



## ALPINE CITY PLANNING COMMISSION MEETING

**NOTICE** is hereby given that the **PLANNING COMMISSION** of Alpine City, UT will hold a **Regular Meeting** at **Alpine City Hall**, 20 North Main, Alpine, Utah on **Tuesday, January 21, 2020 at 7:00 pm** as follows:

### I. GENERAL BUSINESS

- A. Welcome and Roll Call: Bryce Higbee
- B. Prayer/Opening Comments: Alan MacDonald
- C. Pledge of Allegiance: By Invitation

### II. PUBLIC COMMENT

Any person wishing to comment on any item not on the agenda may address the Planning Commission at this point by stepping to the microphone and giving his or her name and address for the record.

### III. ACTION ITEMS

#### A. Election of Chair and Vice Chair

Planning Commission shall elect a new Chair and Vice Chair to fill a vacancy.

#### B. E-Bike Discussion

Planning Commission will discuss the use of e-bikes on City trails.

#### C. Moderate Income Housing Discussion

Planning Commission will discuss implementation of policies from the Moderate Income Housing Element of the General Plan in 2020.

### IV. COMMUNICATIONS

### V. APPROVAL OF PLANNING COMMISSION MINUTES: January 7, 2020

### ADJOURN

Vice-Chairman Bryce Higbee  
January 21, 2020

**THE PUBLIC IS INVITED TO ATTEND ALL PLANNING COMMISSION MEETINGS.** If you need a special accommodation to participate in the meeting, please call the City Recorder's Office at 801-756-6347 ext. 5.

**CERTIFICATION OF POSTING.** The undersigned duly appointed recorder does hereby certify that the above agenda notice was posted at Alpine City Hall, 20 North Main, Alpine, UT. It was also sent by e-mail to The Daily Herald located in Provo, UT a local newspaper circulated in Alpine, UT. This agenda is also available on the City's web site at [www.alpinecity.org](http://www.alpinecity.org) and on the Utah Public Meeting Notices website at [www.utah.gov/pmn/index.html](http://www.utah.gov/pmn/index.html).

# PUBLIC MEETING AND PUBLIC HEARING ETIQUETTE

Please remember all public meetings and public hearings are now recorded.

- All comments **must** be recognized by the Chairperson and addressed through the microphone.
- When speaking to the Planning Commission, please stand, speak slowly and clearly into the microphone, and state your name and address for the recorded record.
- Be respectful to others and refrain from disruptions during the meeting. Please refrain from conversation with others in the audience as the microphones are very sensitive and can pick up whispers in the back of the room.
- Keep comments constructive and not disruptive.
- Avoid verbal approval or dissatisfaction of the ongoing discussion (i.e., booing or applauding).
- Exhibits (photos, petitions, etc.) given to the City become the property of the City.
- Please silence all cellular phones, beepers, pagers or other noise making devices.
- Be considerate of others who wish to speak by limiting your comments to a reasonable length, and avoiding repetition of what has already been said. Individuals may be limited to two minutes and group representatives may be limited to five minutes.
- Refrain from congregating near the doors or in the lobby area outside the council room to talk as it can be very noisy and disruptive. If you must carry on conversation in this area, please be as quiet as possible. (The doors must remain open during a public meeting/hearing.)

## Public Hearing vs. Public Meeting

If the meeting is a **public hearing**, the public may participate during that time and may present opinions and evidence for the issue for which the hearing is being held. In a public hearing there may be some restrictions on participation such as time limits.

Anyone can observe a **public meeting**, but there is no right to speak or be heard there - the public participates in presenting opinions and evidence at the pleasure of the body conducting the meeting.

## **ALPINE PLANNING COMMISSION AGENDA**

**SUBJECT: Election of Chair and Vice-Chair**

**FOR CONSIDERATION ON: 21 January 2020**

**PETITIONER: Staff**

**ACTION REQUESTED BY PETITIONER: Elect a new Chair and Vice-Chair**

### **BACKGROUND INFORMATION:**

A vacancy in the Planning Commission has left an unexpired term to be filled in the position of the Chair. Planning Commission needs to elect a member to fill the remainder of the unexpired term. Depending on the results of the election, this may also require a new Vice-Chair to be elected as well. At the first meeting of each odd year the Planning Commission shall elect a new Chair and Vice-Chair. A person may be elected to serve consecutive terms as Chair.

## **2.02 Planning Commission**

### **2.02.010 Establishment Of Planning Commission**

### **2.02.020 Term Of Office**

### **2.02.030 Organization**

### **2.02.040 Duties And Powers**

### **2.02.050 Additional Duties And Powers**

## **2.02.010 Establishment Of Planning Commission**

Pursuant to authority granted in Title 10-9a-301 UCA 1953, as amended, there is hereby created a Planning Commission. The Planning Commission shall consist of seven (7) members. The members shall be appointed by the Mayor with the advice and consent of the City Council.

Members shall be selected without respect to political affiliation. The legislative body may fix per diem compensation for the members of the Planning Commission, based on necessary and reasonable expenses and on meetings actually attended.

(Ord. 98-01:1/28/98, Amended by Ord. 2006-17, 11/14/06; Ord. 2009-03, 2/24/09; Ord. 2010-02, 2/09/10)

## **2.02.020 Term Of Office**

Each member of the Planning Commission shall serve for a term of four (4) years or until his successor is appointed. The term of office for each member shall commence on the first day of January. The Mayor may remove any member of the Planning Commission for cause. The Planning Commissioner being removed may appeal to the City Council and may request a public hearing be held. Any vacancy occurring on said Commission by reason of death, resignation, removal or disqualification shall be filled in the same manner as an original appointment for the unexpired term.

(Ord. 98-01:1/28/98, Amended by Ord. 2006-17, 11/14/06; Ord. 2009-03, 2/24/09; Ord. 2010-02, 2/09/10)

(Amended by Ord. No. 2007-04, 4/10/07; Ord. 2010-02, 2/09/10)

## **2.02.030 Organization**

1. At its first meeting in January of each odd year, the Planning Commission shall elect one of its members as Chair and a second member as Vice-Chair. The Chair shall serve for a term of two years and until a successor is chosen. A vacancy in the position of Chair or Vice-Chair shall be filled for the unexpired term by election at the next meeting of the Planning Commission. A person may be elected to serve consecutive terms as Chair.
2. The Chair shall preside at all meetings of the Planning Commission. In the absence of the Chair, the Vice-Chair shall preside. If both the Chair and Vice-Chair are absent, the Commission shall elect one of its members as Chair Pro-Tem to preside at that meeting.
3. Subject to the approval of the City Council, the Planning Commission shall adopt Rules of Procedure consistent with this Code for its own organization and for the transaction of business. Such rules shall not be inconsistent with any directive or instruction received from the City Council.
4. Meetings of the Planning Commission shall be held as frequently as the Commission deems advisable.
5. Reports of official acts and recommendations of the Planning Commission shall be made in

writing to the City Council and shall indicate how each member of the Commission voted with respect to such act or recommendation. Any member of the Commission may also make a concurring or dissenting report or recommendation to the City Council whenever he or she so desires.

(Ord. 98-01:1/28/98, Amended by Ord. 2006-17, 11/14/06; Ord. 2009-03, 2/24/09; Ord. 2010-02, 2/09/10)

### **2.02.040 Duties And Powers**

The Planning Commission shall:

1. make a recommendation to the City Council for:
  - a. a general plan and amendments to the general plan;
  - b. land use ordinances, zoning maps, official maps, and amendments;
  - c. an appropriate delegation of power to at least one designated land use authority to hear and act on a land use application;
  - d. an appropriate delegation of power to at least one appeal authority to hear and act on an appeal from a decision of the land use authority; and
  - e. application processes that:
    - i. may include a designation of routine land use matters that, upon application and proper notice, will receive informal streamlined review and action if the application is uncontested; and
    - ii. shall protect the right of each:
      - (1) applicant and third party to require formal consideration of any application by a land use authority;
      - (2) applicant, adversely affected party, or municipal officer or employee to appeal a land use authority's decision to a separate appeal authority; and
      - (3) participant to be heard in each public hearing on a contested application.
2. prepare and recommend a proposed ordinance to the City Council that regulates the subdivision of land; prepare and recommend or consider and recommend a proposed ordinance that amends the regulation of the subdivision of the land in the City.
3. have the authority to grant concept and preliminary approval for subdivisions that fully comply with Alpine City ordinances, and recommend final approval to the City Council for subdivisions that are in compliance.
4. review and make a recommendation to the City Council on site plans for buildings not located in an approved subdivision for compliance with Alpine City ordinances prior to the issuance of a building permit (see DCA 4.14 for more information).
5. as a land use authority, hear and decide applications for conditional use permits, other than administrative conditional uses (see DCA 3.23 for more information).
6. make a recommendation to the City Council for any extension and reconstruction of non-conforming buildings or buildings housing a non-conforming use (see DCA 3.22 for more information).

7. follow the appropriate procedures for public hearings and public meetings and shall give proper public notice as applicable.

(Ord. 98-01:1/28/98, Amended by Ord. 2006-17, 11/14/06; Ord. 2009-03, 2/24/09; Ord. 2010-02, 2/09/10)

### **2.02.050 Additional Duties And Powers**

The Planning Commission:

1. May conduct hearings and meetings with interested property owners, officials and citizens in the process of carrying out its functions.

(Ord. 98-01:1/28/98, Amended by Ord. 2006-17, 11/14/06; Ord. 2009-03, 2/24/09; Ord. 2010-02, 2/09/10)

# ALPINE PLANNING COMMISSION AGENDA

**SUBJECT: E-bike Discussion**

**FOR CONSIDERATION ON: 21 January 2020**

**PETITIONER: City Council**

**ACTION REQUESTED BY PETITIONER: Discuss allowing E-bikes on city trails**

## **BACKGROUND INFORMATION:**

Under the current ordinance all motorized vehicles are prohibited on Alpine City open space, and it has been interpreted that this applies to all types of e-bikes. However, both the State of Utah and the United States Forest Service define certain types of e-bikes (Class 1, Class 2, or Class 3) as a “bicycle”.

Staff has recommended that Alpine City consider defining “bicycle” the same as the State of Utah and the United States Forest Service to avoid confusion and to make enforcement easier. The City Council discussed e-bikes at the January 14, 2020 meeting and indicated that they want to allow Class 1 e-bikes on Alpine City trails.

The table below breaks down the differences between the various classes of e-bikes. See attached files for further information on how e-bikes are defined.

E-Bike Classifications	Peddle Assist	Max. Watts	Max Speed w/ Assist	Speedometer	Electric Assist
Class 1	Yes	750 (1h.p.)	20 mph	No	Yes
Class 2	No	750 (1h.p.)	20 mph	No	Yes
Class 3	Yes	750 (1h.p.)	28 mph	Yes	Yes

**Effective 5/14/2019**

**41-6a-102 Definitions.**

As used in this chapter:

- (1) "Alley" means a street or highway intended to provide access to the rear or side of lots or buildings in urban districts and not intended for through vehicular traffic.
- (2) "All-terrain type I vehicle" means the same as that term is defined in Section 41-22-2.
- (3) "Authorized emergency vehicle" includes:
  - (a) fire department vehicles;
  - (b) police vehicles;
  - (c) ambulances; and
  - (d) other publicly or privately owned vehicles as designated by the commissioner of the Department of Public Safety.
- (4) "Autocycle" means the same as that term is defined in Section 53-3-102.
- (5)
  - (a) "Bicycle" means a wheeled vehicle:
    - (i) propelled by human power by feet or hands acting upon pedals or cranks;
    - (ii) with a seat or saddle designed for the use of the operator;
    - (iii) designed to be operated on the ground; and
    - (iv) whose wheels are not less than 14 inches in diameter.
  - (b) "Bicycle" includes an electric assisted bicycle.
  - (c) "Bicycle" does not include scooters and similar devices.
- (6)
  - (a) "Bus" means a motor vehicle:
    - (i) designed for carrying more than 15 passengers and used for the transportation of persons; or
    - (ii) designed and used for the transportation of persons for compensation.
  - (b) "Bus" does not include a taxicab.
- (7)
  - (a) "Circular intersection" means an intersection that has an island, generally circular in design, located in the center of the intersection where traffic passes to the right of the island.
  - (b) "Circular intersection" includes:
    - (i) roundabouts;
    - (ii) rotaries; and
    - (iii) traffic circles.
- (8) "Class 1 electric assisted bicycle" means an electric assisted bicycle described in Subsection (17)(d)(i).
- (9) "Class 2 electric assisted bicycle" means an electric assisted bicycle described in Subsection (17)(d)(ii).
- (10) "Class 3 electric assisted bicycle" means an electric assisted bicycle described in Subsection (17)(d)(iii).
- (11) "Commissioner" means the commissioner of the Department of Public Safety.
- (12) "Controlled-access highway" means a highway, street, or roadway:
  - (a) designed primarily for through traffic; and
  - (b) to or from which owners or occupants of abutting lands and other persons have no legal right of access, except at points as determined by the highway authority having jurisdiction over the highway, street, or roadway.
- (13) "Crosswalk" means:

- (a) that part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from:
    - (i)
      - (A) the curbs; or
      - (B) in the absence of curbs, from the edges of the traversable roadway; and
    - (ii) in the absence of a sidewalk on one side of the roadway, that part of a roadway included within the extension of the lateral lines of the existing sidewalk at right angles to the centerline; or
  - (b) any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.
- (14) "Department" means the Department of Public Safety.
- (15) "Direct supervision" means oversight at a distance within which:
- (a) visual contact is maintained; and
  - (b) advice and assistance can be given and received.
- (16) "Divided highway" means a highway divided into two or more roadways by:
- (a) an unpaved intervening space;
  - (b) a physical barrier; or
  - (c) a clearly indicated dividing section constructed to impede vehicular traffic.
- (17) "Electric assisted bicycle" means a bicycle with an electric motor that:
- (a) has a power output of not more than 750 watts;
  - (b) has fully operable pedals on permanently affixed cranks;
  - (c) is fully operable as a bicycle without the use of the electric motor; and
  - (d) is one of the following:
    - (i) an electric assisted bicycle equipped with a motor or electronics that:
      - (A) provides assistance only when the rider is pedaling; and
      - (B) ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour;
    - (ii) an electric assisted bicycle equipped with a motor or electronics that:
      - (A) may be used exclusively to propel the bicycle; and
      - (B) is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour; or
    - (iii) an electric assisted bicycle equipped with a motor or electronics that:
      - (A) provides assistance only when the rider is pedaling;
      - (B) ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour; and
      - (C) is equipped with a speedometer.
- (18)
- (a) "Electric personal assistive mobility device" means a self-balancing device with:
    - (i) two nontandem wheels in contact with the ground;
    - (ii) a system capable of steering and stopping the unit under typical operating conditions;
    - (iii) an electric propulsion system with average power of one horsepower or 750 watts;
    - (iv) a maximum speed capacity on a paved, level surface of 12.5 miles per hour; and
    - (v) a deck design for a person to stand while operating the device.
  - (b) "Electric personal assistive mobility device" does not include a wheelchair.
- (19) "Explosives" means a chemical compound or mechanical mixture commonly used or intended for the purpose of producing an explosion and that contains any oxidizing and combustible units or other ingredients in proportions, quantities, or packing so that an ignition by fire, friction, concussion, percussion, or detonator of any part of the compound or mixture may cause a

- sudden generation of highly heated gases, and the resultant gaseous pressures are capable of producing destructive effects on contiguous objects or of causing death or serious bodily injury.
- (20) "Farm tractor" means a motor vehicle designed and used primarily as a farm implement, for drawing plows, mowing machines, and other implements of husbandry.
- (21) "Flammable liquid" means a liquid that has a flashpoint of 100 degrees F. or less, as determined by a tagliabue or equivalent closed-cup test device.
- (22) "Freeway" means a controlled-access highway that is part of the interstate system as defined in Section 72-1-102.
- (23) "Gore area" means the area delineated by two solid white lines that is between a continuing lane of a through roadway and a lane used to enter or exit the continuing lane including similar areas between merging or splitting highways.
- (24) "Gross weight" means the weight of a vehicle without a load plus the weight of any load on the vehicle.
- (25) "Highway" means the entire width between property lines of every way or place of any nature when any part of it is open to the use of the public as a matter of right for vehicular travel.
- (26) "Highway authority" means the same as that term is defined in Section 72-1-102.
- (27)
- (a) "Intersection" means the area embraced within the prolongation or connection of the lateral curblines, or, if none, then the lateral boundary lines of the roadways of two or more highways that join one another.
- (b) Where a highway includes two roadways 30 feet or more apart:
- (i) every crossing of each roadway of the divided highway by an intersecting highway is a separate intersection; and
- (ii) if the intersecting highway also includes two roadways 30 feet or more apart, then every crossing of two roadways of the highways is a separate intersection.
- (c) "Intersection" does not include the junction of an alley with a street or highway.
- (28) "Island" means an area between traffic lanes or at an intersection for control of vehicle movements or for pedestrian refuge designated by:
- (a) pavement markings, which may include an area designated by two solid yellow lines surrounding the perimeter of the area;
- (b) channelizing devices;
- (c) curbs;
- (d) pavement edges; or
- (e) other devices.
- (29) "Lane filtering" means, when operating a motorcycle other than an autocycle, the act of overtaking and passing another vehicle that is stopped in the same direction of travel in the same lane.
- (30) "Law enforcement agency" means the same as that term is as defined in Section 53-1-102.
- (31) "Limited access highway" means a highway:
- (a) that is designated specifically for through traffic; and
- (b) over, from, or to which neither owners nor occupants of abutting lands nor other persons have any right or easement, or have only a limited right or easement of access, light, air, or view.
- (32) "Local highway authority" means the legislative, executive, or governing body of a county, municipal, or other local board or body having authority to enact laws relating to traffic under the constitution and laws of the state.
- (33)
- (a) "Low-speed vehicle" means a four wheeled electric motor vehicle that:
- (i) is designed to be operated at speeds of not more than 25 miles per hour; and

- (ii) has a capacity of not more than six passengers, including a conventional driver or fallback-ready user if on board the vehicle, as those terms are defined in Section 41-26-102.1.
  - (b) "Low-speed vehicle" does not include a golfcart or an off-highway vehicle.
- (34) "Metal tire" means a tire, the surface of which in contact with the highway is wholly or partly of metal or other hard nonresilient material.
- (35)
- (a) "Mini-motorcycle" means a motorcycle or motor-driven cycle that has a seat or saddle that is less than 24 inches from the ground as measured on a level surface with properly inflated tires.
  - (b) "Mini-motorcycle" does not include a moped or a motor assisted scooter.
  - (c) "Mini-motorcycle" does not include a motorcycle that is:
    - (i) designed for off-highway use; and
    - (ii) registered as an off-highway vehicle under Section 41-22-3.
- (36) "Mobile home" means:
- (a) a trailer or semitrailer that is:
    - (i) designed, constructed, and equipped as a dwelling place, living abode, or sleeping place either permanently or temporarily; and
    - (ii) equipped for use as a conveyance on streets and highways; or
  - (b) a trailer or a semitrailer whose chassis and exterior shell is designed and constructed for use as a mobile home, as defined in Subsection (36)(a), but that is instead used permanently or temporarily for:
    - (i) the advertising, sale, display, or promotion of merchandise or services; or
    - (ii) any other commercial purpose except the transportation of property for hire or the transportation of property for distribution by a private carrier.
- (37)
- (a) "Moped" means a motor-driven cycle having:
    - (i) pedals to permit propulsion by human power; and
    - (ii) a motor that:
      - (A) produces not more than two brake horsepower; and
      - (B) is not capable of propelling the cycle at a speed in excess of 30 miles per hour on level ground.
  - (b) If an internal combustion engine is used, the displacement may not exceed 50 cubic centimeters and the moped shall have a power drive system that functions directly or automatically without clutching or shifting by the operator after the drive system is engaged.
  - (c) "Moped" does not include:
    - (i) an electric assisted bicycle; or
    - (ii) a motor assisted scooter.
- (38)
- (a) "Motor assisted scooter" means a self-propelled device with:
    - (i) at least two wheels in contact with the ground;
    - (ii) a braking system capable of stopping the unit under typical operating conditions;
    - (iii) an electric motor not exceeding 2,000 watts;
    - (iv) either:
      - (A) handlebars and a deck design for a person to stand while operating the device;
      - (B) handlebars and a seat designed for a person to sit, straddle, or stand while operating the device; and
    - (v) a design for the ability to be propelled by human power alone; and
    - (vi) a maximum speed of 20 miles per hour on a paved level surface.

- (b) "Motor assisted scooter" does not include:
  - (i) an electric assisted bicycle; or
  - (ii) a motor-driven cycle.
- (39)
  - (a) "Motor vehicle" means a vehicle that is self-propelled and a vehicle that is propelled by electric power obtained from overhead trolley wires, but not operated upon rails.
  - (b) "Motor vehicle" does not include:
    - (i) vehicles moved solely by human power;
    - (ii) motorized wheelchairs;
    - (iii) an electric personal assistive mobility device;
    - (iv) an electric assisted bicycle;
    - (v) a motor assisted scooter;
    - (vi) a personal delivery device, as defined in Section 41-6a-1119; or
    - (vii) a mobile carrier, as defined in Section 41-6a-1120.
- (40) "Motorcycle" means:
  - (a) a motor vehicle, other than a tractor, having a seat or saddle for the use of the rider and designed to travel with not more than three wheels in contact with the ground; or
  - (b) an auticycle.
- (41)
  - (a) "Motor-driven cycle" means a motorcycle, moped, and a motorized bicycle having:
    - (i) an engine with less than 150 cubic centimeters displacement; or
    - (ii) a motor that produces not more than five horsepower.
  - (b) "Motor-driven cycle" does not include:
    - (i) an electric personal assistive mobility device;
    - (ii) a motor assisted scooter; or
    - (iii) an electric assisted bicycle.
- (42) "Off-highway implement of husbandry" means the same as that term is defined under Section 41-22-2.
- (43) "Off-highway vehicle" means the same as that term is defined under Section 41-22-2.
- (44) "Operate" means the same as that term is defined in Section 41-1a-102.
- (45) "Operator" means:
  - (a) a human driver, as defined in Section 41-26-102.1, that operates a vehicle; or
  - (b) an automated driving system, as defined in Section 41-26-102.1, that operates a vehicle.
- (46)
  - (a) "Park" or "parking" means the standing of a vehicle, whether the vehicle is occupied or not.
  - (b) "Park" or "parking" does not include:
    - (i) the standing of a vehicle temporarily for the purpose of and while actually engaged in loading or unloading property or passengers; or
    - (ii) a motor vehicle with an engaged automated driving system that has achieved a minimal risk condition, as those terms are defined in Section 41-26-102.1.
- (47) "Peace officer" means a peace officer authorized under Title 53, Chapter 13, Peace Officer Classifications, to direct or regulate traffic or to make arrests for violations of traffic laws.
- (48) "Pedestrian" means a person traveling:
  - (a) on foot; or
  - (b) in a wheelchair.
- (49) "Pedestrian traffic-control signal" means a traffic-control signal used to regulate pedestrians.

- (50) "Person" means a natural person, firm, copartnership, association, corporation, business trust, estate, trust, partnership, limited liability company, association, joint venture, governmental agency, public corporation, or any other legal or commercial entity.
- (51) "Pole trailer" means a vehicle without motive power:
- (a) designed to be drawn by another vehicle and attached to the towing vehicle by means of a reach, or pole, or by being boomed or otherwise secured to the towing vehicle; and
  - (b) that is ordinarily used for transporting long or irregular shaped loads including poles, pipes, or structural members generally capable of sustaining themselves as beams between the supporting connections.
- (52) "Private road or driveway" means every way or place in private ownership and used for vehicular travel by the owner and those having express or implied permission from the owner, but not by other persons.
- (53) "Railroad" means a carrier of persons or property upon cars operated on stationary rails.
- (54) "Railroad sign or signal" means a sign, signal, or device erected by authority of a public body or official or by a railroad and intended to give notice of the presence of railroad tracks or the approach of a railroad train.
- (55) "Railroad train" means a locomotive propelled by any form of energy, coupled with or operated without cars, and operated upon rails.
- (56) "Right-of-way" means the right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian approaching under circumstances of direction, speed, and proximity that give rise to danger of collision unless one grants precedence to the other.
- (57)
- (a) "Roadway" means that portion of highway improved, designed, or ordinarily used for vehicular travel.
  - (b) "Roadway" does not include the sidewalk, berm, or shoulder, even though any of them are used by persons riding bicycles or other human-powered vehicles.
  - (c) "Roadway" refers to any roadway separately but not to all roadways collectively, if a highway includes two or more separate roadways.
- (58) "Safety zone" means the area or space officially set apart within a roadway for the exclusive use of pedestrians and that is protected, marked, or indicated by adequate signs as to be plainly visible at all times while set apart as a safety zone.
- (59)
- (a) "School bus" means a motor vehicle that:
    - (i) complies with the color and identification requirements of the most recent edition of "Minimum Standards for School Buses"; and
    - (ii) is used to transport school children to or from school or school activities.
  - (b) "School bus" does not include a vehicle operated by a common carrier in transportation of school children to or from school or school activities.
- (60)
- (a) "Semitrailer" means a vehicle with or without motive power:
    - (i) designed for carrying persons or property and for being drawn by a motor vehicle; and
    - (ii) constructed so that some part of its weight and that of its load rests on or is carried by another vehicle.
  - (b) "Semitrailer" does not include a pole trailer.
- (61) "Shoulder area" means:
- (a) that area of the hard-surfaced highway separated from the roadway by a pavement edge line as established in the current approved "Manual on Uniform Traffic Control Devices"; or

- (b) that portion of the road contiguous to the roadway for accommodation of stopped vehicles, for emergency use, and for lateral support.
- (62) "Sidewalk" means that portion of a street between the curb lines, or the lateral lines of a roadway, and the adjacent property lines intended for the use of pedestrians.
- (63) "Solid rubber tire" means a tire of rubber or other resilient material that does not depend on compressed air for the support of the load.
- (64) "Stand" or "standing" means the temporary halting of a vehicle, whether occupied or not, for the purpose of and while actually engaged in receiving or discharging passengers.
- (65) "Stop" when required means complete cessation from movement.
- (66) "Stop" or "stopping" when prohibited means any halting even momentarily of a vehicle, whether occupied or not, except when:
  - (a) necessary to avoid conflict with other traffic; or
  - (b) in compliance with the directions of a peace officer or traffic-control device.
- (67) "Street-legal all-terrain vehicle" or "street-legal ATV" means an all-terrain type I vehicle, all-terrain type II vehicle, or all-terrain type III vehicle, that is modified to meet the requirements of Section 41-6a-1509 to operate on highways in the state in accordance with Section 41-6a-1509.
- (68) "Traffic" means pedestrians, ridden or herded animals, vehicles, and other conveyances either singly or together while using any highway for the purpose of travel.
- (69) "Traffic signal preemption device" means an instrument or mechanism designed, intended, or used to interfere with the operation or cycle of a traffic-control signal.
- (70) "Traffic-control device" means a sign, signal, marking, or device not inconsistent with this chapter placed or erected by a highway authority for the purpose of regulating, warning, or guiding traffic.
- (71) "Traffic-control signal" means a device, whether manually, electrically, or mechanically operated, by which traffic is alternately directed to stop and permitted to proceed.
- (72)
  - (a) "Trailer" means a vehicle with or without motive power designed for carrying persons or property and for being drawn by a motor vehicle and constructed so that no part of its weight rests upon the towing vehicle.
  - (b) "Trailer" does not include a pole trailer.
- (73) "Truck" means a motor vehicle designed, used, or maintained primarily for the transportation of property.
- (74) "Truck tractor" means a motor vehicle:
  - (a) designed and used primarily for drawing other vehicles; and
  - (b) constructed to carry a part of the weight of the vehicle and load drawn by the truck tractor.
- (75) "Two-way left turn lane" means a lane:
  - (a) provided for vehicle operators making left turns in either direction;
  - (b) that is not used for passing, overtaking, or through travel; and
  - (c) that has been indicated by a lane traffic-control device that may include lane markings.
- (76) "Urban district" means the territory contiguous to and including any street, in which structures devoted to business, industry, or dwelling houses are situated at intervals of less than 100 feet, for a distance of a quarter of a mile or more.
- (77) "Vehicle" means a device in, on, or by which a person or property is or may be transported or drawn on a highway, except a mobile carrier, as defined in Section 41-6a-1120, or a device used exclusively on stationary rails or tracks.

Amended by Chapter 49, 2019 General Session

Amended by Chapter 391, 2019 General Session  
Amended by Chapter 428, 2019 General Session  
Amended by Chapter 459, 2019 General Session



THE SECRETARY OF THE INTERIOR  
WASHINGTON

ORDER NO. 3376

Subject: Increasing Recreational Opportunities through the use of Electric Bikes

**Sec. 1 Purpose.** This Order is intended to increase recreational opportunities for all Americans, especially those with physical limitations, and to encourage the enjoyment of lands and waters managed by the Department of the Interior (Department). This Order simplifies and unifies regulation of electric bicycles (e-bikes) on Federal lands managed by the Department and also decreases regulatory burden.

**Sec. 2 Authorities.** This Order is issued under the authority of section 2 of Reorganization Plan No. 3 of 1950 (64 Stat. 1262), as amended, as well as other relevant statutes.

**Sec. 3 Background.** Bicycling is an excellent way for visitors to Federal lands to experience America's rich natural heritage. Bicycling has been popular in America since the early nineteenth century. Since then, innovation in the design and production of bicycles has dramatically increased mechanical efficiency, opening bicycling to a greater number of people in a larger number of environmental and geographical conditions.

A relatively recent addition to the design of some bicycles is a small electric motor which can provide an electric power assist to the operation of the bicycle. Reducing the physical demand to operate a bicycle has expanded access to recreational opportunities, particularly to those with limitations stemming from age, illness, disability or fitness, especially in more challenging environments, such as high altitudes or hilly terrain.

While e-bikes are operable in the same manner as other types of bicycles and in many cases they appear virtually indistinguishable from other types of bicycles, the addition of a small motor has caused regulatory uncertainty regarding whether e-bikes should be treated in the same manner as other types of bicycles or, alternatively, considered to be motor vehicles. This uncertainty must be clarified. To resolve this uncertainty the Consumer Product Safety Act (Act) provides useful guidance. That Act defines a "low-speed electric bicycle" to include 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", subjecting these low-speed e-bikes to the same consumer product regulations as other types of bicycles (15 U.S.C. § 2085). A majority of States have essentially followed this definition in some form.

Uncertainty about the regulatory status of e-bikes has led the Federal land management agencies to impose restrictive access policies treating e-bikes as motor vehicles, often inconsistent with State and local regulations for adjacent areas. The possibility that in some cases e-bikes can be propelled solely through power provided by the electric motor, a function often used in short duration by older

or disabled riders as an assist, has contributed to confusion about e-bike classification. Further, Federal regulation has not been consistent across the Department and has served to decrease access to Federally owned lands by e-bike riders.

**Sec. 4 Policy.** Consistent with governing laws and regulations:

a) For the purpose of this Order, “e-bikes” shall mean “low-speed electric bicycle” as defined by 15 U.S.C. § 2085 and falling within one of the following classifications:

i) “Class 1 electric bicycle” shall mean an electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour;

ii) “Class 2 electric bicycle” shall mean an electric bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour; and

iii) “Class 3 electric bicycle” shall mean an electric bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour.

b) E-bikes shall be allowed where other types of bicycles are allowed; and

c) E-bikes shall not be allowed where other types of bicycles are prohibited.

**Sec. 5 Implementation.** I direct the Assistant Secretaries for Fish and Wildlife and Parks, Land and Minerals Management, and Water and Science, as appropriate, to do the following:

a) Within 14 days of the date of this Order, unless otherwise prohibited by law or regulation:

i) To the extent existing regulations allow, adopt a Bureau/Service-wide policy that conforms to the policy set forth in Sec. 4 of this Order;

ii) Amend or rescind any prior written policies as appropriate;

iii) Instruct the Director, Fish and Wildlife Service (FWS) to develop a proposed rule to revise 50 CFR § 25.12 and any associated regulations to be consistent with this Order, add a definition for e-bikes consistent with 15 U.S.C. § 2085, and expressly exempt all e-bikes as defined in Sec. 4a from falling under the definition of off-road vehicle;

iv) Instruct the Director, National Park Service (NPS) to develop a proposed rule to revise 36 CFR § 1.4 and any associated regulations to be consistent with this Order, add a definition for e-bikes consistent with 15 U.S.C. § 2085, and expressly exempt all e-bikes as defined in Sec. 4a from the definition of motor vehicles;

v) Instruct the Director, Bureau of Land Management (BLM) to develop a proposed rule to revise 43 CFR § 8340.0-5 and any associated regulations to be consistent with this Order, add a definition for e-bikes consistent with 15 U.S.C. § 2085, and expressly exempt all e-bikes as defined in Sec. 4a from the definition of off-road vehicles or motorized vehicles; and

vi) Instruct the Commissioner, Bureau of Reclamation (BOR) to develop a proposed rule to revise 43 CFR § 420.5 and any associated regulations to be consistent with this Order, add a definition for e-bikes consistent with 15 U.S.C. § 2085, and expressly exempt all e-bikes as defined in Sec. 4a from the definition of off-road vehicles.

- b) Within 30 days of the date of this Order, submit a report to the Secretary including:
- i) A summary of the policy changes enacted in response to this Order;
  - ii) A summary of any laws or regulations that prohibit the full adoption of the policy described by this Order; and
  - iii) A timeline to seek public comment on changing any regulation described above.

c) Within 30 days of the date of this Order, provide appropriate public guidance regarding the use of e-bikes on public lands within units of the National Park System, National Wildlife Refuge System, lands managed by BLM, and lands managed by BOR.

**Sec. 6 Effect of the Order.** This Order is intended to improve the internal management of the Department. This Order and any resulting reports or recommendations are not intended to, and do not create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officers or employees, or any other person. To the extent there is any inconsistency between the provisions of this Order and any Federal laws or regulations, the laws or regulations will control.

**Sec. 7 Expiration Date.** This Order is effective immediately. It will remain in effect until its provisions are implemented and completed, or until it is amended, superseded, or revoked.



Secretary of the Interior

Date: AUG 29 2019



**DATE: June 16, 2016**

**TO HONORABLE MAYOR AND COUNCIL**

Staff is recommending Council consider amending MUNICIPAL CODE TITLE 10, to recognize recent changes to the Utah State Code, specific to electric assisted bicycles and their use, as well as, prohibiting Class III electric bicycles on multi-use pathways. Additionally, the ordinance would prohibit all classes of electric assisted bicycles and any other motorized vehicle on all natural surface trails unless otherwise designated.

**Respectfully:**

Heinrich Deters, Trails and Open Space Program Manager



## City Council Staff Report

**Subject:** Electric Assisted Bicycles  
**Author:** Heinrich Deters and Stuart Johnson  
**Department:** Sustainability Department  
**Date:** June 16, 2016  
**Type of Item:** Legislative

### Summary Recommendation

Staff recommends Council hold a public hearing and approve the following:  
Approve recommended amendments to the Park City Municipal Code Section 10-1-4.5 Non-Motorized Trails Use governing motorized and electric assisted bicycle use on public multi-use pathways and natural surface trails. (Attachment I)

### Executive Summary

Staff is recommending Council consider amending MUNICIPAL CODE TITLE 10, to recognize recent changes to the Utah State Code, specific to electric assisted bicycles and their use, as well as, prohibiting Class III electric bicycles on multi-use pathways. Additionally, the ordinance would prohibit all classes of electric assisted bicycles and any other motorized vehicle on all natural surface trails unless otherwise designated.

### Acronyms

E-Bikes: Electric Assisted Bicycles  
NITC: National Institute for Transportation and Communities

### The Problem

Electric assisted bicycles are becoming increasingly popular. E-Bikes can be useful for recreation and commuting and can allow a more diverse population to use a bike instead of a car. As E-bike numbers increase, potential questions arise per their compatibility with other users and specifically, the appropriateness of where they should be allowed. There are many different types of E-Bikes and until recently, E-Bikes were defined under Utah State law as both a subcategory of moped and a subcategory of bicycle. These combined ambiguities made regulation difficult. In 2016, Utah Legislature redefined E-Bikes as a subset of Bicycles and identified 3 classes of E-Bike.

### Background

In October of 2013, staff contracted with Fehr and Peers, a professional traffic engineering and transportation planning firm, to draft a technical report on the use and governmental regulation of electric assisted bicycles and electric assisted personal mobility devices (Segways). Fehr and Peers completed the report in January of 2014 and presented it to staff. Staff presented the report and recommendations based on the report to Council on May 29, 2014.

In April of 2015 Staff returned to Council specifically to adopt legislation associated with the definitions and use of electric assisted bicycles within City limits. The ordinance identified a one year pilot program, with a sunset of December 31, 2015, which allowed electric assisted bicycles on most multi-use pathways as defined and prohibited all motorized vehicles (including the previously defined electric assisted bicycles) on all natural surface pathways and trails.

This project included data collection efforts associate with electric assisted bicycle use within City limits.

Date

April 16, 2015

Item

[Electric Assisted Bicycle Staff Report Page 137](#)  
[April 16, 2015 City Council Minutes-Page 4 E-Bikes](#)

### Alternatives for City Council to Consider

**1. Recommended Alternative:** Staff recommends Council provide policy direction on the use of electronic assisted bicycles which meets Council's alternative transportation goals, yet maintains safe parameters of use specific to the speeds and infrastructure design of the City's multi-use pathway and natural surface trail network.

Pros: Positive, safe policy approach to alternative transportation that is sustainable and consistent with the Park City general plan and other guiding documents.

Cons: Staff recommendations may impact certain users ability to utilize electric assisted bicycles on natural surface trails and multi-use pathways.

**2. Null Alternative:** Council could simply rely on State Code to govern the use of electric assisted bicycles

Pros: Congruent with State Code

Cons: Staff has expressed concern over speeds and the design/capabilities of electronic assisted bikes on certain infrastructure, specifically natural surface trails.

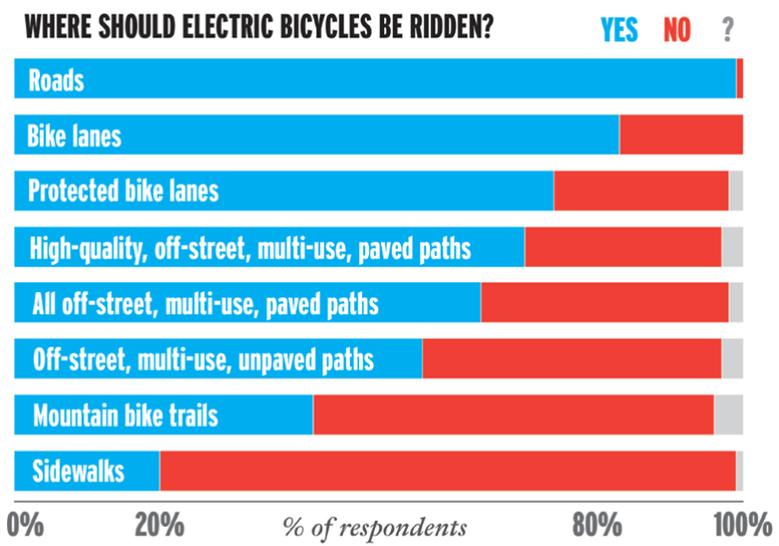
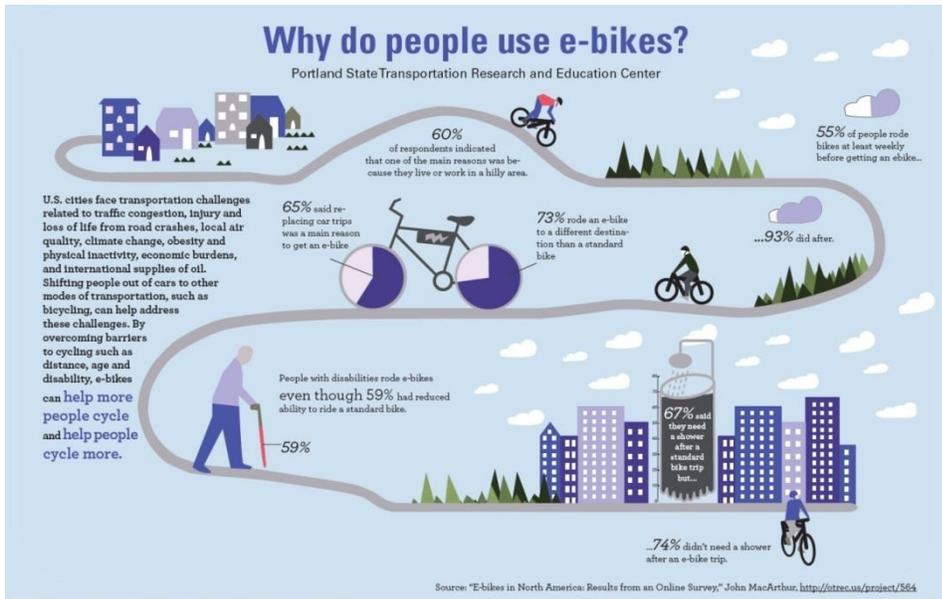
### Analysis

#### *Recent National Electric Assisted Bicycle Public Survey*

The League of American Bicyclists recently provided a national survey opportunity to help gauge different aspects associated with the public's perception of electric bikes, including what constitutes an electric bike and where electric bike use is appropriate. [Perceptions of E Bikes Report](#)

Below are some of the conclusions from the report, as well as, a survey denoting the appropriateness of their use in specific locations:

- People broadly believe in the positive benefits of electric bicycles for transportation and utility bicycling.
- Definition of and what actually constitutes a 'bicycle' is not exactly congruent with the public perception.
- E-bikes support greater use of the bicycle as a transportation choice



### Pilot-Program Report

As directed, staff implemented a pilot program to better understand the use of electric assisted bicycles on the Park City Trail system. The main components of the survey included on site observations (speed counts) and public input via intercept surveys and an online survey. Over 500 users participated in the survey. The survey focused on the appropriateness of where electric assisted bicycles should be utilized and the compatibility of which the use, specific to speed, presents safety concerns. Finally, staff explored reported police and/or safety incidents.

Staff has provided a link to the complete report: [E-Bike Evaluation and Survey Report](#)

Additionally, below is a brief synopsis of the findings.

The first table shows speed counts which were taken along the Poison Creek Trail, which exhibits a significant grade and has been a concern for staff and Council. The most important aspect of this table shows that the speed differences between electric assisted bicycles and conventional bicycles is negligible.

#### SPOT SPEED COUNTS

The spot speed studies were performed manually by radar during regular weather conditions. Table 1 shows the average and maximum spot speeds at Poison Creek and Rail Trail. As shown, e-bikes are travelling within two miles per hours as regular bikes on average, but the maximum observed speed of regular bikes was much higher than that of e-bikes.

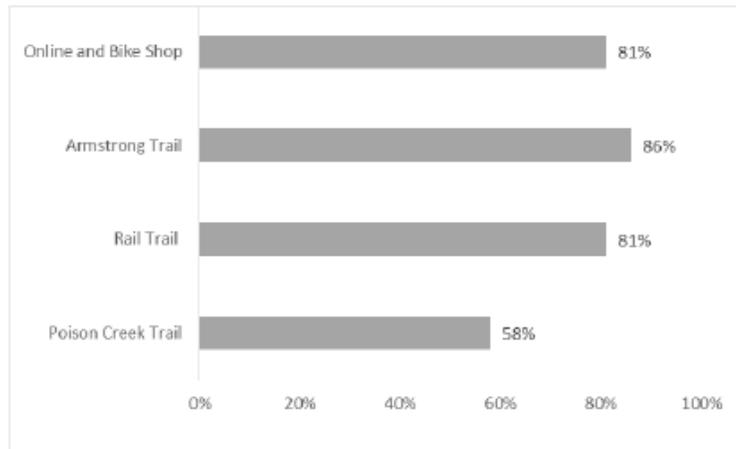
**TABLE 1. SPOT SPEEDS AT POISON CREEK AND RAIL TRAIL**

	Poison Creek		Rail Trail	
	Bikes	E-Bikes	Bikes	E-Bikes
Average Speed (mph)	9	11	11	10
Maximum Speed (mph)	20	13	23	12

Spot Speeds collected in August 9, 2015.  
Source: Fehr and Peers.

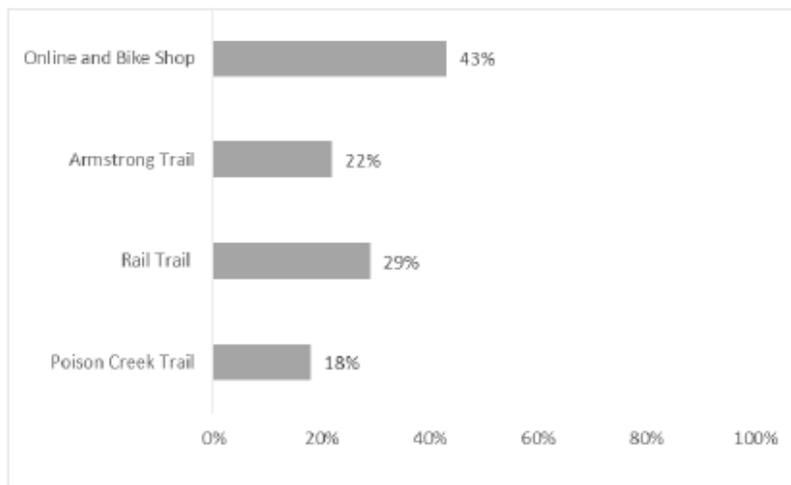
The next table denotes user survey information (online and intercept) per the appropriateness of electric assisted bicycles on paved pathways. There is support for the use from a majority of the intercept survey locations and online.

**FIGURE 11. IN YOUR OPINION, SHOULD E-BIKES BE ALLOWED ON 8' WIDE PAVED CITY BIKE PATHS/TRAILS? YES**



Similar to the table above, the graph below notes user survey information (online and intercept) per the appropriateness of electric assisted bicycles on natural surface trails. The survey notes the public does not support electric assisted bicycles on the natural surface trail system.

**FIGURE 12. IN YOUR OPINION, SHOULD E-BIKES BE ALLOWED ON SOFT (DIRT, SINGLE TRACK) TRAILS? YES**



Below is a final statement by Fehr and Peers, which is in-line with staff recommendations.

## CONCLUSIONS

The majority of the survey answers showed a positive response in regards to the current e-bike use, except when asked if they felt comfortable sharing the path on a soft (dirt) trail. The major concern appeared to be speed. However, this fear is not substantiated by the speed data that showed e-bikes typically travel at about the same speed as bikes and bikes are often travelling at even higher maximum speeds than the e-bikes. Many people commented that as long as e-bikers do not go beyond the specified speed limits they would feel comfortable to be in the same path. Another major concern was to make sure that motorcycled vehicles don't start making their way into the trails. Various comments showed the fear that if e-bikes are allowed right now, scooters may eventually be allowed in the trails.

In summary, based on the collected data and survey responses, Fehr & Peers recommends that the use of e-bikes on specified paved trails and pathways continue to be allowed. It is encouraged that a permanent ordinance be put in place to allow for this action. E-bikes will also encourage more individuals to get out of their single-occupant vehicles (SOV) and help reduce the traffic congestion and better the air quality for the community. It should also be noted, that the Park City Transportation Demand Management (TDM) Plan recommends a City e-bike bike-share system be implemented as a strategy to reduce vehicle miles traveled (VMT) and SOV's around town.

### *Police Reports/Data*

There were no reported police incidents involving electric assisted bicycles during the pilot program.

### **Utah State Code and Park City Municipal Code**

During the 2016 Utah Legislative Session, a major overhaul of the definitions and use parameters of electric bikes were proposed and adopted. Staff has provided links to the State Code sections.

- [Applicable Electric Assisted Bicycle DEFINITIONS](#)
- [Applicable Electric Assisted Bicycle USES and RESTRICTIONS](#)

Below is a synopsis of those applicable changes:

1. *Definition:* A **bicycle not a moped/motorized vehicle.**
2. *Definition:* Utah Code classifies three types of electric bicycles, all limited to **750 watts (previously 1,000 watts)**. The three classes provide a distinction to the method of how the 'assist' is provided (**throttle or pedal assist**) AND the **top speed (20mph or 28mph)** in which the assist is limited.
  - a. **Class I-** (pedal assist) top speed of electric assist limit to 20mph
  - b. **Class II-** (throttle assist) top speed of electric assist limited to 20mph
  - c. **Class III-** (pedal assist) top speed of electric assist limited to 28mph. Equipped with a speedometer.
3. *Use:* The requirement of a driver's license was also removed to make the technology more available; however, age restrictions are still in place per the use of those under 16 years of age.
4. *Use:* Utah Code notes that use of electric bicycles is permitted

on all infrastructure designed for bicycle use HOWEVER, local jurisdictions may further restrict these parameters. (ordinances/signage) (Title 41-6a-1115.5 (3)) A local authority or state agency may adopt an ordinance or rule to regulate or restrict the use of an electric assisted bicycle, or a specific classification of an electric assisted bicycle, on a sidewalk, path, or trail within the jurisdiction of the local authority or state agency.

#### *Park City Municipal Code*

Title 10 of the Park City Municipal Code (Motor Vehicle) incorporates definitions and uniform traffic measures from the Utah State Code (Title 41). Therefore, existing City traffic code mirrors the State Code. Any new definition or use for electric assisted bicycles (which is different than the State Code definitions) must be adopted locally by ordinance. ***The ordinance amendments recommended by staff narrows the use parameters within city limits specific for multi-use pathways and natural surface trails.***

#### ***Staff recommended restrictions on electric assisted bicycles***

Recognizing the aforementioned use parameters (Title 41-6a-1115.5 (2)) *electric assisted bicycles are allowed on path or trail designed for the use of a bicycle*, staff finds that it is prudent to further restrict electric assisted bicycle use.

#### *Multi-use Pathway Restrictions*

Staff recommends Class III electric assisted bicycles, with the ability to be assisted up to 28mph are prohibited on multi-use pathways unless designated otherwise. This prohibition is specific to safety concerns by staff as the majority of pathways within Park City are only 8' wide and not designed to handle such speeds. Furthermore, the amount of use and multiple uses associated with most multi-use pathways would possibly present safety concerns. This prohibition would move use of the Class III type electric assisted bicycles to roadways, bike lanes and shoulders, which staff finds more appropriate for the subsequent speeds.

*Staff supports Class I and Class II electric assisted bicycle use on multi-use pathways as defined.*

#### *Natural Surface Trail Prohibition*

Staff maintains that, electric assisted bicycle use and all motorized use on natural surface trails, outside of maintenance, emergency response and in accordance with mobility impaired users, should be prohibited. Furthermore, this determination provides clear parameters for where use is allowed and should be expected, in addition to where it is prohibited.

#### *Community Input and Stakeholders*

*How do local Stakeholders and Jurisdictions find these recommendations?*

Staff has reached out to the following stakeholders, in addition to members of the general public, to better understand their thoughts and/or concerns with proposed

recommendations.

- *Bike Utah*

Bike Utah recommends posting speed limits on paved pathways especially at congested areas.

- *Mountain Trails Foundation (MTF)*

The Mountain Trails Foundation supports the use and restrictions as recommended by staff. Additionally, State Parks, who owns all of the Rail Trail except the first 1000 feet, allows use of electric assisted bikes in accordance with current State Code. Thus, all classes of electric assisted bicycles will be allowed.

- *Summit Lands Conservancy (SLC)*

Summit Lands Conservancy supports the staff recommendations and acknowledges that the minimal impact by electric assist bicycles and the non-motorized definition are consistent with the conservation easement.

- *Park City Mountain Resort and Deer Valley Resort*

Both resorts support the use and restrictions as recommended by staff and propose to implement similar measures on their private property. The resorts reserve the right to allow special event type use of electric assisted bicycles on trails entirely on their property.

- *Snyderville Basin Special Recreation District (SBSRD)*

SBSRD supports the use and restrictions as recommended by staff and is currently in the process of presenting proposals to their board and County Council once Park City has provided direction. This is to encourage a seamless approach to the project.

- *National Ability Center (NAC)*

NAC supports the use and restrictions as recommended by staff; specifically as it notes the caveat of mobility impaired users on both multi-use pathways and natural surface trails. Staff will continue to work with the NAC as new technologies evolve, specific to 'Power Driven Mobility Devices'.

## **Department Review**

This report has been reviewed by the Sustainability, the City Attorney's Office and Executive Departments.

## **Funding Source**

Funding for the pilot program is projected to come from the Trails Master Plan.

## **Recommendation**

Approve recommended amendments to the Park City Municipal Code Section 10-1-4.5 Non-Motorized Trail Use governing motorized and electric bicycle use on public multi-use pathways and natural surface trails. (Attachment I)

## **Attachments**

Attachment I-Non-Motorized Trail Use

## Attachment I- Non-Motorized Trail Use Ordinance

### ORDINANCE 2016-29

#### AN ORDINANCE AMENDING TITLE 10, CHAPTER 1 SECTION 4.5, NON-MOTORIZED TRAIL USE, OF THE PARK CITY MUNICIPAL CODE.

WHERE AS THE CITY COUCIL OF PARK CITY, UTAH, FINDS AND RECITES THE FOLLOWING:

- A. The 2008 Trails Master Plan update and the 2011 Park City Traffic and Transportation Master Plan builds on a strong foundation of success by 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 for creating a safe and efficient connected active transportation system.
- B. The ordinance allows the introduction of new strategies to increase bicycle mode share and encourage more people to safely complete trips by bicycle.
- C. In order to provide assurance that the use of electric assisted bicycles as an alternate mode of transportation contemplated by this program is safe, prudent, and in the best interest of all users of the city's multi-use path system, city staff evaluated the following factors and data on an ongoing basis:
  - a. The number of electric assisted bicycles on multi-use pathways;
  - b. The speeds associated with electric assisted bicycles on multi-use pathways;
  - c. Public input gathered pertaining to the pilot project;
  - d. The number of reported incidents and risk management claims involving electric assisted bicycles occurring on multi-use paths that results in severe injury or fatality;

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF PARK CITY, UTAH:

Section 1. Municipal Code of the Park City section 10-1-4.5 is hereby amended as follows:

#### 10-1-4 UNIFORM TRAFFIC CODE.

U.C.A.41-6a, as amended to this date, is hereby adopted by Park City in full as a Uniform Traffic Code, except as conflicts with Section 4.5 below, and shall be cited as the Municipal Code of Park City, Utah, Section 10-6a and the Sections shall parallel the corresponding Utah Code sections in Chapter 6a and be so cited.

#### 10-1-4.5 NON-MOTORIZED TRAIL USE

~~(A) DEFINITIONS.~~

- ~~(1) "Electric assisted bicycle" means a moped~~
- ~~a. with an electric motor with a power output of not more than 750 watts; and~~
  - ~~b. which is not capable of:~~
    - ~~i. Propelling the device at a speed of more than 20 miles per hour on level ground when~~
      - ~~1. Powered solely by the electric motor; and~~
      - ~~2. Operated by a person who weighs 170 pounds; and~~
    - ~~ii. Increasing the speed of the device when human power is used to propel the device at more than 20 miles per hour;~~
  - ~~c. has fully operable pedals on a permanently affixed cranks; and~~
  - ~~d. weighs less than 75 pounds~~

- (1) "Multi-Use Pathway" means a way or path no less than eight (8') feet in width that has a surface of concrete or asphalt and is separated from the roadway by an open space, a curb or other barrier.
- (2) "Natural Surface Trail" means a way or route with a surface other than concrete or asphalt, which serves the primary purpose of passive recreational use, such as hiking, mountain biking, snowshoeing, cross-country skiing and equestrian activities.
- (3) "Power Driven Mobility Device" means any mobility device powered by batteries, fuel, or other engines, that is used by individuals with mobility disabilities for the purpose of locomotion, including electric personal assistive mobility devices, electric-assisted bicycles, electric-powered foot scooters, tracked mobility chairs or tricycles that are designed to transport a single individual with a disability.

(B) PROHIBITION.

1. It is unlawful to operate any motor vehicle, motor driven cycle, motorcycle, mini motorcycle, motor scooter, motor bikes, snowmobiles, full sized all-terrain vehicle, all-terrain vehicle, off highway vehicle, low speed vehicle, moped, electric assisted bicycle or golf cart on a ~~multi-use pathway~~ or natural surface trail with the following exceptions:

~~(2) — This prohibition shall not apply to an electric assisted bicycle on a multi-use pathway unless prohibited by a designated traffic control device.~~

- a. This prohibition shall not apply to persons with mobility disabilities who choose to use a Power-Driven Mobility Device, which is designed to transport a single individual with a disability as a substitute for walking and or biking unless prohibited by a designated traffic control device.
- b. This prohibition shall not apply to motorized or self-propelled equipment used for maintenance or events as designated by the local highway authority. Emergency vehicles are also exempt from this provision.

2. It is unlawful to operate any motor vehicle, motor driven cycle, motorcycle, mini motorcycle, motor scooter, motor bikes, snowmobiles, full sized all-terrain vehicle, all-terrain vehicle, off highway vehicle, low speed vehicle, moped, Class III electric assisted bicycle or golf cart on a multi-use pathway or ~~natural surface trail~~ with the following exceptions:

a. This prohibition shall not apply to persons with mobility disabilities who choose to use a Power-Driven Mobility Device, which is designed to transport a single individual with a disability as a substitute for walking and or biking unless prohibited by a designated traffic control device.

b. This prohibition shall not apply to motorized or self-propelled equipment used for maintenance or events as designated by the local highway authority. Emergency vehicles are also exempt from this provision.

(C) PENALTY. Any person violating the provisions of the Ordinance shall be guilty of a Class B misdemeanor.

(D) ENFORCEMENT. The Park City Police Department, upon notification shall have authority to investigate violations of this section and issue citations.

Section 2. Effective Date. This Ordinance shall take effect upon publication by City Council.

PASSED AND ADOPTED THIS 16<sup>th</sup> DAY OF JUNE, 2016.

PARK CITY MUNICIPAL CORPORATION

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Jack Thomas, Mayor

Attest:

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Michelle Kellogg, City Recorder

Approved as to form:

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Mark Harrington, City Attorney

Original Paper

# Pedal-Assist Mountain Bikes: A Pilot Study Comparison of the Exercise Response, Perceptions, and Beliefs of Experienced Mountain Bikers

Cougar Hall<sup>1\*</sup>, PhD; Taylor H Hoj<sup>2\*</sup>, MPH; Clark Julian<sup>2\*</sup>, BS; Geoff Wright<sup>3\*</sup>, PhD; Robert A Chaney<sup>1\*</sup>, PhD; Benjamin Crookston<sup>1\*</sup>, PhD; Joshua West<sup>1\*</sup>, PhD

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## Abstract

**Background:** Mountain biking is an aerobic physical activity that has experienced rapid growth. The emergence of the electric pedal-assist mountain bike (eMTB), while not without its critics, presents the potential for an even larger segment of the population to enjoy the health benefits of mountain biking. Although the research focused on the use of e-bikes generally is growing, there is limited research specifically targeting eMTB use. Research is needed exploring the potential exercise response of riding an eMTB, together with the beliefs and perceptions of mountain bikers who have and have not experienced eMTB riding.

**Objective:** This study aimed to compare conventional mountain bike and eMTB use. This was done by investigating 2 questions: (1) *What proportion of exercise response is retained for an experienced mountain biker while using an eMTB when compared with a conventional mountain bike?* and (2) *What are the perceptions and beliefs of experienced mountain bikers toward eMTBs both before and after riding an eMTB?*

**Methods:** A convergent mixed methods data collection approach was used in the study. Participants completed both a pre- and postride questionnaire, and data regarding heart rate were collected. Heart rates from each ride were compared against each other.

**Results:** The average heart rate during eMTB use was 94% (31/33) of the average heart rate during conventional mountain bike use. Therefore, eMTB use in this study achieved a majority of the exercise response and exceeded established biometric thresholds for cardiovascular fitness. Paired *t* test statistics were calculated to compare beliefs of conventional mountain bikes and eMTBs and to compare mean heart rate and speed between conventional mountain bike and eMTB use on the study loop. Participants overwhelmingly perceived the potential impact of eMTB use to be positive on both pre- and post-eMTB ride questionnaires.

**Conclusions:** Despite the measured benefit, participants' perceived exertion while riding the eMTB was low.

(*JMIR Form Res* 2019;3(3):e13643) doi:[10.2196/13643](https://doi.org/10.2196/13643)

**KEYWORDS**

public health; physical activity; heart rate

## Introduction

Promoting physical activity is an international public health priority [1,2]. The United States Department of Health and Human Services (HHS) recommends that adults engage in moderate aerobic physical activity for at least 150 min each week or vigorous aerobic physical activity for 75 min each week or a combination of both [3]. In spite of the recommendation, the Centers for Disease Control and Prevention (CDC) estimate that only 20.9% of adults in the United States fulfill the recommendation [4]. There are many reasons attributed to the disregard, and potential solutions have been implemented and studied. This study investigated the physical activity of electric pedal-assist mountain biking as a viable solution to improve compliance with HHS recommendations.

Mountain biking is an aerobic physical activity that has experienced rapid growth in the United States [5]. However, mountain biking is often limited or perceived to be limited to those individuals who already enjoy a relatively high level of cardiovascular fitness and endurance. The emergence of electric pedal-assist bikes (e-bikes), and specifically electric pedal-assist mountain bikes (eMTB), presents an opportunity for a larger segment of the population to enjoy the health benefits of mountain biking [6]. A review of e-bike literature supports the hypothesis that e-bike use is a beneficial physical activity for a wide range of individuals with an added benefit of promoting health among individuals otherwise reluctant to engage in physical activity [7-12]. Recent studies suggest that e-bike commuting may be helpful in improving glucose tolerance [10], decreasing perceived exertion and improved enjoyment [11], and reducing barriers to conventional cycling, including commuting [13]. For example, results from a Web-based survey demonstrated that those using an e-bike to ride to work report an ability to ride greater distances while perspiring less, suggesting that e-bikes may reduce some of the personal barriers of conventional cycling as a form of active transport [14]. This combined body of research shows the potential physical health benefits of e-bikes.

A typical e-bike has an electric motor that functions as a pedal-assist, only engaging when the individual pedals. The motor's contribution allows a rider to cycle greater distances and up steeper terrain because of the decreased physical workload [14]. Though heart rate, energy expenditure, oxygen consumption, and intensity is generally lower compared with a conventional bike [7,13], e-bike use still produces moderate physical activity in comparable settings and between groups with differing fitness levels [8,9].

Although the research focused on the use of e-bikes is growing, there is limited research regarding eMTB use. There are 2 studies that investigated heart rate and energy expenditure between e-bike use with conventional bikes [7,13]. Each found that energy use was likely lower with e-bikes. Nevertheless, findings indicate that an e-bike rider still pedals and exerts energy, which may help them meet the physical activity guidelines and gain the associated health benefits. Part of our inquiry is to test this observation with eMTBs, which has not been done previously.

Although the popularity of e-bikes is growing and their benefits related to active transport and physical activity for a broad segment of the population are being established, the introduction of eMTBs to the mountain biking community has been met with much resistance. Concerns have been raised concerning eMTB use and increased trail damage, increased conflict between trail users, a potential for decreased trail access, and the perception that pedal-assist mountain bikes are akin to motorcycles and do not represent *real* mountain biking. These concerns have the potential to limit the adoption of eMTBs by individuals who may benefit from them or otherwise enjoy their use. To date, researchers are yet to explore any aspect of eMTB use, including the potential exercise response of riding an eMTB, as well as the beliefs and perceptions of mountain bikers who have and have not experienced eMTB riding. The purpose of this pilot study was to compare conventional mountain bike and eMTB use. In particular, this study aimed to address 2 research questions: (1) *What proportion of exercise response is retained for an experienced mountain biker while using an eMTB when compared with a conventional mountain bike?* and (2) *What are the perceptions and beliefs of experienced mountain bikers toward eMTBs both before and after riding an eMTB?*

## Methods

### Participants

Experienced mountain bikers aged between 18 and 65 years were recruited to participate in this study. Exclusion criteria included non-mountain bikers and mountain bikers with the inability to engage in moderate to vigorous intensity mountain biking for 12 miles or those who have a medical condition that would prevent them from moderate to vigorous exercise.

### Procedures

The institutional review board at Brigham Young University approved this study. A study announcement was posted to a regional Facebook page popular with local mountain bikers. Individuals wishing to participate were directed to contact the principal investigator via email and set up a time to meet at a local trail system. Upon arrival at the trail system, individuals completed the pre-eMTB ride questionnaire using Qualtrics, a Web-based survey software platform, on their personal phone or the principal investigator's laptop computer. The first pre-eMTB questionnaire item included obtaining the individual's informed consent to participate in the study. Consenting individuals then proceeded to the remainder of the questionnaire. Upon completing the pre-eMTB ride questionnaire, participants were fitted with a heart rate monitor and corresponding Apple Watch. Each Apple Watch was paired to the heart rate monitor and Strava app to record the participant's ride data, including global positioning system (GPS) tracking, total distance traveled, and speed traveled. Next, participants were randomly assigned to ride the 6-mile study loop on either a conventional mountain bike or an eMTB. The study loop included approximately 700 feet of elevation gain spread throughout the ride with the most intense climbing section averaging a 5% incline over a distance of 1 mile. Upon completing the study loop on their initially assigned bike, participants' heart rate and Strava data were saved. Participants then rode the loop again on the remaining

bike—whichever type of bike they did not ride while completing the first loop. After completing the study loop a second time, participant heart rate and Strava data were again saved and each participant then completed the post-eMTB ride questionnaire. The study was completed between May 24 and June 16, 2018.

### Instruments/Measurements

Both conventional mountain bikes and eMTBs were used in this study to establish a comparison between participants' heart rate and speed while riding the study loop. The electric mountain bikes used were Class 1 pedal-assist 2017 Specialized Turbo Levo FSR Comp Carbon 6Fattie models with a maximum assistance speed of 20 mph (32 kph) [15]. Participants were given the option of either riding their own traditional mountain bike or a 2017 Specialized Stumpjumper FSR Comp 6Fattie model—the equivalent of the Turbo Levo model without pedal-assist—while completing the non-eMTB lap of the study loop.

Third-generation Apple brand watches (Apple Watch) were paired with Polar H10 heart rate monitors to record the participants' continuous heart-rate data while completing each lap of the study loop. Total distance, speed, and time while riding was recorded during study laps using Strava, a mobile app using GPS technology available via the App Store for iOS and Apple Watch platforms. A comparison of participants' heart rate was used as a proxy measure to estimate exercise response. Specifically, estimated maximum heart rate (MHR) was calculated by subtracting the age of the study participants from 220. The estimated MHR was then used to establish a target average heart rate range for moderate-intensity physical activity (50%-70% of MHR) and vigorous-intensity physical activity (70%-85% of MHR). These ranges were calculated based on target heart rate recommendations from the CDC and the American Heart Association [16,17].

A total of 2 survey instruments, developed using the Web-based survey software provided by Qualtrics, were used in this study. Survey 1—the pre-eMTB ride questionnaire administered before riding either of the study bikes or loops—was used to gather basic demographic information, mountain biking history and experience data, perceived impact of eMTB use, and beliefs about eMTBs. Survey 2—the post-eMTB ride questionnaire—was administered after participants had completed riding the study loop on both a conventional mountain bike and an eMTB. The questions in Survey 2 were identical to the final questions asked in Survey 1, targeting participants' perceptions and beliefs related to eMTB use.

### Analysis

All statistical analyses were performed using SAS version 9.4 (SAS Institute Inc). Descriptive statistics were used to summarize demographic data from Survey 1. Paired *t* test statistics were calculated to compare beliefs about conventional mountain bikes and eMTBs and to compare mean heart rate and speed between conventional mountain bike and eMTB use on the study loop.

## Results

### Demographics

The majority of participants were male (88%; 29/33), and all identified as non-Hispanic and white. The average age was just under 38 years. All participants had completed at least some college. Complete demographic and mountain biking experience information can be found in Tables 1 and 2. Approximately half (16/33) of participants had more than 10 years of mountain biking experience. The majority (24/33) reported mountain biking at least twice each week. All participants indicated they mountain bike to increase fitness, spend time outdoors, and recreate or have fun. Few participants (n=3) had previously ridden an eMTB before participating in this study.

### Exercise Response

Table 3 provides a comparison of average distance, time, speed, and heart rate metrics between conventional mountain bike and eMTB use as well as paired *t* test results.

Participants traveled approximately 5.5 miles (8.85 km) while riding the study loop. A paired *t* test analysis (Table 3) revealed participants completed the course an average of 12 min and 40 seconds faster when riding the eMTB as opposed to the conventional mountain bike ( $P<.001$ ). The average speed of travel on the eMTB was 4.1 mph (6.6 km/h) faster than on the conventional mountain bike ( $P<.001$ ). Participants' average heart rate during the eMTB ride was 9.9 beats per minute (bpm) lower than during the conventional mountain bike ride ( $P<.001$ ). With a mean age of 37.8 years, participants' estimated MHR was 182 bpm. The target heart rate zone for moderate-intensity exercise (50%-70% of MHR) and vigorous-intensity exercise (70%-85% of MHR) was then calculated to be 91 bpm to 127 bpm ( $0.5 \times 182 = 91.12$ ,  $0.7 \times 182 = 127.4$ ) and 128 bpm to 155 bpm ( $0.7 \times 182 = 127.4$ ,  $0.85 \times 182 = 154.7$ ), respectively [16]. Riding both the conventional mountain bike and the eMTB placed participants' in the upper half of the vigorous-intensity zone (Table 4).

**Table 1.** Demographics (N=33).

Demographics	Value, n (%)
<b>Age (years)</b>	
20-29	7 (21)
30-39	9 (27)
40-49	13 (39)
50 and older	4 (12)
<b>Race</b>	
White	33 (100)
<b>Ethnicity</b>	
Non-Hispanic or Latino	33 (100)
<b>Sex</b>	
Male	29 (88)
Female	4 (12)
<b>Education level</b>	
Some college (not graduated)	8 (24)
2-year college degree	6 (18)
4-year college degree	12 (36)
Master's degree	5 (15)
Doctoral degree	2 (6)
<b>Annual household income (\$ US)</b>	
Less than 30,000	3 (9)
40,000-49,999	2 (6)
50,000-59,999	3 (9)
60,000-69,999	2 (6)
70,000-79,999	3 (9)
80,000-89,999	3 (9)
90,000-99,999	1 (3)
100,000 or more	16 (48)

**Table 2.** Mountain biking experience (N=33).

Mountain biking experience	Value, n (%)
<b>Mountain biking experience<sup>a</sup> (years)</b>	
Less than 1	2 (6)
1-5	7 (23)
6-10	6 (19)
11 and more	16 (52)
<b>During a typical riding season, how often do you mountain bike?</b>	
1-2 days a month	3 (9)
Once a week	6 (18)
2-3 days a week	19 (58)
4-5 days a week	5 (15)
Daily	0 (0)
<b>For which of the following reasons do you ride a mountain bike? (yes)</b>	
Recreation or fun	33 (100)
To spend time with family	16 (48)
To increase fitness	33 (100)
Racing	3 (9)
To spend time with friends	29 (88)
To spend time outdoors	33 (100)
<b>What best describes your bike?</b>	
Cross-country	5 (15)
Trail	11 (33)
All mountain/Enduro	17 (52)
Has previously ridden a class 1 electric pedal-assist mountain bike	3 (9)

<sup>a</sup>N=31.**Table 3.** Riding and exercise response results.

Comparison of distance, time, speed, and heart rate metrics (N=33)	Descriptive statistics		Paired <i>t</i> test: MTB <sup>a</sup> vs eMTB <sup>b</sup>	
	MTB, mean (SD)	eMTB, mean (SD)	Mean difference	<i>P</i> value
Time (min:seconds)	38:54 (7:48)	26:14 (3:45)	12:40	<.001
Average speed (miles per hour)	8.8 (1.4)	12.9 (1.7)	-4.1	<.001
Average heart rate (beats per minute)	154.8 (12.9)	144.9 (13.7)	9.9	<.001

<sup>a</sup>MTB: mountain bike<sup>b</sup>eMTB: electric pedal-assist mountain bike**Table 4.** Riding and exercise response results.

Comparison of distance, time, speed, and heart rate metrics (N=33)	MTB <sup>a</sup> , n (%)	eMTB <sup>b</sup> , n (%)	<i>P</i> value <sup>c</sup>
Moderate-intensity physical activity	2 (6.1)	4 (12.1)	.09
Vigorous-intensity physical activity	31 (93.9)	29 (87.9)	— <sup>d</sup>

<sup>a</sup>MTB: mountain bike<sup>b</sup>eMTB: electric pedal-assist mountain bike<sup>c</sup>Chi-Square: MTB vs eMTB.<sup>d</sup>Not applicable.

## Perceptions

Table 5 includes pre- and post-eMTB ride data related to perceptions of potential impacts of eMTB use. Participants overwhelmingly perceived the potential impact of eMTB use to be positive on both pre- and post-eMTB ride questionnaires. Only “Potentially allows riders to ascend or climb greater distances and elevations in less time on dirt trails” was significantly different on the post-eMTB ride questionnaire, with more participants in agreement that eMTB use would have such an impact.

## Beliefs

Table 6 includes the results of 26 pre- and post-eMTB ride belief statements regarding eMTB use. A total of 4 belief statements

were significantly different after riding the eMTB. Fewer participants agreed that *eMTB use will prove to be a passing fad* and that they *could get the same cardiovascular workout on an eMTB as a conventional mountain bike*, whereas more participants agreed that their *heart rate is considerably lower while riding an eMTB as compared with a conventional mountain bike* and *eMTB use allows riders greater and deeper access to backcountry dirt trails*. Table 7 includes results from the final questionnaire item asking *how beliefs and perceptions about eMTBs changed after riding one* showed that few participants (n=3) were less accepting of eMTBs, some experienced no change (n=8), and the majority (n=20) were more accepting of eMTBs after riding one.

**Table 5.** Perceptions of potential impact of electric pedal-assist mountain bike use (N=32).

Perceptions of potential impacts of electric pedal-assist mountain bike use	Preride (agreed), n (%)	Postride (agreed), n (%)	<i>P</i> value <sup>a</sup>
Potentially allows older riders to continue enjoying mountain biking on dirt trails	32 (100)	30 (94)	.16
Potentially allows less-fit riders to more fully enjoy mountain biking on dirt trails	27 (84)	27 (84)	>.99
Potentially allows injured or disabled riders to continue enjoying mountain biking on dirt trails	32 (100)	31 (97)	.33
Potentially allows riders of varying fitness levels to mountain bike together on dirt trails	25 (78)	26 (81)	.66
Potentially allows all riders to mountain bike longer distances on trails <sup>b</sup>	25 (81)	27 (87)	.33
Potentially allows riders greater and deeper access to the backcountry on dirt trails	25 (78)	28 (88)	.18
Potentially allows riders to ascend or climb greater distances and elevations in less time on dirt trails	23 (72)	29 (91)	.03
Potentially allows riders who may otherwise shuttle the ascent or drive to the top of the trail in a vehicle to ride up on dirt trails	27 (84)	27 (84)	>.99
Potentially increases the appeal of riding on dirt trails to more people	21 (66)	24 (75)	.33
Potentially improves public health outcomes by increasing rates of physical activity	27 (84)	27 (84)	>.99

<sup>a</sup>*P* values were derived from paired *t* tests of preride and postride values. Variables were coded using the following logic: 0=Negative (con), 1=Positive (pro). The significant *P* value (<.05) has been italicized.

<sup>b</sup>N=31.

**Table 6.** Beliefs regarding electric pedal-assist mountain bike use (N=33).

Beliefs regarding eMTB <sup>a</sup> use	Preride (agreed), n (%) <sup>b</sup>	Postride (agreed), n (%) <sup>b</sup>	<i>P</i> value <sup>c</sup>
I believe riding an eMTB is cheating	16 (48)	13 (39)	.11
I believe riding an eMTB is equivalent to riding a motorcycle	4 (12)	5 (15)	.38
I believe if eMTBs are allowed on existing dirt trails, then trail access for all mountain bikers will be compromised	15 (45)	10 (30)	.26
I believe eMTB riders perceive they are actually mountain biking, but they are not; eMTB use is not mountain biking	11 (33)	5 (15)	.23
I believe eMTBs should be banned from existing mountain bike trails and trail systems	6 (18)	6 (18)	.79
I believe eMTB use causes more trail damage compared with conventional mountain bikes	6 (18)	4 (12)	.70
I believe eMTB use should be limited to riders with physical handicaps or impairments	6 (18)	5 (15)	.08
I believe that in the future, eMTB use will replace conventional mountain biking <sup>d</sup>	2 (6)	4 (13)	.26
I believe eMTBs have the potential to help older riders continue to enjoy mountain biking	32 (97)	31 (94)	.60
I believe eMTBs have the potential to help less-fit riders increase their fitness levels and transition to conventional mountain biking	25 (76)	25 (76)	.71
I believe I could get the same cardiovascular workout on an eMTB as I do my conventional mountain bike	14 (42)	5 (15)	.002
I believe my heart rate is considerably lower while riding an eMTB as compared with my conventional mountain bike	18 (55)	28 (85)	<.001
I am opposed to eMTB use	6 (18)	4 (12)	.11
I believe eMTBs are primarily being pushed on cyclist by the industry to make money	5 (15)	7 (21)	.41
I believe eMTB use will have a negative impact on mountain biking	7 (21)	7 (21)	.25
I believe eMTB use will prove to be a passing fad	10 (30)	6 (18)	.03
I am opposed to eMTB use by healthy individuals	8 (24)	8 (24)	.45
I am opposed to eMTB use on the same trails as conventional mountain biking	7 (21)	7 (21)	.32
I am fine with pedal-assist bike use on the street, but I am opposed to their use on dirt trails	7 (21)	6 (18)	.14
I believe eMTB use allows riders of varying fitness levels to mountain bike together on dirt trails	30 (91)	26 (79)	.34
I believe eMTB use allows all riders to bike longer distances	32 (97)	33 (100)	.07
I believe that eMTB use allows riders greater and deeper access to backcountry dirt trails	30 (91)	32 (97)	.03
I believe that eMTB use allows riders to ascend or climb greater distances and elevations in less time on dirt trails	31 (94)	33 (100)	.001
I believe that eMTB use allows riders who may otherwise shuttle the ascent or drive to the top of the trail in a vehicle to ride up on dirt trails	31 (94)	31 (94)	.54
I am supportive of eMTB use <sup>e</sup>	26 (84)	26 (84)	.17

<sup>a</sup>eMTB: electric pedal-assist mountain bike.

<sup>b</sup>Agreed n (%) includes both *strongly agree* and *agree* responses.

<sup>c</sup>*P* values were derived from paired *t* tests of preride and postride values. Variables were coded using the following logic: 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree. Significant *P* values (<.05) are italicized.

<sup>d</sup>N=32.

<sup>e</sup>N=31.

**Table 7.** Overall belief and perception surrounding the question: how have your beliefs and perceptions about eMTBs<sup>a</sup> changed after riding one? (N=33).

Overall belief and perception	Value, n (%)
I am less accepting of eMTBs after riding one	3 (9)
My beliefs and perceptions have not changed at all	8 (24)
I am more accepting of eMTBs after riding one	20 (61)
Other	2 (6)

<sup>a</sup>eMTB: electric pedal-assist mountain bike.

## Discussion

### Principal Findings

This study sought to address 2 research questions: (1) *What proportion of exercise response is retained for an experienced mountain biker when using an eMTB compared with a conventional mountain bike?* and (2) *What are the perceptions and beliefs of experienced mountain bikers toward eMTB both before and after riding an eMTB?* Although significant differences in heart rate were measured between conventional mountain bike use and eMTB use, riding the study loop on both types of mountain bikes placed the vast majority of participants in the vigorous-intensity heart rate zone. Using heart rate as a proxy measure for cardiovascular exercise intensity and related exercise response, eMTB use appears to be an excellent form of aerobic or cardiovascular exercise, even for experienced mountain bikers who regularly engage in this fitness activity. *Physical Activity Guidelines for Americans* established by the CDC indicate that for substantial health benefits, adults should engage in at least 150 min a week of moderate-intensity aerobic physical activity or 75 min a week of vigorous-intensity aerobic physical activity [3,16]. Average heart rate during eMTB use was 93.6% of average heart rate during conventional mountain bike use. Riding both types of bikes on the study loop caused the participants to exceed at least heart-rate levels for moderate-intensity fitness activities and placed the average heart rate for a majority of participants in the vigorous-intensity zone [16]. Therefore, eMTB use in this study retained the bulk of the exercise response and exceeded established biometric thresholds for cardiovascular fitness. These findings of eMTB use on soft-surface trails are comparable to recent findings using e-bikes on city bike paths in which it was estimated that 95.5% of the cardiovascular benefit of conventional bike use was retained [18]. Although findings from the extant literature indicate that e-bikes can generally satisfy requirements for moderate-intensity physical activity [7-11,13,19], this study is the first to explore the exercise response of eMTB use on soft-surface trails and the first to associate pedal-assist bikes with vigorous exercise.

Although eMTB use provided an intense cardiovascular workout in this study, average riding speed on the eMTB was approximately 4 mph (approximately 6.5 kph) faster than speeds on the conventional mountain bike, resulting in less time needed to complete the study loop. If a conventional mountain bike was to be replaced by an eMTB as part of a cardiovascular fitness program, then total ride time, not ride distance, would need to remain constant. In this study, speed was presented as

an average across the entire study loop. It is possible that the higher speed for eMTBs is a factor in forming attitudes and beliefs both for and against their use. For example, higher eMTB speeds in high traffic areas or up hills may be a perceived source of trail conflict and slower eMTB speeds on downhill trail sections may result in trail congestion. These examples are only speculative and could be tested in future research on the adoption and uptake of eMTBs.

This study represents the first attempt to measure perceptions and beliefs of experienced mountain bikers before and after riding an eMTB. Relatively few significant attitudinal changes occurred from preride to postride, likely because of a sample of participants holding positive attitudes about eMTB at the onset. Only 18% of participants indicated they were opposed to eMTB on the preride survey. As there are many in the mountain biking community with strong negative opinions about eMTBs [6], this is likely a reflection of sampling bias, which is to say that those volunteering to participate in this study likely had more positive views of eMTBs and were excited for the opportunity to ride one. There were, however, several significant findings related to attitudes and beliefs along with several nonsignificant findings worthy of discussion.

After riding an eMTB, attitudes related to the future of eMTB use changed with fewer participants considering eMTBs to be a passing fad. This shift is consistent with industry trends and forecasts as eMTB sales climbed to US \$77.1 million in 2017, a 91% increase in US sales from the previous year and an 8-fold increase since 2014 [20,21]. Market predictions are that eMTB sales will represent approximately 30% of the mountain biking market by 2020 [22].

Of particular note, participants in this study did not perceive riding an eMTB to be a workout or taxing on their cardiovascular system. Although mean heart-rate data indicated the eMTB study loop resulted in an approximate 10 bpm reduction when compared with the conventional mountain bike, all participants reached at least moderate levels of intensity and most reached vigorous levels while riding the eMTB. Despite this, participants' perceived exertion while riding the eMTB was low. This finding has potential implications for the utility of eMTBs in helping all users, including the experienced mountain bikers in this study as well as more sedentary individuals, to engage in regular physical activity and meet physical activity guidelines. As key constructs of the Health Belief Model (HBM), both *perceived benefits* and *perceived barriers* are predictive of adherence to health recommendations and behavior change [23]. *Perceived benefits* specifically refer to one's opinion of the efficacy of an advised action to reduce

health risks [23]. *Perceived barriers* refer to one's opinion of the cost, whether psychological, physiological, or financial, of engaging in a health-promoting behavior or practice [23]. The low perceived exertion of riding an eMTB, together with the cardiovascular benefit of continuous target heart rate zone activity, make the total perceived benefits of eMTB riding high and the perceived barriers low. This has been observed as it relates to physical activity in general, where perceptions of exertion significantly impact activity levels [24,25]. Utilizing pedal-assist technology to decrease the perceived exertion of physical activity may be a critical catalyst in helping individuals become more physically active. Specifically pertaining to the uptake of e-bikes, lower perceived exertion has been reported as impactful [26]. In relation to the HBM, this study examined the physiological barriers and benefits of eMTB use, but other barriers may exist that could delay the uptake of this technology. It is possible that on account of being an emerging technology and with the addition of an electric motor, potential users of eMTBs perceive the financial cost of purchasing an eMTB too high. Indeed, high performance eMTBs can be costly. The extent to which these perceptions exist and how they might impact potential riders was beyond the scope of this study but could be studied in the future.

Participants were more accepting of eMTBs after riding one. The adage "don't knock it until you try it" appears applicable with pedal-assist technology. A recent qualitative analysis of eMTB threads in mountain biking forums concluded that individuals could be divided into 2 groups when commenting on eMTBs: those who had personal experience with an eMTB and those who did not. The authors concluded that inexperience with an eMTB appears central to the conflict surrounding eMTB use and that many misconceptions about what an eMTB *is* and *can do* are resolved by riding one [6]. This study found that most participants either became more accepting (61%) of eMTBs after riding one or reported no change (24%) in their level of acceptance.

Of interest in this study are the perceptions and beliefs that were not significantly altered by the experience of riding an eMTB. Overwhelming agreement existed at both pre- and postride data

collection related to eMTBs' ability to help older and less-fit riders find enjoyment in riding. Another stable perception is that eMTBs have the potential to improve public health outcomes through the encouragement or promotion of physical activity. Future research should explore this potential by including sedentary, less active, overweight or obese, and older individuals as participants. Such investigations could target behaviors, attitudes, and biometric indicators longitudinally.

### Limitations

Findings from this study should be interpreted with consideration of several limitations. This study was limited by its small sample. Although the sample size in this study is equal to or greater than similar studies of pedal-assist bikes, it is not sufficiently large to generalize or draw conclusions beyond this specific sample. In addition, this study used heart-rate data as a proxy measure for exercise response and cardiovascular exercise intensity. Future studies examining similar variables would benefit from more sophisticated measures, such as maximal oxygen uptake, metabolic equivalents, and watts. Likewise, participants had only 1 trial on the eMTB and their heart-rate response might have changed after an extended observation period. Finally, the sampling procedure employed to recruit experienced mountain bikers in this study yielded participants who might have already been largely supportive of eMTB use. A more random sample may have produced different results, especially related to perceptions and beliefs before and after riding an eMTB.

### Conclusions

This is the first study to compare the exercise response of conventional mountain bike and eMTB use on soft-surface trails and the first to associate pedal-assist bikes with vigorous-intensity aerobic or cardiovascular fitness. Findings indicate that riding an eMTB is moderate to vigorous physical activity, providing individuals with the opportunity to meet physical activity guidelines. Findings related to perceptions and beliefs before and after riding eMTBs were mixed yet support the use of pedal-assist technology in promoting physical activity.

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### Acknowledgments

This study was funded entirely by an internal grant from the Department of Public Health at Brigham Young University.

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### Conflicts of Interest

None declared.

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## Abbreviations

- bpm:** beats per minute
- CDC:** Centers for Disease Control and Prevention
- e-bike:** electric pedal-assist bike
- eMTB:** electric pedal-assist mountain bike
- GPS:** global positioning system

**HBM:** Health Belief Model

**HHS:** Health and Human Services

**MHR:** maximum heart rate

*Edited by G Eysenbach; submitted 06.02.19; peer-reviewed by J Peterman, M Lommele; comments to author 29.04.19; revised version received 22.05.19; accepted 14.06.19; published 19.07.19.*

*Please cite as:*

*Hall C, Hoj TH, Julian C, Wright G, Chaney RA, Crookston B, West J*

*Pedal-Assist Mountain Bikes: A Pilot Study Comparison of the Exercise Response, Perceptions, and Beliefs of Experienced Mountain Bikers*

*JMIR Form Res 2019;3(3):e13643*

*URL: <http://formative.jmir.org/2019/3/e13643/>*

*doi: [10.2196/13643](https://doi.org/10.2196/13643)*

*PMID:*

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# No, e-bikes aren't cheating

*We've got the science to prove it*

By [Andrew J. Hawkins](#) | [@andyjayhawk](#) | Nov 13, 2019, 4:09pm EST



Photo by Bernd Thissen/picture alliance via Getty Images

A common complaint you hear about [electric bikes](#) is that they basically amount to cheating. Cycling, especially mountain biking, is supposed to be about exercise and promoting healthy living, but how healthy can you be when the bike's motor and battery are doing most of the work for you? [A new study out last month](#) — the first to investigate the health effects of pedal-assist electric bikes — puts to rest many of these misconceptions.

Researchers from Brigham Young University recruited 33 subjects, mostly men between the ages of 18 and 65, to ride both regular mountain bikes and electric, pedal-assist mountain bikes on a rolling six-mile, single-track course through the Utah countryside. Afterward, they compared their heart rates and found that riding an e-bike is no effortless

fling. In fact, it requires almost as much physical exertion as riding a traditional mountain bike.

### ***RIDING BOTH TYPES OF BIKES "PLACED THE VAST MAJORITY OF PARTICIPANTS IN THE VIGOROUS-INTENSITY HEART RATE ZONE," THE STUDY AUTHORS CONCLUDED***

Riding both types of bikes “placed the vast majority of participants in the vigorous-intensity heart rate zone,” the study authors concluded. The average heart rate of a test subject riding an e-bike was 93.6 percent of those riding conventional bikes. Moreover, electric bikes appear to be an “excellent form of aerobic or cardiovascular exercise, even for experienced mountain bikers who regularly engage in this fitness activity.”

The researchers also surveyed their test subjects, both before and after riding, to determine their attitudes toward e-bikes. Some said their preconceived notions were confirmed, while others admitted the experiment subverted their beliefs. Most were positive toward e-bikes before the test, with only 18 percent saying they were opposed. Some attitudes changed, though, with fewer participants willing to admit after the test that e-bikes were just a passing fad.

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##### ***How to buy an electric bike***

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Most importantly, the vast majority of the test subjects said they didn't feel like they got a workout while riding an e-bike — despite heart rate monitors and fitness trackers indicating that most participants experienced “vigorous” levels of exercise. This raises the possibility that e-bikes could be well suited in helping both experienced cyclists and “more sedentary individuals” to meet their physical fitness goals.

Exercise that doesn't really feel like exercise seems like a pretty major breakthrough, especially if the goal is to get more “sedentary individuals” off the couch and into a more active lifestyle.

### ***EXERCISE THAT DOESN'T REALLY FEEL LIKE EXERCISE SEEMS LIKE A PRETTY MAJOR BREAKTHROUGH***

One area of concern identified by the BYU team was speed. Rider speeds on the e-bikes were four miles per hour faster on average. But the higher speeds achieved on an e-bike could impact people's negative perceptions of them. For example, an e-bike rider who rudely passes other cyclists on a bike path could ultimately harden some opinions toward e-bikes. More research will be needed before making any determinations, though.

There have been a handful of smaller studies on the health effects of e-bikes, but the BYU study, published in the *Journal of Medical Internet Research*, is notable for its larger sample size. [A small study in Boulder, Colorado, in 2016](#) found that a month of commuting on an e-bike improved fitness and blood sugar levels. Most participants also said they spent more time in the saddle than the study authors required, mostly because they were having so much fun.

Overall, participants in the BYU study were more accepting of e-bikes after riding one. "The adage 'don't knock it until you try it,'" the study authors conclude, "appears applicable with pedal-assist technology."

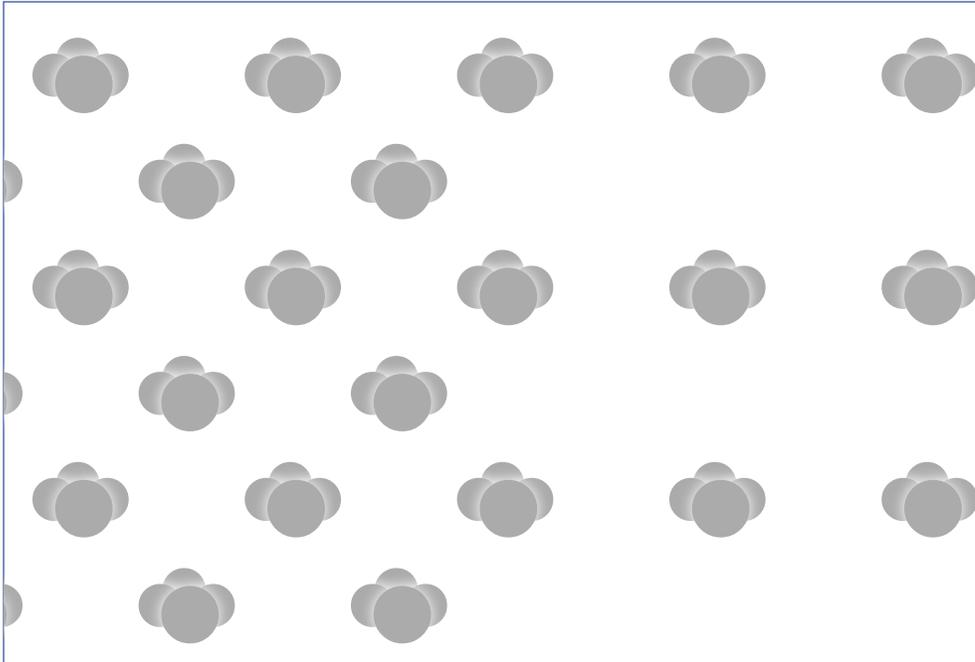
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UTAH HEALTH FEATURED WRITERS

## Do e-bikes really give you a workout? Here's what BYU researchers say

Study shows an e-mountain bike gives almost as strenuous of a workout as a traditional bike, but riding one doesn't feel like tough exercise

By Ashley Imlay | @ashley\_imalay | Nov 11, 2019, 4:46pm MST



A Brigham Young University study showed that e-mountain bikes gave almost as strenuous of a workout as traditional bikes. The findings could help those with more sedentary lifestyles get moving. | Nate Edwards, BYU Photo

PROVO — For many adults, the phrase “as easy as riding a bike” might sound like a misnomer.

Because let's face it — exercise isn't fun for everyone.

But Brigham Young University researchers found in a recent study that electric mountain bikes provide nearly as strenuous of a workout as traditional bikes, while not making the rider feel as if they've just performed a difficult workout.

The results could help many find a new way to recreate.

The idea for the study, published recently in the Journal of Medical Internet Research, came about among three BYU public health professors, all avid mountain bikers, as they took students on study abroad trips to Europe over the past few years, said Cougar Hall, lead author on the study.

There, e-bike popularity has skyrocketed, Hall said.

“We thought, ‘We don’t see these back home very often.’ But we noticed, our students would tell us, ‘Man, I hate riding a bike back home because it’s so hard. But these are just easy enough that I think I would ride my bike more often,’” Hall recalled.

The professors wanted to find out if electric bicycles are really easier for people, and if they still provide a decent workout.

So they got four e-mountain bikes, equipped 33 experienced bikers with heart rate monitors, sent them on a 6-mile trail loop on a traditional mountain bike, and then the same loop on an e-bike.

They found that the e-bike trips put participants in the “moderate to vigorous” heart rate zone, at an average of just 9.9 heartbeats per minute lower than on a traditional bike.

“It was pretty cool, they were actually getting the exercise we were hoping they would get,” Hall said.

While riding e-bikes, the participants’ heart rates were in what exercise experts call the “vigorous training zone,” which strengthens the heart, he said.

Those results could open new pathways to many who perceive working out as painful.

A large portion of the population faces various barriers to getting physical activity, like lack of walking paths, poor air quality and cold weather. But one of the biggest barriers for many is “that they perceive that it’s hard,” according to Hall.

“And we often have these really negative feelings, from being pushed too much when we were young, maybe. Maybe physical activity is associated with competition in sports when you were a young child. Or we had to run the mile in eight minutes to get an ‘A,’ and we didn’t do that, so we feel bad and we tell ourselves we don’t like running. There’s all sorts of things that actually are barriers to physical activity for entire populations,” he explained.

After the participants rode the course on the e-bikes, they reported it didn’t feel like a tough workout.

“If we can get people on e-bikes, they might feel like, ‘This isn’t so hard. This is something I can do, and something that I can maintain and stick with,’” Hall said, adding that he sees e-bikes as a possible catalyst to help people move more in general and overcome the barrier of perceived discomfort.

“We are really suffering from what we call lifestyle diseases. Cardiovascular disease, cancer, stroke, diabetes. These are all diseases that are directly related to our lifestyle. So to get people moving more — and to find a healthy outlet for the stress that we feel in our work and in our families — it’s essential. And so I just see e-bikes as one additional tool, one additional opportunity to help people who are otherwise fairly sedentary or not enjoying physical activity.”

Though Hall granted the participants were experienced bikers, he said the results still show the e-bikes gave them a good — though easier — workout, and show that they could especially benefit those who with more sedentary lifestyles, elderly people and those recovering from injuries.

“It might give them the confidence they need to get back on the trail and engage in a really, really fun sport,” the professor explained.

The study is particularly suited for Utah because of its many popular scenic bike trails.

Starting the study, the researchers were aware that not everyone in the biking community is excited about electric mountain bikes. Some are resistant and don’t want to see more people on the trails, causing possible erosion.

“And I think there’s a perception that, when it comes to mountain biking, like hiking and skiing and other things, that there’s a natural progression. That you build up both your cardiovascular and endurance base, but you also build up your skill set. So it’s an

activity that many users feel is earned, that you kind of earn the ability by putting so many hours in on the bike to be able to be on the trails.”

Knowing that attitude exists, the researchers asked the participants a few questions about their opinions on e-bikes. Of them, 61% said they had a more favorable opinion of e-bikes after riding them.

It's the type of activity one needs to try before making a decision, Hall said.

But he emphasized that he doesn't believe e-bikes replace traditional bikes. He says he rides both and enjoys both.

Hall's favorite use of e-bikes is when he rides with his 82-year-old father, who is still active but can't ride a traditional mountain bike because it's too hard for his legs to climb hills.

“The assist is just enough to get him over and through some of those spots that he feels are too difficult at his current age,” Hall explained.

While e-bikes remain uncommon in Utah, Hall foresees a time when many people will use them as technology improves and they become more affordable. Now, they range in price from about \$1,000 to, on the higher end, several thousand dollars.

Next, the researchers want to replicate the study among an elderly group and people with sedentary lifestyles. Those studies are awaiting approval from the university, Hall said.

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## **ALPINE PLANNING COMMISSION AGENDA**

**SUBJECT: Moderate Income Housing Discussion**

**FOR CONSIDERATION ON: 21 January 2020**

**PETITIONER: Staff**

**ACTION REQUESTED BY PETITIONER: Discuss implementation of the  
MIH element of the General Plan**

### **BACKGROUND INFORMATION:**

In October 2019, the Alpine City Council adopted a revised Moderate Income Housing Element as part of the General Plan. Three new policies were included:

- Allow accessory apartments within owner-occupied dwellings throughout the City.
- Preserve existing moderate income housing.
- Provide a mortgage assistance program for employees of the municipality or of an employer that provides contracted services to the municipality.

By the end of 2020 Alpine City is required to report to the Department of Workforce Services (DWS) the progress that has been made in implementing these new policies.

ORDINANCE NO. 2019-22

**AN ORDINANCE AMENDING THE ALPINE CITY GENERAL PLAN CODE TO INCLUDE A NEW ELEMENT ON MODERATE INCOME HOUSING IN THE CITY**

**WHEREAS**, Alpine City is required to adopt a moderate income housing element as part of its general plan; and

**WHEREAS**, the State of Utah has now amended and readopted those codes.

**NOW THEREFORE BE IT ORDAINED** by the City Council of Alpine City as follows:

1 Exhibit A attached is hereto is hereby adopted as part of the Alpine City general plan and shall be placed therein and included in all future editions thereof until amended or repealed.

2. This ordinance shall take effect upon posting in accordance with state law.

PASSED this 22 day of October, 2019.

  
\_\_\_\_\_  
Mayor

ATTEST:  
  
\_\_\_\_\_  
City Recorder





## PURPOSE

The Moderate Income Housing Element is intended to accomplish the following:

- Comply with Utah State Code;
- Summarize Alpine City’s population, income levels, and housing values;
- Discuss constraints and opportunities for the provision of moderate income housing; and
- Identify goals and policies to address Alpine City housing needs.

## DEFINITION

Moderate income housing is defined by the state as *“housing occupied or reserved for occupancy by households with a gross household income equal to or less than eighty percent (80%) of the median income for households of the same size in the county in which the city is located.”*

For the purposes of this element, this definition is further refined to include the following income categories:

- A. Moderate Income: 51% – 80% of the county median income
- B. Low Income: 31% - 50% of the county median income
- C. Very Low: 30% or less of the county median income

## STATE LAW AND LOCAL PLANNING

Utah Municipal Code Chapter 10-9a-403-B-iii requires each city to: 1) provide an estimate of the need for the development of additional moderate income housing within the city, and 2) to provide a plan to provide a realistic opportunity to meet estimated needs for additional moderate income housing if long-term projections for land use and development occur.

# MODERATE INCOME HOUSING



State law requires each city to:

- Consider the Legislature's determination that cities shall facilitate a reasonable opportunity for a variety of housing, including moderate income housing;
- Meet the needs of people desiring to live there; and
- Allow persons with moderate incomes to benefit from and fully participate in all aspects of neighborhood and community life.

## CURRENT AND FUTURE PROJECTIONS

### POPULATION ESTIMATE

According to the U.S. Census Bureau population estimate for Alpine City in 2017 was 10,197 with a projected annual rate of growth of 117. Projected population for 2024 is 11,004.

	2009 American Community Survey	2017 American Community Survey	Annual Growth Rate (Slope)	2024 Projection	Difference between 2017 and 2024
Total Population: (ACS Table B01003)	9,651	10,197	117	11,004	807
Total Population in occupied housing units (ACS Table B25008)	9,651	10,197	117	11,004	807
Total Population in owner- occupied housing (ACS Table B25008)	8,695	8,780	63	9,014	234
Total Population in renter- occupied housing (ACS Table B25008)	956	1,417	54	1,990	573

Source 1: U.S. Census Bureau. Table B01003: Total population. American Community Survey.

Source 2: U.S. Census Bureau. Table B25008: Total population in occupied housing units by tenure. American Community Survey.

### TOTAL HOUSEHOLD UNITS

Over the next 5 years the U.S. Census Bureau projects the ratio of renter-occupied structures to owner occupied structures to increase at approximately 40 units per year:

	2009 American Community Survey	2017 American Community Survey	Annual Growth Rate (Slope)	2024 Projection	Difference between 2017 and 2024
TOTAL HOUSING UNITS (ACS Table B25001)	2,499	2,770	40	3,098	328

Source 1: U.S. Census Bureau. Table B25001: Total housing units. American Community Survey.

Source 2: U.S. Census Bureau. Table B25032: Tenure by units in structure. American Community Survey.

# MODERATE INCOME HOUSING



## EXISTING MODERATE INCOME HOUSING

Alpine City’s existing moderate income housing is a mix of twin homes, apartments, duplexes, fourplexes, and cottages (senior housing). Overall, based on the City records as of October 2019, there are approximately 75 existing moderate income housing units.

## HOUSEHOLD SIZE

Household size, unlike population, is projected to drop in the next 5 years. A possible indicator of an aging population.

	2009 American Community Survey	2017 American Community Survey	2024 Projection
Average Household Size (ACS Table B25010)	4.3	3.87	3.54

Source 1: U.S. Census Bureau. Table B25010: Average household size of occupied housing units by tenure. American Community Survey

## ALPINE CITY MEDIAN HOUSHOLD INCOME

Median household income is projected to decrease over the next 5 years, which may be related to the projected decrease in household size.

	2009 American Community Survey	2017 American Community Survey	Annual Growth Rate (Slope)	2024 Projection	Difference between 2017 and 2024
Median household income (ACS Table B25119)	\$104,436	\$112,727	\$73	\$101,542	\$ (11,185)
Owner-occupied income (ACS Table B25119)	\$111,071	\$124,240	\$522	\$120,816	\$ (3,424)
Renter-occupied income (ACS Table B25119)	\$38,304	\$54,375	\$1,002	\$50,627	\$ (3,748)

Source 1: U.S. Census Bureau. Table B25119: Median household income that past 12 months by tenure. American Community Survey

## UTAH COUNTY AREA MEDIAN INCOME

Utah County area median income is projected to increase significantly over the next 5 years from \$67,042 in 2017 to \$108,972 in 2024, a difference of over \$41,000. If this projection is accurate, it would indicate that the median income gap between Alpine City and Utah County will close over the next 5 years.

# MODERATE INCOME HOUSING



	2009 American Community Survey	2017 American Community Survey	Annual Growth Rate (Slope)	2024 Projection	Difference between 2017 and 2024
Median HOUSEHOLD income (ACS Table B19019)	\$0	\$67,042	\$4,950	\$108,972	\$ 41,930

Source 1: U.S. Census Bureau. Table B19019: Median household income that past 12 months by household size. American

## GOAL

Promote moderate income housing that meets the needs of those desiring to live in Alpine.

## POLICIES

- 1.1 Allow accessory apartments within owner-occupied dwellings throughout the City
- 1.2 Allow senior housing units to be built in more dense clusters to reduce costs of living.
- 1.3 Preserve existing moderate income housing.
- 1.4 Provide a mortgage assistance program for employees of the municipality or of an employer that provides contracted services to the municipality.

## ACCESSORY APARTMENTS IN ALPINE

2014

<u>Address</u>	<u>Owner</u>	<u>Date Approved</u>	<u>Renewed</u> <u>2014</u>
1297 East 810 South	Karen McEvoy	2006	renewed
173 South 400 East	Landon Wallace	2008	renewed
203 East 600 North (Pioneer Dr)	Jeff Bennett	2001	renewed
48 N 100 E	Roger Bennett	2017	approved
90 N 600 E	Brian Baxter	2017	approved
199 S 600 E	Dallin Fyffe	2018	approved
212 South 600 East	Fredrick Fuller		renewed
220 North 200 East	Carlyn Thompson	2016	approved
255 S. Main	Paul Anderson	2002	
285 East 200 North	Ron Jones	1999	renewed
290 East 200 North	Tori Spainhower	2002	
291 South 700 East	Lawrence D. Cluff	2014	renewed
310 South 600 East	Mary Anne Hall	2018	approved
393 East 100 South	Danny Gifford	2012	renewed
403 East 426 North	Brent Fry	2014	renewed
445 West 600 North	David Atkinson	1999	renewed
595 West 800 South	Mike Kennedy	2014	renewed
607 East 770 North	Troy Ellis	2014	approved
610 East 770 North	Steve Christensen	2004	renewed
696 East 100 North	April Moriarty	2001	renewed
707 West 800 South	Charmayne Warnock	2015	approved 3:
755 West 800 South	R. Kim Davis	2013	renewed
795 E 200 N	Grant Stucki	2018	approved
844 East 300 North	Ron Devey	2001	renewed
886 East 750 South	Jessica Strong	2016	approved
1371 E. 490 S.	Shelley Young	2018	approved
Allegheny Way (167)	Ralph Reyes	2014	renewed
Alpine Blvd (281 N.)	Mark Orton	2018	approved
Alpine Blvd. (366 N.)	Byron Gibb	2015	approved
Alpine Blvd. (799 E.)	Kevin Hurley	2013	renewed
Alpine Drive (846 E.)	Brad Tibbitts	2014	renewed
Alpine Drive (871 E.)	John Johnson	2001	
Alpine Drive (1063 E.)	James Phillips	2019	approved
Alpine Highway (838 S.)	Christina Robey	2018	renewed
Andes Dr. (908)	Ryan Whetten	2014	renewed
Andes Dr. (911 S.)	Melissa Jaspersen	2019	approved
Applewood (115 N.)	Brian Higbee	2012	renewed
Arnold Court (531 S.)	David Lewis	1999	renewed
Arnold Court (584 S.)	Ryan Johnson	2004	
Bald Mtn (130 N.)	Jay Bell	2014	renewed
Bald Mtn Dr. (215 N.)	Connie Foutz	2019	approved
Bald Mtn (1481 E.)	Dick George	2014	approved
Bald Mtn Dr (497 N)	Donna Nash	2008	renewed
Bald Mtn Dr (497 N)	Jeff Adcock	2001	Roger Hill, re
Bald Mtn Dr (76 N)	Mike Pierce	2012	renewed
Blue Moon Ln (753 S.)	Marcus Schellenberg	2014	renewed
Blue Ridge Cir (763 S.)	Scott Riley	2018	approved

Blue Spruce Rd (551 N)	Nathan Larsen	2002	renewed
Braddock Ln (868 S.)	Tara Braddock	2018	approved
Canterbury Ln (843 E.)	James Templin	1999	renewed
Canterbury Ln (897 E.)	Janine Barker	2014	renewed
Cascade Ave (11 E.)	Tim McCann	2015	approved
Cascade Ave (132 W.)	Kerry Hurst	2015	approved
Country Manor Ln (302 E.)	David Spainhower	2009	renewed
Country Manor Ln (375 N.)	Tom Heustis	2009	renewed
Country Manor Ln (485 N.)	Greg Jackson	2004	renewed
Creekside Pass (851 S.)	Kristine Moody	2019	approved
Cumberland Ct (734 S.)	Trevor Evans	2019	approved
Cumberland (840 S.)	Clark Chrisensen	2006	renewed
Deerfield D Drive (327 N)	Glen Groesbeck	2018	approved
Eastridge Cir (402 E.)	Bryan Murdoch	2016	approved
Eastview Dr (388 E.)	Daniel Hertig	2014	renewed
Eastview Dr (428 E.)	Larry Edwards	2014	approved
Eastview Dr (945 N.)	Skylor Smith	2014	renewed
Fort Canyon Rd (1836 N.)	Lisa Gregory Brown	2014	renewed
Fort Canyon Rd (1450 N.)	Stephen Larson	2019	approved
Grove Dr (310 N.)	Matthew Jones	2016	approved
Grove Drive (621 N.)	McKendra Berry	2019	approved
Grove Drive (668 N)	Charles Jeppson	2019	approved
Hawthorn Ct (171 S.)	Kristi Allen	2019	approved
Healey Blvd (878 E.)	David Lemke	2013	renewed
Healey Homestead Cir (858 S.)	Bryce Bergen	2015	approved
Heritage hills Dr (463 E.)	Ross Jardine	2015	approved
High Bench Rd (583 S.)	Clayton Morgan	2004	renewed
High Ridge Ln (636)	Ron Mortensen	2019	approved
High Ridge Ln (642 S.)	Ross Wilson	2004	renewed
High Ridge Ln (700 E.)	Lori Beckstrand	1999	renewed
Hillside Cir (251 W.)	Charles Mathis	2016	approved P
Hillside Cir (648 N.)	Mary Owen Heslop	2001	renewed
Hillside Cir (251 W.)	Charles Mathis	2015	approved
Himalaya Ct (120)	Matthew Wagaman	2017	renewed
Hunter's Ridge Cir (19 E.)	Ryan Denney	2014	renewed
Hunter's Ridge Cir (41 E.)	Ken Sanofsky	2014	renewed
Hunter's Ridge Cir (65 E.)	Cory McArthur	2009	renewed
Hunter's Ridge Cir (330 N)	Jay Hufer	2019	approved
Hunter's Ri (611 W )	Wyatt Higbee	2009	renewed
International Way (384 W)	Chris Paterson	2019	approved
Internation (670 W )	Cenobio Valderrama	2017	approved
Long Drive (611 W.)	Michael Porter	2017	approved
Lupine Dr (670 W.)	James Lawrence	2015	renewed
Main Street (475 N.)	Kristy Huntsman	2019	approved
Matisse Ln (244 N.)	Doug Krahenbuhl	2014	renewed
Matterhorn Dr (260 N.)	Gordon Cain	2012	renewed
Meadowlark Dr (315 W.)	Charles Carlton	2002	renewed
Mtn Oak Cir (1177 E.)	Blain Dennis	1999	renewed
Mountainville Dr (509 E.)	Donald White	2014	approved
Oakwood Cir (1221 E.)	Bruce Cotton-Betteridge	1999	renewed
Parkway (133 W.)	Laura Haacke	2015	approved
Parkway (185 W.)	Russ Devitt	2018	approved

Parkway (210 W.)	Tami Conder	1999	renewed
Pfeifferhorn Dr (80 S.)	Xenia Stirland	2014	renewed
Pineview Dr (312 S.)	William Beardsley	2015	approved
Pineview Dr (311 S.)	John Clark	2008	renewed
Preston Dr (1355 E.)	David Johnston	2016	approved
Quail Hollo (552 S.)	Rick Westbrook	2015	approved
Ridge Crest Ct (710 E.)	John Newman	2015	approved
Ridge Ln (552 S.)	David Cutler	2016	approved
Ridge Ln (580 S.)	Jonessa White	2015	renewed
Ridge Ln (587 S.)	Randy Rhodes	2016	approved
River Meadow Dr (307)	Robert Pollan	2014	renewed
River Meadow Dr (347)	David Beck	2014	renewed
River Road (366 S.)	Brad Barton	2014	renewed
River View (273 S.)	Eric Enloe	2015	approved20
Rocky Mtn Dr (715 S.)	Thomas Helms	2014	approved
Silver Circle (380)	Heather Peper	2019	approved
Silver Ln (584 S.)	Lori Stark	2014	approved
Stonehedge Ln (846 E.)	Robert Capel	2006	renewed
Sunrise Dr (465 N.)	Mark Phillip	2004	renewed
Sunset Cir (147 E.)	Mel Clement	2001	renewed
Sunset Dr ( 206 W.)	Megan Farnsworth	2018	approved
Sunset Dr (284 W.)	Laurie Loder	2014	renewed
Sunrise Dr (220 N.)	Robert Whitehead	2016	approved
Sunrise Dr (60 N.)	John Lohner	2014	renewed
Village Ct (1048 E.)	Brenda Hulme	2014	renewed
Village Ct (14 S.)	Laurel Green	2001	renewed
Wayne Ct (358 E.)	Ryan Arnold	2014	approved
Westfield Rd (720 W.)	Alan Wood	1999	renewed
Wilderness Dr (615)	Daniel Ruesch	2019	approved
Wilderness Dr (633 N)	Breezy Anson	2017	renewed

**EXISTING MODERATE INCOME HOUSING****Twin Homes**

Owner	Address	No. of Units
Richard D. and Melanie Hulme	94 S. 100 W.	1
Richard D. and Melanie Hulme	108 S. 100 W.	1

**Apartments**

Owner	Address	No. of Units
KSBCO LLC	201 W. Center	5
Kent E. Partna	301 E. 300 N.	4

**Duplexes**

Owner	Address	No. of Units
D and B Meyring Properties LC	154 E. Canyon Crest Rd.	4
PK Holdings LLC	273 S. Main St.	2
Brian Keith and Wendy Jane Wilcox	374 E. 300 N.	2
Meadowbrook Rentals, LLC	360 N. Main St.	2
Brian Wilcox	770 N. Main St.	2
Todd and Kristi Hamilton	1430 N. Fort Canyon Rd.	2
Dean L. Larsen	159 W. 200 N.	2
Janis Strong	651 N. Patterson Ln.	2
John Roberts	51 E. 600 N.	2
Stan Tolbert	107 N. 300 E.	2
Timothy Howden	151 N. 100 W.	2
Stan Tolbert	155 S. 100 W.	2
Tom Dell'Ergo	137 S. 100 W.	2

**Senior Housing**

Owner	Address	No. of Units
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**Senior Cottages (Fourplex)**

Owner	Address	No. of Units
River Meadow Senior Living	137 Red Pine Drive	36

Total

75

## **ALPINE PLANNING COMMISSION AGENDA**

**SUBJECT: Planning Commission Minutes January 7, 2020**

**FOR CONSIDERATION ON: January 21, 2020**

**PETITIONER: Staff**

**ACTION REQUESTED BY PETITIONER: Approve Minutes**

**BACKGROUND INFORMATION:**

Minutes from the January 7, 2020 Planning Commission Meeting.

**STAFF RECOMMENDATION:**

Review and approve the Planning Commission Minutes.

**ALPINE CITY PLANNING COMMISSION MEETING**  
**Alpine City Hall, 20 North Main, Alpine, UT**  
**January 7, 2020**

**I. GENERAL BUSINESS**

**A. Welcome and Roll Call:** The meeting was called to order at 7:00 p.m. by Co-Chairman Bryce Higbee. The following were present and constituted a quorum:

Chairman:

Commission Members: Bryce Higbee, Jane Griener, Alan MacDonald, John MacKay, Jessica Smuin, Sylvia Christiansen

Excused:

Staff: Austin Roy, Jed Muhlestein, Marla Fox

Others:

**B. Prayer/Opening Comments:** Jessica Smuin

**C. Pledge of Allegiance:** Reed Thompson

**II. PUBLIC COMMENT**

There were no public comments.

**III. ACTION ITEMS**

**A. Public hearing – Site Plan – Amendment to Development Code – Road Grade Changes**

Jed Muhlestein said that Staff noticed differences between State Code and Fire Code versus the Development Code. The primary topic of discussion was the incline and decline grades for roads. It was proposed that the Development Code be amended to match State Code and Fire Code. He said the definition of culs-de-sac were confusing and other sections did not need to be there.

Jed Muhlestein said they wanted to adjust maximum road grade on minor roads to 10% to match the Fire Code. Bryce Higbee asked if the City Code was unenforceable. Jed Muhlestein said it was enforceable, they just wanted it to match the State Code and Fire Code.

Jessica Smuin asked if this would make the current code less strict. She asked where there was a different grade in the City. Jed Muhlestein said Meadowlark Drive was a 15% grade. He named several other steep grades as examples of outliers.

Fire Chief Reed Thompson mentioned the manufacturing company for aerial devices the Fire Department uses were under warranty for up to an 8% grade, and exceeding this grade would put them out of warranty. Therefore, they did not set up aerial devices when this occurred.

Bryce Higbee opened the Public Hearing. There were no comments and Bryce Higbee closed the Public Hearing.

**MOTION:** Sylvia Christiansen moved to recommend to the City Council that Amendment to Development Code – Road Grade changes be approved as proposed. Alan MacDonald seconded the motion. There were 6 Ayes and 0 Nays (recorded below). The motion passed.

Aves:

Bryce Higbee  
 Jane Griener  
 John MacKay  
 Alan MacDonald  
 Jessica Smuin  
 Sylvia Christiansen

Nays:

None

**B. Major subdivision – Preliminary Design Plan – Brookside Meadows**

Austin Roy said Brookside Meadows consisted of fifteen lots on 13.306 acres. The development was located at approximately 430 North 400 West and was in the CR 20,000 zone. The Preliminary Plan showed a connection to the Whitby Woodlands Subdivision on the east side of the property.

The City Council had reviewed and approved the Concept Plan and Planned Residential Development (PRD) status of the subdivision. The property owner had since changed the plans and was now incorporating additional land on the east side of the property, increasing from the original nine lots to fifteen. The open space was to be dedicated as “private” as a condition of approval.

Lot width for a standard lot was 110 feet and 80 feet for a cul-de-sac lot located on a curve. Lots located within a PRD should have a width of no less than 90 feet. Lots in the CR-20,000 zone were required to be a minimum of 20,000 square feet in size. However, the Brookside Meadows Subdivision was approved as a PRD, which granted density bonuses for the dedication of open space. The proposed preliminary appeared to meet the density requirements set forth in the PRD ordinance.

The Developer proposed that the lots be used for single-unit detached dwellings, which was consistent with the permitted uses for the CR-20,000 zone. The City Trails Master Plan showed no trails within the development area, nor did it show any proposed trails, and thus trails would not be a requirement for this subdivision.

As part of the City General Plan, the Street Master Plan showed a proposed new local street running through the Brookside Meadows property, connecting Whitby Woodlands Drive with 200 North Street. The proposed preliminary plan had incorporated the proposed new local street from the Street Master Plan, which connected earlier phases of the Whitby Woodlands PRD Subdivision to future phases of the Whitby Woodlands PRD Subdivision.

Alpine City already had a street names Brookside Court and Brook Circle. Though the proposed street name is different (Brookside Circle), Staff would recommend changing the name to avoid confusion with other streets.

Jed Muhlestein said the streets met the ordinance. He said there was a cut in the hillside by lot 7 to make the road work. He recommended a retaining wall or a landscaping restriction at that intersection for the sight triangle.

Jed Muhlestein showed where retaining walls would need to be placed. He read the ordinance about landscaping and drip irrigation. This subdivision would be required to have landscaping between the tiered walls and place a fence on top of the retaining wall by the detention pond by lot 11. Staff recommended an open style fence to prevent separation issues. The retaining wall on the cul-de-sac was proposed to be nine feet which the City would have to maintain. Jed Muhlestein said Staff would rather give an exception for a gradual slope instead of the nine-foot retaining wall.

1 Jed Muhlestein said sewer, water, storm drain, and irrigation met the requirements. He said a Geo Tech  
2 report was submitted showing a low probability for rock fall or slides.

3  
4 Jed Muhlestein said per an agreement with Westfield Ditch, the ditch was not required to be piped. He said  
5 the Fire Chief approved the development. When asked why there was an agreement to not pipe the ditch,  
6 Jed Muhlestein said it was because there was a green belt of trees behind the homes which the neighborhood  
7 wanted to get water to.

8  
9 Sylvia Christiansen asked why the corner on lot 7 could not be softened so it was not so intrusive. She said  
10 she was concerned about the sight triangle.

11  
12 Alan MacDonald wanted to know what the developer was required to do to fix the sight triangle on lot 7.  
13 Jed Muhlestein said he was not going to require a retaining wall, but they could not block the sight triangle.  
14 They had options like knocking some of the dirt down or limiting landscaping in the sight triangle.

15  
16 The Planning Commission discussed the temporary cul-de-sac.

17  
18 Greg Wilding, representing the developer, said they would like to eliminate the retaining wall by the west  
19 cul-de-sac and requested an exception for a 50-foot clear zone grading. Mr. Wilding said the road at an  
20 intersection must come in at 3% which he said was fairly restrictive. He said it was his opinion that the  
21 City should change that to 5%. He asked for that exception to go to a 5% grade. Jed Muhlestein said the  
22 developer would have to bring that exception back to Planning Commission. He also said the City Code  
23 was written that way due to safety. When snow was present 3% was recommended. Mr. Wilding said 3%  
24 made it very difficult for an engineer to design and for homeowners to develop their property.

25  
26 Sylvia Christiansen asked what the difference in feet would be if the code went from a 3% to a 5%. Mr.  
27 Wilding said it would be about two feet. Bryce Higbee said the developer could bring this back to the  
28 Planning Commission Engineer, discuss it, and later bring a revised version back, but he would rather have  
29 this looked at by ordinance. He said the ordinance would have to be changed. Mr. Wilding said the  
30 ordinance should be changed because it was too restrictive.

31  
32 Alan Macdonald said the City could run into legal trouble if they granted an exception to the grade that  
33 resulted in an accident later on.

34  
35 Dave Gifford, developer, said he could not afford the extra time to get an ordinance changed. Bryce Higbee  
36 said the developer would have to bring it back to Planning Commission, have a Public Hearing and then  
37 send it to City Council. Austin Roy said it could take two months and Sylvia Christiansen said there was  
38 no guarantee they would get what they wanted without the ordinance change.

39  
40 **MOTION:** Alan MacDonald moved to approve the Brookside Meadows preliminary plan and changes to  
41 the concept plan with the following conditions:

- 42 1. The Developer was granted an exception to the 50-foot clear zone grading requirement for the  
43 westerly cul-de-sac;
- 44 2. The Developer addressed the sight triangle issue near lot 7;
- 45 3. The Developer added landscaping plans for the retaining walls;
- 46 4. The Developer added an open style fence on the north side of the easterly detention basin;
- 47 5. The Developer addressed the redlines on the plans;
- 48 6. The Developer submitted a complete retaining wall design prior to construction;
- 49 7. The Developer changed the name of Brookside Circle.

50  
51 John MacKay seconded the motion. There were 6 Ayes and 0 Nays (recorded below). The motion passed.

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3  
4  
5  
6  
7  
8  
9**Ayes:**Bryce Higbee  
Jane Griener  
John MacKay  
Alan MacDonald  
Jessica Smuin  
Sylvia Christiansen**Nays:**

None

**C. Gateway/Historic Requirements – J & L Automotive Addition**

Austin Roy said the property was located at 80 South Main Street. The proposed addition was to be on the front or east side of the building (side closest to Main Street). In December 2019, the applicant came to the Planning Commission and received a recommendation of approval. However, one of the conditions of approval was that the Planning Commission approve revised elevations that would make the building more attractive to meet the Gateway/Historic requirements. The applicant had revised the design of the building and was now returning for a recommendation from the Planning Commission.

17

Austin Roy said the applicant brought in two new options to share with the Planning Commission. One would add a large window and the other would add a door.

20

James Lawrence, applicant, said on the front of the addition they would add two small windows and remove the shutters that were currently there. Bryce Higbee said the Planning Commission made other buildings build a faux door facing Main Street.

24

**MOTION:** Sylvia Christiansen moved to approve the proposed update version one to the J & L Automotive building elevations with the following condition.

26

27

28

1. A faux door be added to the east wall.

29

30

John Mackay seconded the motion. There were 6 Ayes and 0 Nays (recorded below). The motion passed.

31

32

**Ayes:**Bryce Higbee  
Jane Griener  
John MacKay  
Alan MacDonald  
Jessica Smuin  
Sylvia Christiansen**Nays:**

None

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**D. Amendment to Development Code – Short Term Rentals**

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Austin Roy said in October 2019, the Planning Commission reviewed and discussed a draft Short-Term Rental Ordinance. Ultimately, the Planning Commission discussed the reasons they felt that the downsides of allowing Short Term Rentals outweighed the benefits. Staff prepared a new ordinance which would prohibit Short Term Rentals in Alpine City.

45

46

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49

Austin Roy said a Short-Term Rental definition was a rental that was less than thirty days and was based on taxes. This would include hotels, motels, and bed and breakfasts. Money was not explicitly referenced in the Tax Commission Definition.

50

51

The Planning Commission had a discussion and wanted verbiage added that addresses renting, exchanging money, etc.

1  
2 A resident said he had an Air B & B and rented it for less than 30 days and was dependent on this business.  
3 He said one bad apple did not have to ruin the whole barrel.  
4

5 Sylvia Christiansen said as a Realtor, she was torn with this issue because the City needed affordable  
6 housing and if Short Term rentals were allowed, people said they could make more money with Short Term  
7 rentals than accessory apartments. She said she was afraid that would take away from affordable housing.  
8

9 Austin Roy said he spoke with the City Attorney and he said the Planning Commission had the right to ban  
10 Short Term rentals in the City if they chose.  
11

12 Fire Chief Reed Thompson said if the City allowed Short Term Rentals, it needed a Business License with  
13 requirements that went along with that business model.  
14

15 Austin Roy mentioned the Good Landlord Program.  
16

#### 17 **IV. Communications**

18 Austin Roy said the Planning Commission needed to nominate a new Chair and Vice Chair at the next  
19 meeting. Bryce Higbee said it would be a challenge for him to take on that role at this time.  
20

#### 21 **V. APPROVAL OF PLANNING COMMISSION MINUTES: December 3, 2019**

22  
23 **MOTION:** Sylvia Christiansen moved to approve the minutes for December 3, 2019 with changes.  
24

25 Alan MacDonald seconded the motion. There were 6 Ayes and 0 Nays (recorded below). The motion  
26 passed.  
27

#### 28 **Ayes:**

29 Bryce Higbee  
30 Jane Griener  
31 John MacKay  
32 Alan MacDonald  
33 Jessica Smuin  
34 Sylvia Christiansen  
35

#### 28 **Nays:**

29 None  
30  
31  
32  
33  
34  
35

36 The meeting was adjourned at 8:35 p.m.