

**CITY OF BOULDER
TRANSPORTATION ADVISORY BOARD
AGENDA ITEM**

MEETING DATE: September 23, 2013

AGENDA TITLE: Public Hearing and consideration on a recommendation to City Council regarding a pilot project allowing electric assisted bicycles on certain hard surfaced multi-use paths.

PRESENTER/S:

Tracy Winfree, Director of Public Works for Transportation
Michael Gardner-Sweeney, Transportation Planning and Operations Coordinator
Bill Cowern, Transportation Operations Engineer
Kathleen Bracke, GO Boulder Manager
Marni Ratzel, Senior Transportation Planner

EXECUTIVE SUMMARY:

This memo shares the draft memorandum for the October 1, 2013 City Council agenda item regarding a pilot project allowing electric assisted bicycles on certain hard surfaced multi-use paths. The pilot would evaluate behavior of e-bike users to determine whether these vehicles can co-exist with current users on multi-use paths. It would be focused in the urban service area where there is a network of hard-surface, off-street multi-use paths. The pilot would not include use on facilities that are pedestrian-only or intended to preserve the natural environment.

Attachment C shows several hard-surface multi-use paths on OSMP fee-property that are integral to the greenway system within the City of Boulder. E-bikes may be in conflict with the Open Space and Mountain Parks Charter values that serve passive recreation and prohibit motorized vehicles on OSMP land. In late September, the Open Space Board of Trustees (OSBT) will convene a public hearing to consider and take action on whether OSMP hard-surface multi-use paths are appropriate to include in the e-bikes demonstration project.

STAFF RECOMMENDATION

A staff recommendation for the demonstration project will be developed with input from the TAB and OSBT public hearings scheduled the week of Sept. 23. An objective of the demonstration project is to include a logical, connected system that works for bicyclists as well as fits with and respects the context of the surrounding area.

The proposed ordinance to authorize the pilot project is included as **Attachment A** to the Council memorandum. The proposed ordinance enacts the Rulemaking authority of the City Manager to offer flexibility in determining the hard-surface multi-use path segments that allow e-bikes. This offers the opportunity to adjust to scope of the pilot project in response to findings of the on-going evaluation. A sunset date of December 31, 2014 would allow data collection, evaluation and quarterly updates to the City Council on the pilot project findings.

TAB ACTION

Staff requests TAB consideration of the staff preferred option and action in the form a motion on a recommendation to City Council regarding a pilot project allowing electric assisted bicycles on certain hard surfaced multi-use paths.

NEXT STEPS:

Based on the input from the TAB and OSBT public hearings scheduled for the week of Sept. 23, Transportation staff will develop a staff recommendation for Council consideration on the Oct. 1 2013

On Tuesday, Oct, 1 2013, the City Council will take action on an introduction, first reading and consideration of a motion on proposed amendments to ordinance(s) regulating e-bikes in the city of Boulder based on the staff recommendation and TAB recommendation from the meeting on Sept. 23.

On Tuesday, Oct. 22, 2013, the City Council will convene a public hearing on a second reading and consideration of a motion on proposed amendments to ordinance(s) regulating e-bikes in the city of Boulder based on the staff recommendation and TAB recommendation from the meeting on Sept. 23.

Agenda packets for Council Meetings are posted by 3:30 p.m. on the Friday prior to each council meeting. Materials may be viewed at:

<https://bouldercolorado.gov/city-council/city-council-meetings>

ATTACHMENT: Draft of October 1, 2013 City Council Memo



**CITY OF BOULDER
CITY COUNCIL AGENDA ITEM**

MEETING DATE: OCTOBER 1, 2013

AGENDA TITLE: Introduction, first reading and consideration of a motion to order published by title only an ordinance creating a pilot project allowing electric assisted bicycles on certain hard surfaced multi-use paths by amending Definitions in Sections 1-2-1- and 7-1-1 and amending Sections 7-4-16, 7-5-5 and 7-5-9 and adding Section 7-5-26 authorizing electric assisted bicycles where permitted by rule adopted by the City Manager, establishing a sunset date of December 31, 2014.

PRESENTER/S

Jane S. Brautigam, City Manager
Paul J. Fetherston, Deputy City Manager
Bob Eichen, Chief Financial Officer
Maureen Rait, Public Works Executive Director
Tracy Winfree, Director of Public Works for Transportation
Michael Gardner-Sweeney, Transportation Planning and Operations Coordinator
Kathleen Bracke, GO Boulder Program Manager
Jeff Haley, Parks Planner, Parks and Recreation Department
Dean Paschall, Communication & Public Process Manager, Open Space and Mountain Parks
Carey Weinheimer, Traffic Commander, Boulder Police Department
Molly Winter, Executive Director of Downtown, University Hill and Parking Services

Marni Ratzel, Senior Transportation Planner

EXECUTIVE SUMMARY

Currently, within the City of Boulder, electric-assist bicycles or “e-bikes” are allowed to operate on the road and use bike lanes, but are prohibited from multi-use paths and sidewalks. As directed by council, the City of Boulder is considering a potential demonstration pilot project to test e-bike use on hard-surface, multi-use paths maintained to a transportation standard. The pilot would evaluate behavior of e-bike users to

determine whether these vehicles can co-exist with current users on multi-use paths. **Attachment A** is the proposed ordinance that would allow this demonstration to occur. It suggests a new section (7-5-26) be added to the code to enable the City Manager's rulemaking authority to regulate the hard-surface paths where a person may activate the motor of an electric assisted bicycle. The ordinance establishes a sunset date of December 31, 2014. The demonstration project would commence 30 days after Council approval of the ordinance. This duration would allow data collection, evaluation, community input, and quarterly updates to the City Council on the pilot project findings.

The pilot would not include use on facilities that are pedestrian-only or intended to preserve the natural environment. Specifically, the proposed ordinance for the pilot period makes clear that e-bike use would continue to be prohibited on sidewalks and the soft-surface trails in the Open Space and Mountain Park (OSMP) system surrounding Boulder. The pilot would be focused in the urban service area where there is a network of hard-surface, off-street multi-use paths.

Attachment C shows several hard-surface multi-use paths on OSMP fee-property that are integral to the greenway system within the City of Boulder. E-bikes may be in conflict with the Open Space and Mountain Parks Charter values that serve passive recreation and prohibit motorized vehicles on OSMP land. On September 25., the Open Space Board of Trustees (OSBT) convened a public hearing to consider and take action on whether OSMP hard-surface multi-use paths are appropriate to include in the e-bikes demonstration project. The Board voted to... (to be incorporated after the meeting).

On Sept. 23 the Transportation Advisory Board held a public hearing to consider a staff recommendation on the pilot project and make a formal recommendation to City Council. The TAB recommendation was: (to be incorporated after the meeting).

STAFF RECOMMENDATION

A staff recommendation for the pilot demonstration project, and specifically which hard-surface multi-use paths to include in the demonstration project, will be developed with input from the TAB and OSBT public hearings scheduled for the week of Sept. 23, 2013.

Staff is considering several alternatives for defining and regulating e-bikes in the City of Boulder. An objective of the demonstration project is to include a logical, connected system that works for bicyclists as well as fits with and respects the context of the surrounding area.

The proposed ordinance to authorize the pilot project is included as **Attachment A**. It suggests a new section (7-5-26) be added to the code to enact the City Manager's rulemaking authority to regulate the hard-surface paths where a person may activate the motor of an electric assisted bicycle.

Suggested Motion Language:

Staff requests council consideration of this matter and action in the form of the following motion:

Motion to introduce and order published by title only an ordinance creating a pilot project allowing electric assisted bicycles on certain hard surfaced multi-use paths by amending Definitions in Sections 1-2-1- and 7-1-1 and amending Sections 7-4-16, 7-5-5 and 7-5-9 and adding Section 7-5-26 authorizing electric assisted bicycles where permitted by rule adopted by the City Manager, establishing a sunset date of December 31, 2014.

COMMUNITY SUSTAINABILITY ASSESSMENTS AND IMPACTS

- **Economic:** Bicyclists tend to shop local and invest in the local economy. A local survey estimates the direct economic benefit of the bicycling industry in Boulder to be \$52 million.
- **Environmental:** E-bikes are an efficient zero emission transportation option, reducing green house gas and vehicle miles traveled. An estimated 40 percent of all car trips are less than two miles away. Reducing the number of trips made by cars reduces congestion and frees up road space for essential motor vehicle trips. E-bikes expand the distance a bicyclist is willing and able to ride, which increases the potential to shift single occupant vehicle trips to e-bike trips.
- **Social:** Testing the use of e-bikes on multi-use paths as a pilot program supports a complete transportation system. E-bikes expand modal choice and helps aging generations stay active and healthy. It is an active transportation mode that addresses health problems related to sedentary behavior.

OTHER IMPACTS

- **Fiscal –** The budget impacts associated with implementing and evaluating a pilot program are supported by existing funding earmarked for Transportation Innovations in the city’s 2013 and 2014 budgets. Any voluntary over time employed to conduct enforcement also would be absorbed in the Transportation Innovations budget.
- **Staff time –** Enforcement activities could be scheduled as part of normal shift work. This may limit the Boulder Police Department’s capacity for extended enforcement due to the need to respond to emergency calls. Voluntary overtime also could be employed to conduct enforcement. The anticipated cost is \$55 per officer hour with a minimum of two officers for at least three hours per scheduled overtime event.

BOARD AND COMMISSION FEEDBACK

On September 23, 2013 the Transportation Advisory Board held a public hearing to consider the e-bike pilot project and a staff recommended option. The Board action was.... (to be incorporated after the meeting).

Other affected boards include the Downtown Management Commission, Open Space Board of Trustees, University Hill Commercial Area Management Commission, and Parks and Recreation Advisory Board. In early September, these boards received a staff memorandum with information on the options under consideration for the potential e-bikes demonstration pilot project and public process forums for the community to provide input. Each board discussed the item at their September meeting. Input is detailed below.

The OSBT first discussed the e-bike pilot at its meeting on September 11, 2013. Conversation focused on safety concerns and conflict with the Open Space and Mountain Parks Charter values to serve passive recreation and prohibit motorized vehicles on OSMP land. The OSBT also expressed concerns regarding the need to address corridors where there are holdings on OSMP land that are functioning in another way such as hard surface paths that serve a transportation purpose. On September 23, 2013, the OSBT is scheduled to hold a public hearing to consider the e-bike pilot project and potential options for how to handle e-bike use on hard-surface multi-use paths upon Open Space and Mountain Park (OSMP) property. The Board action was (to be incorporated after the meeting).

On September 23, the Parks and Recreation Advisory Board (PRAB) discussed the e-bike pilot. Their input was: (to be incorporated after the meeting).

On September 18, 2013, the University Hill Management Commission (UHMC) discussed the e-bike pilot. Their input was: (to be incorporated after the meeting).

On September 9, the Downtown Management Commission (DMC) made a motion in support of Option 3 but do not want to allow e-bikes on the section of the Boulder Creek Path from Scott Carpenter Park to Eben Fine Park. The DMC does not support Option 2 because of the potential of pedestrian and bicycle conflicts. The vote was unanimous.

PUBLIC FEEDBACK

A summary of public input on the options considered for an e-bike pilot project is included in **Attachment B**. Also detailed is a summary of the public engagement process, which included several forums for community input, including two public meetings, an online survey, and Web and social media. An intercept survey of multi-use path users scheduled for the week of Sept. 16 was postponed until further notice. Staff also scheduled opportunities for community members to learn more about and test ride e-bikes, including the city-sponsored Boulder Green Streets event that was scheduled for Sunday, Sept. 22. This event has been postponed. A new date is not yet set. Community members also attended the Transportation Advisory Board public hearing on September

23, 2013, and were encouraged to attend the Council meetings on Oct. 1 and Oct. 22 where the e-bike pilot project options will be considered.

Over 200 comments were received expressing an opinion on the proposed options for a pilot project to test e-bike use on paths. A majority of approximately two-thirds are supportive of a pilot project. The most common reasons cited were that e-bikes help aging generations stay active and healthy, make longer commutes viable by bike and are an economic and non-polluting alternative to automobiles. An estimated 34 percent of comments received were opposed to testing e-bike use on paths. The primary concerns raised include congestion on the paths, speed, and safety. The behavior of existing bicyclists and a lack of enforcement were cited as concerns that would be compounded by e-bike users. Some comments suggested that the multi-use path system needs to separate bicyclists from walkers. Increased awareness through an education and outreach campaign followed up with targeted enforcement was expressed as vital components to consider.

In addition to the options being considered by staff, some community members suggested that other options be considered. Most of these were identified at the public meeting held on Sept. 4, 2013. Included were options to define an e-bike based on vehicle weight, vehicle speed or speed based on rider and vehicle. Options to regulate use suggested included to allow e-bikes wherever bikes are allowed (including sidewalks and OSMP trails); allow e-bikes wherever bikes were allowed except on OSMP natural surface paths; and restrict e-bike use on some weekends. But, allow them on other weekends along the Boulder Creek Path to test the difference. A summary of comments from the two public meetings held on Sept. 4 and Aug. 7 also are included in **Attachment B**.

BACKGROUND

Considering a trial period to test the use of e-bikes on off-street, hard-surface multi-use pathways raised Council interest due to community support expressed through a petition and testimony provided to the Council. Several community members attended the City Council meeting on Tuesday, May 21 to speak in support of changing city policy to allow e-bikes on paths. In response, the Transportation Division spearheaded an internal review of e-bike regulations. An interdepartmental team comprised of Parks & Recreation, Open Space and Mountain Parks, the City Attorney's office, Police Department and Transportation as well as Downtown University Hill Management & Parking Services was involved in the review.

The City is in the process of updating the Transportation Master Plan (TMP). As part of the TMP update, the Transportation Division is introducing a "Complete Streets Bike and Pedestrian Living Laboratory" to test innovative treatments and programs to see if they are appropriate for Boulder. E-bikes are one bicycle innovation under review by the City as part of the living laboratory. For more information regarding the Transportation Master Plan update and the living laboratory, visit www.bouldertmp.net and select "Complete Streets" or "Living Laboratory".

Current Regulations

Federal regulations govern the safety requirements and standards for e-bikes in the United States. The Consumer Product Safety Commission defines a low-speed electric bicycle as “a two- or three-wheeled” vehicle with fully operable pedals and an electric motor of less than 750 watts (1 h.p.) whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds is less than 20 mph. It further defines a bicycle to include the above definition. States and local jurisdictions regulate the use of e-bikes and may adopt a more restrictive definition of an e-bike. An e-bike is distinguished from other higher powered personal mobility devices vehicles such as a moped or scooter by definition. Specifically, e-bikes are defined as having fully operable pedals, an upper threshold for the power assist of the motor that ranges between 750 and 1000 watts of power and top motor-powered speeds of 20 mph.

Colorado State Law defines an e-bike as a two or three wheeled vehicle with pedals and equipped with an electric motor not exceeding 750 watts of power with a top motor-powered speed of 20 mph. In Colorado, e-bikes may be operated on the road and within bicycle lanes. E-bikes are prohibited from using their motors on bike and pedestrian paths, unless allowed by local ordinance.

The city of Boulder definition currently differs from State Law by defining an e-bike by further limiting the motor capacity of an e-bike to no more than 400 watts of continuous input power. E-bikes are allowed to use bike lanes. As a motor vehicle, e-bikes are currently prohibited from using multi-use paths and sidewalks and OSMP trails. A map of multi-use paths that are on OSMP fee property is shown in **Attachment C**. These are maintained to a transportation standard and integrated into the urban fabric of the greenway system.

ANALYSIS

In developing the staff recommendation, the Transportation Division is considering a variety of factors concerning use of e-bikes on multi-use paths, including compatibility with other users, the speed of e-bikes, alignment with goals in the TMP, experience of other communities, use of OSMP paved trails and public input.

About e-bikes

An e-bike is essentially a bicycle that can be propelled by both human power and electric-assist power. It is designed for people interested in completing trips by bike but concerned about their physical ability to ride longer distances or climb steeper hills. The electric range, speed, and cost of an e-bike are moderate. **Attachment D** provides photos and specifications for some e-bikes, an FAQ and a recent article about e-bikes.

As regulated by the Boulder Revised Code, the speed limit on multi-use paths is 15 mph unless posted otherwise (there are sections where the speed limit is 10 mph). The speed of an e-bike is compatible with this established speed limit. Based on Federal regulations, the speed of an e-bike using only the electric motor or a power assisted option has an upper threshold of 20 mph. Factors such as slope, rider’s weight and terrain affect the

speed of the bicycle. As the terrain or slope of a bicycle facility becomes more difficult or steep, the speed of the electric power assist will decrease, unless pedal power is used in conjunction with the electric power assist. A more powerful motor will help maintain the maximum power assist speed of 20 mph. Under human power alone, riders of e-bikes (and traditional bikes) are capable of exceeding this threshold.

Potential users of an e-bike include commuters and persons who prefer to travel by bicycle but may not be physically able to complete the trip intended without an electric power assist. This travel option could expand the bicycle user base, attract interested but concerned cyclists to ride more and be an opportunity to work toward the goals contained in the TMP.

Peer City Review

Staff researched experience in other communities that have allowed or, in some cases, not allowed e-bikes from using off-street, hard surface paths similar to Boulder's off-street pathway/greenways network. **Attachment E** provides a summary of this research. Based on the experience of other communities that have allowed e-bikes, there has not been a resulting increase in conflicts on multi-use paths or other bicycle facilities.

Paved paths on OSMP property

Attachment C shows in red those hard surfaced trails which are identified as being "owned" by OSMP but which are maintained by Transportation. This relationship came about when, over the years, Transportation proposed that these OSMP trails be hardened to provide a better bicycling surface. Bicycling was considered an Open Space purpose so an agreement was made to harden the surface and to have Transportation maintain the trails. These paths are typically on the periphery of the OSMP land and connect with other Transportation managed paths.

Modifications can be made to temporarily amend ordinances addressing the Visitor Master Plan and Long Range Master Plan. However, the Charter/passive recreation question raises a more difficult hurdle. The paved paths are part of the City's greenway system and are intended to serve both a recreation and transportation purpose. OSBT input and action at the late September meeting will help guide a staff recommendation on how to handle e-bike use on these paths.

Integrating a comprehensive program of the 5 E's

The City of Boulder's approach to support bicycling and walking is to achieve a comprehensive program that includes Engineering, Encouragement, Education, Enforcement and Evaluation initiatives. As part of the TMP update, staff is refining strategies to address concerns raised by community members for congestion and conflicts on the bicycling system today.

Independent of a pilot project to test e-bike use on paths, staff will be taking action to encourage cyclists to ride at appropriate speeds on the path system. This action will include the installation of 15 mph speed limit signs at key path locations and will be supported by an outreach campaign to raise public awareness on user rights and

responsibilities as well as the rules of the path, including 15 mile per hour speed limit and walk right/pass left. Field observations to record unsafe behavior including speeding and other safety concerns along the path system will be conducted. Formal Police enforcement activities may be scheduled as resources allow and based on the findings of the field observations.

If approved by Council, the proposed e-bikes pilot project for the off-street multi-use paths (non- OSMP) will be an opportunity to enhance this comprehensive approach, including additional efforts for education and enforcement. Results will be evaluated as part of the living laboratory analysis. This evaluation would include field observations to track user behavior and guide formal police enforcement activities. Based on results and as resources allow, targeted enforcement efforts may be conducted to record time spent and observations of safety concerns by various users including e-bikes, regular bikes, pedestrians and others as well as issuance of summonses / warning.

The pilot program would be supported by a social media campaign and more traditional outreach strategies to raise awareness on the pilot allowing e-bikes on multi-use paths and the continued prohibition of e-bikes on sidewalks (other than those designated as multi-use paths).

PROPOSED ORDINANCE REVISION

The City Attorney's Office has drafted a proposed ordinance for City Council consideration to pilot e-bike use on hard-surface, multi-use paths maintained to a transportation standard. This is included as **Attachment A**. The ordinance amends the definition of an e-bike to be consistent with state law. The pilot would evaluate behavior of e-bike users to determine whether these vehicles can co-exist with current users on multi-use paths. The ordinance authorizes the Rulemaking authority of the City Manger to offer flexibility in determining the hard-surface multi-use path segments that allow e-bikes. This approach offers the opportunity to adjust to scope of the pilot project in response to findings of the on-going evaluation. A sunset date of December 31, 2014 would allow data collection, evaluation and quarterly updates to the City Council on the pilot project findings.

OPTIONS

Below is a list of options considered for defining and regulating e-bikes in the City of Boulder.

Options for defining an e-bike

Option 1: No change to the existing e-bike Definition (BRC 7-1-1 Definitions):
"Electric assisted bicycle" means a bicycle with a battery powered electric motor with a capacity of *no more than four hundred watts* continuous input power rating which assists the person pedaling and which is not capable of propelling the bicycle and rider at more than *twenty miles per hour* on level pavement.

Option 2: Amend e-bike definition to conform with Colorado State Law* CRS 42-1-102(28.5): "Electrical assisted bicycle" means a vehicle having two tandem wheels or two parallel wheels and one forward wheel, fully operable pedals, an electric motor *not exceeding seven hundred fifty watts* of power, and a top motor-powered speed of *twenty miles per hour*.

**Denver and Fort Collins also uses this definition.*

Options for regulating an e-bike

Option 1: Clarify the existing law regulating e-bikes. E-bikes may operate on the roadway and within designated on-street bike lanes but are prohibited from using the motor on multi-use paths, trails and sidewalks.

Option 2: Adopt an ordinance to test e-bike use on multi-use paths for a demonstration period of one year. This ordinance would sunset 12 months after it commences. E-bike use on the following would continue to be prohibited:

- OSMP trails, including those that currently allow bikes
- Sidewalks, except those designated as multi-use paths

The above option would allow the city to evaluate the impacts of allowing e-bike riders to operate the motor while bicycling on hard-surface, multi-use paths, with the exception of those on OSMP fee-property. The pilot project would include comprehensive program that encompasses the five E's of engineering, encouragement, education, enforcement and evaluation. Signs to inform path users of the pilot project and the current 15 mph speed limit would be installed at select locations along the pathway system to educate users. Formal police enforcement activities may be scheduled as resources allow and based on the findings of the field observations. Automatic in-pavement loop detectors will track bike volume. Manual counts would be conducted to collect volume data by user type (pedestrian, bike, e-bike, other). Additionally, an online survey and intercept surveys of multi-use path users would be conducted to gather input on the pilot program and use of e-bikes on multi-use paths.

Option 3: Adopt ordinance to test e-bike use on multi-use paths, except for a segment of the Boulder Creek Path, for a demonstration period of one year. This ordinance would sunset 12 months after is commences. E-bike use on the following would continue to be prohibited:

- OSMP trails, including those that currently allow bikes
- Sidewalks, except those designated as multi-use paths
- The Boulder Creek Path between Eben G. Fine Park and Scott Carpenter Park

Public input on the potential pilot program to test e-bike use on hard-surface, multi-use paths has expressed concern for impacts to the pedestrian experience and safety. This option would restrict the use of the electric-assisted motor on an e-bike along the Boulder Creek Path from the western city limit (west of Eben G. Fine Park) to 30th Street (Scott Carpenter Park). As the spine of the greenway system, this segment of the Boulder Creek Path is a well publicized tourist destination and serves as a linear park along the Boulder

Creek riparian corridor. In addition to the comprehensive program outlined in Option 2, additional strategies would likely be required to regulate the use of e-bikes as non-motorized vehicles along the prohibited segment of the Boulder Creek path.

ATTACHMENTS

Attachment A Ordinance XXX

Attachment B Public input summary

Attachment C Paved paths on OSMP property

Attachment D E-bikes FAQ, specifications and information

Attachment E Peer city review

DRAFT

ORDINANCE NO. _____

AN ORDINANCE CREATING A PILOT PROJECT ALLOWING ELECTRIC ASSISTED BICYCLES ON CERTAIN HARD-SURFACED, MULTI-USE PATHS BY AMENDING DEFINITIONS IN SECTIONS 1-2-1 AND 7-1-1; AMENDING SECTIONS 7-4-16, 7-5-5, AND 7-5-9 TO SPECIFY SAFETY STANDARDS THAT WILL APPLY TO ELECTRIC ASSISTED BICYCLES; ADDING A NEW SECTION 7-5-26 AUTHORIZING ELECTRIC ASSISTED BICYCLES WHERE PERMITTED BY A RULE ADOPTED BY THE CITY MANAGER; ESTABLISHING A SUNSET DATE OF DECEMBER 31, 2014; AND SETTING FORTH RELATED DETAILS.

WHEREAS, THE CITY COUNCIL OF THE CITY OF BOULDER, COLORADO, FINDS AND RECITES THE FOLLOWING:

- A. The 2013 Transportation Master Plan (TMP) update builds on a strong foundation of success through policy refinement, using a collaborative approach and addressing the current and future transportation needs of the community while integrating with the city’s broader sustainability planning initiatives.
- B. As part of the TMP update, the Transportation Division is introducing new strategies to increase bicycle and pedestrian mode share. It includes a “Complete Streets Bike and Pedestrian Living Laboratory” that provide test facilities and pilot programs to better understand the community’s transportation choices and identify potential opportunities, barriers, and ultimately strategies to encourage more people to walk and bike.
- C. The purpose of this ordinance is to establish a one-year electric assisted bicycle demonstration Pilot Project (the “Pilot Project”), which would allow and test use of electric assisted bicycles on off-street, hard-surfaced, multi-use path system within the City of Boulder limits.

1 D. The Pilot Project is focused on the urban service area where there is a network of hard-
2 surfaced, off-street, multi-use paths maintained to a transportation standard.

3 E. The Pilot Project would not include use on facilities that are pedestrian only or intended
4 to preserve the natural environment. Specifically, electric assisted bicycle use would
5 continue to be prohibited on sidewalks and the natural surface Open Space and Mountain
6 Park (OSMP) trail system surrounding Boulder.

7 F. The Pilot Project will evaluate behavior of electric assisted bicycle users to determine
8 whether these vehicles can co-exist with current uses on these multi-use paths.

9 G. The Pilot Project is part of a Living Laboratory being implemented to introduce new
10 strategies to increase bicycle mode share and encourage more people to complete trips by
11 bicycle.

12 H. The city's ordinances do not permit any self-propelled vehicle to be driven on any paths.

13 I. In order to provide assurance that the use of electric assisted bicycles as an alternate
14 mode of transportation contemplated by this program is safe, prudent, and in the best
15 interest of all users of the city's hard-surfaced, multi-use path system, city staff will
16 evaluate the following factors and data on an ongoing basis:

- 17 1. The number of reported traffic collisions involving electric assisted bicycles
18 occurring on hard-surfaced, multi-use paths that result in severe injury or fatality;
- 19 2. The number of reported close call incidents involving electric assisted bicycles
20 occurring on hard-surfaced, multi-use paths;
- 21 3. Reported and observed unsafe behavior including speeding and other safety concerns
22 along the hard-surfaced, multi-use path system by various users including electric
23 assisted bicyclists, regular bicyclists, pedestrians and other users;
24
25

4. The time spent by Boulder Police officers conducting enforcement activities along the hard-surfaced, multi-use path system and the number of warnings and citations issued involving electric assisted bicycles.

J. The greater Boulder community and affected Advisory Boards considered options and provided input to guide a staff recommendation on the Pilot Project.

K. On September 23, 2013, the Transportation Advisory Board held a public hearing to consider the staff recommendation on the Pilot Project and make a formal recommendation to City Council.

L. This program will sunset and be of no further force and effect after December 31, 2014, unless extended by affirmative council action.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BOULDER, COLORADO:

Section 1. Section 1-2-1, B.R.C. 1981, is amended to read:

1-2-1 Definitions.

...

"Motor vehicle" means any self-propelled vehicle other than a moped, electric assisted bicycle or motorized wheelchair.

Section 2. Section 7-1-1, B.R.C. 1981, is amended to read:

7-1-1 Definitions.

...

"Electric assisted bicycle" means a ~~bicycle-vehicle having two tandem wheels or two parallel wheels and one forward wheel, fully operable pedals, an with a battery powered~~ electric motor not exceeding with a capacity of no more than fourseven hundred-fifty watts of continuous input power rating, which assists the person pedaling and which is not capable of propelling the bicycle and a top motor-powered speed of rider at more than twenty miles per hour on level pavement.

1 "Motor vehicle" means any self-propelled vehicle other than a moped, electric assisted bicycle or
2 motorized wheelchair.

3 Section 3. Section 7-4-16, B.R.C. 1981, is amended to read:

4 **7-4-16 Yield Required Before Entering or Leaving Street.**

5 (a) A driver entering a street at any place other than an intersection shall yield the right-of-way to
6 any pedestrian or bicycle approaching on a sidewalk or path, to any electric assisted bicycle
7 approaching on a multi-use path where such vehicles are permitted, and to any vehicle
8 approaching on a roadway of the street.

9 (b) A driver leaving a street at any place other than an intersection shall yield the right-of-way to
10 any pedestrian or bicycle approaching on a sidewalk or path, and to any electric assisted bicycle
11 approaching in a multi-use path where such vehicles are permitted.

12 Section 4. Section 7-5-5, B.R.C. 1981, is amended to read:

13 **7-5-5 Use of Crosswalk.**

14 (a) No person shall immediately approach, enter or traverse a crosswalk which spans a roadway
15 at a speed greater than eight miles per hour.

16 (b) Persons driving bicycles across a roadway upon and along a crosswalk from a sidewalk or
17 path, and persons driving electric assisted bicycles across a roadway upon and along a crosswalk
18 from a multi-use path where such vehicles are permitted, shall have all the duties applicable to
19 pedestrians under the same circumstances.

20 (c) Such persons similarly have the rights of a pedestrian, but only if the bicyclist was entitled to
21 use the sidewalk or path, and the approach, entry and traversal of the crosswalk are made at a
22 speed no greater than a reasonable crossing speed so that other drivers may anticipate the
23 necessity to yield when required.

24 Section 5. Section 7-5-9, B.R.C. 1981, is amended to read:

25 **7-5-9 Bicycle Must Yield Right-of-Way and Obey Traffic Control Devices on Sidewalk,
Crosswalk, or Path.**

(a) A person driving a bicycle on a sidewalk, a crosswalk, or a path, and any person driving an
electric assisted bicycle on a multi-use path, shall yield the right of way to any pedestrian and
shall give an audible signal before overtaking and passing any pedestrian.

(b) If any traffic control device is in place alongside of or on a sidewalk or a path, no driver of a
bicycle or pedestrian, and no driver of an electric assisted bicycle on a multi-use path where such
vehicles are permitted, shall fail to obey the requirements of the device.

1 Section 6. Chapter 7-5, “Pedestrian, Bicycle and Animal Traffic,” B.R.C. 1981, is
2 amended by the addition of a new section to read:

3 **7-5-26 Electric Assisted Bicycles.**

4 No person shall activate the motor of an electric assisted bicycle on any bike or pedestrian path
5 or on a recreational trail except where permitted by a rule adopted by the city manager in
6 accordance with Chapter 1-4, “Rulemaking.”

7 Section 7. The city manager shall report to the City Council at least quarterly, and shall
8 present a program evaluation after the program concludes.

9 Section 8. This ordinance shall be effective until December 31, 2014. The City Council
10 suspends the prohibition against operating a motorized vehicle on hard-surfaced, multi-use paths
11 until that time for the limited purpose of implementing the Pilot Project described by this
12 ordinance. For all other purposes, the regulations governing electric assisted bicycles remain in
13 full force and effect.

14 Section 9. This ordinance is necessary to protect the public health, safety, and welfare of
15 the residents of the city, and covers matters of local concern.

16 Section 10. The City Council deems it appropriate that this ordinance be published by
17 title only and orders that copies of this ordinance be made available in the office of the city clerk
18 for public inspection and acquisition.

ATTACHMENT A

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INTRODUCED, READ ON FIRST READING, AND ORDERED PUBLISHED BY
TITLE ONLY this ____ day of _____ 2013.

Mayor

Attest:

City Clerk

READ ON SECOND READING, PASSED, ADOPTED, AND ORDERED
PUBLISHED BY TITLE ONLY this ____ day of _____, 20__.

Mayor

Attest:

City Clerk

Community Input Forums

- Public meetings (Aug. 7) and (Sept. 4)
- Project webpage with online comment form
- Inspire Boulder
- TMP Community Feedback Panel
- Test ride events (Sept. 4)
- Intercept Surveys (Sept. 16 – 22 - **postponed**)
- Transportation Advisory Board meetings
 - Public Hearing (Sept. 23)
- City Council meetings
 - First reading (October 1)
 - Second Reading/Public Hearing (October 22)

Public Input to date Overview

Public Forums

Inspire Boulder
E-Bike Online Survey
Email/Phone



**Over 200 comments
expressing an opinion**

About **34%** are against
testing E-bikes on
Multi-use paths

About **66%** are supportive
of testing E-bikes on
Multi-use paths

> Inspire Boulder

- 284 Views
- 23 People Commented
 - **6** Do not Support testing E-bikes on Multi-Use Paths
 - **17** are Supportive of testing E-Bikes on Multi-Use Paths

City seeks feedback on new bike facilities around town. [Return to the Topic Page](#) [Prev Idea](#) [Next Idea](#)

Topics Ideas About Search Ideas [Sign Up Now](#) [Log In](#)

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I Love it! ★★★

I Like it! ★★

It's OK. ★

Neutral. /

12 Like Send 2 Tweet 0 Share 0 +1 0 Email

IDEAS

Testing two variations of Buffered Bike Lanes - Spruce Street >

Protected Cycle Track - Baseline Rd. (30th St. - 35th St.) >

Buffered Bike Lanes - University Ave. (9th St. - Broadway) >

Back-in angled parking - University Ave. (Broadway- 17th St.) >

Electric-assist Bike Policy on multi-use paths

Select Language :
Powered by Google Translate

Electric-assist Bike Policy on multi-use paths

AUG 07, 2013 Anna Nord Administrator 295 74 30



Electric-assist Bicycle IMAGE

As part of the Living Lab concept, the city is exploring the possibility of a one-year pilot project to test the use of electric-assisted bicycles (e-bikes) on off-street multi-use paths (this pilot will not include open space trails).

Currently, the Boulder Revised Code (BRC) only permits e-bikes to operate on streets and in designated bicycle lanes, but are prohibited from operating on paths and sidewalks.

Changing an ordinance, even for a pilot program, requires council action. The Transportation Advisory Board will hold a public hearing on Sept. 9 and make a formal recommendation to City Council. Council will consider the pilot ordinance in October.

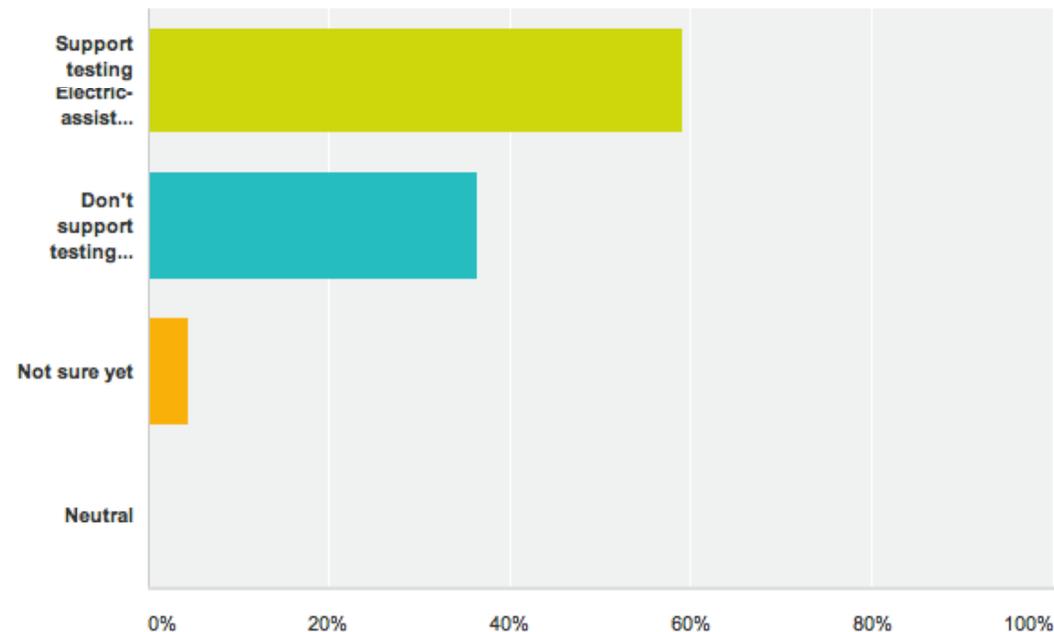
What do you think about e-bikes on multi-use paths?

> Online E-Bike Survey

- 130 Participants to date
 - **36%** Do not Support testing E-bikes on Multi-Use Paths
 - **60%** are Supportive of testing E-Bikes on Multi-Use Paths
 - 4% are not sure

What do you think about the potential pilot project to test Electric-assist bike use on multi-use paths?

Answered: 88 Skipped: 42



Key Findings from Public Input

Against testing E-Bikes

- Paths are too congested
- Need separation between Pedestrians and Bicyclists
- Speed and safety
- Behavior and Enforcement

Support testing E-Bikes

- Helps aging generations stay active and healthy
- Makes longer distance commutes viable by bike
- Economic & non-polluting alternative to automobiles

**Electric-assist bicycle use on multi-use paths
Comments from September 4, 2013 Public Meeting**

Definition:

- Clarify the definition of speed – power assist not exceeding 20 mph – motor for 170 lb person be complete.
- Use multiple definitions like in Europe
 - 20 mph – no restrictions
 - Expanded capability for motor assist, might need license/insurance
 - 20 mph not on multi-use path
- No power limit or 1000 watt limit
- CO law excludes tricycles – two wheels in front (tadpole)
- Gross vehicular weight
 - E-bikes under “x” lbs
 - Motorcycles over “x” lbs

Other Options:

- Allow e-bikes wherever bikes are allowed
- Allow e-bikes wherever bikes allowed except soft surface/natural surface paths
- Option 3 – on weekends on creek path excluded but test on several weekends
- Reduced speed on Boulder Creek Path – especially in the congested area around downtown. Make speed limit 10-12 mph for all bikes.
- 250 pedal assist only like in Europe – over 250 requires registration of bike

Long Term options to explore:

- Segregate electric and non-electric based on speed (China)

Five E’s:

- Enforce regulations. Keep them simple and easy to enforce
- Education – police may not know the rules, need consistent messaging of rules
- Education and enforcement – especially Boulder Creek of all multi-use users (dog walkers, skateboarders, peds walking abreast, long boarders)
- Engineering – Re-engineer design for the section between Eben Fine and Arapahoe
- Education – teach bike riders of all types to be predictable. Don’t be unpredictable.
- Fix acute corners on creek path west of Scott Carpenter
- Engineering – increase the capacity of Boulder Creek Path in the downtown area to help alleviate congestion.

Option 2:

- E-bikes be treated like other bikes
 - Also sidewalks and trails

- Test Boulder Creek congested area
- If we don't try it, we won't know.

Option 3:

- OSMP might kill pilot to include
- Along Boulder Creek, dismount zones or slow zones for safety – all users

Bicycling is going to increase. What public information and safety measures are critical regardless of council's actions on E-bikes?

- Speedometers on bikes or a way to monitor speed
- Govern/control on speed
- Yellow yield sign to show who yields to whom
- Video – welcome to safe cycling in Boulder – transient population (education)
- Speed indicators on paths
- Engineering – E-bikes separate modes of travel.

**Electric-assist bicycle use on multi-use paths
Comments from August 7, 2013 public Meeting**

1. Definition – Do you have any comments about the proposed definition of electric-assist bicycles?

- Clarify: 20 mph capable without pedaling.
- Yes, pedals only.
- Only speed is important. Cars are not limited in power, only speed. Injury is related to the mass and speed, not the power of a motor. No power limit.
- No matter what legal definition the city decides on, to the average pedestrian e-bikes are motorized vehicles. Just as “60% of cyclists are not comfortable sharing the road with motor vehicles” it is common sense that a majority of pedestrians will be uncomfortable sharing the MUP with motorized e-bikes.
- 750 watt or less or \geq 20 mph.

2. Location – Do you have any comments about the potential demonstration project to allow e-bikes on off-street multi-use paths, not including open space trails?

- Speed limit enforcement is critical for both bicycles and e-bikes. Pedestrians are under threat now and more bicycles of any kind will increase the danger.
- Be equitable: anywhere bikes are allowed.
- With all bikes – use of cell phones while riding should be outlawed.
- Throughout Boulder.
- I am opposed to the demonstration project because I think pedestrians will be put at safety risk, the city will not be able to enforce the e-bikes ok, but not mopeds, segways. The city will not be able to enforce 20 mph speed limit (it doesn't enforce now). E-bikes are motorized vehicles. They are terrific for commuting, pollution, getting disabled out... but they should be separate from pedestrians because they go faster, weigh more, and are more intimidating than regular bikes. Restrict their use to Boulder's roads and designated bike lanes.
- Anywhere bikes are allowed.

3. Demonstration Project – What suggestions do you have for conducting an effective Demonstration Project in terms of...

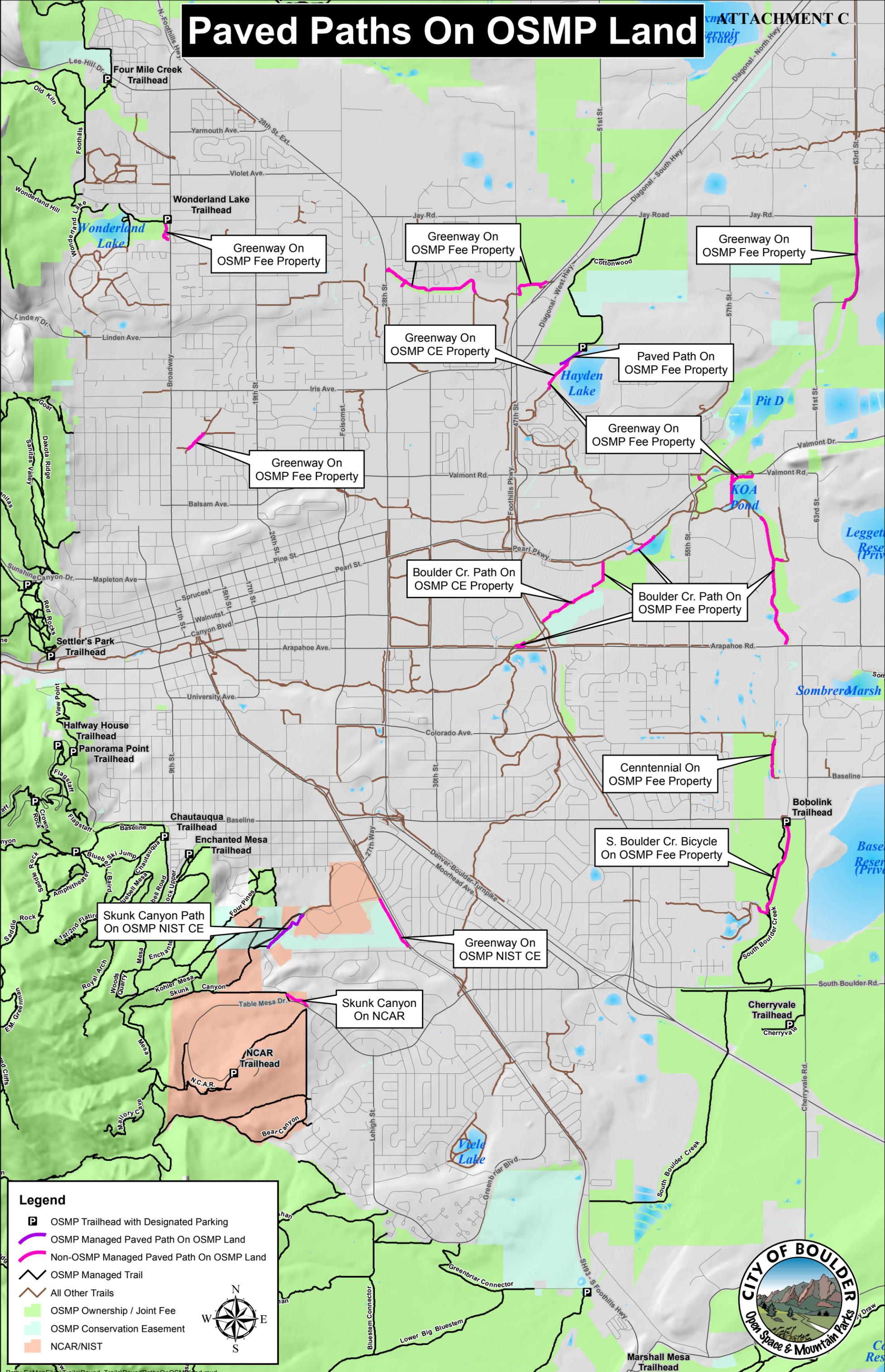
- **Evaluation – In how the Demonstration Project is evaluated?**
 - Measure speed with sensors. Volunteer monitors.
 - Observe behavior between bikers and e-bikers
- **Engineering – Through engineering design, including signage and pavement markings?**
 - Sure, make it clear it is a pilot project.
 - None – no need.
- **Enforcement – Through enforcement of regulations, including the existing speed limit of 15 mph?**

- Paint “15 mph” on paths everywhere.
 - Yes.
 - **Education – How community members are informed and involved in the demonstration?**
 - Talk to the ped advocates.
 - Please provide education on how legal e-bikes are no faster than regular bikes and how quiet they are.
- 4. What best practices from other cities should Boulder consider?**
- I think the wattage restriction on the bike lanes should be lifted, perhaps to a full 1,000 w.
 - Don’t allow motorized vehicles on our MUP, like 11 other communities on the list.
 - All
- 5. Path usage – Do you have any concerns about allowing use-bike on multi-use paths?**
- I am already concerned about lack of speed limit signage and enforcement. E-bikes will raise the average speed that pedestrians encounter bicycles. I’m concerned that I’ve already seen electric motorcycles on the MUP going well over the speed limit. Once any motors are allowed, it will be much more difficult to keep motorcycles off the MUP.
 - Yes – Pedestrian safety enforcement of some motorized vehicles but not others. Enforcement of speed limits, expenditure of nonexistent city funds on a project that upends a working system (e-bikes can already operate on roads – why do they need to have access to MUP?) They don’t!!!!
 - None
- 6. Public Outreach – Please share any comments you have on the proposed outreach to obtain public input during the next month as we draft an ordinance for City Council’s consideration.**
- I am left thinking that the deck is stacked in favor of the demonstration project. Staff seems inclined at the outset. I would hope that staff actively solicits pedestrian opinions by surveying pedestrians on the MUPs with an unbiased questionnaire.
 - Work with local e-bike retailers to offer 1st hand.
- 7. Experience – What is your personal experience with electric-assisted bicycles? Check all that apply.**
- My business sells e-bikes
 - I own and ride one (2) (Leonard Sitongia, sitongia@onebeam.net is happy to give demos)
 - I have limited experience riding e-bikes (1)
 - I have a friend or family member with an e-bike (3)
 - I have never ridden an e-bike (1)
 - My experience with e-bikes is as a pedestrian (2)
 - Other _____ (1)
 - Want to offer charging station.

8. General Comments

- Don't forget: allow e-bikes on public bike parking.
- The ped lobby is anti-bikes, they should be educated that this is about e-bikes, not all non-ped transportation. The safety risk is not specific to e-bikes. Please make this clear so that they stop wasting our time.
- I think e-bikes are nifty and have a role to play for commuting, recreation, congestion reduction etc. I just think they belong on roads or bike only paths as they are motorized and thus intimidating (for good reason) to pedestrians.
- Enforcement – Would suggest considering cell phone enforcement combined with displayed registered numbers on all bikes travelling on MUPs. Violations can be reported to data center where after xx number of reports a citation is issued. This along with video camera distribution would support safety.

Paved Paths On OSMP Land



Greenway On OSMP Fee Property

Greenway On OSMP Fee Property

Greenway On OSMP Fee Property

Greenway On OSMP CE Property

Paved Path On OSMP Fee Property

Greenway On OSMP Fee Property

Greenway On OSMP Fee Property

Boulder Cr. Path On OSMP CE Property

Boulder Cr. Path On OSMP Fee Property

Centennial On OSMP Fee Property

S. Boulder Cr. Bicycle On OSMP Fee Property

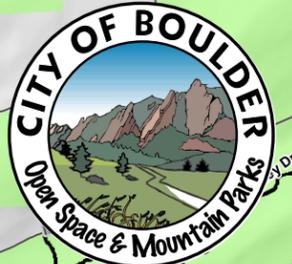
Skunk Canyon Path On OSMP NIST CE

Greenway On OSMP NIST CE

Skunk Canyon On NCAR

Legend

- OSMP Trailhead with Designated Parking
- OSMP Managed Paved Path On OSMP Land
- Non-OSMP Managed Paved Path On OSMP Land
- OSMP Managed Trail
- All Other Trails
- OSMP Ownership / Joint Fee
- OSMP Conservation Easement
- NCAR/NIST

About e-bikes

An electric-assisted bicycle is most often powered by a lithium battery and controlled by a console that tracks speed and offers different power options. These power options include a human power only and several ranges of power assist options (Pedelec). Some models also offer a throttle option that does not require the rider to pedal in order to propel the bicycle. The distance a rider can travel on an e-bike before charging the battery is estimated to be 15 to 60 miles, depending on the size of the motor and battery as well as the power option selected by the rider when traveling. An e-bike generally weighs between 35 and 55 lbs. The cost of an e-bike generally ranges from \$1,500 to several thousand dollars.

A regular bicycle can be transformed into an e-bike by installing a conversion kit comprised of an electric motor and battery. BionX, a Canadian company reputed to be a leading manufacturer of e-bike conversion systems, sells kits that range in price from \$1,100 to \$2,100.

Questions & Answers

Source: <http://www.hybrid-cycles.com/faqs.php>

How fast can electric bikes go?

On motor power alone, our electric bikes can travel up to 20 mph, depending on the weight of the rider and the difficulty of the terrain. Downhill and/or with the rider pedaling, higher speeds may be achieved.

How far can an electric bike go on a single charge?

Different models have different ranges. Hybrid Cycles offers several models that can travel up to 25 miles on a single charge in pedal-assist mode, while others can travel up to 40 miles on a single charge in pedal-assist mode. These ranges assume a 150-pound rider traveling on flat ground and may vary based on rider and terrain.

How do the different modes work?

Hybrid electric bicycles use batteries to power a quiet, efficient electric motor. In pedal-assist mode (electric-motor-assist mode), the bike senses the torque applied while pedaling, and the motor kicks in as needed to help the rider, making it easier to pedal up hills or on long rides. In throttle mode (electric motor power mode), the motor does all the work and the rider need not pedal at all. In manual mode (traditional mode), the rider shuts off the motor completely and pedals the bike just like a conventional bicycle.

The throttle / electric motor power mode requires the least exertion and provides the most speed on flat terrain, while the pedal-assist / electric-motor-assist mode provides the furthest range on a single charge.

How do you charge the battery?

Simply plug the charger into any standard wall outlet and insert the battery into the charger.

How long does it take to charge the battery completely?

Charge times vary depending on the charge depletion, the manufacturer, model, and battery type. The initial charge should take between 6-12 hours. A fully depleted SLA battery takes between 6-8 hours to charge, while NiMH & Li Ion batteries take between 4-6 hours. Electric bikes cost very little to charge.

What is the battery life?

With normal usage and proper maintenance, the battery should last 800 charge cycles.

How often should I charge the battery?

For longest life, charge the battery after each ride (or daily, if you ride more than once a day). If your bike is out of use for a long period of time, you should charge the battery at least once every three weeks.

Does the battery recharge while riding?

On most bikes, no. The [Easy Motion Neo bikes](#) employs a regenerative braking system, which recharges the battery while you are coasting or braking. While this does extend the power-assist range somewhat, you will still need to plug in the battery for a full charge.

Do I always need to pedal?

No. Throttle mode requires no pedaling at all. Pedal-assist mode requires pedaling, but provides more power for climbing.

What sort of maintenance does an electric bike require?

Care for your hybrid bicycle as you would any other high-end bicycle. Keep it clean and dry, keep your battery charged, and take it into a bike shop periodically for tune-ups.

Are electric bicycles considered bikes, or are they motor vehicles?

Electric bikes are considered bikes (not motor vehicles), under federal law, unless your state or local entity has passed a law otherwise. Normal bicycle laws apply. Be sure to check your state and local laws for any recent changes.

Do electric bikes require a license or registration?

The rules vary from state to state. Check with your local DMV for information about electric bikes for your state. Rider age minimums and helmet laws also apply to electric bikes in some states.

Attachment F

Some models of electric-assisted bicycles

	<p>Emotion Diamond</p> <ul style="list-style-type: none">• 36V / 8Ah battery• 250 Watt mid-drive motor• Range up to 62 miles per charge• 8 Speed• Pedelec• Motor assist up to 20 mph• 46 lbs• Retail: \$2950 <p><i>Source: petesbikes.com</i></p>
	<p>Pedego 2013 City Commuter Classic</p> <ul style="list-style-type: none">• 36/10, 36/15 or 48Watt/10Ah• 400/500 Watt rear Hub Motor• Range up to 28 miles per charge• 7 speed• Pedelec/Throttle• Motor assist up to 20 mph• 40 lbs• Retail: \$2395+ <p><i>Source: smallplanetvehicles.com</i></p>
	<p>Yukon Navigator</p> <ul style="list-style-type: none">• 24V 10Ah battery• 250 Watt rear Hub Motor• Range up to 28 miles per charge• Single Speed• Pedelec• Motor assist up to 15 mph• 77 lbs• Retail: \$500+ <p><i>Source: bing.com & Amazon.com</i></p>
	<p>Currie IZIP E3C</p> <ul style="list-style-type: none">• 36V 11.4Ah lithium icon battery• 500 Watt rear Hub Motor• Range up to 30+ miles per charge• 27 Speed• Pedelec/Throttle• Motor assist up to 20 mph• 50 lbs• Retail: \$2499+ <p><i>Source: bing.com & REI.com</i></p>

The Coming Battle Over Electric Bicycles

[Henry Grabar](#) 9:00 AM ET

source: <http://www.theatlanticcities.com/commute/2013/09/coming-battle-over-electric-bicycles/6763/>

Around this time last year, Andy Clarke, president of the League of American Bicyclists, was pedaling home when he experienced a quirky moment of convergence.

Just as he passed a fellow cyclist mounted atop a jaunty penny-farthing bicycle, with its comically mismatched wheels, an electric bicycle zipped past them both. Technologically speaking, it was the past, the present, and the future of the bicycle, all riding side by side, if only for a second.



"To the core cyclist, it's cheating."

The electric bicycle has so far remained a novelty item in the United States, but manufacturers, retailers, and analysts say that will soon change. Fueled by [soaring numbers](#) of bike commuters and rapidly evolving battery technology, the electric bicycle is poised for a breakthrough, if it can only roll over legal obstacles and cultural prejudices.

The market "has been growing very consistently since about 2008," says Larry Pizzi, the president of Currie Technologies, one of the nation's largest distributors of e-bikes, as they're called. "They haven't become mainstream. But they're getting closer."

Sleeker and cleaner than the clunky rides of yore, the newest wave of commuter e-bikes are nearly indistinguishable from regular bicycles. Many have motors located in the hub of the rear wheel, which on the best models, can [sense the pressure on your pedals](#) and contribute assistance accordingly. A full charge at a standard wall outlet can take a rider dozens of miles at the federally mandated speed of 20 mph.

For potential riders, there are two main drawbacks: cost and weight. A nice electric bicycle tends to cost around \$2,000, and to weigh roughly 50 pounds, twice as much as a normal bike. Both metrics figure to get smaller as the bikes grow more popular and technology improves.

Because e-bikes are a generic consumer product, like pens or lamps, there's no firm data on how many are sold in the U.S. But Pizzi says Currie's sales have grown around 20 percent each year. Other e-bike companies, like Florida's [ProdecoTech](#), report that their business has doubled over the last year. With a \$1.5 million grant from the San Francisco Municipal Transportation Agency, Berkeley and San Francisco will [launch](#) a pilot e-bike sharing program next spring. Copenhagen will also [debut](#) an electric bike-share program.

The consulting group eCycleElectric estimated that the overall market for e-bikes in the United States [doubled](#) between 2012 and 2013. A more conservative analysis, by Navigant Research, has annual sales crossing the 100,000 mark in 2018.

Legally, the electric bicycle landscape is messy. The New York City Council [voted](#) in May to ban all electric bicycles (for the second time, no less), which has left owners in the city confused and cautious. Even a local bicycle retailer told me he was unsure about the law's scope.

Across the United States, too, electric cyclists are caught in a [web of conflicting ordinances](#). Few legal codes properly distinguish between "throttle" bikes, which operate like motorcycles, and "pedal assist" bikes, which send power to the wheels only when the cyclist pedals. Access to infrastructure also varies from city to city. E-bikes are for the most part permitted in bike lanes (where they are permitted at all), though banned from multi-use paths in cities like Denver and Boulder.

Looking for lessons abroad, which proved a successful tactic for U.S. cities researching bicycle infrastructure, yields few obvious suggestions. In the bike-mad Netherlands (pop. 17 million), over [100,000 electric bicycles](#) are sold each year, to little controversy. Singapore's [boom in electric bike consumption](#), meanwhile, has activists calling for more regulation.

In China, where some estimate the electric bike count at [120 million](#), the battle over the "silent killer" — so-called for the e-bike's quiet approach that leaves pedestrians oblivious — has raged for over a decade. Citing pedestrian safety, Beijing [banned](#) electric bikes in 2002, only to repeal the prohibition in 2006. In Shenzhen, where e-bikes were reportedly responsible for [15 percent of all traffic accidents and 64 deaths in 2010](#), banned electric bikes in 2011. Guangzhou banned them in 2007, but police confiscating e-bikes sparked [riots](#) this summer.

In the U.S., where e-bike speed and horsepower regulations are tightly enforced, there's no evidence that electric bicycles are more dangerous. Advocates point out that man-powered bikes routinely exceed the 20 mph limit of the e-bike.

While many cycling advocacy groups in the U.S. see e-bikes as a lure for drivers, the elderly, and the sweat-averse, a certain suspicion remains. "To the core cyclist, it's cheating," Loren Mooney, the editor of *Bicycling Magazine*, [has said](#). City governments are wary, and some "regular" cyclists fear that the spread of electric bicycles could stoke pedestrian vitriol, as it did in Chinese cities.

Bias narrows the market, advocates say. "The biggest challenge for the e-bike industry is that distribution points are few and far between," says Larry Pizzi. Out of more than 4,500 bicycle shops in the United States, fewer than one in six sell e-bikes.

That could be a huge missed opportunity for independent outfits. "Bike shops and traditional bike retailers need to get their heads out of the sand and realize that electric bikes are a huge opportunity, and a huge potential market we have struggled to reach," Clarke, of the League of American Bicyclists, says. "I don't think it takes a genius to realize these things are selling like hotcakes in both Denmark and Germany."

Clarke posits that this obstinacy may be due to the unusually self-conscious nature of cycling in the U.S. Even as bicycle commuting is entering the mainstream, its core acolytes have continued to treat the bike as a cult-like object rather than a regular consumer product. How can supporters dispel the sense that, as the *Guardian's* Steve Caplin [wrote](#) in a defense of the mode, the electric bicycle is "masquerading as a bike"?

I asked Clarke if he didn't feel some resentment when his electrically powered comrade sped past in the bike lane.

"For a fleeting second," he conceded. "But I'd rather have someone riding that bicycle than not."

Top image: Timur Emek/Associated Press



Henry Grabar is a freelance writer and a former fellow at The Atlantic Cities. He lives in New York.

● Davis, California

VC Section 406 Motorized Bicycle

(a) Classifies an e-bike with "motorized bicycle" or "moped". But distinguishes it from these vehicles as...

(b) A "motorized bicycle" is also a device that has fully operative pedals for propulsion by human power and has an electric motor that meets all of the following requirements:

- (1) Has a power output of not more than 1,000 watts.
- (2) Is incapable of propelling the device at a speed of more than 20 miles per hour on ground level.

Electric bicycles are to be operated like conventional bicycles in California, with the following exceptions:

- A person must be at least 16 years old,
- Anyone riding an electric bicycle must wear a bicycle helmet.
- Motorized bicycles may not be operated on dedicated bicycle paths unless allowed by local government ordinance.[44]
- Additional laws or ordinances may apply to the use of electric bicycles by each city or county

● Seattle, Washington

RCW 46.04.169

"Electric-assisted bicycle" means a bicycle with two or three wheels, a saddle, fully operative pedals for human propulsion, and an electric motor. The electric-assisted bicycle's electric motor must have a power output of no more than one thousand watts, be in capable of propelling the device at a speed of more than twenty miles per hour on level ground, and be incapable of further increasing the speed of the device when human power alone is used to propel the device beyond twenty miles per hour.

Electric bicycles are to be operated like conventional bicycles, with the following exceptions:

- A person must be at least 16 years old,
- Anyone riding an electric bicycle must wear a bicycle helmet.
- Motorized bicycles may be operated on dedicated bicycle paths unless restricted by local government ordinance.
- Additional laws or ordinances may apply to the use of electric bicycles by each city or county

● Portland, Oregon

814.405 - Status of electric assisted bicycle

- Considered a bicycle, rather than a motor vehicle, for purposes of the Oregon Vehicle Code, except when otherwise specifically provided by statute
- Has fully operative pedals for human propulsion and an electric motor with power output not more than 1,000 watts.
- Not capable of going faster than 20 mph on level ground.
- Approved lighting must be used when operating under limited visibility

E-Bikes on Multi Use Paths

Permitted

Portland, OR
Seattle, WA

Prohibited

City of Boulder
Fort Collins
City and County of Denver
Davis, CA*

*not enforced planning to change local ordinance to allow on paths