

**LOS ANGELES POLICE DEPARTMENT**  
**Bicycle Update and E-Bike Certification/Re-Certification**  
**LAPD Only**  
**Expanded Course Outline**  
**8 Hour**

**Prerequisite: Student must complete Bicycle Patrol 1850- 23820 prior to attending the Electric Bicycle Update Course.**

**Completion of this course provides electric bicycle certification.**

**Instructional Goal:** To provide current training for bicycle officers in electric bicycle operations

**Performance Objectives:** Using learning activities and practical application, students will be able to

- Understand and Application of the proper fit and check bicycle safety equipment
- Understand the Safety Guidelines for the course
- Understand current bicycle tactics and policies
- Understand how to operate the electric bicycles
- Apply practical application through proper bicycle techniques

**I. COURSE INTRODUCTION**

**(30 Min)**

Introduce the instructional goals and objectives of the Bicycle Update Course. At the conclusion of this block, the student will able to identify and apply the training objectives throughout the course

A. Welcome

1. Introduction of Instructors
2. Introduction of Students
  - a. Name and assignment
  - b. Experience related to Bicycle Patrol
    - 1) Length of time working bicycle related detail
    - 2) Specialty schools attended

B. Course Documentation and Safety

1. Complete course roster
2. Complete emergency contact cards

C. Overview of Safety Guidelines and Standing Plans (**LECTURE**)

1. Overview Safety Plan: Illness and Injury Prevention Program (IIPP)
2. IIPP safety guidelines apply to all training given by the Department. These guidelines ensure that staff and participants are aware of potentially hazardous situations and how to avoid them
  - a. All personnel should be instructed that a copy of the IIPP is located in the training supervisor's office at that particular training site
  - b. Anyone participating in the training, whether student, observer, or instructor, has the authority to "STOP" the exercise if they observe an unsafe act or condition that may cause imminent injury or death and/or damage to the facilities
  - c. Protective eyewear and ear protection (American National Standards Institute (ANSI) approved) shall be worn if blanks or live-fire rounds are used during a practical application or during any demonstration using the same
  - d. Students shall immediately notify an instructor(s) or the training staff of any injury sustained during training, and use the following steps in the event of a serious injury
    - 1) Render first aid and obtain appropriate medical assistance

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- 2) Notify the Fire Department Rescue Ambulance (213) 485-6203. Give specific directions to the location of the incident
- 3) An Instructor will be in designated location to direct the ambulance and the area should be cleared of personnel
- 4) All appropriate notifications should be made including Commanding Officer, Continuing Education Division, and Real-time Analysis & Critical Response Division, (213)484-6700
- 5) Each training location has an emergency plan that is in place and can be located in Training Unit's Office
- 6) The supervisor will ensure that the necessary worker compensation forms (1.66) and other reports (e.g. Employee Notification Form 15.7) are completed in a timely manner
- 7) For outside agencies, notifications will be made to the agencies Officer in Charge

**II. ELECTRIC BICYCLE AND LEGAL (Lecture/Indoor)**

**(45 Min)**

**Purpose:** This module of training will provide an overview of the electric bicycle systems and their operation

This module will also provide a review of the California Vehicle Code sections, 231, 312.5(a), 670, 21200, 21200.5, 21201, 21202, 21760, 27400 Division 10 (commencing with Section 20000), Section 27400, Division 16.7 (commencing with Section 39000), Division 17 (commencing with Section 40000.1), and Division 18 (commencing with Section 42000), and LAMC 56.15

A. Introduction to electric bicycle systems

1. Current propulsion systems operate in four levels of assist and may have a regenerate mode. In the assistance mode, pedaling is assisted proportionally by a strain gauge or torque sensor, which determines the input of the rider and determines the amount of assist to be provided within the preselected assistance level
2. Propulsion System Components
  - a. Battery
  - b. Motor
  - c. Console
  - d. Brake switch if so equipped
  - e. Charging power supply
3. Inserting, Removing and using the Console
  - a. Manufactures differ in their mounting and ability to remove the console
  - b. Removeable consoles slide in and engages securely to the console mount located on the handlebar
  - c. Console is released by pushing the release lever on the console mount
  - d. Student will receive instructions on the functions of the console and icons
4. Inserting and Removing the Battery
  - a. Inserting the Battery
    - 1) Place the battery into the docking station on the bicycle
    - 2) Slide the battery down the rail gently towards the connector
    - 3) The release mechanism will close automatically as the battery positively slides into the connector
    - 4) Use the key to lock the battery in place and prevent loss or theft

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- b. Removing the Battery
  - 1) Turn off the system
  - 2) Insert the key, lightly press on the battery release while turning the key
  - 3) The lock cylinder will protract, freeing the battery release arm
  - 4) Remove the battery by opening the release arm
  - 5) Slide the battery upwards on the rail
  - 6) Lift the battery to remove
- 5. Charging Procedure

The battery can be charged when mounted or removed from the battery docking station. Modern batteries generally do not have a memory effect, which means that the battery's maximum energy capacity is not affected if it is repeatedly recharged after only being partially discharged. The battery does not need to be completely drained before charging. When the battery is depleted to the level where there is risk it could fall into deep discharge, the

  - a. Following this procedure, the charging connector should be disconnected battery will signal that a recharge is needed by beeping. The following is the charging procedure:
  - b. Connect power supply and battery by inserting the charge connector into the port - the system should be turned off
  - c. Connect the plug of the power supply to a standard 110-volt power outlet
  - d. Depending on the system, there is generally a charge indicator light. Systems differ by manufacturer but often give a visible indication of the charge status of the battery
  - e. During the charging process check the battery state of charge through the console if the battery is connected to the system - system can be switched on while it is charged

The battery is fully charged after approximately 4 or 5 hours. Make sure that a completely charged battery is no longer connected to the charger after the charging procedure is completed

**B. Operating the Electric Propulsion System**

- 1. Turning on the system
- 2. Selecting assistance/generate level
- 3. Selecting the cycling computer functions
- 4. Resetting cycle computer functions
- 5. Turning on the programming mode
- 6. Troubleshooting

Instructors will instruct and demonstrate how to properly use the console for each system

**C. Maintenance, Care and Cleaning**

- 1. In order to ensure extended use of the propulsion system, all plug-in contacts of the system should be checked every two to three months and cleaned with a soft and dry brush, if necessary. It must be ensured that no dirt or humidity penetrates the battery docking station when the battery is removed
- 2. It is recommended a soft sponge, or a soft brush be used to clean the bicycle. Use a moist rag to clean the battery's docking station. Always use very little water and keep water away from the electrical contacts. Check the plug-in connections for moisture after cleaning and let these dry, if necessary, before reusing the bicycle

**D. LECTURE: Legal Issues and Traffic Laws**

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1. Laws and ordinances for bicycles
  - a. Are bicycles vehicles?
    - 1) NOT According to the Vehicle code!
      - a) Bicycle – defined by California Vehicle Code (CVC) 231 as: A bicycle is a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears and having one or more wheels. Persons riding bicycles are subject to the provisions of this code specified in Sections 21200 and 21200.5.
      - b) Vehicle – defined by CVC 670 as: A "vehicle" is a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.
      - c) Electric Bicycle – defined by CVC 312.5 (a) as: An "electric bicycle" is a bicycle equipped with fully operable pedals and an electric motor of less than 750 watts.
        - (1) A "class 1 electric bicycle," or "low-speed pedal-assisted electric bicycle," is a 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.
        - (2) A "class 2 electric bicycle," or "low-speed throttle-assisted electric bicycle," is a 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.
        - (3) A "class 3 electric bicycle," or "speed pedal-assisted electric bicycle," is a 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, and equipped with a speedometer.
      - d) A person riding an electric bicycle, as defined in this section, is subject to Article 4 (commencing with Section 21200) of Chapter 1 of Division 11.
      - e) On and after January 1, 2017, manufacturers and distributors of electric bicycles shall apply a label that is permanently affixed, in a prominent location, to each electric bicycle. The label shall contain the classification number, top assisted speed, and motor wattage of the electric bicycle, and shall be printed in Arial font in at least 9-point type.

**"YOUR INSURANCE POLICIES MAY NOT PROVIDE COVERAGE FOR ACCIDENTS INVOLVING THE USE OF THIS BICYCLE. TO DETERMINE IF COVERAGE IS PROVIDED YOU SHOULD CONTACT YOUR INSURANCE COMPANY OR AGENT."**
    - 2) But they must follow the vehicle code per California Vehicle Code (CVC) 21200(a) : A person riding a bicycle or operating a pedicab upon a highway has all the rights and is subject to all the provisions

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- applicable to the driver of a vehicle by this division, including, but not limited to, provisions concerning driving under the influence of alcoholic beverages or drugs, and by Division 10 (commencing with Section 20000), Section 27400, Division 16.7 (commencing with Section 39000), Division 17 (commencing with Section 40000.1), and Division 18 (commencing with Section 42000), except those provisions which by their very nature can have no application
- b. Bicyclists have the rights and responsibilities applicable to drivers of any other vehicle (CVC 21200)
  - c. All statutes that apply to vehicles apply to bikes, except those that by their very nature can have no application: (Examples of exceptions)
    - 1) Bumper height
    - 2) Seatbelts
  - d. Examples of basic traffic laws which would apply to bicyclists (CVC 21200):
    - 1) Stop signs
    - 2) Traffic signals
    - 3) Posted regulatory signs
    - 4) Basic rules of the road
    - 5) Right of way
    - 6) Lane use (with some exceptions)
    - 7) Signaling turns
  - e. Use of the roadway (CVC 21202): Lane use requires that bicyclists ride “as far to the right as practicable” or as far right without compromising safety
    - 1) For example, it is unreasonable and unsafe for the cyclist to ride so far to the right that the bike is in the gutter or nearly hitting parked cars
    - 2) Considerations for choosing a safe lane
      - a) Is there a paved shoulder, wide curb lane or bike lane?
      - b) Cyclists require about 3 feet of “wobble space just to maintain their balance, this is most noticeable at slower speeds
      - c) The right side of the 3ft. lane starts at the left edge of the gutter pan or the edge of the improved portion of the roadway
      - d) Are there gutter joints or other hazards that will upset a cyclist’s balance?
      - e) Is the cyclist so close to the curb that the inside pedal may hit the top of the curb whereby the cyclist could likely crash and fall into traffic?
    - 3) Exceptions to riding as far right as practicable
      - a) When passing another vehicle
      - b) To avoid a hazard in your lane
      - c) Where the street width makes it unsafe
      - d) When preparing for a left turn
    - 4) 3-Foot for Safety Act (CVC 21760): When passing a bicyclist, drivers of motor vehicles must provide bicyclists with a three foot buffer between their motor vehicle and the bicyclist. If roadway conditions do not allow for a three foot buffer, the driver must (1) slow to a reasonable and prudent speed when passing and (2) only pass when doing so would not endanger the safety of the bicyclist.

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- 5) Sidewalk riding (LAMC 56.15): Prohibits the riding of bicycles (or other human devices) on sidewalks (bikeways or boardwalks) with a willful or wanton disregard for the safety of persons or property. Disallows the riding of bicycles on Ocean Front Walk in Venice Beach
    - a) A cyclist operating on a sidewalk is defined as a pedestrian not as a bicyclist. Pedestrian laws therefore apply
    - b) Cyclists should yield to pedestrians and give “an audible warning” like a bell, horn, whistle, or voice
    - c) It is recommended to ride with the flow of vehicle traffic. Although any direction on a sidewalk is legal, wrong way hazards increase because the cyclist is less likely to be seen by passing motorists
  - 6) CVC 21201 (d): At night, bicycles must be equipped with
    - a) A white headlight visible from a distance of at least 300 feet
    - b) A rear red reflector visible from at least 500 feet when illuminated by a vehicle’s headlights
    - c) White or yellow pedal reflectors visible from at least 200 feet
    - d) A white or yellow reflector on the front of the bicycle visible from the side, and a red or white reflector on the rear of the bicycle visible from the side. Reflectorized tires can replace side reflectors
  - 7) CVC 21201 (e): A white light attached to the rider and visible from at least 300 feet may be used in lieu of a light attached to the bicycle
- E. CLOSING: Reinforce key learning points
1. A review of the California Vehicle Code and Los Angeles Municipal code sections that apply to bikes is an essential part of the bike officer's duties
  2. If the bike officer wishes to serve the community to the utmost and lead by example, the officer must have basic understanding of all laws, codes, or sections pertaining to bicycles
  3. To confidently and effectively engage in bicycle enforcement, a bicycle officer must demonstrate a thorough knowledge of the legal aspects pertinent to bikes

**III. EFFECTIVE CYCLING: (Large Group Activity/Lecture)**

**(60 min)**

**Purpose:** This module of training will familiarize students with the concepts of effective cycling.

- A. Effective cycling defined
  1. The use of various skills and techniques especially related to cycling in traffic or collision avoidance
  2. The corollary to the above is the belief that bicyclists are a legitimate part of traffic, and function best when acting accordingly
- B. Obey all traffic laws and rules of the road
  1. As a driver of any other vehicle, a cyclist should pay special attention to all traffic laws and rules of the road
  2. When a cyclist behaves like any other vehicle on the road by exhibiting proper signals, lane positioning and lane changing, the cyclist is far less likely to be involved in an accident
- C. Certain circumstances require the cyclist to adjust accordingly

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1. In pursuit or when responding code-3, with lights and siren, the bicycle officer may disobey certain rules of the road (just as a patrol vehicle)
  2. It should be noted that although an officer is legally justified in such action, a special emphasis on officer safety and a due regard for public safety must be reinforced
  3. Even with proper lighting and siren, a bicycle is still less visible than a car, and therefore at a greater risk while on or off the road
- D. Communicate to other drivers and be predictable
1. As a matter of safety, the bike officer should communicate to other drivers and riders, and ride predictably while on normal bike patrol
  2. Use hand signals or verbal notification
    - a. Call out road hazards
    - b. Make lane changes and/or turns at safe distances and with fair warning
  3. Failure to ride predictably greatly increases the likelihood of an accident
  4. Most drivers expect cyclists to stay to extreme side of the road
  5. It is sometimes a surprise for drivers to see the cyclist changing lanes into the flow of traffic or into a turn lane
  6. Unfortunately, a driver may not even see or notice the cyclist enter the flow of traffic
  7. Bike officers need to use hand signals to alert drivers to their intended action to avoid collisions
- E. Be visible
1. Safety is key
  2. Certain details or responses may call for a degree of stealth
  3. However, most often the bike officer must strive to be visible while riding on the streets, sidewalks or parks
  4. If a bike officer cannot be seen by drivers or pedestrians, the odds for an accident are greatly increased
  5. Always assume that the driver or pedestrian cannot see the bike officer. This will allow the bike officer the time and mindset to take necessary precautions or maneuvers
- E. Be aware
1. The bike officer must always be cognizant of the surrounding environment
  2. Be aware of what is happening around him/her
  3. Look ahead and look behind
  4. Always concentrate on where you want to go, not at what you are trying to avoid
  5. Listen: On a bike, you can often hear a problem before you see it
  6. The bike officer is continuously reassessing his/her surroundings
    - a. Traffic
    - b. Road condition: Wet, rough such as potholes, drainage grates, sand, dirt, oil
    - c. Pedestrians or animals on the sidewalk or crossing the street
    - d. The bike officer must understand all options available when dealing with a vicious animal. Dog encounters will be discussed later in the course
- F. Bicycle fit and sizing
1. Top tube: 2 to 4 inch clearance between inseam and top tube
  2. Seat adjustment

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- a. Height
  - 1) Seat height should be adjusted to allow the rider to comfortably pedal without under extension or hyperextension of the legs
  - 2) while seated and the pedal in the down stroke position, the leg should be slightly bent at the knee
- b. Forward position
  - 1) While seated and the pedals in the horizontal position
  - 2) The forward knee should be directly above the respective pedal
- c. Tilt
  - 1) The saddle should be tilted to allow for a horizontal seated position
  - 2) Some riders opt to tilt the nose of the saddle slightly up or down to relieve undue pressure and achieve a more comfortable riding position
- 3. Gearing
  - a. Shifting
  - b. Left hand shifter operates front derailleur
  - c. Right hand shifter controls rear derailleur
- 4. Proper Pedal Stroke
  - a. A proper pedal stroke greatly increases the rider's level of efficiency
  - b. The idea is to pedal "circles" with a consistent (smooth) push/pull technique
  - c. Most riders will naturally push down on the pedal, but it is a learned technique to also pull back and up throughout each pedal stroke
  - d. To achieve a smooth pedal stroke, the rider must engage a variety of leg muscles
  - e. The result is a better pedaling technique that will better distribute the workload between several leg muscles as opposed to concentrating the effort solely onto the quadriceps muscles
- 5. Braking (Front/rear)
  - a. Left hand controls front brake
  - b. Right hand controls rear brake
- 6. Planned stop
  - a. Downshift
  - b. Evenly apply brakes while shifting weight slight rearward
- 7. Maximum Effective Braking
  - a. Pedals level at 3 and 9 o'clock
  - b. Shift weight to extreme rear, behind saddle
  - c. Both brakes firmly and evenly (or slight emphasis on rear)
- 8. Cornering
  - a. This technique allows the rider to maintain a center of gravity more directly above the tires/wheels
  - b. Brake before entering the corner
  - c. Inside pedal should be in a 12 o'clock position with weight pressed on outside pedal and bar
- G. A.B.C.D. QUICK CHECK: demonstrated / explained
  - 1. For officer safety purposes, a pre ride check should be performed any time the bicycle is out of the officer's possession



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2. This will prevent most accidents due to equipment failure or tampering with the police bicycle
3. A.B.C. Quick Check
  - a. Air
    - 1) Check air pressure and condition of tire
    - 2) Look for excessive tread wear and/or sidewall damage
    - 3) Visually inspect rim and spokes
  - b. Brakes
    - 1) Examine brake pads, cables and housing
    - 2) Check brake levers for proper tension
  - c. Cranks
    - 1) While bike is resting on kickstand, hold both pedals and move side to side
    - 2) Look for movement of the crank set indicating bearing damage
    - 3) Visually inspect chain for proper lubrication and proper chain alignment and condition
  - d. Drop
    - 1) With the bike upright, pick the bike up 3 to 4 inches and drop the bicycle on its tires
    - 2) Listen for unusual sounds and vibrations
    - 3) Drop test is not performed on the electric bicycle due to the increased weight
  - e. Quick
    - 1) Show how to properly tension
    - 2) Close all quick releases: hub skewers, seat post clamp
    - 3) Open and closed quick release levers (**DEMONSTRATE**)
  - f. Check
    - 1) A slow ride to check that components are functioning properly
    - 2) Front/rear brakes
    - 3) Check shifters for proper functioning
    - 4) Lights and siren for charge and function

**IV. EQUIPMENT CHECK (Large Group Activity)**

**(15 Min)**

**PURPOSE:** To ensure proper condition and fit of equipment of all issued equipment. Instructors will inspect each student's equipment and verify its condition

**A. Department Approved and Required Equipment<sup>1</sup>**

1. Bicycle Helmet
  - a. Glasses
    - 1) Frame
    - 2) Day and night lenses
  - b. Gloves
    - 1) Long fingered gloves or
    - 2) Short fingered gloves

**B. BIKE FIT AND ISSUE**

1. Bicycle fit and sizing
  - a. All Instructors will aid in the bicycle fit of each student. Each student will be assigned a bicycle to be used and maintained for the duration of the school

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<sup>1</sup> Los Angeles Police Department Manual- 1<sup>st</sup> quarter, 3/601. Possession of Uniform and Personal Equipment

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- b. Top tube: 2 to 4-inch clearance between inseam and top tube
- 2. Adjustments (seat)
  - a. Height
    - 1) Seat height should be adjusted to allow the rider to comfortably pedal without under extension or hyperextension of the legs
      - a) While seated and the pedal in the down stroke position
      - b) The leg should be slightly bent at the knee
    - 2) Forward position
      - a) While seated and the pedals in the horizontal position
      - b) The forward knee should be directly above the respective pedal
    - 3) Tilt
      - a) The saddle should be tilted to allow for a horizontal seated position
      - b) Some riders opt to tilt the nose of the saddle slightly up or down to relieve undue pressure and achieve a more comfortable riding position
- C. A.B.C.D. Quick Check: a pre-ride inspection
  - 1. All instructors will aid the students in performing a ABC quick check on their issued bicycle
  - 2. This will prevent most accidents due to equipment failure or tampering with the police bicycles

**V. BIKE MANIPULATIONS 1: (Large Group Activity/ Outdoor)**

**(60 min)**

**Purpose:** To teach students proper placement and control of the bicycle, using learning activities. Students will properly demonstrate how to use the bicycle to their advantage

A. Bike manipulations

- 1. Overview block of training
  - a. Bike walk
  - b. Position of advantage
  - c. Mounted position
  - d. Dismounting
  - e. Power pedal position
  - f. Barricade position
  - g. Forward roll
- 2. Bike walk / run
  - a. Instructor will explain the proper positioning for walking the bicycle: walking on the left side of the bicycle, left hand on left bar, right hand on seat
  - b. Instructor will explain the advantages of this position: better weapons retention and control of the bicycle to allow the bicycle to be manipulated as needed.
  - c. Instructor will demonstrate position, advantages, and control of this technique
  - d. Students will be directed to walk their bicycles in the appropriate manner from the staging area up to the athletic track
  - e. Students will be directed to run the bike for a short distance to display proper control of the bicycle
- 3. Position of advantage

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- a. Instructor will explain the position of advantage to the students: standing to the left rear of the bicycle
  - b. Instructor will demonstrate proper position and explain the tactical advantage of using the bike as an obstacle between the student and a suspect
  - c. Students will be directed to assume the position of advantage. All instructors will adjust the students position so that they can best utilize the bicycle
  - d. This position is used for both the tactical advantage as well as providing a uniform appearance during squad movements
4. Mounted position
- a. Instructor will demonstrate the correct mounted position.
  - b. The demonstrator will be given the command "Mount up" at which time he will straddle the bicycle with both feet flat on the ground and both hands on the handle bars in preparation to ride
5. Dismounting
- a. Student will bring the bicycle to a complete stop before placing both feet on the ground on each side of the bicycle in a balanced stance
  - b. Student, while holding onto the brake, will lift the right leg over the rear of the bicycle placing it on the ground on the left side of the bicycle
  - c. Student, while holding the front brake with the left hand and the seat with the right will engage the kickstand before stepping back to the position of advantage
6. Power pedal position
- a. Instructor will explain / demonstrate the power pedal position: while standing over the top tube of the bicycle, the right pedal will be placed in the 2 o'clock position (approximately in alignment with the down tube). The instructors right foot is placed on the right pedal in preparation to accelerate the bicycle
  - b. Students will be directed to stand over their bicycles and place the pedals in the correct position. All instructors will assist the students to achieve the correct position
7. Barricade position
- a. The instructor will explain / demonstrate the correct position for the barricade: left side of the bicycle within a controlling distance (arms-length to afford the ability to manipulate the bicycle as needed)
  - b. Instructor will direct the students to stand facing the left side of their bicycle within a controlling distance of their bicycle
  - c. This position is used in BRRT operations and may be used as a barrier between a student and a suspect
- B. Forward Roll: In a large group at the training site, the instructor will explain how to perform a forward roll and how it is used to prevent injury during a bicycle crash
- a. Students will be directed to stand in a line with approximately two arms lengths separation between the students
  - b. Students will assume a one knee kneeling position with the left leg as the lead facing the instructor
  - c. The students will be directed to reach forward and down towards their left foot with their left hand, keeping their left arm slightly bent
  - d. At the direction of the instructor, the students will tuck their chin to their chest and push off with the rear leg. The students will roll forward across the arc of their left shoulder to their hips

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- e. When the students are able to complete this move, the instructor will direct them to set up for a roll on their right side and the same procedure will be followed

**VI. PRACTICAL SKILLS 1**

**(60 min)**

- A. Maximum effective braking
  - 1. **DEMONSTRATE:** Maximum effective braking
    - a. Approach
      - 1) Approach speed: 8-10 mph
      - 2) Neutral riding position; seated and weight centered
      - 3) Pedals level: 3 and 9 o'clock
    - b. Weight transfer
      - 1) The student will rise slightly off the seat
      - 2) Aggressively push the bike forward resulting in the student's body moving to the rear
      - 3) Weight is maintained low and behind the seat throughout the application of brakes
    - c. Braking application
      - 1) Apply front and rear brakes simultaneously and aggressively
      - 2) Just short of causing brakes to lock up and wheels to skid
      - 3) If rear wheel skids, loosen grip on the front brake slightly until rear wheel stops skidding
      - 4) Rider maintains maximum effective braking coming to a complete stop, placing at least one foot on the ground
    - d. Drills
      - 1) Students perform the technique
      - 2) Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
      - 3) Allow time for feedback before moving to the next student
- B. Step through dismount
  - 1. Step through dismount (**DEMONSTRATE**)
    - a. Approach at approximately 8 -10 mph
    - b. Stop pedaling and coast in a straight line with left foot in 6 o'clock position
    - c. Transfer body weight onto left foot while removing right foot from right pedal and moving leg up and to the rear over bike seat and bag
    - d. While maintaining balance, bring right leg to a position between the seat tube and left leg
    - e. While using the rear brake to control speed and with right leg between the downtube and left leg, the student steps forward in a walking motion with right foot making contact with the ground
    - f. When the right foot touches the ground, the instructor removes left foot from left pedal and follows through in a walk or run (dependent on speed)
    - g. As the instructor begins walking/running, release grip on the left side of handlebar, bringing the left hand up into a defensive position while guiding the bike to ground using the right hand only
    - h. After completely releasing the bike, continue walking/running forward to complete the exercise
  - 2. Drills
    - a. Students perform the technique

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- b. Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
- c. Allow time for feedback before moving to the next student
- 3. Power slide
  - a. **DEMONSTRATE:** Power slide
    - 1) Instructor approaches a suspect at up to 15 mph. Instructor shifts weight to the front of the bike while pushing the right pedal to the 6 o'clock position
    - 2) At a safe distance, instructor, while rolling, aggressively applies the rear brake causing the rear tire to skid and at the same time extends the left foot forward, places it on the ground forward of the down tube
    - 3) As the tire skids, instructor shifts weight onto the left foot using it as a base that turns and slides. Simultaneously, the right foot is used to conduct a controlled counter- clockwise slide
    - 4) Instructor, in a controlled manner, will slide the bicycle to a complete stop and onto its left side laying it on the ground before bringing the right leg over the bicycle utilizing the bike as a barrier in the bike down position
  - b. Drills:
    - 1) Students perform the technique
    - 2) Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
    - 3) Allow time for feedback before moving to the next student
- C. Cone formations
  - 1. Box formation (See attached diagram for set up)
    - a. Student enters the box on the right side, completes three revolutions within the box, and then exits the left side to complete the exercise
    - b. Approach 2 – 5 mph
    - c. Gear position: 1front/3 rear
    - d. Neutral Riding Position
    - e. Enter the box on the right side; bike positioned as far to the right as possible
    - f. Maintain constant pedaling using rear brake only to regulate speed
    - g. Turn head and shoulders left and steer left
    - h. Complete three, controlled revolutions; exit left side of box
  - 2. Drills
    - i. Students perform the techniques
    - j. Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
    - c. Allow time for feedback before moving to the next student
- D. CLOSING: Reinforce key learning points
  - 1. Skills such as balance and control are an essential part of using the bicycle as an effective tool for patrol
  - 2. Proficiency in the above noted skills and techniques is of the utmost importance as they comprise the essence of patrol riding

**VII. BIKE MANIPULATIONS 2 (e-bike)**

**(30 min)**

- A. Mounted position
  - 1. Instructor will demonstrate the correct mounted position.

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2. The demonstrator will be given the command “Mount up” at which time he will straddle the bicycle with both feet flat on the ground and both hands on the handle bars in preparation to ride
  3. Student must take into account the added weight of the bicycle equipped with an electric system when attempting to mount the bicycle.
  4. Student must use proper form and technique to remain in control of the bicycle.
  5. Student will be instructed to turn the system on, once the bicycle has been mounted.
- B. Dismounting
1. Student will bring the bicycle to a complete stop before placing both feet on the ground on each side of the bicycle in a balanced stance.
  2. Student, while holding onto the brake, will lift the right leg over the rear of the bicycle placing it on the ground on the left side of the bicycle.
  3. Student, while holding the front brake with the left hand and the seat with the right will engage the kickstand before stepping back to the position of advantage.
  4. Student must take into account the added weight of the bicycle equipped with an electric system when attempting to dismount the bicycle. Failure to do so may cause the student lose control of the bicycle causing it to fall on or around the student.
  5. Student will be instructed to turn the system off prior to dismounting the bicycle. (when feasible)
- C. Barricade position
3. The instructor will explain / demonstrate the correct position for the barricade: left side of the bicycle within a controlling distance (arms-length to afford the ability to manipulate the bicycle as needed)
  4. Instructor will direct the students to stand facing the left side of their bicycle within a controlling distance of their bicycle
  5. This position is used in BRRT operations and may be used as a barrier between a student and a suspect
  6. Student should be aware that the added weight of an electric system can make it more difficult for a combatant to quickly take, knock over or throw the bicycle. However, the student should also be aware that, if the bike is pushed into the student, it will hit with more force because of the added weight. The added weight also makes it more difficult for the student to quickly maneuver the bicycle for a tactical advantage
  7. Student must take into account the added weight of the bicycle equipped with an electric system when attempting the barricade position. Failure to anticipate the heft of the bicycle may cause the student to place the kickstand down in an inappropriate position or area, causing the bicycle to fall
- E. Bikes Up / Down
1. Bikes down
    - a. From the Bike Barricade position, the instructor will give the command, “Bikes Down”
    - b. The students echo the command, “Bikes Down”
    - c. On the instructor’s command of “Move”, the students will echo the command of “Move.” The students will approach their bicycles, placing their left hand on the left handlebar grip and their right hand on the seat
    - d. The students will raise their kickstand (with their right foot) before taking a step to the rear (with the right leg)

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- e. Student will immediately recover to the athletic ready stance. Student should be able to initiate balanced striking techniques as well as deploy less lethal and lethal force
  - f. Student must take into account the added weight of the bicycle equipped with an electric system when putting the bicycle down. The added weight has the potential to make it harder to put the bicycle down in a safe, controlled manner
  - g. Student must use the leg muscles to protect the back and ensure that the head does not extend too far over the bicycle. Failure to do so can put the student at a tactical dis-advantage
2. Bikes Up
- a. From the bikes down position, the instructor will give the command, "Bikes Up"
  - b. The students echo the command, "Bikes Up", while ringing their batons
  - c. On the instructor's command of "Move", the students will echo the command of "Move" while approaching their bicycles and from an athletic squatting position the officer will place their left hand on the left handlebar and right hand on the seat
  - d. The officers, using their legs, will raise the bicycles back into an upright position, placing them on their kickstand and recover to a Field Interview / Ready Position
  - e. Students must take into account the added weight of the bicycle equipped with an electric system when picking the bicycle up. The added weight has the potential to make it harder to pick up the bicycle in a safe, controlled, manner
  - f. Student must use the leg muscles to protect the back and ensure the head does not extend too far over the bicycle. Failure to do so will put the student at a tactical dis-advantage

**VIII. PRACTICAL SKILLS 2 (e-bike)**

**(60 min)**

- A. Maximum effective braking
- 1. **DEMONSTRATE:** Maximum effective braking
    - a. Approach
      - 1) Approach speed: 12-15 mph
      - 2) Neutral riding position; seated and weight centered
      - 3) Pedals level: 3 and 9 o'clock
    - b. Weight transfer
      - 1) The student will rise slightly off the seat
      - 2) Aggressively push the bike forward resulting in the student's body moving to the rear
      - 3) Weight is maintained low and behind the seat throughout the application of brakes
    - c. Braking application
      - 1) Apply front and rear brakes simultaneously and aggressively
      - 2) Just short of causing brakes to lock up and wheels to skid
      - 3) If rear wheel skids, loosen grip on the front brake slightly until rear wheel stops skidding
      - 4) Rider maintains maximum effective braking coming to a complete stop, placing at least one foot on the ground

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- 5) Student must take into account the added weight of the bicycle equipped with an electric system when attempting to do maximum effective braking. The weight of the bicycle alone will require more time to stop
  - 6) Some electric systems added weight at the rear wheel can assist at counter balancing the forward energy allowing the student to use more front brake without the bicycle's rear lifting as violently
  - 7) Students must be aware of the possibility of a surge of power if the forward pedal is weighted either while stopping or stepping off the bicycle
  - 8) Some systems have a brake cut off causing the system to cease providing power during braking
- d. Drills
- 1) Students perform the technique
    - a) With system turned on maximum assist
    - b) With system turned off
    - c) With system in a student selected level
  - 2) Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
  - 3) Allow time for feedback before moving to the next student
- C. Step through dismount
1. Step through dismount (**DEMONSTRATE**)
    - a. Approach at approximately 8 -10 mph
    - b. Stop pedaling and coast in a straight line with left foot in 6 o'clock position
    - c. Transfer body weight onto left foot while removing right foot from right pedal and moving leg up and to the rear over bike seat and bag
    - d. While maintaining balance, bring right leg to a position between the seat tube and left leg
    - e. While using the rear brake to control speed and with right leg between the downtube and left leg, the student steps forward in a walking motion with right foot making contact with the ground
    - f. When the right foot touches the ground, the student removes left foot from left pedal and follows through in a walk or run (dependent on speed)
    - g. As the student begins walking/running, release grip on the left side of handlebar, bringing the left hand up into a defensive position while guiding the bike to ground using the right hand only
    - h. After completely releasing the bike, continue walking/running forward to complete the exercise
    - i. Students must consider the added weight of the bicycle equipped with an electric system when attempting a step through dismount. The student must anticipate the added weight and take that into account to safely step off the bike and lower it to the ground
    - j. Students need to be aware of the possibility of a power surge both while getting into position for the step through dismount and as they step off the pedal
  2. Drills
    - a. Students perform the technique
      - 1) With system turned on maximum assist
      - 2) With system turned off
      - 3) With system in a student selected level



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- b. Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
  - c. Allow time for feedback before moving to the next student
- D. Power slide
- 1. **DEMONSTRATE:** Power slide
    - a. Student approaches a suspect at up to 15 mph. Student shifts weight to the front of the bike while pushing the right pedal to the 6 o'clock position
    - b. At a safe distance, student, while rolling, aggressively applies the rear brake causing the rear tire to skid and at the same time extends the left foot forward, places it on the ground forward of the down tube
    - c. As the tire skids, student shifts weight onto the left foot using it as a base that turns and slides. Simultaneously, the right foot is used to conduct a controlled counter- clockwise slide
    - d. Student, in a controlled manner, will slide the bicycle to a complete stop and onto its left side laying it on the ground before bringing the right leg over the bicycle utilizing the bike as a barrier in the bike down position
    - e. Student will address the threat and choose the appropriate defensive tactic
    - f. Student must consider the added weight of the bicycle equipped with an electric system when attempting a power slide
    - g. The added weight may cause the rear end of the bicycle to slide at a faster rate of speed than expected, causing the student to lose control
    - h. The added weight can also cause the bike to remain upright during the slide causing the student to be thrown off the bike to the far side near the threat
    - i. Student will be instructed that when feasible, the system turned off will produce the most consistent feedback eliminating the possibility of a surge of power during the maneuver
  - 2. Drills:
    - a. Students perform the technique
      - 1) With system turned on maximum assist
      - 2) With system turned off
      - 3) With system in a student selected level
    - b. Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
    - c. Allow time for feedback before moving to the next student
- E. Cone formations
- 1. Box formation (See attached diagram for set up)
    - a. Student enters the box on the right side, completes three revolutions within the box, and then exits the left side to complete the exercise
    - b. Approach 2 – 5 mph
    - c. Gear position: 1front/3 rear
    - d. Neutral Riding Position
    - e. Enter the box on the right side; bike positioned as far to the right as possible
    - f. Maintain constant pedaling using rear brake only to regulate speed
    - g. Turn head and shoulders left and steer left
    - h. Complete three, controlled revolutions; exit left side of box
  - 2. Drills
    - i. Students perform the techniques
      - 1) With system turned on maximum assist
      - 2) With system turned off
      - 3) With system in a student selected level

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- j. Students need to gain an understanding of how the electric drive system effects slow speed maneuvering in an environment where mistakes cannot be tolerated (example; crowded pedestrian walkways, crowds, parking lots)
- k. A surge of power during these types of maneuvers will cause the turning radius to increase and may result in the unexpected loss of control
- l. Continue the drill as demonstrated until students have mastered the skill and the ability to correctly perform the technique
- e. Generally, the system should be turned off when attempting slow speed maneuvers in an environment where there is no room for error
- f. Allow time for feedback before moving to the next student

**F. Bike Carry**

1. **DEMONSTRATE:** Bike carry

- a. Course: Staircase, ten step minimum
- b. Student stage at bottom of stairs, dismounted to the left of the bike
- c. Student places left hand on left grip, reaches over top tube and down grasping the lower downtube (near bottom bracket)
- d. Using legs (not lower back), student raises bike and hooks the nose of the saddle on right shoulder; the weight of the bike is now primarily supported by the shoulder, using the arms for stabilization only
- e. Student then walks up the stairs to complete the exercise
- f. Students will complete a second carry on the opposite side with the bicycle facing to the rear
- g. The ability to carry the bicycle on either side is a matter of officer safety providing the ability to keep the gun hand free as needed

2. Drills

- a. Students perform the techniques
- b. Instructors will observe outside of the drill and evaluate students
- c. Students will demonstrate the ability to carry and maintain control of the bicycle while walking up the flight of stairs

**G. Transportation**

- 1. Because of the weight of a bicycle equipped with an electric system, it is suggested the bicycle be transported inside of a vehicle, such as a van, or pick-up truck
- 2. If the bicycle must be transported by bicycle rack, it is the person transporting the bicycles responsibility to verify that the rack is a Department supplied hitch mounted rack
- 3. If possible, the battery and the console should be removed from the bicycle and transported within the vehicle
- 4. When transporting bicycles equipped with an electric system on a bicycle rack, the bicycle shall be loaded on the portion of the rack closest to the trailer hitch

**H. CLOSING: Reinforce key learning points**

- 1. Skills such as balance and control are an essential part of using the bicycle as an effective tool for patrol
- 2. Proficiency in the above noted skills and techniques is of the utmost importance as they comprise the essence of patrol riding
- 3. An understanding of how the electric drive systems effect the handling and balance of the bicycle

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**XI. RIDE (Large Group Activity/Outdoor)**

**(120 min)**

**Instructional Goal:** To allow the instructor the time to further assesses and evaluate students' bicycle handling skills

A. RIDE

1. Ride preparation

- a. Instructor student ratio will be 1:10
- b. A safety Brief and review of safety plan will be conducted
- c. All riders shall wear required safety equipment; helmets, gloves, glasses
- d. All riders perform ABC Quick Check
- e. Students are organized in a column of two formation in the upper parking lot, adjacent to the Mark VII building of Elysian Park Academy

B. End of Training