AUDIT REPORT

CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
BUREAU OF FINANCIAL AUDIT
WILLIAM C. THOMPSON, JR., COMPTROLLER

Audit Report on the Development and Implementation of the Notice of Violation Administration System by the Department of Sanitation

7A08-056

June 27, 2008

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET
NEW YORK, N.Y. 10007-2341

WILLIAM C. THOMPSON, JR.
COMPTROLLER

To the Citizens of the City of New York

Ladies and Gentlemen:

In accordance with the responsibilities of the Comptroller contained in Chapter 5, §93, of the New York City Charter, my office has audited the development and implementation of the Notice of Violation Administration System (NOVAS) by the Department of Sanitation (DSNY).

The objective of the NOVAS system was to automate the summons-issuance and management processes carried out by the DSNY Enforcement Agents and Sanitation Police Officers. We audit systems and technological resources of City agencies such as this to ensure that they are cost-effective, efficient, secure, and operate in the best interest of the public.

The results of our audit, which are presented in this report, have been discussed with officials of the Department of Sanitation, and their comments have been considered in preparing this report. Their complete written responses are attached to this report.

I trust that this report contains information that is of interest to you. If you have any questions concerning this report, please e-mail my audit bureau at audit@Comptroller.nyc.gov or telephone my office at 212-669-3747.

Very truly yours,

William C. Thompson, Jr.

WCT/fh

Report: 7A08-056
Filed: June 27, 2008

Table of Contents

The City of New York
Office of the Comptroller
Bureau of Financial Audit
IT Audit Division

Audit Report on the
Development and Implementation of the
Notice of Violation Administration System by the
Department of Sanitation

7A08-056

AUDIT REPORT IN BRIEF

We performed an audit of the development and implementation of the Notice of Violation Administrative System (NOVAS) by the Department of Sanitation (DSNY). DSNY is tasked to promote a healthy environment through the efficient management of solid waste by developing environmentally sound, long-range planning to handle solid waste and refuse. According to the City Charter (§753 (6) (b) and (c)) the Commissioner of DSNY may adopt and must enforce regulations regarding the collection of refuse and other material, including by issuing summonses for violations of regulations.

Previously, the summons-issuance process, from the issuance of paper summonses to the creation of management reports, was performed manually using paper. However, in 2004, DSNY contracted with ICICI InfoTech, Inc.,[1] to develop NOVAS, a computerized system that would streamline the entire summons-issuance and management process. The contract with ICICI InfoTech, Inc. was valued at approximately $4.5 million.

In 2006 NOVAS became operational, which allowed the DSNY Enforcement Agents and Sanitation Police Officers to use portable handheld devices to issue summonses, replacing the manual writing of paper tickets. Agents can now enter and print violations using the device. At the end of each work day, the information on the summonses stored in the handheld devices is downloaded into the NOVAS central server, batched, and sent to the Environmental Control Board (ECB) for adjudication.

Audit Findings and Conclusions

NOVAS met the overall goals as stated in the original system justification; and the system design allowed for future enhancements and upgrades. DSNY followed a formal system

---

[1]   Contract #20040022378 was registered with the Comptroller's Office on June 14, 2004.

development methodology when developing NOVAS. Also, DSNY has a network architecture configuration for NOVAS that was approved by DoITT. NOVAS complies with Electronic Signature and Records Act Federal guidelines, and the handheld devices are physically secure when not in use. However, the results of our user surveys indicated that the users have problems or concerns that DSNY must address to improve the system's functionality and productivity. Also, our data integrity tests indicate that DSNY must address specific issues to improve the reliability of the system.

Audit Recommendations

To address these issues, we recommend that DSNY:

- Address the user concerns revealed in our survey. In that regard, DSNY should consider improving the screens of the handheld device, adding additional space in the violation detail section, deleting unused items, adding additional menu options as well as correcting misspelled words in the drop-down section, and providing additional training to those users who reported that they had limited knowledge of the system.

- Correct the data fields noted as having incorrect information and create adequate input controls or adequate data validation checks to ensure that no further data entry errors are allowed.

- Correct the mandatory data fields noted that are blank and create edit checks to ensure that processing of data cannot be finalized until all mandatory fields are completed.

- Review NOVAS system tables, deleting any unused or unnecessary fields in a particular table, thus eliminating the possibility that inaccurate information is introduced into the system.

- Enforce the requirement for users to change their password every 45 days. In that regard, DSNY should program a warning in NOVAS reminding the users to change their password. If the password is not changed, the user should be locked out and access disabled.

- Develop written policies and procedures to terminate inactive user IDs. In addition, DSNY should immediately terminate the access of those individuals who are no longer employed by the agency. Further, DSNY should review the status of the inactive users and terminate access as appropriate.

- Complete and approve a formal, comprehensive disaster-recovery plan for NOVAS in accordance with DoITT's Business Continuity Directive.

- Periodically test the formal, approved disaster-recovery plan.

INTRODUCTION

Background

      The Department of Sanitation (DSNY) is tasked to promote a healthy environment through the efficient management of solid waste and by developing environmentally sound, long-range planning to handle solid waste and refuse. DSNY operates 59 district garages and manages a fleet of 2,040 rear-loading collection trucks and 450 mechanical brooms. Each day it collects approximately 11,800 tons of household and institutional wastes. DSNY clears litter, snow, and ice from approximately 6,000 miles of City streets and removes debris from vacant lots as well as abandoned vehicles from streets.

      According to the City Charter (§753 (6) (b) and (c)) the Commissioner of DSNY may adopt and must enforce regulations regarding the collection of refuse and other material. The Commissioner may prescribe civil penalties for violations of the department's regulations. The DSNY Enforcement Division, comprising Sanitation Police Officers and Sanitation Enforcement Agents, monitors compliance with administrative, recycling, and health laws governing the maintenance of clean streets, illegal dumping, and the proper storage and disposal of waste and recyclable materials by both residents and commercial establishments. DSNY has written 530,822 summonses for the 2007 Fiscal Year as reported in the Mayor's Management Report.

      Prior to the advent of the Notice of Violation Administrative System (NOVAS), the entire summons-issuance process, from the issuance of paper summonses to the creation of management reports, was performed manually using paper. However, in 2004, DSNY contracted with ICICI InfoTech, Inc., to develop a computerized system that would use a mobile handheld device that allows DSNY agents to enter and print violations and with the ability to transmit these summonses to a central server, NOVAS would streamline the entire summons-issuance and management process. The contract with ICICI InfoTech, Inc., was valued at approximately $4.5 million.

      The objectives of NOVAS were to automate the summons-issuance and management process by:

- Preventing the issuance of inaccurate tickets and improving the ability to track repeat offenders;

- Making the processing of summonses more efficient by replacing most of the manual process;

- Improving management control and reporting functions;

- Increasing revenues; and

- Eliminating time spent issuing summonses for government-owned properties.

      NOVAS became operational in 2006, which allowed the DSNY Enforcement Agents and Sanitation Police Officers to use a portable handheld device to issue summonses, replacing the

manual writing of paper tickets. At the end of each work day, the information on the summonses stored in the handheld devices is downloaded into the NOVAS system, batched, and sent to the Environmental Control Board (ECB) for adjudication.

Objectives

The objectives of this audit were to determine whether NOVAS:

- Was developed using a formal system development methodology;

- Meets initial DSNY business and system requirements;

- As a finished product, meets overall goals as stated in the system justification;

- As designed, allows for enhancements and upgrades;

- Functions reliably, and whether information recorded in its database is accurate and is secure from unauthorized access; and

- Has a disaster-recovery plan, and whether this plan has been incorporated into the overall disaster-recovery plans of DSNY.

Scope and Methodology

Our fieldwork was conducted between August 2007 and February 2008. To achieve our audit objectives, we interviewed DSNY officials. In addition:

- To review how NOVAS functions, we conducted a system walk-through on August 27, 2007;

- We reviewed and analyzed contract specifications, purchase orders, and other system-related documentation;

- We examined and tested a handheld device to confirm that the handheld device works properly and the information displayed on its screens is accurate;

- We examined and tested the computer system to confirm that NOVAS operates and functions properly and in accordance with the requirements stated in the system justification;

- We randomly selected, analyzed, and evaluated 25 of the 83 tables that contained NOVAS data as of September 2007. These tests included evaluating data relationships, assessing completeness of information, and determining overall reliability of the data in the system;

- We performed data-integrity tests to determine whether the data recorded in the NOVAS database is reliable and accurate. We examined the records from January 2006 through September 2007 for the validity of dates and codes in each record to determine whether the information recorded complied with the attributes designated by the system specifications;

- We compared the dollar values of the fines, levied according to the respective code violation as provided by DSNY, with the dollar value listed on the corresponding summonses to ascertain whether the summonses contained the correct dollar amounts for each fine levied. We also examined all the summonses in the NOVAS database as of September 2007 to determine whether any fine amount levied was not recorded;

- We had DSNY migrate the latest production (live) data into a test environment for our testing, where:

  - We created 62 test tickets for entry into the handheld device to determine whether NOVAS has adequate access controls, meets the user needs, and contains accurate information. Further, these tests verified the correctness of data and screen formats, and the adequacy of menu options. After creating these tickets, we placed the handheld device into its cradle[2] to transfer the information we entered into the handheld device into NOVAS;

  - We tested the system's ability to scan required information and successfully print accurate summonses;

- We obtained and analyzed the DSNY user-access lists to determine whether employee access privileges were appropriate;

- We conducted two user surveys of the 268 individuals that DSNY identified as active NOVAS users to obtain their opinions about NOVAS and to determine what changes they would like to see made to NOVAS. One survey targeted 75 individuals with computer-system access, and the second survey targeted 193 users of the handheld devices;

- We prepared a series of inquiries and questions for DSNY officials to clarify or explain various data elements of NOVAS; and

- We reviewed and analyzed the agency's disaster-recovery and contingency-planning procedures.

As criteria for this audit, we used the Department of Information Technology and Telecommunications (DoITT) *Information Security Directives*; the National Institute of

---

[2] A cradle is the commonly used term for a docking station; the cradle may also contain a button to automate the process of synchronizing the handheld device and computer system.

Standards and Technology (NIST) Special Publication 800-14, *Generally Accepted Principles and Practices for Securing Information Technology Systems*; and all relevant sections and provisions of the New York City Charter.

Since the City has no stated formal system-development methodology when NOVAS was implemented, to ascertain whether DSNY followed a formal methodology we used as criteria for the audit NIST Special Publication 500-223, *A Framework for the Development and Assurance of High Integrity Software,* and the New York City Comptroller's Internal Control and Accountability Directive #18, "Guidelines for the Management, Protection and Control of Agency Information and Information Processing Systems." DoITT implemented a requirement for an system-development methodology in July 2007.

This audit was conducted in accordance with generally accepted government auditing standards (GAGAS) and included tests of the records and other auditing procedures considered necessary. This audit was performed in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

Discussion of Audit Results

The matters covered in this report were discussed with DSNY officials during and at the conclusion of this audit. A preliminary draft report was sent to DSNY officials and discussed at an exit conference held on May 13, 2008. On May 20, 2008, we submitted a draft report to DSNY officials with a request for comments. We received a written response from DSNY on June 9, 2008. In their response, DSNY officials agreed with four recommendations. They disagreed with two recommendations that suggested corrections be made to the various mandatory fields and system tables that were found to be blank. They stated that they will take two recommendations "under advisement" regarding addressing concerns raised in the user survey and the review of NOVAS system tables to delete unused or unnecessary fields.

The full text of DSNY's comments is included as an addendum to this report.

FINDINGS AND RECOMMENDATIONS

NOVAS became operational in 2006 and replaced the manual summons process, as required by the initial DSNY system requirements and goals in the system justification. Our review concluded that DSNY followed a formal system development methodology when developing the system and that the system design allows for future enhancements and upgrades. Also, DSNY has a network architecture configuration[3] for NOVAS that was approved by DoITT. NOVAS complies with Electronic Signature and Records Act Federal guidelines,[4] and the handheld devices are physically secure when not in use. However, the results of our user surveys indicated that the users have problems or concerns that DSNY must address to improve the system's functionality and productivity. Also, our data integrity tests indicate that DSNY must address specific issues to improve the reliability of the system.

Specifically, NOVAS has problems in data reliability, such as the presence of inaccurate dates, an indicator of weak edit checks, and some security weaknesses. For instance, DSNY does not require that users regularly change their passwords on both the handheld devices and the system. Also, the computer system does not restrict or control log-in access of inactive users. Finally, DSNY has not fully developed and tested the disaster-recovery plan of NOVAS.

User Satisfaction

We conducted a user survey to elicit users' comments on NOVAS. We sent out 268 surveys to users: 75 surveys to computer-system users and 193 surveys to users of the handheld devices. We received 194 responses to our surveys: 50 responses from computer-system users and 144 responses from users of the handheld devices. Users felt that NOVAS generally improved the process of issuing summonses. However, they also felt enhancements could be made to the system and handheld devices to make the process more efficient. Users provided comments to our survey stating that there are misspelled words in and lack of space for violation details and that the screens of the handheld devices periodically stop functioning. Some found other problems with the screens of the handheld devices.[5] Tables I and II below summarize user answers to survey questions.

Table I
Survey Results from the Users of the NOVAS Computer System

Percent	Survey Results	Effect
78	Would like to see changes	Users are not satisfied.
75	Screens need enhancements	Difficulty viewing the screens.
74	User-friendly	User find the system easy to use
58	Problem forwarding information to ECB	Time consuming.
58	System data occasionally incorrect	System information is unreliable.
54	Difficulties accessing the system	Users cannot access system.
54	Need more training	Users not properly prepared to use the system.

---

[3] In computing, network architecture is the design of a computer network.

[4] The Electronic Signatures and Records Act (ESRA) provides that "signatures" made via electronic means will be legally binding just as hand-written signatures now are. The law also enhances and clarifies the authority of government to create and retain records in computer produced electronic form.

[5] All user comments can be found in the Appendix III.

DSNY Response: "It should be noted that no user forwards data to ECB. The process that transmits tickets to ECB runs regularly each night and the process is monitored."

Auditor Comment: DSNY response is disingenuous giving the impression that no user sends data to ECB even though we found examples of users capable of forwarding data to ECB; specifically, supervisors and system users who are assigned this responsibility. Also, in *DSNY Back-End ENF HQ Mailroom User Guide Manual,* §4.1, "Batch," states that "the user has the ability to create a batch and generate the ECB text file." While, *FIS User Guide Manual: Back-end*, §4.4, "End of Day," states: "NOV tickets can be sent to enforcement for processing." Finally, in a report prepared by the Project Monitoring and Quality Assurance Services vendor, VIP Consulting, (*Data Request Response Version 2.0*, §5, issued on July 31, 2007), DSNY was notified that "issues with NOVAS automated process . . . can potentially not transmit some NOV data to ECB." Therefore, despite DSNY's contention, system users do use the forwarding function and problems have existed for nine months without resolution.

DSNY Response: "58% of survey responders indicated that system data was occasionally incorrect, resulting in unreliable data. We disagree with this. Over 450,000 tickets have been issued by NOVAS and successfully transmitted to and processed by ECB."

Auditor Comment: As discussed later in this report, our testing found various data issues. Specifically, these data issues included incorrect dates in the "LicenseExpDate" field, hearing dates scheduled on holidays, and numerous "LastLogin" dates preceding the "CreatedDate" information. Therefore, our testing confirms that the users' statements are valid. Further, VIP Consulting's *Data Request Response Version 2.0*, states "There were areas of concern that can mitigate the availability, accessibility and accuracy of information." Also, DSNY provides no evidence that contradicts the user survey results of our findings.

The results of our user satisfaction survey revealed 74 percent of respondents indicated that the system is user friendly. However; 78 percent of those surveyed would like to see some changes made to the system.

Table II
Survey Results from the Users of NOVAS Handheld Device

Percent	Survey Results	Effect
81	The handheld devices freeze	Users have a problem using the device.
80	User-friendly	User find the system easy to use
64	Screens need enhancements	Difficulties viewing the screen in the device.
63	Difficulties entering info into the device	Time consuming.
57	Would like to see changes	Users are not satisfied.
55	Difficulties scanning printer ID into the device	Time consuming, can't print summonses.
47	Ticket detail display is occasionally incorrect	Handheld device information is unreliable.
23	Lack of sufficient training	Users not properly prepared to use the device.
22	Not easy to enter data	Time consuming.

The results from our user satisfaction survey of employees who used handheld devices revealed that 80 percent stated that the handheld device is user friendly. However, 81 percent of those surveyed stated that the screens of their handheld device stopped functioning, requiring the user to restart the device.

Recommendation

DSNY should:

1. Address the user concerns revealed in our survey. In that regard, DSNY should consider improving the screens of the handheld device, adding additional space in the violation detail section, deleting unused items, adding additional menu options as well as correcting misspelled words in the drop-down section, and providing additional training to those users who reported that they had limited knowledge of the system.

DSNY Response: "The survey recommendations will be taken under advisement: Handheld size and lighting are constraints inherent to a mobile unit. The NOVAS handheld meets normal performance expectations.

"Allowing more spaces to record violation details is unnecessary. The application was designed purposely so that only authorized scripts are used to report the violation details.

"Menu items are reviewed periodically. Enforcement headquarters decides which items should be in the lists.

"Enforcement training efforts are extensive and have been in effect since June 2006. Additional training is available at all times. Contact information for headquarters and training staff is provided to all handheld users. Users have full and condensed versions of documentation. Procedures are in place to record and review problems and suggestions."

Auditor Comment: User's comments and concerns are vital when developing a system. The user survey is a management device to measure how end users experience the capability of the system when performing their job functions. Not taking into consideration the concerns of DSNY employees that use the system is negligent because the employees utilize the system when performing their job functions. Responses to the survey may highlight problems with the system that when adequately addressed and resolved can help ensure a more efficient processing of violations. In this regard, Comptroller's Directive #18, §10.6, states:

> Periodic commentary from end users is an effective method that executive management can use for assessing information-processing environment performance. Satisfaction reports from the end user community will frequently highlight common or recurring problems requiring executive management's attention. These reports are most useful if they flow to executive management independent of the information systems group.

Moreover, DoITT's Directive's, *Application Security*, §3.5.1, states: "Usability must be evaluated as part of the User Acceptance Testing (UAT) phase because it is very difficult to guess a user's reaction to an interface. Applications must be evaluated for usability, ease of understanding and intuitiveness. There must be enough slack built into the project plan to allow for redevelopment after UAT."

NOVAS Contains Inaccurate Information

Our tests of data in the NOVAS database to verify that internal controls exist as defined by system deliverables determined that the database integrity, reliability, and completeness are compromised by weaknesses as discussed in the following sections. These weaknesses include: incorrect information in the data tables; missing data; and unnecessary and unused data fields. Comptroller's Directive #18, §8.2, requires that "agencies must ensure that every transaction entering the information processing environment is authorized, recorded, and processed completely and accurately, protected from physical loss, theft, or unauthorized manipulation, and that the data file integrity is preserved."

Incorrect Information in Data Tables

We analyzed 25 of 83 tables in the NOVAS system database, as of September 2007, and found several problems with the various data fields in 6 of the 25 tables analyzed (see Appendix I). Specifically:

- In table name "CS_StgHHTNovInformation,"[6] we found 225,246 exceptions, such as, hearing dates scheduled beyond the 30-day requirement, incorrect dates, and phone numbers appearing in the license number field.

- In table name "CS_CompletedNOV,"[7] we found 9,238 exceptions, such as, combined first and last names, special characters and numbers in the last name field. No zip codes and hearing dates scheduled on New Years day.

- In table name "CS_RoutingTime,"[8] we found 30 instances that an AM field had a PM designation.

- In table name "CS_OwnerInformation,"[9] we found 66 incorrect items, i.e., 56 house numbers in a street name field and 10 duplicate records.

---

[6]   CS_StgHHTNovInformation is a system table containing specific summons information, for example, the date a summons was issued, the violation description, the violation code, the amount of the summons.

[7]   CS_CompletedNov is a system table containing notice of violation information that were batched and sent to the Environmental Control Board.

[8]   CS_RoutingTime contains information of when certain summonses can be issued on a particular block.

[9]   CS_OwnerInformation contains information from the Department of Finance that includes owner name, street address, apartment number, etc.

- In table name "BS_HHTNovInformation,"[10] we found 219,589 records with the date January 1, 1900, and 9 with the date December 31, 2078. DSNY officials indicated that the January 1, 1900, date is a dummy value that is entered when no date is required.

- In table name "CS_User,"[11] all 398 records had a date of June 22, 1905. DSNY officials indicated that the June 22, 1905 date was entered because the column that was created was not in use.

Our review of these tables did not find any erroneous or missing dollar amounts related to the issued violations. However, the internal controls that would prevent critical data entry errors are inadequate, thereby increasing the possibility that violations could be dismissed.

Mandatory Data Fields Are Left Blank

In a database-management system, the space reserved for a specific piece of information in a data record, such as name, address, city, and social security number, can be specified as a mandatory or optional field. A data record that is specified as a mandatory field indicates that this piece of information is critical to the process and that the record should therefore not be saved and processed unless the required data is entered. Our tests found that the following data tables have blank records in fields that have been designated as mandatory in the DSNY Data Dictionary. These blank fields suggest that there are weaknesses in the edit-check controls that ensure that the database is complete and reliable. Table III, shows our test results.

Table III
Table Names with Mandatory Fields That Have Blank Records

Table Name	Field Name (Mandatory)	Number of Blank Records	Total Number of Records in the Field
CS_ViolatorCode[12]	HHTIdentifier	88	121
CS_Devices[13]	UnitID	53	738

Unnecessary and Unused Data Fields

NIST Publication 500-223, *Software Engineering Practices*, §§4 and 5, states, "Software engineering practices are those techniques recommended either to prevent errors from being entered into the software during development, or are properties to be built into high integrity software . . . . The way in which the software is designed contributes greatly to its quality." Properly identifying necessary data fields in the design of a system ensures that the system is properly documented, thereby maintaining a high level of quality and integrity. Conversely, unused and unnecessary data tables and fields could degrade the integrity of a database and lengthen the processing time of critical information. Table IV, below, shows the data fields

---

[10] BS_HHTNovInformation contain given summons information such as issue date, violation description, violation code, etc.

[11] CS_User contain information about DSNY employees.

[12] CS_ViolatorCode contains violation codes and violation fine amounts.

[13] CS_Devices contains an inventory list of printers and handheld devices.

(defined in the DSNY Data Dictionary as *not* mandatory) in specific data tables that contain no information and that are most likely not used by DSNY. (For a full list, see Appendix II.)

Table IV
Number of Blank Fields in the NOVAS Data Tables

Table Name	Number of Blank Fields
CS_User	2 out of 45 fields
CS_StgHHTNOVInformation	11 out of 84 fields
CS_CompletedNov	5 out of 51 fields
CS_OwnerInformation	1 out of 15 fields
CS_HearingDates	2 out of 9 fields
CS_NovBatch	2 out of 11 fields
CS_ENFOwnerInformation	6 out of 30 fields
CS_SecurityUserRoles	1 out of 9 fields
BS_User	4 out of 48 fields
BS_HHTNOVInformation	11 out of 77 fields

Table V, below, highlights specific Data Tables that contain no information and are most likely not used by DSNY.

Table V
Blank Data Tables in NOVAS

CS_Termonology
CS_RecordStatusMaster
CS_NovSysParam
CS_LaterService
CS_NovExternalBatchDetails
CS_NovExternalBatchHeader
BS_HHDevices
BS_MobileDataPull
BS_NovAudit

By properly identifying and removing the unnecessary data fields and tables, DSNY can ensure the integrity of the data and improve the efficiency of program changes and maintenance of NOVAS.

Recommendations

DSNY should:

2. Correct the data fields noted as having incorrect information and create adequate input controls or adequate data validation checks to ensure that no further data entry errors are allowed.

DSNY Response: "We disagree with this recommendation. The data was not found to be incorrect. The hearing date, routing time, formatted owner and date fields referenced were saved acceptably in NOVAS."

Auditor Comment: At the exit conference, DSNY provided us with a written document discussing our findings. In this document, DSNY did not dispute our finding and stated that it had corrected these issues. For example, for the errors found in the "CS_CompletedNOV" table, DSNY stated that "the defect that prevented the input of NYC holidays into NOVAS has been corrected." DSNY made similar comments for the remaining items identified in this report. In addition, the VIP Consulting's *Data Request Response* report observed similar issues stating: "DSNY has been experiencing issues with incorrect owner information . . . place of occurrence data." Moreover, DSNY provides no evidence that contradicts our findings.

3. Correct the mandatory data fields noted that are blank and create edit checks to ensure that processing of data can not be finalized until all mandatory fields are completed.

DSNY Response: "We disagree with this recommendation. This data is only mandatory for certain inputs. Blanks are valid for certain records."

Auditor Comment: According to the data dictionary given to us by DSNY representative, these fields were considered mandatory. At the exit conference, we were informed by DSNY representatives that the previous "documentation given to the auditors was in error." However, DSNY provided no evidence that contradicts our findings. Further, if the data dictionary is not up to date, as stated by DSNY officials, then this is an additional error that needs to be corrected.

4. Review NOVAS system tables, deleting any unused or unnecessary fields in a particular table, thus eliminating the possibility that inaccurate information is introduced into the system.

DSNY Response: "We will take this recommendation under advisement. Our current analysis shows that these structures and elements are generally in place to accommodate enhancements that are planned or under development."

Auditor Comment: The DSNY response does not dispute the existence of or the consequences associated with unnecessary and unused data fields. Moreover, VIP Consulting's *Data Request Response* report makes a similar recommendation, stating specifically that DSNY should "identify, document, and delete unused tables and data fields."

Access-Control Weaknesses

DoITT's Password Policy in its Information Security Directives states, "All passwords and Personal Identification Numbers used to protect City of New York systems must be appropriately configured, periodically changed, and issued for individual use." Accordingly, among the most widely used forms of access control is unique employee user-identification (ID) codes and corresponding passwords.

Password-Security Controls Not Fully Enforced

DSNY has user password policies and procedures that state, "passwords must . . . be changed every 45 days." However, we found that the NOVAS handheld devices and computer system user do not change their passwords after the first login. Further, user passwords do not expire every 45 days, do not have a password-expiration-date control, and there is no alert prompting the user to change their passwords. Consequently, users are not required to change their passwords.

DSNY Does Not Adequately Control Inactive User IDs and Log-in Access

DoITT's User Account Management Directive §3.5 states: "A user's City account must be terminated if . . . an employee transfers . . . is terminated." Further, §2.1 states, "after 6 months of inactivity, user accounts must be purged from City agency systems." Table VII, below, shows various access-control issues that must be addressed.

Table VII
Analysis of Access-Control Weaknesses

Name of Table	Field Name	Description of Field Control Weakness	Total Found
DSNY User List	LastLogin, CreatedDate	LastLogin date is prior to CreatedDate	19 of 272
DSNY User List	LastLogin	LastLogin date of six months or greater	40 of 272
DSNY User List	n/a	Users have multiple authorizations	8 of 272
DSNY User List	n/a	Users on leave in PMS*; not disabled	9 of 272
DSNY User List	n/a	User IDs have not been disabled	8 of 272
DSNY User List	n/a	Multiple User IDs have not been disabled	3 of 272
DSNY User List	n/a	Users on list not found in PMS	79 of 272
CS_User	LastLoginAttempt	Dates of January 1, 2000	All 398
CS_User	PasswordTimestamp	Dates of January 1, 2000	114 of 398

* PMS is the City's Payroll Management System, which records employee leaves.

After reviewing the DSNY user list and sending a user satisfaction survey to all users listed, 29 surveys were returned to us because the users had either resigned, transferred to another department in DSNY, were out on worker's compensation or child care leave. We checked the user IDs for these 29 individuals to verify that they had been disabled by DSNY; however, none of the IDs had been disabled.

Recommendations

DSNY should:

5. Enforce the requirement for users to change their password every 45 days. In that regard, DSNY should program a warning in NOVAS reminding the users to change their password. If the password is not changed, the user should be locked out and access disabled.

DSNY Response: "NOVAS workstations are part of the DoITT/DSNY network and are subject to workstation security and password expiration polices. A user must have authenticated windows credentials to logon successfully to a NOVAS workstation. NOVAS borough workstations are located in physically secured, locked and monitored facilities which are controlled by supervisors. Adding password expiration logic specifically to the NOVAS web application will not be done at this time as it would require a change order.

"The handheld security complies with the Electronic Signature and Records Act guidelines for user ID, password and biometric signature authentication. We expect to enable the password expiration feature in a future release."

Auditor Comment: DoITT Password Policy states, "Passwords and/or Pins must be changed at least every ninety (90) days." Also, in the documentation provided to us by DSNY, the DSNY User Guide Manual states "passwords must be changed every 45 days or at more frequent intervals" for NOVAS system and handheld device. This indicates that DSNY is not following DoITT's password policy and procedures as well as those in its own User Guide Manual.

6. Develop written policies and procedures to terminate inactive user IDs. In addition, DSNY should immediately terminate the access of those individuals who are no longer employed by the agency. Further, DSNY should review the status of the inactive users and terminate access as appropriate.

DSNY Response: DSNY agrees with this recommendation. "DSNY has developed procedures to immobilize user ids of employees who are terminated."

Disaster-Recovery Plan Is Incomplete

Disaster-recovery plan and restore procedures for NOVAS have not been fully developed, tested, and integrated into DSNY's existing disaster-recovery plan. Currently, there is only an emerging plan that is still being developed. A comprehensive and approved plan would include:

- An outline of the applications that would be restored should a disaster occur;
- A contact list of personnel critical to continuing system operation;
- An alternate processing site to be used in case of a disaster at DSNY;

- Procedures to determine whether an event is sufficiently serious to invoke the plan;
- A formal agreement with vendors to provide software supplies and equipment;
- A formal agreement with DoITT for an alternate processing site; and
- Procedures for implementing manual processing as an alternative and for the periodic testing of the approved and implemented disaster-recovery plan.

DoITT's Business Continuity Directive states: "Each City agency business system, application, and Information Technology facility must be covered by a documented and tested Business Continuity Plan and Disaster Recovery Plan." Without a formal and approved disaster-recovery plan for NOVAS, DSNY is vulnerable to the loss of mission-critical information in the event of a disaster.

Recommendations

DSNY should:

7. Complete and approve a formal, comprehensive disaster-recovery plan for NOVAS in accordance with DoITT's Business Continuity Directive.

DSNY Response: DSNY agrees with this recommendation.

8. Periodically test the formal, approved disaster-recovery plan.

DSNY Response: DSNY agrees with this recommendation. "The COOP solution will define periodic testing requirements."

Analysis of Inaccurate Data

Name of Table	Field Name	Description of what was found within field	Total # found
CS_StgHHTNOVInformation	HearingTimestamp[a]	Dates are scheduled beyond the 30-day requirement	41 of 246,812
CS_StgHHTNOVInformation	LicenseExpDate[b]	Dates of 12/31/2078	9 of 246,812
CS_StgHHTNOVInformation	LicenseExpDate	Dates of 1/1/1900	219,799 of 246,812
CS_StgHHTNOVInformation	LicenseNumber	Contains phone numbers and other information	5,252 of 246,812
CS_StgHHTNOVInformation	HearingTimestamp[c]	Dates of 1/1/2007	33 of 246,812
CS_StgHHTNOVInformation	SentTimestamp	Dates of 1/1/1900	56 of 246,812
CS_StgHHTNOVInformation	ReceivedTimestamp	Dates of 1/1/1900	56 of 246,812
CS_CompletedNov	Resp1lastName	First and last names are in the same field	6,000 of 228,667
CS_CompletedNov	Resp1lastName	Characters and numbers	20 of 228,667
CS_CompletedNov	Resp1zip	No zip codes	3,201 of 228,667
CS_CompletedNov	DateofAppear	Hearing dates are scheduled for 1/1/2007 and 1/1/2008	17 of 228,667
CS_RoutingTime	RoutingTimeAM	Have PM in AM field	30 of 344
CS_OwnerInformation	StreetName	Contains House Numbers	56 of 986,782
CS_OwnerInformation	OwnerName	Duplicate records	10 of 986,782
BS_HHTNovInformation	LicenseExpDate	Dates of 1/1/1900	219,589 of 246,587
BS_HHTNovInformation	LicenseExpDate	Dates of 12/31/2078	9 of 246,587
CS_User	ChangeTimestamp	Dates of 6/22/1905	All 398

(a) HearingTimestamp is the ECB (Environmental Control Board) hearing date in a summons.
(b) LicenseExpDate is the date on which the license, permit, or identification expires.
(c) NOVAS contains a table called CS_HolidayMaster, which contains a list of all the upcoming holidays for ECB.

Blank Field Names in the NOVAS Data Tables

Table Name	Field Name
CS_User	SystemDomain
	Department
CS_StgHHTNOVInformation	IsResp1AddressHit
	PropertyBBL
	Resp1Sectionid
	Resp1Districtid
	PlaceFirstName
	PlaceLastName
	PlaceMiddleInitial
	PlaceAddress2
	IsAppearRequired
	BuildingType
	Resp2Zip4
CS_CompletedNov	MustAppear
	BuildingType
	RecordType
	Roll
	PlaceAddress2
CS_OwnerInformation	AttnName
CS_HearingDates	Modifieddate
	Modifiedby
CS_NovBatch	ECBSentDate
	ECBFileName
CS_ENFOwnerInformation	MInitial
	HouseNumber
	CondoNumber
	CondoSuffix
	CondoBillingBB
	AddressType
CS_SecurityUserRoles	Name
BS_User	SystemDomain
	Prefferedsite
	Modifiedby
	Modifieddate
BS_HHTNOVInformation	ReportLevel
	IsResp1Address
	PropertyBBL
	Resp1Sectionid
	Resp1Districtid
	PlaceFirstName
	PlaceLastName
	PlaceMiddleInitial
	PlaceAddress2
	IsAppearRequired
	BuildingType

Notice of Violation Administration System (NOVAS)
User Satisfaction Survey Results

The survey results represent actual user comments and remarks.

Question #14 Comments/Suggestions to improve NOVAS
*Lot unit does not work on NOVAS system. *
As a Sgt in the lot unit, we don't use the NOVAS system.
NONE
Unable to read screen make print larger
With a mistake, I would like to be able to correct it, without finishing the whole NOV only to void it later.
(Wrote comment on question # 8) I don't send directly to ECB
While using the handheld unit, the screen sometimes goes dark and it is very hard to see when this happens, especially when working at night. The screen stays lit should be longer.
N/A
1) If a building is also designated with a consonant - you cannot include the letter, i.e. 297A or 297B West 27 St. 2) If a commercial establishment has an "A" frame advertisement located any where else (not in front of business location), you cannot issue to violator/respondent. 3) There is difficulty retrieving information from the system. i.e., Address-Respondent. 4) Multiple Dwelling Registry numbers should be listed/updated each time an N.O.V is voided because we do not have the owner's information.
Change some of the format & screen around as if you are writing an paper summon
I think each site should have at least two handhelds that can be use for training purposes only. Supervisors could download all N.O.V.s and any new, or updated informations, this would avoid us, from voiding N.O.V's later
I would like to see more clarity on the screen (Glare Control). Remove any items from drop down screen that does not apply to the violation code or is not allowed to be included in the details of viol (leaves, twigs, ashtray contents). More ability to change details of viol to fit each unique situation ('s18' to dumpsters is not always out for collection; at times that is where it is stored & that is illegal ['O' Tolerance])
Some debris from the little drop down screen should be deleted and license information should be stored in NOVAS system (Commercial Establishment)
The major flaw that my officer and my self deal with on a daily basis is the violation details. At this time the details do not give the officer a better handle on describing what is observed as to what is already in the system. Secondly, the signature confirmation portion of the handheld frustrate officers as well as the non-connection to the printer in the middle of processing a NOV.
NONE
Being able to recall amounts of Novs written in any range of dates, sorted by agent, time, code, ECB date etc.
Need to be able to view all information from any terminal
NONE
misleading data input in details. Needs to upgrade
update ownerships to man., owner not found, make a little big data, add parking Nov to it also, add get new printer batteries
When a mistake is made, if possible making a correction without voiding the summons. Not having to putting the district when issuing a personal. There're more then one description for a particular violation, which doesn't apply s10

Provide more training for the individuals who may need it
It seems like at this point the NOVAS system needs an upgrade. It is often very slow to transfer information.
There need to be more improvement in handheld & back end maintance. Maintance have people 24x7 available especially weekends and after 3:pm to handle different and all types of situations that the zone may need, example live person to give correct direction/approvals on issues that cannot wait. In the beginning when we had Mike Cilmi and Joe Dion from 3i-infotech problems were resolved ASAP. Now I don't wanna talk about it.
The system is very sensitive other box comes up when using the novas. The screen should have been a little larger and also the letters and numbers
Go Back to paper N.O.V's, as a Lieutenant / Supervisor I waste too much time replacing equipment in the field, to P.O.'s. I've had days when I have had as high as 1/3 of the P.O.s having problem with equipment & that is unacceptable.
1) I have yet to take the class for the Novas-backend. 2) The improvement of the Novas system would be best left to the people who devised it. 3) The system tends to be hampered by changes in climate, is slow, tends to be jumping from different codes, etc.
The words need to get bigger for the older employees, need screen savers, & better stylus that don't disconnect.
The reports have to be more sufficient. I think it is needed to be able to get the report. -people by every site (Agents / Police Officers / Supervisors)
Information should be accurate & pertain to job related situations (ie. Playgrounds, parks cannot be used when issuing N.O.V.s
The reporting functions are still a work in progress HHT changes are being made and will be implemented after testing
Firstly a protective screen is needed as the screen are now scratched and affects one's ability to input correct information. Also, provide information about the repeat violator codes. Also we need to know how some districts have been entered ref. routing times= if kn 11= sect 115=11-12 sect 113=10-11 sect 114=11-12==86 th street is the border of all 3 sections.
NONE
There are misspelled words such as hangers. There need to be more space to write more details in the violation details box. There are words such as (yogurt cups) that we no longer use should be removed and new words added. *Please erase whole first name from novice name of issuer box (Rhonda Leader) should be (R.Leader)
Stylus can be less sensitive to data input thereby allowing less errors and voids. Data should/screen should not lock in system due to information sometimes must be changed and will be able to be more productive as apposed to voiding N.O.V's
I would add more everyday usage words and I would take out unnecessary items.
A protective screen so when entering our signature the screen doesn't scratch.
When adding your own details the system does not always allow you to input everything you need to (you run out of space.) you need to be able to input or change certain things in the details of violation to better fit the situation.
I wish the handheld would not freeze while issuing a summons sometimes. A protective screen for the LCD screen due to scratches on the screen for use. Also for the buildings with no owner to let you at least input the word owner to minimize the voids to do no owner found.
Some of wording for some summons should be changed for S10 and S16. Also, problems with computer with signature failed and it say corrupt. The violation code should be after entering the address and owner information to minimize voids. No owner information property not found. Note: q#3-logon to the Notice of Violation Administration System every day. Q#4-one day of training session.

More training to be able to fix a problem with the HHT out in the field.
N/A
Scenarios should be able to be viewed before the point where you are unable to go back (possibly along with summary of law) A list of troubleshooting techniques should be issued in order prevent loss of productivity when a problem occurs in the field.
I would implement in the system after everything is completed. Information if the residence is a single or multi. When you are finished your NOV's and sometimes you forget if it was a single or not. You cannot go into a screen. You have to print a duplicate copy.
Need more code like E codes. More sceierio's, add spell check, cant go back to change something on previous screen.
System lockout to quickly. Have to enter password too many times.
We should only have to sign the handheld one time and it be good fro the whole day, because sometimes im sitting their for a while signing my name.
On S18 have choices from example (32 gallon, 34 gallon *containers) these are popular sizes. On S06 and S26 erase twigs, leaves these are not a violations add candy wrappers are not a violations add candy wrappers, potato chips, soda cans, beer cans. On recycling violation add juice cartons, cereal boxes, juice boxes, wire hangers. Please update address to owner there are alot of void because NOVAS doesn't know the information.
I would like to see the word's Street, Sidewalk, Roadside, Stored in the handheld.
The only time you should have to change the boro is when you are working out of the assigned district given to you. The choices of types of bags when you are choosing it for an R-code being able to read the details of summons, to make sure it's the one you want on a different screen. Take out details that the dept doesn't want people to use.
Litter information needs to be changed. Other information added equipment needs to be updated.
not at this time
I would want the system administrator to be available to answer more questions.
None
A-more options for types of litter i.e., cardboard debris, aluminum foil, wrappers, old clothing, lids, straws. B-for s18 pick up days (tap feature for days of pickup) Monday, Tuesday, Wednesday, etc. c-able to insert (v) words in between details without having to retap all remaining information. D-better alignment of scroll bars. E-bolder lettering in screen (is hard to see with glare). F-ability to change information such as in front of side of etc. without having to void summons.
Improve connection between Handheld & printer so that it does not have so many connection failures. Spell Check the screens - plastic hangers is spelled wrong. Removed - leaves, yogurt cups, deli containers, cigarette butts as choices Add - Styrofoam. Change - egg carton - to Styrofoam egg carton & plastic egg carton. When making selections on details of violation if put details under "other" then select a default selection it removes what was entered under other. Also, after making these selections, going back to details of violation, then going back to change the selections it will remove all but one choice put under "other".
I find that when entering the signatures into the NOVAS it tends to be temperamental.
When its time to put in your signature its very hard to do so because it wont take and its not right when you have to make respondents wait and or get locked out.
When you sign your name I always takes about 3 times to take, and some of the details of violation do not make sense

Have more classes, training. Training class for new agents, have the NOVAS up and running, before you train agents. Get feedback from users often, every 6 months. Note: Comment on Q4-Do you offer training sessions, besides training class, for new agents. Q10-when it is not raining (the handheld needs a cover) Q12-on the handheld, printer that I use daily I have do it manually.
I would first correct the misspelled words in the drop down screen. For example hangars-should be hangers. I would change the option of being able to change the violation code if entered incorrectly. I would remove agent's full name from the bottom of nov and have just the first initials.
Icons to be larger. Having to select BK always. More details
No, suggestions at this time
When issuing to residential at times you have no owner found so handheld void nov(summon) when issue a summon we need to type in the information from certain certificate to make it faster and accurate they should have bar code. So the agent just scan the ID and receive the information of the violator.
It would be much efficient to scan a license by NYS and all information appears on screen.
I would like to see a system based operation control person on shift that could be on shift at a location to discuss trouble shooting matter with when a problem arrives during shifts.
Printer slowness. Some nov's needs more space for more information. Too many id input. Few changes should be given for changing 'type of property' entered.
We need working Reports. I had many requests and suggestions emailed to J. Ruvolo and Rafael Vauderpool . We still have no progress.
More space to write in details. Make lettering bigger. Remove address lock for posting unit when writing NOV'S in house.
I would like to go back to the screen when I realize I made a mistake like back to the address and front of.
Have the ability to enter in 'owner' if no owner is found. The ability for another option when it freezes (the NOVAS) other then a warm or cold boot. Have a way to run a diagnostic on the printer (battery life-etc)
Cut down on the glare, make information on screen larger, be able to correct any mistakes before signing, have a test handheld at zones, and add (at) to front side rear.
The screen needs some improvement. At times depending on lighting is difficult to read.
I do believe that enforcement agent's full name should not be displayed on summonses by having our full names on the summonses. Respondents that agents already issued-could get access to a computer and find information about us agents. There are spelling errors in the program/minimize the no owners found premises void.
Vehicle registration should be able to scan into NOVAS. Driver's line should be able to scan into NOVAS. Screen should be enlarge (especially at nights). Numerals and letters enlarge (especially at nights) will reduce mistakes on summons. Also will improved concentration on the where about of respondents because your totally distracted when your writing a summons.
1-freezes. 2- Sometimes take signature. 3-when you go back on screen changes code violation. 4- Sometimes locks time when issuing sum at a later time puts a time more recent to real time.
Aside from freezing the handheld has a frequent tendency to jump around several functions when choosing violations and explaining (wording) violations.
Improve connectivity between handheld and printer. Design lock for on/off button so that handheld does not go on with slightest touch. Improve if possible signature recognition system.

Take out unnecessary information and change the script unit. Put the license information on the second screen after the violation.
Remove the items that can't be used on NOV such as ashtray contents, leaves also the word hanger is spelled incorrectly. I would like the option of issuing more violation codes. Also something has to be done with battery. Even the when fully charge I have experienced low battery power before my tour is over.
Remove unnecessary information from the violation details from the violation details. Yogurt cups, leaves, twigs, cigarette butts etc. reword the R11 apt violation. Remove the 50% from the details.
I've found that the signing process takes long if it doesn't take the signature. Also most handhelds when you point to an "A" you get an "S". The permanent details don't always fit the situation your writing the Nov for.
Train agents as well as supervisor better on how the NOVAS works as far as frozen screens; detecting a NO owner found (voids;) make the all printers compatible to one another; the alignment of the screens; have the NOVAS spell check words that are normally imputed into the handheld.
Violation code descriptions (dropdown) sometimes run off the right side of the drop down box with no way to scroll right to read the entire code description. Also, the 'timeout' feature signs off users too early in my opinion.
Most nov's are not listed on the system and supervisors must me you to fix the problems.
I cant make any suggestions as to what I would improve due to the fact that I never use handheld system on a regular basis.
I would improve the Notice of Violation Administrative System with a 'camera'. Bigger prints and brighter screens. Cigarette buts, packs, twigs should be erased. Should be able to change the street address.
More useful information like broken glass, plastic bags, food containers, bags or boxes, plates, rotten food instead of twigs, grass, and other items on screen. First page should start with more frequent used property instead of B. property battery acid.
It would be easier if you could put the DS 144 information into the NOVAS system and in addition maybe the agents can sign in on the NOVAS rather than sign a D.S 57 (or in addition to) also removing some codes that are not often used.
(question # 9 & 12 has two answer 'C' & 'D') All commercial info should already be entered automatically in system when issuing N.O.V.'s same as residential info / data. More extensive choices of detail violations. More memory to input other detailed accurate violations (listings).
Handhelds that have scratches on the screen should not be used. Try to fix the screen or replace the handheld.
The signature process to only sign one time and accepting the signature.
Provide task force with a handheld that we need practice.
There is sometimes a problem were as for example, you would select violation R10 but the description and details may up as S19.
Another added feature would be corrective spelling.
I would improve it by being able to put owner instead of the void that we get for getting NO Owner.
Use a magnifying screen over the original screen
There are various summonses that are not properly depicted by the description of violator area (scenario.)
Better lighting for screen. Bigger letters and screen. Better details. Remove what is not to be used. Add collection days as per location. Add camera and GPS system.
When I tap on other during violation details, I would like to be able to enter more when what is allowed presently.
I would suggest that the information for the commercial establishments be input into the system so when we enter the address, the license number and business name automatically comes up.

The handheld screen has glare which affects our posture when issuing an NOV. The words on the screen are too small. The system doesn't allow one to return to the prior information entered when address is log in. not user friendly. Also the screen for detail of violation has detail we don't use. Example, leaves, twigs. Item like cans, plastic bags, snack wrapper, need to be included. The appearance of our full name, signature and tax reg. no is a safety concern concerning our identification. Too much information. Handheld system is a great idea but need improvement.
More descriptions of litter that agent encounter in the field. Less glitches when issuing NOVS. More property found in the system. More update property information.
I would enter the format program for gas and manual entry for N.O.V.
Make it smaller and lighter.
Due to the fact that I only used the handheld once during training I am unable to answer this survey completely.
Get brand new ones.
Reword the R01, to much information when you write a action summons, remove yogurt cups, leaves, cigarette butts, twigs, deli container, add Styrofoam.
1st. I would give it back. To much to be responsible for. 2nd. Signature process sometimes takes up time. (I have a simple signature). 3rd. Printer does not work well with HHT "often" takes time to print summons. Causing time loss. 4th. Scratch free lens on HHT (plastic pen scratches lens) after long use. Becomes hard to read screen. 5th. would be nice if a mistake is made on (street address) could be corrected (house number) can be corrected. 6th. I don't feel (HHT) has made me right a better summons nor a faster summons. There are times when you want to write exactly what you see but you have to pick from prewritten scenarios. Making a summons not 100% correct.
Make it easier to sign on to NOVAS (signature part). Add more litter (adjent) like cans, candy wrappers plastic bags, chip bags plastic deli food containers, and so on. But overall it really works very good.
More training, all city houses put in the system
When your signature is logged in during start-up you should not have to enter it again while issuing a NOV. That's where I have the problem with signing my name so many times it might lock-me out.
In the section that states other; more space is needed to add items also if you're a Brooklyn worker you should be able to put that in only once.
none
Make them smaller.
About the handheld freeze.
Need longer lasting batteries; Also methods or some kind of cleaning solution for handheld screens (because of touch screen features) the touch screen can be a little tricky to utilize. Or the address codes to print from handheld to printer can become corrupted. As an option you should be able to connect printer by cable in troubled area. Especially in some buildings because were the building is or what other electronic devices are being used in the same area. I use my handheld inside not outside which could make a difference. Also periodic maintence checks should be implemented for defects in handheld stylus pen, screen etc.
My handheld and printer freeze way to often and has affected my work in the fact that we do vehicle stops and if my printer or handheld freezes I can't issue the summons. But overall I like NOVAS there just some minor changes that need to be made.
Some codes in system need to be corrected or improved. More space needs to be added for certain descriptions.
Sometimes when I see a violation on side yard or back yard the NOVAS wording states out for collection and that's not the case
Not to sign my name for every notice of violation writing.

None overall its user friendly.
I would allow the novice to go back to make changes if a mistake was made. At this time you have to void and reissue.
Make it faster, freeze to much, new screens.
I should be able to scan DMV lic and all information should display on handheld.
Leave as is.
Ability to change address without voiding sum. Precise printer and HHT communication while printing.
Through the system to upgrade where it will not freeze up and the battery don't die down quickly and also when signing your signature.
The violation code should be 'after' entering the address and owner info to minimize 'voids'. No owner info property not found. Note: in quest#.4 user put 'one day'.
The word styrofoam can be implemented in the scroll down column in reference to the R codes.
When entering details into the handheld it doesn't let you input all details. That should be changed.
Some of the 'scenarios' need to be updated.
The nova should tell you if a respondent or an address has been entered into the nova for that day. Sometimes the respondent for multi takes there summon off the door and you don't know whether they were issued that day or not.
Make it easier to log on and be able to change some of the details of the violation. Have the routing time more accurate at the bountrie lines.
Its good.
Provide the task force with a handheld that we could practice on.
Works fine the way it is.
Signature
Take off listings such as twigs and leaves as well as cigarette or ashtray things so no on will accidentally mark it.
n/a
Make more lighter and handy.
Make it able to change addresses if error occurs without sticking with what was enter to avoid voids and save time. Also, make handheld connect with printer better.
The details associated with each violation can be broadened
The NOVAS sometimes doesn't connect with the printer and needs to be improved. The R09 violation code needs to give the option if metal, plastic and glass was mixed with paper and also "cardboard boxes". There are a lot of "no owners found" in the NOVAS.
When you logon onto the handheld your signature should be stored on it to where that when you reach the end of a NOV you don't have to sign again. That would improve time used on each nov. You already signed your signature when you logged in why should you sign two more times after to complete the nov.
Allowed the battery to charge completely and make sure the HHT is fully collected with the printer
Screen format / information flow requires the user to be able to place additional info. Handheld can only handle 30 characters. For personal serve summons, k-09 would like to have this feature added.

25   **Office of New York City Comptroller William C. Thompson, Jr.**

sanitation

June 9, 2008

Mr. John Graham
Deputy Comptroller for Audits, Accountancy and Contracts
Office of the Comptroller
1 Centre Street, Room 530 South
New York, NY 10007-2341

Re: Draft : Audit Report on the Development and Implementation of the
      Notice of Violation Administration System by the
      Department of Sanitation
      7A08-056

Dear Deputy Comptroller Graham:

Thank you for the chance to review your Draft report before its public release.

I am pleased to note on the report that "NOVAS met the overall goals as stated in the original system justification; and the system design allowed for future enhancements and upgrades. DSNY followed a formal system development methodology when developing NOVAS. Also, DSNY has a network architecture for NOVAS that was approved by DoITT. NOVAS complies with Electronic Signature and Records Act Federal guidelines and the handheld devices are physically secure when not in use."

The following are our comments on some of the statements in the report and our response to the eight recommendations.

On Page 8 in Table I , **58% of survey responders indicated that they experienced a problem forwarding data to ECB.** It should be noted that no user forwards data to ECB. The process that transmits tickets to ECB runs regularly each night and the process is monitored.

On Page 8, in Table I, **58% of survey responders indicated that system data was occasionally incorrect , resulting in unreliable data.** We disagree with this. Over 450,000 tickets have been issued by NOVAS and successfully transmitted to and processed by ECB.

On Page 9, the report cited "**hearing dates scheduled beyond the 30-day requirement....**". The correct hearing date rule requires hearing dates to be scheduled at least 30 days after the ticket is written. Also cited was that "**phone numbers appear in the license number field**". In some cases a phone number is the identification of choice.

On Page 9, the report found **exceptions such as combined first and last names, special characters and numbers in the last name field, no zip codes....**". First and last names may be combined because property owner may be individuals, corporations, schools, etc. and their names may legitimately include special characters and numbers. Zip codes are only saved when they can be obtained from the respondent or documentation. Saving this data in this fashion has no negative repercussions on data validity or the ability to process and adjudicate the tickets.

On Page 9, the report also cited **30 instances that an AM field had a PM designation** for routing time. All routing times in NOVAS are correct. 'AM' and 'PM' refers more precisely to a first and second routing time rather than the time of day.

On Page 9, the report cited that **219,589 records with the date January 1, 1900** appear in a NOVAS file. This default date is generated by the system when an actual date was not required. The system recognizes this as the equivalent of an empty field.

On Page 10 at the top, the report states that "**Our review of these tables did not find any erroneous or missing dollar amounts related to the issued violations. However, the internal controls that would prevent critical data entry errors are inadequate thereby increasing the possibility that violations could be dismissed.**" We believe that our responses to recommendations 2 and 3 below remove any concern that data entry control failures occur in NOVAS.

Responses to Recommendations:

1. **Address the user concerns revealed in our survey. In that regard, DSNY should consider improving the screens of the handheld device, adding additional space in the violation detail section, deleting unused items, adding additional menu options as well as correcting misspelled words in the drop-down section, and providing additional training to those users who reported that they had limited knowledge of the system.**

   The survey recommendations will be taken under advisement. With regard to the specific concerns described above:

   Handheld size and lighting are constraints inherent to a mobile unit. The NOVAS handheld meets normal performance expectations.

2

Allowing more space to record violation details is unnecessary. The application was designed purposely so that only authorized scripts are used to report the violation details.

Menu items are reviewed periodically. Enforcement headquarters decides which items should be in the lists.

Enforcement training efforts are extensive and have been in effect since June 2006. Additional training is available at all times. Contact information for headquarters and training staff is provided to all handheld users. Users have full and condensed versions of documentation. Procedures are in place to record and review problems and suggestions.

2. **Correct the data fields noted as having incorrect information and create adequate input controls or adequate data validation checks to ensure that no further data entry errors are allowed.**

We disagree with this recommendation. The data was not found to be incorrect. The hearing date, routing time, formatted owner and date fields referenced were saved acceptably in NOVAS.

3. **Correct the mandatory data fields noted that are blank and create edit checks to ensure that processing of data can not be finalized until all mandatory fields are completed.**

We disagree with this recommendation. This data is only mandatory for certain inputs. Blanks are valid for certain records.

4. **Review NOVAS system tables, deleting any unused or unnecessary fields in a particular table, thus eliminating the possibility that inaccurate information is introduced into the system.**

We will take this recommendation under advisement. Our current analysis shows that these structures and elements are generally in place to accommodate enhancements that are planned or under development.

5. **Enforce the requirement for users to change their password every 45 days. In that regard, DSNY should program a warning in NOVAS reminding the users to change their password. If the password is not changed, the user should be locked out and disabled.**

NOVAS workstations are part of the DoITT/DSNY network and are subject to workstation security and password expiration policies. A user must have authenticated Windows credentials to logon successfully to a NOVAS workstation. NOVAS borough workstations are located in physically secured, locked and monitored facilities which are controlled by supervisors. Adding password expiration

logic specifically to the NOVAS web application will not be done at this time as it would require a change order.

The handheld security currently complies with the Electronic Signature and Records Act guidelines for user ID, password and biometric signature authentication. We expect to enable the password expiration feature in a future release.

6. **Develop written policies and procedures to terminate inactive user IDs. In addition, DSNY should immediately terminate the access of those individuals who are no longer employed by the agency. Further, DSNY should review the status of the inactive users and terminate access as appropriate.**

We agree. DSNY has developed procedures to immobilize user ids of employees who are terminated.

7. **Complete and approve a formal, comprehensive disaster-recovery plan for NOVAS in accordance with DoITT's Business Continuity Directive.**

We agree. The report states that **"Disaster-recovery plan and restore procedures for NOVAS have not been fully developed, tested, and integrated into DSNY's existing disaster-recovery plan. Currently, there is only an emerging plan that is still being developed. A comprehensive and approved plan would include:**
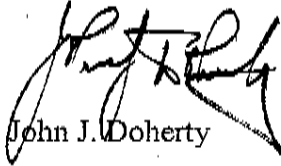
- **An outline of the applications that would be restored should a disaster occur**
  DSNY has completed an outline of the applications that would be restored should a disaster occur.
- **A contact list of personnel critical to continuing system operation**
  DSNY has completed a contact list of personnel critical to continuing system operation.
- **An alternate processing site to be used in case of a disaster at DSNY**
  DSNY is in the process of developing the COOP solution which will provide Metrotech Center in Brooklyn and CRS in Queens as alternate sites.
- **Procedures to determine whether an event is sufficiently serious to invoke the plan**
  DSNY will establish procedures to determine whether an event is sufficiently serious to invoke the plan as a function of the COOP solution.
- **Formal agreement with vendors to provide software supplies and equipment**
  The NOVAS Task Order contains maintenance phase provisions that will allow DSNY to acquire software supplies and equipment from the vendor.
- **Procedures for implementing manual processing**
  DSNY continues to produce paper tickets. The manual process has not been eliminated.

8. Periodically test the formal, approved disaster-recovery plan.

We agree. The COOP solution will define periodic testing requirements.

Please call our audit liaison, Mr. Cris Gonzales at (917) 237-5326 should you or your staff require further information.

Sincerely,

John J. Doherty

c: Lorenzo Cipollina, Deputy Commissioner of Administration and Finance
  Cris Gonzales, Director of Internal Audit
  Joel Binn, Chief Information Officer
  Jeffrey Kay, Director, Mayor's Office of Operations