

ATLAS SAFETY & SECURITY DESIGN, INC.

BARRY UNIVERSITY SECURITY & CPTED CASE STUDY

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ABSTRACT

After crime was increasing at a small community university in South Florida in the mid-1990's, a comprehensive security study was conducted by Atlas Safety & Security Design, which resulted in a CPTED masterplan. The major security recommendations of the consultant's security study were implemented in 1997, and addressed the natural access control, natural surveillance, and territoriality features of Barry University. Recommendations and implementation included extensive perimeter definition, expansion and relocation of the parking lots, landscaping and planting changes, security lighting, improved contract security, improved and enforced policies and procedures. This paper is an analysis of the effects of the Crime Prevention Through Environmental Design (CPTED) strategies on the types and rate of crime at Barry University subsequent to the implementation of security and CPTED improvements.

INTRODUCTION

In the mid 1990's the trend of increasing crime in South Florida impacted Barry University which is located in Miami Shores, Florida. In 1995, a female student was sexually assaulted in her dorm facility located on campus by an unknown assailant. After this incident, Barry University administrators were forced to take a hard look at the crime problem and its causation on the Miami Shores campus by engaging a security study of the campus by Atlas Safety & Security Design Inc.

Prior to the student's assault, Barry University had experienced a rising tide of crime throughout the 1980's and early 1990's. The vulnerability of the campus to crime was compounded by the fact that it serves a large number of commuter, and on-campus resident students. Barry University is Florida's oldest and largest Catholic University, and was founded in 1940 as a women's college. In 1975, Barry College became coeducational with arrival of the first male students to campus. By action of the Board of Trustees, Barry College became Barry University on November 13, 1981. Barry University is an eighty (80) acre campus located at or near 11300 Northeast Second Avenue, Miami Shores, Florida. The University has forty (40) buildings located at or adjacent to the center campus on Northeast Second Avenue. The west portion of the campus is a 40 acre tract of partially developed land to the west of North Miami Avenue, and includes an indoor Health and Sports Center. In addition there are outdoor tennis, basketball and racquetball courts; the soccer, baseball, and softball fields; a large parking lot; and portable buildings on the northwest corner of the property.

Approximately 6,000 students attend Barry University at the main campus. Attendance includes weekdays, weeknights and weekend classes. Adult education enrolls approximately 2000 students that attend 10 week class sessions. Several residence halls are located on the south side of the center campus. There are other sites, store-front contract operations, remote from Miami Shores.

Barry University administrators had determined to help ease the strain on their own small proprietary security staff, by adding a contracted security force. Campus Public Safety Officers are radio-equipped and centrally dispatched; vehicle, golf-cart, and walking patrol cover campus property 24-hours a day. In 2000, public safety responded to over 480 assorted calls or request for service from students, staff, and faculty. Additional security is provided at major university functions, such as athletic competitions, social events, and other special activities. The University phone system is routed to the Public Safety 24-hour dispatch/communications center after normal business hours to assist callers with questions or emergency notification of students when needed. The Barry University Public Safety Department mission is to provide a safe and secure environment for members of the university community 24 hours a day, seven days a week. The public safety department provides complete campus protection services to all of the students, faculty, staff, and guests of the university. The

department is responsible for patrolling all campus areas, and providing free assistance for keys locked inside cars and dead battery starts. Public safety is also responsible for the enforcement of campus parking and traffic regulations.

Many universities have the challenge of controlling how persons and vehicles ingress and egress their campus. The primary threat to Barry University's security was unauthorized access control. Barry University's security/crime problems could not be solved with a single solution. Installing new security "technology" such as cameras, motion detectors or access control would not reduce the criminal opportunity if not fully integrated in to the built environment of the University. In order to ensure that Barry University had a full integrated and efficiently secured environment the basic principles of CPTED (Crime Prevention Through Environmental Design) would have to be applied.

CPTED focuses on the inherent design properties and characteristics of the users, and uses of the architecture. CPTED uses many elements including natural access control, territorial reinforcement or boundary definition, natural surveillance, legitimate activity support, management and maintenance supervision to provide the defensible space measures needed to bolster security and safety of the university environment. The security survey of Barry University examined all of these CPTED elements and analyzed what where the inherent weaknesses and strengths of the campus.

The methodology for securing Barry University first required the analysis of the crime trends for the local area and surrounding city. These statistics showed what the actual crime threats were, as compared to the perceived threats. It was necessary to avoid a reactive solution that dealt with a specific incident, and that did not address the real threat of crime on campus. Fully understanding what was actually happening in the broader scope would help create proactive solutions. After the survey was completed proposals were developed for implementation and funding was acquired to proceed two years after the survey was completed. Implementation and construction took approximately a year and was completed in 1998.

PRE-EXISTING SECURITY CONDITIONS

The security/CPTED survey of the campus analyzed the perimeter boundaries, security systems utilized on campus, and policies and practices of the contracted security staff. The survey revealed that the primary weak link of campus security was a lack of boundary definition and territorial reinforcement. The existing four-foot high walls that surrounded parts of the campus was not a sufficient barrier to the outside streets and unauthorized access. In some areas there were no walls at all. Combined with

overgrown foliage that hindered natural surveillance, these perimeter walls and plantings created a security threat and attractive magnet for criminal activity.

The natural and physical barriers discouraged any legitimate pedestrian activity on the perimeter of campus, which reduced casual observation even further.

Compounding the perimeter problem was the parking situation. Campus visitors and students had little to no clear or defined parking areas, and cars were usually parked on the side streets or on grassy areas easements, not intended for such use. This made it very difficult for security staff to efficiently patrol every area in which cars were parked. The lack of uniform security patrol and casual observation, abundant hiding places, and easy ingress and egress provided a prime opportunity for auto-theft, larceny, purse snatching, and other personal and property crimes.

The vehicle/pedestrian entrance onto the campus on NE 111 Street has a broad median on which a security control center is located. This building is a single story, concrete block, 300 square foot building which has glazing 360° around it. The continuous glazing provides unobstructed visibility for the security officers. A security officer is stationed within this guardhouse 24 hours per day. For after hours security, the security personnel close the vehicle entrances, or close off newly installed vehicle gates, all except the security guard house entrance to allow one way in and of traffic.

Fencing barriers were located around the property west of North Miami Avenue on three sides - North, South and West. The East perimeter along North Miami Avenue has no barrier, except for the street curbing. There was no fencing or barriers for the University property to the east and to the north. There were a number of open parking lots and parking areas throughout the campus. Commuter students and event parking was a large portion of the property West of North Miami Avenue, in front of the large Health and Sports Center. The parking lots were filled with cars that did not have Barry University stickers, and many cars had steering wheel locks. The University was selling the car locks inexpensively as a theft preventative measure. The consultant drove around the perimeter which appeared to be configured for one way traffic, but did not observe any one-way signs. Only when the consultant reviewed the site plan did he realize that traffic flow was illustrated as one way. The traffic flow configuration has since been abandoned by the advent of new construction on campus. The University did not enforce parking regulations and restrictions after 5:00 p.m. The policy developed as a means of encouraging adults to come on campus for evening adult education.

Of special concern was the south perimeter of the central portion of the property along NE 111 Street. The majority of this portion of the campus perimeter was adjacent to the student residence halls. In fact, Doss and Flood Halls are within a 15 - 20 feet from the property line along 111 Street. Although there is a large earth berm and landscaping, access was easily accomplished by climbing over the berm. Also, of

concern is the massive amount of vegetation and bush growth between the street and the residence halls. This condition hindered visual perception and allowed a potential criminal the opportunity to hide and surprise on a victim. The close proximity of the perimeter public streets to the residence halls provided 'cover" for a criminal executing a theft, burglary, or rape. Residential dorms doors are exterior oriented, similar to a drive in motel, with no possible means of controlling for unauthorized access. The open perimeter provided unlimited access to front doors and windows of the student rooms, and their cars in the adjoining parking lots.

In 1995, the campus was protected by contract security officers provided by The Wackenhut Company, and subsequently replaced with 50 State Security. The campus was within the jurisdiction of the Miami Shores Police Department. The campus security department included three (3) proprietary Barry University personnel - the security director, a crime prevention officer, and an assistant. The remainder of the campus security personnel were provided by contract security officers. There were twenty seven (27) contract security officers working 40 hours each. Ten (10) security officers protect the campus during the day shift. Thirteen (13) security officers were protecting the campus during the evening shift, with some officers bridging the evening and midnight shift. Four (4) security officers patrolled during the midnight shift. The patrol force utilized two-way radios for communication. The security officers also have access to a cellular phone for communications with other agencies or calling back requests for service. As long as the campus perimeter remains open, the use of security manpower was the only means possible to accomplish the primary goals of campus security.

Classroom buildings were open late at night. The consultant observed that all of the classroom buildings were open past 10 p.m. The buildings were unoccupied and equipment and furnishings were left unattended. All secondary and emergency egress doors were operable from the outside. The sequence of locking up the classroom buildings takes several hours, which commences around 10:00 p.m. The complexity of locking the classroom buildings with the varying schedules and agendas makes the need for a systematic university level alarm system more present.

The pool area was fenced off, however the perimeter chain link fence showed signs of jump-overs. The men's bathroom by the pool area had the exterior window broken and door did not lock. The bathroom was accessible to persons from off the street and posed an attractive nuisance and security risk.

The Infirmary staff expressed their fear and vulnerability to crime. Staff stated that often they worked late after dark, and felt like they had to lock the door. There were no electric locks. Windows to the infirmary were jalousie type windows. In the evening the nurses were afraid. One of the nurse's car was stolen from the designated nurse parking spot in the middle of the afternoon. The lighting around the infirmary was good

in the hallway, but dark behind the building on the path from the walkway to staff parking.

The main entrance was not the "primary" entrance to campus by students, as it does not directly lead to a parking lot for their use. The immediate lots accessed by the entrance were for visitors, faculty and staff, as well as, for residents. The secondary entrances were serving as the primary means of entrance to the campus. This is made so by the recent addition of the guardhouse at the southern entrance. The primary destinations on campus were made up of the library, classroom buildings, dormitories and gymnasium. The student population was mostly comprised of commuters, so the means of travel for most students was cars and resulted in overflow parking at the north and south edges of the campus.

The exterior of the property was level and had clear visibility for the most part. Lighting within the campus was abundant during evening hours. The only lighting that was observed not functioning was the ground lighting around the library. Eight of the mercury vapor fixtures were not working. The high-pressure sodium vapor street lamps provided good coverage overall around the campus. Lighting was not sufficient in the perimeter easement areas and the busstop on NE 2nd Ave. and 115 the Street. The bus stop lighting and the street lighting are county property, and pressure must be brought upon the Metro Dade Transit Authority to correct the problem.

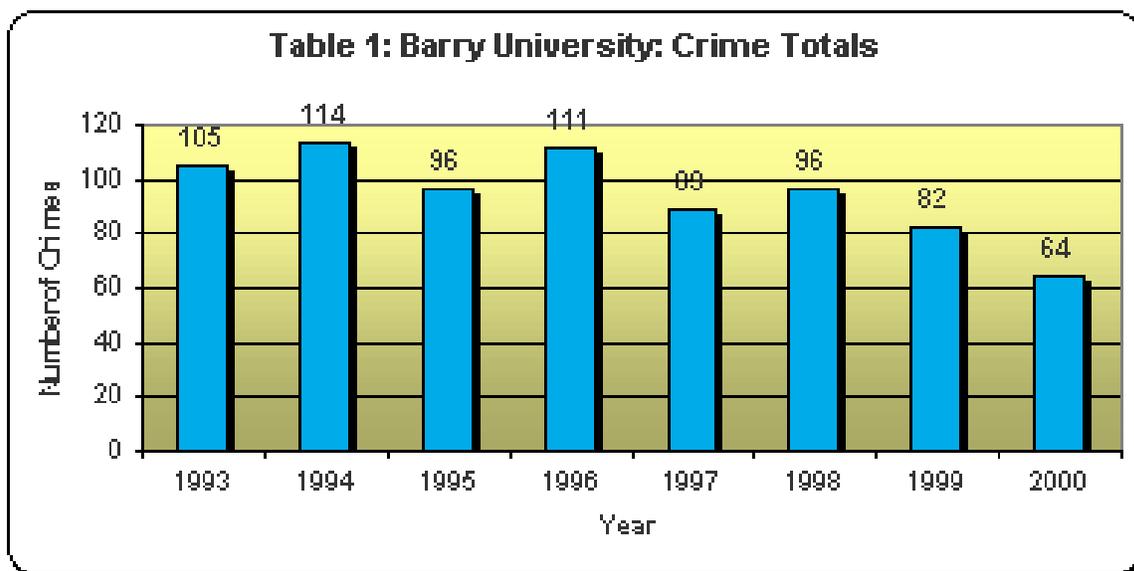
A study of the existing landscaping pointed to a number of problems particularly around the periphery of the campus. A prolific use of Ficus trees along these edges created a wonderful shade by day but a potential danger at night for two reasons: the wide trunks serve as effective hiding places and dense wide canopies hinders the penetration of light, creating dark zones below the acceptable .5 foot-candles. Hence, natural surveillance is curtailed. Additionally, the shallow widespread root system of the Ficus also creates an uneven walking surface making this area "pedestrian unfriendly". The absence of a sidewalk eliminates legitimate pedestrian activity, and diminishes the opportunity for natural surveillance. The informal landscaping along the road edge fails to define a sense of boundary from public to private space, hence making the easements prone to illegal overflow parking.

The university parking facilities were at 114% of their capacity when vehicles were parked improperly on the easement periphery. Analysis of the Barry University parking condition using a Parking Deficiency Method of Analysis indicated that a minimum of 194 additional spaces were needed to satisfy the current parking conditions.

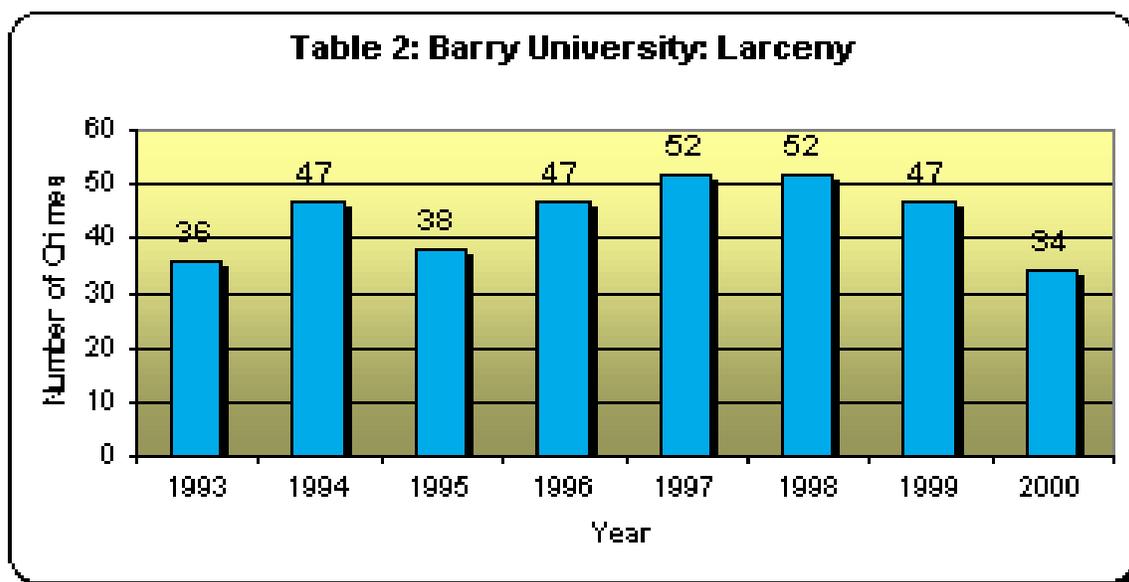
CRIME EVALUATION

Table 1 illustrates the total reported offenses at Barry University from 1993 —2000. A 39%

drop in crime totals from 1993 to 2000 reflects the change in design and security



practices.



The renovations for security started in 1997 and were completed in 1998 for a total cost of \$1.3 million dollars.

Table 2 shows a drop in larceny theft of 35% from 1998 to 2000. As the university perimeter is put constructed, the opportunity for random theft dramatically reduced and the risk for detection increased.

Table 3 demonstrates the reduction of assaults on campus, with no increases in the last five years.

Table 3: Barry University: Assault

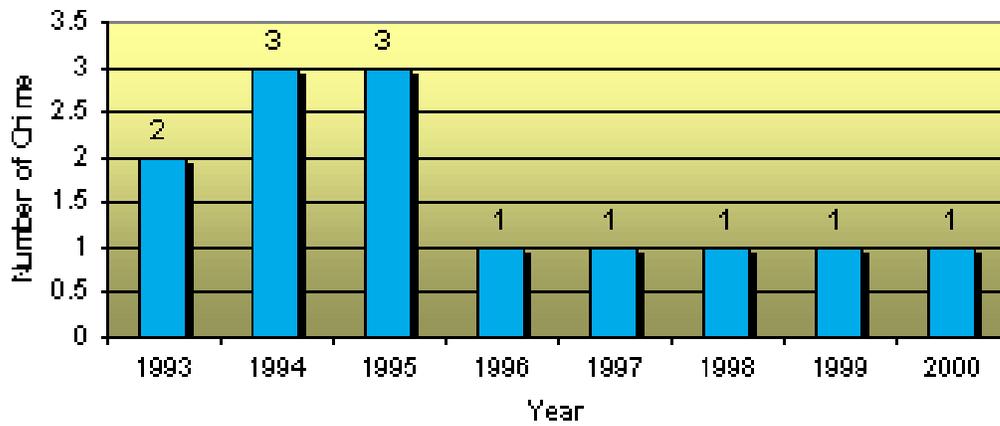


Table 4 shows the fluctuations of burglary decreasing, but with such few numbers these are crimes of opportunity.

Table 4: Barry University: Burglaries

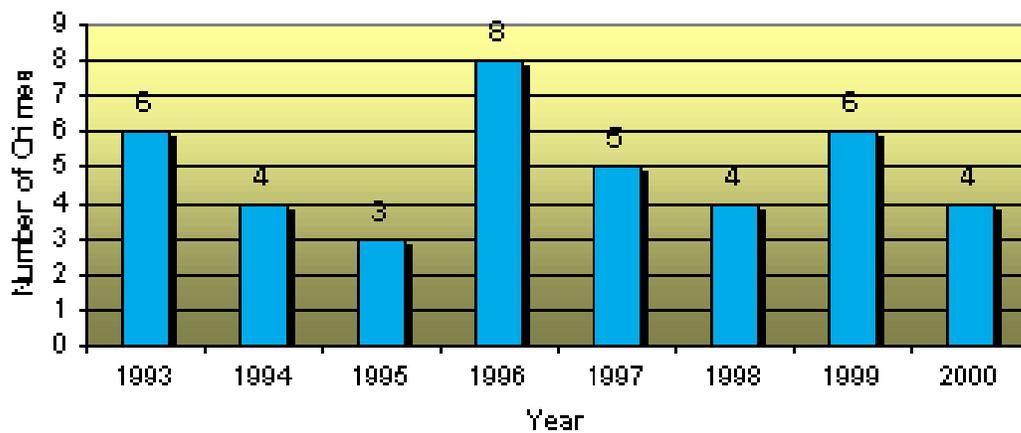


Table 3: Barry University: Assault

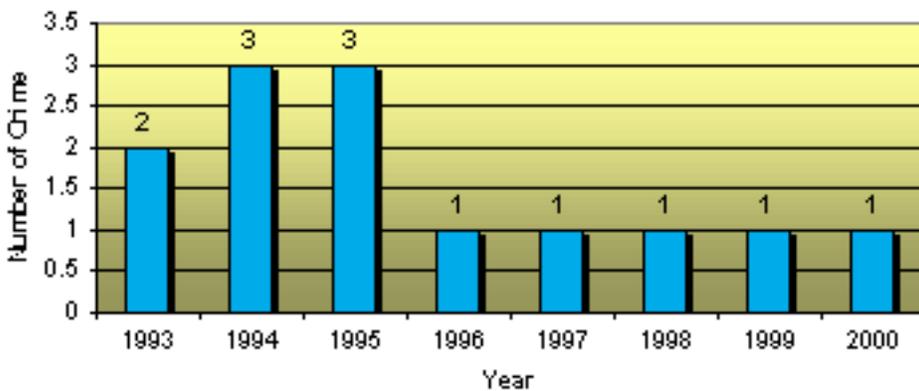


Table 5: Barry University: Auto Theft

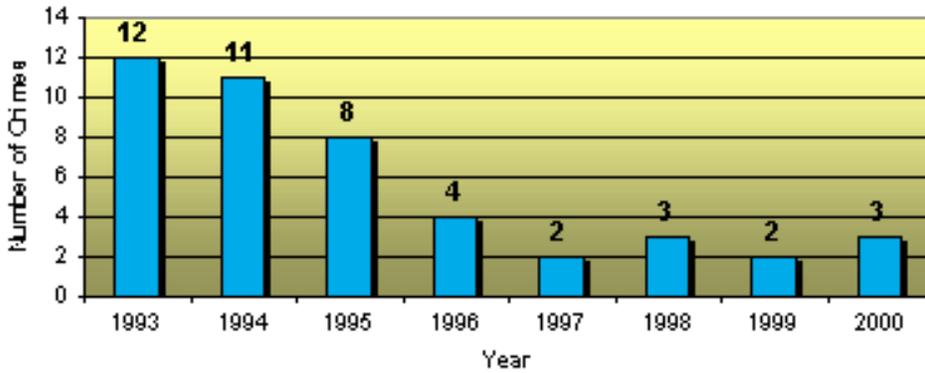


Table 5 illustrates the 75% decrease in auto theft on campus from 1993 to 2000. As the parking lots were replaced and expanded the need for illegitimate parking decreased. The cars were able to be better protected by fencing, security staff and natural surveillance.

Table 6: Barry University: Trespassing

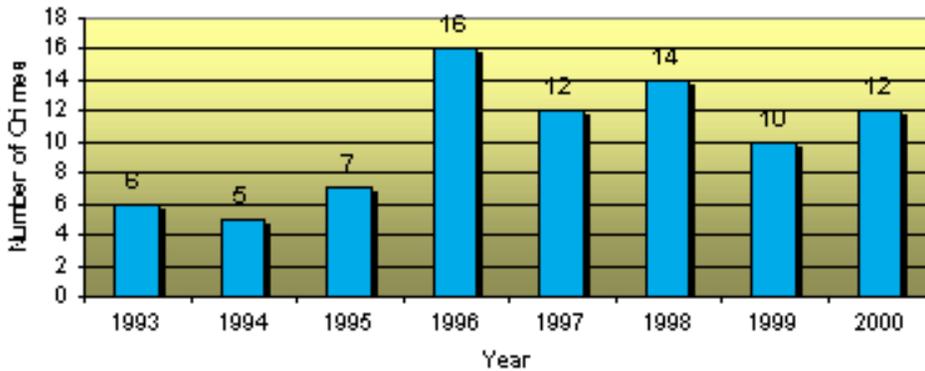


Table 6 shows a doubling of arrests for trespassing, which indicates that the unauthorized user stands out, and is easier to be identified. With the new borders, there are fewer opportunities for trespassing to go unchallenged. The increase represents better surveillance and enforcement.

Table 7: Barry University: Vandalism

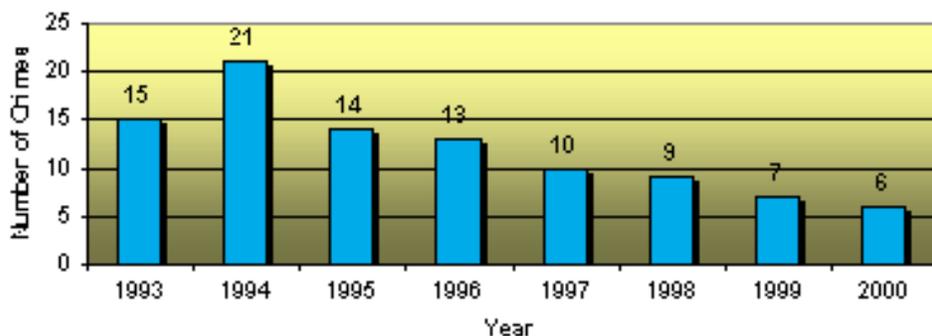
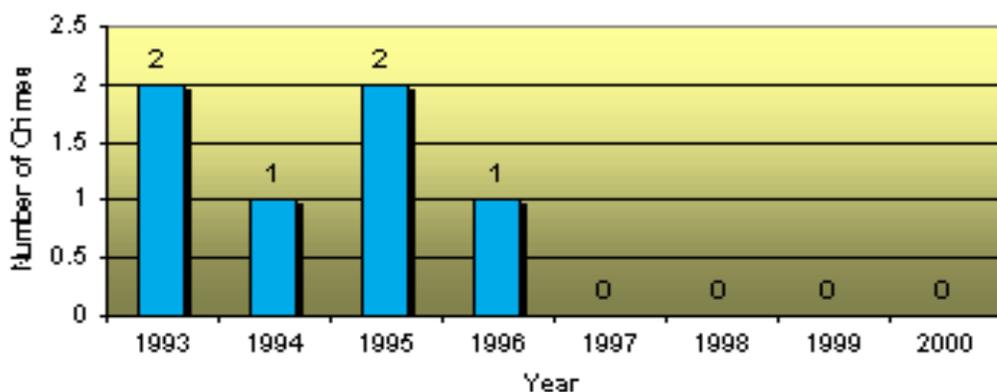


Table 7 shows a 71% decrease in acts of vandalism from 1994 to 2000. With routes of escape blocked by the fencing and increased lighting and patrols, the opportunity and ability to commit these nuisance crimes unobserved was seriously reduced.

The number of robberies was always very few, but since the changes were made, there have virtually been no robberies on campus as Table 8 demonstrates.

Table 8: Barry University: Robberies



FINDINGS

There are few opportunities in a security consultant's job experience that have a client actually implementing the recommendations that are suggested. Following the survey and analysis in 1995, improvements and modifications were made to the Barry University campus in 1997 and 1998. Before any construction began on the sidewalks and fencing, additional parking was constructed to provide a legitimate place for the displaced cars. With the parking in place, the construction of the perimeter fencing and sidewalks prevented illegal parking on the easement properties. While construction was messy and inconvenient, it provided the necessary drive to change people's behavior on how and where they parked.

The change in parking patterns dramatically reduced the vulnerability of cars and people to burglaries and theft. Enforcement of parking regulations created a more efficient way for security staff to monitor the parked cars of both visitor and student. A see-through seven-foot metal gating was installed around the perimeter of the campus and the parking lots established a defensible boundary and created a sense of territoriality. The perimeter fence had carefully located gates for controlled access, which presented the opportunity to monitor persons entering and leaving the campus.

Guard stations at strategic points of entry screened and assisted incoming vehicles. The border of the campus was landscaped in a way that promoted visibility and casual observation from legitimate users and guardians. Berms were removed and overgrown trees were trimmed to eliminate blind spots and hiding places. A sidewalk was created along the perimeter of the campus which promoted a pedestrian friendly environment that would help eliminate the sense of fear and increase chances of casual observation. Lighting was added around the sidewalks and dark spots around campus.

Campus policy was also modified to provide a more secure environment after hours. Classrooms and other unused facilities were locked down by security after operational hours. Barry University changed the contract security service it used in order to provide a more efficient and better-trained service at a minimal cost. The industry standard for security staffing levels to students is 1.4 - 2.0 staff / 1000 students. Barry University currently has a 1:10 ratio during the day and 1:13 during the evening. This meets and exceeds the current student to security officer ratio locally and at state academic environments.

After the improvements were made, it was again necessary to evaluate the crime statistics for both the campus and the surrounding city. Although these statistics showed a decrease in city and campus crimes, Barry University's rate of change has over doubled that of Miami Shores. This would imply that although there seems to be a trend towards lower instances of crime throughout Miami Shores, the implementation of CPTED principles at the Barry University campus might have a greater effect on crime than the trends effecting the surrounding environment. In fact, a safe and secure Barry University may actually have affected the surroundings in a positive way, reducing crime there as well.

The rate of crime at Barry University after the CPTED changes were constructed was greater than that of the surrounding community. The overall drop of from 1999 and

2000 was 25% as compared to a 13% decrease in the City of Miami Shores, crime was the same as the year before in the City of Miami, and only a 4% decrease in the County and State crime rates overall. This suggests that the measures taken at the University decreased the opportunity for crime; increased the perceived effort and risk needed to commit crime; reduced the rewards for criminal behavior in personal and property crimes; and removed the excuses for illegal behavior with real and symbolic boundaries.

The university currently provides a healthy, safe and secure environment for its campus community. The campus has a full-time public safety — security force supplied by 50 State Security Services, Inc. Barry University is a member of the International Association of Campus Law Enforcement Administrators and the Florida Association of Campus Safety and Security Administrators. Public Safety Administrators participate in student orientation briefings for all new students. Additionally, crime awareness programs are conducted on campus during various times of the year for students. Orientation and programs include information on personal safety for students while on and off campus.

Campus Public Safety Officers are radio-equipped and centrally dispatched; vehicle, golf-cart, and walking patrol cover campus property 24-hours a day. In 2000, public safety responded to over 480 assorted calls or request for service from students, staff, and faculty. The current security operations and deployment of security officers are taking a high profile deterrence role on campus. The officers are stationed throughout campus in fixed and roving positions seven days a week, twenty-four hours a day for on and off campus facilities.

The public safety force patrols all parking lots on campus property and provides free assistance for keys locked inside vehicles and dead battery starts. Public safety is also responsible for the enforcement of campus parking and traffic regulations. At Barry University there has been a 211% turnover of contract security staff in a 12-month period. This is a major problem with the utilization of contract staff for critical functions. The turnover at this site is not above average; in fact, it is less than many other locations. Furthermore, in looking at this rate of turnover it should be noted that three of the staff has worked at Barry University in excess of five years. This longevity is very rare for contract personnel, not only in the security field in general, but at one site is particular.

By providing a good environment, one in which contract employees feel connected, turnover is reduced and direct site experience builds institutional memory. Loyalty is another factor that must be recognized when dealing with contract personnel. It must be understood that the employee has two bosses to keep happy. This can cause conflict if miscommunication or different objectives are not consistent for the employee to follow. To achieve success *all* employees must work to support the mission of the organization.

CONCLUSION

In conclusion, the Barry University CPTED study offers other campuses a model of how to confront security issues. Emphases on planning and needs assessment are critical. Reaction not to isolated incident, but rather long-term threats is the only way to ensure that an atmosphere of fear and crime is avoided. It is necessary to first do complete a thorough survey and determine the real vulnerabilities and threats.

Hardening targets such as people, information, and property will not deter crime in itself; it will only give the impression that there is something to fear. Modifying the campus environment to promote legitimate activity is the only way to deter unwanted behaviors without creating a fortress environment. All systems must also be integrated with each other and used appropriately within the design of the campus. Without maintenance and responsible management, however, even the most secure campuses can succumb to crime. In order to receive the full benefit of CPTED, it must be implemented fully as it is a comprehensive solution.

FUTURE EFFORTS

The use of technology in today's security profession plays an important role in providing a safe and secure environment. At Barry University there is a mandatory requirement for all staff, students, and faculty to obtain a university I.D. card. This card uses a magnetic stripe on the reverse side that allows for various access functions.

Currently, the faculty parking lot on main campus is access controlled by a gate-arm using the university I.D. card. Students and staff check out books from the library using the I.D. card and the university bookstore has been using the I.D. system for declining balance for the last two years. Additionally, students use their I.D. card for verification for meal plans and commuter students can purchase meals, through a meal plan or declining balance system utilizing the magnetic stripe technology on the university I.D. card.

Barry University is in the planning and implementation stage to move access control to selected buildings. They are scheduled to go on-line with access control to the Health and Sports center January 2002. Various computer labs and high-tech classrooms are projected to be access controlled in the future. CCTV application on campus is presently limited. Currently, the cafeteria and loading dock on campus has operational cameras. The public safety department will utilize "webcam" technology to view some off-campus buildings, which is scheduled to be on-line in September 2001. Whatever security or technology improvements are made for the future it will be done using CPTED as the basis for decision making.