



Security Infrastructure Working Group Report

Presidential Working Paper

August 17, 2007



SECURITY INFRASTRUCTURE GROUP

Executive Summary

In response to the tragic events on the Virginia Tech campus on Monday, April 16, 2007, the President established the Security Infrastructure Working Group. The group was charged with examining the university's existing security systems and recommending changes that would enhance the university's ability to respond quickly and effectively in situations where the safety of the campus community is jeopardized. The group was also directed to identify strategies that might decrease the probability of such situations occurring. The group was asked to not only consider technological aspects of the issue, but also the behavior of individuals with regard to campus security.

James A. Hyatt, Executive Vice President and Chief Operating Officer, was appointed as Chairman of the Group. Core members appointed to the Group by Mr. Hyatt include:

- Earving L. Blythe, Vice President for Information Technology
- Wendell R. Flinchum, Director of Campus Security and Chief of Police
- Kay K. Heidbreder, University Counsel (advisor to Group)
- Lawrence G. Hincker, Associate Vice President for University Relations
- James V. McCoy, Capital Project Manager

Staff from several campus units provided support and served as resources to the Group, including representatives from Hokie Passport and Residential Programs. The Group was ably staffed by Heidi McCoy, Director of Administrative Operations and Assistant to the Executive Vice President and Chief Operating Officer. The Group also retained external experts to review current campus security policies and procedures. In addition, the workgroup and its advisors conducted site visits to two major research universities and the campuses of two private sector corporations to benchmark the university's security infrastructure with other national leaders.

While the commissions established by President Bush and Governor Kaine were formed to consider security issues from a State and National policy perspective, this Group's focus was to examine security issues from the perspective of a large research university. The Group evaluated the strengths and weaknesses of the university's existing security systems and related infrastructure, and developed recommendations for how existing systems/infrastructure can be improved and enhanced. The group also looked at how to address emergency situations that might arise in the future.

Note: In order to meet the August 17, 2007 report deadline to the President, the group focused its analysis on the main Blacksburg campus. Therefore, it is

recommended that a follow-up study be conducted of security issues at the university's other campus sites, including Abingdon, Hampton Roads, Northern Virginia, Richmond, and Roanoke, as well as at all Agricultural Research and Experiment Stations (ARECs) and 4-H offices.

Identified strengths associated with the university's current security processes and procedures are as follows:

- Mutual aid agreements with local, regional and state law enforcement agencies and rescue squads that enables prompt and coordinated responses to emergency situations.
- Ongoing joint training exercises with other law enforcement and emergency units to prepare for possible emergencies.
- Mass emergency communication systems including e-mail, an emergency website, audible sirens, and telephone trees. A new mass communication system, VT Alerts, was recently implemented that in the case of an emergency provides instant and text messaging to individual cell phones.
- A robust communication infrastructure that in the event of an emergency allows for pre-established call centers and the ability to respond to increased cell phone and other telecommunication demands.
- Electronic Card Key access to all student residential facilities and some academic buildings. (Note: All residence halls are now on card key access on a 7 day and 24 hour basis.)
- A nationally accredited campus police department.
- A documented campus emergency preparedness response plan that includes a process for establishing an incident commander, emergency response coordinator and emergency response team to coordinate and deploy appropriate resources and support services.
- Engagement of the president and key campus administrators in addressing campus emergencies (e.g. Policy Committee).
- In the event of an emergency, strong support from faculty, staff and students and the surrounding community.

Areas targeted for enhancement or improvements include:

Physical Infrastructure

- Remove and replace the hardware on all perimeter doors to mitigate the risk of doors being chained.
- Install interior locks on all general assignment classrooms and evaluate installation of locks on non-general assignment classrooms.
- Explore the installation of a centrally controlled electronic card key access system for all key academic and administrative facilities. This system will be used to secure buildings during nonworking hours. In the event of an emergency such a system would allow individual and groups of buildings to be locked remotely by the police department.

- Improve security or “hardening” of select campus offices through the installation of electronic card key access controls on interior doors, and monitoring of these offices by a closed circuit television system.
- Construct a state of the art Public Safety Building that will enhance Virginia Tech Police and Virginia Tech Rescue Squad services by physically consolidating these units in a single facility.
- Explore the feasibility of deploying a centrally monitored closed circuit television (CCTV) system using video surveillance cameras at key locations on the campus.

Communication

- Provide mass notification in classrooms and other environments where other systems may not provide adequate notification. It is recommended that a simple electronic banner textual displays with audible alarms be installed in all classrooms where practicable.
- Explore the installation of LCD message boards within the entrances to key campus buildings, as well as outdoor illuminated message boards at major campus entrances. These displays would alert the campus to emergency situations and provide instructions on the appropriate actions to be taken.
- Create an electronic “people locator system” that members of the campus population could log on to after an emergency to post their status so that concerned relatives, friends and colleagues could receive updated information.
- Develop pre-written “templates” to help communicators craft emergency messages more expeditiously.

Emergency Preparedness

- Update the campus emergency preparedness response plan.
- To prepare for potential emergencies increase the use of annual “table top” or simulation exercises by key campus units (e.g. police, rescue squad, physical plant, building coordinators, etc.). Where appropriate these exercises should involve faculty, students and staff as well as law enforcement and public safety units from surrounding jurisdictions.
- Implement a building coordinator program whereby a person in each building is identified as the responsible party in the event of an emergency. All coordinators will be trained in appropriate emergency response and security processes and procedures. Central coordination and training will be the responsibility of the campus police department.
- Formally identify backups to key Policy Committee members who are unable to physically respond to campus emergencies. Also enhance communications with key Policy Committee members who are off campus when an emergency occurs.

Protocols

- Enhance security protocols that will explicitly highlight what to do in the event of an emergency. This will include posted signs in all classrooms and student services facilities, as well as inclusion of such material as part of new employee and student orientations.
- Create a security master plan for the campus and establish a campus security planning committee.

In order to implement the recommendations outlined in this report the university should immediately initiate a program to fully cost and identify the funding sources necessary to implement the program. Possible fund sources could include increased state support, as well as a mandatory life/safety fee.

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One unique characteristic of security at Oracle is a corporate-wide security policy that is mandatory irrespective of location. They also rely on a regional crisis management structure that can be escalated up through the executive management structure of the company. XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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University of Maryland at College Park

The University of Maryland at College Park, is the University System of Maryland's flagship institution, and is the state's premier center of research and graduate education. The university is ranked among the nation's top 20 public research universities by U.S. News & World. The university has 4,000 total acres, 262 buildings, with the central campus resting on approximately 1,200 acres. The University of Maryland at College Park is one of the State Council for Higher Education for Virginia's (SCHEV) approved peers for the university.

The site visit included an overview of the University of Maryland's physical security and access control, security operations center, emergency mass notification system and other critical incident management tools. Most notable was a visit to the university's Security Operations Center which monitors the university's 220 closed circuit television cameras twenty four hours a day. The Center is so advanced that it is often visited by other police departments, as well as government agencies including the FBI. The university began utilizing surveillance cameras in the mid-nineties in response to a series of armed robberies on and near the campus. Twenty five of the original cameras were exterior cameras placed on code blue phone poles. Cameras are not located inside residence halls, but cameras are located on the exteriors of residence halls. A special program is used so that surveillance cameras near or on residence halls do not record any activity inside the building to ensure privacy. The surveillance system captures photographs of all vehicles and occupants entering the campus. In 2001, the university established the physical Security Operations Center, which is where the cameras are monitored today. Although the cameras do not record all activity on campus, a significant amount of activity is captured. Workers in the Security Operations Center are able to hear police

dispatch, and redirect the cameras accordingly. The ability to redirect cameras has enhanced police patrols on campus, and provided critical documentation for the Police Department in court proceedings.

The university has approximately 100 non-sworn student police aids who hold both static posts and perform patrols. The police aid program is an auxiliary unit, and is not associated with the academic criminal justice program.

The university uses the Lenel card access system with two operating systems. One operating system is controlled by the Department of Public Safety within the Police Department, and the other is managed by Residential Facilities. There are approximately 350 card readers on campus.

University of California at Berkeley

The University of California at Berkeley is the oldest of the University California System campuses and is consistently ranked as the number one public university by US News and World Reports. The university occupies 1,232 total acres, has 344 buildings, with the central campus resting on approximately 178 acres. UC Berkeley is also considered a university peer by the State Council of Higher Education for Virginia (SCHEV).

Unlike the University of Maryland, UC Berkeley makes limited use of security cameras. All camera installations must be approved by the Police Department, but there is currently not a standard policy on camera installation at the university. The majority of cameras are interior cameras used to guard against theft and/or acts of vandalism or potential political activists. There are three exterior cameras positioned on pedestrian paths for security.

Students, faculty and staff have been trained to “Seek shelter, shut doors and listen” when the university’s mass notification system is activated. A handout was developed to communicate the siren protocol to the university community. Advertisements have also been disseminated to the local community instructing how to respond when the siren is activated. The system is tested monthly.

Like Virginia Tech, 911 calls made from wireless devices do not go to the university dispatch. To counter this problem, the Police Department encourages students, faculty and staff to program the UC Berkeley dispatch number into their cell phones so they have direct access to the Police Department in an emergency.

In terms of emergency preparedness, staff appointed to the emergency operations group remains part of the group even when they change positions within the university. The group’s training is coordinated by the Director of Emergency Management. There is a depth of four people per each position on the emergency operations group, and a depth of six people per position for the

planning roles. Members of the group receive special identification cards that denote emergency personnel status, which allows them access to the campus as necessary during an emergency.

Summary of Site Visit Findings

Key observations of the site visits to the four institutions include:

- all campuses visited have:
 - the ability to electronically lockdown residential facilities and key academic buildings from a central access control system; the system is under the control of campus police or, in the case of the private sector companies, a central security office
 - developed a clear message of how to respond when the siren system is activated
 - designated building coordinators
 - an organizational structure where emergency management/preparedness personnel report to the Police Department
 - exterior siren systems used for mass notification
 - a layered all-hazards approach to emergency planning
- emergency planning is supported at the most senior executive level
- a number of the campuses visited are working to expand card access at exterior doors campus-wide

Virginia Tech Security Infrastructure: Current Status and Recommendations

The current campus security infrastructure consists of physical infrastructure components, a communication plan, and security protocols. The following will discuss the security infrastructure in place prior to April 16, 2007, as well as security and infrastructure improvements completed since April 16, 2007. Based upon the Group's evaluation of the university's current security infrastructure and systems, several areas for improvement have been identified. The following discusses areas for improvement and provides recommendations for enhancement of the university's security infrastructure. The Group took into consideration security protocols at the site visit institutions, as well as advice from the security experts that evaluated the university's security infrastructure. The report submitted by the independent experts is attached as Appendix A. Finally, funding sources for the security infrastructure enhancements will be discussed.

Physical Infrastructure

Virginia Tech Key Control Office

The Virginia Tech Key Control Office provides lock repair, lock changes, lockout services (file cabinet, desk, office) and issuing of keys (except residence halls) to authorized members of the university community. The campus maintains a standard of *Best* locking hardware for all doors on campus. The maintenance, repair, keying and key control of these devices are all functions of the Office under Physical Plant. The employee providing oversight of the Virginia Tech Key Control Office holds a Certified Protection Professional (CPP) credential.

Recommendations for Improvement and Enhancements

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security of the physical office be upgraded
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Locking and Door Hardware

With a few exceptions, perimeter access to academic, administrative and support facilities is controlled by institutional locks and keys. These buildings are typically unlocked between the hours of 5:30 a.m. and 6:00 p.m. each weekday morning by custodial personnel, and remain unlocked and fully accessible throughout the day. Based on a locking schedule that begins at 5:00 p.m. and continues through 11:00 p.m. to accommodate evening classes, a university security crew locks the exterior doors of these buildings. Most buildings remain locked throughout the weekend. Building occupants, who may need to access the building during such times that the exterior doors are locked, may be issued exterior door keys from the Key Control Office within the Physical Plant Department.

Depending on the function of the space, interior doors may or may not be lockable. Many classrooms and public areas have doors that can be locked, but only from the public/corridor side using an appropriate key. Typically, these doors remain unlocked because of the constant use of these types of spaces. Classrooms, for example, also serve as meeting rooms for a multitude of student organizations during "off" hours. Continuous use by multiple parties for a variety of functions makes controlling access by locking and unlocking classrooms impractical. Private offices, building support spaces (mechanical/electrical rooms, telecommunication rooms, etc.) and laboratory spaces are also lockable. Conventional locks and keys are typically used to secure and access these spaces. In some buildings, such as XXXXXXXXXXXXXXXXXXXXXXX, certain interior spaces are secured with electronic card readers and biometric devices.

These particular spaces have a heightened level of security which reflects the need to control access more tightly.

Recommendations for Improvement and Enhancements

Although installing interior locks on classroom doors was initially considered to be impractical, the university has decided to install interior locks on all general assignment classroom doors and is evaluating installing locks on non-general assignment classroom doors. Law enforcement officials, such as the Virginia Association of Campus Law Enforcement Administrators (ACLEA), advise that the practice known as “lock-down” is not feasible on college campuses. Instead, ACLEA suggests target hardening of campus buildings. Furthermore, they indicate this can be done by the use of card access where practical, the installation of locks on classrooms and labs that can be locked from the inside, and by making our communities aware of secure areas that already exist such as lockable residence hall rooms, offices and office areas. Based on the work of the Security Infrastructure Working Group, the university has decided to install interior locks on all 157 general assignment classroom doors. Work has already commenced to complete this initiative. It is estimated that the project will be substantially complete by the beginning of the Fall 2007 semester. Further consideration is being given to installing locks on non-general assignment classrooms were practicable.

Additionally, in order to prevent the chaining, cabling, or tying together of doors as occurred during the April 16 tragedy, all door hardware in academic buildings that allows doors to be chained, cabled or tied together will be removed and/or replaced with more up-to-date hardware. Immediately following the tragedy, fifty six custom size doors and hardware sets in Norris Hall were replaced. Drop bar devices in Norris Hall were also replaced with flat rails. In June, the university completed a door hardware inventory of all academic buildings on campus and identified hardware for removal and replacement. Of the 64 buildings surveyed, 50 needed some corrective action to accomplish this goal. In certain instances, vintage hardware is being preserved where there is an adjacent single door opening that is unencumbered. Work will be completed in a phased approach so that buildings with the highest traffic are completed first. In many cases, an exterior door handle and an interior drop bars will be removed. Additionally, the university has modified its design guidelines and standards to ensure that there will be no future possibility of allowing any door hardware or openings that can be chained shut.

Access Control

The Hokie Passport Office provides the official identification card that permits authorized access to university services, manages student meal accounts in dining halls, and maintains individual debit accounts for use at various vendor locations on and off campus, as well as electronic access to residential areas and a number of university facilities. The Hokie Passport Office utilizes

CBORD's CS Gold system that provides on-line, real time transactions on a 24-hour basis for building access in residence halls and other campus locations. There are over 265 doors utilizing electronic access. There are approximately 200 card readers in residence halls, and an additional 66 in non-residential buildings. Each year the card is utilized to validate 400,000 admissions to Recreational Sports functions, 250,000 trips to the Math Emporium, 70,000 visits to Health Services and in various other ways. The ID is requested as proof of identity and entitlement for classroom testing, at the Registrar's Office, Bursar's Office, Athletics, Student Telecommunications, Parking Services, Blacksburg Transit, etc.

Access control deployments for residential facilities vary slightly based on the parameters of the buildings. In most cases, the electronic access control is limited to the perimeter doors and mail rooms. Generally students only have access to their assigned residence hall; however, if a student has a mail box in another building, they may also gain access to that building's perimeter during a restricted time frame. In some of the newer residence halls, buildings have lobby entries with a door on the external perimeter leading into the lobby and another locked door to gain access to the residential space.

During the Security and Infrastructure Group's visits to the other institutions, members were able to view several electronic access systems. Instead of automatically deciding to expand the Hokie Passport/CBORD system campus-wide for electronic access, the Group recommends that consideration be provided to multiple card access vendors. Therefore, a group has been formed to write a Request for Proposals to solicit proposals from firms. The bid process will allow the university to evaluate a number of card access systems, as well as the expandability of the Hokie Passport/CBORD system.

Most of the access control readers on campus are magnetic swipe technology. A multi-layered security system, including state-of-the art security appliances, has been implemented for the Hokie Passport CS Gold system. The production servers are located in a secured facility within the office. The backup server, stationed in the university's primary machine room, runs Oracle Data Guard software, which maintains synchronized copies of the production database. A full tape backup of the entire database is completed nightly. Backup tapes are rotated daily and stored in fireproof vaults in the office and in Burruss Hall.

Recommendations for Improvement and Enhancements

In addition to installing the interior locks on classroom doors, the Security Group recommends that the university consider installing electronic door access on all key academic and research buildings. Once an electronic access system for the university is identified, the Group recommends that a university policy be developed requiring compliance with a standard electronic access system. It is further recommended that control and management of all access control on

campus be placed under the Police Department. All card reader doors and alarm points on campus should be routed to the 911 dispatch center for monitoring and control. Finally, it is recommended that all future buildings be wired for electronic door access. As part of the capital building project costs, at a minimum all main doors should be prepped for electronic access. Ideally, all exterior doors should be prepped for electronic access as well. This protocol should be made part of design standards in all new capital projects and renovations. Finally, campus Police should review and approve security specifications for all capital projects.

Alarm Systems and Fire Detection, Suppression and Notification

Depending upon which building they are in, building occupants may receive an emergency message through the building's fire alarm system. There are currently over one hundred buildings on the Virginia Tech campus, including all student housing facilities, that are equipped with a fire alarm system. The systems serving forty-one of these buildings also provide voice alarm capabilities if delivered from the building's fire alarm panel. While enhancements will be made to centralize this function to make it a more viable alternative for mass notifications, much of the infrastructure is already in place to notify a significant portion of the university community in the event of an emergency. Currently, most exterior residence hall doors, regardless of the presence of a card reader, are alarmed to sound if propped or held open, as are interior doors with a card reader.

Like many institutions of higher education, Virginia Tech does not have its own fire department. The university provides funding to the Town of Blacksburg for trucks and equipment, and relies on the Town of Blacksburg Fire Department in the event of a fire. Historically, fire response time from the Blacksburg Fire Department has been appropriate and timely.

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Recommendations for Improvement and Enhancements

All of the existing fire alarms on campus report to a central point by use of a counter rotating token ring network transmitting over leased telephone grade copper lines. It is recommended that the university's fire systems be upgraded to communicate over a more robust communications topology such as fiber optic cable. It is further recommended that existing fire panels be upgraded to allow active voice commands from the dispatch center operator stations to be broadcast in the buildings.

Student Police Aides

The Virginia Tech Police Department utilizes supplemental security resources throughout campus. Three of the areas that supplement law enforcement are: Safe Ride (safety escorts), Building Security, and Campus Watch.

Safe Ride provides safety escorts on campus from dusk to dawn during the academic year. Safe Ride consists of approximately 10 part time employees during the school year. The majority of these employees are students. The employees patrol the student parking lots when they are not performing safety escorts. One employee is stationed in the guard shack at the entrance to student lot "I" and answers telephone requests for escorts. The building also provides a place for students to wait on "safe ride". These employees have radio contact with the Police Department dispatch center. The Police Department pays the safe ride employee wages from departmental funds. When school is not in session, police officers provide the safe ride service. Information about this program appears on the Police Department website where students are advised to call 231-SAFE to access the program.

Building guards are located in the Andrews Information Services Building, Veterinary Medicine, Squires Student Center, Graduate Life Center, Virginia Tech Inn and Skelton Conference Center, and the Math Emporium. These guards work evening and night hours year-round. These employees have radio contact with the Police Department dispatch center and they can hear and talk on the Police Department main radio channel. There are approximately 12 part-time employees used to staff these locations, several of which are students. These employees are paid from funds provided by the department requesting the guard.

Campus Watch provides security around the residence halls, checking the exterior of the buildings, and providing walking escorts for students. There are 3 full-time employees funded by Residential and Dining Programs. These positions are supplemented by approximately 6 part-time employees, with about half being students. This group also has radio contact with the Police Department dispatch center and has the ability to monitor/talk on the Police Department main radio channel.

Resident Advisors collaborate with the Virginia Tech Police to support the "Gotcha Program" where officers patrol residence halls for unlocked doors and other safety issues. When a door is found unlocked, a note is left for the resident warning them that their belongings or personal safety could have been in jeopardy had the officer been a criminal. Also, Resident Advisors working evening shifts make schedule rounds throughout their residence hall checking for safety or health concerns. Reports are made to resident directors and police as needed.

While the Police Department utilizes students in the above positions, the number employed at any given time depends greatly on the availability and interest of the students. Many of the four or five days a week positions cannot be worked by full-time students because of the hours required. The total number of these part-time employees varies and is lower when school is not in session.

Securing Student Mail Rooms

There are forty-four student housing facilities on campus which house 9,000 students. For these facilities, perimeter building access is controlled by electronic card readers which are managed and maintained by the Hokie Passport Office. Prior to April 16, student housing facilities were typically locked between the hours of 10:00 p.m. and 10:00 a.m. daily. During all other times, the buildings were unlocked and fully accessible. Post April 16, residence halls are locked twenty four hours a day, seven days a week. In most cases, students only have access to their assigned residence hall, but if a student has a mailbox located in another building they can gain access to that building's perimeter as well.

Recommendations for Improvement and Enhancements

To limit access to the building envelope in buildings students do not reside, the door access system throughout residence halls has been enhanced. Through building and system modifications, including wall and door additions, students' access in residence halls in which they do not reside is now limited to public spaces only. It is recommended that all mail rooms eventually be removed from the residence halls and a centralized campus mail facility for all persons who reside on campus be constructed or identified.

Residence Life is developing a plan of education about new building security and related procedures so students are aware of the changing nature of common area spaces. Currently, most exterior residence hall doors, regardless of the presence of a card reader, are alarmed to sound if propped or held open, as are interior doors with a card reader.

Public Safety Building

Under the 2006 Management Agreement between the Commonwealth of Virginia and the University, the Board of Visitors has the authority to approve the budget, size, scope, and funding of nongeneral fund capital outlay projects. At the August 2007 Board meeting, the university will submit a request for a \$1.6 million planning authorization to move forward with design of a proposed Public Safety Building. This facility will allow for an expanded dispatch center and co-location of the Police Department and the Virginia Tech Rescue Squad. The proposed project is envisioned as a 35,000 gross square foot, two-story building with necessary accommodations for personnel, storage, training, vehicles, and a command center.

Recommendations for Improvement and Enhancements

The 911 dispatch center within the new building should include two expanded operator stations and two full time operator stations. The center should provide an expanded and integrated emergency communications infrastructure, and allow for the redesign of emergency and non-emergency land line protocols. Additionally, access to fire monitoring and voice notification systems should be available in the dispatch center.

Hardening of Critical Interior Spaces

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Recommendations for Improvement and Enhancements

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Consideration should be given to evaluating the benefits of hardening critical areas on campus such as heavily trafficked administrative and student services offices and deans offices.

Panic Buttons

Currently, the university has approximately 50 panic buttons and/or intrusion systems installed on campus. The panic buttons and instruction systems are located in offices such as laboratories and academic buildings. When activated, the Virginia Tech Police Department dispatch center receives an audible alarm and the location of the activation is displayed. Three contact names are also displayed, and dispatch contacts the first person to determine if it is a true emergency. Regardless, police are dispatched to the scene to respond. Systems are reset by the Police Department. There are several types of panic buttons on campus; however, the university has moved to using recessed panic buttons to prevent the accidental activation of the emergency system.

Closed Circuit Television and Video Analytics

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Recommendations for Improvement and Enhancements

It is recommended that the university consider implementing a CCTV system (1) in common areas of student life facilities, (2) perimeter access points of critical buildings, (3) access points to research facilities, (4) access points to hazardous areas, (5) access points to administration and classroom buildings and (6) in line with code blue phones. It is recommended that the university deploy a standardized CCTV system on campus utilizing network recording and storage devices with intelligent video analytics leveraging the existing IP network on campus, and that a compliance policy be developed. All security cameras should be routed to the 911 dispatch center for monitoring, analysis and alarming and integrated into the campus command and control solution. The Virginia Tech Police Department should have the ability to enable video transmission to police vehicles and hand held devices to enhance tactical response. Storage of CCTV data should also be centralized as much as possible.

The type of cameras employed in CCTV systems has evolved over several years. Analog video cameras were initially connected to a video recording device (e.g. VCR). In recent years this technology has been replaced by analog

cameras connected to digital video recorders (DVR). These systems provide both increased storage capacity and digital capabilities but because of limitations it is difficult for the DVRs to handle inputs from too many cameras. As a consequence, a number of campuses and private sector companies are investigating the deployment of IP network cameras. IP cameras are connected directly to a campus data network.

According to industry sources IP decentralized recording can decrease the number of DVRs required by up to 10 times. It is estimated that 25% of security users use IP cameras, while 45% plan to upgrade from analog to IP cameras. This should be considered if the university implements a CCTV system. Further, the electronic access control system should provide for the scalability to include a CCTV system.

Biometrics

Biometrics is the use of technology to grant electronic entry to certain high security facilities either through the use finger print recognition or iris scanners. These systems generally provide a second or backup form of access control. The university deploys some biometric devices in a limited number of specialized university facilities such as research labs.

Recommendations for Improvement and Enhancements

The university must determine what type of biometrics is most applicable. It is also recommended that the card activated electronic access control system that is purchased be robust enough to support biometrics.

Communications

Emergency Communication Infrastructure

The Police Department currently uses a non-private 2 way radio. In the event that officers need to communicate sensitive or private information, they do so via cellular telephones.

Recommendations for Improvement and Enhancements

The existing emergency communication infrastructure needs a technology upgrade. For example, cell phones used by emergency personnel are susceptible to availability outages during a crisis situation. Additionally, there is no expandability for radio communication to integrate outside agencies in the event of a large scale response. It is recommended that a full and complete communications audit be performed.

The Police Department is exploring a communications upgrade for police vehicles. Additionally, foot patrols on campus have been increased.

In addition to 911 response, Virginia Tech provides a police dispatcher on call 24 hours a day, seven days a week, by contacting (540) 231-6411. Additionally, through a partnership with the Division of Student Affairs, a Crime Hotline is available where anyone can anonymously report a crime.

Mass Notification Systems

There were four systems on campus which provided for mass notification on April 16. The Emergency Alert System consists of pole and roof mounted speakers at six locations throughout the campus. This system allows for an audible message, either voice or tone, to be broadcast from the controller which is located in the Virginia Tech Police Department. When activated, this system allows for emergency messages to be conveyed to individuals who are on campus, but not within a building. On April 16, four of the locations were operable and two other locations were in the process of being installed. Since April 16, sirens have been installed at the two additional locations. It is recommended that staff, including Police Department dispatch personnel, receive additional training on the system so that it can be more effectively used during an emergency. It is also critical that the system be accessible from both Policy Group meeting locations, and that members of the Policy Group be trained in its operation. A limitation of the system is that it is inaudible inside many of the buildings on campus. The university's layered communications approach and the new VT Alerts system will counter this restriction. As discussed previously, depending upon which building they are in, building occupants may receive an emergency message through the buildings fire alarm system. The upgrade and central linking of fire detection systems campus wide will provide an additional method to communicate during an emergency addressing the concern that the sirens cannot be heard inside buildings.

The second and third emergency notification systems available on April 1 were campus email and the university website. The fourth system was the telephone tree system that when utilized could deliver voice messages to all campus land lines. On April 16, phone trees were used in the Office of the President and the Office of the Executive Vice President and Chief Operating Officer. Additionally, student life has a resident advisor network that was also utilized. These mass notification methods were significantly improved with the university's purchase of an upgraded emergency notification system post April 16th; this system has officially been branded "VT Alerts".

Recommendations for Improvement and Enhancements

In an effort to reach the mobile university population, last fall Virginia Tech began exploring options to expand and enhance its already robust campus communications program. In June, Virginia Tech reached an agreement with 3n (National Notification Network) to expand the university's ability to send critical news and information to the university community during campus emergencies. VT Alerts was launched on July 2, 2007. The addition of VT Alerts will give

members of the Virginia Tech community more choices as to how they would like to receive important notifications or weather-closing information. The system is comprised of a variety of methods by which the university can contact students, faculty, and staff, including via text message (SMS) to mobile devices, instant messages, calls to non-Virginia Tech numbers and e-mails to non-Virginia Tech addresses. The system consists of a subscriber-only feature that requires a person to subscribe in order to receive messages. VT Alerts allows a person to list up to three contact methods, which can be ranked in order of preference. During an urgent situation, the VT Alerts system will send an alert using the first contact method; unless the nature of the event requires that the university deliver messages in a different order. When the message is received, if the individual does not confirm receipt when prompted, VT Alerts will send the alert to the next contact preference. In the case of a widespread emergency impacting a large segment of the university with long term implications, the Police Department will now have the physical capability to send alerts from the new system.

As of August 9, 2007, over 10,922 students, faculty and staff have subscribed to the new system. Seventy-eight percent of the subscribers are students, 21% percent are staff, and 14% percent are faculty (Note: some faculty/staff are also students). As students return for the fall semester, the university fully expects that between 80 and 95% of students will opt-in to the new system. The opt-in experience at other schools has been 20-30%.

University Relations' staff are also exploring how to create an electronic "people locator system" that members of the campus population could log on after an emergency to post their status so that concerned relatives, friends and colleagues could receive updated information. Such a system is currently in place at the University of California, Berkeley.

To save time in crafting emergency messages (on the web, via text messages, etc), it is recommended that the university develop prewritten "templates" to help communicators craft emergency messages more expeditiously. These templates should include phone numbers, contacts, or other directions that would likely be used in a variety of crisis situations. By having these message templates in hand, valuable time can be saved in having to look up information for each instance. These template messages should be written and maintained by University Relations in cooperation with other university offices, such as Virginia Tech Police, Environmental Health and Safety, and the Division of Student Affairs.

The university is also considering the possible advantages of installing interior electronic message boards in high-traffic areas on campus. Interior message boards could be linked to the VT Alerts system to communicate with students, faculty and staff who do not hear the mass notification system or receive a message from the VT Alerts system because they do not have immediate access to telephone, email or text messaging. The boards would provide an additional

method of alerting the campus of an emergency. The Executive Vice President has established a group to write an RFP to evaluate available interior message board systems.

Finally, the university is exploring the installation of exterior electronic message boards at selected campus entrances. A primary function of the message boards would be to visually alert and communicate to university commuters specific text messages in coordination with other university notification systems. This could be a critical tool to communicate with the commuter population and visitors to campus. The Office of the University Architect has developed a proposal (Appendix B) that provides recommendations for specific types of electronic message boards, and generally identifies locations for message boards at primary campus vehicular entrances. A recommendation will be that Police Department personnel within the 911 dispatch center have access to control messages on both interior and exterior message boards.

Classroom Alert Systems

In a classroom environment, access to some VT Alerts notification methods may be limited or unavailable, for instance when an instructor requests that students turn off their cell phones while in class. Additionally, in-room notification systems that are subtle and or unobtrusive may go unnoticed for some time when the instructor and students are focused on the material being presented. An effective notification system for the classroom environment must be capable of attracting the attention of the instructor and or students even during the most intense and captivating classroom activities.

Recommendations for Improvement and Enhancements

To provide mass notification in classroom and other environments where other mass notification systems may not provide adequate notification it is recommended that a simple electronic banner textual displays with audible alarms be installed in all classrooms where practicable. When a VT Alerts notification is required, this system would sound an audible alarm and deliver a short text message notifying people to seek out additional information from a campus information source (i.e. the campus TV information channel or the Virginia Tech web site). This system could be integrated with other campus alert systems such as the VT Alerts Automated Notification System, and/or updated by/from any authorized source.

The campus Information Technology division will use remote network management tools to monitor the network connection of every banner display. We strongly recommend that Virginia Tech develop operational procedures to ensure that the display and audible alarm are tested in each classroom where practicable on a regular basis.

Since the system would be idle most of the time, Information Technology recommends that the electronic banners display a simple message such as the date and time when not in use to convey VT Alerts information. This will also reassure persons in the classroom that the banner is functioning properly.

Steps to expedite deployment:

- Select a banner system from amongst those that have been investigated.
- Procure the selected banner system.
- Leverage the extensive and flexible campus data network for rapid deployment.
- Utilize power over ethernet (PoE) to power the banner displays over the data network.
- Engage all appropriate university resources required to rapidly deploy the banner displays with minimum disruption to scheduled classes.
- Select and pre-wire mounting locations prior to the receipt of the banner devices.
- Work with Campus Network Services (CNS) to determine mounting locations that can be wired without extensive, time consuming, work.

911 Dispatch Center

Currently, the 911 dispatch center is housed within existing space at the university police facility. There is no back-up location. Two dispatchers are on duty at all times to handle normal operational needs associated with dispatch requirements of the Virginia Tech Police Department, as well as emergencies that might arise. As mentioned previously, the proposed new public safety building would provide a more adequately sized dispatch center.

All land line calls originating from the campus ring directly to the university 911 dispatch center. Emergency calls originating from a wireless device on campus are received at call centers located off campus. The cell phone call is picked up by the nearest cell tower, so the locality that receives the 911 call depends on the location of the caller. Calls to 911 made using a wireless device on campus could potentially be routed to the Town of Blacksburg or Montgomery County. Elevators on campus also have emergency phones. Calls from elevator phones go directly to the Virginia Tech Police Department dispatch.

The university will have a total of 59 emergency blue light phones once the three news phones approved for FY 2008 are installed. All blue light phones are monitored by Virginia Tech Police Department dispatch, and stations are tested once every 30 days. Locations of the emergency blue light phones are illustrated in Appendix C.

Security Protocols

The university's security protocols provide direction for the necessary actions to be taken in an emergency and are briefly described below.

Emergency Plan

Virginia Tech's Emergency Response Plan outlines procedures for managing major emergencies that may threaten the health and safety of the campus community or disrupt business operations on the local campus. The 'local campus' is defined as the Blacksburg main campus and all Virginia Tech facilities located within Montgomery County; facilities located outside of this area must develop and implement an emergency response plan that addresses the specifics of that facility and the response capabilities within their locale. The current plan, which has been in place since May 2002, provides a set of protocols for dealing with campus emergencies of varying degrees. The priorities of the plan are: (1) protect life safety, (2) secure critical infrastructure and facilities, and (3) resume teaching and research programs. The plan provides the framework by which university officials mitigate, respond and recover from emergencies.

At the crux of the plan are the actions and interactions of the two pre-established functional groups: the Policy Group and the Emergency Response Resource Group. Once activated, the plan encompasses many activities, including the timely dissemination of accurate information. As it becomes available, information about an event is gathered by the appropriate plan participants and channeled back to a command center where the Policy Group establishes a plan of action based on the information being provided. At the appropriate time or times, other plan participants communicate applicable information about the event to the campus community and beyond. As prescribed by the Plan, these communications can take many forms including broadcast email, instant messages, text messages, broadcast voicemail to campus phones and updates to the university homepage. Where appropriate, communications through the Emergency Alert System and available building fire alarm systems may also be enacted. There are numerous attachments and appendices to the Plan that communicate the need to record the flow of events during an incident. Checklists are also provided to assist in the collection and reporting of data during any emergency.

Recommendations for Improvement and Enhancements

Although the university's Emergency Plan is mature in the scope of emergencies that it covers, the Plan is in need of revision. It is recommended that a schedule for reviewing and updating the Plan be established with a minimum annual review cycle. Since confidential information is contained within the Plan, distribution should be controlled. This can be accomplished by marking the Plan as "FOIA PROPRIETARY" and distributing copies through a numbered system. If this is not feasible, the sections containing confidential and proprietary information should be controlled. It is further recommended that the plan be

revised to reflect all categories of emergencies, rather than those focused primarily on weather-related or hazards material-related events.

Command Structure

As provided for in the university's Emergency Response Plan, an advisory committee called the Policy Group is convened in a secure location in the event of an emergency. The role of the Policy Group will be discussed in more depth in the next section. In addition to the Policy Group, the Emergency Plan provides for two additional functional groups: (1) the Emergency Response Resource Group and (2) Satellite Operations Centers.

The Director of Campus Security and Chief of Police, as well as the on-scene commander for the emergency, take direction from the Policy Group during an emergency, except during a fire emergency. Prior to April 16, the Director of Campus Security and Chief of Police reported to the Vice President for Administrative Services who reports to the Executive Vice President. The Virginia Association of Campus Law Enforcement Administrators (ACLEA), recommend that police and security departments report in the leadership hierarchy no lower than one level from the president of the institution. Therefore, to ensure a direct line of communication between the Director of Campus Security and Chief of Police and executive administration, an organizational reassignment was made so that the position now reports directly to the Executive Vice President. The Police Department is a full service, fully accredited, law enforcement agency with 41 sworn officers who are assisted by security guards, communication officers and administrative staff. The Executive Vice President is allocating an additional 11 FTE to the Police Department, as well as supporting operating and equipment funds for the additional personnel. New personnel will include a Deputy Chief, Administrative Sergeant, two officers for community outreach, an officer for investigations, four officers for patrol and two additional administrative employees. The total allocation for improvement to the Police Department is \$487,400.

On April 16, the university was in the process of a search to hire a Director of Emergency Management. In light of the tragedy, an Interim Director of Emergency Management reporting directly to the Executive Vice President was appointed. The position is the focal point for emergency operation and training at Virginia Tech. The position will allow the university to appropriately prepare for and respond to campus emergencies. Under the supervision of the Executive Vice President, the director is responsible for the coordination and management of all emergency response activities, including development, implementation, and review of emergency action plans, procedures and training. This new position will work closely with the Director of Campus Security and Chief of Police to coordinate safety policies for the university.

It is also important to note that for large scale emergencies, all Virginia Tech managers (Senior Administrative Officers, Deans, Chairs, Directors, Laboratory and Facility Managers) are considered “essential personnel”.

Policy Group

The Policy Group convenes in the event of an emergency in a secure location, currently the president’s suite of Burruss Hall. The Group is chaired by the President and in his absence by the Executive Vice President. The Policy Group is composed of lead administrators including the President, Executive Vice President, Associate Vice President for University Relations, University Provost and Vice President for Academic Affairs, Vice Provost for Academic Affairs, Vice President for Administrative Services, Vice President for Information Technology, Vice President for Student Affairs, Legal Counsel and administrative/clerical support staff as necessary. In the absence of both the President and the Executive Vice President, the University Provost and Vice President for Academic Affairs leads the Group. The role of the Policy Group is to coordinate policy and procedural issues specific to response and recovery activities necessitated by the nature of the event. Members of the Policy Group serve in an advisory role to the incident commander in-charge (the university President) and provide centralized direction and control in the evaluation of the institutional effects of the emergency, frame emergency-specific policies as needed, and assure that functions critical to the continuity of university business operations are maintained and prioritize business resumption priorities.

Recommendations for Improvement and Enhancements

Given the critical role of the Policy Committee, it is recommended that the Policy Group establish a succession hierarchy where after a reasonable period of time the role of absent members is ceded to the next highest ranking individual present. It is further recommended that a plan be developed to keep members that are not present informed of the event. Finally, a crisis kit has been created for the Policy Group that includes such things as a laptop and emergency contact list for use by executives during an emergency situation.

Mutual aid agreements with local police and rescue units

The university has a number of mutual aid agreements with local police and rescue units, including concurrent jurisdiction in Montgomery County through a court order (Appendix D). Section 23-234, Code of Virginia, as amended, authorizes the Circuit Court to grant “concurrent jurisdiction in designated areas with the police officers of the county, city or town in which the institution... (is) located. Section 23-234, Code of Virginia, as amended, restricts mutual aid agreements to those jurisdictions that are contiguous to university property. The university’s current written mutual aid agreements for police aid include agreements with:

- The Town of Blacksburg (Appendix E)
- Montgomery County (Appendix F)
- City of Radford (Appendix G)

The university also has a mutual aid agreement with Radford University's Police Department (Appendix H). Written agreements for mutual aid with local rescue units include:

- Blacksburg Volunteer Rescue Squad (Appendix I)
- Christiansburg Volunteer Rescue Squad (Appendix J)
- Shawsville Volunteer Rescue Squad (Appendix K)

Although not in writing, the university has close working relationships with all of the law enforcement agencies and rescue organizations in surrounding locales, as evident from the tremendous support received during the tragedies on April 16. In response to the events of April 16, over 30 police and law enforcement agencies and 20 rescue units responded. Appendix L provides a listing of all police and emergency response agencies that responded on April 16. The Police Department will continue to participate in joint training exercises with the Blacksburg Police Department and Montgomery County. The university will also continue to foster relationships with other police departments in the local area.

Chief Flinchum has also implemented the use of common language for radio transmissions in the Police Department effective July 1, 2007. The Police Department worked with the Virginia Tech Rescue Squad and they began using common language the same time as the Police Department. The use of common language instead of codes allows different agencies to better communicate during emergencies and large scale events. It also brings the university in compliance with National Incident Management System (NIMS) requirements. The Virginia State Police use common language along with many other agencies across the state. Locally, the Virginia Tech Police Department is the only police agency using common language; however, most of the emergency management providers are using it.

Security Policies and Procedures for Students, Faculty and Staff

As per Section V.W. (Weapons) of the University Policies for Student Life, the unauthorized possession, storage, or control of firearms and weapons on university property is prohibited, including storing weapons in vehicles on campus as well as in the residence halls. Firearms are defined as any gun, rifle, pistol, or handgun designed to fire bullets, BBs, pellets, or shots (including paint balls), regardless of the propellant used. Other weapons are defined as any instrument of combat or any object not designed as an instrument of combat but carried for the purpose of inflicting or threatening bodily injury. Exceptions to possessing weapons may be made in the case of university functions or activities and for educational exhibitions or displays. Such exceptions are subject to

authorization by the Chief of the Virginia Tech Police Department. This policy does not prohibit the possession of firearms by persons, such as law enforcement officers, who are authorized by law to do so in the performance of their duties. A weapons storage program is also available. In response to the events of April 16, Police Department staff reviewed all internal Police Department gun storage procedures. As a result of the internal review, the “Student Weapons Storage Form”, attached as Appendix M was modified. Additions to the request form are highlighted in yellow. The additions require requesters to report if they have ever been convicted of a felony and to indicate whether or not they have a concealed weapons permit. Further, the form now requires that the student attest that they are the lawful owner of the firearm being stored and are in compliance with applicable Federal and State law concerning the possession and ownership of the weapon. Finally, the form now clearly states that the detection of alcohol on the breath of the person wishing to check their gun out would prohibit the weapon from being released to them.

The university also has several security related policies, including university policy 5616 *Campus and Workplace Violence Prevention Policy* and policy 5600 *Response to Bomb Threats*. These policies are attached as Appendix N and Appendix O respectively.

Faculty and staff handbooks address security in terms of authorized closings, general workplace health and safety, and information technology security practices. The next section will discuss recommended enhancements to orientation programs, so that students, faculty and staff are more effectively made aware of campus safety and security protocols.

Recommendations for Improvement and Enhancements

It is recommended that guidelines for security protocols and procedures, as well as where to find security and emergency materials, be included in all student, faculty and staff handbooks. This information should also be made accessible on the web.

Student, Faculty and Staff Orientation Programs and Protocols on Security

During student orientation, representatives from the Police Department participate in sessions with parents and students to discuss safety and security measures on campus. Environmental Health and Safety also provides a brief presentation on residence hall safety and distributes various handouts, such as fire evacuation materials. During staff orientations, Environmental Health and Safety also provide a brief presentation on health and safety.

Recommendations for Improvement and Enhancements

It is recommended that a new employee and student orientation program on security be developed. It is further recommended that the safety program be made available in a format that can be viewed electronically by all students,

faculty and staff on an annual basis. A succinct, online interactive safety program that can be viewed in 15 minutes or less will provide an effective way to update the university community on important safety protocols annually. Consideration should be given to requiring annual viewing of the program to be mandatory.

So that students, faculty and staff know how to respond during an emergency, emergency notification posters (Attachment P) will be placed in all academic buildings on campus. These posters are in the process of being produced and will be in all general assignment classrooms by the beginning of classes. Emergency Management personnel are also evaluating hanging the posters in other high-traffic areas on campus. Residential Programs is in the process of customizing the emergency notification poster for placement in all residence halls with protocols unique to residence life.

Although the emergency notification system allows for an audible message, a protocol for how to respond when the siren is activated was not in place prior to April 16. Staff are working to develop a standard protocol for response, such as “Shelter: Shut: Listen”, when the siren system is activated. Once a protocol is established, publications will be developed to communicate with the campus community. The protocol for response will also be included in new student and staff orientation programs.

Letters to Parents

To assure parents and students that safety and security on campus is one of the university’s top priorities, a letter was sent out to parents and students from the President in June prior to orientation. The letter included a list of safety and security features at Virginia Tech, such as blue light safety phones, 24 hour lockdown of residence halls and contact information for the Police Department, as well as brief information on Police Department safety programs. The letter is attached as Appendix Q.

Table Top Exercises

Current plans call for executive level administrators and college deans to receive incident command training during the Fall of 2007, and actively participate in tabletop exercises that will be scheduled. These exercises will include the university President. This training will be extended to additional faculty and staff as deemed necessary and will facilitate the emergency drills. It is anticipated that the initial drills relating to the Emergency Plan will be held during 2008. Additionally, the university plans to prepare for a Mass Causality Incident Drill in late spring or early summer 2008 that would involve faculty, staff, and students at Virginia Tech, as well as emergency responders within the Blacksburg community.

Recommendations for Improvement and Enhancements

The university community should be required to participate in annual tabletop and practical testing events so that the essence of the Plan is diligently exercised. The drill and exercise plan should include a layered approach with varying sizes of drills and exercises to respond to a variety of emergency scenarios such as a shooter on campus, hazardous spill or a tornado. It is recommended that the new Office of Emergency Management make emergency training a priority and develop a schedule that ensures training for the campus occurs frequently and in an effective manner.

Hostile Intruder's Emergency Action Plan

The Virginia Tech Police Department has trained in active shooter response for many years. This training was based on a model developed by the Los Angeles Police Department in response to the Columbine shootings. Officers receive this training from internal instructors and from the regional police academy. The Virginia Tech Police department has conducted joint training exercises with the Blacksburg Police department and Montgomery County Sheriff's Office concerning active shooter response.

Security Master Plan and Security Planning Committee

There is currently no security master planning methodology in place for the campus. Without the use of a measured and standardized methodology, new implemented security measures and recommendations from this report will be employed in an ad hoc fashion. This unbalanced approach could lead to further inequity and confusion in the context of campus security.

Recommendations for Improvement and Enhancements

It is recommended that the university identify and agree upon the usage of a security planning methodology. The security master plan should also address security issues at all of the university's campus sites, including Abingdon, Hampton Roads, Northern Virginia, Richmond, and Roanoke, as well as at all Agricultural Research and Experiment Stations (ARECs) and 4-H offices.

Next Steps

In order to implement the recommendations outlined in this report the university should immediately initiate a program to fully cost and identify the funding sources necessary to implement the program. Possible fund sources could include a combination of state support and a mandatory life safety fee. Possible funding sources are discussed below. Effective implementation of the recommendations may also require organizational changes as well. Opportunities for organizational changes are also discussed below.

Funding Sources for Implementing Security Measures

State Support

Because of the nature of the proposed security enhancements and strategies, state General Fund support is an appropriate vehicle for providing the needed financial resources to support these efforts. In an overall funding strategy for these costs, General Fund support would cover its proportionate share of costs in the instructional program; costs assigned to auxiliary operations would be covered by auxiliary revenues and fees.

The University has the opportunity to request General Fund support through the 2008-2010 biennial budget process. Such requests would normally process through a specific budget decision package submitted to the Executive Branch during the fall of 2007, for consideration in the Governor's Executive Budget. If the proposal is included in the Executive Budget, the funding would subsequently be considered by the General Assembly during its 2008 Session. If the funding is not included in the Executive Budget, the University would retain the option of obtaining support for submission of a legislative amendment for consideration during the 2008 General Assembly Session. In most cases, any funding ultimately included through the General Assembly Session will be provided to the University effective July 1, 2008. However, special treatment can sometimes be enacted to have funding received during the latter stage of the 2007-08 fiscal year through a Caboose Bill.

A major reason for the provision of General Fund support for these security costs is that it properly matches the normal state funding sources, including both taxpayer funds and tuition and educational and general (E&G) fees, with the University's instructional budget costs. In addition, the receipt of General Fund support would reduce the need for charges to students, which would, in turn, allow the University to better manage and control the overall cost of education to its students.

Life/Safety Fee

However, the receipt of General Fund support for a given cost or initiative is always uncertain, and it will be so for the 2008-10 biennial budget. An alternative strategy, which provides the advantage of ensuring timely implementation of the security recommendations, is to establish a new life and safety student fee. By providing a predictable and stable revenue stream when needed, a life and safety fee would ensure that management is able to act on the desired health and safety enhancements in as timely a manner as possible.

New activities and corresponding costs need to be aligned with the benefiting program. Accordingly costs would be spread across all programs, e.g., E&G and auxiliary, consistent with the purpose of the activity. E&G costs would likely

increase administrative support costs in Institutional Support and Operation and Maintenance of Plant. The revenue from a life and safety fee would follow the allocation of these costs among program categories.

Because the security enhancements would benefit all students, the University would implement a standard dollar increase per student, per semester, effective with the fall semester 2008. Consistent with the treatment of most other such costs, the fee would apply to on-campus students. Off-campus students and on-line students would not be assessed the fee unless the security enhancements provided benefits to those student groups.

A life and safety fee would be assessed in addition to the regular increase in tuition and fees to ensure that the costs of enhancements do not negatively impact the University's delivery of core programs and the pursuit of its strategic plan. It should be noted that to the extent that this new fee results in E&G revenue, this nongeneral fund source will be recognized by the Commonwealth as a funding source that helps meet the University's overall Base Budget Adequacy need.

The amount of the fee would be determined in a manner consistent with the other fees, through an examination of the budget costs and the timing of expenditures. The fee amount could also be impacted by type of cost – the fee could be designed to handle both ongoing and one-time costs. In addition, the fee development process would take into consideration the provision of student financial aid for the costs, as needed and available. The resulting fee proposal could be submitted for approval to the Board of Visitors at its March 2008 meeting, along with all other elements of the proposed 2008-09 the tuition and fee package.

Organizational Changes

It is recommended that the role of the Police Department be expanded to include oversight of all applications of physical access control. A campus-wide electronic access system should be controlled by the Police Department. Finally, if a CCTV system is identified, it should also be managed and controlled by the Police Department.

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Consideration should also be given to realigning the Rescue Squad under the Police Department. The university should also formalize a fuller, more complete and documented integration of the student lead Rescue Squad with university security operations. In the event of an emergency, this will result in a valuable level of formality and interoperability.

Summary

The implementation of the abovementioned recommendations and enhancements will require university administration to prioritize university security needs in conjunction with a comprehensive financial plan. A summary of the areas targeted for enhancement or improvements include:

Physical Infrastructure

- Remove and replace the hardware on all perimeter doors to remove the risk of these doors being chained and the installation of interior locks on all classrooms.
- Install a card key centrally controlled electronic access system for all key academic and administrative facilities. This system will be used to secure buildings during non working hours. In the event of an emergency such a system would allow individual and groups of buildings to be locked remotely by the police department.
- Modify design standards to require that at a minimum all main doors be prepped for electronic access.
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XXXXXXX.
- Improve security or “hardening” of critical campus offices through improved electronic card key access control and central monitoring by a system of video cameras.
- Physically consolidate and enhance police and rescue squad operations through the construction of a state of the art Public Safety Building. This facility will house an expanded and enhanced 911 dispatch center and centralized access and surveillance system.
- Explore the feasibility of deploying a closed circuit television (CCTV) system using video surveillance cameras at key locations on the campus. These cameras should be controlled and monitored by the central 911 dispatch center located at the police department. The system should also be integrated with all campus electronic card key access and alarm systems.
- Upgrade the university’s fire systems to communicate over a more robust communications topology such as fiber optic cable.
- Upgrade existing fire panels to allow active voice commands from the dispatch center.
- Remove all mail rooms from residence halls and construct or identify a centralized campus mail facility.
- Determine what types of biometrics are most applicable for the university, and require that the new electronic access system be robust enough to support biometrics.

Communication

- To provide mass notification in classroom and other environments where other mass notification systems may not provide adequate notification it is recommended that a simple electronic banner textual displays with audible alarms be installed in all classrooms where practicable.
- Explore the installation of LCD message boards within the entrances to key campus buildings, such as the Squires Student Center, and outdoor illuminated message boards at major campus entrances or vehicle roadways on the campus. These displays would alert the campus to emergency situations and provide instructions on the appropriate actions to be taken.
- Create an electronic "people locator system" that members of the campus population could log on after an emergency to post their status so that concerned relatives, friends and colleagues could receive updated information. Such a system is currently in place at the University of California, Berkeley.
- Perform a full and complete communications audit of existing security systems.
- Develop prewritten emergency message templates to expedite the process of sending out a message during an emergency.

Emergency Preparedness

- Update the campus emergency preparedness response plan.
- Increase the use of annual "table top" or simulation exercises by key campus units (e.g. police, rescue squad, physical plant, building coordinators, etc) to prepare for potential emergencies. Where appropriate these exercises should involve faculty, students and staff and law enforcement and public safety units from surrounding jurisdictions.
- Implement a building coordinator program whereby a person in each building is identified as the responsible party in the event of an emergency. All coordinators will be trained in appropriate emergency response and security processes and procedures. Central coordination and training will be the responsibility of the campus police department.
- Formally identify backups to key Policy Committee members who are unable to physically respond to campus emergencies. Also enhance communications with key Policy Committee members who are off campus when an emergency occurs.

Protocols

- Enhance security protocols that will explicitly highlight what to do in the event of an emergency. This will include posted signs in all classrooms and student services facilities as well as inclusion of such material as part of new employee and student orientations.
- Develop a new employee and student orientation program that can be viewed electronically; consider making review mandatory on an annual basis.

- Create a security master plan for the campus and establish a campus security planning committee.

Organizational

- Expand the role of the Police Department to include oversight of all applications of physical access control.
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- Realign the Rescue Squad either under the new Emergency Management Department or under the Police Department. Formalize a fuller, more complete and documented integration of the student lead Rescue Squad with university security operations.

APPENDICES

- A External Security Consultant Report (Non-Disclosure Agreement Protected)
- B Exterior Message Boards Proposal
- C Emergency Blue Light Telephone Map
- D Court Order for Concurrent Jurisdiction in Montgomery County, Virginia
- E Police Mutual Aid Agreement – Town of Blacksburg, Virginia
- F Police Mutual Aid Agreement – Montgomery County, Virginia
- G Police Mutual Aid Agreement – City of Radford, Virginia
- H Police Mutual Aid Agreement – Radford University
- I Rescue Mutual Aid Agreement – Blacksburg, Virginia Volunteer Rescue Squad
- J Rescue Mutual Aid Agreement – Christiansburg, Virginia Volunteer Rescue Squad
- K Rescue Mutual Aid Agreement – Shawsville, Virginia Volunteer Rescue Squad
- L Listing of Agencies Assisting Virginia Tech on April 16, 2007
- M Virginia Tech Police Department Student Weapons Storage Form
- N Policy 5616: Campus and Workplace Violence Prevention Policy
- O Policy 5600: Response to Bomb Threats
- P Emergency Notification Poster
- Q Letter from President Charles W. Steger and Vice President for Student Affairs Zenobia L. Hikes dated June 20, 2007