Project Number: 44-JPH-0703

COMPLAINT SYSTEM EFFECTIVENESS

An Interactive Qualifying Project Report

submitted to the Faculty

of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

By

_____

Michael Dias

_____

Grégory Pierre-Louis

_____

Eric Zuendoki

_____

Professor James P. Hanlan, Major Advisor

_____

Professor Holly K. Ault, Co-Advisor

Abstract

This document contains an analysis of a Complaint Management System put in place by the Department of Permitting Services located in Montgomery County, Maryland. The information used in this analysis was gathered from literature, group interviews, questionnaires, and the Hansen v7.6 software used by the Department of Permitting Services. Our objective was to provide the department with recommendations and means of improving their Complaint Management System to better improve their ability to serve the public.

Executive Summary

The Department of Permitting Services in Montgomery County, Maryland, is an enterprise organization that issues permits to, and handles complaints for, the citizens in the Montgomery County area. The department uses an electronic data management system called the Hansen System 7.6 to document, track, and report the permits and nature of complaints under its jurisdiction. It is divided into three divisions, Case Work Management, Building Construction, and Land Development. Within these divisions are sections with Managers, Inspectors, Investigators, and Permit Technicians, who conduct duties specific to the section to which they belong. Among these duties are complaint handling procedures and processes. The Department of Permitting Services currently handles approximately 3,700 complaints per year for Montgomery County. Prior to this project, the DPS had no collective system for analyzing complaints, nor could the department definitively explain the nature of all the complaints collected through its various channels. Our project team assisted in explaining the nature of the complaints received and establishing the foundation for a collective system of analysis.

The purpose of this project was to analyze the effectiveness of the current complaint handling process at the Department of Permitting Services in Montgomery County, Maryland. More specifically, our team was given the duty of understanding the current process, evaluating the effectiveness of the department's current method of complaint handling, researching the various methods that other jurisdictions use to manage complaints, and make recommendations for new ways to document, track and report on the nature of complaints received and how they were resolved. The project was conducted from August, 2007 through December, 2007, and the final report was presented to our advisors and liaisons on December 10th, 2007.

Reinventing Government reflects the ideology that government departments should strive to serve citizens more like private organizations serve customers. Treating a citizen in the same way that a private organization would treat a customer allows for the citizen to become a source of information for the government. If the services that a private organization offers are inefficient, the customers will be the first to feel the effects. Thus, complaints are critical for the recognition and improvement of problems. Initiatives such as use of electronic databases and complainant feedback allow for the Department of Permitting Services to improve its complaint system effectiveness, focusing on serving the community as its top priority.

Increasing the effectiveness of a complaint handling process begins with careful analysis of the informational flow of the system. A streamlined, documented, and thorough complaint handling process flow allows for the Department of Permitting Services to establish consistency in their duties. A mapping of informational flow is necessary in order to understand and share knowledge about how a complaint handling system operates. This is a necessary first step in targeting the issues that decrease the effectiveness of the overall complaint handling system. In the list of best practices for private organizations; documented, detailed-flow maps are primary deliverables. In addition, a department's compliance with the best practices can increase the thoroughness and effectiveness of the complaint handling process. The best practices outlined in this report were developed from research of ISO9000:2000 and analysis of cases in which the private organizations maintained a complaint handling system.

In order to understand the current process, interviews, group interviews, and questionnaires were given to the Managers, Inspectors, Investigators, and Permit Technicians of the DPS who function in the complaint handling system and process. These interviewing sessions and questionnaire documents allowed for our group to gather a thorough and concise understanding of the activities that occur in the complaint handling process. In addition, the Hansen System 7.6 database was used to gather statistical data and information on the nature of the complaints that the DPS handles. These statistics were analyzed for trends, correlations, and variability.

The recommendations developed focus on three major aspects: Training, Advantages of Standardization, and a Recommended Complaint Handling Flow System. The results from our research revealed training issues, lack of standardization, and lack of a documented complaint handling flow chart to which the employees could frequently refer. Our group established documents that the DPS can use in their training sessions as well as guidelines with regard to when training should occur based on the statistical data retrieved from the Hansen database. The recommendations are intended to increase the efficiency and effectiveness of the complaint handling process at the Department of Permitting Services.

Table of Contents

Attributions Page

Abstract
Written by: Michael Dias

Executive Summary
Written by: Eric Zuendoki

Acknowledgements
Written by: Grégory Pierre-Louis

Introduction
Written by: Eric Zuendoki
Revised by: Michael Dias & Grégory Pierre-Louis

Literature Review
Nature of Complaints
Written by: Eric Zuendoki
Revised by: Michael Dias & Grégory Pierre-Louis

Reinventing Government
Written by: Grégory Pierre-Louis
Revised by: Michael Dias & Eric Zuendoki

Managerial Oversight
Written by: Eric Zuendoki
Revised by: Michael Dias & Grégory Pierre-Louis

Informational Flow
Written by: Eric Zuendoki
Revised by: Michael Dias & Grégory Pierre-Louis

Complaint Management Effectiveness
Written by: Eric Zuendoki
Revised by: Michael Dias & Grégory Pierre-Louis

Integration of Best Practices
Written by: Michael Dias
Revised by: Grégory Pierre-Louis & Eric Zuendoki

Service Recovery
Written by: Eric Zuendoki
Revised by: Michael Dias & Grégory Pierre-Louis

Methodology
Written by: Grégory Pierre-Louis & Eric Zuendoki
Revised by: Michael Dias

Results
Complaint Handling Tasks of Employees
Written by: Eric Zuendoki

Revised by: Michael Dias & Grégory Pierre-Louis

Ideal Complaint Process

Written by: Michael Dias

Revised by: Grégory Pierre-Louis & Eric Zuendoki

As-Is Complaint Process

Written by: Michael Dias

Revised by: Grégory Pierre-Louis & Eric Zuendoki

Complaint Processes of Other Departments & Counties

Written by: Grégory Pierre-Louis

Revised by: Michael Dias & Eric Zuendoki

Nature of the DPS' Complaints

Written by: Grégory Pierre-Louis

Revised by: Michael Dias & Eric Zuendoki

Analysis

Training in the Hansen System 7.6

Written by: Eric Zuendoki

Revised by: Michael Dias & Grégory Pierre-Louis

Advantages and Disadvantages of the Other Processes

Written by: Grégory Pierre-Louis

Revised by: Eric Zuendoki

Analysis of Complaint Data

Written by: Grégory Pierre-Louis & Eric Zuendoki

Revised by: Michael Dias

Advantages of Standardization

Written by: Eric Zuendoki

Revised by: Michael Dias & Grégory Pierre-Louis

Application of Best Practices in Complaint Handling Systems

Written by: Grégory Pierre-Louis & Eric Zuendoki

Revised by: Michael Dias

Conclusion

Written by: Michael Dias & Grégory Pierre-Louis

Revised by: Eric Zuendoki

Recommendations

Training

Recommended Complaint Handling Process

Written By: Michael Dias

Manager's Role in Training

Written By: Eric Zuendoki

Permit Technician Training

Written By: Eric Zuendoki

Modifications to the Hansen System

Written By: Grégory Pierre-Louis

Revised By: Eric Zuendoki

Job Reassignment

Written By: Grégory Pierre-Louis

Revised By: Michael Dias

Future IQPs for the Department of Permitting Services

Written By: Eric Zuendoki

List of Figures

List of Tables

Acknowledgements

We would like to acknowledge and thank Mrs. Susan Scala-Demby who guided us through our work with care. We would also like to thank Mrs. Carla Reid for her insight on our report. The team thanks Mr. John Greiner for making us feel comfortable during our progression; and Mr. Reginald Jetter, Mr. Thomas Laycock, and Mrs. Nancy Villani for being patient and for their input. Lastly, we would like to thank all of those who cooperated with us during the interviews as well.

Introduction

Reinventing government has been a major theme in municipal governments for over a decade. The processes and initiatives that come from this ideology offer methods to increase the effectiveness and efficiency of many government practices. Such initiatives include the computerization of information flow within a government agency, and use of the internet as a means of customer service and knowledge distribution. According to Kettl (1998), "Reinventing government has tackled big political questions ranging from procurement reform to customer service, from the mega-issue of what government ought to do to the nagging puzzle of how to solve the problems of high-risk programs." Complaint resolution can be considered a high-risk program for many government agencies, especially if citizen satisfaction, being responsive to the citizens, and being accountable are the objectives of an agency. Reinventing government strategies assist in establishing a performance-based environment at an agency. Creating such an environment is one of the first steps towards implementing initiatives and plans for improvement for current processes. In an ideal situation, governmental processes would abandon paper and notes and adopt an electronic database structure. Montgomery County's Department of Permitting Services has steered their permit and complaint handling process in this direction. Despite these efforts to create a concise electronic informational system, there still exists inconsistency in its use and application. As the project description states, the DPS lacks a comprehensive collective system for analyzing complaints and the department can not definitively explain the nature of all the complaints collected through its various channels. Currently, the DPS is using the Hansen System version 7.6 database system to manage its permitting and complaint processes electronically. There is also a scheduled update to the version 8.0 system within the next year. In order to formulate recommendations for the DPS, the team has analyzed the current complaint handling system as it currently operates, the informational flow path of the complaint system, the employees involved with the complaint system, and the electronic software that is used with the system.

This project has identified the sources of information with regard to complaint handling, synthesized them, and identified the issues and concerns for increasing the effectiveness of a complaint system. The information was acquired at the municipal office from their Hansen System database, from the employees who were currently working at the DPS, and from

neighboring and similar municipalities. Additional data was collected through interviews and group interviews with government officials. These interviews took place over the phone or in person. The interviews are a necessary part of the data collection process because the central government did not have data on the current operative complaint system available throughout the entire department. By gathering and piecing together the information obtained, the DPS will be able to address issues of inefficiency and improve the effectiveness of the overall complaint handling process.

The Montgomery County Department of Permitting Services (DPS) has the responsibility of providing the highest quality of public service in reviewing and authorizing licenses and permits, while ensuring compliance with the County's development and construction standards. Any individual, organization, or business that erects a fence, builds an addition to their house or office, or renovates an existing structure is subject to the regulations that Permitting Services enforces. The county's mission statement provides eight key goals that the county strives to achieve. Among these goals is to be "A Responsive and Accountable County Government". This specific goal is a target of the Department of Permitting Services, and their complaint system is an important means for achieving this goal.

An understanding of the current processes within the sections was necessary in order to make accurate and effective recommendations, so an in-depth look into how Montgomery County manages all of its complaints separately was important. Research with regards to how other jurisdictions manage their complaints systems was necessary in order create criteria for comparison. Most importantly, Montgomery County was looking for recommendations on how to document, track, and report the nature of complaints received and how they were resolved. Our team's project goals and research allowed for us to achieve these results.

Literature Review

This report focuses on complaint system effectiveness in the Department of Permitting Services (DPS) in Montgomery County, Maryland. First, the nature of complaints received by the DPS will be discussed, along with important definitions and general information about how the complaint system works. Then, a more detailed look at the nature of complaints within the Department of Permitting Services will be discussed. Because this case study involves a complaint system in a county government, the issue of "reinventing government" will be discussed. This discussion is to establish the viewpoints of municipal government processes and how these processes can potentially be enhanced. Our group will then review three case studies that involve good complaint management techniques and applications of best practices. Analysis of best practices will aid us in identifying the features and attributes that are important in designing effective and efficient complaint management systems. Finally, we will summarize relevant findings and conclusions having to do with increasing complaint system effectiveness and the efficiency in Montgomery County's Department of Permitting Services.

Nature of Complaints

A complaint can be defined as "an expression of discontent, regret, pain, censure, resentment, or grief; lament; faultfinding" (Dictionary.com, 2007). Psychological research conducted to understand why a person complains usually draws negative conclusions about the psyche of the complainant. According to Paul (2007), complaining is a means to "pull" on other people's attention, care, and energy about an issue that the complainant feels is important and is in need of a resolution.

People complain because of their inability to resolve an issue or problem themselves. Thus, essentially, a complaint is a request for assistance in resolving an issue concerning the individual who is complaining. There are underlying advantages of paying close attention to the nature of complaints, especially when the complainants are within close proximity geographically. These advantages are mostly for agencies or departments that manage high levels of complaints. According to WPI Professor Fabio Carerra, the power of complaints is an untapped source of information for municipal government (personal communication, September 21, 2007). What this suggests is that the information obtained from handling complaints could increase the effectiveness and efficiency of the government's other agencies and activities. An

example of such information would be addresses that are not currently in the grid of the department. With the existence of a thorough complaint reception process, a more accurate and updated informational database can be created and used for other processes in the department other than complaint handling. More importantly, a complainant may bring to light a concern about which the receiver of the complaint may not have been previously aware. An important aspect of the usefulness of a complaint lies in its ability to reveal a real and serious generic issue extending beyond the case at hand which is worth looking into. Montgomery County's DPS wants to create a comprehensive system that not only responds to, but also systematically analyzes complaints. A characteristic of this complaint system should be the ability to observe possible trends and frequencies of complaints received. Of course, the validity of an individual complaint is always in question, so methods to assess of the validity of complaints must be in place.

The majority of complaints that the DPS handles begin with recording the citizen's perspective of an issue that he or she believes is justified. The software used for complaint handling at DPS is the Hansen System & Database. Analyses conducted using this system at the Department of Permitting Services shows that there are 86 distinct types. These complaint types, more precisely known as Service Requests, encompass the nature of complaints that the DPS handles. These types are labeled by an arrangement of ID numbers and letters are assigned to each of the 86 types. These IDs are commonly referred to by the employees in place of the description of the complaint type. If a complaint received by the DPS does not fall into one of these types, a new one is created to incorporate the nature of the complaint. A few examples of the nature of complaints the department handles are as follows:

1. E10 – Residential Electrical Violation
2. E11 – Commercial Electrical Violation
3. B11 – Residential Building Violation
4. B12 – Commercial Building Violation
5. WR2 – Sediment Control Safety.

A complete listing of all complaint types is available in the FT of Appendix F.

Some complaints may take priority over others if delivered directly to the Director of the DPS, especially if a complaint is from another county official or is initiated by a prominent citizen. These complaints, regardless of their nature, are placed at high priority at the discretion

of the Director. With regard to the accuracy of a complaint's information, it is proportional to the citizen's ability to articulate his or her concerns. The ability of the complaint handler to accurately transform the complaint from the citizen into notes or a database entry is also a factor in complaint accuracy. Standardization of the complaint handling process will assist in remedying both the problem of inaccurate recording and the problem of inadequate information.

Complaint Management has become a growing topic in the business world as a means to increase customer retention and satisfaction. Private organizations have allocated significant focus and resources to their complaint management departments. This is due to an increased emphasis on customer satisfaction. According to the American Productivity & Quality Center (1999), partner organizations receive approximately 500,000 phone calls each month to their complaint management systems. Approximately 33% of these phone calls are actual complaints from customers. The volume of complaints within these organizations displays the need for their complaint management departments. For a municipal or county government, its customers are the citizens. According to the National Performance Review (1995), "The Voice of the External Customer is the voice of the American people." This voice should always be taken into consideration because it has the potential to display opinions and viewpoints of the citizens. Since Montgomery County's complaint system functions with citizens directly, it is important that these interactions be reported, documented, and tracked as accurately as possible.

One of the most significant problems facing the DPS is the accurate recording and transcription of the nature of citizen complaints. It is hard to gather information about a complaint during a phone call because of the occasional ambiguity of conversations. Software companies have been investing in applications pertaining to complaint management because the software companies see a market and an opportunity to apply their skills in a commercially marketable way. The information gathered from complaints within any organization needs to be thorough and concise in order to be analyzed effectively and efficiently. According to *The Customer Driven Company* (2007):

> Complaint data is incredibly valuable for any organization. Complaint management is not just about handling complaints well, it is about using the data to understand the root causes of issues, identifying areas of concern and utilizing this information to deliver improvements across your business.

Complaint management departments should take advantage of software applications with processes that analyze, summarize, and properly document information retrieved from

complaints. This allows for the use of complaint management techniques that fall under best practices and reduces the risk of error in processing data received.

Traditional means of receiving complaints are via telephone or U.S. mail. Both methods have their advantages and inherent problems with regard to information retrieval. For example, telephone calls are immediate, so the timeliness of its reception is not an issue. However, the worth of complaints through telephone calls is limited to the quality of communication from the complainant during the phone call. Angry complainants may convey more information about their emotional status than about the specific issue of their complaint. On the contrary, written complaints tend to be more thorough and explanatory, but they take time to get to the complaint management department to be processed. Also, notification to the employee responsible for responding to the complaint is difficult because the employee responsible may not be easily recognizable. According to Aggens (1991), most municipal government units function as pass-through handlers of complaints, or receive complaints in the course of performing regulatory functions. Such government units, although facilitating the operations of a complaint management department, do not advocate the need for a comprehensive system that analyzes, tracks, and documents complaints. This type of system is necessary in an organization that intends to draw conclusions from complaints in order to enhance their operational process.

Companies and organizations that intend to enhance their complaint management departments should follow a set of best practices in complaint management. According to the American Productivity & Quality Center (1999), “four of the five best-practice companies in their study centralized their complaint process and believe this is a key factor to their success. Two attribute their success in this area directly to the centralization of their complaint centers.” Montgomery County’s Department of Permitting Services is attempting to centralize the process among its three divisions. This is a necessary step in integrating best practices into the department. This integration will lead to increased complaint system effectiveness and efficiency. This is also a means of reinventing the current traditional process.

Reinventing Government

How should a municipality manage its complaint system? This question goes beyond the importance of having a complaint system and addresses both technical and operational issues that a municipality may have. According to the National Performance Review (1996) on

governmental complaint management in 1993, Vice President Gore's National Performance Review team along with President Clinton's Executive Order "Setting Customer Service Standards" directed the federal government to revamp customer service to match best-in-business practices. Federal agencies were to survey customers to find out if the service they were receiving was what they wanted. Agencies were directed to inquire about thoughts from employees about the agency's customer service, to give customers variance in choices, and to make complaining to the agency as simple as possible for customers. The National Performance Review's Report (1996), states "…that the goal is a revolution in how government does business so that customers are the focus." For the DPS, which wishes to reflect best practices in both business and government, this is their goal as well.

The report lists the following valuable lessons:

1. The ease of the ability of the customer to complain is directly correlated to improvement for the organization or agency;
2. Responding to customers in an efficient manner is directly correlated to customer loyalty;
3. Resolving complaints initially-
    a. saves money and time as opposed to a "call-back system."
    b. builds customers' confidence in the agency;
4. Use of updated technology is essential to handling complaints;
5. Recruitment and hiring of employees who are best suited for customer service occupations is essential.

If the services that an agency offers are inefficient, the customers will be the first to feel the effects. Thus, complaints are critical for recognition and improvement of problems. Complaints will not be received if the necessary ease of reporting a complaint does not exist. In other words, an individual will be reluctant to complain if he or she finds the process of complaining difficult. Another advantage of a successful complaint management system is the reward that companies receive, in the form of loyal customers, by resolving complaints promptly. As stated in the report, Toyota Motor Sales USA, Inc. has implemented a formula to aid in developing customer satisfaction: "doing the job right the first time + effective complaint management = maximum customer satisfaction/loyalty." Customers appreciate when their issue at hand is resolved in a swift and thorough manner. Satisfaction can be achieved by resolving a complaint over the phone shortly after the customer has expressed his or her concern or problem.

Simply addressing the complaint immediately gives the complainant a sense of progress with their concerns. According to the National Performance Review Report (1996), resolving complaints on first contact reduces cost by 50%. Another initiative that increases the effectiveness of complaint handling involves the necessity of using updated technology, specifically computers. Computers aid in finding trends in data and compiling statistical results that can be easily understood. Best-in-business practices include electronically compiling customer complaint information. In the minutes of an Equal Employment Opportunity Commission (EEOC) meeting (1999), Director of EEO Programs Bonita White commented that their complaints had issues of lack of information and addressing complaints lagged in time. White mentioned that "…many offices are staffed with persons who otherwise lack the type of technical expertise and analytical skills or preparations beyond on-the-job training, which would enable them to perform EEO complaints processing responsibilities more efficiently."

According to a report by Linda D. Koontz (2000), Associate Director of Government-wide and Defense Information Systems, 21 out of 32 high impact agencies provide an e-mail link for the citizens to use to electronically submit comments or complaints. This is supported by Figure 1 which also shows that only four out of the 32 agencies have a structured on-line complaint form. For a majority of these agencies, e-mail is unstructured, and does not facilitate the collection of comprehensive information, automated data collection, or other important features that are inherent in the online form. The following figure displays a table of the different attributes that the 32 High-Impact agencies exhibit on their web-based customer complaint system.

Federal Organization	On-line structured complaint form	Download structured complaint form	E-mail link for program comment	E-mail Link for webmaster comments	Phone or mail information
Department of Agriculture					
Animal & Plant Health Inspection Service				✓	✓
Food Safety & Inspection Service				✓	✓
Food & Nutrition Service				✓	
Forest Service	✓		✓		✓
Department of Commerce					
Bureau of the Census			✓	✓	✓
U.S. & Foreign Commercial Service			✓	✓	
Patent & Trademark Office				✓	✓
National Weather Service			✓	✓	✓
Department of Defense					
Acquisition Reform				✓	✓
Department of Education					
Office of Financial Assistance			✓	✓	✓
Department of Health and Human Services					
Food & Drug Administration			✓	✓	✓
Administration for Children & Families	✓			✓	✓
Health Care Financing Administration			✓	✓	✓
Department of the Interior					
National Park Service			✓	✓	✓
Bureau of Land Management			✓	✓	✓
Department of Justice					
Immigration & Naturalization Service					
Department of Labor					
Occupational Safety & Health Administration	✓			✓	✓
Department of State					
Bureau of Consular Affairs			✓	✓	✓
Department of Transportation					
Federal Aviation Administration		✓	✓	✓	✓
Department of the Treasury					
Customs Service			✓	✓	✓
Internal Revenue Service			✓	✓	✓
Office of Domestic Finance/FMS	✓		✓	✓	✓
Department of Veterans Affairs					
Veterans Health Administration			✓	✓	✓
Veterans Benefits Administration		✓		✓	✓
Independent Agencies					
U.S. Postal Service		✓	✓	✓	✓
Environmental Protection Agency			✓	✓	✓
Federal Emergency Management Agency			✓	✓	✓
General Services Administration				✓	✓
National Aeronautics & Space Administration			✓		✓
Office of Personnel Management			✓		✓
Small Business Administration				✓	✓
Social Security Administration			✓	✓	✓
Total	**4**	**3**	**21**	**28**	**29**

Figure 1 – 32 High-Impact Agencies (Koontz 2000)

Employees who have developed talents in customer service are a means of increasing its effectiveness throughout the entire organization. Hiring employees with customer service skills

is best if an organization is to commit to the improvement of their complaint process. For employees who do not have inherent talents in customer service, in-house training can assist in outlining the necessary guidelines of good customer service techniques for these employees. Customer-oriented employees would also aid in implementing departmental guidelines. The National Performance Review Report (1996) refers to these twelve characteristics that all customer service employees should exhibit:

1. Problem solving abilities;
2. Skill in handling tense, stressful, and multi-task situations;
3. Strong sense of responsibility;
4. Good communication skills and voice clarity;
5. Business writing skills;
6. Knowledge of relevant processes;
7. "People skills" with customers and co-workers;
8. Compassionate, customer-oriented attitude;
9. Strong desire to help customers;
10. Computer skills or aptitude;
11. College degrees are desirable and sometimes required;
12. Typing and other diagnostic tests may also be required.

Managerial Oversight

Although the complaint systems of municipalities and private organizations handle different complaints, they both deal with similar issues once the complaint is received. Complaints can be handled excellently or poorly, and this is partly directly related to the quality of the informational flow within the system. In the case of Montgomery County, effectiveness of the system is of high importance, so a careful look at the informational flow within the system is necessary. According to the results of a research study by Gilly, Stevenson, and Yale (2005),

> Managers are effective at passing problems to completion within professions, but having personal ties with individuals in the organization, rather than simply being a manager was important when passing problems to completion across professional boundaries.

The managers should monitor the movement of complaints through the system so that the effectiveness of the system is apparent. After monitoring the system, its processes can be

documented, accounted for, and measured for their effectiveness, aiding in the improvement of the overall process. Tasks such as data entry and movement should be known by managers in the department. This would allow for better integration of the complaints and complaint systems within all of the divisions of an organization by focusing improvement and effectiveness evaluations at the divisional level.

Information Flow

How the information flows through a system, how it is maintained within a system, and who can access the system are among the types of issues where system effectiveness can be measured. Depending on the process, it may be found that, although complaints are received efficiently, the data may be lost in the system or compiled in such a fashion that it cannot be summarized. A mapping of information flow is necessary in order to understand and share knowledge about how a system operates. As shown in Figure 2, this document should display the information flow of a complaint system. Along with how data streams through the system, barriers within the system are also identified. This is a necessary first step in targeting the issues that decrease the effectiveness of the overall system. Also, the level of complexity in the flow of information cannot be assumed to be as simple as this diagram suggests. Rather, there may be a chain of simultaneous events within the Department of Permitting Services that may be consolidated after flow reconfiguration to enhance the process. Also, areas where decisions have to be made must also be taken into consideration. According to Gilly, Stevenson, and Yale (2005), barriers are created when nodes within the information flow chart have members of expertise who handle tasks specific to their node. Because of the specificity of tasks within a certain node, it may be necessary for detailed communication methods between nodes to enhance the flow of a complaint through the system. The lack of such communication may create barriers in processing and understanding of information. It is important for managers to address communication complications between nodes of an informational flow chart in order to maintain a consistent, streamlined flow of information throughout the system. For example, certain terminology and tasks specific to one node of information flow should be broken down into terms that can be understood and shared throughout the entire system. Without this analysis of information that may not be widely known, barriers in informational flow will always exist.

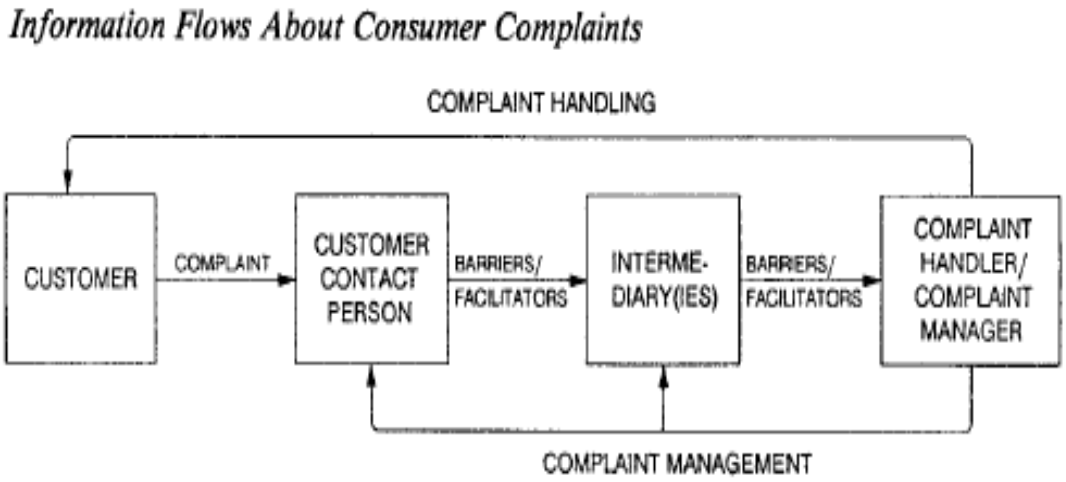


Figure 2 – Consumer Complaint Information Flow

According to Gilly, Stevenson, and Yale (2005), complaint management can be described as a problem of processing information within an organization. Also, there are a set of assumptions that go along with the processing of information:

1. The tasks of the organization present uncertainties that need to be addressed;
2. These uncertainties can be reduced by increasing the amount of information available within the system;
3. Information can be managed by formal design, that is, by creating formally specified individuals and groups to deal with problems.

Understanding information flow in Montgomery County's DPS is needed to improve effectiveness. Currently, many municipal complaint management systems are managed through computer software. According to the Sacramento County (California) website, their process for submitting complaints is an online system that takes requests and then places these requests into a database. This is also true for Montgomery County, although telephone calls, U.S. mail deliveries, e-mails, and walk-ins are still options when choosing how to submit a complaint. The potential disadvantage of this system is the paper accumulated by receiving mail. Whether or not the mailed complaints are entered into the system or stored as paper documents can create problems as well. Also, the way in which telephone calls are transformed into data is important. This last issue is one to be taken into consideration and analyzed by the group.

Complaint Management Effectiveness

Before we can present Montgomery County's Department of Permitting Services with suggestions for improvements to their existing system, we need to define the characteristics of a successful complaint management system. To accomplish this, we have referred to three different cases involving complaint management. The people/organizations involved in these cases include: Microsoft Developing Network and ProWell; Citizens Advice in conjunction with the National Health Service Independent Complaints Advocacy Service (located in the UK); and the European Advertising Standards Alliance's (EASA) Cross-Border complaint system. Following a brief summary of the organization/people involved, their objectives, and their conclusions in each case, we will comment on the effectiveness of their complaint management system.

The first case comes from Microsoft's Developer Network (MSDN). According to Homann & Levy (2004), our typical complaint scenario is presented in a new light: that of business-to-business (B2B) settings in which partners in formally established, contractually managed, and long-term relationships interact. The authors detail the implementation of a customer complaint system, and use two organizations as examples: a packaging company and ProWell, a virtual enterprise. More specifically, Homann & Levy (2004) "outline the application of Service Oriented Architecture (SOA) principles to business-to-business (B2B) interactions by applying a communication service pattern using Microsoft BizTalk Server 2004." According to Homann & Levy (2004), the primary benefits resulting from the application of SOA to business interactions are "a more effective notion of agreement, and the service encapsulation of interactions." This includes "better-defined responsibilities for all application components involved, easier customization to support interactions with different partners and, in general, more flexibility to meet the inevitable changes in business." This includes the proper documentation for application use, ease of use for the employees operating with the application that may have different and unique tasks, and more flexibility in terms of changes in the application that the employees may need in order to do their jobs more effectively and efficiently. At a high-level, the article breaks the resolution of a complaint down into three required steps: "Agreement on the complaint," "Quality Management (QM) to handle remedial actions," and "Compensation (reimbursement, credit and so forth)." In addition, the article mentions standards regarding QM such as ISO9000:2000 and states that, to inspire continuous

improvement, an effective feedback loop is necessary. According to Homann & Levy (2004), an outline of the main ISO9000:2000 process steps are as follows:

1. Analyze the complaint;
2. Derive the necessary measures to remedy the complaint;
3. Prioritize measures based upon the severity of the situation;
4. Communicate to the customer the results of analysis and the proposed measures;
5. Make concrete measures and time plans;
6. Remedy the current complaint situation;
7. Avoid similar complain situations in the future;
8. Monitor measures;
9. Communicate to customer about measures and success.

Finally, the article presents a complicated diagram detailing ProWell's single customer/supplier integration for complaint management. It is an example of the type of system we want to avoid because of its complexity, and would attempt to simplify and consolidate tasks if encountered.

The second case involves Citizens Advice (2005), a national charity that has provided suggestions to the National Health Service (NHS) Independent Complaints Advocacy Service (ICAS) in the United Kingdom. Citizens Advice functions across six of England's nine health regions and supports over 8,000 complaints a year. According to Citizen's Advice (2005), complaints directed at NHS were reviewed, and the four conclusions below were included:

> Firstly, NHS trusts are often reluctant to display information about the support available from ICAS. Secondly, complainants are often faced with excessive delays, defensive attitudes and even removal from GP's (General Practitioner) lists. Thirdly, an efficient response can transform a complainant's confidence in the system and prevent complainants from feeling the need to take the complaint any further. Lastly, when the complaints system works well it can result in changes that benefit many patients and the NHS itself, far outweighing the inconvenience or cost of dealing with the complaint itself (Citizen's Advice, 2005).

Some statistics included in the article specify exactly what it is that people want when they complain: "Citizens Advice ICAS statistics show that most people wanted either a formal apology (26%) or explanation (21%). One in four complainants (23%) wanted to see an improvement in processes or procedures. Only one in 20 (5%) was seeking compensation." The article refers to a document titled "The Pain of Complaining," written by Liz Phelps of Citizens

Advice and Ann Williams of Heswall Citizens Advice Bureau in 2005. According to Phelps and Williams (2005), this article presents details about the current NHS procedures, services, recent developments, as well as recommendations for improvement and principles of best practice. Phelps and Williams (2005) evaluate the principles of best practice and break their essentials down into four categories for the NHS: The first of the four is whether or not information is open and easily accessed – whether or not the organization in question is flexible about the ways people could complain and effectively supports people wishing to do so. The second is titled "Fair and Independent?" and "emphasizes early resolution in order to minimize strain and distress for all involved." The third has to do with how responsive the organization is in "providing appropriate and proportionate response and redress." Lastly, the fourth category of principles of best practice is titled "Learning and development?" and asks whether the organization "provides an opportunity for learning and developing – ensuring complaints are viewed as positive opportunity to learn from patients' views in order to drive continual improvement in services. Finally, Citizen's Advice provides us with three recommended improvements they want to see in National Health Service's complaint process:

> Firstly, a national framework with core standards for complaints handling set by the Department of Health. The Healthcare Commission should take responsibility for ensuring compliance with these standards and should develop best practice in complaints handling. Secondly, Patients wanting to complain about GPs should be able to go direct to Primary Care Trusts (PCTs). Many people are still wary of complaining at all in case this damages their relationship with their doctor or even results in them being struck off their GP's list. Lastly, a new, more realistic target set to replace the current 20-day target for health service providers to complete local resolution of complaints, to enable each complainant to receive a full response. Fudged investigations, hurried in order to meet the current target, only lead to further delays later on as patients search for an acceptable outcome to their complaint (Citizen's Advice, 2005).

What can be learned from this case study is the importance of continuous improvement of a complaint system as a means to increase customer confidence in the complaint system process. In the case of Montgomery County, most of the complainants are citizens of the county and some are companies or industries, but the same ideas still apply. In order to achieve improved effectiveness and efficiency, one of the foci of the department has to be to maintain credibility with the customer and continuously be responsive to customer complaints.

The third case we looked into involves a Cross-Border complaint system. According to the European Advertising Standards Alliance (2005), this system, operating since 1992,

addresses complaints from citizens concerning foreign advertisements throughout Europe. More specifically, this system was “designed to provide a complainant with the same redress available to consumers in the country of origin of the media in which the advertisement appears.” The EASA provides the example of an Irish consumer who receives television broadcasts from the United Kingdom and wishes to complain about the content of an advertisement for clarification purposes. A relatively high-level flow chart detailing the process and procedures the organization takes when resolving a complaint, can be found in Figure 3.

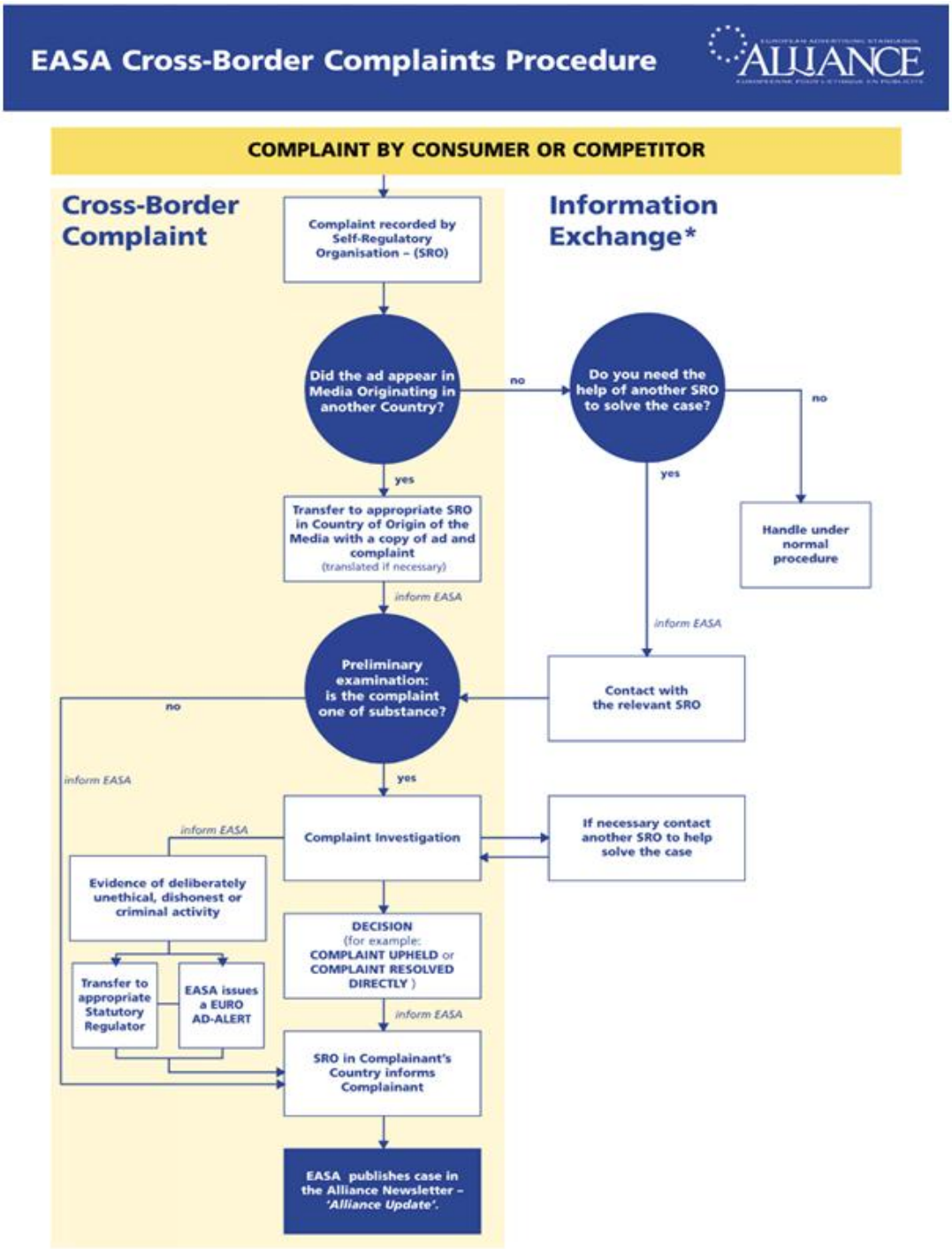


Figure 3 – EASA Cross-Border Complaints Procedure

A complaint begins with its recording, and the service representative must decide whether or not the complaint is of a cross-border nature. Assuming the complaint is valid, the complainant is then transferred to an appropriate representative in the country of origin with a copy of the advertisement in question. The complaint is then checked for substantive validity.

Again assuming the complaint is valid, investigations are put into place and appropriate measures are taken depending on the nature of the complaint. Finally, the representative in the complainant's country informs the complainant of the concluding status of his/her complaint. Although this article did not provide us with as many specific characteristics of a good complaint system, or suggested improvements, there are some implied requirements, such as an organized system of communication allowing representatives from both countries to keep in touch.

Integration of Best Practices

In conclusion, although the nature and approach of the three cases differ, their goals and objectives are the same: the improvement of a current system in place. This, too, is our objective, and the ideal is demonstrated well by Homann & Levy (2004) through the implementation of a customer complaint system:

> …the corrugated paper industry uses several different processes to implement QM for customer complaints, and this number is growing. Similar situations exist for the other aspects of complaint management, such as financial reconciliation, which uses five different customer-specific processes to implement essentially the same business functionality.

Although this displays potential complexities in the information flow of a complaint system, these complexities can be broken down into simplified complaint processes that can be brought together and incorporate the entire complaint system. Analysis of these simplified processes can then be used as a means of measuring effectiveness and efficiency within an organization, company, agency, or government department. As such, it should follow that their expected characteristics of a good complaint system show similarities and patterns. These similarities are what we hoped to gain from the examination of these cases, and they are all potential characteristics we will use to determine whether or not a given complaint management system is efficient. Summarizing the previous cases, a good complaint management system should:

1. Include a detailed flow-system by which the creation, recognition, and resolution of a complaint is handled;
2. Not intimidate potential complainants by threatening their relationships with the targets of their complaints, when applicable;
3. Be available to any and all people who feel their rights, or rights of others, have been violated - nondiscriminatory. Information should not be withheld from the complainants;

4. Be flexible in the way that complaints are received, be it electronically, in person, or via mail;
5. Question the nature of the complaint before proceeding, and be able to sift out complaints which are not relevant to the organization with which the complaint is filed. For example, the Cross-border system filters out complaints that are not valid in the system;
6. Optionally, incorporate a deadline by which a resolution must be determined, such as the time plans mentioned by Homann & Levy (2004), or the deadlines mentioned by Citizens Advice (2005);
7. [Employees using the system should] view complaints as a means of bettering their services, and a means of educating themselves. The employees of the Department of Permitting Services, for example, should handle complaints in a respective manner with an attitude that encourages the complainant to express themselves and their concerns;
8. Provide a means of correcting the problem presented in the complaint: a remedy. This remedy should be determined, put in place, and recorded in a timely manner;
9. Have a means of contacting the complainant and informing them of the changes made and efforts taken. In addition to this, a form of compensation may be applicable.;
10. Be able to adapt to the inevitable changes frequent in the business world. Because such changes are not easily predicted, this is not necessity or a characteristic we will use to judge complaint management systems, but remains a characteristic nonetheless.

Service Recovery

According to Hamel, Kauffman, Paladines, and Ross (2002), the previous Interactive Qualifying Project report done in the Casework Management division of the Department of Permitting Services at Montgomery County focused on studying the citizen's critique of how they felt their zoning complaints were managed. As shown in Figure 2, the customer node is the start of the complaint process, since all complaints begin with the citizen. The first arrow indicates the delivery of a complaint from the citizen to the contact individual as the first step of the complaint management system. Best practices suggest offering the citizen as many avenues for complaint submission as possible.

Complaint management effectiveness best practices focus on the departmental and interdepartmental levels of a process. These are all of the steps taken after the citizen has already

sent his or her complaint into the department. Although evaluation of the citizen satisfaction and critique of Montgomery County's process is necessary, this only embodies the external issues of complaint management, and not the internal issues of complaint effectiveness. Complaint effectiveness focuses on internal process measurement. The point is that an internal analysis is necessary to give a true assessment of the effectiveness of a complaint system. Best practices offer methods to improve a complaint system internally, so these methods are applicable to Montgomery County's complaint management system. Processes that do not offer value to the system should be consolidated into other nodes or perhaps removed from the information flow map. This would remove all unnecessary functions in the complaint management system. If Montgomery County were a private organization, this same concern would be worded as "achieving better service recovery." According to The Great Brook (2007), service recovery can be defined as "identifying customers with issues and then addressing those issues to the customers' satisfaction to promote customer retention." Also, the level of complexity in the information system cannot be assumed to be as simple as Figure 2 suggests. Rather, there may be a chain of simultaneous events within the Department of Permitting Services that may be consolidated in order to simplify and enhance the current flow in the system. This consolidation may be in the form of a document displaying how a complaint flows through the system. More specifically, analysis of the information flow may reveal similarities that can be applied to the whole department. According to Pei-Wu and Yang-Gui (2006),

> Service recovery is concerned with the process of addressing service failures; more specifically, service recovery can be thought of as being concerned with the productive handling of complaints and includes all actions taken by a service provider in order to try to resolve the problem a customer has with their organizations (p. 958).

In terms of Montgomery County, the lack of thorough documentation, tracking, and reporting of information received may be a service failure. Service recovery practices include determining the nature and the scope of the complaints being received. As Pei-Wu and Yang-Gui (2006) state, remarkable differences do not exist in customers' evaluations about service recovery. Whether customers complain or not, a high-level of recovery will promote customers' satisfaction and repurchase intention; and a low-level of recovery will further lower customers' satisfaction and repurchase intention. This suggests that, despite the customer's view or knowledge of a complaint system's service recovery practices, a thorough, efficient, and effective process can potentially increase customer satisfaction. A poor, low-level service

recovery system will always lower customer satisfaction and repurchase intention. In the case of a private organization, the intent is to increase revenue. For the Department of Permitting Services, as stated by the Montgomery County Website (2007), “The mission of DPS is to provide the highest quality of public service while insuring compliance with Montgomery County development and construction standards.” Thus our overall goal is to help Montgomery County’s DPS to achieve better customer service and a better functioning system.

Methodology

The goal of the project is to conduct a review of the complaint process in the Department of Permitting Services and make recommendations for potential improvements. The project has three primary objectives:

- Objective A: evaluate the effectiveness of the department's current method of complaint handling;
- Objective B: review the various methods that other agencies and organizations use to manage complaints;
- Objective C: make recommendations for new, more efficient ways to document, track and report the nature of complaints received and make recommendations for improvement of the current complaint handling process.

To complete Objective A, the team has conducted interviews, group interviews, and sent questionnaires to the employees who are essential to the complaint system. We have also used the Hansen System 7.6 database currently at the DPS to gather information on this software's use and effectiveness in the DPS. Training session guidelines and instructions served as a means of determining the present complaint handling process currently used at the DPS. To achieve Objective B, we conducted interviews with employees in other counties and county departments that function similarly to Montgomery County's Department of Permitting Services. Such counties and departments include Fairfax County, Frederick County, Prince Georges County, and Cambridge, Massachusetts. Achievement of Objective C derived from the completion of Objectives A and B. To complete Objective C, we compiled the data obtained from Objective A and B to construct a list of suggested improvements for the DPS' complaint system. First, we've developed several hypotheses from the interviews and databases. Secondly, our team has gathered all relevant statistics from interviews, group interviews, and database retrieval to display trends and correlations with the complaint data in the Hansen System.

Current Complaint Handling Process

In order to evaluate the effectiveness of the current complaint system, we took steps to understand how information associated with complaints flows through the Department of Permitting Services and the issues that develop during the processing of complaints. This

allowed our group to carefully document the current process, and make recommendations for the more efficient handling of complaints at the DPS.

In order to initiate the data collection & interviewing process, the team met with Susan Scala-Demby, our liaison, manager of the Zoning Section in the Casework Management Division, and champion of the improvement of the complaint process at the Department of Permitting Services. Our first task was to gather an understanding of employees who handle complaints in this department. Because the handling of complaints is not a specific job position within the department, we asked Ms. Scala-Demby to develop a listing of all employees who currently function in the complaint handling process of the department. From this information, we compiled an excel sheet detailing employee category (permit technician, inspector, or manager) and the number of employees within each of the sections of the three divisions at the DPS. This information (See Appendix C), outlines the employee population of our interviews, group interviews, questionnaires, and states the purpose of each category choice. This document was important for our data collection purposes prior to the initiation of the data collection process, but also serves as a documented outline of those employees who currently handle complaints. The data obtained from all of the interviews is both qualitative and quantitative in its nature, and the interviews are semi-structured. As the interviews progressed, our team developed increasingly thorough questions. Questions that were asked resemble the questions in Appendix D. The data from the interviews was broken down into four categories: background questions, complaint system topics, complaint management topics, and open discussion questions. This data, after being compiled, organized, and analyzed, gave us the ability to identify trends with regards to the degree of standardization in the complaint handling process. We were also able to evaluate consistency between the complaint handling processes of the employees and develop recommendations for achieving improved effectiveness and efficiency in the complaint handling process throughout the entire system.

The purpose of interviewing the managers was to discover the managerial perspective of information flow within a section. More specifically, it was to obtain information on how the complaint handling system should ideally operate in a section as viewed by the manager. Managers should have knowledge of this type of information. The purpose of conducting the group interviews with the inspectors and investigators was to gather information on the complaint handling process from the perspective of mid-level operational employees. More

specifically, these employees are required to utilize the Hansen System 7.6 on a daily basis. There are 71 investigators and inspectors, so a questionnaire was developed for the 39 employees who did not respond to our e-mail requests and attend the group interviewing sessions (see Appendix E). We interviewed the Permit Technicians because these employees also work with the Hansen System on a regular basis. They were asked questions similar to the questions in Appendix D. These employees also receive the majority of the complaints that are entered into the system and assigned to inspectors or investigators. We obtained information regarding the functionality that the Hansen System 7.6 offers these employees and the thoroughness these employees put into entering data into the database.

Our second task was to create an informational flow diagram of the as-is complaint handling system that is applicable to all of the sections that handle complaints in the DPS. To do this, we gathered information from the training sessions on the Hansen System. These training sessions provided an outline of what the department wishes to occur with regards to the complaint handling procedures in the Hansen System 7.6. This ideal informational flow of a complaint was then transformed into a recommended complaint handling process for the entire department, regardless of the employee or section involved in the process. This document was reviewed with Susan Scala-Demby to ensure its thoroughness and accuracy.

Complaint Handling Strategies

Objective B is to review the complaint handling systems that other organizations and municipalities implement. Areas and organizations we have targeted include Cambridge, MA, Fairfax County, VA, Arlington County, VA, Henrico County, VA, Frederick County, MD, Prince George's County, MD, the Department of Housing and Community Affairs (DHCA) of Montgomery County, and the Department of Environmental Protection (DEP) of Montgomery County. The reason we used these particular organizations were either that they were referred to us by our liaisons John Greiner and Reginald Jetter from the DPS or because their complaint systems are similar to that of the Department of Permitting Services. The interviews we conducted were with employees who would be most knowledgeable in answering our questions about their departments' or municipalities' complaint handling systems. Susan Scala-Demby and John Greiner reviewed the list of employees we interviewed, offered suggestions for the employees we should interview, and guided our decisions of interviewee choice. The employees

whom we interviewed were department coordinators or department managers. We obtained information about: personal background, complaint system, complaint management systems, and open discussion about governmental processes. Questions that were asked are found in Appendix D. From information provided by these interviewees, we identified similarities and differences between the complaint handling systems of these departments and municipalities and Montgomery County's Department of Permitting Services. This data will enable us to develop suggestions and recommendations for the improvement of the DPS' current complaint handling process.

Analysis & Recommendations

Objective C involved our project team developing recommendations for new, more effective ways to document, track, and report the nature of complaints, as well as offering recommendations to improve the current system. In order to do this we compiled, organized, and analyzed the data obtained from: the interviews, group interviews, interviews with other municipalities, analysis of the Hansen System 7.6 database, previous reports on the current complaint handling process from the DPS, training session outlines and guides for using the Hansen System 7.6, and report data on complaints handled by the DPS.

Due to the nature of the information we wished to obtain, we used several methods of data collection. This data offered us a wide range of useful information and we intend to transform this information using a set of benchmarking techniques, charts and graphs, informational organizing techniques, and scoring strategies. We intend to map the informational flow of a complaint through the DPS, analyze the tasks regarding the handling of complaints in each section, and analyze the permit technician's role in the complaint handling process. Scoring models were used to summarize the current process utilized by the inspectors, investigators and permit technicians. These scoring models had categories derived from the best practices discussed in the literature review. These best practices, developed through our literature research, were reviewed with Susan Scala-Demby to ensure that they are appropriate for the DPS and can be effective. Collectively, these activities summarized our data, addressed all issues we intended to cover, and provided a factual basis for the development of our recommendations for the Department of Permitting Services.

After gathering our data, our team developed hypotheses that were raised from the information obtained in the interviews and group interviews. These hypotheses were tested through analysis of statistical evidence obtained from the Hansen database and the interviews. These statistics allowed for conclusive analysis of the validity of each hypothesis. From this information we were able to develop recommendations that will improve the effectiveness of the overall complaint system at the Department of Permitting Services. Our recommendations focus on five major topics of consideration; the Hansen System 7.6, collection of statistics, employee training, standardization, and processes from other departments and counties that can be adopted by the DPS. This outline of our results and findings is a summary of our findings as a team, analysis of the data obtained, and recommendations for current and future improvement of the complaint handling system at the Montgomery County Department of Permitting Services.

Results

The following section outlines the results obtained from our team's data collection processes outlined in our Methodology. Analysis of this data occurs as the results are addressed within this section. The seven main categories of our results and analysis are: the Complaint Handling Tasks of Employees; the Ideal Complaint Process; the Complaint Process as it now operates; Complaint Processes in Other Departments and Counties; the Nature of the DPS' Complaints; Training in the Hansen System; and the Advantages of Standardization.

Complaint Handling Tasks of Employees

During the ideal resolution of a typical complaint, there are four stakeholders involved in the complaint management system: the complainant, the object of the complaint, a Permit Technician, and an Inspector. Section Managers may play a small or indirect role in this process as well, but typically they do not. An Inspector is the employee who goes out to the scene of the alleged problem and determines whether or not the complainant was correct in his or her claim. Upon making this determination, the Inspector also determines what actions, if any, need to be taken to remedy the problem. Inspectors have their laptops with them, most likely in their cars, at all times and are connected to Hansen through wireless internet. Ideally, they record their findings in Hansen at timely stages of the process.

Complaints represent a small portion of the Inspector's work; most of their work pertains to permits. However, the Zoning Inspectors only handle complaints. We asked an Inspector from the newly implemented section, Site Planning, what other tasks he was responsible for. Although some of his responsibilities may be specific to his section, and other sections do other things, some of the responsibilities he mentioned were:

1. Attendance at meetings with architects, engineers, property owners, and other inspectors to discuss the expectations of the construction on a particular site;
2. Bi-weekly visits to sites he is responsible for to check that construction in progress is in accordance with the approved blue prints;
3. An average of three and one half to four hours of in-office work including:
    a. Responding to questions regarding his assigned sites. These questions might come from curious citizens or from builders on the site;

b. Research that needs to be conducted for any of the 30 sites for which he is responsible;
c. Continuous training.

Each Inspector is responsible for his or her section's complaints in a designated area of Montgomery County, and these areas of responsibility are marked on maps. These area maps are designed by the section's manager. Of the nine section managers with whom we spoke, 8 managers create these area maps based on the volume of work in an attempt to give each Inspector an equal work load. For example, there are generally more complaints regarding construction in urban areas of Montgomery County than there are in the suburbs. As a result, an Inspector who performs inspections in a suburban part of the County may have two or three times more geographic area of responsibility than an Inspector who performs inspections in the city. The last of the nine managers is currently working on redesigning his section's map so that, like the others, the inspectors' areas of responsibility are determined based on work volume.

These maps are not permanent and are subject to change. Weather and economics are examples of factors that might change the distribution of work in the County. The same manager who is currently redesigning his section's map told us that the northern part of Montgomery County had the most concentrated volume of work last year. This year, in contrast, the most concentrated volume of work can be found in the south-eastern area of Montgomery County. These concentrations are specific to his section's duties, and the maps have to alter accordingly to retain a balance among the Inspectors. Two section managers generate reports from Hansen data in order to identify shifts in work volume.

A Permit Technician is a trained employee of the Department of Permitting Services. All of the Permit Technicians work for the Casework Management Division at the Department of Permitting Services. Their duties during the day are currently determined and scheduled by their manager, and they have had four different managers in the last three years. Within the Casework Management Division, there are three sections that Permit Technicians belong to: Building Construction, Land Development, and Licenses. Permit Technicians in the three sections have different responsibilities and, similar to Inspectors, complaints represent a small portion of a Permit Technician's responsibilities. Responsibilities of Permit Technicians in the Building Construction section include answering questions regarding building permits and commercial building permits, demolition permits, fire alarm permits, fire sprinkler permits, use and

occupancy certificates, and historic area work permits. Responsibilities of Permit Technicians in the Land Development section include answering questions regarding subdivision development, permits to work in the right of way, storm-water management practices, sediment control permits, and well and septic permits. Lastly, responsibilities of Permit Technicians in the Licenses section include zoning administration and answering questions regarding zoning issues, setback information, building height restrictions, or special exceptions; electrical permits and licenses; mechanical permits; vendor licenses; sign permits; or Permitting Service records. Their duties also include maintaining one of two call centers, attending to walk-in citizens, and, ideally, being the initial recipient of a complaint.

Ideal Complaint Process

There are four ways that a complaint can come into the Department of Permitting Services, and five ways that a Permit Technician can receive it. A complaint can come into the Department of Permitting Services via walk-in complainants (a rarity), phone calls, U.S. postal mail, or e-mail. Additionally, a Permit Technician can receive a complaint from another employee of the Department of Permitting Services if the Permit Technician was not the first recipient. According to Susan Scala-Demby, there is no preferred method of complaint receipt, although, ideally, a Permit Technician should be the primary, initial recipient. The interdepartmental re-routing of a complaint can occur in person with a printed complaint record or through e-mail. For example, if Carla Reid receives a complaint from the Mayor, she may choose to pass it on to a Permit Technician for recording in Hansen. Ideally, all complaints, regardless of their origins or nature, should be recorded in Hansen.

A Permit Technician begins recording a complaint by creating a “Service Request” within Hansen. The Service Request is the first electronic form of a complaint and can be tracked to resolution. The Service Request data entry interface contains 9 tabs with different fields for information to be documented. In addition, a particular complaint is assigned a unique service number that allows it to be identified and/or recalled. Under the first tab of the Service Request, “Info,” a Permit Technician can record the date and time of a call, their name as the recipient of the complaint, the source of the complaint (phone/mail/walk-in), and the priority of the complaint. The second tab, “Location,” contains fields pertaining to the location of the potential problem area. These include a field labeled “Location” where a Permit Technician can write full

sentences and/or descriptions, and other smaller fields that are more specific such as “District,” and “City, State, ZIP.” A complaint location is not always a distinct street address. Location can also be, for example, an intersection or block, and a Permit Technician has the option to so specify within the fields under this tab.

The third tab of the Service Request is entitled “Calls.” Under this tab there are 3 more tabs labeled “Primary Caller,” “Caller Comments,” and “Call List.” On the Primary Caller tab, the Permit Technician populates fields pertaining to the complainant. Such fields include “Name,” “Address,” “E-Mail,” and “Day” and “Evening” phone numbers. If the complainant asks for anonymity, a Permit Technician writes “Anonymous” in the Name field, and the rest of the fields under this tab remain unpopulated. The Caller Comments tab has just one field where the Permit Technician can enter text to record details of the call such as what the complainant is complaining about. Finally, in the case of multiple complaints about the same problem or property, the Call List tab allows a Permit Technician to keep a record of these additional complainants without creating new Service Requests.

The fourth tab of the Service Request is entitled “Comments,” and can be used to record any miscellaneous information the individual inputting information deems necessary to include. The remaining tabs of the Service Request are entitled “Case,” “A/P,” “Log,” “Linked,” and “Search.” The last tab, Search, allows a user to search the database by problem, location, or caller. We were not familiarized with either of the A/P, Log, or Linked tabs in either of our two training sessions on the Hansen system. These options are not used for the complaint handling process. The Case tab, like the Call List tab on the Calls tab, allows the Permit Technician to keep a record of the cases that are associated with the Service Request. A Case is a later form of a Service Request and will be explained in a later section of this report.

When Permit Technicians have entered a Service Request, they determine whether or not the subject of the complaint is one to which the Department of Permitting Services responds. If the Permit Technician decides that the complainant has called the wrong department, the Permit Technician redirects the complainant to the proper office. For example, if a citizen called and complained about maltreatment during a hospital stay, a Permit Technician, ideally, after logging the details of the complaint and complainant, would forward the complainant to the proper health department such as Health and Human Services. If the complaint is a matter resolvable by the Department of Permitting Services, the complaint resolution process continues to an Inspector.

Before a Permit Technician can complete his or her portion of the complaint resolution process, he or she utilizes a map to assign the Service Request to an Inspector. A Permit Technician can call the Inspector's cell phone, send the Inspector an e-mail, print out the Service Request and leave it in the Inspector's mailbox, or leave it up to the Inspector to check for Service Requests assigned to him in Hansen. Ideally, the Permit Technician should call and e-mail the Inspector.

Upon receiving the Service Request, the inspector creates a Service Request Inspection in Hansen. Like a Service Request, the Service Request Inspection data entry interface has multiple tabs and fields for data to be entered. As the name suggests, a Service Request Inspection is basically a request for an inspection at the location of the supposed problem. For a given complaint, the unique service number of a Service Request is shared with the Service Request Inspection. In this way, the Service Request and Service Request Inspection are linked and populated fields from the Service Request are visible in the Service Request Inspection. Assuming the complainant did not claim anonymity, the Inspector is allowed three days to make his first response to the complainant. Typically, though, this occurs the same day the Inspector receives the Service Request. During this first contact between the complainant and the Inspector, typically a phone call, an inspection date and time are scheduled and recorded in the "Problem Comments" tab. This tab also has a field for the actual "Inspection Date," the "Start Date," the "Resolution Date," the "Resolution Code," and a text field for the Inspector to record his findings at the site. The Inspector, ideally, would populate all of these fields when applicable.

After inspecting a site and determining whether or not there is a violation, the process continues. If there is no violation, the Inspector records the details of his inspection and findings. For the Resolution Code, the Inspector would choose "Closed," and the complainant would be informed of the results. If the Inspector determines that there is a violation, what he or she then chooses to do varies significantly. He or she can, for example, issue a citation, issue a stop work order, or prevent the property from receiving further permits of different types. Inspectors whom we interviewed told us that their actions are heavily influenced by the impact that the violation will have on the community's health and/or safety. For example, sewage leaks and exposed wells are prioritized and, because they can result in disease and contamination, respectively, they are dealt with immediately.

When a violation is found, a “Case” is opened in Hansen. A Case is, essentially, the advancement of a Service Request Inspection after evidence of a violation has been found. Additional fields and tabs are present in the data entry interface for a Case that cannot be accessed anywhere else, and they allow the Inspector to record their inspections separately as well as update the inspection’s overall status. When a Case is opened, the Service Request Inspection’s Resolution Code, ideally, should be set to “Case,” until the Case is closed. When the complaint is resolved and the Case is closed, the Service Request Inspection, too, is to be closed. During the interim, when a Service Request Inspection’s Resolution Code is set to “Case,” Hansen prompts the user to link the Service Request Inspection with the Case. In this way, everything remains organized. Follow-up inspections and resulting Cases can also be documented in the Service Request Inspection. Following the resolution of the complaint, the complainant is informed of the results. Ideally, the inspector carries this responsibility. This flow can be seen in Figure 4.

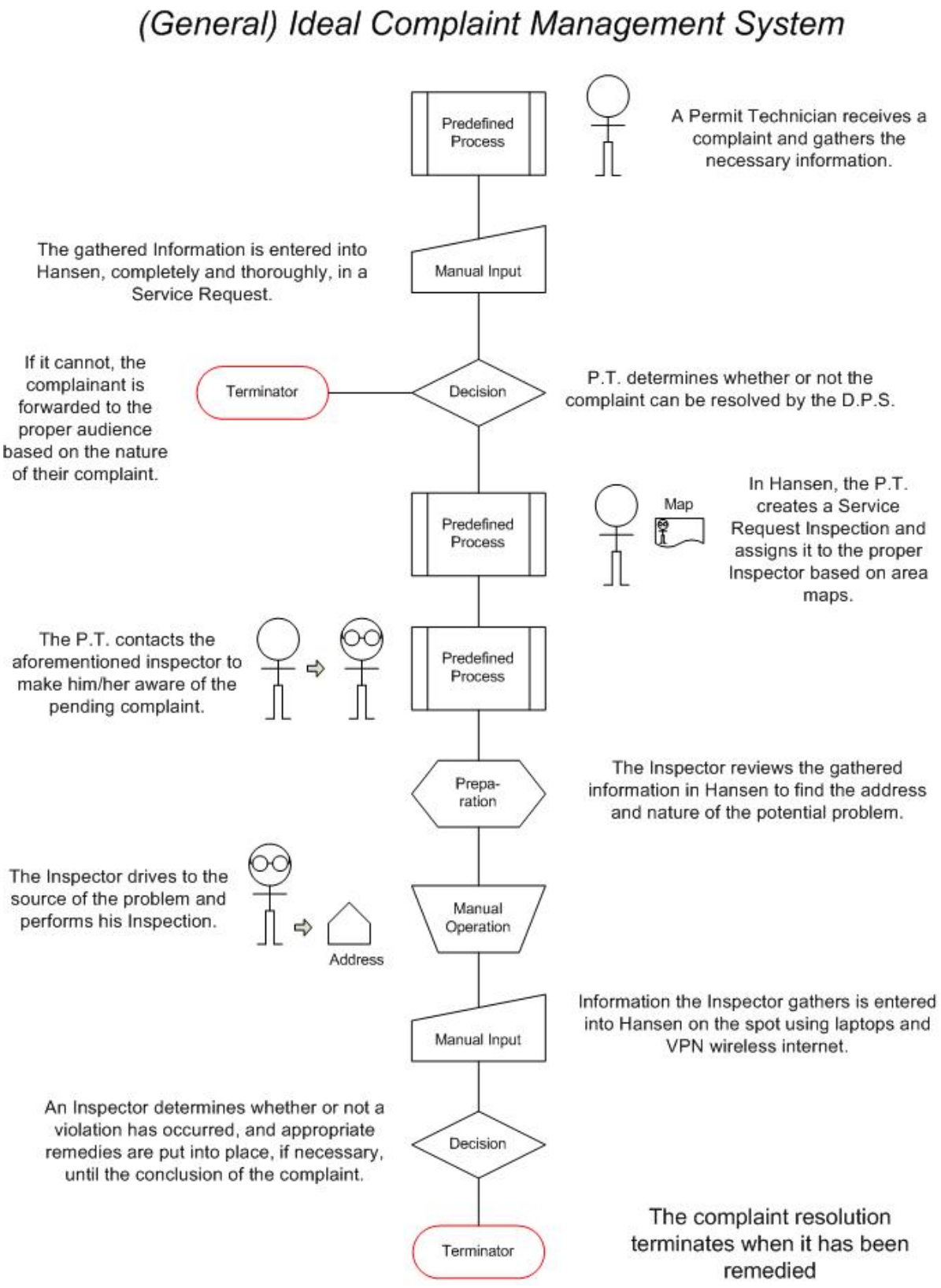


Figure 4 – Ideal Complaint Flow

Operative Complaint Process

One of the most significant problems the Department of Permitting Services faces is how often the employees involved deviate from the ideal process as described above. The first two most likely departures from procedures occur when a complaint is first received by a Permit Technician.

Although Permit Technicians are supposed to be the initial recipient of a complaint, in actuality, any employee of the Department of Permitting Services can receive a complaint directly, including the Director. The majority of the employees who receive complaints will forward them to Permit Technicians instead of attempting to enter them in Hansen, but some employees enter the data themselves. Although all employees of the Department of Permitting Services are supposed to be trained in Hansen, none should be as familiar with inputting a complaint as a Permit Technician. Thus, an employee who is not familiar with the complaint entry portion of the Hansen software may enter inaccurate data or fail to enter necessary information at the beginning of the complaint resolution process. In addition, even when complaints are received by another employee and forwarded to the Permit Technician, the re-routing is an additional step in the process and slows down the efficient resolution of the complaint.

We have been told that this happens because the citizens of Montgomery County are quite resourceful. An inspector whom we interviewed told us that, for someone to actually put the effort into filing a complaint, they must feel rather passionately (or be irritated) about the subject of their complaint. Believing that his or her problem is extremely important, a citizen might search for the telephone number of an inspector, manager, or even the director in an attempt to assure redress. In addition, both indirect and intentional networkings do their part in lessening the likelihood of a Permit Technician being the initial recipient of a complaint. Another Inspector to whom we spoke, for example, uses business cards to personally familiarize himself with the complainant. When an Inspector serves a citizen and that citizen becomes relatively familiar with the process of complaint resolution, that citizen will be more prone to contact the same inspector directly instead of contacting a Permit Technician.

Another problem that occurs at the beginning of a complaint's resolution is data entry, and the first aspect of this problem is timeliness. If a Permit Technician is busy and/or overwhelmed, they may not enter the details of the complaint into Hansen immediately. Instead,

a Permit Technician might write the details down on paper to be entered into Hansen later. This can result in many complaints being entered in Hansen all at once later in the day. Inspectors gauge how busy their day will be according to the number of inspections assigned to them in the morning, and during the day they become less able to compensate for an influx of complaints at day's end. As a result, the progression of these complaints is not continued until the following work day and, because the Department of Permitting Services does not operate over the weekend, worst case circumstances result in a Service Request that remains idle for three or more days. The three day response is to account for the weekends and holidays that the inspector is not available. Also, Permit Technicians have the ability to search within Hansen for records filed at a particular property. When a complaint is brought to the DPS that has been recorded before in Hansen, instead of checking for repeats, Permit Technicians frequently create additional Service Requests. This results in a lack of organization and the potential to identify complaints that should be prioritized as a result of its affecting many people.

Improper data entry can be found, again, later in the process. Inspectors are expected to enter data into service request inspections in the field as they perform their inspections, but this is not always the case. One inspector told us that he must log into his Windows desktop, the Hansen System, and another application he uses from time to time. As a result of security measures put in place by the DPS, these applications kick the inspector out after his laptop has remained idle for a while. Were he to bring his laptop to all of his inspections, he would have to relog into everything multiple times, and time he could spend traveling to his next inspection would be wasted, for example. Of the inspectors interviewed, five out of the 38 admitted to not entering a Service Request Inspection immediately after the inspection was completed.

The second aspect of data entry that results in a less efficient complaint management system is accuracy and/or lack of information. When we spoke to one manager in the Department of Permitting Services, he gave us a printed Service Request that he had received from another employee earlier that morning. On it was very little information because the complainant claimed anonymity, another problem the department faces, and the details/comments of the report read "uneven street." These two words were entered by the Permit Technician who recorded the complaint, and inadequate information such as this results in an Inspector's inability to perform an accurate inspection. Another issue that was frequently mentioned by inspectors is that the Permit Technicians do not ask the proper questions, or even

enough questions, to provide sufficient information to the Inspector. Although it is true that sufficient information is not always recorded, this is not always the Permit Technician's fault. Instead, it may be the fault of the complainant who does not know exactly what the problem is or how to describe it. Nonetheless, it is the Permit Technician's job to gather the right information. Currently, one manager in the Licensing section is developing an interview form from which the Permit Technicians can more or less read to complainants and then record complainant responses. Her intent when designing this form was to avoid grammatical mistakes when a Permit Technician receives a complaint, but this type of form may also force the Permit Technicians to ask for the type of information needed by the inspectors.

At one point in time, information regarding the complainant was consistently taken and put into the record, even if the complainant wished to remain anonymous. Currently, anonymity means that the complainant will give no information identifying themselves to the department. Due to this new policy, inspectors do not have a call back number to begin handling their complaint, but have only an address. This requires the inspectors to figure out the issue on site instead of gathering knowledge before departure to the complaint site, and it frequently results in much longer inspections if the inspection remains feasible at all. This lack of information is a bottleneck in the complaint handling process that slows down the responsiveness of an inspector. We learned from our liaison that Permit Technicians do not necessarily understand the difference between confidentiality and anonymity. Thus, the differences between the two are not properly relayed to the complainants. With complainants unaware of their ability to request confidentiality, there has been a demonstrable rise in the number of anonymous complaints over the last couple of years. One inspector suggested that complainants be forced to give the department at least a call back number, but could still request a form of anonymity so that their information would not be released.

Complaint forwarding, from initial recipient to Inspector, is another problem. Permit Technicians may assign a complaint to the wrong section of the department, or the wrong inspector within a section, causing it to be responded to later than the department desires. Of the inspectors interviewed, all admitted to this happening on several different occasions. A Permit Technician's misinterpretation of the complaint could be the fault of the complainant's inability to relay accurate information, or the Permit Technician's lack of training. We've been told that there are some words that a Permit Technician may hear during a complaint reception, and

automatically associate that word with a particular department. For example, a Permit Technician may hear the word “fence” and associate it with the section that responds to fences. But, upon further development of the actual complaint, the problem may not have anything to do with a fence. Another contributor to this problem is the 86 complaint codes and the ambiguity that comes with them. Improper forwarding of a complaint results in a less timely resolution of the problem. The total process can be seen in Figure 5, Figure 6, Figure 7, and Figure 8.

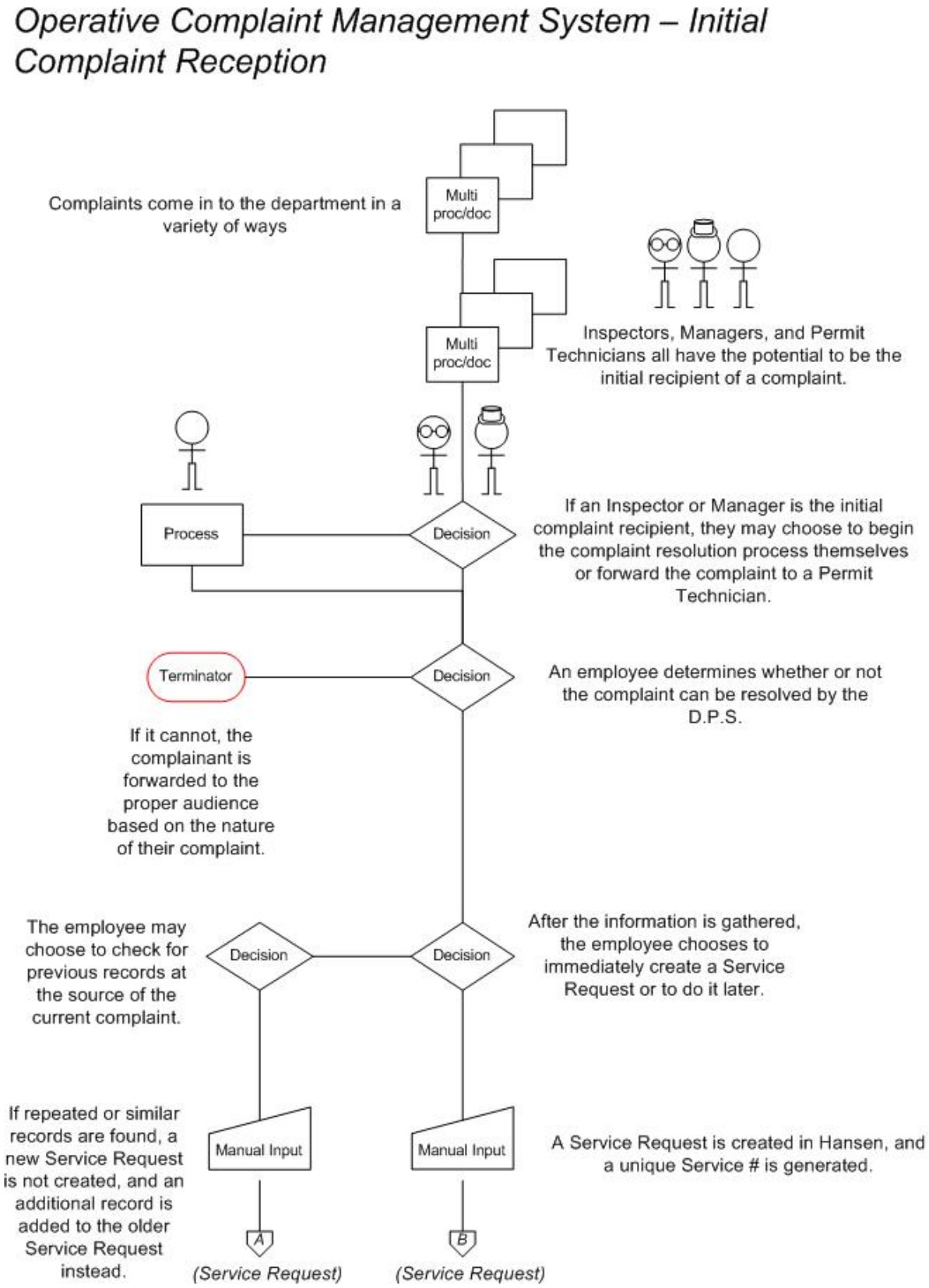


Figure 5 – Operative Complaint Flow – Initial Complaint Reception

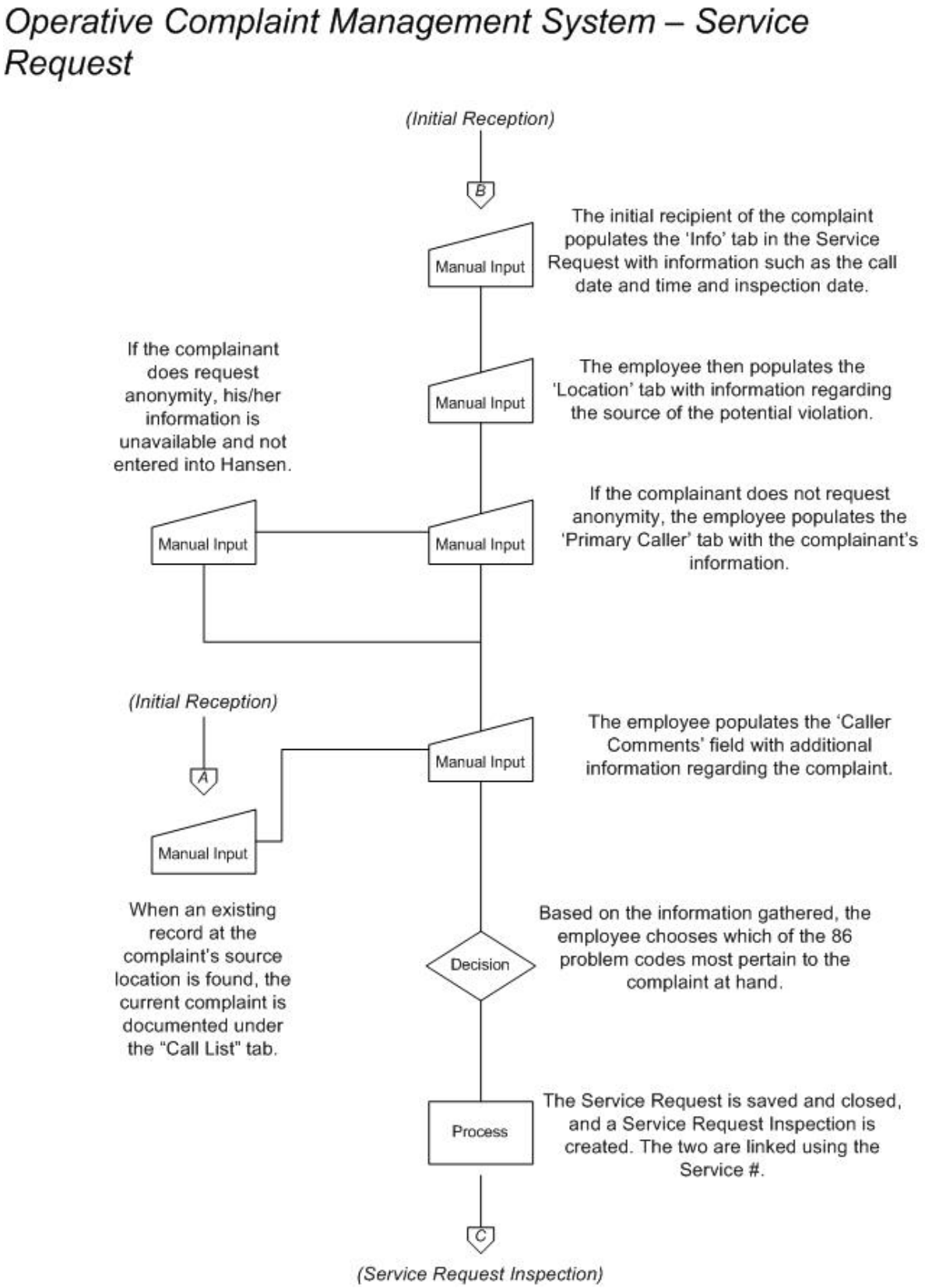


Figure 6 – Operative Complaint Flow – Service Request

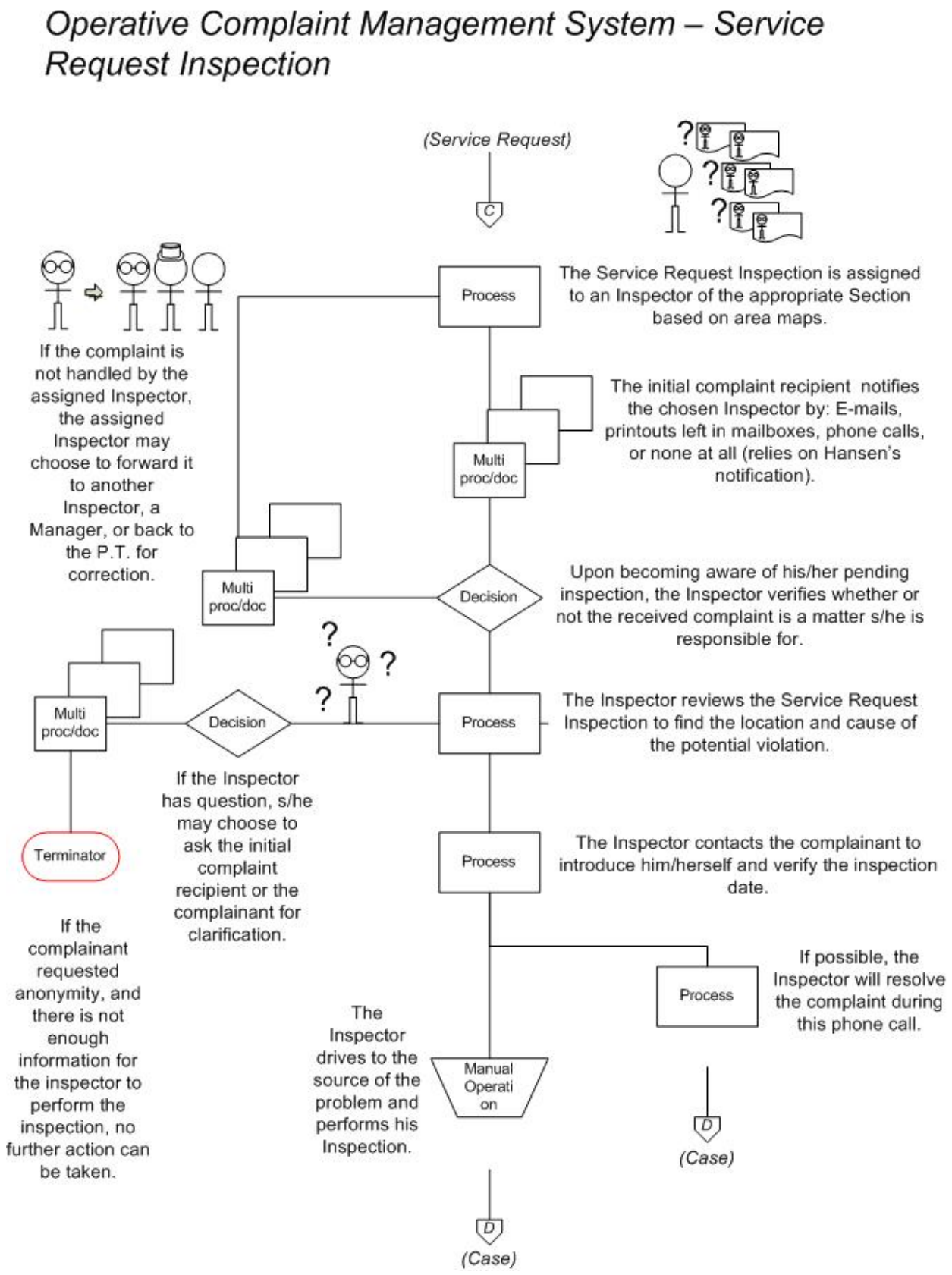


Figure 7 – Operative Complaint Flow – Service Request Inspection

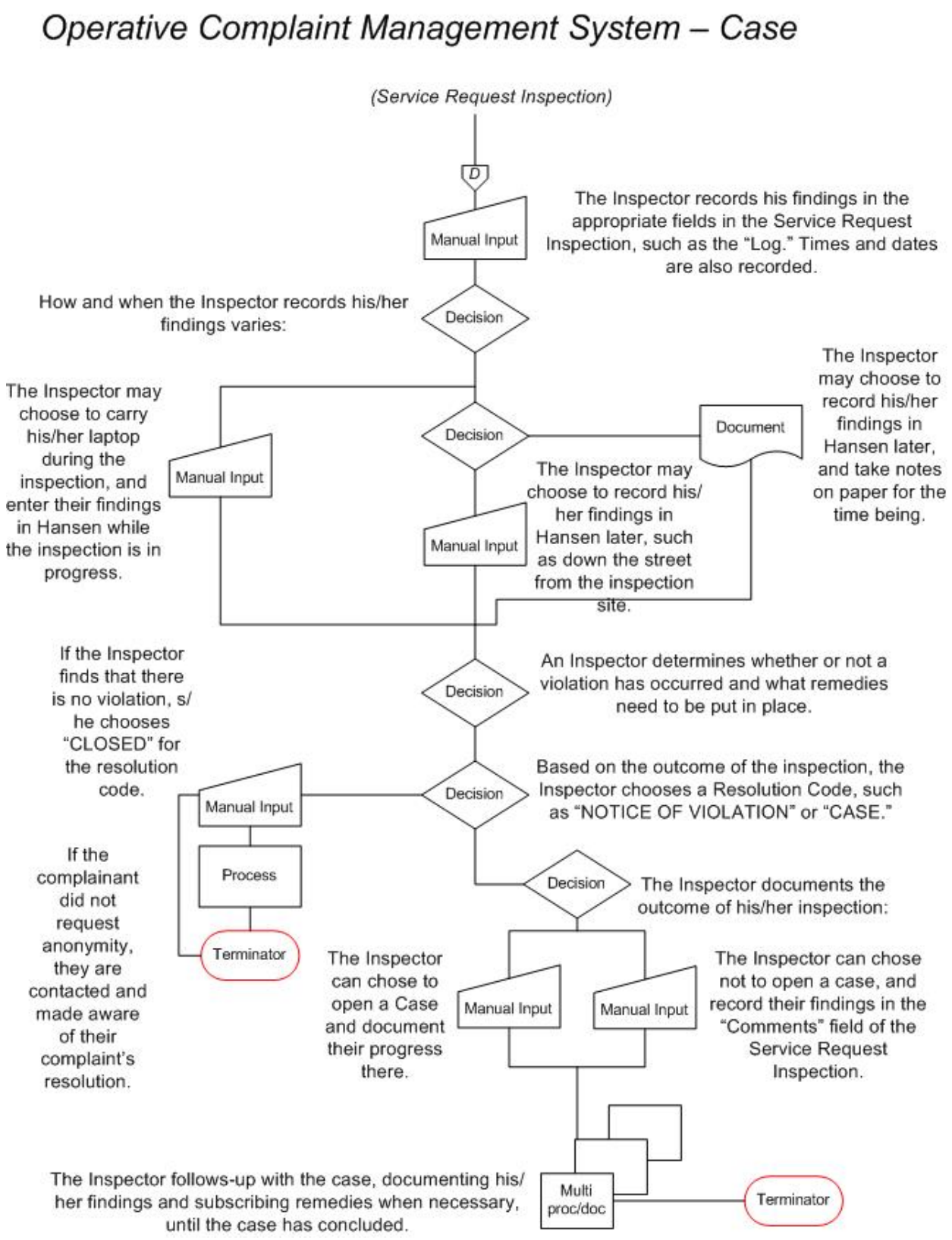


Figure 8 – Operative Complaint Flow – Case

Complaint Processes of Other Departments & Counties

Our team conducted interviews to gather information about the complaint process and management from other departments of not only Montgomery County but other counties as well. Officials whom we contacted were:

1. Stan Edwards, the Chief of Environmental Policy and Compliance of the Department of Environmental Protection (DEP) in Montgomery County;
2. Rod Dejter, acting manager of the Department of Housing and Community Affairs (DHCA) in Montgomery County;
3. Linda Braw, Secretary of the Department of Environmental Services (DES) in Arlington, Virginia;
4. Penny Rood, Chief of the Code Enforcement Branch of Land Development Services in Fairfax County, Virginia;
5. Larry Smith, the Zoning Administrator of the Zoning Administration Division (DZA) in Fredrick County, Maryland;
6. An anonymous employee of Building Code Complaint's phone line in Prince George's County, Maryland;
7. Ledi Driggs, Customer Services Representative of the Call Center of the Department of Zoning in Mecklenburg County, North Carolina;
8. Scott Hamilton, Information Technical Representative of the Public Works Department in Cambridge, Massachusetts (note, no complaint process).

Out of the seven departments which have complaint processes, two did not use any type of computer software to log complaints. The DZA of Frederick County, Larry Smith explained, uses paper to record complaints. As Zoning Administrator, Smith receives all the complaints via email, fax or phone. He will then log the complaints himself. He then manually places the sheet of paper in his inspector's mailbox. The inspector checks his mailbox on a daily basis. Within the division, there is only one inspector and he is the only employee who would normally investigate complaints. All notes taken during the investigations are logged into a written log book which is then filed. The Building Code Complaints division of Prince George's County is the other department that receives complaints but does not record the data into a computer database; rather, the whole process is paper-based. Information is manually passed to the inspectors, much like what happens in Frederick County. These flows can be seen in Figure 9 and Figure 10.

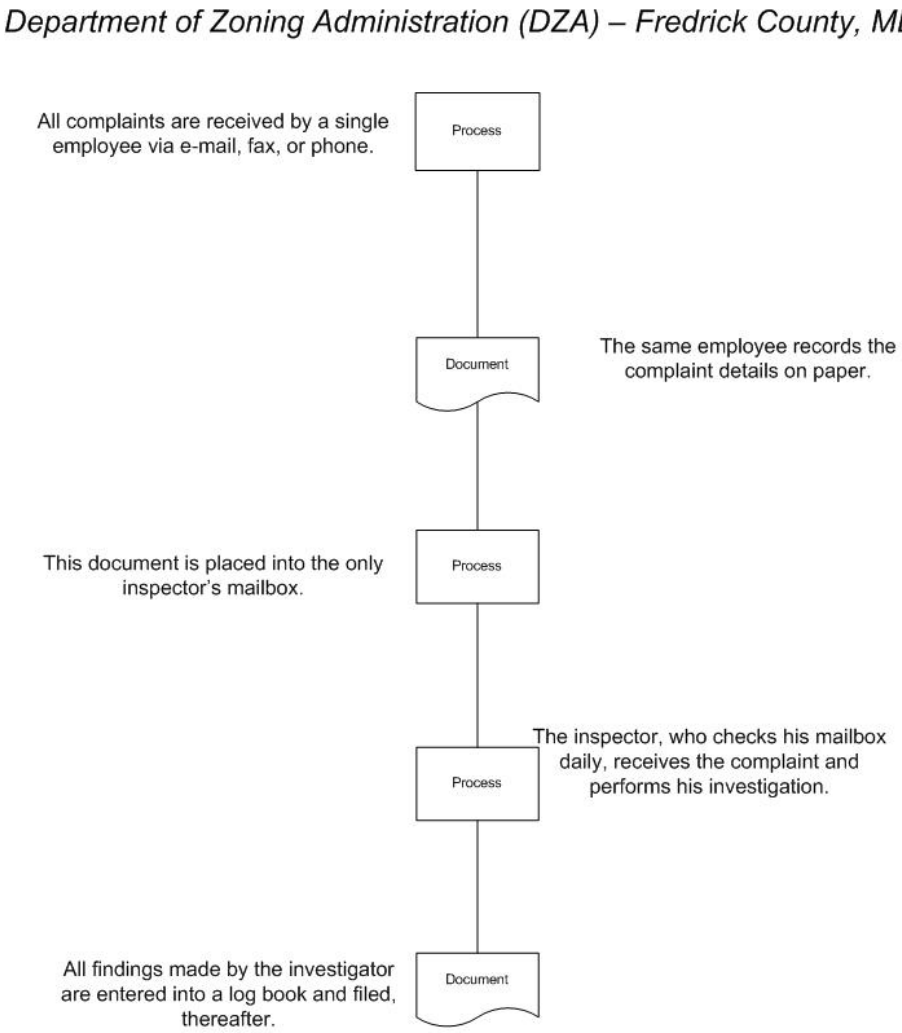


Figure 9 – DZA of Fredrick County

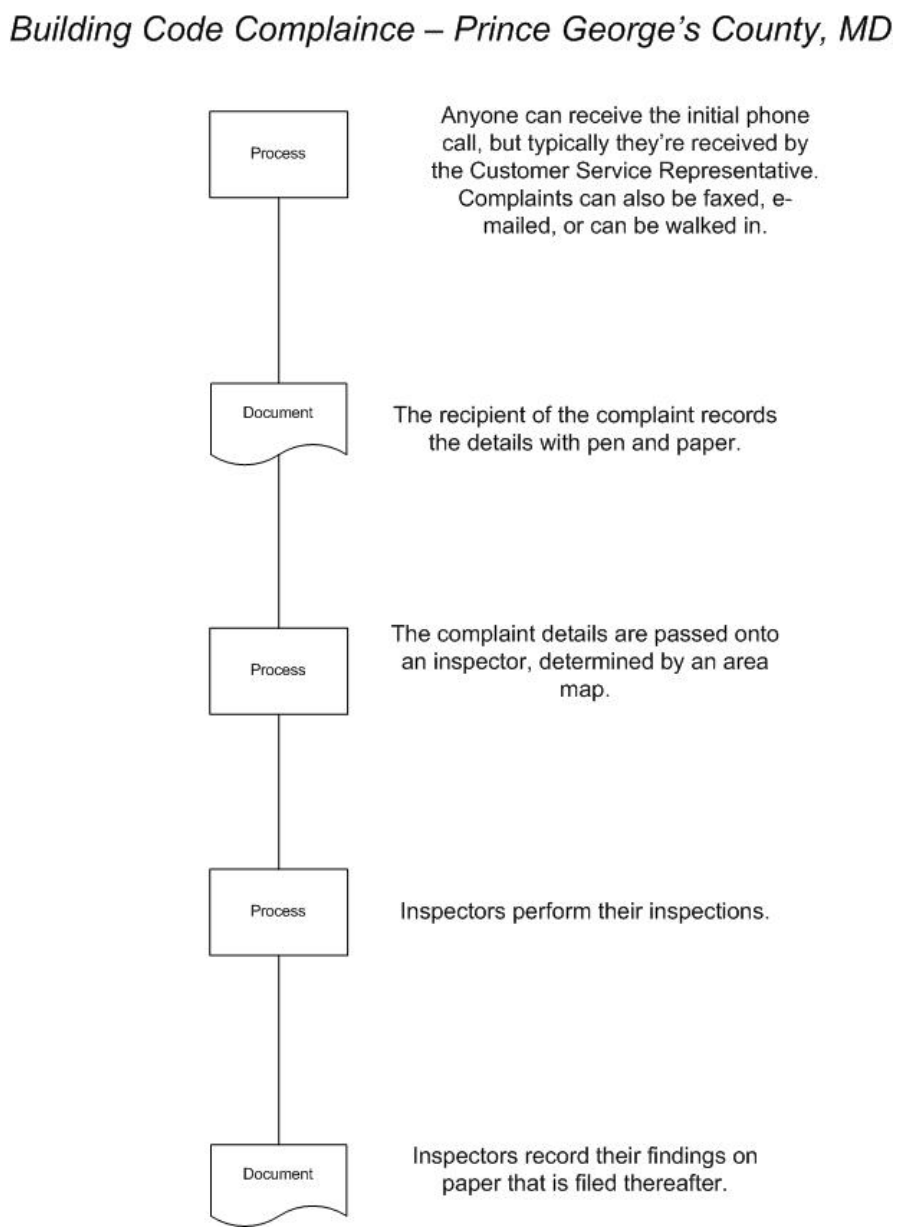


Figure 10 – Building Code Complaint of Prince George's County

Two of the departments studied utilize internally developed software to manage complaints. The DES in Arlington County, Virginia, uses a utility based program they call AHTE400 which their Information Technology (IT) staff developed. The DES prefers its customers to email their complaints because e-mailed complaints are easier to track and archive. If the complaint is not sent by e-mail, it is still logged, but the tracking of the complaints is more time consuming. The secretary of each department in Arlington County, as explained by Linda Braw, regularly checks the department's email. If the complaint is not under the jurisdiction of

that particular department, the secretary is then able to forward the email to the appropriate department. A specific inspector receives the complaint by checking the AHTE400 database and has 72 hours to respond to the complaint. Those involved with the complaint process are all initially trained as a new employee. This flow can be seen in Figure 11.

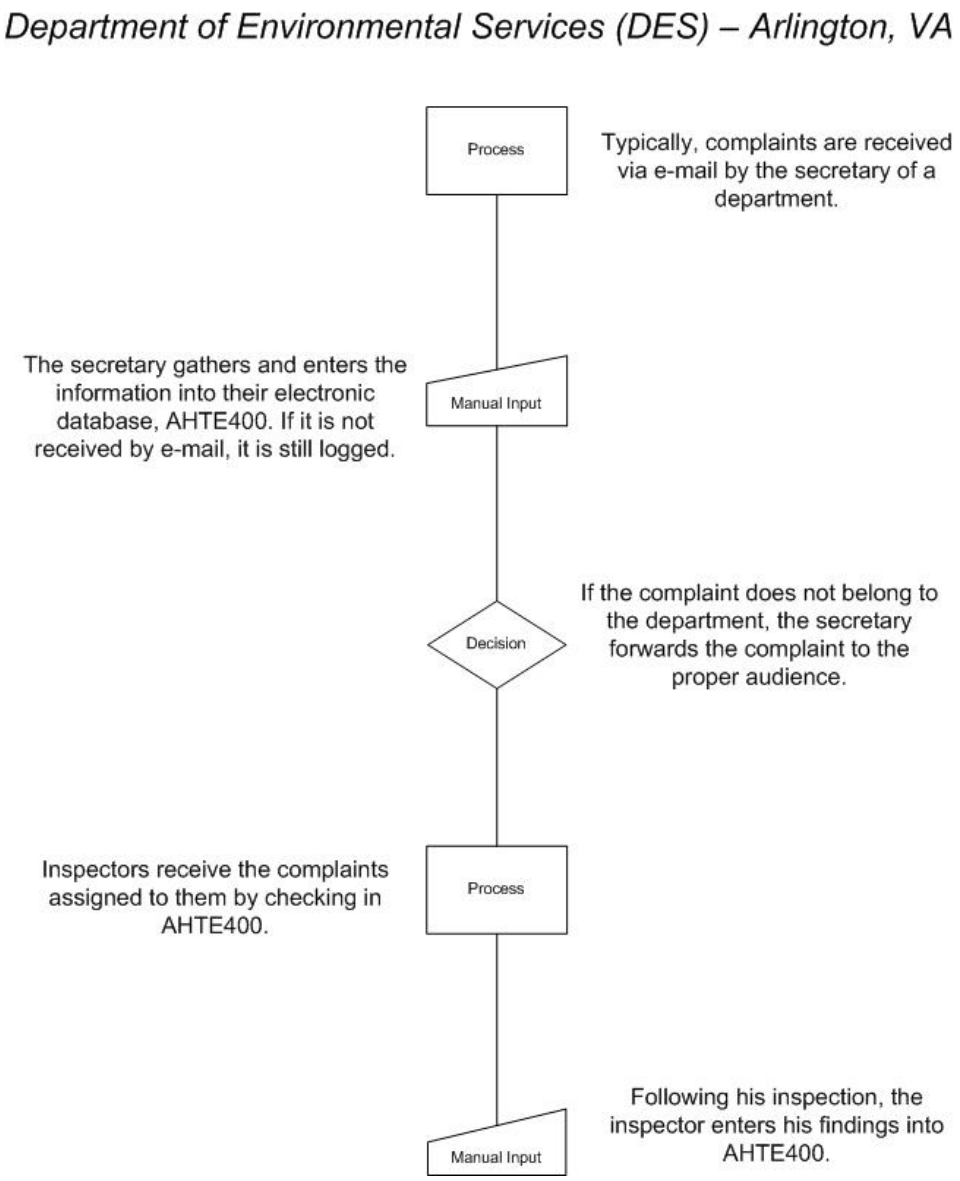


Figure 11 – DES of Arlington County

The DEP in Montgomery County uses CaseBase, a program developed by their IT staff to track complaints, much like AHTE400. CaseBase was implemented in 2003 and replaced a Microsoft Access database. The DEP receives about 1700 complaints a year mostly via the

telephone and email. Stan Edwards explained that there is one main complaint intake employee, and this individual inputs the complaint information into CaseBase. If that individual is unavailable, the supervisor of the enforcement staff would be the person to process the complaint. Inspectors are assigned on a rotating basis, and an inspector would then initially know that he or she has a complaint to investigate by one of two ways: the person who does the intake of the complaint notifies the inspector by providing a printed copy of the complaint details, or the inspector sees the display of the complaint on the initial screen of CaseBase. As Edwards explained in a separate email correspondence:

> When an individual opens CaseBase, all of his/her cases appear on the initial screen. Included in that initial screen is info[rmation] about when the case was opened and how many days it has been open, so the new cases are readily apparent.
>
> This flow can be seen in Figure 12.

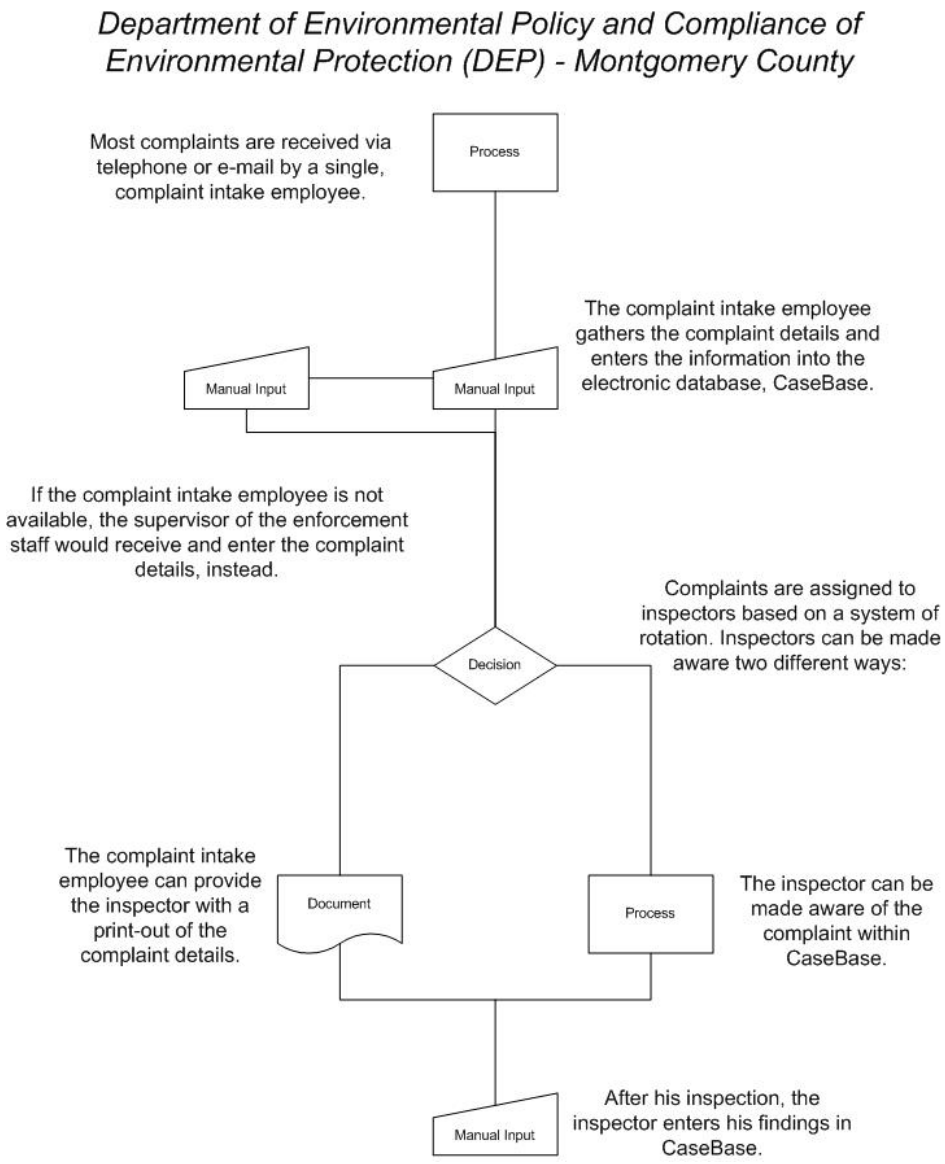


Figure 12 – DEP of Montgomery County

Rod Dejter, of the DHCA in Montgomery County, said that they currently use Microsoft Access to track complaints much as previously did the DEP. The DHCA has three field supervisors and 15 inspectors. They are all trained in complaint intake. Complaints can be received by phone, fax, email, or by a customer walking into the office. The complaint information is entered into Microsoft Access and a written complaint form is created by the intake desk employee for that day. Since employees who are involved with the intake of complaints are the inspectors themselves, they use their experience obtained in the field to ask the appropriate questions on site in order to discover what the issue is. In addition to acquiring the appropriate information, the intake employee is also required to ask if the complainant

wishes to remain anonymous. The DHCA is the only department that we examined that also asks for a phone number. With this phone number, the inspector is able to update the concerned complainant regarding the progress of the issue. This flow can be seen in Figure 13.

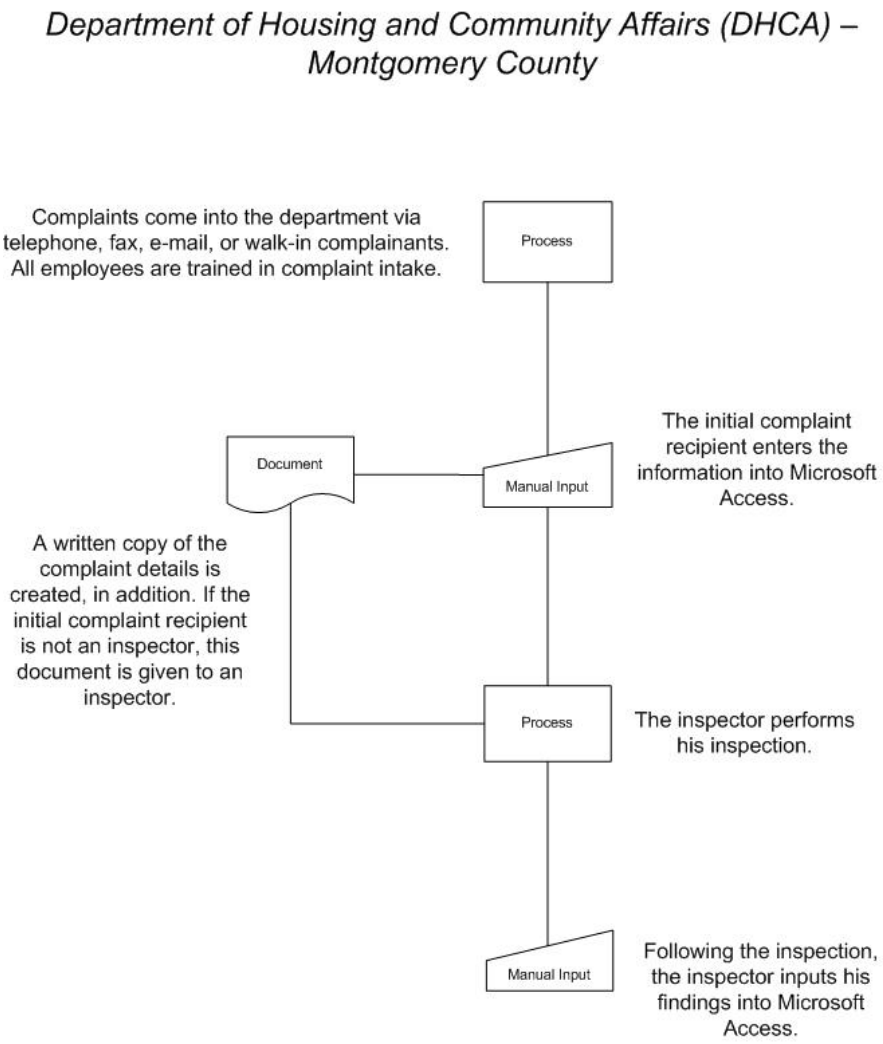


Figure 13 – DHCA of Montgomery County

In speaking with Ledi Driggs over the phone, we found that the Department of Zoning's call center for complaints in Mecklenburg County operates 24 hours per day and seven days per week including holidays. As explained by Driggs, because an employee is always available at the call center, email or faxes are not common. The employee who takes the phone call, a customer

service representative, logs the complaint information into a computer software product called Emerald during the customer's call. Emerald is a database that can archive and recall a large amount of information ranging from frequently asked customer questions to actual complaint data.

The call center, although in the Department of Zoning, handles all types of complaints mainly for the city of Charlotte and filters them to the appropriate departments. A newly hired customer service representative will take intensive classes for the first two months as an employee. These classes include training in use of Emerald and determining which common complaints belong to which departments. A test is taken by the employee after these classes, and (s)he must pass this test before being allowed to answer customer calls. Relevant information that is not readily recalled by the employee through memory during the servicing of a customer can be recalled from Emerald's vast database and keyword searching capabilities. After the customer service representative logs the information from the complaint, he or she forwards the complaint to the appropriate geographical section and department. The county is divided into seven sections; all of which have a manager and inspectors from each department specific to that area. It is usually the task of the manager to assign complaints to his or her inspectors. Driggs also explained that, if a customer has a question or issue and the customer service representative is able resolve the customer's concern, then it is not considered to be a "nuisance." A nuisance would be a complaint that would require an inspector to investigate and it would be recorded in Emerald. If it is not a nuisance, then it is not recorded. This flow can be seen in Figure 14.

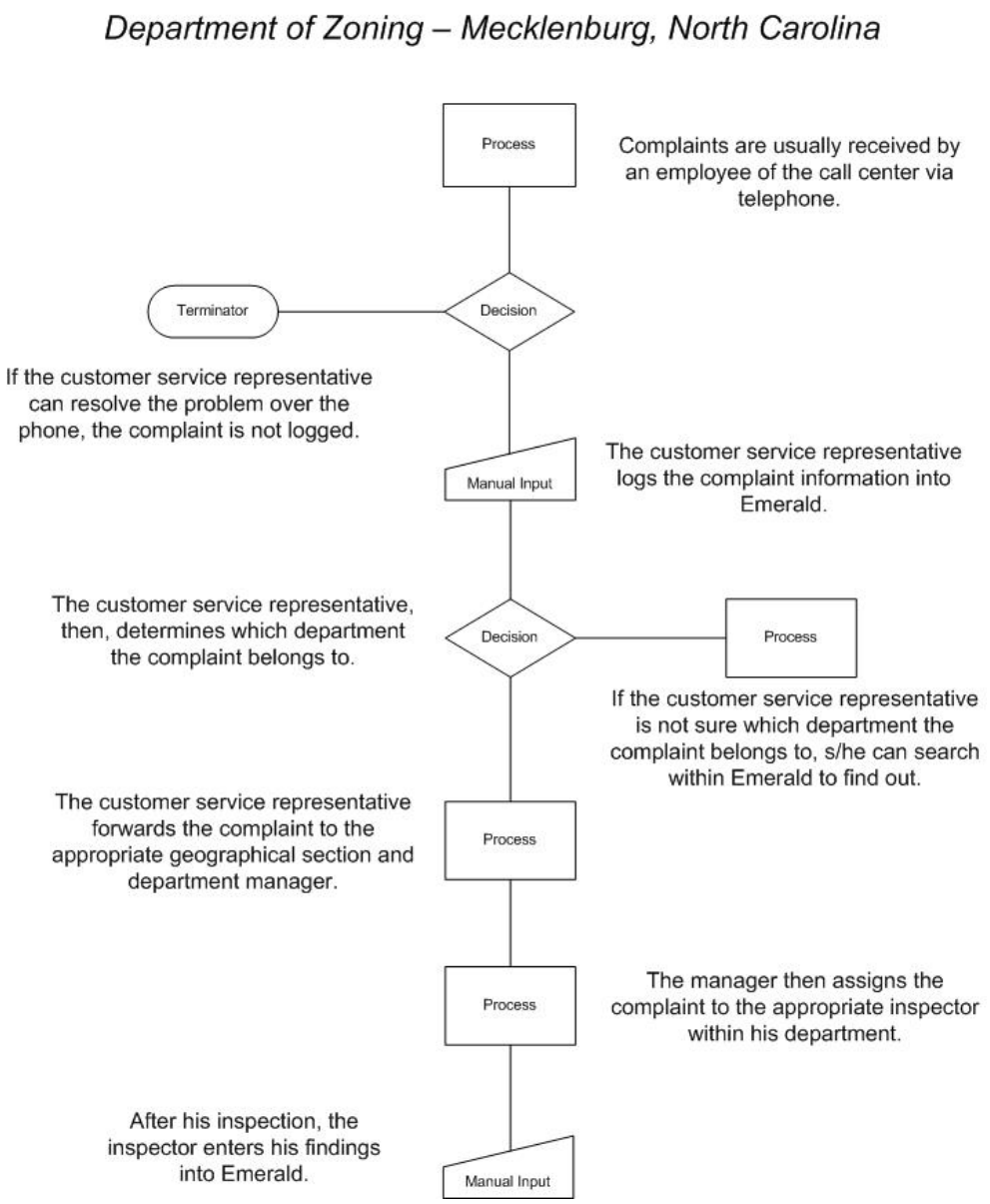


Figure 14 – Department of Zoning of Mecklenburg County

Similarly to the software program in the DPS, the Code Enforcement Branch of Land Development Services in Fairfax County, VA, uses a type of Hansen software called Fido. Penny Rood indicated that complaints come into the department mainly via telephone. The internet services allow customers to submit complaint forms involving grass and turf. When complaints are received by an administrative assistant, they input into Fido what the customer is complaining about. That complaint then is forwarded electronically to a coordinator through the Fido mailbox system. A coordinator would then make the initial validation check. A complaint is valid if it can be handled by the inspectors who enforce land development codes. When a

complaint is valid, the coordinator assigns it to the appropriate inspector according to schedule and geographical location of the complaint site. When a complaint is not valid, a coordinator assigns an inspector to call the complainant and explain the reason it is not valid. This flow can be seen in Figure 15.

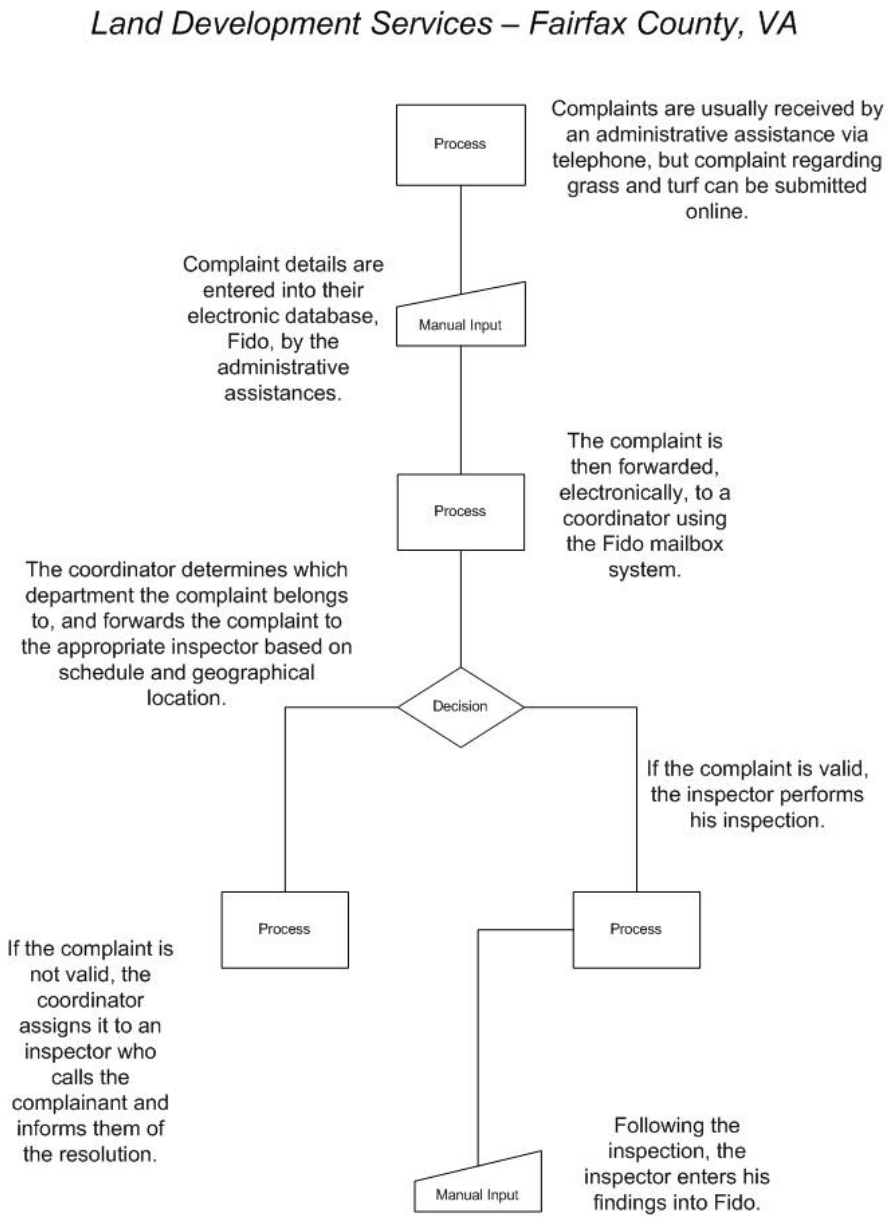


Figure 15 – LDS of Fairfax County

In speaking with Mr. Scott Hamilton, an Information Technology Representative, it was learned that the Public Works Department of Cambridge, Massachusetts previously implemented

the Hansen system until about roughly three years ago. The Hansen system was used to log and track permits and citizen requests. He explained that Hansen had two problems for his department: it was difficult to customize and it was too expensive. Mr. Hamilton added that "…Hansen is not a development platform and it is not user-friendly." In 2004, the Public Works Department decided it was best to implement a different product called Remedy. The Cambridge DPW found Remedy easier to customize because it is a development platform, as well as less expensive for them. It could notify employees of tasks that need to be addressed through email and was tied, electronically, to the master citizen address list of Cambridge.

Nature of the DPS' Complaints

The 86 available complaint categories in the Hansen database can be grouped into six types: zoning, building, sediment control, right of way, well and septic, and site plan. Zoning complaints generally involve the Zoning section within the Casework Management Division. Building complaints, depending on type of building and whether it is residential or commercial, go to the appropriate section within the Building Construction Division; the complaints either go to Commercial Building, Commercial Systems, Residential Inspection, or Building Complaint Residential Review and Inspection section. Sediment control, right of way, and well and septic complaints go to their respective sections within the Land Development Division. Site plan complaints are directed towards their respective section within the Casework Management Division as well.

Figure 16 and Figure 17 displays the number of complaints per season for the past 2 years. We defined the seasons as follows:

1. Fall: September 1st to November 30th
2. Winter: December 1st to February 28th (or 29th)
3. Spring: March 1st to May 31st
4. Summer: June 1st to August 31st .

As seen in both figures, the number of complaints during the year is highest during the spring and decreases to the lowest during the winter. The figures also show that zoning and building complaints are the most frequent types of complaints while well and septic complaints have the lowest numbers since fall of 2005. The figures do not contain the category of site plan

complaint because it was recently instituted during this past fiscal year and thus was only recorded three times.

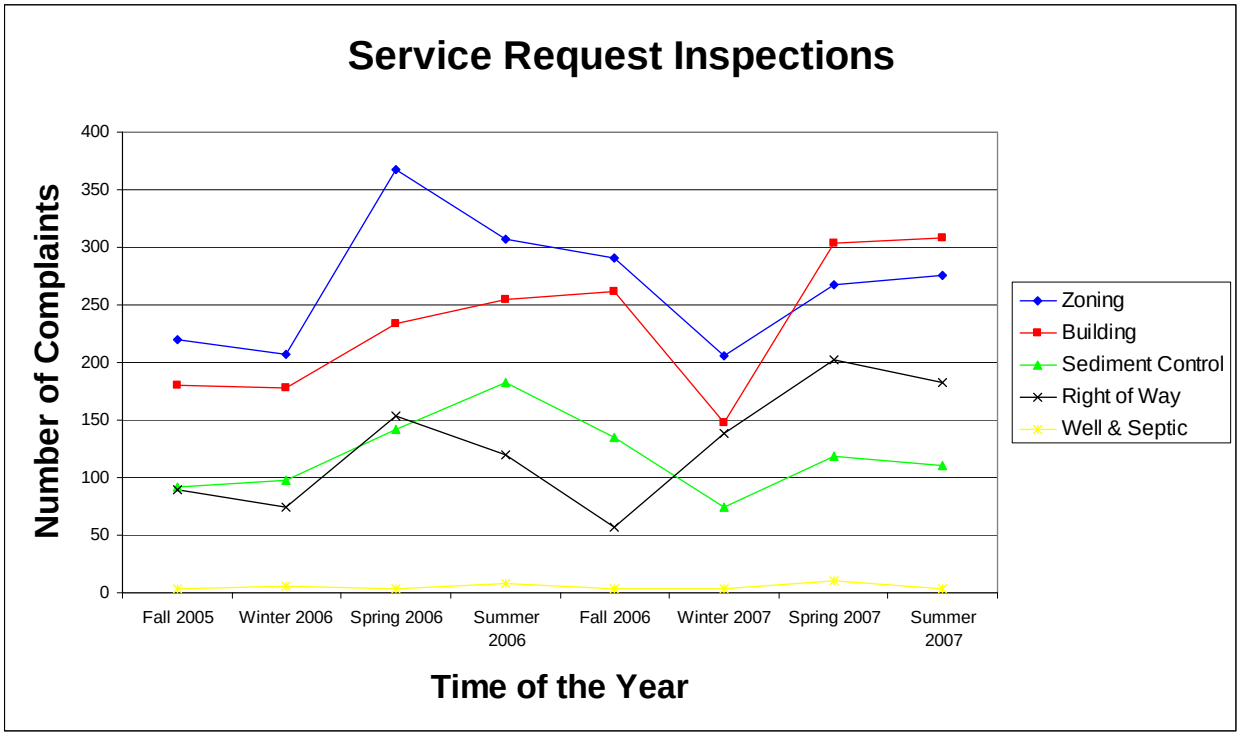


Figure 16 – Type of Complaints (Data from FT in Appendix F)

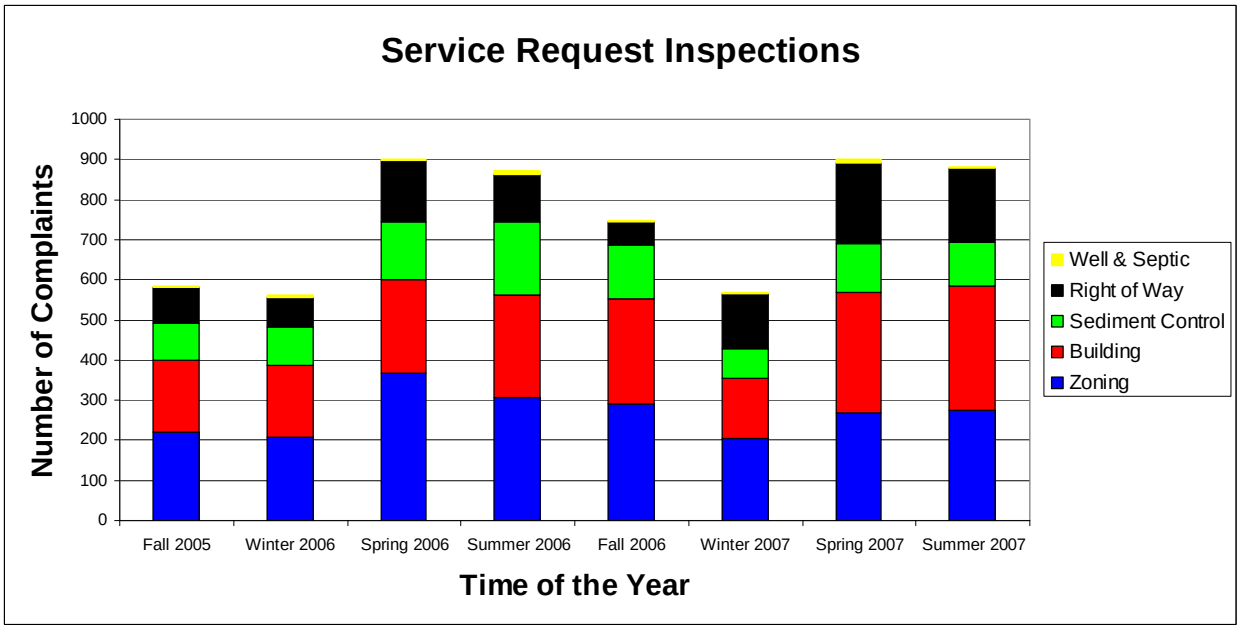


Figure 17 – Types of Complaints (Data from FT in Appendix F)

By the end of fiscal year 2007, defined as starting on July 1, 2006 and ending on June 30, 2007, the Department of Permitting Services received a total of 3,728 documented complaints.

Figure 18 and Figure 19 show the growth of complaints per section and the DPS as a whole, respectively. The data shows that the Zoning and Building Sections receive, on average, the highest number of complaints within a given season.

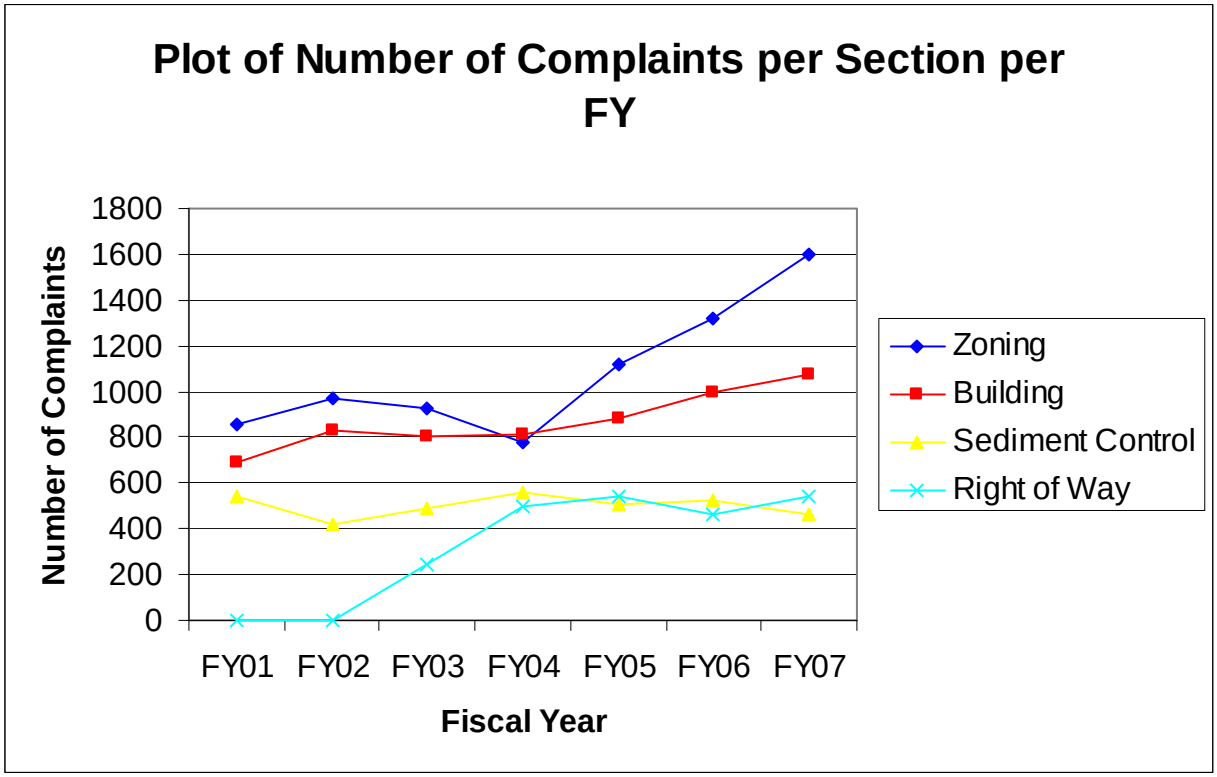


Figure 18 – Number of Complaints per Section per Fiscal Year; (Data from FT in Appendix F)

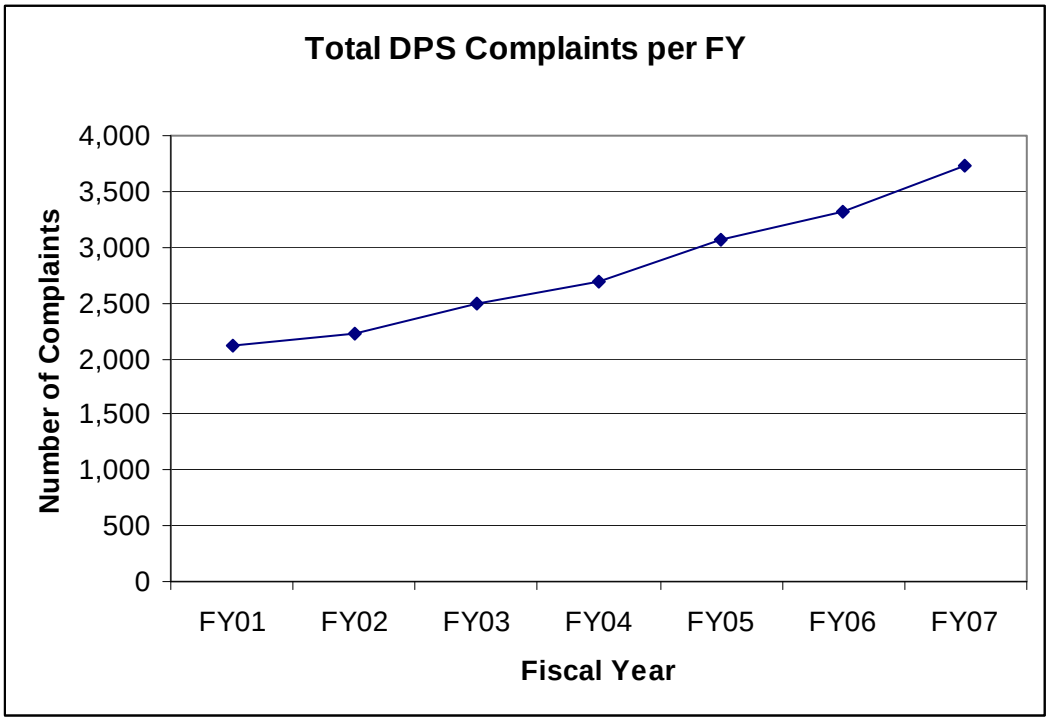


Figure 19 – Total Recorded DPS Complaints per Fiscal Year (Data from FT in Appendix F)

With further researching the nature of recorded complaints in the Hansen Database, we found that when plotting the trend line for each complaint currently available in the database against time, there are some complaints that have an apparent increasing or decreasing trend due to either having a negative or positive slope. However, as a result of not having a coefficient of determination R^2 over .8 or 80%, most of the complaints are not supported statiscally to be increasing or decreasing. The complaints with increasing and decreasing trend lines can be seen in the TIC and TDC, respectfully, in Appendix F. Below, Table 1 shows the number of complaints that had trend lines that were increasing and trend lines that were decreasing. Furthermore, it also shows the quantity and percentage of the total respective trends are statically substantiated.

Trend Line	Total	Total R2 Supported Complaints
Increasing	44	7
Decreasing	28	1

Table 1 – Trends of DPS' Complaints (Data from TIC and TDC in Appendix F)

Also, in delving into the complaint data, we found that some of the names of the complaints have ambiguous meanings and can be coupled with other complaints that have similar names. Those types of complaints are shown below in Table 2.

SIMILAR COMPLAINTS	
Complaint Type 1	**Complaint Type 2**
FENCES [ZONING]	FENCE/RETAINING WALL [BUILDING]
HISTORIC PRESERVATION [ZONING]	HISTORIC PRESERVATION [BUILDING]
SETBACKS [ZONING]	SETBACKS [BUILDING]
HOME OCCUPATION [ZONING]	HOME OCCUPATION-OTHER [ZONING]
VENDOR [ZONING]	VENDOR [ZONING]
RESIDENTIAL BUILDING VIOLATION [BUILDING]	OTHER RESIDENTIAL BUILDING VIOLATIONS [BUILDING]
RESIDENTIAL ELECTRICAL VIOLATION [BUILDING]	OTHER RESIDENTIAL ELECTRICAL VIOLATIONS [BUILDING]
RESIDENTIAL MECHANICAL VIOLATION [BUILDING]	OTHER RESIDENTIAL MECHANICAL VIOLATIONS [BUILDING]

Table 2 – Table of Similar Complaints in the Hansen System

The complaints that are highlighted turquoise, or the first three rows, are similar complaints that belong to different sections. The complaints highlighted in purple are complaints that belong to the same section.

Although there is no definitive way to collect data on anonymous complaints since there a multiple methods the Permit Technicians use, Mrs. Susan Scala-Demby compiled the number of such complaints found in the database that the Zoning section received for the past relevant years. This data is shown as a plot in Figure 20. The plot in Figure 21 essentially combines the data in Figure 18 and Figure 20 to display the trend line of the total number of zoning complaints and the total number of anonymous zoning complaints.

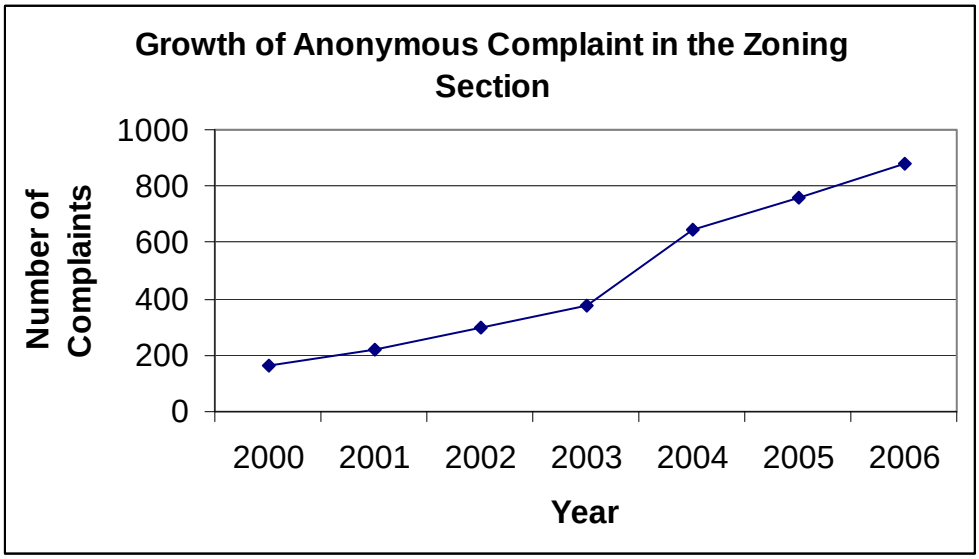


Figure 20 – Plot of Anonymous Complaints (Zoning)

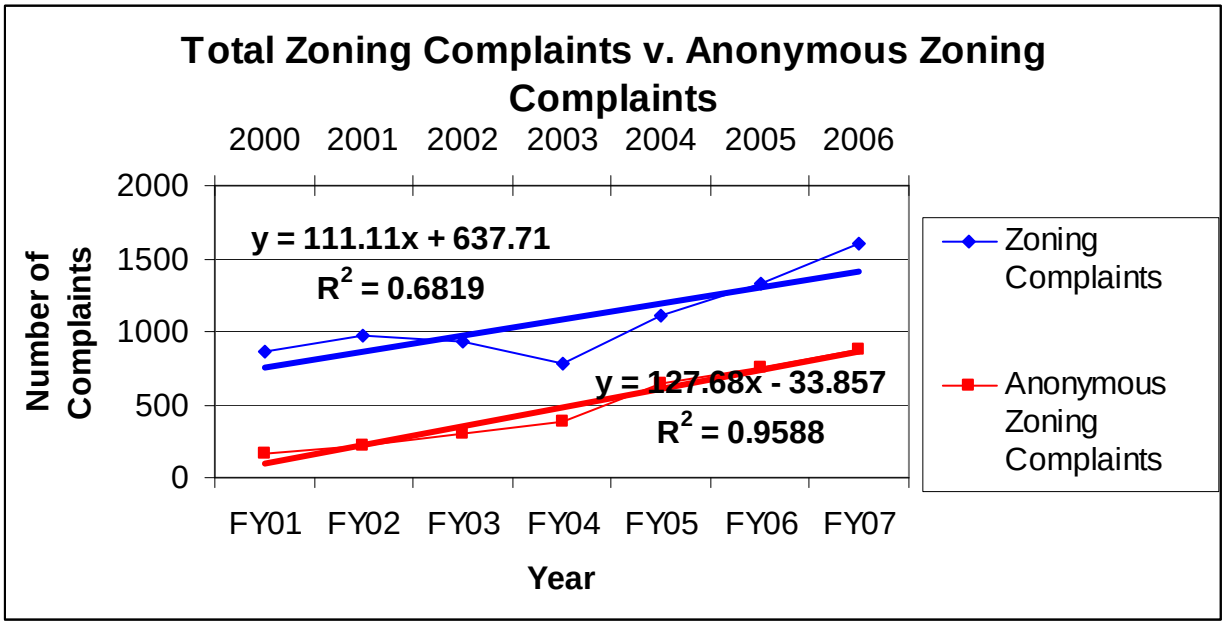


Figure 21 – Plot of Total Complaints v. Anonymous Complaints (Zoning)

Analysis

Training in the Hansen System 7.6

According to the interviews with the Inspectors, Permit Technicians, and Managers, a total of 49 out of 50 employees claim that they have not received any formal training with regard to their duties of complaint handling in the Hansen System. The Hansen System was implemented by the Department of Permitting Services in August, 1999; however the initial formal training session for all employees' responsibilities in Hansen occurred 6 months prior to its implementation. Since this formal training session, there have been small group training meetings led by the Manager of the Zoning Section in the Casework Management Division, but employees within each section of the DPS that the team has interviewed suggest that these training sessions do not address the individual nature of how complaints are handled within their section. Within these small training sessions, there was an outline of the steps to take when entering a Service Request into Hansen, as well as a Service Request Inspection. The format of these guidelines is a page-by-page pictorial with bubble images displaying the steps that need to be taken when creating these forms in the Hansen System. None of the employees interviewed say they possess a copy of this document, and some employees admit to not having knowledge of the document's existence. Another important observation to recognize is that 0 out of 9 managers, not including our liaison, have had any formal training in complaint handling with the Hansen System. Managers who know how to enter information into a Service Request form and Service Request Inspection form have either taught themselves or asked an employee with knowledge of the process. This statistic is not reflective of the manager turnover rate in the department. In addition to this, all thirty eight of the inspectors admit to having learned at least one step in the complaint handling process in the Hansen System from another employee, and not from the training sessions.

An important observation to make with regard to employee training is that employees refer to each other for their responsibilities of complaint handling in the Hansen System instead of consulting a printed document with guidelines. The lack of availability of such a document forces employees to learn their duties in the Hansen System at their own discretion, which can disrupt the implementation of a standardized process entirely and create an environment where the Hansen system is used varyingly based on the section and employee. Currently, this type of

environment exists in the Department of Permitting Services. Although there is a document that outlines the steps of entering information into both a Service Request form and a Service Request Inspection form, the managers in the department do not have a readily accessible version of this document. Thus the employees under the managers also do not have a version of this document to access. Thus this leads to the development of individually variable methods and practices in creating Service Request forms & Service Request Inspection forms.

Even Permit Technicians have variability in their method of entering information into the Hansen System, and these employees function with the complaint handling process most frequently. Many of the other interviewed employees feel as though Permit Technicians need the most training in their complaint handling responsibilities since the intake of the complaint is the most important step of the process. The Licensing section itself has had four managers in the past three years. The influx of new managers points out the need for ongoing formal training as well as for printed training manuals if the Hansen system is to be effectively utilized.

Advantages and Disadvantages of the Other Processes

One negative aspect of using a written logging process is the difficulty of tracking and reporting information. This complication is an issue at the DZA of Fredrick County and the Building Code Complaint Division in Prince George's County. The use of computer systems makes the process of storing, retrieving, and analyzing information and data easier for a department or county. Computer systems occupy less physical space than filing cabinets and offer software with algorithms to make data retrieval less tedious for the employees. This advantage also allows employees to spend less time retrieving and understanding the information and spend more time developing reports and analyzing the information.

The Department of Zoning Call Center's customer service representatives are required to be trained for two months and tested before they can implement their responsibilities. An advantage of this criterion is that the Department of Zoning has employees who have been thoroughly trained in all their responsibilities and in Emerald, the computer database they utilize. The disadvantage of this system is the difficulty and thoroughness necessary to properly coordinate and implement such a rigorous training procedure. In the Department of Zoning, two months must be dedicated to teaching these employees followed by a test that rates their

competency. In addition to this disadvantage, a customer service representative may wish to leave his or her position, and this position could only be filled by another prospective employee.

The Call Center is also available for 24 hours per day. This is both an advantage and a disadvantage because there must be a paid employee after hours; but the citizen has the capability of calling in a complaint at anytime and complaints will always be received by a customer representative.

In regards to the DHCA in Montgomery County, the intake staff is comprised of inspectors who would typically be out on the field. The reception of the complaint data will be concise and exact because of the experience of the inspector in the field. However, the total hours an inspector is able to be out on the field is reduced.

The DES in Arlington County has a single complaint intake employee: the secretary of the department. This allows for the complaint data inputted into the database is consistent. A disadvantage of this system is that if the secretary is not available to respond to the complaint intake for that day, the complaint will not be as thoroughly recorded because another less trained employee takes on the responsibility, or the resolution to the complaint will be delayed.

The Montgomery County DEP's CaseBase provides alerts to the inspector via the initial CaseBase screen. The inspector, who maintains other responsibilities and duties, does not need to check an inbox and information of the complaint is readily available to the inspector. Also CaseBase was made internally by the IT staff of the DEP. The software used is specific to the duties of the department; but in order for Montgomery County to replicate such software themselves, many work hours would be needed.

The Code Enforcement Branch of Land Development Services in Fairfax County has an employee who handles the intake of complaints while another employee handles the initial complaint validity check and issues it to the proper inspector. An advantage to this organizational structure is that it requires two specialized employees: one in customer service and another employee knowledgeable about the complaint types and inspector responsibilities. This separation of duties streamlines the complaint handling process in Fairfax County and increases its effectiveness and efficiency

Analysis of Complaint Data

The Zoning section of the Department of Permitting Services mainly handles complaints and complaint inspections, whereas the other sections handle permitting inspections in addition to complaints and complaint inspections. The Building division has a Residential Inspection and Building Complaints section that mainly handles complaints and complaint resolutions only, and not permitting inspections. The existence of these sections may possibly be an effect of the increased level of these types of complaints that come into the department. In addition, there is a substantially reduced frequency of complaints in the other sections of the department besides zoning. This may be attributable to less compliance with the current process of entering complaints into the Hansen System within these sections. Our interview data suggests that inspectors outside of the Zoning section in the Casework Management Division frequently deviate from the documented complaint handling process for the Hansen System at the Department of Permitting Services.

As stated previously in the Nature of DPS' Complaints section, the majority of the complaints occur during the spring season while complaints are the least frequent in winter. This is possibly due to people more likely building during the spring and citizens not venturing out in their neighborhoods to see problematic issues during the winter. Many employees have also stated that there are some citizens who choose to take it upon themselves to seek issues in their residential area. During these seasons, it is important that the Inspectors, Permit Technicians, and Managers have a clear vision of the methods used to handle complaints in Hansen, because at these times they would be using it more frequently than usual. Such vision would be aided by having documents that outline the proper complaint handling input procedures in the Hansen System

Figure 18 shows that during FY03 and FY04, zoning complaints drop in number. This can be attributed to the implementation of the Right of Way section, which used to be a complaint type handled by the zoning section. Right of Way complaints were added to the Hansen System during FY03.

While observing Table 2, it can be seen why 6% of the total number of complaints that can be recorded in Hansen are not used. For example, the zoning section has a duplicated complaint type called "vendor", and one of the duplications is not used. This can also be applied to those complaints which are general and those labeled as "other." An example of this is the

"residential building violation complaint" and the "residential building violation complaint (other)".

There are also complaints that are named the same yet belong to different sections such as the "setback" complaints. These are two separate complaints, one of which one is a zoning complaint while the other is a building complaint. There might be certain instances in which a Permit Technician might not look at the complaint code while inputting the complaint information into Hansen and input the wrong complaint. In the Hansen System, the complaint code is the only way to differentiate between the two complaints, both of which might be labeled "Setback," but each of which would have a different meaning depending on the kind of incident to which it referred.

In the Hansen database, there are two complaints which are no longer handled by the DPS. In the past, Permitting Services handled complaints that the Department of Environmental Protection currently handles. In Appendix D, the Full Table shows that one of those complaints was actually recorded three times since FY01, after the reorganization of these two departments was finalized.

Advantages of Standardization

Before recommendations can be considered, it is important to discuss the advantages that the Department of Permitting Services will have from adopting and implementing a standardized complaint handling process. More importantly, the employees of the department should be aware of these advantages in order to create department-wide acceptance for following the standardized process. Inspectors, Managers, and Permit Technicians are all involved in the complaint handling system, so all individual aspects of their duties must be taken into consideration when creating a standardized complaint handling process for the department.

As a process is standardized and guidelines are adhered to and enforced, concerns and complications within the complaint handling process may surface. These concerns from the employees and complications in the system also surface with the lack of a standardized process but the difference is that in a standardized process, evidence of problems and complications is much more quantitative and easier to observe. Standardization would allow for all employees to gather evidence for any issues they feel are important to the complaint handling process. In addition, standardization will also increase the Department of Permitting Service's ability to

address bottlenecks and complications in the complaint handling process and increase its effectiveness and efficiency as it is developed further. For example, as previously stated in this section, Inspectors suggest that the repeated log in process to the Hansen database causes time conflicts with other duties. With a standardized process, the time it takes to perform these complaint handling duties would be logged into the Hansen database so that evidence would exist of long time delays in the Hansen System due to software or hardware problems. The number of times an inspector has to login along with the amount of time it takes to log into the system completely can be examined for any necessary adjustments or changes to the login system.

Another advantage of standardization is that the Department of Permitting Services will be able to create precise reports on the nature and extent of departmental activities. Examples of such reports are the time it takes to open and close inspections, the frequency of cases, and the frequency of an inspector compliance with the three day response period. These reports will allow for more thorough and concise evaluations of the DPS' performance. Such reports could justify the hiring of additional staff and also increases in budget. The DPS will also be able to more accurately identify trends in certain types of complaints. These reports are an advantage to all of the employees of the department including Inspectors, Managers, Permit Technicians, and the Director. These advantages can only present themselves as opportunities under a standardized process, and do not exist in an environment where deviations from the standard are more frequent than is compliance with the standard.

Application of Best Practices in Complaint Handling Systems

The data collected from the other municipalities and departments aided the evaluation process of the Department of Permitting Services' current complaint handling process. More specifically, these entities displayed trends of compliance with the ten best practices developed in the Literature Review. In order to properly evaluate the DPS' current complaint handling process, a grading system was developed by our team. This system was a point scale from one to four, each with a number representing a summarization of the Department of Permitting Services' achievements or lack of achievements with regards to best practices. The comprehensiveness, completeness, and thoroughness of the best practices at the DPS would grant them a higher or lower grade. These grades are based on the characteristics of the current

complaint handling system. Also, these best practices, when thoroughly developed, increase the effectiveness of the overall complaint handling process, as discussed in the Literature Review.

A Scoring Model (Appendix G) was used to rate and evaluate the DPS' current complaint handling system, as well as to compare this system to those of the other counties and departments researched. For each practice, the DPS received a score of (1) – nonexistent, (2) – unsatisfactory, (3) – satisfactory, or (4) – highly effective. For the model, we considered a practice being nonexistent worse than an unsatisfactory practice. A full explanation of what each grade means relative to the practice can be found in Appendix G.

The departments that had a complaint handling process were rated against the DPS as having a less, equally as, or more effective process than the DPS' current complaint handling process. The results of the scores are shown below in Table 3.

Scores of the Complaint Handling Processes								
1 = Nonexistant, 2 = Unsatisfactory, 3 = Satisfactory, 4 = Highly Effective		-1 = Less Effective than DPS, 0 = Just as Effective as the DPS, 1 = More Effective than DPS						
Best Practices	**DPS** (Mont., MD)	**DEP** (Mont., MD)	**DHCA** (Mont., MD)	**DES** (Arling., VA)	**CEBLD** (Fairfax, VA)	**DZA** (Fred., MD)	**BCC** (P. George's, MD)	**DZ** (Meckl., NC)
Detailed Flow-System	**1**	0	0	0	1	0	0	1
Confidentiality of Complainant	**3**	1	0	0	0	0	0	0
Nondiscriminatory towards Complainant	**4**	0	0	0	0	0	0	0
Flexibility of Complaint Reception	**4**	0	0	-1	0	0	0	-1
Development of Complaint Details	**2**	1	1	-1	1	1	0	1
Incorporated Resolution Deadline	**4**	0	0	0	0	0	0	1
Employees' Perception of Complaints as a Resource	**2**	1	1	0	1	1	1	1
Provides a Remedy and Response	**4**	0	0	0	0	0	0	0
Method of Follow-Up with Complainant	**2**	0	0	1	0	0	0	1
Adaptablility to Changes in the Business World	**4**	0	-1	0	0	-1	-1	1
AVERAGES	**3**	**0.3**	**0.1**	**-0.1**	**0.3**	**0.1**	**0**	**0.5**

Table 3 – Table of the Scores of the Complaint Handling Processes

As shown in Table 3, the Department of Permitting Services received a rating of 3.0 out of a possible 4.0 for its current complaint process. Although the DPS has instituted many processes in their complaint handling system that address these best practices, its overall complaint handling process is satisfactory. Characteristics of the current process that can be improved to increase DPS' overall rating are the development of a documented flow-system, unbiased attitudes toward complaint reception, logging thorough information for follow-up with complainants, and increased development of complaint details during the reception of a complaint. Through the data collection and analysis, documented flow charts of the DPS' current

system were created. Prior to this, a documented flow of a complaint through the department did not exist. This accounts for the grade of a one out of four the DPS received on the "Detailed Flow-System" best practice.

In interviewing Permit Technicians and Inspectors, most of these employees expressed that personally handling complaints are a nuisance, hence the grade of unsatisfactory, a two out of four, on the best practice "Employees' Perception of Complaints as a Resource." Some managers and most inspectors indicated that the Permit Technicians needed the most training on screening calls so the complaint is not referred to the wrong section as often as it currently occurs. In asking a Permit Technician how they know which section a complaint is handled by, they responded, "You just know." A script for the Permit Technicians to follow and a screening process to properly direct the complaint to the correct section allows for the improvement of complaint details. Complaint details such as "Uneven Road" are not thorough or concise enough for an Inspector to make a proper evaluation of the complaint, and evidence of such complaint details exists in the Hansen database. These factors contributed to the grading of "Development of Complaint Details" at the Department of Permitting Services.

Lastly, the issue of handling anonymous complaints was a factor in grading "Method of Follow-Up." According to Mrs. Susan Scala-Demby, the Manager of the Zoning Section, during the year of 2006, the Zoning section received 876 anonymous complaints. During FY07, the Zoning section received roughly 1600 total complaints. It can then be assumed that during the span of FY07, about half of the complaints that the Zoning section received were anonymous. Furthermore, it was shown that the trend line of the total amount of anonymous complaints received by the Zoning section has been growing for the past seven years.

The R^2 value of the anonymous zoning complaint data was .9588 thus the estimated increasing trend is statistically supported. The R^2 value of the total zoning complaint data being .6819 is lower than our preferred standards yet still justifies the trend following an increasing pattern. Looking at both trends, the slope of the number of anonymous complaints exceeds that of the slope of the total complaints. In other words, the ratio between the number of anonymous complaints verses the number of total complaints has been growing per year in the Zoning Section. With assuming this trend applies to the department as a whole, roughly half of the complaints received by the department are anonymous and that ratio is growing yearly. A theory for why the ratio is continuing to grow is that the Permit Technicians are not informing the

customer of their options. A customer may chose to be open – anyone can view complainant's information, confidential – the information cannot be made public unless by judicial order, and anonymous – the complaint gives no personal information. It has been noted that Permit Technicians ask the customer if they would prefer to be anonymous without mentioning confidentiality. This is a problem since the customer is not fully aware of their options; and Inspectors are not able to fully update the anonymous complainant with the complaint status if they have no method to reach the complainant. The department was graded unsatisfactory in "Method of Follow-Up with Complainant" because the more the complainants remain anonymous, the more the department is unable to update these complainants.

However, it must be noted that the department keeps confidentially, of those who chose to be, seriously. Another positive is the intake of complaints is entirely nondiscriminatory towards complainants. Also, unlike other departments, the DPS accepts all forms of complaint reception and always provides attempts investigate and/or remedy the situation.

The score of a department can be summed with the grade the DPS, a 3.0, to find a rough grade of that department. For example, of the seven departments that were contacted, the Department of Environmental Services in Arlington was rated worse than the DPS due to it receiving a score of -.1. Thus rough grade for the DES would be 2.9 (3.0 - .1). The Building Code Complaints Line in Prince George's County received the same grade as the DPS meaning its rough grade would be a 3.0. Applying this to all of the other departments, the remaining five departments received a higher grade than the Department of Permitting Services. Furthermore, Call Center of the Department of Zoning in Mecklenburg County has the highest rough grade of 3.5. Organizing the grades in order from greatest to least, the DPS is ranked sixth from the best out of eight as seen in Table 4.

Department	Grade	Rank
DZ	3.5	1
CEBLD	3.3	2
DEP	3.2	3
DHCA	3.1	4
DZA	3.1	4
BC	3.0	6
DPS	3.0	6
DES	2.9	8

Table 4 – Department Grades and Rank

Conclusion

By recognizing citizen complaints as a potential source of information for the improvement of government services, the Department of Permitting Services can improve citizen services and promote governmental efficiency. This project's goal was to improve the effectiveness of the complaint handling process. To determine what makes a process effective, a list of ten best practices was created using standards found in ISO9000:2000 and commonalities were identified in cases involving customer satisfaction and complaint handling. To obtain an accurate understanding of the Department of Permitting Services' current processes, interviews were conducted with employees involved in the complaint handling process. Complaint data taken from the Hansen system was compiled and analyzed. Methods utilized by other municipalities were compared to that of the Department of Permitting Services. The primary issue is a lack of formal, and regularly available, standardized training program regarding complaint handling in the Hansen system. In addition, there was evidence of gaps in the process that resulted in individual interpretation of methods, a lack of documentation of procedures, and a lack of incentive to follow procedures. By resolving these issues, the DPS can establish a foundation for improvement of the total complaint handling process.

Recommendations

The following section focuses on the recommendations developed from the results and analysis section of this report. These recommendations spell out methods, processes, and procedures that the Department of Permitting Services' can adopt to improve the effectiveness and efficiency of the current complaint handling system. This section begins with training recommendations for the employees of the department. The Recommended Complaint Handling Process, Manager's Role in Training, and Permit Technician Training are discussed. Following training recommendations the team provides suggestions for Modifications to the Hansen System, Job Reassignments, and potential future projects for the Department of Permitting Services.

Training Recommendations

Recommended Complaint Handling Process

The Recommended Complaint Management System was developed by addressing many of the obstacles the Operative Complaint Management System faces. In the system that we recommend, complaints continue to be received by the Department of Permitting Services in a variety of ways. The first change can be found during the initial complaint reception, and it is the restricting of the employee's potential to be an initial complaint recipient. Instead of an Inspector receiving a complaint and creating a Service Request in Hansen for example, all complaints should be directed to a Permit Technician for proper and thorough entry into Hansen. Another change is the creation of a Service Request before a complaint's validity is questioned. All complaints that come into the department should be recorded in Hansen, even if the record is flagged as invalid within Hansen, so that repeated occurrences of invalid complaints can be addressed and corrected. Finally, Permit Technicians should be instructed to check for existing records of similar complaints more often than they do now, if at all. By adding comments to a previously recorded complaint, instead of making, essentially, a duplicate in Hansen, data recovery and organization are improved.

Once a Service Request is created, there are two recommendations that we have made. The first is making sure that the complainant is fully aware of his or her options in regards to the release of information: complete anonymity or confidentiality. In addition, the complainant should be made fully aware of the consequences of requesting anonymity. The complainant should be made aware of the fact that, without at least a call-back or reference number, the department is not able to inform the complainant of his or her complaint's resolution. The second change should be the simplified task of assigning a complaint code to the Service Request. After reviewing and, potentially, consolidating the current 86 natures of complaints, Permit Technicians should be able to properly determine which code is most appropriate. More accurate data, in this respect, will allow the department to identify increases and decreases in certain types of complaints throughout the year.

The 3rd step in the process is the creation of a Service Request Inspection. Our first recommendation during this step is the consolidation of the 9 section's area maps into one. When a Permit Technician attempts to determine to which inspector from which section a complaint

should be assigned, streamlining this process will allow the Permit Technician to move on to their next task faster. Also, when a Permit Technician contacts an Inspector to make them aware of the complaint that has been assigned to them, the Permit Technician should be sure to speak with the Inspector directly, if possible. During this conversation, the Inspector can verify whether or not the complaint is one that s/he is responsible for. This will significantly reduce the amount of improperly assigned complaints and, because an improperly assigned complaint will be corrected before it leaves the Permit Technician's hands, Service Request Inspections will no longer remain idle for days. Permit Technicians should rely on print-outs left in the Inspectors' mailboxes as a last resort.

Finally, there are two recommendations that we've made during the Case portion of the complaint resolution process. Both recommendations are inspired by the reduction of choices an Inspector has when deciding when and how he will document his findings. First, during his or her inspection, the Inspector should have two options instead of three or four: to bring their laptop with them and record their findings as they investigate, or to record their findings on paper as they investigate and enter it into Hansen immediately after the inspection ends. The emphasis on speedy data entry is to improve the accuracy of the data that can be gathered from the Inspector's reports, such as how long it took them to perform their inspections. If an Inspector chooses to record his findings in Hansen hours after his inspection has occurred, the reports created will be misleading. Instead, with the ability to prove that s/he was in the field all day, rushing from one inspection to the next, Inspectors will be able to form a stronger argument in support of additional staff, for example. Lastly, we recommend that the Department of Permitting Services require that their Inspectors create cases when appropriate instead of entering their findings in the comments field of the Service Request Inspection. This would require additional training, which every Inspector interviewed said they needed, but would result in more organized data in Hansen and the ability to create more accurate reports. The total process can be seen in Figure 22, Figure 23, Figure 24, and Figure 25.

Recommended Complaint Management System – Initial Complaint Reception

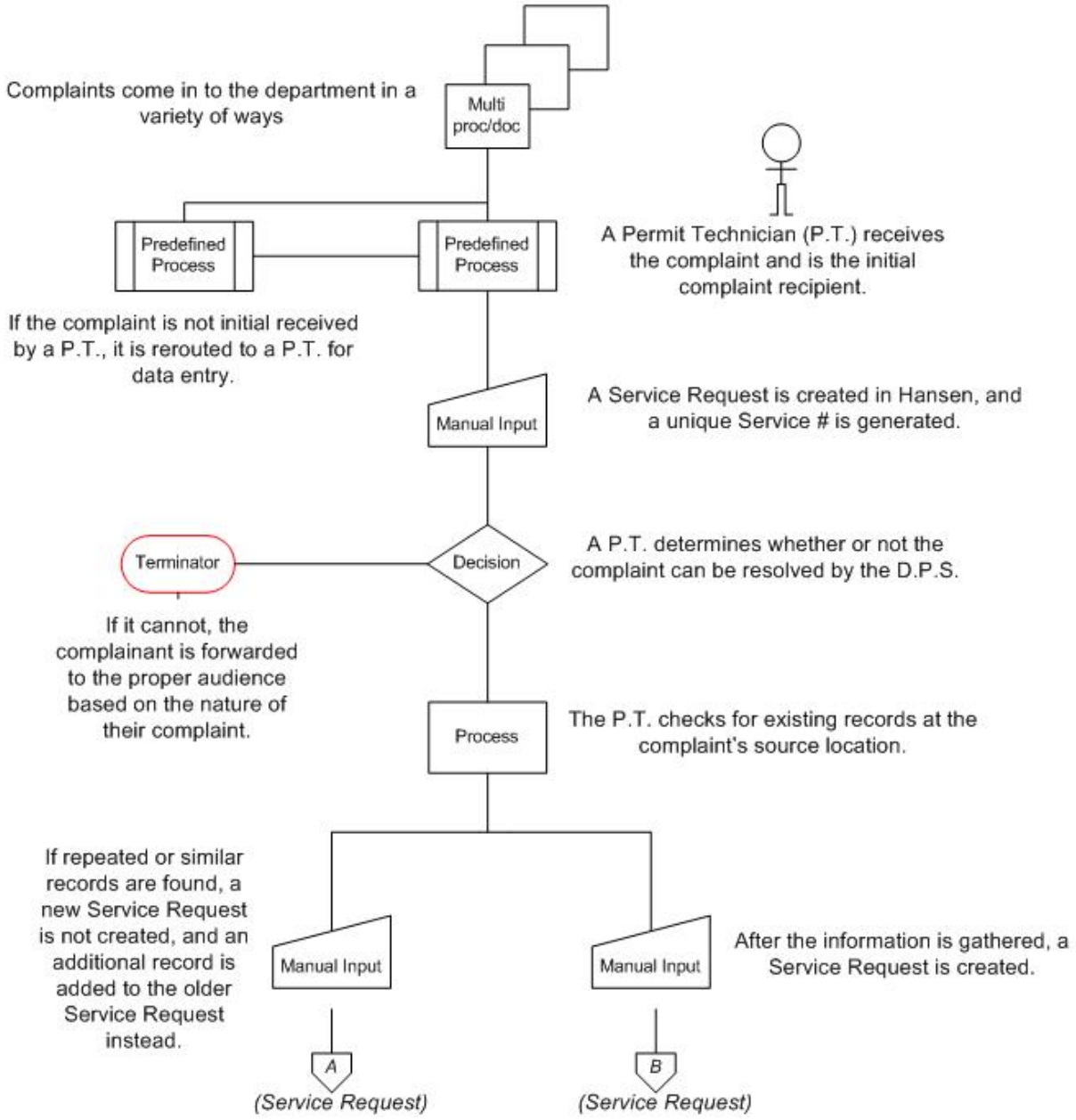


Figure 22 – Recommended Complaint Flow – Initial Complaint Reception

Recommended Complaint Management System – Service Request

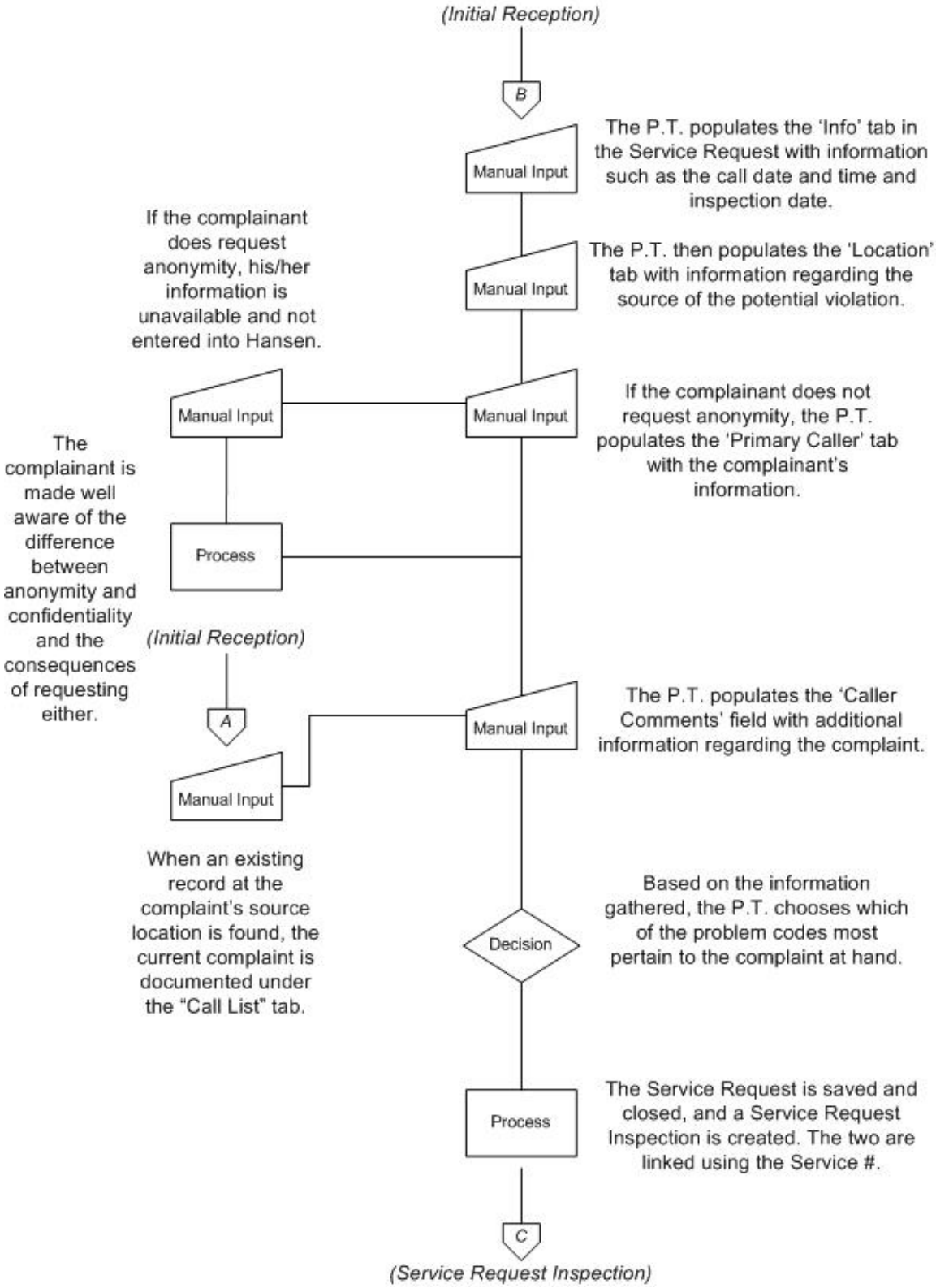


Figure 23 – Recommended Complaint Flow – Service Request

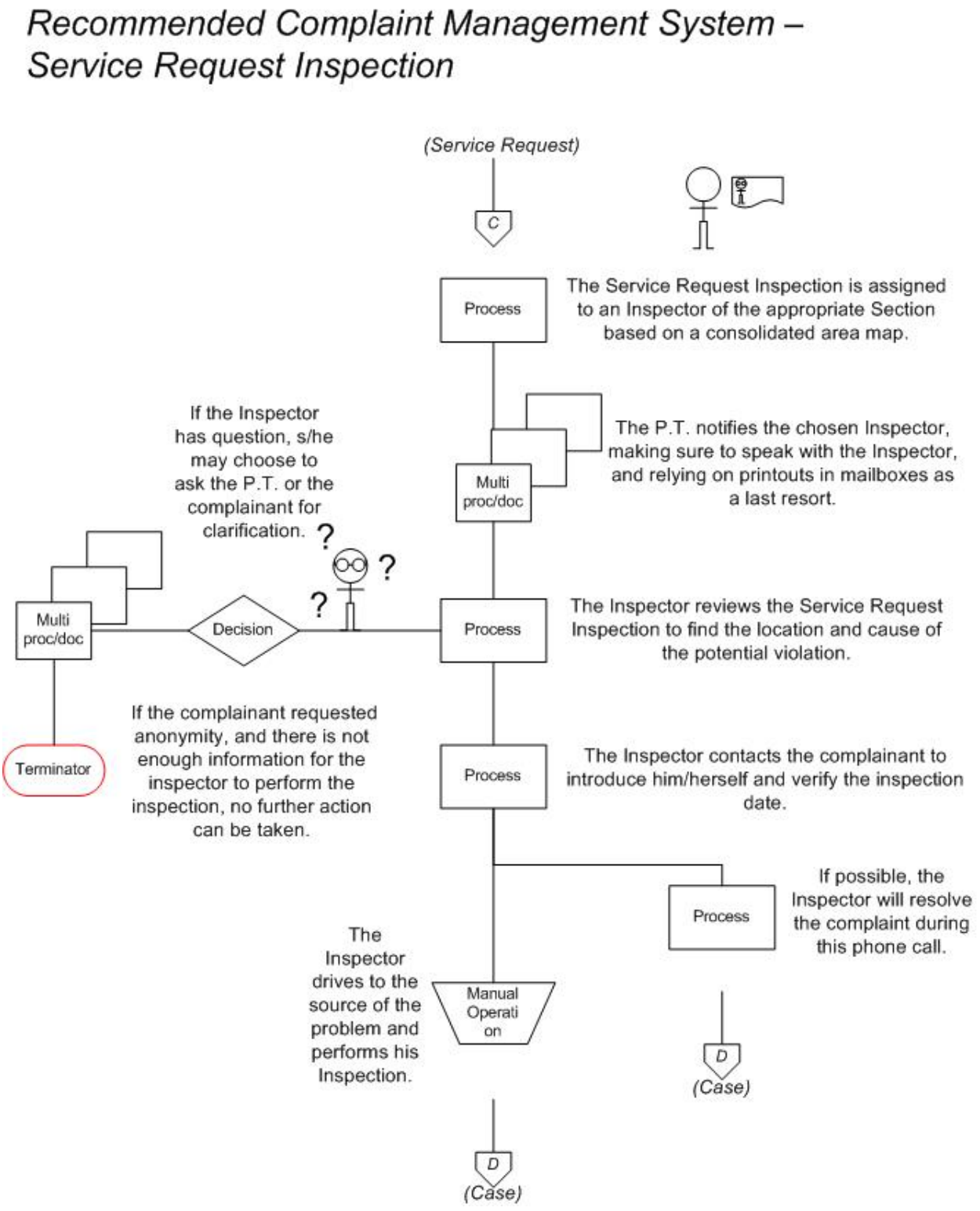


Figure 24 – Recommended Complaint Flow – Service Request Inspection

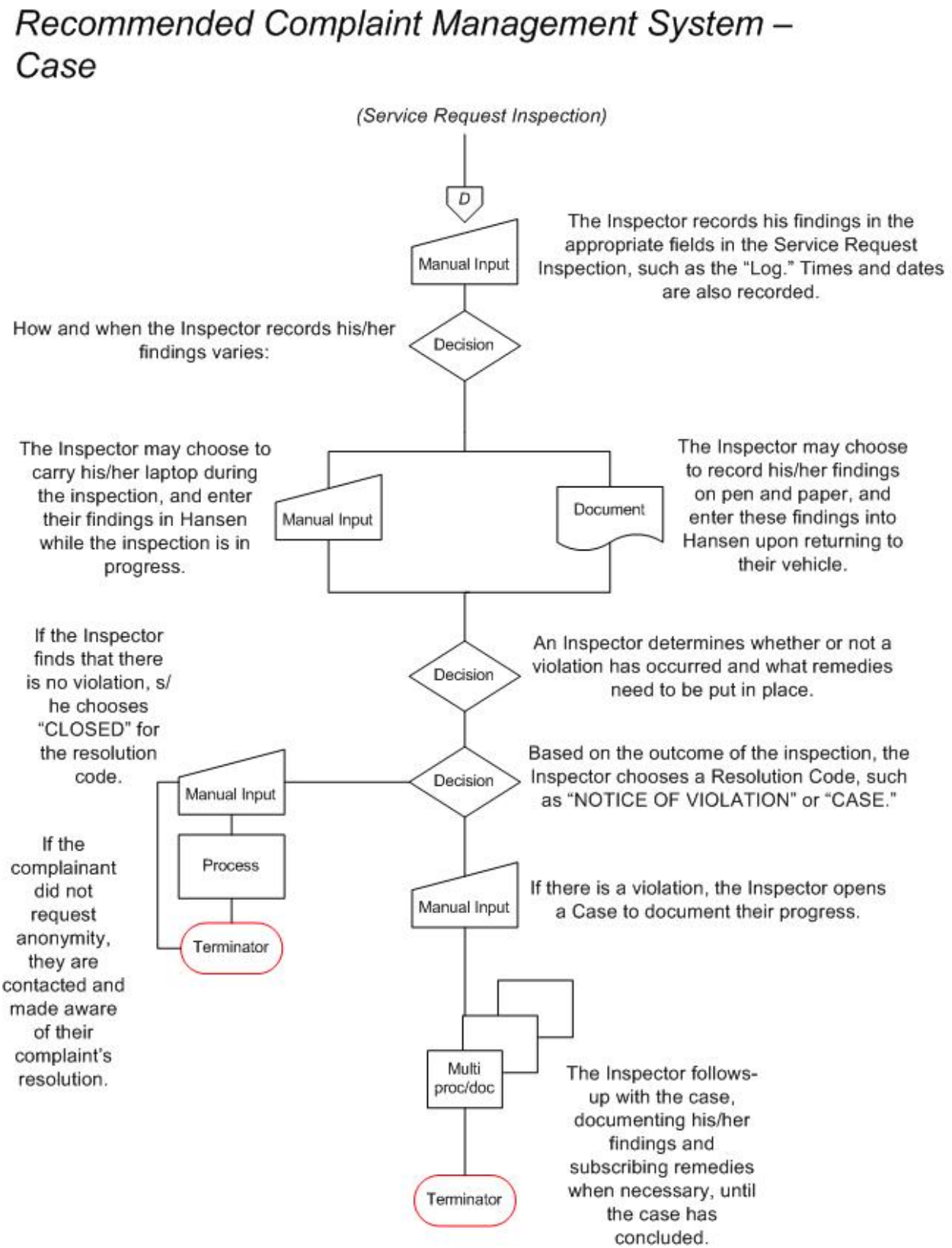


Figure 25 – Recommended Complaint Flow – Case

Manager's Role in Training

Complaints that are under the responsibility of the Department of Permitting Services vary considerably in volume during specific seasons of the year. Prior to these seasonal periods, the processes and procedures of the employees who take part in the complaint handling process need to be reviewed thoroughly, in order to maintain a consistent and standardized method of complaint handling within the department. These training meetings should also be held annually due to the repetition of the trends and be conducted individually by the managers of each section. Not only do the statistics display the necessity for such frequency of training sessions, but these sessions are also an opportunity to reinforce the proposed complaint handling method that the department wishes to undertake in order to implement and reinforce consistency in the complaint handling process. These sessions do not have to be formal meetings with the managers as suggested for the delivery of the Proposed Complaint Handling Process, but rather these sessions could be run by the individual managers with their inspectors in order to adhere to the unique characteristics of the sections in the DPS. More importantly, these training sessions will reinforce the process in the Hansen System for employees who do not frequently have complaints. Since it is a commonality for new inspectors to follow an experienced inspector in order to gain a sense of their job activities, these manager-lead meetings will address any issues that were not brought to the attention of the new inspectors as they followed their assigned experienced inspector. Also, these meetings will be opportunities for the inspectors and managers to voice their opinions about the current complaint handling process, and through the standardization of the process and the meetings, the proper reports and evidence can be gathered to support the issues and concerns brought to light by the employees of the department. This will make processes that reduce the effectiveness of the current system more apparent and increase the Department of Permitting Services' ability to address these processes directly.

Permit Technician Training

Simin Rasolee, the manager of the Licensing Section in the Casework Management Division, is developing an interview form that the Permit Technicians can gather information from and record responses onto when responding to complainants. Her intent in designing this form is to avoid grammatical mistakes that may occur while a permit technician is receiving a complaint but there are additional potential benefits as well. The Permit Technicians in the

complaint handling process should have a document to which to refer that aids in specifying and properly assigning service requests to inspectors. In addition to this advantage, this type of form may also contain guidelines for the specific questions that the permit technician can ask the complainant in an attempt to better articulate and further specify the issue or concern that the complainant is addressing. Currently there are eighty-six complaint codes that exist in the Hansen database. These codes can separate into 1 of 6 categories that are affiliated with the sections in the Department of Permitting Services. This process was a pre-requisite before compiling and conducting analysis on the Hansen System database, and it is important to note that these sic categories of information will organize the content of a form used and enhance the Permit Technician's ability to specify a complaint. The importance of Permit Technicians having knowledge of all codes of the department and their respective sections goes beyond the ability of a Permit Technician being able to address complaints. The ability to properly place the complaint into specific complaint code addresses situations in the current system where complaints are delivered to the wrong inspector, and is very crucial because the data on the amount of times this may occur does not exist in the Hansen database. The frequency of inspectors receiving the wrong type of complaint cannot be traced statistically but there is evidence that this event occurs. An outline of the complaint codes in a document will further standardize the process of assigning complaints to inspectors. Another untraceable issue that would be resolved through standardization of the complaint handling process is the repetition of complaints into the Hansen System by Permit Technicians. In addition, the Permit Technicians should be required to alert the inspector via e-mail of new complaint inspections as they are entered into the Hansen System to better streamline the complaint recognition by the inspector and inspection process.

Complainant Anonymity creates gaps in the Department of Permitting Services' ability to address complaints in a timely manner. It also creates a barrier between the complainant and the department with regards to a response that will update the complainant on the complaint's current status. To resolve this issue, Permit Technicians and Inspectors who enter service requests into the Hansen System should make the complainant aware that anonymity will reduce the Department of Permitting Services' ability to respond to the complainant with updates and potential routes of the complaint. Anonymity will still be maintained, but this process allows for an inspector to properly contact the complainant if they wish to be contacted and deliver an

update on the current status of the complaint and contribute to future speculation of the complaint status with the complainant.

Modifications to the Hansen System

There are issues in the current Hansen System database that will potentially cause difficulties in reports which the Department of Permitting Services wishes to create. For example, there are complaint codes within the Hansen System that are ambiguous, duplicated, and redundant. In some cases, complaints are input incorrectly into the Hansen system, resulting in the delay of services and lack of thoroughness in the explanation of complaints. In customizing Hansen, complaints were separated into categories, but these categories are also options that can be chosen by a Permit Technician. Currently, the headers that describe the section of the complaint type are also complaint codes but were never intended to be used. For example, the complaint "building" in Hansen was created for the purpose of informing the user that the proceeding complaints were building complaints. However, the "building" category is being used to describe the nature of a complaint, and this category lacks specificity. It only exists to inform the user of the nature of the proceeding complaint types and identify those complaints associated with the building sections.

By removing the ability to choose these header-complaints, the Permit Technicians would be obligated to use the less ambiguous complaint types that are more specific in describing the complaint received. Filling the fields of the complaint codes in Hansen with a different color per section will aid in distinguishing which complaint is affiliated with which section. A document outlining which complaint codes belong to which section should be given to the Permit Technicians. This document can be referred to when a Permit Technician is functioning with a service request or a service request inspection.

In order to reduce confusion and improve reporting, the DPS may choose to remove complaints that are too specific, because they are rarely used. Combining some of the complaints into a general complaint type may enhance reports. Any trends with regards to the total of related complaints will be more apparent to the DPS. This would mean the responsibility of expressing the specific characteristics of the complaint would be left to the Permit Technician. The Permit Technicians will be able to type these characteristics of the complaint into the comments field of the service request.

Although the frequencies of some complaints in the database appearing to be decreasing through time were found, it would not be in the best interest of the department to disregard these complaints and remove them from the database. In a matter of statistics, only one type of complaint is truly decreasing with time: “Building.” The other complaints, although having trend lines with negative slopes, do not have data that supports categorizing them as decreasing.

Removing duplicated and redundant complaints from the Hansen database is necessary if the DPS wishes to reduce the confusion between complaint types and improve the accuracy of information reported in Crystal Reports. These complaint types offer no additional specificity in their differentiation, and training would increase the usefulness of reports. In addition, there are two complaints that are not handled by the DPS anymore and should be removed from the database.

The issue of logging correspondence and invalid complaints in Hansen has been brought to our attention through our interviews and through the Director. It would be beneficial to establish report on what types of invalid complaints are brought to the attention of the department because it can alert the DPS issues that may need to be explained to the public. For example, if the department continuously receives complaints pertaining to the DEP, then the department may chose to explain the differences between the DPS and the DEP on the department’s website. Also, frequently asked questions (FAQs) can be formulated for citizens on the website which may decrease the amount of both invalid and valid complaints. These potential advances and improvements can be achieved only if the DPS requires all complaints and correspondence to be logged into the Hansen System.

Keeping anonymity as an option for citizens is important if the DPS doe not wish to needlessly forestall legitimate complaints. The department would find it valuable to report the total number of anonymous complaints to find trends in the nature of these complaints. There is no option in Hansen that allows for anonymous complaints to be recorded quantitatively, so the IT department should look into establishing a check box that will record the frequency of anonymous complaints. Currently, each complaint must be looked at individually to determine whether it was an anonymous complaint.

Another issue that the inspectors identified was the absence of an alerting system in Hansen. These inspectors do not handle complaints on regular basis and wish it not to be a task to check whether he or she has a scheduled inspection. It would be helpful if a flag system was a

function in the Hansen system. It could operate much like the CaseBase system in the DEP. This will help standardize the complaint handling process since it would make the reception of complaints more automated for the inspectors instead of manual. The problem of inspectors not being aware of complaints issued to them will be reduced.

There is also no resolution code that summarizes the attitude of the complainant following the resolution of the service request inspection. By adding these forms of resolution codes, such as “closed - unsatisfied complainant,” the DPS can gather data suggesting the likelihood of repercussions. This type of report would be useful for the Managers, Inspectors, and the Director.

Job Reassignments

After interviewing DPS Permit Technicians and officials of other municipalities, it appeared that DPS Permit Technicians, as complainant receptionists, have more responsibilities pertaining to complaints than some complaint reception employees of the other municipalities and departments. For example, in Fairfax County, there are separate employees for issuing permits, complaint call intake, and assigning the proper inspector to complaint inspections. It would lessen the load on employees if tasks were delegated to more employees. For example, the DPS could reassign employees who would have other responsibilities, yet they would be the initial complaint call receiver. Instead of having them input the complaint information into Hansen, they would be specialized in knowing what section enforces which codes and transfer the customer to a permit technician from the appropriate section in Casework Management. The Casework Management division contains a Land Development and Building Construction section that has permit technicians who do not handle complaints. Only the Licensing section in Casework Management has permit technicians who have the same amount of responsibilities as the other permit technicians yet also handle complaints. With having this specialized receptionist: Licensing would receive zoning and site plan complaints; Building Construction would receive building complaints; and Land Development would receive sediment control, right of way, and well and septic complaints. This would mean extensive training for the specialized receptionist for the enforcement codes of the DPS and for the permit technicians in the section who currently do not handle complaints.

Another option is to consolidate all the inspector maps into one generalized map that would be easier to interpret. Because the number of inspectors and the way the maps were created differ in each section, consolidation will be slow. However, with one map containing clear borders, assigning complaints to the wrong inspectors should decrease. Also, posting one map for the DPS instead of one for each section on the department's website will increase public understanding of which inspectors are assigned to their area.

Future IQPs for the Department of Permitting Services

There are other project ideas that the Department of Permitting Services can pursue with regards to the complaint handling system. The department plans on updating the Hansen System to the 8.0 version within the next year, and this system can be analyzed for its database capabilities and functionalities. Also, the Director is currently reviewing methods to change the organizational structure of the department so that sections that conduct similar duties are not in separate divisions. A separate project could focus on how to reorganize the current organizational structure of the department and how it would be beneficial. Currently, the DPS' website has a function in which complainants can check the status of a complaint. A team could analyze the Hansen database and the website for any additional information that can be retrieved from Hansen and displayed on the website for the citizens, such as the inspector area maps.

References

Aggens, Lorenz W. (1991). *When People Complain: Using Communication, Negotiation and Problem Solving to Resolve Complaints.* [Electronic Version], 9.

American Productivity & Quality Center. (1999). *AQPC on Complaint Management and Problem Resolution.* American Productivity & Quality Center: author.

Anderson, M. (2007, Sept 13). County offers online information on new trans fat law. [Electronic version]. *Montgomery County, MD - Press Releases.*

Bernstein, Robert & the United States Census Bureau (May 17, 2007). *Minority Population Tops 100 Million.* U.S. Center Bureau News. Retrieved on September 23, 2007 from http://www.census.gov/Press-Release/www/releases/archives/population/010048.html

Carerra, F.; personal communication, September 21, 2007.

Citizens Advice (2005). *National standards needed to improve NHS complaints handling – Citizens Advice report.* Retrieved on September 20, 2007 from http://www.citizensadvice.org.uk/index/pressoffice/press_index/press-050519.htm

Counties within united states - R1403. percentage of people who have complete an advance degree. (2004). Retrieved September 17, 2007, from http://factfinder.census.gov/servlet/GRTTable?_bm=y&-geo_id=01000US&-_box_head_nbr=R1403&-ds_name=ACS_2004_EST_G00_&-redoLog=false&-format=US-31&-mt_name=ACS_2004_EST_G00_R1403_US30&-CONTEXT=grt

The Customer Driven Company™ (2007). *Complaint Management.* Retrieved on September 30, 2007 from http://www.cdcrespond.com/content/about/complaintsmanagement

Dong Pei-wu, & Huang Yan-qiu (2006). *Research of Customer Complaints and Service Recovery Effects [Electronic Version]*. Management Science and Engineering, 2006. ICMSE '06. 2006 International Conference, 958 – 962

Equal Employment Opportunity Commission (June 30, 1999). *Minutes for the June 30, 1999, Meeting.* Retrieved November 1, 2007, from http://www.fedcivilrights.org/www.fedcivilrights.org/minut6-30.html

European Advertising Standards Alliance (2005). *The Cross-Border Complaint System: Step by Step.* Retrieved on September 20, 2007 from http://www.citizensadvice.org.uk/index/pressoffice/press_index/press-050519.htm

Gideon, J. (2006). *Washington Voter Files HAVA Complaint*. Retrieved September 23, 2007, from http://www.votetrustusa.org/index.php?option=com_content&task=view&id=1225&Itemid=113

Gilly, Mary C., Stevenson, William B., & Yale, Laura J (1991). *Dynamics of Complaint Management in the Service Organization [Electronic Version]*. Journal of Consumer Affairs, 25, 295-322.

The Great Brook (2007). *Organizational Effectiveness through Feedback Management: Making the Case for Service Recovery – Customer Retention. Great Brook Consulting.* Retrieved on October 21, 2007 from http://www.greatbook.com/service_recovery.htm.

Hamel, Rebecca, Kauffman, John Gabriel, Paladines, William X., and Ross, Erika K. (2002). *Permitting Services -- Complaint Handling Effectiveness.* Interactive Qualifying Project.

Homann, U., & Levy, M. (2004). *Business Protocols: Implementing A Customer Complaint System*. Retrieved September 23, 2007, from http://msdn2.microsoft.com/en-us/library/ms978507.aspx

Koontz, Linda D. (July 7, 2000). *Internet: Federal Web-based Complaint Handling.* November 1, 2007, from http://www.nclis.gov/govt/assess/fedcch.pdf

Lewis, A. (2007, Sept 10). Montgomery councilmember Elrich to discuss forest protection measures. [Electronic version]. *Montgomery County, MD - Press Releases,*

Lexico Publishing Group, LLC. (2007). *Dictionary.com*. Retrieved on September 30, 2007, from http://dictionary.reference.com/browse/complaint

Maryland State Archives*: Maryland at a Glance.* Retrieved September 27h, 2007 from http://www.msa.md.gov/msa/mdmanual/01glance/html/pop.html

National Performance Review. 1995. *Serving the America Public: Best Practices in Telephone Service (Federal Consortium Benchmark Study Report).* Retrieved on September 30, 2007 from http://govinfo.library.unt.edu/npr/library/papers/benchmrk/phone.html

National Performance Review (June 11, 1996). *Serving the American People: Best Practices in Resolving Customer Complaints.* Retrieved November 1, 2007, from http://govinfo.library.unt.edu/npr/library/papers/benchmrk/bstprac.html

Paul, Margaret (2007) Addiction to Complaining. Inner Bonding. Retrieved on September 30, 2007 from http://www.bharatbhasha.com/psychology.php/22064

Phelps, L., & Williams, A. (May 2005). *The Pain of Complaining: CAB ICAS Evidence of the NHS Complaints Procedure*. Retrieved September 23, 2007, from http://www.citizensadvice.org.uk/finalreporttext%5B2%5D.pdf

Sacramento County, California Government Website. Retrieved September 10th, 2007 from, http://www.cityofsacramento.gov

Appendix A – Sponsor Description

Montgomery County area was originally colonized by the England, Ireland, and Wales. The settlers cleared most of the woodland to grow tobacco, food, and to build cabins. In 1695, Prince George's County included what are presently, Washington, D.C., and Montgomery, Prince George's, and Fredrick's County. Prince George's County was divided in 1748 and the western area became Fredrick's County. On August 31, 1776, Fredrick's County was spilt into Fredrick's, Montgomery, and Washington County. The bill to separate Fredrick's County was proposed by Dr. Thomas Sprigg Wooton. Dr. Wooton was a member of the Maryland Constitutional Convention meaning Fredrick's, Montgomery, and Washington County were the first counties in America to be established by elected representatives. Also, in establishing Washington and Montgomery County, the tradition of naming counties after popular old world figures broke when both counties were named after American-associated figures. Washington County and Montgomery County were named after George Washington and Richard Montgomery, respectively.

Montgomery County is located north of Washington, D.C. and southwest of Baltimore, Maryland, as seen in Figure 26. Montgomery has three major locations: Rockville, Gaithersburg, and Silver Spring. The cities of Rockville and Gaithersburg are Montgomery County's county seat and the largest city in terms of area, respectively. Silver Spring is an unincorporated area that has the largest population of residents (Montgomery County website and Figure 27).

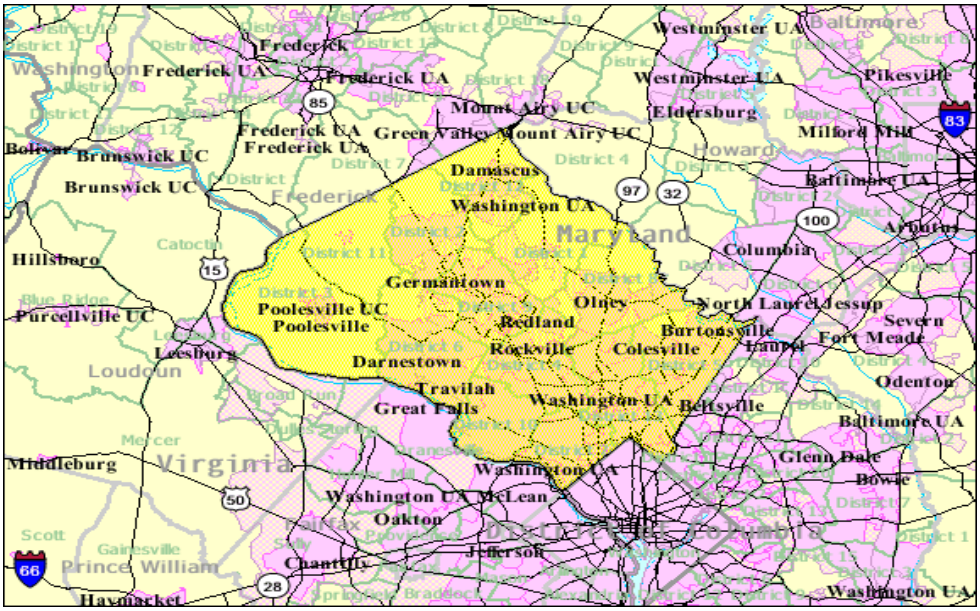


Figure 26 – Map of Montgomery County and surrounding area

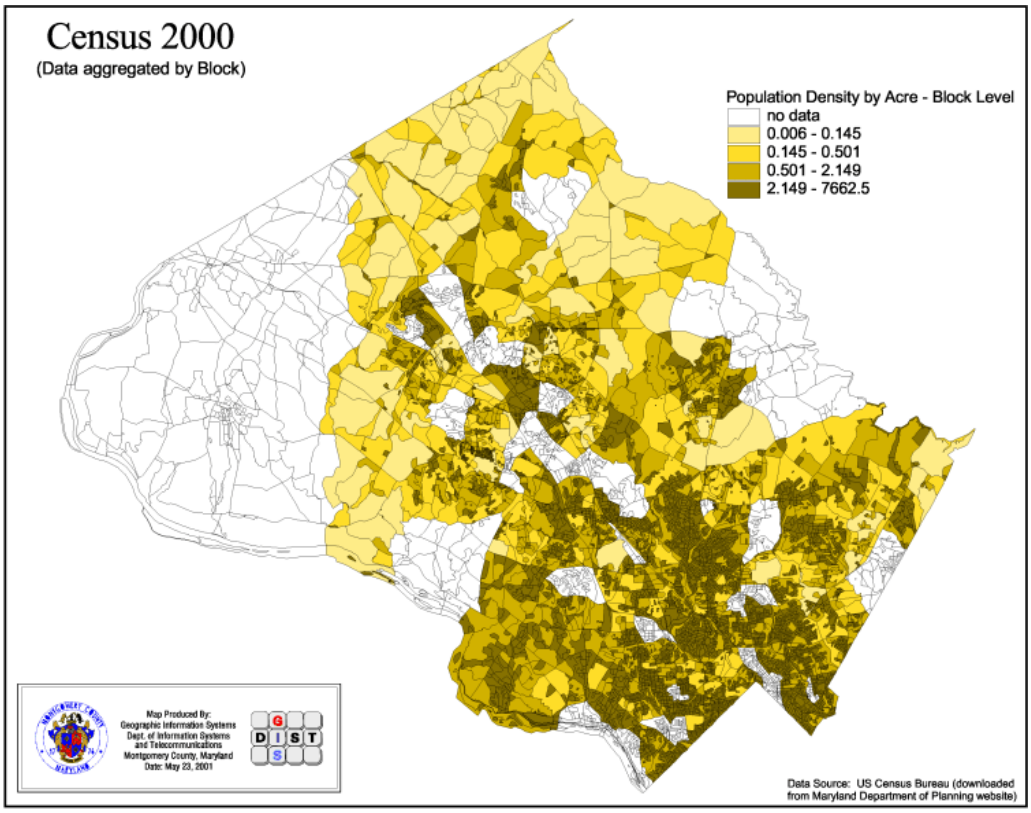


Figure 27 – Population Density in Montgomery County (US Census 2006 Map)

Montgomery County contains, including three cities, twelve towns, and four villages (see Table 5). There also exist four special tax areas meaning in order to affect changes in authority in

the area they must petition the General Assembly; also, they do not possess home rule. There are also 37 unincorporated areas. Such unincorporated areas are positioned in various localities as shown in Figure 28. Unincorporated areas have no form of local government so they are not recognized by the federal government as unique, individual districts. As a result, there are no definitive boundaries of these areas so many of these unincorporated areas overlap with each other and incorporated areas in Virginia and Maryland (Montgomery County Government website).

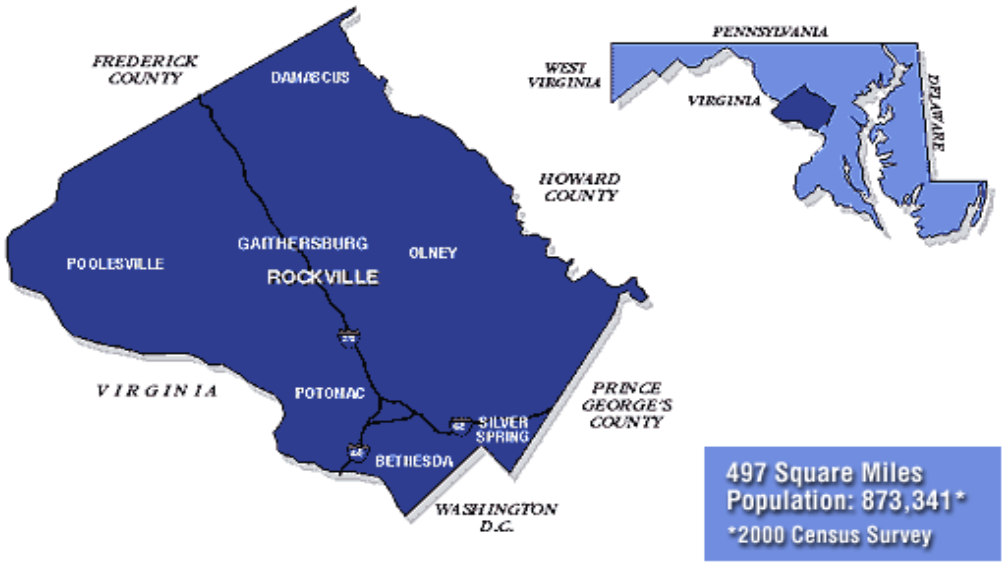


Figure 28 – Map of Montgomery County showing some unincorporated areas

In the *Acorn park in parks and plazas: Downtown silver spring* article (2006), Rockville was named after Rock Creek. It had been originally named Montgomery Courthouse because of the four acres State appointed commissioners bought for the county's courthouse and jail. Silver Spring was named after the mica-speckled spring found in the area by Francis Preston Blair in 1840.

Montgomery County is estimated to have a population of 968,000 people by January 2008. As of 2005, the population is comprised of 55.7% White, 15.7% Black or African-American, 13.9% Hispanic, and 13.1% Asian & Pacific Islander (Table 6). As shown in the table, the demographics of Montgomery County closely mimic that of the United States' as a whole. However, the national statistics show that the percentage of Whites is 66.19% of the population and Asian & Pacific Islander are 4.45% of the population.

The unemployed comprise of 2.7% of the total population while the median household income is $91,641. Also, 17.7% of total residents claimed that only English was being spoken in their houses. Also in 2005, 32% of the total population was not born in the United States. Out of that 32% of the population, 38.2% were born in Asia and 36.3% were born in Latin America. According to the Census Bureau, as of 2004, Montgomery County is ranked first in terms of population percentage that is 25 years of age or older and with an advanced degree. This percentage is 29.2%. Worcester County in Massachusetts was ranked 79th with 12.1% and Hidalgo County, Texas was ranked last, 236th, with 3.4%. (Appendix B)

The county seat is Rockville meaning most administrative and municipality-related departmental buildings are situated there. The government for Montgomery County was approved in 1968 and implemented in 1970. This created Executive and Legislative branches of county government and designated their duties. The Legislative branch is responsible for drafting legislation and is composed of county residents who represent the community, such as through the County Council & People's Council. The Executive branch implements the laws and provides services for the community through various departments. Much like the federal government, the Legislative and Executive branches draft and uphold laws, respectively. An occasion in which Legislative responsibilities were portrayed was in Lewis' (2007) article. On September 10, 2007, Montgomery County Councilmember Marc Elrich held the first of a series of public meetings in which he proposed improvements on the Forest Conservation Law. The Executive branch's influence is portrayed by the ability of citizens to view information on the new trans-fat law online as told in Anderson's (2007) article. An outline of the organizational structure of Montgomery County Government is shown below in Figure 29.

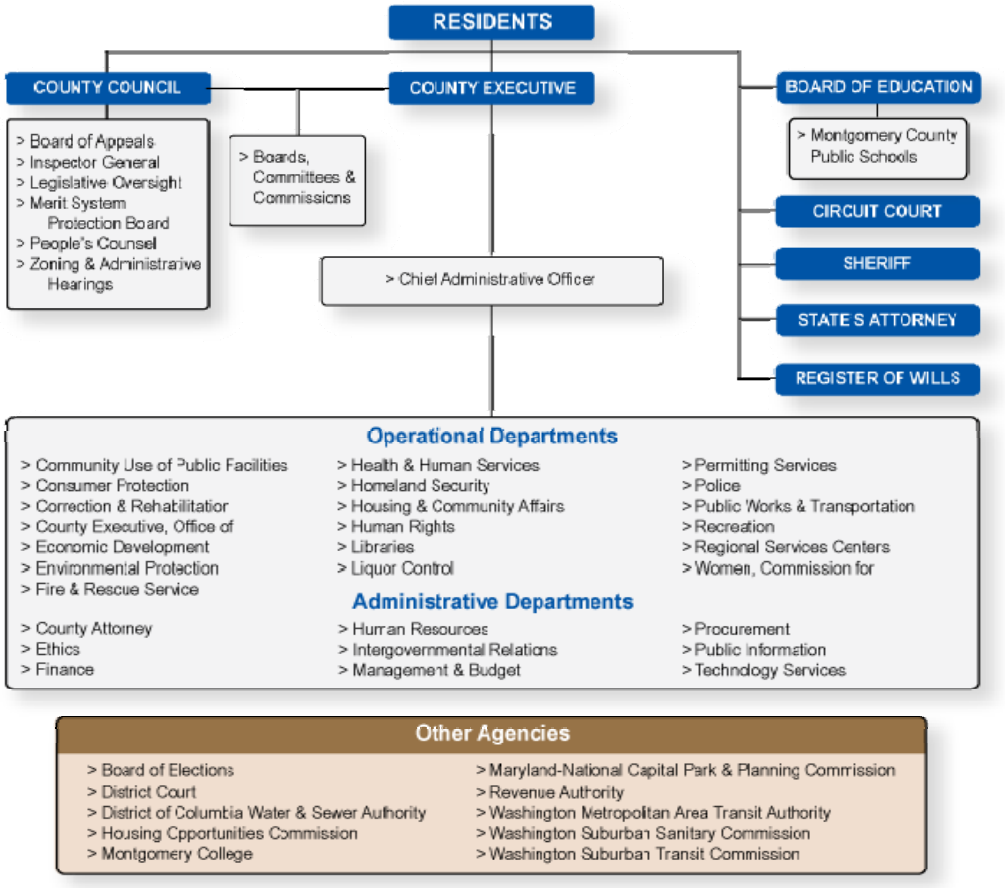


Figure 29 – Governmental Organization Chart (Montgomery County Government Website)

The Vision Statement of the County, according to the governmental website (2007) is "Helping to make Montgomery County the best place to be through efficient, effective, and responsive government that delivers quality services." Due to the amount of services Montgomery County offers, which is made up of approximately 40 different departmental divisions, the scope of operations for the Montgomery County Government is fairly large. The organization contains several dozen departments that function for the Montgomery County area shown in Figure 29. These departments include, but are not limited to, the Department of Health and Human Services, the Department of Housing & Community Affairs, and the Department of Permitting Services. Each department has specific tasks that serve the community. The goal of this governmental establishment is to keep the residents up to date on the events and services that are offered to the community as well as serve the community with these services.

Figure 30 shows a plot of the growth of the population and housing units of Montgomery, Prince George's, and Baltimore counties. As one can see, the population of Montgomery County

is greater than both Prince George's and Baltimore counties. Also, not only does Montgomery County contain more housing units than the other two counties, the rate of growth is slightly greater than the two as well. Because of the large increase of building units, the Department of Permitting Services itself is necessary to aid in issuing and maintaining permits and licenses to persons or organizations. However, managing building construction permits is just one important aspect of the DPS.

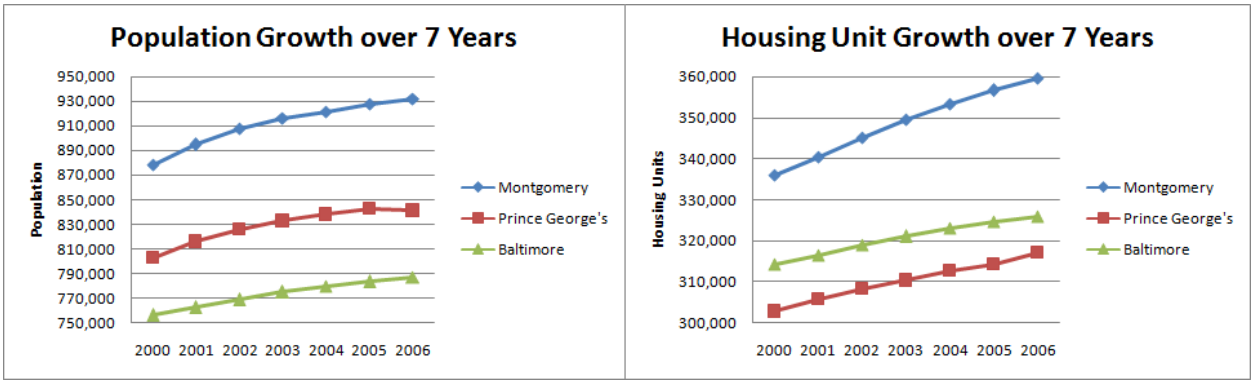


Figure 30 – Plots of the Growth of Population v. Housing Units of Montgomery, Prince George's, and Baltimore County (data from Table 7 and Table 8)

The Department of Permitting Services has goals which are less broad then the goals of Montgomery County Government as a whole. Founded in 1996 by County Executive Douglas Duncan, the Department of Permitting Services was created to control the process of land developments and building construction within Montgomery County. Over the years the county and state legislatures have established a host of regulations to ensure that land development efforts and building construction meet minimum standards to ensure quality, safety, and environmental protection, and to prevent the infringement of property rights. Consequently, the County requires that developers and contractors apply for various kinds of permits from the Department of Permitting Services. These permits are administered by the Department of Permitting Services.

As seen in Figure 31, a full organizational chart of the department, there are three divisions within the DPS: Casework Management, Land Development, and Building Construction. Each division has employees with particular skills and training appropriate to the functions of the division. For example, the Land Development and Building Construction divisions employ engineers and inspectors to review plans and ensure that these plans comply

with current laws. The Land Development Division deploys experts to sites as necessary to observe and review whether or not the facilities are created in compliance with the appropriate codes and regulations, such as those pertaining to water-quality control, well-and-septic systems, and work done in County rights-of-way. The Building Construction Division focuses on inspecting commercial and residential buildings for safety. This may include but is not limited to reviewing the building plans of an establishment with regard to size, types of materials used, and method of construction. The Casework Management division includes customer-service operators called Permit Technicians, who direct requests and complaints to the appropriate departments and individuals. This division also manages building permits, sediment control, vendor licenses, street and door-to-door sales, and zoning information.

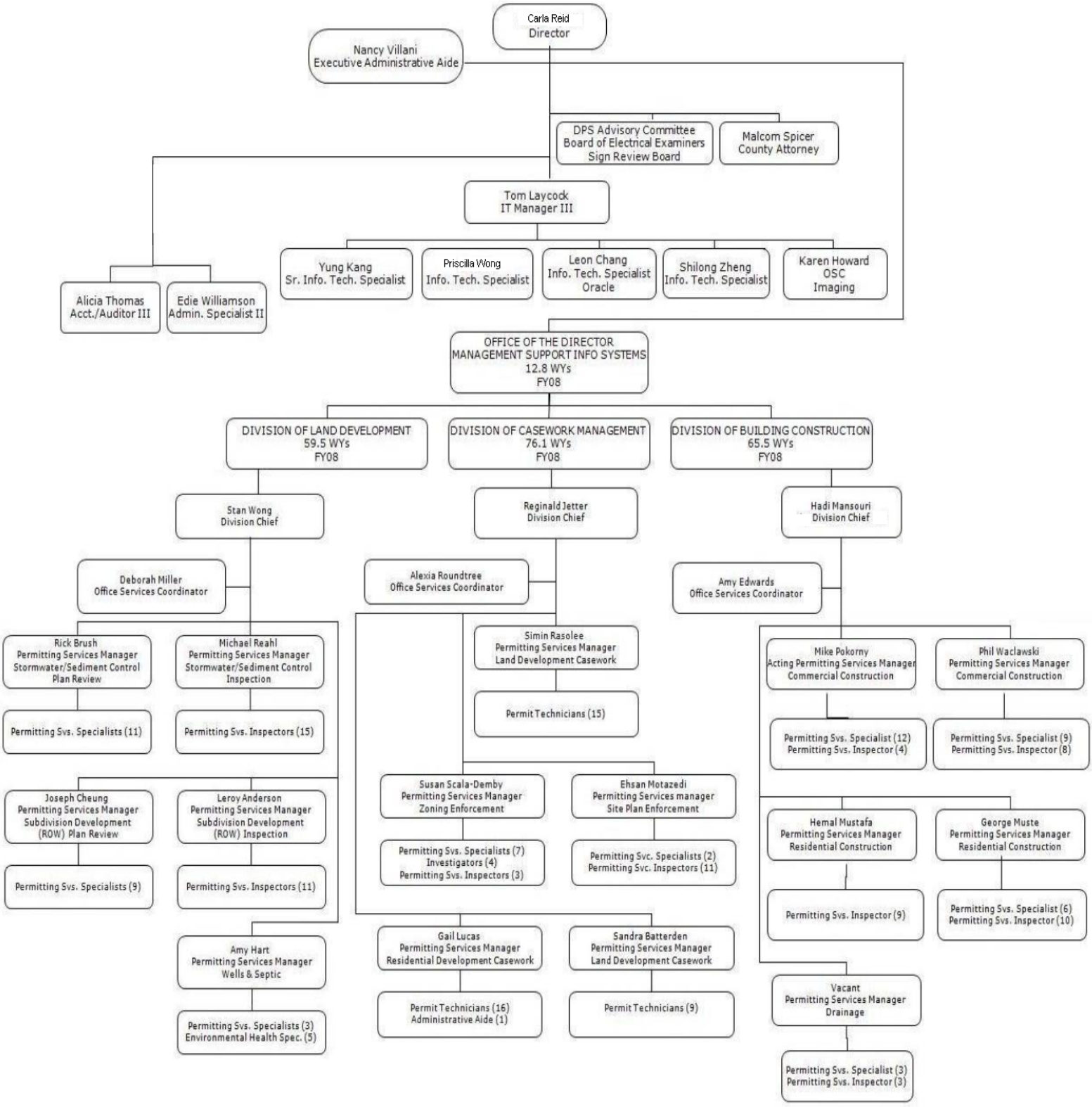


Figure 31 – Organizational of the Department of Permitting Services

The Montgomery County Government is, by the name, a government organization so it is a public organization. However, the Department of Permitting Services is an enterprise-funded section of the government meaning that it does not use the tax money collected from the citizens to keep the facilities running and pay its employees. All of the income for the department comes from the fees of the permits. According to a current County Council Press Release in May at Montgomery County's Website (2007), the county's current approved budget is 4.1 billion dollars.

Appendix B – Demographics

Employment

Employment Location

	Number	Percent
Employed Residents Age 16+ (2005)	**526,830**	**100.0**
Montgomery County	314,885	59.8
Prince George's County	26,940	5.1
Elsewhere in Maryland	25,080	4.8
Washington, D.C.	114,030	21.6
Virginia	40,080	7.6
Outside MD, VA, or D.C.	5,815	1.1

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

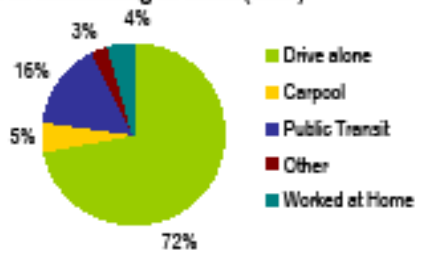
Commuting

Average Commuting Time (2005) ..... 31.0 minutes

By car ..... 29.4 minutes

By public transit ..... 48.5 minutes

Means of Commuting to Work (2005)



Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Development Activity

Residential Building Permits

	# of Units	Percent
Total Residential Building Permits (2006)	**3,036**	**100.0**
Single-family detached	787	25.9
Single-family attached	475	15.6
Multi-family	1,774	58.4

Source: Cities of Gaithersburg and Rockville, Montgomery County Dept. of Permitting Services, U.S. Census Bureau.

Housing Completions

	# of Units	Percent
Total Residential Units Completed (2006)	**3,451**	**100.0**
Single-family detached	1,082	31.4
Single-family attached	618	17.9
Multi-family	1,751	50.7

Source: Maryland State Department of Assessments & Taxation.

Commercial Completions

	Sq. footage	Percent
Total Sq. Footage Completed (2006)	**1,869,946**	**100.0**
Office	609,962	32.6
Retail	189,271	10.1
Industrial	412,664	22.1
Other	658,049	35.2

Source: Maryland State Department of Assessments & Taxation.

Montgomery County MARYLAND ...at a glance

Research & Technology Center

MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

www.mcfacts.org
email: mcp-research@mncppc-mc.org
call: (301) 650-5600

July 2007

Population

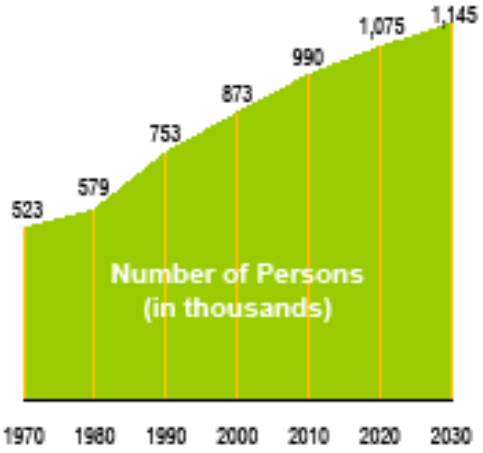
Population Estimates

2007 Total Population (July) **962,000**
2008 Total Population (Jan) **968,000**

Source: M-NCPPC Research & Technology Center, *Round 7.1 Cooperative Forecast*

Population & Household Forecast

Year	Population	Households
2000	873,341	324,565
2005	938,000	347,000
2008	968,000	360,400
2010	990,000	370,000
2015	1,035,000	390,000
2020	1,075,000	407,900
2025	1,112,000	424,800
2030	1,145,000	441,300
2000 to 2030	***+271,659***	***+116,735***



Source: U.S. Census decennial census data; M-NCPPC Research & Technology Center, *Round 7.1 Cooperative Forecast*

Age Distribution

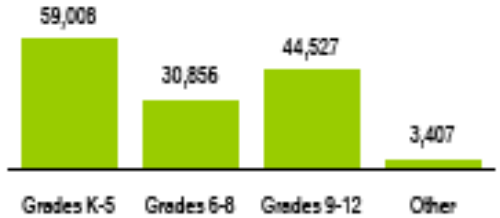
	Number	Percent
Household Population (2005)	**931,000**	**100.0**
0 to 4 years	63,020	6.8
5 to 17 years	177,440	19.1
18 to 24 years	66,525	7.1
25 to 34 years	109,540	11.8
35 to 44 years	153,895	16.5
45 to 54 years	151,780	16.3
55 to 64 years	104,000	11.2
65 to 74 years	54,200	5.8
75+ years	50,600	5.4
Under 18	240,455	25.8
65 and older	104,805	11.3
Average Age	36.9	

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Population

Public School Enrollment

Total Enrollment (2006-07 school year) **137,798**



Source: Montgomery County Public Schools.

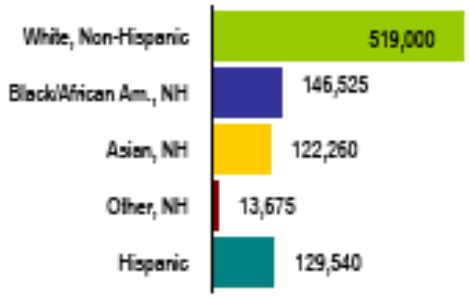
Educational Attainment

	Number	Percent
Adults Age 25+ (2005)	**624,025**	**100.0**
Less than High School	49,050	7.8
High School Graduate	139,435	22.3
Associate's Degree	39,165	6.3
Bachelor's Degree	178,200	28.6
Graduate Degree	218,175	35.0

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Race & Hispanic Origin

	Number	Percent
Household Population (2005)	**931,000**	**100.0**
Non-Hispanic	*801,460*	*86.1*
White	519,000	55.7
Black or African American	146,525	15.7
Asian & Pacific Islander	122,260	13.1
Other	13,675	1.5
Hispanic	*129,540*	*13.9*



Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Hispanic/Latino Origin

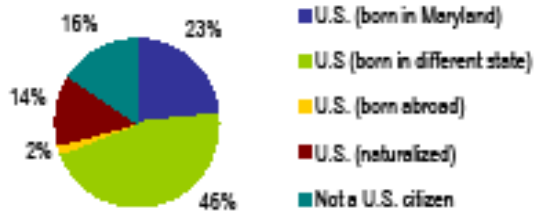
Top Five Places of Latino Origin (2005)	Percent
Salvadoran	26.1
Mexican	9.1
Puerto Rican	7.6
Peruvian	5.6
Guatemalan	5.2

Source: U.S. Census, 2005 American Community Survey.

Population

Citizenship by Place of Birth

U.S. Citizenship by Place of Birth (2005)



Source: U.S. Census, 2005 American Community Survey.

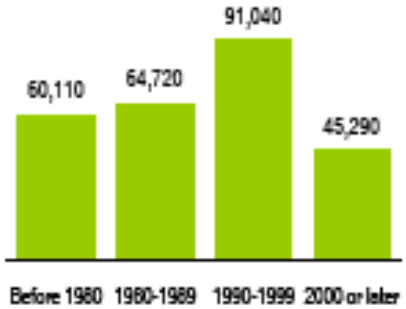
Foreign-Born

	Number	Percent
Foreign-Born Population (2005)	**265,103**	**100.0**
Naturalized citizen	124,728	46.5
Not a citizen	143,226	53.5

Region of Birth (2005)	Number	Percent
Asia	102,360	38.2
India	18,599	6.9
Latin America	97,240	36.3
El Salvador	24,436	9.1
Africa	34,052	12.7
Ethiopia	7,881	2.9
Europe	30,408	11.3
Ukraine	3,481	1.3
Northern America	3,403	1.3
Oceania	491	0.2

Language Ability (2005)	Number	Percent
Speak English only	46,829	17.7
Language other than English	218,274	82.3
Speak English less than "very well"	111,786	42.2
Spanish	73,192	27.6
Speak English less than "very well"	48,760	18.4
Other Indo-European	61,615	23.2
Speak English less than "very well"	22,437	8.5
Asian or Pacific Islander	59,721	22.5
Speak English less than "very well"	32,999	12.4

Year of Entry to the United States (2005)



Source: U.S. Census, 2005 American Community Survey.

Housing

Household Characteristics

2007 Total Households (July) **358,000**

2008 Total Households (Jan) **360,400**

Source: M-NCPPC Research & Technology Center, *Round 7.1 Cooperative Forecast.*

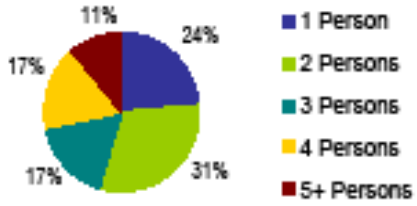
Average Household Size (2005) ..... **2.66 persons**

Housing Structure Type (2005)	Number	Percent
Total households	*350,000*	*100.0*
Single-family detached	177,335	50.7
Single-family attached	64,575	18.4
Garden apartment	71,395	20.4
High-rise	36,695	10.5

Housing Tenure (2005)	Number	Percent
Owner-occupied	260,000	74.3
Renter-occupied	90,000	25.7

Household Type (2005)	Number	Percent
Family households	*260,255*	*74.4*
Married-couples	216,775	61.9
Single-parent	35,695	10.2
Other families	7,785	2.2
Non-family households	*89,745*	*25.6*
Living alone	82,550	23.6

Household Size (2005)



Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Residence in April 2000

	Number	Percent
Total households (2005)	**350,000**	**100.0**
Lived in same home	202,150	57.8
Elsewhere in County	76,260	21.8
Elsewhere in Maryland	15,690	4.5
D.C. or Northern VA	13,900	4.0
Outside Metro area	42,000	12.0

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Income

2006 Median Household Income (July) **$91,641**

Household Income (2005)	Number	Percent
Under $20,000	20,995	6.0
$20,000 to $49,999	70,020	20.0
50,000 to $69,999	52,590	15.0
$70,000 to $99,999	65,265	18.6
$100,000 to 124,999	45,610	13.0
$125,000 to 149,999	27,405	7.8
$150,000 to 199,999	30,775	8.8
$200,000+	37,340	10.7

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Housing

Poverty Status

	Number	Percent
Households below poverty level (2005)	**16,095**	**4.7**
Families below poverty level	6,752	2.8
with related children <18 years	4,346	3.5
Non-families below poverty level	9,343	8.8
People living below poverty level (2005)	**41,122**	**4.5**
Age under18	9,422	4.1
Age 65 and over	5,628	5.5

Source: U.S. Census, 2005 American Community Survey.

Housing Cost Burden

	Number	Percent
Housing Costs > 30% of Income (2005)	**80,435**	**23.0**
Homeowners	43,790	16.9
Renters	36,645	40.7

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Median Home Sales Prices

All Single-Family Units (2006) $485,000

Type	# of Sales	New	Existing
Detached	8,017	$881,600	$552,500
Attached	4,473	$518,510	$356,750
Condominium	4,750	$373,848	$313,495

Source: Maryland State Department of Assessments and Taxation

Apartment Rents

All Rental Units* (2006) 63,399

* Market-rate and subsidized units, combined.

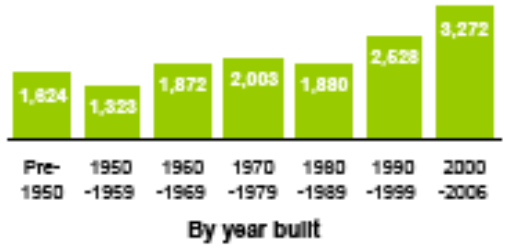
Apartment Size (2006)	Average Monthly Rent**
Efficiency	$987
1 bedroom	$1,073
2 bedroom	$1,267
3 bedroom	$1,608
4+ bedroom	$1,869

**Market rate (unsubsidized) units only.

Source: Montgomery County Department of Housing and Community Development, 2006 *Rental Apartment Vacancy Report.*

Housing Size

Median Square Footage, Single-Family Detached Houses



By year built

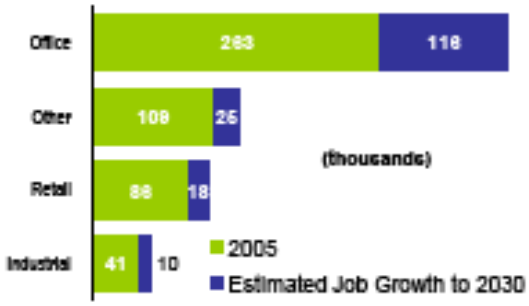
Source: M-NCPPC, STAR Report based on 2006 home sales data.

Employment

At-Place Employment

Total Employment (2006) 508,650

Job Growth Forecast by Sector (2007)



Source: M-NCPPC Research & Technology Center, *Round 7.1 Cooperative Forecast.*

Employment Status of Residents

Employed Residents Age 16+ (2005) 526,830

Workforce Participation Rate (2005)

Employed residents	73.5%
Female employed residents	68.2%

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Unemployment Rate (May 2007) 2.7%

Source: U.S. Bureau of Labor Statistics.

Employer by Type

	Number	Percent
Employed Residents Age 16+ (2005)	**526,830**	**100.0**
Private for profit	257,360	48.9
Private not-for-profit	73,520	14.0
Self-employed	63,335	12.0
Federal government	85,625	16.3
State government	16,140	3.1
Local government	30,850	5.9

Source: M-NCPPC Research & Technology Center, 2005 Census Update Survey.

Appendix C – Interviewing Process

Of the 15 sections within the Department of Permitting Services, 10 of these manage complaints or maintain a complaint system. The divisional and sectional setup is as follows:

1. Building Construction Division
    a. Commercial Building
    b. Commercial Systems
    c. Residential Inspection and Building Complaints
    d. Residential Review and Inspection
2. Casework Management Division
    a. Licenses
    b. Site Plan Enforcement
    c. Zoning
3. Land Development Division
    a. Right-of-Way Development Inspection & Enforcement
    b. Sediment/SWM Inspection & Enforcement
    c. Well & Septic

Statement of Purpose: The purpose for each of the interviews and group interview formats are as follows

4. Managers
    a. The purpose of interviewing the managers is to obtain the high level understanding of informational flow within a section. More specifically, it is to obtain information on how the complaint system should operate in a section. The job outline of a manager suggests that they should have this knowledge and our liaison confirms this conclusion.
5. Inspectors/investigators
    a. The purpose of conducting group interviews with the investigators and inspectors is to gather information on what actually occurs within each section of the DPS. In these group interviews, we will ask questions in the same format as the individual interviews. The purpose for this group interview structure is to obtain information from as many Inspectors/Investigators as possible
6. Permit Technicians
    a. The purpose of interviewing the Permit Technicians is that these employees operate with Hansen on a regular basis. These employees also receive complaints to be entered into the system from other employees. We wish to obtain information on the level on the functionality and usefulness that Hansen offers these employees

In order to obtain an accurate distribution of information received, we intend to sample the population of employees using the following criteria:

7. Variance between time of employment
    a. 3 Years or less is rated as a fairly new employee to the department
    b. 10 Years or more is rated as a more experienced employee to the department
8. Variance between position type (job): Managers, Inspectors/Investigators, & Permit Technicians

    a. An interview with each of the 10 managers is necessary
        i. Interviews with the Managers are necessary because these employees should understand how the complaint system in their section is structured
    b. Group Interviews with the Inspectors/Investigators are necessary
        i. These employees potentially input complaints into the system and also investigate the sites of complaints
        ii. Inspectors/Investigators will be divided into group interviews based on their availability
        iii. These schedules will be coordinated with Carla Reid
        iv. E-Mails will be sent to the Inspectors/Investigators delivering times for the focus group meetings and asking for their availability
        v. If the information we wish to obtain from Group Interviews is not sufficient, we will then disperse our questionnaires in survey format as an alternate method
    c. Interviews with the Permit Technicians are necessary
        i. We will conduct interviews with all 13 of the Permit Technicians that handle complaints
9. Variance between the employees of each division & section at the DPS
    a. Managers from each section will be selected
    b. Inspectors from each section will be selected

Important Characteristics of the DPS:

10. All 13 of the Permit Technicians belong to one section (Casework Management – Licenses)
    a. Complicates divisional & sectional variance
    b. There are also no inspectors within this section
11. All 5 Investigators belong to one section (Casework Management – Zoning)
    a. Complicates divisional variance
    b. Investigator position is to be considered the same as an Inspectors position
12. The manager of Building Construction – Commercial Buildings is currently an Acting Manager
    a. Position may be subject to change
13. The data from these group interviews and standard interviews is both qualitative and quantitative.

Other Counties & Departments

Interviews with other municipalities and departments similar to Montgomery County‘s Department of Permitting Services may offer information on how Montgomery County could improve their current complaint system. After research and consultation with our liaisons, we’ve developed a list of counties that may offer some useful information towards complaint system improvement. We will conduct these interviews with contacts that would be most knowledgeable in answering our questions. The counties we intend on gathering information from include:

1. Arlington County, VA
2. Fredrick County, MD
3. Henrico County, VA
4. Mecklenburg County, NC
5. Prince George’s County, MD

6. Department of Environmental Protection, Montgomery County
7. Department of Housing & Community Affairs, Montgomery County
8. Public Works Department, Cambridge, MA

Appendix D – Interview Questions

Our interview questions will follow two formats for the two groups being interviewed (Managers & Permit Technicians/Inspectors). We have chosen to interview these two groups because of their involvement in the complaint system and complaint handling process. These interview formats will be identical in their structure.

Interviews with Managers

Background Questions

1. First, we would like to ask your permission to release the information and responses of this interview.
2. Secondly, would you like to maintain anonymity with regards to the information and responses of this interview
3. What is your name?
4. What is your position of employment/occupation?
5. How long have you been working for the Department of Permitting Services?
6. When was the last time you handled a complaint?
    a. How often do you handle complaints personally?

Complaint System Topics

7. Do you think that complaint handling is an important aspect of the Department of Permitting Services?
8. Typically, how should a complaint be handled in your section
    a. Is there a specific way your complaint system should work in your section
    b. Is there a standardized design?
9. Do you have a geographical map for your inspectors?
    c. If so, how did you arrange this map?
10. Are there employees within your section who mainly handle complaints?
    d. If so, who do you know who they are?
    e. If not, do you think there should be?
11. Have the employees involved in your section's complaint system in any way received training for their responsibilities?
    f. If so, are the training sessions helpful or useful?
    g. If so, how often are these training sessions given to the employees?
    h. If so, do you think you should adopt the methods taught in these training sessions?
12. With regards to complaint handling, do you think your employees should follow strict guidelines towards how they manage complaints?
13. Do you think your employees should have a set timeline to follow during the complaint handling process?
    i. If so, do you have a rough approximation of this completion time?
14. Do you think there should be a mapped informational flow of how complaint flows through your section?

    j. More specifically, do you think there should be an outline of your current complaint processing technique?
15. How knowledgeable are you of the Permit Technicians role in the complaint handling process at the DPS?

Complaint Management Topics

16. Do you think there should be a Complaint Management Section within the Department of Permitting Services
17. Do you have any ideas of issues that may potentially slow down the processing and handling of a complaint?

Open Discussion Questions

18. Are there any questions or concerns about the complaint system in your section that you would like to discuss?
19. Are there any questions or concerns about the overall complaint system of the department that you would like to discuss?

Group Interviews/Interviews with Inspectors/Investigators

Background Questions

20. First, we would like to ask your permission to place the information and responses of this interview in our report.
21. Secondly, would you like to maintain anonymity with regards to the information and responses of this interview
22. What is your name?
23. What is your position of employment/occupation?
24. How long have you been working for the Department of Permitting Services?
25. When was the last time you handled a complaint?
    a. How often do you handle complaints personally?

Complaint System Topics

26. Do you think that complaint handling is an important aspect of the Department of Permitting Services?
27. Typically, how is a complaint handled in your section
    a. Is there a specific way you handle complaints that you receive?
    b. Do you feel that you operate under a standardized design?
28. Are there employees within your section who mainly handle complaints?
    c. If so, who do you know who they are?
    d. If not, do you think there should be?
29. Have you in any way received training for your responsibilities in terms of complaint handling?
    e. If so, were the training sessions helpful or useful?
    f. If so, how often have you attended these training sessions?
    g. If so, do you think it is an advantage to adopt the methods taught in these training sessions?
        i. Do you yourself adopt the methods taught in these training sessions

30. With regards to complaint handling, do you think you should follow strict guidelines towards how you manage complaints?
    h. Do you follow strict guidelines towards how you manage complaints?
31. Do you have a set timeline to follow during the complaint handling process?
    i. If so, do you have a rough approximation of this completion time?
32. Is there a mapped informational flow of how complaint flows through your section?
    j. If there isn't, do you think there should be an outline of your current complaint processing technique?
33. How knowledgeable are you of the Permit Technicians role in the complaint handling process at the DPS?

Complaint Management Topics

34. Do you think there should be a Complaint Management Section within the Department of Permitting Services
35. Do you have any ideas of issues that may potentially slow down the processing and handling of a complaint?
36. Are there any issues of the complaint system process you think we have missed?

Open Discussion Questions

37. Are there any questions or concerns about the complaint system in your section that you would like to discuss?
38. Are there any questions or concerns about the overall complaint system of the department that you would like to discuss?

Interviews with Permit Technicians

Background Questions

39. First, we would like to ask your permission to place the information and responses of this interview in our report.
40. Secondly, would you like to maintain anonymity with regards to the information and responses of this interview
41. What is your name?
42. What is your position of employment/occupation?
43. How long have you been working for the Department of Permitting Services?
44. When was the last time you handled a complaint?
    a. How often do you handle complaints personally?

Complaint System Topics

45. Do you think that complaint handling is an important aspect of the Department of Permitting Services?
46. Typically, how is a complaint be handled in your section
    a. Is there a specific way you handle complaints that you receive?
    b. Do you feel that you operate under a standardized design?
47. Are you knowledgeable of the specific activities for each section of this department?
    a. If so, how did you obtain this knowledge
    b. If not, do you think you should be?

48. Are there employees within your section who mainly handle complaints?
    c. If so, who do you know who they are?
    d. If not, do you think there should be?
49. Have you in any way received training for your responsibilities in terms of complaint handling?
    e. If so, were the training sessions helpful or useful?
    f. If so, how often have you attended these training sessions?
    g. If so, do you think it is an advantage to adopt the methods taught in these training sessions?
        i. Do you yourself adopt the methods taught in these training sessions
50. With regards to complaint handling, do you think you should follow strict guidelines towards how you manage complaints?
    h. Do you follow strict guidelines towards how you manage complaints?
51. Do you have a set timeline to follow during the complaint handling process?
    i. If so, do you have a rough approximation of this completion time?
52. Is there a mapped informational flow of how complaint flows through your section?
    j. If there isn't, do you think there should be an outline of your current complaint processing technique?
53. How knowledgeable are you of the Permit Technicians role in the complaint handling process at the DPS?

Complaint Management Topics

54. Do you think there should be a Complaint Management Section within the Department of Permitting Services
55. Do you have any ideas of issues that may potentially slow down the processing and handling of a complaint?
56. Are there any issues of the complaint system process you think we have missed?

Open Discussion Questions

57. Are there any questions or concerns about the complaint system in your section that you would like to discuss?
58. Are there any questions or concerns about the overall complaint system of the department that you would like to discuss?

Interviews with Other Governmental Agencies

Background Questions

59. First, we would like to ask your permission to place the information and responses of this interview in our report.
60. Secondly, would you like to maintain anonymity with regards to the information and responses of this interview
61. What is your name?
62. What is your position of employment/occupation?
63. What organization or department do you currently work in
64. How long have you been working at this department?

Complaint System Topics

65. What is the complaint handling structure at your Department
    a. What software do you use?
    b. Do you have a centralized system or a decentralized system for handling complaints?
66. Is there a particular type of employee that handles complaints or is the job task spread out within your department
67. What forms of communication do you use to receive complaints?
    c. Telephone? E-Mail? Letter? Walk-In?
        i. Is there one specific method that's used most frequently?
68. Does your department offer training for your employees on how to handle complaints?
    d. Is this training specific to software applications?
69. Does your organization have a software application they use to manage and process complaints with?
    e. If so, how long have you been using this software package?
70. With regards to complaint handling, do you think you should follow strict guidelines towards how you manage complaints in an organization?
71. Do you have a set timeline to follow during the complaint handling process?
    f. If so, do you have a rough approximation of this completion time?
72. Is there a mapped informational flow of how complaints flow in your organization?
    g. If there isn't, do you think there should be one?

Complaint Management Topics

73. Do you have any ideas of issues that may potentially slow down the processing and handling of a complaint?
74. Are there any issues of the complaint system process you think we have missed?

Appendix E – Questionnaire Form for Inspectors/Investigators

As some of you are aware, we are students from Worcester Polytechnic Institute, and we are currently working as contractors to provide suggestions for the Department of Permitting Services for improvement on the complaint process. Please take the time to fill out this questionnaire. The purpose is to obtain information from inspectors/investigators about the current complaint process. With this information, we are then able to effectively suggest means of improvement in our final report.

Estimated time: 20 minutes
Please return this form to Susan Scala-Demby's mailbox when completed by 12pm Wednesday, Nov. 14, 2007.

Thank you,

Michael Dias
Grégory Pierre-Louis
Eric Zuendoki

Background Questions

1. What is your name? (if you wish to remain anonymous, write "Anonymous")

2. What section do you work for?

3. How long have you been working for the Department of Permitting Services and how long have you worked in your current position?

4. When was the last time you handled a complaint?

5. How many complaints do you typically get in a week? Month? Year?

6. How long are you supposed to take to respond to a complaint in your section?

Complaint System Topics

7. Do you think that complaint handling is an important aspect of the Department of Permitting Services? *Briefly* explain your reasoning.

8. Is there a defined guideline to how complaints *should* be handled? In other words, is there a flow of complaints mapped in your section that you are *supposed* to follow?

    a. If so, do you follow that guideline or flow?

    b. If not, do you feel there should be? *Briefly* explain why.

9. How do you personally handle complaints? (give us a *brief* flow of the complaint)

10. Are there any employees within your section who *mainly* handle complaints? If not, do you think there should be? *Briefly* explain why.

11. Do you think there should be a Complaint Management Section within the Department of Permitting Services? *Briefly* explain why, and what their responsibilities would be, or why not.

12. Circle the rate that matches how comfortable you are using Hansen.

1	2	3	4	5
Least		Average		Most

13. How did you learn how to use Hansen: on your own, someone taught you, or was there an initial training class when you were hired?

14. Would you find monthly classes to teach you how to use Hansen beneficial? Why or why not?

15. How knowledgeable are you of the actual roles of all the employees involved in the complaint handling process at the DPS?

16. Circle the rate that matches the effectiveness of the complaint process in the DPS.

1	2	3	4	5
Least		Acceptable		Most

17. If not 5, state *one* reason why the complaint process is not effective that does not concern the Hansen software.

18. If you have *any other concerns* that have not been covered in this questionnaire that you would like to express, please state them below.

Appendix F – Tables

Note: Grey cells indicate that the cell had not been available to use in Hansen System during that time.

Full Table (FT) of the Frequency of Complaints per Fiscal Year

COMPLAINT	FY01	FY02	FY03	FY04	FY05	FY06	FY07
ZONING							
BANNERS/PENNANTS	22	22	29	10	13	15	9
BUILDING HEIGHT				1	14	51	55
COMMERCIAL SPECIAL EXCEPTION VIOLATION	0	0	1	2	3	10	4
DEVELOPMENT STANDARDS-COMMERCIAL				0	3	2	5
DEVELOPMENT STANDARDS-RESIDENTIAL				9	45	52	28
FENCES				4	49	80	96
HISTORIC PRESERVATION				0	0	0	0
HOME HEALTH PRACTITIONERS	1	0	2	5	3	2	9
HOME OCCUPATION	66	61	63	14	18	40	15
HOME OCCUPATION-COM VEHICLES IN RES ZONE	48	30	37	72	72	105	92
HOME OCCUPATION-CONSTR/BLDG MATERIALS	5	4	15	15	21	18	34
HOME OCCUPATION-OTHER	52	9	20	78	74	66	109
HOME OCCUPATION-VEHICLE REPAIR	53	41	46	28	34	40	35
HOME OCCUPATION-VEHICLE SALES	14	15	26	8	13	8	12
LOT COVERAGE				1	4	8	5
NO PERMIT FOR SIGN	34	45	36	76	126	65	95
POLITICAL SIGNS	24	0	85	10	21	1	60
REAL ESTATE SIGNS	19	8	7	8	15	9	13
RESIDENTIAL SPECIAL EXCEPTION VIOLATION	126	10	4	4	2	5	3
SETBACKS				0	0	0	0
SIGNS	92	183	74	11	20	18	17
SIGNS IN R-O-W	57	53	119	130	209	251	441
SIGNS-OTHER VIOLATIONS	5	2	2	14	24	24	34
SPECIAL EXCEPTIONS	8	16	11	3	2	6	4
U&O SPECIAL EXCEPTION VIOLATIONS	0	2	2	1	1	0	1
VENDOR	9	54	36	32	33	38	36
VENDOR	0	0	0	0	0	0	0
ZONING ENFORCEMENT	30	133	99	32	34	24	25
ZONING-ADA	8	3	2	1	3	3	3
ZONING-COM-IMPROPER USE OF COMM PROPERTY	0	5	12	15	9	17	17
ZONING-COM-LANDSCAPING,SCREENING,LIGHT	11	7	1	2	3	0	4
ZONING-COM-NO U&O PERMIT – COMMERCIAL	9	15	8	4	15	12	17
ZONING-OTHER-LAND USE OTHER	46	22	37	31	7	21	38
ZONING-RES-# OF PEOPLE RESIDING IN HOME	24	44	31	43	43	70	90
ZONING-RES-ANIMALS IN RESIDENTIAL ZONE	2	2	3	3	7	4	2

ZONING-RES-CHILD DAY CARE	1	4	3	1	1	5	6
ZONING-RES-COMMERCIAL VEHICLES, RES ZONE	71	118	94	84	131	184	136
ZONING-RES-LANDSCAPING	15	19	14	7	15	25	18
ZONING-RES-NO U&O PERMIT – RESIDENTIAL	1	38	5	14	21	32	20
ZONING-RES-RELIGIOUS USES	5	9	5	3	7	11	13
BUILDING							
ADA	2	1	4	0	0	3	0
BUILDING	126	118	92	15	16	19	10
BUILDING AND ELECTRICAL	2	5	4	1	1	1	2
BUILDING/ELECTRICAL VIOLATIONS	5	1	7	6	3	4	3
COMMERCIAL BUILDING VIOLATION	2	4	7	10	6	24	17
COMMERCIAL ELECTRICAL VIOLATION	0	0	0	1	1	3	2
ELECTRICAL	7	11	10	2	1	5	2
FENCE/RETAINING WALL	109	87	79	75	68	71	59
HISTORIC PRESERVATION (BUILDING)	4	9	13	33	18	16	10
NO BUILDING PERMIT	254	438	402	446	535	517	614
NO BUILDING/ELECTRICAL PERMIT	19	4	23	31	16	11	13
NO RESIDENTIAL BUILDING PERMIT					9	31	23
NO RESIDENTIAL BUILDING/ELECTRICAL PERMITS					2	5	8
NO RESIDENTIAL BUILDING/ELECTRICAL/MECHANICAL PERMITS					1	3	1
NO RESIDENTIAL BUILDING/MECHANICAL PERMITS					0	5	5
NO RESIDENTIAL ELECTRIC PERMIT					2	1	4
NO RESIDENTIAL ELECTRIC/MECHANICAL PERMITS					0	0	0
NO RESIDENTIAL MECHANICAL PERMIT					0	0	0
OTHER BUILDING VIOLATION	25	9	8	41	21	4	12
OTHER ELECTRICAL VIOLATION	3	0	0	0	0	3	2
OTHER RESIDENTIAL BUILDING VIOLATIONS					7	1	8
OTHER RESIDENTIAL ELECTRICAL VIOLATIONS					0	0	0
OTHER RESIDENTIAL MECHANICAL VIOLATIONS					0	0	0
RESIDENTIAL BUILDING VIOLATION	1	22	37	76	76	62	99
RESIDENTIAL ELECTRICAL VIOLATION	8	6	2	6	4	5	4
RESIDENTIAL MECHANICAL VIOLATION					0	1	0
SETBACKS (BUILDING)	110	105	108	68	97	198	164
SWIMMING POOLS	12	6	7	4	2	2	12
SEDIMENT CONTROL							
DRAINAGE	10	33	90	88	124	89	89
FLOODING	2	29	50	28	35	41	20
SEDIMENT CONTROL ENVIRONMENTAL	259	260	190	246	230	212	135
SEDIMENT CONTROL NUISANCE	272	87	138	154	95	135	174
SEDIMENT CONTROL SAFETY	3	7	23	41	27	47	46
RIGHT OF WAY							
D/W APPLICATION (COMPLETE AN APPLICATION)			125	212	216	194	268
OBSTRUCTION IN ROW (DUMPSTER, MONUMENT MAILBOX & TREES)			20	60	50	49	87
NO D/W PERMIT (D/W CONSTRUCTED W/O PERMIT)			10	30	72	55	38

ROW VIOLATIONS			62	127	147	146	133
TCP ON NON PERMITTED SITES (UTILITIES,WATER MAIN BREAKS)			1	7	5	4	1
UTILITY PATCH (PATCH LOW)			31	66	49	11	18
WELL AND SEPTIC							
WELL & SEPTIC SITE INSPECTION							
WELL & SEPTIC VIOLATIONS			8	42	19	21	25
WELL ABANDONMENT							
SITE PLAN							
SITE PLAN							3
CURRENTLY NOT HANDLED BY DPS							
AIR QUALITY CONTROL	0	0	1	1	0	1	1
OPEN BURNING-COMMERCIAL PERMIT	0	0	0	0	0	0	0
OTHER							
OTHER	27	3	15	5	0	1	15
TOTALS	**2,120**	**2,219**	**2,496**	**2,698**	**3,070**	**3,322**	**3,728**

Table of Increasing Complaints (TIC)

Using Microsoft Excel's trend line function, a table was compiled to organize complaints that showed a positive slope when plotted against time. The correlation coefficients for each complaint were calculated to determine the nature of the trend-line and its relationship to the data. Strong correlation means the trend-line more accurately represents the data. The rows in this table that are highlighted green indicate that at the end of FY07, that particular complaint has a coefficient of determination greater than .80, or 80%.

COMPLAINT	SLOPE	R^2
ZONING		
BUILDING HEIGHT	19.9	0.9155242
COMMERCIAL SPECIAL EXCEPTION VIOLATION	1.2143	0.5666667
DEVELOPMENT STANDARDS-COMMERCIAL	1.4	0.7538462
DEVELOPMENT STANDARDS-RESIDENTIAL	6.4	0.1853394
FENCES	3.07	0.95728
HOME HEALTH PRACTITIONERS	1.0357	0.547526
HOME OCCUPATION-COM VEHICLES IN RES ZONE	11.321	0.759577
HOME OCCUPATION-CONSTR/BLDG MATERIALS	4.3214	0.8433756
HOME OCCUPATION-OTHER	12.107	0.5699316
LOT COVERAGE	1.6	0.512
NO PERMIT FOR SIGN	11.178	0.5089404

POLITICAL SIGNS	1.6423	0.0122454
SIGNS IN R-O-W	58.5	0.8595379
SIGNS-OTHER VIOLATIONS	5.4643	0.86906
VENDOR	1.6425	0.0716996
ZONING-COM-IMPROPER USE OF COMM PROPERTY	2.5714	0.742268
ZONING-COM-NO U&O PERMIT – COMMERCIAL	0.8623	0.1720815
ZONING-RES-# OF PEOPLE RESIDING IN HOME	9.3571	0.7739942
ZONING-RES-ANIMALS IN RESIDENTIAL ZONE	0.2857	0.1176471
ZONING-RES-CHILD DAY CARE	0.5357	0.3090659
ZONING-RES-COMMERCIAL VEHICLES, RES ZONE	13	0.5388996
ZONING-RES-LANDSCAPING	0.7857	0.0955766
ZONING-RES-NO U&O PERMIT – RESIDENTIAL	2.1786	0.1231141
ZONING-RES-RELIGIOUS USES	1.0714	0.4136029
BUILDING		
COMMERCIAL BUILDING VIOLATION	3	0.6810811
COMMERCIAL ELECTRICAL VIOLATION	0.4643	0.7544643
HISTORIC PRESERVATION (BUILDING)	1.3214	0.0941282
NO BUILDING PERMIT	48.964	0.8492958
NO RESIDENTIAL BUILDING PERMIT	7	0.3951613
NO RESIDENTIAL BUILDING/ELECTRICAL PERMITS	3	1
NO RESIDENTIAL BUILDING/MECHANICAL PERMITS	2.5	0.75
NO RESIDENTIAL ELECTRIC PERMIT	1	0.4285714
OTHER ELECTRICAL VIOLATION	0.1071	0.025
OTHER RESIDENTIAL BUILDING VIOLATIONS	0.5	0.0174419
RESIDENTIAL BUILDING VIOLATION	14.75	0.8489737
SETBACKS (BUILDING)	12.036	0.3464413
SEDIMENT CONTROL		
DRAINAGE	13.679	0.5709698
FLOODING	2.25	0.0990269
SEDIMENT CONTROL SAFETY	7.6071	0.8328866
RIGHT OF WAY		
D/W APPLICATION (COMPLETE AN APPLICATION)	26.8	0.6750376
OBSTRUCTION IN ROW (DUMPSTER, MONUMENT MAILBOX & TREES)	12.3	0.6524495
NO D/W PERMIT (D/W CONSTRUCTED W/O PERMIT)	8.1	0.2918594
ROW VIOLATIONS	16.1	0.5245042
CURRENTLY NOT HANDLED BY DPS		
AIR QUALITY CONTROL	0.1429	0.3333333

Table of Decreasing Complaints (TDC)

Using Microsoft Excel's trend line function, another table was compiled to organize complaints that showed a negative slope when plotted against time. The correlation coefficients for each complaint were calculated to determine the nature of the trend-line and its relationship to the data. Strong correlation means the trend-line more accurately represents the data. The rows in this table that are highlighted orange indicate that at the end of FY07, that particular complaint has a coefficient of determination greater than .80, or 80%.

COMPLAINT	SLOPE	R^2
ZONING		
BANNERS/PENNANTS	-2.4643	0.5202142
HOME OCCUPATION	-8.5714	0.5998001
HOME OCCUPATION-VEHICLE REPAIR	-2.4286	0.4030683
HOME OCCUPATION-VEHICLE SALES	-1.1786	0.1756452
REAL ESTATE SIGNS	-0.2857	0.0188235
RESIDENTIAL SPECIAL EXCEPTION VIOLATION	-13.607	0.4095688
SIGNS	-21.75	0.5528408
SPECIAL EXCEPTIONS	-1.4643	0.4033109
U&O SPECIAL EXCEPTION VIOLATIONS	-0.0714	0.0357143
ZONING ENFORCEMENT	-10.643	0.2765859
ZONING-ADA	-0.5	0.2378641
ZONING-COM-LANDSCAPING,SCREENING,LIGHT	-1.1786	0.4419643
ZONING-OTHER-LAND USE OTHER	-2	0.1082275
BUILDING		
ADA	-0.2143	0.0818182
BUILDING	-22.214	0.8222757
BUILDING AND ELECTRICAL	-0.3929	0.2800926
BUILDING/ELECTRICAL VIOLATIONS	-0.1429	0.0229885
ELECTRICAL	-1.2857	0.4736842
FENCE/RETAINING WALL	-6.8929	0.8519899
NO BUILDING/ELECTRICAL PERMIT	-0.3929	0.0094472
OTHER BUILDING VIOLATION	-1.2857	0.046525
RESIDENTIAL ELECTRICAL VIOLATION	-0.4286	0.2337662
SWIMMING POOLS	-0.4643	0.0560345

SEDIMENT CONTROL		
SEDIMENT CONTROL ENVIRONMENTAL	-15.286	0.5417209
SEDIMENT CONTROL NUISANCE	-8.6071	0.0908379
RIGHT OF WAY		
TCP ON NON PERMITTED SITES (UTILITIES,WATER MAIN BREAKS)	-0.3	0.0330882
UTILITY PATCH (PATCH LOW)	-8.1	0.3219333
WELL AND SEPTIC		
WELL & SEPTIC VIOLATIONS	-1.3	0.0277049

Table of Unused Complaints (TUC)

COMPLAINT	FY01	FY02	FY03	FY04	FY05	FY06	FY07
ZONING							
HISTORIC PRESERVATION				0	0	0	0
SETBACKS				0	0	0	0
VENDOR	0	0	0	0	0	0	0
BUILDING							
NO RESIDENTIAL ELECTRIC/MECHANICAL PERMITS					0	0	0
NO RESIDENTIAL MECHANICAL PERMIT					0	0	0
OTHER RESIDENTIAL ELECTRICAL VIOLATIONS					0	0	0
OTHER RESIDENTIAL MECHANICAL VIOLATIONS					0	0	0
WELL AND SEPTIC							
WELL & SEPTIC SITE INSPECTION							
WELL ABANDONMENT							
CURRENTLY NOT HANDLED BY DPS							
OPEN BURNING-COMMERCIAL PERMIT	0	0	0	0	0	0	0

Sponsor Description Tables

Areas	Incorporated
Cities (3)	….
Gaithersburg	1878
Rockville	1860
Takoma Park	1890
Towns (12)	….
Barnesville	1888
Brookeville	1808
Town of Chevy Chase	1918
Chevy Chase View	1993
Chevy Chase Village	1910
Garrett Park	1898
Glen Echo	1904
Kensington	1894

Laytonsville	1892
Poolesville	1867
Somerset	1906
Washington Grove	1937
Villages (4)	….
Village of Chevy Chase, Section 3	1982
Village of Chevy Chase, Section 5	1982
Martin's Additions	1985
North Chevy Chase	1996
Special Tax Areas (4)	….
Battery Park	1923
Drummond, Village of	1916
Friendship Heights and "The Hills"	1914
Oakmont	1918
Unincorporated Areas (37)	….
Ashton-Sandy Spring	N/A
Aspen Hill	N/A
Beallsville	N/A
Bethesda	N/A
Boyds	N/A
Brookmont	N/A
Burtonsville	N/A
Cabin John	N/A
Calverton	N/A
Chevy Chase	N/A
Clarksburg	N/A
Cloverly	N/A
Colesville	N/A
Damascus	N/A
Darnestown	N/A
Derwood	N/A
Dickerson	N/A
Fairland	N/A
Forest Glen	N/A
Friendship Village	N/A
Germantown	N/A
Hillandale	N/A
Kemp Mill	N/A
Montgomery Village	N/A
North Bethesda	N/A
North Kensington	N/A
North Potomac	N/A
Olney	N/A
Potomac	N/A
Redland	N/A
Rossmoor	N/A
Silver Spring	N/A
South Kensington	N/A

Travilah	N/A
Wheaton-Glenmont	N/A
White Oak	N/A

Table 5 – Areas of Montgomery County

Population (2006)	Number (Rounded)	Percentage	US Percentage
Total	931000	100%	….
White or Caucasion	519000	55.70%	66.19%
Black or African-American	146525	15.70%	12.17%
Hispanic	129540	13.90%	14.78%
Asian & Pacific Islander	122260	13.10%	4.45%
Other	13675	1.50%	2.41%

Table 6 – Demographics of Montgomery County v. US (US Census 2006 Data)

Annual Estimates of the Population for Counties of Maryland							
Geographic Area	Population Estimates						
	2006	2005	2004	2003	2002	2001	2000
Maryland	**5,615,727**	**5,589,599**	**5,553,249**	**5,506,684**	**5,441,349**	**5,379,795**	**5,311,695**
Anne Arundel County	509,300	509,397	507,735	504,449	501,954	496,975	491,372
Baltimore County	787,384	783,405	779,938	774,869	768,839	762,553	756,019
Carroll County	170,260	168,397	166,284	163,264	159,373	154,791	151,648
Charles County	140,416	138,106	135,376	132,069	128,110	124,930	121,278
Frederick County	222,938	220,409	217,249	213,416	209,098	202,331	196,594
Harford County	241,402	238,850	235,067	231,659	227,286	222,664	219,516
Howard County	272,452	269,174	266,479	263,804	260,024	255,490	249,604
Montgomery County	932,131	927,405	921,264	916,198	907,926	894,575	878,683
Prince George's County	841,315	842,764	837,837	832,761	825,815	815,927	802,712
Washington County	143,748	141,563	139,113	136,677	134,700	132,949	132,127

Table 7 – Estimates of population per county in Maryland (minimum 100,000 people) (US Census 2006 Data)

Annual Estimates of Housing Units for Counties in Maryland							
Geographic Area	Housing Unit Estimates						
	2006	2005	2004	2003	2002	2001	2000
Maryland	**2,300,567**	**2,274,307**	**2,250,854**	**2,226,052**	**2,200,215**	**2,176,604**	**2,151,550**
Anne Arundel County	201,603	199,398	197,331	194,653	192,606	190,418	187,632
Baltimore County	325,964	324,596	323,070	321,067	318,958	316,402	314,267
Baltimore city	296,053	295,626	295,706	296,617	296,266	298,125	300,011
Howard County	102,804	101,136	99,415	98,051	96,621	95,403	93,335
Montgomery County	359,625	356,603	353,352	349,504	345,078	340,412	336,031
Prince George's County	317,124	314,221	312,768	310,348	308,295	305,759	302,812

Table 8 – Estimates of housing units per year in Maryland (minimum 100,000 housing units) (US Census 2006 Data)

Appendix G – Scoring Model

Best Practices	Grade			
	1	2	3	4
Detailed Flow-System	A documented flow is non-existent.	A documented flow exists but does not explain the flow process of entire department. It is missing information. Employees are, however, unaware of its existence and/or cannot access the document.	A documented flow contains a complete and thorough representation of the operative flow in the department. However, the document is not readily accessible to all employees	A documented flow contains a complete and thorough representation of the operative flow in the department. Also, the document is readily accessible to all employees.
Confidentiality of Complainant	Confidentially is not an option for customers.	Confidentially exists as an option for the customer, but it is not strictly abided by. Also, the customer is not informed that they can be confidential.	Confidentially exists as an option for the customer and it is strictly abided by. However, the customer is not informed that they can be confidential.	Confidentially exists as an option for the customer and it is strictly abided by and the customer is informed that they can be confidential.
Nondiscriminatory towards Complainant	Department discriminates towards complainant and complainant is aware of the discrimination.	Employees exhibit discriminating attitudes towards certain complainants, not necessarily reflecting the department's view. Also, complainant is aware of the discrimination.	Employees exhibit discriminating attitudes towards certain complainant, not necessarily reflecting the department's view. Also, complainant is not aware of the discrimination.	Department is indiscriminate towards Complainant.
Flexibility of Complaint Reception	Department has one avenue for which it can receive complaints from customers.	Department has one avenue for which it can receive complaints from customers and is available 24/7; OR Department has two avenues.	Department has two avenues for which it can receive complaints from customers and one of which is available 24/7; OR Department has three avenues.	Department has four or more avenues for which it can receive complaints from customers.

Development of Complaint Details	Details of complaints are not documented.	Details of complaints are developed poorly. Employees perform no screening procedures because there is no script, and do not have the proper training to do so.	Details of complaints are developed poorly. Employees perform no screening procedures because they do not have access to an existing, documented script, and do not have the proper experience to do so.	Details of complaints are developed by performing screening procedures according to an existing script and/or have the proper experience to do so.
Incorporated Resolution Deadline	Department does not uphold a deadline.	Department establishes a deadline, but employees do not follow it.	Employees follow the department's deadline.	Employees accomplish their tasks before set deadline.
Employees' Perception of Complaints as a Resource	Employees feel handling complaints should not be an aspect of the department at all.	Employees feel complaints are a nuisance and should not be part of their tasks.	Employees feel complaints are a nuisance but are necessary.	Employees feel handling complaints is an important aspect of the department.
Provides a Remedy and Response	Department does not inspect nor provide a resolution to complaints	Department provides either just an inspection for or just a resolution to complaints.	Department provides a remedy for and response to complaints yet they do not satisfy any codes or law that are enforced by the department.	Department provides a remedy for and response to complaints and they satisfy any codes or laws that are enforced by the department.
Method of Follow-Up with Complainant	There are no follow-up methods to contact the complainant.	Employees do not clearly explain the methods of response to the complainant. Complainant is not aware of his/her options.	Employees clearly explain the methods of response to the complainant. Complainant chooses not to be responded to.	There is always follow-up with the complainant.
Adaptability to Changes in the Business World	Department's process is unable to adapt to change in the business world.	Department attempts to adapt to changes, but employees are reluctant to deviate from old methods.	Department changes in a timely fashion, yet needs improvement on some aspects.	Department's process changes rightfully when the business world does.