

Electric-Assist Bicycles on Paved Trails

2022 Evaluation Report



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Executive Summary

In 2018, the Fort Collins Bicycle Advisory Committee submitted a recommendation in support of a pilot program to allow and evaluate electric-assist bicycles (e-bikes) with two or three wheels and fully operable pedals, Class I and Class II, on Fort Collins paved trails.¹ After the framework for the pilot program was developed by staff from FC Moves, Natural Areas, Parks, and Park Planning and Development, in 2019, Fort Collins enacted a one-year exemption that allowed Class I and Class II e-bikes on paved multi-use trails.¹ On April 21, 2020, the Fort Collins City Council approved City and Traffic Code updates to allow Class I and Class II e-bikes on paved trails following the completion of the pilot program. The e-bike pilot program evaluation report recommended an annual evaluation of e-bike usage on trails. In March 2022, an evaluation was conducted involving a total of 25 data collections over a 6-day period. The data collections were modeled after the e-bike pilot evaluation. They allowed for the monitoring of trail utilization and experience, use of e-bikes, safety behaviors, speeds, and user perceptions.

The objectives of this evaluation include the following:

1. Collect a sample of perceptions from Fort Collins' paved trail users regarding e-bikes and other e-devices.
2. Monitor speeds and trail behaviors of cyclists.
3. Document similarities and differences between traditional bicycles and e-bikes.

Key findings:

- Intercept Survey
 - Nearly all respondents walk, bike, or jog while on the trails.
 - A majority of respondents support or are neutral about allowing Class I e-bikes (75%), Class II e-bikes (61%), and other e-devices (71%) on paved trails.
 - Only 2 trail users reported conflict with e-bikes on day of survey.
- Speed Assessment
 - E-bike observations were a fraction of the total bike observations across the Fort Collins paved trail system. Only 103 e-bike speeds were recorded out of a total of 1,032 bike observations.
 - The average speed for all bike types was 11.98 mph. 109 (11.7%) traditional bikes and 4 (3.9%) e-bikes were observed going over the 15 mph courtesy speed limit.
- Trail Count and Observed Behavior
 - 24% of traditional bikes gave an audible signal when passing another trail user (n=74), and 44% gave three feet when passing (n=132).
 - 33% of e-bikes gave an audible signal when passing another trail user (n=8), and 50% gave three feet when passing (n=12).
 - Traditional bikes were the only mode of transportation with observed conflict which includes near misses and reckless riding (n=9).

Background

The use of micromobility devices in the United States is drastically increasing as interest in an alternative to motorized transportation is growing. Micromobility is defined by the U.S. Department of Transportation as “any small, low-speed, human- or electric-powered transportation device, including [electric-assist bicycles], and other small, lightweight, wheeled conveyances.”² The rapid advances in technology, combined with a reduction in physical demand to operate a bicycle has legislation creating definitions and regulations regarding electric-assist bicycles (e-bikes) and local land management agencies working diligently to develop policies.

In an effort to be part of uniform nationwide legislation, in 2017, Colorado lawmakers passed House Bill 17-1151, Electrical Assisted Bicycles Regulation Operation. This statute classified e-bikes into three classes based on model and speed capability. In addition, this statute noted that e-bikes cannot have an electric motor that exceeds 750 watts.³ In Colorado, Class I e-bike is defined as a pedal-assisted e-bike that only provides assistance when the rider is pedaling and that ceases to provide assistance over 20 mph.³ An e-bike is classified as Class II when it provides assistance through throttle and ceases assistance at 20 mph.³ Lastly, Class III is a pedal-assisted e-bike that provides assistance only when the rider is pedaling and ceases assistance at 28 mph.³ Many Colorado jurisdictions have modified their e-bike regulations since the state law was passed in 2017. Table 1 located within Appendix A highlights current regulations from a handful of Colorado jurisdictions. Currently, in Fort Collins Class I and Class II e-bikes are allowed on paved trails.⁴ However, Class III e-bikes are only allowed on roadways and in bike lanes.⁴

The purpose of this report is to share the results of the e-bike evaluation that occurred in Fort Collins, Colorado to assess trail user behaviors, observe conflict, and gauge public perceptions regarding the use of Class I and Class II e-bikes and support for allowing other e-devices on paved trails in Fort Collins, Colorado.

Methods

Trail Intercept Survey

Starting March 2022, City of Fort Collins volunteers were briefed on the study objectives, trained on proper trail intercept survey protocols, and provided with specific trail locations for conducting surveys. Two surveys were revised to encourage participation, a short version (approximately 3-minute completion time) and a long version (less than 10-minute completion time). The revised surveys were also inputted in Qualtrics which allowed trail users to opt for a paper survey or an electronic version on their phone by using a QR code. Survey dates were randomized to gain a broad perspective of opinions. Survey times were divided into three separate blocks: morning (10:00am - 12:00pm), afternoon (2:00pm - 4:00pm), and evening (4:00pm - 6:00pm). Surveys were conducted for two consecutive hours. In addition to different times of the day, surveys were scheduled on both weekdays and weekends. For the survey schedule, see Appendix B. Survey locations were chosen based on location during the pilot study (see Table 2). For the intercept survey instruments, see Appendix C. A total of 245 community members took the survey. 194 surveys were taken on paper and 51 surveys were taken using the QR code.

Speed Assessment

Speed assessments were conducted for two-hour periods by City of Fort Collins staff. At each speed assessment location, speeds of oncoming cyclists were taken at a safe distance away from the observer. The speed of cyclists was recorded using a pocket radar unit. This handheld device records the speed of a moving object traveling towards or away from the pocket radar. The type of bike was recorded (traditional vs. electric) and cyclists were noted if they were going uphill or downhill to capture potential discrepancies with speed. Other landscape information including the trail condition (wet, icy, or dry) and weather was recorded (see Appendix B). A total of 1,032 cyclists' speeds were collected. For the speed assessment schedule, see Appendix B. Speed assessment locations were chosen based on locations used during the pilot study (see Table 3). The speed assessment data collection sheet can be found in Appendix D.

Trail Count and Observation

Bike type and cyclist behavior were recorded by observation. The observers were provided with example images of how to identify e-bikes. The datasheet was designed to record in 15-minute increments for two hours. Tally marks were placed in the designated column 'Mode of Transportation' for either traditional bicycles or e-bikes. In addition to counting, observers looked at passing and conflict behavior. Observed passing behavior included announced (i.e., providing an audible warning such as ringing a bell or announcing "on your left"), unannounced, and gave three feet to pass (i.e. cyclist left at least three feet between themselves and the trail user they were passing). A tally was placed in the applicable passing behavior section. If a cyclist did not announce passing or if the passing movement was undetermined, a tally was placed in the 'unannounced' column. Observed conflict includes near miss and reckless riding. A tally was placed in the 'near miss' row if a cyclist nearly collides with another trail user (or does collide) or slams on their brakes to avoid hitting someone. A tally was placed in the 'reckless riding' row if a cyclist appears to be traveling at an unsafe speed around other users, weaving in and out of other users recklessly, or passing when oncoming trail traffic is present. For the trail count and observation schedule, see Appendix B. The locations were randomly chosen (see Table 4). The trail count and observation data collection sheet can be found in Appendix E.

Results

Intercept Survey

Mode of Transportation on Day of Survey

Walking was the most common activity for survey respondents. Bicycling and jogging/running were the second and third most common, respectively. The least common activity was wheelchairing and other with no survey respondents (Fig. 1).

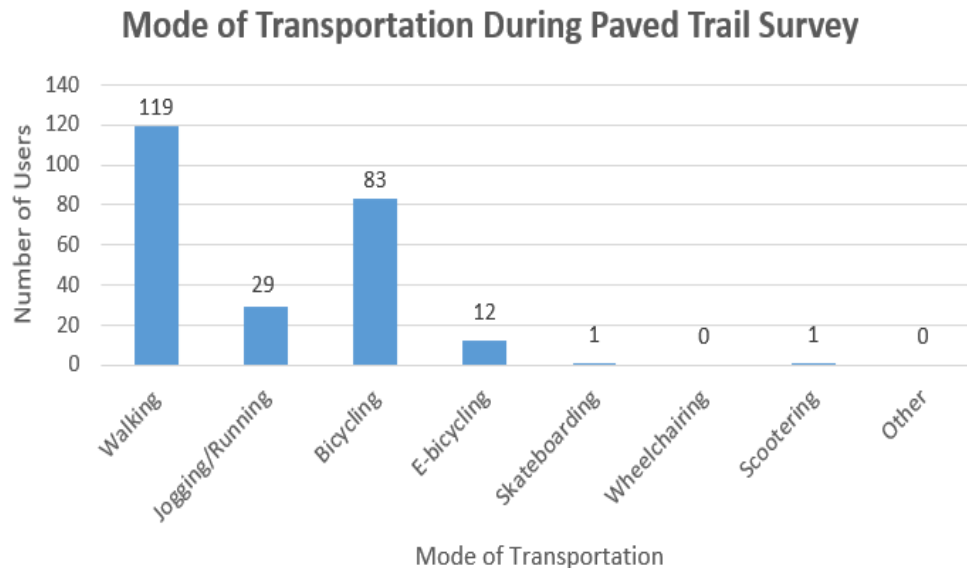


Figure 1: Survey respondents' mode of transportation. Respondents were only able to choose one response (n=245).

E-bike Sightings on Trails

Of the total survey respondents, 30.8% (n=56) had seen an e-bike and 18.9% (n=36) were unsure if they had seen one on the paved trails. The majority of trail users (49.4%; n=90) had not seen an e-bike (Fig. 2). Six of the respondents were riding e-bikes.

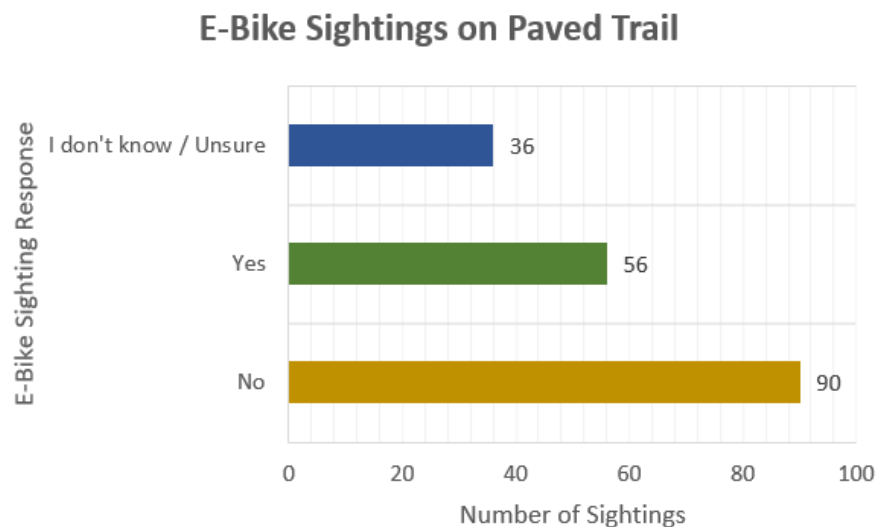


Figure 2: Number of survey participants who had, had not, or were unsure if they had seen an e-bike on paved trails (n=182).

Level of Support for Class I, Class II, and other E-Devices on Paved Trails

The level of support was evaluated for three different types of e-device (Class I, Class II, and other e-devices such as e-scooter, e-skateboards, etc.) ranging from support to oppose. A majority of respondents support or are neutral about allowing Class I e-bikes (75%), Class II e-bikes (61%), and other e-devices (71%) on paved trails (Fig. 3) In the 2019-2020 pilot program report, 76% of respondents supported or were neutral about allowing Class I e-bikes and 64% supported or were neutral about allowing Class II e-bikes on paved trails. Although there is a slight reduction in the current level of support, the pilot program sample size was nearly 500 respondents more [n(pilot program)=1,173 vs n(2022 evaluation)=713].

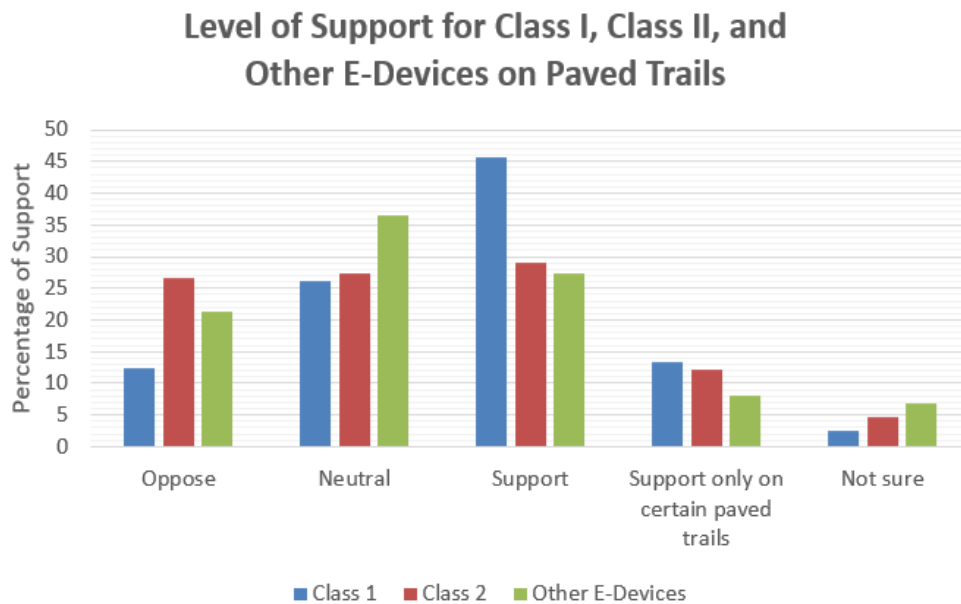


Figure 3: Level of support allowing e-bikes and other e-devices on paved trails (n=713).

Reasons for Level of Support

Trail users were given an opportunity to explain their level of support. Following their answers, comments were either for, against, or neutral towards e-bikes and other e-devices. Responses that were deemed representative of common viewpoints expressed within each level of support are documented below. (Please note these are direct quotes from the intercept surveys and have not been edited.)

Representative Responses- Support e-bikes and/or other e-devices

- *“Trails are for all”*
- *“E-bike allow persons of all ages to participate in outdoor activities.”*
- *“It is not the type of bike that is the problem, it is the rider. If obey the rules, I see no issue.”*

Representative Responses- Oppose e-bikes and/or other e-devices

- *“There’s already plenty of traffic and adding more bikes that have higher speeds worries me.”*
- *“These people are often reaching at least 30-40 mph and are often very inconsiderate”*
- *“Too fast, no brakes, no signal. Please. I’m walking.”*

Representative Responses- Neutral/Not sure e-bikes and/or other e-devices

- *“There are pros and cons. I think improving the public transportation options is good, but I think e-bikers have a tendency to be more aggressive/inconsiderate in their riding. That’s of course anecdotal, I don’t like, have data to back it up.”*
- *“I love to see everyone outside! But there must be consideration on all sides.”*
- *“These bikes are no more intrusive than any other biker or person on the trail. I am unaware of any other concerns with these bikes.”*

Visitor Conflict

Trail users were able to indicate if they experienced interference with one’s goals on the trail causing an unpleasant experience, also known as conflict, and were given an opportunity to explain what caused this conflict. A majority of the trail users (93%; n=126) did not experience conflict. Of the 7% who did experience conflict (n=9), their issues appeared from the following three categories:

1. Off-leash dogs or dogs crowding the trail
2. Groups of walkers crowding the trail
3. Cyclists not announcing themselves when passing

Conflict Experienced on the Paved Trails Today

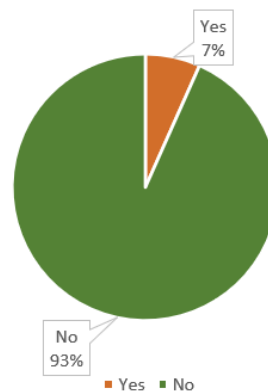


Figure 4: Experience of conflict on paved trails by users (n=135).

Rate of Conflict with an E-bike

Of those trail users who did experience conflict, 1.5% (n=2) did experience conflict with an e-bike. (Fig. 5).



Figure 5: Of those who experienced conflict with an e-bike (n=2).

Age of Survey Respondents

Most of the surveyed trail users were between the ages of 40 and 69 (53%), or 20 and 39 (23%), followed by adults aged 70 and older (9%).

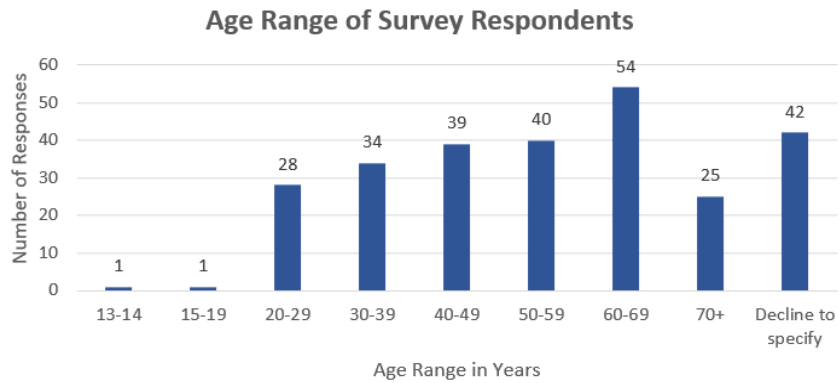


Figure 6: Age of survey respondents (n=264).

Age of E-Bike Users

Most of the surveyed trail users who were riding e-bikes were between the ages of 30 and 59 (n=7), followed by young adults aged 15-19, and those 60 and older (n=3).

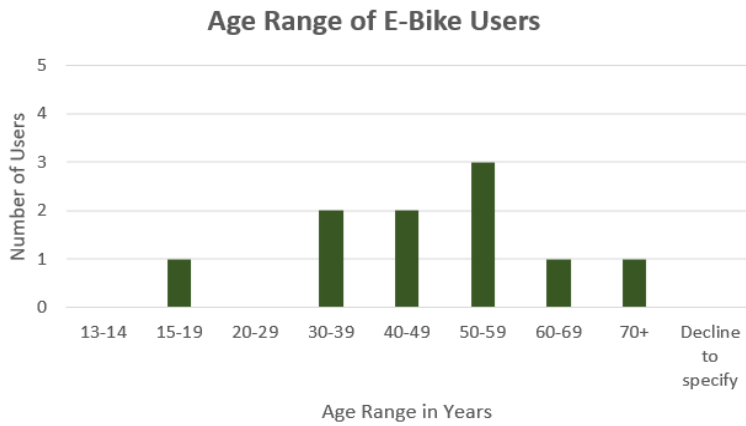


Figure 7: Age of e-bike users (n=10).

Identified Gender of E-Bike Users

All the surveyed trail users who were riding e-bikes identified as women (n=5; 50%) or men (n=5; 50%).

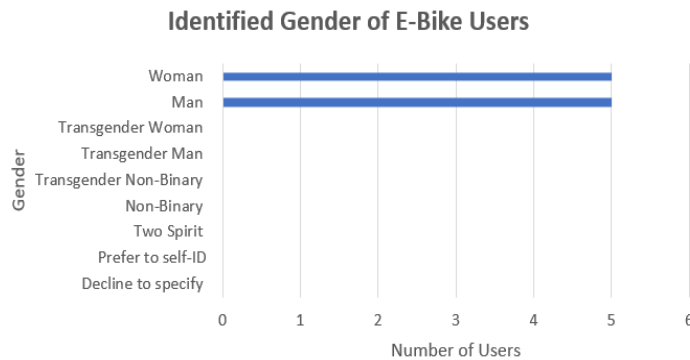


Figure 8: Identified gender of e-bike users (n=10).

Speed Assessment

Speed assessments were recorded in mid-to-late March. During this period, a total of 1,032 speed assessments were taken of traditional bikes and e-bikes. Below, these observations are analyzed by average speed by bike type, speed frequency by bike type, average speed by location and bike type, and average speed of downhill vs. uphill observations by bike type.

Average Speed by Bike Type

The average e-bike speed was 11.86 mph (n=103) and the average traditional bike speed was 11.78 mph (n=929). In the pilot program, the average e-bike speed was 15.62 mph (n=16) and the average traditional bike speed was 11.93 mph (n=1,157).

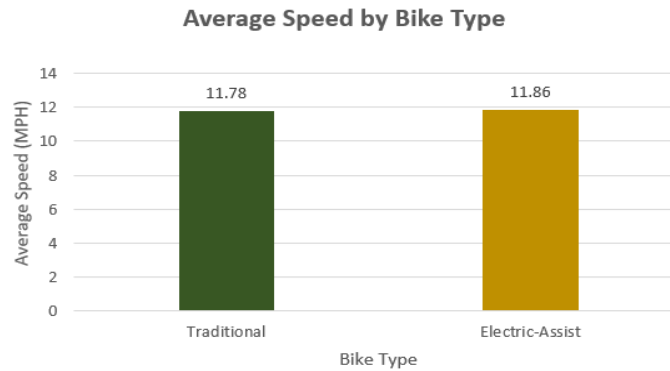


Figure 9: Average speed (mph) by bike type [n(traditional)=929, n(e-bike)=103].

Speed Distribution

A distribution of traditional and e-bike speeds across all locations illustrates the frequency of bike speeds (Fig. 10). The most frequent traditional bike speed was 12 mph (n=120). The most frequent e-bike speed was 11 mph (n=17). The range of traditional bike speeds includes a maximum of 22 mph (n=1) and a minimum of 7 mph (n=47). The range of electric bike speeds spanned 20 mph (n=2) and 7 mph (n=4). In the pilot program, the range of e-bike speed was 10 to 23 mph. The Fort Collins paved trail system has a courtesy speed of 15 mph. 109 (11.7%) traditional bikes and 4 (3.9%) e-bikes were recorded traveling faster than the courtesy speed.

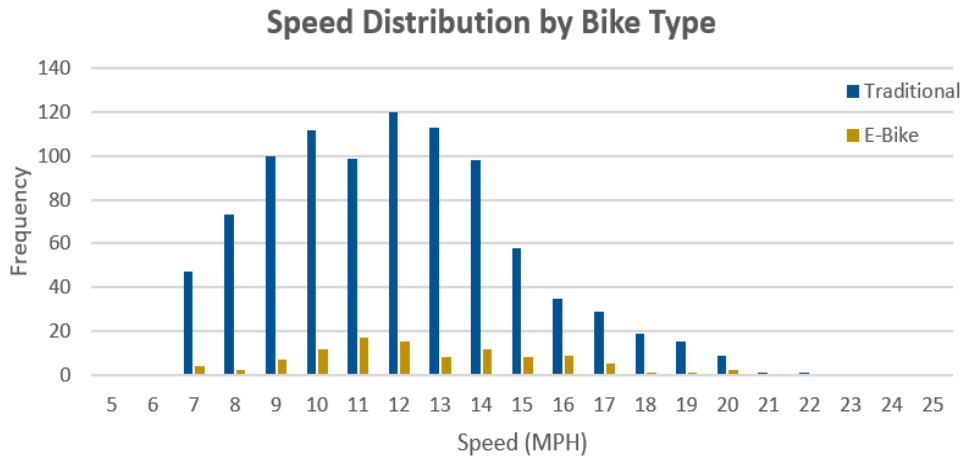


Figure 10: Speed frequency for traditional and e-bikes in Fort Collins [n(traditional)=929, n(e-bike)=103].

Average Speed by Location

The highest average speed of e-bikes was recorded on the Power Trail South of Drake (14.21 mph), the lowest average e-bike speed was recorded at the Spring Creek Trail East of Mason (9.11 mph). The highest average traditional bike speeds were recorded at Power Trail South of Drake (13.51 mph), the lowest average traditional bike speeds were observed at Spring Creek Trail East of Mason (9.86 mph).

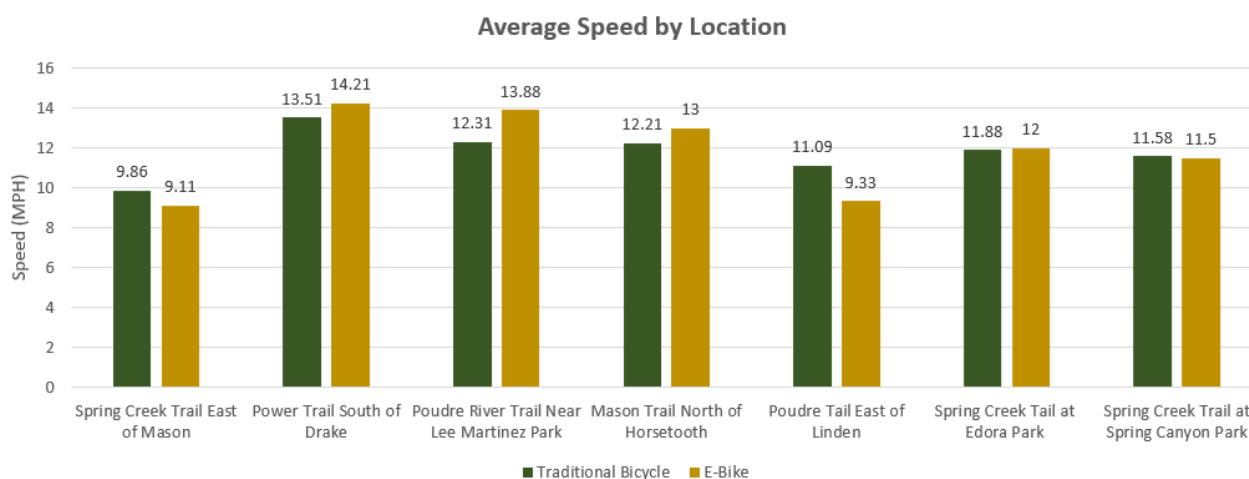


Figure 11: Average speed of traditional and electric-assist bikes by assessment location [$n(\text{traditional})=929$, $n(\text{e-bike})=103$].

Average Uphill and Downhill Speeds by Bike Type

The average speed for all bike types was 11.98 mph. When analyzing by bike type and incline, the average uphill speed of traditional bikes was 11.72 mph and 12.53 mph for e-bikes. For average downhill speeds, traditional bikes traveled at 12.8 mph on average, while e-bikes traveled at a slightly faster average speed of 13.32 mph.

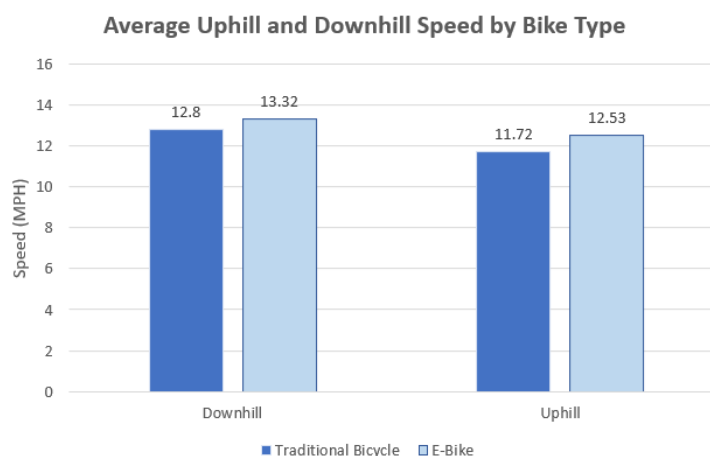


Figure 12: Average uphill and downhill speeds for electric and traditional bikes across all survey locations [$n(\text{e-bike uphill})=23$, $n(\text{traditional uphill})=126$, $n(\text{e-bike downhill})=43$, $n(\text{traditional downhill})=71$].

Trail Count and Observed Behavior

Bike counts and observed behavior were recorded in mid-to-late March. During this period, a total of 806 traditional bikes and e-bikes were counted. Below, the observed behaviors of these bikes are analyzed by bike type, observed passing behavior by bike type, and observed conflict behavior by bike type.

Trail Count

Of the 806 cyclists observed, the most common mode of transportation was traditional bicycle at 90% (n=728), while e-bikes were observed 7% of the time (n=78).

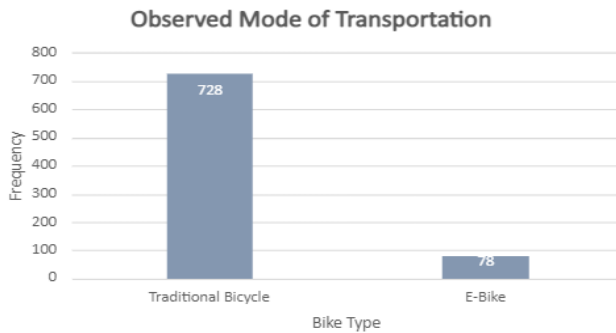


Figure 13: Observed trail count of traditional and electric-assist bikes at all locations [n(traditional)=728, n(e-bike)=78].

Observed Passing

24% of traditional bikes gave an audible signal when passing another trail user (n=74), and 44% gave three feet when passing (n=132). 33% of e-bikes gave an audible signal when passing another trail user (n=8), and 50% gave three feet when passing (n=12).

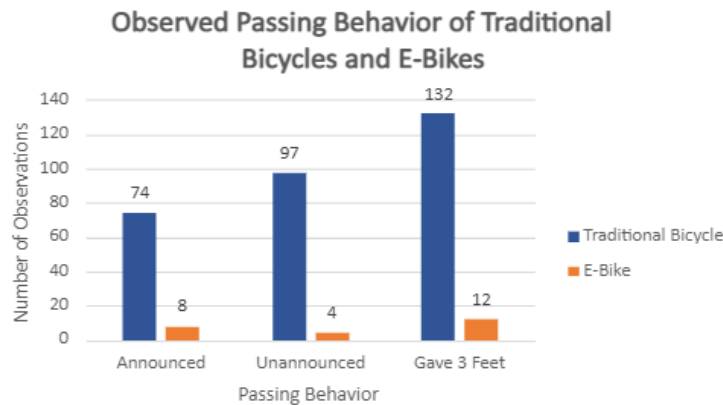


Figure 14: Observed passing behavior of traditional and electric-assist bikes at all locations [n(traditional)=303, n(e-bike)=24].

Observed Conflict

Conflicts were observed with traditional bikes but not e-bikes. Of the conflict observed, reckless riding was the most common (n=5), followed closely by near miss (n=4).

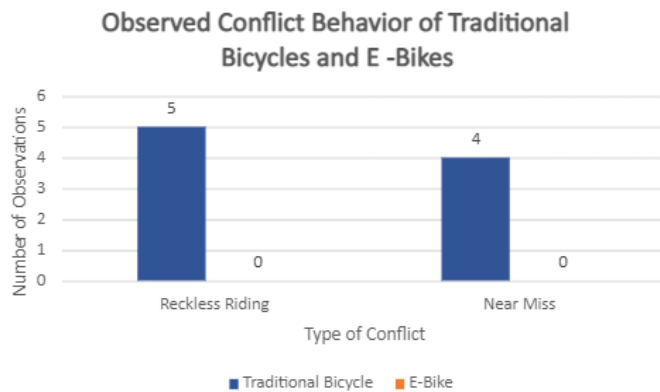


Figure 15: Observed conflict behavior of traditional and electric-assist bikes at all locations [n(traditional)=9, n(e-bike)=0].

Discussion and Conclusion

In Fort Collins, most survey participants either walk, bike, or jog on the paved trail system. The majority of respondents had not seen an e-bike, and very few had experienced any conflict and even fewer had experienced conflict with an e-bike. Many comments from respondents expressed concern about speed and trail etiquette of both e-bikes and traditional bikes. Several other trail users pointed out it is the rider, not the bike, that creates adverse situations. These comments suggest that whatever recommendations follow this evaluation, strategies to address these bike etiquette concerns must be included.

When asked to rank their level of support for Class I and Class II e-bike usage on trails and allowing other e-devices on trails, a majority of respondents supported or were neutral. Many respondents commented that allowing e-bikes could aid in getting cars off the road and allow more people to enjoy the outdoors. Several trail users shared their concerns about trail crowding and the speed of e-devices adversely impacting other trail users.

Given that speed and safety were top concerns in the intercept study, the speed observation survey lends several key takeaways. First, 109 (11.7%) traditional bikes and 4 (3.9%) e-bikes were recorded traveling faster than the trail courtesy speed of 15 mph. The highest average speeds were documented on Power Trail South of Drake which may be due to the straight, flat landscape of the trail. The lowest speeds were recorded at Spring Creek Trail East of Linden which may be due to the curviness of the trail. The results indicate that average traditional bike speeds are only slightly lower than average e-bike speeds. On uphill and downhill slopes, e-bikes were on average faster than traditional bicycles. Finally, in regard to the range of speeds observed, the highest e-bike speed observed was 20 mph and the traditional bike speed was 22 mph. Overall, there were far fewer e-bikes at all locations (n=78) than traditional bikes evaluated in the speed observations (n=728).

Limitations

Limitations of this evaluation include observations, resources, small sample size, using two surveys, and length of the long survey. E-bikes are becoming more difficult to visually differentiate, so some e-bikes may have been recorded as traditional bicycles within the speed assessment and observed behavior data collection. Continued education and knowledge around e-bikes are highly encouraged to help future data collectors easily differentiate an e-bike. The sample size was small due to the amount of days data were collected. In the pilot program, data were collected for 32 days in April, July, August, September, and October at various events and on trails. During this evaluation, data were collected for six days in March. There were fewer survey takers and fewer bicyclist speeds that were recorded. However, there were 87 more e-bike speeds recorded during the evaluation and observed passing and conflict behavior were able to be analyzed. Another limitation with observations includes that we were only able to observe conflict when we were conducting observational data collection as we can't experience every conflict a trail user has. Another limitation was utilizing two surveys. We were unsure what data we wanted to gather from the survey respondents, so two surveys were used. However, this may have created some misinterpretation around questions and the questions were worded slightly differently between the two surveys as shown in the Appendix.

Future Recommendations

- Continue monitoring safety incidents or concerns related to e-bikes and other e-devices and add evaluation locations that have high rates of conflict or reported incidents
- For trails with high top speeds, consider conducting a pop-up education event or place the courtesy speed signs
- Consider a broader community engagement effort as more data is needed to know if there is support regarding other e-devices before pursuing a policy change
- Consider conducting e-bike evaluations every 2-5 years
- Continue to revise survey questions and data collection forms as needed
- Only utilize the short version survey
- Data collectors should have the flexibility to choose where to collect data from based on comfort on the trail
- Prep more copies of the printed short version survey and utilize the QR version of the survey more for fewer data entry errors
- Print intercept survey yard signs front and back to capture surveyors traveling from both directions on the trail

Appendix A: Colorado Jurisdictions

Table 1 - Current Colorado Jurisdictions

E-Bike Regulations on Paved Trails in Colorado	
Colorado ³	Class I and II
Colorado State Parks ⁴	Class I and II
Pitkin County ⁵	Class I
Summit County ⁶	Class I
Jefferson County ⁷	Class I and II
Boulder County ⁸	Class I and II
Larimer County ⁹	Class I and II
Fort Collins ¹	Class I and II
Boulder ⁸	Class I and II
Durango ⁹	Class I and II
Vail ¹⁰	Class I and II
Loveland ¹¹	Class I and II
Grand Junction ¹²	Class I and II
Colorado Springs ¹³	Class I on urban trails
Aspen Snowmass Village ¹⁴	Class I
Steamboat Springs ¹⁵	Class I
Beaver Creek ¹⁰	Class I
Vail Mountain ¹⁰	Class I

Appendix B: Data Collection Schedule

Table 2 - Trail Intercept Survey

Location	Date	Time	Volunteer
Spring Creek Trail at Spring Canyon Park	Saturday, March 19	10 AM - 12 PM	TH
Power Trail at Golden Meadows Park	Saturday, March 19	10 AM - 12 PM	AB
Spring Creek Trail at Edora Park	Saturday, March 19	10 AM - 12 PM	CB
Spring Creek Trail at Rolland Moore	Saturday, March 19	2PM - 4 PM	SD
Poudre River Trail near Lee Martinez Park	Saturday, March 19	2PM - 4 PM	SM
Power Trail south of Drake Rd	Sunday, March 20	2PM - 4 PM	DO
Fossil Creek Trail at Fossil Creek Park	Sunday, March 20	2PM - 4 PM	IT
Mason Trail near Spring Creek Trail	Tuesday, March 22	4PM - 6PM	JL
Poudre River Trail near Lee Martinez Park	Tuesday, March 22	4PM - 6PM	AO
Power Trail near Southridge Greens Blvd.	Thursday, March 24	4PM - 6PM	MH
Spring Creek at Gardens on Spring Creek	Thursday, March 24	4PM - 6PM	AS
Mason Trail north of Horsetooth	Saturday, March 26	10AM-12PM	AB
Poudre River Trail east of Taft Hill	Saturday, March 26	10AM-12PM	SAF
Mason Trail near Spring Creek Trail	Saturday, March 26	10AM-12PM	SG

Table 3 - Speed Assessment

Location	Date	Time	Volunteer
Power Trail North of Drake	Saturday, March 19	2PM - 4 PM	LN
Spring Creek Trail West of Mason	Saturday, March 19	2PM - 4 PM	AO
Poudre River Trail near Lee Martinez Park	Sunday, March 20	2PM - 4 PM	CG
Mason Trail north of Horsetooth	Sunday, March 20	2PM - 4 PM	RY
Spring Creek Trail at Edora Park	Saturday, March 26	10AM-12PM	AG
Poudre River Trail east of Linden	Saturday, March 26	10AM-12PM	AO
Spring Creek Trail at Spring Canyon Park	Sunday, March 27	2PM - 4 PM	AO

Table 4 - Trail Count and Observation

Location	Date	Time	Volunteer
Mason Trail near Spring Creek Trail	Saturday, March 19	2PM - 4 PM	JL
Spring Creek Trail at Spring Canyon Park	Sunday, March 20	2PM - 4 PM	TH
Poudre River Trail at Lee Martinez Park	Saturday, March 26	10AM-12PM	LK
Spring Creek Trail at Rolland Moore Park	Sunday, March 27	2PM - 4 PM	BS

Appendix C: Intercept Survey

Short Version Intercept Survey

Welcome! We'd like your help 🙏

The City of Fort Collins is conducting this survey to gain a better understanding of your opinion related to the use of e-bikes on paved multi-use trails.

1. Which activity are you participating in while using Fort Collins' paved trails TODAY?

Walking Skateboarding Jogging / Running Wheelchair

Bicycling Scootering E-Bicycling Other _____

2. What is the purpose of your trip?

Recreation Commute to work / school

Other type of transportation trips (e.g., errands) Other _____

3. Have you ridden an e-bike?

Yes Yes, I own an e-bike No

4. Did you see any e-bikes on the trail today?

No Not sure Yes

5. Sometimes trail users interfere with one another's goals on the trail causing unpleasant experiences. This is generally referred to as "conflict." Did you experience conflict during your trip on the paved trails today?

No – skip to #6

Not sure – skip to #6

Yes - Please describe _____ (continue to 5b)

5b. If you described conflict with someone riding a bike, was the bicyclist using an e-bike?

No Not sure Yes Conflict did not involve a bicyclist

6. Thinking about Fort Collins' paved trails, please indicate your level of support or opposition for allowing Class 1 e-bikes on these trails. Class 1 e-bikes provide electrical assistance only while the rider is pedaling, up to 20 mph

	Oppose	Neutral	Support	Support only on certain paved trails	Not sure
Class 1 E-bikes on Fort Collins Paved Trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Please briefly explain why you answered that way:



8. Thinking about Fort Collins' paved trails, please indicate your level of support or opposition for allowing Class 2 e-bikes on these trails. Class 2 e-bikes provide electrical assistance regardless if the rider is pedaling or not, up to 20 mph.

	Oppose	Neutral	Support	Support only on certain paved trails	Not sure
Class 2 E-bikes on Fort Collins Paved Trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Please briefly explain why you answered that way:

10. Thinking about Fort Collins' paved trails, please indicate your level of support or opposition for allowing other e-devices (e-scooters, e-skateboards, one wheels, ect.) on these trails.

	Oppose	Neutral	Support	Support only on certain paved trails	Not sure
Other E-Devices on Fort Collins Paved Trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Please briefly explain why you answered that way:

Demographics

Gender:

(check all that apply)

- Woman
- Man
- Transgender Woman
- Transgender Man
- Transgender Non-Binary
- Non-Binary
- Two Spirit
- Prefer to self-identify: _____
- Decline to specify

Age Range:

- 13-14 yrs
- 15-19 yrs
- 20-29 yrs
- 30-39 yrs
- 40-49 yrs
- 50-59 yrs
- 60-69 yrs
- 70 yrs or older
- Decline to specify

Race:

- American Indian/Alaska Native
- Asian
- Black/African American
- Native Hawaiian/Pacific Islander
- White
- Two or more races
- Prefer to self-identify _____
- Decline to specify

Ethnicity

- Hispanic/Latinx
- Non-Hispanic/Latinx
- Prefer to self-identify _____
- Decline to specify

Geographic Location:

- Zip Code _____
- Decline to specify

For more information or to submit comments online, please visit fcgov.com/ebikes or contact Cortney Geary at cgeary@fcgov.com, 970.416.2471. If found, please return survey to: FC Moves, 281 N. College Avenue, Fort Collins, CO, 80524.



Long Version Intercept Survey

PLEASE CONSIDER ALL QUESTIONS IN REFERENCE TO FORT COLLINS' PAVED TRAILS.

Section 1 of 6: Today's Visit to the Trails

1. Which mode of travel are you using during your visit to the **paved trails TODAY?**

<input type="checkbox"/> Walking	<input type="checkbox"/> Skateboarding
<input type="checkbox"/> Jogging / Running	<input type="checkbox"/> Wheelchair
<input type="checkbox"/> Bicycling	<input type="checkbox"/> Scooter
<input type="checkbox"/> E-Bicycling	<input type="checkbox"/> Other _____

→ 1a. **If you are riding an E-bike**, what Class of E-bike are you riding?

<input type="checkbox"/> Class 1	<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 3	<input type="checkbox"/> Other	<input type="checkbox"/> I don't know/Unsure
----------------------------------	----------------------------------	----------------------------------	--------------------------------	--

2. What is the purpose of your trip on the **paved trails TODAY?**

<input type="checkbox"/> Recreation	<input type="checkbox"/> Other Types of Trips (e.g., errands)
<input type="checkbox"/> Commute to work / school	<input type="checkbox"/> Other _____

3. How would you rate the overall quality of your experience using the **paved trails TODAY?**

Poor		Neutral		Excellent
1	2	3	4	5

4. Did you feel crowded by the number of other visitors on the **paved trails TODAY?**
(Check what applies)

Did you feel crowded by:	Not at all Crowded	Slightly Crowded	Moderately Crowded	Extremely Crowded
Bicyclists on the trail				
Walkers / Joggers on the trail				

Section 2 of 6: E-Bike Experience & Perspectives

5. Have you ridden an e-bike before?

_____ Yes	_____ Yes, I own an e-bike	_____ No
-----------	----------------------------	----------

→ **6a. If you answered YES to #6, did your perspective on e-bikes change following your experience using one?**

_____(Yes) More favorably	_____(Yes) Less favorably	_____(No) Did not change	____ I don't know/unsure
---------------------------	---------------------------	--------------------------	--------------------------

→ **6b. If you DO NOT own an e-bike, if an e-bike were available to you, would that encourage you to ride more often than you do today?**

_____ Yes	_____ No	_____ I don't know / Unsure
-----------	----------	-----------------------------

→ **6c. If you DO NOT own an e-bike, do you anticipate purchasing an e-bike in the next three years?**

_____ Yes	_____ No	_____ I don't know / Unsure
-----------	----------	-----------------------------

6. Did you encounter an e-bike user during your visit to **the paved trails TODAY?**

_____ Yes	_____ No	_____ I don't know / Unsure
-----------	----------	-----------------------------

→ **7a. If YES, how would you rate this interaction?**

Negative		Neutral		Positive
1	2	3	4	5

7. How often do you encounter e-bike users when using **Fort Collins' paved trails?**

	Never	Rarely	Sometimes	Often	Almost always	I'm not sure
E-bikes on Paved Trails	0	1	2	3	4	5

8. **If you have** encountered e-bike users on **Fort Collins' paved trails**, how has that impacted your overall experience using the trails?

Negative		Neutral/ No impact		Positive
1	2	3	4	5

9. Thinking about **Fort Collins' paved trails**, please indicate your level of support or opposition for allowing **Class 1 e-bikes** on these trails.

*Class 1 e-bikes provide electrical assistance **only** while the rider is pedaling. Electrical assistance stops when the bike reaches 20 mph.*

	Oppose	Neutral	Support	Support only on certain paved trails	Not sure
Class 1 E-bikes on Fort Collins Paved Trails	<input type="checkbox"/>	<input type="checkbox"/>	Not <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

→ **9a.** Please briefly explain why you answered that way:

→ **9b.** If indicated "support only on certain paved trails" please specify which trails:

10. Thinking about **Fort Collins' Paved Trails**, please indicate your level of support or opposition for allowing **Class 2 e-bikes** on these trails.

Class 2 e-bikes provide electrical assistance regardless if the rider is pedaling or not and include a throttle. Electrical assistance stops when the bike reaches 20 mph.

	Oppose	Neutral	Support	Support only on certain paved trails	Not sure
Class 2 E-bikes on Fort Collins Paved Trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

→ **10a.** Please briefly explain why you answered that way:

→ **10b.** If indicated "support only on certain paved trails" – please specify which trails:

11. Thinking about **Fort Collins' Paved Trails**, please indicate your level of support or opposition for allowing **other e-devices** (e-scooters and e-skateboards, one wheels, etc.) on these trails.

	Oppose	Neutral	Support	Support only on certain paved trails	Not sure
Other E-Devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

→ **11a.** Please briefly explain why you answered that way:

→ **11b.** If indicated "support only on certain paved trails" – please specify which trails:

Section 3 of 6: Trail Experiences and Perspectives

12. During a typical week (February to November), **how many days** do you use **Fort Collins' paved trails**?

1
2
3
4
5
6
7

13. Are there specific locations on **Fort Collins' paved trails** where you feel less safe?

_____ Yes	_____ No	_____ I don't know / Unsure
-----------	----------	-----------------------------

→ **13a.** If YES, please explain where:

14. What are your primary safety concerns when using **Fort Collins' Paved Trails**?

15. To what extent do you think each of the following is a problem on **Fort Collins' Paved Trails?**

	Never	Rarely	Sometimes	Often	Almost always	I don't know / Unsure
Bicyclists biking unsafely	0	1	2	3	4	5
E-bikers riding unsafely	0	1	2	3	4	5
Walkers / Joggers being unsafe	0	1	2	3	4	5
Bicyclists not being courteous	0So	1	2	3	4	5
E-bikers not being courteous	0	1	2	3	4	5
Walkers / Joggers not being courteous	0	1	2	3	4	5

16. Have you experienced a bicycle-related crash on **Fort Collins' paved trails** in the past **6 months?**

_____ Yes	_____ No
-----------	----------

→ 16a. If **YES**, did this involve an e-bike?

_____ Yes	_____ No	_____ I don't know / Unsure
-----------	----------	-----------------------------

→ 16b. If **YES to #16**, where did this crash occur and what was the cause?

*This next section on page 6 should **ONLY** be answered by people who **OWN** an e-bike. If you do not own an e-bike, please **skip** to Section 5 starting on page 7.*

Section 4 of 6: E-Bike Ownership & Use

17. Does your e-bike encourage you to ride more or less often than before you had an e-bike?

___ More often	___ The same amount	___ Less Often	___ I don't know / Unsure
----------------	---------------------	----------------	---------------------------

→ 17a. If more often, please explain why: _____

18. Would you have taken this trip today if you didn't have an e-bike?

___ Yes	___ No	___ I don't know / Unsure
---------	--------	---------------------------

19. Do you use your e-bike to replace car trips?

___ Yes	___ No	___ I don't know / Unsure
---------	--------	---------------------------

20. Have you experienced a crash with your e-bike while riding it?

___ Yes	___ No	___ I don't know / Unsure
---------	--------	---------------------------

→ 20a. If Yes, please explain where and why:

21. Do you feel you go faster on an e-bike than most other standard bicycles when riding **on streets**?

___ Yes	___ I travel about the same speed	___ I go slower	___ I don't know/unsure
---------	-----------------------------------	-----------------	-------------------------

22. Do you feel you go faster on an e-bike than most other standard bicycles when riding on **paved trails**?

___ Yes	___ I travel about the same speed	___ I go slower	___ I don't know/unsure
---------	-----------------------------------	-----------------	-------------------------

23. Do you feel MORE OR LESS SAFE on an e-bike than a traditional bicycle?

___ More Safe	___ About the same	___ Less Safe	___ I don't know/unsure
---------------	--------------------	---------------	-------------------------

24. Why did you purchase an e-bike?

List reasons: _____

Section 6 of 6: Demographics

Finally, I'd like you to answer some demographic questions. These allow us to examine whether certain groups of people are more or less likely to use the trails, so that we may ultimately be better able to provide amenities to the residents of Fort Collins.

Gender: (check all that apply)

- Woman
- Man
- Transgender Woman
- Transgender Man
- Transgender Non-Binary
- Non-Binary
- Two Spirit
- Prefer to self-identify: _____
- Decline to specify

Age Range:

- 13–14 yrs
- 15–19 yrs
- 20–29 yrs
- 30–39 yrs
- 40–49 yrs
- 50–59 yrs
- 60–69 yrs
- 70 yrs or older
- Decline to specify

Race:

- American Indian/Alaska Native
- Asian
- Black/African American
- Native Hawaiian/Pacific Islander
- White
- Two or more races
- Decline to specify

Geographic Location:

- Zip Code _____
- Decline to specify

Ethnicity:

- Hispanic/Latinx
- Non-Hispanic/Latinx
- Prefer to self-identify: _____
- Decline to specify



QR Code for Short and Long Version Intercept Survey

Short Version Qualtrics link and QR code

https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_9zxV8Mu4gcRpQCq




Long Version Qualtrics link and QR code

https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_dm0qzRfG94zSWW



Appendix E: Trail Count and Observed Behavior Data Collection Sheet

Volunteer Name:		 TRAIL COUNT and OBSERVATION FORM						
Location:								
Date:	Time Period:							
Weather (circle all that apply):		Sunny	Cloudy	Rainy	Windy	Hot	Cold	Snowy
Trail Condition (circle all that apply):		Flat	Hilly	Straight	Curvy	Busy	Unbusy	Icy
Time	Mode of Transportation		Observed Passing			Observed Conflicts		
	Traditional Bike	E-Bike		Traditional Bike	E-bike		Traditional Bike	E-bike
:00-14			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					
:15-29			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					
:30-44			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					
:45-59			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					

Time	Mode of Transportation		Observed Passing			Observed Conflicts		
	Traditional Bike	E-Bike		Traditional Bike	E-bike		Traditional Bike	E-bike
1:00-1:14			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					
1:15-1:29			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					
1:30-1:44			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					
1:45-2:00			Announced			Near Miss		
			Unannounced			Reckless Riding		
			Gave 3 Feet					

Notes

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