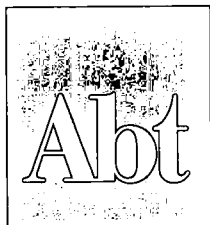


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School COP Evaluation Report

Final Report

May 2004

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FINAL REPORT

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Abstract

The two goals of grant # 2001-IJ-CX-0026 ("Increasing the Utility of School Incident Data") were to enhance the School Crime Operations Package (*School COP*) and to conduct an evaluation of this software, which is used to enter and analyze incidents that occur on school campuses.

Two types of enhancements were made. First, the original (single-user) Windows version of *School COP* (developed under a prior NIJ award) was enhanced so that multiple users within a single school or across multiple schools could easily share data. Second, a Web version was developed that could run on a school district's Intranet and facilitate school district-wide data sharing.

The evaluation addressed three main issues: (1) what *decision process* do sites go through when deciding whether to use *School COP*; (2) once the site decides to use *School COP*, what *implementation obstacles* exist, including those related to installation, customization, and training; and (3) what *benefits* do sites realize from using *School COP*. The evaluation design called for case studies of six sites.

Project sites using the Windows version realized two main types of benefits. First, *School COP* yielded direct operational benefits by enabling users to perform existing tasks more effectively. These include managing student discipline (for school administrators), documenting activities (for school resource officers), supervising school resource officers (for police commanders), and allocating security officers (for school district security officers). In addition, sites used *School COP* to influence decisions or solve problems related to staff supervision of students, placement of video surveillance cameras, security officer staffing levels, and retaining funding for school resource officer programs.

We conservatively estimate that 2,250 persons (beyond those at the six project sites) were using the Windows version of *School COP* at the end of 2003. By contrast, we were unable to recruit a site to implement the Web version of *School COP*, primarily because of two unforeseen obstacles: (1) we didn't anticipate that the enhanced Windows version would meet almost all sites' data dissemination needs, and (2) we underestimated the extent of opposition from school district information technology directors, who viewed Web *School COP* as either redundant (and felt that their student information system was "good enough") or a less than optimal technology solution.

The widespread use of the Windows version of *School COP*, coupled with our lack of success in implementing Web *School COP*, reinforces two predictors for successful information technology projects: (1) having minimal requirements for running the system, including hardware, software, expertise, and bureaucratic approvals and (2) having a well-defined user with a well-defined need.

Executive Summary

This document summarizes the National Institute of Justice-funded project “Increasing the Utility of School Incident Data” (NIJ grant # 2001-IJ-CX-0026) awarded to Abt Associates in October 2001.

The origin of this project is an earlier award to Abt Associates that was funded under NIJ’s June 1999 “Safe Schools Technology” solicitation, which requested proposals for innovative approaches to using technology to enhance the safety of our nation’s elementary and secondary schools. Abt Associates proposed to develop a software package that persons responsible for school safety could use to enter, analyze, and map criminal incidents and school rule violations that occur in and around schools. We subsequently developed the School Crime Operations Package, or *School COP*, a software package that runs on Windows personal computers. *School COP* was initially released on CD in January 2001, and made available at the *School COP* web site (www.schoolcopsoftware.com) in June 2001.

Also in January 2001, Abt Associates submitted a proposal to NIJ under their Investigator Initiated Solicitation that proposed to continue and extend work related to *School COP*. Specifically, we proposed to (1) develop enhancements to *School COP* so that it could better support multi-user and multi-school use and (2) conduct an evaluation of *School COP*. NIJ funded this new project in the Fall of 2001, and the results of this project are summarized herein.

Part of the rationale for funding this project was, no doubt, that *School COP* was poised for mass distribution. In October 2000, three months prior to the release of *School COP*, the Office of Community Oriented Policing Services (COPS Office) asked Abt Associates to participate, starting in January 2001, in their “COPS In Schools” training conference series. School resource officers (SROs)¹ funded under the COPS Office’s COPS In Schools grant program, along with an administrator from their school, are required to attend a three-day training conference. The COPS Office wanted Abt Associates to show attendees how to implement and use *School COP* in their schools and provide them with the software on a CD.

Two reports have been produced under the NIJ grant:

1. The report herein is an overall summary of the project geared toward NIJ, other Federal policymakers, and researchers. The report provides background on school safety issues, and highlights the study’s methodology, evaluation findings, and policy implications for NIJ.
2. A companion report (*School COP: Implementation and Benefits in Six Sites*) is intended primarily for school administrators, police officers assigned to schools, school district security staff, and others charged with maintaining safe schools. This report contains detailed information on how *School COP* was implemented and used in six sites.

Both reports are intended to be stand-alone documents. For this reason, an appendix that contains detailed information on *School COP*, including screen shots, is included in both reports.

¹ SROs are police officers assigned to one or more schools for the purpose of providing a range of services, including mentoring, teaching, and law enforcement.

Methodology

The preliminary assessment of *School COP* performed during the earlier NIJ project revealed that the package's most critical limitation was that it was a stand-alone application running on a single PC. To address this limitation, we made two enhancements that improved data sharing and analysis across multiple persons and multiple schools:

- An *enhanced Windows version* of *School COP* was developed that could run on a local- or wide-area network, thus allowing multiple users within a single school or across multiple schools to share a common *School COP* database. The enhanced Windows version also included two utilities: a Merge application (which enables a district-level *School COP* database to be constructed by merging several individual databases) and a Viewer application (which enables users to view – but not add, edit, or delete – incident information). The hardware and software requirements for running the enhanced Windows version are identical to the requirements for the original version of *School COP* (i.e., Windows 95 or later).
- *Web School COP* was developed to meet the diverse information needs of persons charged with maintaining safe schools *in large school districts*, including persons at the school-level (e.g., principals, assistant principals, security officers, and SROs) and the district-level (e.g., district-level administrators and security staff), as well as possibly parent organizations and state-level administrators. By contrast, the windows version of *School COP* was generally designed for individuals, a single school, or small offices within a school district. *Web School COP* was designed to run on either an Intranet (e.g., the school district's private Internet) or a secure third-party Web server, and was built to run on the current Microsoft Web platform.² *Web School COP* assumed that the site was already using the Windows version of *School COP* to collect district-wide school incident data.

The specific research questions we attempted to answer during the evaluation are: (1) what *decision process* do sites go through when deciding whether to use *School COP*; (2) once the site decides to use *School COP*, what *implementation obstacles* exist, including those related to installation, customization, and training; and (3) what *benefits* do sites realize from using *School COP*. The evaluation design called for case studies of six sites, including *five* sites that would use the enhanced Windows *School COP* and *one* site that would use the *Web School COP*.

We proposed to collect data at the enhanced Windows sites primarily by conducting interviews with persons involved in the decision to use *School COP*, persons who actually used the software, and persons who regularly received *School COP* reports or data. More intensive evaluation work was proposed at the *Web School COP* site, including on-site observation of meetings where *Web School COP* data and reports are discussed, an analysis of use levels (via "hit" counts) across the different features and functions, and a written survey of all users and persons who regularly received *Web School COP* reports.

Our January 2001 proposal to NIJ identified a school district that had agreed to be the *Web School COP* site. However, six months into the project, the site formally declined to participate in the project. In addition, we were not able to get another site to fully implement the *Web School COP*.

² Specifically, a Windows 2000 Server and SQL Server 2000 database are required to run *Web School COP*.

Thus, late in the project, we increased the number of enhanced Windows *School COP* sites from five to six.

Evaluation Findings: Windows *School COP*

The six selected sites – South Middle School, Southwest School District, Far West Middle School, West School District Security Department, Eastern Police Department, and Midwest Police Department³ – vary in a number of ways:

- *School COP* “advocates” (i.e., the person who initially heard about *School COP* and pushed for its implementation) include SROs (two sites), an SRO supervisor (one site), a law enforcement analyst (one site), a school administrator (one site), and a school district security chief (one site).
- The extent of *School COP* implementation in the school district ranges from a single school (two sites) to district-wide (three sites), with a partial district implementation in the other site. The number of schools at each site for which *School COP* data were collected ranges from 1 to 95.
- The types of persons using the software include only school administrators (two sites), only law enforcement officials (two sites), only school district security staff (one site), and law enforcement officials and school administrators (one site). The total number of *School COP* users at each site ranges from 2 to 12.
- The type of data entered in *School COP* include student referrals (three sites), incidents involving security staff (one site), and incidents involving SROs (two sites).⁴

The primary reason all six sites decided to use *School COP* was dissatisfaction with their existing incident data collection system. The sites either did not have any system for automating data or had a system that either did not enable them to enter important data or had extremely limited analysis capabilities. Thus, the sites eagerly adopted *School COP* because it was free, ran on their existing equipment that they themselves controlled, was easy-to-use, and provided a wide variety of ways to analyze and summarize entered data.

In four of the six sites, installation occurred quickly – within days of the decision to use *School COP*. The other two sites, however, experienced significant implementation delays (10 and 11 months, respectively), which occurred primarily because multiple agencies were involved in the installation. All six sites customized *School COP* for their site; four of the six sites set up *School COP*'s mapping feature.

Once *School COP* was installed and customized, and users were trained, the sites began using the software – that is, entering incident or referral data and running various types of reports. All six sites enter data into *School COP* on a daily, or near daily, basis. The three sites with primarily school administrator users (South Middle School, Southwest School District, and Far West Middle School) enter between 40 and 90 student referrals per month per school; the Eastern and Midwest Police

³ The names, although fictitious, reflect the sites' geographic location and key *School COP* users.

⁴ Referrals are instances when students are sent to the school administration office for possible disciplinary action as a result of violating the student code of conduct or some other school rule; incidents range from non-criminal violations of school rules to criminal acts.

Departments enter, respectively, approximately 10 and 25 incidents per SRO per month; and the West School District Security Department enters approximately 300 incidents per month.

Benefits realized across the sites can be summarized as follows:

- Inasmuch as dissatisfaction with their existing systems was a primary reason for implementing *School COP*, it is not surprising that, compared to their previous data systems, ***five of the six sites*** (the exception being the West School District Security Department) ***are automating significantly more information about specific referrals and incidents.***
- Limited options for analyzing entered data was even more of a factor in their decision to implement *School COP* than was the lack of automated data. Not surprisingly, ***all six sites felt that it was much more important that they could, for the first time, easily analyze and summarize data in a wide variety of ways.*** In fact, only two of the six sites had any automated query or report generation capability in their pre-*School COP* systems.
- The ability to produce presentation-quality output and reports in turn created more opportunities to share information with others. ***Four of the six sites disseminated School COP reports to persons who had not previously seen student referral or incident summary data.*** These persons include a superintendent, video surveillance camera vendor representatives, school board members, teachers, students, and bus drivers. One of the two sites that did not disseminate *School COP* reports to ‘new’ persons instead continued to disseminate information – albeit, they say, produced in a more professional manner and in less time than before – to persons who previously received similar information; the other experienced significant delays in implementing *School COP*, and, as a result, had not disseminated *School COP* data to new groups by the end of the evaluation period (although they plan in the near future to disseminate and discuss *School COP* reports at monthly teacher meetings).
- Across the six sites, the site that appeared to experience the ***most increase in knowledge*** from *School COP* was, perhaps not surprisingly, the largest site – the West School District Security Department. Prior to implementing *School COP*, school and security officials believed that the vast majority of incidents were taking place at high schools; however, reports generated by *School COP* showed that the actual split was 30/40/30 among elementary, middle, and high schools. At the individual school level at other sites, the extent to which *School COP* highlighted heretofore unknown problems or issues varied from confirming suspicions to identifying new problems.
- All six sites realized ***direct operational benefits*** from using *School COP*, as users were able to perform existing tasks more effectively. These tasks included managing student discipline (for school administrators), documenting activities (for school resource officers), supervising school resource officers (for police commanders), and allocating security officers (for school district security officers).
- ***Ad-hoc benefits*** resulted from using *School COP* to depict school safety conditions and trends for the purpose of ***influencing a decision or solving a problem.*** At the individual school-level, decision making and problem solving with *School COP* focused primarily on

supervision issues in hallways, near bathrooms, on playgrounds, and in other common areas. For the three sites using *School COP* district-wide, *School COP* has helped justify staffing increases and avoid staffing reductions and program cuts.

In general, given that *School COP* is merely a tool for enhancing school safety, the benefits realized from it depend largely on the creativity of its users. In this regard, staff at two of the project sites merit special recognition. The assistant principal at the Far West Middle School deserves much credit for broadly disseminating *School COP* data throughout his school, including to students and the school bus drivers. Second, the *School COP* advocate (an SRO) at the Eastern Police Department showed how a single SRO, on his own initiative, can effect a district-wide implementation of *School COP*. Hopefully these two individuals can serve as role models for the thousands of persons in similar positions across the country.

Finally, while estimating the total number of *School COP* users (including non-project sites) was not part of this project, it is clearly relevant to an overall evaluation of the software. From 2001 to 2003, *School COP* was widely disseminated in three ways: (1) approximately 6,475 *School COP* CDs were distributed at COPS In Schools conferences; (2) approximately 1,000 *School COP* CDs were distributed at other conferences, and (3) *School COP* was downloaded 4,368 times from the *School COP* web site. Unfortunately, data on actual use of *School COP* are only available for the COPS In Schools conferences. During follow-up interviews conducted by the COPS In Schools conference logistics vendor with a random sample of attendees approximately six months after their conference, **35 percent** indicated that they or someone at their school was using *School COP*. Thus, a very conservative estimate of the total number *School COP* users (i.e., an estimate that includes *only* the COPS In Schools conferences) is **2,250**.

Evaluation Findings: Web *School COP*

As noted above, we initially proposed that one of the six sites help design and then test and implement the new *Web School COP*, but were unable to recruit any site for this role. Reviewing the recruitment process at potential sites provides insights into the important question of why the Windows version of *School COP* was widely adopted but the Web version was not.

Our January 2001 proposal to NIJ included a letter of cooperation from a school district that agreed to be the test site for *Web School COP*. Once the grant began, however, the (new) Superintendent and the school district's Information Technology (IT) Director could not be persuaded to support the project. The IT Director's support, in particular, was required because *Web School COP* would be installed on computer systems that he controlled. The IT Director's position on the project was simple: "We already have a system for tracking incidents" (i.e., the district's student information system, which was used to record students' attendance, grades, and schedules). While the school district Security Director believed this system was completely inadequate for tracking incidents, the IT Director believed it was "good enough."

Another large school district initially planned to implement both the Windows and Web versions of *School COP* to improve collection and dissemination of incident data. Several months later, following a committee's review of alternative strategies, the district changed their mind, in part because a key *School COP* advocate was transferred to another office and also because, in all likelihood, the committee decided that the "Windows plus *Web School COP*" approach was not the best long-term technology solution for the school district.

Extensive discussions were also held with six other potential *Web School COP* sites: two sites came to the same conclusion as the original test site – that is, their existing student information systems are “good enough” for tracking incidents occurring on campus; two other sites that currently used the Windows *School COP* would have appreciated a Web-based system for *data entry*, but were not interested in expanding data dissemination beyond the capabilities of the Windows version; and two other sites did not have the required Microsoft web platform.

In assessing our lack of success in recruiting a design and beta test partner for *Web School COP*, it is helpful to re-visit the situation we faced in 2000 when we were developing the Windows version of *School COP*. At that time, we had no problem finding partners because school safety persons contacted could see immediate *direct operational benefits*, as well as potential *ad-hoc benefits*, to using Windows *School COP*. In addition, the software could be immediately installed on their own, existing equipment without first obtaining permission from others. By contrast, with *Web School COP*, the school safety person contacted could only envision possible *ad-hoc* uses, either for themselves or others in the agency; in particular, they didn’t see that *Web School COP*’s data dissemination capabilities provided any *direct operational benefits*. This person also did not control the equipment on to which the software needed to be installed. Moreover, the required equipment (Microsoft Web platforms) are far less ubiquitous than Windows PCs.

In the end, we encountered two unforeseen obstacles:

- We didn’t anticipate that the network-enabled Windows *School COP* (developed as part of the Enhancement and Evaluation grant) would, in many cases, meet the site’s dissemination needs, as perceived by the *School COP* advocate.
- We underestimated the extent of opposition from staff connected to the school district’s student information system. In particular, information technology directors, given their mission of running large networks, tend to be conservative and very protective of their equipment. They viewed *Web School COP* as either redundant (and felt that their student information system was “good enough”) or a less than optimal technology solution.

In truth, the ideal technology solution is to integrate an incident-based reporting system (like *School COP*) into the district’s student information system – that way, there is one system, one vendor, one maintenance contract, etc. Until this happens, information technology directors must decide whether it is worth the cost of having two separate systems (the student information system for attendance, grades, student schedules, etc., and the incident reporting system for tracking incidents) or if the student information system is “good enough” for incident reporting systems. Based on the experience in this project, school district information technology directors believe the latter option is preferred.

Key Findings, Policy Implications, and Future Efforts

This study’s findings on the nature and extent of use of *School COP* highlights the important role that NIJ can play in technology dissemination, especially with information technology, because there is minimal expense in posting taxpayer-funded software to a Web site and making it available to anyone. A very modest investment of taxpayer funds in developing the Windows version of *School COP* has benefited thousands of persons charged with keeping our schools safe. Because *School COP* is available at no-cost, a far greater number of schools can benefit from the products than would if they were privately-developed and sold for a price. Indeed, given the current budget climate, it is

clear that the vast majority of users would not have been able to afford a comparable commercial system.

The widespread use of the Windows version of *School COP*, coupled with our lack of success in implementing *Web School COP*, reinforces two predictors for successful information technology projects. *The first is having minimal requirements for running the system, including hardware, software, expertise, and bureaucratic approvals.* Specific questions that should be asked of all proposals for information technology development include:

- What additional purchases – including equipment and software – must the site make?
- What are the associated customization, training, and maintenance costs?
- Who are the users and what specific need is being met? Is the software meeting an operational need or is it intended to support a vague “planning” or other ad-hoc effort? Are there decisions directly tied to use of the software?
- Whose approval is needed to implement the technology?
- Whose equipment will it run on and will the site agree to have it installed?
- Are there data or other requirements that require on-going cooperation with others, particularly those from other agencies?

The second predictor of success is having a well-defined user with a well-defined need. The Windows version of *School COP* was developed in 2000 in response to a newly emerging public safety need (i.e., school safety). Law enforcement officers assigned to schools had information needs that existing law enforcement information systems could not meet (e.g., information on non-criminal incidents occurring on campuses). There were commercial information systems that could meet these officers’ needs, but in the current budget climate the vast majority simply could not afford those products. In addition, because of heightened concern over school safety, school administrators who had informal methods for documenting school incidents have realized that more formal systems are needed so that they can more closely monitor at-risk students, respond to parent and community concerns about school safety, and, in general, keep closer tabs on “what’s going on” in the school. For this reason, the success of Windows *School COP* should have been easily predicted.

Instances in which changing public safety conditions give rise to new information needs that existing information systems cannot meet effectively will no doubt arise in the future. In fact, this is likely already occurring in the homeland security arena. For example, local law enforcement agencies are now increasingly focused on terrorism tracking and intelligence gathering, and, accordingly, are establishing point persons for this activity within the department. Existing police information systems, such as records management systems, are not effective information tools for these officers, because terrorism-related intelligence information is often highly confidential, somewhat speculative, and does not fit the highly structured constructs in records management systems (e.g., incidents and crimes). Again, commercial alternatives exist for these officers and their departments, but the vast majority will not be able to afford them.

In terms of future work related to *School COP*, while users are always asking for additional enhancements (e.g., a built-in spellchecker, a PDA version), the most important thing is to ensure that *School COP* is not rendered obsolete by new versions of Windows⁵ or other futures changes to Windows-based personal computers. By doing so, *School COP* will continue to be available in the

⁵ Beyond Windows XP, on which many sites use *School COP*.

foreseeable future. It would also be beneficial to encourage other software developers to create enhancements to *School COP* that could be shared with other users, much like other "open source" products. The *School COP* Web site, for example, could be enhanced to provide for code sharing and source code check-out.

In terms of future work related to Web *School COP*, our experiences with this project suggest that a more fruitful way to disseminate incident data and tools to analyze those data is to work with student information system vendors to enhance their products with *School COP*-like analysis tools. As one of the potential Web *School COP* sites concluded, the ideal technology solution involves a single product that meets both operational needs of school administrators and safety personnel and provides sophisticated tools for analyzing data.

Finally, from a research perspective, the existence of thousands of *School COP* databases suggests the possibility of a detailed examination into the nature and extent of school crime and disorder. Currently, national estimates of school crime and disorder are based on quadrennial Federally-sponsored surveys of a sample of school principals. Obtaining actual counts of incidents and crimes, as collected in *School COP*, is an alternative approach that could be explored.

1. Introduction and Background

This document summarizes the National Institute of Justice-funded project “Increasing the Utility of School Incident Data” (NIJ grant # 2001-IJ-CX-0026) awarded to Abt Associates in October 2001.

This project builds on an earlier award to Abt Associates that was funded under NIJ’s June 1999 “Safe Schools Technology” solicitation. During that project (hereafter referred to as the *School COP* Development project), we developed the School Crime Operations Package, or *School COP*, a software package for entering and analyzing incidents occurring in and around elementary and secondary schools. Incidents can range in seriousness from minor school rule violations to acts of violence. *School COP* was initially released on CD in January 2001, and made available at the *School COP* Web site (www.schoolcopsoftware.com) in June 2001.

In the Fall of 2001, NIJ funded a follow-on project (hereafter referred to as the *School COP* Enhancement and Evaluation project) that proposed to (1) develop enhancements to *School COP* so that it could better support multi-user and multi-school use and (2) conduct an evaluation of *School COP* by studying how six sites implemented and benefited from using *School COP*. This project has produced two reports:

1. The report herein is an overall summary of the project geared toward NIJ, researchers, and other Federal policymakers working in the school safety field. The report provides background on school safety issues (section 1) and summarizes the study’s methodology (section 2), evaluation findings (sections 3 and 4), and overall conclusions (section 5).
2. A companion report (*School COP: Implementation and Benefits in Six Sites*) is intended primarily for school administrators, police officers assigned to schools, school district security staff, and others charged with maintaining safe schools. This report contains case studies on the six sites included in the study.

Both reports are intended to be stand-alone documents. For this reason, an appendix that contains detailed information on *School COP*, including screen shots, is included in both reports.

1.1. School Safety Background⁶

School safety has been a national priority for at least 25 years, when the Federal government first conducted a nationwide study of school safety (National Institute of Education, 1978). In spite of nationwide school surveys indicating that the number of crimes committed on school campuses has dropped substantially over the past decade (see, for example, DeVoe et al, 2002, 2003), media coverage of fatal shootings in the nation’s elementary and secondary schools over the past several years, in particular the Columbine tragedy in 1999, have heightened public concern over school safety. By 2000, 43 percent of parents surveyed in a Gallup poll said that they (quoted in Kingery and Coggeshall, 2001) fear for their child’s safety while they are at school.

⁶ This section is adapted from two earlier works of the project director – Rich and Finn (2001) and Rich (2003).

Accompanying public concerns over school safety has been the national movement to standards-based education and accountability, culminating in 2001 with the passage of the Federal No Child Left Behind initiative, that has created a sense of urgency for improving the quality of education. Given that school safety impacts the learning process, this movement has further focused attention on the importance of school safety. In addition, Stephens (2000) argues that we have a moral obligation to create safe schools: "Few responsibilities are more important than creating safe schools for our nation's children. Inasmuch as young people are required to attend school, they deserve schools that are safe, secure, and peaceful; free of violence, intimidation, and fear."

Incidents occurring in schools can be divided incidents into two broad categories: (1) *crimes* – incidents that violate local, state, or Federal laws, and therefore should be reported to law enforcement officials, and (2) *disorder* – acts committed by individuals in or around schools that are disruptive, and likely in violation of school rules, such as codes of conduct, but are not necessarily prohibited by criminal law. Bullying is a typical example of disorder.

Quantifying school crime and disorder is difficult. Crime – both occurring on school campuses and in society at-large – is measured either by counting actual reports of crimes to authorities or by surveying a population and asking respondents if they have been a victim of a crime. Kenney and Watson (1998) claim that there are methodological problems with "nearly all" survey-based efforts. Kingery and Coggeshall (2001) highlight problems with school crime reporting, and in particular document how school crime is often underreported. It is therefore perhaps not surprising that different studies can lead to widely different results. For example, as highlighted in DeVoe et al. (2002), a nationwide survey of principals indicated that schools reported 22,600 serious violent crimes to law enforcement agencies in 1996; in that same year, based on a student victimization survey, there were an estimated 225,400 serious violent crimes that included student victims. This figure does not include serious violent crimes in which only teachers or other staff were victims.

Since there are no national repositories of school crime or disorder, national estimates of school crime and disorder are based on surveys of a sample of schools. Since 1998, the U.S. Departments of Education and Justice have co-sponsored an "Indicators of School Crime and Safety" annual report that summarizes the major Federally-sponsored surveys (see, for example, DeVoe et al., 2002 and 2003). Perhaps the most important findings in these reports is the substantial declines in recent years in many of the indicators, including continuous 8-year decreases in violent crime involving student victims and weapons possession by students. Thefts and simple assaults involving student victims have dropped by roughly 50 percent and serious violent crime involving student victims has dropped by one-third from 1993 to 2000. Estimates of the number of students involved in fights has also dropped continuously since 1993. Despite these declines, the total number of crimes is significant – students ages 12-18 were victims of about 764,000 violent crimes and 1.2 million crimes of theft at school in 2001 (DeVoe et al., 2003).

Crime and disorder impact the level of safety and fear that individual students, teachers, and staff experience, as well as the overall climate on the campus. These feelings, attitudes, and conditions, in turn, lead to changes in behavior that researchers have studied and attempted to measure. For example, Sholey (in Kellam et al., 2000) finds that a primary reason that students carry weapons to school is fear. The CDC's analysis of the 2001 Youth Risk Behavior Survey (YRBS) (Grunbaum et al., 2002) found that, nationwide, 6.6 percent of students missed one or more days of school during the preceding 30 days because they felt unsafe at school (or on their way to and from school).

Responses to the School Safety Problem

Researchers have grouped strategies for enhancing school safety into various categories. Anderson (1998) creates six categories: physical security measures, curricular responses (e.g., classes in conflict resolution), administrative responses (e.g., staff development, efforts to alter school culture), community-outreach programs (e.g., committees of school, neighborhood, and city officials), joint projects with local police, and aggressive efforts to bring social services to students' families. Gottfredson et al. (2000) divide 20 prevention activities into three categories: direct services to students, families, and staff; organizational or environmental arrangements; and discipline or safety management activities. Derzon and Wilson (1999) distinguish between school-based interventions that attempt to change individuals (e.g., their knowledge, skills, and attitudes) and those that attempt to change their surroundings (e.g., peer or family programs). Many strategies apply the principles of Crime Prevention Through Environmental Design (CPTED) and involve physical changes to schools, including changing shrubbery and other landscaping, lighting, and vehicular traffic patterns (Stephens, 1998).

Whatever the particular categorization used, individual schools have implemented multiple strategies (Heaviside et al., 1998; Gottfredson et al., 2000; and DeVoe et al., 2002). The most recent national figures, based on NCEs's 1999-2000 Schools and Staffing Survey (DeVoe et al., 2002), show that some strategies are implemented in nearly all schools (e.g., requiring visitors to sign in and requiring students to remain on campus during lunch), while others are rarely implemented (e.g., metal detectors).

Kenney and Watson (1998) discuss the increasing role of the police in school safety (i.e., beyond simply responding to ad-hoc requests for assistance from school administrators) including establishment of school district security offices (often headed by retired police officers), school police departments (i.e., a police department that focuses exclusively on schools but is organizationally separate from both the school department and the local law enforcement agency), and school resource officers (SROs) (i.e., police officers assigned to schools who provide a range of services, including mentoring, counseling, teaching, and problem solving, in addition to law enforcement). The number of SROs, in particular, has increased substantially in recent years, in large part because of a major Federal grant program that provides funds to local law enforcement agencies to hire SROs.⁷

Persons with Primary School Safety Responsibility

There are many persons who are directly responsible for ensuring the safety of students and staff at elementary and secondary schools. These persons:

- *work for a variety of agencies and organizations*, including the school department, state board of education, municipal police department, school police department, county sheriff, and a private security company;

⁷ The "COPS In Schools" program within the Office of Community Oriented Policing Services (U.S. Department of Justice) provides funds to local law enforcement agencies to hire school resource officers. Since 1999, grants have been awarded to over 2,500 jurisdictions to hire over 5,900 SROs (Source: COPS Office Web Site: www.cops.usdoj.gov)

- *have responsibility for different numbers of schools*, including only a single school, more than one school, all schools in a district, or multiple districts; and,
- *have varying primary functions*, including administration, mentoring, counseling, responding to reports of crimes, investigating crimes, engaging in proactive problem solving, and providing analytic support for crime prevention or control.

Persons with direct responsibility for school safety can be grouped into three categories: school administrators, security and security support personnel, and SROs.

School Administrators

School safety is but one of the many issues that school administrators face. The specific crime, discipline, and safety issues administrators confront, and, as a result, their related information needs, vary according to the number of schools for which they are responsible:

- *A single school.* While principals have overall responsibility for school safety, in many schools the assistant principals typically handle day-to-day disciplinary and crime issues. A student accused of violating a school rule or committing a crime would be sent to an administrator's office, where staff would handle the incident according to established rules and guidelines; these events are typically called "referrals". As necessary and appropriate, district-level administrators or law enforcement officials would be involved in the case.
- *District-level.* At the district level, superintendents or assistant superintendents typically get involved with more serious incidents, especially those involving suspensions or expulsions. They also formulate district-wide discipline rules and handle school safety resource allocation issues (e.g., to which schools are police officers are assigned) across all the district schools.
- *State or regional level.* Certain administrators at the state or regional level manage crime and discipline reporting systems (e.g., Safe and Drug Free Schools programs) that may involve aggregating school-level data for state or Federal policymakers.

Security / Security Support Personnel

In contrast to school administrators, security and security support personnel focus exclusively on safety issues, including conducting safety audits, planning for safe schools, responding to incidents, and conducting follow-up investigations of incidents. Support personnel include analysts, supervisors, and other staff who assist personnel who provide 'front line' services. As many as three different security organizations or agencies may provide security services to a particular school or school district:

- *School department security office.* Some school districts, especially the larger ones, have security offices within the school department that are staffed with either school department employees or employees of a private security company under contract to the school department. School security staff may be sworn (e.g., a retired police officer) or non-sworn.
- *Local law enforcement agency.* The local municipal police department or county sheriff's office provides security services to schools either on an as-needed (e.g., the school administration or school security office requests assistance for a particular incident) or routine basis (e.g., by

directing police officers to patrol areas around certain schools at the end of the school day). Some schools hire off-duty police officers on a routine basis.

- *School police department.* Some communities have school police departments that are separate from both the school police department and the local law enforcement agency. This situation generally arises from the public's demand, again based on the perception that schools are unsafe, for a specialized sworn agency that can focus exclusively on schools. Sometimes a school incident could involve both the school police department and the local law enforcement agency if, for example, the school police department, because of its size, cannot provide specialized services, such as fingerprinting or ballistics identification.

School Resource Officers (SROs)

SROs are sworn officers from the local law enforcement agency who are assigned to one or more schools in a district for the purposes of providing a range of services, including mentoring, counseling, teaching, problem solving, and law enforcement. SROs and security / security support personnel are categorized differently in this report for two reasons. The first is to distinguish SROs from sworn officers who focus exclusively on law enforcement activities in schools. Congress, in Title I of the Omnibus Crime Control and Safe Streets Act of 1968, defines an SRO as:

“A career law enforcement officer, with sworn authority, deployed in community-oriented policing, and assigned by the employing police department or agency to work in collaboration with schools and community-based organizations to:

- address crime and disorder problems, gangs, and drug activities affecting or occurring in or around an elementary or secondary school;
- develop or expand crime prevention efforts for students;
- educate likely school-age victims in crime prevention and safety;
- develop or expand community justice initiatives for students;
- train students in conflict resolution, restorative justice, and crime awareness;
- assist in the identification of physical changes in the environment that may reduce crime in or around the school; and
- assist in developing school policy that addresses crime and recommend procedural changes.”

More recently, the Office of Community Oriented Policing Services (COPS Office) defines an SRO in terms of the officer's three primary roles: problem solver and liaison to the community, educator, and law enforcement / safety specialist.

The second reason for distinguishing SROs and security / security support personnel is that the number of SROs, as noted earlier, is increasing rapidly, primarily because of a major COPS Office grant program called “COPS In Schools.”

School Incident Reporting and Processing

A school incident is any event that violates a school's set of established rules of conduct. They range in seriousness from victimless minor infractions, such as violating the dress code, to violent felonious acts. An incident is ‘reported’ if it is brought to the attention of principal, assistant principal, or other

person in the school with disciplinary responsibility. Victims, other students, teachers, or other school staff report incidents; obviously, many incidents are not reported.

As the following discussion of how incidents are processed highlights, the frequency with which incidents are routinely reported to school administrators, security / security support personnel, and SROs varies. Assuming the incident is reported, and depending on the seriousness of the incident, the prior disciplinary history of the offenders, and school district reporting requirements, facts about individual incidents could potentially be recorded (in manual or automated files) in as many as three different locations:

- *At the school where the incident occurred*, if the principal, assistant principal, SRO, or other person in charge of discipline, elects to document the incident.
- *At the school district administrative or security office*, if the principal at the school where the incident occurred reports the incident to the district level administrative or security office, because, for example, a suspension or expulsion process is being initiated against an offender.
- *At the local law enforcement agency (or school police department)*, if the principal or school district personnel reports the incident to law enforcement authorities.

School-Level

Incident documentation methods in individual schools range from slips of paper placed in student folders to entry of information in a computer system. Many schools use a document generally referred to as a “Discipline and Referral Sheet.” This is a student-based form – if six students are in a single fight, six forms will be filled out. A typical form lists the student’s name, a few facts about the incident (e.g., date and time), the reason(s) for referral (e.g., profanity, open defiance), staff member’s remarks, action taken against the offender, and miscellaneous remarks. Depending on the school, the form may be filed in a drawer, entered in a system for tracking incidents within the school, submitted in paper form to district administrators or the local law enforcement agency, or entered in a system for tracking incidents at the district level. For example, an assistant principal at a suburban Boston area high school uses a Microsoft Access application that he himself developed to track school rule violations. When a new violation is reported, the assistant principal brings up the student’s record and enters notes about the new incident in a ‘comments’ field in the database. The system quickly and easily provides the assistant principal with a particular student’s history of prior rule violations, which helps him determine the action to take for the new violation. Being *student-based*, rather than *incident-based*, the system is unable, however, to produce reports containing trends about incidents. The differences between student- and incident-based systems are explained in detail in the appendix.

In addition to a repository maintained by school administrative staff, an SRO or other police officer assigned to the school may also document the incident in some type of record keeping system. In such schools, the SRO may document incidents, even if an administrator does not.

School district rules dictate when a school administrator must report an incident to the district-level administrative or security office. This will always occur if a student offender is suspended or expelled, since these sanctions involve attendance records. Similarly, if the incident is a criminal act, the principal is required to report the incident to the local law enforcement agency.

School District-Level

At the district level, information about incidents could be recorded in two different systems. The first is the school district’s main administrative system, which, among other things record and maintain

students' schedules, attendance, and grades. Generally referred to as a *student information systems*, these systems also include a 'discipline' module. If a student is suspended or expelled, this fact must (because school funding is linked to attendance) be documented in the student information system. Because these systems are *student-based*, they can tell administrators how many times a particular student has been a suspended or how many students were expelled over a given time period, but they cannot provide information on incidents, particularly those in which no student was suspended or expelled (again, see the appendix, "Differences Between Incident-Based and Student-Based Systems").

Most larger school districts have security offices, whose staff provides security services throughout the district. Some security offices are staffed by sworn law enforcement officers and some by civilians; some use a combination. Regardless of their staffing arrangement, security offices will carefully document incident reports that school-based administrators forward to them, since documenting, investigating, and solving incidents and crimes is their primary mission. Again, the methods for documenting incidents range from manual files with index cards, to rudimentary automated filing systems using a spreadsheet or database, to custom information systems built by software vendors.

Criminal Justice System

Local law enforcement agencies can be involved in school security in a number of different ways – by assigning full or part-time SROs to a specific school (or group of schools), by assigning full or part-time non-SRO officers to a specific school (or group of schools), or by simply giving schools extra attention during events or at certain times. Smaller rural school districts generally depend on the county sheriff for police services. In addition, some school districts have a school police department that is separate from both the local police department and the school department.

Local law enforcement agencies record criminal incidents occurring in schools in the same computer system used to record incidents occurring elsewhere in the community. For school police departments, their incident systems, of course, only contain school incidents. Depending on the size of the agency, these systems again range from rudimentary databases, perhaps developed by an officer, to systems purchased from software vendors. These systems will contain whatever incidents the schools report to them.

Given the potential involvement of both school and law enforcement officials in an incident, an incident sometimes results in both administrative and criminal sanctions. For example, a student who seriously assaults a teacher would likely be both expelled and arrested.

As noted earlier, criminal acts occurring on school property are supposed to be reported to the local law enforcement agency. In practice, however, the frequency with which this occurs varies by school, due in part to varying interpretations of what a 'crime' is. Also, as Kingery and Coggeshall (2001) note, some school officials may be reluctant to report crimes to the police because of political pressures to keep crime rates low. One police commander who project staff interviewed believes that "school crime is the most underreported crime," because school principals feel their job would be at risk if they reported accurate crime figures.

Potential Benefits of Incident Reporting Systems

A key hypothesis related to *School COP* development and evaluation is that concern over school safety will heighten the need to document and track incidents occurring in schools. This includes not only serious crimes but also bullying and other non-criminal acts, which studies have shown actually cause more concern and fear among students than violent crime (Kenney and Watson, 1999). Unfortunately, as noted above, few schools systematically collect comprehensive data on these incidents. School district student information systems generally capture these data if a student is suspended or expelled, but incidents resulting in lesser sanctions or with unknown perpetrators, as well as information about victims, are typically not entered in these systems.

We hypothesize that the primary value of these and other similar systems comes from providing 'local data consumers' with access to both heretofore unavailable databases and easy-to-use tools to analyze those databases. The key benefit is that these local data consumers can produce the graphs, maps, and other reports that meet their own specific needs. Under the old model in which access to information is limited, local data consumers are provided with reports that *somebody else* thinks would meet their needs.

For example, an NIJ Research in Brief examined the value of a system that provided community crime prevention organizations in Hartford (CT) with access to computerized call for service, crime, and arrest information (Rich, 2001). Community organizations used the system to accomplish a variety of objectives, including identifying and quantifying crime hot spots, targeting specific properties for civil action under public nuisance laws, raising awareness throughout a neighborhood regarding crime conditions, getting residents to focus on crime prevention and problem solving, and bolstering requests to city agencies to provide additional resources to combat specific problems.

In the school setting, we hypothesize that, a well-designed incident tracking system could facilitate a formal problem solving effort in a number of ways, including by:

- helping ensure consistency in the information recorded;
- simplifying the task of reporting information about incidents to school superintendents and school committees;
- keeping easily retrieved records regarding each student's disciplinary and criminal history in terms of types of misconduct and crimes, and actions taken in response to each previous incident;
- identifying students and teachers who appear to be repeatedly victimized by other students;
- documenting misconduct and crime by type of incident, location, month, school, and other variables, and displaying the information in tabular and graphic reports; and,
- identifying "hot spots" that may benefit from increased adult presence, electronic surveillance, environmental changes, or other preventive measures.

1.2. Overview of *School COP* (Prior to the Start of the Grant)

As described in Rich and Finn (2001), the origin of the project described in this report is an earlier award to Abt Associates that was funded under NIJ's June 1999 "Safe Schools Technology" solicitation, which requested proposals for innovative approaches to using technology to enhance the

safety of our nation's elementary and secondary schools. The solicitation focused on five topics: simulation and training; communication and information technology; officer protection and crime prevention; less-than-lethal technology; and GIS and crime mapping. Abt Associates' submitted a proposal to develop a software package that persons responsible for school safety could use to enter, analyze, and map criminal incidents and school rule violations that occur in and around schools. In addition to testing the utility of mapping in schools, we hoped that the software package could facilitate school-based crime prevention and problem solving.

NIJ funded this project and Abt Associates subsequently developed the School Crime Operations Package, or *School COP*, a software package that runs on Windows personal computers. *School COP* was initially released on CD in January 2001, and made available at the *School COP* web site (www.schoolcopsoftware.com) in June 2001.

Software Description

School COP is used to enter and analyze crimes, school rule violations, and other incidents that occur in and around elementary and secondary schools. The package runs on Windows (95 or more recent version) personal computers and was designed so that it could be widely distributed – it is usable without formal training and requires no other software to run (other than Windows). The package's database follows the model recommended by the U.S. Department of Education's National Center for Education Statistics Crime, Violence, and Discipline Reporting Task Force; it includes data related to the incident (e.g., date, time, type, location) and to persons involved in the incident (e.g., name, grade, action taken). Users can customize *School COP* by pre-entering choices for many data elements, which speeds data entry and improves data quality, and define special categories of incidents or persons they especially want to track (e.g., hate crimes, gang-related incidents).

School COP balances ease-of-use and functionality by offering a variety of techniques for analyzing school incidents, including tabular reports, bar graphs, pie charts, and maps. Users will generally conduct analyses in one of three ways:

- The easiest method is to run one of the many 'canned' reports and graphs – for example, a bar graph showing the number of incidents by location over a particular date range.
- A single 'build-a-map' screen enables users to create a multi-layer graduated symbol map – for example, a map showing the building floor plan could include, for a particular date range, separate layers for drug, alcohol, and tobacco offenses.
- The most useful analysis method is first to select a subset of incidents and then analyze that subset. Users can search on any single field (e.g., all incidents involving a weapon) or combination of fields (e.g., all incidents occurring inside the building in which girls were victimized). Incidents meeting the search criteria can be browsed, printed in tabular form, graphed, or mapped.

All data are stored in a Microsoft Access database, although Access is not required in order to run *School COP*. Thus, if desired, additional reports and analysis can be done with Access.

School COP also introduces computer mapping, a technology widely used for crime prevention and control purposes by law enforcement agencies, to schools. However, because the package was to be

widely distributed, users could not be assumed to have access to a commercial geographic information systems (GIS) package or GIS-produced maps, much less have any experience working with a GIS package. As a result, the approach to mapping in *School COP* is different than the typical approach that law enforcement agencies take, which involves purchasing commercial GIS software and streets maps that have been linked to precise latitude and longitude coordinates:

- The primary map format with which *School COP* works is scanned bitmap images of building floor plans, school grounds, and other areas of concern to schools. By contrast, law enforcement agencies rarely if ever do computer mapping with bitmap images. While this limits the types of incident maps that can be produced and the types of analyses that can be performed (e.g., because two separate bitmap images cannot be linked geographically, as GIS-produced street and neighborhood maps can), it also makes mapping more broadly accessible because nearly all schools will have access by sketches of building floor plans and school grounds.
- Users create a geographic description of their school(s) in *School COP*. Users divide each school into one or more areas, with a specific map associated with each area. For example, a modest sized two-story school might have four areas – one for each floor, one for the school grounds, and one for the bus routes. Next, users can define specific point locations within each area by clicking specific points on the associated map in *School COP*. (See the appendix for screen-shots that illustrate this process.)
- When new incidents are entered, the incident location is selected from the list of pre-entered locations. Thus, once users have defined their areas and locations, geocoding, the process by which geographic coordinates are assigned to incident locations, occurs automatically.

Dissemination

A fully-functioning, albeit “single-user,” version of *School COP*, including on-line help and a sample database, was available in January 2001. *School COP* was then distributed in three main ways:

- In January 2001, *School COP* was distributed at the first of a series of “COPS In Schools” conferences. SROs funded under the Office of Community Oriented Policing Services (COPS Office) COPS In Schools grant program, along with an administrator from their school, are required to attend one of these three-day training conferences. The COPS Office contracted with Abt Associates to show attendees how to use *School COP* and provide them with the software on a CD.
- Through March 2001 (i.e., the end of the *School COP* development grant period), project staff received 66 direct requests for *School COP* via e-mail or telephone from school administrators, school security staff, and SROs. Direct requesters, who were subsequently sent the *School COP* CD, heard about *School COP* from either one of four project staff conference presentations, a brief article on the beta test version of *School COP* that appeared in the newsletter “Managing Safe Schools,” and referrals from other users.
- Starting in June 2001, *School COP* was made available for downloading at the *School COP* web site (www.schoolcopsoftware.com). Persons are not required to “register” or identify

themselves in order to download the software. However, in July 2001 a “hit counter” was placed on the download link. Section 3.5 discusses the number of downloads from the web site as part of an overall analysis of the number of persons using *School COP*.

Preliminary Assessment

As part of the *School COP* Development grant, telephone interviews were conducted in March 2001 with 56 persons who received *School COP* by early February 2001 via either a direct request to Abt staff or at the January 2001 COPS In Schools conference. The 56 represent a fairly balanced mix of school administrators (38%), school security / security support staff (36%), and SROs (27%). The 56 interviewed individuals reported they were in the following stages with regard to using *School COP*:

- 15 (27%) were already using it – 2 school administrators, 8 SROs, and 5 security staff;
- 7 (13%) were planning to use it – 1 school administrator, 2 SROs, and 4 security staff;
- 13 (23%) were planning to test it – 4 school administrators, 4 SROs, and 5 security staff;
- 13 (23%) might test it – 7 school administrators, 1 SRO, and 5 security staff; and
- 8 (14%) would not be using it – 7 school administrators and 1 security staff.

Overall, the preliminary findings of this 2001 survey suggested that a significant proportion of individuals who obtained copies of *School COP* – perhaps one-quarter to one-half – were likely to end up using it. As discussed later in section 3.5, the COPS In Schools conference organizers conducted in 2003 a survey of conference attendees and found that 35 percent were actually using the software.

2. Methodology

The two major project tasks involved (1) developing a series of enhancements to *School COP* and (2) conducting an evaluation of *School COP*.

2.1. *School COP* Enhancements

The preliminary assessment of *School COP* (see section 1.2) revealed that the package's most critical limitation was that it was a stand-alone application running on a single PC. This generally limited *School COP* use to two different scenarios:

- a single person working in a single school (e.g., an Assistant Principal who wants his own student discipline database or an SRO who wants his own personal database of incidents to which he responds)
- a single person working at a school district security office who receives paper forms describing incidents that occur at one or more schools in the district.

In our January 2001 proposal to NIJ for the *School COP* Enhancement and Evaluation grant, we said we would address this limitation by making a series of enhancements that would improve data sharing and analysis across multiple persons and multiple schools. And, during the grant period, we created both an **enhanced Windows *School COP*** and a **Web *School COP***.

Enhanced Windows *School COP*

Development of the enhanced Windows *School COP* involved three separate tasks:

- **Transforming the “stand-alone” *School COP* into a “network enabled” *School COP*.** The original (single-user) *School COP* was enhanced so that it could run on a local- or wide-area network, thus allowing multiple users within a single school or across multiple schools to share a common *School COP* database. This task also involved guarding against possible conflicts in a multi-user environment (e.g., two users simultaneously editing an incident record). Based on feedback from sites using the network enabled *School COP*, up to 12 simultaneous users can be supported.
- **Development of a new *School COP* Merge application.** The Merge enables a district-level *School COP* database to be constructed by merging several individual (e.g., school-level) *School COP* databases. The resulting district-level *School COP* database can be, in turn, analyzed using *School COP*. The Merge was designed primarily for sites with limited local- or wide-area network capability; typically, *School COP* users will e-mail their *School COP* database to a central office, where the databases are combined using the Merge.
- **Development of a new *School COP* Viewer application.** The *School COP* Viewer is a modified version of *School COP* that enables users to view – but not add, edit, or delete – incident information. The Viewer is intended for sites that have installed *School COP* on a

network, but want to restrict some users to read-only access of *School COP* data. The Viewer also does not provide access to functions that enable a site to customize *School COP* for their site.

The hardware and software requirements for running the network enabled *School COP*, the Merge, and the Viewer are identical to the requirements for the original version of *School COP*; that is, any computer that can run the original version of *School COP* can also run any of the above enhancements.

The design, development, testing, and deployment processes for these three enhancements were the same. Existing *School COP* users, particularly those who had asked whether such capabilities were being developed, were contacted to discuss how the enhancements should be implemented. Later, these and other users were sent 'beta' versions of the enhancements for testing and feedback. Final versions of the enhancements, along with installation instructions and user manuals, were posted on the *School COP* web site, with the enhancement being noted on the site's "What's New" page.

Additional details on the enhanced Windows *School COP*, including screen shots, are in the appendix.

Web School COP

The overall goal of Web *School COP*⁸ is to meet the diverse information needs of persons charged with maintaining safe schools *in large school districts*, including persons at the school-level (e.g., principals, assistant principals, security officers, and SROs) and the district-level (e.g., district-level administrators and security staff), as well as possibly parent organizations and state-level administrators. By contrast, the windows version of *School COP* was generally designed for individuals, a single school, or small offices within a school district.

Thus, Web *School COP* is intended to overcome important limitations of the enhanced Windows version:

- Whereas access to the Windows version is limited to persons with Windows personal computers, access to the Web version could be granted to anyone with a Web browser. This would open access to persons with Macs (which are popular in schools) as well as to persons with Windows personal computers who are not connected to the local or wide area network where the *School COP* database resides.
- Once a user is logged into the Windows version, they have complete access to the data, including browsing through incident records and running any of the graphs, maps, and tabular reports.⁹ With the Web version, access to data would be controlled at the user-level, meaning that some users might have access to details of individual incidents occurring at any school in the district, while other users might only have access to aggregate district-wide reports or data from only a single school.

⁸ The term 'Web' refers to the method by which users interact with the software (i.e., by using a Web browser) rather than where the software or collected data are housed (i.e., a Web server connected to the Internet). In fact, our assumption was that school districts would run this on their internal "Intranets", rather than on a third-party Web server.

⁹ While the *School COP* Viewer prohibits users from adding, deleting, or editing incident records, they can still view the details of any incident record and run any graph, map, or tabular report.

In our proposal to NIJ, the following sequence of tasks was proposed:

- *Collaborate with the test site on the design of Web School COP.* The proposal identified a large school district that had agreed to participate in the project (see section 4.1 “Site I” for an overview of this site).
- *Build beta version.* Based on meetings and discussions at the test site with a variety of potential users, the beta version of *Web School COP* would be built, being mindful to keep the system as generic as possible so that it would be used in other school districts.
- *Test beta version.* The *Web School COP* beta version would be installed at the test site and tested over a two to three month period. Project staff would then meet with users at the test site and discuss revisions to the system.
- *Install final version.* After revisions (if any) to the system, the final version would be installed at the test site.
- *Monitor and evaluate use.* Project staff would monitor use of *Web School COP*, per the proposed evaluation methodology (see section 2.2).
- *Distribute final version via the School COP web site and / or CD.* Following the evaluation period, we hoped to make *Web School COP* available to other sites via the *School COP* web site, much like the *Windows School COP*.

As discussed later in section 2.2 (“Changes to Methodology”), the test site identified in the proposal later declined to participate and we were unable to recruit another test site during the project period. As a result, the task sequence actually proceeded as follows:

- *Build beta version.* Given the length of time it took for the initial test site to formally decline to participate in the project, we knew that we could not wait until another test site was on board to begin development of the *Web School COP*. Thus, design and development began, based on input from existing *Windows School COP* users and our own experience with the *Windows School COP*.
- *Demonstrate the beta version to potential test sites.* Once the beta version was developed, it could be demonstrated to other potential test sites and used to help recruit them for the evaluation.

Hardware and Software Requirements

Web School COP was designed to run on either an Intranet (e.g., the school district’s private Internet) or a secure third-party Web server, and was built using the current Microsoft Web platform.¹⁰ Users accessing *Web School COP* would need Internet Explorer Version 5 (or more recent), which is available for free from the Microsoft Web site.

Functionality

Three of the most important and unique features of *Web School COP* are the ability to (1) import a (Windows) *School COP* database, (2) implement role-based security, and (3) build custom reports.

¹⁰ Specifically, a Windows 2000 Server and SQL Server 2000 database are required to run *Web School COP*.

The proposed design for *Web School COP* assumed that the site was already using the Windows version of *School COP* to collect district-wide school incident data.¹¹ *Web School COP* therefore can import a *Windows School COP* database. The assumption is that this would be done on a daily or weekly basis, depending on user needs.

Recognizing the sensitive nature of school incident information, we included with *Web School COP* tools for tightly controlling access to information, so that, for example, certain users would only have access to aggregate district-level information, others would only have access to aggregate school-level information, and others would have access to incident-level information. The *Web School COP* system administrator – i.e., the person with overall responsibility for customizing and running *Web School COP* – has the ability to create an unlimited number of user accounts and assign access privileges to individual users or groups of users. The table below illustrates one way in which the system administrator could configure security. In this example, users belong to one of four groups – the system administrator, coordinator, school officials, and non-school officials:

Web School COP Function	User Role			
	System Administrator	Coordinator	School Officials	Non-School Officials
Change Page Layouts, Set Privileges, Build New Reports	X			
Add / Delete User Accounts	X	X		
Import School COP Databases	X	X		
View Incident Details	X	X	X	
View Aggregate Reports	X	X	X	X

In the above example:

- The System Administrator has complete access to every object on every Web page (e.g., they can edit the content of the Home Page, create a new reports, edit an existing reports).
- The “Coordinator” (e.g., key school safety person in the district) can create new user accounts, import *Windows School COP* databases, and view all incident- and aggregate-level reports.
- “School Officials” (e.g., security and administrative staff at the schools) can only view incident details and aggregate reports.
- “Non-School Officials” (e.g., parent groups or staff from other agencies) can only view aggregate reports.

The school district’s system administrator can also configure access rights for specific users, so that, for example, a specific report is available to only a certain user. In general, each site using *Web School COP* could configure access privileges as they deem appropriate.

While a variety of tabular reports and graphs were developed for the demo version of *Web School COP*, the system includes tools that system administrators can use to build new reports. For example,

¹¹ Ideally, data entry capabilities would be included in *Web School COP*. Based on our experience with the Windows version of *School COP*, we knew that the costs of data entry functionality were roughly the same as the costs of data analysis functionality. In the end, project resources were not available to add data entry to *Web School COP*.

system administrators can define their own data queries (e.g., all incidents occurring at a particular school) and design a report that contains the results of the query, including a custom header (e.g., the logo of the school) and explanatory notes. (By contrast, users of the Windows version of *School COP* cannot create new reports.) Finally, as noted above, the system administrator can specify specific users or groups of users that can (or cannot) run the report.

Unlike the Windows version of *School COP*, the Web version does not include mapping tools (other than the ability to post, and make available for other authorized users to view, a map created with Windows *School COP* or other system). At the time development work was underway, software tools were available for serving custom-built maps on the Web and some police departments have used these tools to enable the public to construct their own crime maps. All these tools, however, carry a significant user site license (typically in the range of \$10,000) – it was unrealistic to expect any school district to want to use a system that required this up-front (and highly specialized) investment.¹²

The appendix contains additional information on Web *School COP*, including screen shots.

Implementation Options

With these new enhancements, *School COP* could be implemented in a variety of ways. Exhibit 2.1 summarizes the implementation options for sites that want more than one person to have access to *School COP* data.

¹² An alternative model, “GIS Web Services,” has recently emerged that promises affordable Web-based mapping. Web services offer maps and data displays served on-demand over the Internet. ESRI and other companies offer tools to integrate this technology into web-based applications.

Exhibit 2.1: Primary Multi-User *School COP* Implementation Options

# People Using the Software	# Schools For Which Incident Data Are Collected	Example
> 1	1	The school secretary enters incident data into the Enhanced Windows <i>School COP</i> . The principal and assistant principal use the Enhanced Windows <i>School COP</i> to view, update, and analyze the incident data.
		The school secretary enters incident data into the Enhanced Windows <i>School COP</i> . The principal and assistant principal use the Enhanced Windows <i>School COP</i> to view, update, and analyze the incident data. The guidance counselors (using the <i>School COP Viewer</i>) can view and analyze, but not update, the incident data.
> 1	> 1	A school district security office receives hard-copy incident reports from schools in the district. The office secretary enters the reports into the Enhanced Windows <i>School COP</i> ; investigators in the office view, update, and analyze the incident data.
		School secretaries use the Enhanced Windows <i>School COP</i> to enter incident data at their school into a common database; staff at the school district security office use the Enhanced Windows <i>School COP</i> to update and analyze these data.
		SROs use the Enhanced Windows <i>School COP</i> to enter incident data at their schools. They e-mail their <i>School COP</i> database to their police supervisor, who merges the data (using the <i>School COP Merge Utility</i>) and then uses the Enhanced Windows <i>School COP</i> to run district-wide reports.
		A district-wide <i>School COP</i> database is compiled using the Enhanced Windows <i>School COP</i> (e.g., by having either Assistant Principals at all schools or the school district security office enter incident data). These data are imported into Web <i>School COP</i> . Various stakeholders in the district have different levels of access to the data and reports within Web <i>School COP</i> .

2.2. Evaluation Methodology

Our general approach to evaluating information technology involves addressing three issues: was the technology used, why was it used, and what effect did the use have (e.g., see Rich [2001]). While we have been able to collect some information on the extent to which the Windows version of *School COP* is used at schools across the country, the evaluation focused largely on the latter two issues. The specific questions we attempted to answer are:

- What *decision process* do sites go through when deciding whether to use *School COP*?
- Once the site decides to use *School COP*, what *implementation obstacles* exist, including those related to installation, setup, customization, and training?
- What *benefits* do sites realize from using *School COP*? We hypothesized that benefits would be in three main areas:
 - *Data collection and dissemination* – schools and law enforcement agencies would have access to more automated data and, hopefully, broaden information dissemination.

- *Perceptions and knowledge of school safety problems* – increased access to data would make school officials and other stakeholders more knowledgeable about the nature and extent of school safety issues.
- *School safety decision making* – school safety decision making (e.g., regarding policies / procedures, staffing levels, training, programmatic initiatives, inter-agency partnerships, and technology) would be more data-driven and, hence, more effective in enhancing school safety.

The evaluation design called for case studies of *six* sites, including *five* sites that would use the enhanced Windows *School COP* and *one* site that would use the Web *School COP*.¹³ The data collection plan differed in these two groups of sites.

Enhanced Windows *School COP* Sites

The evaluation plan at the five Enhanced Windows *School COP* sites involved conducting interviews with a variety of persons at each site, including persons involved in the decision to use *School COP*, persons who actually used the software, and persons who regularly received *School COP* reports or data. The interviews would cover the research questions listed above – i.e., the “decision to use” process, implementation issues and obstacles, and benefits realized from using *School COP*.

In our proposal to NIJ we agreed to select the five sites during the project period. Section 3.1 discusses the selection criteria and recruitment process.

We also proposed to supplement information obtained from the five Enhanced Windows sites with unsolicited comments from other users of the software, including informal discussions at COPS In Schools conferences and e-mail exchanges about *School COP* features and use. We were particularly interested in reasons why sites decide *not* to implement *School COP*. In addition, as noted in section 3, the logistics vendor of the COPS In Schools conferences has collected some information on the extent to which the Enhanced Windows version is being used.

Web *School COP* Site

The proposed evaluation plan at the Web *School COP* site included the following four components:

- *Interviews with *School COP* users and persons receiving or acting upon *School COP* reports.* As with the five enhanced Windows sites, interviews would be conducted with users of the software and persons who regularly receive *School COP* reports. For the Web *School COP* site, however, it was especially important to interview principals and assistant principals at schools in the district, since an important research question for the project is the extent to which local school administrators can learn and benefit from the experiences, as depicted in the school incident data, of other schools.
- *On-site observation.* In addition to interviews with *School COP* users, project staff would also attend school district and other meetings where Web *School COP* data and reports are discussed.

¹³ As noted in section 2.1, we were unable to recruit a Web *School COP* site. We therefore increased the number of Enhanced Windows sites from five to six.

- *Web site hit counts.* Overall levels of use, as well as use by feature (e.g., browsing incident details vs. viewing reports) would be tracked by examining trends in “hits” to the *Web School COP* site.
- *Written survey of users.* Near the end of the project, a written survey would be distributed to local school and other officials who have access to *Web School COP* at the test site, in order to gauge their overall response to the system and to obtain standardized data on process issues related to *Web School COP* use – e.g., how the system was used, what specific features were and were not used, etc.

Changes to Methodology

As noted above, our January 2001 proposal to NIJ identified a school district that had agreed to be the *Web School COP* site. However, six months into the project (but prior to any design work on the software), the site formally declined to participate in the project. In addition, we were not able to get another site to fully implement the *Web School COP* (see section 4 for details on the recruitment process).

As a result, the intended audience for the evaluation findings related to *Web School COP* have shifted from school officials (who would be interested in the implementation issues and benefits related to *Web School COP*) to NIJ (who is interested in why sites quickly embraced the Windows version of *School COP*, but not the Web version).

In addition, late in the project, we increased the number of Enhanced Windows *School COP* sites from five to six.

3. Evaluation Findings: Enhanced Windows Sites

This section presents summary findings for the six sites using the Windows version of *School COP*. The section is organized by topic: site selection and description, the decision to use *School COP*, implementation issues, and benefits. The companion project report, “*School COP: Implementation and Benefits in Six Sites*” is organized by site and contains complete details on each site.

3.1. Site Selection

Criteria

For the Windows *School COP* sites, we wanted a group of sites that varied along several dimensions. Most importantly, we wanted a mix in terms of the types of persons who originally advocated use of *School COP* and who actually used the software. This would enable us to document use by all of the different persons with school safety responsibility, including school administrators, SROs, and school district security staff (see section 1.1), thus broadening the utility of the project findings. We also wanted the sites to be using the Enhanced Windows version of *School COP*, as opposed to the “single user” version of *School COP* that was available prior to the start of the grant.

Also to broaden appeal of the project findings, we wanted a mix of sites with respect to geographic setting of the school district (e.g., urban, rural), the size of the school districts (i.e., number of students and number of schools), and the number of schools at the site for which *School COP* data are collected.

A less quantifiable, but nonetheless, important criterion is that we wanted sites that planned to use *School COP* in “interesting” ways – meaning for more than just satisfying a bureaucratic reporting requirement. An SRO using the software only to submit required monthly reports to her supervisor, who in turn simply puts the reports in a file cabinet and doesn’t distribute them to anyone, would not make a very interesting site to study.¹⁴

Site selection occurred, one site at a time, during the 2002/2003 school year. Because we did not have a list of *School COP* users from which to select sites,¹⁵ we relied on e-mail and personal communications (e.g., at school safety conferences) with current and potential users to identify possible sites. That is, as we heard about sites’ plans to use *School COP*, we invited them to participate in the project, as long as the addition of the site preserved our objective of having a mix of sites, as defined above.

¹⁴ Note that in such instances, the site may still be realizing benefits from using *School COP*, if, for example, the software saves the SRO time completing required reports.

¹⁵ The *School COP* web site does not require users to “register” in order to download the software.

Description of Selected Sites

Capsule descriptions of the selected sites are below. The names, although fictional, reflect the sites' geographic location and key *School COP* users.¹⁶

South Middle School

South Middle School, one of three middle schools in an 18-school district, is located in a largely rural area approximately 50 miles from a city of 200,000 residents in the southern part of the United States. In 1999, the school district received a grant from the Office of Community Oriented Policing Services' (COPS Office) COPS In Schools grant program and used that funding to create an SRO position at South Middle School. Prior to receiving the grant, the school telephoned the county sheriff when law enforcement services were required, and any available fielded patrol car would be dispatched to the school. One of the patrol deputies assigned to patrol volunteered for the SRO position and started work at the school in the spring of 2000. To fulfill a COPS In Schools grant requirement, the SRO and the South Middle School principal attended a three-day COPS In School training conference in 2001. At one of the required conference sessions, they received the *School COP* CD and heard a presentation on how the software works and could be used in a school setting.

Southwest School District

The Southwest School District, located in a city with a population of 200,000 was awarded a grant in 2002 to systematically address a specific school safety problem. The District, in conjunction with the local police department, decided to apply the "SARA" (Scanning, Analysis, Response, and Assessment) problem solving process to address bullying in the three elementary schools that had the highest overall incidence of reported crime. The three schools have a combined student population of 2,100. The local police department, because of their strong community policing orientation, had experience in formal problem solving efforts. Project staff wanted to include a variety of data sources in the scanning and analysis phases of the project, including data on specific incidences of bullying and related events. An analyst at the local police department had heard of *School COP* through contacts with the U.S. Department of Justice's COPS Office and believed that the software could be useful for the project.

Far West Middle School

Far West Middle School serves a city of 80,000 located about five miles from a city of 200,000. Approximately 600 students attend the school. There is no one district-wide software package devoted to collecting discipline information—each school's assistant principal uses his or her own system for tracking student discipline problems: some administrators have developed their own spreadsheets, one uses a software program provided by a local university, and others use hand-written 3x5 cards. The Far West Middle School assistant principal used Microsoft Excel. While the assistant principal was attending a school safety conference in 2002, a U.S. Department of Justice employee who was sitting next to him suggested he attend a break-out session on *School COP*. Since the administrator had always been interested in managing discipline data, he went.

West School District Security Department

West City has a population of 450,000 living in an area of 70 square miles. The city's school district has 90 schools and 100,000 students. The school district's Security Department functions in largely

¹⁶ Institutional Review Board (IRB) rules for the project required us to preserve the confidentiality of the sites and persons interviewed; thus, fictitious names for the sites are used in all project reports.

the same manner as a municipal police department, with a 24-hour dispatch center and 45 sworn patrol (security) officers who assist local school administrators in handling criminal and non-criminal calls for service. During the 1990s, the dispatch center began using an Excel spreadsheet to track incoming calls, with each “row” in the spreadsheet containing information on a single call for service. Prior to that, calls were logged by hand on paper sheets. In December 1999, the Security Department hired a consultant to develop a customized Microsoft Access application that mirrored the Excel spreadsheet. In 2002, the chief of the Security Department became interested in generating more comprehensive reports than an existing Microsoft Access application could provide. After he learned about *School COP* at a school safety conference, he asked the consultant who developed the Access application to investigate the feasibility and value of using *School COP*.

Eastern Police Department

Eastern City, with a population of about 40,000, is an hour’s drive from several major cities. The Eastern City school district’s 13 schools include nine elementary schools, three middle schools, and one high school with a combined student population of about 7,000. A formal SRO program began in 2001 in the elementary schools when the Eastern City police department received a COPS in Schools grant from the U.S. Department of Justice’s COPS Office that funded four SRO positions. At the same time, the department converted the four existing school liaison officers into SROs. An SRO who is responsible for three of the elementary schools read about *School COP* while perusing questions and answers that had been posted to an electronic bulletin board on the National Association of School Resource Officers (NASRO) web site.¹⁷ After an officer had posted a message to the bulletin board asking if anyone could recommend a record keeping system for SROs, three officers responded and endorsed *School COP*.

Midwest Police Department

The City of Midwest, with a population of about 130,000, has 35 public schools including 25 elementary schools, five middle schools, and five high schools with a combined student enrollment of over 20,000 students. The Midwest police department has roughly 200 sworn officers, including ten SROs. A 2001 COPS in Schools grant from the COPS Office funded the first five SROs. When the grant expired, the department picked up their salaries—and added five more SROs. One SRO is stationed full time at each of the school district’s five middle schools and five high schools. Two sergeants spend nearly full time supervising the SROs. During the summer of 2003, the police department hosted a National Association of School Resource Officer (NASRO) training. The NASRO trainer had *School COP* loaded on his laptop, and, as part of the training, he demonstrated on his laptop how SROs could use *School COP* for purposes of storing and analyzing data.

Site Comparisons

As shown in exhibit 3.1, the six sites offer some diversity in terms of the selection criteria described earlier in this section. For example, *School COP* “advocates” – the person who initially heard about *School COP* and pushed for its implementation – include an SRO (2 sites), an SRO supervisor (1 site), a law enforcement analyst (1 site), a school administrator (1 site), and a school district security chief (1 site).

¹⁷ NASRO’s Web site is www.nasro.org.

Exhibit 3.1: Site Characteristics

Site Name	School District Characteristics			Primary <i>School COP</i> Advocate	How Advocate Initially Heard About <i>School COP</i>
	Setting	# Schools	# Students		
South Middle School	Rural	18	7,000	SRO assigned to South Middle School	COPS Office Conference
Southwest School District	Mid-Sized City	65	60,000	Analyst at local law enforcement agency	Contact at the COPS Office
Far West Middle School	Small City	9	3,500	Assistant principal at Far West Middle School	NIJ School Safety Conference
West School District Security Department	Large City	95	97,000	Director of School District Security Office	Conference for school security directors
Eastern Police Department	Small City	13	7,000	SRO assigned to one schools	National Association of School Resource Officers (NASRO) Web site
Midwest Police Department	Mid-Sized City	35	20,000	SRO Supervisor	NASRO trainer

3.2. Decision to Use *School COP*

Once the advocate in each site heard about *School COP*, they either downloaded it from the Web site (four of the six sites), installed it using the CD (one site), or asked a consultant to download the software (one site). The sites then experimented with the sample database included with *School COP*.

The process of deciding to actually use *School COP* involves the *advocate* (i.e., the person who initially heard about the software and advocated its use) and the *decision-maker* (i.e., the person with the authority to approve use of the software):

- In two of the six sites (Far West Middle School and West School District Security Department), the advocate and the decision-maker were the same person, making the decision process straightforward and quick.
- In four of the six sites, the advocate had to “sell” *School COP* to the decision-maker. In these four sites, all that was required was an explanation of how it would be used and the rationale for using it (and, in three of the four sites, a brief demonstration of the software). In two of these four sites (Southwest School District and Eastern Police Department), the decision-maker eventually became a *School COP* user. In the other two sites (South Middle School and Midwest Police Department), approval was needed from non-users (the Superintendent and a police lieutenant, respectively); these sites reported that there was no problem receiving approval from the decision makers.

As shown in exhibit 3.2, the specific decisions made in the six sites varied in terms of the extent of *School COP* implementation in the school district (single school in two sites; district-wide in three sites; and a partial district in one site). the types of persons using the software (only school

administrators in two sites, only law enforcement officials in two sites, only school district security staff in one site, and law enforcement officials and school administrators in one site), and what data are entered in *School COP* (student referrals¹⁸ in three sites, incidents involving security staff in one site, and incidents involving SROs in two sites).

Exhibit 3.2: Implementation Decisions at the Six Sites

Site Name	Pre-School COP Data Collection		Person Making Decision to Implement School COP	# Schools for which School COP Data are Collected	What Is Entered in School COP	Primary School COP Users
	Automated System Used	Key Problem with System				
South Middle School	Student Information System	Poor querying and reporting	Non-user (Superintendent)	1	Student referrals	7 (Principal, Assistant Principals, SRO, Counselors, and Secretary)
Southwest School District	None	N/A	School COP User (Principals)	3	Student referrals	4 (Principal, Assistant Principals, and Counselors)
Far West Middle School	Microsoft Excel	Poor querying and reporting	School COP Advocate	1	Student referrals	2 (Assistant Principal, school security officer)
West School District Security Department	Custom Microsoft Access Application	Limited querying and reporting	School COP Advocate	95	All incidents involving security officers	3 (Security Office Chief, Assistant Chief, and Secretary)
Eastern Police Department	Police Records System	Unable to document all SRO incidents	School COP User (SRO Supervisor)	13	All incidents involving SROs	9 (8 SROs and SRO Supervisor)
Midwest Police Department	Microsoft Excel	Poor querying and reporting	Supervisor of School COP Advocate	35	All incidents involving SROs	12 (10 SROs and 2 SRO Supervisors)

The key reason for deciding to implement *School COP* was consistent across all the sites. *Dissatisfaction with their existing incident data collection system* made the six sites receptive to a new system. The sites either did not have any system for automating data or had a system that either did not enable them to enter important data or had extremely limited analysis capabilities. Thus, the sites eagerly adopted *School COP* because it was free, ran on their existing equipment that they themselves controlled, was easy-to-use, and provided a wide variety of ways to analyze and summarize entered data.

Users in non-project sites echo this same rationale for using *School COP*. One experienced SRO had been using his police department's record management system as his record keeping system: "I have been an SRO for 6 years and finally we have a program to track incidents outside of the normal police department tracking that is actually for the school. I have been using *School COP* for a week and have found it very user friendly and just what I need to track the incidents in my school." A newly hired school district security chief commented: "Prior to *School COP*, we had an all manual system. The school district considered redesigning our student information system to capture more complete incident information, but this was viewed as too expensive. So, we considered building an Access system, until we saw the Department of Justice notice on *School COP*." New SROs, in particular,

¹⁸ Referrals are instances when students are sent to the school administration office for possible disciplinary action as a result of violating the student code of conduct or some other school rule.

seemed to appreciate *School COP*. One SRO commented: “As the first and only School Resource Officer for both my department and the school district, I was charged with the task of developing policy and procedures for almost every aspect of my position, including reporting practices. Given a shoe-string budget, finding an acceptable reporting system was nearly impossible.”

Why Sites Decide Not To Use *School COP*

On the other hand, other (non-project) sites – perhaps faced with similar problems with their existing record keeping systems – decided *not* to use *School COP*. Assistant principals generally are the school “disciplinarians” and therefore like to have automated databases that track referrals; many develop their own Excel spreadsheets or other simple databases for this purpose. Although many assistant principals use *School COP* (e.g., including those at three project sites), many do not like *School COP*’s “incident” orientation, preferring instead a simpler system that has a “student” orientation (see the appendix for a discussion of these two models). One assistant principal said in an e-mail to project staff: “Let me know if you come up with a program that ALL information can be entered on only one screen (what you now have on the incident screen AND people involved screen). The way I’ve kept this info in the past is easier and quicker for me. I’ll just continue with my record keeping until you develop something more user friendly.”

For a school-wide implementation, the dilemma principals face is that they already use the school district’s “student information system” to maintain student grades, schedules, and, importantly, major disciplinary actions. A typical comment from a principal regarding *School COP* is: “We love *School COP*’s reporting features; they are way better than our student information system’s, but we need to decide whether it’s worth the effort to implement a separate system for tracking discipline.” Some schools (e.g., South Middle School) decide that it is worth the effort. Others decide that they either do not have the staff to do the data entry work (from one Massachusetts high school: “The program itself is excellent and provides much valuable information. The whole problem is getting the information up to date and entered into the database.”) or they don’t see the value in capturing additional information on incidents (from one California high school: “So far, a need has not been defined for the type of information output the program can provide so we have not really been using it. Also, the program has the capacity to collate so much more information than we collect via our suspension reports, that we would be under-utilizing it.”).

The potential for conflict with the existing student information system is even greater for a district-wide *School COP* implementation involving school administrators. For example, for several months principals at all 12 schools in a school district in the Midwest had been using *School COP* to enter disciplinary actions. At the end of the school year, however, the district decided to stop using *School COP* and instead develop a new discipline reporting system based on FileMaker Pro, a commercial database package. According to the district’s information system director, “We are using FileMaker Pro for several other applications, so we have a fairly heavy investment in the product in licensing already. Basically, *School COP* did what we needed, but due to standardization of products, learning curves, training, ubiquity, previous experience and an onsite trained developer, we moved our discipline data into FileMaker Pro in August of this year.” As discussed later in section 4, the conflict with a school district’s student information system was an even greater obstacle for implementing Web *School COP*.

3.3. Implementation Issues

Installation

Installing *School COP* on a Windows PC is, in nearly all instances, a trivial matter, as an installation “wizard” guides the installer through the process.¹⁹

Configuring *School COP* to run on a local or wide area network requires some computer skills that persons who just use computers for, say, word processing, do not have.²⁰ In developing the networking instructions, we assumed that anyone wanting to run *School COP* on a network would have access to the necessary skills to do the installation.

- Five of the six sites implemented *School COP* on a network (see exhibit 3.3). In those sites, the network install was performed by school district information technology staff (three sites), an SRO (two sites), and a software consultant. The SROs did not have any special computer training.
- The site that did not implement *School COP* on a network used the Merge Utility. The SROs at the Midwest Police Department e-mail their *School COP* databases to the supervisor, who then merges the data into a common database, which the supervisors can access with *School COP*.

Exhibit 3.3: Installation Issues

Site Name	Person Doing the Installation	Type of Installation	Problems or Issues
South Middle School	SRO	Network	
Southwest School District	Police Department analyst & school district information technology staff	Standalone (2 schools); Network (1 school)	Significant delay in installation
Far West Middle School	School district information technology staff	Network	
West School District Security Department	Software consultant	Network	
Eastern Police Department	SRO	Network	Significant delay in installation
Midwest Police Department	School district and police department information technology staff	Standalone + Merge utility	

In four of the six sites, installation occurred quickly – within days of the decision to use *School COP*. The other two sites, however, experienced significant delays, which occurred primarily because multiple agencies were involved in the installation:

¹⁹ No Windows installation program works 100% of the time. Potential, but rare, problems include insufficient memory to run the installation program, insufficient hard disk space to install the application, not having a “temp” directory designated on the computer, and conflicts with software that is currently running on the PC.

²⁰ Required skills include understanding a computer’s directory structure and being able to copy a file from one folder to another. With the newest version of Windows (XP), knowledge of user-specific access rights is sometimes also required – some users have reported that *School COP* works fine when the user is logged in as a system administrator, but not when logged in as a “regular” user. Access rights and permissions need to be adjusted in this situation so that the user has “write” access to the \\Windows\System folder.

- At the Southwest School District site, 11 months went by from the time the decision was made to use *School COP* to when it was installed at all three schools. At this site, the *School COP* advocate and the *School COP* users work for different agencies (the local law enforcement agency and the school district, respectively). The advocate initially asked the school district information technology department to install *School COP* at the three schools. Two months later, the advocate left the agency and it took six months to hire a replacement, during which no progress was made on the installation. Finally, the advocate's "replacement" installed the software, with the assistance at one of the schools from a school district technology specialist.
- At the Eastern Police Department site, the SRO supervisor wanted SROs to enter data at their respective schools (using their own laptops), but have that data entered into a common database housed on the police department's server. In order for this to happen, the city's information technology staff had to provide special access for the SROs through the police department's firewall. This process took 10 months.

Setup and Customization

As discussed in section 1.2 and the appendix, users can customize *School COP* for their school(s). In judging the extent to which sites customize *School COP*, four categories can be defined:

- *No customization.* In this case, sites simply install *School COP* and immediately start entering incident data.
- *Reviewing, and as necessary modifying, the default codes describing characteristics of incidents and persons involved in incidents.*²¹ Especially important are the incident type and the action taken codes.
- *Entering school, area, and location information.* Unlike codes describing characteristics of incidents and persons involving in incidents, default values are not provided for the names of schools, areas (each school can be divided into one or more areas, such as "1st Floor", "school grounds"), and locations (each area can be divided into one or more locations, such as "Room 100" and "Cafeteria"). If these data are not pre-entered, users will have to type in values for each incident, rather than selecting values from drop-down lists.
- *Setting up the mapping.* Optionally, sites can implement *School COP*'s mapping feature, by assigning a digital map (either scanned from a hard copy map or drawn using a package like Microsoft Paint) to an area. Locations are then defined by clicking on the map (see the appendix for screen shots depicting this process). Whether or not the mapping is set up has no effect on other *School COP* analysis features (e.g., producing graphs or tabular reports).

All six sites reviewed and modified incident and person involved characteristics, four of the six entered complete school, area, and location information, and four of the six set up the mapping feature (see exhibit 3.4). The two sites that did not enter complete school, area, and location information have the most schools of the six sites (35 and 95); one of these sites only entered the school names; the other entered complete lists of schools and areas but only those locations that were known "hot spots." These sites decided that it would take too much time (relative to the benefits, presumably) of entering specific locations for all the schools.

²¹ Codes describing incident characteristics include incident type, severity, weapon used, special circumstances, and status; codes describing persons involved in incidents include person type, race, special characteristics, grade, involvement type, and action taken.

Exhibit 3.4: Extent of *School COP* Customization

Site Name	Examined / Modified Default Incident and Person Involved Codes	Entered School, Area, and Location Information	Set up Mapping
South Middle School	Yes	Yes	Yes
Southwest School District	Yes	Yes	No (plan to)
West Middle School	Yes	Yes	Yes
West School District Security Department	Yes	Complete school names only	No (plan to)
Eastern Police Department	Yes	Yes	Yes
Midwest Police Department	Yes	Complete school names and areas; incomplete locations	Yes

In four of the six sites, the *School COP* advocate was assigned the task of customizing the software. Generally, they developed a draft list of codes and then circulated the codes among other users. One site (Southwest School District) employed a more formal approach involving a committee of users and non-users. The other site (West School District Security Department) used the codes they had in their previous system.

While we do not have quantitative data on customization activities at non-project sites, informal conversations with users in other, non-project sites lead us to believe that the level of customization at the six project sites is probably not representative of all *School COP* users. For example, clearly some sites do not customize *School COP* at all – they install *School COP* and then start entering data. One SRO commented: “I received a copy of the *School COP* software at the COPS In Schools training and, upon my return, installed and began to utilize the program. The simple, straight-forward instructions made installation and data entry a breeze. The software made incident tracking so easy, I quickly entered previous incidents retroactively from the beginning of the school year.” This user – and no doubt many others – was seduced by the ease with which incident data can be entered and didn’t bother to read any of the *School COP* documentation (or even the inside cover of the *School COP* CD: “Think carefully about what codes you want to use [to describe incidents] and then enter them in *School COP* before entering any new incidents.”). The main consequence of not doing any customization, as noted above, is poor tracking of where incidents occur. This is less of an issue for a single-school than a district-wide *School COP* implementation.

In addition, while four of the six study sites implemented mapping, the percentage of all *School COP* users that set up the mapping feature is very likely lower, even though a high percentage of (future) users, based on reactions of attendees at *School COP* training sessions, initially react very positively to the fact that they can map school incidents. There appear to be two main reasons for the relatively low utilization of *School COP*’s mapping features:

- Unlike producing graphs and tabular reports, setting up mapping requires users to read the manual. Indeed, mapping is probably *School COP*’s only feature that users won’t be able to immediately figure out. Most users have little patience for manuals, particularly for software – like *School COP* – that is billed as “easy to use.”
- Unlike producing graphs and tabular reports, setting up mapping takes time, as they need to either acquire existing maps or draw the maps themselves. A number of non-project sites indicated that they’d like to implement the mapping but “just haven’t found the time.”

Still, the rate of mapping use is no doubt higher than if *School COP* had required maps produced with software from a commercial mapping vendor or, worse, purchase of a commercial mapping software license.

Training

No formal training is needed for basic *School COP* operations, including entering incident data, generating graphs on the entire data set, and running canned tabular reports. One self-described computer neophyte at a non-project site e-mailed us to say: "If I can use *School COP*, anybody can." On the other hand, all users could benefit from, say, 20 minutes of training emphasizing "advanced" analysis techniques (e.g., doing a search for a particular groups of incidents and then producing a graph, tabular report, or map based on the search results).

At the six project sites either the *School COP* advocate (five sites) or a software consultant (one site) trained persons using the software (see exhibit 3.5). In five of the sites, informal one-on-one training sessions from 15 to 40 minutes were held; in the Eastern Police Department site, the SRO advocate conducted a formal training session using PowerPoint slides.

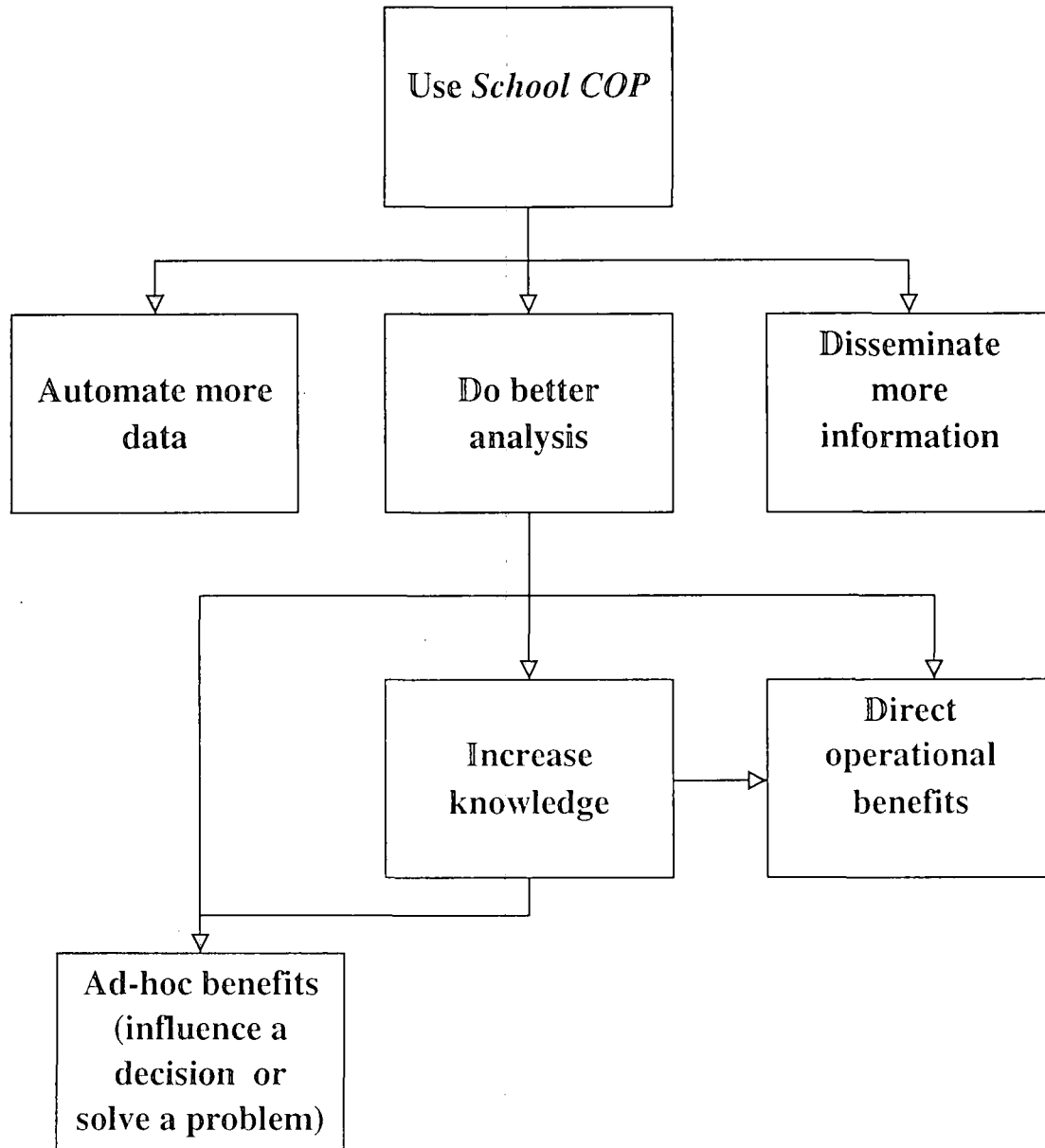
Exhibit 3.5: *School COP* Training

Site Name	Person Doing the Training	Training Approach
South Middle School	SRO (<i>School COP</i> Advocate)	Informal 1-on-1
Southwest School District	Police Department analyst (<i>School COP</i> Advocate)	Informal 1-on-1
Far West Middle School	Assistant principal (<i>School COP</i> Advocate)	Informal 1-on-1
West School District Security Department	Software consultant	Informal 1-on-1
Eastern Police Department	SRO (<i>School COP</i> Advocate)	Formal Presentation
Midwest Police Department	SRO Supervisor (<i>School COP</i> Advocate)	Informal 1-on-1

3.4. Benefits

Once *School COP* was installed and customized, and users were trained, the sites began using the software – that is, entering incident or referral data and running various types of reports. At this point, use of *School COP* is *creating the potential for future benefits* and, depending on how the software is used, *producing direct benefits*. Exhibit 3.6 shows our “benefits logic model.”

Exhibit 3.6: *School COP* Benefits Model



According to the logic model, sites using *School COP* will (1) *automate more incident and referral data*, (2) *analyze collected data more effectively*, and (3) *disseminate data and information to more people* than they previously did. In turn, *School COP* users and persons who receive data and information from the software will *increase their knowledge of school safety conditions*.

Automating more data, producing more and different types of reports, sharing more information, and increasing knowledge do not, by themselves, automatically produce tangible benefits. For example, imagine a situation where reports are produced, distributed, and then immediately placed in a file cabinet without being studied. They do, however, *create the potential for future benefits*, depending on how the data and reports are used. Hopefully, however, using *School COP* will lead to either *direct operational benefits* (i.e., performing an existing task more effectively) or *ad-hoc benefits* because of influencing a decision or solving a problem.

Below, we examine the extent to which the six sites realized these benefits.

More Automated Data

All six sites enter data into *School COP* on a daily or near daily basis. The three sites with primarily school administrator users (South Middle School, Southwest School District, and Far West Middle School) enter between 40 and 90 student referrals per month per school; the Eastern and Midwest Police Departments enter, respectively, approximately 10 and 25 incidents per SRO per month into *School COP*; and the West School District Security Department enters approximately 300 incidents per month.

Inasmuch as dissatisfaction with their existing systems was a primary reason for implementing *School COP*, it is not surprising that, compared to their previous data systems, *five of the six sites* (the exception being the West School District Security Department) *are automating significantly more information about specific referrals and incidents*:

- Before implementing *School COP*, three sites recorded only a minimal amount of information about student referrals (South Middle School and Far West Middle School) or incidents involving SROs (Midwest Police Department). The student information system at South Middle School, for example, allowed entry of only the student name, student number, the date of occurrence, the person reporting the incident (limited to 4 characters), the disciplinary action taken (a 4 character code), and brief narrative comments (up to 40 characters). By contrast, *School COP* allows up to 18 fields of information about the incident and 15 fields of information about each student involved in the incidents. The other two sites both used Excel – this allowed them to enter more information than South Middle School, but, most importantly for the two sites, did not allow them to enter any narrative comments about the referral or incident.
- The Eastern Police Department had automated information only on those incidents requiring attention of the SRO that resulted in a criminal offense (as opposed to any incident in which they were involved). These incidents were entered in the department's records management system. Details on the far greater number of non-criminal incidents existed only on paper logs.
- The Southwest School District had no automated data prior to implementing *School COP*. Two of the three schools using *School COP* did not have formal incident data collection procedures in place, and instead kept informal handwritten notes on incidents in student folders in the principal's office. The third school had an incident form that captured a

minimum amount of information on the incident – the student’s name, the date of occurrence, a description of what happened, and what action was taken. None of this information was automated.

Increased Analysis Capabilities

As discussed earlier in section 3.2, limited options for analyzing entered data was even more of a factor in the sites’ decision to implement *School COP* than was the lack of automated data. Not surprisingly, *all six sites felt that it was much more important that they could, for the first time, easily analyze and summarize data in a wide variety of ways.* In fact, only two of the six sites had any automated query or report generation capability in their pre-*School COP* systems. At the South Middle School, for example, staff could only (1) search the discipline records by student name or number and (2) produce a discipline history for a particular student.

The West School District Security Department had by far the most sophisticated automated query and reporting capabilities. Prior to implementing *School COP*, the Department has been using a custom Microsoft Access application that a local consultant designed. For example, the application was capable of producing reports on incidents by call type, school, security officer, responding unit, and shift, as well as summary data on incidents for which city police assistance was requested. And yet, when the Department chief asked the consultant to investigate the feasibility and usefulness of using *School COP*, the consultant reported that *School COP* was far superior in its ability to summarize and report incident-related data, and recommended that the Department adopt *School COP*. When the chief was actually first shown *School COP*, his (and others in the Department) initial reaction was very positive. The principal reason they liked the software was the comprehensive reporting capabilities it offered, making it possible to easily and quickly provide the school superintendent with improved security reports. In addition, it was clear that the software provided the potential for improving security officer deployment.

More Data Dissemination

The ability to produce presentation-quality output and reports in turn created more opportunities to share information with others. *Four of the six sites disseminated School COP reports to persons who had not previously seen student referral or incident summary data.* One of the two that did not merely continue to disseminate information – albeit, they say, produced in a more professional manner and in less time than before – to persons who previously received similar information, while the other plans. The other site experienced significant delays in implementing *School COP*, and, as a result, had not disseminated *School COP* data to new groups by the end of the evaluation period. In the near future the school principals at the site plan to disseminate and discuss *School COP* graphs and reports at monthly teacher meetings.

Of these four sites, three disseminated data on a regular basis to persons who previously did not have access to these data.

- Since the beginning of the 2003-2004 school year, every two weeks the West School District Security Department chief provides the school superintendent with reports generated by *School COP* that document where and what type of incidents are occurring – information the superintendent never received before the *School COP* made it available. The typical reports

- provided are incidents by school and incidents by severity (i.e., felony, misdemeanor, and school rule infractions).
- The assistant principal at the Far West Middle School has shared information generated by *School COP* with students, faculty, and school bus drivers.
 - Twice each quarter—eight times a school year—the assistant principal assembles a group of 10-12 students to spend about 30 minutes reviewing a set of graphs, tables, and maps that he generates using *School COP*. He decided to share the information with students because his own sons were curious about what he was doing as he practiced using *School COP* at home. He asked them if they thought other kids would be interested in the charts, and they said, “Definitely!” As a result, he personally invited several students to participate in the group. At one meeting, the assistant principal shared the following types of *School COP* reports: incidents by type (pie chart), location (pie chart), day of week (bar graph), month (bar graph), and time of day (bar graph); students involved in misconduct by race (list) and gender (list); and maps of incident location for all incidents, threats, thefts, and physical altercations. The principal focuses the discussion on asking the students to point out significant patterns and trends in the data and to help him to explain any unexpected findings.
 - Every quarter, the assistant principal leaves one or two packets of graphs and tables in the teacher’s lounge for faculty to look at. Some teachers initially felt that “big brother” was looking over their shoulders because a pie chart documents the number of discipline referrals by classroom. Indeed, the assistant principal says he may use this information to identify teachers who need help disciplining students.
 - When the assistant principal noted in *School COP* that 32 percent of referrals resulted from incidents occurring on school buses, he shared a packet of graphs from *School COP* with school bus drivers to let them know what happens when they fax him a discipline slip. He demonstrated to them how he enters their data into the software program. The drivers told him they were pleased to find out that their discipline reports were actually read and tabulated—“They don’t just go into a black hole.”

The other two sites disseminated data on a single, yet important, occasion.

- The SRO supervisor at the Eastern Police Department used information and exhibits generated by *School COP* to give to the chief to use in a presentation to the school board at the end of the 2002-2003 school year. For the presentation, one of the SROs (the original *School COP* advocate) prepared a series of maps and graphs, including incidents by school, incidents by type, and locations of incidents on the school grounds. The supervisor reported that “The board was impressed.”
- At the Midwest Police Department site, one of the high schools had already made arrangements to install video cameras in high traffic and high incident areas throughout the school. When the principal invited the SRO to the meeting with the video camera vendor representatives, the SRO brought and demonstrated *School COP* to the principal and the vendor. In particular, the SRO was able to demonstrate through *School COP*’s mapping capability that considerable vandalism was taking place outside the school building (as discussed later in this section, this presentation influenced the decision on camera placement).

Increased Knowledge

As noted above, automating more data, producing more and different types of reports, and sharing more information creates the potential for future benefits, depending on how the data and reports are used. At the beginning of the study, we also hypothesized that persons using *School COP* or examining *School COP* data and reports would increase their level of knowledge about safety conditions in their school, hence further increasing the potential for future benefits (assuming they ‘acted on’ this new knowledge).

Across the six sites, the site that appeared to experience the most increase in knowledge from *School COP* was, perhaps not surprisingly, the largest site – the West School District Security Department. Prior to implementing *School COP*, school and security officials believed that the vast majority of incidents were taking place at high schools. In particular, they thought that the split in the number of high school vs. elementary/middle school incidents was roughly 70/30. However, reports generated by *School COP* documented empirically that middle schools had the most incidents—the actual split was 30/40/30 among the three school types levels. In addition, the Superintendent, who as noted above began receiving for the first time summary data, was surprised at the incident volume that *School COP* reports showed that the Security Department was handling. He commented that he didn’t realize how over committed the Department was.

At the individual school level, the extent to which *School COP* highlighted heretofore unknown problems or issues varied:

- At Far West Middle School, *School COP* both confirmed suspicions and provided new information on existing problems. The assistant principal’s maps of “physical altercation” incidents inside the school building, for example, confirmed what he suspected was a problem with 6th graders in the hallways. A teacher shown the map commented, “I already do corridor duty, but the maps reminded me of the importance of doing it.” With regard to the bus incidents discussed earlier, the amount of misconduct on school buses revealed by *School COP* surprised school administrators, although they already suspected there were some problems associated with the buses.
- At the Southwest School District site (which had only been using *School COP* a few weeks before the end of the evaluation period), administrators at one of the schools quickly learned from *School COP* data how bullying incidents were clustering in and around bathrooms.
- At the Midwest site, one of the SROs commented that he hadn’t realized that he spends more time on counseling and mentoring students than on law enforcement-related activities – “that was shocking,” he commented. He also was surprised that more incidents occur on Thursdays than any other day (he had thought Friday was the busiest) and that the peak time for incidents was between 10 AM and noon (he had thought mid-afternoon was the busiest time period).
- The South Middle School SRO, by contrast, didn’t feel that he uncovered any new significant problems or trends by using *School COP*.

For the SROs in the Eastern Police Department, *School COP* is also providing better information for SROs posted to the middle and high schools regarding incoming 6th and 9th grade students that the SROs can expect to be dealing with the following year. Prior to implementing *School COP*, the SRO advocate kept handwritten incident and other reports in a file in his office where he would hand them on request to the other SROs. Now, each SRO can at any time from the convenience of his or her school look up a student in the *School COP* database.

Direct Operational Benefits

All six sites realized tangible benefits from using *School COP*. The specific types of benefits varied, as one would expect given that variety of settings and types of users at the sites. In general, two types of benefits occurred. The first might be called “*direct operational benefits*” – that is, users had an existing task to which they were assigned and *School COP* enabled them to perform that task more efficiently.

For school administrators, direct operational benefits meant improvements to the disciplinary process.

- Administrators at South Middle School have used *School COP* information to streamline and improve school disciplinary processes. They reported that the most important benefit is saving time when they have to find out a student’s disciplinary history or compile disciplinary information for the superintendent or other persons outside the school involved in disciplinary proceedings. Because of the limitations of the system they had previously used to record discipline information (in particular, the 40 character limitation in the narrative comments), administrators could only get a complete disciplinary picture by consulting the student’s master folder in the main administrative office. Administrators also like more professional looking documentation and reports that *School COP* can produce.
- Similarly, at the Southwest Middle School, administrators report that *School COP* has helped with day-to-day handling of disciplinary cases, including helping staff monitor the behavior and actions taken against students frequently reported for bullying and providing backup documentation when speaking with parents of bullying offenders and victims.
- At Far West Middle School, the assistant principal commented that, because *School COP* makes it possible to see each student’s “rap sheet” effortlessly, it is now easier to apply “progressive discipline” based on a student’s previous punishment history. In addition, before or even while the assistant principal is meeting with or on the phone with a parent, “I call up the data on the parent’s child while we’re talking so I can be on solid ground” in talking about the student’s previous misbehavior and latest punishment. “I can show and recite the history of specific incidents—and can say we’ve bent over backwards for the kid. This history can get foggy in parents’ minds, too.” In addition, he says, “Teachers may say I’ve done nothing with this kid [by way of punishment], but I can document [with *School COP*] everything I’ve done.” In addition, *School COP* makes it possible to be fairer with students by imposing consistent punishment from one student to another. For example, the assistant principal says, “If I catch a student who has stolen a teacher’s calculator, I will look at other thefts this year [recorded in *School COP*] to see how I responded. Lots of parents and kids say, ‘That other kid got only a talking to, so why did I get a three-day suspension?’ Kids see inconsistencies in discipline right away, so [with *School COP*] I have a defense.” Being scrupulously fair is particularly important for school administrators, he observes, “because we are judge, jury, and jailer, so we need accurate data.”

For the two police department sites, *School COP*’s direct operational benefits involve a reduction in the time it takes SROs to document their activities and, for SRO supervisors, an enhanced ability to monitor their officers. In the Midwest Police Department, SROs report it takes them between 10 and 30 minutes a day to enter their data into *School COP*. Most enter the data either at the beginning or end of each day. The software reduces the time the SROs have to spend recording their activities compared with the “ridiculous” handwritten logs they used to fill out. According to one SRO, “It was like a revolution for statistical reporting.” At the Eastern Police Department, *School COP* helps meet

the SRO supervisor's need to know "what my people are doing" – that is, improving his ability to monitor and supervise his officers.

The chief of the Security Department at the West School District concurred regarding the ability to supervise his officers – "any school district could use *School COP* to get the statistics it needs to better manage its security department." In addition, the Security Department has used *School COP* to temporarily re-deploy on-duty security officers on a daily basis from one patrol area to another. The old deployment system (prior to *School COP* implementation) involved fixed assignments of officers to the school district's four "areas"; now, the number of officers assigned to each area can vary throughout the day.

Influencing Decision Making and Problem Solving

The second type of benefit resulted from using *School COP* to depict school safety conditions and trends for the purpose of *influencing a decision or solving a problem*. This was also the key type of benefit in an NIJ-funded study of how community crime prevention organizations use automated crime and arrest data obtained from police departments [Rich, 2001].

School-Level Benefits

At the individual school-level, decision making and problem solving focused primarily on supervision issues. At the Eastern Police Department, for example, an SRO was able to convince the principal at his school to change his playground supervision policy by showing the principal a *School COP* map of where incidents had occurred on school grounds over an eight-month period. At one of the schools in the Southwest School District site, administrators planned to adjust supervision policies near the school bathrooms to address the problem of bullying at these locations. More generally, at the end of the school year, each school at this site plans to study the locations where incidents occur (in particular, whether the number of incidents at these locations is increasing or decreasing) and then adjust supervision policies accordingly. In addition, when configuring classrooms for the next school year, *School COP* data will be studied to help ensure that students are not placed with others with whom they get into trouble.

As noted earlier in this section, the assistant principal at Far West Middle School routinely shared *School COP* reports and maps with a group of students. Based on these data, the students suggested a number of policy changes. For example, after examining data on the number of incidents occurring in the "6th grade hallway" (as depicted on a *School COP* map), the students suggested providing more adult supervision in the hallways, moving some 7th grade classrooms to the 6th grade hallway, and staggering the times the 6th graders go into the hallway for recess and lunch, thereby avoiding having all the 6th graders out in the corridor at the same time. In addition, because *School COP* data on incidents by time of day showed there was a problem with 6th grade recess, the group suggested giving students who behave appropriately coupons redeemable for candy from the school secretary. The assistant principal let a student sit at his computer and create and print the coupons. He gave each member of the group a half dozen coupons, telling them not use them to reward their friends. Members handed out the coupons at recess to well-behaved students.

Far West Middle School provides an excellent example of student-based problem solving, the benefits of which have been documented by other researchers [Kenney and Watson, 1998]. But perhaps more importantly than whether or not these proposed solutions impacted incident levels (or

whether they were implemented at all), there is some evidence that simply being involved in the problem solving effort benefited the students in the group, which is a key underlying assumption of student-led crime prevention efforts such as Youth Crime Watch [U.S. Department of Education, 2002]. To participate in the group, the assistant principal chose not only students with an analytic bent but also some students who had been in frequent trouble. The assistant principal has observed from their behavior that the members “are not coming to manipulate the system so they can break the rules [without getting caught].” In fact, two girls in the group have gotten into much less trouble—playground fights and disruptive classroom behavior—than in the past. “There could be other things that the school is doing with them that helped [reduce their misconduct],” he says, “but *their membership in the group is probably the principal explanation.*”

A final example of problem solving at the individual school level is at the Midwest site. As mentioned above, an SRO presented *School COP* maps to the video camera vendor. This SRO’s school had already made arrangements to install video cameras in high traffic and high incident areas throughout the inside of the school building. While most of the locations for placing the cameras were self-evident (e.g., the commons area), the SRO reported that “the software was invaluable for showing the people who have the contract why we’re putting the cameras where we were.” Furthermore, the school had been planning to install the cameras only indoors. However, the SRO was able to demonstrate through *School COP*’s mapping capability that considerable vandalism was taking place outside the school building. As a result, the school decided to place cameras outside as well as inside the school. Finally, by showing how *School COP* could map where incidents occurred, the SRO was able to help the school obtain even more funds for the cameras.

District-Level Benefits

For the three sites using *School COP* district-wide, *School COP* has helped with respect to staffing levels and program retention. The three examples below continue anecdotes mentioned above in the Data Dissemination section.

- After seeing how over-committed the West School District Security Department was, the Superintendent initiated discussions with the school board about the possibility of adding 10 more officers. To support this request, the chief took several *School COP* reports that showed incidents by location, time of day, and shift to a meeting of the school board to request additional officers. After the meeting, the Superintendent gave the chief permission to formally request additional officers in next year’s budget request.
- At the Midwest Police Department, their main reason for adopting *School COP* was to document conclusively how busy and productive the ten SROs are in order to avoid the possibility of other divisions in the police department “raiding” the SROs to increase their own personnel level and to justify continued support of the program by the police administration. Although the community services division is being proactive in case other divisions should try to “steal” its officers, there is historical precedent for being concerned. After the 9/11 tragedy, the police department lost nearly ten percent of its sworn officers to the military, and those department divisions that lost officers sought to make up for their reductions in personnel by asking the chief to transfer officers from elsewhere in the department to their divisions. The police chief, for example, abandoned the D.A.R.E. program and transferred its officers to the depleted divisions.
- As noted earlier, the SRO Supervisor at the Midwest Police Department used information and exhibits generated by *School COP* to give to the chief to use in a presentation to the school

board at the end of the 2002- 2003 school year. The SRO Supervisor reported that “the board was impressed.” As a result of this and similar presentations made possible by *School COP*, the SRO Supervisor reports that “now they [city officials] are asking, ‘Where are we going to find the funds to keep the SRO program going,’ rather than wondering, ‘Do we want to continue this program?’ ”

In general, we should remember that *School COP* is merely a tool, and, as such, the benefits realized from it depend largely on the creativity of its users. This is not unlike school-based violence prevention programs in general – Gottfredson et al (2000) make the important distinction between “an intervention that can work” (e.g., as demonstrated in a particular evaluation) and “how well the intervention does work when applied in typical settings.” In particular, their study of delinquency prevention emphasized the poor job schools do at implementing what otherwise might be potentially effective programs.

In this regard, staff at two of the project sites merit special recognition. The assistant principal at the Far West Middle School deserves much credit for broadly disseminating *School COP* data throughout his school, including to students and the bus drivers. Second, the *School COP* advocate (an SRO) at the Eastern Police Department showed how a single SRO, on his own initiative, can effect a district-wide implementation of *School COP*. Hopefully these two individuals can serve as role models for the thousands of persons in similar positions across the country.

3.5. Extent of Use

While estimating the total number of *School COP* users (including non-project sites) was not part of this project, it is clearly relevant to an overall evaluation of the software. This section discusses data received from other sources that shed light on this issue.

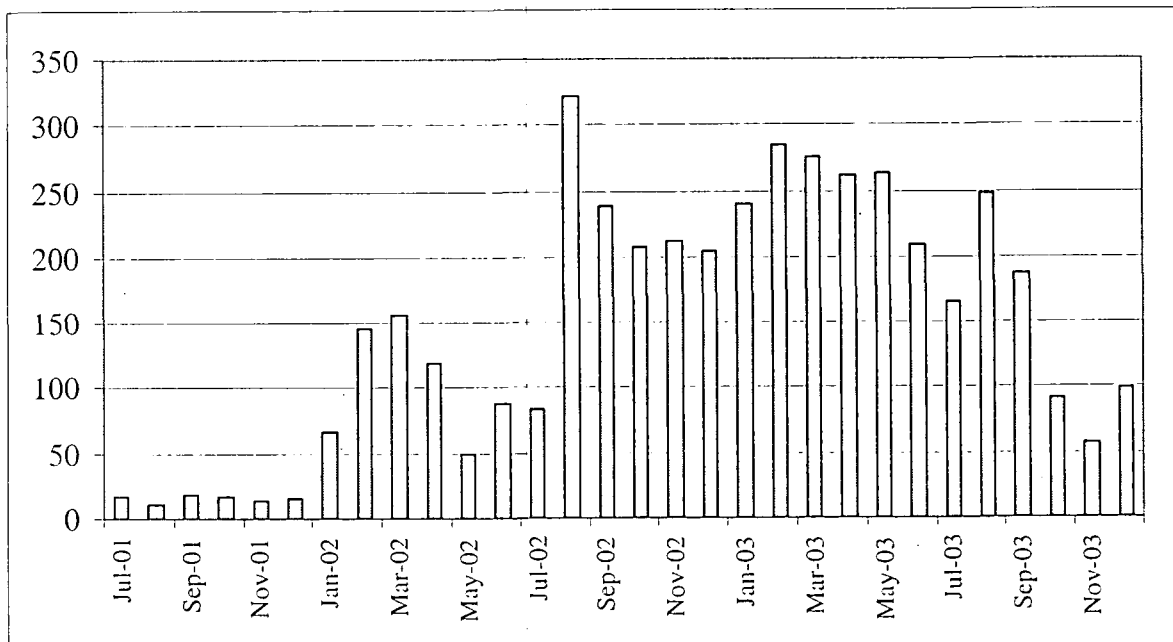
Since 2001, *School COP* has been disseminated in three major ways:

- As noted earlier, *School COP* has been disseminated at monthly “COPS In Schools” training conferences since January 2001; each of the 37 conferences held from 2001-2003 had approximately 175 attendees (roughly 2/3 are SROs and 1/3 are school administrators). Ten more conferences are scheduled for 2004.
- Since July 2001, *School COP* has been available for downloading from the *School COP* web site, where we track the number of times *School COP* has been downloaded. Exhibit 3.7 below shows the number of downloads by month. After relatively few downloads in 2001, the number increased significantly at the beginning of 2002 and again before the start of the 2002/2003 school year. In total, as of the end of 2003, the software had been downloaded 4,368 times.
- An estimated 1,000 persons obtained *School COP* from one of eight other conferences held from 2001 to 2003 at which *School COP* CDs were distributed, including four NIJ, two COPS Office, and two Department of Education (National Center for Education Statistics) conferences.

In addition, an unknown number of *School COP* users obtain the software from other *School COP* users (e.g., one SRO from a school district attends a COPS In School conference but then gives the CD to all the other SROs in the district). For example, across the six sites included in our study, 11

persons attended COPS In Schools conferences; in addition, staff at the sites also downloaded *School COP* a total of 5 times. However, there are at least 36 persons using *School COP* at the six sites.

Exhibit 3.7: Number of *School COP* Downloads from Web site by Month (thru 2003)



Unfortunately, data on *actual use* of *School COP* are only available for the COPS In Schools conferences, as no attempt was made to contact persons who downloaded the software or attended one of the other conferences.

At that end of each COPS In Schools conference, the conference logistics vendor tallies responses to conference evaluation forms, which attendees have to complete in order to be reimbursed for their expenses. One question asks whether or not the attendee (or someone else at their school) will use *School COP*. Over the 37 conferences from January 2001 through December 2003, the percentage of attendees who indicate “yes” to this question has ranged from **75 to 92 percent**. The conference logistics vendor also conducted in early 2003 follow-up interviews with a random sample of attendees approximately six months after the conference. During the interview, attendees are asked whether they are using the software. Out of 452 attendees surveyed, **35 percent** indicated that they or someone at their school was using *School COP*.²² The large difference between the percentage who say they *will* and *actually do* use it is not surprising – anyone who obtains software goes through a process of deciding whether they actually want to use it. In the end, it is common to request software – especially free software – but never actually use it. According to the logistics vendor, the two most common reasons the conference attendees gave for not using *School COP* are “just not finding the time to use it” and general satisfaction with their current method of collecting data.

²² Circle Solutions, Inc. “COPS In Schools Training Series: January 2001 through August 2002 Final Report.” A report to the Office of Community Oriented Policing Services, July 2003.

Thus, the estimated total number of *School COP* users – based only on the COPS In Schools conferences – is 2,250.²³

²³ 37 conferences x 175 attendees x .35 = 2,266. We should note that the “actual use” percentage for persons who download *School COP* from the web site may be higher than the 35 percent figure for COPS In Schools conferences. Conference attendees go to the conferences because it is a grant requirement, not because they want to get *School COP*. By contrast, presumably people download *School COP* because they want to seriously consider using it.

4. Evaluation Findings: Web School COP Site

As noted earlier in this report, we initially proposed that one of the six sites help design and then test and implement the new *Web School COP*, but were unable to recruit any site for this role. Reviewing the recruitment process at potential sites provides insights into the important question of why the Windows version of *School COP* was widely adopted but the Web version was not.

4.1. Recruitment Process

The recruitment process for a test site for the *Web School COP* focused on large school districts that were interested in broadly disseminating school incident information throughout the school community, including to school security officials, school administrators, and, possibly, parent organizations or other governmental agencies. Focusing on large school districts also increased the likelihood that the school district would have the necessary information technology infrastructure to run the *Web School COP* – that is, the current Microsoft web platform.²⁴ Since use of *Web School COP* was designed as an add-on to the Windows *School COP* (i.e., sites collect school incident data with the Windows version and then disseminate it with the Web version), we also focused on sites that either were already using or planned to use the Windows version.

Recruitment activities in three potential *Web School COP* sites are summarized below.

Site 1

Our January 2001 proposal to NIJ included a letter of cooperation from a school district that agreed to be the test site for *Web School COP*. This school district has 80 schools, thus meeting our requirement of a large district. The district's security office is staffed by a Director (who signed the letter of cooperation), six investigators, and a secretary. A half dozen SROs from local law enforcement agencies also provide services to the school district.

The district was one of the early "beta testers" of the original version of *School COP*. When Abt project staff met with officials from the school district security office in November 2000 to discuss the beta version, they made a number of important suggestions, including adding the ability to track user-defined sets of incidents and students.²⁵ The Security Director's initial comment, however, was that "this should run on an Intranet" so that the data could be disseminated throughout the district.

The Security Director no doubt viewed *Web School COP* as a way to raise awareness about school safety issues, improve the level of reporting in the district, and improve his office's ability to proactively identify threats or problems before they escalate. At the time, only incidents that involved a student suspension or expulsion were documented at the district level, using the district's student information system, which was also used on a daily basis to record student attendance, grades, and

²⁴ Specifically, a Windows 2000 Server and SQL Database are required to run *Web School COP*.

²⁵ This led to the "special circumstances" field on the Incident screen and the "special characteristics" field on the People Involved screen (see the appendix).

schedules. Even worse, local schools typically only reported to the Security Office those incidents that were likely to result in a long-term suspension or expulsion, which total roughly 600 incidents per year (i.e., less than one incident per school per month).

Once the *School COP* Enhancement and Evaluation grant began, however, the (new) Superintendent and the school district's Information Technology (IT) Director could not be persuaded to support the project. The IT Director's support, in particular, was required because *Web School COP* would be installed on computer systems that he controlled. The IT Director's position on the project was simple: "We already have a system for tracking incidents" (i.e., the district's student information system). While the Security Director believed this system was completely inadequate for tracking incidents, the IT Director believed it was "good enough." In effect, he believed that the added benefits of more complete incident tracking (see the appendix "The Differences Between Incident-Based and Student-Based Systems") did not outweigh the costs associated with running *Web School COP* in parallel with the district's student information system, which district staff were already required to use.

Site 2

Recruiting efforts then shifted to a large school district (125 schools) whose security office had been using the Windows version of *School COP* for nearly a year. Reports of "serious" incidents are faxed to the security office, where the Director's secretary enters them into *School COP*. As appropriate, cases were assigned to investigators in the office, some of whom used *School COP* to track their own cases (they re-entered assigned cases into their own copy of *School COP*). When interviewed at the end of the *School COP* Development grant and asked what features he would like to see added, the Security Director said that it needed to be network-enabled. Later, he indicated that he was "really looking forward to the Web version." Accordingly, he was contacted after Site 1 declined to participate.

In the end, however, it became clear that the Security Director's primary interest in *Web School COP* was improving data *collection*, rather than data *dissemination*. He wanted incident reports entered directly at the schools (rather than being faxed to his secretary) with a unique tracking number automatically assigned upon entry. This would both relieve some of the workload from his office and solve the problem of duplicate incident reports being faxed to his office (e.g., one by the principal and one by a security office field officer); such a system would also create a standardized incident reporting form, which currently did not exist in the district. The existing Windows version of *School COP* fully met his office's dissemination needs – that is, the Security Director was content with producing summary reports and distributing hard-copy reports, as needed.

Thus, in the case of Site 2, the product, as designed, did not meet the customer's needs, and project resources were not available to add data entry capabilities to *Web School COP*.²⁶

²⁶ As noted earlier, based on our experience in building the Windows version of *School COP*, we estimated that the cost of developing data entry functionality would be roughly the same as developing the data analysis features, which had already been developed by the time Site 2 was being recruited.

Site 3

Site 3, a school district with approximately 200 schools, was not satisfied with their two existing systems for tracking school incidents:

- Suspensions and expulsions (but not lesser sanctions) are tracked in the discipline module of the school district's student information system. Minimal information is captured on these events: the date the incident that led to the disciplinary action occurred, the reason for the disciplinary action, information about the student suspended (but not about other persons involved in the incident), and information about the action taken (e.g., length of suspension). These data, however, are not directly analyzable in the student information system; instead, a central school district office prepares a data extract for each school two to three times a year that contains all data on their students; if desired, schools can import these databases into desktop software applications for further analysis.
- Serious incidents (i.e., criminal offenses and incidents requiring immediate medical attention) are immediately reported to a central school district office, where secretaries enter facts about the incident into an internally-developed PC database application. No identifying student information is entered, since the primary purpose of this system is to ensure that the appropriate agencies and persons within the district are notified and respond to the incident. The system is not used for follow-up investigative purposes – in particular, none of the information entered is later verified or updated.

Site 3 initially planned to implement both the Windows and Web versions of *School COP* to improve collection and dissemination of incident data (especially to the school district security office, which does not have on-line access to the serious incident database). Several months later, following a committee's review of alternative strategies, the district changed their mind, in part because a key *School COP* advocate was transferred to another office and also because, in all likelihood, the committee decided that the "Windows plus Web *School COP*" approach was not the best long-term technology solution for the school district. In particular, the best solution is an incident reporting and analysis system (with analysis features like those in *School COP*) that is integrated with their student information system, because the student information system already serves many of the district's operational needs, and additional "specialized" information systems increase maintenance and support costs and are at risk for falling into disuse if key system users transfer positions or leave the school district.

Other Potential Sites

Extensive discussions were also held with five other potential Web *School COP* sites:

- Two sites came to the same conclusion as Site 1 – that is, their existing student information systems are "good enough" for tracking incidents occurring on campus.
- One site reached the same conclusion as Site 2 – they currently used the Windows *School COP*, would have appreciated a Web-based system for data entry, but were not interested in expanding data dissemination beyond the capabilities of the Windows version.
- Two sites did not have the required Microsoft web platform (one site had planned to purchase the necessary equipment, but the purchase was delayed due to general budget cuts). This

realization was made prior to discussions with decision makers at these sites (i.e., the Information Technology Director and the Superintendent).

4.2. Discussion

In assessing our lack of success in recruiting a design and beta test partner for Web *School COP*, it is helpful to re-visit the situation we faced in 2000 when we were developing the Windows version of *School COP*. At that time, we had no problem finding partners because:

- The school safety person contacted could see immediate ***direct operational benefits*** to using Windows *School COP*. That is, they had an existing task – e.g., discipline management, incident documentation, required monthly reports – that would be made easier by using the software. In addition to the operational benefits, persons contacted could also envision other ***ad-hoc uses*** for Windows *School COP*, including many of the benefits noted in section 3 of this report.
- The software could be immediately installed on their own, existing equipment without first obtaining permission from others.

By contrast, with Web *School COP*:

- The school safety person contacted could only envision possible ***ad-hoc uses***, either for themselves or others in the agency; in particular, they didn't see that Web *School COP*'s data dissemination capabilities provided any ***direct operational benefits***.
- This person did not control the equipment on to which the software needed to be installed. Moreover, the required equipment (Microsoft Web platforms) are far less ubiquitous than Windows PCs.

In general, we still believe that giving people on-line access to heretofore unavailable information is inherently a good idea. In the case of Web *School COP*, however, we encountered two unforeseen obstacles:

- We didn't anticipate that the network-enabled Windows *School COP* (developed as part of the Enhancement and Evaluation grant) would, in many cases, meet the site's dissemination needs, as perceived by the *School COP* advocate.
- We underestimated the extent of opposition from staff connected to the school district's student information system. In particular, information technology directors, given their mission of running large networks, tend to be conservative and very protective of their equipment. They viewed Web *School COP* as either redundant (and felt that their student information system was "good enough") or a less than optimal technology solution.

In truth, as Site 2 (see section 4.1) probably concluded, the ideal technology solution is to integrate an incident-based reporting system into the district's student information system – that way, there is one system, one vendor, one maintenance contract, etc. Until this happens, information technology directors must decide whether it is worth the cost of having two separate systems (the student information system for attendance, grades, student schedules, etc., and the incident reporting system for tracking incidents) or if the student information system is "good enough" for incident reporting systems. Based on the experience in this project, school district information technology directors believe the latter option is preferred.

5. Conclusions and Future Efforts

5.1. Key Findings

This study's findings on the nature and extent of the Windows version of *School COP* use highlights the important role that NIJ can play in technology dissemination, especially with information technology, because there is minimal expense in posting taxpayer-funded software to a Web site and making it available to anyone. A very modest investment of taxpayer funds in developing *School COP* has benefited thousands of persons charged with keeping schools safe. Because *School COP* is available at no-cost, a far greater number of schools can benefit from the products than would if they were privately-developed and sold for a price. Indeed, given the current budget climate, it is clear that the vast majority of users would not have been able to afford a comparable commercial system.

The widespread use of the Windows version of *School COP*, coupled with our lack of success in implementing Web *School COP*, reinforces two predictors for successful information technology projects. *The first is having minimal requirements for running the system, including hardware, software, expertise, and bureaucratic approvals.* Specific questions that should be asked of all proposals for information technology development include:

- What additional purchases – including equipment and software – must the site make?
- What are the associated customization, training, and maintenance costs?
- Who are the users and what specific need is being met? Is the software meeting an operational need or is it intended to support a vague “planning” or other ad-hoc effort? Are there decisions directly tied to use of the software?
- Whose approval is needed to implement the technology?
- Whose equipment will it run on and will the site agree to have it installed?
- Are there data or other requirements that require on-going cooperation with others, particularly those from other agencies?

The second predictor of success is having a well-defined user with a well-defined need. The Windows version of *School COP* was developed in 2000 in response to a newly emerging public safety need (i.e., school safety). Law enforcement officers assigned to schools had information needs that existing law enforcement information systems could not meet (e.g., information on non-criminal incidents occurring on campuses). There were commercially information systems that could meet these officers' needs, but in the current budget climate the vast majority simply could not afford those products. In addition, because of heightened concern over school safety, school administrators who had informal methods for documenting school incidents have realized that more formal systems are needed so that they can more closely monitor at-risk students, respond to parent and community concerns about school safety, and, in general, keep closer tabs on “what’s going on” in the school. For this reason, the success of Windows *School COP* should have been easily predicted.

5.2. Future Efforts

Instances in which changing public safety conditions give rise to new information needs that existing information systems cannot meet effectively will no doubt arise in the future. In fact, this is likely

already occurring in the homeland security arena. For example, local law enforcement agencies are now increasingly focused on terrorism tracking and intelligence gathering, and, accordingly, are establishing point persons for this activity within the department. Existing police information systems, such as records management systems, are not effective information tools for these officers, because terrorism-related intelligence information is often highly confidential, somewhat speculative, and does not fit the highly structured constructs in records management systems (e.g., incidents and crimes). Again, commercial alternatives exist for these officers and their departments, but the vast majority will not be able to afford them.

In terms of future work related to *School COP*, while users are always asking for additional enhancements (e.g., a built-in spellchecker, a PDA version), the most important thing is to ensure that *School COP* is not rendered obsolete by new versions of Windows or other futures changes to Windows-based personal computers. By doing so, *School COP* will continue to be available in the foreseeable future. It would also be beneficial to encourage other software developers to create enhancements to *School COP* that could be shared with other users, much like other "open source" products. The *School COP* Web site, for example, could be enhanced to provide for code sharing and source code check-out.

In terms of future work related to *Web School COP*, our experiences with this project suggest that a more fruitful way to disseminate incident data and tools to analyze those data is to work with student information system vendors to enhance their products with *School COP*-like analysis tools. As one of the potential *Web School COP* sites concluded, the ideal technology solution involves a single product that meets both operational needs of school administrators and safety personnel and provides sophisticated tools for analyzing data.

Finally, from a research perspective, the existence of thousands of *School COP* databases suggests the possibility of a detailed examination into the nature and extent of school crime and disorder. Currently, national estimates of school crime and disorder are based on quadrennial Federally-sponsored surveys of a sample of school principals. Obtaining actual counts of incidents and crimes, as collected in *School COP*, is an alternative approach that could be explored.

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Appendix

The appendix contains:

- A discussion of the differences between incident-based systems (e.g., *School COP*) and student-based systems (e.g., student information systems)
- A detailed discussion, including screen shots of both the Enhanced Windows and Web versions of *School COP*.

Differences Between Incident-Based and Student-Based Systems

There are important, but perhaps subtle, differences between incident-based systems (the model used in *School COP*) and student-based systems (the model used in discipline referral systems and student information systems). Three key differences involve:

- *When does the incident get documented?* With incident-based systems, the incident is documented when it is reported to school administrators; with student-based systems, the incident is documented when (if ever) the alleged perpetrator is identified and taken to administrator's office.
- *What type of information is documented?* Incident-based systems record (1) basic facts about the incident (e.g., what happened, where did it happen, and when did it happen), (2) information about who was involved in the incident, including perpetrators, victims, witnesses, and suspects, and (3) information about what actions were taken against perpetrators. Student-based systems record information pertaining to a particular student (e.g., when and why was s/he referred and what action was taken against the student). Importantly, in student-based systems, there is no direct link to other students involved in the incident. Another way to think about this is in terms of what corresponding paper forms would look like:
 - A paper incident form is divided into two sections. The top section captures basic facts about the incident – what happened, where did it happen, and when did it happen. The bottom section captures information about all the different persons involved in the incident (i.e., there is one subsection for each person involved in the incident).
 - A paper student referral form has only one section, which captures information about a specific person involved in the incident.
- *What follow-up questions can be asked to understand the scope of the problem?* Incident-based systems can answer questions about both incidents and students involved in the incidents, whereas student-based referral systems, because there is no direct link between students involved in the same incident, can only answer questions about students. In other words, incident-based systems allow school administrators to identify problem *areas* (e.g., a specific hallway, specific times of the day) as well as problem *students*.

The following scenarios illustrate these differences:

Scenario 1

A teacher breaks up a fight involving two students and sends them immediately to the principal's office.

	Incident-Based System	Student-Based System
What gets recorded	<ul style="list-style-type: none"> Information about the incident (e.g., where and when it happened) Information about the two students involved in the incident. Both are linked to the incident information. 	<ul style="list-style-type: none"> Information about the first student and, separately, information about the second student. The two records are not linked.
General types of related questions that can be answered at the end of the year	<ul style="list-style-type: none"> The number of fights Characteristics about students involved in fights Characteristics about where and when fights occurred 	<ul style="list-style-type: none"> Characteristics about students involved in fights

Scenario 2

A teacher enters her classroom and discovers three windows have been broken. A suspect is never identified.

	Incident-Based System	Student-Based System
What gets recorded	<ul style="list-style-type: none"> Information about the incident (e.g., where and when it happened) 	<ul style="list-style-type: none"> Nothing
General types of related questions that can be answered at the end of the year	<ul style="list-style-type: none"> The number of vandalism incidents Characteristics about where and when acts of vandalism occurred 	<ul style="list-style-type: none"> Nothing

Scenario 3

A student tells a school administrator that she was sexually harassed but is afraid to identify the students who harassed her.

	Incident-Based System	Student-Based System
What gets recorded	<ul style="list-style-type: none"> ◦ Information about the incident (e.g., where and when it happened) ◦ Information about the student who was victimized 	<ul style="list-style-type: none"> ◦ Nothing until the alleged perpetrators are identified
General types of related questions that can be answered at the end of the year	<ul style="list-style-type: none"> ◦ The number of sexual harassment incidents ◦ Characteristics of students who engage in sexual harassment ◦ Characteristics of students who sexually harassed 	<ul style="list-style-type: none"> ◦ Characteristics of students that engage in sexual harassment

Finally, another method of distinguishing incident-based and student-based systems is to examine a few of the specific data elements that could be captured in these systems:

Incident-Based System	Student-Based System
Incident number (unique identifier)	Referral number (unique identifier)
Reported by	Referred by
Incident type	Incident type (referral reason)
Incident date and time	Incident date and time
Incident location	Incident location
General description of incident	General description of incident
Investigator	Investigator
For each person involved in the incident: <ul style="list-style-type: none"> ◦ Person's Name ◦ Identifying information (e.g., student ID #) ◦ How involved (e.g., perpetrator, victim) ◦ Action taken (e.g., suspension) 	Student's name
	Identifying information (e.g., student ID #)
	Action taken (e.g., suspension)

Enhanced Windows *School COP* Description

As discussed in Section 2.1, the Enhanced Windows version of *School COP* consists of three separate software applications – a network-enabled Windows version of *School COP*²⁷, the *School COP* Merge Utility, and the *School COP* Viewer. Each is discussed below.

Network-Enabled *School COP*

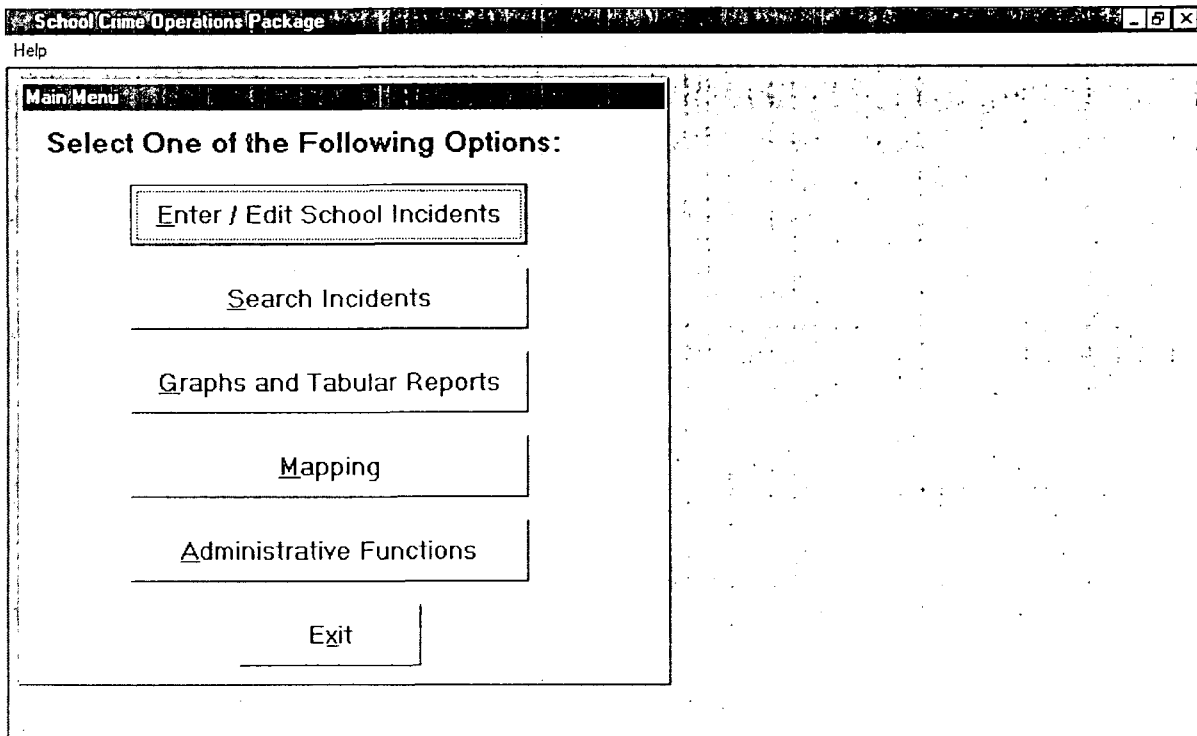
Installation and Login

The *School COP* installation routine conforms to Windows standards and thus will be familiar to anyone who has previously installed any software. The installation routine creates commands off the Windows Start button for running (1) *School COP* with a sample database containing roughly 100 incidents at a mythical school; (2) *School COP* with an empty database into which the user will enter their own data; and (3) the *School COP* help system.

Starting *School COP* displays the login screen. *School COP* comes configured with one login ID and password set. Additional login IDs and passwords can be created, and users can change the admin login ID password.

After a valid login ID and password set are entered, the *School COP* main menu is displayed (see Exhibit A.1).

Exhibit A.1: *School COP* Main Menu



²⁷ Near the end of the grant period, additional changes were made to *School COP* as part of a different project. Thus, the current version available on the *School COP* Web site has some features – notably a new screen for recording school safety “activities” – that are not shown in the screen shots below.

The Main Menu is the gateway for entering new incidents, performing searches, running canned reports and graphs, and producing multi-layer maps. The Administrative Functions button provides access to screens for building the *School COP* geobase, configuring other code tables, and performing other administrative functions, such as login ID management and backing up data.

Setup and Customization

Before starting to use *School COP* to enter their own incident data, users can customize the package to meet the needs of their school(s). Specifically, *School COP* allows users to pre-enter codes in code tables for attributes related to incidents (e.g., incident type and location) and for attributes of persons involved in incidents (e.g., how they were involved and what action, if any, was taken against them). Pre-defining code tables before entering data enables users to enter information about new incidents faster – instead of having to type in information from scratch, users simply click on the desired code from a drop-down list. This also helps ensure consistency in the information entered about each incident and protects against misspelling and typographical errors.

In all, there are 14 *School COP* code tables. Three must be built from scratch – schools, areas, and locations, which together constitute the *School COP* geobase (see ‘Geobase Construction’ below). *School COP* includes values for the other 11 code tables that can be modified to meet local needs. Five of the 11 are related to an incident:

- *incident severity*, which indicates the general seriousness of the incident (e.g., felony, misdemeanor, school rule violation);
- *incident type*, which provides a description of what happened (e.g., assault, defiance, dress code violation);
- *weapon used*, which indicates which type of weapon involved in the incident (e.g., knife, gun);
- *special circumstances*, which enables users to track specific types of incidents that are not included in the other code tables (e.g., gang-related incidents, hate crimes); and,
- *status*, which indicates whether the incident is currently under investigation or is closed.

The other six are related to people involved in an incident:

- *person type*, which indicates whether the person was a student, staff, teacher, non-student, etc.;
- *race*, which indicates the person’s racial background;
- *special characteristics*, which enables users to track specific types of persons that are not included in the other code tables (e.g., special education students, gang members);
- *grade*, which indicates the grade level of the person;
- *involvement*, which indicates how the person was involved in an incident (e.g., victim, perpetrator, witness, suspect); and,
- *action taken*, which indicates what type of sanction, if any, was given to the person (e.g., suspension, expulsion).

Code values are entered using screens such as the one shown in exhibit A.2, which is the status code table screen. The “Record 1 of 3” label indicates that three status codes are currently defined.

Exhibit A.2: Status Code Entry Screen

Status Codes

Use this form to enter or edit codes used to describe the status of a school incident. Click "Exit" to return to the administrative menu.

Status Code:

Status Code Description:

<< < > >> Record 1 of 3

Add New Save Undo Edit Delete Find Exit

Geobase Construction

The most important part of customizing *School COP* is building the geobase. Users create their own geographic description of their school(s) in *School COP*, using a three-tiered system of schools, areas, and locations. Any number of schools can be entered in *School COP*, using the screen shown in exhibit A.3.

Exhibit A.3: Defining Schools

School Information

Use this form to enter or edit information about schools for which you will be collecting incident information. Click "Exit" to return to the administrative menu.

School Name:

School Number: District Number:

Address:

Principal:

Phone Number:

Safety Contact:

Safety Contact Phone Number:

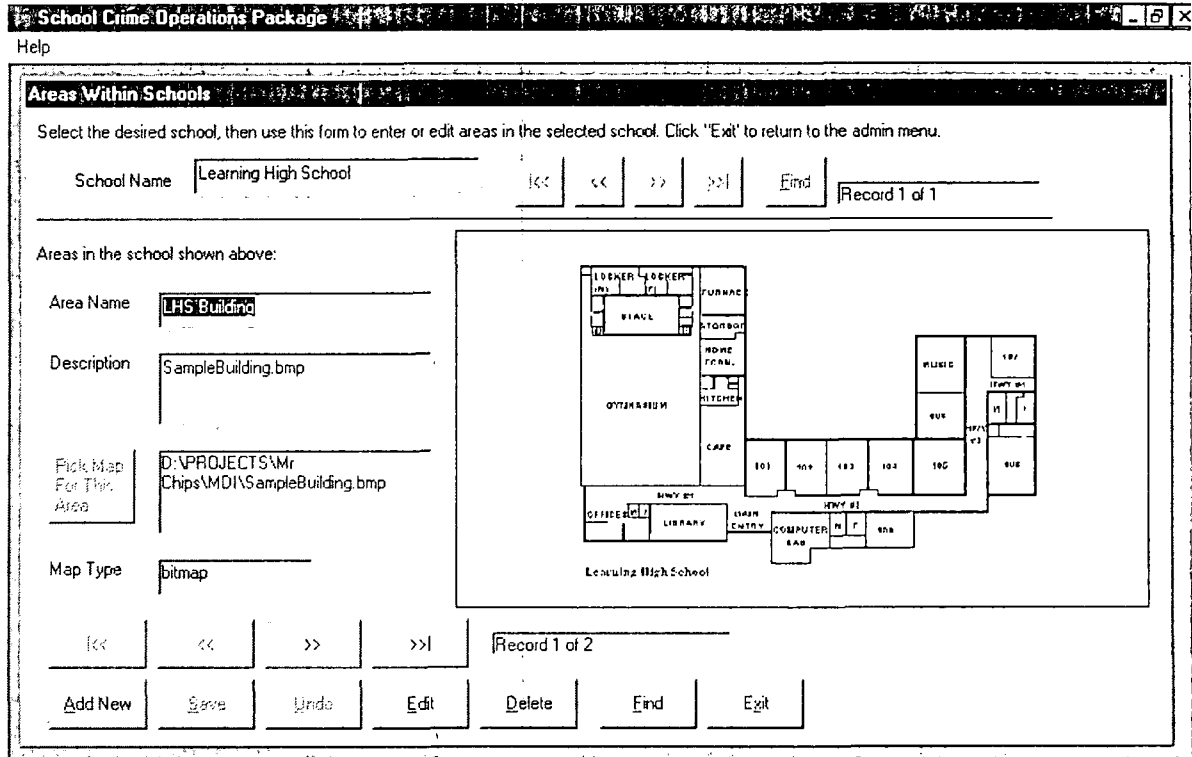
<< < > >> Record 1 of 1

Add New Save Undo Edit Delete Find Exit

Each school that users define can be divided into one or more "areas," with a specific map associated with each area. For example, a modest sized two-story school might have four areas – one for each floor, one for the school grounds, and one for the bus routes. Exhibit A.4 shows the map that has

been assigned to the area “LHS Building,” which is one area within the school named Learning High School. The label “Record 1 of 2” below the map indicates that this particular school has two areas.

Exhibit A.4: Assigning a Map to an Area



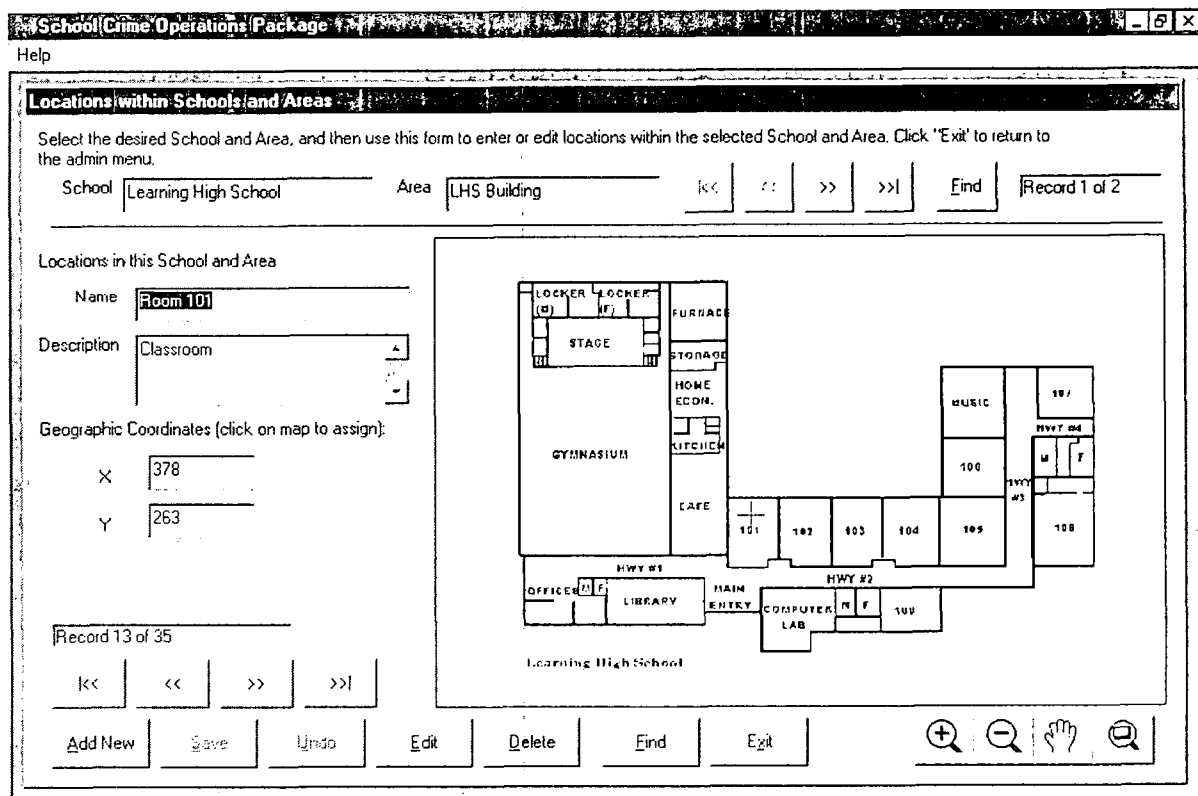
Next, users can define specific point locations within each area by typing in names of locations and then clicking on the map to specify where the location is. This allows users to be as specific as desired in defining locations. For example, a hallway could be a single location or divided into several locations. Exhibit A.5 shows the screen for assigning locations to areas. The label “Record 13 of 35” indicates that the displayed location (i.e., “Room 101”) is one of 35 locations in the area “LHS Building,” which is part of the school named “Learning High School.” The cross-hairs on the map show where the user clicked the map when assigning the location named “Room 101” to a point on the map. When the map is clicked, the X and Y coordinates are automatically read and associated with this location. When scanned images are used, the coordinate pair (0, 0) is located in the lower left corner of the map.

It should be noted that *School COP* only allows “point locations” – regions cannot be defined. Accordingly, *School COP* cannot produce thematic maps. As discussed earlier in this section, all *School COP* incident maps are graduated symbol maps.²⁸ Regions could have been incorporated in *School COP* if an alternative approach to building a geobase with scanned images had been used. That approach involves overlaying a fine-structured grid on a map, wherein the map is divided into,

²⁸ In general, different methods are used to construct graduated symbol maps. In *School COP*, the “square root” method is used – that is, the symbol size at a particular location on the map is proportional to the square root of the number of points at that location divided by the maximum number of points at any location on the map.

say, a 1000 by 1000 matrix of cells. There are advantages and disadvantages of both the grid and *School COP* approaches. The grid approach involves less setup work for the user, but more work when entering incidents (i.e., locations must be specified on a map when entering new incidents, as opposed to when the geobase is defined). It is also easier to be more precise in specifying the location of new incidents using the grid approach (e.g., rather than picking 'Faculty Parking Lot' from the list of pre-entered locations, users could simply click on the exact spot in the parking lot where the incident occurred). In the end, however, the grid approach was not selected because, again, of the project goal of making *School COP* usable by as many agencies as possible, and using the grid approach would require agencies to have and use maps to define locations. The *School COP* approach outlined in this section allows for detailed mapping, but does not *require* users to have maps. That is, schools, areas, and locations can be defined without reference to any maps.

Exhibit A.5: Assigning Locations to Areas



Geocoding Incidents

To complete the discussion of how *School COP* implements mapping, an overview of how incidents are geocoded – that is, how geographic coordinates are associated with an incident location – follows; additional details on the data entry process, of which geocoding is one component, are discussed later in the appendix.

When new incidents are entered in *School COP*, users indicate where the incident occurred by first selecting the school, area, and location where the incident occurred. Exhibit A.6 shows the incident data entry screen, with a new incident that occurred in Room 101 being added. The exhibit shows

that users need only choose from the pre-entered list of schools, areas, and locations. In particular, the location drop-down list shown in exhibit A.6 only contains the pre-entered locations associated with Learning High School and the area "LHS Building." Selecting from the lists, as opposed to typing in the location, enhances data quality by ensuring consistent spelling. Once the location is entered and the incident is saved, the X and Y coordinates associated with the location are automatically stored in the incident record, where they can be used for producing incident maps.

Exhibit A.6: Geocoding New Incidents

The screenshot shows a software window titled "School Crime Operations Package" with a "Help" button. The main window is titled "School Incidents" and contains the following fields and controls:

- Incident #:** 01-012
- Date (mm/dd/yy):** 4/17/01
- School Year (yy/yy):** 00/01
- Time (hhmm):** 1400
- Entered By:** Eric
- Entry Date:** 4/17/01
- School:** Learning High School
- Area:** LHS Building
- Location:** Room 101 (with a dropdown menu showing Room 101 through Room 108)
- Incident Type:** Room 101
- Severity:** Room 101
- Weapon:** (empty dropdown)
- Special Circumstance:** (empty dropdown)
- Reported By:** (empty text field)
- Investigator:** (empty text field)
- Status:** (empty dropdown)
- Other Agency Case Number:** (empty text field)
- Narrative:** (empty text area)

At the bottom of the window, there are several buttons and a "Reports" section:

- Buttons: Add New, Save, Undo, Edit, Enter / Edit People Involved..., Adding New Record, Delete, Find, Exit.
- Reports:** Incident Report, Graph, Loc. Summary, Map.

Data Entry

There are two *School COP* data entry screens – one for attributes related to the incident (see exhibit A.7) and the other for attributes related to a person involved in the incident (see exhibit A.8).

Exhibit A.7: Incident Data Entry Screen

School Crime Operations Package

Help

School Incidents

Use this form to enter or edit information about school incidents. Click 'Exit' to return to the main menu.

Incident # School Weapon

Date (mm/dd/yy) Area Special Circumstance

School Year (yy/yy) Location Reported By

Time (hhmm) Incident Type Investigator

Entered By Severity Status

Entry Date Other Agency Case Number

Narrative

Enter / Edit People Involved...

Record 107 of 107

Reports

Incident Report Graph

List Summary Map

<< < > >>

Add New Save Undo Edit Delete Find Exit

After the screen in exhibit A.7 is filled out and saved, information about people involved in the incident can be entered by clicking the button labeled "Enter / Edit People Involved...", which displays the People Involved Screen (see exhibit A.8). Zero, one, or more than one persons can be associated with an incident.

Exhibit A.8: People Involved Data Entry Screen

Persons Involved in Incident 01-9014

Use this form to enter or edit information about persons involved in the incident. Click 'Exit' to return to the main incident form.

Name (Last, First)	Rose, Bob	Person Type	Student
Date of Birth (mm/dd/yy)	11/2/86	Gender	M
Race	White	School	Learning High School
Special Characteristics	Gang member	Student ID	
Contact Information		Grade	11th Grade

Involvement In Incident: Perpetrator

Action Taken: Type: Suspension Start Date (mm/dd/yy): 4/20/01 End Date (mm/dd/yy): 4/25/01

Comments: [Empty text area]

Record 1 of 1

Reports for This Person:
This Incident
All Incidents

Buttons: Add New, Save, Undo, Edit, Delete, Find, Exit

Together, exhibits A.7 and A.8 show the data elements included in the *School COP* database. Of particular note in the screens are the fields with drop down lists (i.e., fields with the pull down arrows on the far right). These fields correspond to those that have associated code tables.

Data Analysis

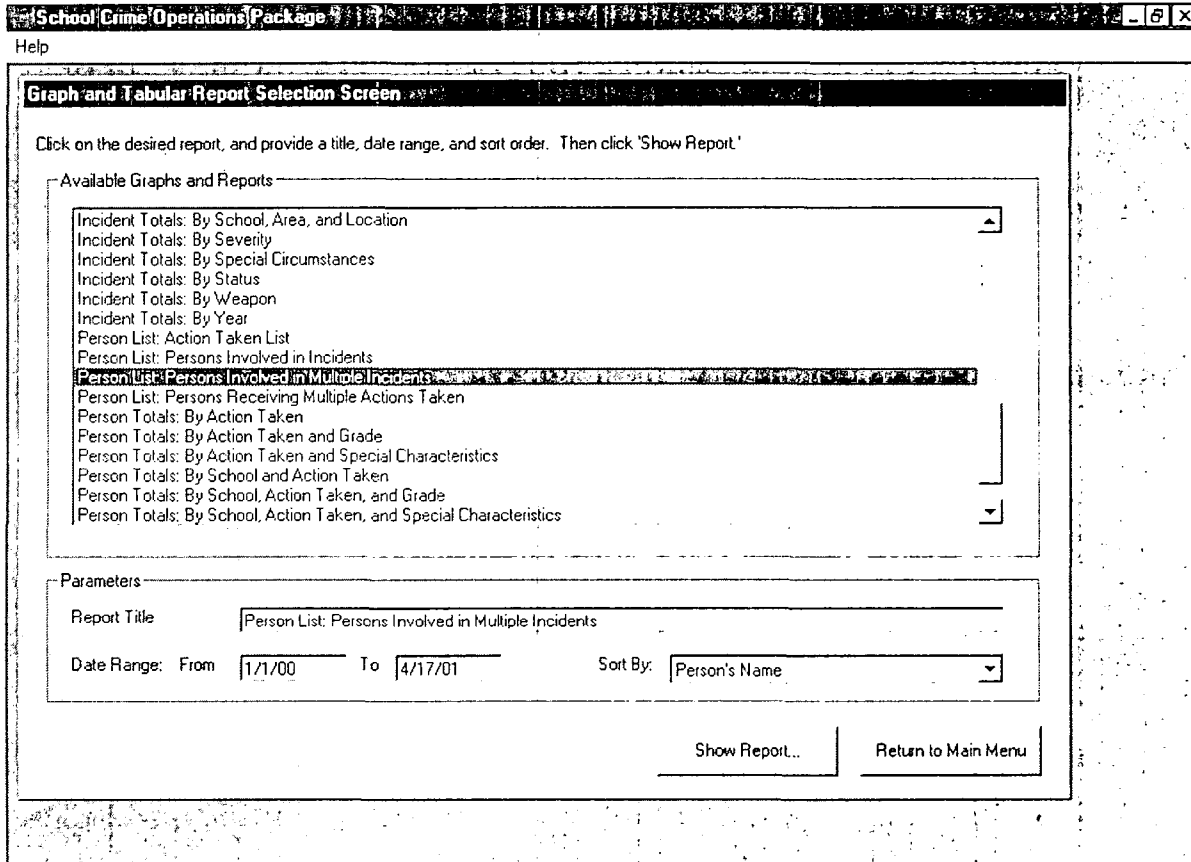
School COP has three main options for analyzing data: running canned reports and graphs, 'search and analyze,' and creating multi-layer maps.

Canned Reports and Graphs

The easiest method for analyzing data – geared primarily toward data novices – involves running one of the pre-formatted 'canned' reports and graphs. Clicking 'Graphs and Tabular Reports' on the Main Menu (see exhibit A.1) displays a list of available graphs and tabular reports (see exhibit A.9). The list includes aggregate graphs (e.g., the number of incidents by location), incident lists (e.g., all incidents occurring in a specified time period sorted by date and time), person lists (e.g., persons involved in multiple incidents), aggregate incident reports (e.g., the number of incidents by school

and type), aggregate person reports (e.g., the number of persons involved in incidents by school and action taken), and utility reports (e.g., code table listings).

Exhibit A.9: List of Canned Reports and Graphs



Date ranges and sort orders can be selected for most reports.

Search and Analyze

Whereas the canned reports are geared toward novice database users, the search and analyze method offers advanced users an unlimited number of ways to analyze a *School COP* database.

The Search Incident screen (see exhibit A.10) enables users to search for incidents meeting a single condition (e.g., all incidents involving a weapon) or multiple conditions (e.g., all incidents involving a weapon at a particular school occurring during a particular time period that involved a victim). As many conditions as desired can be specified on the Search Incident screen, including values in the free form incident narrative and person comments fields. For example, exhibit A.10 shows a search for all incidents occurring inside the building of Learning High School that involved vandalism.

Exhibit A.10: Search Incident Screen

Search Criteria	
Specify search criterion (see note below) in as many fields as desired, and then click 'Search' to search the database.	
Incident Fields Incident # <input type="text"/> Incident Date <input type="text"/> School Year (yy/yy) <input type="text"/> Incident Time <input type="text"/> School <input type="text" value="Learning High School"/> Area <input type="text" value="LHS Building"/> Location <input type="text"/> Incident Type <input type="text" value="Trespassing"/> Severity <input type="text"/> Weapon Type <input type="text"/> Special Circumstances <input type="text"/> Reported By <input type="text"/> Investigator <input type="text"/> Status <input type="text"/> Other Agency Case # <input type="text"/> Narrative (see note) <input type="text"/>	People Involved Fields Person Name <input type="text"/> Date of Birth <input type="text"/> Gender <input type="text"/> Race <input type="text"/> Special Characteristics <input type="text"/> Person Type <input type="text"/> School <input type="text"/> Student ID <input type="text"/> Grade <input type="text"/> Contact Information <input type="text"/> Involvement <input type="text"/> Action Taken Type <input type="text"/> Action Taken Start Date <input type="text"/> Action Taken End Date <input type="text"/> Comments (see note) <input type="text"/>
Note: Date and time fields can include a dash (-) to indicate a range; other fields can include a star (*) as a multiple character wildcard, a question mark (?) as a single character wildcard, or a pound sign (#) as a single digit wildcard. For narrative and comment fields, include * on either end of keyword (e.g., *drugs*)	
<input type="button" value="Search"/>	
<input type="button" value="Cancel"/>	

After the 'Search' button is clicked, the database is searched and the number of incidents meeting the specified conditions is announced to the user (see exhibit A.11). In the example shown in exhibit A.10, 13 incident matched the search criteria:

Exhibit A.11: Search Results

School Crime Operations Package
13 incident records matched your search criteria. The most recently entered is displayed; use the <<, <, >, or >> buttons to view the other 12 incidents.
<input type="button" value="OK"/>

At this point, users have a number of options. They can view details of the records matching the search criteria (see exhibit A.12):

Exhibit A.12: Browsing Search Results

The screenshot shows a window titled "School Crime Operations Package" with a "Help" button. The main window is titled "School Incidents: Search Results". At the top, it displays the search criteria: "Area = LHS Building; Incident Type = Trespassing; School = Learning High School".

The search results are displayed in a grid of fields:

Incident #	203	School	Learning High School	Weapon	None
Date (mm/dd/yy)	12/23/00	Area	LHS Building	Special Circumstance	Possible Gang-Related
School Year (yy/yy)	00/01	Location	Cafeteria	Reported By	Mrs. Winger
Time (hhmm)	1400	Incident Type	Trespassing	Investigator	Off. Ward
Entered By	Off. Ward	Severity	Misdemeanor	Status	Closed
Entry Date	7/17/00	Other Agency Case Number			

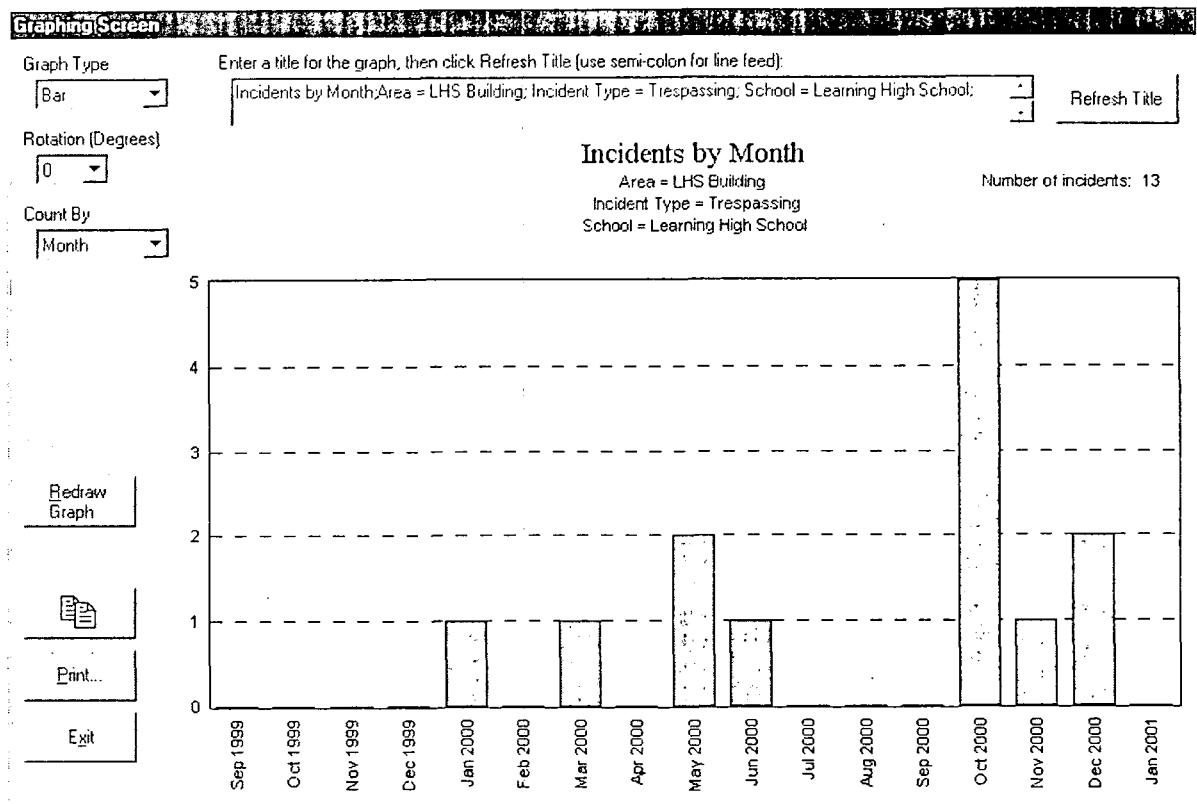
Below the grid is a "Narrative" field containing the text: "Garner Smith was seen in the cafeteria. Off. Ward had twice previously advised Smith to stay out of the building."

At the bottom of the window, there are several buttons and a status bar. The status bar shows "Record 13 of 13". The buttons include: "K<<", "<<", ">>", ">>K", "Enter / Edit People Involved...", "Add New", "Save", "Undo", "Edit", "Delete", "Find", "Exit", and a "Reports" section with "Incident Report", "Graph", "List Summary", and "Map" buttons.

The label "Record 13 of 13" in exhibit A.12 indicates the number of records matching the search criteria and the English language equivalent of the criteria is shown near the top of the screen. The navigation buttons (|<<<, <<, >>, >>|) can be used to view the other incidents meeting the criteria.

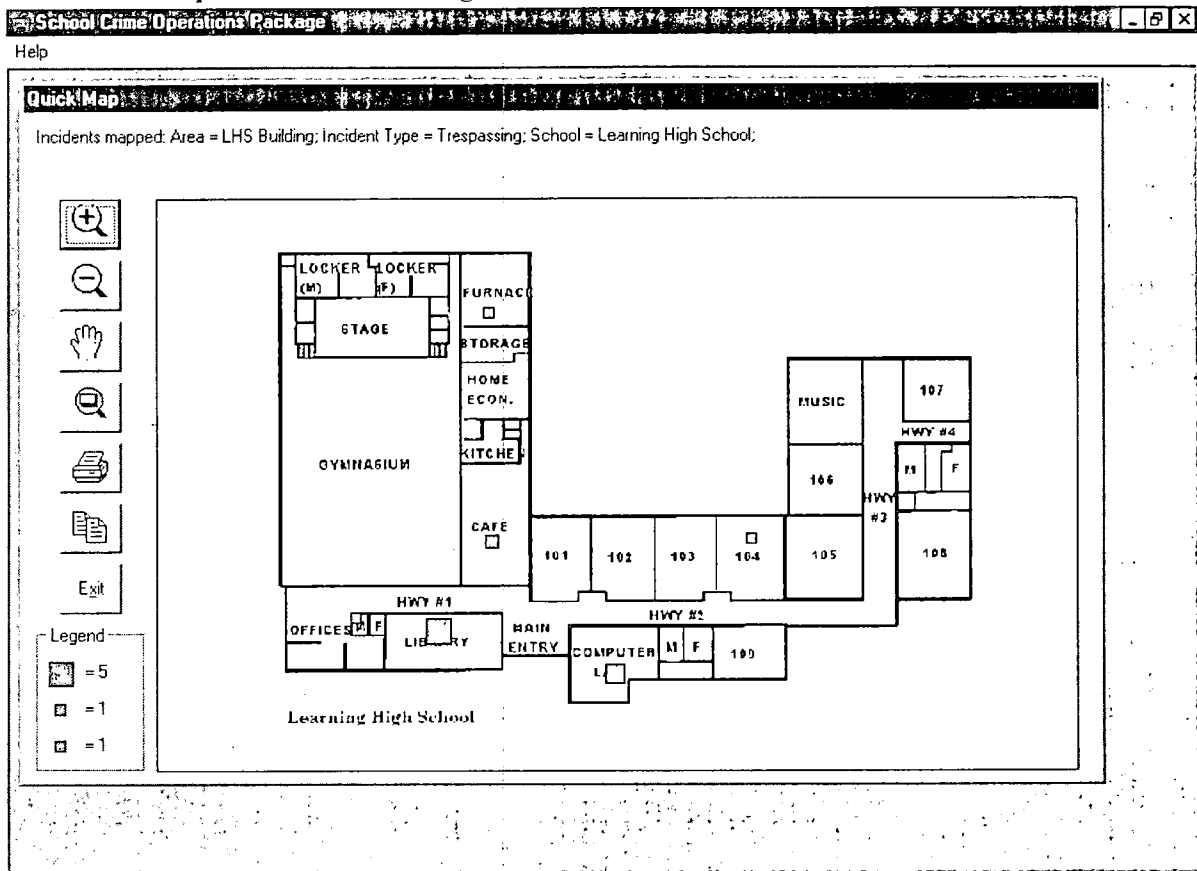
Clicking the 'Graph' button on exhibit A.12 displays a graph of the incidents meeting the search criteria (see exhibit A.13). A default graph showing the number of incidents by month is displayed, but by clicking the 'Count By' drop down, the X-axis variable can be changed to date, year, school year, time, school, area, location, incident type, severity, weapon, special circumstance, or status. Clicking the 'Graph Type' button can change the bar graph to a line graph, pie chart, or 3-D graph (in which a second variable can be included on the graph). Graphs can be pasted into word processing or presentation documents by clicking the copy button on the screen.

Exhibit A.13: Records Meeting Search Criteria Displayed Graphically



Finally, if an incident search criteria includes a specific school and area, the results of the search can be mapped. Exhibit A.14 shows the map produced if the 'Map' button on exhibit A.12 is clicked. As noted earlier this section, all *School COP* maps are graduated symbol maps, in which symbol sizes vary in proportion to the number of incidents at each location. With potentially a large number of different symbol sizes displayed on the map, legends for graduated symbol maps typically do not show the value corresponding to all the different symbol sizes. *School COP* map legends show icon size associated with three symbol sizes – the maximum, middle, and minimum values. The algorithm for generating the legend sometimes yields three different symbol sizes in the legend; other times, as is the case with exhibit A.14, only two different symbol sizes are shown. Finally, it should be noted that, as with graphs, maps can be pasted into other documents by clicking the copy button on the screen.

Exhibit A.14: Map of Incidents Meeting Search Criteria



Multi-Layer Maps

A general mapping screen allows *School COP* users to create multi-layer maps of school incidents. The map in exhibit A.15 shows incidents involving drug possession as one layer, incidents involving tobacco as another layer, and incidents involving alcohol as another layer. The legend in the lower left corner shows the maximum sized icon on the map for each of the layers.

The idea behind this screen is to present a very simple user interface for building a multi-layer map. All of the controls for building the map are shown on a single screen, as opposed to a series of "question and answer" screens, enabling users to quickly change the map and, more importantly, be reminded of what they mapped. In trading off ease-of-use, the screen does limit the user in terms of what can be mapped: currently the data layers can only include one of the incident severity or incident type codes, in addition to a date and time range. On the other hand, other map layers (e.g., police data in either bitmap or ESRI shapefile format) can be included in the map.

Exhibit A.15: Multi-Layer Map

Mapping Screen

Learning High School

1. Pick Incident Type

Type: Drug Possession □ = 1

Type: Alcohol ○ = 4

Type: Tobacco ▲ = 3

Any smaller icons on map represent proportionately smaller numbers of incidents

2. Pick Date and Time Range

Date: 1/1/00 to 3/9/01

Time: 0 to 2400

3. Pick School and Area

School: Learning High School

Area Within School: LHS Building

4. Click Here to Produce Map

Display Other Maps Zoom To

<none> ⌂

<none> ⌂

<none> ⌂

School COP Viewer Description

The *School COP* Viewer is a modified version of *School COP* that enables users to view – but not add, edit, or delete – incident information. The Viewer is intended for sites that have installed *School COP* on a network, but want to restrict some users to read-only access of *School COP* data. The Viewer also does not allow access to the *School COP* Administrative Functions menu.

Installation

To install the *School COP* Viewer, simply replace the *School COP* executable (schoolcop.exe) with the *School COP* Viewer executable (schoolcopviewer.exe) on each PC where you want the Viewer installed, and then modify the *School COP* shortcut so that the Viewer is run.

Viewer Features

The Viewer features are best explained by contrasting it to analogous features in *School COP*.

Exhibits A.16 and A.17 show, respectively, the Main Menus in *School COP* and the Viewer. Note that the Viewer Main Menu does not have the Administrative Functions button.

Exhibit A.16: School COP Main Menu

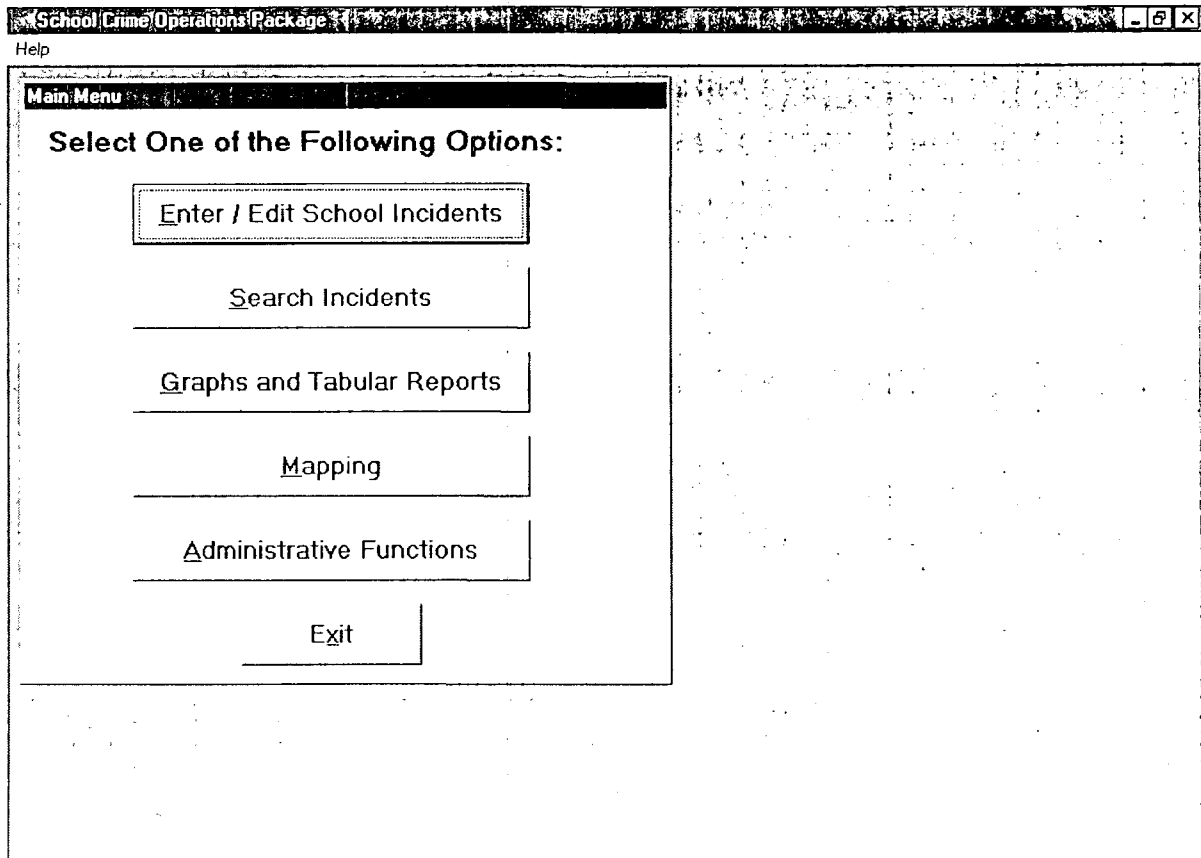
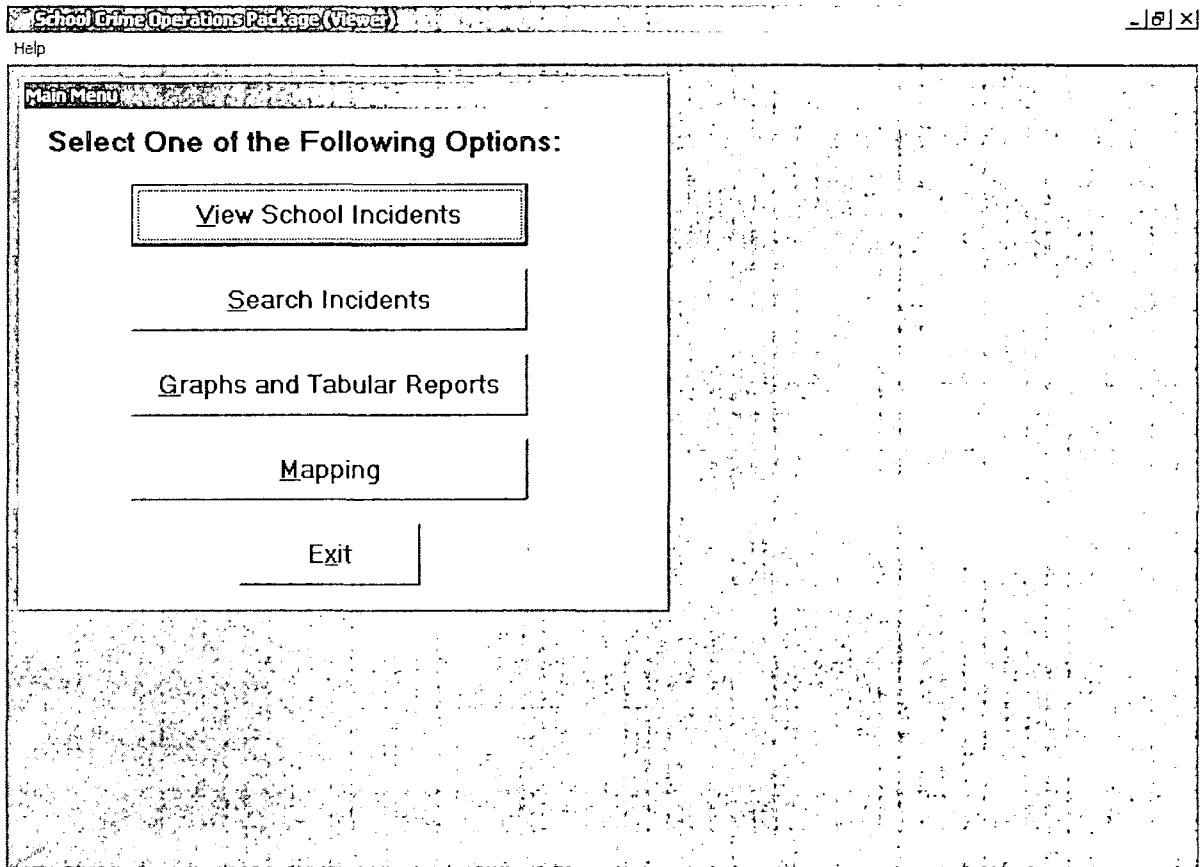


Exhibit A.17: *School COP* Viewer Main Menu



Exhibits A.18 and A.19 show, respectively, the Incident Screen in *School COP* and the Viewer. Note that the Add, Edit, and Delete buttons are absent on the Viewer's Incident Screen.

Exhibit A.18: School COP Incident Screen

School Crime Operations Package

Help

School Incidents

Use this form to enter or edit information about school incidents. Click 'Exit' to return to the main menu.

Incident # School Weapon

Date (mm/dd/yy) Area Special Circumstance

School Year (yy/yy) Location Reported By

Time (hhmm) Incident Type Investigator

Entered By Severity Status

Entry Date Other Agency Case Number

Narrative

Enter / Edit People Involved...

Record 107 of 107

Reports: Incident Report, Graph, List Summary, Map

Navigation: <<< << >> >>>

Buttons: Add New, Save, Undo, Edit, Delete, Find, Exit

Exhibit A.19: School COP Viewer Incident Screen

School Crime Operations Package (Viewer) _ | 6 | X

Help

School Incidents

Use this form to view information about school incidents. Click 'Exit' to return to the main menu.

Incident #	2222	School	Learning High School	Weapon	Gun
Date (mm/dd/yy)	11/20/2001	Area	LHS Building	Special Circumstance	Gang-Related
School Year (yy/yy)	01/02	Location	Hallway to Boys Locker Room	Reported By	
Time (hhmm)	1022	Incident Type	Alcohol	Investigator	
Entered By		Severity	Misdemeanor	Status	
Entry Date	11/20/2001	Other Agency Case Number			

Narrative

View People Involved...

Record 186 of 186

<<
>>
End
Exit

Reports

Incident Report

Graph

List Summary

Map

School COP Merge Description

The *School COP Merge* application allows you to combine several *School COP* databases into a single database, which in turn can be run using *School COP*.

The application may be useful if, for example, staff at several individual schools use *School COP* at their school, and staff at the school district office want to be able to analyze incidents entered at all the schools. In this case, local school officials could e-mail their *School COP* databases to the district office, where staff could use the Merge application to combine all the school-level databases into a single database.

Installation

The *School COP Merge* installation routine conforms to Windows standards and thus will be familiar to anyone who has previously installed any software. The installation routine creates commands off the Windows Start button for running (1) the *School COP Merge* and (2) the *School COP Merge* help system.

In order to run the *School COP Merge* application you must have *School COP* installed on your computer. In addition, the *School COP* executable (*schoolcop.exe*) should be in the same folder as the *School COP Merge* executable (*schoolcopmerge.exe*)

Operation

Operating the Merge application involves three steps (see exhibit A.20):

1. Indicating which *School COP* databases you want to merge. Any number of databases can be merged. The application verifies that each database is a valid *School COP* database.
2. Indicating the name and location (i.e., folder) of the newly created merged database. A default name is provided that includes the current date.
3. Merging the databases, by clicking the 'Do Merge' button.

After the databases are merged, you can immediately launch *School COP* with the newly created merged database by clicking the 'Exit and Run *School COP* with Merged Database' button.

The 'Exit and Run *School COP* with a Different Database' button can be used to launch *School COP* with some other database – for example, a merged database that was created the previous month.

Exhibit A.20: School COP Merge

School COP Merge _ | e | x |

Help

Merge School COP Databases

1. Pick the School COP databases you want to merge:

2. Pick a drive, folder, and name for the new, merged School COP database:

2a. Pick a drive:

2b. Pick a folder on the selected drive:

2c. Pick a name:

Your selected drive, folder, and name for the new, merged School COP database is:

3.

or or

Web School COP Description

This section provides an overview of Web *School COP*.

Installation

Web *School COP* was developed using the Microsoft .NET platform. As such, it must be installed on a Web server that includes:

- Windows 2000 Server
- SQL Server 2000
- .NET Framework (Version 1.1)

Users who access Web *School COP* must have Internet Explorer Version 5 (or more recent).

The application and database are packaged into a single zip file. The zip file contains:

- Web *School COP* source code
- The compiled Web application
- A SQL Server database

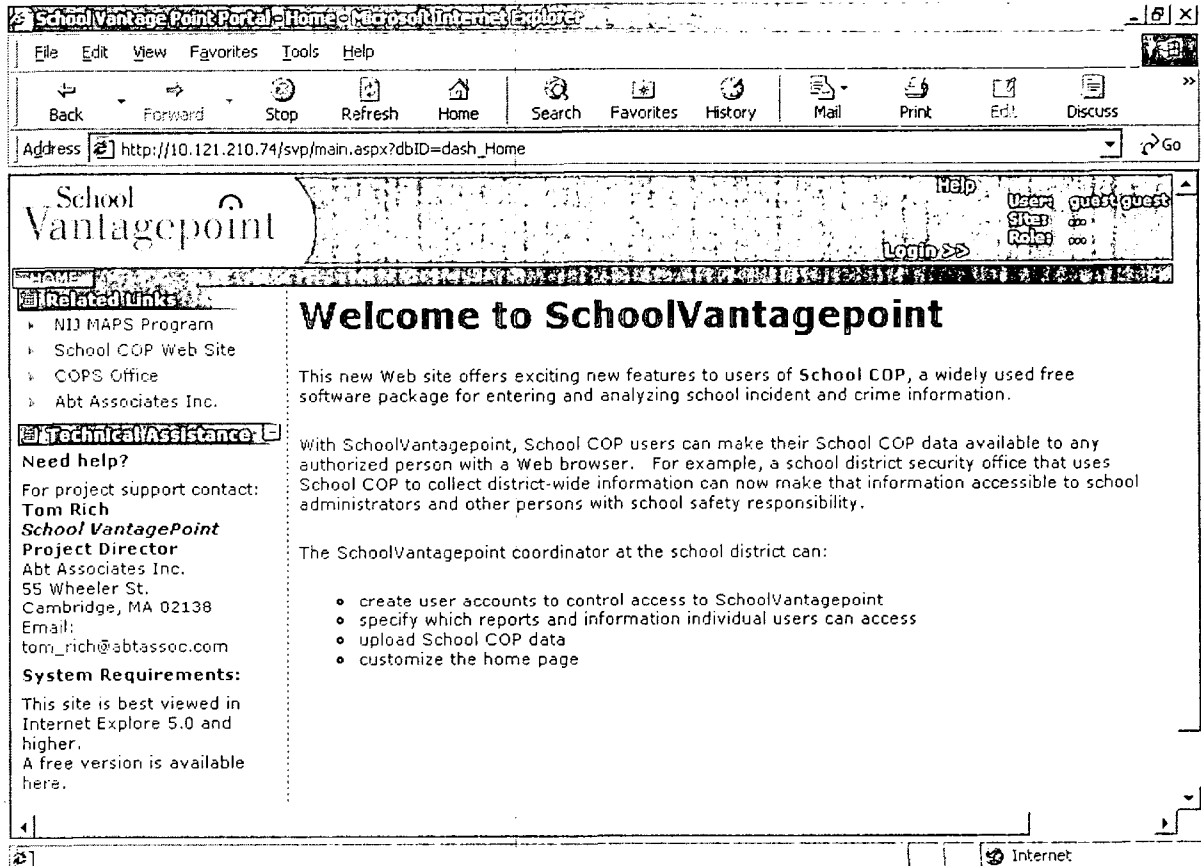
The zip file is available from NIJ or from the *School COP* Project Director.

A Webmaster must install Web *School COP*; in brief, the installation steps are (1) copy the Web Application subdirectory of the zip file to the server, and rename the directory, as appropriate; (2) use the Internet Information Server management console to configure the directory as a Web application; and (3) use SQL Server Enterprise Manager to restore the database.

Home Page and Role-Based Security

Exhibit A.21 below shows *Web School COP*'s home page created for the demo application.²⁹

Exhibit A.21: *Web School COP* Home Page

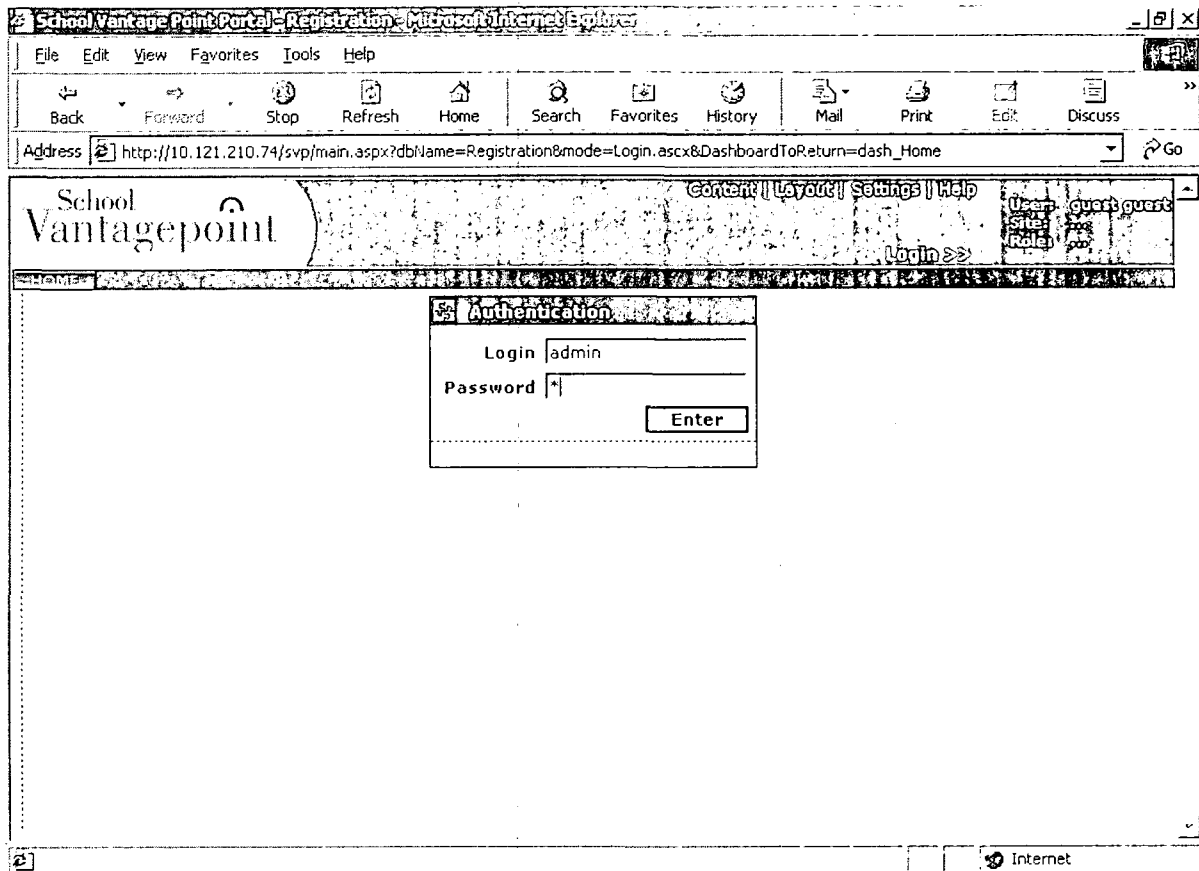


As discussed below, the site's system administrator can easily modify any of the text on the Home Page – for example, change the “Welcome to SchoolVantagepoint” to “Welcome to Anytown’s School Safety System”. The system administrator can also change the list of web links section in the upper left corner.

²⁹ SchoolVantagepoint is a name project staff used for a demo version of *Web School COP*. Sites using *Web School COP* would select their own names (and modify the web page headers accordingly).

To login to the system, the user clicks the "Login >>" link in the upper right part of the Home Page. A login dialog box then appears:

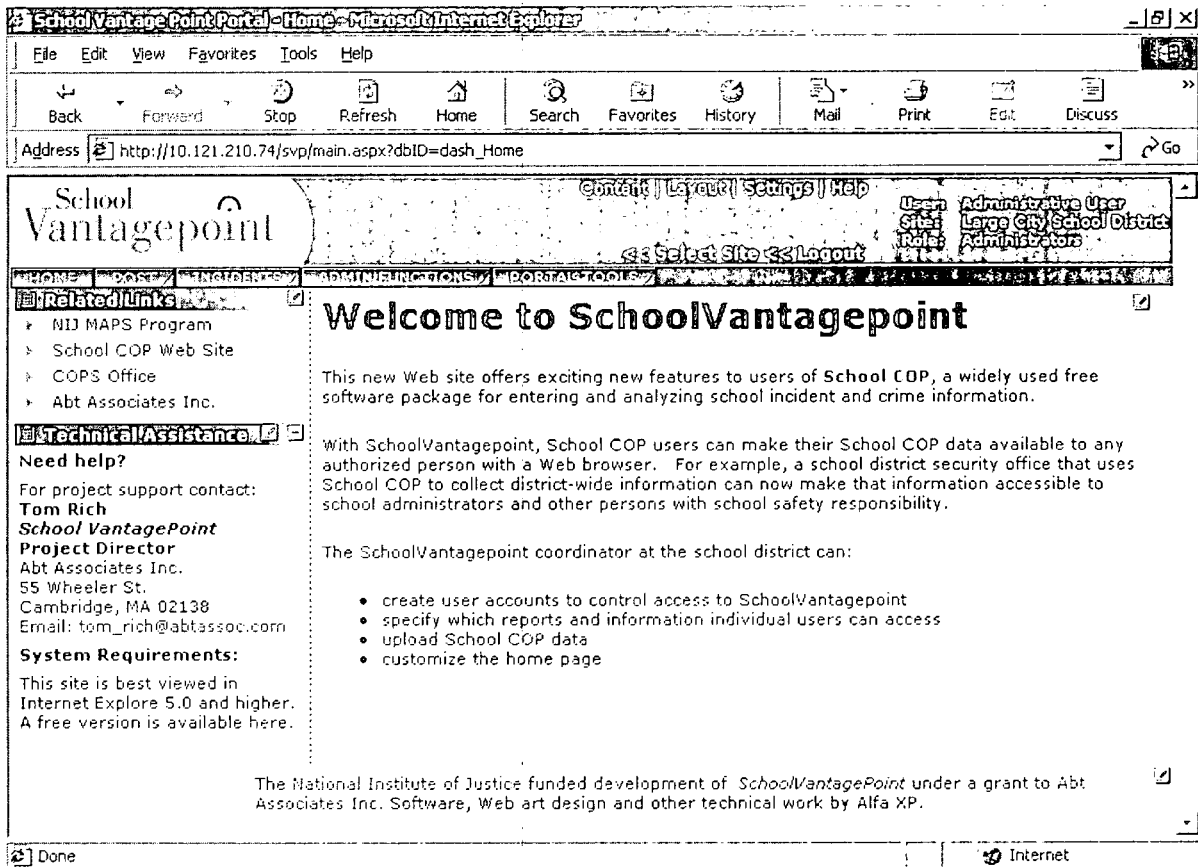
Exhibit A.22: Web School COP Login



What appears after a successful login depends on the access privileges granted by the site's system administrator to the person logging in. In exhibit A.22, the system administrator is logging in; the web page then displayed is shown in exhibit A.23. Notice some important changes between the Home Page (exhibit A.21) and the Home Page after the system administrator logs in (exhibit A.23):

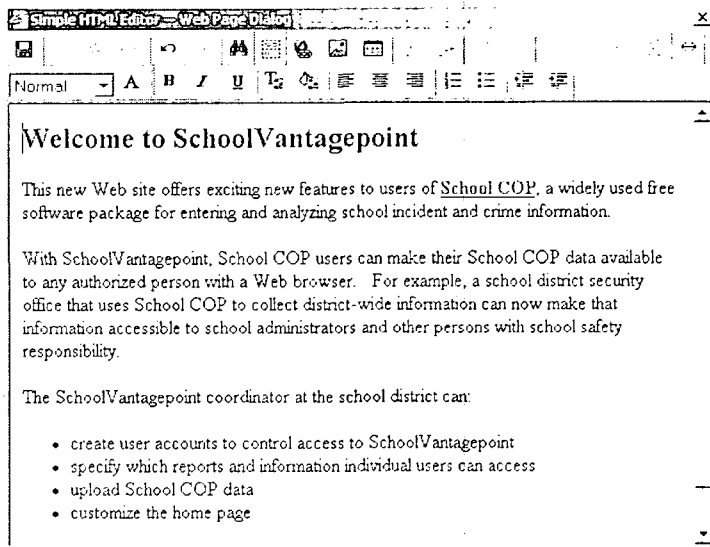
- Additional menu bars – Post, Incidents, Admin Functions, and Portal Tools – appear on the Page that give the system administrator access to a variety of functions.
- The User, Site, and Role in the upper right corner of the screen have been filled in.
- Three panels on the Page – Related Links, Technical Assistance, and the main panel (where “Welcome to SchoolVantagepoint” appears) – have small pencil icons in the upper right corner of the panels, which signifies that the panel can now be edited (see below).

Exhibit A.23: Home Page After System Administrator Logs In



Clicking the main panel's pencil icon displays a text editing screen (see exhibit A.24) that can be used to change the content of the main panel.

Exhibit A.24: Editing the Content of the Home Page

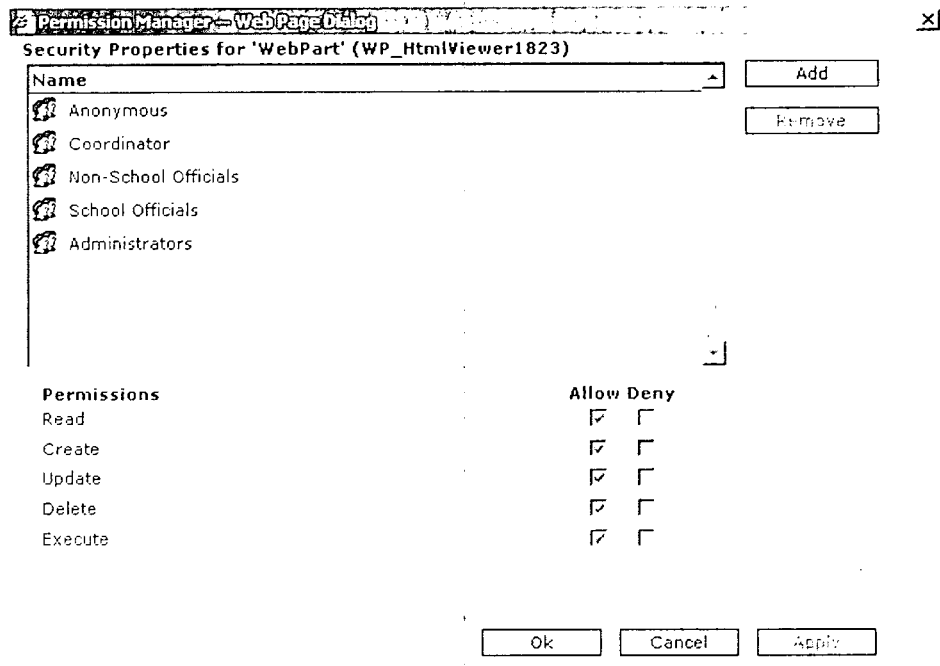


As shown in exhibit A.24, the system administrator has access to a full array of editing tools, so that place text, graphics, hyperlinks, tables, and other objects can be placed on the Home Page.

Exhibits A.25 and A.26 show why the system administrator can edit the Home Page, but other users cannot. These exhibits illustrate *Web School.COP*'s "Permission Manager".

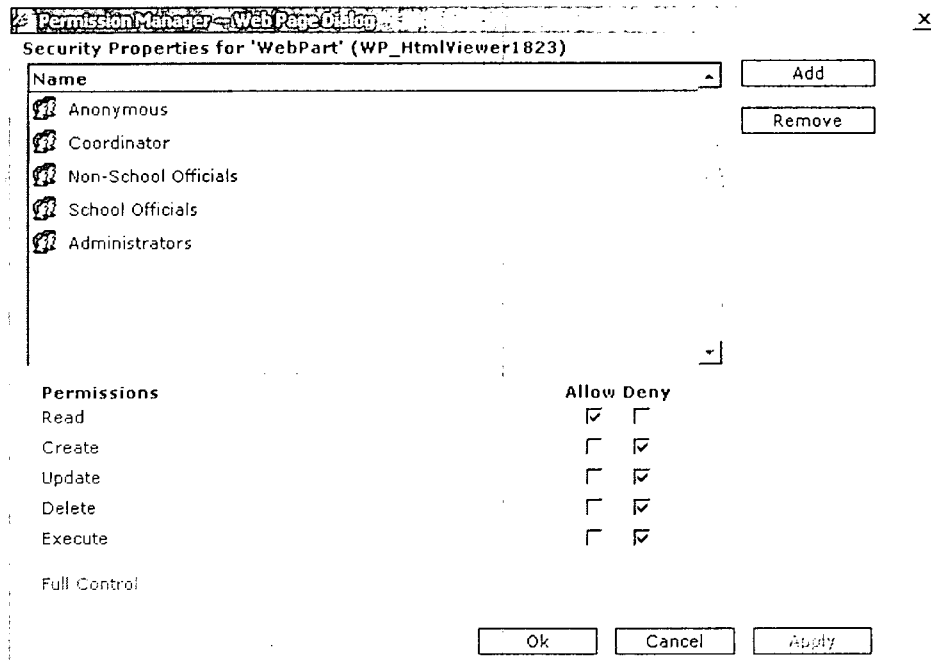
Clicking the Portal Tools menu on the Home Page (see exhibit A.23) provides access to the Permission Manager. Exhibit A.25 shows the current permission settings for the main panel on the Home Page for the system administrator. Note that "Allow" is checked for all the different types of permissions.

Exhibit A.25: System Administrator Permissions for the Mail Panel on the Home Page



By contrast, exhibit A.26 shows the current permission settings for the Coordinator: users with this assigned role can “read” the main panel on the Home Page (i.e., they can see it), but they cannot change it.

Exhibit A.26: Coordinator Permissions for the Main Panel on the Home Page



In general, the Permission Manager is used to control access to any object within *Web School COP*, including panels on the Home Page, menu bars, and individual reports and graphs.

As shown in exhibit A.26, five “roles” were created for the demo version of *Web School COP*, which sites implementing the system can retain or create their own (i.e., via the ‘Add’ button in exhibit A.26). Every authorized user is assigned one of these roles. Specific rights (i.e., access to Web pages, to reports, etc.) were also created for each role (again, these are modifiable by a site’s system administrator):

- The Administrator has complete access to every object on every Web page (e.g., they can edit the content of the Home Page, create a new report, edit an existing report).
- The “Coordinator” role is envisioned for the key school safety person in the district; s/he would be responsible for importing *School COP* data collected with the Windows version of the package and would have access to all reports in the system.
- The “School Officials” role is envisioned for security and administrative staff at the schools; these users may have more limited access to data and reports than the coordinator.
- The “Non-School Officials” role is envisioned for parent groups or staff from other agencies whose access to *School COP* data is severely restricted (e.g., only certain aggregate reports).
- The “anonymous” role is envisioned for the general public – in all likelihood, sites would disable this role.

Data Analysis

Web *School COP* data analysis features are accessible under the Incidents menu bar. Exhibit A.27 shows the Home Page and contents of the Incident menu bar for a user assigned the role “Coordinator.”

The Browse and Search options provide access to incident level details. In all likelihood, sites would want to restrict this level of detail, so, for example, a user with a “non-school official” role would not have access to either of these options (i.e., when a “non-school official” logged into Web *School COP*, the only command appearing under the Incident menu bar would be ‘Reports’). Both screens are similar to the analogous screen in the Windows *School COP* (see exhibits A.7 and A.10).

Exhibit A.27: Data Analysis Options for Users with Coordinator Role

School VantagePoint Portal - Home - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss

Address http://10.121.210.74/svp/main.aspx?dbID=dash_Home

School VantagePoint

Help User Site Role Admin Site Role Large City School District Coordinator Logout

HOME POSTS INCIDENTS ADMINISTRATION

Related Links

- Browse
- Reports
- Search

Technical Assistance

Need help?

For project support contact:
Tom Rich
School VantagePoint
Project Director
Abt Associates Inc.
55 Wheeler St.
Cambridge, MA 02138
Email:
tom_rich@abtsoc.com

System Requirements:
This site is best viewed in Internet Explorer 5.0 and higher.
A free version is available here.

Welcome to SchoolVantagepoint

This new Web site offers exciting new features to users of School COP, a widely used free software package for entering and analyzing school incident and crime information.

With SchoolVantagepoint, School COP users can make their School COP data available to any authorized person with a Web browser. For example, a school district security office that uses School COP to collect district-wide information can now make that information accessible to school administrators and other persons with school safety responsibility.

The SchoolVantagepoint coordinator at the school district can:

- create user accounts to control access to SchoolVantagepoint
- specify which reports and information individual users can access
- upload School COP data
- customize the home page

The National Institute of Justice funded development of SchoolVantagePoint under a grant to Abt Associates Inc.

Done Internet

The Reports screen (see exhibit A.28) shows the tabular reports and graphs available to the user, which again varies according to permissions set by the system administrator. For example, only one of the five reports shown in exhibit A.28 – the Incident Totals by School and Month aggregate report – might be made available to non-school officials.

Exhibit A.28: Illustrative Reports Screen

The screenshot shows a web browser window with the following details:

- Browser:** Internet Explorer
- Address Bar:** http://10.121.210.74/svp/main.aspx?dbID=DB_Reports20
- Page Title:** School Vantagepoint Incident/Reports - Metro District Employees
- Navigation:** Back, Forward, Stop, Refresh, Home, Search, Favorites, History, Mail, Print, Edit, Discuss
- Header:** School Vantagepoint, Content | Layout | Settings | Help, Name: Large City School District, Role: Coordinator
- Section:** Reports
- Search:** Search by: ID, Value: [], Search, Refresh
- Table:**

ID	Name	Description	Modified	Created
131	Incident Report	Details for a Selected Incident	2002-11-27 13:01:10	2002-11-27 12:48:13
129	Incident Summary List for a School	List of Incidents for a School	2002-11-27 11:08:30	2002-11-27 10:27:59
127	Person Involvement Summary	List of Incidents Involving a Particular Person	2002-11-27 09:45:01	2002-11-26 16:49:22
95	IncidentTotals_BySchoolAndMonth	Incident Totals: By School and Month	2002-11-27 16:59:38	2002-10-25 11:29:05
78	IncidentsList_SummaryOfIncidents	Incidents List: Summary of Incidents	2002-11-27 11:16:49	2002-10-22 15:39:57
- Footer:** Items 1 - 5 of 5
- Status Bar:** javascript: __doPostBack('DB_Reports20:WP_ReportsList1883:WP:custDataGrid:ctl4:lb1','') | Internet

To see the output of a report or graph, the user simply clicks on the name of the report. For example, exhibit A.29 shows what happens when the user clicks the “Incident Summary List for a School” link shown in exhibit A.28.

In general, compared to the Windows version of *School COP*, *Web School COP* reports can have far more functionality, including dynamic drop down lists (i.e., the content of the drop down depends on other selections made on the screen). The system administrator can also modify static text on existing reports or insert the site’s logo in the report, none of which is possible with the Windows version.

Exhibit A.29 shows a “Summary of Incidents” for a particular school report.

Summary of Incidents for Grant MS

1/1/1999 - 1/1/2002

Start Date: (mm/dd/yyyy) 1/1/1999 End Date: (mm/dd/yyyy) 1/1/2002

Inc #	Date	Time	School	Incident Type	Severity	Weapon	Status
186	12/06/1999	1230	Grant MS	Fighting	School Rule Violation		Closed
179	01/17/2000	930	Grant MS	Threat / Intimidation	School Rule Violation		Closed
178	03/17/2000	1200	Grant MS	Alcohol	Misdemeanor		Closed
1186	12/06/2000	1230	Grant MS	Fighting	School Rule Violation		Closed
1179	01/17/2001	930	Grant MS	Threat / Intimidation	School Rule Violation	Gang-Related	Closed
1178	03/17/2001	1200	Grant MS	Alcohol	Misdemeanor		Closed

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Building Custom Reports

Unlike with the Windows version of *School COP*, system administrators can create their own reports with the Web *School COP* or modify reports that were developed for the demo version. Selecting 'Reports Administration' under the 'Admin Functions' menu bar (again, only accessible to the system administrator) displays both the "Query Builder" and "Reports Administration" page shown in exhibit A.30.

Exhibit A.30: Query and Reports Builder

The screenshot displays the School Vantagepoint web application interface. The top navigation bar includes 'Admin Functions', 'Reports Administration', and 'Reports Administration'. The main content area is divided into two sections: 'Query Builder' and 'Report Management System'.

Query Builder Section:

Search by: ID Value: [] Search Refresh New Item

ID	Query Name	System Identifier	Description	Modified	Created	Delete
67	Days Ascending	Days Ascending	Days from 1-31; useful for start date in queries	2003-02-07 10:58:42	2003-02-07 10:58:42	[X]
66	Months Ascending	Months Ascending	Months from 1-12; useful for start dates in queries	2003-02-07 10:57:29	2003-02-07 10:57:29	[X]
65	Incident Report	IncidentReport		2002-11-27 12:50:44	2002-11-27 11:35:14	[X]
64	Incidents for a Specified School	IncidentsForASchool		2002-11-27 11:13:27	2002-11-27 10:48:31	[X]
63	Year ascending	YearsAscending	List of years, ascending; useful for Start year drop down	2002-11-27 10:39:39	2002-11-27 10:39:39	[X]
62	List of Groups	ListOfGroups		2002-11-26 13:55:20	2002-11-26 13:55:20	[X]
61	Person History Summary	PersonHistorySummary		2002-11-27 10:24:22	2002-11-26 13:50:09	[X]
60	List of Incident Numbers	ListOfIncidentNumbers		2002-11-26 13:37:26	2002-11-26 13:37:26	[X]
59	List of schools	ListOfSchools		2002-11-27 11:01:50	2002-11-26 13:36:29	[X]
58	List of persons for a site	ListOfPersons		2002-11-26 13:32:03	2002-11-25 14:22:56	[X]

Items 1 - 10 of 58

Report Management System Section:

Search by: ID Value: [] Search Refresh

ID	Report Name	File Name	Description	Last modified	Created On
121	Incident Report	131	Details for a Selected Incident	2003-02-11 05:15:16	2002-11-27 12:48:13
127	Person Involvement Summary	127	List of Incidents Involving a Particular Person	2002-11-27 09:45:01	2002-11-26 16:49:22
115	CodeTableContents_SchoolsAreasAndLocations	115	Code Table Contents: Schools, Areas, and Locations	2002-10-25 11:29:05	2002-10-25 11:29:05
113	CodeTableContents_IncidentTypeAndSeverity	114	Code Table Contents: Incident Type and Severity	2002-10-25 11:29:05	2002-10-25 11:29:05
112	CodeTableContents_AllCodeTables	113	Code Table Contents: All Code Tables	2002-10-25 11:29:05	2002-10-25 11:29:05

Queries and reports can be built in two different ways. For system administrators (and, if desired, users in the “Coordinator” role) that have rudimentary (yet still well beyond the skills of users that only browse the Internet or do word processing) database skills, queries can be built (click the “New Item” button shown in exhibit A.30).

In addition, *Web School COP* includes a “Report Wizard”, shown below in a series of screen shots (exhibit A.31). To start the Wizard, click the ‘W’ icon below and to the right of the “Reports Management System” header. As shown below, the *Web School COP* Report Wizard is similar to the chart wizard in Excel.

Exhibit A.31(a): Initial screen of the Report Wizard

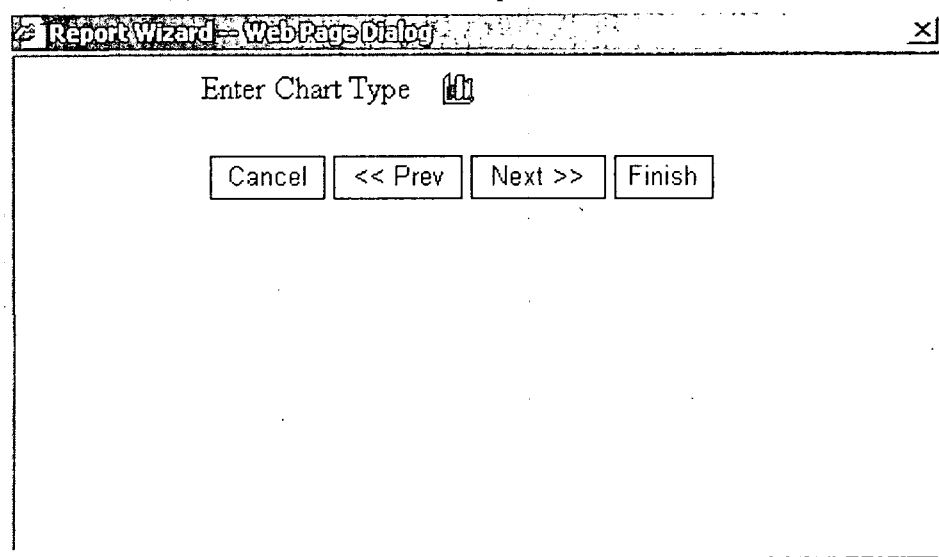
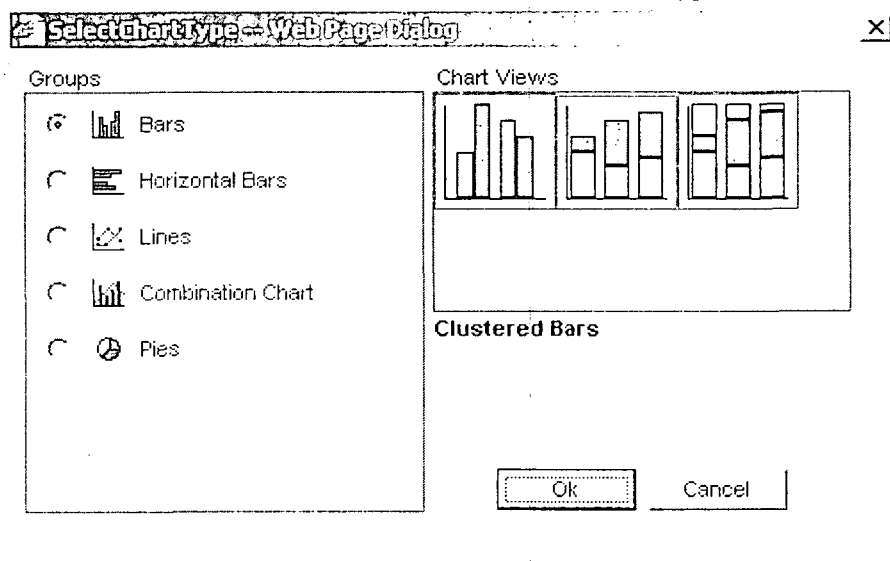


Exhibit A.31(b): When the user clicks “Enter Chart Type”, the chart selection screen appears.



Importing *School COP* Databases

Data collected with the Windows version of *School COP* are imported into Web *School COP* via the Incident Import page, accessible via the "Post" menu bar.

Exhibit A.32: Importing Windows *School COP* Databases

The screenshot shows a web browser window displaying the School Vantagepoint application. The address bar shows the URL: http://www.schoolvantagepoint.com/SVP/main.aspx?dbID=DB_Database62. The page title is "School Vantagepoint". The navigation menu includes "Home", "Post", "Incidents", "Admin Functions", and "Reports/Tools". The "Incidents" menu is expanded, showing "Incident Import".

The "Incident Import" page displays a "List of files for import" section. It includes a search bar with "Search by: User Name" and a "Value:" field. There are "Search" and "Refresh" buttons. Below the search bar is a table with the following data:

Time	User	Description	Records	Status	Import Date
11/15/2002 4:09:10 PM	Administrative User	2 years of test data	210	Imported	11/15/2002 4:09:16 PM