehead	Pelican Rapids	Pipestone	Walker	Ruidoso	Silver City	Truth or Consequences	Fair Haven	Hartford	Morristown
Bicycle Lane	x	x	x	x	x		x	x	x		x				
Bike Rack	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Shared Lane Markings				x	x	x		x	x		x				
Sidepath										x				x	
Defined Bike Route (by signage)							x	x	x		x			x	
Multi-Use Pathway	x		x	x	x		x	x	x	x			x	x	
Trail (soft surface)		x	x	x	x	x	x	x	x	x	x	x		x	x
Rectangular Rapid Flashing Beacon (RRFB) Crossing	x	x					x	x						x	x
Mid-Block Crossing	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Crosswalk	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sidewalks	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bridges that enable walking/biking	x	x		x	x	x	x	x	x	x	x	x		x	x
Underpasses that enable walking/biking					x			x	x					x	
Parklet		x			x	x					x			x	x
Benches		x	x	x	x	x	x	x	x	x	x	x		x	x
Repair Station/Air Pump				x				x	x	x	x				
Speed Bump/Hump/Table		x				x				x	x	x	x	x	
Speed Feedback Sign - Permanent	x	x							x	x				x	x
Speed Feedback Sign - Portable					x			x				x	x	x	
Types of Signage Found															
Bike/Ped Crossing Sign with LED lights				x						x		x		x	
Bicycle May Use Full Lane				x											
Share the Road		x	x				x		x						
State Law, Yield/Stop for Pedestrians at Crosswalk				x					x		x				
Steep Grade				x					x						
Drive Slow in Residential Areas/Please Slow Down		x						x							
Traffic Calming Area		x													
Weight Limitations		x		x			x								
Interpretative/Wayfinding Info				x	x	x	x	x	x	x	x	x		x	x
Walking Routes						x	x		x		x	x		x	x
Entertainment District						x	x								

The researchers were interested in better understanding how annual budgets may influence the ability to support building bicycle and pedestrian infrastructure and to put on programs that may support and encourage these modes. Community budget information was obtained from local government websites. In cases where budget information could not be found on the local government website, then news articles were used. The researchers would anticipate that as the population increases, there is an approximate linear relationship with the increase in budget for the community. Figure 8 shows findings from the communities under consideration; not surprisingly, larger communities have larger budgets (shown by the trend lines rising when moving left to right) with the exception of a few outliers (Silver City, NM and Morehead, KY) ((26), (27), (28), (29), (30), (31), (32), (33), (34), (35), (36), (37), (38), (39)). However, what Figure 8 does not show is the amount of that budget that may be allocated to supporting the implementation of infrastructure and programs associated with these modes. (Note: Taylor Creek is not included, as their budget is integrated into the county-wide budget.)

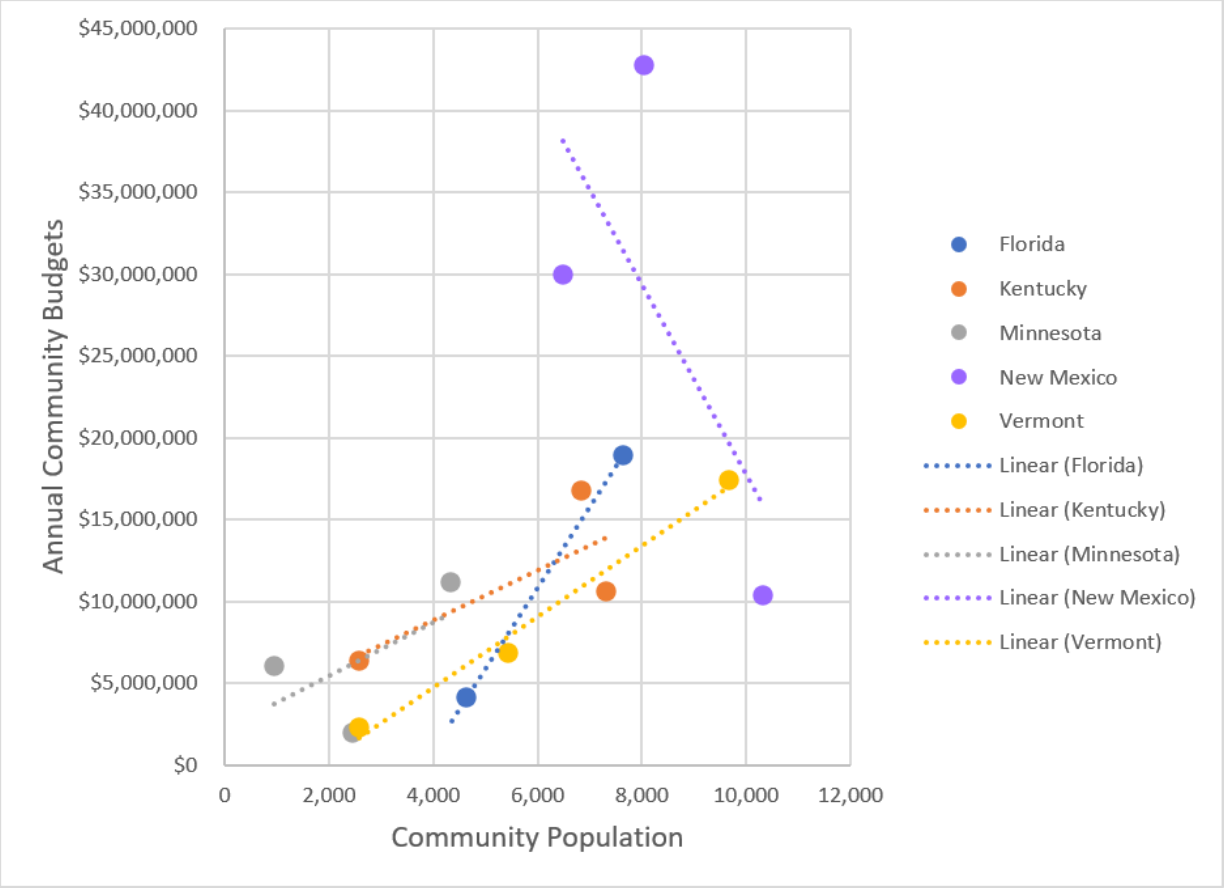


Figure 8. Community population versus budget.

The presence of a specific planning document or study related to bicycle or pedestrian infrastructure can indicate community support or a community that envisions a more active transportation friendly future. Nearly every case study community had at least one document specifically related to bicycle and pedestrian modes (Table 8).

Table 8: Bicycle and pedestrian plans.

State	Community	Year	Title
Florida	Arcadia	2012	City of Arcadia Bicycle and Pedestrian Master Plan
	LaBelle	-	Heartland Regional Transportation Planning Organization (HRTPO) Bicycle and Pedestrian Safety Plan
		2009	Hendry County Comprehensive Pathway Plan
	Taylor Creek	-	-
Kentucky	Calvert City	2020	Trail Network Feasibility Study
		2020	Calvert City Bicycle and Pedestrian Master Plan
	Corbin	2020	City of Corbin, Kentucky Bicycle and Pedestrian Master Plan
		2013	Corbin Bikeway Master Plan
	Morehead	2019	City of Morehead and Rowan County, Kentucky Bicycle and Pedestrian Master Plan
Minnesota	Pelican Rapids	2009	Safe Routes to School Plan
		2014	Perham to Pelican Rapids Regional Trail Master Plan
		2020	Pelican Rapids Bicycle and Pedestrian Plan
	Pipestone	2011	Pipestone Bicycle and Pedestrian Master Plan
	Walker	-	-
New Mexico	Ruidoso	-	-
	Silver City	2020	Silver City Trails and Open Spaces Plan
		2013	Silver City Greenways and Big Ditch Master Plan
		2016	Silver City Bicycle Master Plan
	Truth or Consequences	2009	Healing Waters Trail Report
		2021	Multimodal Transportation Safety Plan
Vermont	Fair Haven	2019	Downtown Bicycle & Pedestrian Study
	Hartford (Town of)	2009	Hartford Pedestrian and Bicycle Plan
		2013	Christian Street-Bugbee Street-US5 Pedestrian and Bicycle Study
	Morristown	2017	Morristown Walk Bike Safety Action Plan

Based on these and other more general community planning documents, the case study communities are utilizing numerous funding sources to support bicycle and pedestrian infrastructure (Table 9). The most common funding sources were state department of transportation programs (particularly Transportation Alternatives Program funding), county funds (including funding from county health departments), and local funding. Some communities have had success with funding from tourism entities, other economic development groups, and even private funding. Funding tied to public health initiatives were also popular (Blue Cross Blue Shield, PartnerSHIP 4 Health, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)).

Table 9. Funding sources mentioned in community planning documents (organized alphabetically by funding source).

Funding Source	**City**	**State**
30something Philanthropic Group	Silver City	NM
AARP	Silver City	NM
Appalachian Regional Commission	Morehead	KY
Beautification Committee	Arcadia	FL
Blue Cross Blue Shield	Pipestone Pelican Rapids	MN
Capital Funding	Calvert City Pipestone Walker Fair Haven Hartford	KY MN VT
Comcast	Silver City	NM
Community and Economic Development Initiative of Kentucky	Corbin	KY
County Funding	Taylor Creek Pelican Rapids Walker	FL MN
County Health Department	Arcadia Corbin	FL KY
County Planning Department	Arcadia	FL
Economic Development Department	Silver City	NM
Federal Emergency Management Agency	Arcadia	FL
Federal Highway Administration	Ruidoso	NM
Federal Public Lands Highways Grant	Hartford	VT
Gateway Area Development District	Morehead	KY
Infrastructure Budget	Corbin	KY
Land and Water Conservation Fund	Morehead	KY
Land Water Conservation Funds	Corbin	KY
Leadership DeSoto	Arcadia	FL
Lennie Merle Forward Fund	Silver City	NM

Funding Source	City	State
Lincoln County Community Health Council	Ruidoso	NM
Local Foods, Local Places – United States Department of Agriculture (USDA)	Pelican Rapids	MN
Local Funding	Pelican Rapids Silver City	MN NM
Local Hospital Donations	Morristown	VT
Main Street America™ Program	Arcadia Silver City T or C	FL NM
Morehead Tourism	Morehead	KY
Municipal Planning Grants program	Fair Haven	VT
Municipal Assistance Program	Fair Haven	VT
National Education Association	Silver City	NM
National Park Service (NPS) - River, Trails and Conservation Assistance (RTCA) Program	T or C Hartford	NM VT
New Mexico Finance Authority Local Government Planning Fund	Silver City	NM
PartnerSHIP 4 Health	Pelican Rapids	MN
Presbyterian Healthcare Services	Ruidoso	NM
Recreational Trails Program	Morehead Ruidoso Silver City T or C	KY NM
RiseVT	Morristown	VT
Safe Routes to School	Pelican Rapids Pipestone Walker Ruidoso Hartford	MN NM VT
Ski Apache's National Forest Fund	Ruidoso	NM
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Arcadia	FL
State Department of Community Affairs	Arcadia	FL
State Department of Natural Resources	Pelican Rapids Walker	MN
State Department of Public Health	Arcadia Calvert City	FL KY
State Department of Tourism	Silver City	NM

Funding Source	City	State
State Department of Transportation	Arcadia LaBelle Morehead Pelican Rapids Walker Ruidoso Fair Haven Hartford Morristown	FL KY MN NM VT
State Physical Activity and Nutrition Program	Corbin	KY
Tax Improvement District	Hartford	VT
Transportation Alternatives Program	Morehead Pelican Rapids Pipestone Ruidoso Fair Haven Hartford	KY MN NM VT
Vermont Municipal Planning Grant	Hartford	VT
Village Trustee Donations	Morristown	VT
Visit Florida	LaBelle	FL
Wells Fargo	Silver City	NM
West Central Initiative	Pelican Rapids	MN

3.2 Community Summary

Data was collected on-site for this research effort during the summer of 2021 and December 2021. While bicycle and pedestrian infrastructure observed on-site varied from community to community, sidewalks, crosswalks, and mid-block crossings were found within all case study communities. A review of planning documents found that these communities were utilizing numerous funding sources to implement bicycle and pedestrian infrastructure. Funding sources included: state DOT (including the Transportation Alternatives Program (TAP)), county, local, tourism entities, public health entities, Safe Routes to School, philanthropic groups, and the NPS Rivers, Trails, and Conservation Assistance Program.

4. Business & Resident Surveys

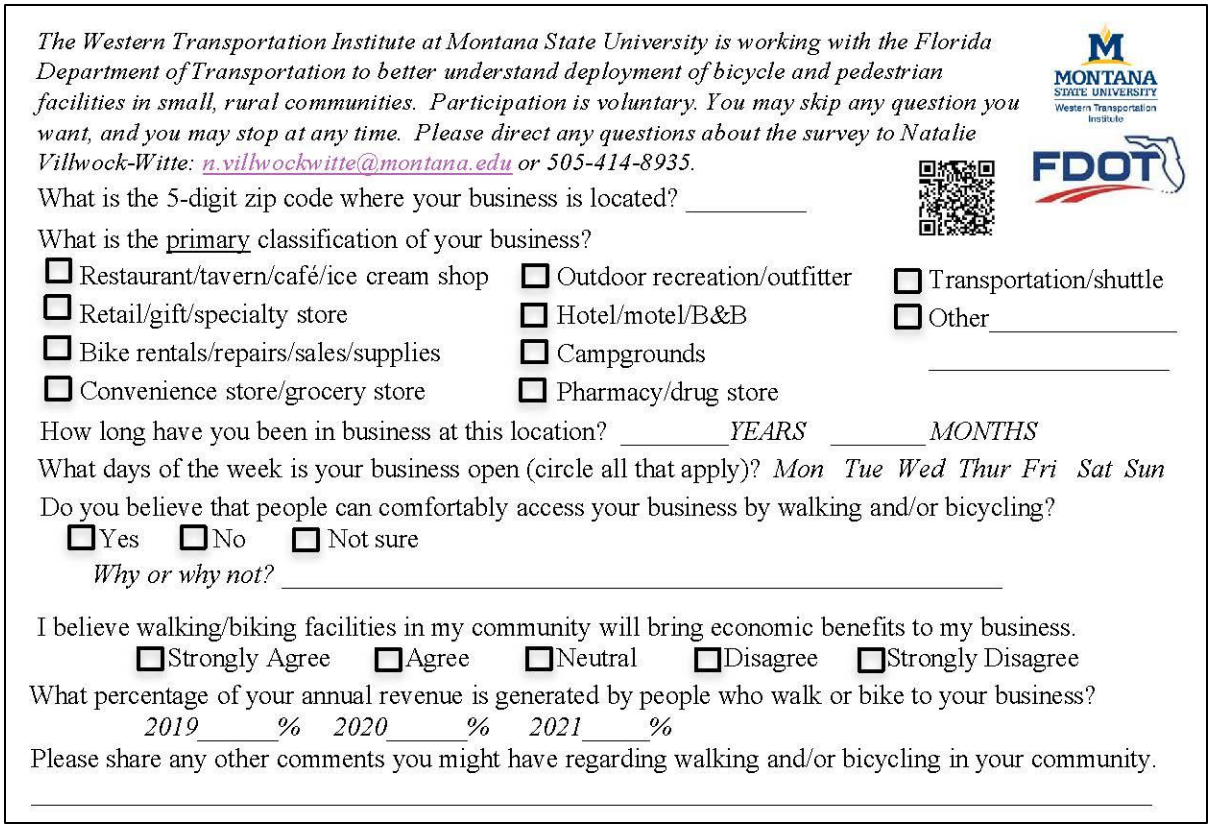
As noted in earlier sections, the project budget allowed researchers to be on-site in each community for approximately a day. Consequently, there was an interest in trying to obtain input from locals, both from the business and resident perspective, that would provide a more localized understanding and opinion regarding the walkability and bikeability of each community. Therefore, surveys were developed and distributed to businesses and residents via interviewee contacts and while on-site.

4.1 Method

Business and resident surveys were developed in cooperation with project stakeholders. The questions were drawn from previous research efforts (2) and from the input of the stakeholders.

To distribute the surveys, they were shared with both interviewees and while on-site. Each interviewee was provided with a digital link to resident and business surveys in an email. In addition, PDFs of each survey were also provided; the PDFs had a QR code that directly linked a survey respondent to the survey. Approximately twenty physical resident surveys and six business surveys were distributed in each community. The on-site researcher distributed these to businesses and residents who were encountered while on-site. Hard copy surveys were also shared at libraries in each community, as they are known to be resource hubs for rural communities. All participation was voluntary. Initially, surveys were only in English. However, while holding discussions with community members in Minnesota, Spanish and Somali were identified as languages used in focus communities. Discussions with the New Mexico Department of Transportation identified value in translating their resident surveys to Spanish as well. The Minnesota and New Mexico Departments of Transportation assisted with translating resident surveys for their state into Somali and Spanish and Spanish, respectively. Surveys were distributed in conjunction with the first interview in June of 2021 through January of 2022.

Figure 9 presents an example of a business survey distributed within Florida. Note that the Florida Department of Transportation logo was used. For each state, their logo was integrated into the survey instrument; the questions were consistent for all state surveys.



The Western Transportation Institute at Montana State University is working with the Florida Department of Transportation to better understand deployment of bicycle and pedestrian facilities in small, rural communities. Participation is voluntary. You may skip any question you want, and you may stop at any time. Please direct any questions about the survey to Natalie Villwock-Witte: n.villwockwitte@montana.edu or 505-414-8935.

What is the 5-digit zip code where your business is located? _____

What is the primary classification of your business?

☐ Restaurant/tavern/café/ice cream shop ☐ Outdoor recreation/outfitter ☐ Transportation/shuttle
☐ Retail/gift/specialty store ☐ Hotel/motel/B&B ☐ Other_____
☐ Bike rentals/repairs/sales/supplies ☐ Campgrounds _____
☐ Convenience store/grocery store ☐ Pharmacy/drug store

How long have you been in business at this location? _____*YEARS* _____*MONTHS*

What days of the week is your business open (circle all that apply)? *Mon Tue Wed Thur Fri Sat Sun*

Do you believe that people can comfortably access your business by walking and/or bicycling?
☐ Yes ☐ No ☐ Not sure
Why or why not? _____

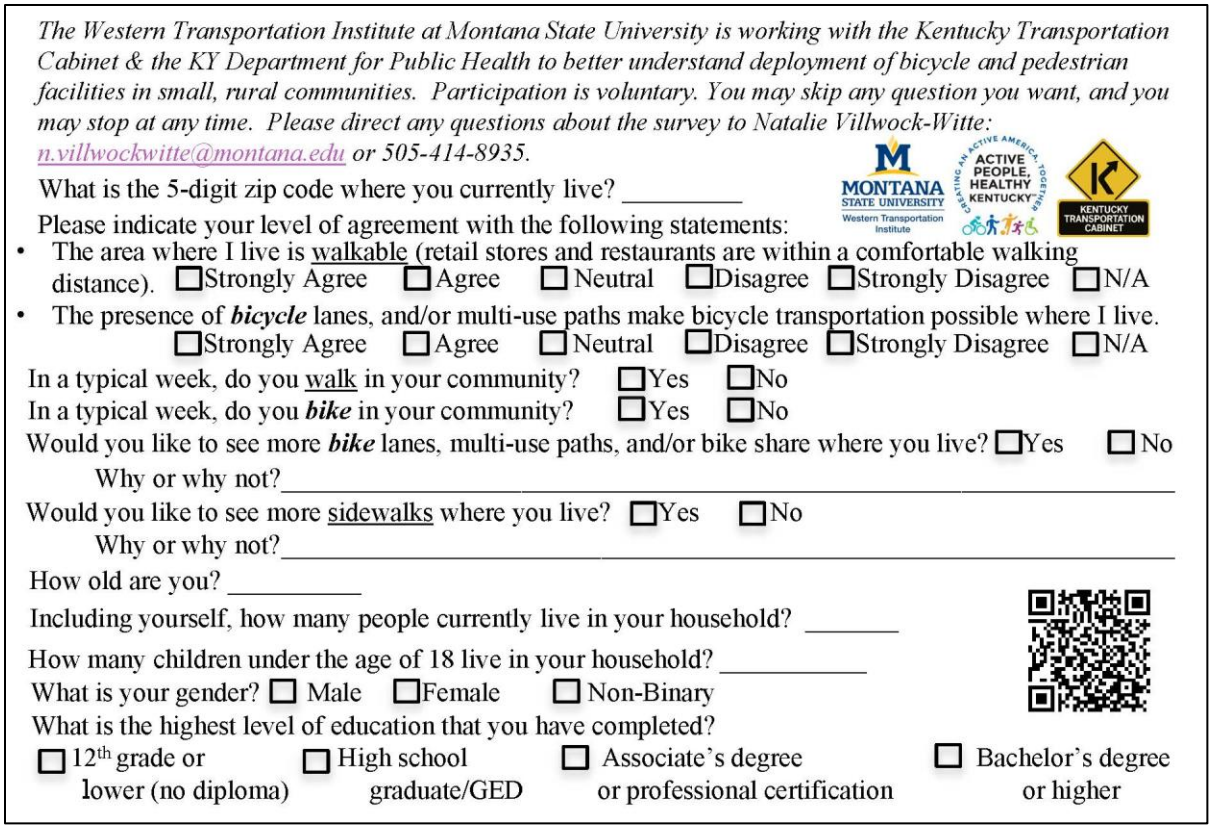
I believe walking/biking facilities in my community will bring economic benefits to my business.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

What percentage of your annual revenue is generated by people who walk or bike to your business?
*2019*_____% *2020*_____% *2021*_____%

Please share any other comments you might have regarding walking and/or bicycling in your community.
_____

Figure 9. Example, Florida business survey.

Figure 10 shows an English version of a resident survey for Kentucky.



The Western Transportation Institute at Montana State University is working with the Kentucky Transportation Cabinet & the KY Department for Public Health to better understand deployment of bicycle and pedestrian facilities in small, rural communities. Participation is voluntary. You may skip any question you want, and you may stop at any time. Please direct any questions about the survey to Natalie Villwock-Witte: n.villwockwitte@montana.edu or 505-414-8935.

What is the 5-digit zip code where you currently live? _____

Please indicate your level of agreement with the following statements:

- The area where I live is walkable (retail stores and restaurants are within a comfortable walking distance). ☐Strongly Agree ☐Agree ☐Neutral ☐Disagree ☐Strongly Disagree ☐N/A
- The presence of ***bicycle*** lanes, and/or multi-use paths make bicycle transportation possible where I live. ☐Strongly Agree ☐Agree ☐Neutral ☐Disagree ☐Strongly Disagree ☐N/A

In a typical week, do you walk in your community? ☐Yes ☐No

In a typical week, do you ***bike*** in your community? ☐Yes ☐No

Would you like to see more ***bike*** lanes, multi-use paths, and/or bike share where you live? ☐Yes ☐No

Why or why not?_____

Would you like to see more sidewalks where you live? ☐Yes ☐No

Why or why not?_____

How old are you? _____

Including yourself, how many people currently live in your household? _____

How many children under the age of 18 live in your household? _____

What is your gender? ☐ Male ☐Female ☐ Non-Binary

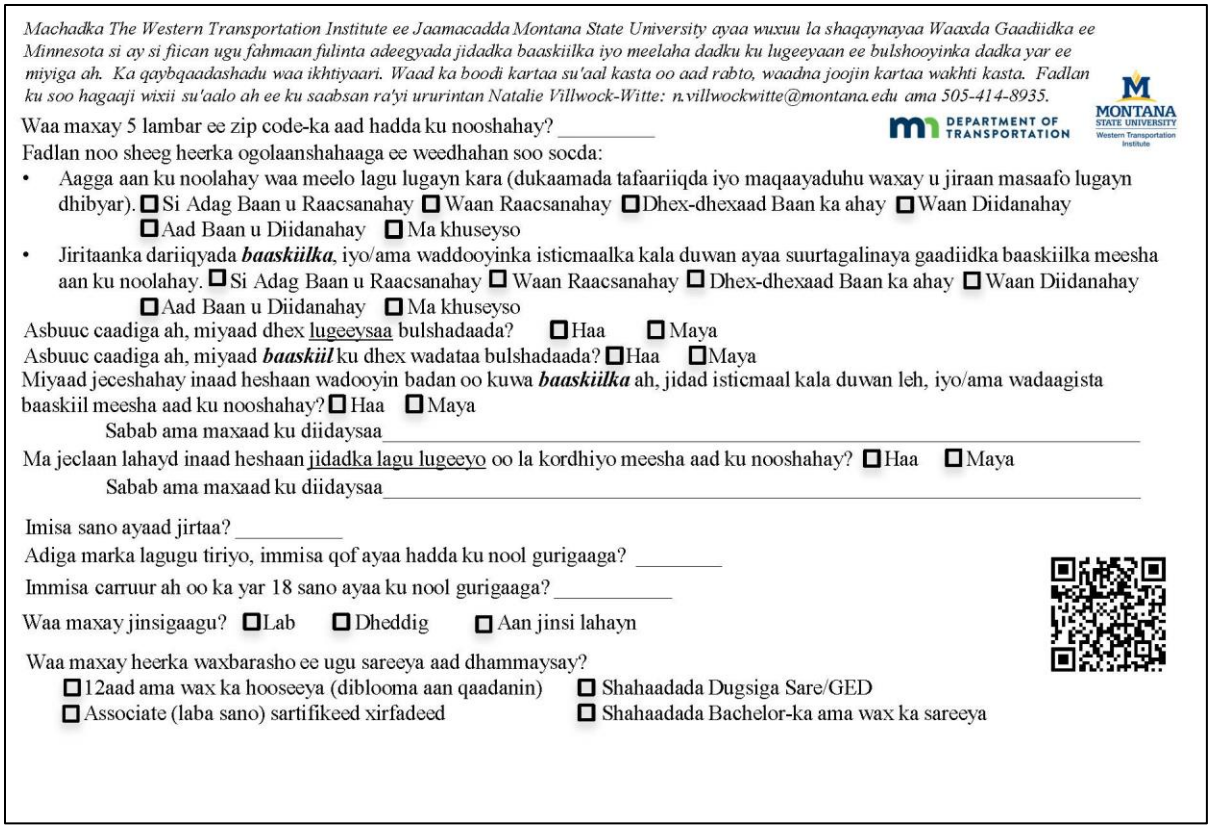
What is the highest level of education that you have completed?

☐ 12th grade or lower (no diploma) ☐ High school graduate/GED ☐ Associate's degree or professional certification ☐ Bachelor's degree or higher

Figure 10. Example of Kentucky resident survey in English.

One thing to note for Kentucky is the logo associated with Active People, Healthy Kentucky. The relationship between health and walking and bicycling was a significant interest for this state.

Figure 11 presents a resident survey, in Somali, from Minnesota.



Machadka The Western Transportation Institute ee Jaamacadda Montana State University ayaa wuxuu la shaqaynayaa Waaxda Gaadiidka ee Minnesota si ay si fiican ugu fahmaan fulinta adeegyada jidadka baaskiilka iyo meelaha dadku ku lugeeyaan ee bulshooyinka dadka yar ee miyiga ah. Ka qaybqaadashadu waa ikhtiyaari. Waad ka boodi kartaa su'aal kasta oo aad rabto, waadna joojin kartaa wakhti kasta. Fadlan ku soo hagaaji wixii su'aalo ah ee ku saabsan ra'yi ururintan Natalie Villwock-Witte: n.villwockwitte@montana.edu ama 505-414-8935.

DEPARTMENT OF TRANSPORTATION

MONTANA STATE UNIVERSITY Western Transportation Institute

Waa maxay 5 lambar ee zip code-ka aad hadda ku nooshahay? _____

Fadlan noo sheeg heerka ogolaanshahaaga ee weedhahan soo socda:

- Aagga aan ku noolahay waa meelo lagu lugayn kara (dukaamada tafaariiqda iyo maqaayaduhu waxay u jiraan masaafo lugayn dhibyar). ☐ Si Adag Baan u Raacsanahay ☐ Waan Raacsanahay ☐ Dhex-dhexaad Baan ka ahay ☐ Waan Diidanahay ☐ Aad Baan u Diidanahay ☐ Ma khuseyso
- Jiritaanka dariiqyada ***baaskiilka***, iyo/ama waddooyinka isticmaalka kala duwan ayaa suurtagalinaya gaadiidka baaskiilka meesha aan ku noolahay. ☐ Si Adag Baan u Raacsanahay ☐ Waan Raacsanahay ☐ Dhex-dhexaad Baan ka ahay ☐ Waan Diidanahay ☐ Aad Baan u Diidanahay ☐ Ma khuseyso

Asbuuc caadiga ah, miyaad dhex lugeeysaa bulshadaada? ☐ Haa ☐ Maya

Asbuuc caadiga ah, miyaad ***baaskiil*** ku dhex wadataa bulshadaada? ☐ Haa ☐ Maya

Miyaad jeceshahay inaad heshaan wadooyin badan oo kuwa ***baaskiilka*** ah, jidad isticmaal kala duwan leh, iyo/ama wadaagista baaskiil meesha aad ku nooshahay? ☐ Haa ☐ Maya

Sabab ama maxaad ku diidaysaa _____

Ma jeclaan lahayd inaad heshaan jidadka lagu lugeeyo oo la kordhiyo meesha aad ku nooshahay? ☐ Haa ☐ Maya

Sabab ama maxaad ku diidaysaa _____

Imisa sano ayaad jirtaa? _____

Adiga marka lagugu tiriyo, immisa qof ayaa hadda ku nool gurigaaga? _____

Immisa carruur ah oo ka yar 18 sano ayaa ku nool gurigaaga? _____

Waa maxay jinsigaagu? ☐ Lab ☐ Dheddig ☐ Aan jinsi lahayn

Waa maxay heerka waxbarasho ee ugu sareeya aad dhammaysay?

☐ 12aad ama wax ka hooseeya (diblooma aan qaadanin) ☐ Shahaadada Dugsiga Sare/GED
☐ Associate (laba sano) sartifikeed xirfadeed ☐ Shahaadada Bachelor-ka ama wax ka sareeya

Figure 11. Example of resident survey in Somali (Minnesota).

A challenge with surveying is that a lot of communities reported being "surveyed out." As an example, Pipestone, Minnesota was actively requesting that their residents participate in the AARP Age-Friendly Community Survey (Figure 12). Fair Haven, Vermont had also conducted many surveys to complete their revitalization planning documents for their downtown (in 2019).

Figure 12. On-going surveying effort; Pipestone, Minnesota.

4.2 Resident Survey Results

The majority of surveys were received from Kentucky (Figure 13).

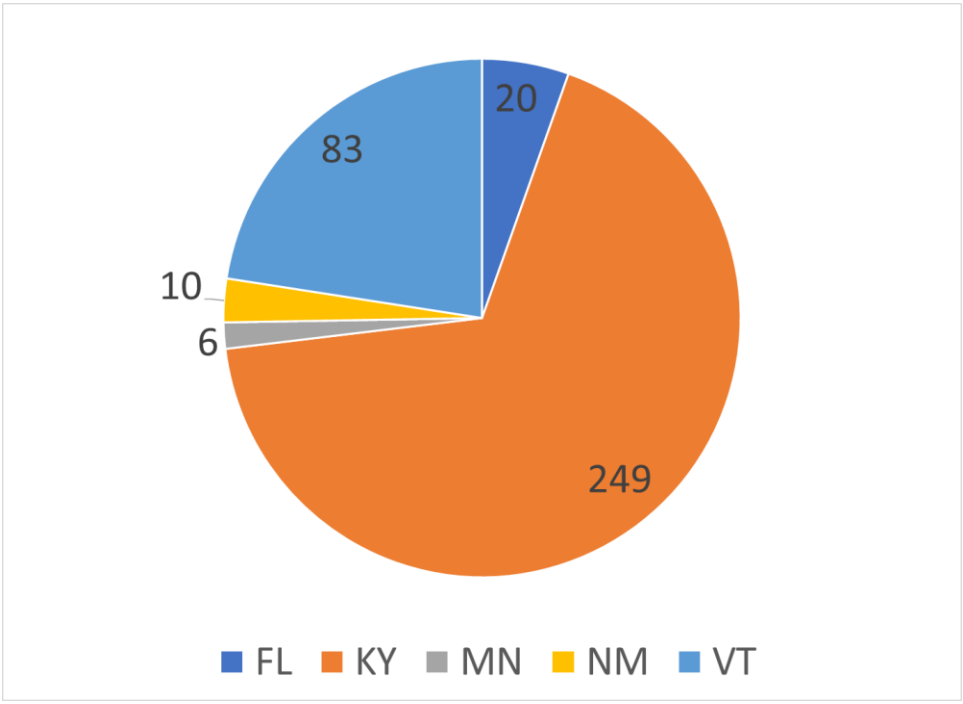


Figure 13. Number of resident surveys received by state.

Unfortunately, while surveys in Spanish and Somali were distributed both in hard copy and online formats, no input was received in these languages. This can be considered a limitation of the surveying results.

When asked about how walkable residents felt their community was, the responses seemed to be evenly balanced between agreeing and disagreeing (Figure 14). (Note: 362 survey respondents provided input.)

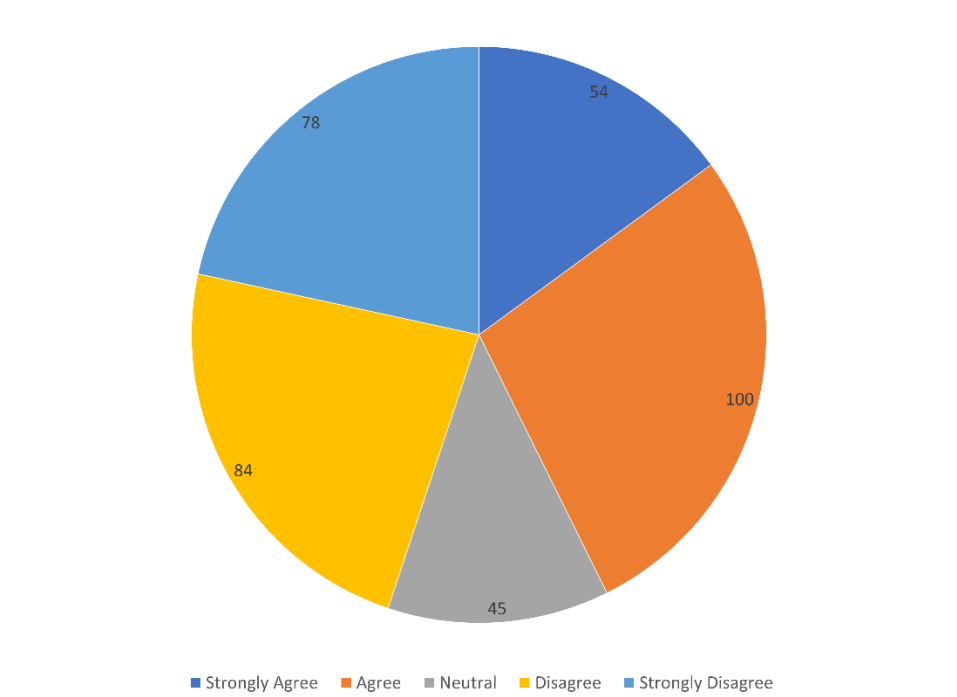


Figure 14. Walkability of respondents' area.

When asked about how bikeable residents felt their community was, the responses are skewed towards disagreement. (Note: 351 survey respondents provided input.)

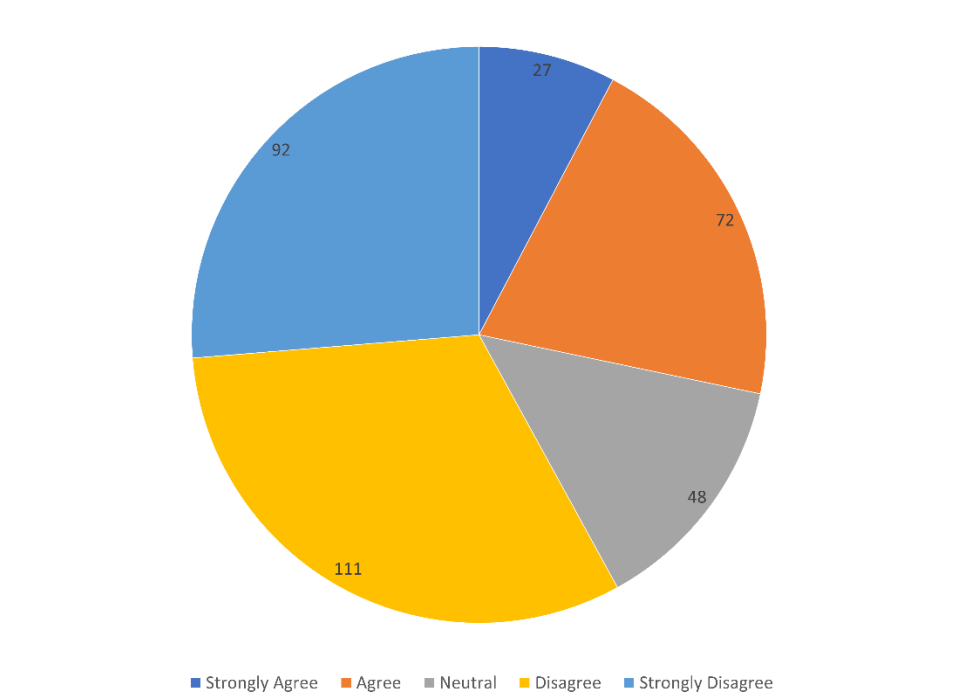


Figure 15. Bikeability of respondents' area.

Sixty-six percent of survey respondents reported walking within their community in a typical week. Only twenty-one percent of survey respondents reported biking within their community in a typical week. However, both of these samples are well above that reported by the American Community Survey for all communities. This would suggest that those that participated in the survey tend to walk and bike more within their community, that walking and biking may be more typical for non-work trips, or that there is a need to update the data for these communities regarding the numbers of people walking and bicycling within.

A similar number of survey respondents reported an interest in more bike lanes, multi-use pathways, and/or bike share (257 survey respondents) as those that were interested in sidewalks (264 survey respondents). The appendix contains all of the comments received when asked about a survey respondent's interest in bicycle infrastructure and walking infrastructure, separated by those that were in support of and those that were against. Overall, many survey respondents report concerns regarding safety, whether it means they want more infrastructure or not. Comments like ones suggesting that the infrastructure is not utilized or that it is costly are not new; this was seen in *Mobility Mindset of Millennials in Small Urban and Rural Areas* (2). This was also reflected in comments included in plans, like that for Truth or Consequences, New Mexico (40). However, as was noted in the case study, these comments seem to overlook the many people that were photographed walking and bicycling in every case study community (see the back cover of the case studies which document people walking and bicycling in the communities as observed during the on-site data collection in the community).

Regarding the reported age of survey respondents, 18 was the youngest survey respondent and 87 was the oldest survey respondent, with the average and median ages 47 and 44, respectively.

Regarding household size, the smallest household was one person with the largest household reported as nine people. On average, three people were reported within a household, with the median being two people in a household.

The majority of survey respondents did not have children living in their household, as the average was less than one and the median was zero. The minimum number of children living in a household was zero with the maximum reported number of children in a household reported as eight.

The majority of survey respondents identified as female (241); surveys typically receive more responses from females. One hundred and three men and four individuals identifying as non-binary also participated.

The majority of survey respondents reported having at least a bachelor's degree (Figure 16). Considering the educational attainment of the adult population in the case study communities (see Table 10 below), survey respondents seem to represent a bias towards those with more education (41). This can be problematic when considering that low-income bicyclists are reported as representing half of Census-reported commuter bicyclists (42).

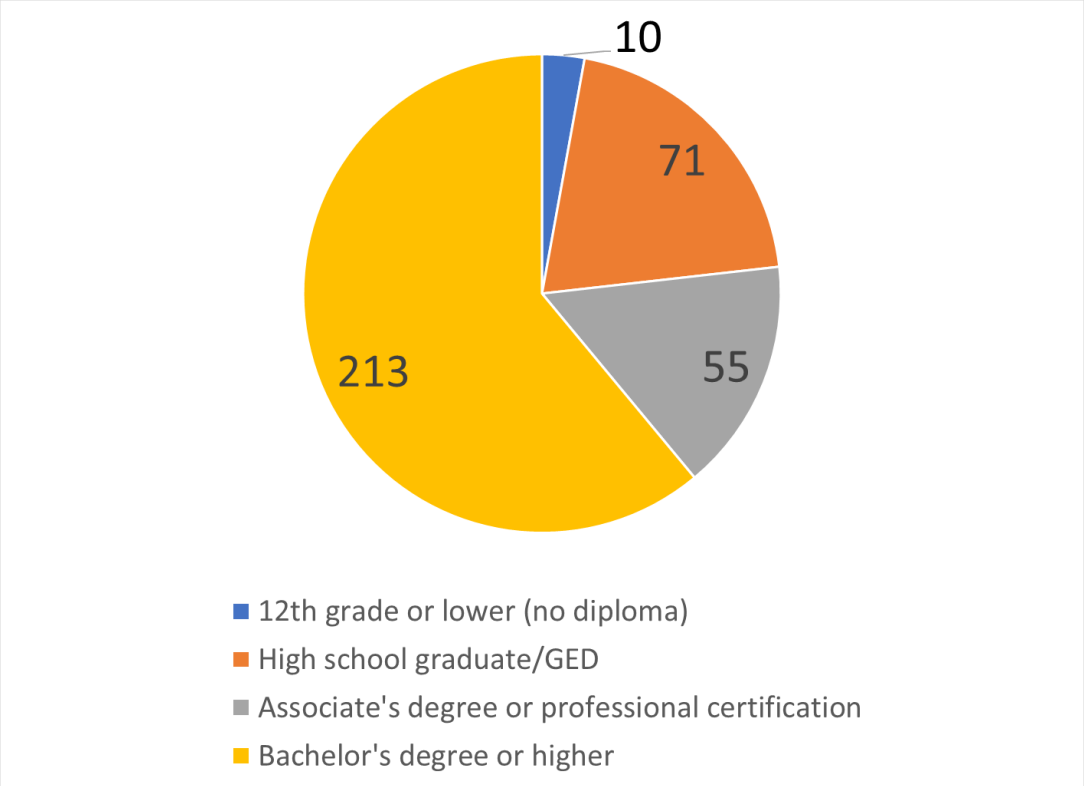


Figure 16. Respondents' level of education.

Table 10. Case study communities, educational attainment.

Educational Attainment	Florida			Kentucky			Minnesota			New Mexico			Vermont		
	Arcadia	LaBelle	Taylor Creek	Calvert City	Corbin	Morehead	Pelican Rapids	Pipestone	Walker	Ruidoso	Silver City	Truth or Consequences	Fair Haven	Hartford	Morristown
Population 18 Years and Older	5,852	3,536	3,549	1,985	5,340	6,872	1,744	3,122	743	6,457	7,683	4,863	1,956	7,977	4,228
Bachelor's Degree or Higher	578	330	356	280	1,094	1,237	197	655	223	1,757	2,338	936	353	3,634	1,349
Percent of Population with a Bachelor's Degree or Higher	9.9%	9.3%	10.0%	14.1%	20.5%	18.0%	11.3%	21.0%	30.0%	27.2%	30.4%	19.2%	18.0%	45.6%	31.9%

4.3 Business Survey Results

Sixty-five surveys from businesses were collected; the majority were from Kentucky (Figure 17). A large portion stemming from Kentucky reflects the assistance of regional entities in distributing the survey.

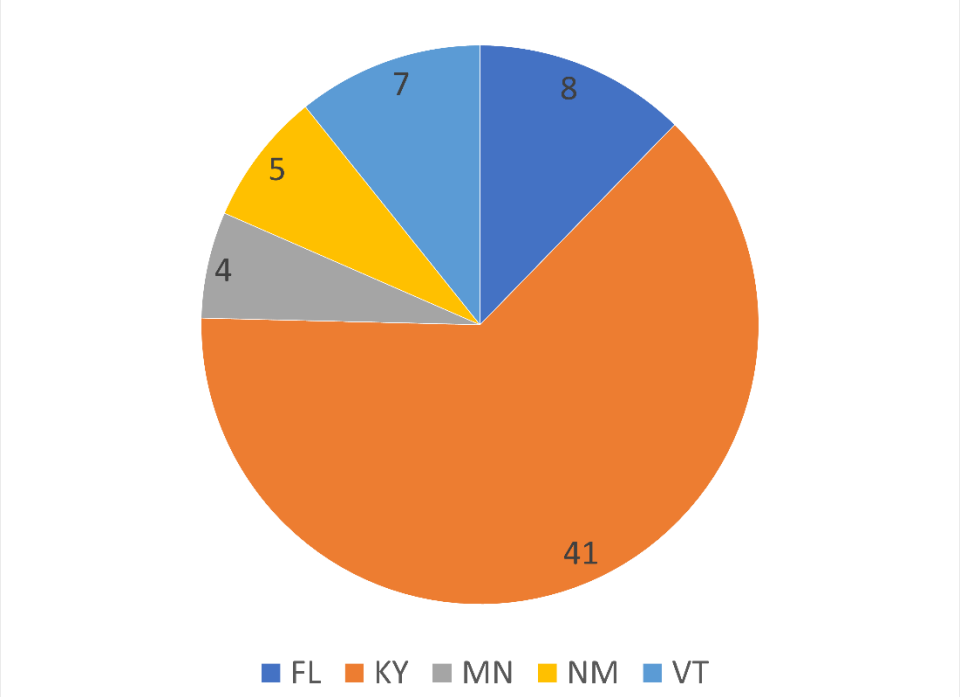


Figure 17. Number of business surveys collected by state.

As noted in the introduction to this section, there is the potential for bias in the data results considering that the surveys were distributed on-site and via those interviewed. Future surveying efforts can build on this work by attempting to reach the broader demographic within rural communities.

The majority of survey respondents chose "Other" when asked to identify the primary classification of their business (Figure 18). Within the "Other" category, legal, realtor, healthcare, and insurance were identified several times. This would suggest that if future surveys were conducted of businesses in small communities, these categorizations could be added. (Note: While the survey respondent was instructed to choose the "primary" classification of their business, one chose three.) Of the business classifications provided on the survey, Restaurant/tavern/café/ice cream shop, and Retail/gift/specialty store were the most frequently identified.

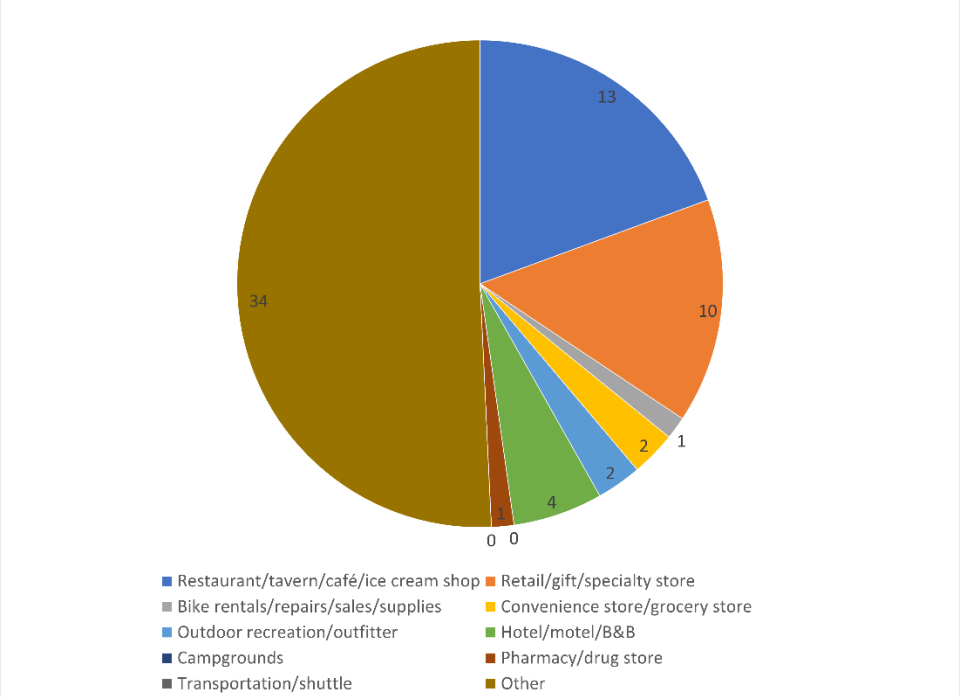


Figure 18. Primary classification of business.

Businesses reported being open for shorter than a year and as long as one hundred and fifteen years. The average length of time that businesses reported being in operation was eighteen years, with a median of ten years.

Most businesses reported being open during the week, with Sunday reported as the day on which the majority of businesses were not open (Figure 19).

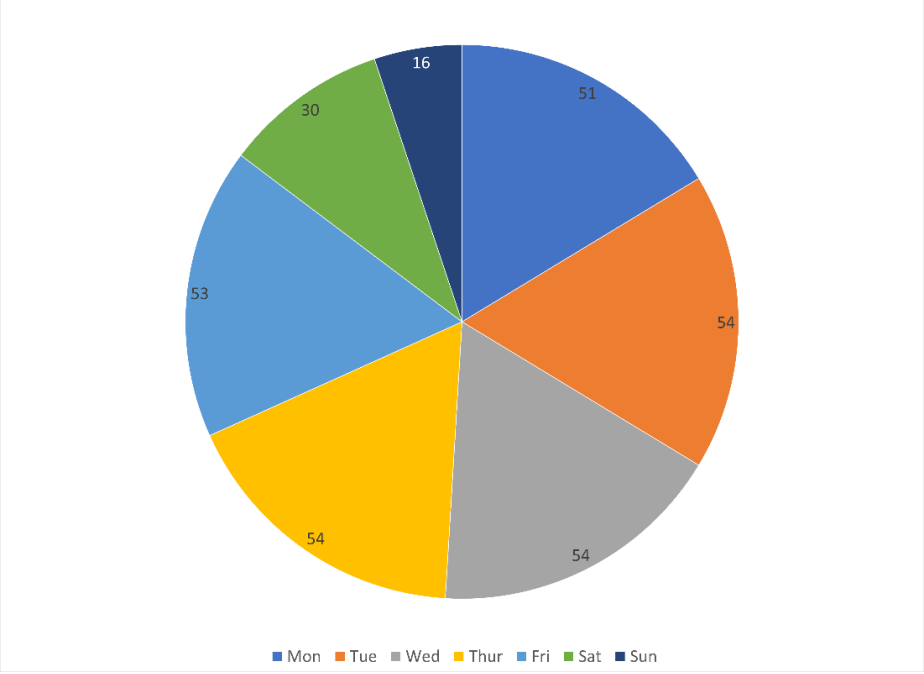


Figure 19. Days of week during which the business is open.

The majority of businesses reported that they were accessible by walking and/or bicycling (Figure 20). (Note: Fifty-five of the sixty-five survey respondents provided input.)

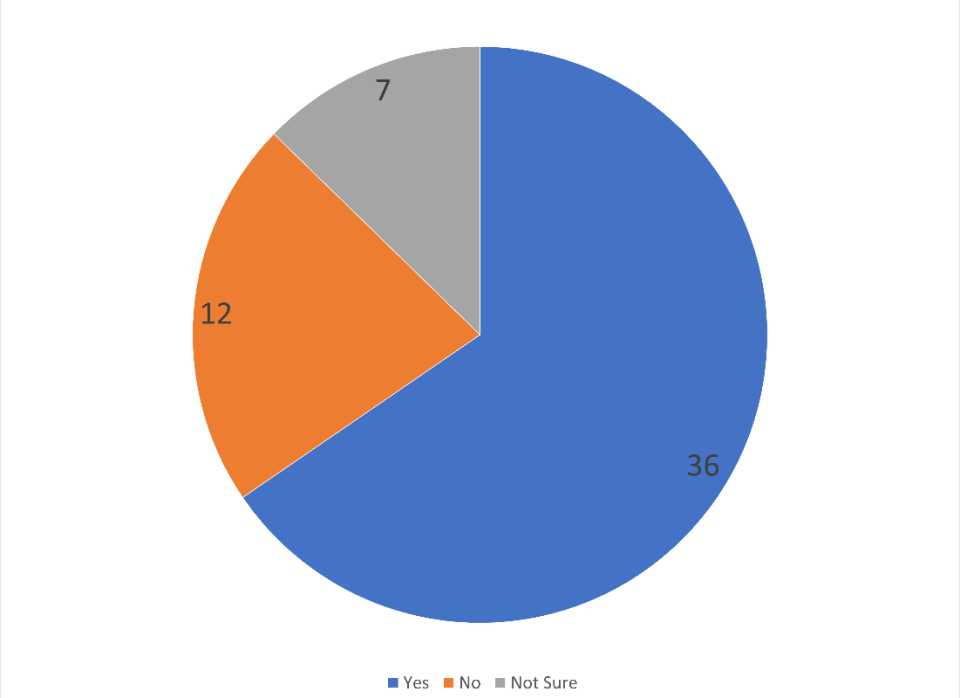


Figure 20. Accessibility of business by walking or biking.

Businesses were asked to provide an explanation of why they believed that people could access the business by walking or bicycling. Table 11 shows the responses provided; not all respondents provided a reason.

Table 11: Why is the business accessible (or not) by walking or biking.

Accessible	**Response**
Yes	Located in business district served by [a] sidewalk
	There are sidewalks [on the other] side of the road. It would be nice to have them on our side of the road also.
	We're near a college campus on main street w/low traffic
	…our city [h]as [a] large sidewalk
	I'm located on Main Street
	Sidewalks [are] present
	I am located on South Main Street and have sidewalks and blacktop
	We are located on Main Street
	We are not far from downtown. My only fear is people speed on this road.
	Sidewalk availability for walking. Someone would likely be killed if they used a bike on the street.
	Sidewalk access is available to/from apartments, city parks, campground
	Downtown, [Americans with Disabilities Act] ADA Access, parking
	We lack bicycle routes in town
	[The] main road [has a] nice sidewalk

Accessible	Response
	The Lamoille [Valley] Rail Trail goes through Hyde Park and there are good sidewalks.
	5% arrive by bike
	Bike trail access, downtown location
No	No sidewalks or bike paths
	No bicycle path on a busy road
	It's a busy road with poor sidewalks and no bike path
	Not enough sidewalks and no bicycling lane
	No sidewalks and [a] very busy road
	Bicycling would be dangerous because Main Street is too narrow.
	Hilly area, steps of sidewalk prevents bike use, and is dangerous to ride on road due to curves, frequent speeding, and no bike lane. Also[,] sidewalk is often broken and or uneven.
	There is no sidewalk or bicycle lane in front of my business
	No sidewalk down Falls Road.
	We have no bike paths
	More bike lanes would help
Not sure	Nobody does it.
	It is downright scarry to be a cyclist in this town. A pedestrian has a small advantage with some sidewalks provided, but traf[f]ic rules and crosswalks are not always res[p]ected.
	There are sidewalks, but there's only a few bike paths, without adequate signage, bike racks, and other associated accessibility.
	[I] see people walking around the area, but our employees all arrive to work via automobile.
	Not sure
	We need safe, bicycle/pedestrian only trails[,] especially connecting towns along existing rail corridors
	We allow walk/bike, but we are a drive thru

What these comments suggest is that even in cases where businesses acknowledge that they are accessible by walking or bicycling, they do not always feel that it is safe. In addition, many identify the presence of sidewalks as making their business accessible by walking; this would suggest that bicycling and pedestrian infrastructure is needed. Notably, a large number of businesses cite being in the downtown or on main street as a reason that their business is walkable. This again suggests that there is value to a business in having a walkable downtown. Furthermore, at least one business noted a need for greater connectivity. Overall, reasons for why a business reported not being sure or disagreeing that their business is bikeable is the lack of bicycle lanes or pathways. Again, this suggests that there is value in having such bicycling infrastructure. Consequently, walking and bicycling infrastructure is needed in rural America.

The majority of businesses that provided input (only fifty-four survey respondents provided a response) felt that walking/biking facilities in their community would bring economic benefits to their business (Figure 21). No respondents reported "Strongly Disagree" with the statement.

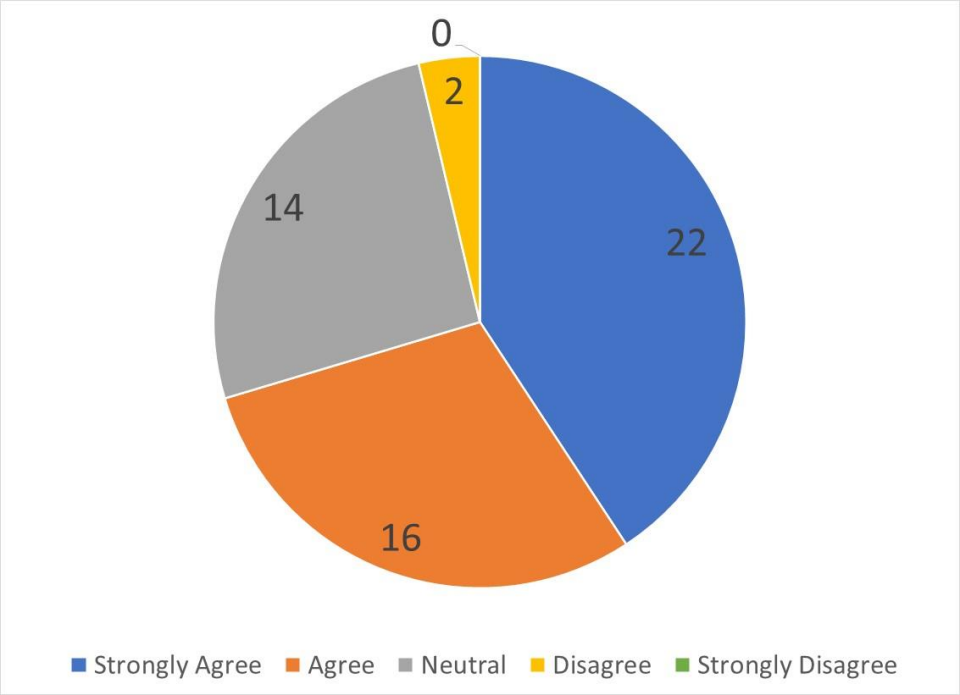


Figure 21. Economics of walking and biking.

One would have expected more representation from the category, Bike rentals/repairs/sales/supplies; however, only one business self-categorized by this classification. Therefore, the economic benefits of walking and bicycling would seem to extend beyond businesses that directly serve these modes.

Twenty-eight, thirty-four, and thirty-nine survey respondents provided input regarding the percentage of annual revenue generated by people walking or biking to the business in 2019, 2020, and 2021 (Table 12).

Table 12: Annual revenue generated by people walking or biking to one's business.

State	2019	2020	2021
Minimum	0%	0%	0%
Average	12%	11%	13%
Median	5%	4%	5%
Maximum	80%	90%	100%

The location that identified that 100% of their business in 2021 was derived from people walking or bicycling to the business classified themselves as "Restaurant/tavern/café/ice cream shop;" the business was located in Arcadia, Florida.

What follows are some comments received from the businesses:

- We need bike paths. (FL)
- No[t] enough bike lanes or sidewalks (FL)
- I wish I could bike more in my community. (FL)
- We would love more biking paths in De[S]oto County (FL)

- [O]ur primary revenue comes from walking/bicycling (KY)
- We need sidewalks and bike trails/lanes. Our streets are too narrow[,] and we have very few safe spaces for bikes. (KY)
- We live in an area that is spread out and I think if people were able to easily ride bikes here, without being afraid of the traffic, we would ride more often. (KY)
- I feel like more people would con[s]ider walking or cycling for more than recreation if they felt like they could safely. (KY)
- It would help if we had places where people can lock the[i]r bicycle (KY)
- It will increase tourism and will have a positive impact on our community. (KY)
- There's a small lot where a decorative brick pad used to have bar seating outside of a burger shack. Refinishing this pad with decorative cornerstone detailing its history and repurposing it as one of a few designated locations for bike racks could be extremely beneficial to city life. Increasing access[~~ing~~] to the city with more bike paths, all lined with more signage, for both motorists and bikers to be aware of would direct them to the bike racks and further incentivize foot traffic. (KY)
- It would be safer for walkers and bicycli[sts] if we had more sidewalks and a designated bicycle route. (KY)
- [G]reat for business and growth (KY)
- Would love it to be accessible by bike/walking (KY)
- Walking fine but streets too narrow for bikes (KY)
- My business is near the downtown area which is know[n] to be a terrible area to drive through due to parking. Downtown area is a 2 lane, one-way road with parking on both sides. This makes it very tight especially for trucks or i[f~~s~~] someone parks poorly. I mention this [be]cause th[is] make[s] the need for better walking and biking options more important and potentially beneficial. (KY)
- We have a bike lane that is never used. It was a [waste] of money. Instead of bike [lanes], they need to fix the sidewalk and streets. Streets to[o] narrow for 2 lanes of parking and 2[lanes] of traffic. Sidewalk so low, it won't hold back water and businesses flood. (KY)
- Feel that [w]alking/hiking/biking trails will provide more opportunity for the community to stay healthy, thus indirectly benefit employment quality. (KY)
- I wish people took cyclists more seriously. Some people have no regard for their safety. (KY)
- When more cycling lanes are created, would also be STRONGLY recommended to have some online short videos about how to respect bicyclists as other vehicles and remain alert so nobody gets killed (KY)
- Walking and cycling is a good thing in general. Walking much more than cycling. It creates physical fitness and good health. Cycling however is more of a nuisance to others. The percentage of cyclists to general traffic is very low, yet towns want to cater to cyclists for some reason. The general walking and driving public do NOT like cyclists (KY)
- We need safe, bicycle/pedestrian only trails especially connecting towns along existing rail corridors. Rails with trail or rails to trails have worked well in ma[n]y cities such as Greenville, SC, Traveler's Rest, SC, Easley, SC, Pickens, SC, Abingdon, VA, Damascus, VA, Lexington, KY, [and] Cincinnati to Cleveland, OH. We need the cities

of Corbin and Williamsburg, along with Whitley County, and our tourism commissions, to work with CSX to develop a trail with rails bike/pedestrian path to follow primarily along KY HWY 26 to connect the old L&N Depot in downtown Corbin to the old L&N Depot in downtown Williamsburg. (KY)

- Have not kept track (of annual revenue generated by people who walk or bike to business) (MN)
- A bicycle/walking path would be an economic boost (MN)
- Paths will help the comm[unity] & U.S. (MN)
- We are getting an increase in [Continental Divide Trail] CDT hikers and bike groups (NM)
- As [a] Park and Rec Board Member of T or C, information about state/cov [coronavirus pandemic] funding (NM)
- Safe and easy bike access is a key part of my business. I am located near a paved recreation path and a mountain bike trail network. Without those two things, my business would look very different. (VT)

Overall, the comments from businesses suggest a desire for more pedestrian and bicycling infrastructure with the understanding that this type of infrastructure can help drive business and keep costs low by increasing the health of employees.

4.4 Summary of Surveys

The resident surveys seem to indicate that nearly half of respondents find their community to be walkable, but less bikeable. Similarly, over half of the respondents reported walking each week, and less reported bicycling each week. Many noted an interest in bicycle and pedestrian infrastructure like sidewalks, bike lanes, multi-use paths, and bike shares. Business surveys indicated that many businesses were accessible by walking and attributed this success to sidewalks or being located in a more walkable area like downtown or a main street. Business respondents felt that they were less accessible by bicycle due to a lack of bicycle infrastructure like bike lanes or routes. Generally, business respondents reported an interest in additional bicycle and pedestrian infrastructure, noting an understanding that this type of infrastructure can drive business, improve the health of employees, and improve safety for all community members.

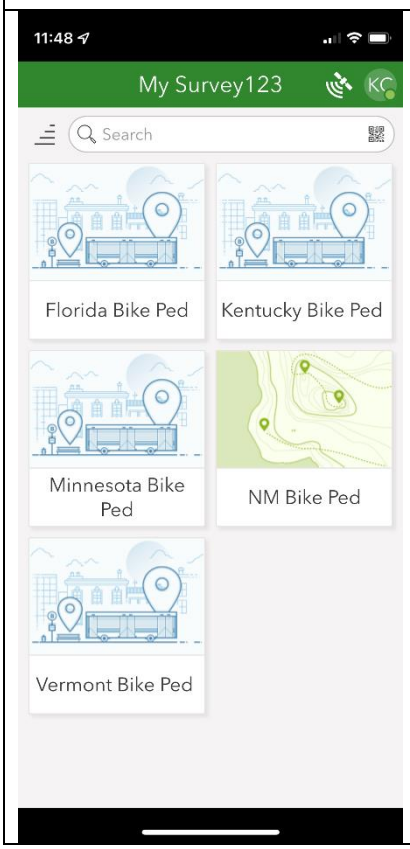
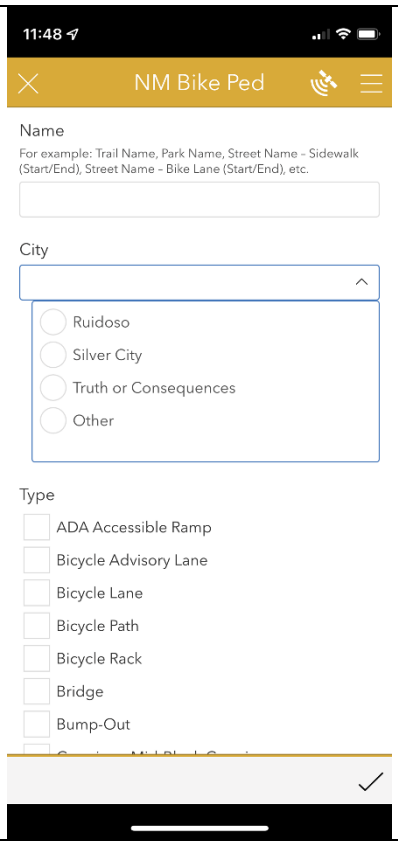
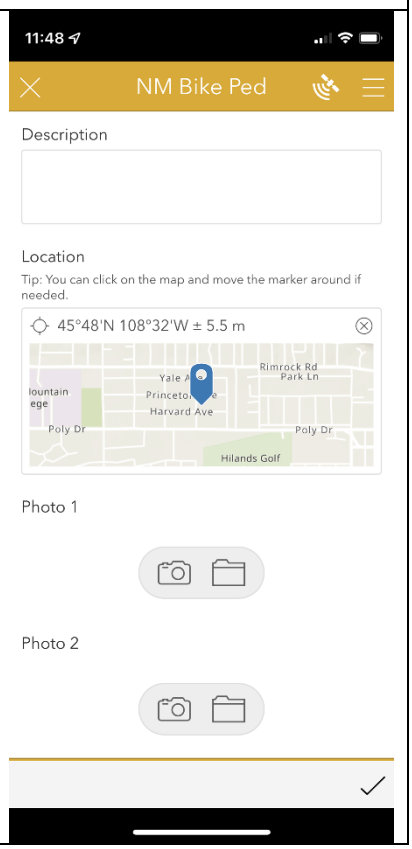
5. GIS Tool

Survey123, a mobile GIS data collection tool created by ESRI, was used to collect discrete data points, including location, description, and associated photos. This tool allowed the researchers to set up a short form, which could then be used to easily capture location information, descriptions, and photos of bicycle and pedestrian infrastructure observed while on-site in the communities (see Table 13). This form was available by downloading the ArcGIS Survey123 smartphone application on a smartphone (both researchers involved in this effort used an iPhone to capture data while on-site). The intent of using this surveying tool was not to inventory all bicycle and pedestrian infrastructure within each community; rather, highlights of bicycle and pedestrian infrastructure found within these communities were collected.

This tool was beta-tested at the researcher's home location prior to visiting the case study communities in order to work through any challenges and determine what questions or options were desirable in the survey form. Ultimately the survey worked to best balance information captured without making the survey form so long that it became cumbersome to complete.

An entire day was typically devoted to collecting data in each community, with some time potentially devoted on the day on which the researcher drove to the community and some time on the day on which the researcher left the community. The need did vary somewhat based on the size of the community and the bicycle and pedestrian infrastructure found within the community. A noted benefit of this tool is that it allowed the researchers to quickly capture information while on-site which could be saved locally on the user's phone. This data could then be uploaded later when the user had access to sufficient internet access (which was a challenge in some rural areas).

Table 13. Survey123 interface.

Select State-Specific Survey	Select Community & Bicycle/Pedestrian Infrastructure	Description, Location & Photo Capture
		

5.1 Discrete vs. Continuous Data Capture

The researchers primarily utilized the point capture feature in Survey123. This allowed for a quick capture of various types of bicycle and pedestrian infrastructure while on-site. While this did not perfectly capture the entire extent of a trail or sidewalk, this tool did the job of highlighting where these features were found within a community.

The researchers tested the ability to capture lines within Survey123 in order to better collect continuous linear features like bicycle lanes, sidewalks, or trails (Figure 22). This feature was tested while on-site in New Mexico. Generally, it was found that the line capture feature in Survey123 was time consuming, as it required a user to stop and collect a datapoint at each vertex. At the time of this project, Survey 123 did not provide the option to continuously collected waypoints using a distance or time interval. If the user did not continually collect these datapoints, the line would not accurately reflect the feature on the ground. Additionally, Survey123 does not currently allow a user to collect both points and lines within the same survey. If a user wanted to collect points while collecting line data, the user would need to save and close out of one survey and open the other. Oscillating back and forth between each interface would be very time consuming. Regardless, while desirable, the scope of the project

was not to comprehensively collect information within a community. It was instead to provide examples of existing bicycle and pedestrian infrastructure found in small communities.

While the Survey123 line capture feature would be beneficial to users working to inventory line features like sidewalks or trails, this feature was not found to be beneficial for this project where the researchers were trying to understand the overall context of each community. In the case where continuous data is necessary, another tool that could be utilized is Strava. Strava allows a user to capture locational information of a bicycle ride or walk. This information can then be exported as a GPX file which can be imported into ArcMap.

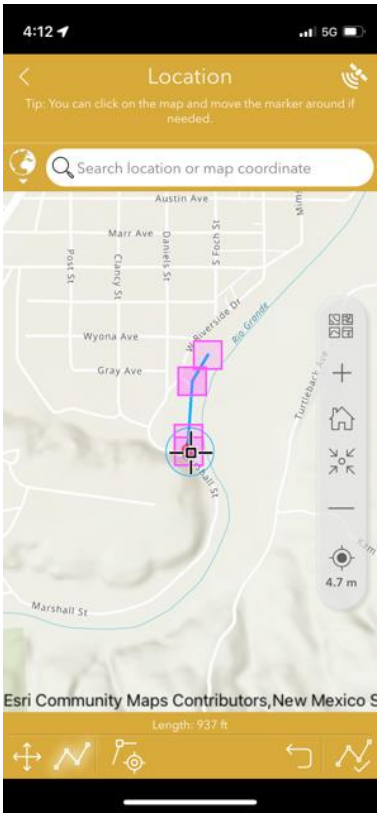


Figure 22: Survey 123 line capture interface.

5.1.1 Locational Accuracy

The local accuracy of Survey123 is as accurate as the device used to capture data (43). A study completed in 2019 found that the average horizontal accuracy of an iPhone 6 was 7-13 meters and is consistent with recreation-grade GPS receiver accuracy (44). It should be noted that the referenced study was conducted in an urban environment. In a more rural environment where cellular service can be a challenge, this can lead to degraded GPS accuracy. For this project where the purpose of locational data collection was to gain an understanding of where different types of bicycle and pedestrian infrastructure were found across a community, this level of locational accuracy was suitable. For a project where better locational accuracy is necessary, an external GPS receiver could be used to improve accuracy.

6 Discussion: Lessons Learned, Challenges & Opportunities

This section provides a discussion of findings across all fifteen case study communities including lessons learned/successful strategies, challenges, opportunities, and other considerations. Based on the research findings, the final portion of this section will cover potential supporting programs and considerations that could be useful to help support bicycle and pedestrian infrastructure in rural communities.

6.1 Lessons Learned/Successful Strategies Found

This section will discuss lessons learned and successful strategies identified through creating the case studies for the fifteen communities. These are highlighted in Table 14, along with communities specifically called out that identified this lesson learned or successful strategy. The specific case study can be consulted to learn more.

Table 14. Lessons learned/successful strategies found.

Lessons Learned/Successful Strategies Found	Florida			Kentucky			Minnesota			New Mexico			Vermont		
	Arcadia	LaBelle	Taylor Creek	Calvert City	Corbin	Morehead	Pelican Rapids	Pipestone	Walker	Ruidoso	Silver City	Truth or Consequences	Fair Haven	Hartford	Morristown
Planning is key				x	x	x		x			x	x			
Slow but steady				x					x						x
Don't forget about maintenance				x										x	
Think regionally			x	x		x		x			x	x			
Create connections between your community's assets		x		x					x	x			x	x	
Count bicyclists and pedestrians		x					x	x	x					x	
Set aside funding to take advantage of grant opportunities					x									x	
Engage state departments of transportation early and often				x					x						
Utilize bikeability and walkability audits to engage community feedback	x				x							x			
Engage community members						x	x	x	x			x	x		
Don't forget to engage your youth				x						x	x	x			
Use placemaking to create a sense of community					x	x	x			x	x			x	x
Tie bicycle and pedestrian infrastructure to public health initiatives	x			x	x	x	x			x					
Tie bicycle and pedestrian planning to economic development				x					x		x	x	x		

6.1.1 Planning is Key

Extensive planning and community engagement can help a community set a clear vision for the future. Planning can help to prioritize future projects when funding opportunities become available. Many of the communities involved in this research effort had completed extensive planning efforts, often over a period of time, with many discussing a desire to maintain their community's unique rural character and preserving their historic, cultural, and natural resources. While not the focus of the research project at hand, comparing the level of planning conducted in other small communities whose ratings were significantly lower than those considered for this effort could provide a compelling result. The following are several examples of plans completed in the case study communities.

Calvert City, Kentucky completed a trail network feasibility study that identified potential mountain bicycling facilities in the area and prioritized five project goals including making Calvert City a regional mountain bike destination (45). In addition, they completed a bicycle and pedestrian master plan which set goals and identified strategies to improve upon bicycle and pedestrian infrastructure in the area, including identifying six shared use path projects and four sidewalk projects (46).

Corbin, Kentucky has completed a bikeway master plan (47) and a bicycle and pedestrian master plan (48). These plans helped to address health, safety, tourism, and economic issues. In addition, they identified bicycle and pedestrian infrastructure projects. As a part of this planning process, a bikeability and walkability audit was completed.

Morehead, Kentucky completed a bicycle and pedestrian plan that recommended infrastructure and facilities that could be included in future road projects (49).

Pipestone, Minnesota completed a bike and pedestrian master plan that identified the need for improved active transportation infrastructure in the community (50). Examples of improvements that they envisioned are to create connections between downtown and other destinations of interest, creating cross-town bike routes, a trail to connect to the industrial park, and implementing a wayfinding system.

Silver City, New Mexico has completed numerous planning documents related to bicycle and pedestrian infrastructure including a trails and open spaces plan (51), a greenways and Big Ditch master plan (52), and a bicycle master plan (53). In addition, Silver City's comprehensive plan set a goal to create a pedestrian master plan (54). The focus on developing an individual plan each for bike and pedestrian modes was unique to Silver City.

Truth or Consequences, New Mexico completed a report specific to planning for the Healing Waters Trail (55). This report was completed by a master's student at the University of New Mexico.

6.1.2 Slow but steady

Each of the case studies attempts to provide a timeline of activities in each community. These are drawn from plans and articles that were found. These timelines show that sustained efforts over a period of time produce results. Walker, Minnesota has been building their infrastructure

up over many years, starting with the presence of the state trails (Heartland and Paul Bunyan State Trails) which through a workshop prompted the development of the Shingobee Connector Trail (Figure 23) to connect the existing state trails. Over time, the trail within the community has become more formalized with better infrastructure, including the addition of restrooms in the core of the community, a one-way street (Railroad Avenue), and a wide pathway as the trail.

Figure 23. Shingobee Connector Trail through the center of Walker, Minnesota.

Similarly, Calvert City, Kentucky reports starting with a more informal trail, adding parks over time, and recently connecting the parks with the Calvert City Greenway (Figure 24).

Figure 24. The Calvert City Greenway.

The Lamoille Valley Rail Trail (LVRT) was once only a deserted railbed. It now serves as an artery in Morristown, where a locally developed connection was made between the LVRT and Oxbow Park (#6 and #7 in Figure 25). In addition, the LVRT serves as a connection to businesses (#2, #3, and #5 in Figure 25). The LVRT also connects Morrisville to Hyde Park (#1 in Figure 25), a neighboring community about three and a half miles away. Furthermore, the LVRT serves as a location where the local library has sent community members on Storywalks and provides a space where people can snowshoe. It supports the presence of two bicycle shops within the community. The community has still encountered challenges to more fully connect community residences to this feature with bicycle infrastructure, but the opportunity remains.

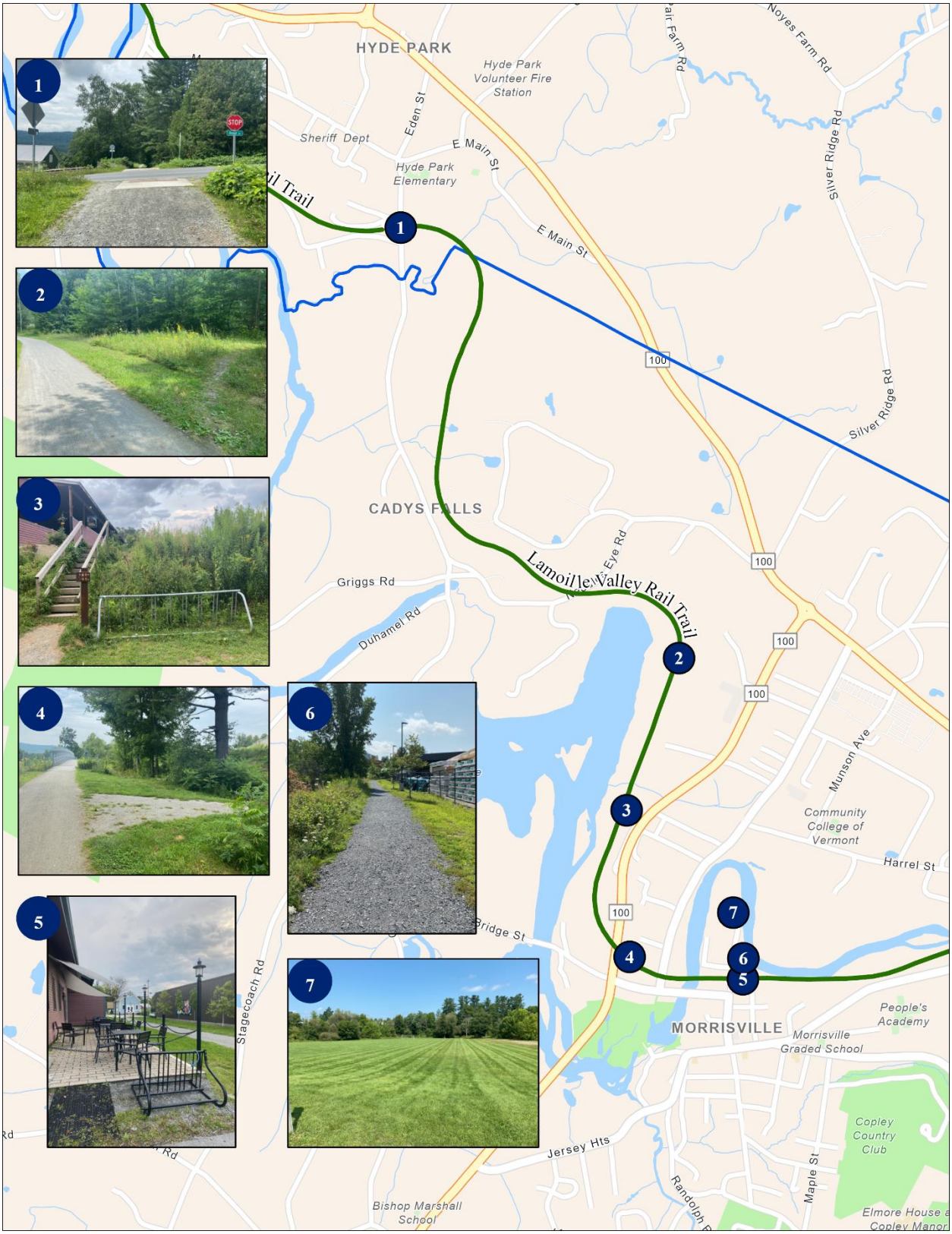


Figure 25. LVRT as a non-motorized arterial.

6.1.3 Don't Forget About Maintenance

It is not enough to just construct bicycle and pedestrian infrastructure; it must also be maintained in order to remain safe and accessible for users.

The Town of Hartford, Vermont, was unique in that they committed to maintaining developed pedestrian and bicycling facilities as compared with relying on property owners to maintain these facilities.

Calvert City, Kentucky specifically tied maintenance of a multi-use trail and repainting of crosswalks as part of their capital funding.

6.1.4 Think Regionally

When planning for bicycle and pedestrian infrastructure, it is important to consider network connections both within a community and outside the community. This can include connections between local communities or to nearby recreational opportunities. Thinking more regionally can help a community identify partnerships to help pool resources to make things happen. Calvert City, Kentucky has a trail system and bike path that connects the City to recreational opportunities at the Kentucky Dam Village State Resort Park. During their recent strategic planning process, this connection was listed as a valued community asset. In the future, Calvert City is looking into how they can further connect their trails to a regional trail system. They would like to create bicycling and walking connections to Grand Rivers, Kentucky and the Land Between the Lakes National Recreation Area.

A longer-term goal for Morehead, Kentucky is to provide a bicycle and pedestrian connection from their downtown core to Cave Run Lake, which is a tourist destination located about twelve miles outside of town.

The multi-use pathway on the outskirts of Taylor Creek provides a protected connection to the City of Okeechobee.

Pipestone, Minnesota successfully worked with Pipestone County to create a trail that connects to Minnesota West (a college), Falls Landing, and Good Samaritan facilities. Projects that connect to the Casey Jones State Trail and the Pipestone National Monument are planned. The City recently began a conversation with Pipestone National Monument to look into the feasibility of connecting, which could possibly leverage Federal Land Access Program funds.

A significant upcoming project for Silver City, New Mexico will involve repurposing a historic waterworks building into a supporting facility for the Continental Divide Trail (CDT). This effort is being completed to solidify Silver City's status as a Trail Town for the CDT. The City has also actively worked with the nearby communities of Bayard and Santa Clara to look to a more regional approach to bicycle and pedestrian infrastructure, including enhancing connections to the Gila National Forest and other assets as a part of the Five Points Initiative (56).

The City of Truth or Consequences, New Mexico recently developed a steering committee to plan the Turtleback Trails Network which would connect the City with nearby Williamsburg. While still in the planning phase, if completed, this project would connect three local parks (two in Truth or Consequences and one in Williamsburg) to recreational opportunities on the other

side of the Rio Grande. In addition, this trail network is planned to connect to the proposed Rio Grande Trail.

6.1.5 Create Connections Between Your Community's Assets

It is important to consider connections between assets locally as well. This planning can ensure accessibility. It also eliminates the need for extensive trailhead parking lots as residents would not need to drive to utilize the facilities.

The Hartford, Vermont Pedestrian and Bicycle Plan (57) highlights a desire to create a trail system that would connect all five villages. In addition, the 2014 Hartford Comprehensive Plan (58) highlighted the Upper Valley Trail Loop which would connect Hartford and Norwich (Vermont), and Hanover and Lebanon (New Hampshire).

LaBelle, Florida installed a sidewalk in place of social trails that provides a walkable connection between the local elementary school and the LaBelle Nature Park. The Hendry County Comprehensive Pathways Master Plan (59) mentioned creating connectivity to the Sugar Trail Greenway Corridor and a vacant rail bed east of SR29. Noting that while some connections would be isolated from the larger network, this would be a step in the right direction to support creation of a connected network piece by piece.

Fair Haven, Vermont's downtown streetscape improvement plan highlights a need to create more pedestrian and bicycle connections to the village green (60). An additional focus was to provide a connection from downtown to the grade school. Currently, a short multi-use trail provides a connection from an apartment complex to a bus stop in town.

The Calvert City Greenway (a multi-use facility) in Calvert City, Kentucky connects three local parks (Memorial Park, Doctor's Park, and Old Park). In the future, Calvert City has considered connecting the airport with the multi-use trail.

The Walker Area Comprehensive Plan (61) highlighted a desire to establish pedestrian connections throughout and between all neighborhoods. Walker, Minnesota is home to three trails: the Heartland State Trail, the Paul Bunyan State Trail, and the Shingobee Connector Trail. The Shingobee Connector Trail was created to join the Heartland Trail to the Paul Bunyan State Trial through Walker. Within town, a spur from the Shingobee Connector Trail provides access between local schools and Leech Lake.

The Links Multi-Use Path in Ruidoso, New Mexico worked to create a recreational opportunity for residents that connects surrounding residences to the public library, the elementary school, the White Mountain Recreational Complex, and the village hall. In 2021, a spur from The Links provided a connection to the grocery store and college.

6.1.6 Counting Bicyclists and Pedestrians

Overall, the number of people walking and bicycling within the communities is unknown. Planning documents reviewed and interviews conducted suggested that some perceive those walking and biking to only be representative of homeless people within the community (40). Yet, photos captured while on site in each community, typically for only one day, suggest a myriad of people walking and/or bicycling within all case study communities. One community

identified an interest in counting walkers and bicyclists, but at the time their plan was written, the community suggested that the cost to do so was too much (Hartford, Vermont). However, it appears that since the report, the Village of White River Junction, within the Town of Hartford, Vermont, has been collecting counts near the Cartoon Studies building. The counter used was purchased through the Transportation Planning Initiative (TPI) (62). In two other communities, previous studies have collected some data to support recommendations (Pelican Rapids, Minnesota; LaBelle, Florida). Two other communities benefitted by counts conducted by a state-level trail advocacy group as a part of a study looking at the number of users of trail systems in the state. The collection locations were within the small communities (Pipestone, Minnesota; Walker, Minnesota). Therefore, there is opportunity in the future to better understand the quantitative number of users in small, rural communities.

6.1.7 Set Aside Funding to Take Advantage of Grant Opportunities

Two of the larger communities considered in the research project (Hartford, Vermont; Corbin, Kentucky) have been able to take advantage of funding sources that became available at the last minute by setting aside a pot of funding specifically for the purpose of matching bicycle and pedestrian grant money.

6.1.8 Engage State Departments of Transportation Early and Often

Engaging state departments of transportation in local planning can help to communicate and make local priorities clear. Calvert City, Kentucky shared their community plans with the local district of their state department of transportation (the Kentucky Transportation Cabinet (KYTC)). This approach offered several benefits. First, it enabled Calvert City to share future project priorities. As such, if KYTC was planning projects that may impact roadways tied to Calvert City projects, the community hopes that their project will be considered and ideally incorporated. Furthermore, the community hopes to be engaged in the project.

Similarly, Walker, Minnesota learned that the Minnesota Department of Transportation was in the planning phase to rehabilitate MN200/MN371, which functions as Walker's main street. Representatives from Walker, Minnesota requested to participate in the planning process.

6.1.9 Utilize Bikeability and Walkability Audits to Engage Community Feedback

Bikeability and walkability audits, sometimes called assessments, are a tool to gather data and community member feedback to help improve walkability in a community. More formally, bikeability and walkability audits have been defined as, "processes that involve the systematic gathering of data about environmental conditions (social, built and natural) that affect walking and bicycling" (63). An audit can involve walking or bicycling along a street or route or completing a survey to document both positive and negative features that contribute to the walkability or bikeability of the area. Several of the case study communities conducted these audits as a portion of their planning processes.

Arcadia, Florida conducted a walkability audit in 2009 which identified several "low hanging fruit" efforts that Arcadia and DeSoto County could take to improve walkability and bikeability in the area. The noted benefit of the audit was to "allow all people to see conditions and opportunities," as well as ensuring that those who design corridors envision them through the

various modes (vehicle, walking and biking) that are expected to use them. Findings as a part of the audits were synthesized in a report and ultimately brought about some bicycle and pedestrian infrastructure improvements in the community.

While completing their Bicycle and Pedestrian Master Plan (48) in 2020, the City of Corbin, Kentucky completed a bikeability and walkability audit to gather community member perceptions. Table 15 highlights some of the questions that were asked during the audits.

Table 15. Example questions used in Corbin, Kentucky's Bikeability and Walkability Audits.

Bikeability Audit	Walkability Audit
Do you have a place to bicycle safely?	Did you have room to walk?
How was the surface that you rode on?	Was it easy to cross streets?
How were the intersections you rode through?	Did drivers behave well?
Did the drivers behave well?	Was it easy to follow safety rules?
Was it easy for you to use your bike?	Is there a curb ramp for the handicap?
What did you do to make your ride safer?	Do the streets that you are surveying connect with the street adjacent with a sidewalk?
	Are pets contained and fenced in?

When Truth or Consequences, New Mexico planned for the Healing Waters Trail, they conducted a walkability audit with community members to gather user perspectives on the challenges and opportunities related to safety, aesthetics, and the historic nature of the downtown area. The walkability audit provided the Healing Waters Steering Committee with suggestions to improve the walkability of the downtown area including improvements to crosswalk visibility, maintenance of sidewalks, creation of seating, trash and dog waste stations, and suggestions for wayfinding signage. This feedback was used when planning for the downtown segment of the Healing Waters Trail.

6.1.10 Engage Your Community Members

Engaging your community members in the planning process can ensure that future planning moves in the direction that those living there want to see and can help promote community buy-in. Community engagement may include the following: workshops, public outreach meetings, resident surveys, and bikeability and walkability audits.

Pipestone, Minnesota held a Bikeable Community Workshop which engaged thirty community members; it was held in the community (not at a central Minnesota Department of Transportation office). This workshop generated an action plan for the community. It also brought to light that for some community members that do not own a vehicle, active transportation is their only option for mobility unless someone can provide them with a ride.

Fair Haven, Vermont conducted two planning efforts around 2019. During the first plan, community members were engaged to solicit input from their fellow community members. It was reported that the results from this plan were better received.

Similarly, as part of planning the future Minnesota Department of Transportation (MnDOT) Complete Streets project in Pelican Rapids, Minnesota, community members were engaged. In particular, community members that are part of their Parks and Recreation Committee have asked to review products from consultants supporting MnDOT's planning process before they are distributed to the broader public. This allows for them to provide input, like suggesting that a pick-up truck be depicted in mock-ups instead of a Prius, as pick-ups are more common for the area.

Other challenges that community members have faced include a waning of interest over time. For example, Walker, Minnesota noted that about ten years ago, there was significant support for improving the walking and bicycling infrastructure. While there is still enthusiasm, as demonstrated by the 2018 Bikeability Community Workshop and the community's pursuit of a bridge underpass south of the community where the Shingobee Connector Trail still crosses MN371/MN200 at grade, the number of people actively participating has reportedly dwindled over time. Morehead, Kentucky has reported a similar experience. The challenges of continually engaging community members over time was also reported in the previous research study (3).

One unique technique that was employed in Truth or Consequences, New Mexico to obtain input from those using the trail facilities was to ask questions on a chalkboard posted near the trailhead (Figure 26). Each question was left up for about two weeks, and chalk was provided for trail users to provide responses to questions. At the end of two weeks, a photo of responses was captured.

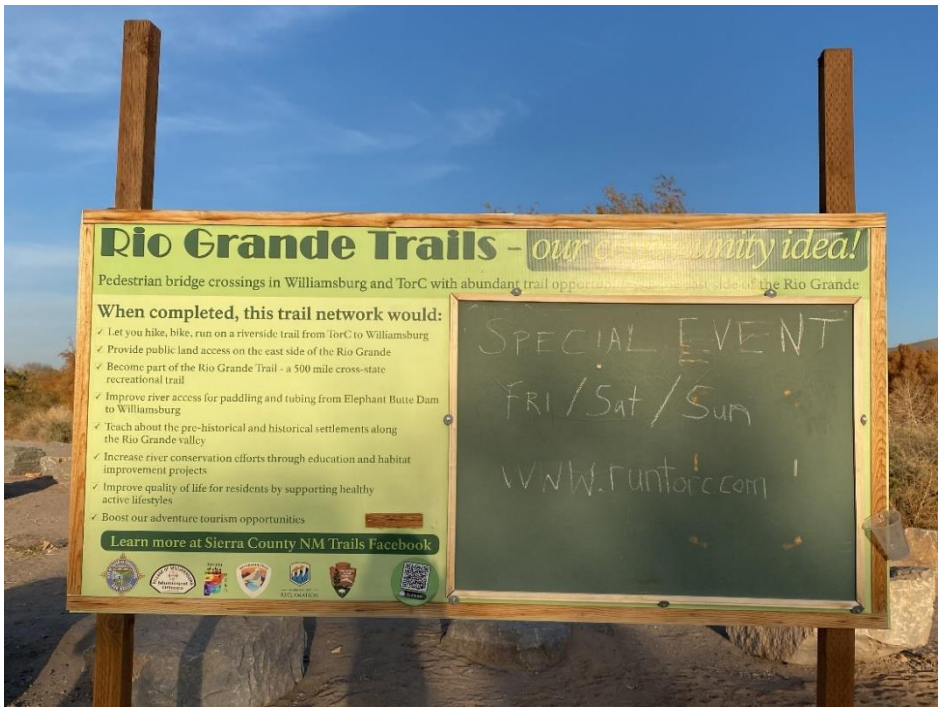


Figure 26. Chalkboard for community engagement.

6.1.11 Don't Forget to Engage Your Youth

Specifically engaging and connecting with younger community members can help to promote a sense of place and create a community where younger people feel like their voices are heard. This will likely help to retain some of the next generation or encourage them to return if they leave the community to pursue higher education or other opportunities.

In 2020, Calvert City, Kentucky specifically engaged feedback from graduating high school seniors to learn about their desires for the community's future. The survey utilized open-ended questions like, "What is Calvert City's biggest asset?" Results of the survey found that younger community members valued the ability to bike and walk and the numerous recreational opportunities that were available within the community. The results of this survey were incorporated into Calvert City's 2020-2025 Strategic Planning process.

In 2019, when Ruidoso was updating their comprehensive plan, a member of the Youth Advisory Council was invited to participate on the Advisory Committee for the plan.

In New Mexico, Silver City's Youth Mural Program teaches local teenagers about the history and culture of the community. Participants work with a local artist to create public art. Started in 2002, this program has resulted in over seventy murals in Silver City, Gila, Bayard, and Santa Clara. The program has encouraged students in the area to connect with community members while working to beautify their community. A brochure encouraging visitors to check out the downtown Silver City murals is available at the local visitor's center (64).

A similar group in Truth or Consequences, called The Young da Vincis, was reportedly working to create public art in their downtown area.

6.1.12 Use Placemaking to Create a Sense of Community

Placemaking involves creating public spaces that strengthen a person's connection to a place, "paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution" (65). Placemaking can take many forms to create a sense of place that can engage community members and visitors on a human scale (i.e., walking and biking). Examples include murals, painted sidewalks, parklets, and other community spaces. There is no one size fits all solution to create community connections to a place. In both Morehead, Kentucky and Corbin, Kentucky, what previously functioned as a roadway became public seating (Figure 27).

Morehead, Kentucky

Corbin, Kentucky

Figure 27. Public seating in Morehead and Corbin, Kentucky.

In Morristown and White River Junction (within the Town of Hartford), Vermont, parklets provided seating in front of businesses and reclaimed some space previously allocated to vehicular parking (Figure 28).

Morristown, Vermont

White River Junction, Vermont

Figure 28. Parklets in Morristown and White River Junction, Vermont.

In Ruidoso, New Mexico, a multi-use trail was redefined as a "fairy walk" by local artists. The Two Rivers Fairy Trail in Ruidoso has small, hidden art installations depicting fairies scattered along the trail that users (primarily geared towards children) can search for. In Silver City, New Mexico, more than seventy murals (Figure 29), including mosaics, are spread across the community and more are in development.

Figure 29. Mural on the side of a building in Silver City, New Mexico.

In Pelican Rapids, Minnesota pelican statues could be found scattered across town, including Pelican Pete which stands 15.5 feet tall at the base of the Mill Pond Dam. These public art projects could easily be implemented into an art walk which could encourage residents and visitors to get out and enjoy town (Figure 30).

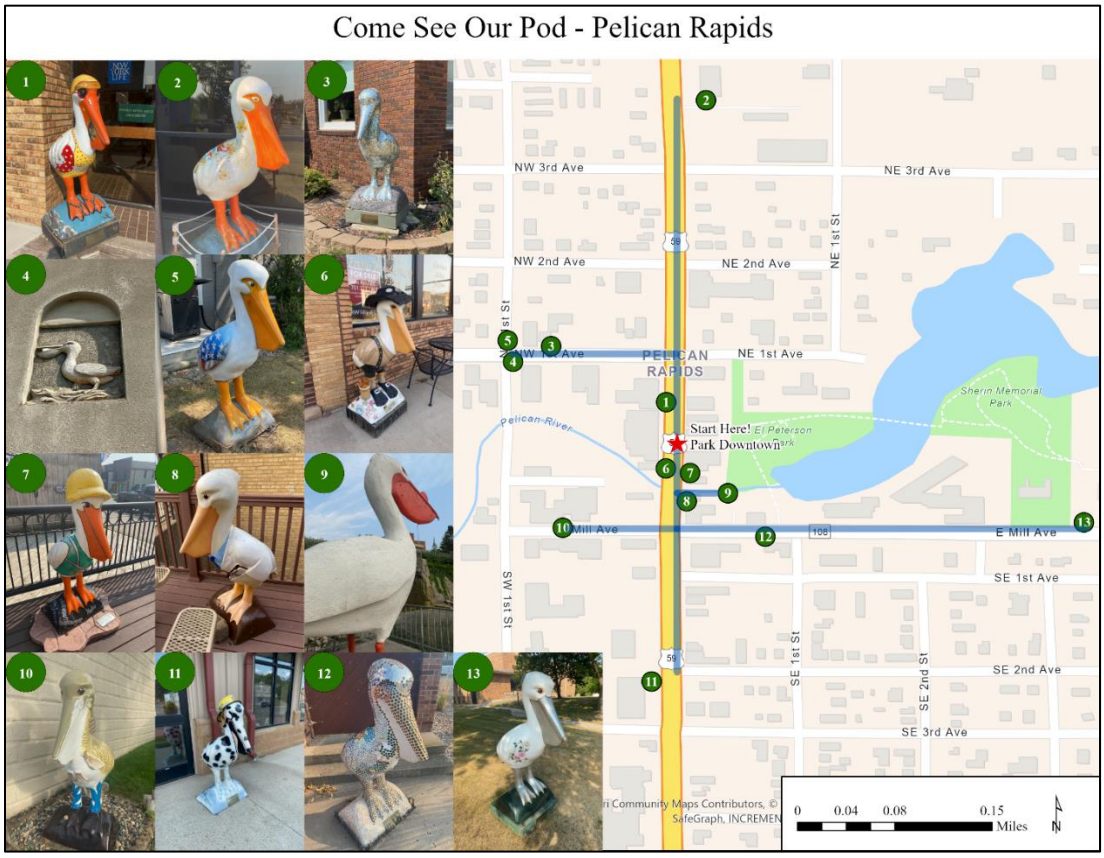


Figure 30. Map of the proposed Pelican Rapids Art Walk.

6.1.13 Tie Bicycle and Pedestrian Infrastructure to Public Health Initiatives

Bicycle and pedestrian infrastructure and having safe places to travel and recreate can encourage community members to participate in physical activity. This type of infrastructure has direct ties to public health initiatives. Some of the case study communities have successfully leveraged this relationship to work towards improving facilities for bicyclists and pedestrians.

In cooperation with the local health department and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the City of Arcadia installed exercise stations along a third of a mile long sidewalk around Lake Katherine.

Calvert City, Kentucky was able to leverage connections between health and active transportation with the Calvert City Greenway. It is envisioned that this trail may allow local doctors to direct their patients to complete a loop of the trail rather than a more general suggestion that the patient go exercise.

Morehead, Kentucky created their Downtown Walking Trail (Figure 31) to encourage residents to get out and move on their lunch break. Improving public health is a goal highlighted in their bicycle and pedestrian plan where they specifically note that when these modes are safe and accessible then more people will choose to use them.

The Kentucky Transportation Cabinet has an active relationship with the State Health Department's State Physical Activity and Nutrition Program (SPAN) which has a focus on promoting and supporting policy and strategies to encourage healthy eating and physical activity. Funding for SPAN is secured from the Centers for Disease Control and Prevention (CDC) and can be updated to develop bicycle and pedestrian master plans, design plans, or feasibility studies. Both Corbin and Morehead have directly benefited from SPAN funding which allowed for documenting pedestrian and bicycle pre-design for projects.

Figure 31. Downtown Walking Trail sign; Morehead, Kentucky.

Pelican Rapids, Minnesota has partnered and leveraged funding from PartnerSHIP 4 Health to install minor infrastructure like bicycle racks and bike maintenance stations. In addition, PartnerSHIP 4 Health has provided grant writing support. They also provided funding to complete the regional trails master plan. Pelican Rapids utilized funding from Blue Cross Blue Shield of Minnesota Center for Prevention to complete their 2021 bicycle and pedestrian plan.

Ruidoso, New Mexico boasts the 1.3-mile Cedar Creek Fitness Trail which provides trail users with multiple fitness stations (Figure 32) and connects to the Cedar Creek Trail Network which offers hiking and mountain biking opportunities. Unfortunately, some of the signage associated with the fitness stations have deteriorated over time. The Links Multi-Use Pathway also offers fitness stations. Exercise equipment on The Links Multi-Use Pathway was funded through a grant from the Lincoln County Community Health Council and Presbyterian Healthcare Services.

Figure 32. Fitness equipment on the Cedar Creek Fitness Trail in Ruidoso, New Mexico.

6.1.14 Tie Bicycle and Pedestrian Planning to Economic Development

Planning documents for Fair Haven, Vermont; Calvert City, Kentucky; Walker, Minnesota; Truth or Consequences, New Mexico; and Silver City, New Mexico all discuss the relationship between being able to walk and bike and economic benefits.

As a more specific example, the Tour of the Gila, an annual bike race in Silver City, New Mexico, is a huge economic boon for the community. More than seven thousand participants come to Silver City for the annual event. In addition, athletes reside in the community during the winter to train.

6.2 Challenges Found

This section discusses challenges found. Aging stormwater and sanitary infrastructure; sidewalks in need of repair; golf carts, all-terrain vehicles and snowmobiles; snow removal; sustaining support for walking and bicycling infrastructure; inoperable intelligent transportation systems; remnants of the past; heavy commercial vehicles; vehicular parking; topography – steep grades and narrow roadways; separate clusters of development; access to bicycles for residents and tourists; one-way pairs; and water drainage were all identified as challenge across the case study communities. However, challenges also present opportunities.

6.2.1 Aging Stormwater and Sanitary Infrastructure

Many communities noted the challenges of aging stormwater and sanitary infrastructure. In some cases, community leadership seemed to suggest that addressing these needs leaves little funding to implement bicycle and pedestrian infrastructure. However, because repairs or replacements almost always mean a complete rehabilitation of community streets, it also allows communities to rethink what those streets will look like once these projects are replaced.

In many cases, roadways were designed to be very wide to accommodate what was expected to be continuously growing volumes of vehicular traffic. This wide right-of-way presents an opportunity to include sidewalks and a bicycle facility (i.e. bike lane, protected bike lane, cycle track). The need to repair their aging stormwater and sanitary infrastructure prompted Pelican Rapids, Minnesota to approach the state department of transportation who was planning to resurface their roadway to see if a larger project could be pursued. It is currently being designed. Similarly, Walker, Minnesota also identified a need to fix their aging storm and sanitary infrastructure, in part to address concerns with polluting the lake that the community overlooks. Truth or Consequences, with hot springs throughout the downtown core, has reported issues with storm water draining improperly and thus resulting in flooded buildings. White River Junction (part of the Town of Hartford, Vermont) created a special improvement district to address aging infrastructure like that shown in Figure 33.

Figure 33. Aging infrastructure, Town of Hartford, Vermont.

Finally, Ruidoso, New Mexico is also hoping to address aging infrastructure. It is expected that this need is not unique to the states considered in this study nor the communities considered. There is a need for a national-level program to provide assistance.

6.2.2 Sidewalks in Need of Repair

As observed on-site and discussed in many plans associated with the case study communities, there is a significant need for repairing existing sidewalks (Figure 34).

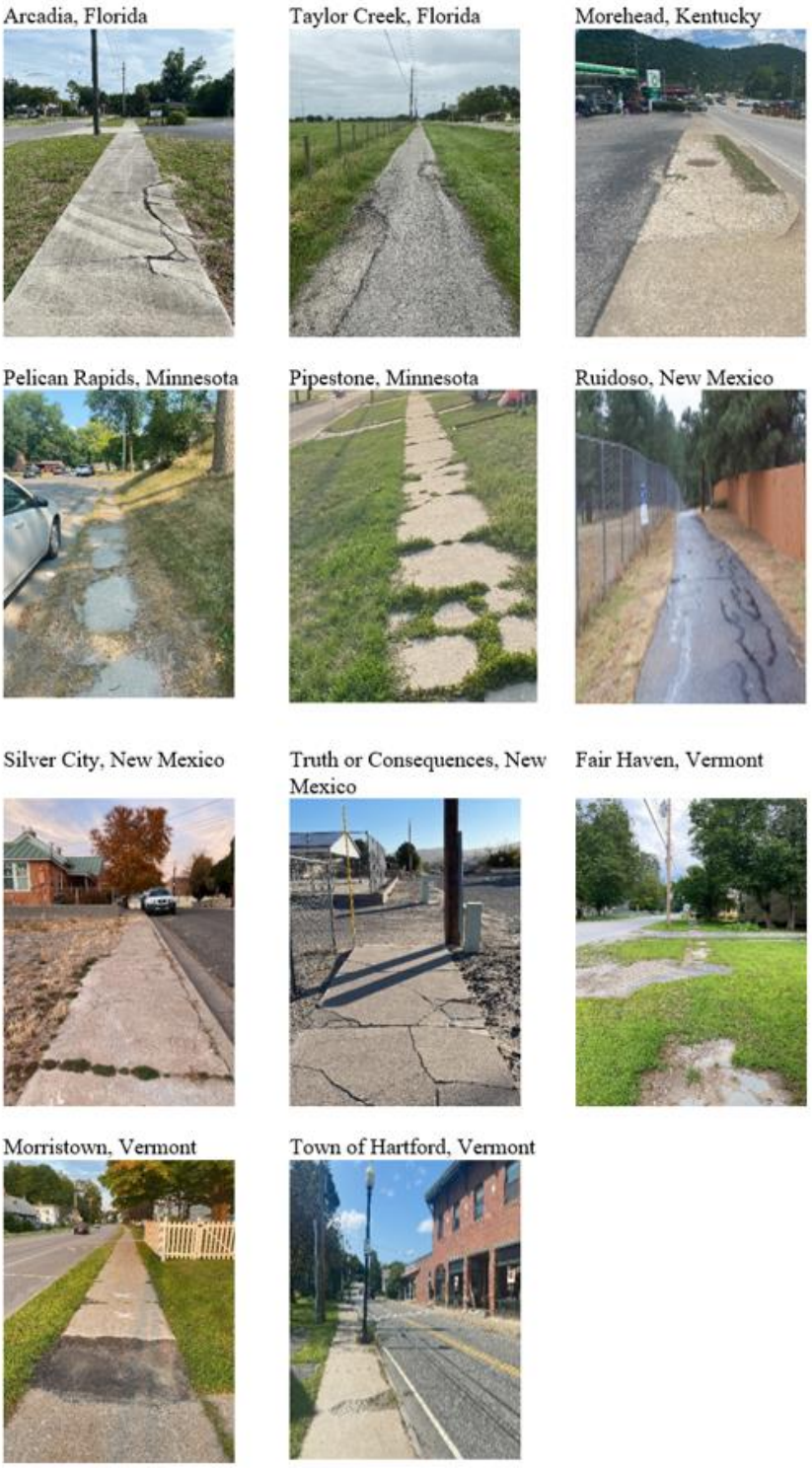


Figure 34. Examples of sidewalks in the case study areas in need of repair.

6.2.3 Golf Carts, All-Terrain Vehicles & Snowmobiles

While multi-use pathways are often designed for those walking and bicycling, one occurrence observed in many of the small communities, was golf carts riding on the multi-use pathways (Arcadia, Florida; Calvert City, Kentucky; Pipestone, Minnesota) (Figure 35).

Figure 35. Golf cart in Pipestone, Minnesota.

Similarly, many multi-use pathways or bridges that may accommodate those walking and biking in the summer may have been built by snowmobiling groups (Pelican Rapids, Minnesota). There are also more recent concerns with the use of these facilities by all-terrain vehicles (ATVs) (Figure 36).

Figure 36. All-terrain vehicle in Walker, Minnesota.

While Other Power-Driven Mobility Devices (OPDMDs), including golf carts, may be used by individuals with mobility disabilities, safety requirements must be adhered to (66). There is a need to better understand and provide guidance regarding how these motorized vehicles and bicycles and pedestrians can interact both legally and safely. One example of an ATV ordinance was provided by Calvert City, Kentucky (67), and is as follows:

"All-Terrain Vehicle Operation Rules:

- Must be operated by persons possessing a valid operator's license within the City limits on any city street where the applicable speed limit is 25 mph or less.
- A person may operate an all-terrain vehicle on any two (2) lane public highway in order to cross the highway. In crossing the highway under this subsection, the operator shall cross the highway at as close to a ninety-degree (90˚) angle as is practical and safe and shall not travel on the shoulder of the highway for more than two-tenths (0.2) of a mile.
- A person operating on all-terrain vehicle on a city street under this subsection shall comply with all applicable traffic regulations.
- A person shall not operate an all-terrain vehicle under this subsection unless the all-terrain vehicle has at least one (1) headlight and two (2) taillights, which shall always be illuminated while the vehicle is in operation.
- A person operating an all-terrain vehicle under this subsection shall restrict the operation to daylight hours, except when engaged in snow removal or emergency road maintenance.
- A person shall not operate any all-terrain vehicle upon or within any sidewalk, walking trail or other pedestrian walkway."

6.2.4 Snow Removal

One reported hesitation for not providing walking and biking paths, whether multi-use or sidewalks, is concerns or the additional costs of removing snow. In addition, staff or community members report resistance to installing treatments like curb extensions, due to concerns about how to address snow removal. This was reported as a concern in Pelican Rapids, Minnesota; Fair Haven, Vermont; Morristown, Vermont; and Walker, Minnesota). State departments of transportation have reported that specialized curbs and understanding that the trade-off of taking more time to provide winter maintenance activities around this type of infrastructure brings added safety for pedestrians are potential solutions. Looking towards international examples like those found in Montreal may provide some potential solutions. However, more guidance is needed in this area.

6.2.5 Sustaining Support for Walking and Bicycling Infrastructure

Long-term support for encouraging bicycle and pedestrian infrastructure installations and improvements can be a challenge. This was reported when comparing two groups of communities in a previous research effort (3). This support can change over time as community champions may leave the community, find other interests, or be unable to further assist. In addition, where smaller communities must stretch small budgets and few resources, keeping a consistent source of funding or obtaining grant opportunities can become a challenge.

Some of the case study communities had generated a lot of plans and were implementing the infrastructure around 2009 (Arcadia and LaBelle, Florida; Morristown, Vermont). Others have generated a lot of plans in recent years and what they implement in the near future will be of interest (Calvert City, Kentucky; Pelican Rapids, Minnesota; Fair Haven, Vermont).

6.2.6 Inoperable Intelligent Transportation System Devices

Arcadia, Florida and LaBelle, Florida both had speed feedback signs within their communities. The devices in neither community were functional (Figure 37). In Arcadia, the city indicated that they would take ownership of the device; however, they wanted the current owner (the Sheriff) to fix it first.

Arcadia, Florida

LaBelle, Florida

Figure 37. Inoperable intelligent transportation system devices.

6.2.7 Inaccessible Pedestrian Push Buttons

In at least two communities, the placement of the pedestrian push buttons made them almost inaccessible (Figure 38). In both examples, the push buttons were obstructed by bushes. Consequently, a review of whether or not these push buttons are Americans with Disabilities Act (ADA) compliant is recommended. At the beginning of 2022, the Kentucky Transportation Cabinet completed a statewide inventory of ADA deficiencies at all state route intersections, with inaccessible pedestrian push buttons being one of the attributes. When observed in the Town of Hartford, there was on-going construction along the roadway where the push button was located. Therefore, there is the potential that both push buttons may be made accessible soon.

Morehead, Kentucky

Town of Hartford, Vermont

Figure 38. Inaccessible pedestrian push buttons.

6.2.8 Remnants of the Past

In several communities, sidewalks and curbs were installed more than fifty years ago. Their age was revealed by speaking with long-term residents in the community (Arcadia, Florida), seeing Work Progress Administration (WPA) stamps from the 1930s and 1940s (Silver City and Truth or Consequences, New Mexico) (Figure 39), reading about the implications of such infrastructure in planning documents (Walker, Minnesota), or observing historically used materials (i.e., slate) for sidewalks (Fair Haven, Vermont).

Silver City, New Mexico Truth or Consequences, New Mexico

Figure 39. WPA sidewalk and curb stamps.

Consequently, this infrastructure does not reflect more recent designs, particularly related to the Americans with Disabilities Act curb ramps and tactile warnings. The WPA program was created by President Roosevelt in 1935. The WPA paved or repaired nearly 280,000 miles of roadways across the United States (67). The slate sidewalks found in Fair Haven showcase the community's ties to the slate industry from back to 1839; Figure 40 shows a well-preserved example. While beautiful, this material can be slippery.

Figure 40. Slate sidewalks in Fair Haven, Vermont.

6.2.9 Heavy Commercial Vehicles

Large volumes of heavy commercial vehicle traffic can impact levels of comfort for bicycling and walking, particularly in areas where there is not separate infrastructure to accommodate the different modes. This challenge was seen in Arcadia, Florida. Bicycle lanes were present on US17 and SR70, but they were reported as only being used by the "strong and fearless" due to heavy commercial vehicle traffic and rates of speed. A similar situation was found in LaBelle, Florida (Figure 41).

Figure 41. Bicycle lanes and heavy commercial vehicles.

Pipestone, Minnesota, located at the crossroads of several major highways (MN23, MN30, and US75), a railroad, and near a grain elevator, experiences similar concerns with heavy commercial vehicle traffic. In fact, Pipestone reported removing a bike lane on one roadway because of concerns about the interaction of bicycles with heavy commercial vehicles (Figure 42).

Figure 42. Paved over bike lane in Pipestone, Minnesota.

6.2.10 Vehicular Parking

When considering how to retrofit roadways to accommodate sidewalks, bike lanes or multi-use facilities, there is often a discussion of vehicular parking. For example, during the 2019 planning efforts in Fair Haven, Vermont, the public expressed a significant level of concern regarding the number of vehicular parking spaces that may be impacted by implementing bicycling and pedestrian infrastructure (60). Similarly, in Truth or Consequences, New Mexico, a downtown plan identified concerns by citizens regarding the number of vehicular parking spaces (69). Designs for both of these communities suggested back-in parking as a way to ensure visibility of those biking; there was much resistance to this proposed design from the public in both communities. In Walker, their comprehensive plan discussed the implications on the viability of businesses by providing an overabundance of parking, suggesting that if there are clusters of businesses, which cannot be achieved by providing expansive parking lots, one might visit the area for a specific errand to one business but potentially stop in another business as a part of the trip (61).

6.2.11 Topography – Steep Grades & Narrow Roadways

Some communities suggested that the topography of their community influenced whether or not bicycle and pedestrian infrastructure, and consequently walking and biking in the community, was implemented and was seen. For example, in Ruidoso, New Mexico, planning documents discussed how the community was designed with narrow roads (70). Therefore, redesigning these roads to add additional space for sidewalks or multi-use trails was reported as being challenging. Similarly, because of the mountainous topography of the area, community leadership reported challenges with designing infrastructure that could accommodate the grades required by the Americans with Disabilities Act. The Town of Hartford, Vermont also reported

challenges with hilly topography regarding the implementation and adoption of walking and bicycling by its citizens. However, electric bicycles (e-bikes) can make bicycling in hilly environments easier for users as they provide power assistance to move a person up a hill. Vital Communities was piloting an e-bicycle purchasing program in the Town of Hartford, Vermont in 2021, in part to address challenging terrain (68). In addition, and bicycle shop owner in Ruidoso, New Mexico reported making an e-bicycle available for sale to potentially address the concern of hilly topography in the community.

6.2.12 Separate Clusters of Development

Several communities were struggling to maintain the vitality of their downtown area because it was in competition with an auto-centric development near an interstate (Figure 43). As communities are developed and planned it is important to consider how separate clusters of development may impact accessibility from a bicycle and pedestrian perspective. Plans for Fair Haven, Vermont; Morehead, Kentucky; Truth or Consequences, New Mexico; and Calvert City, Kentucky identified challenges along these lines.

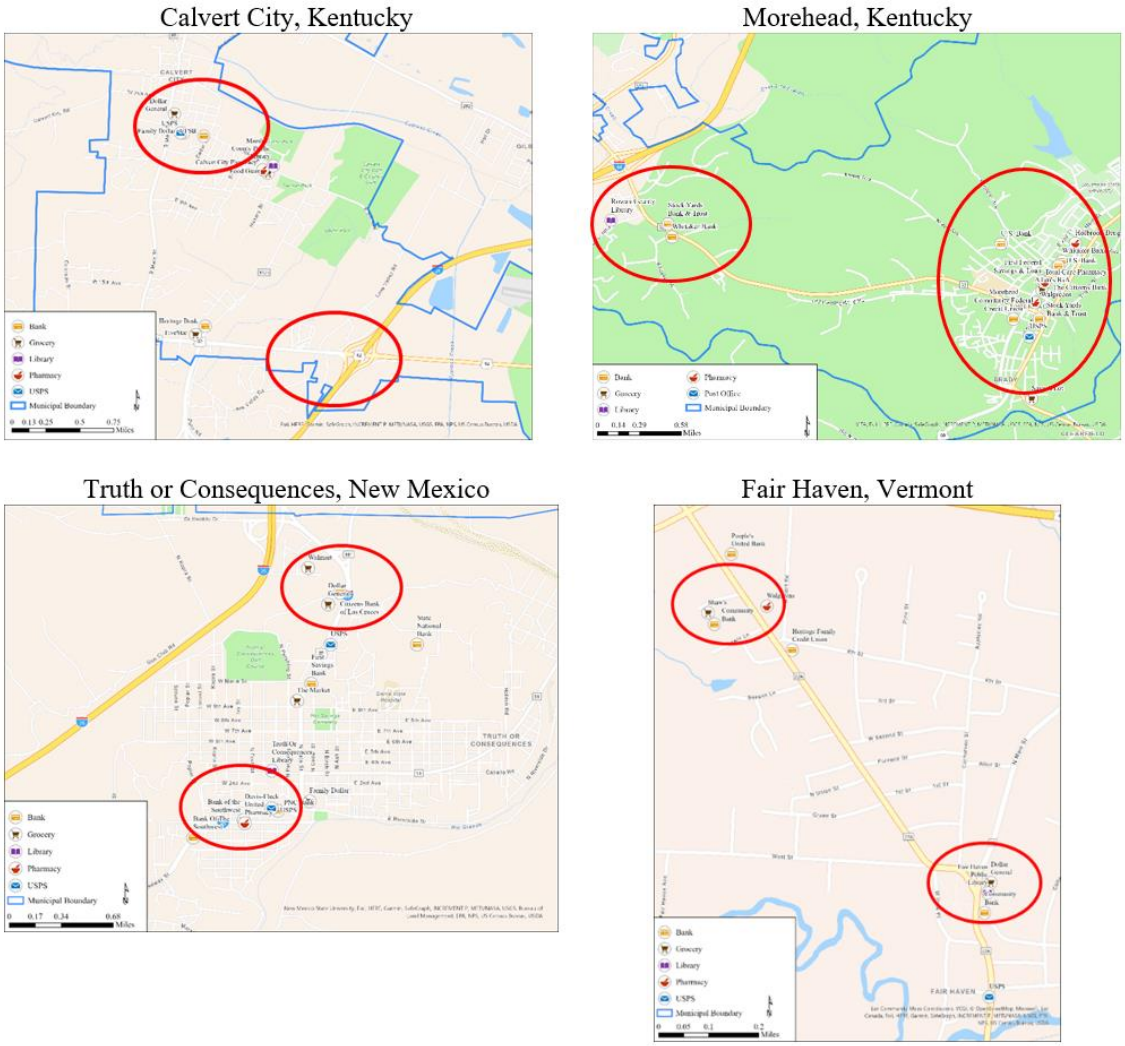


Figure 43. Two clusters of development within case study areas.

6.2.13 Access to Bicycles for Residents and Tourists

Access to a bicycle shop or other programs (i.e., bikeshare) which allow one to access a bicycle could increase the use of bicycle infrastructure like trails or multi-use paths, particularly in communities that have a large tourism base. Several case study communities had a bicycle shop located within town (Walker, Minnesota; Ruidoso, Silver City, and Truth or Consequences, New Mexico; Morristown, Vermont), many of which offered rentals. One bicycle shop owner (Ruidoso, New Mexico) indicated that without support from the community (offering free space to facilitate the growth of the fledgling business), the bicycle shop would not have seen long-term success and been able to grow.

Pipestone, Minnesota once had a bicycle library program, as can be seen by the awning at the recreation center (Figure 44) and by advertisements that still remain in the tourism information handouts. Bikes are no longer available for rent at this time.

Figure 44. Bike rental awning; Pipestone, Minnesota.

A bike share program could improve access to a bicycle on either a short-term or longer-term basis. Morehead State University attempted to start up a bike share program, but funding was reallocated as a result of the recession prior to implementation. Morehead, Kentucky attempted to start a bike share program in 2007; it was ultimately unsuccessful as the bicycles eventually disappeared. Similarly, Morristown, Vermont had a bicycle library program, but it sunsetted when the bicycles that were part of the program disappeared as well as a result of the onset of the coronavirus pandemic.

6.2.14 One-Way Pairs

A state roadway, with one-way streets on two parallel roadways were found or planned for several of the case study communities. In Arcadia, Florida, the two one-way roadways had two lanes. There was a parallel roadway in between these one-way pairs, which was a low-speed, relatively low-volume roadway. The one-way pairs, on the other hand, had large volumes and many large vehicles. Truth or Consequences, New Mexico also has two one-way pairs going through the main street of the community, also with a parallel roadway in the center like Arcadia, Florida. Corbin, Kentucky also has two one-way pairs going through the main street of their community, although they do not have a parallel roadway in the center. It creates a level of difficulty to cross each of these one-way pairs in every community.

The Florida Department of Transportation has conducted planning documents to implement one-way pairs in LaBelle, Florida. The community reports concern in their downtown plan (72) about the implementation of the one-way pairs.

Overall, the researchers are unaware of research conducted on the benefits and drawbacks of having a single roadway with two-way traffic along the main street of a small community (i.e., Walker, Minnesota) as well as two, one-way streets along the main street (i.e., Corbin, Kentucky; Arcadia, Florida). There would be value in conducting a study to provide better design guidance. The on-going National Cooperative Highway Research Program study, 15-78, *Guidebook for Urban and Suburban Roadway Cross-Sectional Reallocation* will provide guidance for this topic, but as indicated by the name of the research, the focus is on urban and suburban areas (69).

6.2.15 Water Drainage

Similar to challenges found with topography, two communities identified challenges with the design of pedestrian infrastructure in relationship to water drainage. A plan for Truth or Consequences, New Mexico reported issues with curb extensions impeding storm water runoff (69). In Silver City, New Mexico, the height of the sidewalk in some places is several feet above the roadway surface to accommodate peak storm water runoff (Figure 45). This may be problematic for a pedestrian walking on the sidewalk if they are distracted (walking with a companion or on their phone, etc.); there is a potential that they may fall off the edge.

Figure 45. Separation between sidewalk and roadway; Silver City, New Mexico.

6.3 Opportunities Found

There were several common themes found across the case study communities that presented an opportunity to support the implementation of bicycle and pedestrian infrastructure and programs: "crown jewel" state parks; trial town designation; Main Street America™ designation; new residents; engaging one's state department of transportation; distressed community designation; pedestrian scale; tracks for exercising; shared lane markings for connectivity; and walking clubs.

6.3.1 "Crown Jewel" State Parks

Several communities were in proximity to or connected to a state park that was described as a "crown jewel" (Calvert City, Kentucky; Pelican Rapids, Minnesota; Truth or Consequences, New Mexico). The Kentucky Dam Village State Resort Park is almost completely connected to Calvert City via the Calvert City Greenway. The only gap is crossing US641; the greenway ends on the west side of this roadway (Figure 46).

Figure 46. End of the Calvert City Greenway; Calvert City, Kentucky.

Pelican Rapids is expected to be connected to Maplewood State Park after the completion of a multi-use trail, anticipated to be constructed in 2022. This multi-use trail was an initiative of the county. Currently, the multi-use trail terminates at the Lake Region Electric Cooperative (Figure 47).

Figure 47. Multi-use trail termination at the Lake Region Electric Cooperative.

Truth or Consequences is in proximity to the popular Elephant Butte State Park. Plans are currently underway which envisions creating a trail on the west and east sides of the Rio Grande, which may eventually lead to connectivity to this popular state park.

6.3.2 Trail Towns

Several of the communities included as case study communities identified themselves as "Trail Towns" (Morehead, Kentucky; Silver City; New Mexico; and Walker, Minnesota).

Morehead, Kentucky

Silver City, New Mexico

Walker, Minnesota

Figure 48. Focus communities that are Trail Towns.

Interviewees within Morehead, Kentucky suggested that their designation as a Trail Town for the Sheltowee Trace National Recreation Trail kicked off efforts to rethink how citizens and potential residents moved through the community. Silver City, New Mexico is currently in the process of redeveloping a historic waterworks building into a resource for Continental Divide Trail hikers, including restrooms, camping, and for restocking one's gear. From interviews and plans reviewed, serving as a North County National Scenic Trail gateway did not seem to have influenced the walkability and bikeability of Walker, Minnesota as much as other efforts.

6.3.3 Main Street America™ Designations

Ten communities considered within the study were designated as Main Street America™ communities, or Vermont's Village Center community designation ((13), (70)) (shaded in Table 16). Vermont has its own set of State Designation Programs, with their Downtowns designation being part of Main Street America™. Because of the size of the communities considered for this study, the Village Center designation, which "supports the revitalization efforts of small and medium-sized historic centers" (70), would likely be most applicable.

Table 16. Main Street America™ communities.

State	Community	Main Street Designation?
Florida	Arcadia	Yes
	LaBelle	Yes
	Taylor Creek	No
Kentucky	Calvert City	No
	Corbin	No
	Morehead	Yes
Minnesota	Pelican Rapids	No
	Pipestone	No
	Walker	No
New Mexico	Ruidoso	Yes
	Silver City	Yes

State	Community	Main Street Designation?
	Truth or Consequences	Yes
Vermont	Fair Haven	Yes
	Town of Hartford – Hartford	Yes (Village Center)
	Town of Hartford – Quechee	Yes (Village Center)
	Town of Hartford – West Hartford	No
	Town of Hartford – White River Junction	Yes (Downtowns)
	Town of Hartford – Wilder	No
	Morristown	No

Designation as a Main Street America™ community was found to be effective in some communities (LaBelle, Florida; Silver City, New Mexico). However, for other communities, this designation does not seem to be as impactful at present, with the potential that such a designation has dwindled in effectiveness over time (Arcadia, Florida; Ruidoso, New Mexico; Truth or Consequences, New Mexico). Funding from Main Street America™ was identified as historically supporting some infrastructure or plans. Where Main Street America™ entities were active, they often played a lead role in providing information to the researchers about walking and biking within the community and future ideas.

6.3.4 Attracting & Retaining New Residents

Small communities reported challenges with attracting and retaining residents. As part of a survey conducted by Calvert City to support the update of their comprehensive plan, at least one survey respondent reported moving to the community because of the Calvert City Greenway and associated parks. Pipestone, Minnesota reported being aware that having good walking and bicycling opportunities can attract both tourists and residents.

6.3.5 Engaging One's State Department of Transportation

Many of the communities reported learning how to better engage their state Department of Transportation (DOT) as a part of implementing bicycle and pedestrian infrastructure.

After developing their bicycle and pedestrian plan, Calvert City shared a copy of it with their state DOT's district office. They even went beyond the state DOT and met with state senators to make them aware of their ambitions regarding the Calvert City Greenway.

Corbin, Kentucky reported working with their state DOT to repair the operation of pedestrian pushbuttons at signal lights on their state roadway. Unfortunately, during the site visit, it seems that the pushbuttons were again inoperable in some locations.

Walker, Minnesota reported reaching out to their state DOT to engage in planning for modifications to the state roadway that runs along its main street.

6.3.6 Distressed Community Designation

At least two of the case study communities were located in counties experiencing distressed status or the like and consequently hoped to leverage additional sources of funding through such a designation. These funding sources could be used to make a community more walkable or

bikeable either in the process of rehabilitating aspects of the community or as a project itself. One community was Morehead, Kentucky; the second was Truth or Consequences, New Mexico.

For Morehead, Kentucky, being located in the Appalachian Region, there are additional programs that are working to address distresses caused by the loss of the coal industry. In 2022, Rowan County was designated as a distressed county, but has zero distressed areas (71). A distressed county is designated as "those census tracts in at-risk and transitional counties that have a median family income not greater than 67 percent of the U.S. average and a poverty rate 150 percent of the U.S. average or greater" (72).

Truth or Consequences, New Mexico pursued designation as a New Mexico Metropolitan Redevelopment Area (MRA) within the New Mexico Main Street program. An MRA is defined as: 1) "an area that has existing economic and physical conditions ("blight")", 2) "high unemployment/low-income levels", 3) "low business activity," and 4) "vacant/underutilized buildings or properties" (69). Funding and financing benefits that may be leveraged as a result of obtaining MRA designation include: tax increment financing districts, property tax deferrals or credits, issuance of revenue bonds, state/federal brownfield funding opportunities, New Mexico Mortgage Finance Authority low-income housing tax credits bonus points, and Community Development Block Grant funding eligibility (without meeting low- and moderate-income criteria).

6.3.7 Pedestrian Scale

Buildings with significant set-backs from the roadway and vehicular parking in front of the building prioritize motor vehicles. In contrast, buildings with minimal set-backs from the roadway, like that found in the historic downtown area of LaBelle (Figure 49) and the historic areas of Walker are designed at the pedestrian level. As discussed in the Walker comprehensive plan (61), ensuring that community regulations allow for buildings in the future to have similar pedestrian-scale setbacks is necessary. It is unclear if regulations were changed to allow more flexibility regarding building setbacks for either community.

Figure 49. Building set-back at a pedestrian scale.

6.3.8 Tracks for Exercise

Several communities (Fair Haven, Vermont; Ruidoso, New Mexico; Silver City, New Mexico) either had plans that discussed or had Strava Heat Maps (Figure 50) that showed the use of tracks for walking, as shown in Figure 51. This could potentially suggest that there is latent demand for safer places to walk within the community.

Figure 50. Fair Haven, Vermont's track shows utilization in Strava Maps for exercise.

Figure 51. Silver City, New Mexico tracks for exercise.

6.3.9 Shared Lane Markings for Connectivity

Two communities (Calvert City, Kentucky; Walker, Minnesota) made use of shared lane markings (a.k.a. sharrows) to connect multi-use facilities (Figure 52). This created more connectivity within the community.

Figure 52. Calvert City, Kentucky's shared lane marking on Lone Valley Road.

6.3.10 Walking Clubs

Several communities reported either informal or formal clubs that gathered for walking (Calvert City, Kentucky; Silver City, New Mexico; and Walker, Minnesota). The one in Calvert City is informal. The one in Silver City is advertised within a community newsletter. The one in Walker, Minnesota was arranged by a county-level health entity.

6.4 Other Commonalities & Differences

What follows is a discussion of commonalities amongst case study communities as well as differences. First, similarities are identified, including: serving as a gateway to one's state, having at least two state roads cross in the middle of the community, mountain bicycling, having a Carnegie Library, motorized wheelchairs using the bike lanes or sidewalks, and serving as a county seat. Then after, notable unique aspects of a community are presented, including connecting walking and biking to climate change.

6.4.1 Gateways to the State

Two of the case study communities had plans with suggestions that they were gateway communities to their state (Morehead, Kentucky; Fair Haven Vermont). For Morehead, Kentucky, they served as a gateway to eastern Kentucky, including more generally to Appalachia. Fair Haven was the gateway to Vermont for New Yorkers.

6.4.2 Crossroads

Within the plans and through interviews, several case study communities were identified as state highway crossroads (Arcadia, Florida; LaBelle, Florida; Pelican Rapids, Minnesota; Pipestone, Minnesota). The convergence of a lot of traffic, potentially including heavy commercial vehicles, has implications on the comfort level of those who may be interested in walking and bicycling, particularly in areas where one may need to travel along or cross a major highway to access amenities While specifically focused on "urban mobility," the principles within *Designing for All Ages & Abilities* (42), which specifically cites vehicular volumes as a bicycle stressor, the implications of crossroads on functioning as barriers to a more comprehensive non-motorized network cannot be overlooked.

6.4.3 Mountain Bicycling

Two communities included as case studies had a significant focus on mountain bicycling (Calvert City, Kentucky; Ruidoso, New Mexico). In Calvert City, they recently worked with the International Mountain Bicycling Association to develop a plan for where to locate mountain bicycling facilities in the community. There is significant interest by at least a portion of the community in mountain bicycling, as they had, several years running, where they took first in a Tennessee state-wide competition (prior to Kentucky's being started). Furthermore, the high school that Calvert City students attend (Marshall High School) helped spur the development of a league in Kentucky. In Ruidoso, some of the facilities that they would like to connect are for mountain bicycling (i.e., skills park) (Figure 53).

Figure 53. Connecting walking and bicycling amenities in Ruidoso, New Mexico, including those for mountain bicycling.

6.4.4 Motorized Wheelchairs Using Bike Lanes & Sidewalks

Several individuals were observed using bike lanes and sidewalks in their motorized wheelchairs (Arcadia, Florida; Corbin, Kentucky; Morehead, Kentucky; and Truth or Consequences, New Mexico). This was generally occurring in areas where there was either no infrastructure to accommodate wheelchair users or in areas where the infrastructure was too narrow or distressed to safely accommodate wheelchair users. There is a need to better consider how sidewalks and multi-use pathways can assist these individuals with mobility and whether the existing infrastructure is able to safely accommodate people with disabilities. (Note: A photo of the motorized wheelchair user in Arcadia, Florida making use of a bicycle lane was not captured.)

Figure 54. Motorized wheelchair users using sidewalks for mobility.

6.4.5 County Seat

Nearly half of the case study communities were the county seat or center of governmental activity for their county (Table 17). As discussed in **2.5 Summary Tables**, this is not a data element that was provided; however, serving as a county seat appears to have somewhat of an influence. Generally, the county seat is the administrative center for a county which can include many governmental employment opportunities. This relationship to county government may result in greater visibility of safety and mobility challenges in these communities and in better access to potential governmental champions that could help support active transportation infrastructure (i.e., county-level planners). The value of serving as a county seat was emphasized in the Truth or Consequences, New Mexico case study, where it was noted that Hillsboro residents fought the reassignment of the county seat from their community to Truth or Consequences. Similarly, Walker, Minnesota's comprehensive plan (61) highlighted the need to retain its role as the county seat.

Table 17. County seat status for selected communities.

City	State	County	County Seat
Arcadia	FL	DeSoto	x
LaBelle	FL	Hendry	x
Taylor Creek	FL	Okeechobee	
Calvert City	KY	Marshall	
Corbin	KY	Whitley & Knox	
Morehead	KY	Rowan	x
Pelican Rapids	MN	Otter Tail	
Pipestone	MN	Pipestone	x
Walker	MN	Cass	x
Ruidoso	NM	Lincoln	
Silver City	NM	Grant	x
Truth or Consequences	NM	Sierra	x
Fair Haven	VT	Rutland	
Morristown	VT	Lamoille	
Town of Hartford	VT	Windsor	

6.4.6 Carnegie Libraries

Andrew Carnegie funded the provision of 1,689 public libraries across the United States with $60 million (73). It stemmed from when he was originally denied access to a library in Allegheny City, Pennsylvania; he could not afford the two-dollar subscription. Four of the fifteen (27%) case study communities had one. With 19,495 communities in the U.S., this is a clear overrepresentation when the percentage should be closer to 8.7%. While not necessarily instrumental to walking and bicycling, the presence of Carnegie Libraries in many of the community suggests the need for funding support from outside of the community. It is similar to noting that a large percentage of the case study communities also served as county seats. It also suggests ambition on the part of these communities, as those receiving Carnegie Library grants were required to provide funds for the books, salaries of employees and the maintenance of the buildings. Pipestone, Minnesota; Walker, Minnesota; Morristown, Vermont; and Fair Haven, Vermont all had Carnegie Libraries at one time (Walker's blew up). The facilities in Vermont are still used as libraries; they are notably two of only four in the State of Vermont. The one in Pipestone, Minnesota is in need of significant repair and consequently sits vacant.

6.4.7 Climate Change

The Town of Hartford, Vermont was the only community that had a Climate Action Plan (78). In their 2021 Plan, several strategies directly tied to walking and biking including the need to decrease communitywide vehicle miles traveled by 2.9 percent by 2030, increase the share of battery electric vehicles, and support a regional multimodal transportation funding source. These strategies included actions like developing an active transportation plan to facilitate greater use of bicycle and transit connections, prioritizing funding for safe streets for walking and biking, continued support of the Safe Routes to Schools program, and creating mobility hubs for all modes of travel including bike shares.

6.5 Supporting Programs Needed for Bicycle and Pedestrian Infrastructure in Rural Communities

In large part, there is a need for supporting programs in small communities. Overall, the lack of supporting programs, particularly those that teach people how to bicycle, is very different in the current study than those described in *Bicycle & Pedestrian Infrastructure Improvements Realized in Communities of Less Than 10,000 People* (3). Table 18 identified some common programs found across all case study communities.

Table 18. Supporting programs across case study communities.

	Florida			Kentucky			Minnesota			New Mexico			Vermont		
Supporting Programs Found	Arcadia	LaBelle	Taylor Creek	Calvert City	Corbin	Morehead	Pelican Rapids	Pipestone	Walker	Ruidoso	Silver City	Truth or Consequences	Fair Haven	Hartford	Morristown
Demonstration/Pilot Projects							x	x			x		x	x	x
Art Walk/Historical Walks/Children's Walk/Health Walk						x	x		x	x	x	x		x	x
Sculpture(s)/Statue(s)					x	x	x				x				
Mural(s)	x	x			x	x	x	x		x	x	x	x	x	x
Little Free Library							x	x		x	x				

While bike shops did exist in several of the small communities, most notably in New Mexico, overall, there was a lack of accessibility to bicycles. BikeWorks, in Silver City, New Mexico, is one of the most notable small community examples, as it takes ideas from larger cities (i.e., Casa Esperanza in Albuquerque, New Mexico) and enables accessibility to bicycles for community members in a small town. BikeWorks has a program that allows one to volunteer time to earn-a-bike.

Bicycle and pedestrian advocacy organizations like Local Motion (Vermont) report working to fill in the gaps of teaching children how to ride bicycles. However, there are also many adults who do not know how to bike. At least one interviewee for this research noted that she did not know how to ride a bicycle. As suggested by many of the resident comments, if one does not see themselves as using a facility, they will not support spending money on creating a multi-use trail or providing space for a bike lane.

Public transportation stops with bicycle racks were noted (Figure 55), but overall, the relationship between walking and bicycling infrastructure and public transportation was not the focus of this research. Better understanding the relationship between public transportation and the walkability and bikeability of a small, rural community should be pursued as a future research effort.

Figure 55. Bus stop with a bike rack; Town of Hartford, Vermont.

While the researcher was collecting data in Wilder, Vermont (a village within the Town of Hartford), she observed a couple who had got off at a bus stop, walk their bikes down the sidewalk, and attempted to cross a state roadway with no defined crossing where they were almost hit by a vehicle (Hartford Avenue and Manning Drive).

7 Conclusions & Future Research

This research effort examined bicycle and pedestrian infrastructure within fifteen communities of less than 10,000 people in five states across the United States. Lessons learned, and unique challenges and findings helped to establish a list of potential supporting programs that could help to better encourage this type of infrastructure in other small communities.

At least one business in Arcadia, Florida (self-classified as a restaurant/tavern/café/ice cream shop) that responded to the survey indicated that all of their business in 2021 was the result of people walking and biking to the business. This may suggest that for some businesses in small communities, community members being able to walk and bike are vitally important modes for their economics.

People were observed walking and bicycling while on-site in every community; each case study has on the back cover a collage of those walking and bicycling within the community observed over the course of approximately one day. Therefore, there is a need to support these modes within small, rural communities.

A wide variety of bicycle and pedestrian infrastructure and programs were found through this research effort. Sidewalks, trails, bicycle racks, mid-block crossings, and street furniture like benches were a common finding among the case study communities. Multi-use pathways, wayfinding, and walking routes were found in many communities. As an example, both Pelican Rapids, Minnesota and Morehead, Kentucky had a signed walking route for health. Silver City, New Mexico had some signage that intended to guide visitors between The Big Ditch area and Boston Hill. Multi-use pathways were found in Arcadia, Florida; Calvert City, Kentucky; Walker, Minnesota; Ruidoso, New Mexico; and Fair Haven, Vermont (albeit short). The presence of a bicycle shop was less common (Silver City, NM; Ruidoso, NM; Truth or Consequences, NM; and Morristown, Vermont).

Overall, the majority of bicycle and pedestrian facilities were focused within the communities themselves. However, there were some examples of existing connections between small communities or nearby recreational opportunities (e.g., one can follow the sidewalk from the Village of White River Junction to the Village of Hartford or the Village of Wilder) or plans (i.e., from Pelican Rapids to Perham). In many cases, the roads are still narrow or there is limited room on shoulders for bicycling, if there are shoulders (i.e., even if there is room, it may not be paved).

There is a need for a funding source to support the improvement of walking and bicycling infrastructure in small communities, like that which was done with the New Deal. In addition, there is a need for a more consistent funding source to support long-term maintenance of this infrastructure. It is not enough to build it and forget it as deferred maintenance can become a safety concern over time, as cracking and other issues occur. Furthermore, as design knowledge advances, such as with the provision of the Americans with Disabilities Act's curb ramps, there is a need to ensure that these updated designs are reflected in the walking and bicycling infrastructure in small communities.

Almost half of the case study communities were county seats. This may indicate that with a higher level of government having some additional influence, and also potentially some

additional expertise, there may be more resources available to the small community. The question then becomes, do small communities that do not serve as government seats, attract tourists, or are within metropolitan statistical areas have as many resources necessary to implement walking and bicycling infrastructure.

The researchers continue to build upon earlier research in the area of walking and bicycling in rural areas (*Mobility Mindset of Millennials in Small Urban and Rural Areas* (2); *Bicycle & Pedestrian Infrastructure Improvements Realized in Communities of Less Than 10,000 People* (3)). However, there remains additional research that can be done to advance the mobility of residents in these small rural communities. The next section provides some ideas of future research projects that could build on the findings of this study.

7.1 Future Research

Bicycle and pedestrian facilities were found to be in proximity to or to support travel by children to school (i.e., Mechanic Street to Fair Haven Union High School; Wilder Multi-Use Trail). Yet, the survey only requested input from survey respondents who were eighteen years or older. Some of the most significant users of facilities for bicycling and walking may be children. Therefore, better understanding the experience of children bicycling and walking in rural areas is a future research need. Some of this data is currently being collected by regional entities for Safe Routes to School efforts; it should be investigated if this data can be used to inform broader walking and bicycling needs for children within communities.

The intent of using this surveying tool was not to inventory all bicycle and pedestrian infrastructure within each community; rather, highlights of bicycle and pedestrian infrastructure found within these communities were collected. Therefore, a potential future research need or general programmatic need would be to develop a bicycle and pedestrian inventory program for locals. However, considering that staff is limited at present, it would be unlikely that locals could support the collection of data. This would have to be driven at the regional, state, or federal level.

Public transportation entities were observed in several communities. However, engaging them as a part of the research effort was limited. Therefore, there could be an effort to engage or better understand the needs of public transportation in rural areas by addressing first/last mile (or maybe in the case of rural communities, first/last three miles) connectivity.

The Zuni Pueblo had been under consideration for the creation of a case study. However, due to coronavirus concerns, this community was not included. Consequently, there is a need in the future to document and better understand the experience within Pueblo/Tribal communities. Case studies could be developed for Pueblo/Tribal communities similar to that developed for this research project.

County seats were found to have an influence in the inclusion of a community as a case study. Whether or not a case study community was a county seat was not a part of the original table for consideration. Consequently, it would be worth seeing if this pattern holds on a national level. This could be part of a small research study that would categorize communities in other states.

This research effort focused on communities of less than 10,000 that were not within a Metropolitan Statistical Area (MSA) in order to avoid communities where a larger urban area may have had a greater influence on the funding and resources available to a community (i.e., grant writing by a metropolitan planning organization (MPO); funding sources made available through an MPO) to implement this infrastructure. Since this area is not well understood, a future research project could look at the active transportation infrastructure available in these communities to better understand if there is a difference in existing infrastructure and whether connections to a larger urban area have an influence.

Additionally, some of the state DOT partners involved in this effort wanted to ensure that communities with a large tourism base were not overrepresented, as again, these communities may have access to resources that others did not. This could also be a future avenue of research.

Winter maintenance was identified as a barrier to implementation of infrastructure that supports walking and bicycling in communities, particularly curb extensions. A future research effort could synthesize winter maintenance practices for bicycle and pedestrian infrastructure in rural communities.

This research effort used a smartphone-based application (Survey123) to collect locational data of bicycle and pedestrian infrastructure while on-site. As a part of this application, the locational accuracy of the data collected was dependent upon the smartphone device used. A previous study examined the GPS accuracy of an iPhone 6 in an urban environment, a similar study examining the rural environment may help tease out issues with smartphone GPS accuracy specific to rural areas.

Several small communities had or were possibly going to have one-way street pairs traveling through the center of the community. With typically large travel volumes and potentially heavy commercial vehicles traveling on these roadways, these streets often served as divisions within communities. Many may find crossing them when walking or bicycling to be, at best, intimidating. Therefore, a more comprehensive nation-wide study comparing the experience of small communities with one-way pairs to those with two-way roadways could be conducted, looking at crash history, counting the number of users, identifying the volume of vehicles and the percentage of heavy commercial vehicles.

8 References

1. **United States Census Bureau.** Fastest-Growing Cities Primarily in the South and West. [Online] May 23, 2019. [Cited: July 26, 2021.] https://www.census.gov/newsroom/press-releases/2019/subcounty-population-estimates.html.

2. **Villwock-Witte, Natalie and Clouser, Karalyn.** *Mobility Mindset of Millennials in Small Urban and Rural Areas.* Montana State University. s.l. : Western Transportation Institute, 2016.

3. **Villwock-Witte, Natalie.** *Bicycle & Pedestrian Infrastructure Improvements Realized in Communities of Less Than 10,000 People.* Montana State University. s.l. : Western Transportation Institute, 2019.

4. **Ratcliffe, Michael.** Understanding "Place" in Census Bureau Data Products. s.l. : US Census Bureau, Geography Division, 2012.

5. **USDOT Federal Transit Administration.** Metropolitan Planning Organization (MPO). [Online] March 11, 2019. [Cited: February 24, 2022.] https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/metropolitan-planning-organization-mpo.

6. **Alphabet, Inc.** Google.com. [Online]

7. **US Census Bureau.** American Community Survey 2019 - 5-Year Estimates, Population Estimates. [Online] 2020. [Cited: January 19, 2022.] https://data.census.gov/cedsci/.

8. —. 2010 Decennial Census. 2010.

9. **Stephens, Mia, et al.** *Emerging Technologies and Opportunities for Improved Mobility and Safety for Rural Areas.* Washington, DC : U.S. Department of Transportation, Federal Highway Administration, 2021.

10. **Haslach, Robert and Leland, Robert.** *The Lebanon NH-VT Micropolitan Statistical Area.* s.l. : City of Lebanon, New Hampshire, 2006.

11. **League of American Bicyclists.** Becoming a Bicycle Friendly Community . [Online] 2021. [Cited: January 17, 2022.] https://www.bikeleague.org/community.

12. **Smart Growth America.** National Complete Streets Coalition. [Online] 2022. [Cited: January 18, 2022.] https://smartgrowthamerica.org/program/national-complete-streets-coalition/.

13. ***Main Street America.*** **[Online] https://www.mainstreet.org/home.**

14. Rails to Trails Conservancy. Trail Towns. [Online] [Cited: January 18, 2022.] https://www.railstotrails.org/build-trails/trail-building-toolbox/planning/trail-towns/.

15. US Census Bureau. American Community Survey 2019 - 5-Year Estimates, Employment Status. [Online] 2020. [Cited: January 20, 2022.] https://data.census.gov/cedsci/all?q=S2301.

16. —. American Community Survey 2019 - 5-Year Estimates, Income in the Past 12 Months (In 2019 Inflation-Adjusted Dollars). [Online] 2020. [Cited: January 20, 2022.] https://data.census.gov/cedsci/all?q=S1901 .

17. —. American Community Survey 2019 - 5-Year Estimates, Poverty Status in the Past 12 Months. [Online] 2020. [Cited: January 20, 2022.] https://data.census.gov/cedsci/all?q=S1701.

18. —. American Community Survey 2019 - 5-Year Estimates, Selected Housing Characteristics. [Online] 2020. [Cited: January 20, 2022.] https://data.census.gov/cedsci/all?q=DP04 .

19. Walk Score. Walk Score Methodology. [Online] 2022. [Cited: January 17, 2022.] https://www.walkscore.com/methodology.shtml.

20. —. Bike Score. [Online] 2022. [Cited: January 17, 2022.] https://www.walkscore.com/bike-score-methodology.shtml.

21. United States Department of Transportation. Fatality and Injury Reporting System Tool (FIRST). *National Highway Traffic Safety Administration.* [Online] https://cdan.nhtsa.gov/query**.**

22. Growing community power to improve health equity. ***County Health Rankings & Roadmaps.*** [Online] University of Wisconsin Population Health Institute. www.countyhealthrankings.org .

23. Interactive Atlas of Heart Disease and Stroke. ***Centers for Disease Control and Prevention.*** [Online] https://nccd.cdc.gov/DHDSPAtlas/.

24. US Census Bureau. QuickFacts - United States. N.D.

25. —. 2019 American Community Survey - Means of Transportation to Work. 2020.

26. City of Arcadia, FL. Budgets. [Online] 2021. [Cited: January 21, 2022.] https://arcadia-fl.gov/departments/finance/budgets/.

27. City of LaBelle, FL. Budgets. [Online] 2020. [Cited: January 21, 2022.] https://citylabelle.com/budgets/.

28. Foust, Bobbie. Calvert City Proposes $6.35M in Spending for Fiscal Year 2021-22. ***The TRIB.*** [Online] June 8, 2021. [Cited: January 21, 2022.] https://www.tribunecourier.com/news/calvert-city-proposes-6-35m-in-spending-for-fiscal-year-2021-22/article_8d299dc9-98a8-5dfa-8953-913c6f13896b.html.

29. Mills, Jarrod. Corbin Commissioners Approve $10.6 Million Budget. ***Times-Tribune.*** **[**Online] July 28, 2020. [Cited: January 21, 2022.] https://www.thetimestribune.com/news/local_news/corbin-commissioners-approve-10-6-million-budget/article_9d7e83ad-550f-54d2-bddd-fdfe52b1d369.html.

30. White-Brown, Laura. Mayor's Budget Message. [Online] May 16, 2019. [Cited: January 21, 2022.] https://portal.ksba.org/public/Meeting/Attachments/DisplayAttachment.aspx?AttachmentID=486214.

31. Whitcomb, Keith. Fair Haven Board Approves Budget with 3.84% Increase. *Rutland Herald.* [Online] December 30, 2020. [Cited: January 21, 2022.] https://www.rutlandherald.com/news/fair-haven-board-approves-budget-with-3-84-increase/article_c0a73c84-4325-5ac9-87f4-10d66215fa8d.html.

32. Hartford, VT. Budgets and Financial Reports. [Online] [Cited: January 21, 2022.] https://www.hartford-vt.org/2294/Budgets-and-Financial-Reports.

33. Morristown, VT. Annual Municipal Report 2020. [Online] 2020. [Cited: January 21, 2022.] https://morristownvt.org/vertical/sites/%7B0DF3C9E1-B323-4D1E-B137-B890765A4F3D%7D/uploads/Morristown_2020_Annual_Municipal_Report.pdf.

34. The Press. Pelican Rapids Sets $1.96 Million 2021 Budget. *The Press.* [Online] December 16, 2020. [Cited: January 21, 2022.] https://pelicanrapidspress.com/2020/12/16/pelican-sets-1-96-million-2021-budget/.

35. Pipestone County STAR. County approves trail grant agreement with city. [Online] Pipestone County STAR, January 18, 2017. [Cited: September 30, 2021.] http://www.pipestonestar.com/articles/county-approves-trail-grant-agreement-with-city/.

36. City of Walker, MN. 2018 City of Walker Summary Budget Statement. [Online] 2017. [Cited: January 21, 2022.] https://www.walkermn.com/classifieds/community/announcements/legal/2018-city-of-walker-summary-budget-statement/pdfdisplayad_b91cf8fc-df75-11e7-8b1f-efbfc2c0e46e.html.

37. Village of Ruidoso, NM. Economic Data. [Online] [Cited: January 21, 2022.] https://www.ruidoso-nm.gov/community-economic-development#:~:text=Governed%20by%20an%20elected%20Mayor,%2442.8%20million%20annual%20operating%20budget..

38. Silver City Daily Press. Town May Lose Millions Due to COVID-19. *Silver City Daily Press.* [Online] April 15, 2020. [Cited: January 21, 2022.] https://www.scdailypress.com/2020/04/15/town-may-lose-millions-due-to-covid-19.

39. Sloan, Kathleen. Truth or Consequences Capital Projects for 2020-2021 Could Top $16 Million. *Sierra County Sun.* [Online] June 4, 2020. [Cited: January 21, 2022.] https://sierracountysun.org/government/t-or-c/torc-capital-projects-for-2020-2021-could-top-16-million/.

40. Consensus Planning, Inc.; Quixote Productions; and Smith Engineering Company. *Downtown Master Plan/Metropolitan Redevelopment Plan.* City of Truth or Consequences : s.n., 2014.

41. US Census Bureau. American Community Survey 2019 - 5-Year Estimates, Education Attainment. [Online] 2020. [Cited: January 21, 2022.] https://data.census.gov/cedsci/table?t=Educational%20Attainment&tid=ACSST1Y2019.S1501.

42. National Association of City Transportation Officials (NACTO). ***Designing for All Ages & Abilities: Contextual Guidance for High-Comfort Bicycle Facilities.*** s.l. : National Association of City Transportation Officials (NACTO), 2017. p. 16.

43. ESRI. ArcGIS Survey123 FAQ for Submitters. [Online] 2021. [Cited: January 14, 2022.] https://doc.arcgis.com/en/survey123/faq/faqgetanswers.htm.

44. ***Smartphone GPS Accuracy Study in an Urban Environment.*** Merry, Krista and Bettinger, Pete. 7, s.l. : PLoS ONE, 2019, Vol. 14.

45. Trail Solutions IMBA. ***Trail Network Feasibility Study.*** **2020.**

46. Calvert City and the Purchase Area Development District (PPAD). ***Calvert City Bicycle and Pedestrian Master Plan.*** **Calvert City : Calvert City, Kentucky, 2020.**

47. CARMAN. ***The CORBIN Bikeway Master Plan.*** **2013.**

48. City of Corbin, Kentucky. ***Bicycle and Pedestrian Master Plan.*** **Corbin : City of Corbin, 2020.**

49. ***City of Morehead + Rowan County, Kentucky Bicycle + Pedestrian Master Plan.*** **2019.**

50. Royster, J, et al. ***Pipestone Bicycle and Pedestrian Master Plan.*** s.l. : Banner Associates + Big Muddy Workshop, 2011.

51. Silver City Trails and Open Space Committee; Town Planning Department; Rivers, Trails and Conservation Assistance Program. *Silver City, New Mexico Trails and Open Spaces Plan.* 2002.

52. Community by Design and the New Mexico MainStreet Program. ***Silver City Greenways and Big Ditch Master Plan.*** Silver City : Silver City, New Mexico, 2013.

53. Town of Silver City. ***Bicycle Master Plan.*** **s.l. : Town of Silver City, 2016.**

54. —. ***Town of Silver City Comprehensive Plan.*** **s.l. : Town of Silver City, 2017.**

55. Roach, L. ***The Healing Waters Trail: A Cultural Landscapes Approach to Planning a Semi-Urban Trail System.*** **2009.**

56. SWNMACT. Community Engagement. [Online] [Cited: Feburary 25, 2022.] https://www.swnmact.org/our-programs.

57. Town of Hartfod Pedestrian and Bicycle Steering Committee. ***Town of Hartford Pedestrian and Bicycle Plan.*** **s.l. : Town of Hartford, 2009.**

58. Town of Hartford. ***Master Plan.*** **2014.**

59. Nagle, J, et al. ***Hendry County Comprehensive Pathway Plan.*** **2009.**

60. Gibson, L, et al. ***Fair Haven Downtown Streetscape Improvement Plan.*** **2019.**

61. Community Growth Institute and Hometown Planning. ***Walker Area Comprehensive Plan.*** **2016.**

62. Regional Planning Coordination. ***State of Vermont Agency of Transportation.*** [Online] Vermont Official State Website. [Cited: February 24, 2022.] https://vtrans.vermont.gov/planning/policy-planning/regional.

63. University of North Carolina Highway Safety Research Center, National Highway Transportation Safety Administration, Federal Highway Administration, Centers for Disease Control and Prevention, and the Institute of Transportation Engineers. Walking and Bicycling Audits. [Online] [Cited: February 24, 2022.] http://guide.saferoutesinfo.org/engineering/walking_and_bicycling_audits.cfm.

64. MRAC-Mural-brochure_web. ***Silver City Public Library.*** [Online] Mimbres Region Arts Council. [Cited: January 20, 2022.] https://silvercitypubliclibrary.org/wp-content/uploads/2017/07/MRAC-Mural-brochure_web.pdf.

65. Project for Public Spaces. What is Placemaking? [Online] 2007. [Cited: January 14, 2022.] https://www.pps.org/article/what-is-placemaking.

66. Wheelchairs and Other Power-Driven Mobility Devices. ***National Network.*** [Online] 2018. [Cited: February 23, 2022.] https://adata.org/factsheet/wheelchairs#:~:text=Other%20Power%2DDriven%20Mobility%20Device%20(OPDMD)&text=OPDMDs%20may%20include%20golf%20cars,areas%20without%20defined%20pedestrian%20routes..

67. History.com Editors. Works Progress Administration . ***History.*** [Online] June 10, 2019. [Cited: January 21, 2022.] https://www.history.com/topics/great-depression/works-progress-administration.

68. Need Help Buying an E-Bike? ***Vital Communities.*** [Online] August 19, 2021. [Cited: November 16, 2021.] https://vitalcommunities.org/need-help-buying-an-e-bike/.

69. The National Academies of Sciences, Engineering, and Medicine. NCHRP 15-78: Guidebook for Urban and Suburban Roadway Cross-Sectional Reallocation. [Online] [Cited: January 22, 2022.] https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4767.

70. State of Vermont. State Designation Programs. ***State of Vermont.*** [Online] 2022. [Cited: February 24, 2022.] https://accd.vermont.gov/community-development/designation-programs.

71. Appalachian Regional Commission. Interactive Map of County Economic Status and Distressed Areas, Fiscal Year 2022. [Online] [Cited: February 24, 2022.] https://www.arc.gov/county-economic-status-and-distressed-areas-by-state-fy-2022/.

72. —. Distressed Area Classification System. ***Appalachian Regional Commission.*** [Online] [Cited: February 24, 2022.] https://www.arc.gov/distressed-areas-classification-system/.

73. How Andrew Carnegie Turned His Fortune Into A Library Legacy. ***NPR.*** [Online] August 1, 2013. [Cited: February 23, 2022.] https://www.npr.org/2013/08/01/207272849/how-andrew-carnegie-turned-his-fortune-into-a-library-legacy.

74. City of Arcadia, Florida. Community & Economic Development. [Online] [Cited: April 15, 2021.] https://arcadia-fl.gov/departments/economic-development/.

75. Arcadia Main Street. Would you like to be a Sponsor? [Online] [Cited: April 15, 2021.] http://www.arcadiamainstreet.com/arcadia-bike-fest.html.

76. Burden, Dan. ***Walkability Report: Arcadia, Florida and DeSoto County.*** s.l. : Glatting JAckson Kercher Anglin, Inc. and Walkable Communities, Inc., 2009.

77. Resources, Minnesota Department of Natural. Casey Jones State Trail. ***Minnesota Department of Natural Resources.*** [Online] [Cited: September 30, 2021.] https://www.dnr.state.mn.us/state_trails/casey_jones/index.html.

78. Casey Jones Trail Association. The Big Picture. [Online] [Cited: September 30, 2021.] https://www.caseyjonestrail.org/the-big-picture.html.

79. Brown, Tony. Casey Jones State Trail is the story of a bike path that the state forgot. [Online] StarTribune, October 17, 2019. [Cited: September 30, 2021.] https://www.startribune.com/casey-jones-state-trail-is-the-story-of-the-bike-path-that-the-state-forgot/563305812/?fbclid=IwAR1W1J-fYry9ACEtgXV7q_-ILk7JDkGXkqTNdsfGxbGHWWnnI0So60oIiUk&refresh=true.

80. Kuphal, Kyle. Bids approved for next phase of Indian Lake Trail project. [Online] Pipestone County Star, August 21, 2020. [Cited: September 30, 2021.] https://www.pipestonestar.com/articles/bids_approved_for_next_phase/.

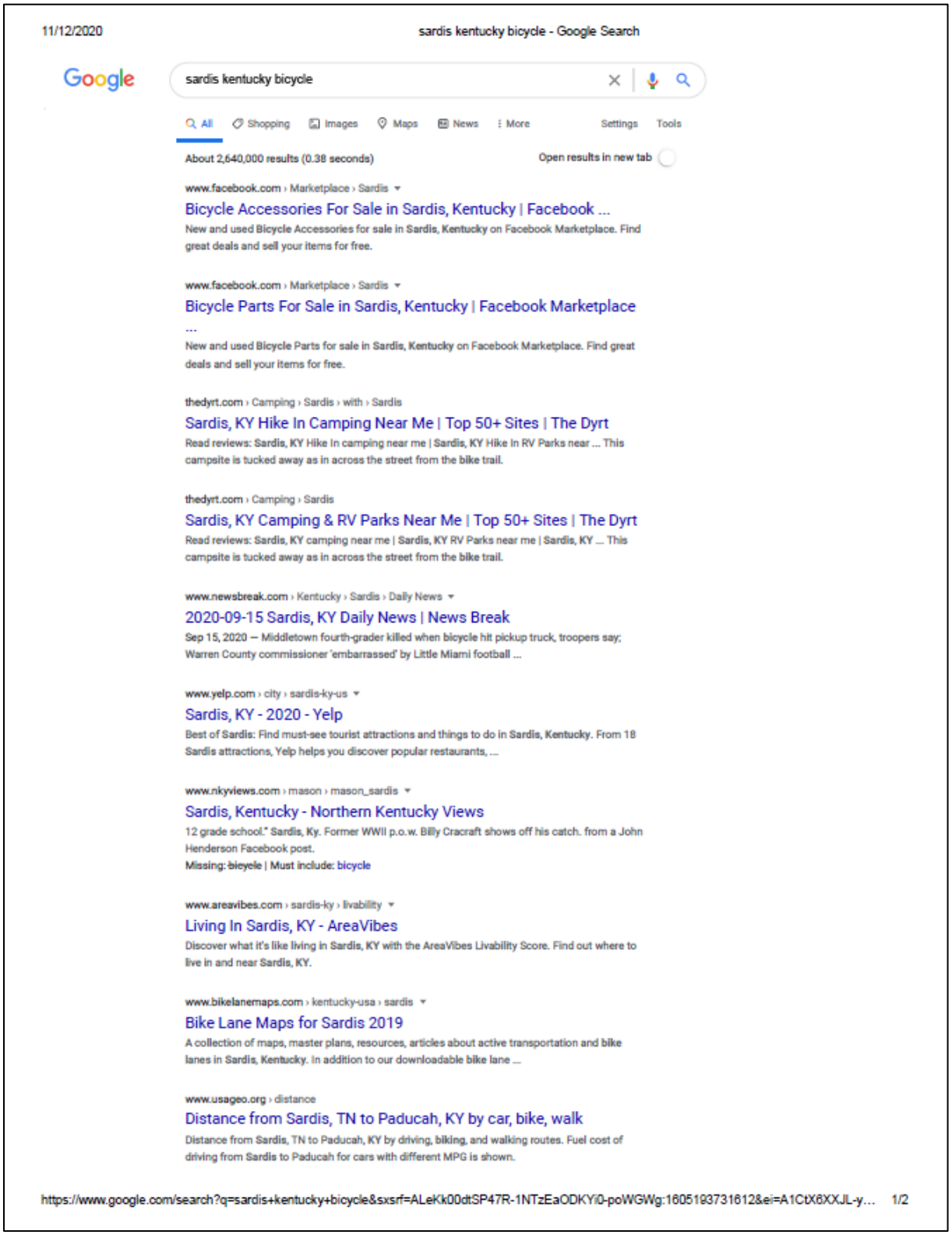
81. The League of American Bicyclists. ***Building a Bicycle Friendly America.*** **2013.**

82. AARP. About the AARP Community Challenge. [Online] 2022. [Cited: January 18, 2022.] https://www.aarp.org/livable-communities/about/info-2017/aarp-community-challenge.html.

83. Velde, Kelli. City Approves 2021 Budget. ***Pipestone County STAR.*** [Online] January 11, 2021. [Cited: January 21, 2022.] https://www.pipestonestar.com/articles/city-approves-2021-budget/.

9 Appendix A – Community Ranking Results

Example of a 0: Sardis, KY, bicycle



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www.newsbreak.com › Kentucky › Sardis › Daily News

2020-09-15 Sardis, KY Daily News | News Break

Sep 15, 2020 — Middletown fourth-grader killed when bicycle hit pickup truck, troopers say; Warren County commissioner 'embarrassed' by Little Miami football ...

www.yelp.com › city › sardis-ky-us

Sardis, KY - 2020 - Yelp

Best of Sardis: Find must-see tourist attractions and things to do in Sardis, Kentucky. From 18 Sardis attractions, Yelp helps you discover popular restaurants, ...

www.nkyviews.com › mason › mason_sardis

Sardis, Kentucky - Northern Kentucky Views

12 grade school." Sardis, Ky. Former WWII p.o.w. Billy Cracraft shows off his catch. from a John Henderson Facebook post.

Missing: bicycle | Must include: bicycle

www.areavibes.com › sardis-ky › livability

Living In Sardis, KY - AreaVibes

Discover what it's like living in Sardis, KY with the AreaVibes Livability Score. Find out where to live in and near Sardis, KY.

www.bikelanemaps.com › kentucky-usa › sardis

Bike Lane Maps for Sardis 2019

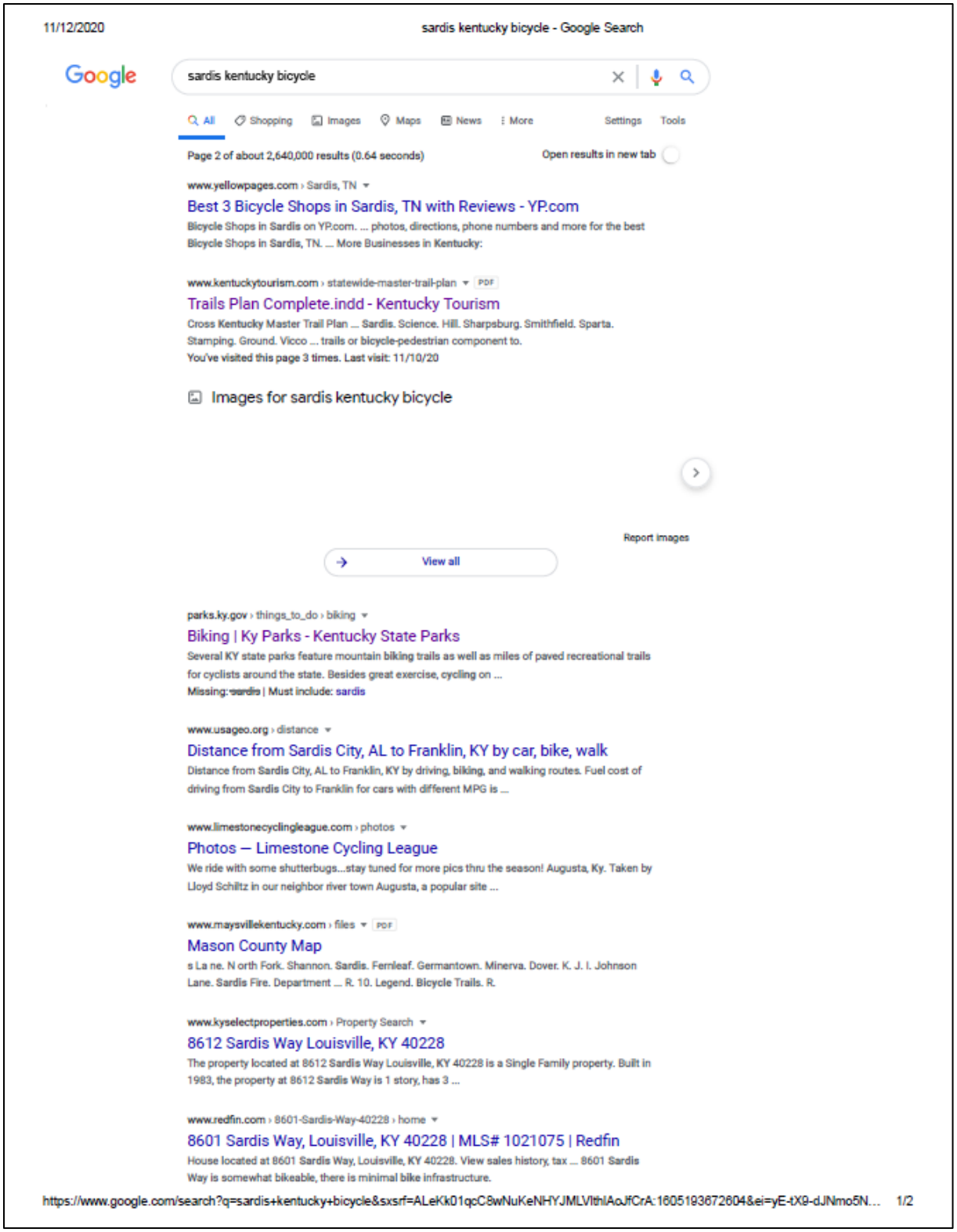
A collection of maps, master plans, resources, articles about active transportation and bike lanes in Sardis, Kentucky. In addition to our downloadable bike lane ...

www.usageo.org › distance

Distance from Sardis, TN to Paducah, KY by car, bike, walk

Distance from Sardis, TN to Paducah, KY by driving, biking, and walking routes. Fuel cost of driving from Sardis to Paducah for cars with different MPG is shown.

https://www.google.com/search?q=sardis+kentucky+bicycle&sxsrf=ALeKk00dtSP47R-1NTzEaODKYi0-poWGWg:1605193731612&ei=A1CtX6XXJL-y... 1/2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www.usageo.org › distance
Distance from Sardis City, AL to Franklin, KY by car, bike, walk
Distance from Sardis City, AL to Franklin, KY by driving, biking, and walking routes. Fuel cost of driving from Sardis City to Franklin for cars with different MPG is ...
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Photos — Limestone Cycling League
We ride with some shutterbugs...stay tuned for more pics thru the season! Augusta, Ky. Taken by Lloyd Schiltz in our neighbor river town Augusta, a popular site ...
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s La ne. N orth Fork. Shannon. Sardis. Fernleaf. Germantown. Minerva. Dover. K. J. I. Johnson Lane. Sardis Fire. Department ... R. 10. Legend. Bicycle Trails. R.
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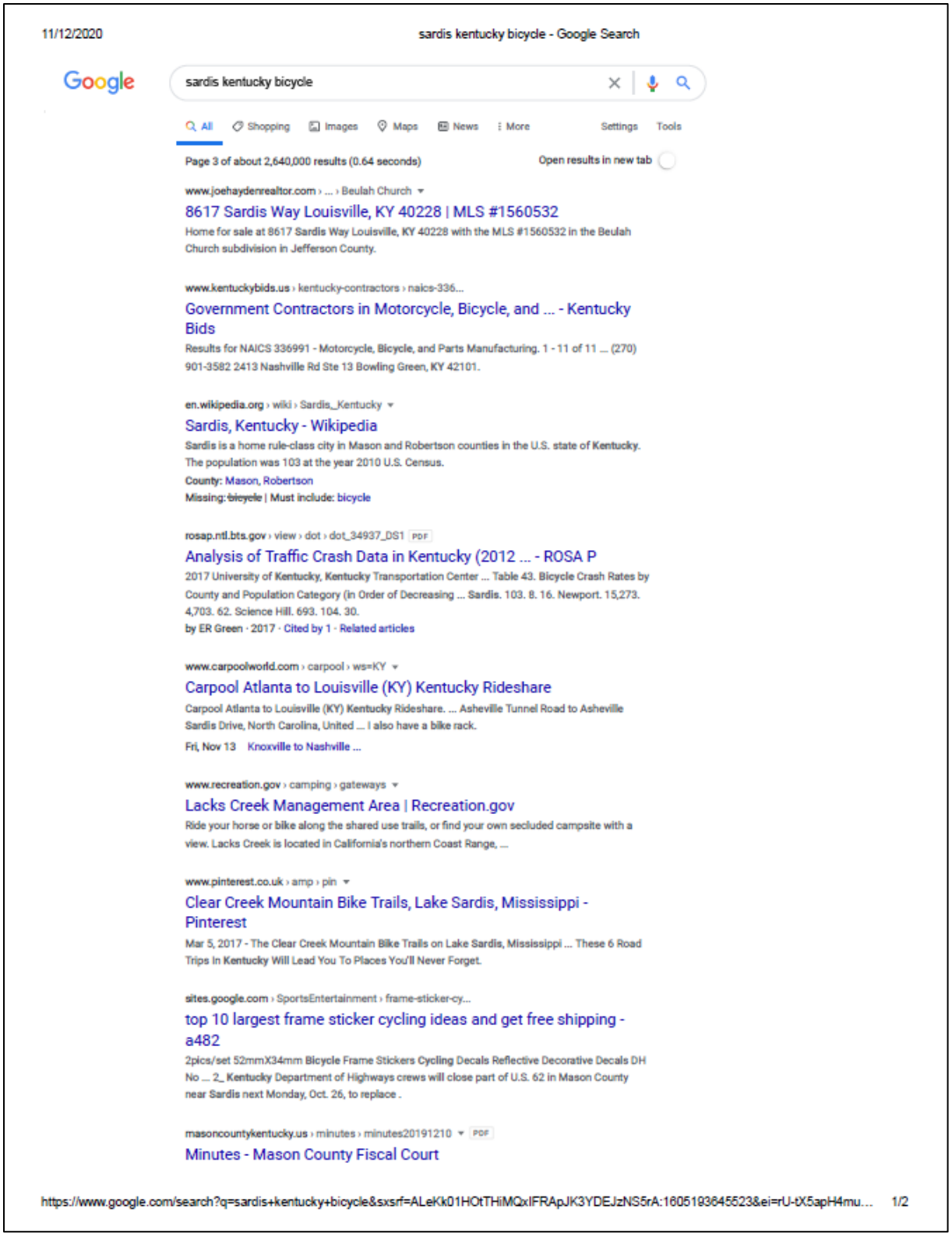
8612 Sardis Way Louisville, KY 40228
The property located at 8612 Sardis Way Louisville, KY 40228 is a Single Family property. Built in 1983, the property at 8612 Sardis Way is 1 story, has 3 ...
www.redfin.com › 8601-Sardis-Way-40228 › home
8601 Sardis Way, Louisville, KY 40228 | MLS# 1021075 | Redfin
House located at 8601 Sardis Way, Louisville, KY 40228. View sales history, tax ... 8601 Sardis Way is somewhat bikeable, there is minimal bike infrastructure.
https://www.google.com/search?q=sardis+kentucky+bicycle&sxsrf=ALeKk01qcC8wNuKeNHYJMLVIthlAoJfCrA:1605193672604&ei=yE-tX9-dJNmo5N... 1/2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Sardis, Kentucky - Wikipedia
Sardis is a home rule-class city in Mason and Robertson counties in the U.S. state of Kentucky. The population was 103 at the year 2010 U.S. Census.
County: Mason, Robertson
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2017 University of Kentucky, Kentucky Transportation Center ... Table 43. Bicycle Crash Rates by County and Population Category (In Order of Decreasing ... Sardis. 103. 8. 16. Newport. 15,273. 4,703. 62. Science Hill. 693. 104. 30.
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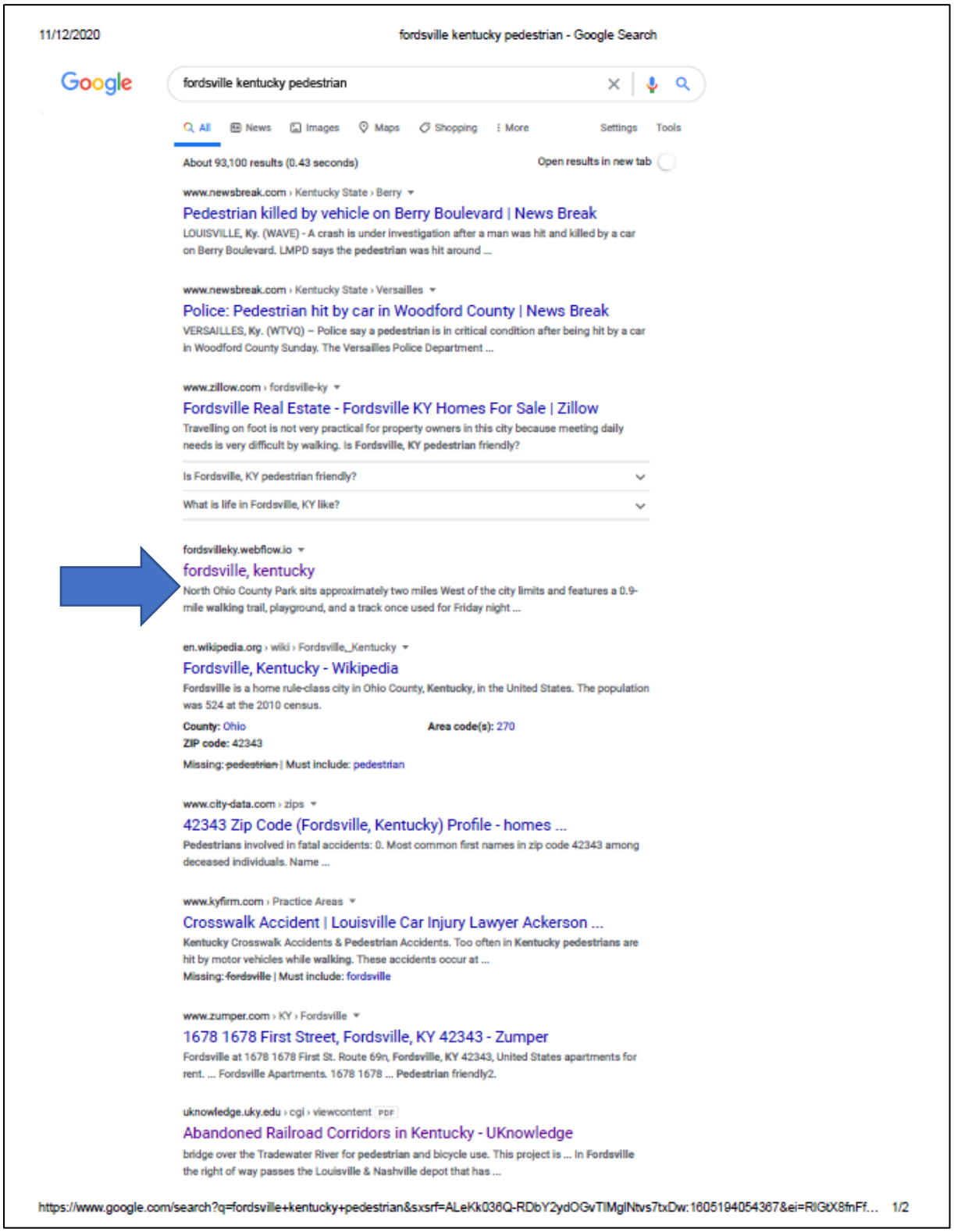
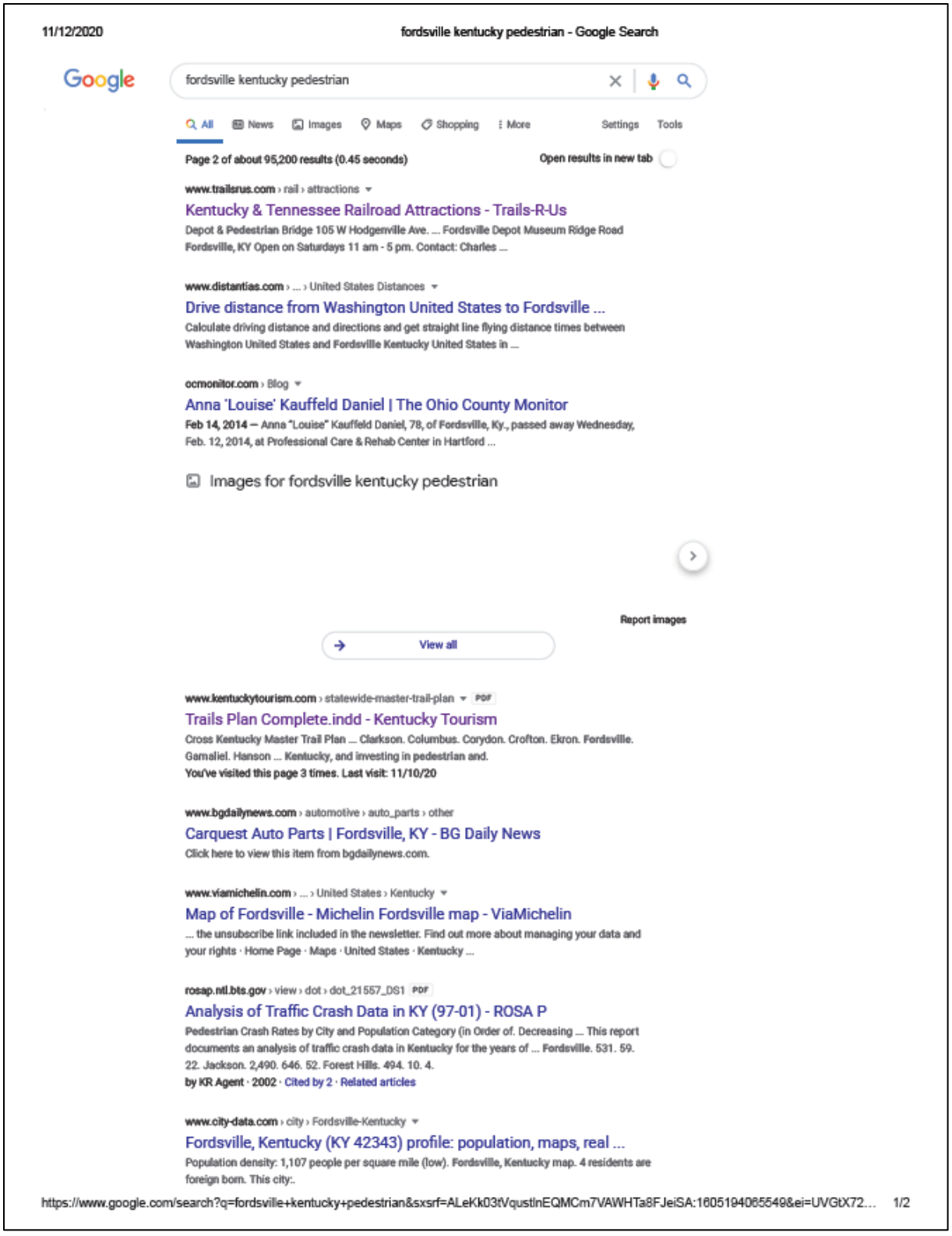
Minutes - Mason County Fiscal Court
https://www.google.com/search?q=sardis+kentucky+bicycle&sxsrf=ALeKk01HOtTHiMQxIFRApJK3YDEJzNS5rA:1605193645523&ei=rU-tX5apH4mu... 1/2

Example of a 1: Fordsville, KY, pedestrian

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Population density: 1,107 people per square mile (low). Fordsville, Kentucky map. 4 residents are foreign born. This city:.
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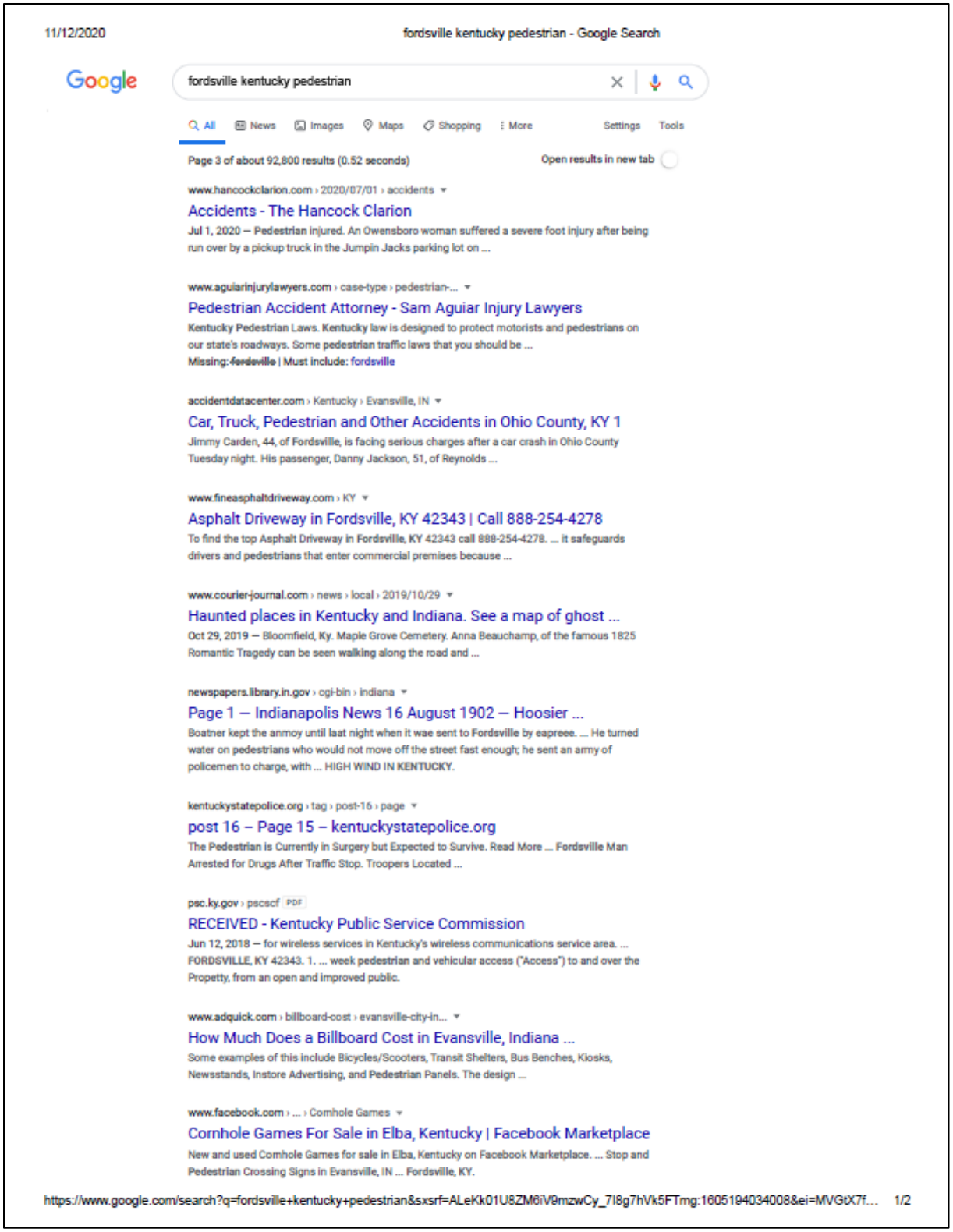

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newspapers.library.in.gov › cgi-bin › indiana

Page 1 — Indianapolis News 16 August 1902 — Hoosier ...

Boatner kept the annoy until last night when it was sent to Fordsville by expreee. ... He turned water on pedestrians who would not move off the street fast enough; he sent an army of policemen to charge, with ... HIGH WIND IN KENTUCKY.

kentuckystatepolice.org › tag › post-16 › page

post 16 – Page 15 – kentuckystatepolice.org

The Pedestrian is Currently in Surgery but Expected to Survive. Read More ... Fordsville Man Arrested for Drugs After Traffic Stop. Troopers Located ...

psc.ky.gov › pscscf PDF

RECEIVED - Kentucky Public Service Commission

Jun 12, 2018 — for wireless services in Kentucky's wireless communications service area. ... FORDSVILLE, KY 42343. 1. ... week pedestrian and vehicular access ("Access") to and over the Propetty, from an open and improved public.

www.adquick.com › billboard-cost › evansville-city-in...

How Much Does a Billboard Cost in Evansville, Indiana ...

Some examples of this include Bicycles/Scooters, Transit Shelters, Bus Benches, Kiosks, Newsstands, Instore Advertising, and Pedestrian Panels. The design ...

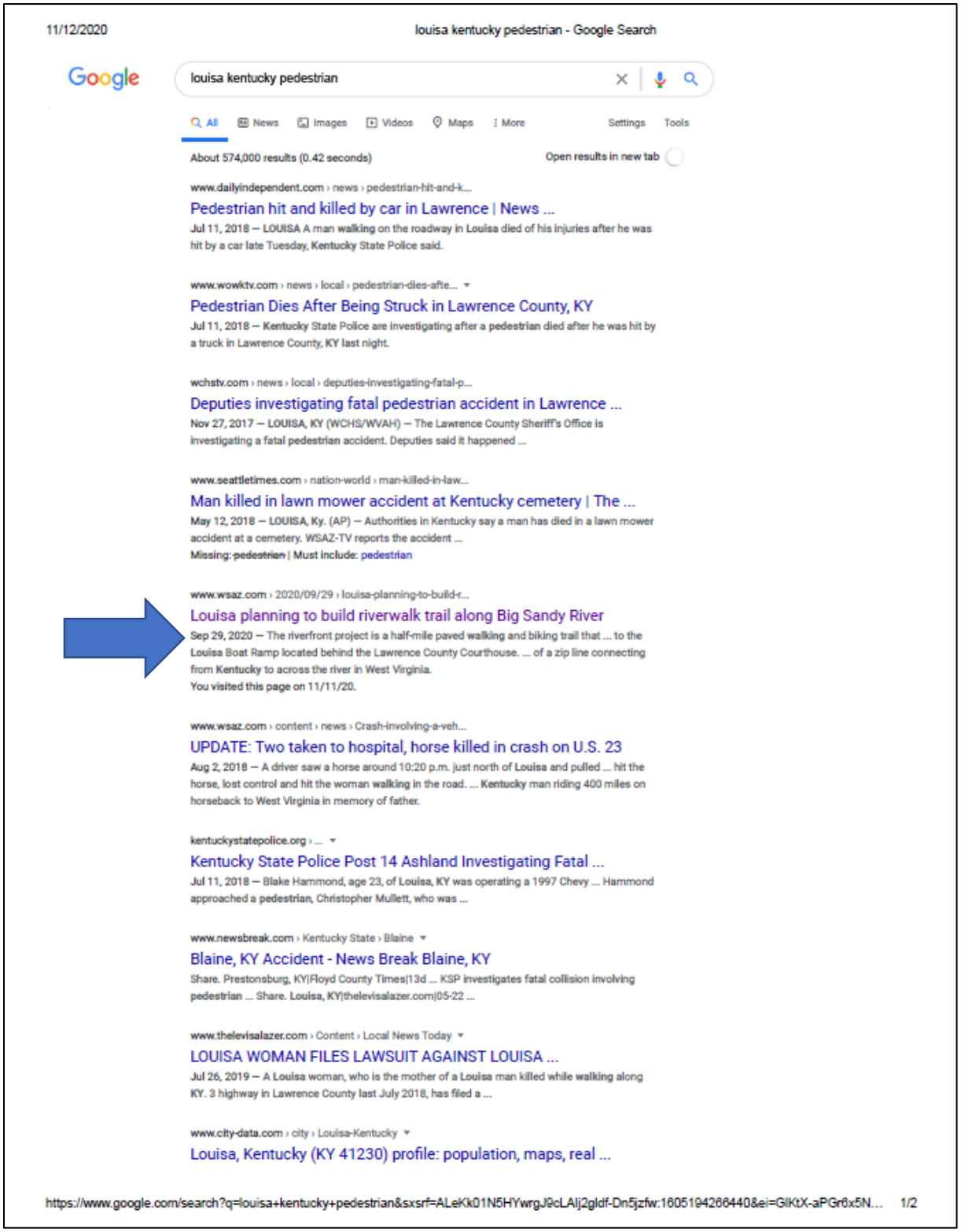
www.facebook.com › ... › Cornhole Games

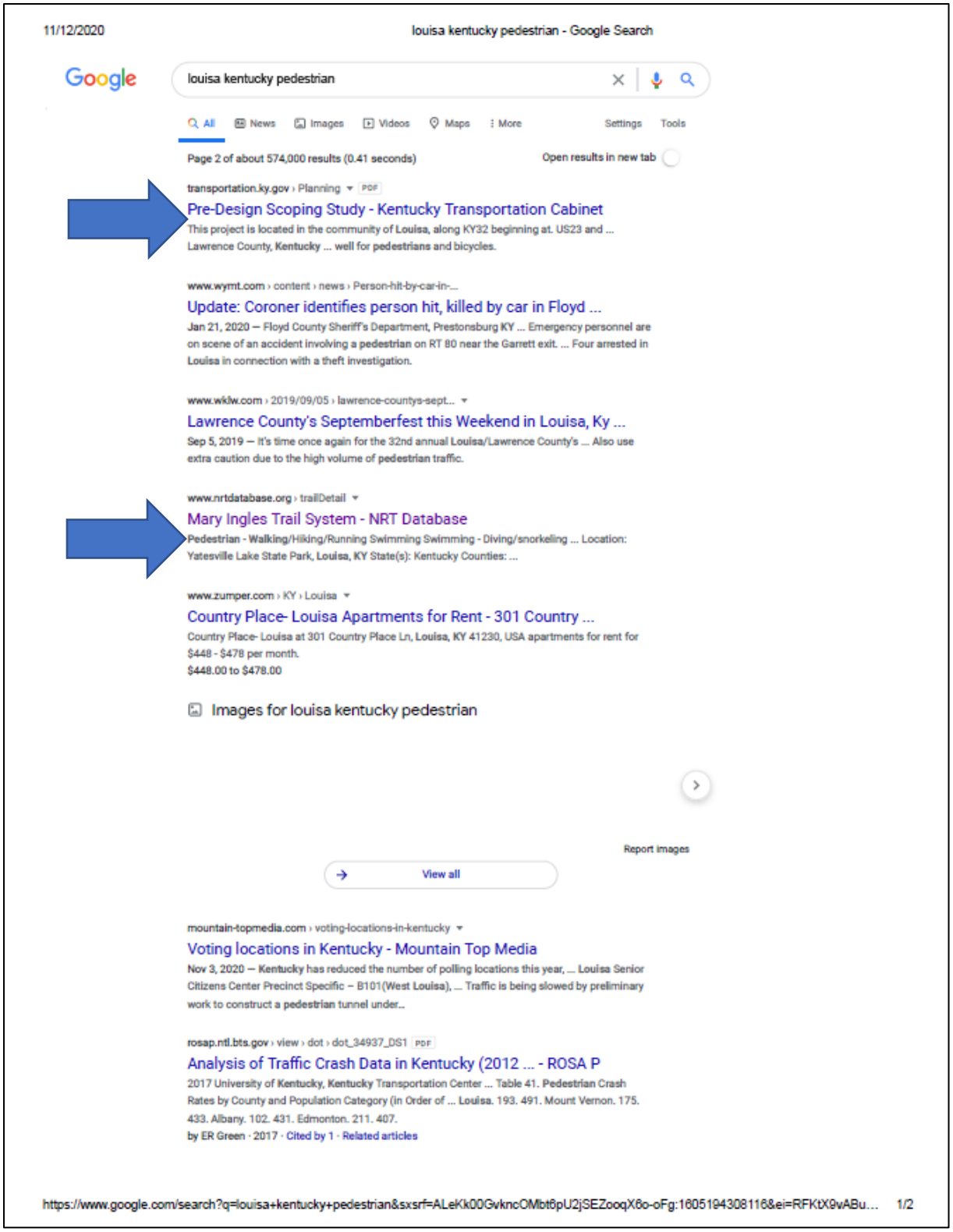
Cornhole Games For Sale in Elba, Kentucky | Facebook Marketplace

New and used Cornhole Games for sale in Elba, Kentucky on Facebook Marketplace. ... Stop and Pedestrian Crossing Signs in Evansville, IN ... Fordsville, KY.

https://www.google.com/search?q=fordsville+kentucky+pedestrian&sxsrf=ALeKk01U8ZM6iV9mzwCy_7I8g7hVk5FTmg:1605194034008&ei=MVGtX7f... 1/2

Example of a 2: Louisa, KY, pedestrian




11/12/2020
louisa kentucky pedestrian - Google Search
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louisa kentucky pedestrian
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Videos
Maps
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transportation.ky.gov › Planning
Pre-Design Scoping Study - Kentucky Transportation Cabinet
This project is located in the community of Louisa, along KY32 beginning at. US23 and ... Lawrence County, Kentucky ... well for pedestrians and bicycles.
www.wymt.com › content › news › Person-hit-by-car-in-...
Update: Coroner identifies person hit, killed by car in Floyd ...
Jan 21, 2020 — Floyd County Sheriff's Department, Prestonsburg KY ... Emergency personnel are on scene of an accident involving a pedestrian on RT 80 near the Garrett exit. ... Four arrested in Louisa in connection with a theft investigation.
www.wklw.com › 2019/09/05 › lawrence-countys-sept...
Lawrence County's Septemberfest this Weekend in Louisa, Ky ...
Sep 5, 2019 — It's time once again for the 32nd annual Louisa/Lawrence County's ... Also use extra caution due to the high volume of pedestrian traffic.
www.nrtdatabase.org › trailDetail
Mary Ingles Trail System - NRT Database
Pedestrian - Walking/Hiking/Running Swimming Swimming - Diving/snorkeling ... Location: Yatesville Lake State Park, Louisa, KY State(s): Kentucky Counties: ...
www.zumper.com › KY › Louisa
Country Place- Louisa Apartments for Rent - 301 Country ...
Country Place- Louisa at 301 Country Place Ln, Louisa, KY 41230, USA apartments for rent for $448 - $478 per month.
$448.00 to $478.00
Images for louisa kentucky pedestrian
Report images
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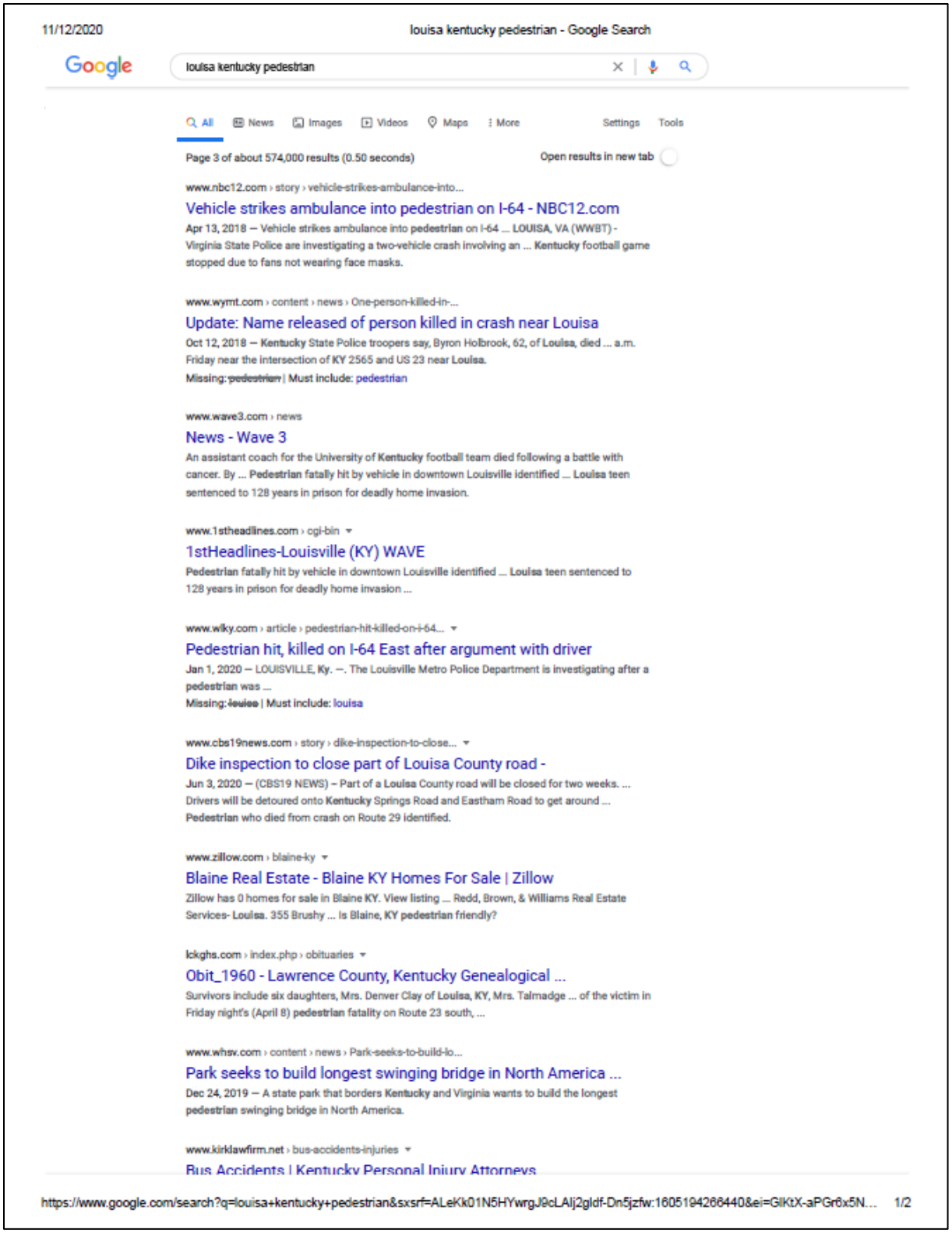
mountain-topmedia.com › voting-locations-in-kentucky
Voting locations in Kentucky - Mountain Top Media
Nov 3, 2020 — Kentucky has reduced the number of polling locations this year, ... Louisa Senior Citizens Center Precinct Specific – B101(West Louisa), ... Traffic is being slowed by preliminary work to construct a pedestrian tunnel under...
rosap.ntl.bts.gov › view › dot › dot_34937_DS1
Analysis of Traffic Crash Data in Kentucky (2012 ... - ROSA P
2017 University of Kentucky, Kentucky Transportation Center ... Table 41. Pedestrian Crash Rates by County and Population Category (in Order of ... Louisa. 193. 491. Mount Vernon. 175. 433. Albany. 102. 431. Edmonton. 211. 407.
by ER Green · 2017 · Cited by 1 · Related articles
https://www.google.com/search?q=louisa+kentucky+pedestrian&sxsrf=ALeKk00GvkncOMbt8pU2jSEZooqX6o-oFg:1605194308116&ei=RFKtX9vABu... 1/2



11/12/2020 louisa kentucky pedestrian - Google Search

Google louisa kentucky pedestrian

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www.nbc12.com › story › vehicle-strikes-ambulance-into...

Vehicle strikes ambulance into pedestrian on I-64 - NBC12.com

Apr 13, 2018 — Vehicle strikes ambulance into **pedestrian** on I-64 ... **LOUISA**, VA (WWBT) - Virginia State Police are investigating a two-vehicle crash involving an ... **Kentucky** football game stopped due to fans not wearing face masks.

www.wymt.com › content › news › One-person-killed-in-...

Update: Name released of person killed in crash near Louisa

Oct 12, 2018 — **Kentucky** State Police troopers say, Byron Holbrook, 62, of **Louisa**, died ... a.m. Friday near the intersection of KY 2565 and US 23 near **Louisa**.

Missing: ~~pedestrian~~ | Must include: pedestrian

www.wave3.com › news

News - Wave 3

An assistant coach for the University of **Kentucky** football team died following a battle with cancer. By ... **Pedestrian** fatally hit by vehicle in downtown Louisville identified ... **Louisa** teen sentenced to 128 years in prison for deadly home invasion.

www.1stheadlines.com › cgi-bin

1stHeadlines-Louisville (KY) WAVE

Pedestrian fatally hit by vehicle in downtown Louisville identified ... **Louisa** teen sentenced to 128 years in prison for deadly home invasion ...

www.wlky.com › article › pedestrian-hit-killed-on-i-64...

Pedestrian hit, killed on I-64 East after argument with driver

Jan 1, 2020 — LOUISVILLE, Ky. —. The Louisville Metro Police Department is investigating after a **pedestrian** was ...

Missing: ~~louisa~~ | Must include: louisa

www.cbs19news.com › story › dike-inspection-to-close...

Dike inspection to close part of Louisa County road -

Jun 3, 2020 — (CBS19 NEWS) – Part of a **Louisa** County road will be closed for two weeks. ... Drivers will be detoured onto **Kentucky** Springs Road and Eastham Road to get around ... **Pedestrian** who died from crash on Route 29 identified.

www.zillow.com › blaine-ky

Blaine Real Estate - Blaine KY Homes For Sale | Zillow

Zillow has 0 homes for sale in Blaine KY. View listing ... Redd, Brown, & Williams Real Estate Services- **Louisa**. 355 Brushy ... Is Blaine, KY **pedestrian** friendly?

lckghs.com › index.php › obituaries

Obit_1960 - Lawrence County, Kentucky Genealogical ...

Survivors include six daughters, Mrs. Denver Clay of **Louisa**, KY, Mrs. Talmadge ... of the victim in Friday night's (April 8) **pedestrian** fatality on Route 23 south, ...

www.whsv.com › content › news › Park-seeks-to-build-lo...

Park seeks to build longest swinging bridge in North America ...

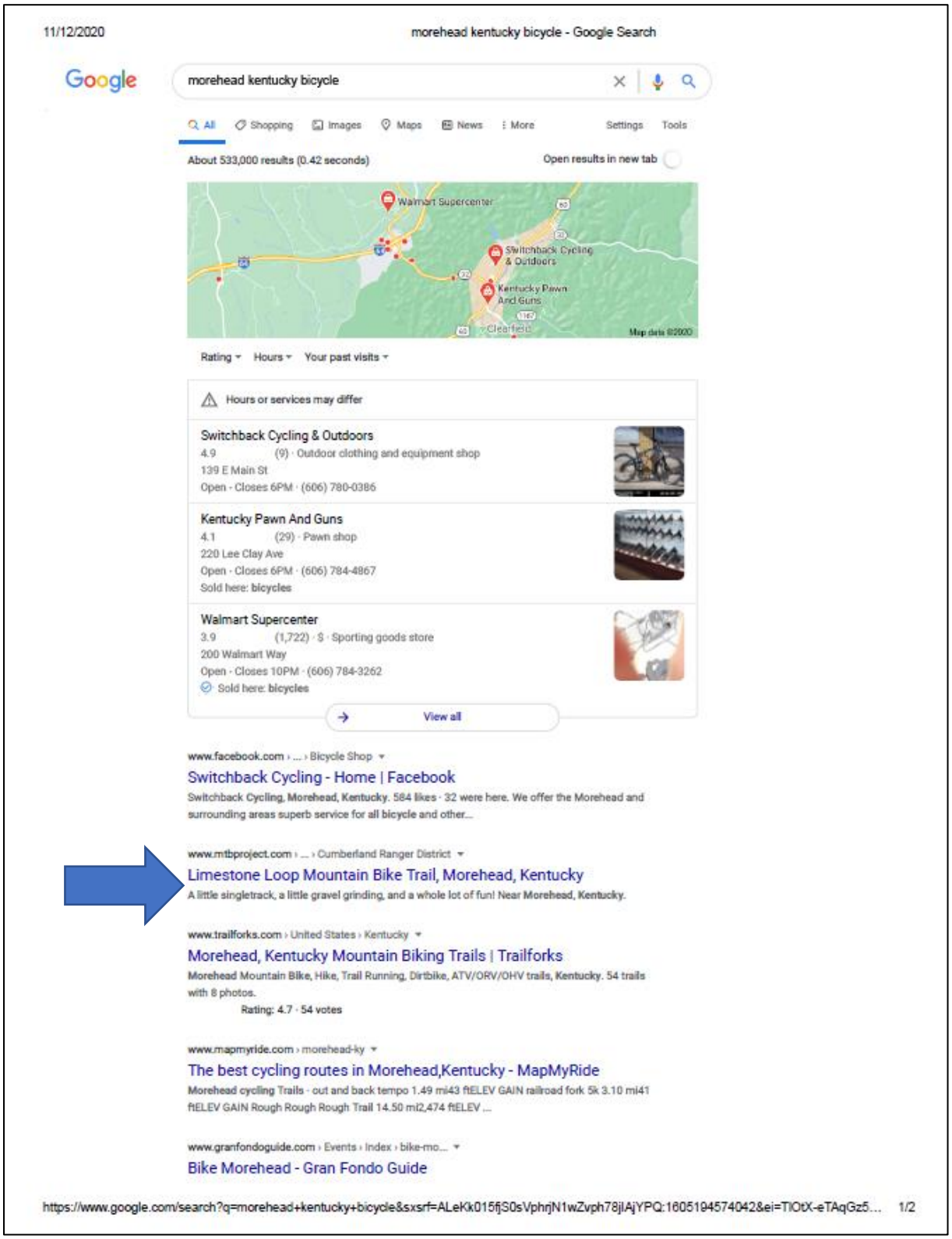
Dec 24, 2019 — A state park that borders **Kentucky** and Virginia wants to build the longest **pedestrian** swinging bridge in North America.

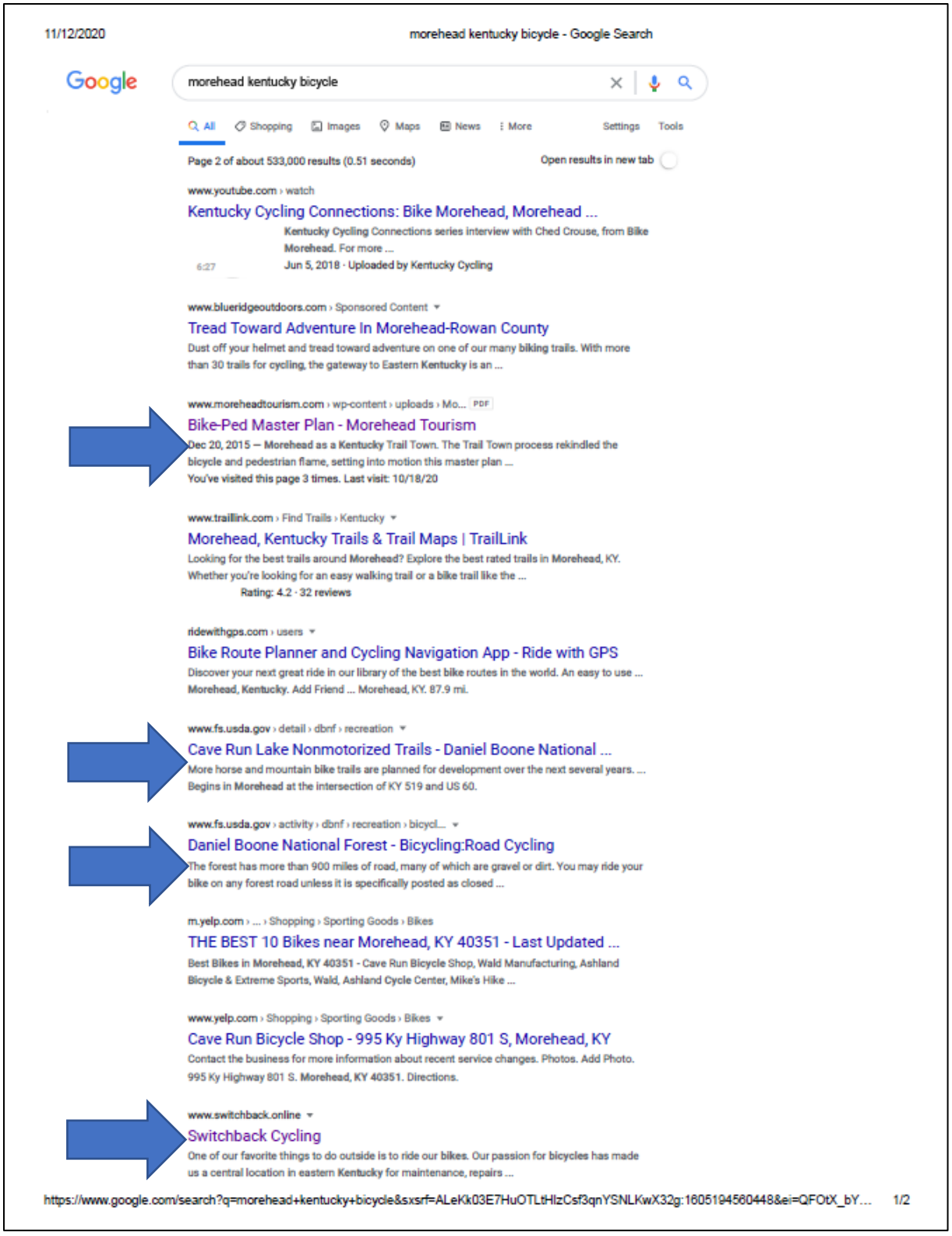
www.kirklawfirm.net › bus-accidents-injuries

Bus Accidents | Kentucky Personal Injury Attorneys

https://www.google.com/search?q=louisa+kentucky+pedestrian&sxsrf=ALeKk01N5HYwrgJ9cLAlj2gldf-Dn5jzfw:1605194266440&ei=GlKtX-aPGr6x5N... 1/2

Example of a 3: Morehead, KY, bicycle

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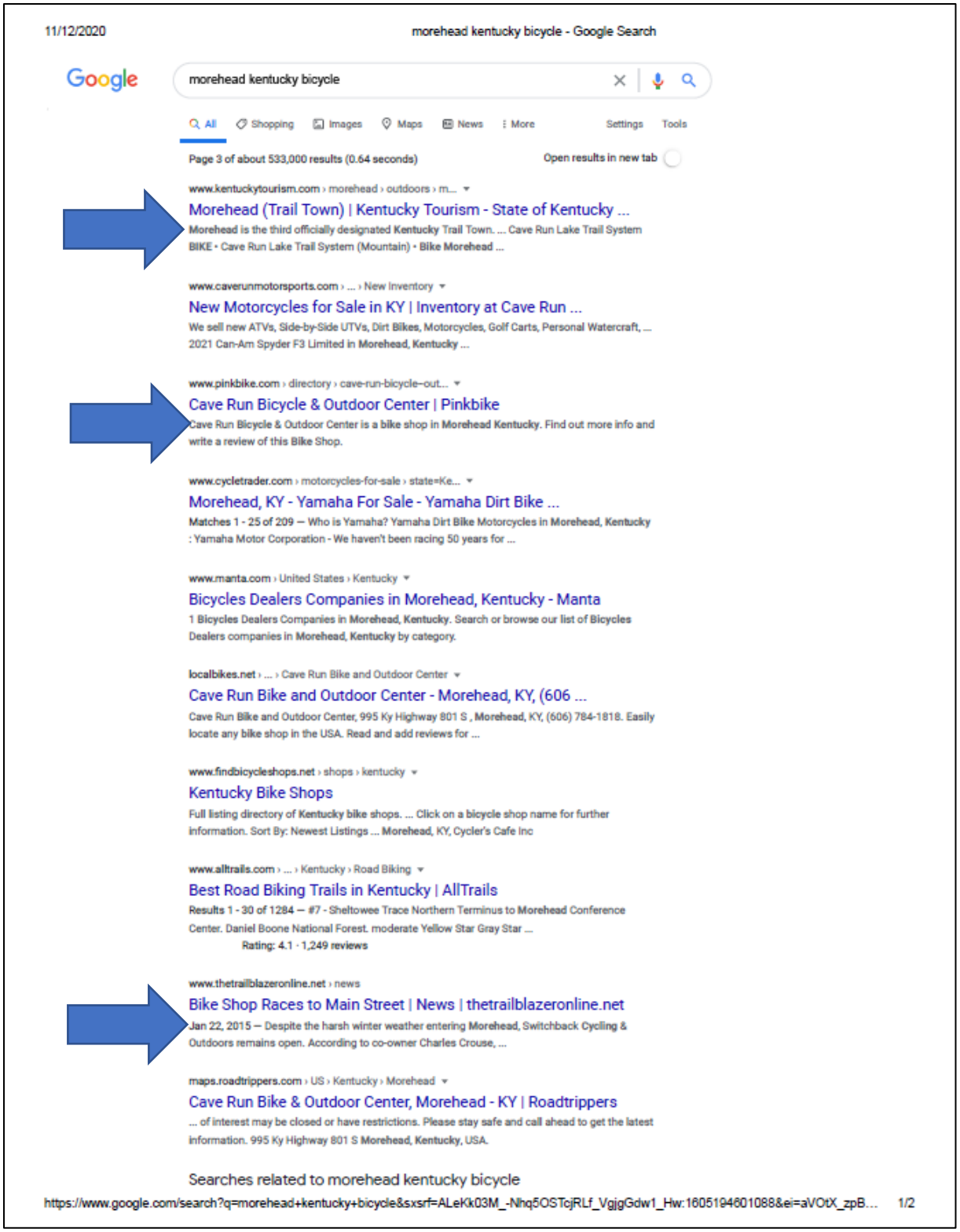
www.youtube.com › watch
Kentucky Cycling Connections: Bike Morehead, Morehead ...
Kentucky Cycling Connections series interview with Ched Crouse, from Bike Morehead. For more ...
6:27
Jun 5, 2018 · Uploaded by Kentucky Cycling
www.blueridgeoutdoors.com › Sponsored Content
Tread Toward Adventure In Morehead-Rowan County
Dust off your helmet and tread toward adventure on one of our many biking trails. With more than 30 trails for cycling, the gateway to Eastern Kentucky is an ...
www.moreheadtourism.com › wp-content › uploads › Mo... PDF
Bike-Ped Master Plan - Morehead Tourism
Dec 20, 2015 — Morehead as a Kentucky Trail Town. The Trail Town process rekindled the bicycle and pedestrian flame, setting into motion this master plan ...
You've visited this page 3 times. Last visit: 10/18/20
www.traillink.com › Find Trails › Kentucky
Morehead, Kentucky Trails & Trail Maps | TrailLink
Looking for the best trails around Morehead? Explore the best rated trails in Morehead, KY. Whether you're looking for an easy walking trail or a bike trail like the ...
Rating: 4.2 · 32 reviews
ridewithgps.com › users
Bike Route Planner and Cycling Navigation App - Ride with GPS
Discover your next great ride in our library of the best bike routes in the world. An easy to use ... Morehead, Kentucky. Add Friend ... Morehead, KY. 87.9 mi.
www.fs.usda.gov › detail › dbnf › recreation
Cave Run Lake Nonmotorized Trails - Daniel Boone National ...
More horse and mountain bike trails are planned for development over the next several years. ... Begins in Morehead at the intersection of KY 519 and US 60.
www.fs.usda.gov › activity › dbnf › recreation › bicycl...
Daniel Boone National Forest - Bicycling:Road Cycling
The forest has more than 900 miles of road, many of which are gravel or dirt. You may ride your bike on any forest road unless it is specifically posted as closed ...
m.yelp.com › ... › Shopping › Sporting Goods › Bikes
THE BEST 10 Bikes near Morehead, KY 40351 - Last Updated ...
Best Bikes in Morehead, KY 40351 - Cave Run Bicycle Shop, Wald Manufacturing, Ashland Bicycle & Extreme Sports, Wald, Ashland Cycle Center, Mike's Hike ...
www.yelp.com › Shopping › Sporting Goods › Bikes
Cave Run Bicycle Shop - 995 Ky Highway 801 S, Morehead, KY
Contact the business for more information about recent service changes. Photos. Add Photo. 995 Ky Highway 801 S. Morehead, KY 40351. Directions.
www.switchback.online
Switchback Cycling
One of our favorite things to do outside is to ride our bikes. Our passion for bicycles has made us a central location in eastern Kentucky for maintenance, repairs ...
https://www.google.com/search?q=morehead+kentucky+bicycle&sxsrf=ALeKk03E7HuOTLtHlzCsf3qnYSNLKwX32g:1605194560448&ei=QFOtX_bY... 1/2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www.kentuckytourism.com › morehead › outdoors › m...
Morehead (Trail Town) | Kentucky Tourism - State of Kentucky ...
Morehead is the third officially designated Kentucky Trail Town. ... Cave Run Lake Trail System BIKE • Cave Run Lake Trail System (Mountain) • Bike Morehead ...
www.caverunmotorsports.com › ... › New Inventory
New Motorcycles for Sale in KY | Inventory at Cave Run ...
We sell new ATVs, Side-by-Side UTVs, Dirt Bikes, Motorcycles, Golf Carts, Personal Watercraft, ... 2021 Can-Am Spyder F3 Limited in Morehead, Kentucky ...
www.pinkbike.com › directory › cave-run-bicycle-out...
Cave Run Bicycle & Outdoor Center | Pinkbike
Cave Run Bicycle & Outdoor Center is a bike shop in Morehead Kentucky. Find out more info and write a review of this Bike Shop.
www.cycletrader.com › motorcycles-for-sale › state=Ke...
Morehead, KY - Yamaha For Sale - Yamaha Dirt Bike ...
Matches 1 - 25 of 209 — Who is Yamaha? Yamaha Dirt Bike Motorcycles in Morehead, Kentucky : Yamaha Motor Corporation - We haven't been racing 50 years for ...
www.manta.com › United States › Kentucky
Bicycles Dealers Companies in Morehead, Kentucky - Manta
1 Bicycles Dealers Companies in Morehead, Kentucky. Search or browse our list of Bicycles Dealers companies in Morehead, Kentucky by category.
localbikes.net › ... › Cave Run Bike and Outdoor Center
Cave Run Bike and Outdoor Center - Morehead, KY, (606 ...
Cave Run Bike and Outdoor Center, 995 Ky Highway 801 S , Morehead, KY, (606) 784-1818. Easily locate any bike shop in the USA. Read and add reviews for ...
www.findbicycleshops.net › shops › kentucky
Kentucky Bike Shops
Full listing directory of Kentucky bike shops. ... Click on a bicycle shop name for further information. Sort By: Newest Listings ... Morehead, KY, Cycler's Cafe Inc
www.alltrails.com › ... › Kentucky › Road Biking
Best Road Biking Trails in Kentucky | AllTrails
Results 1 - 30 of 1284 — #7 - Sheltowee Trace Northern Terminus to Morehead Conference Center. Daniel Boone National Forest. moderate Yellow Star Gray Star ...
Rating: 4.1 · 1,249 reviews
www.thetrailblazeronline.net › news
Bike Shop Races to Main Street | News | thetrailblazeronline.net
Jan 22, 2015 — Despite the harsh winter weather entering Morehead, Switchback Cycling & Outdoors remains open. According to co-owner Charles Crouse, ...
maps.roadtrippers.com › US › Kentucky › Morehead
Cave Run Bike & Outdoor Center, Morehead - KY | Roadtrippers
... of interest may be closed or have restrictions. Please stay safe and call ahead to get the latest information. 995 Ky Highway 801 S Morehead, Kentucky, USA.
Searches related to morehead kentucky bicycle
https://www.google.com/search?q=morehead+kentucky+bicycle&sxsrf=ALeKk03M_-Nhq5OSTcjRLf_VgjgGdw1_Hw:1605194601088&ei=aVOtX_zpB...
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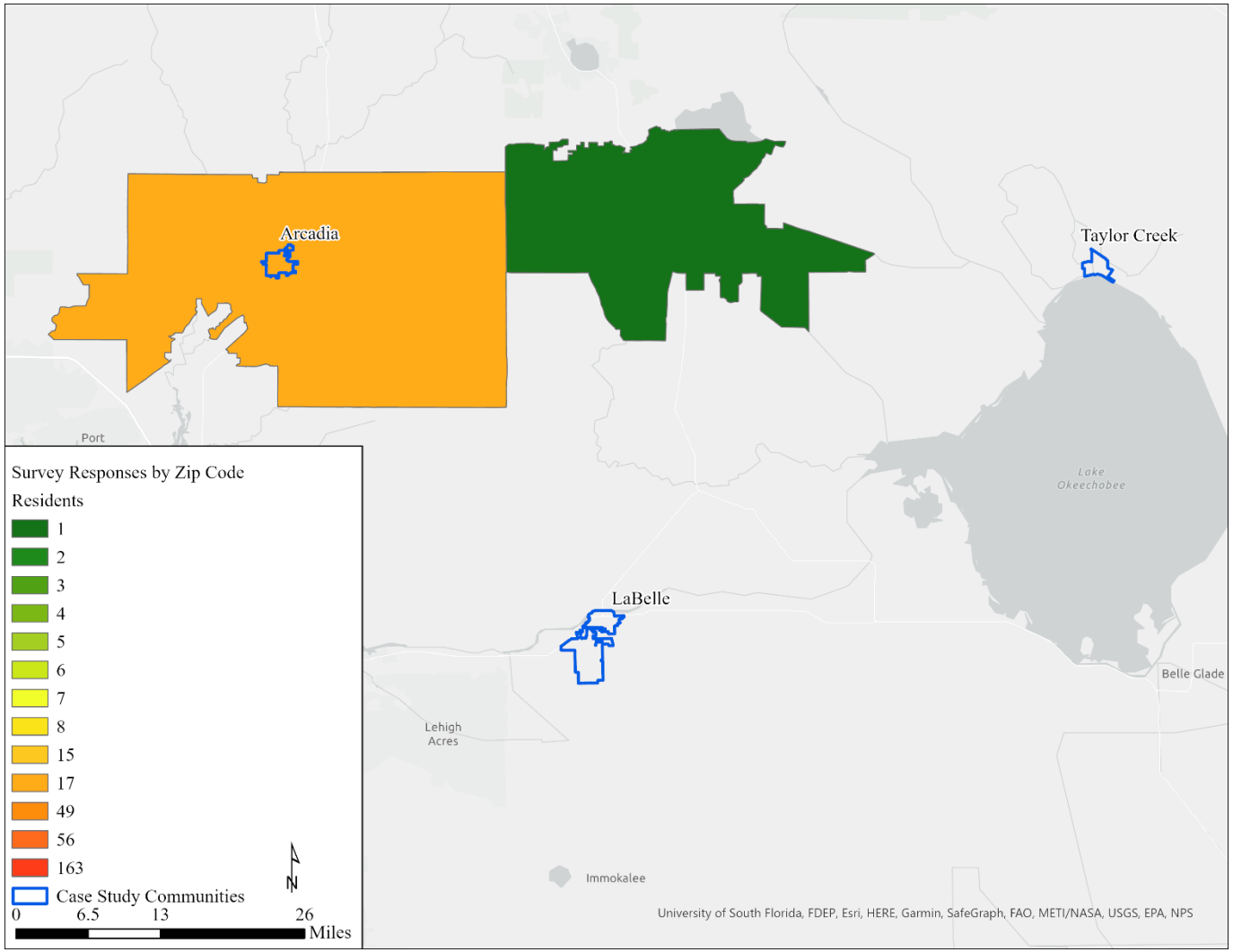
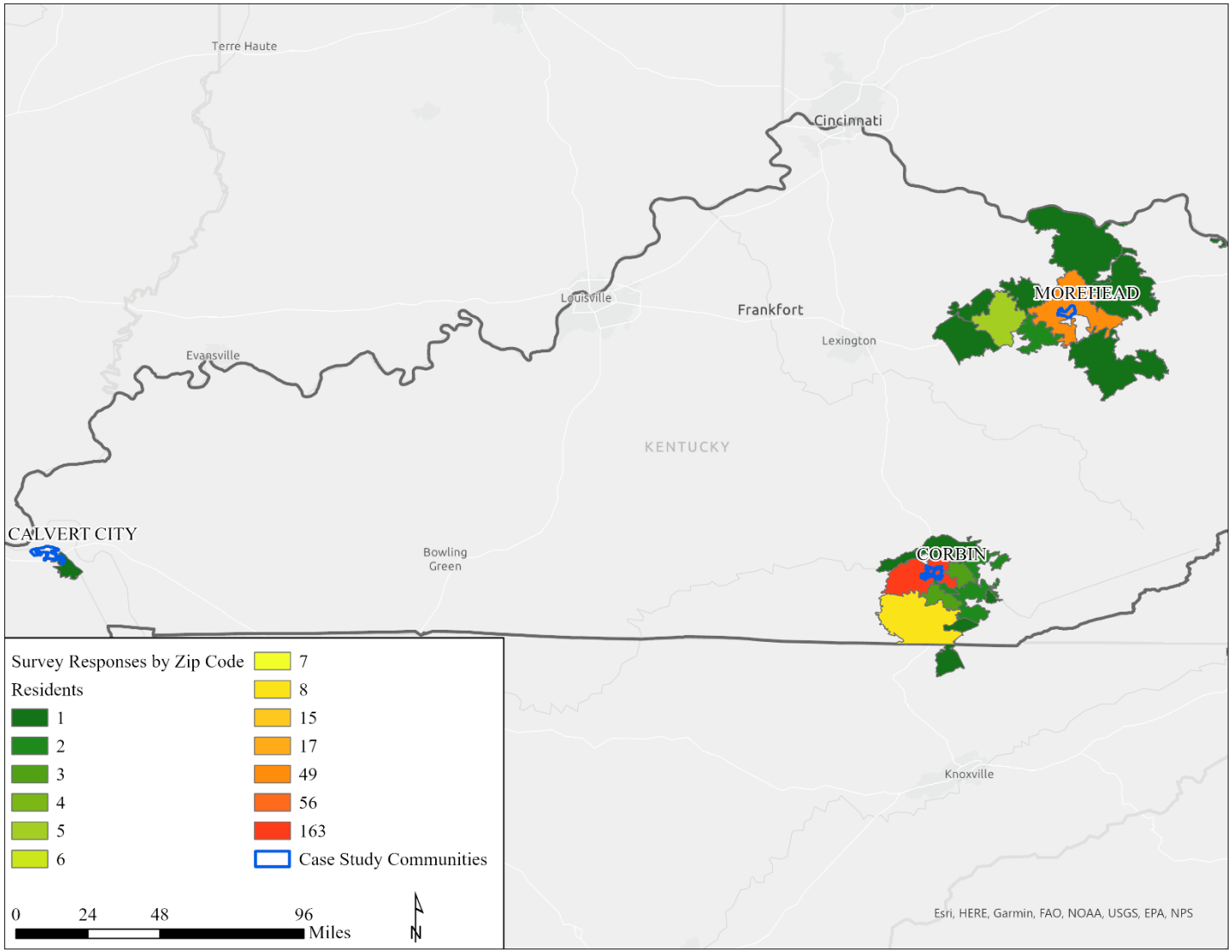
10 Appendix B – Survey Responses by Zip Code

Resident Survey Responses

Florida



Kentucky


Terre Haute
Cincinnati
Louisville
Frankfort
Lexington
Evansville
KENTUCKY
MOREHEAD
CALVERT CITY
Bowling Green
CORBIN
Knoxville
Survey Responses by Zip Code
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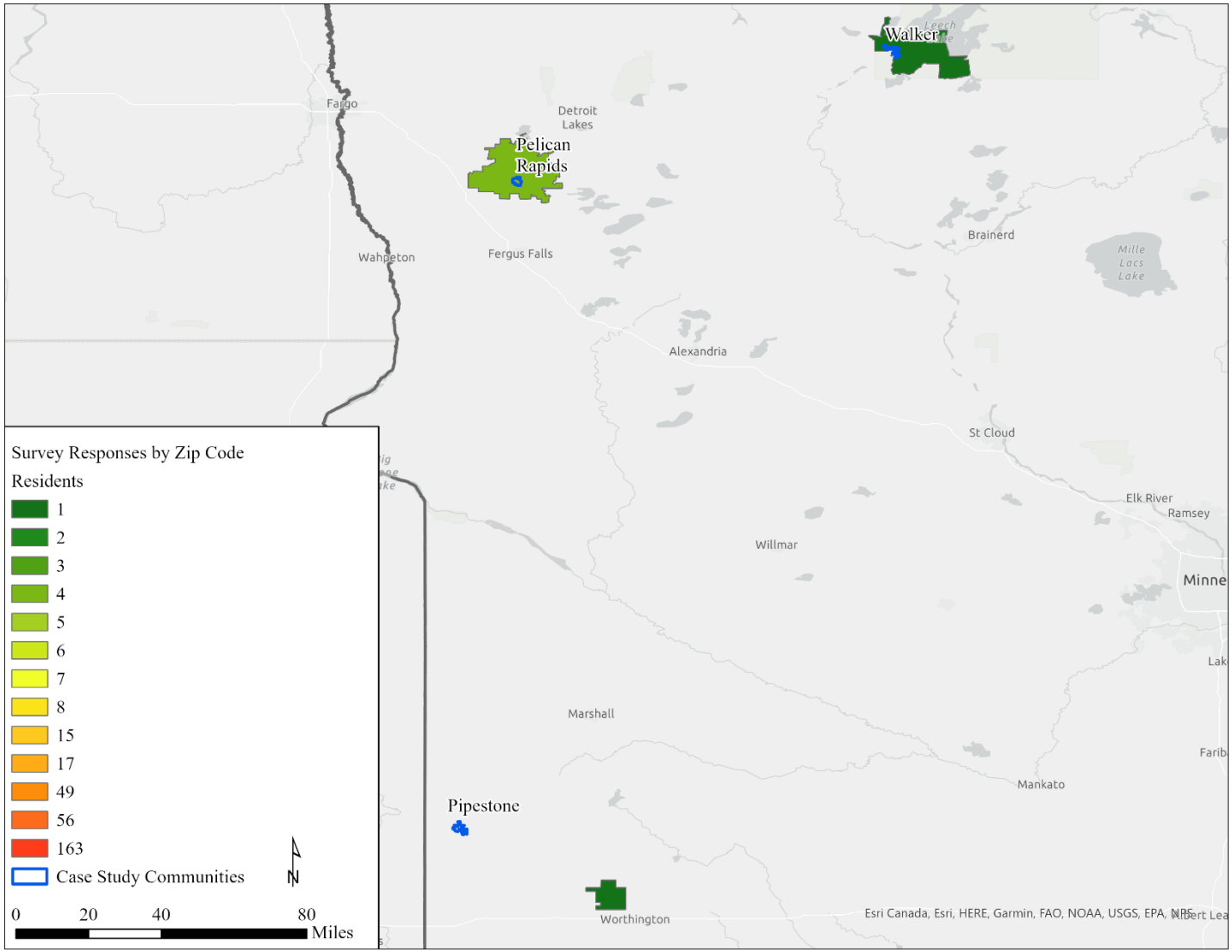
Minnesota


Walker
Fargo
Detroit Lakes
Pelican Rapids
Wahpeton
Fergus Falls
Brainerd
Mille Lacs Lake
Alexandria
St Cloud
Elk River
Ramsey
Willmar
Minne
Lak
Marshall
Farib
Mankato
Pipestone
Worthington
Survey Responses by Zip Code
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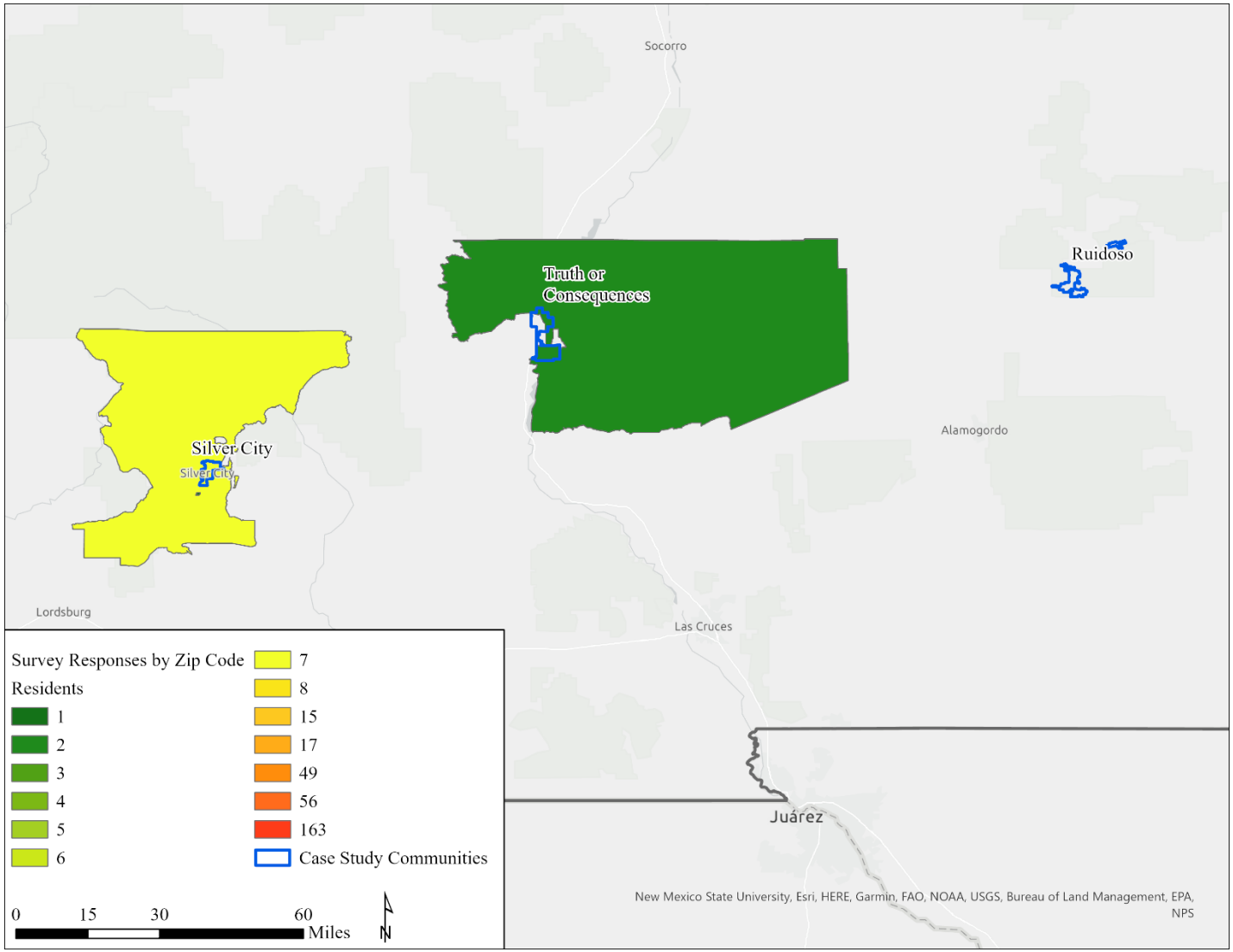
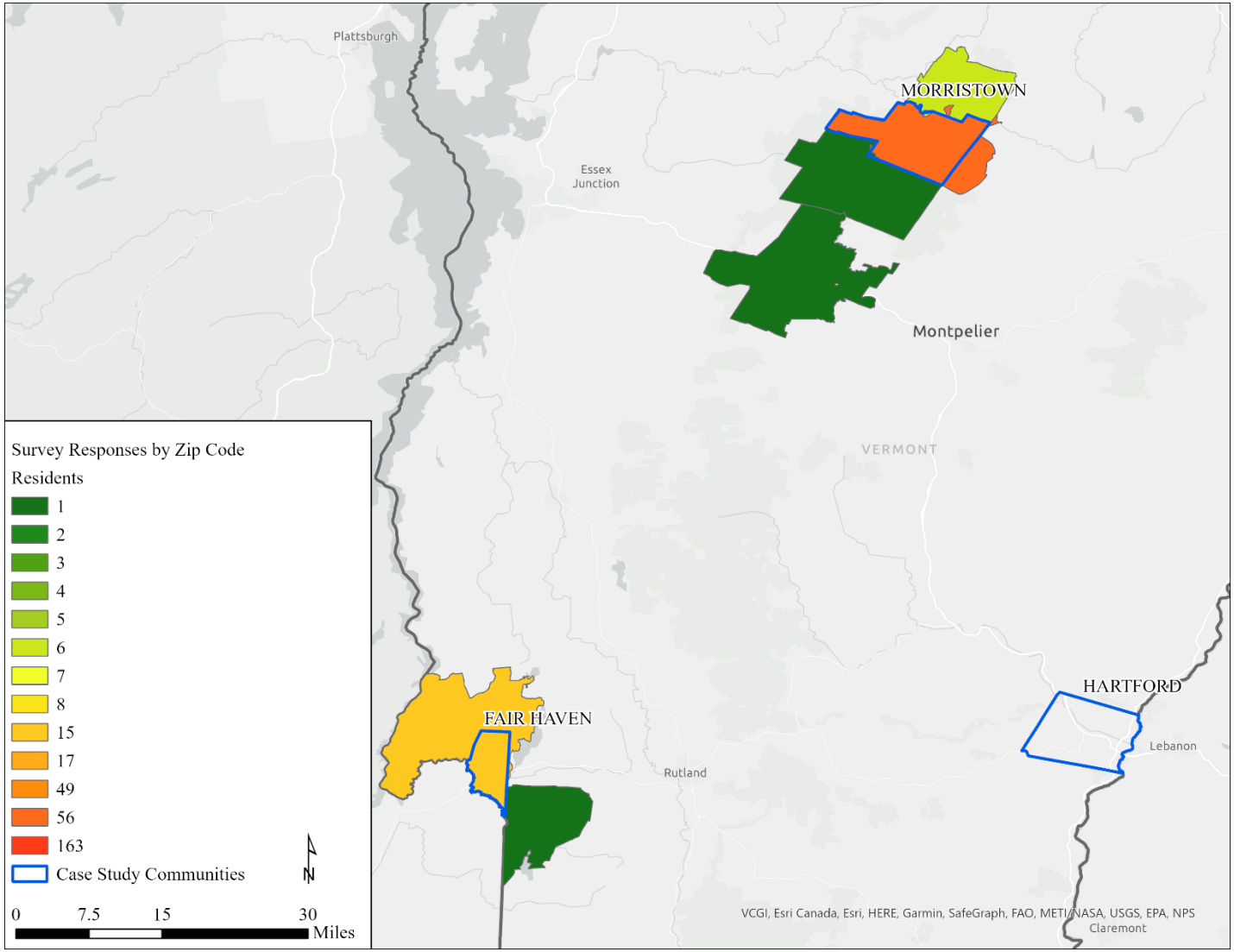
New Mexico



Vermont


Plattsburgh
MORRISTOWN
Essex Junction
Montpelier
VERMONT
FAIR HAVEN
Rutland
HARTFORD
Lebanon
Survey Responses by Zip Code
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Case Study Communities
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VCGI, Esri Canada, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS
Claremont

Comments from Resident Survey

Table 19: Why or why not more bike lanes.

More Bike	Response	State
Yes	I live out of town so you don't see them	KY
	sidewalks please & bike lanes	KY
	People need to be exercising and stay healthy	KY
	Yes! Awesome transportation	KY
	Because people would be more healthier	KY
	To actual be able to walk in my…Safely	KY
	to help provide safety measures	KY
	Safety issues	KY
	safety reasons, scared to hit someone	KY
	bikes ride on the sidewalk or in the road	KY
	more lanes would promote bike use	FL
	Bicycles are good for people's and the earth's health!	FL
	There is a lot of sidewalks but no bicycle lanes	FL
	not enough or well maintained path	FL
	safety	FL
	Safer for all!	MN
	Safer, more accessible for commuter on bike + foot	NM
	Safety - more direct to end near store/neighborhood	NM
	To encourage more people to bike if they felt safe	NM
	There are many residents + tourists that use bicycles here…	NM
	Safety safety safety	NM
	Safer for cyclists	NM
	There are no bike lanes in Tyrone	NM
	Might give the bikers half a chance	NM
	Makes biking safer	FL

More Bike	Response	State
	It's dangerous to share the road with foot traffic and bicyclers. They have a right to travel safely and being on the road is dangerous for both the pedestrians and the vehicle operators especially at night.	FL
	Need better connectivity for bicycles	FL
	There are areas that because of traffic or private property access to parts of town and county are difficult.	FL
	Major highways dangerous. Bike paths safer and more enjoyable	FL
	Too many long distance bikers thru the county	FL
	I ride every day. many of the roads and sidewalks are in very poor repair.	FL
	That would be excellent additions to our roadways.	KY
	With a college in town, more bike lanes would be a nice way to get around but it isn't safe currently.	KY
	To make bike travel safe for people who want or need to do it. Currently people do bike on US 60, but it's incredibly unsafe for them!	KY
	Healthy, environmentally-friendly	KY
	We would walk and bike more if it were safer to do so on major roads.	KY
	I would love to see bike baths my child as well as others could use to gain confidence using bicycles.	KY
	To reduce pollution	KY
	Because i bike. It would be safer if we had marked bike share roads.	KY
	So we could get out even more	KY
	More multi-use paths. I don't trust drivers to pay attention and stay out of the bike lanes	KY
	I like off road paths. I don't trust auto drivers	KY
	There is no where I feel safe biking around here. But with the hills and beautiful countryside it would be a lovely place to bike.	KY
	I would LOVE safe bike and pedestrian areas, however Morehead has incredibly narrow streets and many places without even sidewalks. A stronger pedestrian and bike culture would be awesome, but space is definitely an issue.	KY
	There are plenty of places to walk around town, but I have not see any specifically marked bike lanes for bike riders.	KY

More Bike	Response	State
	It's better for the environment	KY
	They are great for those living within the city limits.	KY
	For the most part bike pa[t]hs would be good as long as it doesnt impede traffic. A lot of downtown the lanes are very narrow and the addition of a bike lane in those spots could be dangerous	KY
	Bicycling is very dangerous in my community without designated bike lanes and paths..	KY
	To make it safer for those who do ride a bike or walk!	KY
	Right now the roads are too narrow to safely accommodate cars and cyclists.	KY
	Sa[f]er for the children and adults who ride their bikes in the street .	KY
	Some kids have no where to ride	KY
	Health	KY
	There is currently no way trident safely here. I was an avid cyclist in Ohio and greatly miss riding now.	KY
	Increase availability to exercise.	KY
	Health benefits, community ambiance.	KY
	It’s a much cheaper means of transportation for college students as long as there is a Safe way to do so.	KY
	For pleasure and exercise	KY
	dangerous to ride with traffic	KY
	Safer for those who’d like to use alternate transportation	KY
	Enhance quality of life. Health benefits	KY
	Healthier for our environment, great exercise	KY
	It would be better in our community.	KY
	Because people respect it most of the time when it is an actual bike lane not share the road	KY
	Yes, but not just painting aline on the side of the road and calling it a bike lane. We have one of those and it is not safe at all. Bike lane goes around curvy road and drives pay little to no attention to bike lane making biking very dangerous.	KY

More Bike	Response	State
	Lots of people walk and ride bikes on my road but we have a narrow road with no lanes. I know some people bike to the dollar general and no road from here to there has a bike lane or side walk :(	KY
	Bicyclists need safe places to ride.	KY
	Multi share are needed. We have to walk in the street.	KY
	Healthier and cleaner transportation	KY
	it would be nice to take a walk without fear of getting hit by cars.	KY
	Some of the roads are really dangerous for cyclists	KY
	To promote health and safe activity in the community.	KY
	My neighborhood has NONE. We are closest to Corbin, KY and cannot comfortably walk or ride bikes to town without risking and automobile accident. Everyone deserve access to public transportation, safe sidewalks, and bike lanes. These options will better protect our environment and empower people who do not have their own vehicles.	KY
	As long as they are in safe locations. 5th Street is not a safe location.	KY
	The bike lanes right now make the driving lanes too narrow	KY
	I believe it promotes healthy living and it will provide safe passage for the people I see biking throughout our community	KY
	The current ones are not connected well, and I would love to see one extend down to our local park. If we could connect the existing infrastructure better and loop it around that area along with our Recreational Center, it would be much better. There also needs to be parking for bicycles implemented into the downtown area.	KY
	There are no bike lanes.	KY
	We have a lower income demographic and many travel by foot or bike. We also have a large number if people that walk for exercise	KY
	Encourage physical activity, provide those without access to transportation a safer route to travel	KY
	I would like more sidewalks.	KY
	I think it is good for the health and well being of citizens and is also good for the community to see people using these paths in our town and neighborhoods	KY
	More bike lanes for safety for bikers	KY

More Bike	Response	State
	almost nonexistent	KY
	It would be nicer to get around for people without cars.	KY
	so it will be safer for traveling.	KY
	It would make walking and driving safer if bikes had a designated lane	KY
	So bikes don't have to use sidewalks	KY
	Roads are to[o] dangerous to ride a bicycle on	KY
	Safety	KY
	So there are more safe places to exercise in our community	KY
	Yes. We would like to be able to walk from our home to downtown but it's not safe currently.	KY
	I would bike through Corbin not just side roads	KY
	I would like more sidewalks in Corbin so I can get out and exercise and walk with my grandchildren. Please!	KY
	I would love more places to safely bike around Corbin.	KY
	They're are very few bike lanes, or space to allow for cyclist, none of which are near enough my home for me to feel safe on a bicycle.	KY
	Button they need to be safe	KY
	Safety	KY
	Bike routes we currently have are unsafe. So dangerous & no thoughts to plans	KY
	The more options we have the less we will be dependent on automobiles	KY
	Roads are too narrow. Blind curves.	KY
	I would utilize them for running & walking.	KY
	Then maybe the citizens will use them instead of riding on the sidewalk	KY
	We have very limited area for bike lanes.	KY
	Bike safety is not very well understood.	KY
	Safety reasons	KY
	I'd like to see them improved theres no barrier between the bike lane and cars. They are no longer marked as a bike lane. (Paints wore off people are driving across the lines)	KY
	To have options	KY

More Bike	Response	State
	I often walk with my dog and have to navigate traffic when there is no sidewalk. It can be dangerous and interrupts our walks.	KY
	The bike lane an hour area is constrained to one Street and isnt located near major shopping centers	KY
	The bike lane that we currently have is located on one street. People usually drive in the bike lane, which makes me feel unsafe.	KY
	Yes, there are limited bike paths, more would encourage additionally people to participate.	KY
	My kids like to ride there bikes when we walk but there's not enough places to ride the bikes unless on the sidewalks	KY
	I am a runner and use the down town area to start and end runs.	KY
	So people who enjoy bikes can ride them more freely	KY
	I see lots of people on bicycles and I believe they need safer means of traveling than the current system.	KY
	Encourage activity and also allow walkers/bikers to get to destination in a safe manner	KY
	I run in my neighborhood and would like to feel more safe. More multi use lanes would help	KY
	I am an avid biker but i choose to bike in other areas away from Corbin because our paths and streets are not safe for biking traffic	KY
	i think it is so important for people to get outdoors; now more than ever. if there are more walkable and bikeable paths, it will encourage citizens. and it will help people who already participate in these activities to keep using Corbin to stay active, rather than going to other communities that have more parks and safer biking paths.	KY
	only ability for bikes is grass on the sides of the road, especially in bellfonte where it's a beautiful community but no ability for foot/bike traffic	KY
	to encourage more environmental and healthy transportation in our community. We have them downtown, but not in areas that lead to downtown	KY
	These lanes can serve as a safe alternative means of transportation that also provides the ability to travel and gain health benefits at the same time.	KY

More Bike	Response	State
	Because we have neighborhood children that ride their bikes on the sidewalks and it's hard to walk for the bicycles. Also, it would make it safer for the children.	KY
	encourage physical activity through biking. Provide safe place to do so.	KY
	We have a small rural town. However, bikes ride either in the road or on sidewalks which can be dangerous. Our town police do not enforce speed limits on streets in our small town creating a dangerous environment for pedestrians, biciclysts and motorists.	MN
	Safety for the growing number of cyclists and students riding to school.	VT
	Encourage exercise and environmental practices	VT
	The condition of current paths need to be redone for safety and we could bike from town to town OR we could provide exercise paths with a variety of views, terrain, and options	VT
	Dangeruos traffic	VT
	It's great for the community and safer for kids.	VT
	Encourage different ways of transportation	VT
	We have many town roads that are paved, narrow with no shoulders, with 50 mph speed limits and literally no traffic control so there are many speeding vehicles.	VT
	Most places are long-distance accessible with the rail trail; but, to get to the grocery store, or around town on a bike it is within car travel lanes.	VT
	Good for health and environment	VT
	Great bike path, but would be good to have a bike path on Main St.	VT
	State roads/routes should shoulders wide enough to accommodate a safe bike lane.	VT
	Bike lanes on roads would be nice	VT
	They all lead to fewer cars, ana a healthier community	VT
	Bike lanes on Brooklyn Street from Harrell st to RT 15 for safer travel	VT
	Traffic	VT
	Morrisville has no bike lanes. NONE. It seems very bike unfriendly. There should be sharrows in the downtown area as bike lanes just wont work there.	VT
	I would like to lower my use of fossil fuels.	VT
	Biking around town does not feel safe now.	VT
	To be separated from traffic	VT

More Bike	Response	State
	Safety	VT
	For safety reason	VT
	Connector paths	VT
	its cur[r]ently dangerous	VT
	Although I do not live in town I live close enough that if I had an ebike I would consider biking in to get groceries and other errands except it is 100% putting my life at risk. Route 100 which is the major when people would connect to town was just redone. Not one bicycle stencil was painted on the shoulders. They should be displayed the entire length from stowe to morrisiville.	VT
	Due to rural landscape, bike lanes would make it safe to commute on bikes	VT
	Conditions without designated bike lanes are a hazard to bikers, drivers, and pedestrians alike.	VT
	We need safer routes along popular biking routes.	VT
	For safety, traffic is hazar[d]ous.	VT
	More people would feel safer in the roads	VT
	Currently the rail trail is the only bikable option (and it is great!) but once you are in town, biking becomes quite dangerous	VT
	Having a bike lane promotes safer biking and respect for this mode of transportation.	VT
	The more people have access to bikes the more likely they will be to use them instead of cars.	VT
	To help increase safety for riders and walkers.	VT
	I would like to cut down even more on my driving.	VT
	health reasons, global warming, psychological contentment	VT
	We should link up all the separate bike trails.	VT
	Particularly for challenged pedestrians	VT
	A safe place to ride	VT
	We do not have blue lanes. We have a bike trail but follows old train rail.	VT
	More bike infrastructure would encourage biking and take more cars off the road. It would also incentivize more bike recreation. Currently many of the roads are scary to ride on.	VT

More Bike	Response	State
	I feel safer on designated paths for non-motorized vehicle	VT
	more room to be on or next to roadway	VT
	Bike lanes and multi use trails make biking and walk more enjoyable by reducing the noise and danger of cars.	VT
	Safer	VT
	bike/multi-use paths improve quality of life	MN
	Encourages active lifestyle & green transport	VT
	to keep bikes out of the street & out of traffic	
	Bike lanes being painted make me feel more likely to use the road	VT
	exercise, create community	KY
	good for comm. & business	MN
More Bike	**Response**	**State**
No	It is a[n] old country road.	KY
	Road is too dangerous on 92E	KY
	2 dangerous	KY
	Safety issues	KY
	5th st has them & downtown Corbin	KY
	not many ride bikes in my community	KY
	lives on 5th st has bike paths	KY
	our main street drivers act up too much	KY
	main hwys have bike lane	FL
	Country/back road	VT
	42044 is highly rural w/too many highways	KY
	Country/back road	VT
	Roads are too narrow	KY
	Roads are too narrow	KY
	I live off a major highway. People drive fast. Adding bike lanes seems dangerous.	KY
	Don’t need them.	KY
	Already enough people walking in front of moving cars	KY

More Bike	Response	State
	There is not enough room. Our streets are too small to begin with.	KY
	Don't see to[o] many people riding bikes	KY
	I live out of the city	KY
	Cause these roads are to[o] dangerous	KY
	Dangerous and annoying for bikes to be in the roadway (yes, I'm aware that they have that right)	KY
	My road is too dangerous for bike use	KY
	I do not use them and do not see others using bike lanes	KY
	Doesn't benefit myself	KY
	Narrow streets make bike lanes dangerous.	KY
	Dangerous	KY
	Waste of paint, virtually no one uses them	KY
	I live on 5th Street in corbin. There are so many people driving way over the speed limit i would never attempt to ride a bike on that road. This area is not patroled by local pd	KY
	Would not use	KY
	Streets are too narrow. Not safe.	KY
	I'm afraid the bicyclists will get run over. There's not much space for two cars much less adding a bike lane to the mix. People can't drive that well either	KY
	Useless	KY
	I do not ride a bike.	KY
	Roads are not wide enough, it would be too dangerous.	KY
	They take up parts of roadways that are barley suitable for cars and bikes being in these roads makes it dangerous for drivers when bikes cannot stay in their lane	
	bikes hold up traffic and are dangerous to actual motorist	KY
	Not needed in my opinion	KY
	I rarely see anyone riding a bike in town.	KY
	Because of the rural nature biking isn't feasible. Biking from home to anywhere (store, school, shops, church, work, etc.) isn't possible	KY
	I drive.	KY

More Bike	Response	State
	Adds another safety concern on the roadway. We already have bike lanes here and they still ride in the car's roadway.	KY
	Car lanes will be narrow and the result would be the same. When a bike is present, cars can avoid them.	KY
	Don't ride	KY
	The ones we have are not often used.	KY
	Because they are pointless. Have never seen anyone actually use them	KY
	I have visited NYC and see problem it created for pedestrians, cars and parking	KY
	Don't think it is used much at all, improving sidewalks would be better updated	KY
	Main Street and others are already overly congested and people speed through there as it is. I would actually like to see less parking on Main Street	KY
	Doesnt really matter i dont ride alot	KY
	People in cars do not know how to drive with cyclists	KY
	Bicycle traffic is a general traffic hazard.	KY
	Nobody really rides bikes around	KY
	Already in place on my side of town	KY
	I don't think they're used or needed at all.	KY
	There are not enough bike riders in this area to constitute having a bike lane.	KY
	We have bike lanes and i have only witnessed a handful of people using them since they were put in	KY
	We need more sidewalks! Bike lanes are dangerous!	KY
	I rarely see it used. Our streets need improvement	KY
	Because it is already a smaller space and there is a lot more people who wall within the businesses	KY
	In the years the bike lanes have been in Corbin, I've not one seen them used	KY
	not needed	KY
	Not really overwhelming need for them	KY
	I live in a very rural area with 1 major Vt road on this road-most other roads are dirt & would not be able to be marked with a bike lane.	VT
	don't care	VT

More Bike	Response	State
	I believe we already have some	VT
	I don't ride a bike so to me it seems like there are already enough options for those that do.	VT
	We have plenty already.	VT
	We are very fortunate here in Stowe to have access to a good number of bike lanes and multi-use paths. I wish the bike lanes could be wider but our roads are already quite narrow.	VT
	No need. I live on a remote dirt road where a bicycle lane would be nonsensical and where traffic is light.	VT
	I live in a rural area, so N/A.	VT
	There is no where to go to access any services for elders. Rail trail provid3s exercise.	VT
	Dangerous to traffic	VT
	Traffic	VT
	Don't waste money on a bike share. There isn't enough traffic to warrant bike lanes but some education of drivers and cyclists would be valuable. Would also be helpful to have more formal access points to the rail trail some	VT
	We have plenty	MN
	Not needed - rural	VT
	many village streets already narrow	VT
	We have a rail trail already	VT
No Response	Rural area	VT
	No level bicycle trails available. We are older and must travel to other areas to ride bicycles.	VT
	Nothing to walk to in my area. Road too rough for biking to work. Might be better next year but car drivers in my area are woefully unaware of their surroundings, vehicle dimensions	VT

Table 20: Why or why not more sidewalks

More Sidewalks?	Response	State
Yes	It would be safer	KY
	no w[her]e to walk but the street	KY
	Safety	KY
	But still safety issues	KY
	Keep children out of the road	KY
	not safe to walk	KY
	sidewalks are broken, trip	KY
	There just nice to have, we have plenty	KY
	improved sidewalks also	FL
	to stay safe	FL
	need better connectivity to neighborhood	FL
	Walking is good for people's and the earth's health!	FL
	I live across I-70 need better way to cross	FL
	safety	FL
	safety	FL
	Sidewalks are only on one side of street in many areas in Pipestone	MN
	Handy for folks who walk to work	NM
	Easier than walking over rough terrain	NM
	Safer walking we often walk in streets here	NM
	To easily navigate areas…	NM
	Too many ruts or no space between road and private property	NM
	Safety	NM
	especially wheelchair ramps	NM
	It’s dangerous to share the road with foot traffic and bicyclers. They have a right to travel safely and being on the road is dangerous for both the pedestrians and the vehicle operators especially at night.	FL
	For better connectivity	FL
	Yes, many areas of town have sidewalks that abruptly end or no sidewalks in some of the larger shopping areas.	KY

	I'd like to see sidewalks, or at least walkable shoulders, on all the busier roads to make walking safe for those who want or need to do it	KY
	Pedestrian-friendly	KY
	Sidewalks make an area more walkable.	KY
	We currently do not have enough sidewalks in our community. Sidewalks improve livability.	KY
	To encourage walkability and exercise	KY
	Much, much, much safer walking.	KY
	Ease of walking	KY
	Safer walking/running	KY
	There are hardly any sidewalks, except for downtown. I would love to walk more but don't feel safe doing so outside of the immediate downtown area.	KY
	More sidewalks, and wider sidewalks. Morehead is a very walkable town in terms of housing, university, and business distance, but the cramped space can make walking, especially with children, less desirable.	KY
	There are none. Walkers have to use the street.	KY
	So I can walk without worrying about getting hit by cars!	KY
	Walking on narrow highways is dangerous.	KY
	For safety	KY
	More people would walk if there were safe areas to do so.	KY
	I live in a dead end street . There is no place to walk , but in the street	KY
	They are needed	KY
	Most streets in Morehead have no sidewalks. My development has none.	KY
	Increase ability to walk in areas	KY
	Safety	KY
	more connectivity	KY
	We have none, so people walk in the road	KY
	Encourage walking and exercise in our community	KY
	Because a few places are dangerous without one	KY
	Improve walking areas.	KY
	Safety	KY
	You will get ran over if you walk on my road. We could really use side walks	KY
	A lot of people walk where sidewalks should be but not.	KY

	Safety	KY
	Because a lot of people walk	KY
	Sidewalks benefit all in the community	KY
	Obvious reasons	KY
	Downtown has sidewalks but these are often blocked by signs, flower pots, and etc. Other than down town there is much of town is unconnected via side walks forcing one to walk on roads and or in people and business yards.	KY
	I love to walk but end up in the grass to avoid passing cars	KY
	We have to walk in the street. It is dangerous.	KY
	Sidewalks only exist directly downtown. Plenty of places could be walked to, but have no safe way to do so.	KY
	We currently walk on the streets because our neighborhood does not have sidewalks. We must step off the road each time an automobile passes.	KY
	Many walking locations require me to walk on the street which is dangerous in a small town with small roads.	KY
	Extending some sidewalks and repairing others would make walking a better option.	KY
	Especially leading to Miller Park	KY
	Helps to be about to get around bette[r]	KY
	People often have to walk in ditches and on the road to Tra El around time. Sidewalks repair and expansion will assist with our transportation problems in our community	KY
	to make our city more walkable and safer for those choosing or having to rely on this means of travel	KY
	Minimal sidewalks in the area.	KY
	Sidewalks keep people out of the road. Always a good thing.	KY
	There is a lot of uneven pavement (without sidewalks) in my area.	KY
	To have a safe place to walk	KY
	Individuals walking on the side of the road should have a designated area to walk to mitigate the risk of getting hit by traffic	KY
	We have so many streets without sidewalks.	KY
	Same as the previous answer about bike paths and lanes. It's good for the health and well being of our citizens and good for our community to see citizens out and about in our neighborhoods	KY
	People are forced to walk in the road.	KY
	Sidewalks are safer for people and there’s a lot of people who walk.	KY

	Better	KY
	Safer to walk more in more areas	KY
	Non[e] in my neighborhood	KY
	I walk my dog daily.	KY
	I would like the idea of sidewalks in my area and other areas too.	KY
	so you will be away from a lot of traffic.	KY
	It's good to get out and walk.	KY
	We walk a lot and sidewalks are better than having to walk on the roads	KY
	Sidewalks need to be in better shape and in more areas to create safer walking	KY
	there are no sidewalks and folks are walking up the road daily	KY
	Needed	KY
	Sidewalks are few and what we do have are in need of repair.	KY
	So people in wheelchairs and children can walk more safely	KY
	More are needed for safer walking areas	KY
	There are a lot of people that walk on the side of our roads where there is no sidewalk. It's extremely dangerous to pedestrians as well as drivers. Also many of our existing sidewalks are in bad shape. Many neighborhoods in or just outside of city limits have no sidewalks.	KY
	Convenience and safety	KY
	Would like to walk to downtown because it's currently not safe the way it is.	KY
	I run through Corbin and prefer sidewalks	KY
	I would like to be able to get more exercise and walk with my grandchildren!	KY
	Only space for a person (child) to walk is someone's lawn, or directly at the edge of the road, which is dangerous.	KY
	To get to the nearest grocery store I have to cross a major highway at least twice because they're is no direct sidewalk from my home to the store.	KY
	I could walk different areas	KY
	Many neighborhoods beyond downtown have no sidewalks or street lights	KY
	To help make walking places easier and safer	KY
	Not more just redone these are extremely old	KY
	Walkers and joggers use the current ones frequently.	KY
	Some areas are difficult to access safely	KY
	No place safe to walk!!	KY

	Safety	KY
	Because there isn't enough of them	KY
	There are none in my area of town.	KY
	Safety	KY
	Safety	KY
	It would be much nicer to enjoy	KY
	Absolutely I love to walk downtown from my shop to other local businesses	KY
	Would allow for safer exercise. People don't know how to drive and/or do not lay attention and will hit you	KY
	Walking is a healthy activity. Promotes general health and physical fitness	KY
	Better sidewalks	KY
	I am a runner and use the downtown area to start and end runs.	KY
	Safer for those of us who walk to exercise	KY
	We have places where the sidewalks just end and we have more than an abundance of pedestrians.	KY
	There are areas that are heavily traveled with cars and pedestrians, but no side walks	KY
	Yes, while I live within city limits some areas where sidewalk stops and doesn't start again until further down the street. This is extremely difficult to navigate with a stroller.	KY
	Walking beside busy roads is unsafe.	KY
	Old sidewalks they been removed for road widening so individual walk in the road or across lawns.	KY
	safer pedestrian travel on main roads, and safe foot/bike travel in neighborhoods	KY
	They would make walking much safer!	KY
	I walk a lot and there are several sidewalks that are missing before you get to stoplights and you need to cross streets to get to a sidewalk.	KY
	There are some areas that would be nice to be walkable that there isn't existing sidewalks	KY
	More sidewalks would be nice because it is safer for my kids and I to take a walk around town or to go for a run and take in the beauty of our town.	KY
	Corbin needs sidewalks	KY
	to make walking easier (and safer) for those with children/strollers/etc..	MN
	We have far more foot traffic than bike traffic. Some highly walked roads don't have sidewalks in good condition or at all	VT

	Our town had beautiful slate sidewalks and the town decided to remove all the slate and installed asphalt sidewalks. We would like to have walkable sidewalks throughout the town from the south side to the north side and all the side streets.	VT
	We still have streets with partial sidewalks	VT
	Safety	VT
	They need to be fixed, not level, mixed surfaces, difficult to keep clear in winter.	VT
	Sidewalks need to be made safer but not sure that we need More of them	VT
	We have amazing sidewalks. I would like to see repairs on side streets many are older slate.	VT
	Safety	VT
	There are some sidewalks but walkability would be easier for more people if there were more sidewalks.	VT
	Makes walking safer.	VT
	Makes walking safer	VT
	Where necessary in town, for walking.	VT
	Sidewalks on Washington hwy	VT
	There are a fewer underserved portions of the village that would benefit and not have to walk in the road.	VT
	It feels safer walking on a sidewalk.	VT
	Safety	VT
	better walking surface and safety	VT
	Saf[e]ty	VT
	People would be able to walk more.	VT
	Increased accessibility for people to walk around	VT
	We have good sidewalks; It would be nice to have sidewalk all the way up to Lower Elmore Mountain road from town,	VT
	my family and I walk 3 miles every day, but the sidewalks up elmore street don't go far enough. I think they should go to Lower Elmore Mountain Road.	VT
	There are some areas that get a lot of foot traffic but there are no sidewalks.	VT
	Safer	VT
	please, a sidewalk on Washington Highway	VT
	less reliance on cars improves health of community	MN
	Safer, I don't drive	VT

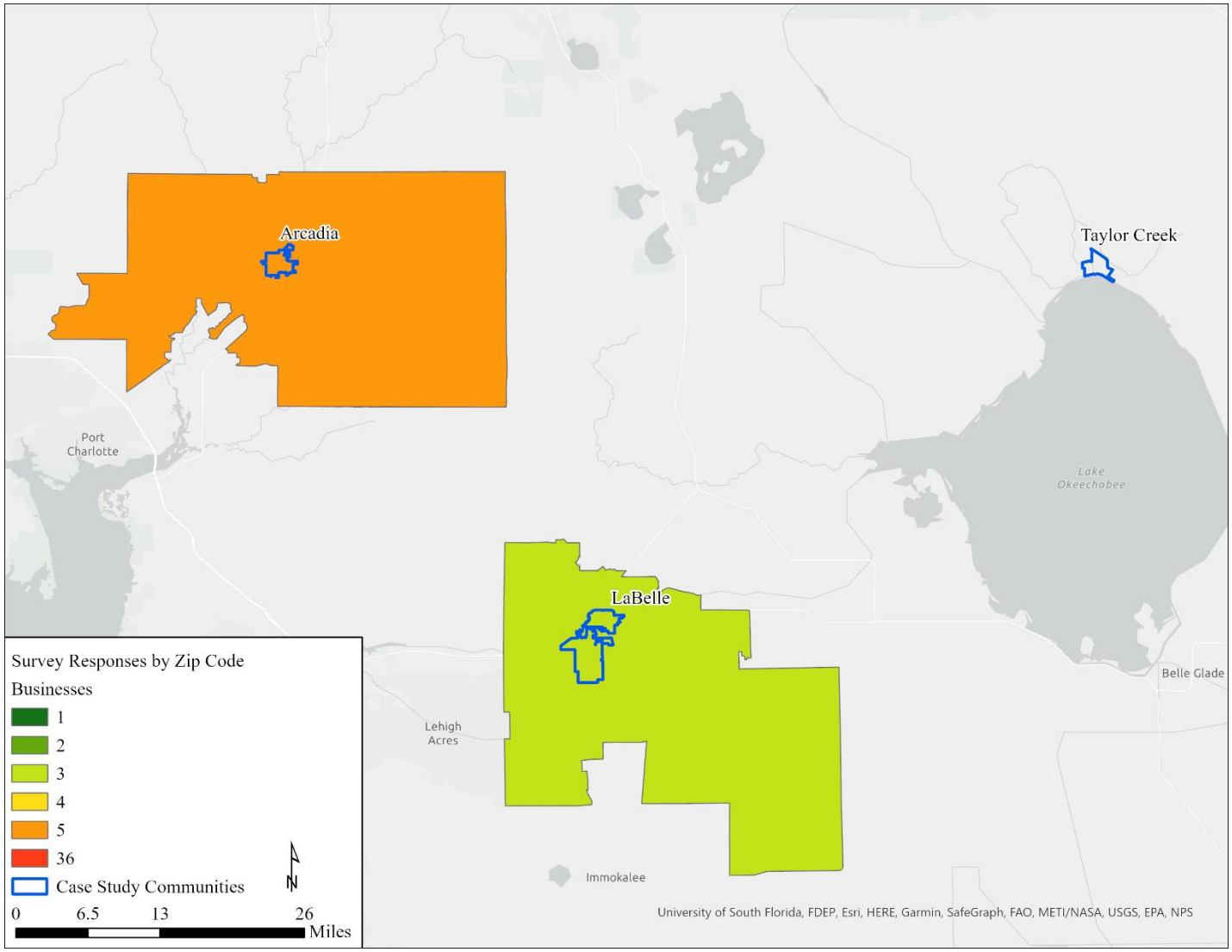
	so children don't have to walk in the street	VT
	I walk to work and to shops	VT
	Not many	VT
	exercise, create community	KY
More Sidewalks?	**Response**	**State**
No	don't need	KY
	Not available in the area live in	KY
	too many curves & I believe it's too dangerous	KY
	rural area in county - no need for sidewalks	KY
	we have a good amount	KY
	There is a lot of sidewalks but no bicycle lanes.	FL
	42044 - very busy hwy - @Tatumsville Hwy	KY
	there are enough sidewalks we need bike areas	FL
	Roads are too narrow	KY
	I believe we have an appropriate amount of sidewalks in our community.	KY
	As far as i can tell we have plenty of sidewalks. The east end of main street maybe could use some sidewalks	KY
	Don’t need them.	KY
	We have enough.	KY
	There is enough	KY
	Where I live you don’t have sidewalks	KY
	We have enough	KY
	I live in town. Full of sidewalks. Do need more on the Falls Hwy.	KY
	Sidewalks are abundant.	KY
	I feel like what we have is adequate.	KY
	Seem to have enough	KY
	They are everywhere	KY
	There’s enough.	KY
	Because I have lived here for over 15 years and very seldom see them being used.	KY
	There is an abundance of sidewalks in our area	KY

	There are enough.	KY
	We seem to have sufficient sidewalks, they just need some repairs.	KY
	We have plenty of sidewalks	KY
	We have a good amount of sidewalks.	KY
	There are enough and the ones we have need to be fixed. Many are crumbling and poor condition	KY
	We already have sidewalks that were redone a few years ago.	KY
	not needed	VT
	The ones in town now are not maintained as well as need be	VT
	I live in a very rural area with 1 major Vt road on this road-most other roads are dirt & would not be able to be marked with a bike lane.	VT
	need better sidewalks...not more	VT
	We do not need more sidewalks, but some sidewalks do need repair.	VT
	We have sidewalks	VT
	There are only a few areas that don't have them.	VT
	There are plenty or roads allow for walking	VT
	We have plenty [of] sidewalks	VT
	There are sidewalks to all the walkable destinations	VT
	Not sure it would affect my walking habits.	VT
	Being a predominantly tourist community, Stowe has an abundance of sidewalks.	VT
	Things are fine in the village	VT
	Again, I live in a rather remote rural area where sidewalks would be out of place.	VT
	I live in a rural area, so N/A.	VT
	We have many	VT
	Seem adequate now	VT
	Seem to be enough for strolling. They don[‘]t lead to any services	VT
	I think that there are plenty of sidewalks	VT
	we have plenty	VT
	Most of the village has streets with sidewalks, so there is no need for more.	VT
	Morrisville already has a great sidewalk system!	VT
	Nothing in my area to walk to.	VT
	There are plenty already.	VT

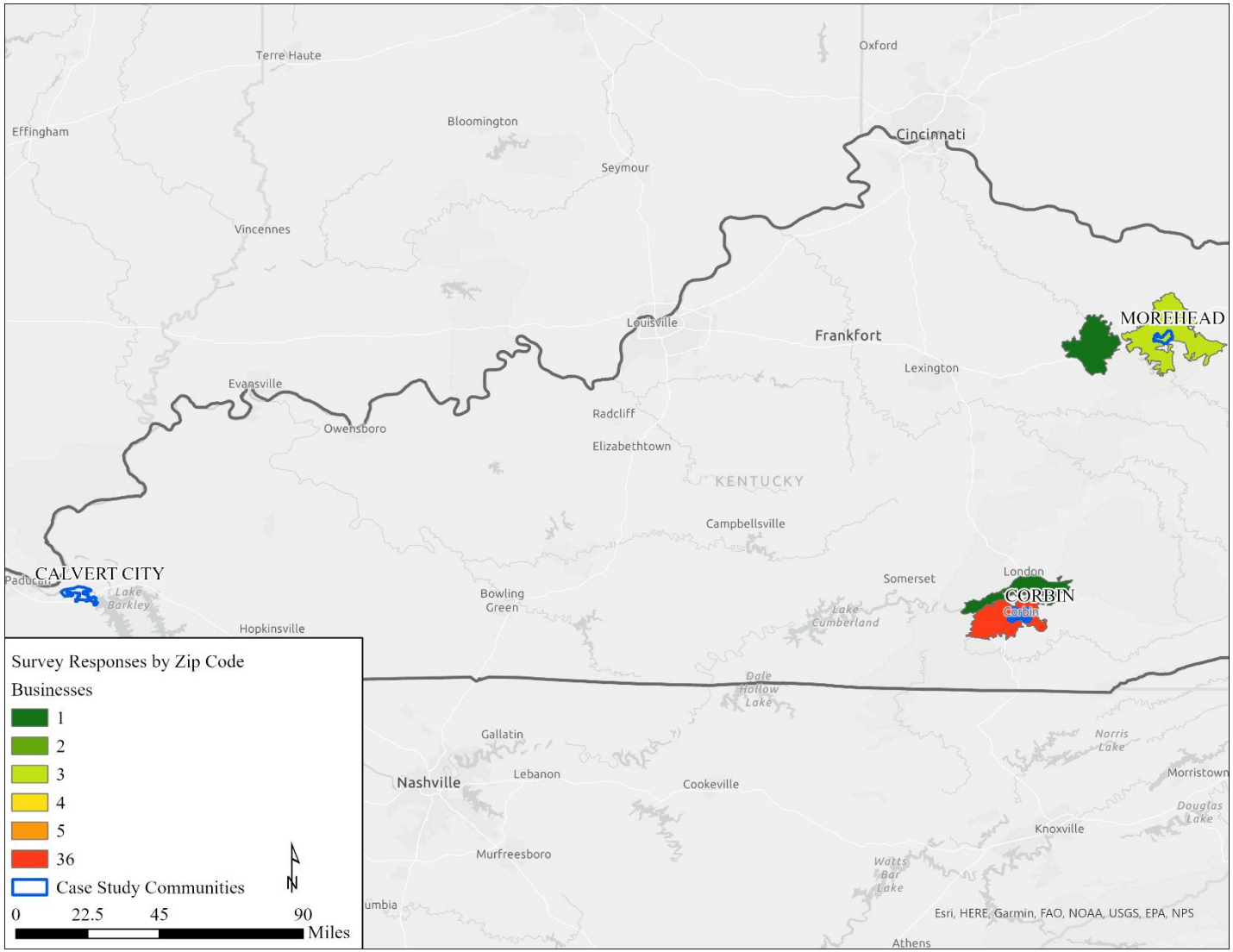
	We have sidewalk	VT
	dirt road	VT
	Sidewalks here are very adequate. But we need a connector for walking from Pope Meadow to Washington Highway.	VT
	not in the residential section, one side of the road is enough	VT
	our street has sidewalks	VT
	We have plenty	MN
	Already have	VT
	There are plenty in the village	VT
No Response	Rural area	KY
	Our streets all have sidewalks	NM
	Health benefits, economical	FL
	Yes. Steele street needs one, Forest circle also	KY
	The sidewalks are not acc[e]ssible at all you can't use the sidewalks in a wheelchair	KY

Business Survey Responses

Florida



Kentucky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Elizabethtown
KENTUCKY
Campbellsville
CALVERT CITY
Somerset
London
CORBIN
Lake Barkley
Bowling Green
Lake Cumberland
Hopkinsville
Dale Hollow Lake
Gallatin
Norris Lake
Nashville
Lebanon
Cookeville
Morristown
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Knoxville
Murfreesboro
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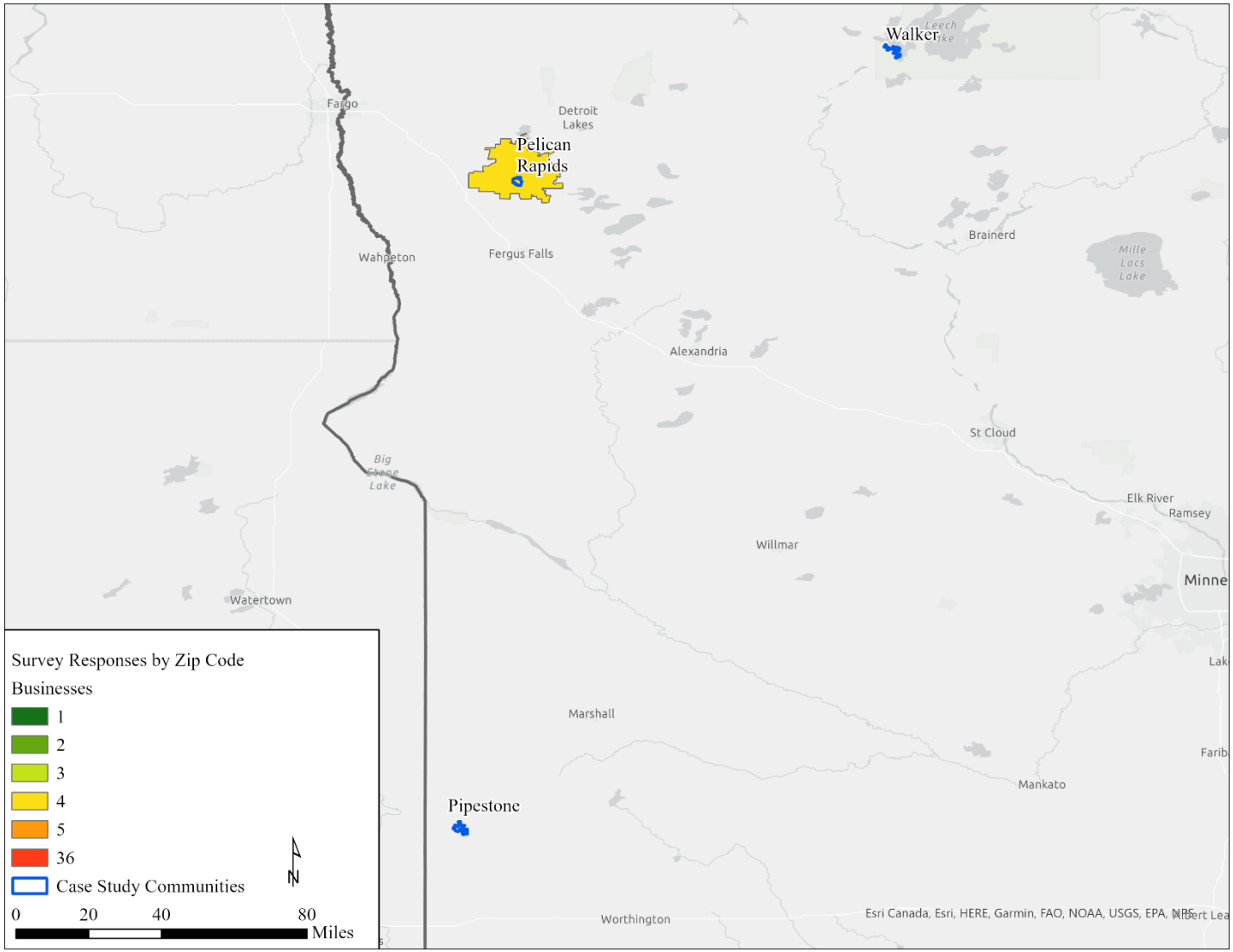
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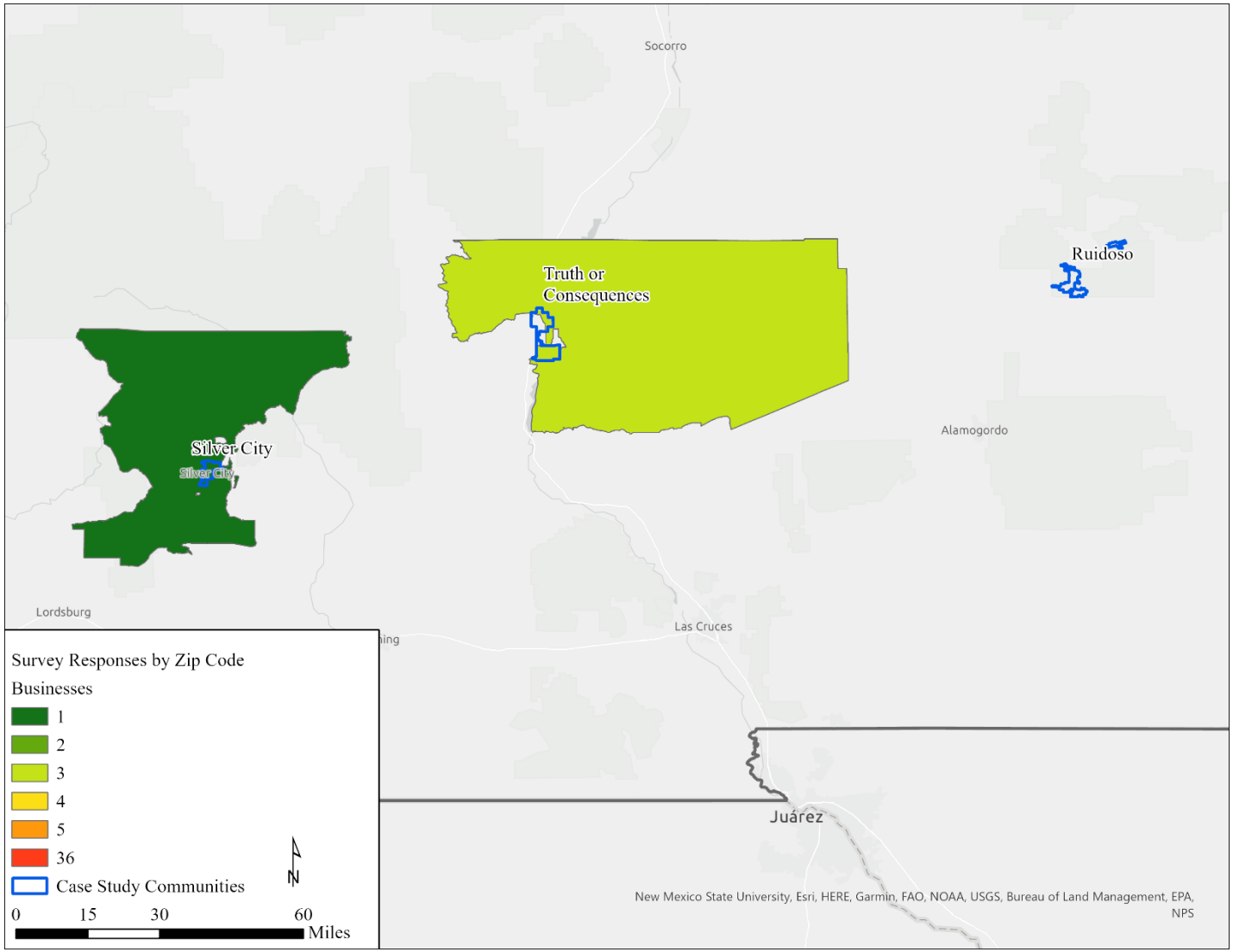
New Mexico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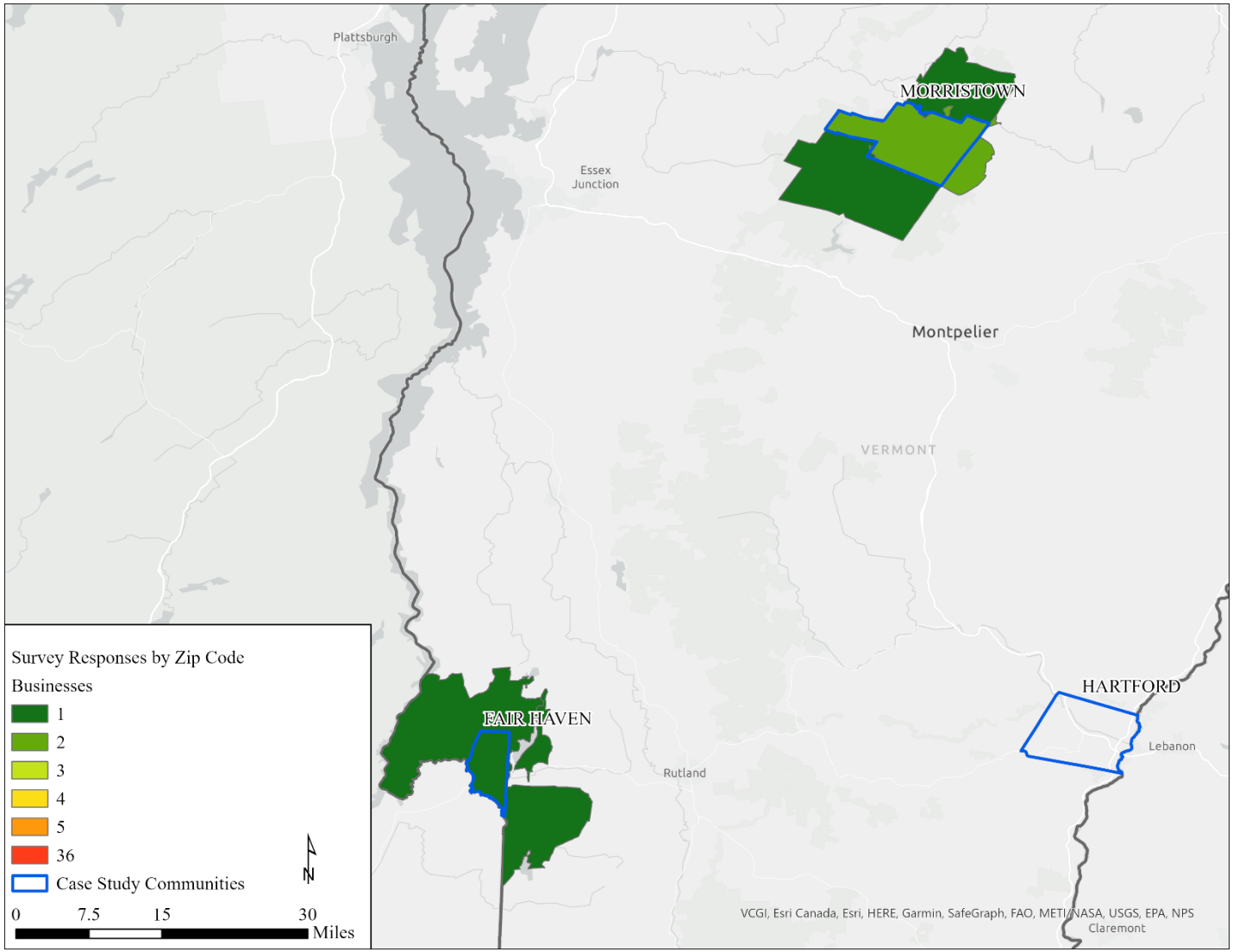
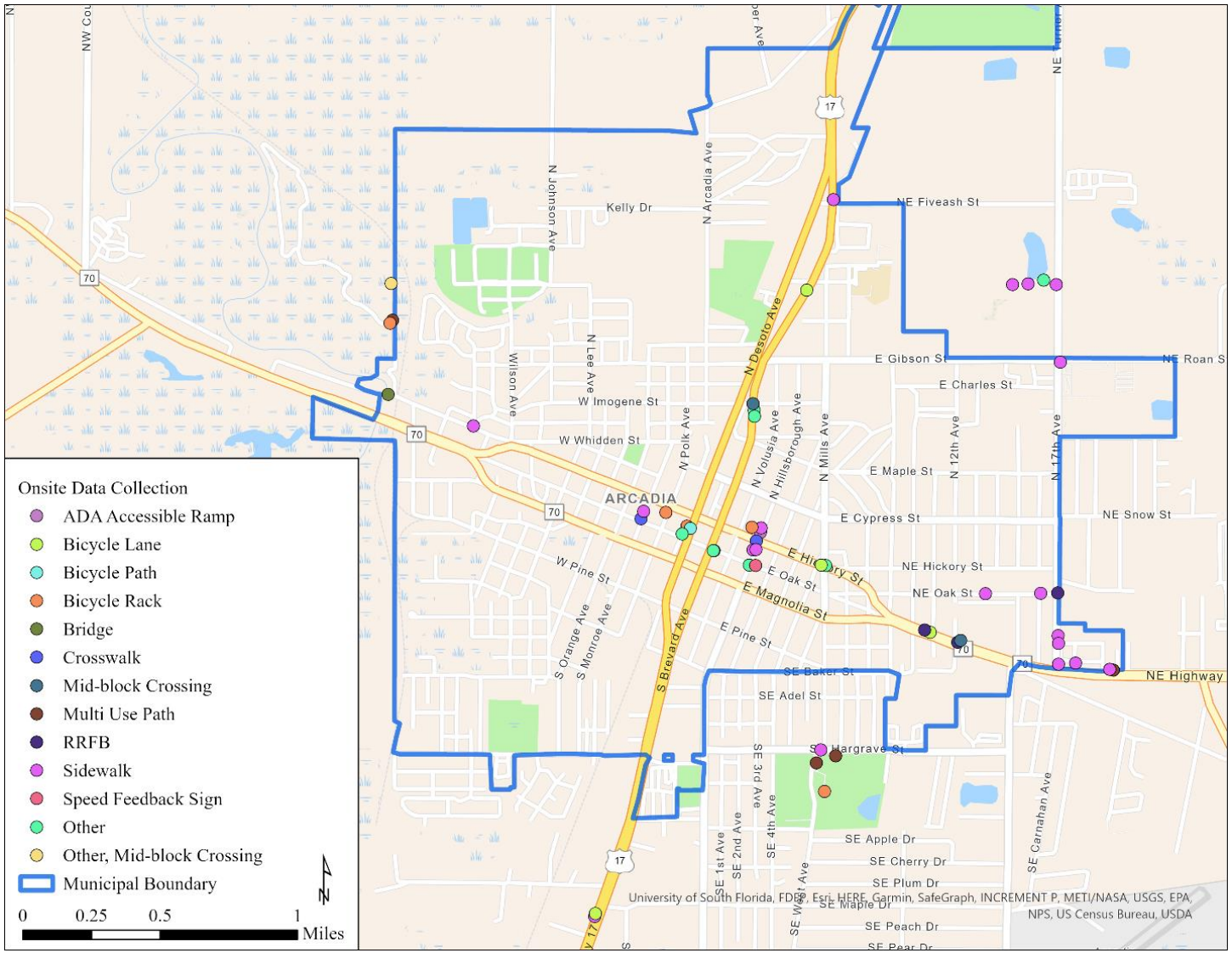
New Mexico State University, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS

Vermont

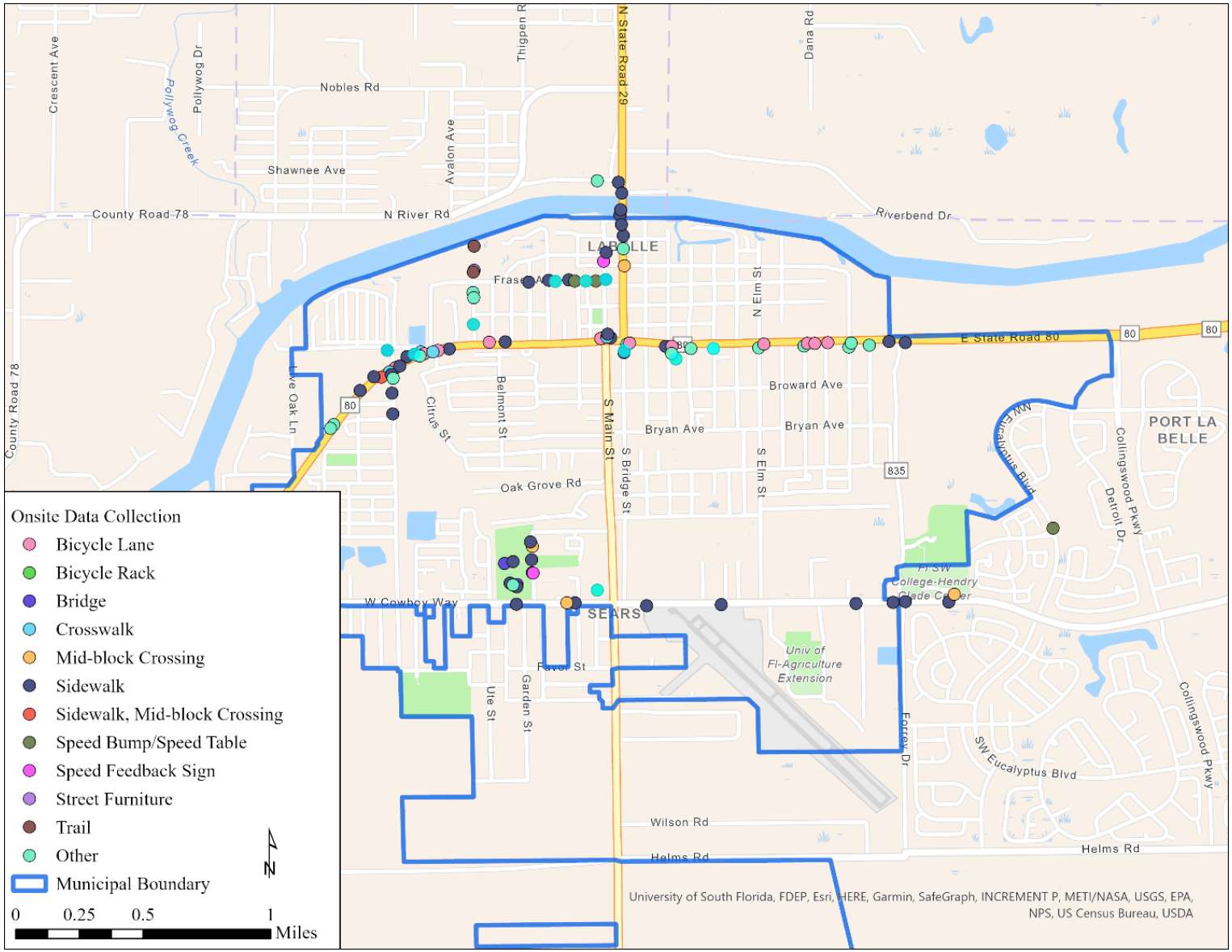

Plattsburgh
MORRISTOWN
Essex Junction
Montpelier
VERMONT
HARTFORD
Lebanon
FAIR HAVEN
Rutland
Survey Responses by Zip Code
Businesses
1
2
3
4
5
36
Case Study Communities
N
0 7.5 15 30
Miles
VCGI, Esri Canada, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS
Claremont

11 Appendix C – Survey123 Data Collected for Each Community

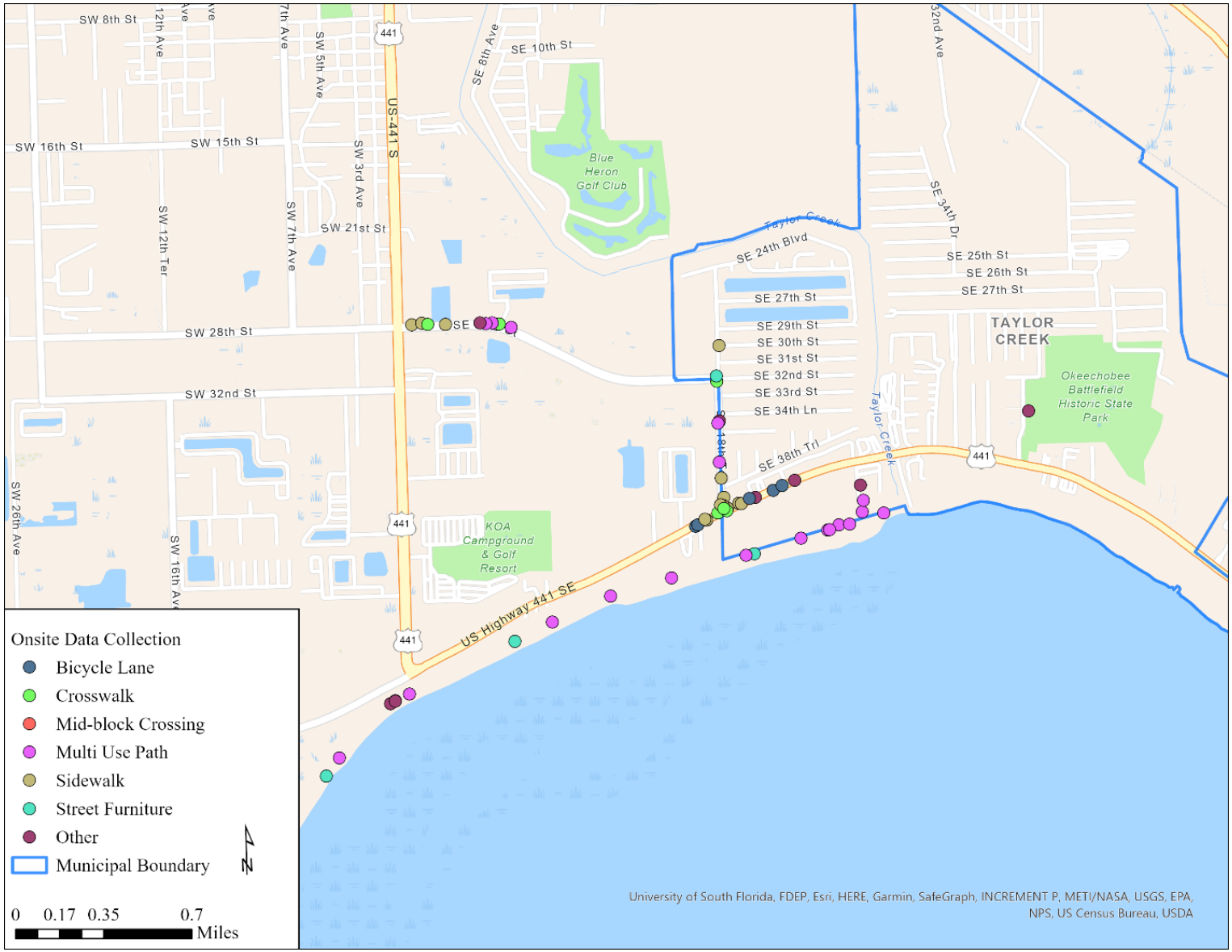
Arcadia, FL



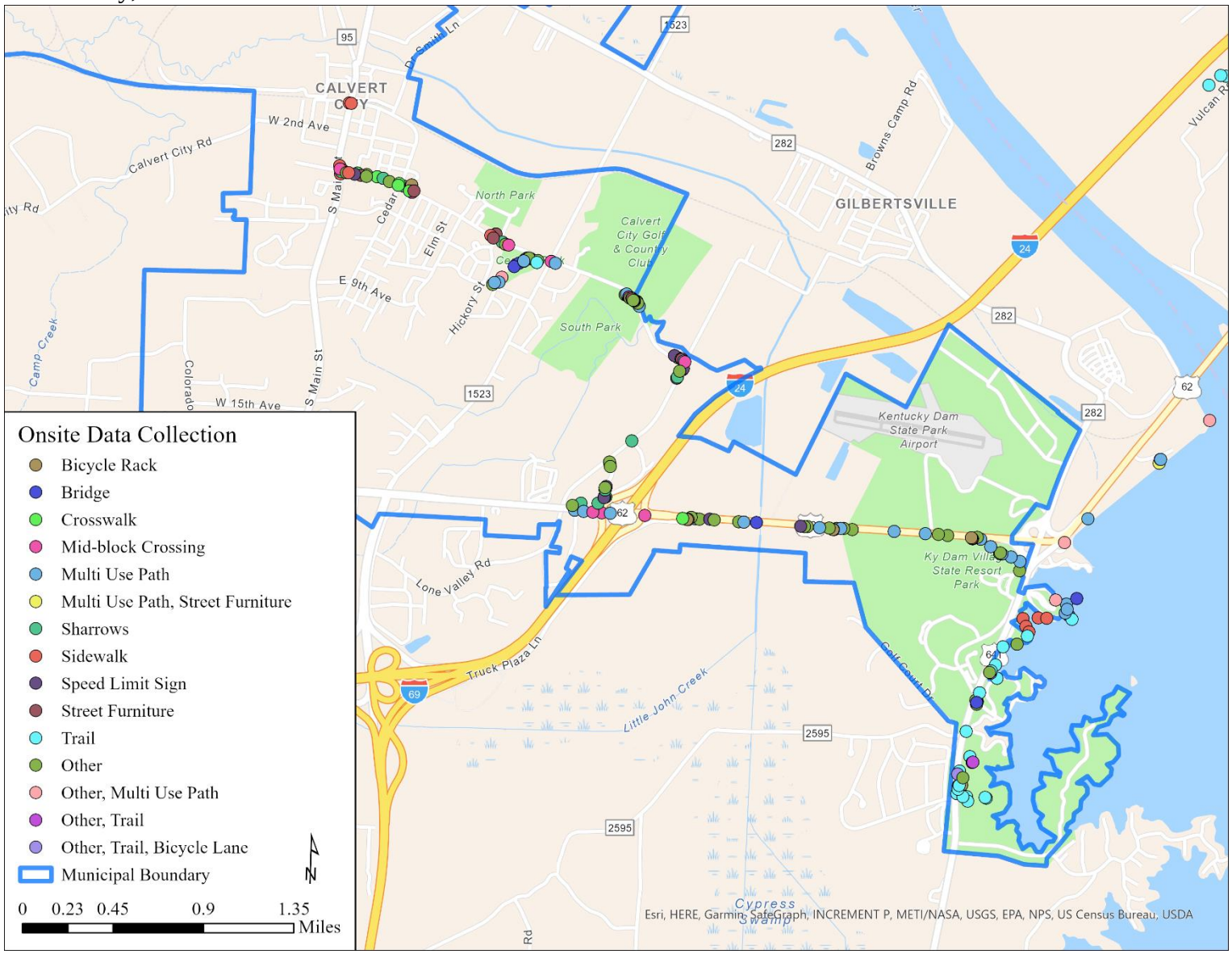
LaBelle, FL


Onsite Data Collection
Bicycle Lane
Bicycle Rack
Bridge
Crosswalk
Mid-block Crossing
Sidewalk
Sidewalk, Mid-block Crossing
Speed Bump/Speed Table
Speed Feedback Sign
Street Furniture
Trail
Other
Municipal Boundary
0 0.25 0.5 1
Miles
N
LABELLE
SEARS
PORT LA BELLE
N State Road 29
E State Road 80
Broward Ave
Bryan Ave
Oak Grove Rd
S Main St
S Bridge St
N Elm St
S Elm St
Belmont St
Citrus St
Live Oak Ln
Thigpen R
Dana Rd
Crescent Ave
Pollywog Dr
Pollywog Creek
Nobles Rd
Shawnee Ave
Avalon Ave
County Road 78
N River Rd
Riverbend Dr
W Cowboy Way
Fayer St
Ute St
Garden St
Forrey Dr
Wilson Rd
Helms Rd
Collingswood Pkwy
Detroit Dr
SW Eucalyptus Blvd
Univ of Fl-Agriculture Extension
Fl SW College-Hendry Glade Center
80
835
University of South Florida, FDEP, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

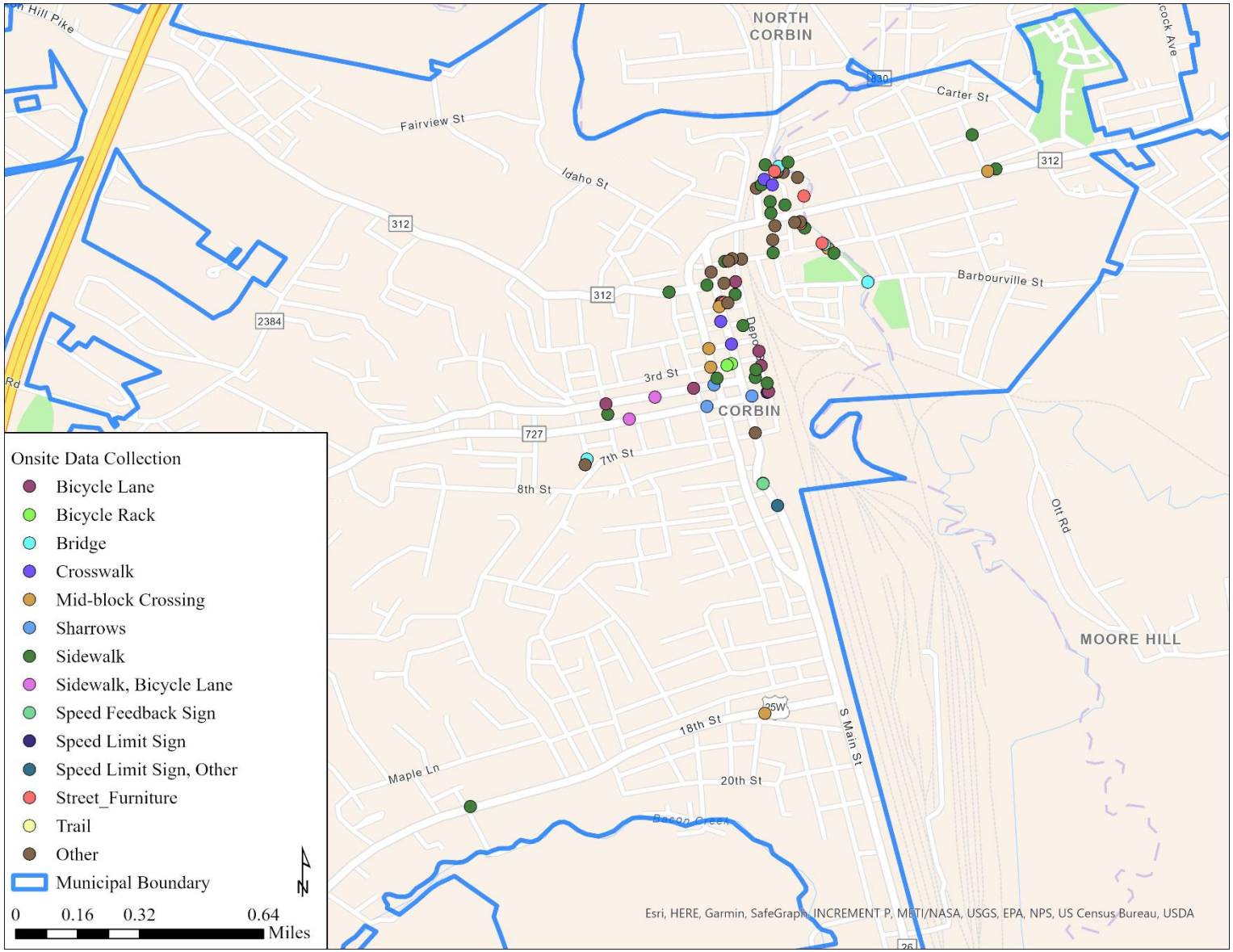
Taylor Creek, FL



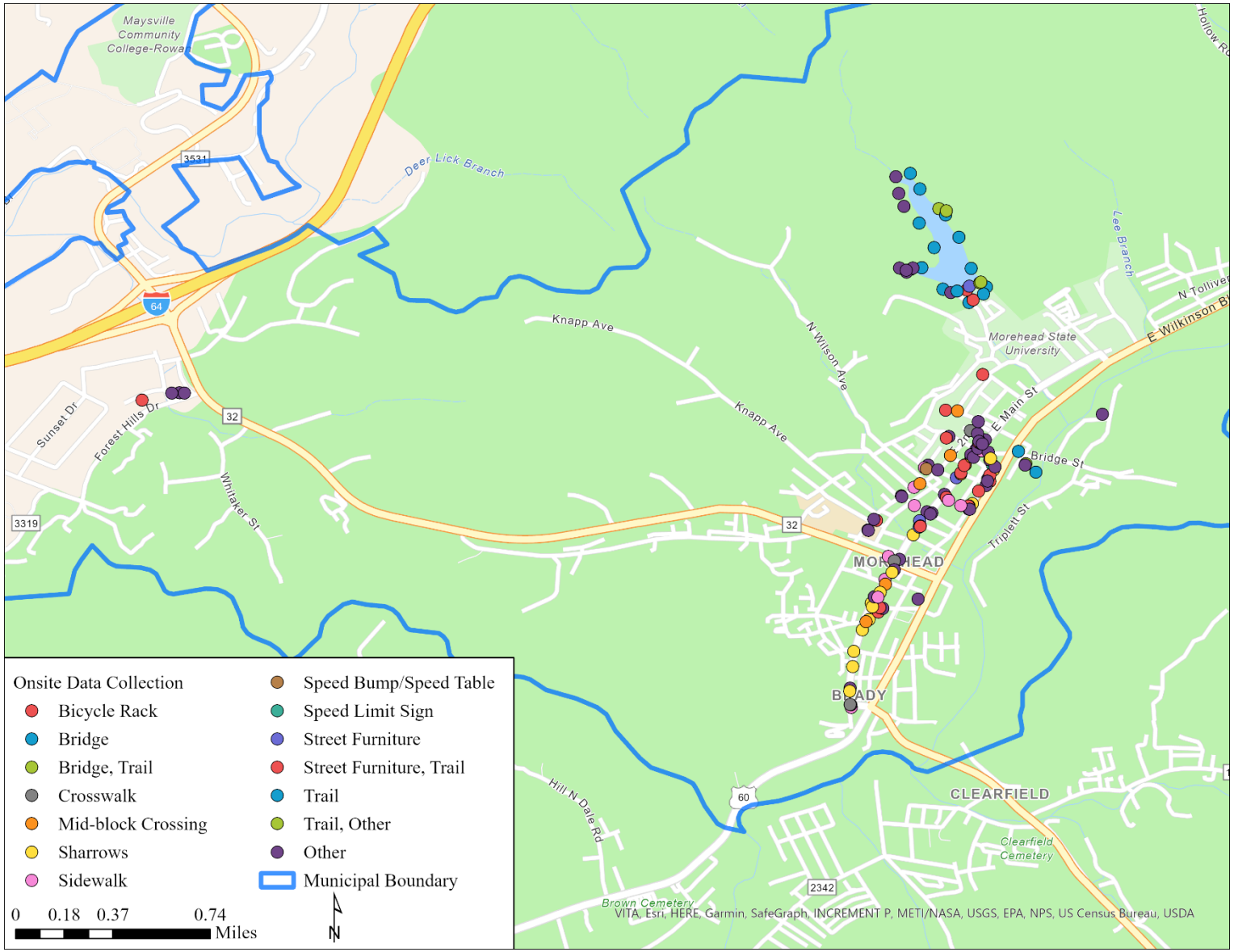
Calvert City, KY



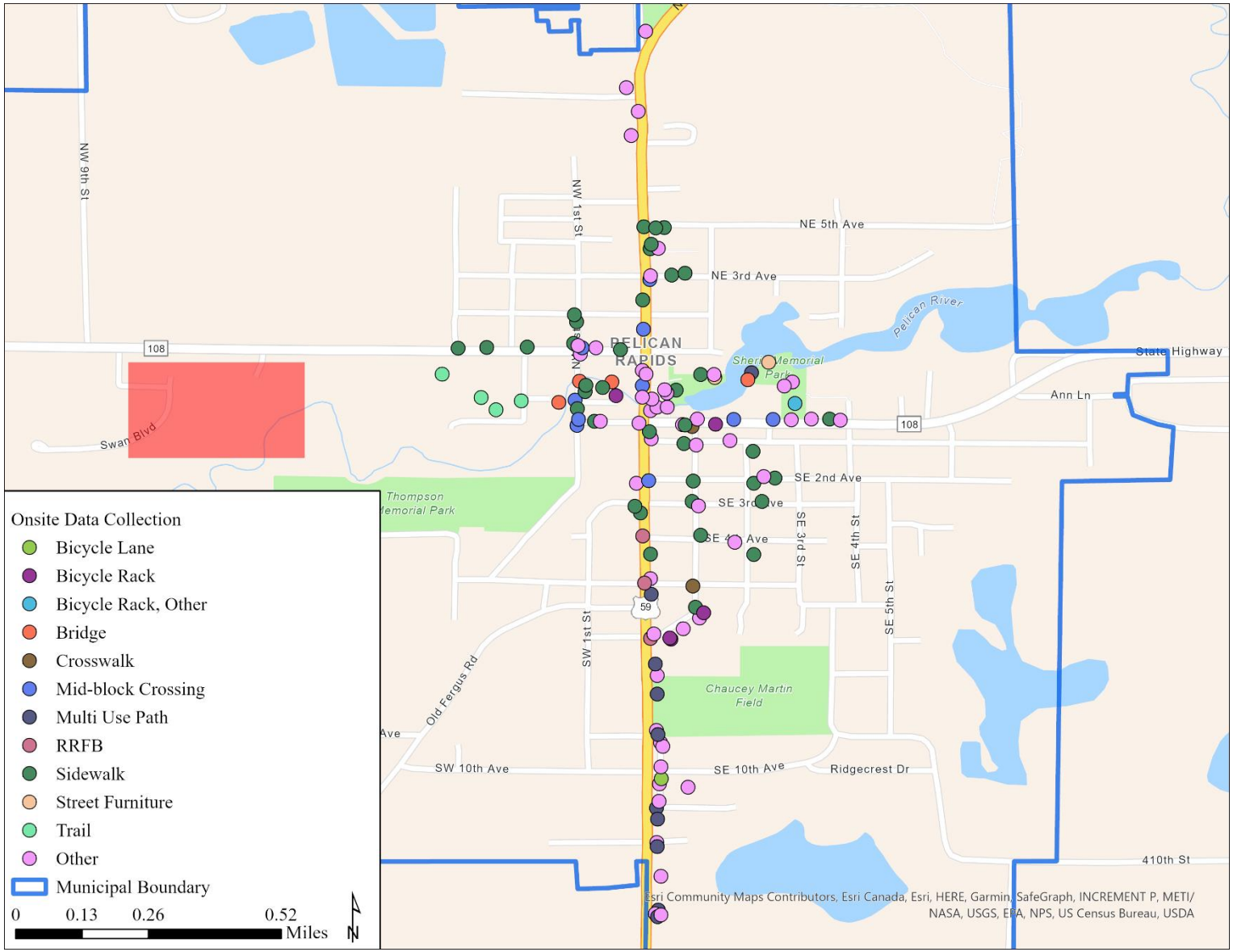
Corbin, KY


NORTH CORBIN
CORBIN
MOORE HILL
Fairview St
Idaho St
Carter St
Barbourville St
3rd St
7th St
8th St
18th St
20th St
Maple Ln
S Main St
Ott Rd
312
2384
727
25W
Onsite Data Collection
Bicycle Lane
Bicycle Rack
Bridge
Crosswalk
Mid-block Crossing
Sharrows
Sidewalk
Sidewalk, Bicycle Lane
Speed Feedback Sign
Speed Limit Sign
Speed Limit Sign, Other
Street_Furniture
Trail
Other
Municipal Boundary
0 0.16 0.32 0.64
Miles
N
Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Morehead, KY

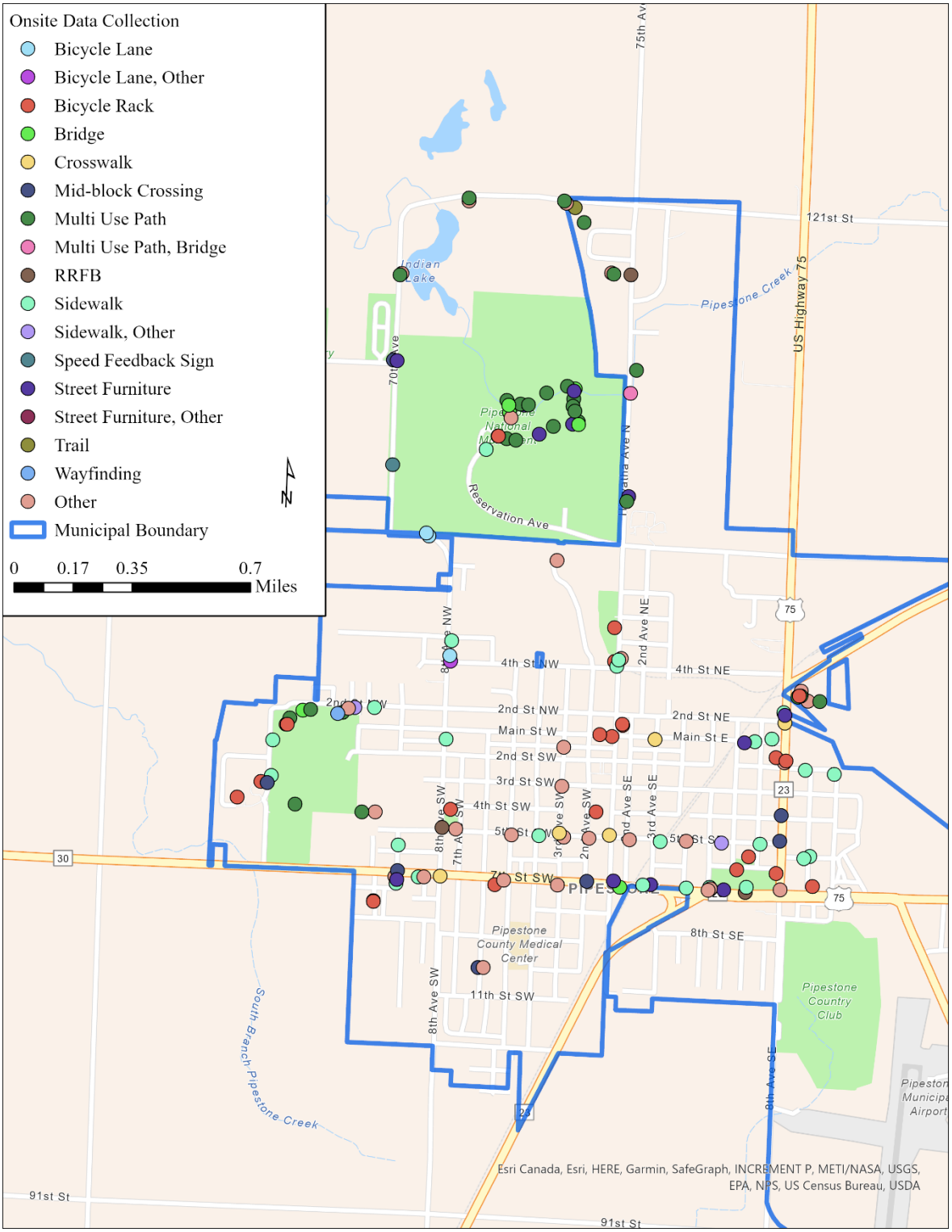

Maysville Community College-Rowan
Deer Lick Branch
Knapp Ave
N Wilson Ave
Lee Branch
Morehead State University
E Main St
Bridge St
Triplett St
Sunset Dr
Forest Hills Dr
Whitaker St
Hill N Dale Rd
Clearfield Cemetery
Brown Cemetery
MOREHEAD
BRADY
CLEARFIELD
64
32
60
3531
3319
2342
Onsite Data Collection
Bicycle Rack
Bridge
Bridge, Trail
Crosswalk
Mid-block Crossing
Sharrows
Sidewalk
Speed Bump/Speed Table
Speed Limit Sign
Street Furniture
Street Furniture, Trail
Trail
Trail, Other
Other
Municipal Boundary
0 0.18 0.37 0.74
Miles
N
VITA, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Pelican Rapids, MN

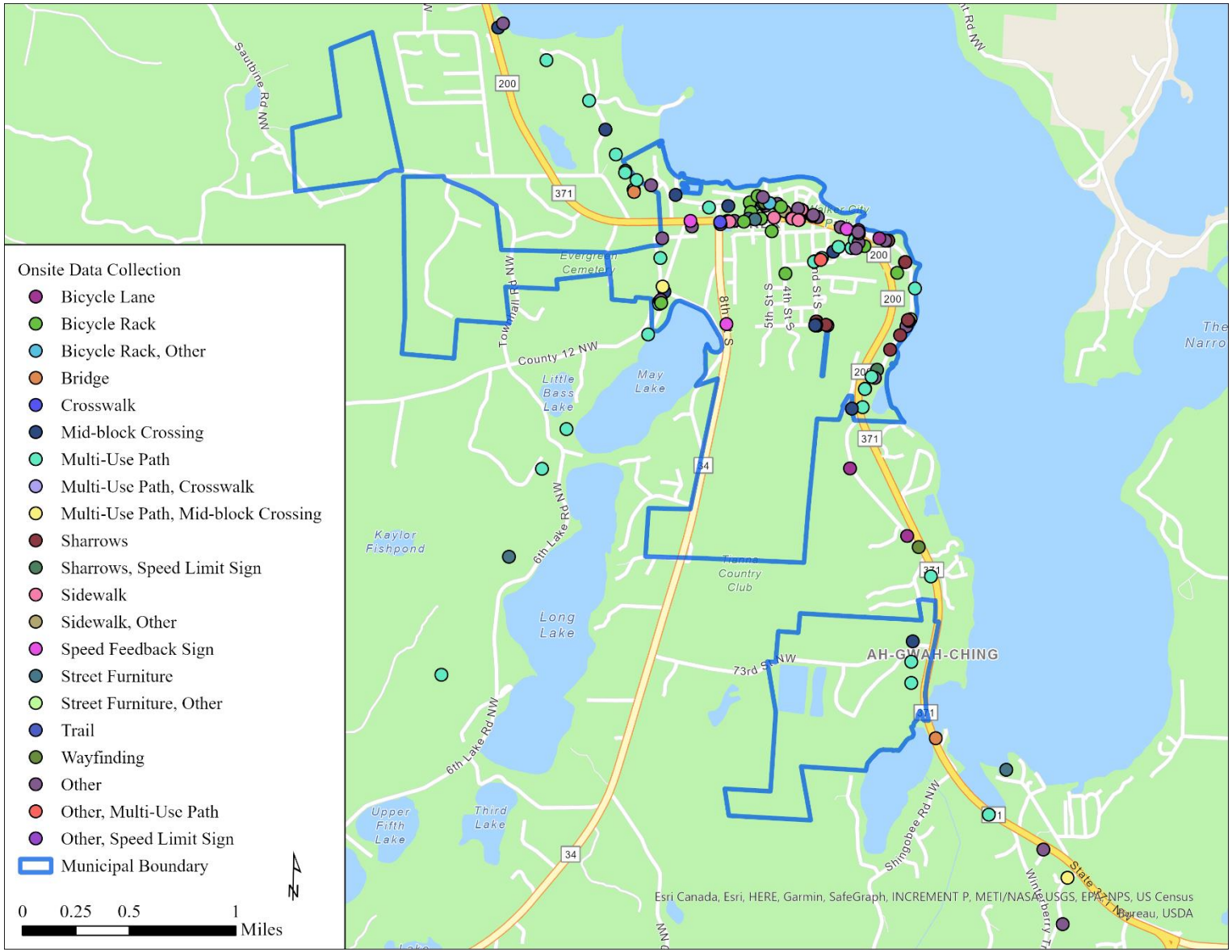


Appendix C

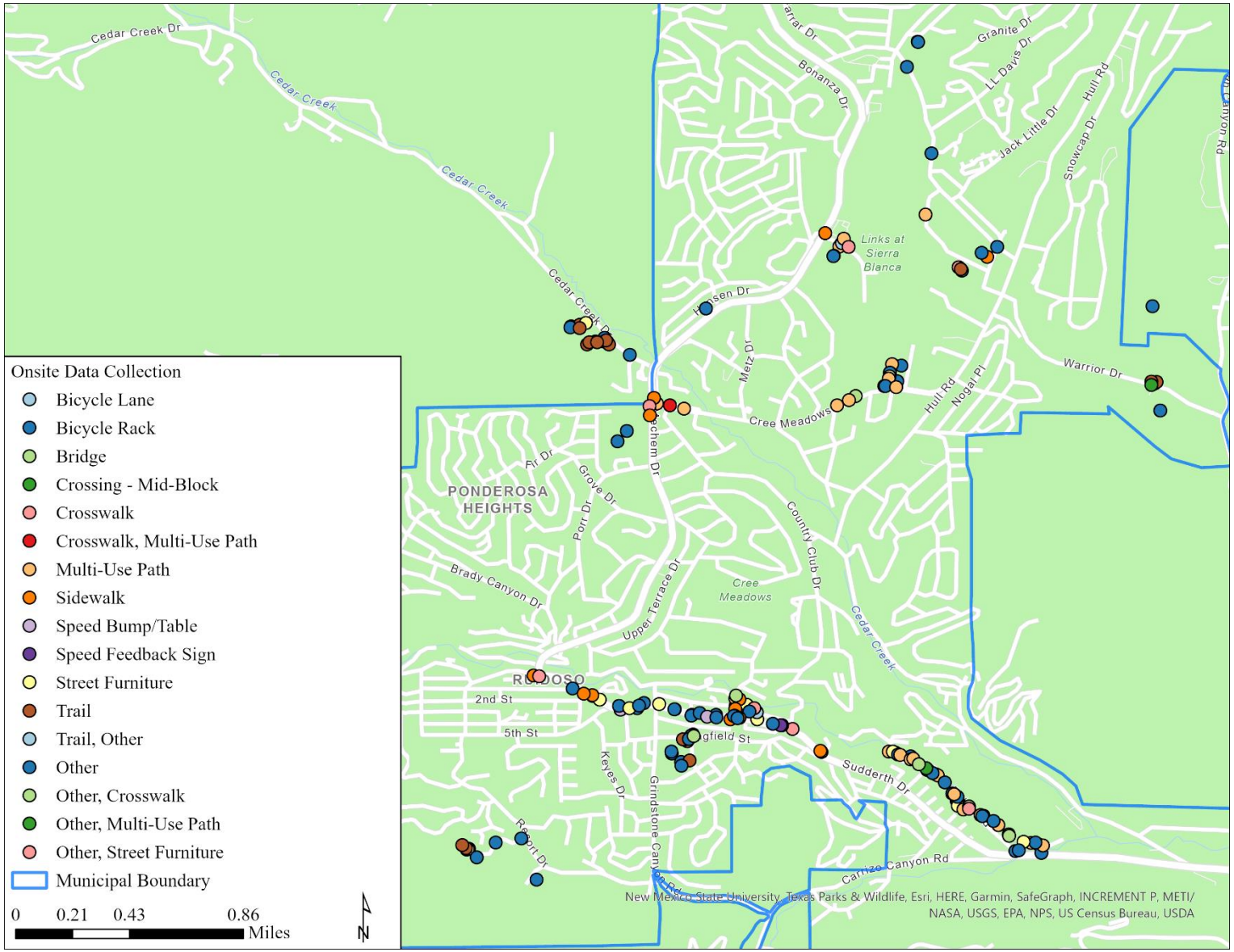
Pipestone, MN



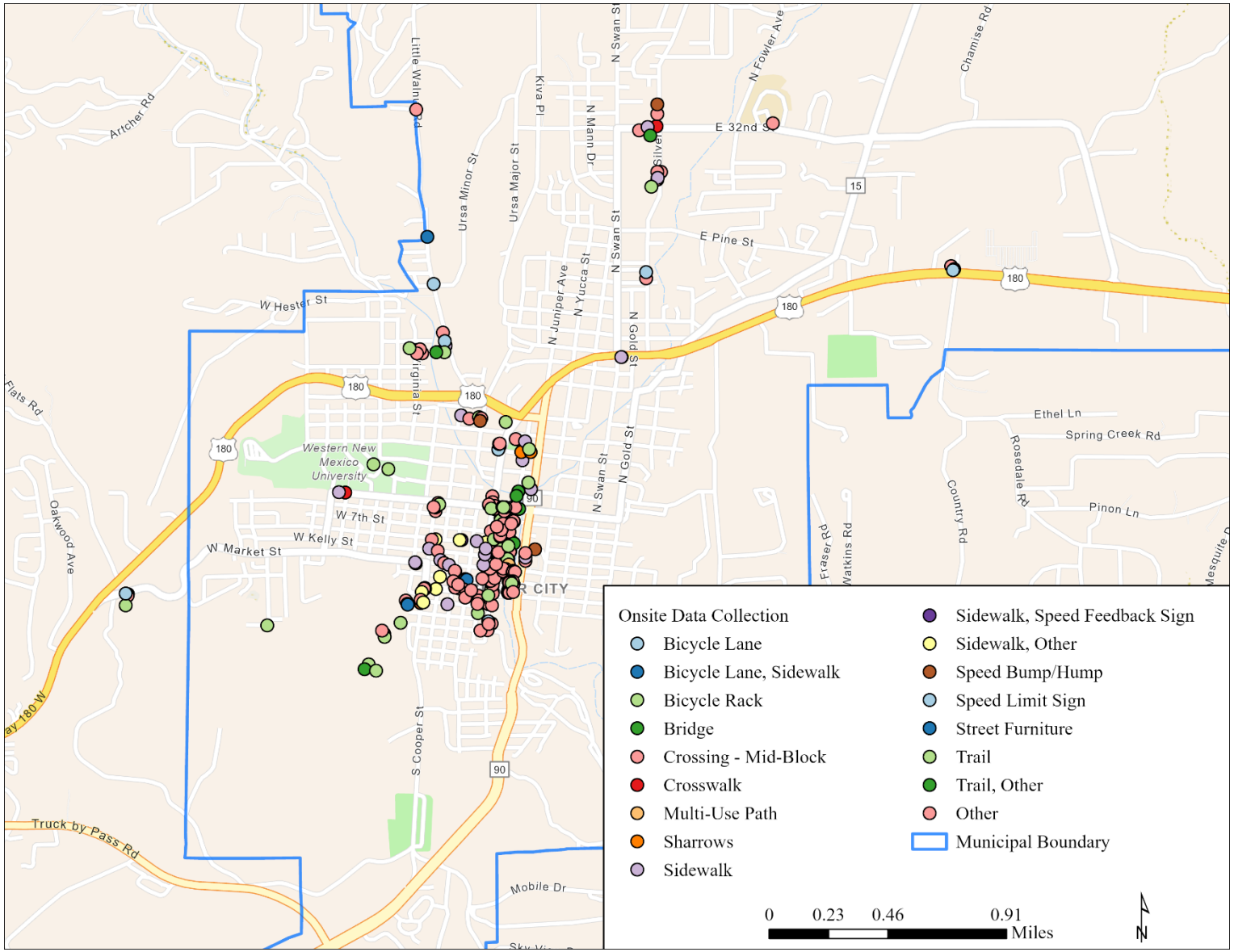
Walker, MN


Onsite Data Collection
Bicycle Lane
Bicycle Rack
Bicycle Rack, Other
Bridge
Crosswalk
Mid-block Crossing
Multi-Use Path
Multi-Use Path, Crosswalk
Multi-Use Path, Mid-block Crossing
Sharrows
Sharrows, Speed Limit Sign
Sidewalk
Sidewalk, Other
Speed Feedback Sign
Street Furniture
Street Furniture, Other
Trail
Wayfinding
Other
Other, Multi-Use Path
Other, Speed Limit Sign
Municipal Boundary
0 0.25 0.5 1
Miles
Sautbine Rd NW
Townwall Rd NW
County 12 NW
Little Bass Lake
May Lake
Kaylor Fishpond
6th Lake Rd NW
Long Lake
Upper Fifth Lake
Third Lake
Evergreen Cemetery
8th St S
5th St S
4th St S
3rd St S
Tianna Country Club
AH-GWAH-CHING
73rd St NW
Shingobee Rd NW
200
371
34
Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

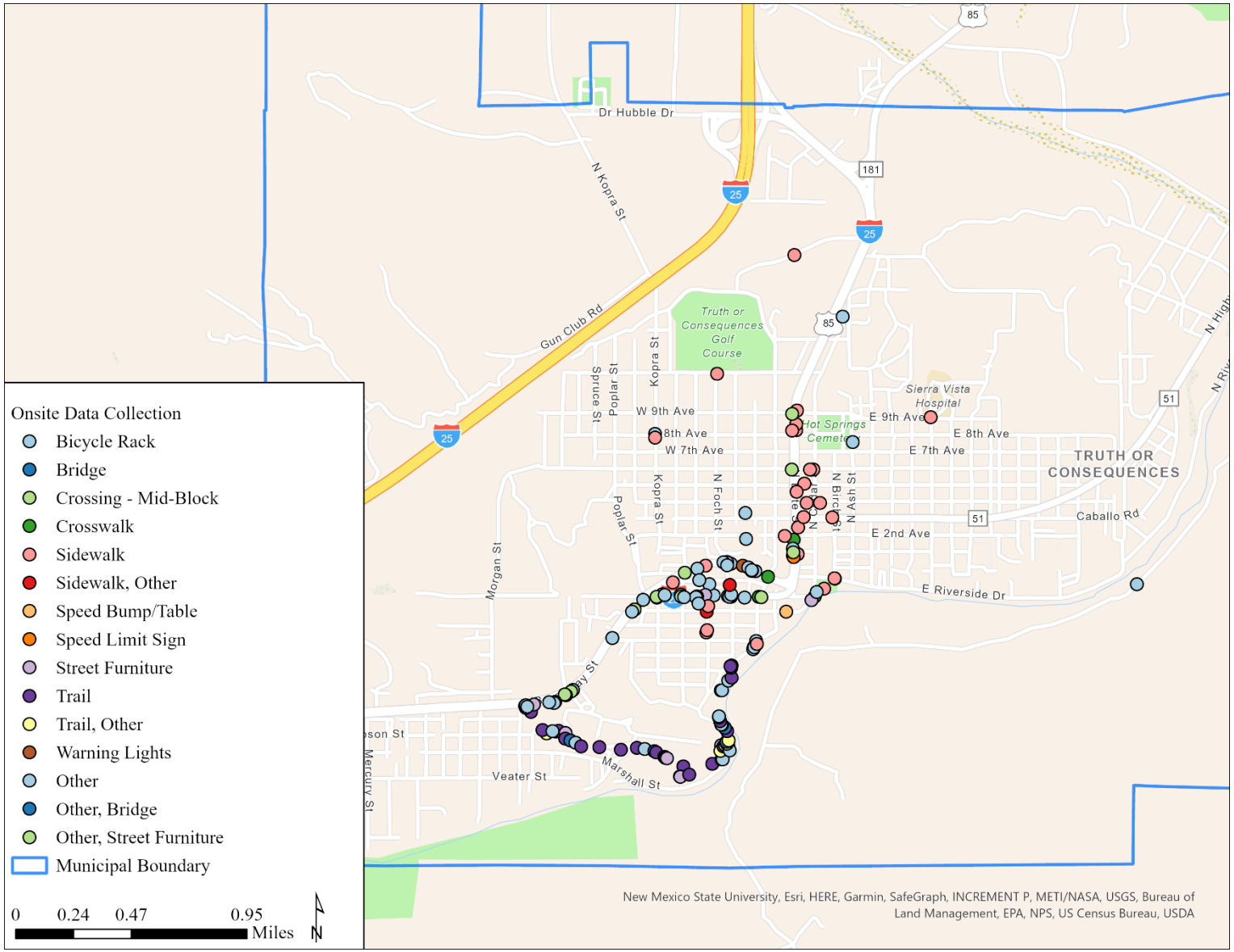
Ruidoso, NM


Onsite Data Collection
Bicycle Lane
Bicycle Rack
Bridge
Crossing - Mid-Block
Crosswalk
Crosswalk, Multi-Use Path
Multi-Use Path
Sidewalk
Speed Bump/Table
Speed Feedback Sign
Street Furniture
Trail
Trail, Other
Other
Other, Crosswalk
Other, Multi-Use Path
Other, Street Furniture
Municipal Boundary
0 0.21 0.43 0.86
Miles
N
Cedar Creek Dr
Cedar Creek
Granite Dr
LL Davis Dr
Bonanza Dr
Jack Little Dr
Snowcap Dr
Hull Rd
Links at Sierra Blanca
Metz Dr
Warrior Dr
Nogal Pl
Cree Meadows
Afr Dr
Grove Dr
PONDEROSA HEIGHTS
Country Club Dr
Brady Canyon Dr
Upper Terrace Dr
Cree Meadows
2nd St
5th St
Sudderth Dr
Keyes Dr
Grindstone Canyon Rd
Carrizo Canyon Rd
New Mexico State University, Texas Parks & Wildlife, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA

Silver City, NM

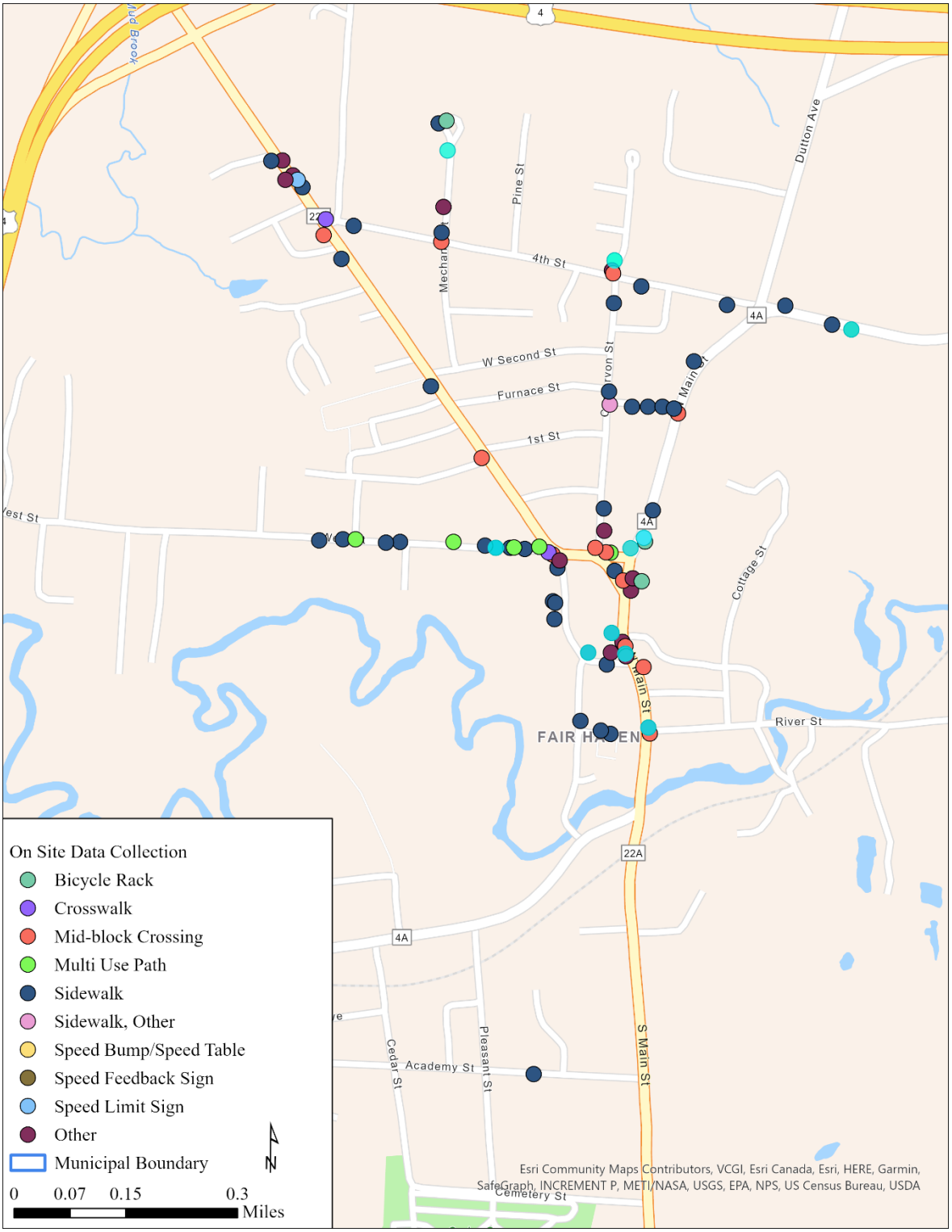


Truth or Consequences, NM

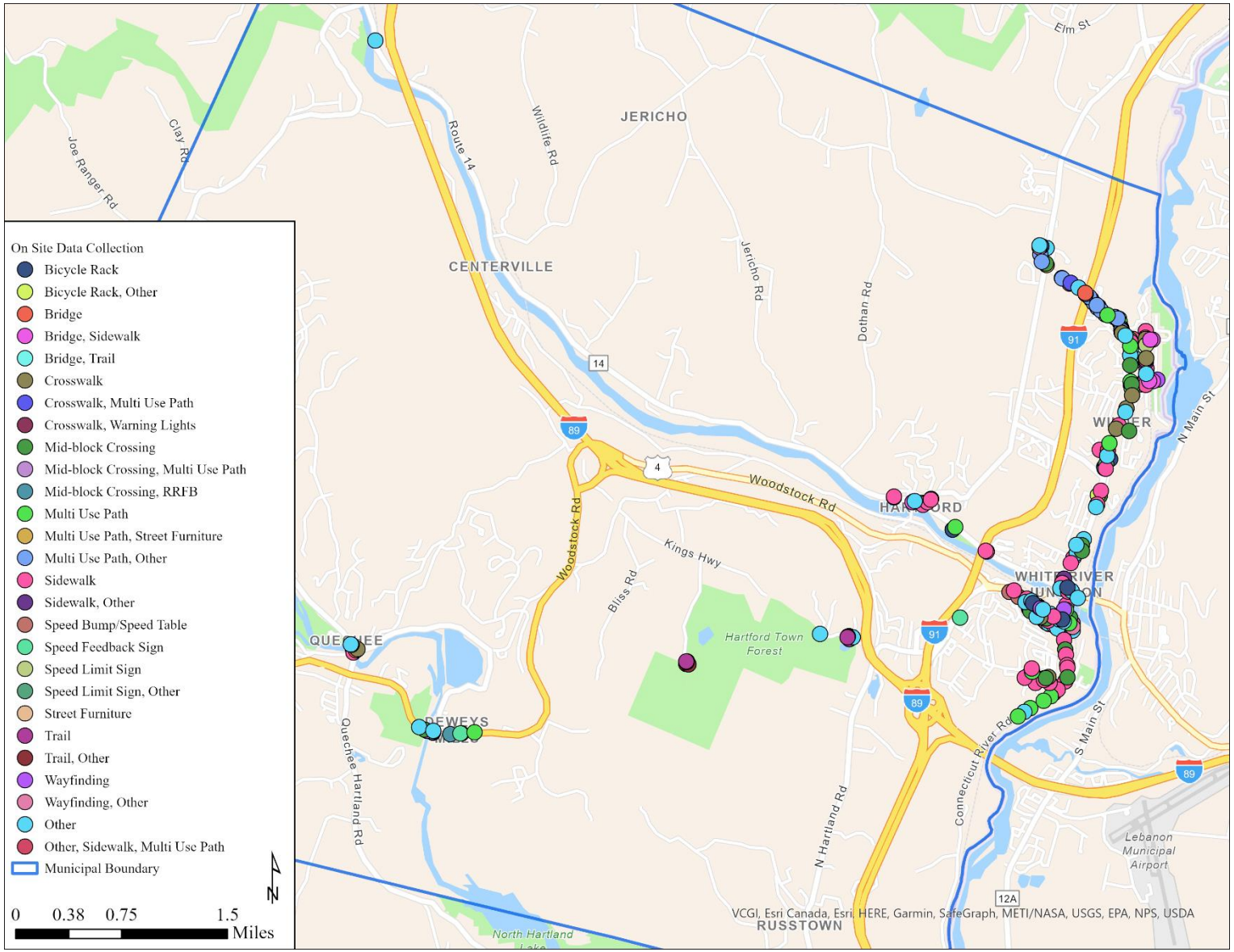


Appendix C

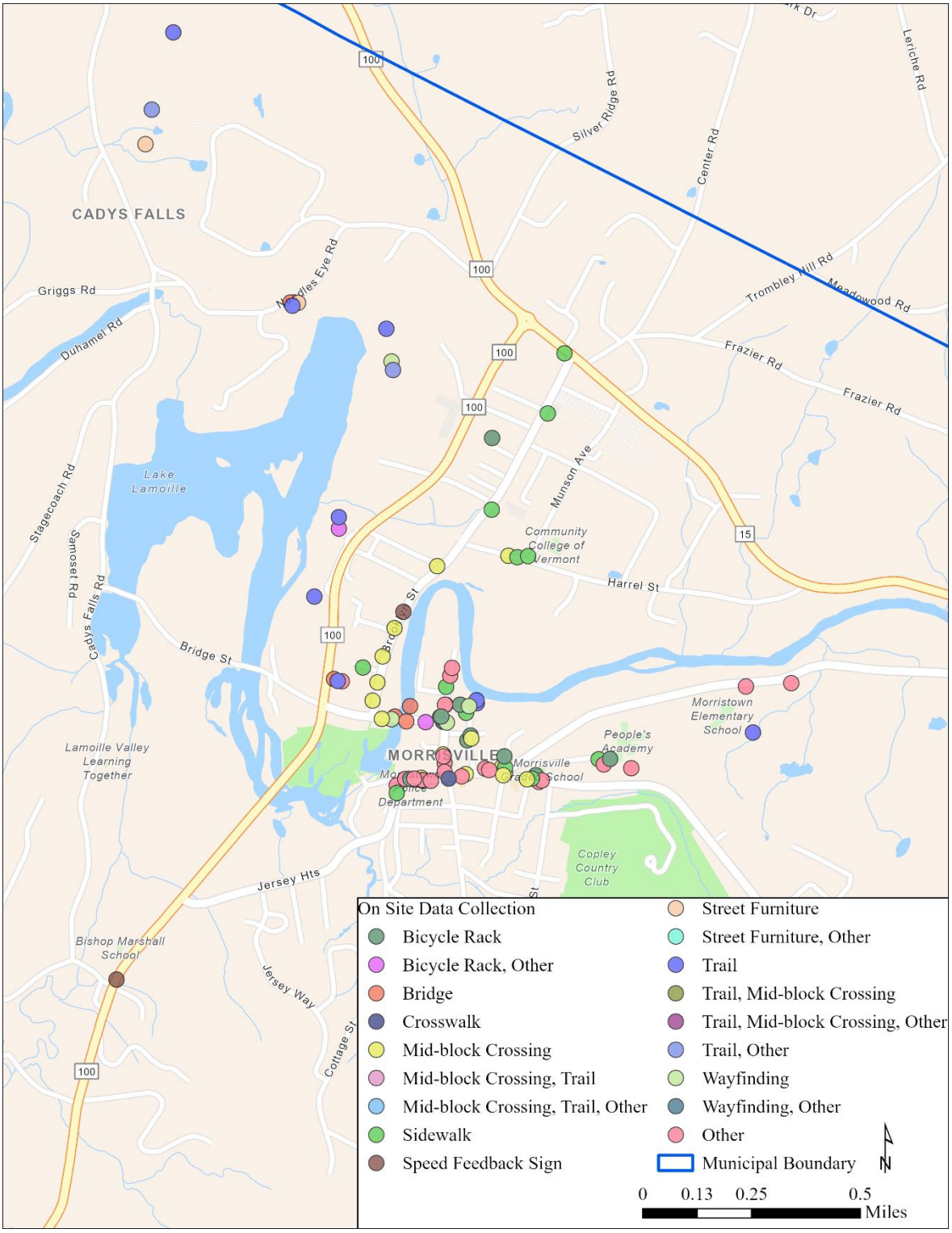
Fair Haven, VT



Hartford, VT

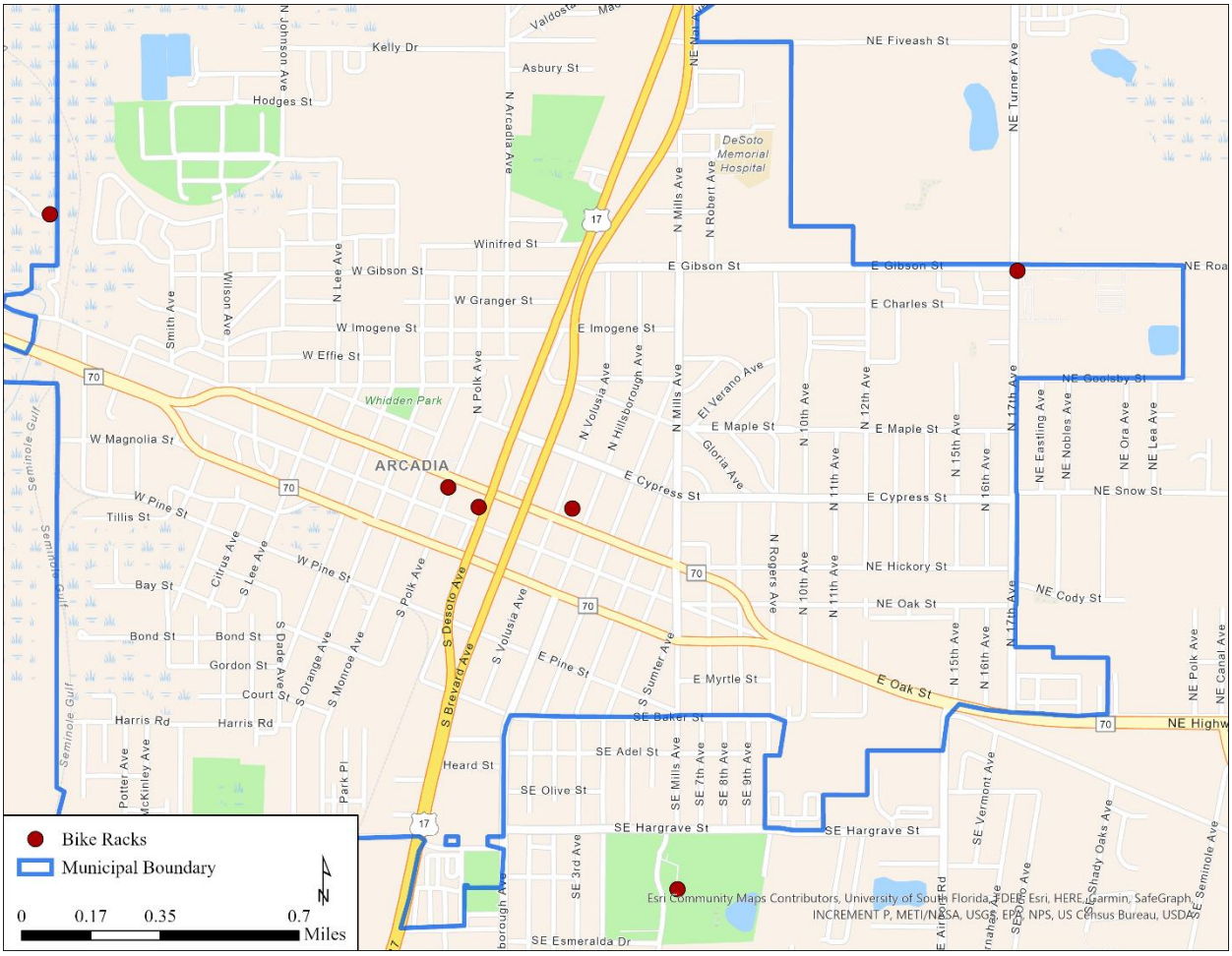

On Site Data Collection
Bicycle Rack
Bicycle Rack, Other
Bridge
Bridge, Sidewalk
Bridge, Trail
Crosswalk
Crosswalk, Multi Use Path
Crosswalk, Warning Lights
Mid-block Crossing
Mid-block Crossing, Multi Use Path
Mid-block Crossing, RRFB
Multi Use Path
Multi Use Path, Street Furniture
Multi Use Path, Other
Sidewalk
Sidewalk, Other
Speed Bump/Speed Table
Speed Feedback Sign
Speed Limit Sign
Speed Limit Sign, Other
Street Furniture
Trail
Trail, Other
Wayfinding
Wayfinding, Other
Other
Other, Sidewalk, Multi Use Path
Municipal Boundary
0 0.38 0.75 1.5
Miles
JERICHO
CENTERVILLE
Route 14
Wildlife Rd
Joe Ranger Rd
Clay Rd
Jericho Rd
Dothan Rd
Elm St
N Main St
Woodstock Rd
Kings Hwy
Bliss Rd
Hartford Town Forest
Quechee Hartland Rd
N Hartland Rd
Connecticut River Rd
S Main St
Lebanon Municipal Airport
RUSSTOWN
North Hartland Lake
VCGI, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

Morristown, VT

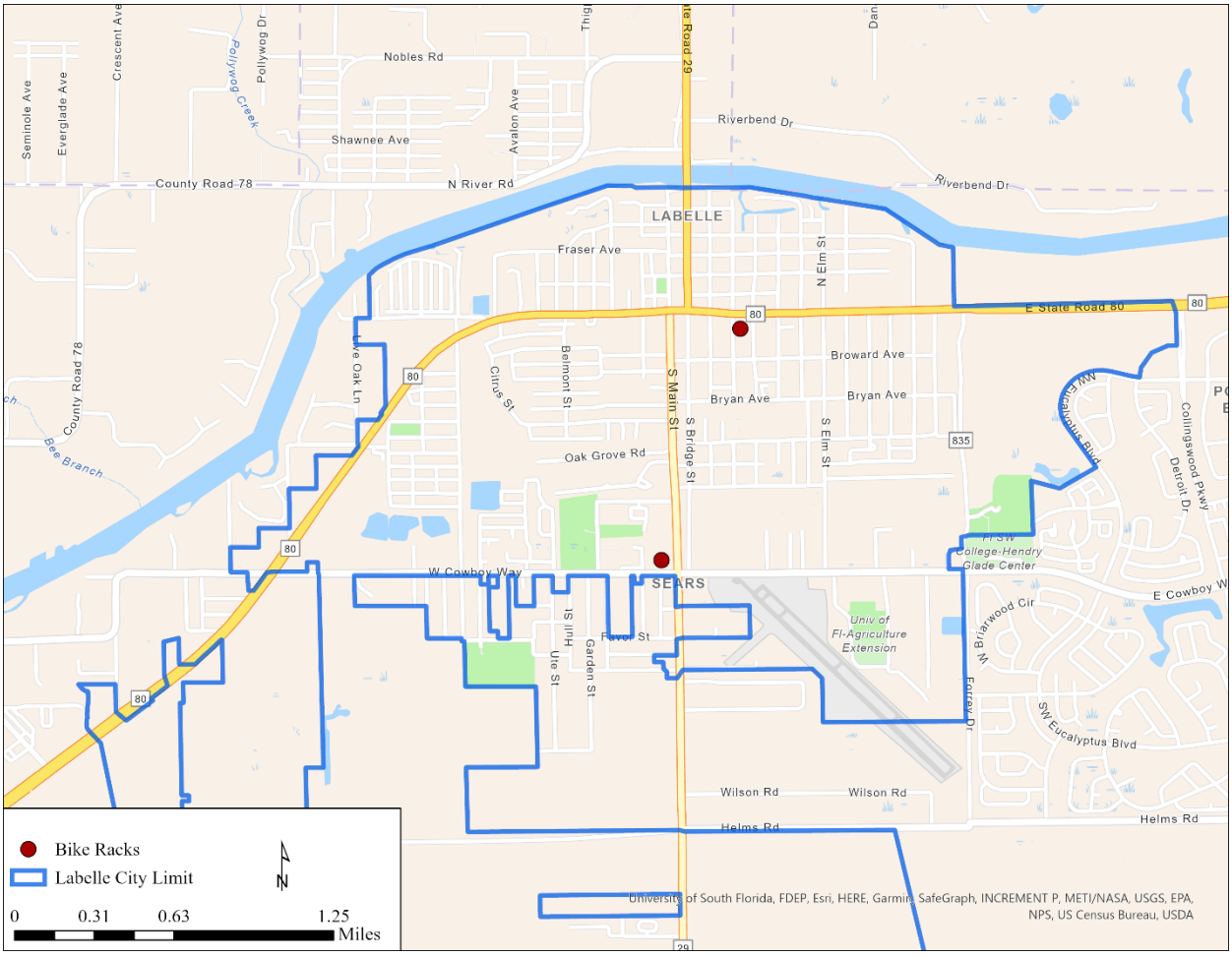


12 Appendix D – Bicycle Rack Maps

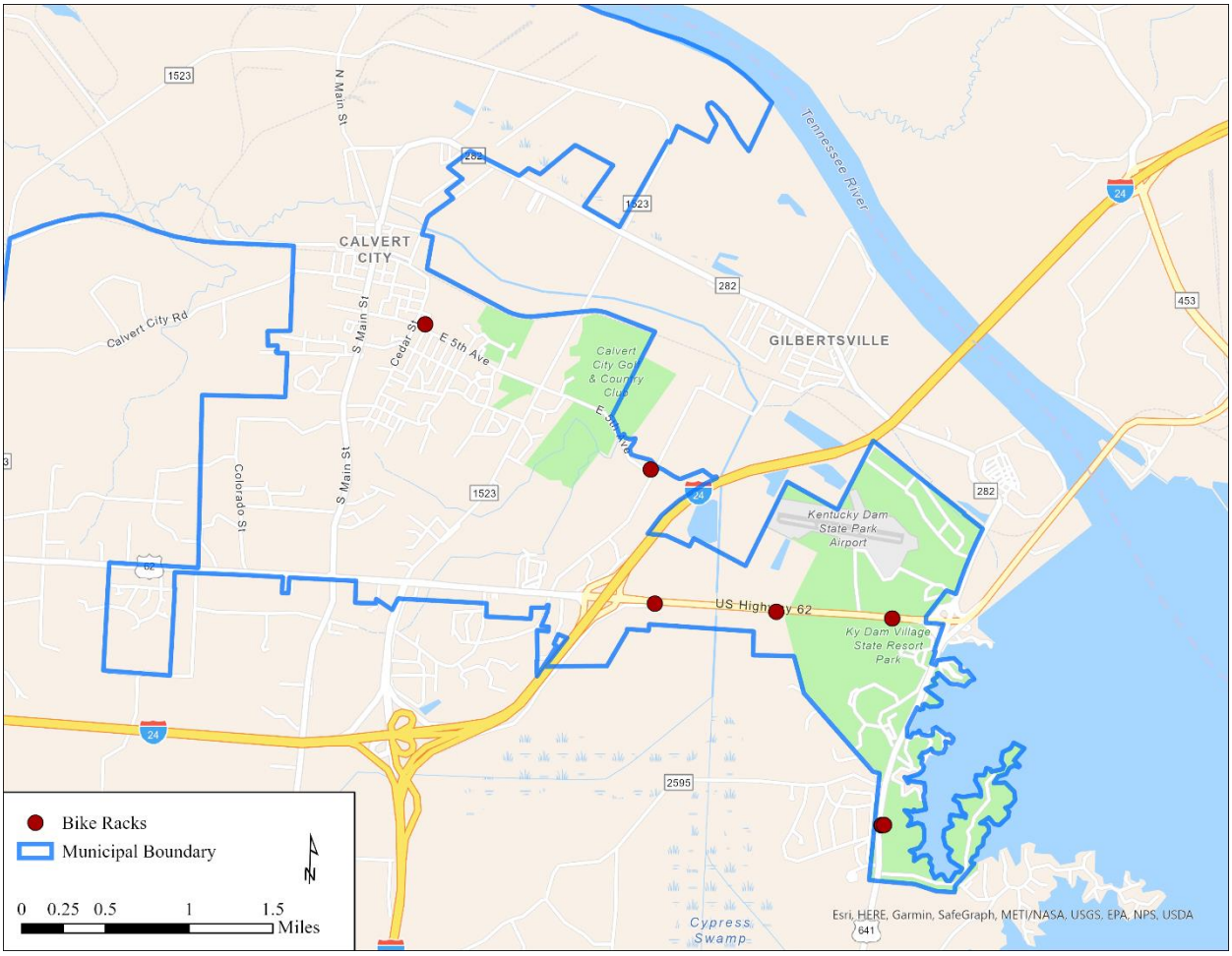
Arcadia, FL



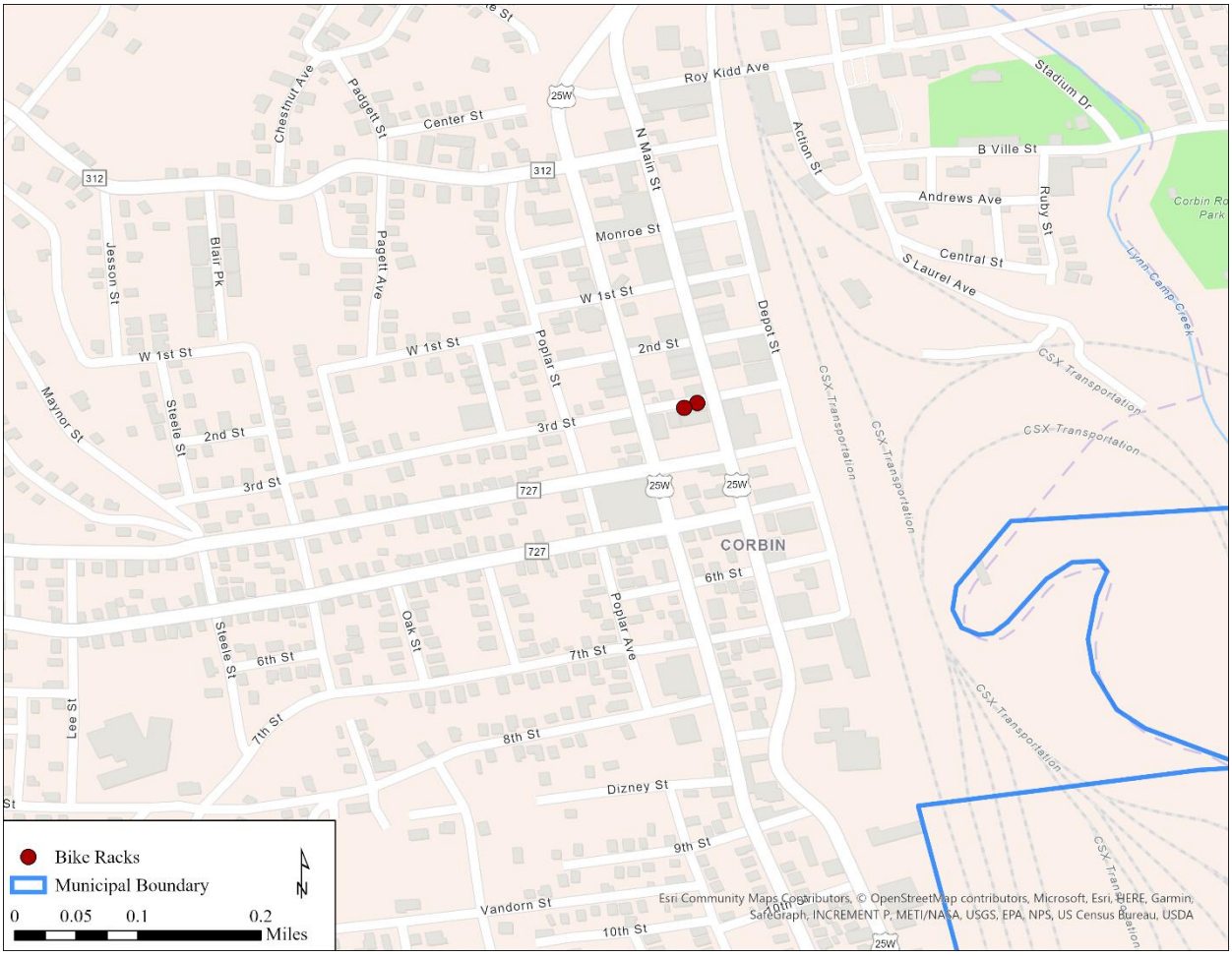
LaBelle, FL


Bike Racks
Labelle City Limit
N
0 0.31 0.63 1.25
Miles
LABELLE
SEARS
Nobles Rd
Shawnee Ave
County Road 78
N River Rd
Riverbend Dr
Fraser Ave
E State Road 80
Broward Ave
Bryan Ave
Oak Grove Rd
W Cowboy Way
Wilson Rd
Helms Rd
SW Eucalyptus Blvd
Univ of Fl-Agriculture Extension
Fl SW College-Hendry Glade Center
University of South Florida, FDEP, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

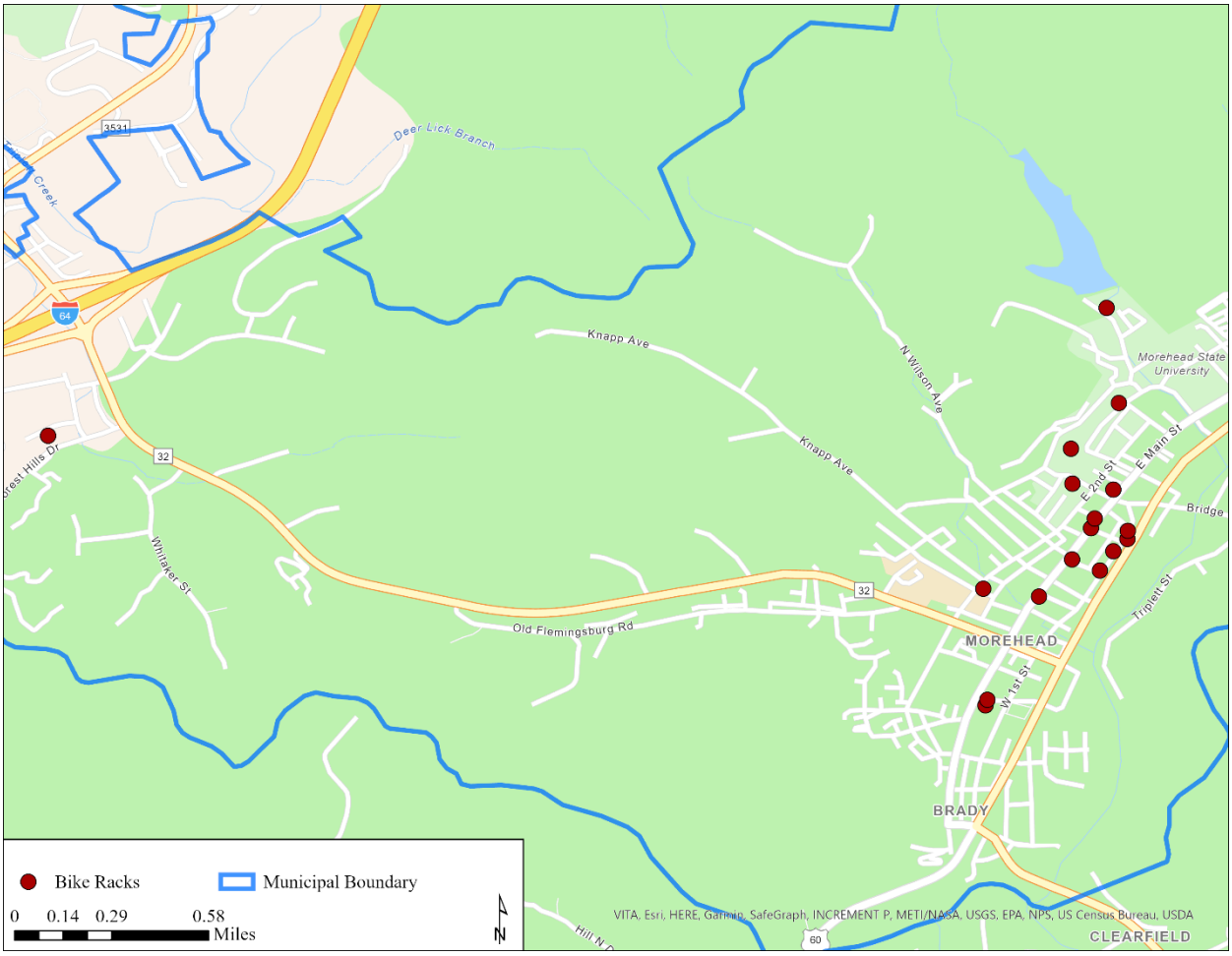
Calvert City, KY



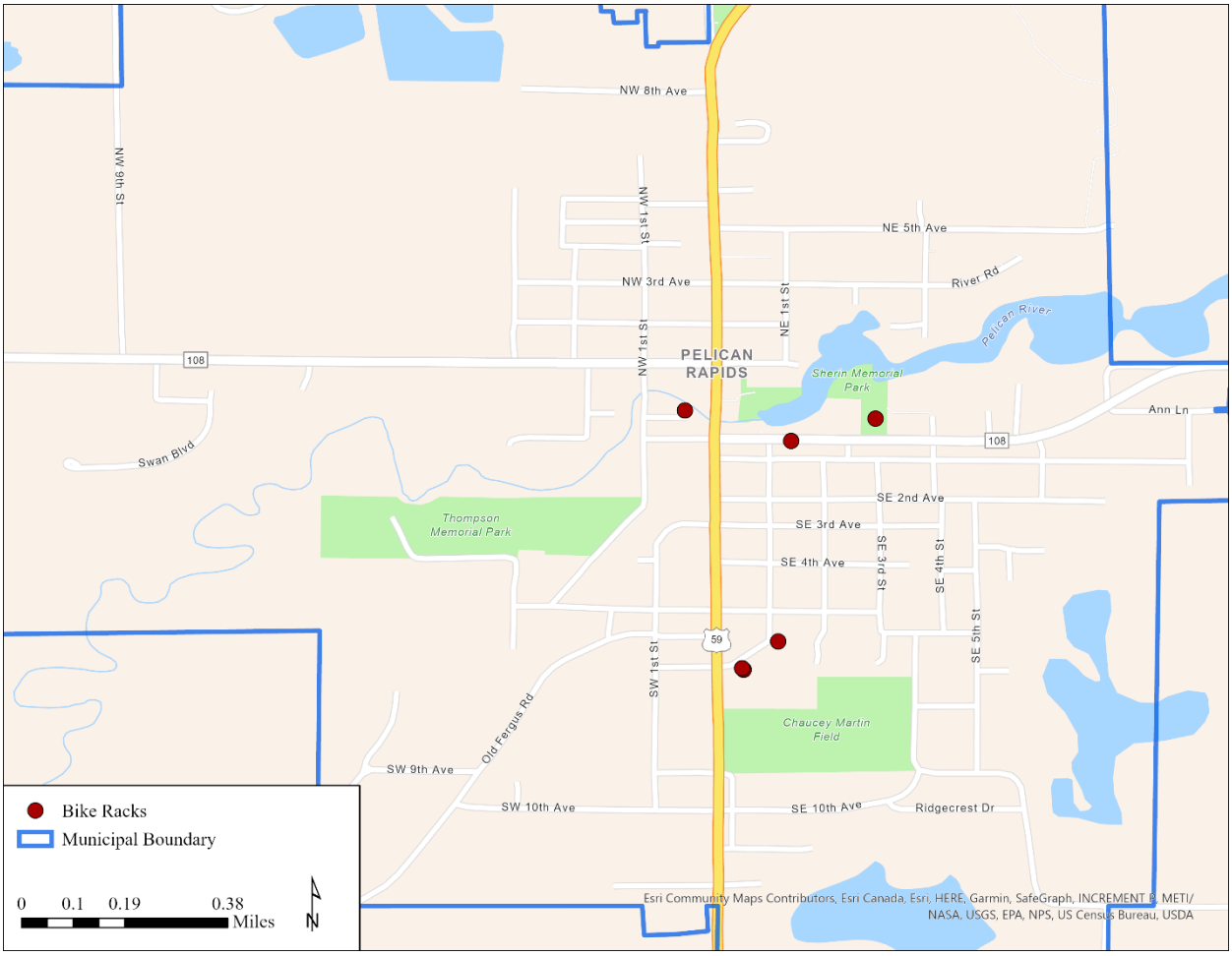
Corbin, KY


Roy Kidd Ave
Stadium Dr
Center St
Chestnut Ave
Padgett St
N Main St
Action St
B Ville St
Andrews Ave
Ruby St
Monroe St
Central St
S Laurel Ave
Jesson St
Blair Pk
Pagett Ave
W 1st St
Poplar St
2nd St
Depot St
Maynor St
Steele St
3rd St
CSX Transportation
CORBIN
6th St
Oak St
7th St
Poplar Ave
Lee St
8th St
Dizney St
9th St
Vandorn St
10th St
Bike Racks
Municipal Boundary
0 0.05 0.1 0.2
Miles
Esri Community Maps Contributors, © OpenStreetMap contributors, Microsoft, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

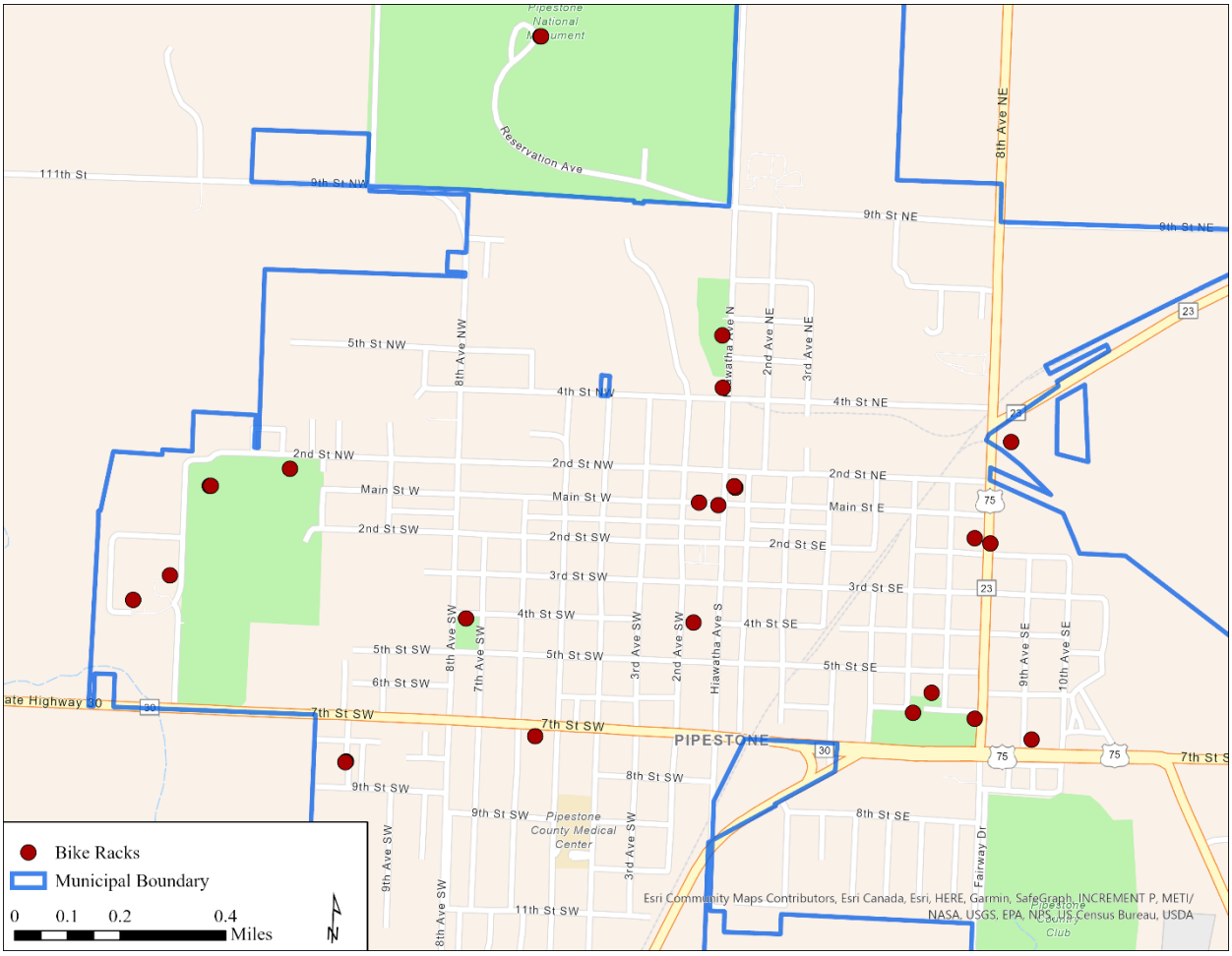
Morehead, KY


Deer Lick Branch
Knapp Ave
Knapp Ave
N Wilson Ave
Morehead State University
E Main St
E 2nd St
Bridge
Triplett St
Old Flemingsburg Rd
Whitaker St
MOREHEAD
W 1st St
BRADY
CLEARFIELD
32
64
60
Bike Racks
Municipal Boundary
0 0.14 0.29 0.58
Miles
N
VITA, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

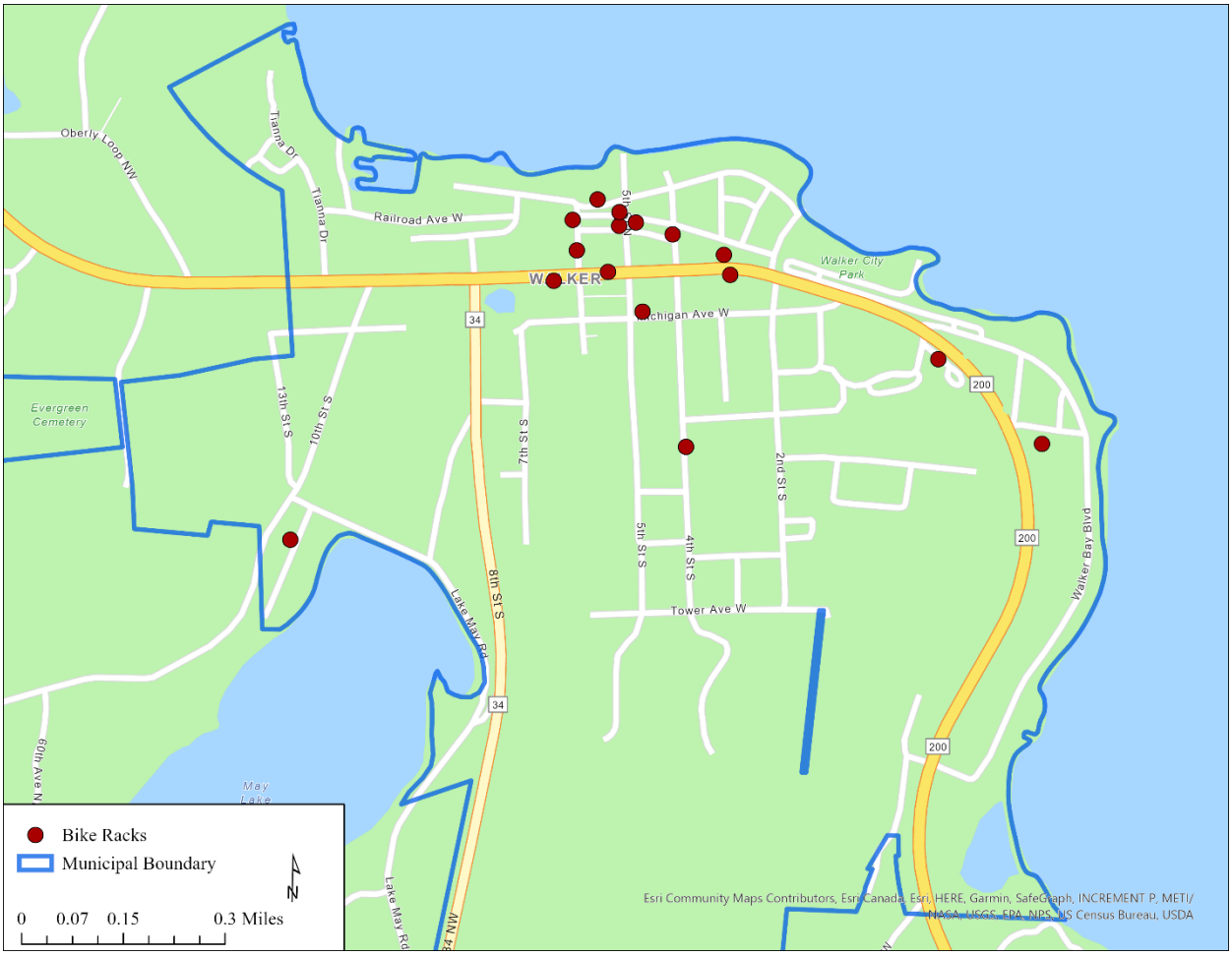
Pelican Rapids, MN



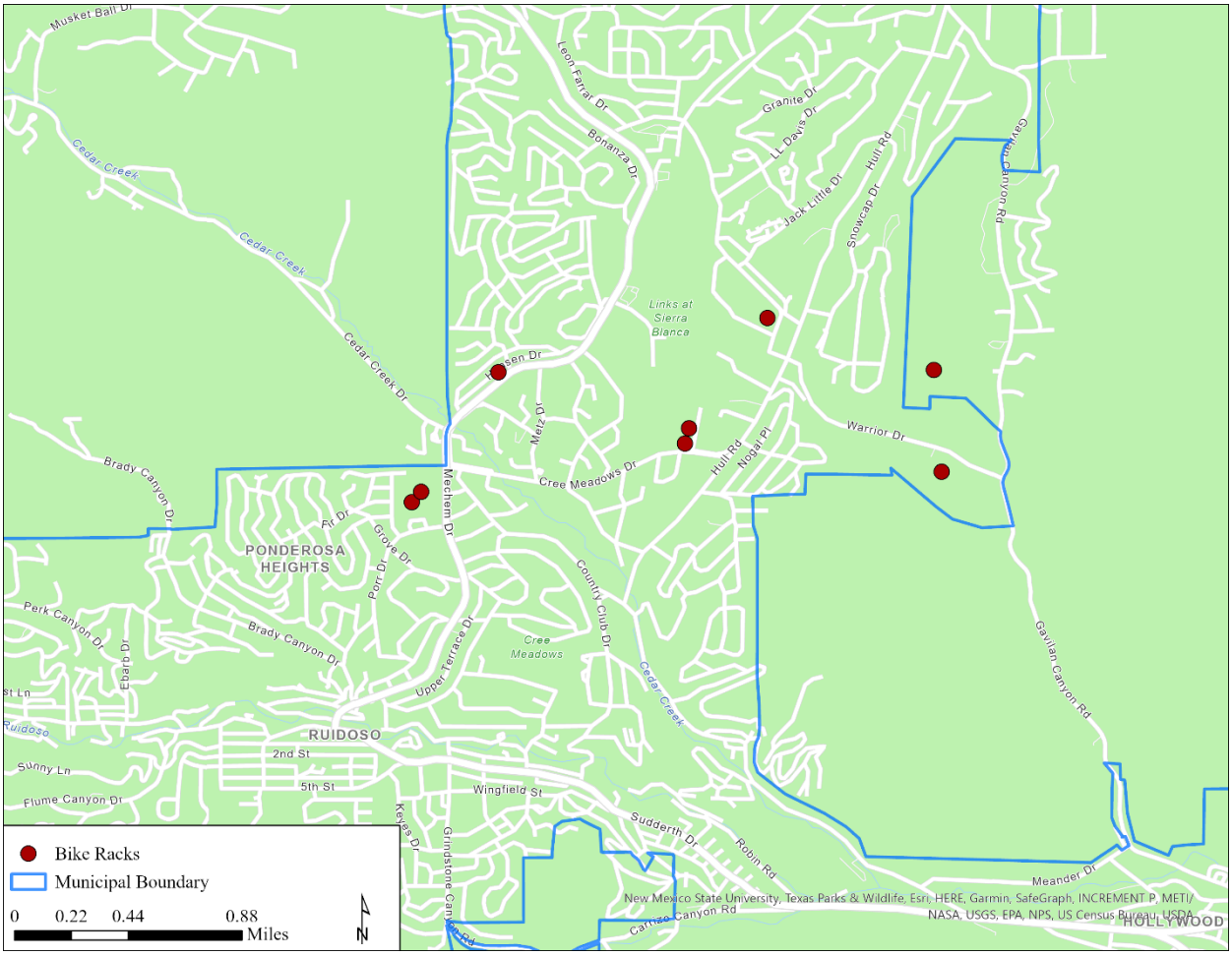
Pipestone, MN



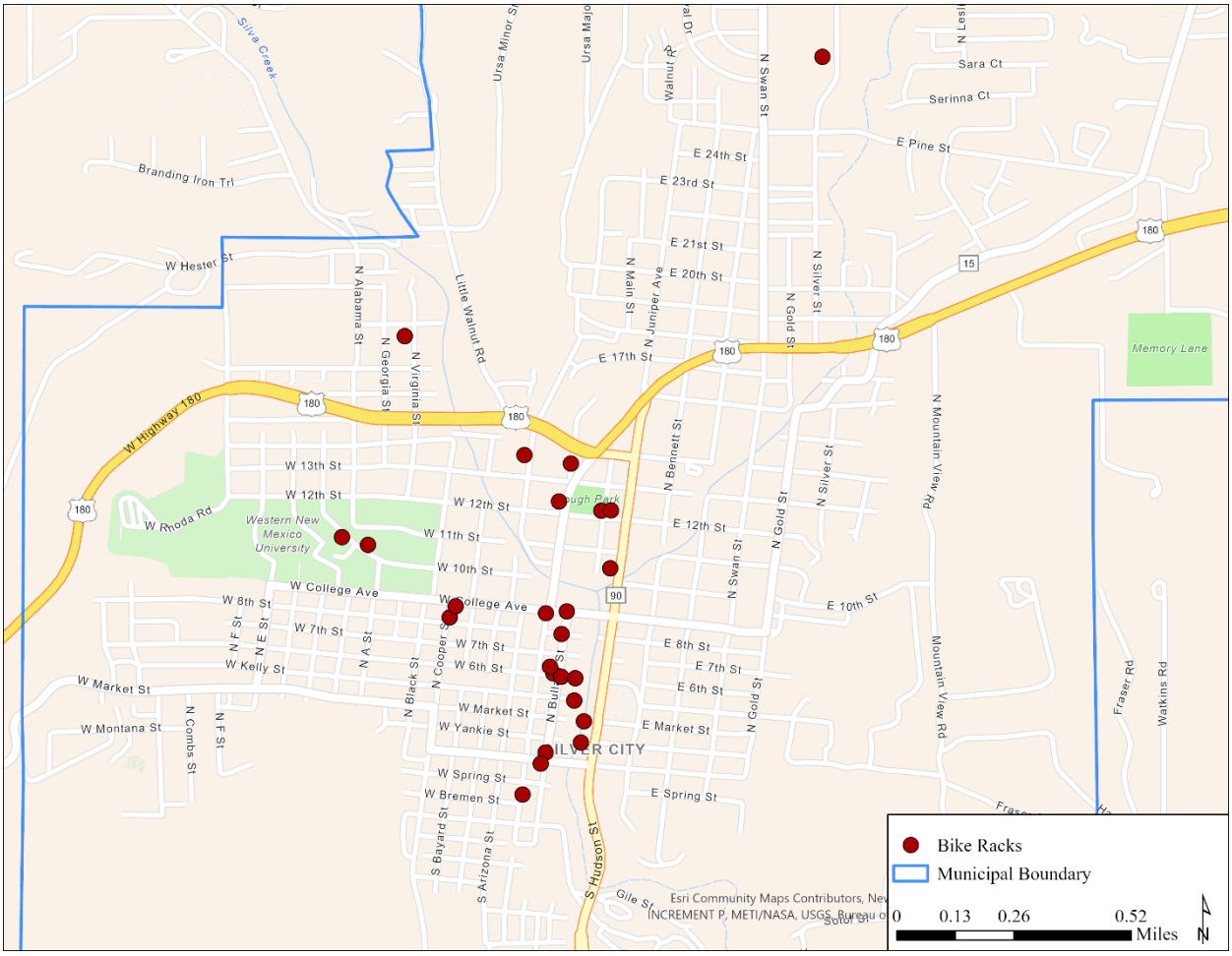
Walker, MN


Oberly Loop NW
Tianna Dr
Railroad Ave W
Walker City Park
Michigan Ave W
Evergreen Cemetery
13th St S
10th St S
7th St S
2nd St S
5th St S
4th St S
8th St S
Lake May Rd
Tower Ave W
Walker Bay Blvd
34
200
Bike Racks
Municipal Boundary
0 0.07 0.15 0.3 Miles
Esri Community Maps Contributors, Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA

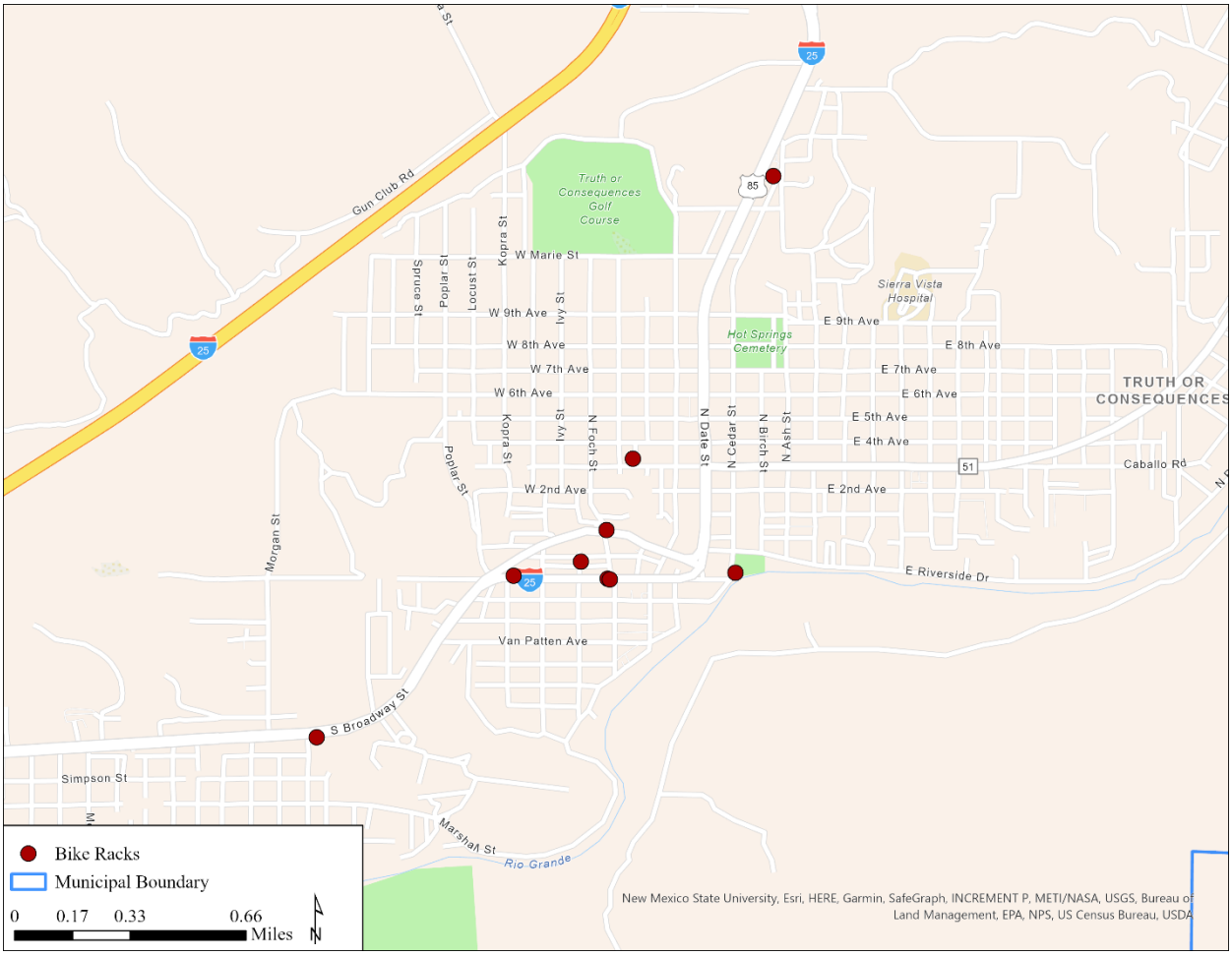
Ruidoso, NM


Musket Ball Dr
Cedar Creek
Cedar Creek
Cedar Creek Dr
Leon Farrar Dr
Bonanza Dr
Granite Dr
LL Davis Dr
Jack Little Dr
Snowcap Dr
Hull Rd
Canyon Rd
Links at Sierra Blanca
Metz Dr
Hull Rd
Nogal Pl
Warrior Dr
Cree Meadows Dr
Brady Canyon Dr
Mechem Dr
Ft Dr
Grove Dr
Poor Dr
PONDEROSA HEIGHTS
Perk Canyon Dr
Ebarb Dr
Brady Canyon Dr
Upper Terrace Dr
Cree Meadows
Country Club Dr
Cedar Creek
Gavilan Canyon Rd
RUIDOSO
2nd St
5th St
Sunny Ln
Flume Canyon Dr
Wingfield St
Keyes Dr
Grindstone Canyon Rd
Sudderth Dr
Robin Rd
Meander Dr
Carrizo Canyon Rd
HOLLYWOOD
Bike Racks
Municipal Boundary
0 0.22 0.44 0.88
Miles
N
New Mexico State University, Texas Parks & Wildlife, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

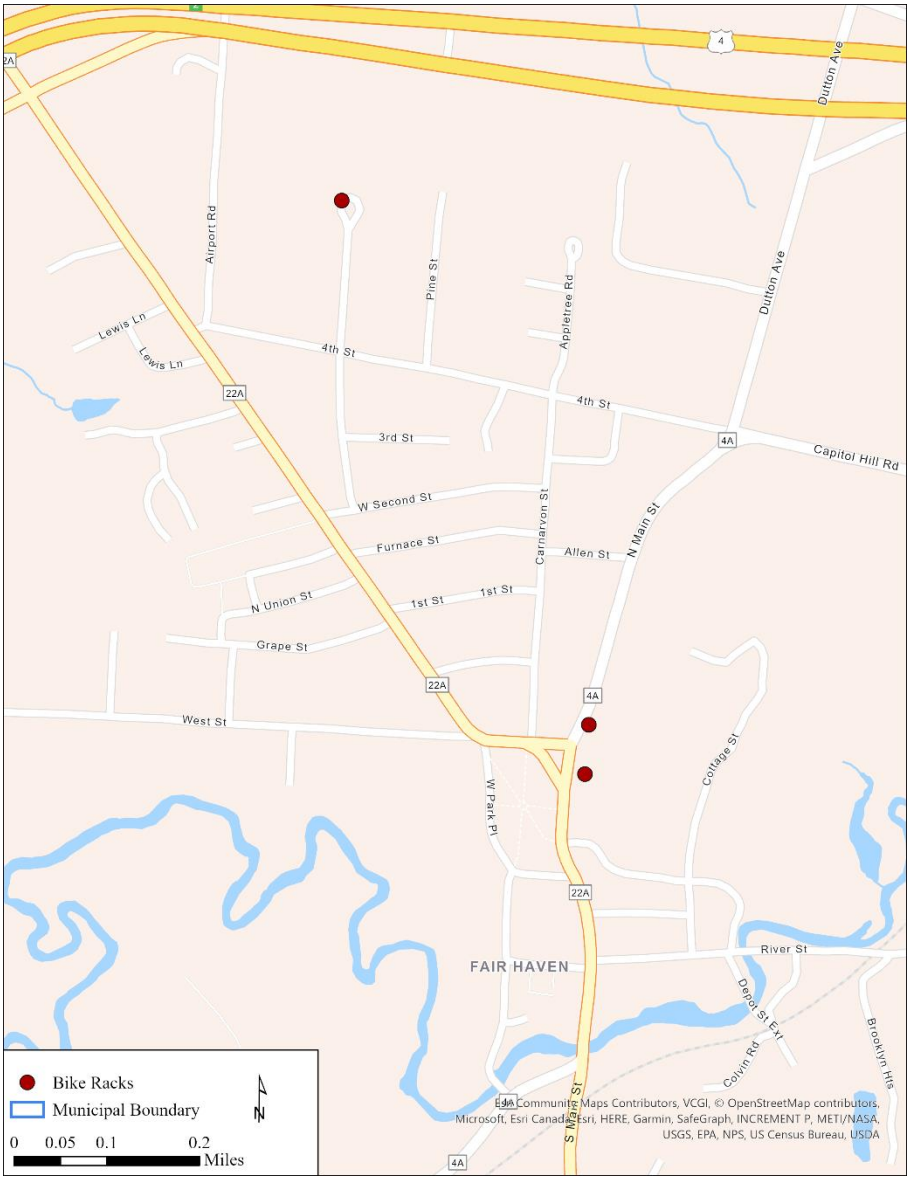
Silver City, NM



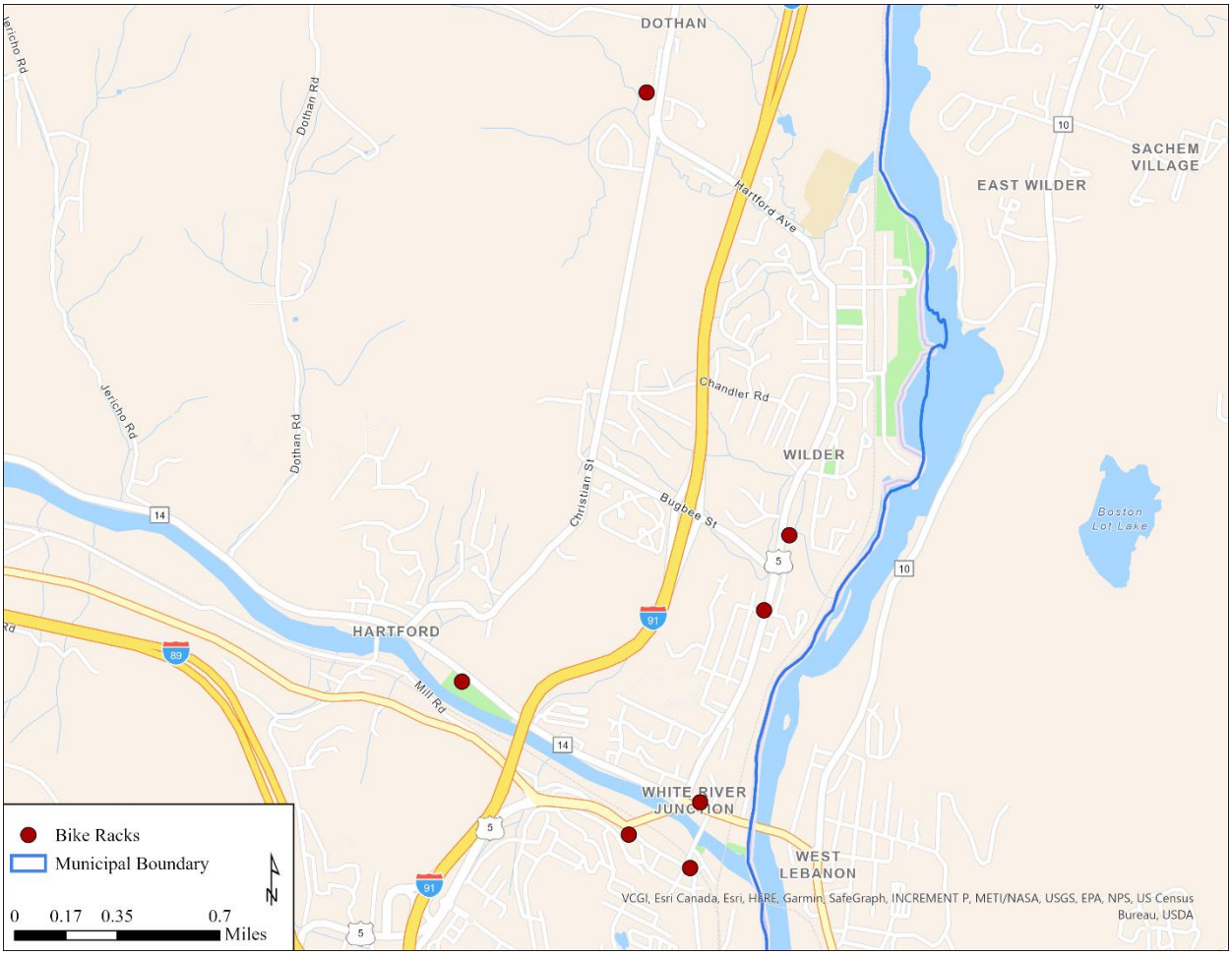
Truth or Consequences, NM



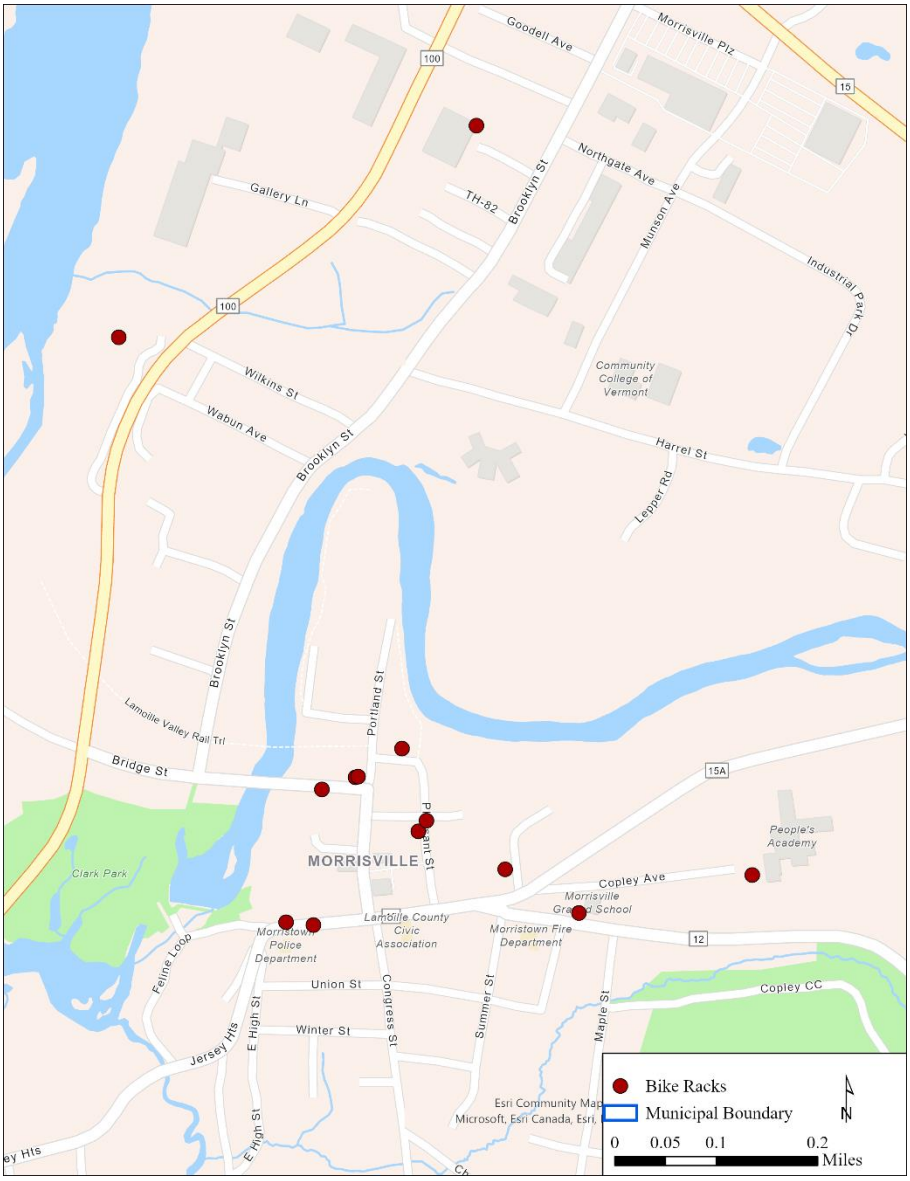
Fair Haven, VT



Hartford, VT

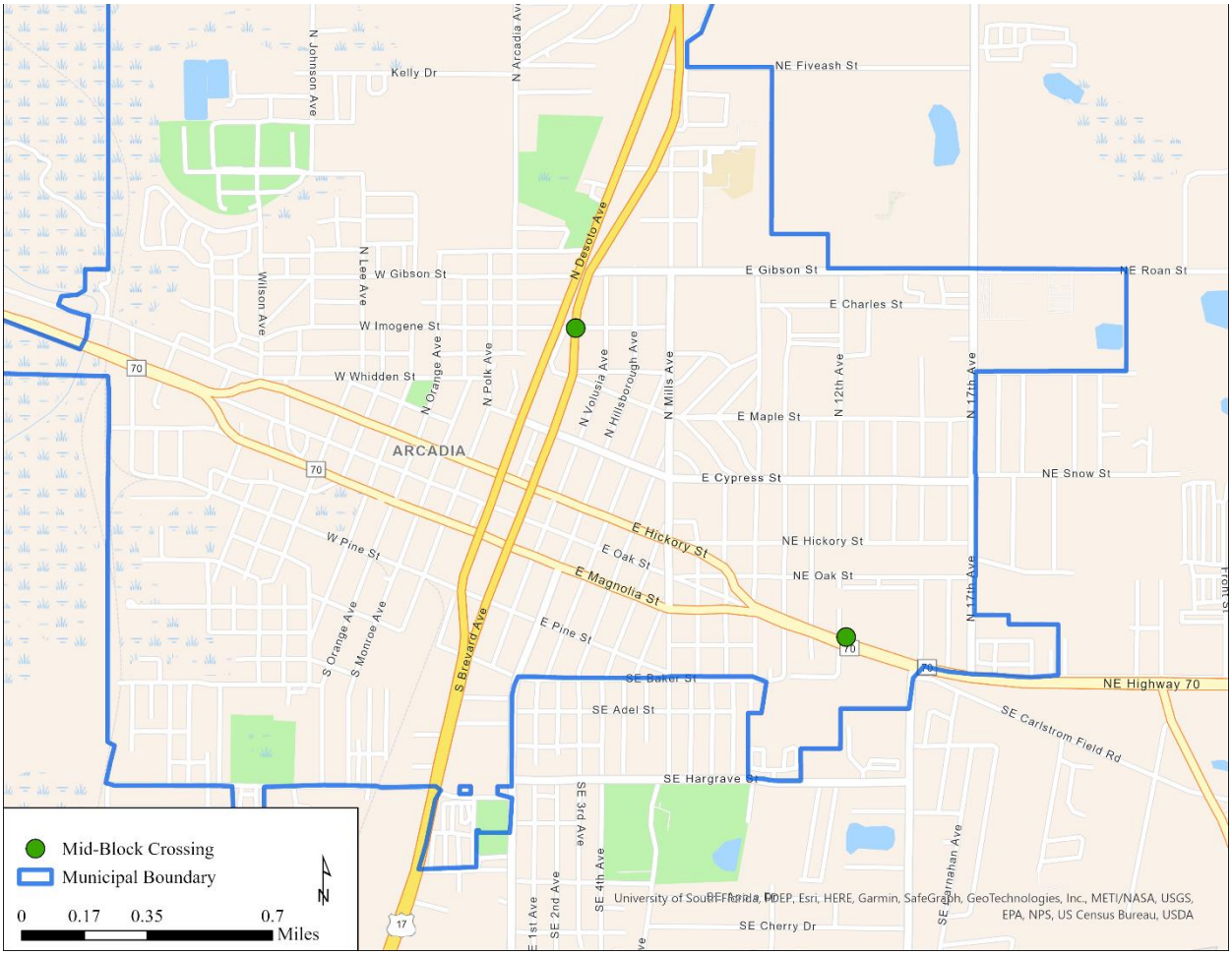

DOTHAN
SACHEM VILLAGE
EAST WILDER
Hartford Ave
Chandler Rd
WILDER
Christian St
Bugbee St
Boston Lot Lake
Jericho Rd
Dothan Rd
HARTFORD
Mill Rd
WHITE RIVER JUNCTION
WEST LEBANON
Bike Racks
Municipal Boundary
0 0.17 0.35 0.7
Miles
VCGI, Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Morristown, VT

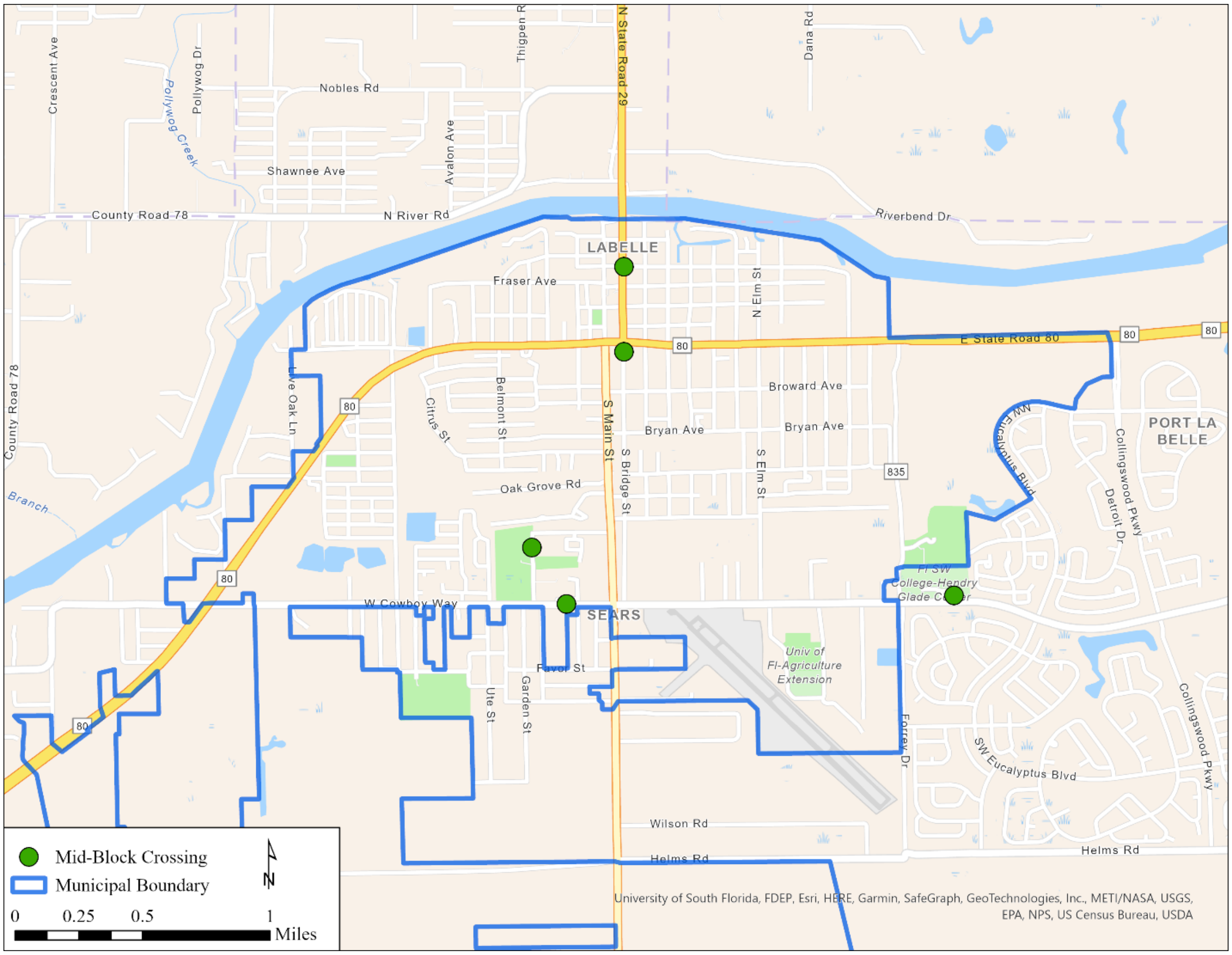


13 Appendix E – Mid-Block Crossing Maps

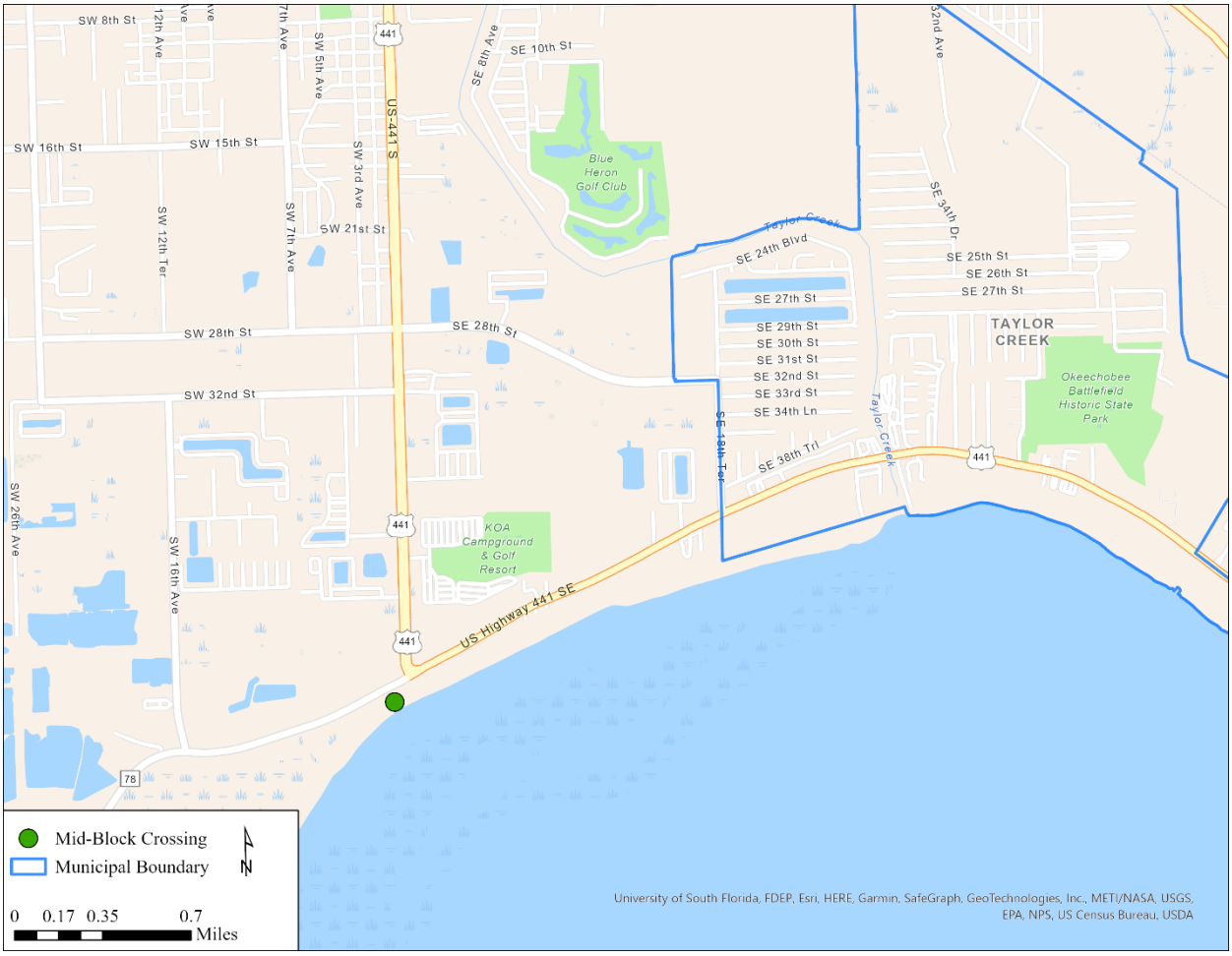
Arcadia, FL



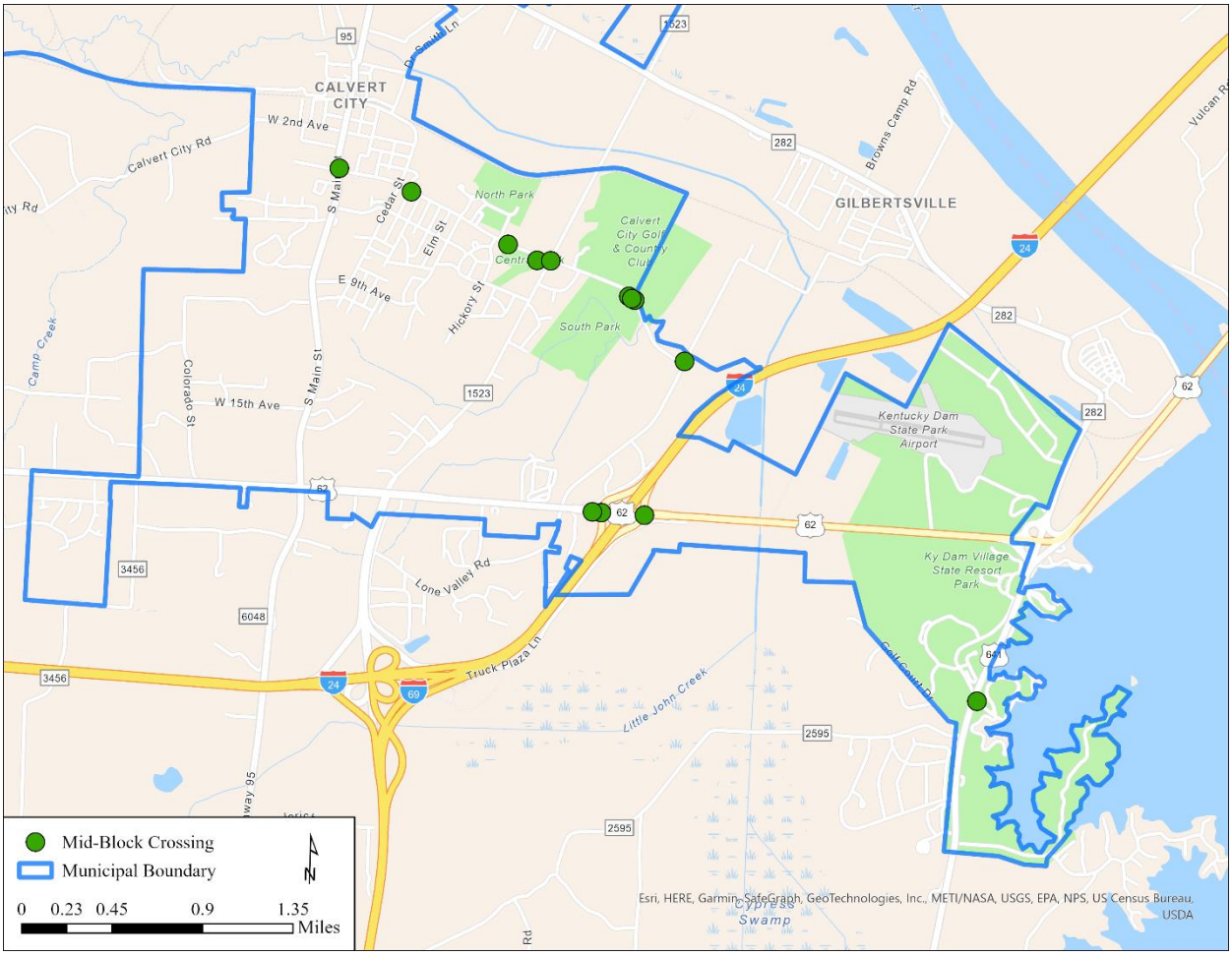
LaBelle, FL


Nobles Rd
Shawnee Ave
County Road 78
N River Rd
Riverbend Dr
LABELLE
Fraser Ave
N State Road 29
E State Road 80
Broward Ave
Bryan Ave
Oak Grove Rd
S Main St
S Bridge St
N Elm St
S Elm St
PORT LA BELLE
W Cowboy Way
SEARS
Wilson Rd
Helms Rd
Mid-Block Crossing
Municipal Boundary
0 0.25 0.5 1 Miles
University of South Florida, FDEP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

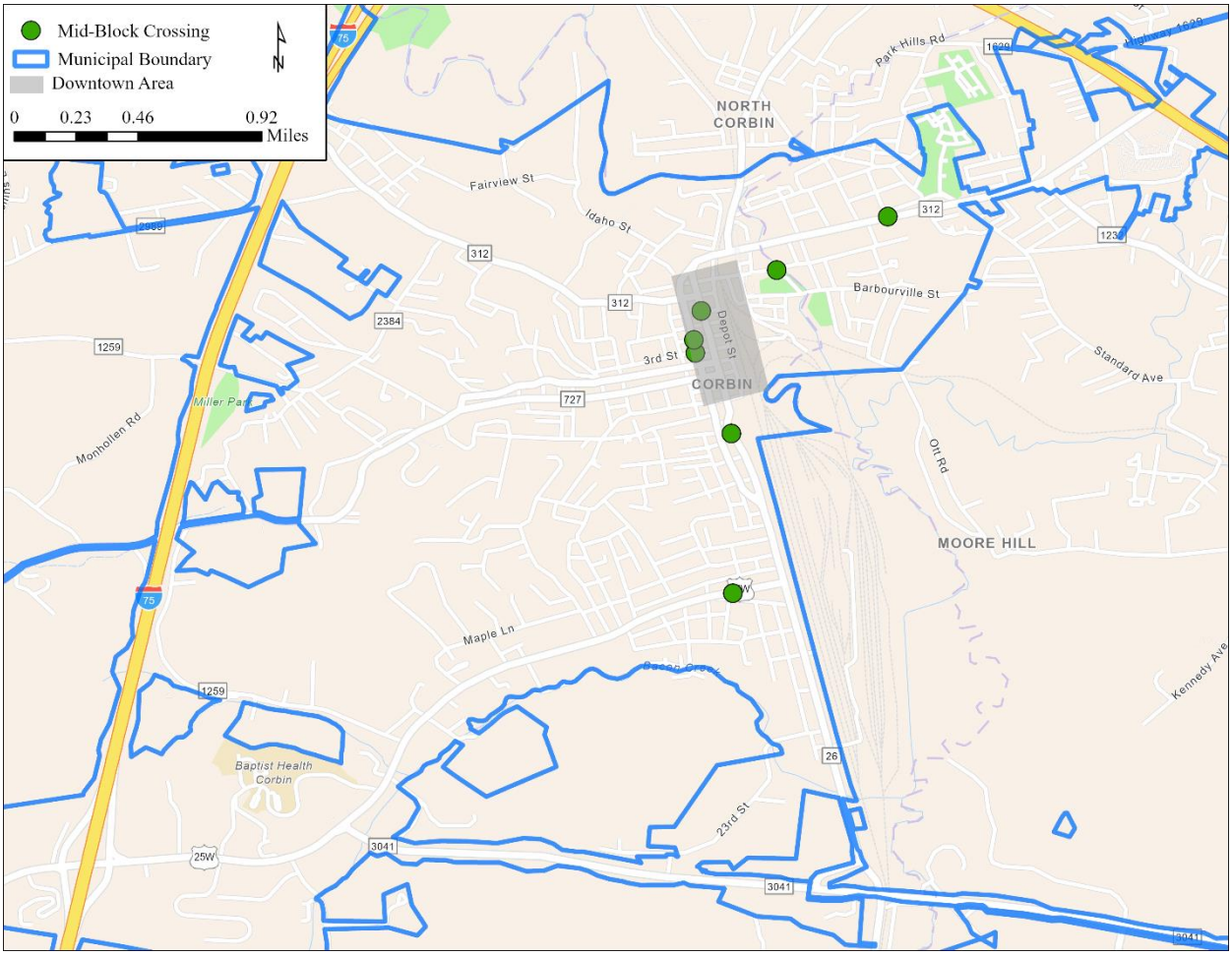
Taylor Creek, FL



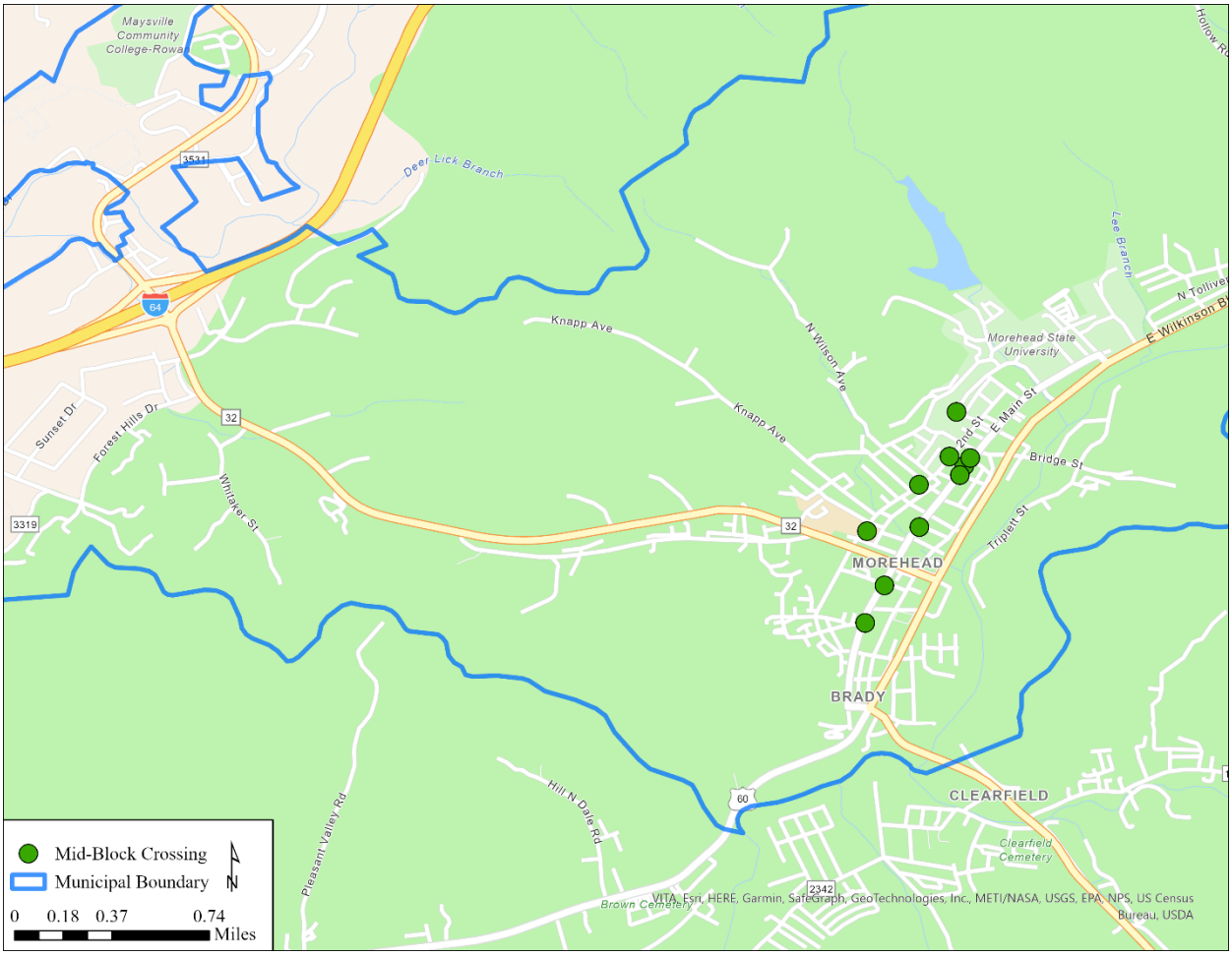
Calvert City, KY



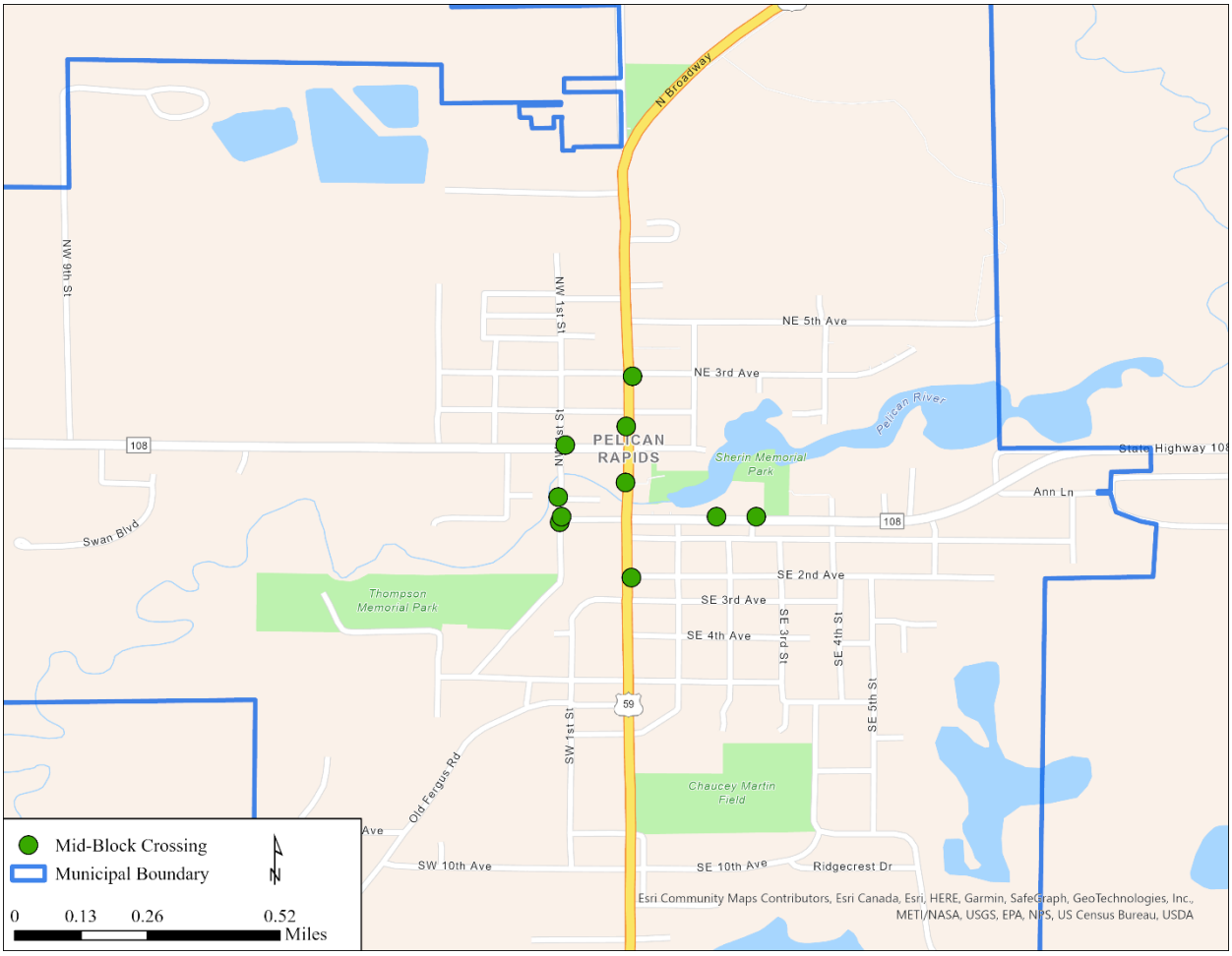
Corbin, KY


Mid-Block Crossing
Municipal Boundary
Downtown Area
0 0.23 0.46 0.92
Miles
N
NORTH CORBIN
CORBIN
MOORE HILL
Park Hills Rd
Fairview St
Idaho St
Barbourville St
Depot St
3rd St
Standard Ave
Ott Rd
Monhollen Rd
Miller Park
Maple Ln
Kennedy Ave
23rd St
Baptist Health Corbin
75
312
2384
1259
727
26
25W
3041

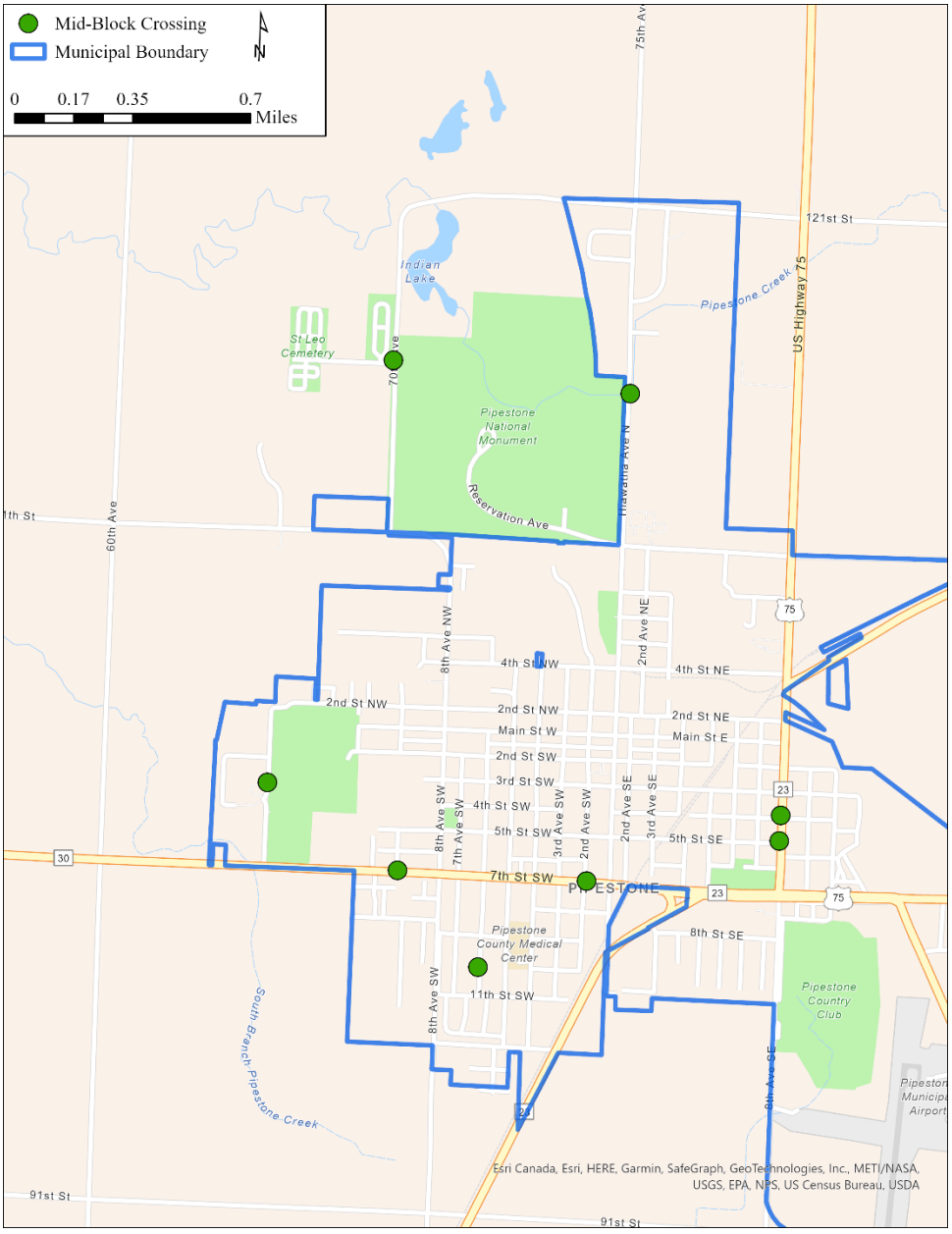
Morehead, KY


Maysville Community College-Rowan
Deer Lick Branch
Lee Branch
Knapp Ave
N Wilson Ave
Morehead State University
E Wilkinson Blvd
Sunset Dr
Forest Hills Dr
Whitaker St
E Main St
2nd St
Bridge St
Triplett St
MOREHEAD
BRADY
CLEARFIELD
Hill N Dale Rd
Pleasant Valley Rd
Clearfield Cemetery
Brown Cemetery
3531
64
32
3319
60
2342
Mid-Block Crossing
Municipal Boundary
N
0 0.18 0.37 0.74
Miles
VITA, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

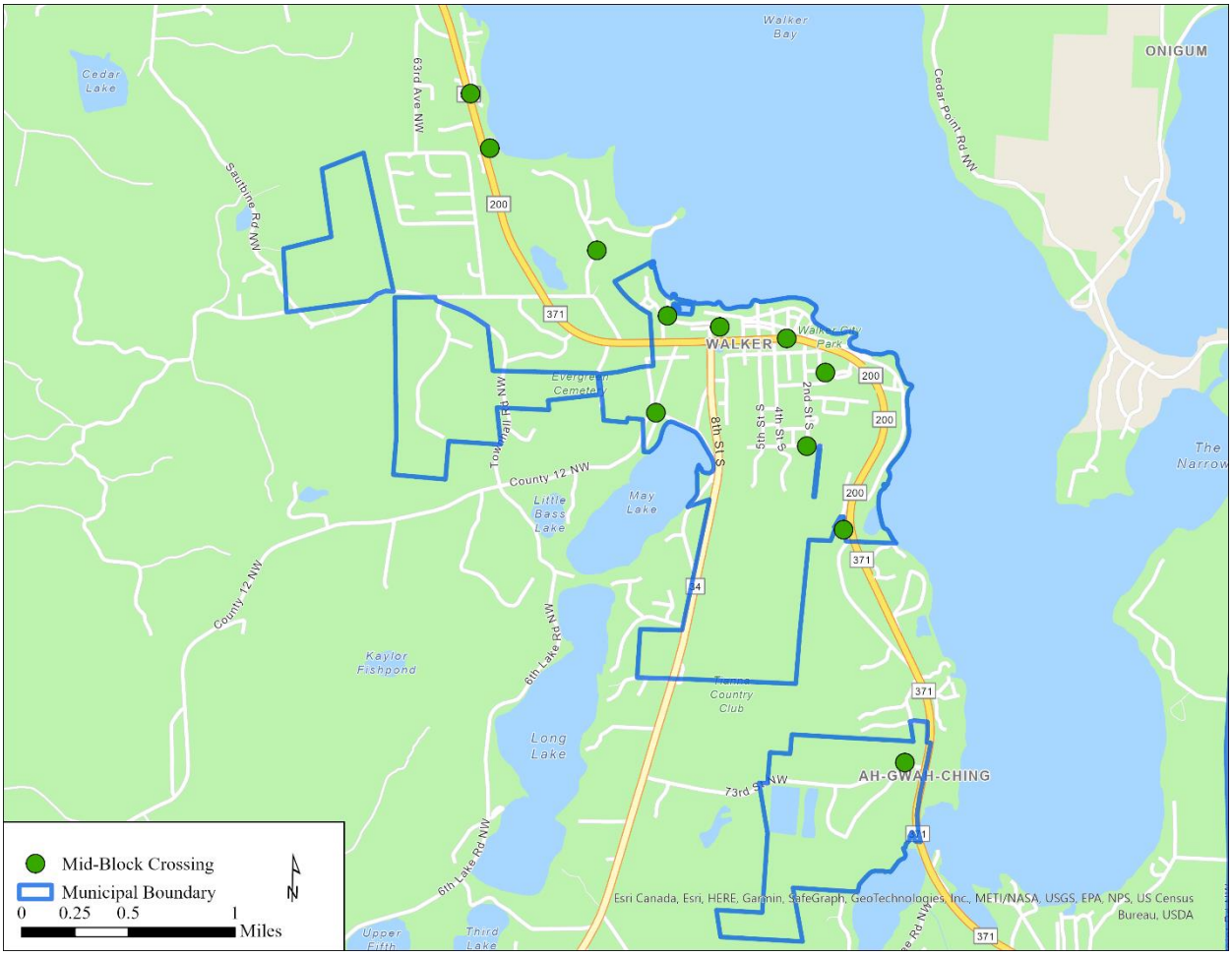
Pelican Rapids, MN



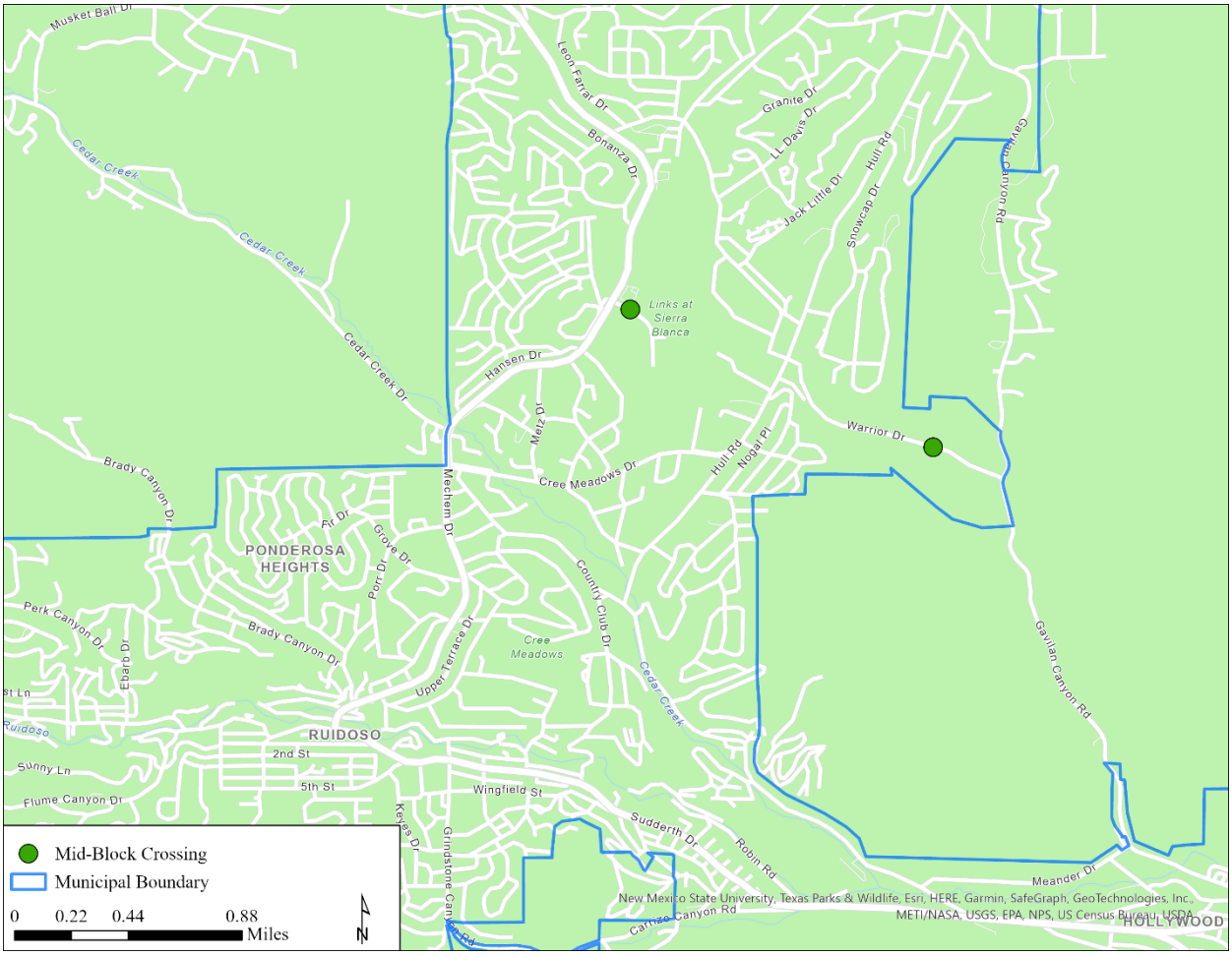
Pipestone, MN



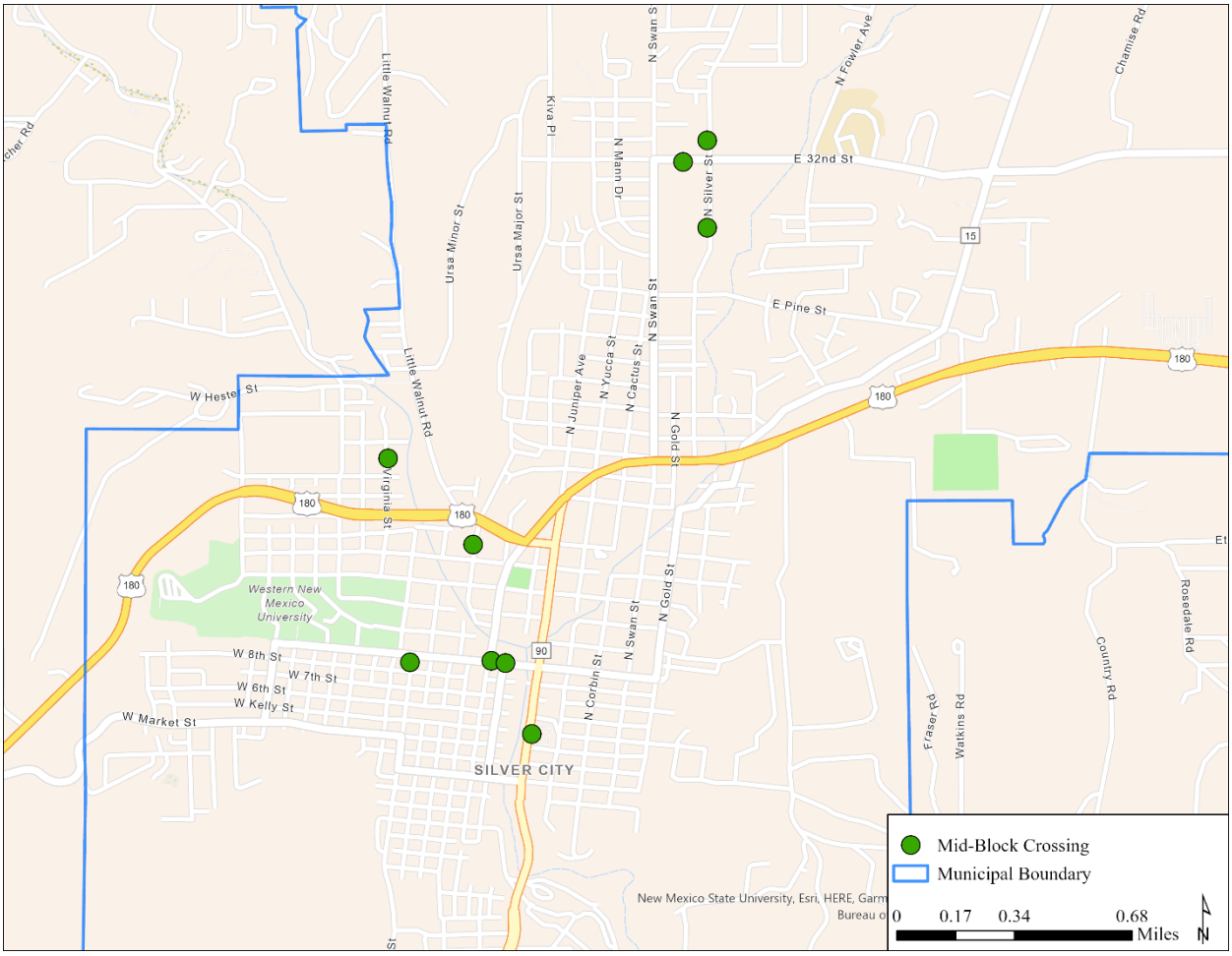
Walker, MN


Walker Bay
ONIGUM
Cedar Lake
63rd Ave NW
Cedar Point Rd NW
Sautbine Rd NW
200
371
WALKER
Walker City Park
Evergreen Cemetery
Townhall Rd NW
County 12 NW
Little Bass Lake
May Lake
8th St S
5th St S
4th St S
2nd St S
The Narrow
34
County 12 NW
6th Lake Rd NW
Kaylor Fishpond
Country Club
Long Lake
AH-GWAH-CHING
73rd St NW
Mid-Block Crossing
Municipal Boundary
0 0.25 0.5 1
Miles
N
Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA
Upper Fifth
Third Lake

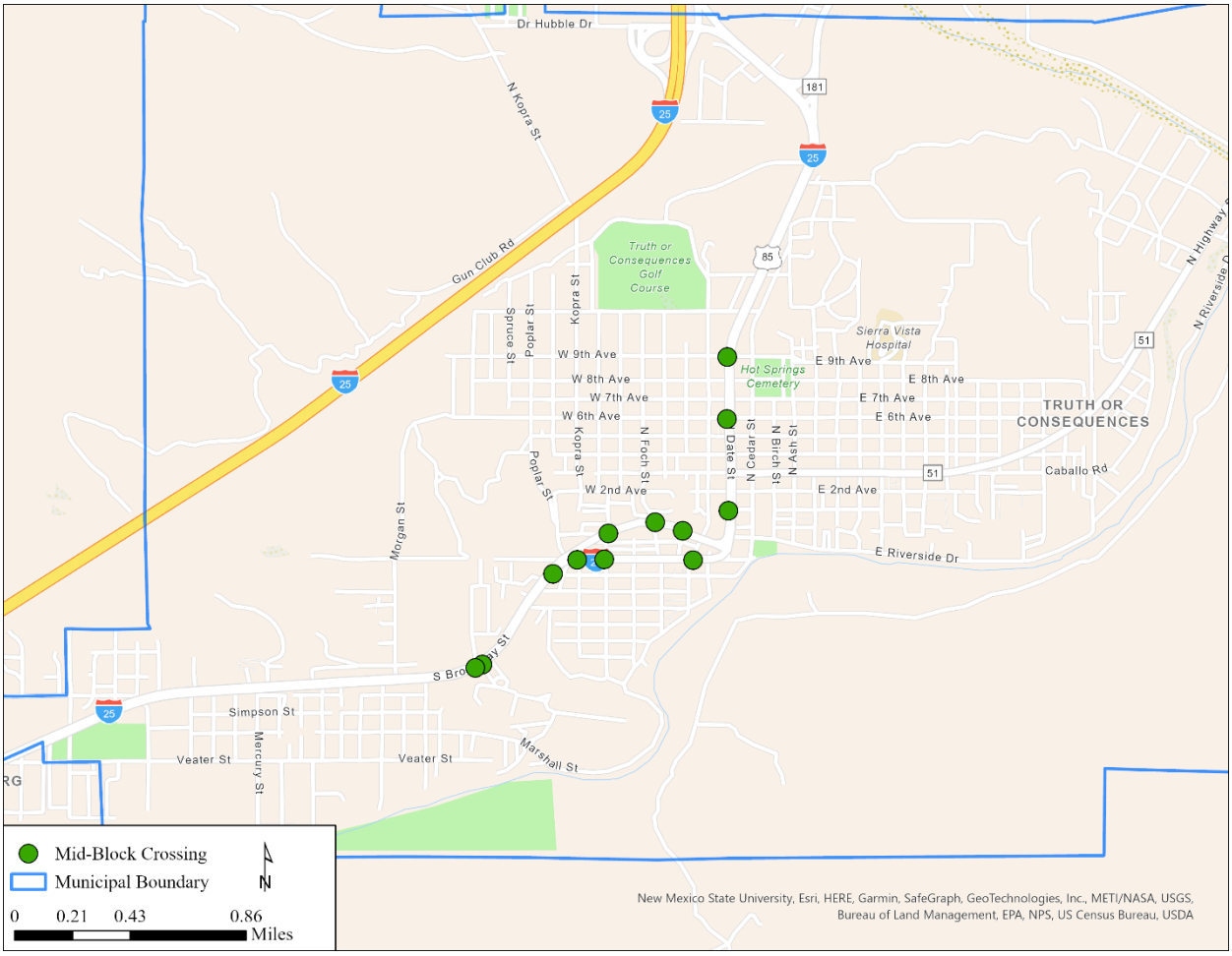
Ruidoso, NM


Musket Ball Dr
Cedar Creek
Cedar Creek
Cedar Creek Dr
Leon Farrar Dr
Bonanza Dr
Granite Dr
LL Davis Dr
Jack Little Dr
Snowcap Dr
Hull Rd
Canyon Rd
Links at Sierra Blanca
Hansen Dr
Metz Dr
Warrior Dr
Hull Rd
Nogal Pl
Cree Meadows Dr
Brady Canyon Dr
Mechem Dr
Ft Dr
Grove Dr
Poor Dr
PONDEROSA HEIGHTS
Perk Canyon Dr
Ebarb Dr
Brady Canyon Dr
Upper Terrace Dr
Cree Meadows
Country Club Dr
Cedar Creek
Gavilan Canyon Rd
st Ln
Ruidoso
RUIDOSO
2nd St
5th St
Sunny Ln
Flume Canyon Dr
Wingfield St
Keyes Dr
Grindstone Canyon Rd
Sudderth Dr
Robin Rd
Meander Dr
Carrizo Canyon Rd
HOLLYWOOD
Mid-Block Crossing
Municipal Boundary
0 0.22 0.44 0.88
Miles
N
New Mexico State University, Texas Parks & Wildlife, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc.,
METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

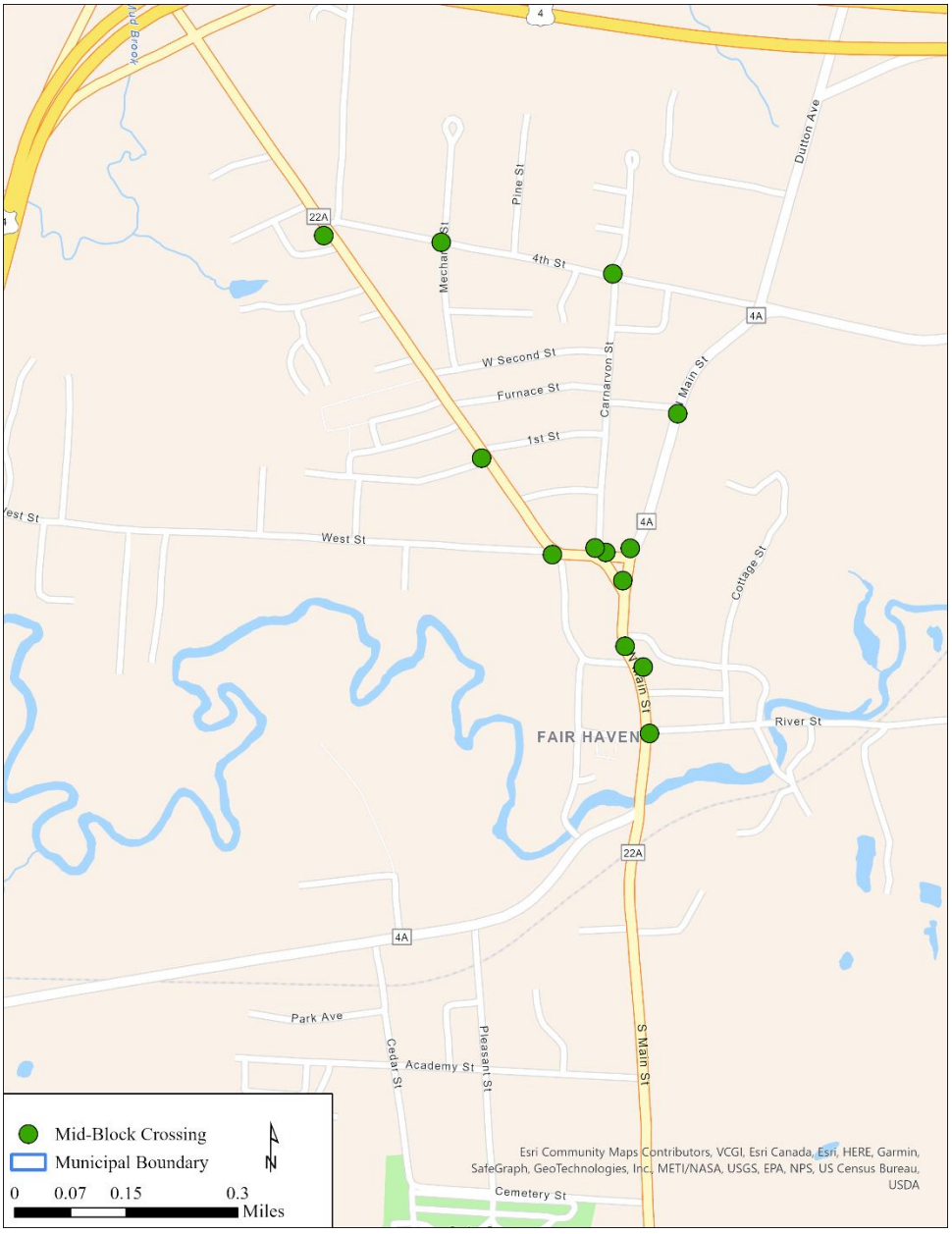
Silver City, NM



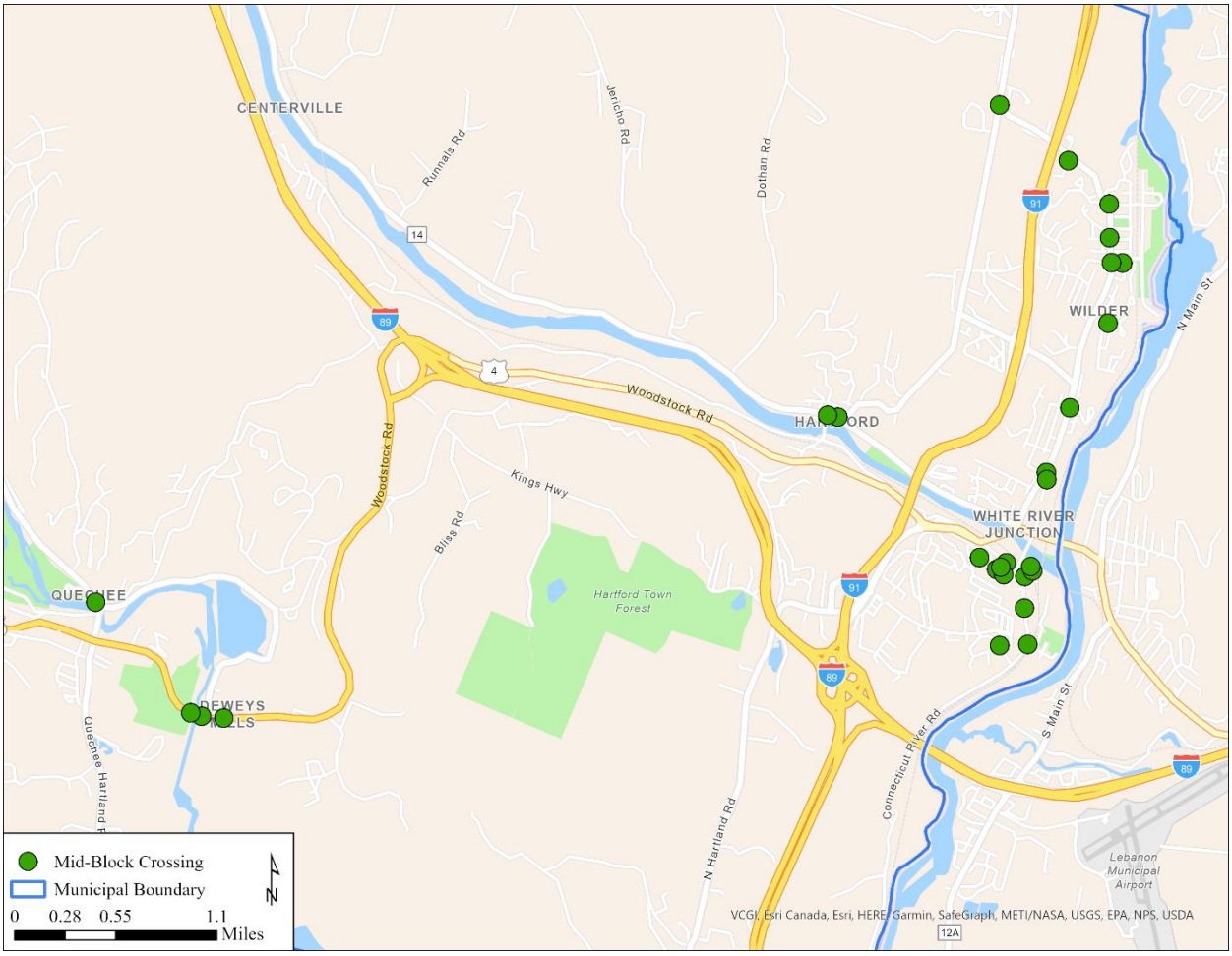
Truth or Consequences, NM



Fair Haven, VT



Hartford, VT


CENTERVILLE
Runnals Rd
Jericho Rd
Dothan Rd
14
89
4
Woodstock Rd
Woodstock Rd
Kings Hwy
Bliss Rd
HARTFORD
WILDER
N Main St
WHITE RIVER JUNCTION
91
Hartford Town Forest
QUECHEE
DEWEYS MILLS
Quechee Hartland Rd
N Hartland Rd
Connecticut River Rd
S Main St
Lebanon Municipal Airport
12A
Mid-Block Crossing
Municipal Boundary
0 0.28 0.55 1.1
Miles
N
VCGI, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

Morristown, VT