

**The Evaluation of Ordinances to Prevent Workplace Violence in Convenience  
Stores**

**Request for Office of Management and Budget Review and  
Approval for Federally Sponsored Data Collection**

**Section A**

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## **A. Justification**

### **A.1 Circumstances Making the Collection of Information Necessary**

#### **Background**

This is a new Information Collection Request (ICR) from the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention. Under the Public Law 91-596 (Section 20[a][1]), NIOSH is tasked with conducting research relating to occupational safety and health (Appendix A). One of NIOSH's goals is to reduce workplace homicides and violence to retail workers. In order to achieve this goal, NIOSH is conducting research on the prevention of workplace violence in the retail industry. The primary objective of the current project is to evaluate the impact of Texas ordinances (specifically Dallas and Houston) for convenience store safety to increase compliance to robbery-prevention guidelines. Secondary objectives are to begin understanding how ordinances might decrease workplace violence to convenience store workers and to explore the benefits to stores from implementation of ordinance requirements. The need for this information collection is described in this section.

Workplace violence (WPV) is a significant public health problem, resulting in an average of more than 500 homicides and nearly two million nonfatal incidents annually in the United States. Homicide is the fourth leading cause of workplace death in the United States, disproportionately affecting workers in the retail and taxicab sectors. The Bureau of Labor Statistics (BLS) reported that for the years 1997-2008, 1,800 homicides occurred in the retail industry sector, 49% of all private industry homicides.

Evidence has shown that the majority of homicides in the retail industry are robbery-related. The Bureau of Labor Statistics reported that of the 1,800 homicides of retail workers from 1997-2008, 1,572 (87.3%) were due to robbery or assaults (58% due to robbery alone). NIOSH research has shown in a study of 2,073 convenience store robberies during 1992 and 1993 in 16 cities/counties in 9 states, the homicide rate was on average one per 138 robberies and the non-fatal injury rate was 1 per 8 robberies (Case-Control Study of the Deterrent Effect of Environmental Designs on Robbery in Virginia Convenience Stores, OMB#0920-0352, expiration date September 30,1995). During 2008 in 2,380 Houston convenience stores, there were 838 robberies, 338 assaults (aggravated and sexual) and 5 homicides to convenience store workers and customers.

Situational Crime Prevention programs to reduce robbery and violent crime have been proven to be successful in reducing robbery and robbery-related injury risks to both employees and customers in retail settings. These programs incorporate a criminological concept called Crime Prevention Through Environmental Design (CPTED) which theorizes that environments can be modified to make potential criminals feel they are being watched, i.e. under surveillance and thus vulnerable, resulting in avoidance of the target by increasing the robber's perception that a robbery is not worth the risk. These programs were operationalized by the National Association of Convenience Stores (NACS) based on NACS funded research and became institutionalized in the convenience store industry through the 1990's. NACS program components were later

recommended by NIOSH and the Occupational Safety and Health Association (OSHA) based on further validation by many research studies including NIOSH research. This body of evidence to support the effectiveness of recommended CPTED components to reduce robbery risk has been reviewed by Casteel and Peek-Asa (American Journal of Preventive Medicine, 2000, 18:99-115). Effective CPTED components include employee training in crime prevention and control. Key CPTED features include:

- non-resistance (giving up the money or goods)
- Good visibility into and within the store with direct line of sight of the cash register
- Bright interior and exterior lighting
- Control of access into the store and parking lots
- Keeping minimum amounts of cash in the registers
- Cash control with accompanying signage posted indicating low available cash on hand, use of timed drop safes, and employee's inability to open safe

Although there is strong evidence that CPTED program components effectively reduce robbery and robbery-related assault risk, voluntary approaches which have lead retailers to implement these components have been met with limited success. Surveys have shown that most small businesses have implemented very few to none of the standard CPTED program recommendations, and what is implemented is often done so incorrectly. A recent survey was conducted by the Houston Police Department where CPTED components in convenience stores were evaluated. The results indicated that during 2007 (prior to their 2008 Convenience Store Safety Ordinance):

- 75% had security windows and doors that were clear and within good visibility of the store and register
- 79% had surveillance cameras
- 37% displayed signage for cash limit and for drop safes that cannot be opened
- 55% had timed-release drop safes
- 59% conducted 'some' training in robbery prevention

The Houston Police Department survey did not present data on the presence of CPTED multiple components or the number of stores in compliance to their 2008 ordinance requirements, but the Houston Police Department estimates that only 20-25% of their convenience stores were in full compliance with their ordinance prior to its effective date.

Voluntary and legislative models for translational research of robbery-prevention to practice in retail businesses have been implemented in some cities. Voluntary models have included public health dissemination of federal guidelines, a security model approach, and a community policing model approach. Legislative models have been implemented in Gainesville and other cities in Florida; Houston and Dallas, Texas; Toledo, Ohio; Hartford, Connecticut; Albuquerque, NM; and Washington state. However, none of the legislative programs have been appropriately evaluated.

Although there is good evidence for the effectiveness of CPTED programs to reduce robbery, there is little evidence on the displacement of robbery risk. Displacement of crime from 'hardening' a target with security systems is well recognized. Convenience store robbers are low

in criminal skills on the level of ‘muggers’. Thus, CPTED designs may displace convenience store robberies and increase robberies to other retail businesses with fewer CPTED designs in place or to muggings and robberies of individuals such as at ATMs. No research has been published on displacement of robbery caused by CPTED programs in retail establishments. An evaluation of the association between ordinances and crime rates needs to address this effect.

The available evidence indicates that the proposed research is needed for many reasons. *First*, robbery-related homicides and nonfatal injuries to employees in small late night retail businesses remains a significant public health problem. *Second*, programs and strategies that include multiple administrative and environmental CPTED controls have been shown to reduce robbery and robbery-related injuries. *Third*, voluntary CPTED programs have been met with limited success to increase compliance to robbery-prevention guidelines, and thus, will not likely significantly reduce robbery or robbery-related assaults in small retail establishments nationwide. *Fourth*, a primary barrier to compliance by retailers is the lack of perception of an increased robbery or assault risk which offsets their concerns for too little time to address the issue and meager resources for security systems. *Fifth*, the legislative model in Gainesville, FL was the only translational legislative approach which has had a significant effect on reducing retail robbery. There is a need for evaluation of predictors of compliance including barriers to enforcement and compliance in legislative models. *Sixth*, a current community-policing program funded by NIOSH in Oxnard, CA has raised the issue of providing economic incentives for business to participate. The Oxnard Police Department and some retailers believe that CPTED components create a more comfortable, safe environment for customers and thereby increase customer traffic, quality of the clientele, and sales. However, there is no published evidence to support this hypothesis. This hypothesis needs to be substantiated because evidence for benefits to the stores including a positive return on investment and reduced employee stress from less gang, drug and crime activity could facilitate transfer of CPTED guidelines into this industry nationwide

*Finally*, if the ordinance programs are successful, the proposed project will provide a significant advancement of translational research toward increasing retail business compliance to CPTED components and thus, toward the prevention of workplace violence in retail businesses for the following reasons:

1. It will provide evidence that a legislative intervention program is associated with increased compliance to CPTED guidelines and decreased robbery and robbery-related assault rates. This evidence will be useful to other cities considering ordinances requiring implementation of CPTED components in retail businesses. If an ordinance program works to increase compliance to robbery-prevention CPTED recommendations in two large metropolitan cities, this will be a model for other cities to consider.
2. It will build from a strong evidence-based workplace violence prevention approach (i.e., operationalized CPTED theory) to test a legislative model for sustainable implementation.
3. It will promote partnerships between problem-oriented police convenience store compliance programs and the business community to reduce crime in the retail community. It capitalizes on a high level of commitment from both Mayors’ offices, police departments, and the business community.

4. It is the first translational research study to evaluate major components of a legislative compliance program for convenience stores which addresses increased compliance, decreased crime rates, business incentives, and program process. It includes both process and outcome measures, where process measures will allow for the replication of the translational legislative design into other cities and police departments nationwide.

#### *Privacy Impact Assessment*

The proposed data collection is in three Phases that address 5 Specific Aims and 13 research questions (See Section A.2). Phase I (Study Design I) will require administration of a survey to respondents and the respondent burden is described in this ICR. Phase I (Study Design II) and Phases II and III will employ records from companies, the Dallas and Houston police departments, and the Mayors' Task Forces for Convenience Store Security. Phases II and III will not require a respondent burden from interviews.

#### *Phase I-Study Design I:*

This design will be a fixed cohort retrospective follow-up study of a sample of convenience stores operating in Houston and Dallas before the time of their ordinances to 1 year after the effective date of their ordinances (end of follow or time of the survey of stores). This design will address Specific Aims 1-3 and research questions 1-7.

This design is proposed to a) evaluate the association between the ordinance and the likelihood of compliance, b) understand the benefits from compliance, and c) the association between the ordinance and risk of robbery and robbery-related assaults. With respect to evaluating the association between the ordinance and compliance, in a retrospective analysis with follow-up data on compliance to ordinance requirements will be collected from interviews of store managers at the end of follow-up (time of the survey). With respect to benefits from compliance, data at the end of follow-up on benefits to the store (for example, impact on sales, quality of clientele, decrease in loitering and gang activity, and decrease in employee stress) will also be collected.

With respect to reducing crime risk, in a pre-post analysis, data on robberies, homicides, and assaults during 1 year before the ordinance and 18 months after the ordinance will be collected. Evidence from this analysis will compliment that from Study Design II. In Study Design I, for a fixed cohort of stores, the difference in robbery and robbery-related assault rates before and after the ordinance will be adjusted or controlled for store crime risk factors. Store crime risk factors will not be available for analyses in Study Design II. Study Design II will provide data on a dynamic cohort for comparison of rates before and after an ordinance between the convenience store population to all other retail stores and the general population. All other retail businesses and the general population will be two comparison groups that are not addressed by an ordinance.

#### *Justification for using a retrospective follow-up design rather than a prospective follow-up design for the study of compliance*

There are two design and two operational issues connected with the choice of whether to use our proposed retrospective design (Study Design I) or a prospective design. In our fixed cohort

retrospective follow-up design, data will be collected on compliance retrospectively from when the ordinance took effect and at follow-up from a survey at the end of the follow-up. In a fixed cohort prospective follow-up design, Data on compliance to an ordinance is collected at the time of baseline and again at the end of follow-up. The two design issues are lost to follow-up and recall bias. The two process issues are feasibility of the data collection and respondent burden and cost.

With regard to lost to follow-up, in both study designs a population of stores operating at time of the ordinance will be enrolled and followed for 18 months. This population will then include those that continuously operated at baseline and follow-up and those that closed during the study period. Those that closed are lost to follow-up. In both fixed cohort retrospective and prospective designs, the stores lost to follow-up, will be the same, and thus lost to follow-up bias, if any, will be the same. The assessment of lost to follow-up is discussed in Section A.16.

With regard to recall bias, recall of ordinance requirements is negligible in a prospective study because recall of the ordinance requirements will be about those in place at the time of the survey. Recall in a retrospective study of ordinance requirements in place at 18 months prior to the survey is possible, but will likely be minimal. Purchases and installation of security equipment in compliance to ordinances such as drops safes and closed circuit TV systems are significant events. Store managers will remember if these were in place before or after the effective date of the ordinance. Thus, recall bias is likely negligible in both study designs.

With regard to feasibility, a retrospective study is feasible because a survey of stores which operated at the enactment of the ordinance and 18 months after the ordinance can be completed. A prospective design is not as feasible. By the time we know that a city is going to pass an ordinance, it would take 1-2 years to develop a protocol and obtain human subjects review board and Office of Management and Budget approval. Thus, the retrospective design is the most feasible to use to address the research questions.

With regard to respondent burden and cost, a retrospective design will require only one survey of stores and a prospective design will require two surveys. Thus, a retrospective design is one half the burden to respondents and half the cost.

In conclusion, we propose to use the fixed cohort retrospective follow-up design approach to study compliance because there is no advantage from employing a prospective design. Fixed cohort retrospective and prospective study will have similar biases, collect similar data at baseline and end of follow-up, and provide similar statistical results. A retrospective design is more feasible and has less cost and respondent burden,

However, it is recognized that the results of this study will be correlative and not causative due to the nature of the follow-up designs because the ordinance is not evaluated using an experimental prospective design. An experimental design is the best design to measure 'causative' or pre-post effects when treatments and extraneous risk factors can be controlled. However, in this proposed study, treatments (i.e., the ordinance program) and risk factors (crime risk factors) are not controlled and their effects are measured using survey methods. Thus, an observational epidemiologic study using a prospective or retrospective follow-up design are correlative in the sense that they are not controlled experiments. The point we make in the preceding paragraph is that there is no difference in results between observational epidemiologic prospective and retrospective follow-up study designs.

Phase I - Study Design II:

This design will be a dynamic cohort retrospective follow-up study of all convenience stores operating in Houston and Dallas from 3 years prior to the ordinance and 18 months after the effective date of the ordinance. This design will be employed to address Specific Aim 3 and research question 8 to evaluate the difference in robbery and robbery-related assault rates before and after the effective date of the ordinance. Data from police crime reports will be collected for this study.

Phase II:

A three-part economic evaluation of the cost benefit from the ordinance will be completed. *In Part 1*, data from the survey in Phase I (Study Design I) on the cost of ordinance requirements and the change in sales since implementation of ordinance requirements will be employed to evaluate the cost benefit due to implementation of ordinance requirements (specific Aim 4, research question 9). *In Part 2*, the cost and return on investment for the community will be assessed (Specific Aim 4, research question 10) employing records from the police department files on cost of their compliance program implementation. *In Part 3*, a business case analysis will be completed in two stores that had been robbed since the passage of the ordinance and had implemented ordinance requirements. Store records will be employed for the business case analysis to estimate the return on investment associated with compliance requirements (Specific Aim 4, research question 11).

Phase III:

Records and reports from the police departments and Mayor's Task Force on Convenience Store Security will be collected to document the process of development of the ordinances and police department compliance programs including recommendations to other cities that are considering ordinances (Specific Aim 5, research questions 12-13).

Overview of Data collection System

Phase I - Study Design I

Convenience store safety ordinances (Appendix H) were effective on January 1, 2010 in Houston and May 10, 2010 in Dallas. Data from interviews of a sample of convenience store managers in Dallas and Houston will be collected after receiving OMB approval as follows:

1. All convenience stores in each city (approximately 2,400 in Houston and 950 in Dallas) will be enumerated using InfoUSA (a marketing firm) lists to be used as a sample frame. A sample of 600 stores will be drawn from the frame.
2. Prior to the survey NIOSH will contact those companies in the sample who own two or more stores that can be identified based on the company or store name, and obtain approval from the store owners/upper management for their store managers participation. Permission to participate will be obtained from the remainder of the store managers at the time of the survey. If a store manager refuses to participate, another store will be selected from the sampling frame to ensure a sample of 600 stores.
3. All companies with more than one store will be contacted and sent the protocol and survey instrument, and letters of support from the Mayor's Task Force for Convenience Store Safety, Police Department, industry representatives and ethnic community leaders. Their approval to interview the store managers will be obtained.

4. Ethnic stores (Asian, Middle Eastern, Korean and Vietnamese) will be contacted by community leaders to solicit their participation.
5. Stores will be visited by an interviewer and personal interviews of the store manager will be conducted. A Store manager questionnaire (Appendix C) will be administered which will require approximately 30 minutes.
6. During the site visit the interviewer will also evaluate the store for compliance to the ordinance CPTED requirements and record observations on a Store Evaluation Form (Appendix C). No involvement of the manager or store employees will be required for the store evaluation.
7. Periodic follow-back quality assurance (QA) visits to a sample of stores will be conducted by NIOSH project officers to evaluate the completeness of the store evaluation by the interviewers. Managers and employees will not be engaged during the QA follow-back.

#### Items of Information to be Collected

Data will be collected in Phase I (Study Design I) from an interview of the store managers and from a site evaluation of the store environment. Information collected on the store manager questionnaire will include:

- Demographics of the store manager and clerks (age, race, sex, ethnicity and tenure)
- Store safety features (compliance to CPTED requirements in ordinance) at the time of the ordinance and at time of the time of the interview.
- Store robbery risk factors (open at night, proximity to locations of high crime risk)
- Benefits that the store has gained by complying with the ordinance (changes during the follow-up period including decreases in crime, loitering, gang activity, drug activity and employee stress, and increases in sales, quality of clientele, and return on investment)
- Information on robbery, homicides and assaults one year prior to the ordinance (2009), and 18 months after the ordinance (2010-2011).

Personal identifiers (name, social security number, date of birth, etc.) will not be collected on store managers or any other employees. Store names will be collected for survey purposes and will be de-identified following the completion of the data collection (See Section A-10 for further description of the de-identifying process).

Information will be collected in the store evaluation by observing the store's compliance to the CPTED requirements in the ordinance. This includes the following:

- Lighting
- Direct line of sight to the register from the outside
- Visibility in the store
- Signage posted for cash limit and presence of an alarm system and closed circuit TVs

No involvement of the manager or store employees will be required for the store evaluation.

#### Identification of Website(s) and Website Content Directed at Children Under 13 Years of Age

The information collection does not involve web-based data collections and will not refer to respondents websites. There will be no content directed at children 13 years of age or younger.

Phase I – Study Design II:

The study population of all stores operating from 3 years prior to the ordinances and 18 months after the ordinances will be identified from InfoUSA records. Police Department (PD) crime reports on all robberies, homicides and assaults will be collected on the population of stores. Crime reports will be provided electronically by the PDs through a secured FTP website to transfer the data. Data will not be collected from interviews of any stores employees or police department personnel. The data to be collected will include narratives of the causes of robbery, and characteristics of the store (store type and location), perpetrator and victim characteristics (demographics), and weapon use. Names or personal identifiers of victims and perpetrators will not be collected. Police records will be collected only once for this study.

Police department data includes all reports of robbery, homicides and assaults during the study period and will provide a complete history of reported crimes on the study cohort. Records will contain store name and addresses to link to the InfoUSA study population lists.

Phase II - business case analysis:

For two stores, records will be collected on costs of ordinance requirements and on cost of robbery, homicides and assaults from company personnel records, worker's compensation and injury reports (day off, wages lost, cost of medical and indemnity costs, costs of money and goods taken in a robbery). These records will also only be collected once for this study.

Phase III – ordinance and compliance program development process:

Reports and documentation of the ordinance development process will be collected. Recommendations from the two chairmen of the Mayors' Task Force on Convenience Store Security to other cities on development of the ordinance and compliance program will also be documented.

**A.2 Purpose and Use of Information Collection**

The purpose of this data collection is summarized below for the three Phases of the proposed study which address 5 Specific Aims and 13 research objectives. In Phase I (Study Design I) data will be collected from a survey of store managers to address Specific Aims 1-2 and Specific Aim 3, research question 7. Data will also be collected in the Phase I survey to address Specific Aim 4, research question 9 in Phase II, Part 1,

In Phase I (Study Design II), data will be collected from police records to address Specific Aim 3, question 8. Finally, in Phase II, Parts 2 and 3 data will be collected from company and police compliance program records to address Specific Aim 4 and research questions 10-11. In Phase III, we will document the Houston and Dallas Police Department compliance program development process and their recommendations to other cities from their Mayor's Task Force on Convenience Store Safety on how to develop an ordinance program to address Specific Aim 4, questions 12-13.

**Phase I**

**Specific Aim 1:** Determine the proportion of stores that complied with the convenience store safety ordinance requirements since passage of the ordinances.

1. Did a high proportion of stores comply with the ordinance at the time of follow-up? Is the proportion of stores in compliance at the time of follow-up high among stores not in compliance at the effective date of the ordinance?
2. Did the police department enforce registration and compliance among stores not already in compliance at the effective date of the ordinance? Of the stores out of compliance during the follow-up period after the effective date of the ordinance, how many were cited for noncompliance and what was the penalty?
3. Does the proportion of stores in compliance differ by type of store ownership, robbery risk factors, store characteristics, police enforcement of ordinances, or other store characteristics?
4. What are the reasons given by store owners for not complying? How did the reasons vary by store ownership, robbery risk factors, store characteristics, and police enforcement?

**Specific Aim #2:** Determine the benefits to compliance perceived by the store managers.

5. Do store owners or managers report that there are benefits to the store due to compliance with ordinance programs such as increased customer traffic, improved clientele, and sales, and decreased gang presence, loitering, shoplifting, theft, and employee stress?
6. Does the proportion of store managers that report that there was a benefit from compliance differ with respect to ethnicity and age of the manager, store robbery risk factors, store characteristics, and police enforcement?

**Specific Aim 3:** Was there a difference in robbery and robbery-related assault rates before and after the effective date of the ordinances.

7. Among a sample of a fixed cohort of stores operating within 1 year before the effective date of the ordinance, did the rate of robbery and robbery-related assaults differ among stores during 1-year before the ordinance and within the period 18 months after the ordinance after controlling for store robbery risk factors? Did the difference in robbery and robbery-related assault rates differ between stores compliant and non-compliant prior to the ordinance, i.e., were crimes displaced from compliant to non-compliant stores?
8. Among a dynamic cohort of all stores operating between 3 years before and 18 months after the ordinance, did the rate of robbery and robbery-related assault decrease from 3 years before to 18 months after the ordinance? Was the decrease in rates in convenience stores different than that in all other retail businesses and in the general population? Did crime rates decrease among convenience stores and increase in all other retail businesses and the general population, i.e., is there evidence for displacement of robbery from convenience stores to other targets?

## **Phase II**

**Specific Aim 4:** Determine the economic impact of compliance with the ordinances on employers and the municipalities that have enacted those ordinances and determine the financial impact on individual businesses in compliance with the ordinances.

9. Is there an economic incentive for the affected industry due to compliance to the ordinance programs?
10. Is there an economic incentive for those municipalities that enacted ordinance programs?
11. Is there a financial incentive for individual convenience stores due to compliance to the ordinance program?

## **Phase III**

**Specific aim 5:** Develop a guidance document for dissemination to cities to develop and implement an ordinance.

12. Document the promulgation process of the development of ordinance and compliance programs
13. Document recommendations from Houston and Dallas, Police Departments and Mayor's Task Force on C-store Security for dissemination to other cities.

In Phase I (Study Design I), the store manager survey information will be collected only once. The primary purpose of this study is to use the data to determine whether the Dallas and Houston convenience store safety ordinances are associated with an increased proportion of stores that became compliant to the CPTED requirements of the ordinances. It is known that compliance to CPTED robbery-preventions will reduce robbery risk two-fold. Thus, it is important to determine if an ordinance program is associated with a significant increase in compliance. This will benefit other states and cities considering such convenience store safety ordinances.

An important secondary purpose is to understand the benefits to the stores to comply with the ordinance. These benefits include decreased drug and gang activities, loitering, employee stress due to workplace violence, an increased quality of customers, increased sales, and a positive return on investment. Results of the study will thus benefit the retail industry in showing that implementation of CPTED robbery-preventions is good business.

Finally, another important secondary purpose is to begin to show that the ordinance program might decrease robbery and workplace violence to convenience store workers. Although it has been shown in over 20 studies that Crime Prevention Through Environmental Designs such as those in the Houston and Dallas ordinances will reduce robbery risk two-fold, it is important to show that robbery, homicides and assaults might have decreased before and after the ordinance in order to demonstrate once again to cities and the retail industry that ordinance requirements could effectively reduce crime.

The results of the study on increased compliance, benefits and decreased crime associated with an ordinance on convenience store safety requirements will provide industry and government agencies sufficient evidence for businesses to implement requirements.

The data will be used by NIOSH researchers for 1) preparation of papers for publication and reports to document the success of the ordinance programs, 2) dissemination of reports and recommendations to city mayors, police departments, community leaders, and the retail industry who are considering programs to encourage retailers to implement robbery preventions which will prevent robber-related violence, and 3) dissemination of research results to the public health community conducting workplace violence prevention research.

The *positive* need for this information is to document legislative best practice approaches that are associated with an increase in compliance to known, proven robbery-prevention guidelines and, thereby are associated with a reduction in robbery and robbery-related assault risks to retail workers. CPTED robbery-preventions have been proven to reduce robbery and robber-related injuries. If a legislative program successfully increases compliance to CPTED guidelines then

the effect will be to reduce workplace violence. Currently, voluntary program approaches for retail stores to implement CPTED guidelines have had limited success. If legislative approaches are successful, documented, validated and disseminated to the appropriate stakeholders at the local community level, then the *positive* benefit will be to provide evidence that these approaches are associated with an increase in compliance to CPTED components and thus, reduce the number of robbery-related homicides and assaults. This evidence will have the potential when disseminated to cities, retail businesses and police departments to reduce robberies homicides, and assaults nationwide. Another *positive* need is to demonstrate the positive return on investment from compliance to CPTED ordinances. A current philosophy is that CPTED preventions are good business, but this is yet to be proven. If retailers are convinced from evidence based translational research that this hypothesis is true, then they will be more likely to implement CPTED guidelines. The *negative* consequences of not having the information is that a high number of robbery-related assaults and homicides may continue because successful intervention programs were not disseminated to other communities and to the retail industry.

#### *Privacy Impact Assessment Information*

The information is being collected to determine whether legislative convenience store safety compliance programs are associated with an increase in convenience stores compliant to CPTED robbery-prevention guidelines and that the implementation of the ordinances is associated with a reduction in robbery and robbery-related assaults to convenience store workers. Additionally, the information is being collected to understand the benefits to the stores in complying with the ordinance. The information collected will be disseminated to industry representatives and community leaders in other cities who are interested in reducing workplace violence through ordinance program development.

The intended use of the information is for research purposes to 1) publish the findings in a peer-reviewed scientific journal, 2) publish the information in industry and police trade association journals, 3) disseminate the information to police departments and mayors offices for cities with high retail industry robbery, homicide and assault rates, and 4) to disseminate the information to the public health and criminology scientific community currently active in research to reduce workplace violence in the retail industry.

Personal identifiers will not be collected on any individuals. Information on store names and address will be collected from public use sources for development of a sampling frame. In order to guard against the risk of disclosing information on individuals, store names will be de-identified from the data collected after the store interviews and site visits have been completed. Store manager names will not be recorded. Information on store managers such as age, gender, race, and ethnicity will be collected (See Section A.11). Data from statistical tabulations will not be presented by age, race or sex with cell sizes less than 5 to prevent identification of any individual. The impact of the proposed information collection on the privacy of individuals is minimal.

### **A.3 Use of Improved Information Technology and Burden Reduction**

No automated, electronic, mechanical or other technological collection technique will be used for the information collections. During the Phase I survey of convenience store managers, stores will be visited by an interviewer and personal interviews of the store manager will be conducted. Attempts were made to ensure the burden was as low as possible. The survey methodology for this specific worker population was reviewed by the Houston and Dallas Mayor's Task Forces on Convenience Store Safety including their respective police departments and key industry representatives (co-chairs of their task forces). Letters of support have been obtained from the police departments, key industry representatives and ethnic community leaders. The personal interview methodology was employed because mail surveys and telephone interviews of this population in previous studies have provided a poor response rate. Many small stores will not participate by mail or phone. The questionnaire and methodology were pilot tested in 9 convenience stores to ensure that the survey methodology was feasible, the questionnaire questions were not sensitive and could be answered by the store managers, and that the length of the questionnaire was acceptable to the store managers.

#### **A.4 Efforts to Identify Duplication and Use of Similar Information**

There are no surveys of convenience store populations which evaluate store compliance to CPTED ordinance requirements to provide the data needed. Additionally, there are no data on Dallas and Houston convenience stores CPTED ordinance compliance since the effective dates of their ordinances. This has been ascertained by literature review of research on convenience stores, discussions with the Dallas and Houston Police departments, discussions with convenience store industry security experts (who have recommended the proposed information collection), and discussions with researchers in workplace violence.

#### **A.5 Impact on Small Businesses or Other Small Entities**

This information collection will focus on small convenience store businesses with less than 10-20 employees per store. From a review of InfoUSA records, 35% of the stores are owned by businesses which own more than one store (i.e., large companies), and 65% of the stores will be single owner stores (i.e., small businesses). The burden is minimized by a) using a short questionnaire which in the pilot study was found to be acceptable to the businesses, and b) collecting as much data as possible by observing the store during the store evaluation (conducted by an interviewer independent of store personnel). The number of questions on the store questionnaire has been held to an absolute minimum to collect information on ordinance compliance, benefits from compliance, and robbery risk factor information.

#### **A.6 Consequences of Collecting the Information Less Frequently**

The information request is for a one-time collection only. There are no technical or legal obstacles to reduce the burden.

#### **A.7 Special Circumstances Relating to the Guidelines of 5 CFR 1320.5**

There are no special circumstances connected with the information collection.

## **A.8 Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency (101-442)**

- A. A 60-day Federal Register Notice was published in the *Federal Register* on August 16, 2010, vol. 75, No. 157, pp- 49937-49938 (see Appendix B). One public comment was received (see Appendix I).
- B. Efforts to obtain comments from affected parties outside the agency are summarized as follows:
  1. A protocol was developed and submitted to a NIOSH grant review committee for scientific peer-review as part of the agency peer-review process. All peer-review comments were addressed and approved by NIOSH upper management.
  2. The protocol was submitted to the NIOSH Human Subjects Review Board for review and approval which is a board consisting primarily of members who are outside the agency.
  3. The protocol was sent to the Mayor’s Task Force for Convenience Store Safety in Houston and Dallas. Co-chairs of the Task forces reviewed the protocol and provided letters of support. The co-chairs from each task force were the police department and a key convenience store industry representative.
  4. The protocol was reviewed and approved, and letters of support provided by the chiefs of police of the Dallas and Houston Police Departments.
  5. Consultation on the research objectives, the justification for the project, and the data collection methods was obtained from Dr. Rosemary Erickson, Director and CEO, Athena Research Corporation. Dr. Erickson is a recognized national expert in convenience store security and research.
  6. The protocol was submitted to the National Association of Convenience Stores which represents the convenience store industry at the national level.
  7. Comments from ethnic community leaders in the Vietnamese, Chinese, and Korean communities were received as to best ways to obtain participation from ethnic stores.

## **A.9 Explanation of Any Payment or Gift to Respondents**

The information collection does not propose to provide a payment or gift to the respondents.

## **A.10 Assurance of Confidentiality Provided to Respondents**

### *Privacy Impact Assessment Information*

Phase I (Study Design I) of the NIOSH Evaluation of Ordinances to Prevent Workplace Violence in Convenience Stores is a population based follow-up study of convenience stores which are operating 18months after the effective date of the ordinances. Each store will be visited by a survey interviewer who will evaluate the store environment and interview the store managers in person. No assurances of confidentiality will be provided. All convenience stores in each city will be enumerated using InfoUSA (a marketing firm) lists to be used as a sample frame. Personal identifiers will not be collected on store managers or any other employees. Information on store names and addresses will be collected from public use sources for development of a

sampling frame. Store names will be collected for survey purposes only and will be de-identified following the completion of the data collection. Store manager names will not be recorded. Information on store managers such as age, gender, race, and ethnicity will be collected (See Section A.11). However, data from statistical tabulations will not be presented by age, race or sex with cell sizes less than 5 to prevent identification of any individual.

The study was approved by the NIOSH Human Subjects Review Board (Appendix E).

**A.** This submission has been reviewed by ICRO, who determined that the Privacy Act does not apply.

**B.** The survey will be conducted by contract interviewers who will have a list of stores including their names, addresses, and telephone numbers. The contract interviewer will visit the stores unannounced and will obtain verbal consent from the manager to participate. If necessary, they will leave the questionnaire with the manager and return to the store within 1-2 days to complete the interview. The contract interviewer will complete the store manager interview and store evaluation, recording information on the Store Manager Questionnaire and Store Evaluation Form. They will then copy the forms and send them to NIOSH for editing and keying to an electronic data base. Following completed data entry the contractor will destroy their copies of the forms.

Data will be stored in a secure manner and will not be disclosed unless otherwise compelled by law. All forms will be kept in locked cabinets. All electronic files will be kept in secure, password protected folders. Only approved project connected personnel will have access to the hardcopy and electronic records. Since no personal identifiers will be collected, contract interviewers will not be subject to a nondisclosure agreement.

**C.** Verbal consent from the store manager to participate will be obtained by the contract interviewer. The information to be collected, the intended uses of the data, the minimal risk connected with their participation, and who to contact in the event of liability will be explained by the contract interviewer who will verbally read the script (Appendix D). The script was approved by the NIOSH Human Subjects Review Board (Appendix E) and a copy will be given to each respondent. The script states that the respondent's names will not be recorded, and there will be no record of names linked to any information provided. Respondents are also informed that the information provided will not be disclosed to the city or the police department's convenience store compliance program in order to maintain privacy.

**D.** Respondents will be informed in the script for verbal consent (Appendix D) that their participation in providing information is voluntary. The Privacy Act does not apply, however intended use of the data and the minimal risk in participation will be explained to them. There will be no effect on store managers who refuse to participate and do not reply to the information request. Data will be treated in a secure manner and will not be disclosed, unless otherwise compelled by law.

#### **A.11 Justification for Sensitive Questions**

There are questions on the survey instrument which could be considered sensitive by some responders such as age, race, ethnicity, country of origin, sex, and length of employment in the store. These questions are necessary so that we can compare workplace violence prevalence rates between stores before and after the ordinance while controlling for the socio-demographic categories which may increase the risk of robbery. Asking participants to recall instances of workplace violence may also be sensitive, depending on the circumstance of the incident. As the survey is voluntary, respondents may refuse to answer any questions. Respondents are informed of their right to refuse participation and their right to refuse to answer individual questions in the introductory script (Appendix D). Additionally, respondents will be informed that their personal identifiers will not be recorded and their information provided will not be linked to them. While these questions may be difficult to answer for some respondents, these answers are needed to allow us to measure and control for important risk factors for workplace violence which may modify the effect of the ordinance.

#### **A.12 Estimates of Annualized Burden Hours and Costs**

- A. The survey of convenience store managers in Phase I (Study Design I) will be completed within 6 months. The sample size for the survey is designed to include 600 convenience store managers. The personal interview questionnaire is a onetime survey which takes approximately 30 minutes to complete, resulting in an annualized burden estimate of 300 hours. A pilot study of 9 store managers was done which verified that the questionnaire required approximately 30 minutes of the store managers time.

This survey will also utilize the time of approximately 35 company owners/upper managers to review and discuss the protocol with NIOSH project officers and to provide approval for their store managers to participate. Owners/managers of most companies that own multiple stores will need to provide approval for store managers to participate. A review of a January, 2010 list of stores in Dallas and Houston from InfoUSA indicated that approximately 35% of the stores are owned by 188 companies with 2 or more stores. A random sample of 600 stores out of 3,300 in the respondent universe will require engaging approximately 35 companies with multiple stores ( $600/3,300 \times 188$ ). The time for the company management to review the protocol and provide approval for managers to participate will be approximately 3 hours resulting in an annualized estimate of 105 burden hours. Three hours is estimated from experience of reviewing and discussing protocols with companies (1 hour to review and compose comments and 2 hours of discussions with NIOSH project officer).

Finally, the survey will require support from stakeholders including industry representatives who serve on the Dallas and Houston Mayor's Task Forces for Convenience Store Safety or ethnic community leaders to provide letters of support and to call stores to encourage participation. It is estimated that approximately 30% of the stores are ethnic stores (i.e., 180 stores out of 600 in the sample). The time for an industry or community leader stakeholder to provide support is estimated at approximately 30 minutes per store for stakeholder time to contact the store and encourage participation resulting in 90 hours to contact an estimated 180 stores. Contact by industry or ethnic community leaders will consist of calling stores that refuse to

participate and recommend to them to participate. It is estimated that an industry leader will contact about half of the 180 stores and a community leader about half. The time to contact stores was estimated from the pilot study in which the project officer and ethnic leaders contacted the pilot stores.

**Estimated annualized Burden Hours**

<b>Respondents</b>	<b>No. of Respondents</b>	<b>No. of Responses per Respondent</b>	<b>Average Burden per Response (in hrs)</b>	<b>Total Burden (in hrs)</b>
Store managers	600	1	30/60	300
Store owners/upper management	35	1	3	105
Stakeholders				
- Industry leader	3	30	30/60	45
- Community leader	3	30	30/60	45
<b>Total</b>				<b>495</b>

**B. An estimate of the annualized burden costs is provided below using Bureau of Labor Statistics (BLS) estimate wages by occupation.**

*Estimates of Annualized Burden Costs*

<b>Type of Respondent*</b>	<b>Total Burden Hours</b>	<b>Hourly Wage Rate</b>	<b>Total Respondent Costs</b>
Store managers	300	\$44.52	\$13,356.00
'Store owners/upper management	105	\$77.27	\$8,113.35
Stakeholders			
- Industry leader	45	\$77.27	\$3,477.15
- Community leader	45	\$18.74	\$843.30
<b>Total</b>			<b>\$25,789.80</b>

\* These estimates are calculated using the U.S. Department of Labor's National Occupational Employment and Wage Estimates for the United States. May, 2009. ([http://www.bls.gov/oes/current/oes\\_nat.htm#11-0000](http://www.bls.gov/oes/current/oes_nat.htm#11-0000)). Salaries for store managers were estimated to be that of the BLS category of all other managers. Salaries for owners/mangers and industry leaders were taken to be the BLS category of that of Chief Executives. Salaries for community leaders were taken to be the BLS category of Community and Social Service Occupations.

**A.13 Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers**

There are no additional cost burdens for respondents.

#### **A.14 Annualized Cost to the Government**

The annualized cost to the government for this project is estimated to be \$781,048. The table below summarizes a breakdown of the estimated costs.

<b>Item</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY2013</b>	<b>Total</b>
<u>Discretionary costs:</u>				
Equipment and supplies <sup>1</sup>	\$2,150	\$1,150	\$1,000	\$4,300
Contractual	\$154,590	\$105,570	\$0	\$260,160
Travel	\$14,200	\$7,400	\$9,400	\$31,000
Total Discretionary	\$170,940	\$114,120	\$10,400	\$295,460
Total Personnel and benefits	\$160,002	\$184,234	\$141,352	\$485,588
Total cost to Federal Government	\$330,942	\$298,354	\$151,752	\$781,048

#### **A.15 Explanation for Program Changes or Adjustments**

This is a new data collection.

#### **A.16 Plans for Tabulation and Publication and Project Time Schedule**

Clearance is being requested for 12 months, starting in June, 2011 and continuing through June, 2012. OMB approval is anticipated by April, 2011 which will afford time to complete the sample selection, send out notification letters, and kick-off the survey of stores by June, 2011. A critical date to begin data collection is June 2011 which will allow NIOSH to meet an agreed upon proposed time frame (agreed upon with police department and community stakeholders) to complete the evaluation approximately 1-1 ½ years following the effective date of the Houston and Dallas Ordinances in January and May, 2010 respectively.

We plan to publish project results in both peer reviewed scientific journals with a high impact number. Additionally, results will be presented at national, scientific conferences with high public visibility to research audiences, and at trade associations such as the International Chiefs of Police, National Associations of Mayors, and National Association of Convenience Stores in order to reach both industry and community leaders that are empowered to promulgate legislative ordinances for convenience store safety. Results will also be disseminated to stakeholder groups via presentation and written reports. Stakeholder groups include the National Association of Convenience Stores, International Association of Chiefs of Police, Mayors, police

departments, and convenience store companies in cities with moderate to high robbery rates. The projected timeline for the project is described in the table below.

<b>Activity</b>	<b>Time Schedule</b>
Obtain population sampling frame from InfoUSA	9 months prior to and 1 month after OMB approval
Draw sample from sampling frame 9 month prior to OMB approval	9 month prior to OMB approval
Contact and obtain support from companies with multiple stores in 9-month sampling frame	6-12 months prior to OMB approval
Award survey support contract	3 months prior to OMB approval
Recruit and train survey interviewers	1 month prior to OMB approval
Draw final sample from sampling frame 1 month after OMB approval	1 month after OMB approval
Send notification letters of study with partner letters of support to store manager respondents	1 month after OMB approval
Begin store visits and interviews	2 months after OMB approval
Complete store interviews	12 months after OMB approval
Complete cleaning of data and database development	12-15 months after OMB approval
Complete statistical analysis	15-24 months after OMB approval
Complete papers and reports for publication in peer-review journals and trade association journals and publications.	24-36 months after OMB approval
Complete presentations to research audiences and stakeholders	24-36 months after OMB approval

The analysis plan is described for Phases I and II as follows:

**Phase I- Study Design I:**

Study Design I is a fixed cohort retrospective follow-up design. A sample will be selected of all stores operating at the time of the effective date of the ordinance (January 1, 2010) and then followed-up 18 months later at the time of the survey. All stores operating at the time of the survey include stores that have operated continuously during the ordinance study period and stores that closed during the period. The latter are lost to follow-up. The analysis plan is summarized as follows:

*Assessment of Compliance with Ordinance Requirements*

The proportion of stores in Houston and Dallas who became compliant since the effective date of the ordinance will be estimated. The most important measure of the possible impact of the

ordinance program on compliance is the proportion of stores that became compliant during the follow-up period that were not compliant when the ordinance was introduced. A second useful measure is the difference in proportion of stores in compliance at time of the ordinance and follow-up. This difference will be tested using McNemar's test.

The effectiveness of the police departments to enforce compliance will also be evaluated in two ways. First, the number and proportion of stores not in compliance during the follow-up period that received citations issued by the police departments will be calculated. The total amount of the penalties to a store from citations will also be evaluated. Second, the association between enforcement and compliance will be evaluated using a Poisson regression analysis. The effect of police citations on compliance will be assessed by comparing the proportion of stores that became compliant during the follow-up period between stores cited and not cited by the police for noncompliance.

The association between compliance during the year following the ordinance and predictors or factors which are potentially related to a store being in compliance. Examples include:

- Store location near gang activity
- Public housing
- A high crime area
- Sales volume
- Store characteristics (including type, size, and ownership status)
- Previous robberies to the store
- Police enforcement (such as number of citations and total penalties, and compliance status at the time of the ordinance)

These factors will be evaluated using a multivariate logistic or Poisson regression analysis. Barriers or reasons for noncompliance with respect to compliance at time of the ordinance and other store characteristics will also be examined.

#### *Evaluation of Robbery and WPV injury*

The difference in robbery and robbery-related assault rates before and after the ordinance will be evaluated after controlling for robbery risk factors. A fixed cohort retrospective follow-up design will be employed including stores operating from January 1, 2009 (1-year before the ordinance) and 18 months after the ordinance (end of follow-up or time of survey). Data from all stores operating from 2009 through the end of follow-up (time of the survey) will be used for this analysis.

Poisson models will be used to evaluate the difference in the rate of robberies and robbery-related assaults before and after the ordinance controlling for robbery risk factors, police enforcement, store characteristics, and employee and store demographics.

The difference in rates before and after the ordinance will be evaluated between stores compliant and non-compliant at follow-up by location of stores to understand possible displacement from compliant to non-compliant stores. Convenience store robbers tend to rob within 2-3 miles of their residence (Lenz, R, 1986, 'Geographical and temporal changes among robberies in Milwaukee', In Figlio et.al, (eds), 'Metropolitan Crime Patterns', Monsey, New York, Criminal

Justice Press, pg 97-115; Harris, K.D., 1980, 'Crime and Environment', Springfield, Illinois, Charles C. Thomas Publisher, pg. 85-91.; Costanzo, CM, Halperin, WC, and Gale, M, 1986, 'Criminal mobility and directional component in journeys to crime.', in Figlio et.al, (eds), 'Metropolitan Crime Patterns', Monsey, New York, Criminal Justice Press, pg 97-115.) While a decrease in crimes associated with compliance may be evidence of the effectiveness of the ordinance, an increase in crimes in stores that were noncompliant concurrently with a decrease in stores that became complaint within close proximity (less than 3 miles) may be evidence of displacement. However, it may also be evidence of the higher risk of robbery due to lack of CPTED designs in place. Displacement and lack of CPTED designs in place in a business are confounding effects.

#### *Evaluation of benefits to the store from compliance*

The association between compliance to the ordinance and benefits (i.e., decreased loitering, drug and gang activity, decreased employee stress from workplace violence, and increased quality of clientele and sales) will be evaluated from survey data at the time of follow-up. The proportion of stores reporting positive benefits during the period following the effective date of the ordinance will be calculated. The difference in proportion reporting a benefit between stores that were not compliant and compliant at follow-up will also be evaluated using logistic and Poisson regression models.

An economic analysis of the increase in cost of sales with respect to the cost of compliance to ordinance requirements will be assessed. This will address Part II, Part 1 and Specific Aim 4.

#### *Assessment of lost to follow-up*

In the retrospective follow-up study for Study Design I, stores that closed during the study period will be lost to follow-up. While lost to follow-up is expected to be minimal, bias from lost to follow-up will be assessed. Lists of all stores operating on January 1, 2010 (time of ordinance) and June 30, 2011 (the end of follow-up or the time of the survey) will be obtained from a marketing firm, InfoUSA. The proportion of stores that closed during the 18 month follow-up period will be identified. The proportion of stores that became complaint during the study period will be estimated after adjustment for lost to follow-up based on different levels of assumptions concerning compliance and noncompliance at the time of the ordinance enactment and time of follow-up.

#### Phase I -Study Design II:

Study Design II is a dynamic cohort retrospective follow-up design of all stores operating between 3 years prior to the ordinance (January 1, 2007) to 18 months after the ordinance (June, 30, 2011). Stores will be identified using InfoUSA records and data will be abstracted from police crime reports on robbery, homicides and assaults during the study period.

#### *Evaluation of Robbery and assaults*

The difference in robbery and assault rates before and after the ordinance will be estimated using a Poisson regression analysis. The difference in crime rates in convenience stores before and after the ordinance will be compared to that in other retail businesses and to that in the general population to estimate the effect of crime reduction attributable to the ordinance in order to address possible displacement effects.

Phase II: economic analyses

A business case return on investment analysis will be conducted on two stores using store record data.

**A.17 Reason(s) Display of OMB Expiration Date is Inappropriate**

None.

**A.18 Exceptions to Certification for Paperwork Reduction Act Submissions**

There are no exceptions to the certification.