

**The Bill Blackwood
Law Enforcement Management Institute of Texas**

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**A Dynamic Advantage To Police Cyclists in the 21st. Century -
The TidalForce M-750 Electric Bike**

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**An Administrative Research Paper
Submitted in Partial Fulfillment
Required for Graduation from the
Leadership Command College**

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August 2005**

ABSTRACT

The purpose of this administrative research paper is to discover if indeed new technology in the form of the TidalForce M-750 High-Performance Electric Police Mountain Bike, hereinafter referred to as simply M-750, will prove to be superior equipment and replace the standard police mountain bike. Further, it is expected the research will reveal the M-750 will provide a serious advantage in capturing suspects. Additionally, larger areas can be patrolled and several other advantages will assist police cyclist activity. These advantages are expected to translate into the capability of delivering better police service to civilian communities.

The M-750's predecessor, the Shocktrooper M-313, proved to be virtually invaluable to the military in several applications in the War in Iraq. The research contained herein reveals the International Police Mountain Bike Association (I.P.M.B.A) certified police mountain bike instructors and certified police cyclists having tested and/or used the M-750 found the bike does not, as currently designed, fit into overall police cyclist training and on-the-street applications.

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INTRODUCTION

Over the past twenty-five years Police Mountain Bike Patrols have proven their effectiveness and efficiency in cities all over the United States, foreign countries and the military. The reputation of Police Mountain Bike Patrols remains undaunted and established as irreplaceable in the cities and entities in which they have been implemented. There is no substitute for the high visibility of a bike officer in crime deterrence and crime fighting particularly in, but not limited to, congested areas. This high visibility also translates into highly approachable officers. This in turn encourages and enhances the effects of community policing via higher quality and more frequent contact with citizens and business owners.

Until now, Police Mountain Bike Patrol Officers have had to maintain an excellent personal physical fitness level just to be able to perform the everyday tasks assigned. This differs greatly from the physical demands made upon the average American motorized patrol, or squad car if you may, vehicle officer. The demands today are, as in any division of a police department, that methods of increasing effectiveness, efficiency, and productivity are always being considered and analyzed.

The anticipated findings of this research expect to support the idea that this new technology, found in the TidalForce M-750, will provide a dynamic overall advantage to police cyclists in the 21st century and effectively replace the need for the standard police mountain bike.

The method of inquiry will include information gathered from surveys, personal interviews, publications, internet sources and personal observation experiences in this author's borrowing of an M-750 from a local dealer. It is anticipated that this research will reveal the M-750 provides multiple areas of advantage to police cyclists. It is expected, by this author, that officers will discover an ability to cover a greater patrol area, become less fatigued during their

shifts, have increased awareness due to lack of typical fatigues, and gain a noticeable advantage over any runner pursued by police cyclists. Along with these expected findings, this research should discover a cost savings on equipment to police departments.

The expected implications and effects of the findings of this research should reveal that law enforcement bike patrol cyclists have been thrust by the use of superior cyclist equipment into to the 21st century leaving less effective equipment, the standard or manual, police bike to the history books. It is expected that this technology should give mountain bike patrol officers a definable boost in the ability to perform all phases of their everyday tasks through the use of the Tidal Force M-750. This should be definable through multiple testimonies of officer's reduction in fatigue, increase in awareness, effectiveness and productivity in all phases of police mountain biking while doing so at a cost savings to their respective departments. Thus, this research expects to reveal that police cyclists are able to become a more effective asset in serving their communities by use of the technologically advanced M-750.

REVIEW OF LITERATURE

There exists an abundance of material in research papers, journals, magazines and organizational publications fortifying the need for and the effectiveness of police mountain bike patrol officers. To support this endeavor many manufacturers have been producing topflight standard, or manual, mountain bikes to sufficiently meet the rigorous demands of police mountain bike patrol officers in training and on-the-street applications.

In the year 2000 a new dynamic in rugged, durable and powerful mountain bike equipment began production. WaveCrest Laboratories of Dulles, Virginia, designed and began production of the Shocktrooper M-313 High-Performance Electric Mountain Bike. The

Shocktrooper M-313 was originally designed for military use. The Shocktrooper M-313's foldable Montague frame and an unheard of ability to virtually, effortlessly and quietly transport a three hundred (300) lb. plus load for a distance of approximately twenty (20) miles at a speed of approximately thirty (30) miles per hour, quickly gained favor with the military over the standard types of bikes having been used for over one hundred (100) years in combat situations. Because of its folding feature the Shocktrooper M-313 could be easily stored for transportation to support ground troops, parachutes can be dropped to downed pilots, in need of a fast and quiet mode of escape, and be deployed as a part of a paratrooper's equipment for use in covering more territory faster, with less troop fatigue (Clark 2003).

A very close relative of the 1000-watt motor Shocktrooper M-313 is the TidalForce M750X, a more civilianized version of the high-performance electric mountain bike. The 1000-watt motor TidalForce M-750X was switched over from military camouflage painting to a subdued black paint to give the bike a valuable advantage in after dark stealth operations. From the TidalForce M-750X came the TidalForce M-750, referred to as the mother of all electric bikes (Electric Cyclery 2005), which this author will refer to hereinafter as simply the M-750. The M-750 version of the high-performance electric mountain bike is even more suitable for civilian use since the motor of the M-750 has an on-board controller that limits its capabilities to 750 watts and an approximate twenty (20) mile range at a speed of approximately twenty (20) miles per hour, the maximum power and speed allowed under federal law for street use without licensing (Penrose 2005). The 1000-watt TidalForce M-750X is made available from WaveCrest to military, police and security departments only. No law enforcement agencies or security companies were found using the heavier, faster M-750X, which weighs in at approximately

eighty (80) pounds. After researching several electric mountain bike manufacturers on the web, this author was unable to find any electric bike capable of competing with the power and dependability of the M-750. All other electric mountain bikes had slower speeds, less range, less rugged and less sophisticated design.

The M-750 is designed with a battery encased in the bike's front wheel hub and an electric motor encased in the rear wheel hub. The WaveCrest Adaptive Motor® design is leading edge technology used in electric passenger cars as well as electric bikes. With the M-750 no motor-driven rotor rubs the bike's rear tire to cause forward propulsion. The WaveCrest Adaptive Motor® requires no transmission yet delivers immediate torque easily by the rider pressing a thumb actuator on the left side of the handlebar assembly. The motor hub incorporates a DC direct drive brush-less system revolving a rotor around a stator enclosed in an iron-backed housing converting electrical energy into mechanical motion with only one moving part. The motor hub also incorporates microprocessors, embedded in the control system. These microprocessors make decisions every one hundred (100) milliseconds using algorithms to analyze the need for immediate delivery of torque due to load requirements. Another system housed within the motor hub is the regenerative braking system that replenishes some battery energy during slight left handle brake activation, the use of cruise control or steep downhill riding. The dashboard of the M-750 displays two (2) rows of five (5) small red columnar lights in vertical fashion to keep the rider aware of available usable electrical power. One column is marked with the letter "A" and the other with the letter "B". The "A" column represents the primary energy source from the front hub. The "B" column was designed to represent power from an auxiliary source battery. Each light represents approximately 20% of the available energy from the M-750's front hub battery. As energy resource is consumed lights will

successively go out, starting from top to bottom, letting the rider know of the need for recharge or battery replacement. To enable electric power for the M-750, the rider simply turns a key on the right side of the dashboard to activate the power system. Included on the dashboard is a single blue light indicating when the regenerative braking system is engaged. The dashboard incorporates two micro-switch buttons. The rider is also given options as to how the available electrical power will be consumed. On the dashboard the rider finds a micro-switch labeled “Turbo”. In Turbo mode the M-750 reaches its maximum speed and power potential, but also consumes available electrical energy at a much higher rate. The Turbo option is activated or deactivated by simply depressing the micro-switch at which time a small red light will come on to indicate that “Turbo” is engaged. With Turbo disengaged the rider still receives “power assist” from the battery at lower, more conservative levels. This enables the rider to pedal the bike at much higher speeds than would not be achievable by manual pedaling alone. Power assist pedaling can potentially provide the rider a circumstance in which the average police cyclist could achieve the appearance of, “Lance Armstrong type speed and stamina” (Penrose 2005). To sum up the M-750’s pedaling technology would be to state that the rider has three (3) propulsion options. The M-750 can be manually pedaled with no electrical power engaged, pedaled with power assist, or the rider can select the “Turbo” option to propel the M-750 with no pedaling necessary. Should the rider choose to pedal with “Turbo” engaged the M-750 has been reported to reach speeds in excess of thirty (30) miles per hour. The dashboard includes a final micro-switch button allowing the rider the option of cruise control. Once a rider has achieved a desired speed the rider depresses the cruise control button and the bike maintains the selected speed whether on level ground, uphill or downhill for the duration of available battery power.

All of the above information is provided by this author to convey to the reader the sophistication and technologically advanced state of the M-750 in the world of electric bikes.

TidalForce, whose parent company is WaveCrest, began an advertising campaign in 2003 strongly suggesting that the use of the M-750 would provide law enforcement agencies with a tangible overall advantage over standard police mountain bikes in several areas. These areas were purported to be in conservation of officer energy, in achievement of faster response times, in the enlarging of the area an officer is able to patrol and more effective community policing because officers could get closer to the people they serve and protect (Washburn 2004). Other advertising suggested the electric assist would enable officers to more quickly apprehend suspects in pursuit situations and carry more equipment and supplies (Clark 2003). TidalForce provided, to this author, reprints of an article from Law Enforcement Technology Magazine showing the company loaned the M-750 to the Loudoun County Sheriff's Office in Virginia, for testing. According to the article, initial reactions to the M-750 at the sheriff's office were in line with the above-mentioned suggested advantages (Curtis 2003). TidalForce also advertised that Winston Salem State University took delivery of several of the M-750's for police patrol on campus (WaveCrest 2003). TidalForce suggested the M-750 could be easily transported, in a suitcase type container, in a police cruiser thus eliminating the need and expense for bike racks to be mounted to police cruisers. The advertising further suggested the M-750 would be a relief to law enforcement agency budgets due to the fact fuel costs would be reduced since the M-750 required only ten (10) cents worth of electricity for a total battery recharge. The comparison of the M-750's \$2,500 base cost, with a suggested \$500 spare battery, would relieve the financial burden of purchasing \$55,000 police cruisers with \$3,000 - \$5,000 projected annual maintenance costs. In theory, TidalForce advertised its product as a "force multiplier" since it

appeared for the cost of a single police cruiser an agency could afford to fully equip eighteen (18) M-750s (Clark 2003).

In April of 2004, TidalForce introduced the M-750 to law enforcement cyclists at the 14th Annual International Police Mountain Bike Association Conference (hereinafter referred to as I.P.M.B.A) in San Antonio, Texas. In studying the conference brochure, this author learned that the introduction of the M-750 was not a scheduled event at the conference, but rather appeared as a vendor in the display area. It was also learned, from the same source, WaveCrest Laboratories is a supporter and Corporate Member of I.P.M.B.A. According to feedback from personal sources, which shall be revealed in the findings of this research, the M-750 has been initially well received with enthusiasm and high hopes by most police cyclists examining or conducting testing of the bike. Some police cyclists did initially express some reservation about the power assist feature of the M-750 being a threat to the pride and tradition of the required fitness level of police cyclists over their patrol cruiser subordinates.

METHODOLOGY

Would it be safe to say at this point that the standard police mountain bike will soon be watching its far superior replacement, the M-750, from positions such as storage rooms, neighborhood garages, and even worse, scrap or replacement part bins in local repair shops? Bottom line, has the M-750 gone out into the field of examiners and testers and proven to be a distinct advantage over the standard police mountain bike in all areas of application? Come along with this author in the pages to follow as it is expected to be revealed, by those in-the-know, that in all around applications and currently designed purpose the M-750, in its present design, may well not replace the need for and reliability of the standard police mountain bike.

Only small amounts of published data, reflecting testing and trail of the M-750, are currently available. This is due to the fairly recent introduction of the M-750 to the law enforcement market. Several magazine articles were located by this author showing and describing the types of training and street applications, currently performed by police cyclists on standard police mountain bikes, in which the M-750 would have to fit in order to be labeled an “all around replacement”. It was also a challenge for this author to locate competent, experienced and certifiably trained individuals to lend legitimate credence in answering surveys or interviews. This author turned to the use of other instruments to gather information relevant to this research. The first instrument used was an e-mail survey containing several questions geared to learning whether experienced police cyclists and police cyclist instructors, mostly including certified I.P.M.B.A instructors, have found the M-750 to be a superior replacement for the standard police mountain bike. The second section of the e-mail survey included a comments section in which the individuals surveyed were encouraged to include information about observations or use that this author, admitting inexperience in police cycling, may well have overlooked.

The second instrument was in the form of informal telephone surveys with the same type persons described in the first instrument.

The surveys and interviews focus on questions of the following nature. Has the M-750 provided faster response times, greater areas of coverage, higher officer visibility and greater community contact? Has the M-750 provided a balance or advantage in cost due to elimination of the need for patrol cruiser bike racks? Has the M-750 provided a higher rate of “runner” apprehensions? Has the M-750 appeared to reduce officer fatigue and thus appear to promote officer awareness? Has the M-750 performed relatively maintenance free? Has the M-750

proven to have a tactical advantage in load carrying ability, quietness, and use as a crowd control device? Has the M-750 demonstrated a consistent ability to deliver twenty (20) miles of coverage at a non-pedal assisted speed of approximately twenty (20) miles an hour? Each individual was then asked to provide the name(s) of any other law enforcement agency they knew were using or testing the M-750.

The third instrument was personal unscientific observations and experiences gained in this author's borrowing of an M-750 from a local Dallas, Texas, dealer. Observations made by the experience of this author are by no means those from the view of an experienced police cyclist yet still revealed some areas of concern obvious to the common and untrained eye.

Survey and interview responses were received from Washington, Colorado, Texas, Virginia, North Carolina, South Carolina and several cities in Florida. Of the seven (7) surveys e-mailed six (6) were returned in time for this writing with a promise of one (1) other to follow. Four informal phone interviews were also successfully conducted.

This author summarized all of e-mail and interview responses, along with personal observations, onto a results page using Microsoft Word. Two (2) columns were created. The first column, on the left side of the page listed all received and viewed positives and positive projections for the M-750. The second column listed negatives and areas of no notable differences reported or observed. With the surveys laid out side-by-side this author reviewed each of the sixteen (16) "yes or no" questions on the survey pertaining to the performance of the M-750. As an example, question number one of the survey was then compared with the answer to question number one on all six (6) surveys and progressively the same process applied to the remaining fifteen (15) questions. A percent amount of "yes or no" responses to the questions

was then determined. Percentages were then rounded out by this author to the nearest ten (10) percentile for easy understanding and presentation.

It is the opinion of this author that it will be seen that the technologically advanced M-750, for which this author has a great respect for in the areas of design and strength, also exhibits in its current design and strength areas of legitimate concern and limitation.

FINDINGS

It is this author's opinion that in the area of durability, sophistication of design and sustained power the M-750 can easily outperform any electric mountain bike currently being produced. The findings of this research, though, are contrary to this author's initial expectations to offer up sufficient information to show that the M-750 is a superior product to, and an undisputable all around replacement for, the standard police mountain bike.

This authors' expectation that the M-750 would effectively improve the quality and quantity of police service to a community began dimming while compiling and summarizing the results of all the returned surveys as described by use of the first instrument in the "Methodology" above. As each survey was analyzed, this author determined that in order to undisputedly prove all around justification for the M-750 to replace the standard mountain bike a margin of no less than 100% agreement was necessary as all material was analyzed. The 100% requirement was due also to the fact that the questions in the surveys and the interviews were designed in such manner as to determine superiority, not conformity, of the M-750. As the reader will observe in the following detail, the M-750 rarely achieved 100% among those polled. Most regularly the agreement ratings were at, or less than 50% (48% to be precise after final calculations). All those polled agreed the M-750 was able to cover an overall larger area of patrol, reduce overall officer fatigue and performed in a relatively maintenance free fashion.

Keep in mind, in the area of maintenance, the M-750 has not yet been out in the field of law enforcement application for a full year. The M-750 provided marginally more community contact and officer visibility. Most responders qualified their responses in the area of contact and visibility by carefully stating bike patrol levels in these areas were already very high. The same applies to responses in the area of increased officer awareness due to fatigue reduction when responders stated none, or very marginal, increases were observed. Low percent responses were noted in the areas of tactical advantage, quietness, crowd-control and the M-750's ability to deliver the advertised twenty (20) miles per hour for a consistent distance of (20) miles in non-pedal assist mode. The final area of low percent response was noted in the area of cost balance due to the M-750's fold-ability and elimination of the need to purchase bike racks for patrol cruisers.

The M-750 lost more grounds for substantiating replacing the standard police mountain bike when this author summarized the second instrument, or "comments" section of the returned surveys. Please recall this author worded the comments section in such manner as to cause the responder to feel comfortable with including any areas the inexperience of this author may have overlooked. In reviewing the responder's comments the M-750 initially gained a few unanticipated compliments in the area of hard and fast acceleration, virtually effortless hill climbing, carrying a heavier load or heavier rider and statements of ease of handling the power assist actuator. One responder noted the weight of the M-750 would cause a rider to increase leg muscle strength over the weight of a standard police mountain bike as an area of humor. Further, it was learned the M-750 apparently fits very well into an airport police environment when officers must cover long runways and multilevel parking garage decks. From this point the impractical and non-applicable features of the M-750 began to be revealed.

The first area of concern was given to the limitations the M-750 has in the area of its weight. This weight factor presented a considerable obstacle to responder's comments and those interviewed. This author learned, from interviews with several I.P.M.B.A. instructors and certified riders the average weight of a standard police mountain bike is approximately twenty-five (25) to thirty (30) pounds. The reason for weight limiting the bike is to be able to use the bike in defensive tactics, found described in law enforcement periodicals, such as the "Distract and Shove" (Vonk 2002), the use of bikes as hand carried barriers in crowd-control (Goetz 2002), and the practice of "wheelies" in quick turn maneuvers to avoid striking an object suddenly introduced into the path of the rider (Vonk 2004). Other weight concerns gleaned from the surveys and interviews stated the after battery power was depleted officers became rapidly fatigued due to the effort exerted in manually pedaling the heavier M-750. Several responders noted, in replacing the standard police bike with the M-750, the weight factor would eliminate most female officers from the police cyclist program. Another factor extracted from the responders were comments from experienced riders and certified instructors indicating the weight and speed capabilities of the M-750 caused a momentum problem while stopping the bike. The responders noted brake fade while stopping the bike especially at higher speeds. The braking designed into the M-750 includes manual along with the M-750's "regenerative braking system" using the motor to slow the bike. This braking ability is apparently sufficient in the military and civilian world, but not sufficient for demands made on the braking systems of police cyclists during training and on-the-street maneuvers. The advertised weight of the M-750 is sixty-four (64) pounds bare. The M-750 this author rode during a free trial period weighed eighty-three (83) pounds dressed with police lighting for the front and rear of the bike. The free trial M-750 also had an auxiliary battery, placed in the water bottle holder, to power the lights.

Part of a police cyclists training and street application is to be able to negotiate a tall wall or a tall fence while in pursuit of a runner. The technique taught and practiced is to lift and place the bike over the wall or fence, climb the wall or fence, and continue the pursuit. This technique obviously becomes difficult with a sixty (60) to eighty (80) pound bike. More difficult is a technique taught and practiced of police cyclists lining up side-by-side and lifting the bike to chest level while moving forward to influence to direction of a crowd. Unless the police cyclist is a trained power lifter this maneuver is literally eliminated by the M-750 weight factor.

Another area of concern was found in the firearms training portion of the I.P.M.B.A course. In this maneuver officers are taught to slide the bike down onto its side while the rider slides to a horizontal position with one leg under the bike, gun-side up, to fire a weapon and make themselves as small a target as possible with some cover afforded (Hamblin 2002). In this scenario not only the weight of the M-750 presents a potential injury hazard to the rider, but also much of the M-750's wiring becomes vulnerable to detachment or damage. The shifters of the M-750 are incorporated in the left and right handlebars and are not preferred by the responders due to the amount of stress police riders put on handle bars during needed maneuvers. Responders stated that the left handlebar shifter had a tendency to come apart during riding, which this author also experienced with the trail M-750.

This author noted, in trial experience, that a failure of the lighting system and a disconnection of power source wiring occurred when this author test-folded the M-750 as advertised one time. Responders noted the electrical components of the M-750 were only manufacturer, or dealer, serviceable and not easily negotiated for repair in the field. To go along with those observations the responders noted replacement parts were projected as expensive and not easily accessed easily locally.

The height, weight and length of the M-750 were revealed as problematic by several responders. This author found it interesting that nowhere on the WaveCrest/ TidalForce website or owners manual could the height of the M-750 be found (WaveCrest 2004). This author contacted WaveCrest by phone and was informed the height of the M-750 was not available information (L. Carey, personal communication, February 4, 2005). This weight factor presented a considerable obstacle to responder's comments and those interviewed. The height of a bike is defined as the length of the "downtube". The "downtube" runs from the pedal assembly to the seat adapter. This author found an unofficial reference to the height of the M-750 being available in either eighteen (18) or twenty (20) inches (Dave, 2005). Responders stated an ideal police bike is approximately fifteen (15) to eighteen (18) inches in height so that officers are able to make needed quick and easy dismounts. An ideal police mountain bike affords the rider a very high level of agility in tight spaces such a parking lots, crowded public events, and when used in a stealth mode, to make tight turns around buildings and objects. The responders stated the M-750, because of its size, was discovered to be less negotiable in each of the aforementioned situations. The responders revealed the average police cyclist is 5'6" to the tall end at 5'11". The Electric Cyclery stated within their article the rider of the twenty (20) inch M-750 would be best suited at 6'3". (Dave, 2005).

The responder's next area of concern was the practicality and application of the currently designed battery. Responders found actual battery life varied greatly from advertised capabilities depending on load, terrain and temperature. All of the aforementioned factors were found to greatly reduce the advertised projection of twenty (20) miles at twenty (20) miles per hour. This author was informed upfront of a problem in recharging the battery. The currently designed battery is suffering from an inability to reach a 100% charge in one setting. A bug in the

“phasing” portion of the charging process only allows approximately a 75% charge, then the battery must be rested for fifteen (15) minutes before attempting the recharging process again to reach 100%

(L. Canfield, personnel communication, February 4, 2005). Responders issued concern about the need to return the M-750 to its recharging station while on patrol. The dashboard of the M-750 incorporates a power level indicator for a “B” battery system, but this author learned, from WaveCrest, no auxiliary battery is currently in production for the M-750 (L. Carey, personnel communication, February 4, 2005). Advertising stated a supplementary battery was available at the cost of \$500. (Clark, 2003). This author learned that an entire front wheel assembly, which incorporates the battery in the hub, must be purchased at a cost of \$500 (L. Canfield, personnel communication, February 4, 2005).

The final area of responder’s concern was transportation of the M-750. The weight of the M-750 was not found to be conducive to ease of loading or unloading into the trunk of a police cruiser. Another object to overcome was in understanding police cruiser trunks are always found occupied with other types of police equipment. It was also found the M-750 is too heavy to be transported on police bike racks currently being used and designed for twenty-five (25) to thirty (30) pounds maximums. Specialized heavy-duty trailers and mount racks were found available at an additional cost of \$600. (Dave, 2005). This author found the M-750 too large (and heavy) to be loaded into the backseat area of a Ford Crown Victoria, even in its folded state.

Base cost for a functional and practical application in police patrol became \$3,600 in reality, not the \$2,500 as advertised. The M-750’s cost reduction is reflected in comparison advertising to the cost of a police cruiser. (Clark, 2003). In this author’s opinion the comparison is skewed from the realistic comparison of standard police mountain bikes to the M-750. In

doing this type of comparison it is discovered, from responder's information, the basic M-750 at \$3,600 actually compares to the standard police mountain bike fully-equipped at approximately \$1,200. The table below illustrates, at a glance, the responder's report of overall applicability of the M-750.

	Superior	Nominal	Inferior
Greater Area of Coverage	X		
Reduced Officer Fatigue	X		
Maintenance Free	X		
Faster Response Times		X	
Higher Visibility/Exposure		X	
Higher Citizen Contact		X	
Higher Runner Apprehension		X	
Higher Officer Awareness		X	
Carries More Weight		X	
Better in Stealth Operations			X
Greater Tactical Advantage			X
Base Cost			X
Overall Reliability/Vulnerability			X
Practical Overall Fit For Training			X
Practical Overall Fit For Street			X

DISCUSSION/CONCLUSIONS

The purpose of this research was to objectively determine if the TidalForce M-750 was indeed a technologically advanced product, replacing the standard police mountain bike and providing superior police service to a community. Upon initial introduction to the M-750, this author's expectations and excitements lean heavily toward the outcome of discovering that police cyclists have been brought into the 21st century with an undisputable replacement for the standard police mountain bike. Many responders to the surveys and interviews state that their expectations were initially high for the M-750.

Upon using and testing the M-750, the responders and this author soon experienced diminished expectations as practical applications of the M-750 were conducted. This author also

finds it interesting that WaveCrest provided two reprint articles to this author stating, Deputy B.A. Curtis of the Loudoun County Sheriff's Office in Virginia and the Winston-Salem University Campus Police Department in North Carolina, found the M-750 to be an asset in virtually all categories. (Clark, 2003). This author followed up by conducting surveys and interviews with Deputy Curtis and administrative staff of the Winston-Salem University Campus Police. It was revealed that, in actuality, the Loudoun County Sheriff's Office had only conducted a trail period on the M-750 after which it was decided not to use the M-750 at their agency. (Curtis, 2005). The Winston-Salem University Staff stated they were experiencing problems with the M-750's ability to stop and weaknesses discovered in the wheels of the bike. (TidalForce, 2004). Furthermore, this author discovered that upon returning to the WaveCrest website, the link to the Winston-Salem site had been closed. In fact, this author notes that WaveCrest had greatly reduced its available amount of reference material concerning law enforcement applications.

In conclusion, this author's research reveals the M-750, as currently designed, to have apparently been a great application for the military, but not a practical and usable replacement for the more agile, standard police mountain bike at this time. The findings of this author's research do not support the initial hypothesis that the M-750 would be a dynamic replacement and superior piece of equipment to that which is currently being used by law enforcement agencies everywhere.

Because of the short time the M-750 has been available for law enforcement use, 2004 to 2005, the number of available credible resources of information for this research were somewhat, but not restrictively, limited.

It is expected that this author's research may serve in conserving the amount of time other law enforcement agencies may have used in the consideration of the M-750 in its current design. This author stands hopeful, in consideration of the technological abilities and talents WaveCrest had exhibited in the creation of the M-750, research by WaveCrest and TidalForce will continue and produce a product more applicable in the not-too-distant future. Many responders, especially I.P.M.B.A. instructors, state they have shared their findings with WaveCrest and TidalForce. In the face of reports of dwindling petroleum resources in this country it would indeed benefit the law enforcement community and their citizens if WaveCrest and TidalForce would continue in the research of and possible development of a superior police mountain bike akin to the M-750.

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