

DRAFT Staff Recommendation for E-bikes on Boulder County Trails

May 2018

I. Background

Last year, Colorado passed bill HB 17-1151: Electrical Assisted Bicycle Regulation Operation. This bill changed Colorado bike law, specifically C.R.S. § 42-4-1412, to allow or prohibit the use of specified classes of electrical assisted bicycles¹ on pedestrian paths and bike paths. See <https://leg.colorado.gov/bills/hb17-1151> for full details.

Motorized vehicles, including electric bicycles, are currently prohibited and have always been prohibited on Boulder County Parks & Open Space trails. Bicycles that are permitted on trails are defined as “human-powered wheeled vehicles” (see Rules & Regulations, Resolution 2018-08, items 8 and 9), and bicycles are only allowed on trails designated for such use. Note that Boulder County Parks & Open Space does allow individuals with mobility disabilities to use Other Power-Driven Mobility devices (OPDMDs), which can include electric bicycles, on any trail open to pedestrian use as long as they are used in a safe manner (see Rules & Regulations Resolution 2018-08, item 9b). A list of Boulder County Parks & Open Space trails where OPDMDs are allowed is available on the [Accessibility on Open Space](#) webpage.

The remainder of this memo lays out the staff recommendation and rationale, a summary of e-bike survey results, a discussion of other factors to consider, and next steps.

II. Draft Staff Recommendation for E-bikes on Boulder County trails

Boulder County strives to be sustainable and values access for diverse populations within our mission of conserving natural, cultural, and agricultural resources and providing public uses that reflect sound resource management and community values. Staff considered public input, trail characteristics, and resource values in the draft recommendation. The recommendation is summarized below, followed by discussion of the rationale.

- Staff recommends **allowing class 1 and class 2 e-bikes on all regional trails** under Boulder County’s jurisdiction: Coal Creek Trail, Rock Creek Trail, LoBo Trail, US 36 Bikeway (already approved for the short segment of trail on Boulder County open space)
- Staff recommends **allowing class 1 and class 2 e-bikes on the following trails on the plains**: Coalton Trailhead trails (Coalton, Mayhoffer Singletree, Meadowlark), Carolyn Holmberg Preserve at Rock Creek Farm (Cradle Board, Lac Amora Link, Mary Miller, Ruth Roberts Connector), Harney Lastoka, Lagerman Agricultural Preserve, and all Niwot Trails

¹ Class 1 e-bikes are defined as 750w max electrical pedal assist up to 20 mph. Class 2 e-bikes are defined as 750w max throttle assist up to 20 mph. Under the new law, class 1 and 2 e-bikes can be ridden on a bike or pedestrian paths where bicycles are authorized unless prohibited by the local authority. Class 3 e-bikes are defined as 750w max electrical pedal assistance up to 28 mph, are allowed on paths within a street or highway, but are only allowed on bike or pedestrian paths if approved by the local authority, along with other restrictions.

- Staff recommends **prohibiting e-bikes on the following trails on the plains:** Boulder Canyon Trail, Pella Crossing, Walden Ponds, Twin Lakes, and Legion Park
- Staff recommends **prohibiting e-bikes on all trails in the foothills and mountain parks,** and any park where bikes are not allowed:
 - Foothills/Mountain trails: Anne U. White, Betasso Preserve, Caribou Ranch, Hall Ranch, Heil Valley Ranch, Mud Lake, Rabbit Mountain, and Walker Ranch
 - Trails where bikes are not allowed: Anne U. White, Caribou Ranch, Nighthawk Trail at Hall Ranch, and the Lichen Loop at Heil Valley Ranch
- Staff proposes this recommendation as a **pilot program to run through 2019.** This will give staff an opportunity to conduct targeted studies on e-bikes at selected parks and trails in order to assess the pilot program.

Rationale for Recommending Class 1 and Class 2 E-bikes

- Access. The new state law defines e-bikes as non-motorized vehicles and allows for class 1 and 2 e-bikes to be ridden on bike, pedestrian or multi-use paths where regular bikes are allowed unless prohibited by the local authority. E-bikes provide access for recreation and commuting on trails to a broader range of users, particularly relevant for the “silver tsunami” of baby boomers, and those with certain physical restrictions. The difference between class 1 and class 2 e-bikes is the throttle on class 2 e-bikes, which gives riders the ability to initiate movement and continue moving without pedaling. This provides some riders an ability to use a bicycle with a higher degree of confidence.
- Speed. There is no speed difference between class 1 and class 2 e-bikes. Power assist discontinues at 20 mph for both class 1 and class 2 e-bikes.
- Enforcement. Differentiating between class 1 and class 2 e-bikes is difficult and makes enforcement more challenging. Additionally, as e-bike technology evolves with new designs that house the motor battery in the tubing, it is becoming much harder to visually identify e-bikes to enforce policy.
- Trail impacts. E-bikes may be heavier than regular bikes, and class 2 e-bikes may be heavier than class 1 e-bikes. Regional trails and most trails on the plains have improved surfaces and are capable of handling this kind of use.
- Visitor perceptions. One of the key messages from the e-bike survey is that respondents are much more supportive of e-bikes after riding them. In the open house and web survey, support for class 1 e-bikes is two-to-three times greater among respondents who had ridden an e-bike compared to those who had not, and support is greater than opposition for all three trail types. The same pattern is seen among demo survey respondents: support increased after trying out an e-bike.

Dimensions of Trails Analysis

- Physical Trail Characteristics. Bicycles are allowed on most Boulder County trails in the plains. Staff considered factors including trail width, trail surface, trail length, trail

connectivity, estimated annual visits, percent of bikes among user types, and perceptions about crowding and conflict.

- Trail Use Characteristics. These human dimensions include estimated annual visits, percent of bikes among user types, and perceptions about crowding and conflict. This information comes from the *2015 Five Year Visitor Use Study*, and the *2010 Five Year Visitor Use Study*.
 - Crowding is an average rating on a 1 to 5 scale, where 1=not at all crowded, and 5=very crowded. No park has an average rating higher than 2. Overall, a total of 11% of respondents reported feeling somewhat-to-very-crowded while visiting a park or trail.
 - Conflict is an average percentage of survey respondents who said they had experienced conflict at the park on the day of the survey. The average overall conflict rating for all parks is 5%.
- Opinions from public input. Survey responses and comments from Phase I public engagement provides insights into people's concerns, feelings, and perceptions about e-bikes.
- Staff judgment. While the recommendation is grounded in the facts pertaining to each trail or park, staff judgment also plays a role.

Rationale by Trail Type

- Rationale for recommendation to allow e-bikes on regional trails. Boulder County's regional trails serve commuters with their connections to neighborhoods and communities. For the most part they are improved soft-surface multi-use trails (crusher fines, recycled asphalt or road base) with a width of eight feet or more, and in many cases they have a high percentage of bikes relative to other uses: Coal Creek Trail 38%, Rock Creek Trail 48%, and LoBo Trail 70%. Regional trails are used for both commuting and recreation, and are well suited for e-bikes.
- Rationale for recommendation to allow e-bikes on selected trails on the plains. Bicycles are allowed on all but one trail on the plains (Dodd Reservoir, 0.1 mile). Most of these trails are eight feet or wider, though some trails have segments that are less than eight feet. All but two of these trails have improved surface dirt trails (the exceptions are Dodd Reservoir and Legion Park). Many of these trails connect to regional or other trails, and many of them serve a commuting function as well as a recreational purpose.
 - Coalton Trailhead: connects to Town of Superior, Coal Creek Trail, and future connection to US36 Bikeway; 51% of use is bicycles; the average crowding rating is 1.42 and 5% of respondents report experiencing conflict. Need coordination with City of Boulder OSMP for where to demarcate e-bike approval on Mayhoffer Singletree trail on northwest end where it connects to the OSMP Marshall Mesa trail and likewise the Coalton Trail on the southwest where it crosses onto OSMP property.

- Carolyn Holmberg Preserve at Rock Creek Farm: part of Rock Creek regional trail. Bicycles account for 38% of use; the average crowding rating is 1.12 and 3% of respondents report experiencing conflict.
 - Harney Lastoka: the 1.2-mile loop is an 8-foot-wide crusher fines trail that connects to the Coal Creek Trail and provides access to the Kerr Community Garden and the Louisville Sports Complex. As part of the Coal Creek Trail, bike use is estimated at 38%.
 - Lagerman Agricultural Preserve: adjacent to Longmont neighborhood and planned future connections to City of Longmont trail system. The 1.6-mile Lagerman trail around the reservoir is a 12-foot-wide service road with a road base surface. Bicycles account for 7% of users; the average crowding rating is 1.18 and the conflict rating is 3%. The Open Sky trail is 4.9 miles in length, the trail is 8-foot-wide with a surface of recycled asphalt. It is just a year old so user data is not yet established.
 - Niwot Trail: 6.4 miles of trail that wind through Niwot neighborhoods and connects to the LoBo Trail. Most of the trail is 8-to-12-feet wide; some sections are narrower. Trail surface is mostly crusher fines, with a few paved sections. Bicycles account for 32% of users, the average crowding rating is 1.23 and 4% of respondents report experiencing conflict.
- Rationale for recommendation to prohibit e-bikes on selected trails on the plains. In each of these cases, staff feels that some aspect of the trail's use or characteristics warrants taking a more cautious approach with a recommendation to prohibit e-bikes for the time being.
 - Boulder Canyon Trail: connects to the City of Boulder's Boulder Creek Trail on the east, where e-bikes are allowed. That permission ends at the city's western boundary. Though the city owns most of the land underlying the Boulder Canyon Trail, Boulder County manages the trail under a 1995 IGA and a 2005 Management Agreement. The average rating for crowding is relatively high compared to other Boulder County trails at 1.74 (21% report feeling somewhat-to-very-crowded), and 6% of respondents report experiencing conflict. Because of these considerations, staff recommends against allowing e-bikes on the Boulder Canyon Trail for now. Staff will revisit this recommendation after consultation with the City of Boulder.
 - Legion Park is a small park with a short 0.9-mile loop trail around a reservoir. It does not have any connections to other trails, and is used mostly for wildlife and scenery viewing and picnicking. Bicycles are permitted, but no survey respondents report biking as their primary activity. Since this is not a bike destination and doesn't have connections to other trails, staff recommends prohibiting e-bikes at Legion Park.

- Pella Crossing has 2.9 miles of crusher fines trail around reclaimed gravel mine ponds; it re-opened in 2017 following flood restoration work. Hiking (51%) and fishing (35%) are the top two activities; bicycles accounted for 8% of usage in the 2010 Five Year Visitor Study (Pella Crossing was closed in 2015). Currently there is no connection to a regional trail or other trails. The planned St. Vrain regional trail will connect Pella Crossing to Longmont. Staff recommends prohibiting e-bikes from trails at this park to maintain the quiet nature of the user experience, but reevaluating this recommendation when the St. Vrain regional trail is constructed.
 - Twin Lakes has a 9-foot-wide crusher fine trail that winds around two reclaimed gravel mine ponds. The trail around each lake is 0.7 miles long. The West Twin Lake trail is one of the few places Boulder County allows dogs to be off leash and, not surprisingly, it has the highest percent of users who bring a dog (52%) of all Boulder County parks. Bicycles account for 7% of users, the average crowding rating is 1.36 and 4% of respondents report experiencing conflict. The trails connect to a segment of the LoBo regional trail on the south side, where e-bikes are recommended to be allowed. Based on the high rate of dog walking and off leash dogs on the west lake, staff recommends prohibiting e-bikes at this location.
 - Walden Ponds Wildlife Habitat is a popular wildlife viewing, hiking, and fishing destination with 2.9 miles of 8-foot-wide crusher fine trails around reclaimed mining ponds. Walden Ponds has the highest percent of visitors whose primary activity is wildlife viewing (32%). Hiking (31%) is the second most frequent activity, and bicycles account for 0% of users. The average crowding rating is 1.15, and 2% of respondents report experiencing conflict. Walden trails connect to the Heatherwood neighborhood and the City of Boulder's Sawhill Ponds. Staff recommends prohibiting e-bikes at Walden Ponds in consideration of the nature of the uses at this park.
- Rationale for not recommending e-bikes on Foothills and Mountain Trails. Trails in the foothills and mountains primarily serve a recreational purpose. They are unimproved, natural surface and generally narrow and more technical. Several foothills/mountain trails where bikes are allowed have higher rates of crowding and conflict (Betasso Preserve, Hall Ranch, and Heil Valley Ranch).

III. Summary of E-bike Public Engagement Phase I Survey Results

See report [Boulder County E-bike Public Engagement Phase I Results](#) for full details.

E-bike Opinions: Open House & Web Survey (n=240)

Web & Open House Survey Opinions about E-bikes on County Trails

n=240

Class 1 E-bikes	Oppose	Support	Neutral
Foothills & Mountain Trails	52%	40%	7%
Plains Trails	38%	48%	13%
Regional Trails	31%	59%	13%
Class 2 E-bikes	Oppose	Support	Neutral
Foothills & Mountain Trails	64%	27%	8%
Plains Trails	52%	37%	10%
Regional Trails	47%	42%	11%

Among open house and web survey respondents, support is higher for class 1 e-bikes than class 2 e-bikes on Boulder County open space trails. Support is higher than opposition for class 1 e-bikes on trails in the plains and regional trails, and is highest on regional trails (59%). Opposition is greater than support on all trail types for class 2 e-bikes, and greatest for class 2 e-bikes on foothills/mountain trails (64%).

Fifty-nine percent of open house and web survey respondents had ridden an e-bike at the time they filled out the survey.

- Support for class 1 e-bikes is two-to-three times greater among respondents who have ridden an e-bike compared to those who have not. Support is greater than opposition for all three trail types, and support is highest for regional trails.
- Opposition for class 1 e-bikes is about two times greater for respondents who have not ridden an e-bike compared to those who have. For those who have not ridden an e-bike, opposition is greater than support for all three trail types and opposition is greatest for foothills and mountain trails.

For both class 1 and class 2 e-bikes, common themes in comments from those opposing e-bikes on county trails reflect a sentiment that e-bikes don't belong on trails because they are motorized, a fear about safety and excess speeds, a sense that trails are already crowded and issues of lack of courtesy on the part of e-bike riders. A number of comments express concern about the presence of e-bikes threatening access for all mountain bikes on single track trails, as well as concern about e-bike riders not having adequate skills and/or not having earned access to mountain trails. Concerns about trail impacts and speed enforcement were also mentioned. Respondents opposed to class 2 e-bikes emphasize these same points; however, many respondents differentiate opinions depending on trail types.

Comments from respondents in favor of e-bikes on county trails reflect a desire for access to facilitate commuting and accommodate aging users, as well as taking issue with the idea that e-bike riders are apt to be less courteous than riders on regular bikes. A number of respondents make the case for not differentiating between class 1 and class 2 e-bikes.

E-bike Opinions: Demo Survey (n=62)

Demo Survey Opinions about E-bikes on County Trails

n=62

	Oppose		Support		Neutral	
	Before	After	Before	After	Before	After
Class 1 E-bikes						
Foothills & Mountain Trails	21%	19%	55%	64%	23%	17%
Plains Trails	2%	5%	82%	88%	16%	7%
Regional Trails	0%	0%	86%	90%	14%	10%
Class 2 E-bikes						
Foothills & Mountain Trails	34%	28%	46%	41%	20%	31%
Plains Trails	14%	12%	67%	70%	19%	18%
Regional Trails	7%	18%	71%	75%	22%	17%

Respondents who attended the demos expressed higher rates of support for e-bikes compared to open house and web survey respondents, even before they tried them. For class 1 e-bikes, support increased after the demo for all trail types, and was very strong for regional trails. For class 2 e-bikes, the pattern is similar but not as strong.

Comments from demo respondents regarding class 1 e-bikes were strongly positive, emphasizing the benefits for commuting and access, as well as the perception of little difference in speeds and safety as compared to regular bikes. Some comments regarding class 1 e-bikes express concern about access on foothills and mountain trails. Many comments regarding class 2 e-bikes reflect the lower level of support with a more cautionary tone, while other comments regarding class 2 e-bikes argue against differentiating between pedal assist and throttle, as well as emphasizing the benefits for commuting and access.

IV. Bike Etiquette, Regulations, Education & Outreach, and Enforcement

The fears about lack of courtesy, failure to yield, excess speeds and safety expressed in Boulder County’s e-bike surveys are mirrored in Boulder County’s Five Year Visitor Studies. These sentiments also come up in public opinion surveys about bicycles across the state and country.

Boulder County Parks & Open Space regulates for safe speed and proper yielding as a practical matter, rather than by setting speed limits, which would be difficult to establish and prove. In the

past two years (2016-2017), rangers have written one ticket for regulation 22(a) Trail Use (below) and have given seven verbal warnings. Verbal warnings are often not well documented in our database, so the number of verbal warnings may be significantly higher.

22. Trail Use

- (a) It shall be unlawful for any trail user to fail to yield to other trail users in the manner defined herein or as otherwise posted at trailheads. The appropriate order for yielding the trail right-of-way is as follows: All users yield to equestrians, bicyclists yield to pedestrians, and bicyclists headed downhill yield to bicyclists headed uphill. Yielding the right-of way requires slowing down to a safe speed, being prepared to stop, establishing communication, and passing safely.

Boulder County tracks biking accidents only if they result in a medical call. There were seven bike crashes resulting in medical calls in 2017 and 11 in 2016, and all of these were mountain bike accidents on foothills or mountain trails.

Boulder County has a very active outreach program to address proper bicycle etiquette and encourage good behavior in parks and on regional trails. Boulder County works closely with the Boulder Mountain Patrol (a volunteer service organization affiliated with Boulder Mountain Bike Alliance) whose members provide assistance and education to trails users while riding bikes on public land trails. In addition, staff sets up trailhead displays at parks on a rotating basis. Since audible warnings are the preferred form of communication, staff and volunteers offer bells to cyclists if they are willing to mount them on their bike on the spot.

V. Other Factors to Consider

Demographics of e-bike riders (source: People For Bikes, presented at a 2017 e-bike summit <https://mailchi.mp/c435f35269af/happy-new-year-from-bulls?e=5c6514da67>)

- The typical e-bikes customer is a 55-64 year old, Caucasian male that makes \$100,000-149,000 annually.
- 93% of e-bike riders had ridden standard bikes as adults. In other words, they have experience riding, debunking the myth that e-bike riders don't know what they're doing
- The majority of riders polled, 51%, report that they are in very good or excellent health
- The most popular category of new eBikes purchased was eMTB* at 29%, compared to 12% conversion kits installed on new standard bikes with and 13% step-thru models
- 80% of e-Bikes were purchased in the last 3 years
- About 50% of e-bike buyers used information from product comparison sites, and over 20% visited retailers to make their buying decisions
- Battery range was the highest consideration for purchase, followed by price.
- A vast majority of e-bike trips replaced solo car drives.

*Note: eMTB refers to a class 1 e-bike that is designed as a mountain bike.

A North American Survey of Electric Bike Owners (source: Transportation Research and Education Center, Portland State University)

[https://trec.pdx.edu/research/project/1041/National Electric Bike Owner Survey](https://trec.pdx.edu/research/project/1041/National_Electric_Bike_Owner_Survey)

Peer Agency Actions

Many Colorado communities are working to address e-bike regulations in light of the new state law, whereas Federal agencies regulate e-bikes as motorized vehicles. Below is a summary of e-bike policy status of our peer agencies in Boulder County and our close neighbors.

- City of Boulder: e-bike use is permitted on certain multi-use paths within the City of Boulder. E-bikes are not permitted on any Open Space and Mountain Park trails due to charter restriction on motorized uses. <https://bouldercolorado.gov/goboulder/electric-assisted-bikes-policy-review>
- City of Lafayette: no action taken to date to prohibit e-bikes; Open Space Advisory Board has started discussions about developing policy (personal communication with Rob Burdine, City of Lafayette Open Space Superintendent).
- City of Longmont: no action taken to date to prohibit e-bikes (personal communication with Dan Wolford, Manager, Parks, Open Space and Forestry).
- City of Louisville: class 1 and 2 e-bikes are permitted on all official trails and public streets (personal communication with Ember Brignull, Open Space Manager, City of Louisville).
- Town of Erie: Erie’s traffic code was modified last summer to say “A person may ride a class 1 or class 2 electrical assisted bicycle on a bike or pedestrian path where bicycles are authorized to travel authorized to travel” (personal communication with Rob Crabb, Parks and Open Space Division Manager, Town of Erie).
- Town of Superior: “An electrical assisted bicycle, including the electrical motor thereon, may be used upon sidewalks, bicycle lanes and bicycle paths in the Town, provided that such use is not careless or imprudent and makes due regard for the width, grade, curves, corners, traffic, pedestrians and other uses of such sidewalks, bicycle lanes and bicycle paths and all other attendant circumstances” (https://library.municode.com/co/superior/codes/municipal_code?nodeId=CH8VETR_ARTIIIELVE)
- Broomfield City and County: class 1 and class 2 e-bikes are regulated as bikes and are allowed on all trails within Broomfield’s jurisdiction. <https://www.broomfield.org/2722/E-Bikes>
- Jefferson County: Class 1 and class 2 e-bikes are allowed on paved trails within parks; pilot program began in February 2018 lasting through the year allowing class 1 e-bikes on all trails, including natural surface trails. <https://www.jeffco.us/3618/e-bikes>
- Larimer County: currently class 1 and class 2 e-bikes are allowed on trails per new state regulations. Staff is planning to update their regulations by the end of 2018, with the goal

of allowing class 1 e-bikes on selected trails on a trial basis (personal communication with Steve Gibson, Red Mountain District Manager, Larimer County Natural Resources)

- Colorado State Parks: class 1 e-bikes are allowed on all trails where bicycles are permitted (personal communication, Windi Padia, Deputy Regional Manager, Northeast Region)
- Bureau of Land Management manages e-bikes as a motorized vehicle
<https://www.blm.gov/policy/ib-2015-060>
- US Forest Service manages e-bikes as motorized vehicles <http://flagstaffbiking.org/wp-content/uploads/2011/03/20150929EBikesBriefingPaper.pdf>

Advocacy Groups and Studies

- People for Bikes: <https://peopleforbikes.org/our-work/e-bikes/> is an advocate for all kinds of bikes, including e-bikes. Their web site has a wealth of information and resources, including a 2015 study: *Electric Bicycles: Public Perceptions & Policy, Results and Analysis of a National Survey of American Bicyclists*.
http://www.bikeleague.org/sites/default/files/E_bikes_mini_report.pdf .
- Boulder Mountain Bike Alliance (BMA) <https://bouldermountainbike.org/content/board-comment-e-bikes-boulder-county> : (Feb. 8, 2018) E-bike use on transportation paths provides an obvious community benefit and should be embraced. E-bike use on recreational trails provides some clear benefits to people with less-than-complete physical abilities, but poses unknown threats to mountain bike trail access and could, in theory, cause user conflict, resource damage, and trail damage. More research is needed before an across-the-board ban.
- International Mountain Biking Association (IMBA)
<https://www.imba.com/education/emtb> (updated 2017): IMBA is supportive of Class 1 e-MTB access to non-motorized trails when the responsible land management agency, in consultation with local mountain bikers, deem such eMTB access is appropriate and will not cause any loss of access to non-motorized bikes. IMBA recognizes that changes in design, technology and the numbers of eMTB users is evolving, and believes these bikes can be managed in a sustainable way for both the environment and other trail users.
- IMBA report: *A Comparison of Environmental Impacts from Mountain Bicycle, Class 1 Electric Mountain Bicycles, and Motorcycles: Soil Displacement and Erosion on Bike-Optimized Trails in a Western Oregon Forest*, Fall 2015.
https://b.3cdn.net/bikes/c3fe8a28f1a0f32317_g3m6bdt7g.pdf . IMBA conducted a field study of soil displacement and erosion resulting from traditional mountain bikes, class 1 eMTBs, and traditional off-road motorcycles. The results confirmed the hypothesis that soil displacement and tread disturbance under the soil conditions tested were not significantly different for traditional mountain bikes and eMTBs, and were both much less than those associated with a gasoline-powered motorcycle.

ATTACHMENT 1

Boulder County Open Space Trails Analysis for DRAFT E-bike Recommendation, May 2018

	Type (1)	Park	Trail Name(s)	Miles	Width (2)	Surface (3)	Connections	Estimated Visitation (4)	% bikes (5)	Crowding (6)	Conflict (7)	DRAFT Recommendation
1	Flat	Boulder Canyon Trail	Boulder Canyon Trail	1.9	8'+	CF	Boulder Creek Path, eventual connection to Chapman Drive,* Betasso Preserve	87,685	18%	1.74 avg. rating 21% report feeling crowded	6%	No
2	Regional	CHP at RCF	Cradleboard Trail	1.3	6'	CF	Rock Creek Trail	157,999	38%	1.12	3%	Yes
3	Flat	CHP at RCF	Lac Amora Link	0.3	6'	CF	neighborhood link	"	38%	1.12	3%	Yes
4	Regional	CHP at RCF	Mary Miller Trail	1.5	6'	CF	Rock Creek Trail	"	38%	1.12	3%	Yes
5	Regional	CHP at RCF	Ruth Roberts Connector Trail	0.9	8'	CF	Rock Creek Trail, Broomfield	"	38%	1.12	3%	Yes
6	Regional	Coal Creek Trail	Coal Creek Trail	14	8'	CF	Coalton TH, Harney-Lastoka, Flagg, Rock Creek Trail	128,000-177,000	38%			Yes
7	Flat	Coalton Trailhead	Coalton Trail	2.9	10'	road base	Greenbelt Plateau,* Marshall Mesa,* Rock Creek	43,312	51%	1.42	5%	Yes
8	Regional	Coalton Trailhead	Mayhoffer Singletree Trail	1.5	8', section after CC Drive is 4'	road base	Marshall Mesa*	"	51%	1.42	5%	Yes
9	Flat	Coalton Trailhead	Meadowlark Trail	2.7	8'	CF	Rock Creek Trail			1.42	5%	Yes
10	Flat	Harney Lastoka	Harney Lastoka Trail	1.2	8'	CF	Coal Creek Trail	11,597	No Data	--	--	Yes
12	Flat	Lagerman Agricultural Preserve	Lagerman Trail	1.6	mostly 12'	road base	Open Sky Loop	55,800	7%	1.18	3%	Yes
13	Flat	Lagerman Agricultural Preserve	Open Sky Trail	4.9	8'	recycled asphalt	future connection to Longmont trails	55,757	No Data	--	--	Yes
14	Flat	Legion Park	Legion Loop	0.9	4'	natural		42,390	0%	1.14	0%	No
15	Regional	LoBo Trail	LoBo Trail	12	8-9'	CF	Boulder, Longmont	21,800-66,000	70%			Yes
16	Flat	Niwot Trails	Niwot Trails	6.4	8-10-12'	CF	LoBo Trail	45,945	32%	1.23	4%	Yes
17	Flat	Pella Crossing	Braly & Marlatt Trails	2.9	8'	CF	future connection to St. Vrain Regional Trail	73,957	8% (2010 Five Year Study)	--	--	No
18	Regional	Rock Creek Trail	Rock Creek Trail	12	10'	CF	Coalton TH, CHP, Coal Creek Trail	69,000-128,000	48%			Yes
19	Flat	Twin Lakes	Twin Lakes East & West	0.7 each	9'	CF	LoBo Trail	106,233	7%	1.36	4%	No
20	Regional	Twin Lakes South	Willows/Twin Lakes Regional Trail	0.75	Willows 3' Twin Lakes 9'	CF	part of LoBo Trail	--	70%	--	--	Yes
21	Regional	US 36 Bikeway	Scriffiny Walden Ponds Trails	18	12'	cement	Boulder, Superior and communities south of Boulder County	75,156	No Data			Yes, approved 2017
22	Flat	Walden Ponds Wildlife Habitat	Walden Ponds Trails	2.9	8'	CF	Heatherwood neighborhood, Sawhill Ponds*	142,256	0%	1.15	2%	No

*City of Boulder Open Space and Mountain Parks Trails

(1) Type: corresponds to three trails types outlined in e-bike survey: Foothills/Mountain Trails, Flat Trails in the Plains, and Regional Trails

(2) Width: depicts the width along the majority of the trail; trail width may vary in some segments.

(3) Surface: most trails are soft surface, including crusher fines and recycled asphalt.

(4) Park estimated visitation from 2017 Parks Visitation Report. Minimum total visitation in 2017 is estimated to be 1,716,604. Regional Trail estimates from 2013 Visitation and Use on Boulder County

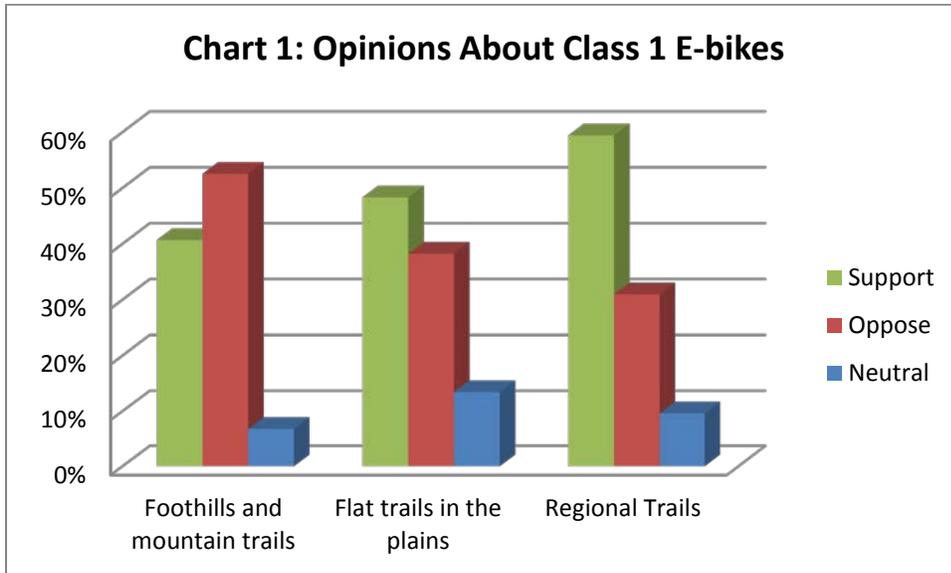
(5) % bikes is from the 2015 Five Year Visitor Study. In locations not surveyed in 2015, estimates are from the 2013 visitation and use on Boulder County Regional Trails study. Pella Crossing estimate

(6) Crowding: 2015 Five-Year Visitor Study, Q14, 1 to 5 scale, where 1=not at all crowded, and 5=very crowded. No park has an average rating higher than 2. Overall, a total of 11% of respondents repo

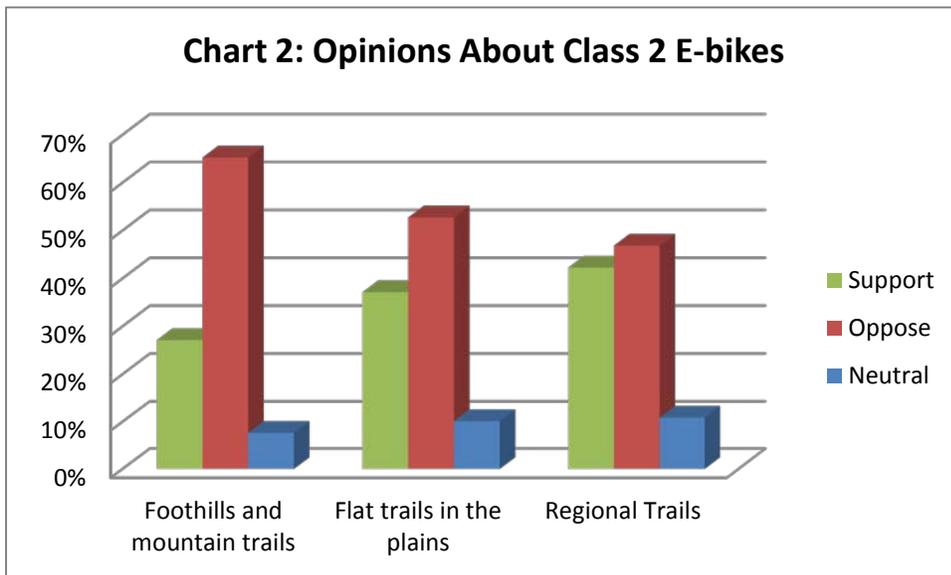
(7) Conflict: From 2015 Five-Year Visitor Study, Q12 "Did you experience conflict today?"

Summary Graphs: Web & Open House, n=240 February 2018

Q4. Thinking about Boulder County Parks & Open Space properties, please indicate your level of support or opposition for allowing **Class 1 e-bikes** on the three types of trails listed.

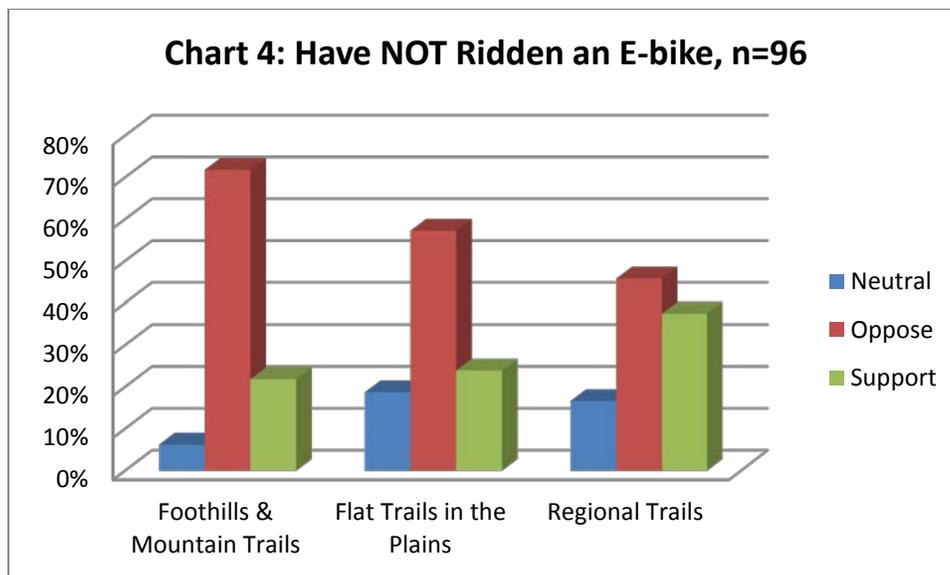
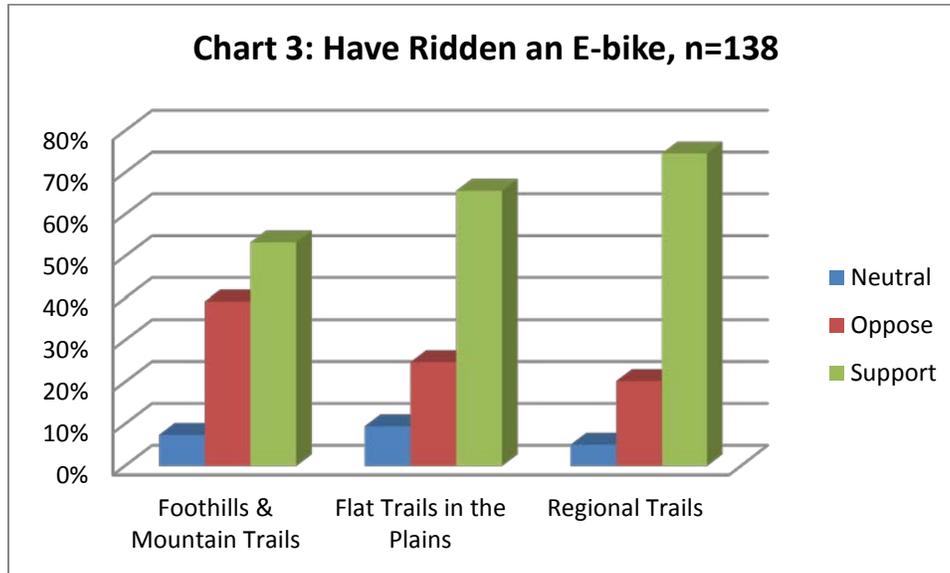


Q6. Thinking about Boulder County Parks & Open Space properties, please indicate your level of support or opposition for allowing **Class 2 e-bikes** on the three types of trails listed.



Summary Graphs: Web & Open House, n=240 February 2018

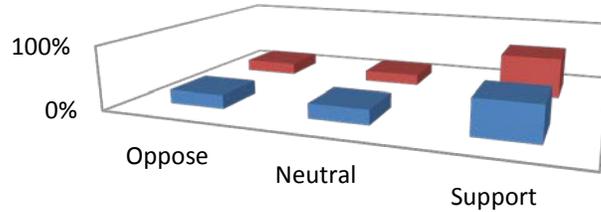
Q3. Have you ever ridden an e-bike? + Q4. Thinking about Boulder County Parks & Open Space properties, please indicate your level of support or opposition for allowing **Class 1 e-bikes** on the three types of trails listed.



Summary Graphs: Demo, n=62

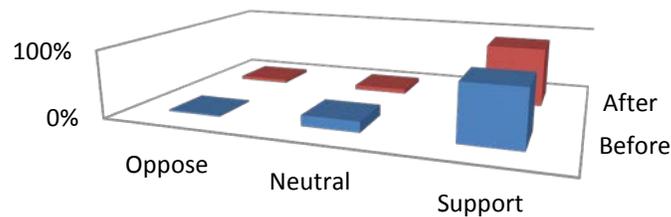
Q4. Before + Q6. After: Support or opposition for allowing **Class 1 e-bikes** on the three types of trails listed:

Chart 5:
Opinions Before/After Demo, Class 1 E-bikes
Foothills/Mountain Trails



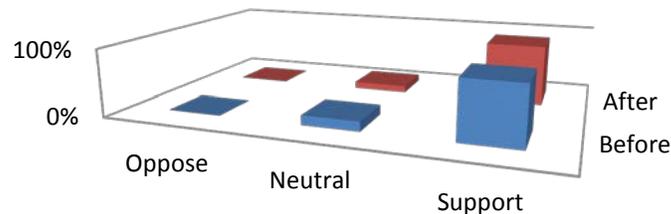
	Oppose	Neutral	Support
Before	21%	23%	55%
After	19%	17%	64%

Chart 6:
Opinions Before/After Demo, Class 1 E-bikes
Flat Trails in the Plains



	Oppose	Neutral	Support
Before	2%	16%	82%
After	5%	7%	88%

Chart 7:
Opinions Before/After Demo, Class 1 E-bikes
Regional Trails

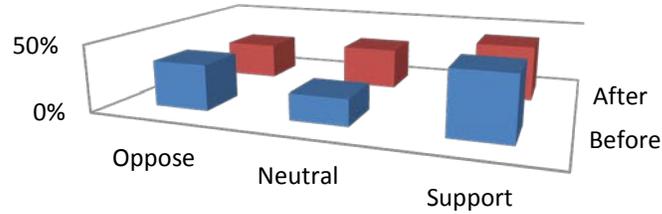


	Oppose	Neutral	Support
Before	0%	14%	86%
After	0%	10%	90%

Summary Graphs: Demo, n=62

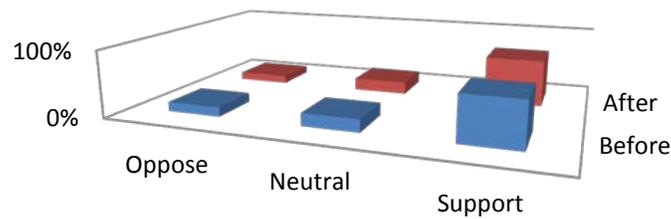
Q5. Before +Q8. After: Support or opposition for allowing **Class 2 e-bikes** on the three types of trails listed:

Chart 8:
Opinions Before/After Demo, Class 2 E-bikes
Foothills & Mountain Trails



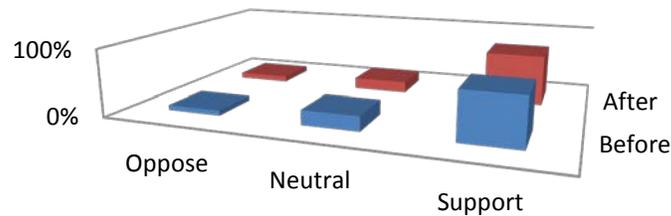
	Oppose	Neutral	Support
Before	34%	20%	46%
After	28%	31%	41%

Chart 9:
Opinions Before/After Demo, Class 2 E-bikes
Flat Trails in the Plains



	Oppose	Neutral	Support
Before	14%	19%	67%
After	12%	18%	70%

Chart 10:
Opinions Before/After Demo, Class 2 E-bikes
Regional Trails



	Oppose	Neutral	Support
Before	7%	22%	71%
After	8%	17%	75%