

142593

REPORT OF THE  
VIRGINIA CRIME PREVENTION CENTER  
DEPARTMENT OF CRIMINAL JUSTICE SERVICES ON

**Violent Crimes in Convenience  
Stores: Analysis of Crimes,  
Criminals and Costs**

TO THE GOVERNOR AND  
THE GENERAL ASSEMBLY OF VIRGINIA



NCJRS

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142593

COMMONWEALTH OF VIRGINIA  
RICHMOND  
1993

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December 8, 1992

TO: The Honorable L. Douglas Wilder, Governor of Virginia  
and Members of the General Assembly

House Joint Resolution 149, agreed to by the 1992 General Assembly, directed the Virginia Crime Prevention Center with the cooperation and assistance of the Virginia State Crime Commission, to study violent crimes in convenience stores, analysis of crimes, criminals and costs; and to submit its recommendations to the Governor and the 1993 Session of the General Assembly.

In fulfilling this directive, a study was undertaken by the Virginia Crime Prevention Center with the cooperation of the Virginia State Crime Commission. I have the honor of submitting herewith the study report on violent crimes in convenience stores: analysis of crimes, criminals and costs.

Respectfully submitted,

Robert B. Ball, Sr.  
Chairman

RBB:sc

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## ACKNOWLEDGMENTS

This study is the result of the interest, experiences and efforts of innumerable individuals. Since many of these experiences involved great personal tragedy, we dedicate it to the victims of the violent crimes discussed later, and to those who live with the personal losses that resulted from them.

We are especially indebted to the local law enforcement agencies that responded to our survey. Although a voluntary effort, their overwhelming response to our request, often requiring tedious manual searching of files, is an indication of the seriousness with which they view the problem of violent crimes at convenience stores.

Taking the risk of omitting many that assisted us, we would like to specifically thank:

■ **Central Virginia Crime Analysis Network**

■ **Convenience Store Safety Committee**

Ms. Nancy Carothers  
Ms. Jean Berrier

■ **Elected Officials**

The Honorable Owen Pickett  
The Honorable George Heilig, Jr.

■ **Gainesville, Florida Police Department**

Chief Wayland Clifton, Jr.  
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■ **Industry Representatives**

Virginia Convenience Store Clerks  
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Ms. Rosemary Erickson, Athena Research Corporation  
Mr. Wayne Stageman, Southland Corporation  
National Association of Convenience Stores  
Present and Former Loss Prevention Directors

■ **National Institute for Occupational Safety and Health**

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■ **Print Media**

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■ **Virginia Crime Prevention Association**

■ **Virginia State Government**

Compensation Board  
Department of Labor and Industry  
Department of State Police  
Industrial Commission  
    Crime Victims' Compensation Division  
    Workers' Compensation Division

## I. AUTHORITY DIRECTING STUDY

There has been rising concern nationally that members of certain occupational groups suffer an increased risk of being victims of violent crime while on the job. This concern about violent crime in the workplace has also surfaced in Virginia.

During 1989, Delegate George Heilig, Jr. of Norfolk brought to the attention of the Commission the risks encountered by individuals such as convenience store clerks. As a result of his interest, Commission staff met in Virginia Beach with Ms. Nancy Carothers and her sister, Ms. Jean Berrier, whose father had been murdered while working at night as a convenience store clerk in South Carolina. After considering the information gathered at this meeting, Senator Elmon Gray invited the sisters to address the Commission at its December 19, 1989, meeting in Richmond.

At that meeting Ms. Berrier and Ms. Carothers, representing the Convenience Store Safety Committee, urged the Commission to investigate ways to reduce the risk of harm from violent crime to those persons who earn their living as convenience store clerks. This same theme has been repeatedly raised by editorials in *The Virginian-Pilot* and *The Ledger-Star*. Congressman Owen Pickett has also addressed this concern with the National Institute for Occupational Safety and Health which is studying homicide in the workplace.

While the Commission was interested in this important issue, existing work obligations prevented it from undertaking a legislative study in 1990. In an April 24, 1990, letter to the Department of Criminal Justice Services (DCJS), Senator Gray referred to Section VIII (B) of the Commission's 1989 Annual Report and requested that the Virginia Crime Prevention Center (VCPC) within DCJS begin collecting information during 1990 on the scope of the problem in Virginia. It was also requested that these preliminary data be presented to the Commission for review.

On December 11, 1990, a preliminary report was presented to the Commission. At that time it was noted that the convenience store industry was conducting a three-part national study that would be completed in November 1991. Desiring to benefit from the industry's study, the Commission requested that DCJS continue with its Virginia study and incorporate the findings of the industry's study with a report to the Commission in December 1991.

A report on "Violent Crime and Worker's Safety in Virginia Convenience Stores" was presented to the Commission on December 10, 1991. One of the recommendations of that report suggested additional study of the factors related to violent crime in convenience stores.

During the 1992 Session of the Virginia General Assembly, Delegate George Heilig sponsored House Joint Resolution 149 (HJR 149). HJR 149 stipulates "that the Virginia Crime Prevention Center within the Department of Criminal Justice Services be requested to study, with the cooperation of of the Virginia State Crime Commission,

offenders responsible for committing violent crimes in Virginia convenience stores." Specifically, "the Center shall (i) determine to the extent possible, the prevalence of arrests for homicide, abduction, sexual assault and robbery occurring at convenience stores, (ii) ascertain the costs related to the arrest, detention, prosecution and correctional commitment of these offenders, (iii) study the characteristics of these offenders and the behavioral patterns related to the selection of their targets, and (iv) recommend appropriate strategies to address enhanced safety and security for employees and patrons."



## II. EXECUTIVE SUMMARY

House Joint Resolution 149 (HJR 149) directed the Crime Prevention Center within the Department of Criminal Justice Services, with the cooperation of the Virginia State Crime Commission, to study the crimes, offenders and public costs associated with violent crimes in convenience stores, and "to recommend strategies to address enhanced safety and security for employees and patrons."

To achieve these tasks, a review of pertinent research, legislation and regulation was completed; a survey was sent to Virginia law enforcement agencies; local, state and national agencies were consulted; a focus group for interested criminal justice and security experts was conducted; and offender records were reviewed.

These activities produced the following findings and recommendations:

### MAJOR FINDINGS:

#### Correctional Costs:

- During 1991 there were 148 convictions for exclusively robbing a convenience store in Virginia;
- The 148 exclusive convenience store robbery convictions represented 17 % of all 1991 convictions for robbery, while convenience store robbery accounted for only 8.4 % of all robberies in Virginia;
- The median length of pre-trial confinement in jail for a convenience store robber was 105 days at a direct cost to the state of \$ 3,150;
- It is estimated that this group of convenience store robbers spent a total of 12,600 days of pre-trial detention in jail which directly cost the state \$ 378,000;
- The median sentence for a convicted convenience store robber was 10 years and it is estimated that each robber will serve 4 1/2 years in prison at a cost in 1991 dollars of \$ 76,500 for the commitment;
- It is estimated that convenience store robbers convicted in 1991 will serve a total of 648 years in prison at a cost of \$ 11 million dollars;
- Total correctional costs (jail, prison and parole) for convenience store robbers convicted in 1991 are expected to exceed \$ 12 million dollars;
- It is estimated that the total number of offenders presently serving time in Virginia prisons for exclusively robbing a convenience store exceeds 500;

- This analysis suggests Virginia is spending between \$12 million and \$14 million per year for its correctional handling of offenders convicted of committing a violent crime in a convenience store; and
- A new cohort of convenience store robbers that is larger and more costly can be expected to be convicted every year if present trends continue.

Scope of Victimization:

- Robbery of convenience stores has risen 38 % nationally and 51 % in Virginia for the period 1985-1991;
- While over half of Virginia's localities reported no violent crimes in convenience stores for the years 1988 and 1989, 65 localities reported 1,020 violent crimes in their stores. The 1,020 crimes reported to a DCJS survey for the two year period included:
  - 6 Homicides
  - 4 Abductions
  - 6 Rapes
  - 7 Other Sexual Assaults
  - 12 Malicious Woundings
  - 923 Robberies
  - 62 Attempted Robberies
- For the period 1980-1988 in Virginia, 45 retail workers were murdered on the job compared to 17 law enforcement officers;
- Research indicates that one out of every 100 armed robberies will result in a homicide;
- Homicide rates established by the convenience store industry conservatively predict that Virginia will experience at least three homicides in its stores each year if levels of victimization remain the same;
- Evidence suggests there are two distinct groups of criminals victimizing convenience stores; robbers and sex offenders;
- Of the 1,020 crimes reported to DCJS:
  - 69 % occurred between 9:00 p.m. and 5:00 a.m.;
  - 88 % took place while a lone clerk was on duty;
  - 63 % of the lone clerks were women;
  - Physical force was inflicted on 129 clerks and customers;
  - 27 people were shot, stabbed or sexually assaulted at the stores;
- 10 Virginia localities accounted for 65 % of Virginia's convenience store robberies in 1991;

- Virginia and national studies have indicated approximately 20 % of convenience stores experienced at least one violent crime during a two year period;
- Virginia and national studies have indicated 7 % of convenience stores experienced multiple violent crimes during during a two year period;
- Prior robbery rate is the strongest predictor of future robbery rate; and
- The bulk of violent crimes in Virginia's convenience stores occurs at a small number of stores and is suffered by a disproportionately small number of Virginia's localities.

#### Indicators for Prevention Strategies:

- Research with convicted offenders suggests they employ identifiable preferences and dislikes related to security measures when selecting convenience stores as targets;
- Industry experience indicates store design and the introduction of security measures reduces rates of violent crime;
- Two clerks on duty during the third shift does seem to have an effect on reducing the robbery rate for stores that have experienced multiple robberies;
- When comparing stores with a history of being robbed, one-clerk stores were robbed at rates 1.77 to 3.6 times that of two-clerk stores during the third shift; and
- Two states have enacted statewide legislation or regulation, and several cities have adopted ordinances requiring security measures at convenience stores.

#### **RECOMMENDATIONS:**

Good policy development is best achieved when there are complete, reliable and easily accessible data available. This study was severely hampered by the difficulty in centrally gathering data on a phenomenon as important and costly to taxpayers as violent crime at convenience stores.

##### **Recommendation 1.**

**The implementation of the Incident-Based Reporting (IBR) system should be a high priority for state and local law enforcement agencies. Recognizing the vital importance of crime-incident data for crime analysis and policy development, the Virginia State Crime Commission should study the feasibility of accelerating the transition to IBR by state and local law enforcement agencies.**

The findings in this study suggest the need for an intervention strategy tailored to the pattern of convenience store crime in Virginia. Such an intervention should focus on the demonstrated high risk of victimization experienced by some stores, incorporate security measures enumerated in prior research and legislative efforts, and provide a crime prevention approach available to the localities that are most affected by the problem, while not burdening all Virginia localities or the industry.

**Recommendation 2.**

**The Crime Commission should continue its legislative support of crime prevention strategies that address the unique distribution of violent crimes in Virginia's convenience stores. Efforts should focus on maximizing the potential for protecting employees and customers, while not unduly burdening localities or the industry.**

### III. NATURE AND SCOPE OF VIOLENT CRIME IN THE WORKPLACE

#### **Worker Safety And Public Policy**

In order to preserve domestic tranquility, government has a long standing history of intervening when the "public good" is threatened. Prime examples of this are the regulations and resulting procedures that are associated with the area of public health. Routine inoculations, water quality testing, proper sewage treatment and food preparation inspections are all examples of government regulated interventions that have contributed immensely to the health and well-being of our citizens. An additional dividend to this orientation is that, not only are citizens healthier, but primary preventions are more cost effective than reacting to an epidemic.

Lessons learned in the public health arena about primary and secondary interventions have slowly moved into the arena of public safety. Two of the most extensive examples of the transference of this approach into public safety are building codes and fire codes. Changes in the way we approach traffic engineering, as well as the introduction of seat belt legislation, are also examples of this preventive approach.

#### **Research On Crime And Worker Safety**

In 1984, former Surgeon General C. Everett Koop stated:

Violence in American public life is every bit a public health issue for me and my successors in this century as smallpox, tuberculosis, and syphilis were for my predecessors in the last two centuries. Violence in American public and private life has indeed assumed proportions of an epidemic.

Koop's statement signaled an expanded focus for the Centers for Disease Control (CDC) and the National Institute for Occupational Safety and Health (NIOSH) from their historical epidemiological concerns of health and safety, to include the traditional public safety issue of violence. Efforts at CDC have concentrated on violence of all types, with a particular focus on homicides. This strong prevention orientation has been strengthened by the recent renaming of the CDC to the Centers for Disease Control and Prevention.

In keeping with its mission, the work done at NIOSH has focused on homicides in the workplace. Because of their unique training and perspective, these organizations can contribute invaluable data for consideration in the formulation of public policy related to crime.

Recent research has concentrated on the crime incidence experienced by specific industries, occupational groups and at risk populations. To explore this issue, NIOSH

established the National Traumatic Occupational Fatality (NTOF) data base.

The NTOF data base contains 6,955 work-related homicides for the years 1980 through 1988. For that nine year period, homicide was the third leading cause of occupational death (Jenkins, 1992). Homicide accounted for 12 percent of all occupational deaths and was only superseded by motor vehicle related deaths (23%) and machine related deaths (13%). A prior NTOF study for the years 1980 - 1985, identified homicide as the leading cause of death for women in the workplace (Bell, 1990 & 1991).

Focusing on industrial divisions, NIOSH found that the Retail Trade classification had the highest number of work-related homicides. Retail Trade accounted for 36 percent of all work-related homicides, while the Services and Public Administration classifications accounted for 17 percent and 11 percent, respectively.

Rates per 100,000 workers in each industrial classification were also calculated to control for the differences in work force size between the industries. It was found that the average rate of work related homicide for all industries was .83 per 100,000 workers. However, once work force size was controlled for, Retail Trade and Public Administration tied for the highest rate of 1.70 work related homicides per 100,000 workers. The explanation for Public Administration being a high risk industry is due to law enforcement being included in this classification and police officers murdered on the job being counted in this calculation.

Additional research has focused on occupational groups at risk. Such work has indicated that taxi cab drivers, convenience store clerks and delivery truck drivers carrying receipt cash are the occupational groups with the highest likelihood of being murdered on the job (Davis, 1987; Davis et al., 1987; Hales et al., 1988; Kraus, 1987).

These ground-breaking findings identifying at risk occupational groups, including convenience store clerks, led NIOSH to invite a selected group of researchers to participate in a July 1990, focus group in Washington, D.C., entitled "Laying a Foundation for a National Strategy to Prevent Workplace Homicides." A staff member from the Virginia Crime Prevention Center participated in this group at the request of Congressman Owen Pickett. The strategy developed at this meeting is expected to influence the establishment of more complete data bases, increased surveillance of at risk occupational groups and more detailed evaluations of prevention strategies.

#### **IV. NATURE AND SCOPE OF VIOLENT CRIME AT CONVENIENCE STORES**

The convenience store has evolved over the years from the familiar "Mom & Pop" store into a multimillion dollar, nationwide industry which provides a diverse range of goods and services. However, the actual definition of a convenience store has become a bit problematic as the industry has expanded into other retail markets such as gasoline sales. This definition has become even more clouded as the role of the traditional gas station has been expanded to include the retail sales of a host of grocery items, including beer and wine.

Although no one definition seems to provide the perfect description of what is, and what is not, a convenience store, there are two very useful definitions available. The Virginia State Police Uniform Crime Reporting Manual defines a convenience store as ". . .the neighborhood store that specializes in the sale of consumable items, is easily accessible, and generally has extended hours of operation." The National Association of Convenience Stores defines convenience stores as "Retail stores that sell gasoline, fast foods, soft drinks, dairy products, beer, cigarettes, publications, grocery items, snacks, and non-food items and are usually open 7 days per week for longer hours than conventional supermarkets. While building size will vary significantly, typically, the size will range from 1,500 - 5,000 square feet." (NACS, 1992, 1991).

The convenience store industry consists of both independently owned and operated stores, and large chain store operations. Southland/7-11, with 649 stores, is the largest chain operating in Virginia. Overall, there were 106 convenience store chains (two or more stores) operating an estimated 2,499 stores in Virginia as of December 1991.

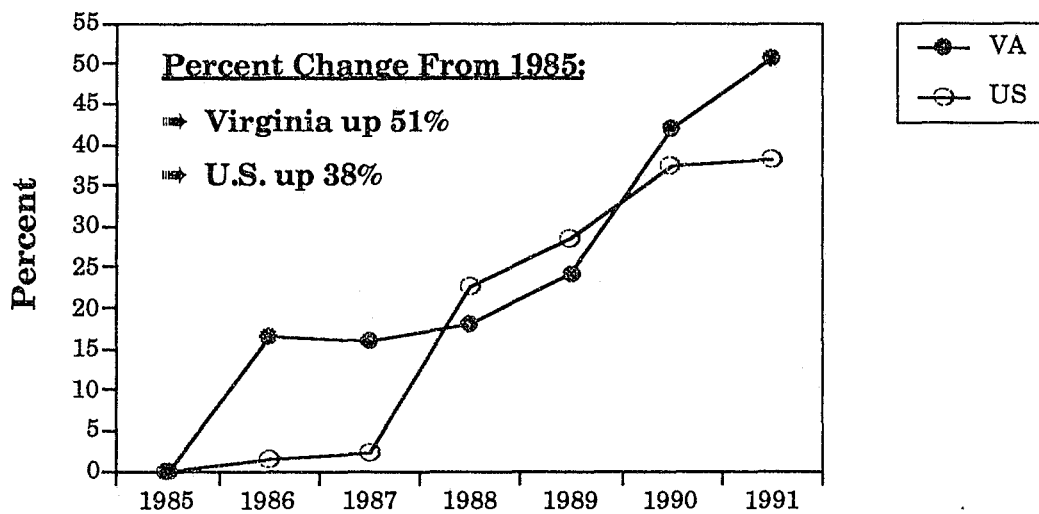
#### **National Indicators**

While the effort to make the neighborhood store more convenient to its customers has been quite successful, it has also had some negative consequences. The advent of the modern convenience store has also created a distinct category of crime. This fact was recognized in the Uniform Crime Reports: Crime in the United States, when the FBI originally used "Chain Store" as one of the seven categories to describe the location where robberies occur. In 1978 the FBI substituted the term "Convenience Store" for the pre-existing crime location category of "Chain Store."

However, as Figure 1 illustrates, during the last seven years there has been a steady increase of convenience store robberies in Virginia and the United States. This 51 percent increase in robberies in Virginia and 38 percent increase in the nation has led to renewed concerns about the occurrence of all violent crimes at convenience stores. These concerns have been expressed by citizens, private industry, and government at the local, state and federal levels. Some law enforcement officials have characterized their concerns a bit more wryly by referring to convenience stores as "Stop & Robs" or "the Poor Man's ATM."

Figure 1

## Trends in U.S. and Virginia Convenience Store Robberies



Sources: Adapted from FBI, Uniform Crime Reports: Crime in the United States, 1985 - 1991.  
Virginia State Police, Crime in Virginia, 1985 - 1991.

### Research on Violent Crimes at Convenience Stores

Concern over the convenience store as a specific and identifiable crime target has been raised by law enforcement, as well as industry officials and independent researchers. A brief summary of the major studies aimed at researching the effectiveness of prevention measures follows:

#### Crow and Bull

The pioneering study in this area was conducted by Crow and Bull (1975). They developed a scale that ranked attractiveness of a store for robbery from the viewpoint of robbers. This scale was administered to former robbers to measure the relative weight each factor had in the robber's decision to rob, or not rob a store. Stores ranked as being more attractive targets to robbers were found to have been victimized more.

A robbery prevention strategy was developed incorporating those factors that robbers rated as detracting from target attractiveness. This strategy included: posting of "low cash-on-hand" signs, increased lighting levels, removal of obstructions reducing visibility into and around the store, use of security devices such as mirrors, reduction of the accessibility of escape routes, and encouraging activity in and outside the store.

These strategies were implemented in 60 experimental stores and tested against a control group of 60 stores. The experimental group of stores with the new crime prevention measures experienced an 18% reduction in robberies during an eight month period.



## Scott, Crow and Erickson

In a continuation of the earlier study, Scott, Crow and Erickson (1985) interviewed an additional 181 robbers serving sentences in prisons in four states. The robbers were asked to rate on a scale from 1 (very important) to 5 (least important), eleven factors that might deter them from choosing a store as an attractive target.

Based on the robbers' ratings, the researchers concluded: cash handling was the most effective preventive measure, two clerks on duty would not be a deterrent, and the sex of the clerk was not a factor. This study has been criticized because the robbers interviewed were of all types; not just convenience store robbers and, that some of the wording of the questions seemed to be phrased in a manner that would evoke macho responses on "how tough" the robbers were.

## Swanson

Employing the robber interview methodology, Swanson (1986) interviewed 65 inmates in four Florida prisons. The inmates interviewed were specifically chosen because they were all serving sentences for robberies of convenience stores. Thus, other types of robbers were not mixed in with the study sample.

Swanson provided the robbers with lists of store characteristics. They were directed to rank the five most appealing and the five least appealing characteristics that affected their decision to rob or not rob a store.

The characteristics the convenience store robbers ranked as least and most appealing were:

### Least Appealing Store Characteristics To Robbers:

1. Many customers;
2. Heavy traffic flow in front of store;
3. Two clerks;
4. A back room;
5. Male clerk;
6. One-way mirror;
7. Limited escape route;
8. Alarms;
9. Clear visibility into the store; and
10. Stores that sell gas.

### Most Appealing Store Characteristics To Robbers:

1. Remote area;
2. Only one clerk on duty;
3. No customers;
4. Easy access/getaway;

5. Lots of cash;
6. Female clerk;
7. No back room;
8. Obstructed windows;
9. Type of safe; and
10. No alarm.

From these rank orderings by robbers of target appeal characteristics, Swanson constructed a master list of store characteristics. When this list of 32 characteristics was correlated with three years of robbery data for a sample of stores in Gainesville, Florida, he found five factors to have a statistically significant effect. The five store characteristics in the order of their strength are:

1. Only one clerk on duty (higher robbery rate);
2. Visible cameras (lower robbery rate);
3. 24 hour stores near by (lower robbery rate);
4. Type of safe (lower robbery rate); and
5. Hours of business restricted (lower rate).

#### Jeffery, Hunter and Griswold

This study involved the examination of robbery patterns at convenience stores in Tallahassee, Florida. Jeffery, Hunter and Griswold (1987) surveyed security measures and environmental factors at their sample stores and tracked robbery occurrence for a period of four and one half years.

They found stores with the following features to be robbed less:

1. Cashiers located in the center of the store;
2. More than one clerk;
3. Greater internal visibility;
4. Unobstructed view from outside into the store;
5. Located near other commercial property;
6. Absence of concealed access or "escape routes";
7. Well-lighted exteriors;
8. Located near areas with evening commercial activity;
9. Stores with gasoline pumps located in front; and
10. Stores with good cash handling, combining a stated policy and an observable safe.

#### City of Gainesville

The City of Gainesville (1988) used Swanson's study to draft a set of ordinances requiring security measures at convenience stores. Details of these ordinances will be discussed in the next section of this study.

After the adoption of these ordinances, Gainesville reports the following changes in the patterns of convenience store robberies for the three years after the base year of 1986:

- A reduction from 61 robberies in 1986 to 16 in 1989; a 73.7% reduction;
- Robberies occurring between 8:00 p.m. and 4:00 a.m. down from 39 in 1986 to 3 in 1989;
- Eighteen serious injuries requiring at least hospitalization for the three years prior to the adoption of the ordinances; none after; and
- Robberies of stores with two clerks on duty down from 9 out of 61 robberies in 1986, to 3 out of 16 robberies in 1989.

An assessment of the Gainesville findings sponsored by the National Association of Convenience Stores (NACS) is critical of the city's conclusions that the reduction in robberies is due to the adoption of ordinances requiring security measures (Wilson, 1990). The conclusions are criticized as being faulty interpretations of causal factors. The NACS assessment credits drops in robbery rates in Gainesville to: the arrest of three robbers in December 1986, changes in the base number of stores and displacement of crime to other targets.

### Hunter

As his doctoral dissertation at Florida State University's School of Criminology, Hunter (1988) studied convenience store robberies in a sample of 110 stores across Florida for a two year period. He found that the most consistent variable associated with a store's likelihood of being robbed was the availability of an escape route that was concealed. Hunter also found positive deterrent effects for the presence of gas pumps, amount of vehicular traffic, increasing the number of clerks, hours of operation, and locating the cashier in the center of the store.

### National Association of Convenience Stores

It was noted earlier in this report that the National Association of Convenience Stores (NACS) funded a very extensive research study. NACS published its preliminary report in late 1991 and its full report in early 1992.

The three parts of the NACS study are: (i) A National Survey of Convenience Store Crime and Security (ii) Convenience Store Homicide and Rape and (iii) An Assessment of Robbery Deterrence Measures at Convenience Stores: Multiple Clerk Staffing, Central Station Based Interactive Television and Bullet-Resistant Barriers.

The national study included a mail survey to the association's 1,256 members. A total of 1,024 usable questionnaires produced a response rate of 82 percent of its member

companies; accounting for 60 percent of its member's stores. The respondents to the survey represented an annual average of 35,856 stores, or 51% of the stores in the United States.

Analysis of the responses to the survey produced the following findings:

- Robberies were concentrated in roughly 21% of the stores for both years;
- For the two year period, roughly 14% of the stores had one robbery and 7% had two or more robberies;
- Robbery rates, per 1,000 stores, of 317 for 1989, and 312 for 1990 were reported;
- Actual convenience store homicides reported were 33 in 1989 (1.05 per 1,000 stores) and 49 in 1990 (1.37 per 1,000 stores). Actual reported rates were used to project homicides in convenience stores nationally. It was projected that 77 homicides occurred in convenience stores nationally in 1989 and 99 in 1990; and
- Actual convenience store sexual assaults reported were 64 in 1989 (2.12 per 1,000 stores) and 76 in 1990 (2.50 per 1,000 stores). Actual reported rates were used to project sexual assaults in convenience stores nationally. It was projected that 135 sexual assaults occurred in convenience stores nationally in 1989 and 167 in 1990.

The part of the study concentrating on homicide and rape is an in-depth analysis of these crimes. A response was received from over 600 of the NACS member companies. Fifty-eight of the companies reported 79 homicides and 72 rapes for both years.

*Homicide Analysis:*

- Less than \$50 was taken in half the robbery/homicides;
- There was no indication of robbery in one third of the cases;
- 65 % occurred between the hours of 11:00 p.m. and 6:00 a.m.;
- 28 % occurred in a 90 minute period between the hours of 3:00 a.m and 4:30 a.m.;
- 74 % of the stores where homicides occurred had been robbed in the past;
- 11 % of the stores, where information was available, had experienced another homicide in the past;
- 89 % of the victims were employees and 11 % were customers; and
- Handguns were used in 71% of the cases.

### *Rape Analysis:*

- All victims were female store employees;
- Two-thirds of the rapes did not involve robbery;
- 89% of them occurred between the hours of 11:00 p.m. and 6:00 a.m.;
- 29 % occurred in a 90 minute period between the hours of 3:00 a.m and 4:30 a.m.; and
- 63 % of the stores where rapes had occurred had been robbed in the past.

### The deterrence measures study:

"...surveyed 3,393 convenience stores operated by 12 companies to determine the robbery reduction effect, if any, of multiple clerks on duty during the third shift (11:00 p.m. to 7:00 a.m), closed circuit interactive television and bullet resistant barriers in those stores where adequate data were available to enable such an assessment.

It is important to note that these measures are only able to be analyzed for their effect on robbery rates since, despite the analysis of 3,393 stores, one homicide and zero sexual assaults were reported for the study's six and one-half year time frame."

### The deterrence measures study found:

- Not enough data to assess bullet resistant barriers;
- High quality color monitor systems in 81 stores were associated with a 53% robbery reduction for the one year data were available;
- Data on reductions associated with closed circuit interactive television (CCITV) were promising, but inconclusive;
- Two clerks on duty during the third shift did seem to have an effect on reducing the robbery rate for stores that have experienced multiple robberies;
- That prior robbery rate was the strongest predictor of future robbery rates. As the robbery rate at a store increases, the introduction of two clerks begins to have a statistically significant effect on robbery rate reduction; and
- When comparing stores with a history of being robbed, one-clerk stores were robbed at rates from 1.77 to 3.6 times that of two-clerk stores during the third shift.

The great utility of the NACS study is its attempt to calculate projected national rates

for robberies, homicides, sexual assaults and other crimes of violence, and its insight on high risk stores that have a history of violent crimes.

The finding that two-thirds of the rapes investigated in detail were non-robbery related was startling. It suggests that there are two distinct populations of offenders that are stalking convenience stores. This finding supports anecdotal descriptions of sex offenders that target Virginia convenience stores with lone female clerks working late night and early morning hours.

The most perplexing part of the study was the deterrence measures assessment. As stated in the quotation above, a sample of 3,393 stores was followed for six and one-half years. In that period the sample produced one homicide and zero sexual assaults.

Using the 1989 rates produced in the NACS study for homicide (1.05) and rape (2.12) per 1,000 stores, they would be expected to statistically experience 23 homicides and 46 rapes for this number of stores and covering that length of time. Since only one homicide and zero rapes surfaced in the sample, it can be concluded that either a sample of stores was studied that did not have a high crime problem, the rate calculation formula is suspect, or the crime prevention measures being studied were effective at heroic levels.

## **Regulation Of Convenience Store Security**

Prior discussion has focused on research that has been conducted at the local, state and national levels on violent crime at convenience stores. This research, coupled with the field experience of law enforcement officials, has led to the enactment of local ordinances and state laws regulating security measures at convenience stores.

### City of Gainesville:

The City of Gainesville, Florida probably has the best known, and most often cited, local ordinance (Gainesville, 1988). Similar ordinances have been passed by at least ten other Florida cities or counties. Passed in 1986 and 1987, Gainesville's ordinances require:

- An unobstructed view of the cash register;
- Sales area visible from the street;
- Posting of "\$50 or less" signs;
- No more than \$50 cash readily available to employees;
- Maintenance of a drop-safe or time release safe;
- Posting of "non-accessible safe" signs;
- Security lighting standards for parking lots;
- Installation of a security video camera;
- Robbery prevention training for evening workers; and
- Requirement that two employees be on duty if a store is open between the hours of 8:00 p.m. and 4:00 a.m.

### State of Washington:

In 1990 the State of Washington enacted regulations entitled "*Late Night Retail Workers Crime Protection.*" The regulations appear in the state's *General Safety and Health Standards* under the authority of its Department of Labor and Industry, Division of Industrial Safety and Health. The regulations apply to retail establishments operating between 11:00 p.m. and 6:00 a.m. with the exception of restaurants, hotels, taverns, and lodging facilities.

#### *Provisions of Washington's Late Night Retail and Workers Crime Protection Regulations:*

- Employer provided training of employees on robbery and violence prevention;
- Posting of signs announcing limited cash in the registers and a safe on the premises that is not accessible to employees;
- Limitation of window signs to enhance the visibility of cash registers;
- A drop-safe or limited access safe on the premises; and
- Outside lighting operated at a minimum of one foot candle.

### State of Florida:

In 1990 the State of Florida passed legislation entitled the "*Convenience Store Security Act.*" The application of this law was selective and its use was triggered by a violent crime at a store. State law required that local governments that experienced a death, serious injury, or sexual battery during the commission of a theft or robbery at a convenience store open between the hours of 10:00 p.m. and 5:00 a.m., shall adopt within 90 days, an ordinance mandating the following security measures:

#### *Provisions of Florida's 1990 Convenience Store Security Act:*

- Silent alarm directed to local law enforcement;
- Security camera video system;
- Drop-safe or cash management device;
- Security lighting standards for parking lots;
- Posting of "\$50 or less" signs;
- An unobstructed view of the cash register area;
- Prohibits window tinting;
- Installation of height markers at store entrances;
- Robbery prevention training program for employees; and
- Establishment of a cash management policy to limit cash on hand from 9:00 p.m. to 6:00 a.m.

The general security measures listed above are endorsed by the National Association

of Convenience Stores and are policy for many convenience store chains in the industry. However, implementation of these measures is voluntary and employment of these basic security measures is far from universal.

Also included in the 1990 Florida "*Convenience Store Security Act*" was a section authorizing the Attorney General "... to conduct a study to examine the safety and security requirements for at-risk businesses." This study was completed in January 1991, and led to the following conclusions:

"After hearing hours of testimony and examining all available data on the subject of at-risk businesses and crime, this office has concluded that convenience stores often pose an unnecessarily unsafe condition, placing both employees and shoppers in needless jeopardy and exacting a largely immeasurable cost to our society. We have further concluded that the legislation already enacted by the Florida Legislature is effective as a good first step and that additional legislation is vital." (State of Florida, 1991)

*Provisions of Florida's 1992 Convenience Business Security Act:*

As a result of the Attorney General's study, additional security legislation was enacted by Florida in 1992. The 1992 legislation is entitled the "*Convenience Business Security Act*." It covers retail businesses that primarily sell groceries, or both groceries and gasoline, and are open between 11:00 p.m. and 5:00 a.m. Excluded from regulation are (i) a business that is solely or primarily a restaurant (ii) a business that has at least five employees on the premises after 11:00 p.m. and 5:00 a.m (iii) a business that has at least 10,000 square feet of retail space and (iv) a business in which the owner or members of his family work between the hours of 11:00 p.m. and 5:00 a.m.

While the 1990 legislation compelled a local unit of government to enact a security ordinance when a violent crime occurred in one of its convenience stores, the 1992 legislation made a radical departure from its predecessor. As a result of recommendations from the Attorney General's study, Florida switched from an incident driven local ordinance strategy, to a statewide strategy involving two levels of security.

The 1992 legislation mandates that all convenience stores in Florida now have, as a minimum, the security measures enumerated in the 1990 legislation as listed above. Additionally, it stipulates that "if a murder, robbery, sexual battery, aggravated battery, or kidnapping or false imprisonment, as those crimes are identified and defined by Florida Statutes, occurs or has occurred at a convenience business since July 1, 1989, and arises out of the operation of the convenience business, that convenience business shall implement at least one of the following security measures:"

One of the following is required after a violent crime in Florida:

- At least two employees on the premises at all times after 11:00 p.m. and before 5:00 a.m;
- A bullet-resistant safety enclosure on the premises at all times after 11:00 p.m. and before 5:00 a.m;



- Provide a security guard on the premises at all times after 11:00 p.m. and before 5:00 a.m;
- Lock the business between the hours of 11:00 p.m. and 5:00 a.m and only conduct business through an indirect pass-through window; or
- Close the business at all times between the hours of 11:00 p.m. and 5:00 a.m.

The Florida legislation becomes effective on December 31, 1992, and includes a civil fine up to \$ 5,000 for a violation.

#### Other Industries:

The convenience store industry has been bitterly opposed to regulations that require security measures, especially those requiring two clerks in the late evening and early morning hours. In arguing this point, one industry document concluded that security requirements for banks were a failure because of a large increase in bank robberies. The document stated :

“In contrast is the experience of the banking industry. That industry has security standards mandated by the Bank Protection Law of 1968. ... Government regulation of security standards did not work for the banking industry. There is no reason to believe that regulation would work for the convenience store industry.” (Crow and Erickson, 1989)

The analysis above focuses only on the crime of robbery. In dollars, comparatively little is lost during convenience store robberies. However, much is lost through physical assaults on clerks and customers.

The NACS study discussed earlier estimated that for the period 1989 and 1990, there were 46,246 convenience store robberies and 176 murders committed during robberies in convenience stores. This equates to a rate of 3.81 homicides per 1,000 robberies in convenience stores.

For the years 1986, 1987, 1989 and 1990 (1988 not available), the FBI reported 26,278 bank robberies and 19 homicides committed during those robberies. Those homicides included: thirteen bank employees, one customer, two guards, and three unspecified individuals. This equates to a rate of .72 homicides per 1,000 robberies of banks. The convenience store homicide rate exceeds that of banks by 429 percent.

If murders of only bank employees are considered, the rate drops to .495 homicides per 1,000 robberies of banks. The convenience store homicide rate would then exceed the bank employee homicide rate by 670 percent. It would seem as far as human life is concerned, the Bank Protection Law is an unqualified success. This analysis does not even address the issue of sexual assault, which is particularly problematic to convenience stores, but is not known to be a problem for the banking industry.

The thought of regulations for security reasons may seem distasteful at first glance. However, it has already been an issue in Virginia. The 1990 Session of the Virginia General Assembly amended Section 59.1-21.11., Code of Virginia, to read that gasoline station dealers with a franchise "...shall not be required to keep his retail outlet open for business for more than sixteen consecutive hours per day, nor more than six days per week."

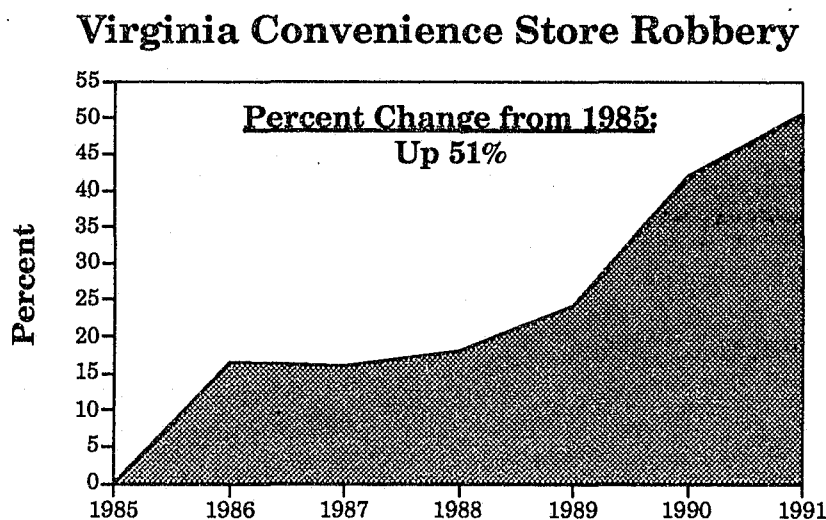
The option to not be required to be open for more than sixteen consecutive hours was sought by independent station owners who sought relief from refiner franchise agreements that required twenty-four hour operations. The most often stated reason for seeking this relief, was the fear of robbery associated and experienced with late night operations.

### Virginia Indicators of Convenience Stores Being At-Risk-Businesses

While there has been a 38 percent increase in convenience store robberies in the nation during the last seven years, there has been an accelerated increase in Virginia. As Figure 2 illustrates, there has been a 51 percent increase in convenience store robberies reported between 1985 and 1991. Actually, it is likely that this number is under-reported because of police officers responding to robberies of gasoline retailers that operate convenience stores and reporting them officially as a "gasoline station" robberies.

This increase in robberies is particularly important because extensive research has indicated that one homicide occurs for each 100 robberies involving a firearm (Zimring, 1986). The implication of this ratio becomes clear when one inspects the National Traumatic Occupational Fatality data base collected by NIOSH. For the period 1980-1988, the NTOF data disclose that while 17 Virginia law enforcement officers were victims of homicide in the line of duty, 45 retail trade workers in Virginia were work related homicide victims during the same period.

Figure 2



Source: Adapted from Virginia State Police, Crime in Virginia, 1985 - 1991.

## **Public Concern In Virginia**

The resurgence of serious crime in the Commonwealth has been accompanied by growing public concern. Existence of a grass roots citizen group like the Convenience Store Safety Committee underscores this growing concern. Public sentiment about violent crime in the workplace has also been reflected by local media coverage.

In Hampton Roads, for example, *The Virginian-Pilot* and *The Ledger Star* newspapers have addressed the issue of violent convenience store crime in at least nine editorials since December 1987. This, of course, is in addition to their regular reporting of such crimes.

The strongly-worded editorials repeatedly call for more stringent crime prevention measures to protect the safety of convenience store clerks. They urge public policy-makers to respond to the violence taking place at these high risk businesses. One recent editorial urges:

Monday, July 20, 1992

“Preventing robberies when prevention is comparatively easy should be high among lawmakers' priorities. Not only does preventing robberies save lives and limbs; it also saves taxpayers' money. Crimes prevented are crimes for which no one need be arrested, tried, locked up or executed at public expense.

Legislation delayed means more robberies, more rapes and more murders than need be of defenseless clerks imperiled solely because they stand between criminals and small amounts of cash. The price for inaction is already excessive. Lawmakers' failure to act to curtail convenience-store carnage will be to fail in the basic governmental duty to promote public safety.”

## **The Victim's Perspective on Convenience Store Crime In Virginia**

The statistics presented in this report reflect the level of criminal activity and the types of crimes associated with convenience stores; however, numbers don't tell the entire story.

The reality of convenience store crime is that it touches the lives of individuals who must then live with the impact of those crimes. Sometimes the story is found in an offense report. At other times, it is reported by the media or reflected in court testimony.

While all these crimes begin as acts of desperation, many end in tragedy. For example:

- At 1:00 a.m. on the night of September 2, 1992, three men held up a Fairfax County convenience store. After personally robbing the clerk and two customers, the robbers told the clerk to open the safe. The clerk was shot

and killed as he struggled to open the safe. One customer was wounded during the gunfire.

- Nine-year-old Jennifer did not get an answer when she called her store owner mother the afternoon of May 22, 1992. Shortly after her unanswered call, her mother was found slain in the Richmond store she had operated for only ten months. Eighteen months earlier, another murder took place in a convenience store only two blocks away.
- One robber was killed and another was wounded by the owner during an 11:30 p.m. robbery at a Chesterfield County convenience store on October 9, 1991. Although shot by one of the robbers, the owner was not harmed because he was wearing a bulletproof vest. The owner purchased the vest after a store owner friend was fatally shot in his Richmond store only a month earlier.
- In early March 1991, a female clerk was working the graveyard shift in a Hanover County convenience store. About 3:00 a.m., the assailant entered the store, walked up behind her, and stuck a .22 into her back. He forced her to drive her truck to a secluded area of Henrico County. He told her he had AIDS, then raped and sodomized her. When he finished, he made her wipe down her truck to remove his fingerprints, then tied her to a tree. Throughout the ordeal, the assailant continually threatened to kill the clerk. When he was arrested, it was learned that he was a convicted rapist on parole just three days when he spotted the 34 year-old mother working alone in the convenience store.
- On the night of September 25, 1990, in suburban Fairfax, a 23 year-old Afghan refugee was found shot to death in the convenience store where he worked the night shift. The victim was a former Afghan rebel who fought Soviet soldiers for eight years. He had come to this country seeking peace and security for his family.

These profiles support the data which suggests that convenience stores are a high risk environment. They also underscore the increased risk associated with lone workers, especially women, and late night hours of operation.

### **Virginia Crime Prevention Center Survey**

In order to determine the scope of the convenience store crime problem, the Virginia Crime Prevention Center surveyed 250 police departments and sheriffs' offices throughout the Commonwealth. These law enforcement agencies were asked to provide information on homicides, abductions, sexual assaults, malicious woundings, robberies and attempted robberies at convenience stores in their jurisdictions for the years 1988 and 1989. For purposes of this study, gasoline retailers (Chevron, Exxon, Texaco, etc.) with stores licensed to sell beer and wine were defined as convenience stores. The

results of this survey reveal the extent of these violent crimes in the Commonwealth.

Of the 113 localities that responded to the survey, 65 reported a total of 995 violent events during 1988 and 1989. As used here, one violent event at a store (site victimization) could involve multiple crimes. As an example, one event could involve a robbery, an abduction and a rape. Thus, the 995 violent events reported involved a total of 1,020 separate violent crimes for the categories requested. Many departments voluntarily reported additional crimes such as indecent exposure and non-robbery related assaults on clerks. However, while those crimes are related to the issue of worker safety, they are not reported here because they were not uniformly submitted by all agencies.

The 1,020 violent crimes reported included:

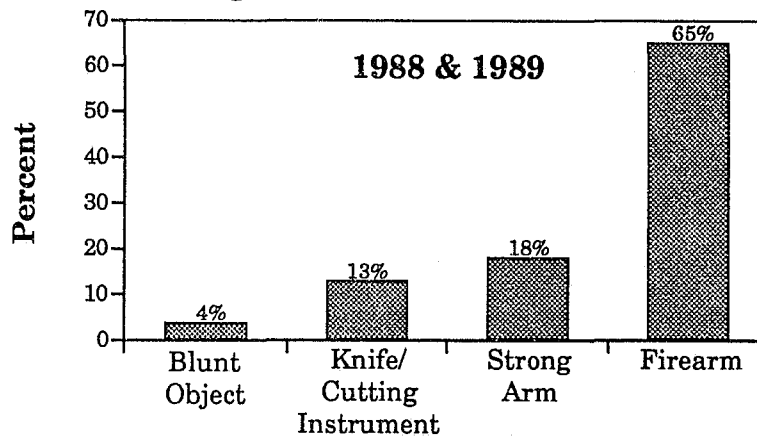
- 6 Homicides
- 4 Abductions
- 6 Rapes
- 7 Other Sexual Assaults
- 12 Malicious Woundings
- 923 Robberies
- 62 Attempted Robberies

The 923 robberies and 62 attempted robberies reported to the DCJS survey represent 85 percent of the convenience store robberies and attempted robberies reported to the Virginia State Police for the purposes of compiling the FBI's Uniform Crime Report. The attainment of this high percentage of Virginia's convenience store robbery incidence for this two year period assures that the survey results include the preponderance of jurisdictions that are affected by violent crimes at convenience stores.

As the newspaper editorials indicate, suspects did not go into convenience stores empty-handed (Figure 3):

- 4% involved the use of a blunt/hitting object;
- 13% involved a knife or other cutting instrument;
- 18% were strong-arm robberies; and
- 65% of the events involved the use or threat of a firearm.

Figure 3  
**Weapon Used in Violent Crimes Occurring at  
 Virginia Convenience Stores**

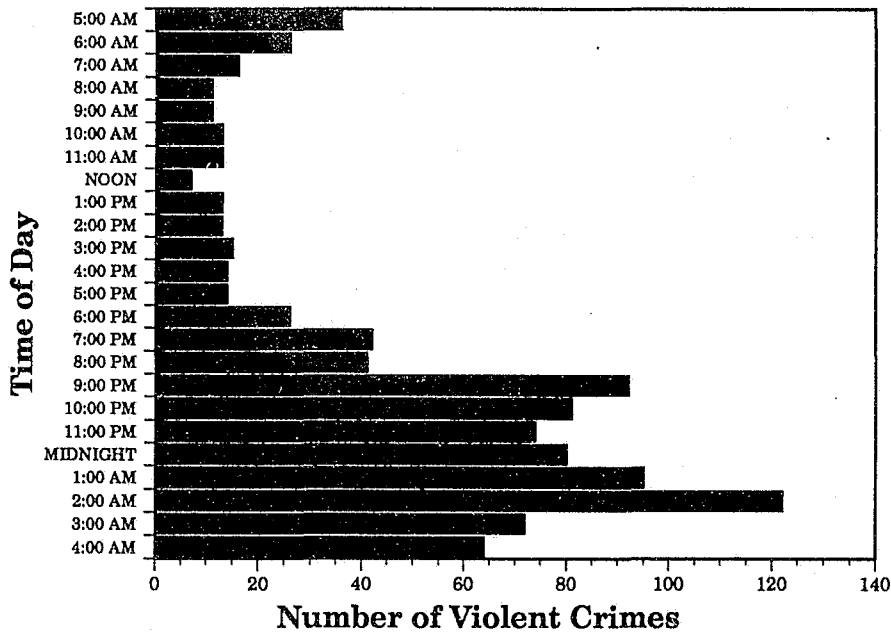


Source: Virginia Department of Criminal Justice Services, Crime Prevention Center Survey of Law Enforcement Agencies. N = 113 Localities.

It is interesting to note that only 37 percent of all robberies statewide involve a firearm. Yet, in convenience store robberies, the rate jumps to 65 percent.

Much research has focused on the time of day convenience stores are at risk. Figure 4 provides a distribution of violent crimes by the hour of day they were reported to local police agencies.

Figure 4  
**Hour of the Day Violent Crimes Took Place  
 at Virginia Convenience Stores**

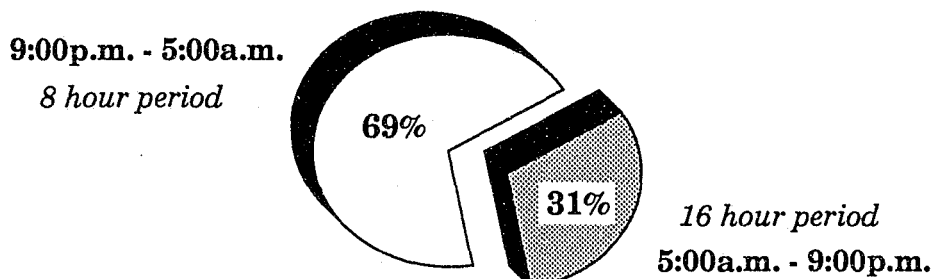


Source: Virginia Department of Criminal Justice Services, Crime Prevention Center Survey of Law Enforcement Agencies. N = 113 Localities.

Most often, the convenience store clerk faced that assailant alone and at night. A total of 700 of the crimes occurred during the eight hour period between 9:00 p.m. and 5:00 a.m. (Figure 5). Eighty-eight percent of all the crimes took place while a single clerk was on duty. Nearly two-thirds (63%) of those lone clerks were female and there were no customers in the store.

Figure 5

**Time of the Day Violent Crimes Took Place at Virginia Convenience Stores 1988 and 1989**

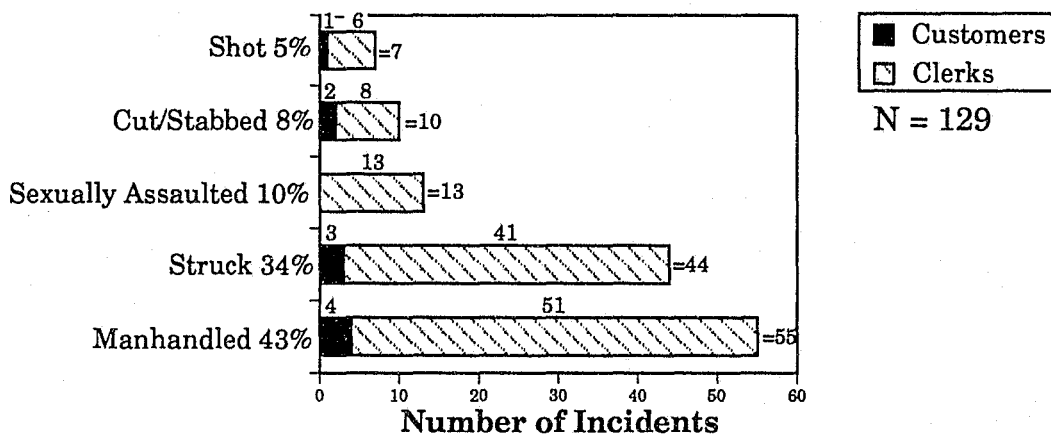


Source: Virginia Department of Criminal Justice Services, Crime Prevention Center Survey of Law Enforcement Agencies. N = 113 Localities.

An important dimension of a crime is the introduction of physical force. Information on physical force was available for 693 of the violent events. While 82 percent of these events involved a threat of violence, 18 percent actually escalated into some form of physical violence. Figure 6 illustrates the incidence of physical force experienced by customers (8%) and clerks (92%) at convenience stores. Seventy-three percent of the physical force occurred during the eight hour period between 9:00 p.m. and 5:00 a.m.

Figure 6

**Type of Physical Force Reported by Convenience Store Customers and Clerks During Violent Events 1988 and 1989**

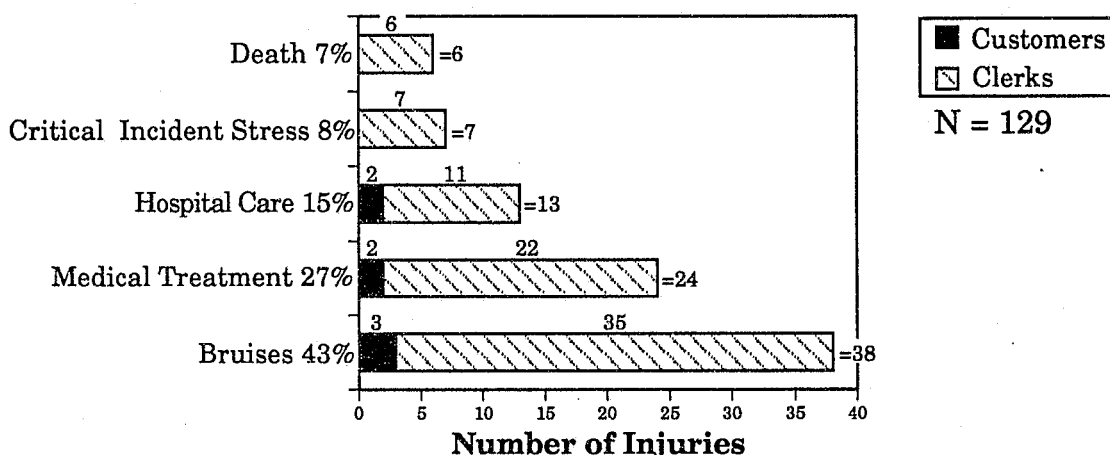


Source: Virginia Department of Criminal Justice Services, Crime Prevention Center Survey of Law Enforcement Agencies. N = 113 Localities.

Injuries to clerks were not unusual, and in some cases, customers were also injured. Injuries were experienced in nearly 11 percent of the 825 events where injury information was provided. The injuries received by customers (8%) and clerks (92%) during these events resulted in the distribution of injury severity illustrated in Figure 7. Over 71 percent of these injuries occurred during the eight hour period between 9:00 p.m. and 5:00 a.m.

Figure 7

### Severity of Injuries Reported by Convenience Store Customers and Clerks During Violent Events 1988 and 1989



Source: Virginia Department of Criminal Justice Services, Crime Prevention Center Survey of Law Enforcement Agencies. N = 113 Localities.

Violence at convenience stores was not limited to large metropolitan areas. Homicides occurred not only in Newport News, Norfolk and Henrico County, but in Albemarle County and Augusta County as well. Rapes took place in Chesapeake, Newport News and Petersburg, but they were also reported in Harrisonburg, Carroll County and Northampton County.

All of this activity generally netted the suspects very small amounts of cash. Of the stores successfully robbed, the average amount stolen was \$ 167. However, 41 percent had less than \$ 50 stolen, 63 percent had less than \$ 100 stolen, and 94 percent had less than \$ 500 stolen. Only 2 percent of the robberies involved \$1,000 or more; with \$ 4,150 being the largest amount reported stolen.

As the National Association of Convenience Stores' study indicated, the majority of stores do not experience a violent crime. However, paralleling the NACS findings, Figure 8 illustrates that violent crimes are concentrated in a small number of Virginia stores. It was found for the years of 1988 and 1989, 569 of Virginia's approximately 2,500 stores (23%) experienced a violent event. An event is defined as one or more violent crimes taking place at one time. Of this 569 stores, a single violent event was experienced by 400 stores in the two year period. This left 169 (7%) of the stores



experiencing multiple events, ranging from two to ten violent events per store for the same two year period.

Thus, only 169 stores across Virginia accounted for 474 of the violent events (54%) reported in the survey. The same seven percent of multiple victimization stores would account for 41 percent of all convenience store robberies reported to the State Police for 1988 and 1989.

Figure 8

**Repeat Victimizations of Virginia Convenience Stores  
For 1988 & 1989  
by Eight Hour Time Periods**

Frequency of Violent Events Experienced by a Store	5:00 a.m. to 1:00 p.m.	1:00 p.m. to 9:00 p.m.	9:00 p.m. to 5:00 a.m.	TOTAL	
				Events	Stores
1	59	79	262	400 (46%)	400
2	24	39	139	202 (23%)	101
3	20	11	59	90 (10%)	30
4	9	14	65	88 (10%)	22
5 or More	9	13	72	94 (11%)	16
TOTAL	121 (14%)	156 (18%)	597 (68%)	874 (100%)	569

\* Rounded to Nearest Whole Percent.

As has been found in Virginia by DCJS and in the nation by NACS, most convenience stores are relatively unaffected by violent crime. Conversely, violent crimes were found to be concentrated in slightly over one fifth of the stores in both studies. In Virginia, a violent event was reported in 23 percent of the stores for a two year period. NACS found 21 percent of its sample stores reporting at least one robbery for a two year period. While approximately one fifth of the stores experienced at least one violent crime in the

two year period in both studies, a smaller but amazingly consistent group of stores experienced multiple violent crimes. NACS found seven percent of its sample stores experienced multiple robberies during the two year period. DCJS also found seven percent of its stores experiencing multiple violent events over a two year period. These findings suggest that there is a small number of stores that are particularly vulnerable to violent crimes and are high risk candidates for multiple victimizations in a 24 month time period.

The NACS study identified prior robbery rate as the strongest predictor of future robbery rates. While this is an important finding, it only exposes part of the pattern of the concentration of violent crimes in convenience stores in Virginia. Figure 9 ranks Virginia localities by the frequency of convenience store robberies reported to the Uniform Crime Report and the percentage each jurisdiction contributes to the state-wide total of convenience store robberies for 1991. The most important finding here is that only ten localities accounted for 65 percent of violent crimes in Virginia's convenience stores for 1991. Just as a very small number of stores experience a disproportionate rate of victimization, a very small number of jurisdictions disproportionately suffer the burden of this category of crime.

Figure 9

### Virginia Localities With The Highest Number of 1991 Convenience Store Robberies

Rank	Locality	Number of 1991 Robberies	Percent of Robberies Statewide	Cumulative Percent of Robberies Statewide
1	Richmond	121	16.7%	16.7%
2	Virginia Beach	62	8.6%	25.3%
3	Norfolk	60	8.3%	33.6%
4	Henrico	59	8.2%	41.8%
5	Hampton	42	5.8%	47.6%
6	Fairfax County	30	4.2%	51.8%
7-8	Arlington	27	3.7%	55.5%
7-8	Newport News	27	3.7%	59.2%
9	Chesapeake	21	2.9%	62.1%
10	Portsmouth	20	2.8%	64.9%
	<b>TOTAL</b>	<b>469</b>	<b>64.9%</b>	<b>64.9%</b>

\* 1991 Convenience Store Robbery Total 723

Data Sources: Uniform Crime Reporting Section, Virginia State Police  
Crime Prevention Center, Virginia Department of Criminal Justice Services

## State Compensation Programs In Virginia

The Virginia Industrial Commission provided access to two sets of data for this study. It was thought that review of the Virginia Workers' Compensation claims and the Virginia Crime Victims' Compensation claims would be useful. Analysis of these claims support the argument that convenience store workers are at an increased risk of injury due to criminal assault.

For the period January 1983 through August 1990, 66 claims were submitted for Virginia Workers' Compensation by all Virginia workers for injuries received at work that resulted from a criminal act (Thomas, 1992). For the shorter period of January 1983 through November 1986, 25 claims were submitted for Virginia Crime Victims' Compensation.

Of the 91 claims submitted to both programs by all Virginia workers, a total of 44 (48%) were submitted by convenience/grocery store employees. Of those 44 claims submitted, one was for a homicide, 13 for rapes and the remaining 30 claims were for other forms of injuries. The 13 claims related to rape accounted for 62 percent of rape-related claims submitted for all Virginia workers. It is expected that the full incidence of work-related sexual assault is not accounted for here, because sexual assault is notoriously under reported in workers' compensation files (Seligman et al, 1987).

The discussion above describes the submission of claims to Virginia's two compensation programs in rather analytical terms. However, the results of submitting a claim do not always produce the most satisfactory of outcomes. Concerned over how victims are treated once they are victimized, an anecdotal case was described by one Virginia attorney. He wrote to us about his client, "...a devout Roman Catholic who was raped and impregnated by an intruder in her place of employment, a convenience store. Her life was shattered; she received \$600 (exclusive remedy) from Workers' Compensation."

## V. ROBBER CHARACTERISTICS AND CORRECTIONAL COSTS IN VIRGINIA

The research studies discussed earlier in this report focused attention on victimization rates, target selection criteria robbers use when choosing stores and the effectiveness of selected security measures. This report is unique because it will also examine convenience store robbers as a group and attach basic criminal justice system costs to them as a sub-population of offenders.

### Methodology

Methods to access data on specific crimes, the offenders who committed them, criminal justice system outcomes and costs to the public, are very complicated and highly labor intensive activities. It was decided, in an attempt to balance achieving the greatest insight with limited resources, to concentrate on robber convictions as the unit of analysis. Focusing on actual convictions for robbery allows us to isolate a group that has a pre-sentence investigation (PSI) available. Concentrating on convictions also provided the ability to focus on correctional outcomes, the part of the system most costly to taxpayers.

The Criminal Justice Research Center within DCJS maintains a PSI database on all felons convicted in Virginia since 1985. This database allowed identification of felony cases sentenced in 1991 involving one or more robbery convictions. In all, 892 cases were identified involving felony convictions in 1991 for all types of robberies. Since the unit of analysis for the purposes of this study was felony sentencing events for 1991, it included robberies that took place during 1990 and 1991.

While the PSI database enabled the identification of felony convictions for robbery, it did not provide the ability to identify which cases involved convenience store robberies. In order to make this determination it was necessary to obtain the narrative section of each robber's PSI from the Department of Corrections. The narrative section supplements the PSI database and provides detailed information regarding the location and circumstances of a crime.

Of the total of 892 convictions for robbery, 167 involved cases of one or more robbery incidents which took place at a convenience store. In all, the 167 cases accounted for 225 convenience store robberies.

Included in the 167 convenience store cases were 19 cases in which a convenience store was robbed in addition to one or more robberies that took place at other locations, such as on the street or at another type of business establishment. This left 148 convictions in which one or more robberies took place exclusively at convenience stores.

The finding of only 19 cases (11 %) involving convenience store robbery and another type of robbery was surprising. It was expected that we would encounter more "mixed

robbery" cases. Finding 89 percent of the convictions involved were for convenience store robberies exclusively, suggests robbers specialized more in convenience store robberies than was previously thought.

It was also interesting to discover while convenience store robberies accounted for only 8.4 percent of all 1991 robberies statewide, the 148 exclusive convenience store robbery convictions represented 17 percent of all 1991 convictions for robbery statewide. This means the convenience store robbery conviction rate for 1991 occurred at twice the rate convenience store robberies occurred in the 1991 statewide robbery distribution.

### **Convenience Store Robber Characteristics**

Characteristics of convicted convenience store robbers of interest include personal demographics and criminal history. Not surprisingly, we encountered individuals with low levels of educational achievement, high unemployment and with a fair chance of being involved in drug use. They also had a high likelihood of having a prior felony conviction and being "legally restrained" at the time of their most recent offense.

Personal characteristics discovered:

- 64 % of the cases involved offenders who have not graduated from high school or received a GED;
- 62 % were unemployed at the time of the offense(s);
- Drug abuse was apparent in 49 % of the cases; and
- Alcohol and drug abuse was apparent in 19 % of the cases.

Criminal history characteristics discovered:

- In 89 % of the cases the offender had a previous felony record;
- In 24 % of the cases the offender had at least one prior felony sentencing event involving a robbery conviction; and
- At the time of the robbery for which they were being sentenced, 42 % of the cases involved offenders "legally restrained" (on probation, parole or released on bond) for prior offenses.

### **Correctional Costs of Convenience Store Robbers**

There are many costs associated with violent crimes in convenience stores. While the amount lost in dollars from robbery is low, the loss of life, and pain and suffering from physical attack is high. Physical victimization of clerks and customers was discussed

in detail earlier in other sections of this report.

The focus here is on the costs incurred by taxpayers to pay for the various responses to violent crimes in convenience stores. Discrete points where costs can be associated with crimes are: investigation, arrest, prosecution, pre-trial detainment, sentencing, probation supervision, prison commitment and parole supervision. While all of these response points are important, they do not carry equal price tags and they are not all equally accessible for cost accounting.

For example, all 723 convenience store robberies experienced in 1991 were investigated by law enforcement personnel. While robbery investigations were expensive, detailed information about the hours spent conducting them was just not available. Acknowledging the high cost of investigations for localities, it was assumed the lion's share of public costs was still to be found on the correctional side of the equation. Therefore, this analysis will focus on the costs of correctional responses.

Additionally, our estimates of correctional costs are conservative and will underestimate actual costs because only cases involving a felony conviction for exclusively robbing a convenience store will be addressed. Such an approach systematically excludes correctional costs for individuals successfully pleading a felony charge to a misdemeanor; and individuals convicted of homicide, sexual assault, abduction or malicious wounding at a convenience store.

All of the above sub-groups will be excluded because of the difficulty of identifying/tracking them with any degree of reliability. Thus, our estimates of correctional costs will be conservative and will systematically under-estimate the actual costs incurred by the correctional handling of all offenders convicted of violent crimes in convenience stores. The strength of this approach is it gives us a very clear look at the most expensive part of the cost equation for the largest group of offenders committing violent crimes in convenience stores.

The first major correctional cost encountered is for pre-trial detainment. Of the 148 exclusive convenience store robbery convictions, 81 percent were confined in jails pre-trial. The length of pre-trial confinement ranged from one day to one year. The median length of pre-trial confinement for this group was 105 days in jail. The Compensation Board currently calculates the state's share at \$ 30 for each day in jail.

As Figure 10 illustrates, the median pre-trial jail confinement for one convicted convenience store robber had a direct cost to the state of \$ 3,150 in 1991. It is estimated this entire convicted robber cohort spent 12,600 pre-trial days in jail at a direct cost to the state of \$ 378,000. These costs involve only the state's share, and do not reflect any local costs.

While 81 percent of the exclusive convenience store robbery cases experienced pre-trial detainment, 97 percent eventually received a prison sentence. The median prison sentence for this group was 10 years. This translates into 1,440 sentenced prison years for this group of convenience store robbery cases.

Figure 10

**Estimated Correctional Costs for Virginia  
Robbers Convicted in 1991 for Exclusively Robbing  
A Convenience Store\***

	Pre-Trial Detention Costs (\$30 Per Day State Share)	Projected Prison Time Served Costs (\$17,000 Per Year)	Projected Parole Supervision Costs (\$939 Per Year)	Total Projected Costs for Jail, Prison and Parole
<u>ONE</u> Convenience Store Robber Convicted in 1991	105 Days Median Stay  Costs  <b>\$3,150</b>	4 1/2 Years Median  Stay Costs  <b>\$76,500</b>	5 1/2 Years Median  Supervision Costs  <b>\$5,165</b>	     <b>\$84,815</b>
<u>ALL</u> Convenience Store Robbers Convicted in 1991	12,600 Total Jail Days  Cost  <b>\$378,000</b>	648 Prison Years  Cost  <b>\$11 Million</b>	792 Supervision  Years Cost  <b>\$743,000</b>	     <b>\$12.1 Million</b>

\* Does not include cases associated with robbers convicted of another type of robbery in addition to a convenience store robbery.

Although prison sentence length is important, actual time served is the more critical dimension for cost calculations. As Figure 10 indicates, four and one half years is projected as the median time a robber will actually serve in prison (Virginia Department of Criminal Justice Services, 1991, 1989, 1987). At current annual prison confinement costs of \$ 17,000, a typical time served stay of four and one half years will directly cost the state \$ 76,500 for each robber. For our exclusive convenience store robbery cohort, it is expected they will actually serve a total of 648 years in prison at a total cost in excess of \$ 11 million dollars.

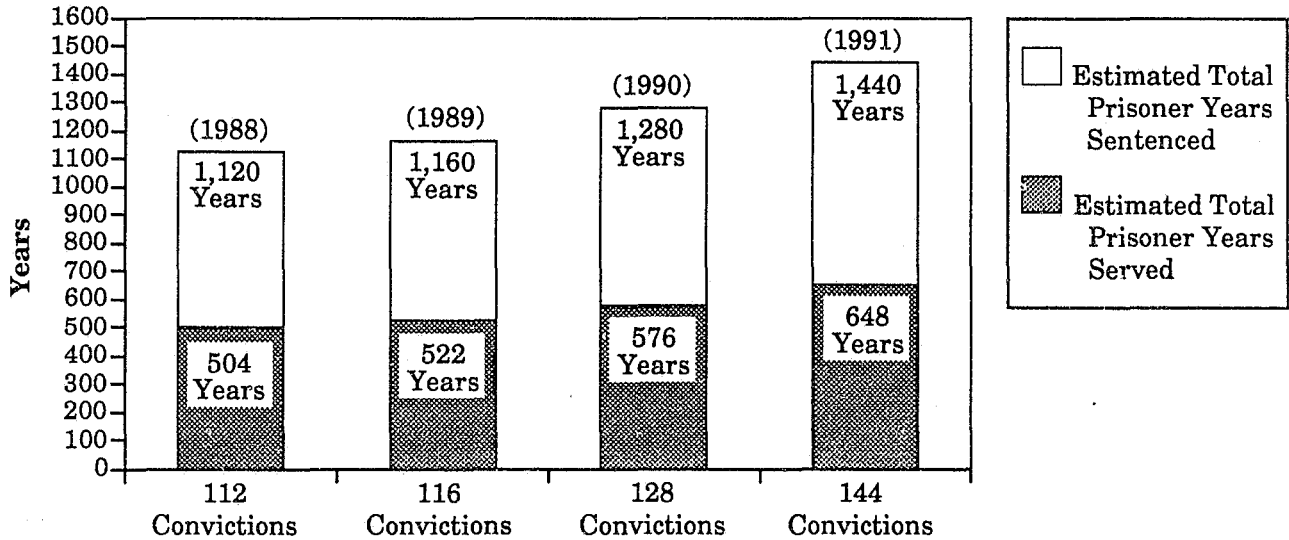
Once paroled, a convenience store robber will be subject to five and one half years of parole supervision at a total cost of \$ 5,165. As a group, this translates into 792 years of parole supervision at a total cost of \$ 743,000.

Figure 10 also provides total projected correctional costs for robbers convicted in 1991 of exclusively robbing a convenience store. It is expected each one will average a total cost of \$ 84,815 and the entire group will cost in excess of \$ 12.1 million in total correctional costs.

Using the ratio of convenience store robbery frequency to actual convictions experienced in 1991, Figure 11 estimates prison sentences and time served for robbers convicted of exclusively robbing a convenience store for the additional years of 1988, 1989 and 1990. Since this group of robbers will typically serve four and one half years in prison, it is important to envision each cohort entering prison, stacking on top of previous cohorts and paroling out after serving that portion of their sentence.

Figure 11

**Estimates of Sentence Length and Time Served in Total Years, For All Robbers Exclusively Convicted of Convenience Store Robberies in Virginia**



Actually, on any give day in Virginia, we can expect to have representatives from at least the last five sentencing years serving time in prison for convenience store robberies. Phrased another way, as this report is issued, *it is conservatively estimated the total number of offenders currently serving time in Virginia's prison for exclusively robbing a convenience store exceeds 500*. It should be noted again, this figure of 500 convenience store robbers incarcerated at this point in time systematically excludes other convenience store crime related offenders convicted for: homicide, sexual assault, abduction, malicious wounding, "mixed robbery" case, or misdemeanor.

*This analysis suggests Virginia is spending between \$ 12 million and \$ 14 million a year for its correctional handling of offenders convicted of committing a violent crime in a convenience store.* Not included in these estimates are costs for investigation, arrest and prosecution of offenders. This is particularly sobering when a larger and more costly cohort of convenience store offenders can be expected to be convicted every year if present trends continue.



## VI. CONCLUSIONS AND RECOMMENDATIONS

This study found that convenience stores are the site of a sizeable number of violent crimes, both nationally, and in Virginia. During the period 1985 through 1991, robberies of convenience stores increased 38 percent nationally, and 51 percent in Virginia.

A cultural indicator of the pervasiveness of the perception of convenience stores being crime prone, is that they have been the topic of a popular children's animated television show. Two segments of "The Simpsons" have addressed the topic of convenience store robbery. In one, the owner of a store shows a new clerk his bullet wound scars and states, "They should be worn as a badge of courage."

The increase in robberies at convenience stores is particularly troubling because research has demonstrated that every 100 robberies involving a firearm results in one homicide. A survey of Virginia localities supports the ratio cited in the research.

Additional research indicates that taxi cab drivers and convenience store workers have the greatest risk of becoming homicide victims in the workplace, of all occupational groups in the United States. These risks appear disproportionately high for women. Since Virginia does not have the large numbers of taxi cabs that many states do, it would seem that convenience stores are the most pressing source of workplace homicides to be addressed.

Some of the recommendations being made in this study call for legislation that would address security measures statewide. There is already precedent in Virginia for this approach as a means to achieve personal safety for citizens. The right of a gasoline station owner to close his station at night because of his fear of crime has been discussed. Patron security in motels and a landlord's responsibility to provide security for tenants are also presently in the Code of Virginia.

In 1988, under the authority of House Joint Resolution 64, the Crime Commission recommended the Board of Housing and Community Development "...incorporate such crime prevention security requirements as it deems feasible, into the Uniform Statewide Building Code. As a result of HJR 64, "Building Code Security Needs," the Uniform Statewide Building Code now requires deadbolt locks, door peepholes and locks for sliding glass patio doors in all new multi-family dwellings in Virginia.

The risk of a convenience store worker in Virginia becoming a victim of violent crime while at work is a serious and compelling issue. Bold action is needed to stem the growth of crime that is overpowering Virginia's law enforcement agencies, jails, courts and prisons. The prevention measures outlined in the following recommendations will be a major step in stemming this mushrooming threat to the Commonwealth's domestic tranquility.

## **RECOMMENDATION 1.**

**The implementation of the Incident-Based Reporting (IBR) system should be a high priority for state and local law enforcement agencies. Recognizing the vital importance of crime-incident data for crime analysis and policy development, the Virginia State Crime Commission should study the feasibility of accelerating the transition to IBR by state and local law enforcement agencies.**

### **RATIONALE:**

Obtaining details about the occurrence of violent crimes at Virginia's convenience stores was very difficult, and in the end, not totally complete. The Crime Prevention Center survey sent to local law enforcement agencies asked for information about crimes that some could not provide, and others could provide only after investing a fair amount of time manually searching files.

Crime analysis at the state level is an activity that is very important for criminal justice policy development. Meaningful and timely crime analysis at the state level will only be possible if a centralized and automated offense data base with sufficient detail is established.

The FBI is in the process of redesigning its Uniform Crime Reporting (UCR) system to incorporate an Incident-Based Reporting (IBR) system. The new system would have made this study easier, faster, and more complete.

For the past five years the Virginia State Police and the Department of Criminal Justice Services have been cooperating in the transition from a summary-based reporting system to the IBR system. Almost all of the planning work has been completed and implementation can soon begin.

This new system will provide quality data in sufficient quantity to give local and state law enforcement agencies an enhanced crime analysis capability. However, the success of the new program will depend upon automated systems.

Implementation of the Incident-Based Reporting system has been endorsed by the following associations: Virginia Association of Chiefs of Police, Virginia State Sheriffs' Association and the Virginia Crime Prevention Association.

## **RECOMMENDATION 2.**

**The Crime Commission should continue its legislative support of crime prevention strategies that address the unique distribution of violent crimes in Virginia's convenience stores. Efforts should focus on maximizing the potential for protecting employees and customers, while not unduly burdening localities or the industry.**

## **RATIONALE:**

The best data available nationally suggest the problem of violent crime in convenience stores was limited to 21 percent of convenience stores and multiple victimizations were limited to seven percent of the stores for a two year period. For Virginia, violent crimes were limited to 23 percent of the stores and multiple victimizations were limited to seven percent of the stores for a two year period. It was also found that 65 percent of Virginia's convenience store robberies were disproportionately suffered by only ten jurisdictions in the Commonwealth.

These findings suggest an intervention strategy tailored to the pattern of convenience store crime in Virginia. Such an intervention should focus on the demonstrated high risk of victimization experienced by some stores, incorporate security measures enumerated in prior research and legislative efforts, not burden all localities, and recognize the constraints of the Code of Virginia.

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1992 SESSION  
ENGROSSED

HP4033825

## HOUSE JOINT RESOLUTION NO. 149

House Amendments in [ ] - February 9, 1992

Requesting the Virginia Crime Prevention Center within the Department of Criminal Justice Services to study, with the cooperation and assistance of the Virginia State Crime Commission, offenders responsible for committing violent crimes in convenience stores.

Patrons—Heilig, Almand, Ball, Cunningham, J.W., Forehand, Reid, Reynolds and Woodrum;  
Senator: Cross

Referred to the Committee for Courts of Justice

WHEREAS, the National Institute for Occupational Safety and Health has found homicide to be the third leading cause of occupational death for all workers in the United States, and the leading cause of death for women in the national work force; and

WHEREAS, epidemiological research has identified convenience store clerks as [ an occupational group at great risk of being victims of one of several occupational groups victimized by] violent crime; and

WHEREAS, robbery of convenience stores has increased 32 percent nationally, and 42 percent in Virginia for the period 1985 through 1990; and

[ WHEREAS, research has indicated that one homicide results from every 100 robberies involving a firearm; and ]

WHEREAS, crimes against convenience store and grocery clerks represented 48 percent of all violent crime claims and 62 percent of all rape-related claims submitted to the Virginia Workers' Compensation and Virginia Crime Victims' Compensation Programs; and

WHEREAS, a study sponsored by the National Association of Convenience Stores found that two-thirds of the rapes of convenience store employees were nonrobbery related; and

WHEREAS, it appears evident that [ two distinct groups of criminals are stalking convenience stores as targets and their employees as victims; and convenience stores and their employees are the victims of two distinct types of criminals; and]

WHEREAS, effective prevention strategies have been developed from detailed studies of offenders responsible for committing those crimes; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Virginia Crime Prevention Center within the Department of Criminal Justice Services be requested to study, with the cooperation of the Virginia State Crime Commission, offenders responsible for committing violent crimes in Virginia convenience stores.

The Center shall (i) determine, to the extent possible, the prevalence of arrests for homicide, abduction, sexual assault and robbery occurring at convenience stores, (ii) ascertain the costs related to the arrest, detention, prosecution and correctional commitment of these offenders, (iii) study the characteristics of these offenders and the behavioral patterns related to the selection of their targets, and (iv) recommend appropriate strategies to address enhanced safety and security for employees and patrons.

The Center shall complete its work in time to submit its recommendations to the Governor and the 1993 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.