

**METROPOLITAN GOVERNMENT OF  
NASHVILLE AND DAVIDSON COUNTY**

**OFFICE OF INTERNAL AUDIT**

**Professional Audit and Advisory Service**

**FINAL REPORT**

**Audit of Health Department's  
Food Protection Services**

Date Issued: January 16, 2009

Office Location and Phone Number

222 3<sup>rd</sup> Avenue North, Suite 401  
Nashville, Tennessee 37201

615-862-611

*The Metropolitan Nashville Office of Internal Audit is an independent audit agency  
reporting directly to the Metropolitan Nashville Audit Committee*

# EXECUTIVE SUMMARY

January 16, 2009

Objectives and Observations	Recommendations
<p>MAXIMUS Inc. was retained by the Office of Internal Audit (OIA) to perform an audit of Food Protection Services, a part of Metro Public Health (MPHD). The primary objectives of the audit were to evaluate cost efficiency and quality assurance measures in comparison with state and national peer cities of similar size. MAXIMUS separated the project into four tasks:</p> <ol style="list-style-type: none"> <li>1) An activity-based costing analysis</li> <li>2) Benchmark surveys using comparable state and national peers</li> <li>3) A “Best Practices” review</li> <li>4) An automated management systems assessment</li> </ol> <p>Key Observations:</p> <ol style="list-style-type: none"> <li>1) MPHD program revenue incurs an annual deficit of \$80,064</li> <li>2) MPHD inspectors carry a larger workload than peers, performing 30% more inspections per inspector</li> <li>3) TN is one of few states who do not allow use of a “risk-based” inspection program for food establishments that is recommended by the U.S. FDA</li> <li>4) MPHD performs a far higher number of follow-up inspections than both state and national peers</li> <li>5) Nashville food establishments do not have less critical violations despite the larger number of inspections</li> <li>6) The current automated management system is poorly suited for MPHD’s needs</li> </ol>	<p>Key recommendations of this report include:</p> <ul style="list-style-type: none"> <li>• Concur with MHPD’s proposed plan to implement a pilot “risk-based” program (if approved) and switch to a full risk-based program as soon as possible</li> <li>• Continue to implement automated data entry of inspection information</li> <li>• Focus more emphasis on training and awareness measures to reduce critical violations at food establishments</li> <li>• MPHD should allocate more inspector time at establishments for training, education and awareness use (rather than time spent performing follow-up inspections)</li> <li>• Conduct focus group analysis with peer agencies and food establishment management</li> <li>• Institute a fee for follow-up inspections</li> <li>• Obtain commercial off-the-shelf software to aid food protections management staff</li> </ul> <p>Detailed recommendations can be seen in Appendix A</p> <p>Management’s response can be seen in Appendix B</p>

## TABLE OF CONTENTS

INTRODUCTION.....	4
BACKGROUND.....	4
OBJECTIVES AND CONCLUSIONS.....	4
GENERAL AUDIT INFORMATION.....	5
STATEMENT OF COMPLIANCE WITH GAGAS.....	5
SCOPE AND METHODOLOGY .....	5
CRITERIA .....	5
STAFF ACKNOWLEDGEMENT .....	5
APPENDIX A - MAXIMUS REPORT	
APPENDIX B - MANAGEMENT RESPONSE	

# INTRODUCTION

## BACKGROUND

Food Protection Services is a division of the Public Health Department (MPHD) within Metropolitan Government of Nashville and Davidson County (Metro). The mission of Food Protection Services is to provide “protection from the threat of food borne illnesses by conducting inspections among Davidson County’s food service establishments (restaurants, snack bars, and school cafeterias) and retail food stores (groceries).” According to MPHD, Food Protection Services performs over 13,000 inspections per year.

As part of the Office of Internal Audit’s (OIA) 2008 audit plan, the Metropolitan Audit Committee approved an audit of the MPHD Food Protection Services.

The OIA selected Maximus, an operations and consulting firm headquartered in Reston, Virginia that focuses on government operations. On-site assessments were performed by Maximus consultants with the assistance of MPHD and OIA personnel. The audit focused on determining the cost and quality effectiveness of Food Protection Services. Based on the information gathered and analysis conducted, recommendations were developed to assist MPHD to increase cost efficiency and boost quality assurance.

Note: Although the MPHD Food Protection Division is subject to current Tennessee state law concerning the execution of its Food Protection Services program, recommendations contained in the report were not constrained as to these requirements for the following reasons:

- Tennessee state requirements may change
- MPHD may be asked to provide input for future state program changes
- It is feasible that MPHD would request exemption from all of part of state requirements

## OBJECTIVES AND CONCLUSIONS

The principal objectives of the audit were to evaluate cost efficiency and quality assurance measures in comparison with state and national peer cities of similar size.

The Food Protection Services Department has implemented a viable food inspection program. However, there are several areas within the program that could be improved. Key recommendations included:

- Switching to a risk-based inspection approach
- Provide more emphasis on training and awareness of critical violations to establishment owners and management
- Institute a fee for required follow-up inspections
- Implementing an automated management system with broader functionality than the Garrison system, which is currently utilized

# GENERAL AUDIT INFORMATION

## STATEMENT OF COMPLIANCE WITH GAGAS

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our observations and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our observations and conclusions based on our audit objectives.

## SCOPE AND METHODOLOGY

The audit period focused primarily on the food protection services in place as of July 1, 2008. The methodology employed throughout this audit was one of objectively reviewing various forms of documentation, including written policies and procedures, visual analysis of existing conditions including walk-through of facilities, and on-site assessments of the facilities inspected by Food Protection Services. Additionally, management, administrative and operational personnel, as well as personnel from other Metro departments and other stakeholders were interviewed, in the course of documenting and observing various aspects of the food inspection program.

## CRITERIA

Maximus assessed current procedures employed by Food Protection Services by conducting user fee studies, comparing quantitative data gathered in benchmark surveys of six peers, state and nation-wide, of Metropolitan Government of Nashville and Davidson County's division of Food Protection Services, review of best practices employed by Metro's peers and the U.S. Food and Drug Administration and an assessment of automated management systems.

## STAFF ACKNOWLEDGEMENT

### Office of Internal Audit

Mark Swann, CPA - TEXAS, CIA, CISA - Metropolitan Auditor  
Carlos Holt, CIA, CFE, CGAP - Audit Manager  
Sharhonda Terrell, MPA – Staff Auditor  
Roxanne Caruso – Staff Auditor

### MAXIMUS

Bruce Cowans - Executive Oversight  
Ray Solanki - Project Director  
Ani Saldana  
Lauren Hula

---

**FINAL REPORT  
METRO GOVERNMENT OF  
NASHVILLE AND DAVIDSON  
COUNTY  
FOOD PROTECTION SERVICES**

---

**JANUARY 16, 2009**



**APPENDIX A. MAXIMUS REPORT**



## REPORT CONTENTS

<b>TASK 1: ACTIVITY-BASED COSTING ANALYSIS .....</b>	<b>1</b>
Background and Approach.....	1
Methodology .....	1
Summary Results.....	3
<b>TASK 2: BENCHMARK SURVEYS.....</b>	<b>4</b>
Background and Approach .....	4
Scope and Methodology.....	5
Summary Results.....	5
<b>TASK 3: BEST PRACTICES REVIEW.....</b>	<b>9</b>
3.1 Alternative Methods of Providing Service .....	9
3.2 Accepting Credit Card Payments .....	11
3.3 Current System Workarounds.....	13
3.4 Risk Profiles with Tennessee Peers .....	16
3.5 Risk Profile Compared with Risk Based Agencies .....	24
3.6 Evaluate Training Requirement for Failed Inspections.....	26
<b>TASK 4: AUTOMATED MANAGEMENT SYSTEMS .....</b>	<b>30</b>
Background and Approach.....	30
Current (Garrison) Computer System Review .....	31
Alternative Inspection Software Systems Evaluation .....	33



## ACRONYMS

List of Acronyms Used in this Report	
MND	Metropolitan Nashville and Davidson County Food Protection Services
RBI	Risk Based Inspections
TDH	Tennessee Department of Health





## TASK ONE: ACTIVITY-BASED COSTING

### BACKGROUND AND APPROACH

---

#### COST STUDY

---

The purpose of Task One is to determine the cost of activities, both for fee setting and as a baseline for testing of process changes.

---

The Metropolitan Government of Nashville and Davidson County needs to know the cost of food protection services for two reasons: 1) In order to test the adequacy of its fees and 2) As a baseline of analysis for the cost of process change. Through this study, we determined the full cost of services offered by the Food Protection Services Division.<sup>1</sup> *Full cost* includes direct and indirect costs associated with providing each service, including department and Metro government overhead.

Cost determinations result from an essentially simple formula: multiply a productive hourly rate by the number of hours required to complete a task. It is the correct identification of the underlying components of rates and tasks that gives the analysis structure and validity.

This section outlines the processes we used to determine the cost of providing service.

### METHODOLOGY

The approach, philosophy, and methodology of user fee studies are as important as the final outcome. While the calculation of a cost of a specific activity is important, it is equally important that this number be defensible, clearly understood by staff, and useful for improving long-term financial stability. Our methodology to determine the cost of each service included interviewing staff, reviewing budget information, and editing drafts to ensure that internal accuracy standards were met. Below is a description of the steps we took to determine the cost of services provided by MND.

#### 1. List of Services

The first step in the analysis is to define MND's activities. With MND, we discussed current operational practices, including procedures for all categories of food establishments and biannual inspection requirements.

#### 2. Productive Hour Calculation

A critical piece of our methodology is the productive hour calculation. We determined MND's average hourly rate to be \$50.77.<sup>2</sup> We included both direct and indirect costs, using latest available data. This is the cost per hour of time available for customer service

---

<sup>1</sup> The Metropolitan Government of Nashville and Davidson County Food Protection Services Division will be referred to as "MND" throughout this report.

<sup>2</sup> Source: Productive Hourly Rate Calculation, Cost of Service Model



We also determined MND's total available hours to spend on providing services to customers (as opposed to total paid staff hours). Employees do not work 52 weeks per year. An employer pays for 52 weeks, but part of the payment is for compensated absences such as vacation, holiday and sick time. This paid time off is essentially a fringe benefit that we treat as an additive to the cost of each hour of customer service. We reviewed how much time employees are expected to report to work. For sick days, we assume that permitted time off is used. This is a reasonable assumption because even if it not literally true, the accrual of sick leave carries forward from year to year.

### 3. Time to Perform Services

Labor costs are the single largest category of expense. We deconstructed the services into steps, which we feel helps staff to provide more accurate time descriptions of their work than if we measured services in the aggregate.

Food inspectors are required to document when they begin and complete each inspection. We were able to query MND's database to get information on the number of inspections completed in 2007 and the average time to complete an inspection for each classification.<sup>3</sup>

Staffs are also required to keep daily logs. On these logs, they record their travel time to and from each site. We reviewed a sample of these logs to determine the average travel time between sites.<sup>4</sup> When we were onsite, we observed MND to ensure that our time estimates for other steps seemed reasonable.

We reviewed the model input data with MND, providing ample time for comments, edits and questions. Division staff took the time to understand the methodology of the study and to refine the data to ensure good technical information.

### 4. Validating Time Estimates

Division staff validated the time estimates for each service. We then validated that the total time represented was materially close to the time available.

---

<sup>3</sup> Data was queried from MND's database (Source: davidsoncountyinspections2007.xlm).

<sup>4</sup> Onsite review: June 11, 2008.



**SUMMARY RESULTS**

Our analysis shows the full cost of providing each of the fee-related services included in the study, estimated revenue from the current fees, and the resulting current subsidy. Our summary results are provided in the following table:<sup>5</sup>

**Metro Public Health Department  
of Nashville and Davidson County  
Summary Results**

Fee or Service Name / Description	Current Fee	Annual Number of Inspections	UNIT COST			REVENUE IMPACTS		
			Actual Cost Per Inspection	Actual Cost Per Permit / Potential Fee	Per Unit Surplus/ (Subsidy)	Annual Revenue at Current Fee	Actual Annual Cost / Potential Revenue	Annual Revenue Surplus / (Deficit)
Standard Hourly Rate				50.77				
<b>Food Inspections</b>								
Hazardous	\$279.46	4,240	120.33	\$ 240.66	\$38.80	\$ 592,451	\$ 510,190	\$ 82,261
Non-Hazardous	\$279.46	462	95.80	\$ 191.61	\$87.85	\$ 64,555	\$ 44,262	\$ 20,293
Auxiliary	\$100.00	646	83.74	\$ 167.49	<b>(\$67.49)</b>	\$ 32,300	\$ 54,099	\$ <b>(21,799)</b>
Schools	\$80.00	338	109.02	\$ 218.04	<b>(\$138.04)</b>	\$ 13,520	\$ 36,849	\$ <b>(23,329)</b>
Child Care	\$70.20	441	89.79	\$ 179.57	<b>(\$109.37)</b>	\$ 15,479	\$ 39,596	\$ <b>(24,117)</b>
Temporary	\$30.00	245	88.86	\$ 177.72	<b>(\$147.72)</b>	\$ 7,350	\$ 43,541	\$ <b>(36,191)</b>
Congregate Feeding		26	86.78	\$ 173.56	<b>(\$173.56)</b>	\$ -	\$ 4,513	\$ <b>(4,513)</b>
Misc Items								
<b>SAFE Consultations (by Program Type)</b>								
Hazardous	\$0.00	229	37.23	\$ 37.23	<b>(\$37.23)</b>	\$ -	\$ 8,526	\$ <b>(8,526)</b>
Non-Hazardous	\$0.00	11	16.92	\$ 16.92	<b>(\$16.92)</b>	\$ -	\$ 186	\$ <b>(186)</b>
Auxiliary	\$0.00	39	35.43	\$ 35.43	<b>(\$35.43)</b>	\$ -	\$ 1,382	\$ <b>(1,382)</b>
Schools	\$0.00	1	33.85	\$ 33.85	<b>(\$33.85)</b>	\$ -	\$ 34	\$ <b>(34)</b>
Child Care	\$0.00	9	13.56	\$ 13.56	<b>(\$13.56)</b>	\$ -	\$ 122	\$ <b>(122)</b>
<b>Other Services Provided by the Department</b>						\$ -	\$ -	
Investigation	\$0.00	1	46,328.50	\$ 46,328.50	<b>(\$46,328.50)</b>	\$ -	\$ 46,329	\$ <b>(46,329)</b>
Training Classes	\$0.00	90.55	177.70	\$ 177.70	<b>(\$177.70)</b>	\$ -	\$ 16,090	\$ <b>(16,090)</b>
						\$ -	\$ -	\$ -

Note: The current fee for inspections is scaled based on the size of the establishment. We used an average fee cost for our analysis.

<b>TOTALS:</b>	<b>\$ 725,655</b>	<b>\$ 805,719</b>	<b>\$ (80,064)</b>
----------------	-------------------	-------------------	--------------------

Please note that the Current Revenue figures in the table above will not, by design, match actual fiscal year revenue. The table above extends unit costs by quantities to predict revenue. Actual revenue includes timing differences in payment and application dates that cross fiscal years.

<sup>5</sup> Source: Summary Results, Cost of Service Model



## TASK TWO: BENCHMARK SURVEYS

### BACKGROUND AND APPROACH

The purpose of the Benchmark Survey Task is to develop quantitative data for comparison between MND and its peers, following definition of terms from best practices review. This task involves two separate comparisons; one amongst Tennessee peers, and another on best practices amongst various agencies nationwide.

#### Tennessee Peer Comparison

The job of food protection inspections is similar for all Tennessee counties, especially those of similar size and location. The Tennessee peers for this survey are the Counties of Shelby and Knox.

Measuring only total inspections completed per division or total employees per division can lead to incorrect conclusions. Instead, the goal is to measure output per inspector, follow-ups per inspection, and cost per inspection. MND's figures are compared to the *average* of similar Tennessee counties.

#### Nation-wide Risk-Based Inspections Program Survey

Following the recommendations of the US Food & Drug Administration (and the practice of several major Western nations), some local governments outside of Tennessee use a Risk-Based Inspections (RBI) program.<sup>6</sup> In order to better understand the implications of developing such a program in MND, it is important to survey the benchmarks of agencies across the nation with RBI programs already in place. We surveyed several such agencies for this report, including: DuPage County, Illinois; the City of Plano, Texas; Metro King County/Seattle; Solano County, California; and Allegheny County, Pennsylvania.

The data that the agencies provided did not always contain all the information needed to conduct a proper analysis, in large part because service definitions are not standard from place to place.

For those agencies that responded to the full data request, the analysis is similar as for the Tennessee peers; measuring output per inspector, follow-ups per inspection, and cost per inspection. The second part of this survey consisted of description-based information on the various RBI programs. The goal here is to compare amongst the variety of options that MND has to consider if it decides to establish risk-based inspections.

---

<sup>6</sup> See the *Summary Results* section of this report for a more descriptive analysis of Risk-Based Inspection programs as a best practice opportunity.

---

### Benchmark Surveys

---

Two benchmark surveys compare MND to:  
1) Tennessee peer agencies, and  
2) Nation-wide risk-based inspection programs.

---

Both use 2007 data.

---



## SCOPE AND METHODOLOGY

The scope of this task includes benchmark surveys that compare MND profiles to two Tennessee peers, and five nation-wide agencies with risk-based inspection programs. The methodology used to conduct the survey comparisons is detailed in the steps below.

### Analysis

Comparing only total inspections completed per division or total employees per division can lead to incorrect conclusions when there are variations in size and location amongst the peers. The survey items developed for both benchmark studies measure output per inspector, follow-ups per inspection, and cost per inspection. MND's figures are compared to the *average* of its peers. For example, if MND's output per inspector were materially lower than the average of the peer group, then improving productivity would be the first order of business, not hiring more workers. If instead MND's output were above the peer average and MND were behind in getting establishments inspected, a first priority would be a finding in support of hiring more staff.

Not all risk-based inspection programs are exactly alike. Instead, slight variations on the number of risk categories, criteria per category, and frequency of inspections per category exist from one RBI program to another. The risk-based inspection survey compares information on the history and structure of each agency's RBI program. This comparison provides MND a variety of options to consider if it decides to establish risk-based inspections.

## SUMMARY RESULTS

The survey results, comparisons, and analysis for both benchmark surveys are provided in the paragraphs that follow.

### Tennessee Peer Comparison

MND shares similar regulations and procedures amongst its Tennessee peers. The Counties of Shelby and Knox are the two agencies that are most comparable to MND in size and type of establishments. However, the slight differences in the data figures shown in the table below, allow us to gauge MND's current workload, cost per inspection, and staffing requirements compared to its peers. We also look at Hamilton County, later in this report, as a basis of peer comparison.



Benchmark comparisons to peer Tennessee agencies <sup>7</sup>				
	MND	Peer Average	Shelby County	Knox County
Total Number of Inspections	10,535	6,869	9,124	4,613
Total Number of Establishments	4,283	3,155	4,400	1,910
<b>Inspections per establishment</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
Number of follow-up inspections	4,090	1,488	1,867	1,109
<b>Follow-ups per inspection</b>	<b>39%</b>	<b>22%</b>	<b>20%</b>	<b>24%</b>
Number of IT or Admin Staff	1.00	1.50	2.00	1.00
Number of Inspectors	11.00	12.00	17.00	7.00
Number of Management Staff	2.00	3.50	6.00	1.00
Other Staff	2.00	2.50	5.00	-
<b>TOTAL Employees</b>	<b>16.00</b>	<b>19.50</b>	<b>30.00</b>	<b>9.00</b>
<b>Inspections per Inspector</b>	<b>958</b>	<b>572</b>	<b>537</b>	<b>659</b>
<b>Projected staffing at peer average</b>	<b>18</b>			
<b>Staffing (shortage)/overage</b>	<b>(2)</b>			
Food Protection Services Budget	\$933,300	\$1,378,000	\$2,200,000	\$556,000
<b>Average cost per inspection</b>	<b>\$89</b>	<b>\$181</b>	<b>\$241</b>	<b>\$121</b>

**Inspections per establishment:** Tennessee’s Food Establishment Rules and Regulations currently require all establishments to be inspected twice a year. The survey shows that all three agencies complied with this regulation in 2007. The math works out to a little more than two a year because of the follow-up inspections.

**Follow-ups per inspection:** A follow-up is conducted every time that an establishment fails an inspection. MND’s follow-up rate per inspection is almost twice as much as that of its peers, which we discuss later in this report. This suggests that establishments within MND are failing inspections 17% more, on average, than its peers.

**Inspections per Inspector:** MND Inspectors are conducting an average of 40% more inspections per Inspector compared to the peer average. In other words, MND Inspectors perform a larger workload per year.

**Projected staffing need at peer average:** Due to the larger workload per Inspector, the data shows that MND is understaffed by about 2 full-time positions when compared to the peer average workload per inspector. This could be in part due to the additional 17% follow-up inspections that MND Inspectors must make up for in a year.

<sup>7</sup> Source: Garrison System



**Average cost per inspection:** The cost per inspection in MND is half the cost of its peer average. At a comparable staffing level, this suggests that the cost per inspection in MND is significantly lower than its peers.

Nation-wide Risk-Based Inspections Program Survey

The best practice benchmark survey on agencies with risk-based inspection programs nation-wide involves two parts:

The first part is an analysis on workload, cost per inspection and staffing requirements. For this section, the three peers that responded to the data request are: DuPage County, Illinois; City of Plano, Texas; and Metro King/ Seattle.

The second part is a compilation of information on various types of risk-based inspection programs that exist across the nation. The six peers included are: DuPage County, Illinois; Allegheny County, Pennsylvania; the City of Plano, Texas; the City of Garland, Texas; Solano County, California; and Metro King/ Seattle. We report below from the peers with usable data.

<b>Survey of nation-wide risk-based inspections agencies vs. Metro Nashville and Davidson<sup>8</sup></b>					
	<b>MND</b>	<b>Peer Average</b>	<b>DuPage County, IL</b>	<b>City of Plano, TX</b>	<b>King County/ Seattle</b>
Total Number of Inspections	10,535	12,310	8,976	3,175	24,779
Total Number of Establishments	4,283	5,207	3,703	1,309	10,609
<b>Inspections/ Establishments</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
Number of follow-up inspections	4,090	1,987	2,874	388	2,700
<b>Follow-ups per Inspection</b>	<b>39%</b>	<b>16%</b>	<b>32%</b>	<b>12%</b>	<b>11%</b>
Number of IT or Admin Staff	1.00	6.00	4.00	5.00	9.00
Number of Inspectors	11.00	22.67	24.00	9.00	35.00
Number of Management Staff	2.00	5.67	8.00	4.00	5.00
Other	2.00	4.00	-	4.00	8.00
<b>TOTAL Employees</b>	<b>16.00</b>	<b>38.33</b>	<b>36.00</b>	<b>22.00</b>	<b>57.00</b>
<b>Inspections per Inspector</b>	<b>958</b>	<b>543</b>	<b>374</b>	<b>353</b>	<b>708</b>
<b>Projected staffing at peer average</b>	<b>19.40</b>				
<b>Staffing need (shortage)</b>	<b>(3.40)</b>				
2008 Food Protection Budget	\$933,300	\$4,630,293	\$2,527,368	Not available	\$6,733,217
<b>Average cost per inspection</b>	<b>\$89</b>	<b>\$277</b>	<b>\$282</b>	Not available	<b>\$272</b>

<sup>8</sup> Source: Survey results from Nation-wide Study



**Inspections per establishment:** MND's contract with the State requires all establishments to be inspected twice a year. Interestingly enough, the three nation-wide peers in this survey also conduct an average of two inspections per establishment in a year (the math works out to a little more than two a year because of the follow-up inspections). This is a significant finding because it suggests that risk-based inspection programs do not require less effort or resources. Instead, a similar quantity of resources must be allocated differently, by basing the allocation on risk and priority.

**Follow-ups per inspection:** MND's follow-up rate per inspection is more than twice that of the RBI peers. This suggests that establishments within MND are failing inspections, on average, 23% more than its RBI peers.

**Inspections per Inspector:** The workload per Inspector is about 40% greater at MND compared to its RBI peers. While the peer average number of inspections per Inspector is 543, MND Inspectors are conducting 958 inspections in a year. This could be in part due to the additional follow-ups that MND Inspectors are providing, but even taking this into account, the difference in workload would still be 20% greater than its RBI peers.

**Projected staffing need at peer average:** The table above shows that MND's projected staffing need at peer average figures requires about three and a half additional employees to perform the same level of work.

**Average cost per inspection:** Compared to the RBI peers, the cost per inspection at MND is two thirds lower. This is in part due to MND's staffing need of three and a half employees at peer average staffing levels, and also to the general lower costs per output within MND.





## TASK THREE: BEST PRACTICE REVIEW

### 3.1 RISK-BASED FOOD INSPECTION ALTERNATIVE

While MND's contract with the State requires a complete inspection of every food service establishment at least once every six-months, risk-based inspection frequency would be based on the amount of risk that particular types of establishments pose. Some establishments pose greater risk and deserve more attention, while others may not need an inspection every six months. For example, a complete inspection requires the inspector to verify that the establishment has a sink. Since the presence of this commonplace fixture is unlikely to change, it need not be inspected with such frequency. Many establishments pose little risk to the public health based on their type of operations. On the other hand, there are many risks in a food establishment that merit greater focus. With funds chronically limited, the focus of the risk-based inspection method is to identify the most important risks and concentrate on keeping the public safe from those things.

Some fundamental questions on risk-based inspection programs are listed and answered below:

- ◆ What is a risk-based inspection program?

A risk-based inspection program prioritizes the agency's resources by allocating more to food establishments that pose the greatest risk of food borne illness and less to those that pose the least amount of risk. This program maximizes staff effort and cost by focusing on the food establishments with the most need for training and regulation.

- ◆ Who endorses this type of program?

The U.S. Food and Drug Administration recommends that all food inspection programs assign the frequency of inspections based on the safety risks pertinent to each establishment and each establishment's prior performance history.<sup>9</sup>

- ◆ Where else are RBI programs already established?

The six peers in our benchmark survey were only a few in a long list of agencies nation-wide which have established a risk-based inspections program. The State of Tennessee is amongst the few States that do not currently support a risk-based inspection program. Risk-based inspection programs have been in place nationwide since at least 1989, which is when one of the peers in our survey incorporated RBI.

---

<sup>9</sup> For more information, visit <http://www.cfsan.fda.gov/~dms/hret3-2.html>



◆ Why implement a risk-based food inspection program?

The goal of the MND is to regulate food establishments and minimize the occurrence of food borne illnesses. A risk-based food inspection program is the most efficient and effective way to achieve this goal. The program maximizes resources by focusing on the food establishments that pose the greatest risk to the public.

◆ How would RBI change MND's current food inspection process?

If MND switches to a risk-based inspection program, it has a variety of options to choose from. Not all risk-based food inspection programs are exactly alike. Each program may have slight variations in the number of risk categories, criteria for each risk category, and frequency of inspections per category. One option is for MND to conduct a risk assessment analysis and assign each establishment one of three risk categories: Level I, Level II, or Level III. The risk-based inspection program then adjusts inspection frequency based on the risk level.

The Level I category establishments pose the greatest potential of causing food borne illness. Establishments in this category include full line restaurants that prepare all foods on site from raw ingredients and restaurants that have demonstrated a history of food inspection problems.

The Level II category includes establishments that pose a moderate public health risk. Most of the establishments in this category will be "fast food" operations. Level III establishments pose the lowest risk. They include bars and stores that sell non-potentially hazardous foods. This group, from past history, is rarely implicated in food outbreaks.

Our goal for this section was to analyze the financial and labor impacts on MND if they implemented a RBI program. To do our analysis, MND analyzed a sample of food establishments to determine what percentage of would be classified as Level I, Level II, and Level III.<sup>10</sup> From this information, we were able to follow the same methodology we used in the activity based costing model to determine the effect of switching to a risk-based system.

The loaded hourly rate and available productive hours for MND would remain the same as those determined in Task 1. We then worked with MND determine how long it would take to provide a food inspection for each level.<sup>11</sup> We calculated the inspection time for each level on the average inspection time for each establishment that we identified as Level I, Level II, or Level III. We

---

<sup>10</sup> Source: inspectiontimes.xls

<sup>11</sup> Source: Inspection Est-By Risk Level, Cost of Service Model



verified that the time estimates by level were within an acceptable range of the time we determined it would take MND to complete inspections by establishment type.

Switching to a risk-based system would include the introduction of a new type of inspection. A critical item inspection would require that the inspector to focus on the critical items that have been deemed the most dangerous to public health. We asked MND to estimate how long it would take to conduct a critical item inspection. To do this, MND reviewed the steps to complete an inspection and determined which steps would be affected if the inspector were only inspecting for critical violations.

Method of Service	Annual Hours		FTE Required	Cost Effect	Percent	Percent
	Required to Provide Service	Required			Increase in Required Personnel	Increase from Current Budget Costs
<b>Current System</b>						
Each Establishment is inspected bi-annually	13,684	1,041	-	-	-	-
<b>Risk-Based Alternatives</b>						
Level I: 3 complete inspections Level II: 1 complete inspection+1 critical item Level III: 1 complete inspection	15,329	1,053	\$83,499	1.14%	7.08%	
Level I: 2 complete inspections Level II: 1 complete inspection+1 critical item Level III: 1 complete inspection+1 critical item	13,422	922	-\$13,349	-12.92%	-1.13%	
Level I: 3 complete inspections Level II: 1 complete inspection+1 critical item Level III: 1 complete inspection+1 critical item	16,236	11.15	\$129,533	6.66%	10.95%	

Based on this analysis we were able to determine the financial impact of shifting method of providing service, as well as the implications on personnel. The table above outlines our results for alternative methods of providing service.

Recommendation

We concur with MND proposed plan (communicated to us during the audit) to implement a pilot program in which Level I establishments are inspected three times a year, Level II establishments receive one complete and one critical item inspection, and Level III establishments are inspected yearly. This option represents a shift in the method of providing service, but not a change in the department’s workload. We do not think it is in MND’s best interest to advocate a program that either increases costs or decreases the effort spent on public protection.



**3.2 ACCEPTING CREDIT CARD PAYMENTS**

MND is responsible for collecting the permit fee from all new and change of ownership applications (all renewal payments are sent directly to the state). MND incurs a cost to process these fees. We examined if there would be a net cost savings if MND were allowed to accept credit cards payments. On the one hand, it would be quicker for MND to process credit card payments and they would also not have to deal with bad checks. On the other, credit card companies would charge MND a percentage of the total fee.

To calculate the cost saving from credit cards transactions, we model two situations. We first analyzed the cost of the current system (where credit card payments are not allowed). We determined the cost of processing all new and change of ownership applicants and the cost of processing bounced checks. Time estimates were provided by MND. We then analyzed a second case scenario where only credit cards payments are allowed. The table below shows this analysis.

**Metro Public Health Department  
of Nashville and Davidson County  
Processing Payments**

Activity	Number of Services Provided	No Credit Card Payments			Only Credit Card Payments		
		Processing Time	Issuing a closure notice	Total (in hours)	Processing Time	Issuing a closure notice	Total (in hours)
New and Change of Ownership Applications	877	20		292	15		219
Bounced Checks	5		120	10		N/A	0

**Hours Consumed:** **302.33**  
**FTE Required:** **0.23**

**219.25**  
**0.16**

Our analysis suggests that the Department would save approximately 83 hours annually if only credit card payments were accepted. If MND accepted credit card payments, we would anticipate that a section of the public would continue to pay with cash and checks.

If the credit card company charged 1.5% and all customers paid with credit cards, MND would save \$542.09.<sup>12</sup> If the credit card company charged 4%, MND would lose money by accepting credit card payments.

<sup>12</sup> The net cost savings to MND was calculated using MND’s annual hourly rate (as calculated in task 1) times the total labor savings minus the 1.5% credit card transaction charge. Source: Credit Card Costs.xls



### Recommendation

We recommend that MND not pursue use of credit card payments. Given the small benefit that MND might receive under the most favorable scenario, we do not believe that it is cost effective for MND to invest the effort into changing its procedures.

### **3.3 CURRENT SYSTEM WORKAROUNDS**

MND is working with many creative ways of increasing efficiency and productivity of inspectors. The current process at MND requires each inspector to fill out an inspection form after each inspection. The inspector then gives the inspection form to office staff to enter the data (specific information only) into the Garrison system. The process is tedious and inefficient. Office staff absences have resulted in the input of data being almost 30 days backlogged.<sup>13</sup> These backlogs prevent MND from being able to obtain up to-date information.

### Recommendations

We have the following recommendations.

- a) To deal with the current situation, we recommend that each day inspectors enter a few days of backlog into the system. This will help the office staff catch up and allow MND to use more recent information.
- b) MND should continue developing an automated (PC tablet) method of data entry. This advance in technology will allow MND the opportunity to design a more efficient process. They are currently experimenting on PC tablets through a custom software development by Terraine Software Company. This system currently only provides mileage tracking for field inspectors. However, MND should continue to work to develop a way to use this technology to help improve their data entry process.
- c) MND should obtain Microsoft Map Point Software (a web version is also available) to assist in daily inspection scheduling and the sorting of establishments to be inspected (thereby saving drive time and fuel cost.) Each inspector could map out all their establishments through their database list on Excel. The establishments can be coded with a letter and last 3 digits of the zip code and a single number for the establishment. Numbering each establishment this way (A09301, A09302, B09301, C09301, D09301 four quadrants of a zip code based on distance) will map code each establishment and make it easier for the inspectors to plan their weekly scheduling by zip

---

<sup>13</sup> Information provided by Steve Crosier while on site visit while talking about admin staff taking time off , especially in a case of an admin staff being on maternity leave, which accelerated their back log issue.



code quadrants. The US Postal Service will cooperate in providing some of the address files that could help this process. The Garrison system is not set up to provide these functions. The current process is time consuming. Establishments due for inspections are sorted by management on the Garrison system. This information is exported to an Excel spreadsheet and sorted by zip code. Management then prints these spreadsheets and gives them to the inspectors daily or weekly. The inspectors schedule their daily inspections based on this information.

- d) MND should utilize the Microsoft Excel workaround function described below as a temporary workaround for the non-functional Garrison System Violations report (Garrison states they are working on it). The data-capture of violations has not been designed properly to capture each critical violation. MND is not able to pull reports on what violations are most common. Knowing this information allows them to focus on this information especially during training.



**Excel Formula**

A work around for capturing this data from the Garrison system is to pull the data on all violations, export to Excel and reconfigure the data through Excel formulas to generate the frequency per violation from all establishments.

Applying this formula: =COUNTIF(L1:L100,"1") to the bottom of the critical violations data column (L) for each violation will provide the total occurrence for each violation. The number in inverted commas "1" is the violation category number.

Est. Type	Program	Establishment	Establishment Address	City	County	Field	C	Insp. Date	Inspector	Score	Critical Violations	Purpose	Start Time	End Time
1 - Commercial Fc	605	187688	NASHMILL 2611 MCGAW	NASHMILL	Davidson	310		7/7/2006	abeth	43	20,1,3,12,28,35,41	Complete	3:00 PM	4:00 PM
1 - Commercial Fc	605	115451	EL TOREF 70 WHITE BR	NASHMILL	Davidson	310		8/9/2006	amy)	46	28,35,1,3,12,30,41	Complete	10:30 AM	12:15 PM
1 - Commercial Fc	605	90975	FONDERC 321 WEST TF	NASHMILL	Davidson	310		6/14/2006	ette P	47	1,3,12,20,30,35	Complete	11:30 AM	1:30 PM
1 - Commercial Fc	605	182850	KOREA HI 6410 CHARLC	NASHMILL	Davidson	310		8/21/2006	amy)	48	20,1,3,12,35,41	Complete	2:00 PM	3:20 PM
1 - Commercial Fc	605	191426	CUISINE C 1602 21ST S	NASHMILL	Davidson	310		8/22/2006	rine F	48	20,28,35,1,3,12,41	Complete	10:30 AM	11:30 AM
1 - COMMERCIAL F	605	194270	MEDITER 600 WEST IRI	NASHMILL	DAVIDSON	310		10/16/2006	Rob	49	20,28,31,35,3,12,30	Complete	1:30 PM	3:40 PM
1 - Commercial Fc	605	83784	SBARRO 1200 COMMEF	NASHMILL	Davidson	310		7/10/2006	hel C	49	28,31,35,1,3,27,41	Complete	12:20 PM	1:30 PM
1 - Commercial Fc	605	169824	LOS TRE 2606 LEBANC	NASHMILL	Davidson	310		11/15/2006	abeth	52	20,28,31,35,3,12,41	Complete	2:05 PM	4:10 PM
1 - Commercial Fc	605	96983	PANCAKE 1796 21ST AV	NASHMILL	Davidson	310		11/28/2006	ick G	52	28,35,1,3,12,41	Complete	10:15 AM	11:20 AM
1 - Commercial Fc	605	167504	CHINA C 857 BELL RO	ANTIOCH	Davidson	310		10/18/2006	ry Ste	52	28,35,1,3,12,41	Complete	2:15 PM	4:25 PM
1 - Commercial Fc	605	194764	TAQUERI 660 E OLD HI	MADISON	Davidson	310		12/6/2006	Rob	53	20,31,35,1,3,12,27	Complete	12:50 PM	2:00 PM
1 - Commercial Fc	605	189605	Out Of Bc 1211 Murfrees	NASHMILL	Davidson	310		11/9/2006	ette P	53	35,3,12,30,41	Complete	3:35 PM	4:50 PM
1 - COMMERCIAL F	605	176534	EL CABRI 6207 CHARLC	NASHMILL	DAVIDSON	310		6/12/2006	Rob	53	4,28,35,1,3,41	Complete	10:20 AM	11:10 AM
1 - Commercial Fc	605	160171	ROMA PIZ 3101 CLARKS	NASHMILL	Davidson	310		2/16/2006	ette P	53		Complete	11:25 AM	12:35 PM

C. Violation	Frequency
1	10
3	144
4	0
7	0
11	0
12	28
20	13
27	11
28	25
30	10
31	6
35	36
41	101
45	0
46	0

Insert the Formula  
=COUNTIF(L1:L4330,"1")

Insert the Formula  
=COUNTIF(L1:L4330,"41")

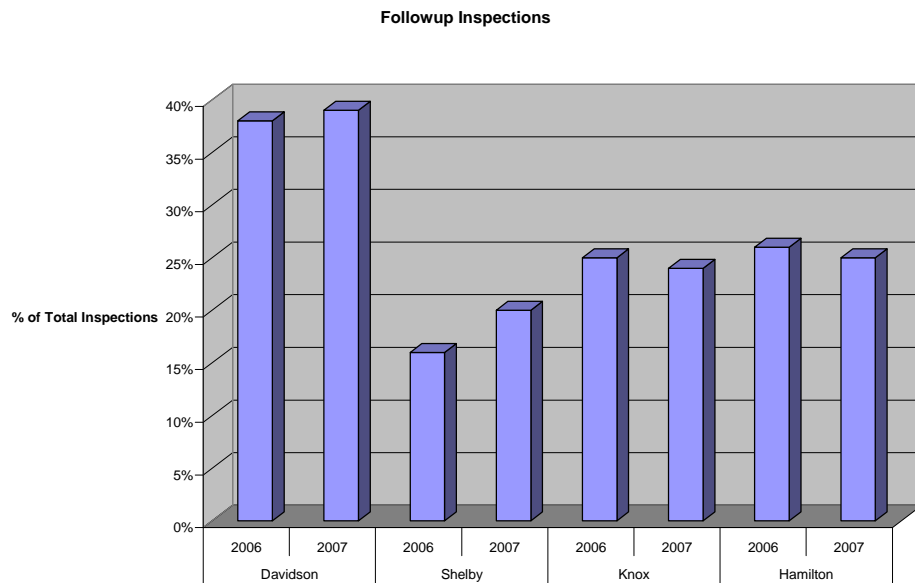


### 3.4 RISK PROFILES WITH TENNESSEE PEERS

The analysis for this section was done on data obtained from the Garrison system for Davidson, Shelby, Knox and Hamilton Counties<sup>14</sup>:

#### Follow Up Inspections

MND conducts more follow up inspections than other counties. This could be indicated to possibilities: 1) the inspections (or some inspectors) are more thorough or more likely to cite a condition that others may consider acceptable, or 2) establishments are not taking care of critical violations, which might indicate either a lack of training or awareness on the part of the establishment. Either way, MND uses more time and resources to do additional follow up inspections than other counties.<sup>15</sup>



<sup>14</sup> All data was obtained by a query of the Garrison system on June 11, 2008. (Files: davidsoncountyinspections2007, shellbycountyinspections, 2007, knoxcountyinspections2007, hamiltoncounty inspections2007)

<sup>15</sup> Graph Source: Follow Up Chart. Nashville Peer Analysisv2.xls.





Violation Frequency by Risk Type Categories

We created different violation risk level categories to identify the effectiveness of preventive food borne illness program / training awareness levels. The critical violations data was separated into three violation categories:

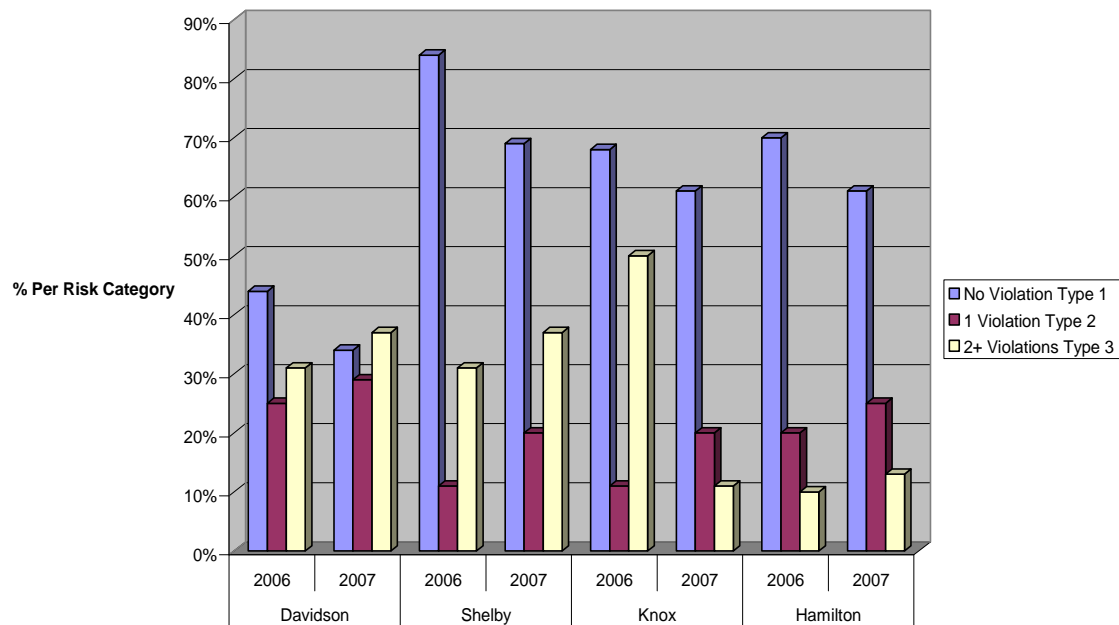
Type 1 – Establishments with no critical violations on complete inspections

Type 2 – Establishments with 1 critical violation on complete inspections

Type 3 – Establishments with 2 or more critical violations on complete inspections

Establishments with no critical violation (type 1) demonstrate a high awareness and follow good preventive food safety practices. Increases in violations (more type 2 and type 3) would indicate that more training and awareness measures are required to protect public safety.

**Violation Risk Frequency**



The graph shows MND to have the lowest percentage of establishments without critical violations and a higher number of establishments with type 2 and 3 violations. Given streamlined inspection practices peer-wide, this indicates that



performing more thorough inspections does not necessarily prove effective in lowering critical violations among establishments<sup>16</sup>.

At this point, it is important to point out that the data cited in our Violation Risk Frequency was collected in inspections performed by the Health Department of each respective peer County. Each year, the Tennessee Department of Health (TDH) conducts a General Environmental Health Program Review of county operated food service sanitation programs throughout the State. The counties cited in our report as peers to Davidson County are included in this annual review by the State. Variances in data, between county performed inspections and subsequent follow-up audits by the State of Tennessee do occur.

For the purpose of example, documents were obtained by MND from the TDH. A Sanitation and Safety Level summary indicates that TDH issued Knox County a score of 81.6 in an assessment conducted for the year ending December 31, 2005. The sanitation level indicated by the Knox County Health Department for the same year was 86.0, a numerical difference of 4.4 points (See Appendix 6).

Similarly, the TDH conducted an assessment of sanitation levels in Memphis-Shelby County for the year ending December 31, 2007 in which a score of 78.4 was assigned. For the same year, Memphis-Shelby County inspections indicated an average safety and sanitation level of 89.0, resulting in a 10.6 point disparity between the scores assigned by each entity (See Appendix 7)

A 5.6 point difference in safety and sanitation levels occurred between assessments by the TDH and MND. The TDH audit of a sample of food establishments in Davidson County assigned a score of 79.2, while MND inspections indicate an average score of 84.8.

Given that variances in scores between those assigned by the TDH and County-based Health Departments seem prevalent across all districts cited in our audit, we will proceed with the knowledge that differences do occur, but, in general, inspection standards are relatively streamlined. Note however, that we do address the issue of creating a standardized set of inspection practices, statewide, in the Recommendation portion of Section 3.6 of this report.

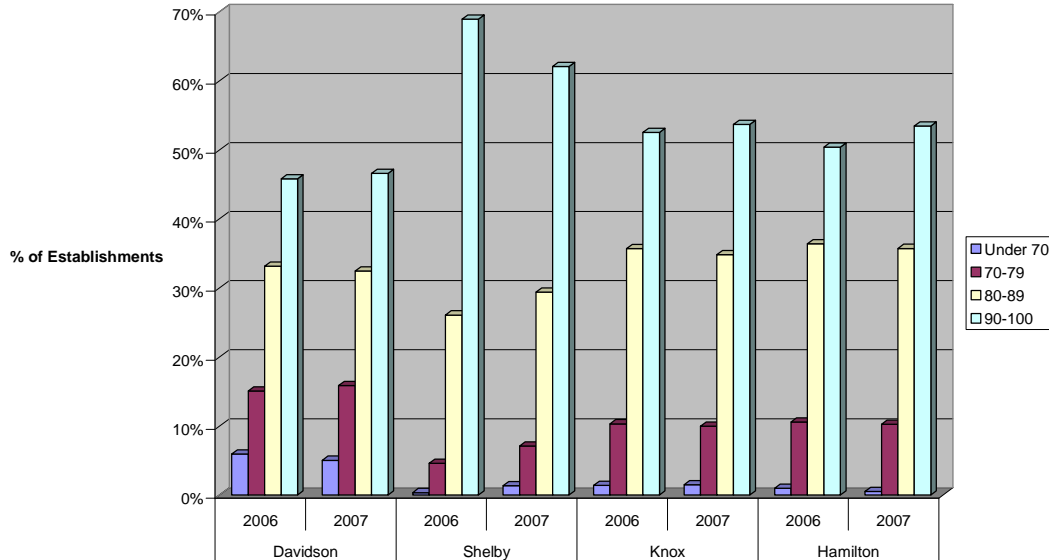
---

<sup>16</sup> Graph Source: Violation Chart 4, Nashville Peer Analysisv2.0.xls.



Inspection Scores of Establishments<sup>18</sup>

Inspection Score Categories



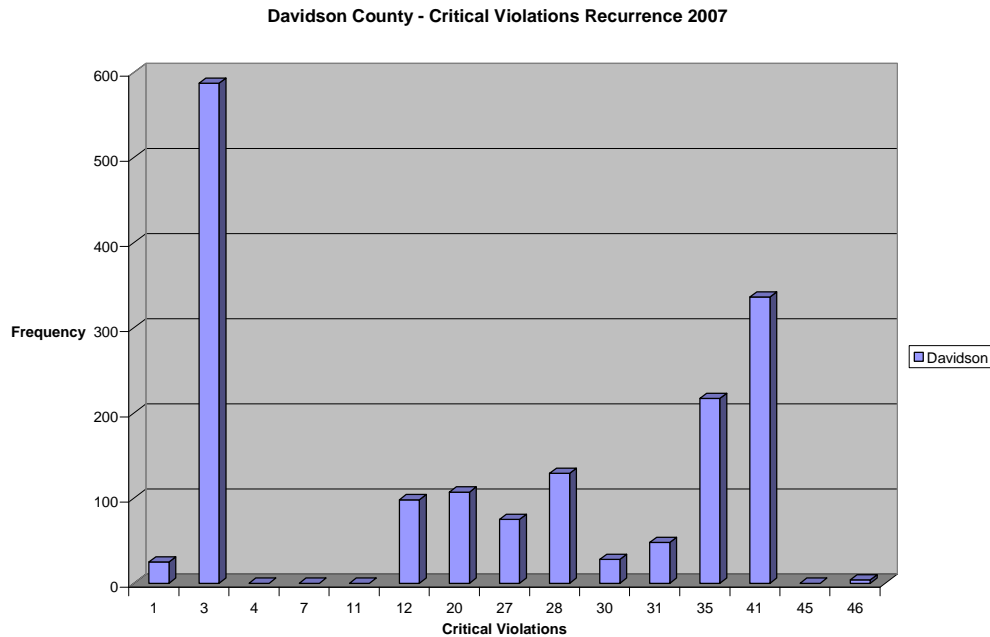
Establishments are graded with an inspection score. The Tennessee Food Protection Services scoring system allocates the highest score to establishments with no critical violations. MND has fewer establishments in the 90 plus percentile and proportionally more establishments scoring in the under 80 percentile compared to its peers.

These findings indicate that although MND inspects more frequently and possibly more thoroughly, these methods do not necessarily contribute to eliminating critical violations among establishments.

More emphasis on effective training and awareness measures to reduce critical violations among establishments is recommended. More resources need to be focused on enforcing a strong awareness/training program to the employees of the establishments on preventive food borne illness measures. A good start is to identify which critical violations at MND have the most recurrence.



Critical Violations Recurrence<sup>17</sup>



The most critical violations cited for MND establishments during 2007 were for 1) Hazardous food temperature requirements (code 3) 2) Presence of insects/rodents (code 35) and 3) Storage of toxic items (code 41). In reviewing the critical violations trend from 2006 to 2007 we noticed a significant increase in violation for Sanitization (code 20) and 3-Hazardous food temperatures. MND should emphasize in its training and awareness programs these specific critical violations.

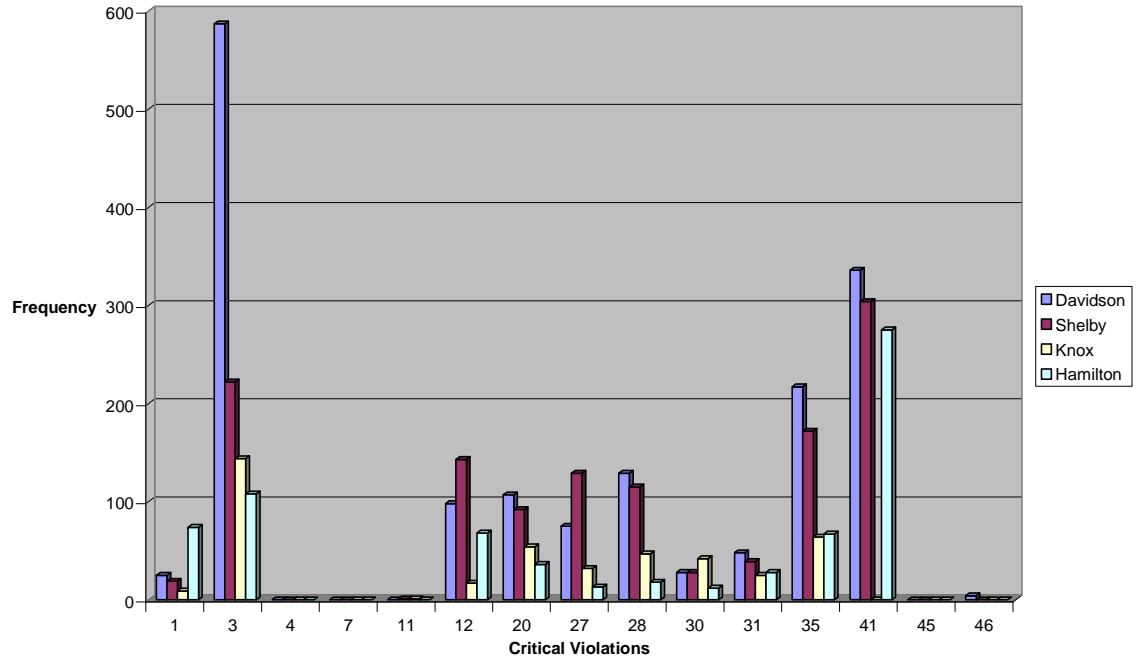
Critical Violations Description	Section
1 Source, Sound Condition, No Spoilage	Food
3 Food Temperature Requirements	Food protection
4 Facilities to Maintain Product Temperature	Food protection
7 Prevention Cross Contamination	Food protection
11 Personnel with Infections Restricted	Personnel
12 Hands Washed, Clean Hygienic Practices	Personnel
20 Utensils Sanitized	Food Equipment
27 Water Source Safe, Hot and Cold under Pressure	Water
28 Sewage and Wastewater Disposal	Sewage
30 Cross-connection Back Siphonage, Backflow	Plumbing
31 Number, Convenient, Accessible, design and install	Toilet/Handwash
35 Presence of Insects, Rodents	Insects
41 Toxic Items Proper Storage	Other
45 Current Permit Posted	Admin
46 Most Current Inspection Report Availability	Admin

<sup>17</sup> Graph Source: Violations Chart 3, Nashville Peer Analysisv2.0.xls.



Critical Violations Comparison with Tennessee Peers<sup>18</sup>

TN Counties - Critical Violations Recurrence 2007

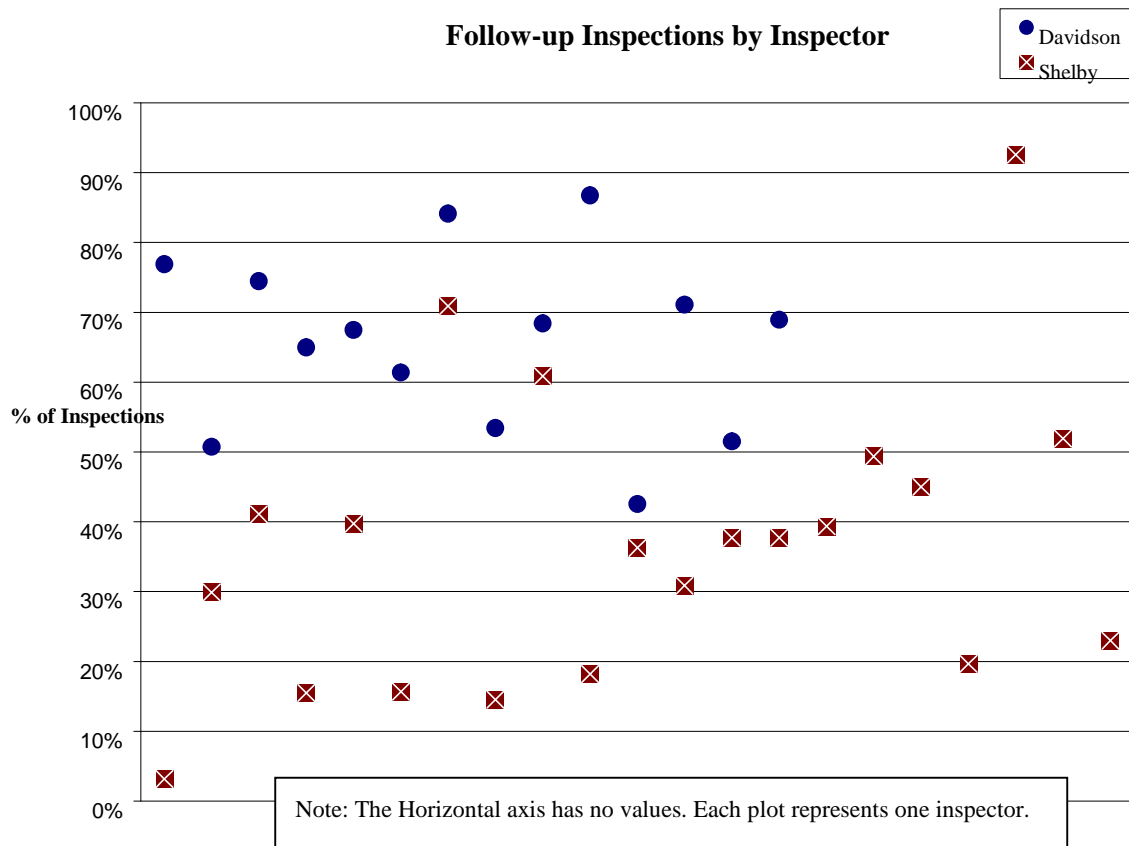


The key critical violations (3, 35, and 41) are not a unique problem to MND. Critical violations 3, 35 and 41 are also most prevalent in peer counties. Statewide food safety training / awareness programs should place a heavy emphasis on these three critical violations.

Inspector Productivity - Stringent Inspections versus Establishment Results

MND inspection data could possibly indicate that their inspections tend to be more thorough than the comparison counties we included in our analysis. A higher percentage of inspections are follow-up inspections at MND. Comparing the individual inspector data for Davidson and Shelby, Davidson has a 66% follow up average compared to Shelby's 34%. Davidson has fewer inspectors, but more inspections per inspector compared to Shelby County (during 2007).

<sup>18</sup> Graph Source: Follow Up Chart. Nashville Peer Analysisv2.0.xls.



There is a strong correlation between the percent of follow up inspection percentage and critical violations. We would expect to see such a correlation because inspectors are required to do a follow up inspection if a critical violation is cited during the first inspection. There is not much variance amongst the peer counties for the number of critical violations per total inspections. Davidson attains its 16% violations level with 66% follow up inspections, whereas Shelby attains its 14% level violations with only 34% follow up inspections.<sup>19</sup>

Inspections with Critical Violations	Davidson	Shelby	Knox	Hamilton
% with critical violations	66%	34%	43%	44%
% of critical violation over total Inspections	16%	14%	9%	17%

The scores chart shows more establishments in the 90-100 score range in the peer counties than in Davidson. Shelby has the highest number of establishments in the 90-100 score range and the lowest follow up inspections. From the data we can not determine if this is a result of inspections styles or if it is a result of the actual establishments.

<sup>19</sup> Source: Follow Up Summary, Nashville Peer Analysisv2.0.xls.



Productivity does not equal being thorough. Productivity of a division is measured by cost factors and effectiveness of the program implementation through establishment food safety results.

Currently, MND offers the following two training programs:

- Basic Food Handlers Training, offered once a month in English, six times a year in Spanish and three times a year in Mandarin Chinese
- Stay Focused Program, offered to management staff, in English, four times a year.

These classes are free to the public with notification delivered to every establishment in Davidson County and publicized on MND's Food Protection Services website.

The goal is to have the highest number of establishments in the 90-100 score range in the first inspection. Achieving this may require more training programs, more awareness of violation factors and higher focus on establishments with poor scores through risk based type programs.

#### Recommendation

We recommend that MND inspectors focus their resource on educating establishment employees and management while they are on the premises during their first visit. During this extra time, inspectors should go over the establishment's previous violation records and emphasize ways to reduce violation recurrences. A warning should be provided with a list of previous violations. The warning should enforce attending a mandatory training for all managers should they fail again on a recurring violation.

The goal is to reduce critical violations. More re-inspections per inspector may appear more productive, but unless it reduces critical violations, it provides extra cost without much extra value.

We believe that MND does not have all of the data it needs to resolve this. MND should contemplate the following questions:

- Is the re-inspection rate constant across all inspectors, or is the higher rate of re-inspection a result of differing practices by inspectors?
- Is the re-inspection rate constant across establishment types?
- Does training of inspectors or food establishments help to reduce critical violations?

Even if MND does not adopt risk-based inspection, this information is valuable. In a risk-based inspection environment, it is essential.



**3.5 RISK PROFILES COMPARED WITH RISK BASED AGENCIES**

The City of Plano has been conducting risk based inspections since 1993. They have 1623 food establishments. These establishments are broken down into 40 food sales type segment categories.

The City of Plano has 9 inspectors. They inspect food premises as well as swimming pools and other facilities. Food establishments have four risk categories. Type 1 (low risk) establishments are inspected once a year. Types 2 are inspected twice a year. Type 3 are inspected three times a year and type 4 (high risk) are inspected four times a year. The chart shows the number of inspections in 2007 per risk type.<sup>20</sup>

<b>Inspections per Risk Type - City of Plano 2007</b>		
Risk Type	Inspections	% of Total
Type 4 - 4 x a Year (Every 90 days) High Risk	694	21%
Type 3 - 3 x a Year (Every 120 days) Moderate-High Risk	1622	49%
Type 2 - 2 x a Year (Every 180 days) Moderate-Low Risk	970	29%
Type 1 - 1 x a Year (Every 365 days) Low Risk	40	1%

Comparing the City of Plano’s inspections per risk categories with the Tennessee metro counties similar risk breakdown by critical violations provides a reasonable idea of the impact in Metro Nashville and Davidson of adopting this type of program.

<b>Complete Inspections by Risk Category - TN Metro Counties 2007</b>					
Risk Type		Davidson	Shelby	Knox	Hamilton
No Violation	Type 1	34%	69%	61%	61%
1 Violation	Type 2	29%	20%	20%	25%
2+ Violations	Type 3	37%	11%	15%	13%

The City of Plano’s risk based process is more sophisticated. They have 40 categories for their establishments. Each of these categories has establishments with specific risk types assigned. Some categories may only be all type 1 (inspected once a year) or Type 2 (inspected twice a year).

<sup>20</sup> Source: Summary, Plano Data v2.xls





<b>City of Plano - Some Establishment Categories, their risk levels and inspections</b>														
<b>2007 Establishment Categories</b>	<b>101</b>	<b>102</b>	<b>200</b>	<b>201</b>	<b>202</b>	<b>203</b>	<b>204</b>	<b>205</b>	<b>206</b>	<b>208</b>	<b>209</b>	<b>211</b>	<b>301</b>	<b>302</b>
Insp 90 - 4 x a Year (Every 90 days)	151		44	97				7	4				27	14
Insp 120 - 3 x a Year (Every 120 days)	549	65			9	3		7	3				384	169
Insp 180 - 2 x a Year (Every 180 days)	9			1	185	55	4	4	91	8	23	195	110	62
Insp 365 - 1 x a Year (Every 365 days)													1	
Total 1st Inspection per category	709	65	44	98	194	58	4	18	98	8	23	196	521	245

Risk Based Inspection programs are designed to segregate establishments that make strong efforts to follow food borne illness prevention guidelines on a consistent basis from those that are not willing to make the additional efforts. Inspections of establishments that have low risk ratings are less frequent. Focus is stronger on establishments that are not making efforts to follow the guidelines. Less follow ups are conducted because overall only those categorized with higher risk are inspected more.

<b>City of Plano Follow up Inpections</b>			
	<b>2005</b>	<b>2006</b>	<b>2007</b>
Total Complete Inspections	3323	3243	3326
Follow up inspections	355	413	372
% Follow Up	<b>11%</b>	<b>13%</b>	<b>11%</b>

Compare City of Plano’s follow-up numbers to the four Tennessee Counties<sup>21</sup>:

<b>TN Metro Counties Follow Up Inspections</b>								
	Davidson		Shelby		Knox		Hamilton	
	<b>2006</b>	<b>2007</b>	<b>2006</b>	<b>2007</b>	<b>2006</b>	<b>2007</b>	<b>2006</b>	<b>2007</b>
Total Complete Inspections	5363	6156	6252	6343	2614	2976	2396	2762
Followup Inspections	3437	4090	1339	1867	1001	1109	942	1060
% of Complete with Followup	<b>64%</b>	<b>66%</b>	<b>21%</b>	<b>29%</b>	<b>38%</b>	<b>37%</b>	<b>39%</b>	<b>38%</b>

City of Plano’s rating of establishments is unique. Segregating food establishments into 40 food sales type segment categories allows them to allocate certain risk types to segments. Risk based inspections allocate more time and resources to establishments that have higher violations.

Is a risk based inspection method effective? If the goal is to focus resources (inspector time, food borne training and awareness) on establishments that require the most help, then it is effective.

If the ultimate goal is to have all establishments shifted to a type 1 risk (least amount of violations), then according to City of Plano’s 3 year trend from the

<sup>21</sup> Source: Follow Up Ratio, Nashville Peer Analysisv2.0.xls.



table below we see no change in the number of establishments increasing to the lower risk categories.

City Of Plano - Risk Based Inspection Trend							
Number of Establishments in Each Risk Category	Risk level	2005	%	2006	%	2007	%
Insp 90 - 4 x a Year (Every 90 days)	Level 4	187	15%	191	15%	193	15%
Insp 120 - 3 x a Year (Every 120 days)	Level 3	559	44%	576	46%	598	47%
Insp 180 - 2 x a Year (Every 180 days)	Level 2	471	37%	469	37%	476	38%
Insp 365 - 1 x a Year (Every 365 days)	Level 1	43	3%	36	3%	42	3%

Recommendation

We recommend that MND focus its resources on allocating more inspector time, training employees and management to establishments with high recurring critical violations (maintain data from their previous three inspections). Shifting to a risk based system can help segregate the lower risk establishments, which will allow better time management and focus by inspectors on establishments that require most attention.

**3.6 EVALUATE TRAINING REQUIREMENT FOR FAILED INSPECTIONS**

The contract between the TDH and MND requires that every food establishment be inspected once every six months.<sup>22</sup> In order to pass an inspection, food establishments must achieve a score of 70 or more, on a scale of 100. If the establishment fails an inspection, it must be re-inspected until it gets a passing score.

The two benchmark surveys conducted as part of this study show that when compared to *both* its Tennessee peers and various nation-wide agencies, MND has the highest rate of follow-up inspections per initial inspection. They also show that MND inspectors have a significantly larger workload per inspector, which could be due to the higher number of re-inspections. We do not know if MND is performing too many inspections or if its peers are performing too few, nor why critical violations in Nashville are comparatively so high.

Follow-up Inspections are a Significant Cost to MND<sup>23</sup>

Although re-inspections are a cost to MND, food establishments do not pay a fee for the additional service. The table below lists the time and cost that MND incurs per re-inspection on an annual basis.

---

<sup>22</sup> Section A.2.a.(1) of the Contract between the State of Tennessee, Department of Health and Metropolitan Government of Nashville and Davidson County acting by and through the Metropolitan Board of Health.

<sup>23</sup> Data was captured from the cost results in task one of this report.



<b>Unit and Annual Cost of Re-Inspections</b>	
MND Loaded Hourly Rate:	\$50.77
Average Time per Re-inspection (minutes)	35
Average Cost per Re-inspection	\$29.36
Annual Time spent on Re-inspections (hours)	2,436
Annual Cost of Re-inspections	\$123,662

MND inspectors spend an average of 35 minutes on each re-inspection (including travel time and document filing), which translates into an average cost of \$29.36 per follow-up. The annual cost for conducting just re-inspections is \$123,662, which is about 10% of the total expenses incurred by MND to review and inspect food establishments.

[Current Education and Training Requirements](#)

Failed food establishments are not currently *required* to attend training and consultation seminars in order to ensure proper food source, temperatures, food storage, and general cleanliness. Education and training inducements come in the form of a letter of notification, issued by MND and delivered via certified mail, to each establishment receiving an inspection score below seventy (70). This letter warns that a second inspection score below seventy (70) will result in issuance of a “Notice of Intent to Revoke Permit.” It encourages management to contact Metro Public Health Department in order to discuss methods of improving food protection levels.

In addition, this notice “vigorously” recommends that two members of management staff attend a class entitled S.A.F.E. (Self-Analysis for Food Excellence) which is conducted by Food Protection Services. The letter specifies the dates of upcoming S.A.F.E. classes and lists the location and time of each session. It invites the recipient of the notice to call the Director of Food Protection with any questions. The S.A.F.E classes are scheduled monthly.

MND also teaches a Basic Food Handler’s (BFH) course in several languages for anyone that desires to attend. During the past year, MND conducted 86 BFH training classes, 12 S.A.F.E. classes and 3 Stay Focused classes. All together, over 2,000 persons attended training by MND.

[Recommendations](#)

Based on the results and information gathered in the scope of this study, it is impossible to tell with any certainty, the reason for the higher number of follow-up inspections in MND compared to its peers. Our primary concern should be to



drive down critical violations in an efficient and effective manner. Our four primary recommendations are:

- a) Our first recommendation to achieve this goal is to switch to a Risk-Based Inspection program. Based on the data and analysis we've covered in this report, we believe that a Risk-Based Inspection program would produce optimal results with a comparable level of MND resources as are currently employed.
- b) In order to gain a better understanding of what is causing this situation, we recommend that MND conduct focus groups with the peer agencies as well as with management staff from several of the food establishments in the area. Inspectors and management staff would be able to discuss insights and practices on their method of operation. Items to cover might include the following:
  - What are the scoring guidelines for each inspection?
  - How strictly do inspectors adhere to the grading scales?
  - How long do inspectors spend on initial inspections and follow-ups?
  - Which types of establishments fail most consistently and why?
  - Is there a fee for re-inspections?
  - Is there mandatory training for establishments that have a failing score?

In addition to focus groups, an in-depth analysis of the risk profiles of failing food establishments would also help clarify and prevent failure. Elements of the analysis would include the following:

- Which critical violations in particular are causing the most trouble?
  - How many establishments fail at least one initial inspection in a year?
  - How many re-inspections does it take, on average, for an establishment to pass an initial inspection?
  - Which types of establishments are failing the most?
  - What is the average inspection score for MND in a year? What is the average score of the failed inspections?
  - Are the failing food establishments clustered in a particular area in MND or are they evenly spread throughout?
- c) Charge a fee, based on the cost of providing the service, for follow-up inspections that are the result of failed initial inspections. This recommendation is another incentive for food establishments to improve their initial inspection scores and therefore reduce the annual number of follow-up inspections. Also, re-inspection fees help MND recoup their cost of providing the service.
  - d) Require training for food establishments that fail their initial inspections. This would require MND to adopt a larger educational training program since there is currently only one staff member conducting the classes and providing food safety consultation. However, the cost of enlarging this



operation would be offset by the cost savings gained by reducing the number follow-up inspections.

Providing training and food safety consulting gives food establishments an opportunity to improve their operations and enables them to perform better in future inspections. Various agencies nation-wide have even incorporated training as part of the regular inspections provided to their high-risk food establishments.

MND has the following options for providing training to food establishments:

- Require that all failed inspection establishments obtain training from MND staff (optimal benefit for the cost).
- Require that all mid to high-risk establishments go through some minor degree of training by incorporating an annual routine educational inspection (reasonable benefit for the cost).
- Require that all mid to high-risk establishments go through some minor degree of training by incorporating an annual routine educational inspection *and* requiring additional training for the establishments that fail an inspection (least amount of benefit for the cost).

Regardless of which option MND chooses, it is clear that allocating some MND resources towards educating food establishments would improve their odds of passing initial inspections more frequently.



## TASK FOUR: AUTOMATED MANAGEMENT SYSTEM ASSESSMENT

### BACKGROUND AND APPROACH

The MDH has contracts with two state agencies to conduct food inspections. One contract is with the TDH, which requires MND to inspect all food service facilities in the county. The second contract is with the Tennessee Department of Agriculture, which requires MND to inspect all food stores.

MND is legally responsible for meeting the minimum requirements of their contract. However, MND is interested in finding ways to provide more effective and efficient services. This section focuses on an assessment of MND’s automated management system, in regards to its current capacity and the additional information that MND would need if they were to switch to a risk-based inspection system.

The TDH currently contracts with Garrison Enterprises Software (since September 2005) to provide statewide data processing support of food inspections. MND is required to provide information to the state using the Garrison system. The Garrison system was designed to meet specific operational functions. MND desires to have management tools that go beyond these functions. We have listed the key management functions below, as well as our suggestions for the tools that MND would require.

Management Function	Tools currently available or required to complete tasks
Permit payment & tracking	Garrison System provides this.
Inspection scheduling	Not automated – Garrison data export to Excel and manually work out a daily drive schedule. Available through Sweeps and Decade systems.
Inspection tracking and efficient data management	Not automated. Requires a computerized inspection form that can provide all inspection data transmitted by inspectors to a central system (daily or weekly). This can be done through Sweeps and Decade systems
Tracking establishments with low scores and critical violations	Not automated. Critical violation reports by all violations and establishments are provided by the Sweeps and Decade systems.



Management Function	Tools currently available or required to complete tasks
Establish multiple categories for food establishments with their appropriate risk type and inspection frequency requirements	Not automated. Available through Sweeps and Decade systems

We worked with MND to determine their current information needs, and what additional information they would need to successfully run a pilot risk-based inspection program. The following is key information:

- To evaluate number of inspections done by each inspector, the scores, follow ups and violations of establishments inspected.
- To track overall establishments progress/history/ranking from previous inspections.
- To track overall performance of food establishments in the County.

The Garrison system was not designed to provide inspection performance reports. However, this information is particularly useful to MND, especially since they are interested in analyzing the effectiveness of different inspection strategies. Inspection performance reports would provide invaluable information on tracking performance and establishing standards.

**Current (Garrison) Computer System Review**

MND currently uses Garrison during its daily operations. In this section, we review the financial and inspection applications of the Garrison system. We highlight some areas where MND is having problems. This is a system designed for the TDH to capture data and provide reports for various other services including food inspection. Since it is not exclusively designed for operations of food services inspections, many requirements specific for such an operation are not fulfilled through this system.

- a. The financial tracking of permit / renewal applications and payment process is a well developed, structured system using both the Garrison System and manual work flow with audit processes.<sup>24</sup>
- b. The food inspection process is not fully automated. The current inspection process requires inspectors to fill out the inspection form manually after each inspection. The forms are brought into the office the next day and left for administrative staff to enter the information into the Garrison system. This process requires additional staff for data entry and only specific information is entered. With ten inspectors averaging seven inspections a

---

<sup>24</sup> Garrison Financial System and Financial processing Review information provided by Jerry Rowland and admin staff at Metro Nashville Davidson Food Protection Services (MND) while on Site visit June 10,2008



day, the administrative staff is backlogged more than one month.<sup>25</sup> Such backlogs provide inaccurate management reports. A fully automated system would allow for computerized forms with all inspectors entering their data on their computer (notebooks/tablets) and uploading this data daily or weekly onto the main system.

- c. There is no computerized scheduling system. The Garrison system does not sort by zip code. Reports of inspections conducted over the past six months are exported to excel, sorted by zip codes and provided to the inspectors. The inspectors manually schedule the establishments they plan to inspect on a given day. This process is inefficient and time consuming.<sup>26</sup> A data sort by inspector name, uninspected establishment (by last complete inspection date) or follow up inspection and zip codes would be a more efficient process and would allow the inspectors to map out establishments closer together (saving gas and drive time) MND currently assigns inspectors to a specific territory, determined by zip code.
- d. The violations statistics report is very important for monitoring threats to the public's health. The Garrison system currently has a problem with data capture and preparing reports on critical violations. Violation statistics would allow MND to focus on these issues during training and awareness programs. Both Garrison and the State are aware of the problem. Our review on June 10, 2008 found the critical violations report on the Garrison system but the feature did not work. The State is aware that the problem still exists (since 2006) and mentioned that Garrison is still working on fixing this.<sup>27</sup>
- e. The system has not been designed for multiple categorizations of establishments under additional sub categories. MND has two retail food services inspection program categories, 605 and 607. To incorporate risk based methods further, breakdown of these categories with different risk criteria needs to be allocated to each category. The Garrison system is not designed to do this.
- f. MND does not have easy access to their data. All data entered on the system is captured and stored on Garrison's web servers. Garrison has stated that they are willing and able to cooperate in providing MND with

---

<sup>25</sup> Information provided by Steve Crosier while on site visit while talking about admin staff taking time off , especially in a case of an admin staff being on maternity leave, which accelerated their back log issue.

<sup>26</sup> Information provided by inspectors (David Sartain, Ivone Rodriquez) while reviewing their morning routine of coming into the office and creating their daily schedule on June 10th, 2008.

<sup>27</sup> Ray Solanki with Steve Crosier called Bernie Rhodes to discuss this matter on June 9th, 2008 from Steve Crosier's office.





their data. However, MND may want to make an agreement to get monthly back up copies of their information, which they can use to achieve their management goals.

**Alternative Inspection Software Systems Evaluation**

We contacted several cities to find out how they obtain data to manage a food inspection program. We examined two of the most popular inspection software systems, Decade (Envision Connect software) and Input systems (Sweeps software). These systems were especially prominent for risk based inspection. Appendix A provides a detailed list of the software features capability. In the table below, we outline the key pros and cons of each system.

**Input Systems (Sweeps) software** has an install base of 30 (Cities/Counties) in five States, including the City of Plano Texas.<sup>28</sup> We visited the Health Department in Plano to interview them about their experience with the system. The City of Plano was a field beta test client for Sweeps. They have used the Sweeps system for their risk-based inspection process since 2000.

**Decade Software** has an install base of 84 Cities/Counties.<sup>29</sup> The City of Garland and the City of Lubbock have used Decade software for several years and when we surveyed them they reported being satisfied with the software and vendor support. The City of Midland, TX recently chose Decade for their Environment Health Information System.

	Sweeps	Decade
Pro	The software can be customized to risk based inspection process. Data is hosted on the local server. Inspection forms are on each inspector’s notebook/tablet computer. The data can be transmitted to the main server daily or weekly.	Decade runs on MS SQL with full export capabilities and has the features required for both risk based and non-risk based inspections. Envision Connect is web based with the option of the State / local hosting or Decade hosting environment. The software provides on-line (data entry) forms and automated inspection scheduling for field use through notebooks or tablet PCs.

---

28 Information provided by Kevin Trasher (Technical Support Manager, Input Systems) during a phone interview on August 8,2008.

29 Decade Information was provided by Meghan Graham (Decade Salesperson),



	<b>Sweeps</b>	<b>Decade</b>
Con	The system is not web based. The database is proprietary. This makes data conversion to other systems difficult. Reports cannot be exported to excel. Reports can only be printed. The system shows that the report can be saved as a text file which can be exported; however, there appears to be technical issues with this process. <sup>30</sup>	None known
Cost	10 inspector-user plus 4000 establishments Sweeps system is \$1850 per month plus possible data conversion, setup and training costs. <sup>31</sup>	Approximate Cost for a single 10 inspector-user Decade Envision Connect system for food services with training, data conversion, public website publishing of inspection results, report development (invoices/permits/inspection) and hosting \$79,209 first year, plus \$28,917 successive years. A multiple county purchase (at the State level) should provide a much lower price (cost allocated by number of inspectors). <sup>32</sup>

**Recommendation**

We recommend MND investigate using commercial off-the-shelf software with appropriately configured queries and reports to establish data to monitor the effectiveness of the inspection process. It should provide the functionality to establish efficient inspection processes through an automated system.

---

30 Kevin Trasher (Input systems) mentioned over a phone interview that their database system was proprietary, due to this data conversion to other database systems is difficult. He was asked during a site visit to City of Plano to export their data to Excel. After trying, he reported that it was not possible as the data was coming out “garbled” and not readable.

31 This price for the Sweeps system was provided by Kevin Trasher for 10 inspectors, 4000 establishments. Setup and data conversion costs are workable and according to Kevin very negotiable.

32 The price for the Decade system was provided by Meghan Graham for 10 inspectors. It includes training, data conversion, set up and first year subscription usage service.

# *Metro* **Public Health Dept**

Nashville / Davidson County

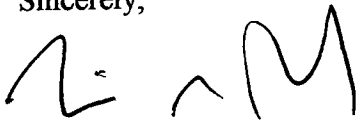
January 15, 2009

Mark Swann  
Metropolitan Auditor  
Office of Internal Audit  
222 3<sup>rd</sup> Avenue North, Suite 401  
PO Box 196300  
Nashville, TN 37219-6300

Dear Mr. Swann:

The Metro Public Health Department (MPHD) has reviewed the Audit of Food Protection Services. The MPHD's response to each recommendation is attached. We appreciate your leadership during this review process and look forward to implementing recommendations to strengthen our program.

Sincerely,



William S. Paul, MD, MPH  
Director of Health

**Karl F. Dean**  
Mayor

**William S. Paul, MD, MPH**  
Director of Health

311 23rd Avenue North  
Nashville TN 37203-1511

Phone: (615) 340-5616  
Fax: (615) 340-5665

[www.health.nashville.gov](http://www.health.nashville.gov)

#### **Board of Health**

William N. Hance, JD  
Chair

Ruth Stewart, MD  
Vice Chair

Samuel Okpaku, MD, PhD  
Secretary

Henry W. Foster, Jr., MD

Janie E. Parmley, RN

Samuel L. Felker, JD



**Promoting and  
Protecting Health**

**Metro Public Health Department  
Management's Response to Recommendations  
January 2009**

Report Item and Description	Response to Recommendation / Action Plan	Assigned Responsibility	Estimated Completion
<b>gg.1S (SAMPLE)</b> Establish a program management level position.	<b>Accept.</b> The position has been filled Dec 01, 2008	Director	Dec 1, 2008
<b>R.1</b> Implement a pilot risk-based inspection program (with approval).	<b>Accept.</b> Will require Tennessee Department of Health approval.  NOTE: Our Director of Health has approval to implement a pilot study.	Director/TDH	Not determined
<b>R.2</b> Discontinue efforts to accept credit cards as payment for permits and fees by vendors.	<b>Accept.</b> Will review again at a later date.	N/A	N/A
<b>R.3</b> Strengthen daily efforts to enter back-log of inspection information into the management system	<b>Accept.</b> This is now part of the evaluation process for MPHD data entry personnel.	Director	8/1/08
<b>R.4</b> Continue development of automated data entry of inspection information (PC tablet or other)	<b>Accept.</b> All inspectors now have tablets and we have a software vendor developing improved interface options for the tablets.	Director	On-going
<b>R.5</b> Obtain commercial of-the-shelf software (MS Map Point or other) to assist inspectors in efficient scheduling of establishment inspections	<b>Contingent acceptance.</b> Will depend on available budget and staffing consideration. Also, TDH soon will issue a RFP for the new data software company. Hopefully, this issue will be part of the RFP.	Finance/TDH	Not determined

**Metro Public Health Department  
Management's Response to Recommendations  
January 2009**

Report Item and Description	Response to Recommendation / Action Plan	Assigned Responsibility	Estimated Completion
<b>R.6</b> Use described Excel workaround temporarily to augment the poorly functioning Garrison information system	<b>Accept.</b> Will attempt to incorporate this Excel workaround to capture statistical information on critical violation rates by inspector. Will need to schedule training from our Information Technology division.	Director	3/1/09
<b>R.7</b> Inspectors should focus more effort on educating establishment management and employees about critical violation during the initial required inspection visits	<b>Contingent acceptance.</b> Our inspectors currently use the initial inspection as an educational opportunity for the operator and/or employee. Keeping employees trained is a challenge due to high turn-over rate in the restaurant industry. Increasing training time would not be possible without adding staff. We believe one answer is for TDH to require mandatory food safety training.	Finance/Director/TDH	Not determined
<b>R.8</b> Focus more effort on establishments with high recurring critical violations and less on other establishments	<b>Accept.</b> This could be incorporated with risk-based inspection, if approved. Under current State law, each establishment must be inspected at least twice a year. Due to this requirement, incorporating a risk-based inspection program would not be possible. We are working to implement a pilot risk-based program, with hopes of providing data to the State that proves the value of this program.	Director/TDH	Not determined
<b>R.9</b> Implement a permanent risk-based inspection program as recommended by the US FDA	<b>Accept.</b> MPHD will work with TDH to try to accomplish this task.	TDH	Not determined

**Metro Public Health Department  
Management's Response to Recommendations  
January 2009**

Report Item and Description	Response to Recommendation / Action Plan	Assigned Responsibility	Estimated Completion
<b>R.10</b> Conduct focus groups with peer agencies and food establishment management staff in order to gain a better understanding of why the high number of follow-up inspections are required	<b>Contingent acceptance.</b> Director of TDH's Food Program says our division is debiting violations according to State law and policies. TDH will conduct another survey in Davidson County within the next few months.	Director/TDH	51/09
<b>R.11</b> Institute a fee for required follow-up inspections	<b>Cannot accept.</b> We agree it would be beneficial to cover the cost, however, such a fee must be enacted by the State legislature. Ten years ago the State did pass an act that required a follow-up inspection fee of \$25. Legislators eliminated the fee the next year.	TDH	N/A
<b>R.12</b> Require training for all establishments that fail initial establishment inspections	<b>Cannot accept.</b> Until budget, staffing, and legislative requirements become more clearly defined and achievable, it would be unrealistic to accept this finding. TDH tried unsuccessfully to pass mandatory food safety training through the State legislature.	TDH	N/A
<b>R.13</b> Investigate obtaining commercial off-the-shelf software with appropriate queries and reports to monitor the effectiveness of the inspection process.	<b>Contingent acceptance.</b> Will depend on budget and staffing consideration. Also the TDH soon will release a RFP for a new data software contract. This should solve this particular problem.	Finance/TDH	Not determined