

Bicycle Patrol

Concepts and Issues Paper

August 2004

I. INTRODUCTION

A. Purpose of Document

This paper is designed to accompany the model policy on bike patrol established by the IACP National Law Enforcement Policy Center. It provides essential background material and supporting documentation to provide greater understanding of the developmental philosophy and implementation requirements for the model policy. This material will assist law enforcement executives in their efforts to tailor the model to the requirements and circumstances of their communities and their law enforcement agencies.

B. Background

One of the growing trends in law enforcement is the use of bicycles by patrol officers. In 2000, there were approximately 4,900 police bicycle units and over 300 bicycle medical teams across the country.¹ Departments with bike units range in size from fewer than 10 to over 9,000 sworn personnel.² A wide variety of different agencies use bike patrol officers including city, county, and state police; campus and public safety departments, as well as the military, hospitals, parks, and private security firms.³ Bike patrol officers can be used seasonally or year-round depending on the location and climate of the department. Approximately 45 percent of bike units operate year-round, while the majority operate only during the summer months.⁴ There are several reasons for the increased use of bikes, such as their cost effectiveness, stealth and mobility for undercover operations, ability to patrol downtown and related congested areas more easily and with more rapid response times, utility for special events and crowd control management, deployment in routine patrol, and their role in community-oriented policing. The differences in policing tactics between officers on foot, in patrol cars, and on bicycles have produced a need to develop specific policies, protocols and tactics for these specialized units.

C. Applications and Advantages of Bike Patrol

Bike patrols have several advantages over other modes of patrol that make them appealing to departments in providing deterrence, protecting communities, and preventing crime.

Stealth. Bicycles are a quiet form of transportation that can provide officers with stealth during patrol not afforded by other

transportation devices. Stealth enhances the officer's ability to conduct surveillance by affording easy access to unconventional locations, such as from behind trees, around corners, and from wooded areas. By using a silent approach to crimes in progress, it enhances officer safety and increases the element of surprise to perpetrators. These capabilities make the police bicycle extremely effective in high-crime areas in which drug crimes and other illegal activity is prevalent and where covert action is necessary. Bike patrol can engage in managed patrol activities to include crime-specific, area-specific, or target-specific pursuits and in a wide variety of enforcement actions and programs.

Accessibility and Maneuverability. In congested traffic areas, the police cyclist can provide additional speed when responding to priority calls for service because the officer can maneuver easily between vehicles, take shortcuts through alleys and parks, and travel on sidewalks opposing one-way traffic. Bikes have easy access to parks, nature trails, multi-use pathways, sporting complexes such as ballparks and outdoor arenas, among numerous similar venues. Bicycle patrols in shopping center parking lots and structures allow officers the opportunity to ride virtually unnoticed amongst parked motor vehicles, providing easy visual access to vehicle interiors. Where cruising is frequent, police cyclists easily travel between lines of cars and visually note the presence of alcohol, drugs, and weapons inside the vehicles as well as observe other types of illegal behavior.

Police cyclists can actively engage in traffic enforcement, including stop sign violations and speeding, especially in residential areas or business districts, where officers have easy access to the streets and a limited profile within the neighborhood.

As noted, the bike patrol officer can be critical in reducing response time to various types of service calls. In heavily congested areas, the bike patrol officer can respond to an emergency situation more quickly than a patrol car because of the maneuverability between cars and the ability to take short cuts through areas inaccessible to motor vehicles.

During natural and manmade disasters, bicycles are quite effective at taking on the role of first responders where accessibility is limited and maneuverability is essential. In such situations, bicycles are often a more efficient means of accessing and assisting victims. During the tragic events of September 11th in New York City, bike patrols provided supplies, emergency equipment, first aid, and food and water to victims as well as rescue workers.

In search and rescue situations, officers are often faced with the problem of areas that are inaccessible to motorized vehicles or that may be difficult or too dangerous for air support. The bicycle can be an effective alternative in these search efforts, especially in natural environments where single-track mountain bike, horse, walking, and hiking trails are available. Properly trained personnel can also utilize mountain bicycles equipped with global positioning systems (GPS) and enhanced radio systems. Bicycles permit first responders to quickly access emergency routes, locate and assist victims, and either guide more advanced life support to the scene or assist the victim in moving to an area where advanced life support personnel and equipment are accessible.

Approachability. Police officers who patrol residential areas, ride through mobile home communities, apartment complexes, business districts, schools and campuses on bikes are far more approachable to the public than those in cars. In addition, community members typically perceive bike patrol officers as less authoritarian and are therefore more likely to welcome them as friends rather than foes. This often leads to improved communication between officer and civilian, which may include information pertaining to recent criminal activity and perpetrators. In addition, a civilian who is approached by a bike officer in a common enforcement capacity—such as a traffic stop—is far less likely to feel apprehensive, nervous, or threatened than one who is pulled to the side of the road for a vehicle infraction by an officer in a motor vehicle, complete with lights and siren activated. This situation is similar in routine neighborhood encounters when a bike patrol officer patrolling the neighborhood approaches an individual. The person is less likely to feel apprehensive and is often more communicative and cooperative.

Community Service Bicycle patrols are particularly well suited to fostering closer police-citizen interaction and engagement. This can be accomplished on a daily basis during patrol operations as well as through community service functions such as bike rodeos and helmet giveaways, school bike demonstrations, bike safety presentations, and bicycle registration programs. Police cyclists can promote helmet use and bike safety to the community and its children as another type of service.⁵

Active police cyclists are also in a position to serve as positive role models to at-risk youth through involvement with cycling and/or adventure clubs. In programs such as the Front Rangers Cycling Club (Denver, CO), Neighborhood Bike Works (Philadelphia, PA) and the West Midlands Police Urban Adventure Group (West Midlands, England), structured outdoor activities are offered to young people by law enforcement officers in a disciplined but non-confrontational environment.⁶ These groups not only promote bicycling, bicycle safety, and healthy lifestyles, but also enhance other community policing initiatives by creating positive interactions between officers and youth who may otherwise be drawn into crime, drug use, or other anti-social behavior.

A knowledgeable and well-informed police cyclist may be able to work with local public works and traffic engineers to incorporate bicycle facilities, such as wide shoulders and bike lanes/paths, into engineering plans. If a bike officer obtains instructor certification, he or she can offer educational classes to the public on safe and effective cycling, such as the League of American Bicyclists' *Road I* course. Police cyclists, especially police cyclist instructors, can foster healthy relationships with local cycling associations by providing educational sessions on bicycle traffic laws, such as *Community Bicycle Safety: for Law Enforcement*⁷ developed by the National Highway Traffic Safety Administration (NHTSA), as well as the NHTSA-funded *National*

Police Bicycle Awareness Curriculum (developed by MassBike.) These types of community engagements promote positive relationships with the public, sometimes in locations where friction between law enforcement and public may otherwise exist.

Special Events, Demonstrations and Civil Disturbances. Bicycles can be extremely effective during special events, including large and small athletic competitions, festivals, street fairs, carnivals, parades, footraces, outdoor concerts, or any potential crowd management/control situation. Crimes at these special events—such as disorderly conduct, theft, and security breaches—as well as medical emergencies, often occur in areas that are not accessible by patrol car and can be too far away to quickly reach on foot.

During peaceful civil demonstrations, police on bikes can monitor the crowd from a slightly elevated position and can move quickly around and through the crowd if necessary. During times of civil disobedience, properly trained officers can utilize their riot gear and bike to effectively contain, control, and move a crowd. During such times, motorized units are often hampered by the crowd and are unable to deploy crowd control equipment in an expeditious manner. Conventional crowd control equipment such as 37mm projectiles, pepper balls, gas canisters, and super-sized pepper spray containers can often be transported more quickly and easily by an officer on bicycle. The requests for these types of crowd control tools are often made in exigent circumstances; therefore, delivery in an expedient manner is essential.

EMS Bicycles. For those law enforcement entities that are considered public safety departments and similar police agencies employing individuals who serve as police officers as well as firefighters or paramedics, the mountain bike can enhance the delivery of emergency medical services in congested areas and during special events. Equipment carried on an EMS bicycle can sustain life for a period of about 20 minutes, which adds precious time to get advanced life support to the victim. Additional training and certification in emergency medical services is obviously necessary, as is EMS cycling specific training. Packing expensive and heavy medical equipment and supplies on a bicycle requires knowledge of weight distribution, and the effects of weight on balance and maneuverability requires skill development that is quite different than that of police cyclists. Equipment requirements vary as well; a sturdier bicycle frame, rims, brakes, and tires are necessary when deploying EMS bikes, due to the heavy load.

II. POLICY RECOMMENDATIONS

A. Limitations and Precautions

Although police cyclists have a distinct advantage in congested areas and in relatively small geographical areas, they are obviously limited when responding to emergency calls for service more than a mile away. For these reasons, a police cyclist working a larger geographical beat is usually not dispatched to emergency calls but may elect to respond if in close proximity, or if motorized units are unavailable.

Weather/Environmental Conditions. Due to the exposure of the police cyclist to various environmental conditions, an agency may choose to impose extreme weather restrictions on bicycle deployment. Bikes are best deployed when the temperature range is between 40 and 90 degrees Fahrenheit. However, elevation and humidity in different geographical areas may increase or decrease this zone of comfortable operation. Agencies may also

elect to restrict bike deployment during times of heavy or prolonged rain, lightning, snow, sleet, or when road conditions are otherwise dangerous.

Traffic. Traffic stops require a certain degree of creativity and tactical awareness. A bike officer must first gain the attention of the driver without the use of standard emergency equipment, and without placing himself or herself in harm's way. For example, riding next to or in front of a motor vehicle is potentially dangerous, and physical contact with a moving vehicle should not be undertaken. Rather, some type of audible signal should be used to gain the driver's attention, such as a bell or siren mounted on the bicycle, or a police whistle secured to the officer's uniform.

Once the vehicle is stopped, the police cyclist must consider visibility of the vehicle to approaching traffic, as well as his or her own safety and protection of equipment. Thus, a bicycle should not be placed behind a stopped vehicle, since the bicycle affords no visibility to approaching traffic or protection for the officer. Nor should the bicycle be placed in front of the vehicle in case the driver should attempt to flee. Instead, the bicycle should be placed on the rear side of the suspect vehicle away from traffic, and the officer should approach from the passenger side. This approach offers distinct tactical advantages as well as some protection from approaching traffic. The officer should conduct all further business, such as computer checks and citations, from a safe location that provides the officer with cover from occupants as well as traffic.

In some instances, recognizing the limited speed of bicycles, motorists have fled from police cyclists during vehicle stops. While a police bicycle does not have the emergency equipment or the speed of a patrol car, the cyclist is typically able to keep the suspect vehicle in sight for a short period of time and report direction of travel to the communications center. Felony fleeing and eluding charges are authorized in most jurisdictions after such incidents.

Bicycle officers may also respond to and investigate traffic crashes. However, where emergency lighting is required for safety purposes and to divert traffic, backup motorized units are required. If the involved vehicles can be moved, they should be driven to an area where traffic is light or nonexistent and emergency warning devices are not required. Finally, because of their specialized knowledge, bike officers may be the best choice for investigating crashes involving cyclists and pedestrians.

Felony Vehicle Stops. Because police cyclists lack the cover typically provided by a patrol car, public address equipment, shoulder-mounted weapons, and emergency lights, they should not initiate felony vehicle stops. However, bicycle officers should be permitted to assist with felony stops in progress, provided that cover is available either from an on-scene patrol vehicle or in the immediate environment. Agencies may also choose not to utilize police cyclists for crash investigations, due to the lack of emergency lights to warn approaching traffic unless, as previously noted, the vehicles can be moved to a safe location or in the instance of a cyclist/pedestrian crash.

Tactical Considerations. There are certain tactical issues that are unique to police cyclists. The lack of cover typically afforded by a patrol car requires that bike officers constantly scan for available cover, and be able to recall, under stress, if the nearest cover is actually behind them. The lack of shoulder-mounted weapons may require a different approach to certain incidents and crimes. Because they use portable radios, police cyclists lack access to the more powerful and reliable radios mounted in patrol vehicles. They usually do not have MDTs, secondary flashlights, high-

intensity emergency warning equipment, or independent capability to perform arrest transport.

Since police cyclists cannot transport arrestees, they normally request a patrol car to do so. In jurisdictions where two-officer bike patrol units must remain self-sufficient, and when suspects are cooperative, it may be possible for one officer to stay with the secured suspect while the other retrieves a patrol car for transportation.

The police bicycle can, under certain circumstances, function as a defensive tool by serving as a barrier when positioned between the officer and a suspect. A bicycle may also be used in an offensive mode when other options are not reasonably appropriate or adequate. However, offensive use of the bicycle should be the subject of departmental training by a qualified instructor in the context of other weapons available to the officer and consistent with the use of force continuum.

Due to the bicycle officer's riding position—leaning forward with arms outstretched—weapons and equipment worn on the duty belt are easily accessible and therefore vulnerable, particularly when riding through crowds. Officers should be constantly aware of this possibility and be particularly guarded with the sidearm. In some cases, therefore, walking the bike through heavy pedestrian traffic may be a better option than riding. As an added precaution, officers may want to position as many tools forward on their duty belt as safety, convenience, and comfort permit. In addition, weapons retention training for bicycle officers is highly recommended.

Just like an officer performing police functions with the use of a patrol car, the police cyclist should never disregard the use of a tactical retreat. Since the bike officer does not have the immediate cover of a patrol car, a tactical retreat should always be an option if necessary.

Bike officers should also realize that sometimes they are faster off the bike than on it. A situation may require agility that the bicycle does not afford, and intentionally "dumping" the bike should not be disregarded as an option.

Sidewalk Riding. Police cyclists can often be more effective while patrolling on sidewalks rather than in the street. Officers riding in the street must maintain sufficient speed so as not to impede traffic; as a result, it can be more difficult for them to engage in proactive patrol techniques.

Riding on sidewalks does have certain considerations. Pedestrians have the right of way and where reasonable, officers should give an audible warning when approaching from the rear. Unless circumstances dictate otherwise, officers should ride to the outside of the sidewalk to avoid persons entering and exiting buildings and, unless exigent circumstances exist, they should patrol on sidewalks at speeds that are reasonable and that do not endanger persons or property. Extra care and caution should be exercised due to the unpredictability of pedestrians, children, pets, business activity, and the like. Officers should not patrol in on sidewalks in areas where prohibited, or in designated pedestrian-only zones, unless otherwise authorized by tactical or strategic circumstances, or exemption from the prohibition due to their status as emergency vehicles.

Sidewalk riding presents some tactical opportunities, especially during hours of darkness. Police cyclists can utilize shadows, building entrance recesses, light poles, mailboxes, and other structures located on the sidewalk as concealment and sometimes cover. This also allows for more effective surveillance.

Communications. Communication is of paramount importance to a bicycle officer. Police cyclists do not have vehicle locators, and

if officers become engaged in an enforcement situation or other incident, other units may be unable to find them unless their position has been verbally communicated. Backup motorized units are often accustomed to looking for other police vehicles and may not notice a bicycle officer, especially in recessed areas of buildings, alleys, and parking lots, and particularly after dark. Therefore, prior to any enforcement action or related contact, bicycle officers should relay their precise position. In contrast to a motor patrol unit that can relay its position by using the nearest cross street, a bicycle officer may have to use both cross streets and fixed objects for reference, such as an alley, building entrance, garage, or other landmark.

Communication between bicycle officers working together as a team is also important. Officers riding in pairs need to remain aware of one another's location whenever separated for any substantial period of time, particularly when riding after dark.

Police cyclists should consider using an ear microphone attachment to their portable radio. During evening hours and in quiet locations, police radio sounds travel easily and suspects can be tipped off to an officer's location and approach if the sound is not contained.

Patrolling at Night. Officers who patrol at night must overcome a variety of challenges caused by the dark environment. Since about 90 percent of police cyclists spend some time patrolling at night, particular precautions should be taken to avoid accident and injury under these more difficult conditions.⁸

During late night hours, police cyclists are encouraged to stay out of the street because of poor visibility and the ever-present danger of drunken and impaired drivers. However, there are times when it is necessary to ride in the street; therefore, it is critical that officers be visible to motorists approaching from the rear. Retro-reflective seams and lettering across the back of a police cyclist uniform offer higher visibility, as do flashing LED taillights. Even while patrolling in stealth mode without headlights activated, it is usually advisable to maintain the flashing taillight. The retro-reflective material found on the rear of police uniforms does not give away an officer's position under ambient lighting—a common concern to officers working at night. The material must be within 14 degrees of a light from the rear to be visible. In contrast, metal badges worn on cyclists' uniforms flash wildly under a streetlight. For this reason, police cyclists are encouraged to use a badge patch affixed to the cycling uniform shirt.

All police bikes should be equipped with a 10-watt minimum headlight system that is visible to traffic approaching on a perpendicular angle at intersections, to warn motorists that a cyclist is present. Headlights should be used as required by law, with the understanding that for stealth purposes, the majority of night-time bike patrols are conducted without the headlight activated. In addition, with an average of only one to three lighting hours on rechargeable battery units, a police cyclist would not be able to utilize the headlights for an entire shift, no matter what the patrol strategy may be.

Bicycle lighting systems can be used not only for lighting the path the officer is traveling on and warning of upcoming obstacles, but also for suspect identification and control. The proper equipment can provide as much lighting power as a standard rechargeable flashlight. Officers should be aware, however, that these headlights can cause similar problems with backlighting as those caused by patrol car spotlights and flashlights.

Bike officers should also be familiar with their patrol areas, especially the various obstacles, stairways, paths, parking blocks, and all other objects that could result in injury or even death if unexpectedly encountered during a pursuit or while taking a

shortcut to an emergency call.

Accidents and Injury. Police cyclists are prone to injury from collisions with vehicles and other objects. Because the officer must maintain balance at all times, the chances of falling and sustaining injury are omnipresent. Police cyclists are also more vulnerable to sniper fire and ambush due to the absence of a motor vehicle for cover. Additionally, since the officer patrolling on a bicycle can easily access areas that are not accessible to motorized units, the probability of encountering criminal activity is greater. This provides a solid advantage for the police and greater opportunities for enforcement action, but simultaneously increases the risk of injury associated with forcible arrests.

The element of surprise afforded by a police cyclist usually works in favor of the officer. It is best when only the suspects are surprised, but at times, the police cyclist unexpectedly interrupts a crime in progress. Such surprises can elevate the risk of injury from a fall, attack, and other means. For these and related reasons, officers should work in pairs whenever possible.

In 2000, the International Police Mountain Bike Association IPMBA polled more than 300 police cyclists on several issues. Findings indicated that 67 percent had been injured at least once during bike patrol training, with 25 percent reporting some type of serious injury, including muscle sprains, tears, strains, dislocations, fractures, and broken bones. Time lost from work ranged from one day to 11 months. However, only 20 percent of surveyed officers reported on-duty injuries. Half of these were minor scrapes and bruises while the other half involved more serious injuries such as being struck by motor vehicles, joint and muscle injuries, and broken bones. This suggests that a trained officer is less likely to be injured on duty than an untrained officer, due to the inclusion of injury avoidance techniques in the training program.

To avoid unnecessary injury, police cyclists must properly warm up prior to working their bicycle shifts. Preventive measures should be taken to avoid the common cycling discomforts and injuries that can result from improper technique, inferior or absent equipment, and/or inappropriate equipment adjustment.

B. Training

A certified instructor using a certified training course should conduct initial police cyclist training, preferably a course sanctioned by a nationally recognized organization such as IPMBA. The minimum standard for the initial course of instruction recommended by IPMBA is 32 hours. Periodic refresher training and qualification should also be required; at least one full day each year, usually at the start of the cycling season or at another appropriate point, is highly recommended. Training should incorporate physical cycling skills, a review of departmental bicycle policy, and advanced training. When possible, advanced training programs should be developed by nationally certified police cyclist instructors who also hold instructor certification in that particular discipline (e.g., firearms, scenarios, defensive tactics). If such a resource is not available, training development should follow a team approach, involving a nationally certified police cyclist instructor and an instructor with the appropriate specialized qualifications. Qualification of cyclists should include a recovery heart rate cycling test and/or a three-mile time trial.

Advanced and specialty training. The following types of training are optional but encouraged for both officer preparedness and long-term cost savings.

- Bicycle Mechanic Certification
- Cyclist Instructor Certification
- Advanced Police Cyclist Training

- Rapid Response/Crowd Management and Control Training
- EMS-Certified Police Cyclist
- Search and Rescue

Firearms Training. Departmental firearms qualifications should be performed in the uniform that the officer normally wears, to include the bike patrol uniform (helmet, gloves if worn, shorts, and related clothing). In addition, firearms training designed specifically for police cyclists should be required annually. Officers should wear their full bicycle duty gear in order to become familiar with how their specialized equipment affects their performance. For example, cycling gloves can have an effect on the use of firearms and other weapons. Cycling gloves have additional padding in the palm, which creates a barrier between the officer's hand and the pistol grip - a factor that can change the point of impact on a target. Officers should experience this phenomenon prior to wearing gloves in the field, as it may affect their decision as to whether to select padded, unpadded, or no gloves for duty. Clearing weapons malfunctions and re-loading firearms present additional challenges for the same reason. The gloves can also affect the officer's deployment of other weapons and gear, such as OC spray, the police baton, and handcuffs. Because these actions are usually performed during times of stress, training is necessary to help reduce the degree to which the fine motor skills required for use of force may be negatively affected.

Weapon transitioning, as well as escalation and de-escalation of force drills, should be incorporated into use-of-force training. Cover is an important issue for police cyclists; therefore, firearms training should include realistic drills for finding and using cover during deadly force confrontations. Officers should shoot while moving forward and backward to cover, as well as perform stationary and moving dismounts to cover. Police cyclists may not always be able to get as close to an incident as officers in a patrol vehicle, and may be forced to dump their bikes and take prone positions to fire from distances farther than training usually incorporates. It is not uncommon for police cyclist handgun training to move shooters incrementally from interview distances to 75 or 100 yards. These greater distances usually require a more stable platform than that found in shooting from the standing unsupported position. The visor on the helmet poses an additional challenge while shooting prone, and the helmet may need to be adjusted or removed to avoid obstructing the officer's view of the target. Since the bicycle can become a tripping hazard once dropped, the drills can include moving around and/or over the bicycle while shooting.

Prior bicycle officer-involved shootings suggest that when attacked, the bicycle officer may inadvertently grab the brakes, which will cause him or her to flip over the handlebars. The officer may also go to the ground intentionally. Because of this likelihood, firearms training that incorporates shooting from unconventional positions is important. Such drills may include returning fire while on the ground with feet in the pedal clips, followed by disengagement from the bicycle and moving to cover.

Since a large percentage of officer-involved shootings occur during hours of darkness, such training should also incorporate low-light and no-light drills. Police bicycle headlights offer differing modes of operation, such as flashing white lights, flashing colors, or emission of a constant beam of light. These different lighting situations can pose challenges to a police cyclist's ability to fire accurately. For example, if in dismounting the officer is positioned in front of the bicycle, (which is typically the case), the headlight may backlight the officer and the sights of the officer's

firearm, causing the rear sight to shadow the front sight. Although not impossible to shoot accurately in this situation, is simply poses additional challenges which can be overcome through training. This same situation can be exacerbated if the headlight is in the flashing mode. Officers should have the opportunity to experience these and related conditions in training so they can adjust to and overcome such challenges if they are encountered in an actual situation.

If officers work in teams of two on bike patrol, partner drills should be incorporated into firearms training. As noted previously, communication and movement are important and, if not rehearsed, may not take place effectively under stress during actual operational situations.

C. Equipment

Police cycling equipment must be able to withstand the many rigors of constant use in order to meet cost-effectiveness requirements as well as to minimize the chances of officer injury. Inferior equipment wears and breaks more easily and quickly, so police departments that support bicycle units should be prepared to purchase the best possible equipment. A list of common police bicycle equipment is included Appendix A of this document

Safety Equipment. Police cyclists should be required to utilize the following pieces of safety equipment: a quality mountain bike in good mechanical condition that fits the rider properly, a properly fitted bicycle helmet approved by ANSI, Snell, ASTM, or CPSC; protective eyewear for day and nighttime use, and pedal retention devices. Gloves, either padded or unpadded, are recommended. These requirements should remain the same while performing plainclothes duties on a bicycle.

Uniforms. Due to the high level of physical activity engaged in by police cyclists, coupled with their continual exposure to varied weather conditions, uniform material selection is important for both the health and comfort of the officer. Uniforms designed specifically for use by police cyclists are strongly recommended. They are available in a range of styles, from casual to Class A. Officers must wear proper clothing so that optimal performance can be achieved without undue risk to health. A sample uniform package is attached in Appendix B.

Officers should not be allowed to wear only partial body armor in order to stay cooler. If it is too hot to wear body armor, the officer should choose not to ride the bicycle on patrol. Body armor protects the officer not only from projectiles and slashing movements of edged weapons, but also from blunt force trauma if he or she crashes or is struck by a vehicle. Body armor that is lighter in design, but equal to or greater in threat level than standard-issue armor, is available.

Officers must wear suitable footwear on patrol to prevent injury caused by the tremendous amount of pressure exerted on the bottom of the foot during the pedaling motion. The force that is applied in pedaling is concentrated into an area the size of the pedal, unless a hard-soled shoe is worn to disperse this force. If a soft-soled shoe is worn, the foot will "bend" over the pedal, causing pain and eventually damaging the ligaments in the bottom of the foot. Plantar fasciitis is a common overuse injury resulting from improper footwear.

Equipment Security. Police cyclists should secure their police bicycles and equipment when left unattended whenever reasonably possible, and in a manner that does not obstruct pedestrian or vehicular traffic. The bicycle should be secured by the frame, not the wheel or seat. When possible, as in the case of a meal break, the helmet, police bag, computer, and seat (if quick-release)

should be removed and taken with the officer to avoid theft or damage. Officers are not expected to secure bicycles in urgent situations, such as foot pursuits. When an officer is not on duty, the bicycle should be stored inside a secure section of the agency or a similarly secure location at the officer's home.

Maintenance. Only bicycles authorized by the police department and a certified mechanic should be used for police service. Officers should be held responsible for inspecting their equipment prior to the start of their shifts, to ensure that it is in good, safe, working condition. If a problem is identified with a bicycle or other equipment, the shift supervisor should be notified as soon as reasonably possible. If necessary, the bicycle or related equipment can be taken out of service and another requested or the problem corrected. To avoid misuse and theft, all tools should be secured in a locked maintenance section of the bicycle storage area or mechanics shop.

D. Physical Qualifications and Training

Police cyclists must be highly motivated and physically fit. Proper medical pre-screening should be conducted to avoid health and wellness problems. At a minimum this includes a thorough medical exam, an orthopedic exam with emphasis on the knees and back, and either a recovery heart rate test or a medically executed stress test. All physical fitness testing should be conducted by a qualified fitness professional.

An inexpensive prescreening tool is the Physical Activity Readiness Questionnaire (PAR-Q) that was developed by the Canadian Society for Exercise Physiology. It can be obtained by visiting <http://www.csep.ca/pdfs/par-q.pdf>. An easy screening activity related to heart rate recovery is the three-minute step test. A recovery heart rate test specific to cycling is also recommended.¹⁰

Certain types of on-going physical training, such as interval and anaerobic threshold training, can improve an officer's capacity to stay longer in anaerobic zones. Sprinting to an emergency call on a bicycle expends large amounts of energy. Once at the scene, the same officer must have sufficient energy reserves to perform such police functions as foot pursuits, subduing violent or dangerous subjects, verbally communicating clearly with suspects and with dispatchers, or deploying deadly force accurately and effectively. If an officer must engage in a violent physical confrontation, the extended period for which the officer is able to sustain high-intensity activity may mean the difference between life and death. As such, bike officers should take advantage of training and physical wellness opportunities that will permit them to achieve and maintain optimal physical performance. Officers should also develop an understanding of their physiological limitations and stay within those limits.

E. Health and Wellness

Along with being physically fit, officers must be knowledgeable of several health and nutrition issues. Police cyclists generally exert a tremendous amount of energy during a shift. Replenishing this spent energy is essential to muscle and system recovery, and for avoiding chronic fatigue and injury. Police cyclists also lose substantial amounts of water through physical exertion; therefore, proper hydration is paramount to the health and wellness of the police cyclist. Water bottle cages should be mandatory on police bicycles, and officers should be educated as to proper hydration and nutritional habits. They should also be provided with information about fitness exercises they can engage in to maintain or improve their levels of fitness.

In certain regions and climates, officers risk heat exhaustion,

heat stroke, and skin damage due to exposure to the sun's ultraviolet rays. In such areas, in-service training should include the prevention, recognition, and treatment of heat exhaustion and related problems. The use of moisture-wicking material for uniforms, while appropriate in all situations, is essential in warm climates. Use of sunscreen should be encouraged; some agencies may wish to require officers either to wear long-sleeved uniforms (constructed of moisture-wicking, breathable fabric) and/or apply sunscreen year-round as added protection from sun. Similarly, officers who ride in cold weather should be properly educated as to clothing material selection; the proper technique for layering clothing; proper hydration; adequate skin coverage; and the prevention, recognition, and treatment of frostbite and related ailments.

Endnotes

¹International Police Mountain Bike Association (IPMBA). Fact Sheet ©2002. IPMBA, #583 Frederick Road, Suite 5B, Baltimore, MD 21228. See www.ipmba.org.

²*Ibid.*

³*Ibid.*

⁴*Ibid.*

⁵*Ibid.*

⁶Front Rangers Cycling Club (www.frontrangers.org); Neighborhood Bike Works (www.neighborhoodbikeworks.org); West Midlands Police Urban Adventure Support Group (www.urbanadventure.org.uk).

⁷National Highway Traffic Safety Administration, Traffic Safety Programs, Office of Traffic Injury Control Programs. This federal agency offers the Community Bicycle Safety: for Law Enforcement Course. See:

http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/bicycle_safety.html.

⁸International Police Mountain Bike Association (IPMBA). Fact Sheet ©2002.

⁹Sources for advanced and specialized training include:

- IPMBA, www.ipmba.org.
- Team One Network: Officer Survival for the Mountain Bike Patrol Officer, www.teamonenetwork.com.
- Heckler & Koch (H&K): Officer Survival for the Mountain Bike Officer, www.hk-usa.com.
- LouKa Tactical Training: Survival and Advanced Techniques for the Mountain Bike Officer, <http://home.comcast.net/~kdvonk/LouKaLLC.html>.

¹⁰Example: Maximum Heart Rate (MHR) equals 220 - age. On a stationary bicycle, the officer pedals at sufficient speed and intensity to elevate his or her heart rate to 80% of the MHR. This intensity level is sustained for 20 consecutive minutes. Should the heart rate fall below 80% MHR, one or two grace drops can be allowed; however, if the HR drops below 80% MHR a third time the candidate should be disqualified. After 20 consecutive minutes of 80% MHR the candidate stops pedaling. The candidate's heart rate must recover to 100 beats per minute or less, within 120 seconds.

A three-mile time trial consists of a three-mile designated course, preferably flat and with minimal turns, free from traffic interference or other safety issues. The officer must complete the three-mile course in less than 12:30.

A medically supervised cardiovascular stress test gives a medically proven indication that an officer can safely engage in physical police cycling activity on a regular basis.

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Appendix A

Common Police Bicycle Equipment

Bicycle & Components

- Black "police package" mountain bike frame properly sized to individual officer, constructed of one of the following materials:
- Easton 6061 series aluminum or better
 - Prestige cro-moly steel or better
 - Carbon fiber
 - Titanium
- Front suspension forks: Rock Shox Indy "C" or better
- Drivetrain: Shimano LX or better
- Brakes: Shimano LX or better
- Wheels: Mavic 238 or above, silent rear hub, 36 hole rim
- Handlebar stem adjusted to rider's comfort
- Threadless headset
- Shifters: SRAM "Grip Shift" 7.0 or better, or Shimano LX "Rapid Fire" shifters or better
- Quick releases: front and rear wheels, seat posts (optional)
- Saddle: Specialized "Body Geometry" gender-specific saddle or similar
- Pedal retention (clips and straps provided, clipless at officer expense)
- Bar ends
- Headlight: NiteRider Digital Pro 6 rechargeable headlight or similar
- Taillight: NiteRider Digital Pro 6 integrated taillight or VistaLite flashing LED taillight, or similar
- Tires: street/combo (hybrid)

Bicycle Accessories

- Two aluminum water bottle cages affixed to frame of bicycle
- Rear Rack
- Rack Bag: Jandd expandable rack bag with removable "POLICE" Velcro strips, or similar
- Basic on-bike tool kit, including hex wrenches 2mm - 8mm, Phillips and flathead screwdriver, tire levers, chain tool, blade
- Two spare tubes (Presta or Schrader valves as required by wheel rim type)
- CO² dispenser and CO² cartridges or other air source
- Locking cable or other bike locking device

Maintenance Supplies

The following supplies and equipment are usually made available to all police cyclists in agencies where officers perform their own basic maintenance:

- Bicycle repair stand
- Chain cleaner
- Degreaser
- Rags
- Chain lubricant
- Waterproof grease
- Spray bottle with degreaser solution
- Frame polish
- Tubes
- Floor pump with psi gauge
- Head set wrenches
- Spoke wrenches or one multi-size
- Tire levers
- Pedal wrench
- Gear brushes
- Chains
- Cables

The following supplies and equipment are reserved for use by certified mechanics in those departments with one or more personnel trained as maintenance officers:

- Toolbox
- Bottom bracket tool
- Free wheel locking tool
- Professional grade ball end hex wrenches
- Cable/housing cutter
- Torque wrench
- Ratchet
- Large crescent wrench
- Cone wrenches
- Brake wrenches
- Crank puller
- Complete set of screwdrivers, Phillips and flathead
- Chainwhip

Appendix B

Sample Uniform Package

- Police helmet, CPSC-approved, appropriately sized
- Cold weather/rain cycling jacket, appropriately sized, with "POLICE" in retro-reflective four-inch letters across the back, retro seams, badge patch on left chest area, exterior pen slots
- Three long-sleeved, cold weather cycling shirts, appropriately sized, Coolmax or similar material, with hidden zipper with exposed fake buttons so as not to limit secondary weapon options, custom department badge patch, microphone tab on shoulders, standard shirt pockets similar to those on class A uniform
- Cold weather/rain cycling pants, appropriately sized
- Cold weather accessories, such as headbands, ear warmers, neck warmers, full-fingered winter gloves
- Three short-sleeved, warm weather cycling shirts, appropriately sized, Coolmax or similar material, with hidden zipper and exposed fake buttons so as not to delete secondary weapon options, customized department badge patch, microphone tab on shoulders, standard shirt pockets similar to those on class A uniform
- Three pair uniform cycling shorts, appropriately sized, Coolmax or similar material
- Coolmax undershirts or undershirts of similar material
- Padded cycling shorts

- Coolmax socks or socks of similar material
- Cycling shoes, appropriately sized. Police-specific cycling shoes available include Shimano, Bates, Lake, and Patrol Cycle.
- Nylon duty gear, set up in identical fashion and with the same model retention holster as road patrol duty gear. The placement of equipment and the draw of the pistol should remain consistent so that muscle memory will not be hindered if the officer must draw the weapon under stress.
- Body armor that is lighter in design, but equal to or greater in threat level, than standard-issue armor.
- Padded cycling gloves (Some brands employ smaller gel pads over the fatty portion of the hand only, and do not encompass the entire palm. This lessens the effect of the padded glove on weapons manipulation and shooting accuracy.)
- Ear microphone
- Wraparound and shatter resistant eye protection, clear and tinted lenses.
- Rechargeable flashlight worn on the belt
- Cycle computer
- Clipless pedals