VIRTUAL TRAINING SYSTEMS

A Report to the Governor, House Appropriations Committee, And Senate Finance Committee

September 2013

Colonel W. Steven Flaherty
Superintendent

COMMONWEALTH OF VIRGINIA

Colonel W. S. (Steve) Flaherty
Superintendent
_____
(804) 674-2000

DEPARTMENT OF STATE POLICE
P. O. Box 27472, Richmond, VA 23261-7472
(804) 674-2000

Lt. Col. Robert B. Northern
Deputy Superintendent

October 1, 2013

TO: The Honorable Robert F. McDonnell, Governor of Virginia

The Honorable Walter A. Stosch
Chairman of the Senate Finance Committee

The Honorable Lacey E. Putney
Chairman of the House Appropriations Committee

Pursuant to Item 416 (H) of the 2013 Appropriation Act, I am respectfully submitting herewith, a *Report on Virtual Training Systems.* The report is a compilation of the Department's research on the potential implementation of this technology.

Respectfully,

Superintendent

WSF

Enclosure

Preface

Pursuant to Item 416 (H) of the 2013 Appropriation Act, the Department of State Police is pleased to provide this report on the capabilities and potential implementation of virtual training system technology.

Executive Summary

The Department of State Police currently provides some of the most progressive law enforcement training available to both sworn employees of the agency and officers from other departments across the Commonwealth. To enable the Department to continue to be successful in this endeavor, virtual training system technology would enhance the ability to deliver these critical police training skills. Firearms and officer survival training iterations are some of the most significant in the development and maintenance of current response preparedness for all law enforcement agencies. Enhanced virtual training technology would be a tremendous addition to this training capability.

The Department of State Police has and continues to be a leader in progressive training methodologies that will prepare employees of the agency to safely respond to an ever expanding threat package. This anticipatory posture is maintained through a comprehensive analysis of available training solutions in keeping with current agency mission objectives.

Introduction

Law enforcement training is rapidly evolving through the use of technology. All training platforms have been enhanced through the use of this medium. Technology has created a new perspective in the most effective way to train the adult learner. From software utilized in classroom presentations to equipment used in the scenario-based evolutions, advances in technology continue to reduce the training denominator seen in all law enforcement training.

Current Situation

The Department of State Police currently utilizes video-based training platforms and virtual-based technology in portions of training. Video training systems are utilized in officer survival modules and for some diagnostic and remedial portions of firearms training. The virtual-based systems are utilized in emergency vehicle operation training. As with all technology, the current video training system has reached its limitations to effectively train our personnel.

Virtual training systems have evolved through graphic enhancements to an immersive simulation that creates a realistic training environment replicative of actual law enforcement operations. Virtual interactive training systems provide law enforcement trainers the ability to deliver scenario-based training that is organic to actual law enforcement calls for service. This technology offers a progressive solution to the challenge of enhancing a police officer's ability to react and respond properly to an opposing threat. Virtual training systems also allow for the manipulation and follow on portions of training to ensure the proper levels of authenticity and remedial instruction are achieved.

Upon request, the Department's Tactical Operation Unit has researched virtual training solutions for potential implementation into current training programs utilized by the agency. Two virtual training systems that are currently being evaluated that meet the specifications outlined in Item 416 (H) of the 2013 Appropriation Act are the Virtual Interactive Combat Environment (VICE) Simulator and the VIRTSIM 5000 Simulator.

The VICE Simulator is a station configured program manufactured by Dynamic Animation Systems, Inc. The VICE System allows for both the individual student and squad sized increments to train on a variety of tactical-based applications. The individual student can effectively utilize the VICE system for basic and advanced firearms training. The VICE Simulator configures authentic weapons for use in a virtual simulation. This facet has the potential to reduce ammunition cost traditionally associated with the acquisition of fundamental marksmanship skills. Collectively, the station configuration of the VICE Simulator has the capability to train up to ten individuals in task training scenarios to include:

- Law Enforcement Patrol (Urban, Rural, Highway)
- Civil Disturbance
- Counter Narcotics Operations
- Tactical Training

1

- Gang Surveillance and Operations
- Active Shooter Response

Follow on features of the VICE System allow for after action analysis to ensure maximum training benefit is achieved. This option is also beneficial for remedial instruction as well as review and revision of existing agency use of force policies. The VICE System utilizes a toggle control affixed to the weapon system to maneuver the student's avatar throughout the animated terrain contained within individual stations. The station configuration and consequent movement through gaming controls limit the student's mobility. This creates a deficit in the law enforcement training principals due to emphasis placed upon actual physical movement required in reactionary evolutions.

The initial cost of the VICE Simulator System includes:

- 10 station system to include monitors, proctor station computer hardware, software and weapon systems organic to the purchasing agency

- Three-year software upgrade delivery (20 percent of initial purchase price)

System Cost: $1,800,000.00
Software Upgrade: $ 360,000.00 ($120,000.00 annually)

The VIRTSIM 5000 Simulator is manufactured by Motion Reality, Inc. The VIRTSIM 5000 Simulator is a complete three dimensional training system that utilizes position sensors to depict the student's avatar and weapon system in an animated environment. The scenarios are executed through the use of a view finder device worn by the student to create a first person perspective. The VIRTSIM 5000 allows unrestricted movement throughout a 360 degree threat environment. This feature is congruent with current training methodologies that emphasize the importance of movement in the direct action missions of law enforcement. The VIRTSIM 5000 includes a marksmanship component that focuses on weapons manipulation and shooter development. The system also has the capacity to have up to thirteen students in practical-based scenarios that can be choreographed to meet the needs of all basic, in-service and specialty law enforcement training. This immersive technology is unique in that it allows for the student to identify animated features unique to the environment (infrastructure, vehicles, support and adversarial personnel) while physically moving through a scenario within a confined training area. This replicates field training scenarios designed to expose the trainee to actual law enforcement operations.

The initial cost of the VIRTISM 5000 Simulator System includes:

- System configuration (100' X 50') to capture volume space, thirteen sets' position sensors and thirteen sets of replica handgun and M-4 rifles

- Customer support and license agreement (First year included in initial system setup) at 9 percent per year

- Consumables from second year through the life of the system

	System Cost:	$1,680,000.00
	Customer Support and License Agreement:	$151,000.00
	Consumables:	$8,000.00 - $17,000.00

Conclusion

The implementation of a virtual training simulator has tremendous potential to enhance the Department's ability to deliver effective law enforcement training. This innovative technology used in conjunction with traditional training methodologies would significantly impact the ability to prepare the agency's sworn employees to respond safely to ever diversifying threats.

The Department of State Police has and will continue to seek the most progressive solutions available to effectively train its personnel. The incorporation of virtual-based training technology will also help enable the agency's vision of the delivery of advanced tactical training to other law enforcement agencies throughout the Commonwealth.