Performance Audit of the Milwaukee Fire Department

MILWAUKEE, WISCONSIN

FINAL REPORT

matrix consulting group
4322 N. Belt Line, Suite B112
Irving, TX 75038
v.972.871.7950 f.972.871.7951

October 10, 2005

TABLE OF CONTENTS

CHAPTER		PAGE
1.	INTRODUCTION AND EXECUTIVE SUMMARY	1
2.	ANALYSIS OF THE ORGANIZATION AND MANAGEMENT OF THE FIRE DEPARTMENT	4
3.	ANALYSIS OF OPERATIONS AND LINE STAFFING OF THE FIRE DEPARTMENT	15
	APPENDIX A: COMPARATIVE SURVEY RESULTS	60
	APPENDIX B: DESCRIPTIVE PROFILE	81

1. INTRODUCTION AND EXECUTIVE SUMMARY

The City of Milwaukee retained the Matrix Consulting Group to conduct an assessment of the delivery of Fire Services in the City. The project team conducted this Performance Audit of the Fire Department during the summer of 2005. The scope of work for the study included the following elements:

- A thorough review of current operations, management, services and costs associated with the Milwaukee Fire Department.
- Analytical determination of the most appropriate levels of service and service delivery in the City.
- Evaluation of alternative staffing and deployment options and estimated costs savings.

In order to conduct this Study, the Matrix Consulting Group project team engaged in the following activities:

- Interviewed senior executive staff to understand financial and human resources issues facing the City.
- Interviewed Department management including all Deputy Chiefs and above, as well as a number of other personnel.
- Conducted small group interviews with line personnel within the Fire Department.
- Met with the IAFF executive board to review their concerns as part of the study.
- Collected detailed data describing operations, workload, deployment, scheduling, use of leave, apparatus, station location, etc.
- Developed a descriptive profile of the Fire Department describing current operations, service levels, staffing, deployment, stations, etc. This was reviewed by MFD staff and City Management to ensure its accuracy.

Collectively, these steps were intended to provide the project team with a full understanding of the current methods of service delivery by MFD, its operations and the

environment within which services are provided. This approach is further intended to ensure that all participants have had opportunities for input into the study process.

Executive Summary

The analysis and supporting documentation contained within this report are extensive. This Executive Summary is intended to provide a brief synopsis of those results. The paragraphs, below, provide a summary of our findings, recommendations with fiscal and operational impacts.

Section	Finding	Recommendation	Fiscal Impact
2.3	The Fire Department currently has a number of Deputy Chief positions with small spans of control, supported by civilian or sworn managers with direct operational oversight. Civilianization of these positions would do little to address these issues and would not result in annual savings given the structure of the City's pay and benefit plans.	Create a new Bureau of Support Services in the Fire Department by eliminating two (2) Deputy Chief positions and consolidating the Bureaus of Administration, Construction & Maintenance, and Technical Services under a Deputy Chief. Savings shown include salaries and the value of benefits paid by the City.	($225,000)
3.2	The Fire Department should focus management attention on the elements which comprise its overall response time including the processing of calls in the 9-1-1 center and the time it takes firefighters to respond to an alarm.	The Fire Department should continue to operate with the objective of obtaining a number of the performance goals set forth in NFPA 1710 and other national consensus documents. This should include response times and response objectives for unit responses (timing and the number of personnel).	None
3.3 (1)	The MFD is not meeting national objectives for dispatch processing time, "reflex" time or total system response time. These are issues which can be enhanced through effective and proactive management of staff. While travel time is above national targets (93% of calls receive a first unit in 4-minutes or less of travel time compared to the national target for urban areas of 90%) total response times are not meeting national standards.	Management should be focused on assessing dispatch processing which fails to process calls in one minute or less 90% of the time. Further, management should focus on reducing "reflex" time to less than one minute for fire and EMS units responding to emergency calls. This can produce a significant service enhancement for no additional cost.	None

Section	Finding	Recommendation	Fiscal Impact
3.4	Current unit deployment and minimum staffing has resulted in a surplus of firefighters but a shortfall in the number of Lieutenants and Heavy Equipment Operators. This results in additional overtime generated to fill in for these higher-ranking classifications.	If the City were to maintain current deployments and staffing, hiring of additional personnel at the classification of Lieutenant and HEO would result in reduced overtime expenditures. Savings shown include salaries and the value of benefits paid by the City.	($562,000)
3.5 (2)	Current unit staffing in the Fire Department provides for (4) on engines, (5) on ladder trucks and (5) on some specialty units (technical rescue, hazardous materials, etc.). The results of the comparative survey do not justify this level of staffing. Further, the project team's analysis of fire unit coverage shows a significant overlap of staffing coverage for almost all emergency calls. For example, more than 88% of calls can receive a response of 24 or more firefighters under the current configurations given the station overlap that exists in the City.	Reduce ladder truck staffing to a minimum of four persons per company. This does not change the effective coverage provided by the MFD – more than 88% of calls still receive 24 or more firefighters in 8 minutes or less. In fact, almost 63% of calls receive 120 or more firefighters in 8 minutes or less under this alternative staffing approach. Maintain the special response engines (water, hazardous materials and technical rescue) with (5) personnel. Savings shown include salaries and the value of benefits paid by the City.	($3,200,000)

2. ANALYSIS OF THE MANAGEMENT AND ORGANIZATION OF THE FIRE DEPARTMENT

This chapter discusses the project team's findings and recommendations related to the management staffing and organization of the Fire Department. The focus on this chapter of the report is on the following two primary questions:

- Is the organization and overall management staffing of the Fire Department appropriate given spans of control, types of services, size of the organization, etc.?

- Are there opportunities to shift from uniformed to civilian managers in some cases, thereby lowering the cost of the positions to the taxpayer?

The first section in this chapter, addresses the overall management organization and staffing of the Fire Department. The second section addresses the potential for civilianization.

1. THE ORGANIZATIONAL STRUCTURE OF THE FIRE DEPARTMENT IS WELL MATCHED TO THE OVERALL MISSION AND RANGE OF SERVICES. HOWEVER, SOME OPPORTUNITIES MAY EXIST TO CONSOLIDATE COMMANDS.

The Matrix Consulting Group's approach to assessing organizational structures and command staffing requirements is based on assessing a series of formal criteria. In order to evaluate the organizational structure of the MFD, the project team first identified the criteria by which the organizational structure would be judged. The paragraphs, that follow, describe those criteria as well as describe what is meant by each of them:

- **Frequency of Contact:** With what other units does the unit in question have the most frequent contact? Does it have frequent contact with the units with which it is currently organized? Are there other units outside of its current organizational niche with which it has more frequent contact?

- **Types of Contact:** Do the contacts involve the sharing of resources (personnel or equipment)? Are the contacts administrative in nature? Do they involve the passage of paperwork from one unit to the other?

- **Extensiveness of Interactions:** Are the interactions frequent but inconsequential (i.e., daily passing of time sheets would not be given as much weight as responding to automobile accidents). Are the interactions going to have an impact on the safety or the quality of life for those in the facility?

- **Connection of Actions:** Do the units exhibit an organizational dependency on one another? Would it be more difficult for one unit to do its work if there were some separation / attachment?

- **Administrative Paper Flow:** Is there an immediate need for the units to be attached organizationally to ensure the smooth flow of critical paperwork (for example, payroll making its way to Finance is not a justification for having every unit attached to Finance).

- **Support Versus Operations:** Have functions that support more than one operational unit been grouped together? Are there clear and reasonable divisions among operational units?

- **Span of Control:** Does the span of control for each major element in the organization mirror that of peers in the organization? Is there a similar level of responsibility within similar levels in the organization?

Each of these criteria, individually, would not provide enough information to make a decision about the appropriate placement of an organizational unit. As a group, however, they provide the information required by the project team to come to conclusions about the current organizational structure and to make recommendations for any improvements. The exhibit, which follows, shows the project team's assessment of the current organizational structure relative to these criteria:

Bureau	Frequency	Type	Extent	Connection	Paper Work	Support vs. Operations	Span of Control	Observations and Alternatives
Firefighting	√	√	√	√	√	√	√ **(1,002)**	• Each shift is run by a Deputy Chief. • Battalion Chiefs have responsibility for roughly six stations and 11 units each (about 50 people). • Span of control is common to that found in the survey group. • Dispatch of two BC's to major calls is in line with other agencies which send a BC and a safety officer.
Administration	√	√	√	√	√	√		• This Deputy Chief position is largely responsible for budget, personnel and other associated functions. • The span of control for this position (10 total) is lower than that of some other peer Deputy Chiefs. The position is well supported by subordinate positions.

Bureau	Frequency	Type	Extent	Connection	Paper Work	Support vs. Operations	Span of Control	Observations and Alternatives
Construction & Maintenance	√	√	√	√	√	√		• Two senior, civilian, positions are responsible for overseeing day to day vehicle and facility maintenance. • Span of control does not compare well to other Deputy Chiefs. • Functions are largely support and routine in nature. • Capital planning is a budgetary function, specifications are handled at the line level.
Training	√	√	√	√	√	√	√	• While immediate span of control is small, this unit is responsible for new recruits and on-going training system-wide. • DC rank necessary to ensure cooperation from all units.

Bureau	Frequency	Type	Extent	Connection	Paper Work	Support vs. Operations	Span of Control	Observations and Alternatives
Special Operations	√	√	√	√	√	√	√	• Immediate span of control is smallest in the entire MFD Deputy Chief rank structure. • EMS is a mission-critical service which is coordinated from this office. • Special Teams are also coordinated from this office, the only cross-shift point of contact for these units.
Technical Services	√	√	√	√	√	√		• This unit is comprised of two major functions: dispatch and technical support / research. • Dispatch function is entirely civilian. • Technical support is comprised of sworn (Captain and Lieutenants) and civilian technical staff. • Span of control is relatively small (34).

The following paragraphs summarize the project team's findings:

- **Firefighting**: No issues within this element of the Department's organizational structure. The common mission, focus on operations and span of control all support the level of command staffing present. A review of the comparative survey results also shows that this level of span of control (six stations and an average of 11 units per Battalion Chief) is commonly held.

- **Administration**: While the Administrative command in the Fire Department is responsible for a wide range of functions, these functions are well supported on a daily basis by a number of civilian professional positions. The Deputy Chief's role is to coordinate these functions and to deal with major issues in each of these administrative areas as they arise. This presents an opportunity for consolidating these responsibilities with other areas in the Department.

- **Construction and Maintenance**: This is a functional area in which the day to day operations are overseen by two civilian managers. The Deputy Chief's primary role is to coordinate between these functions, to deal with the Deputy Chiefs and Battalion Chiefs assigned to Firefighting and to deal with other City Departments. These factors also present an opportunity to consolidate this functional area with other areas of the Department.

- **Training**: While the Training function nominally has a small span of control for a Deputy Chief, the level of responsibility extends well beyond the 16 personnel assigned in the Bureau. In addition, the Bureau is responsible for ensuring that training is effectively delivered to all personnel in the MFD, including new recruits, probationary firefighters and career members of the Department. The criticality of this function justifies the maintenance of this as a dedicated unit with Deputy Chief level command.

- **Special Operations**: This is the smallest stand-alone Bureau in the Fire Department, with seven personnel including the Deputy Chief. However, like Training, this command's areas of responsibility extend to every firefighter in the MFD. This command is responsible for overseeing the system-wide delivery of EMS services and for overseeing the training, preparedness and coordination among the various special response teams (hazardous materials, water rescue, technical rescue) in the Fire Department.

- **Technical Services**: This command is primarily responsible for the deliver of emergency communications services for the Fire Department. The Bureau is also responsible for providing research and handling a range of special projects for the Fire Department. The span of control for the Deputy Chief (one Captain, one Dispatch Manager) is also quite small.

The project team has identified the potential opportunity to consolidate three of the commands – Administration, Maintenance and Technical Services. These will be considered in the last section of this chapter.

2. SEVERAL POSITIONS ARE ALSO POTENTIAL CIVILIANIZATION CANDIDATES.

In addition, the project team also examined the possibility that several positions in the Fire Department, which are currently uniform or "sworn" positions could be civilianized. These were also examined using a set of formal criteria, including the following:

- Does the position require skills, experience or training which can only be obtained from having firefighting background?
- Does the position supervise or routinely give orders to "sworn" personnel?
- Does the position have operational oversight at any point?
- Would civilianization make the position more difficult or expensive to fill?
- Would civilianization impact the effectiveness of the position within the command structure of the Fire Department?

The project team examined the organizational structure of the Fire Department and identified several positions which could be considered for civilianization. These include the following:

- Deputy Chief – Administration
- Deputy Chief – Maintenance
- Deputy Chief – Technical Services
- Deputy Chief – Training
- Deputy Chief – Special Operations
- Administrative Captain – Technical Services

- Administrative Lieutenant – Technical Services

The exhibit, which follows, provides a summary of the project team's findings relative to these criteria for each of the positions:

Position	Fire Skills Required	Supervision of Sworn	Operational Oversight	Difficult to Fill Position	Impact in Organization	Civilianization Candidate?
Deputy Chief Administration						√
Deputy Chief Maintenance						√
Deputy Chief Technical Services		√	√	√		
Deputy Chief Training	√	√	√	√	√	
Deputy Chief Special Operations	√	√	√	√	√	
Captain – Technical Services	√			√	√	
Lieutenant – Technical Services	√			√	√	

The table, above, highlights several issues with respect to civilianization opportunities which exist in the Fire Department:

- The Deputy Chief for Administration is a position which is focused on the "business" aspects of operating the Fire Department – finance, personnel, accounting and similar functions. The position does not require the special skills of a firefighter to be effective and has no direct supervisory or operational oversight with sworn firefighting personnel. These issues result in this position being a clear candidate for civilianization.

- Similarly, the Deputy Chief for Construction and Maintenance is a position which is largely focused on a business support function of the Fire Department – fleet and building maintenance. Both of these functions are managed on a day to day

basis by civilian managers. The position has no operational oversight and no sworn personnel are directed on a regular basis by this Bureau.

- Three other Deputy Chief positions, including: Training, Technical Services and Special Operations, are not well-suited for civilianization. The reasons for this include the fact that all are responsible for operational elements of the Fire Department, that there are sworn personnel in the chains of command in each of these Bureaus and because it would be difficult to replace these positions with civilians with the appropriate skills sets.

- The project team also examined the potential to civilianize the Captain and two Lieutenant positions in the Bureau of Technical Services and found that neither was a good candidate. This evaluation largely relates to the fact that all three positions are involved in research and development of issues related to firefighting, tactics, equipment and other elements of service delivery which is somewhat dependent on their having firefighting skills and experience.

The project team considers the implications of these organizational findings in the next section of this chapter.

3. THE FIRE DEPARTMENT SHOULD REDUCE THE NUMBER OF DEPUTY CHIEF POSITIONS BY TWO – ADMINISTRATION, MAINTENANCE AND TECHNICAL SERVICES SHOULD BE CONSOLIDATED INTO A SINGLE COMMAND.

A review of the findings in the preceding sections shows the following conclusions can be drawn:

- Several of the administrative and support Bureaus could be consolidated while still maintaining appropriate spans of control for the Deputy Chiefs.

- Several Deputy Chief positions could be civilianized should no other organizational changes be made (i.e., under the current structure these positions could be civilianized).

The project team identified the following alternatives to address these findings:

- **Option 1**: Consolidate Administration, Technical Services and Construction & Maintenance Bureaus into a Support Services Bureau under the command of a single Deputy Chief. This approach has the following impacts:

  - Generates salary savings from eliminating two Deputy Chief positions. These savings total approximately $172,854 in salaries and $51,857 in benefit costs for a total annual savings of approximately $224,711.

- Consolidates support services into a single operational command, enhancing accountability for these services under a single Deputy Chief.

- Improves the distribution of span of control for all three Deputy Chief positions.

- Enhances the authority and accountability for the civilian managers of finance, fleet maintenance, facility maintenance and dispatch.

- Maintains sworn oversight of the few sworn positions found in the newly consolidated command.

• **Option 2**: Civilianize two positions: Deputy Chief for Administration and the Deputy Chief for Construction and Maintenance. Make no other organizational changes. This has the following impacts:

  - The project team estimates that there would be little in the way of salary or benefit cost savings from making this transition. Senior management positions in the Fire Department are paid approximately the same as equivalent positions in other City functions. Chief officers in the Fire Department participate in the same benefit plan as other executive level personnel in the City staff.

  - None of the issues about span of control, oversight, etc. would be addressed by civilianizing these two positions.

• **Option 3**: Eliminate the Deputy Chief for Administration and the Deputy Chief for Construction and Maintenance positions. Create a new, civilian, position of Support Services Director. Maintain Technical Services as a Deputy Chief led Bureau.

  - Generates salary savings from eliminating one Deputy Chief positions. These savings total approximately $86,427 in salaries and $25,929 in benefit costs for a total annual savings of approximately $112,355.

  - Consolidates most support services into a single operational command, enhancing accountability for these services under a single civilian Director. However, Technical Services would remain a separate command.

  - Improves the distribution of span of control for one position but leaves the Technical Services Deputy Chief with a small span of control.

  - Enhances the authority and accountability for the civilian managers of finance, fleet maintenance and facility maintenance.

- Maintains sworn oversight of the few sworn positions found in Technical Services, and ensures sworn oversight of this function overall.

Given these findings, the Matrix Consulting Group recommends that the City pursue the elimination of two Deputy Chief positions and the consolidation of Administration, Maintenance and Technical Services into a single Support Services Bureau. This will result in annual savings of more than $225,000 and will address several other issues identified in this analysis.

Recommendation: Eliminate two (2) Deputy Fire Chief positions. Consolidate the Administrative, Construction & Maintenance, and Technical Services Bureaus into a Bureau of Support Services. This will generate annual savings of approximately $225,000 including salaries and the value of City paid benefits.

3. ANALYSIS OF OPERATIONS AND STAFFING OF THE FIRE DEPARTMENT

This chapter is focused on the issues of deployment and staffing. Current service levels and staffing as well as alternative deployment of personnel of the Milwaukee Fire Department are evaluated.

1. DEPLOYMENT AND STAFFING DECISIONS SHOULD ONLY BE MADE ONCE A COMMUNITY HAS SELECTED SERVICE LEVEL OBJECTIVES.

The City of Milwaukee has adopted several formal performance standards for the Fire Department. The adoption of performance standards for fire and EMS response is a critical first step in the evaluation of service levels and staffing alternatives. While there are national standards that can be used to evaluate fire and EMS service delivery, each community must identify the key risks and necessary level of protection it needs based on its own unique circumstances. Once these performance standards are established a community can assess its performance and determine if current resources support the desired level of service.

As a starting point, the project team examined the Fire Department's response network using the National Fire Protection Association's recommended standard 1710 "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments (2001 Edition)." It is important to take a moment to describe this source of performance standard guidance.

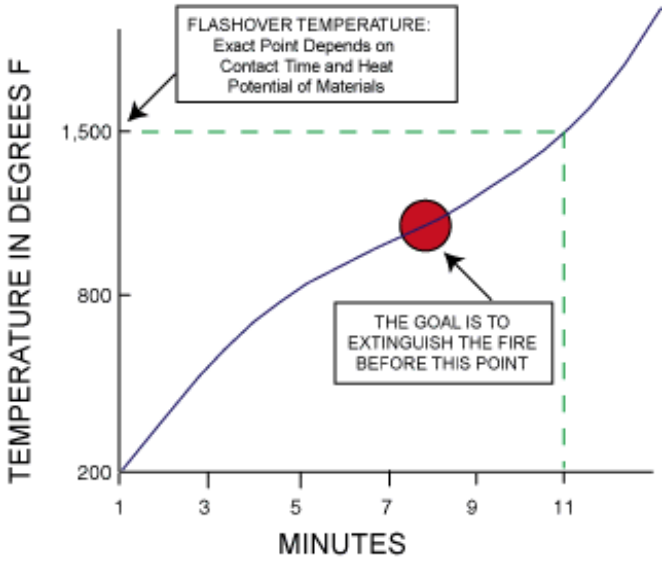
(1) The National Standards for Fire and EMS Service Delivery Are Based on Research Into Fire Behavior and Cardiac Survival.

The standards promoted for fire rescue and EMS have their basis in research that has been conducted into two critical issues:

- What is the critical point in a fire's "life" for gaining control of the blaze?
- What is the impact of the passage of time on survivability for victims of cardiac arrest?

The exhibit, that follows, shows the typical "flashover" curve for interior structure fires. The point of "flashover" is critical because it defines when all of the contents of a room become involved in the fire. This is also the point at which a fire changes from "room and contents" to a structure fire – involving a wider area of the building.

Generalized Flashover Curve



Note that this graphic depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. This demonstrates the criticality of early detection and fast reporting and dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly initiating

the attack on a fire, "flashover" can be averted. The points, below, describe the major changes that occur at a fire when "flashover" occurs:

- It is the end of time for effective search and rescue in a room involved in the fire. It means that likely death of any person trapped in the room – either civilian or firefighter.

- After this point in a fire is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only hand-lines will have enough water supply to affect a fire after this point.

- The fire has reached the end of the "growth" phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.

- This also signals the changeover from "contents" to "structure" fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to become a major risk at this point and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will "wait" for the 8-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

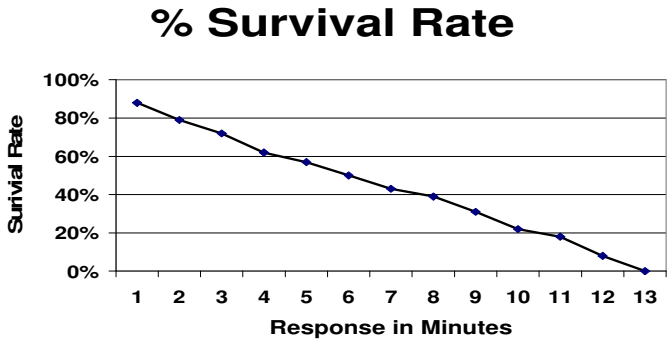
- Application of portable extinguisher or other "fast attack" methodology.

- Venting the room to allow hot gases to escape before they can cause the ignition of other materials in the room.

- Not venting a room – under some circumstances this will actually stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of an engine company that can safely initiate these actions. Under most circumstances, this requires at least three firefighters on-scene. However, many agencies wait to have at least two firefighters outside the structure to back up a two-person interior attack team.

The second issue to consider is the delivery of cardiac and other emergency medical first response. The exhibit, below, demonstrates the survivability of cardiac patients as a timeline:



This graph shows the results of extensive studies of the survivability of patients suffering from cardiac arrest. This is the most-often studied issue due to the ease of evaluating the outcome (a patient either survives or does not) from a cardiac arrest. This research results in the recommended standard of provision of basic life support within four minutes of notification and the provision of advanced life support within 8 minutes of notification. The goal is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch and travel time) and ALS within 10 minutes. This is the foundation for the two-tier system which has been implemented in the City of Milwaukee. Further descriptions of practical research into these issues are summarized in the section that follows.

(2) The National Association of Fire Protection Association 1710.

The topic of "appropriate" deployment and response to fires and other emergencies has been on the forefront of consideration in the fire service and among policy makers and municipal managers for the past several years. The intense focus has resulted from the development and promulgation of a document called NFPA 1710

(for short – the full title is: "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments (2001 Edition)."

What NFPA 1710 Is:

- A recommended standard of service for fire, EMS and other Fire Department activities.
- A tool for local policy makers to use when evaluating their own service delivery network.
- A standard that should be considered against the current response capabilities of the local fire / rescue / EMS service.

What NFPA 1710 Is Not:

- A law, a regulation or a requirement for cities and other municipalities to follow.
- Something that needs to be fully implemented immediately.

What NFPA 1710 Recommends:

- Dispatch handling times equal to one (1) minute or less.
- En route times (reaction times) equal to one (1) minute or less.
- Travel times for the initial arriving unit (or for the delivery of BLS level care in an EMS system) of four (4) minutes or less.
- Travel times for a full structure fire response (defined below) or for an ALS response (also defined below) in eight (8) minutes or less.
- The standard for fire can also be met if four (4) firefighters are on–scene in four (4) minutes or less.
- An ALS response is defined in the standard as at least four people, at least two (2) of whom should be paramedics and two (2) of whom are at the EMT–basic level.
- An initial full structure fire response is defined as a total of 13 (up to 15) people:
  - One (1) incident commander (plus one (1) assistant).

  - One (1) supply line.
  - Two (2) attack lines of two (2) people plus one (1) support person (for a total of six people).
  - One (1) search and rescue team of at least two (2) people.
  - One (1) ventilation team of at least two (2) people.
  - One rapid intervention team (RIC) comprised of at least two (2) people. This team can be formed from other staff on scene until a dedicated RIC arrives. This would reduce the staffing required on the first response to 13 people.
  - If in use, one (1) aerial operator should be assigned to maintain control of the aerial unit.

- Please note that a structure fire response is different in each community due to the level of risk, population density, type of hazard, etc. As a result, the project team utilized response protocols established by Milwaukee Fire Department for a structure fire response. This protocol calls for 3 engines (4 personnel minimum), 2 ladder trucks (5 personnel each), 1 medic Unit (2 personnel), and 2 Battalion Chiefs (which are excluded for simplicity). As a result, total personnel responding to a structure fire is 24 firefighters.
- Goal should be to achieve these response times and staffing levels at a minimum of 90% of applicable calls for service.
- Engine / aerial companies should be a minimum of four (4) people:
  - NFPA 1710 recognizes explicitly that there are many ways to achieve this.
  - Standard does not require that four (4) people arrive on the scene in the same unit.
  - Could use, for example, a department with many two–person units that provide this level of coverage (i.e., all calls receive two units minimum).

The project team's approach to this analysis using a GIS model enables us to consider the various elements of these standards. Specifically, the model was programmed to determine the areas in which the network could travel in four and eight

minutes. Once these calculations were performed, the model was then able to determine the number of calls that could be reached in these time periods.

2. THE MILWAUKEE CITY COUNCIL SHOULD ADOPT CERTAIN ELEMENTS OF NFPA 1710.

As already discussed, the adoption of performance measures should be done in consideration of the specific risks and hazards faced by a community. As a result the project team recommends that the City of Milwaukee adopt the following components of NFPA 1710:

- A dispatch processing time standard of one (1) minute for 90% of all emergency calls.
- A reflex or turnout time standard of one (1) minute for 90% of all emergency calls.
- A travel time standard of four (4) minutes for the first arriving unit to 90% of all emergency calls.
- A travel time standard of eight (8) minutes for an initial structure fire response (3 engines, 2 trucks, 1 medic unit, and 2 Chief's cars.

The project team recommends the adoption of these elements, and not other elements of NFPA 1710 for the following reasons:

- Population and housing density within Milwaukee is high and therefore the potential for a fire incident to escalate it relatively high. The initial response targets recognize this potential.
- Dispatch processing time and reflex time standards are good general guidelines that should be followed.

Overall, given the fire and EMS risk within the City of Milwaukee, the project team believes that these performance standards are appropriate and should be adopted. A key component of this will be the reporting of performance by the Fire

Department to the City's Mayor and Council. The next section provides an analysis of current response capabilities against these standards.

Recommendation: The Milwaukee City Council should adopt selected performance objectives for the Fire Department relating to dispatch, reflex and travel times.

3. ANALYSIS OF THE CURRENT RESPONSE CAPABILITIES IN THE CITY OF MILWAUKEE SHOWS THAT THE CURRENT STATION NETWORK IS WELL DESIGNED TO PROVIDE A HIGH LEVEL OF SERVICE.

The project team utilized two methods for assessing performance against these targets. The first approach uses actual call for service data to evaluate performance against the recommended standards. The second approach utilizes a GIS model which determines the theoretical capabilities of the system based on fire station location and current and alternative staffing. The first section, that follows, provides current and historic workload information and discusses actual performance during the year covering June 1, 2004 to May 31, 2005.

(1) Actual Performance against Recommended Standards

The project team gathered detailed call for service data for the year June 2004 May 2005 to evaluate the Department performance against the response targets. Initially, the project team documented the current workload and call risk. As shown in the table below, the Milwaukee Fire Department responds to a large number of calls for service each year:

Milwaukee Fire Department
June 2004 to May 2005 Calls for Service by Type

Call Description	Number of Calls
ALARM SOUNDING	3,562
Multiple MED Unit Response	77
Not Breathing	1,261
Unconscious – Confirmed	1,422
Allergic Reaction With Trouble Breathing	194
Allergic Reaction: History or Epi-Pen Used	4
Burns: Large Area or Airway Involvement	37
Burns: Infant, Less Than Twelve Months Old	4
Chest Pain: Aged Forty or Older	3,306
Chest Pain: History of Heart Problem	657
Chest Pain: Cocaine, Diabetes or AICD Fired	73
Difficulty Breathing: Aged Fifty or Older	3,192
Difficulty Breathing With Asthma or Other Complication	2,475
Diabetic With Symptoms	2,805
Fall From Height of Twenty Feet or More	70
Home Medical Equipment: Activation or Malfunction	41
Labor: Already Delivered or In Progress	46
Labor: 20-32 weeks, Contractions Less Than Five Minutes Apart	50
Labor: With Complications	9
Medical Personnel On Scene Requesting Assistance	77
Non-Trauma Pain: Aged Over Fifty With Trouble Breathing, Nausea or Sweating	71
Non-Trauma Pain: Aged Over Fifty, Diabetic	2
Overdose: Drug or Alcohol With Seizures	73
Auto Accident: Pedestrian Struck, High Speed Crash or Party Thrown From Auto	977
Battery or Sexual Assault With Seizures	6
MED UNIT: Special Call	2,919
Shooting or Stabbing to Head or Trunk Area	512
Stroke, Diabetic	1
Seizures: With Trauma, Pregnancy, Overdose or Diabetes	214
Traumatic Injury With Seizures	21
APPLIANCE FIRE	290
AUTO FIRE	1,110
AUTO ACCIDENT With Multiple Injuries	8
AUTO EXTRICATION: Person Trapped and/or Roll-Over	325
Unconscious – Unconfirmed	8,316
In and Out of Consciousness	421
Allergic Reaction: Breathing Status Unknown	21
Bleeding: Uncontrolled or Cannot Be Stopped	802
Bleeding: Vaginal, May Be Pregnant	42
Burns, Unknown Extent	16
Choking	292
Chest Pain, Age Unknown	1,381
Difficulty Breathing: Age Unknown or Under Fifty	2,579

Call Description	Number of Calls
MED Ten-Nineteen, Downgraded Response)	1,346
Diabetic, Non-Specific Symptoms	19
DECEASED: Assistance with Body	317
Electrical Burns or Electrocution	8
Freeway Response, Minor Injuries	32
Fall From Unknown Height	91
Hanging	14
Non-Trauma Pain: Aged Over Fifty, No Other Specifics	62
Overdose or Alcohol Intoxication	1,107
Patient Assistance	2,049
Auto Accident: Head and/or Trunk Injuries	1,697
Auto Accident: Injuries Unknown	2,888
Still Alarm in Qtrs or Jail Transport	263
Psychiatric / Suicidal: Overdose	38
Battery or Sexual Assault: Uncontrolled Bleeding	82
Shooting or Stabbing to the Arm or Leg or Unknown	864
Stroke: Symptoms Unknown	11
Seizures: Active Seizures (or Caller Not Sure)	2,585
Traumatic Injury: Amputation and / or Uncontrolled Bleeding	182
CARBON MONOXIDE	510
ELECTRICAL TROUBLE	209
ELEVATOR TROUBLE	171
EMERGENCY RESPONSE	7
FIRE BOAT RESPONSE	8
DIVE RESPONSE: Full	14
FLUSH FLUIDS	119
FORCIBLE ENTRY	276
FIRE SQUAD Response	300
FIRE SQUAD: Bell Turnback	20
FIRE SQUAD: Curtis Turnback	96
FIRE SQUAD: Medicare Turnback	233
FIRE SQUAD: Paratech Turnback	22
FIRE SQUAD: West Milwaukee Turnback	166
FIRE SQUAD: Jail	577
STRUCTURE FIRE	656
2nd ALARM	24
3rd ALARM	8
4th ALARM	3
5th ALARM	2
GARAGE FIRE	195
NATURAL GAS LEAK	594
GRASS FIRE	63
HAZARDOUS MATERIAL RESPONSE	21
HEATING TROUBLE	40
HAZ-MAT RESPONSE CALL	2
HAZ-MAT REGIONAL RESPONSE	2
HURT TEAM RESPONSE	7

Call Description	Number of Calls
INVESTIGATIVE RESPONSE	15
LIMITED DIVE RESPONSE	11
LOCK OUT	407
LIMITED RESPONSE	717
MED UNIT ONLY: Medical Personnel On Scene	37
MED UNIT: Special Call	1,536
MFD Accident	105
MED UNIT ONLY: Out-of-City Request	468
Unknown/Other	40
PETROLEUM SPILL	595
POLE FIRE	65
PRIAP - ABDOMINAL PAIN	1,930
PRIAR - ALLERGIC REACTION - Breathing Okay	94
PRIBL - BLEEDING - Rectal / Vomiting / Unknown	1,337
PRIBR - BURNS - Small Affected Body Area	64
PRIEX - HEAT / COLD EXPOSURE	32
PRIHM - HOME OXYGEN: Supply Cut-Off / Trouble	14
PRILD - LABOR: Full Term (33 weeks and Over)	1,390
PRILD1 - LABOR: 32 weeks or Less. No Complications	329
PRILD2 - LABOR: 5-8 mos, Contractions > 5 min Apart	20
PRINTP - NON-TRAUMA PAIN: Back, Arm, Neck, Jaw	987
PRIOD - OVERDOSE or ALCOHOL: Detox, MO, ED	764
PRIPI - AUTO ACCIDENT: Arm and/or Leg Injuries	183
PRIPS - PSYCHIATRIC / SUICIDAL	850
PRISA - BATTERY or SEXUAL ASSAULT - Minor Injuries	4,055
PRISK - SICK / DIZZY / VOMITING: Miscellaneous Minor	8,395
PRIST - Stroke: Classic Symptoms	435
PRISZ - SEIZURES: Post-Ictal	398
PRITI - TRAUMATIC INJURY: Cuts, Scrapes, Fractures	4,870
KK RIVER RESPONSE	1
RUBBISH FIRE	1,181
Special Event	90
SMOKE CONDITION	1,484
SUSPICIOUS CALL	342
TEST: EMS-Type	670
TEST: Fire-Type	91
TREE FIRE	18
WATER LEAK	180
WIRES DOWN	207
Total	**92,168**

As shown above, the Milwaukee Fire Department responded to 92,168 calls for service during the one year period, June 1, 2004 to May 31, 2005. Approximately 77,000 calls for service, or 84% of total calls for service were EMS in nature, compared

to approximately 10,000 or 11%, which were fire related. The next table, on the following page looks at the temporal distribution of calls for service over the same period:

Milwaukee Fire Department
June 1, 2004 to May 31, 2005 Calls for Service
By Day of Week and Hour of Day

Hour	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Total	Avg/Hr.
0000	644	487	450	446	417	476	619	3,539	9.7
0100	561	434	425	404	400	447	529	3,200	8.8
0200	598	370	366	347	349	366	606	3,002	8.2
0300	431	313	276	295	278	304	441	2,338	6.4
0400	360	260	274	242	217	253	352	1,958	5.4
0500	269	257	268	233	241	253	256	1,777	4.9
0600	281	318	309	336	277	322	290	2,133	5.8
0700	292	408	422	410	396	416	345	2,689	7.4
0800	402	533	558	477	482	524	437	3,413	9.4
0900	476	568	555	548	568	556	535	3,806	10.4
1000	536	625	676	606	605	642	577	4,267	11.7
1100	538	596	623	580	645	628	607	4,217	11.6
1200	611	635	658	654	671	679	618	4,526	12.4
1300	707	621	678	626	648	663	629	4,572	12.5
1400	614	651	644	687	632	644	598	4,470	12.2
1500	640	709	730	672	709	746	639	4,845	13.3
1600	605	670	700	623	673	692	671	4,634	12.7
1700	676	696	698	725	651	682	668	4,796	13.1
1800	691	671	671	706	657	721	742	4,859	13.3
1900	741	609	637	631	660	656	679	4,613	12.6
2000	685	666	713	627	614	763	737	4,805	13.2
2100	713	684	749	646	673	718	735	4,918	13.5
2200	659	635	651	567	598	693	696	4,499	12.3
2300	576	537	577	513	551	702	704	4,160	11.4
Total	**13,306**	**12,953**	**13,308**	**12,601**	**12,612**	**13,546**	**13,710**	**92,036**	**252.2**
Avg/Day	255	248	255	242	242	260	263	252.2	

The following points highlight the information above:

- The Milwaukee Fire Department responded to 92,036 incident during the this period (please note that the difference in number of calls in this table from the table showing calls by call type is due to the fact that some calls do not have times associated with them), for an average of 252 calls for service per day.

- On an hourly basis, the MFD's workload ranged from a low of approximately 5 calls for service during the hour of 5:00 a.m. to 6:00 a.m., to a high of 13.5 calls for service during the hour of 9:00 p.m. to 10:00 p.m.

- Looking at workload by day of week, MFD's workload ranged from a low of 242 calls for service on Wednesday and Thursday, to a high of 263 on Saturday.

The project team next evaluated actual Department performance against the response times outlined in the previous section. The first table, below shows average response times and fractile performance for dispatch processing, reflex time, travel time, and total response time:

Performance Target	Performance
Average Dispatch Processing Time (Min.)	1.3
Percentage less than 1 Minute	55%
Average Reflex Time (Min.)	1.4
Percentage less than 1 Minute	52%
Average Travel Time (Min.)	2.4
Percentage less than 4 Minutes	93%
Average Fire Department Response (Dispatch to On-scene)	3.8
Percentage less than 5 Minutes	76%
Average Total Response Time (Call receipt to On-scene)	5.6
Percentage less than 6 Minutes	77%

The following points highlight the information above:

- Average dispatch processing during June 2004 to May 2005 was over one (1) minute. On a fractile basis, only 55% of calls were processed in one (1) minute or less. This is well below the 90% recommended standard.

- Average reflex time during this period was approximately one (1) minute twenty-four (24) seconds. A reflex time of one (1) minute or less was achieved only 52% of the time. Again this is well below the 90% recommended standard.

- Average travel time was less than two (2) minutes thirty (30) seconds. A travel time of 4 minutes or less was achieved 93% of the time. This is above the recommended standard of 90% and results from the deployment of units and the number of stations in the system.

- Average total Fire Department response time (time from dispatch to on-scene) was 3.8 minutes. A response time of 5 minutes or less was achieved 76% of the time. This is below the 90% recommended standard.

- Total response time average approximately five (5) minutes thirty (30) seconds. On a fractile basis, only 77% of all calls were responded to within 6 minutes or less. This is well below the 90% recommended standard.

In summary, the Milwaukee Fire Department is not meeting several key elements of response time performance. This may be due to a variety of reasons including dispatch processing procedures, traffic, inclement weather, road construction, etc. Managers should be held accountable for determining the causes and developing solutions, including staff training on these issues, to ensure that this basic service level objective is being met at the 90% target of effectiveness.

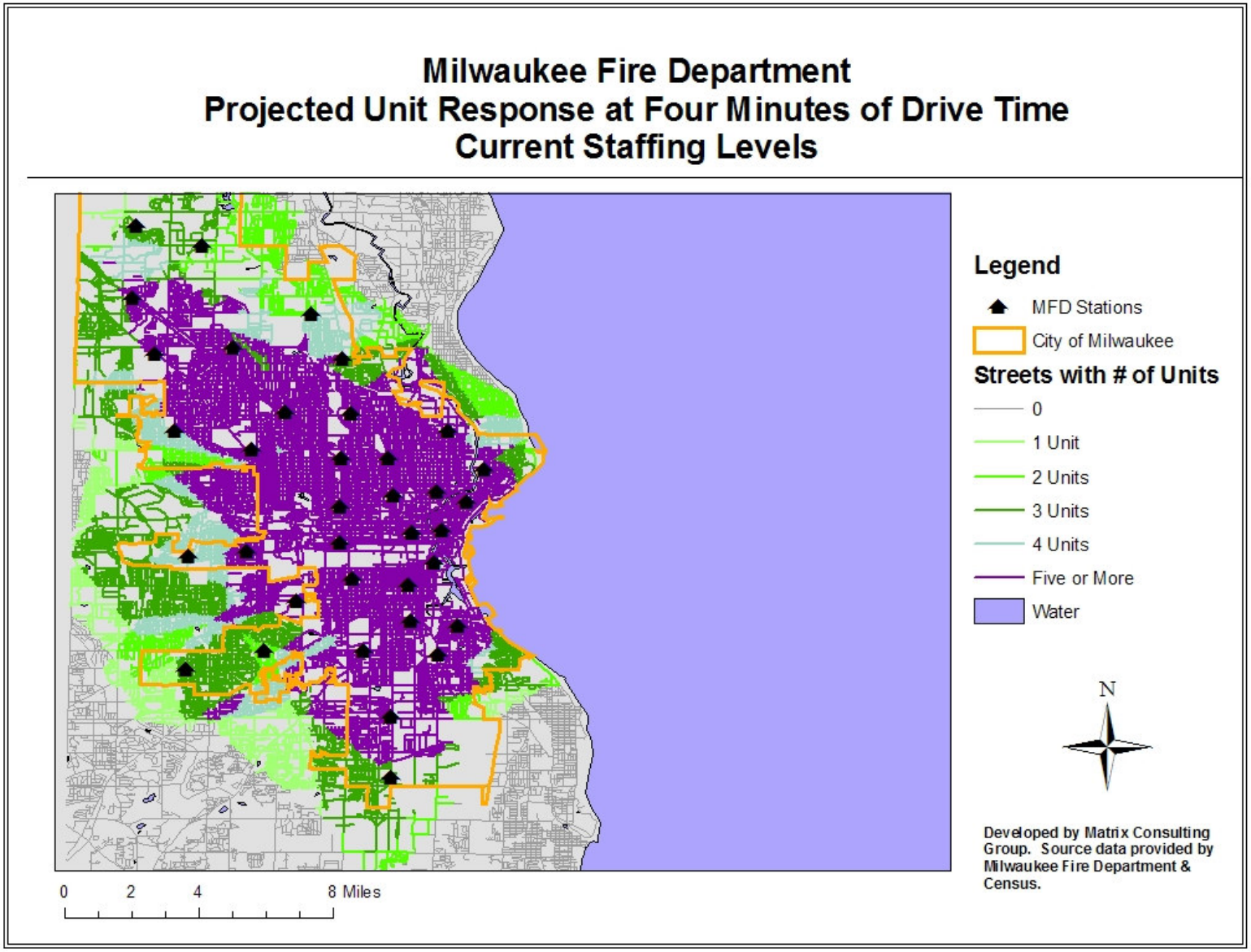
Recommendation: The Milwaukee Fire Department should focus management resources to evaluate response times to determine the reasons for extended response times. Managers should also be held accountable for the performance of their units, stations, shifts, Battalions, etc. to ensure that each company is performing to this level of service.

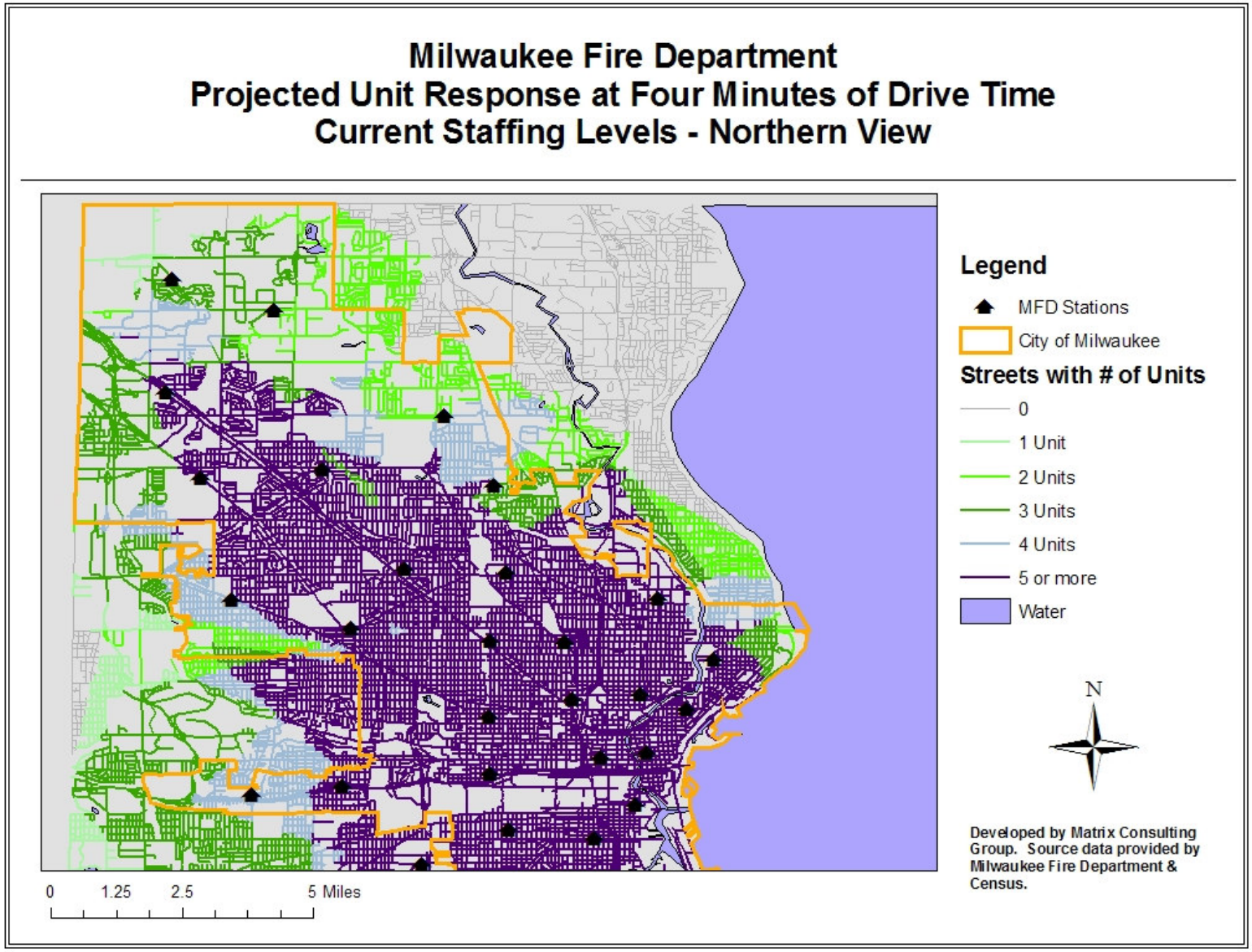
(2) Modeled Performance Against Recommended Standards

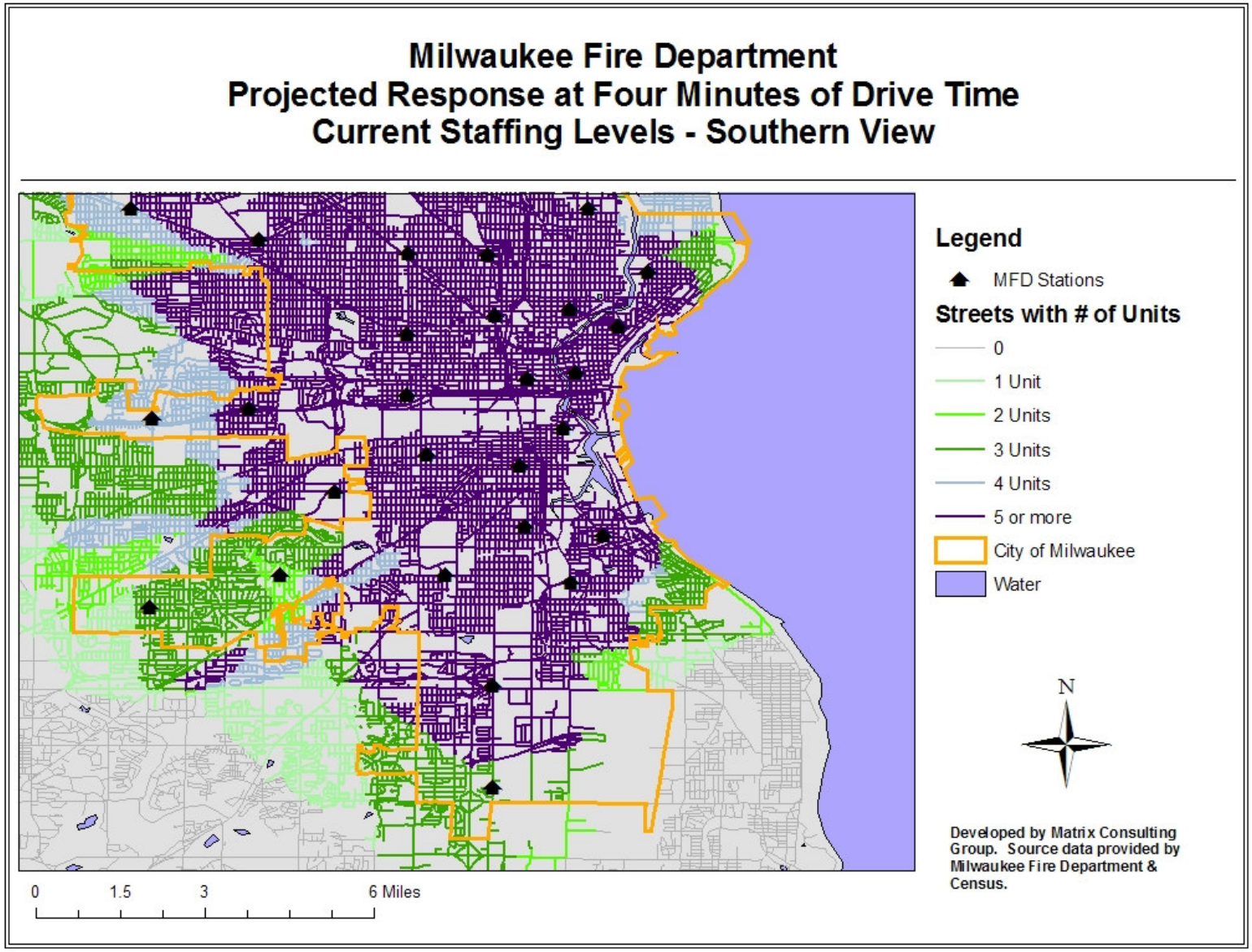
The Matrix Consulting Group has developed a GIS model that illustrates the areas of a City that can be covered by fire companies from each station location. This model also determines how many personnel can reach a specific area of a city. The model then plots actual calls for service against these coverage areas to determine what proportion of calls can be reached by what level of personnel overlap. Calls are plotted based on address information contained in the CAD database. As a result, not every call could be plotted due to missing or inaccurate address information. Approximately 83% of all calls for service where used in this analysis.

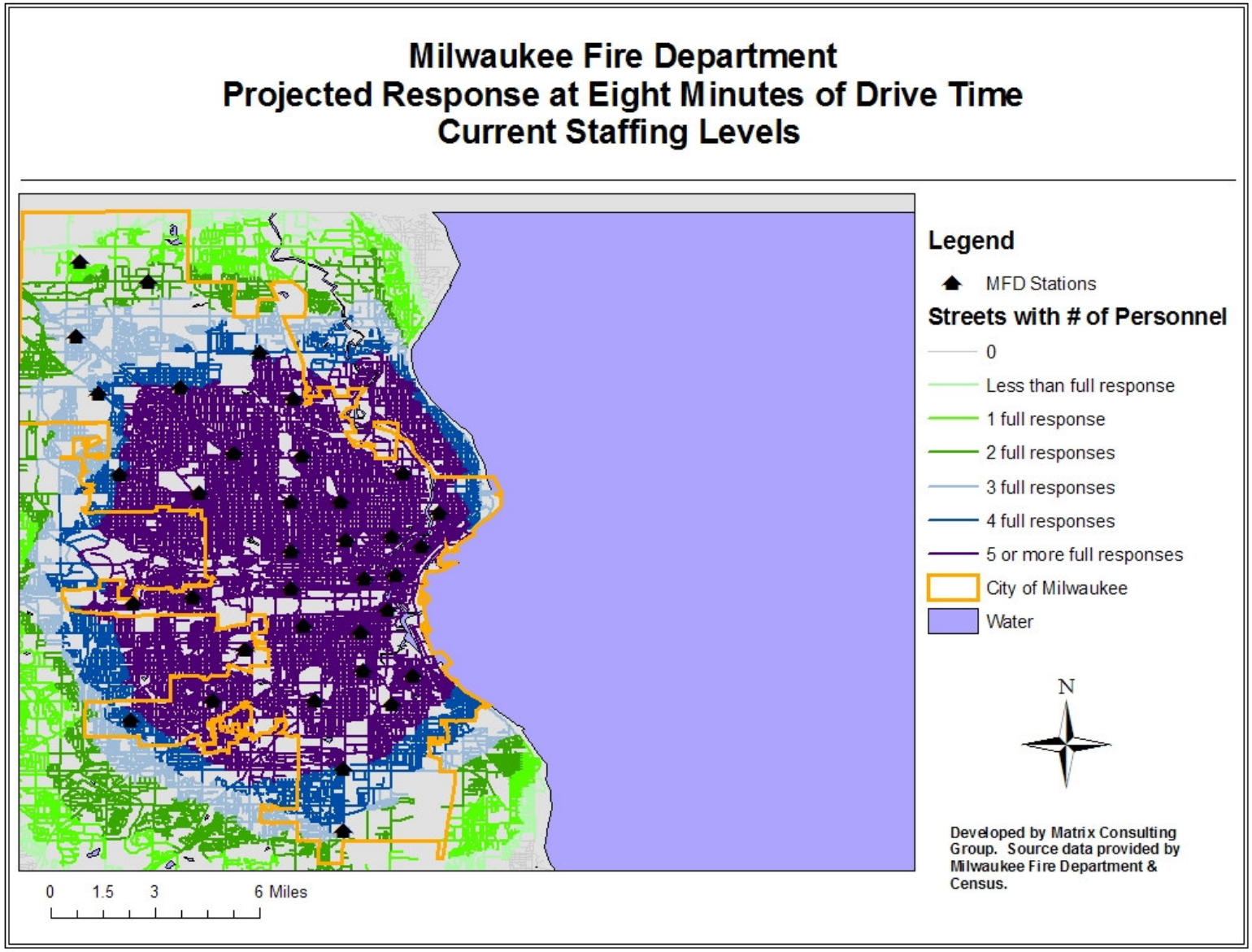
The maps on the following page show the current response coverage by unit overlap based on the four minute drive time target for initial response. They also show the areas of the city where a full response can travel within eight (8) minutes. These

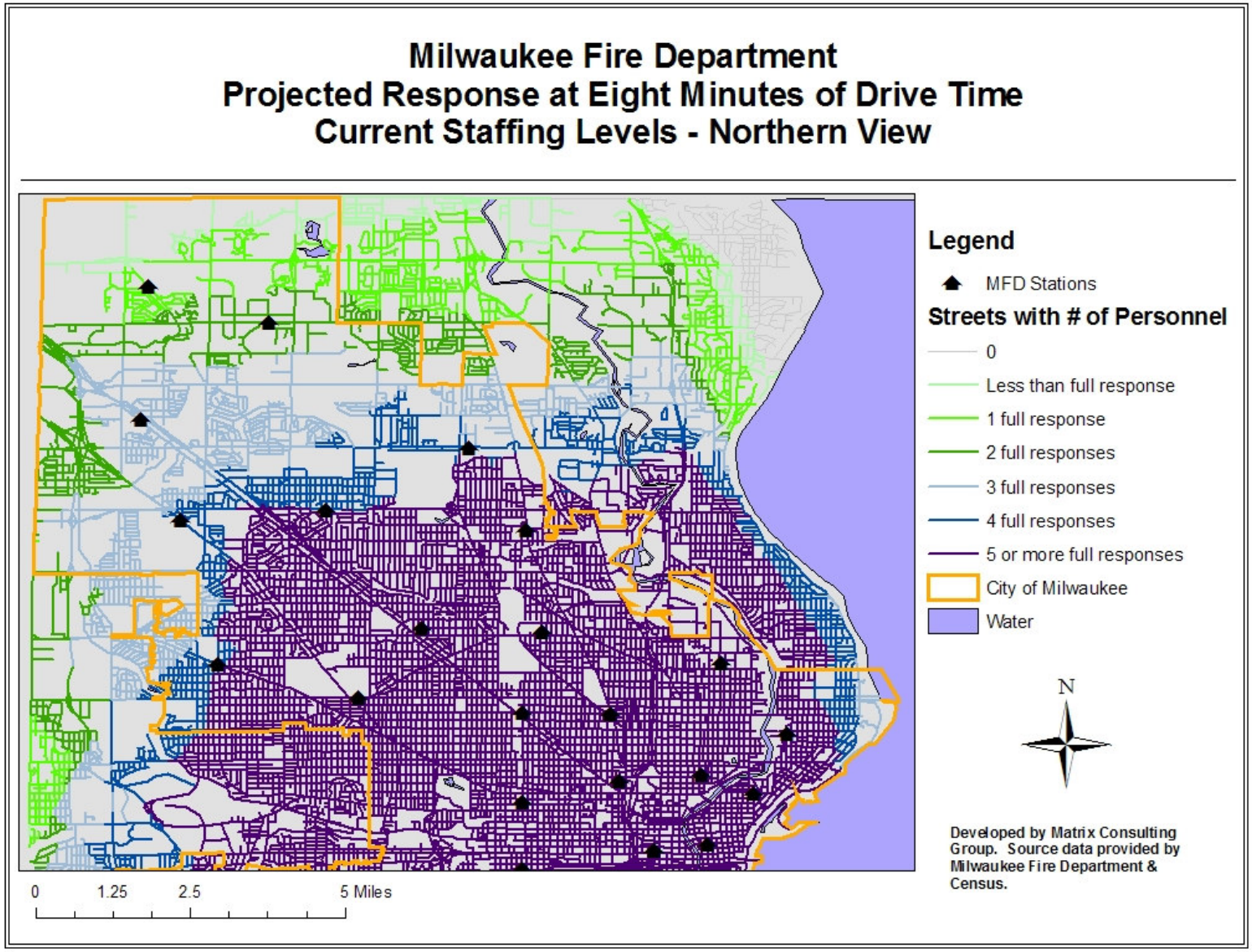
maps also show the areas where multiple full responses (i.e. 24, 48, 72, 96, and 120 personnel) are capable or responding within eight (8) minutes of drive time. A full response consists of 3 engines (with 4 personnel each), 2 ladder trucks (with 5 personnel each), and 1 medic unit (with 2 personnel).

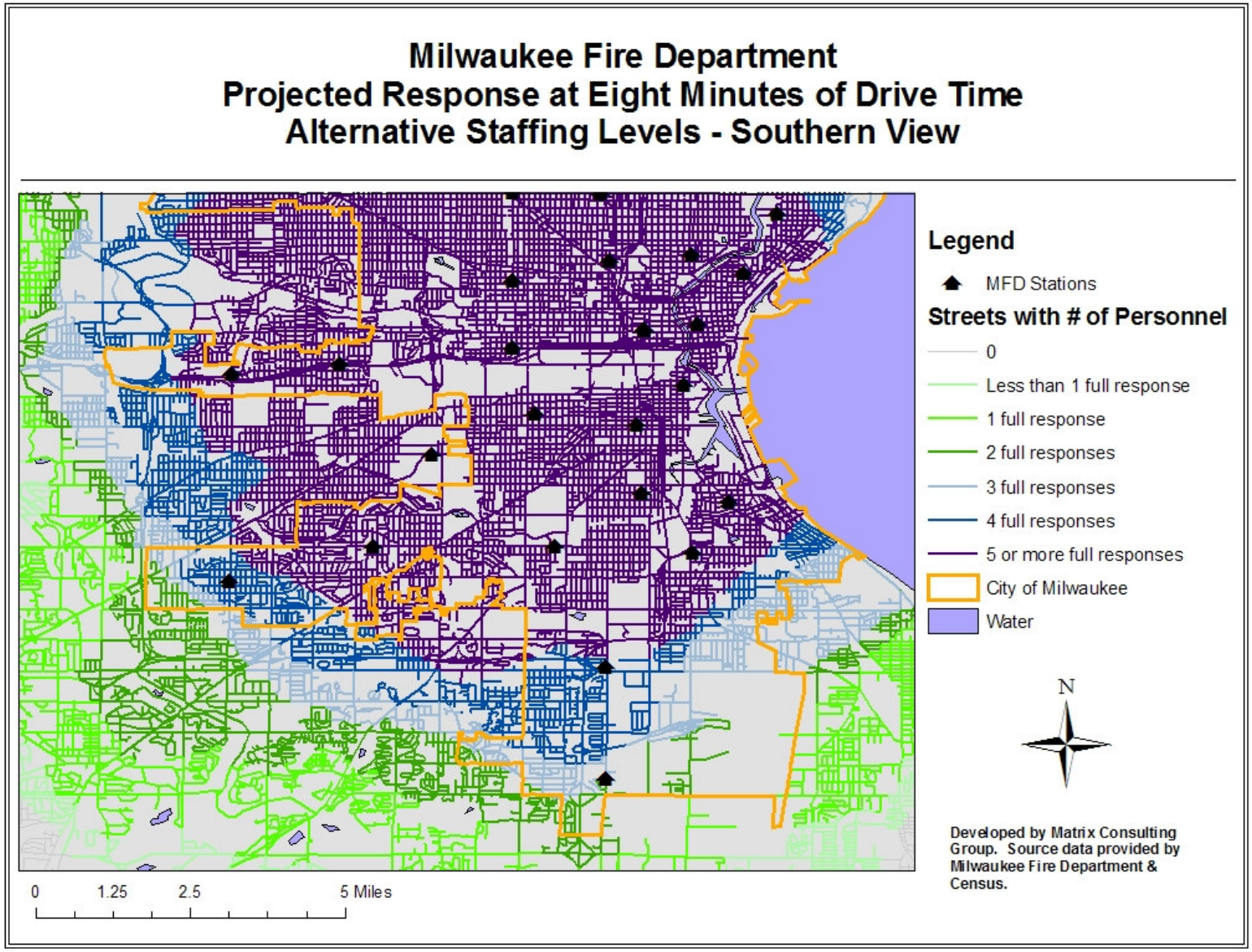

Milwaukee Fire Department
Projected Unit Response at Four Minutes of Drive Time
Current Staffing Levels
Legend
MFD Stations
City of Milwaukee
Streets with # of Units
0
1 Unit
2 Units
3 Units
4 Units
Five or More
Water
N
0
2
4
8 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Unit Response at Four Minutes of Drive Time
Current Staffing Levels - Northern View
Legend
MFD Stations
City of Milwaukee
Streets with # of Units
0
1 Unit
2 Units
3 Units
4 Units
5 or more
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Response at Four Minutes of Drive Time
Current Staffing Levels - Southern View
Legend
MFD Stations
Streets with # of Units
0
1 Unit
2 Units
3 Units
4 Units
5 or more
City of Milwaukee
Water
N
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.
0
1.5
3
6 Miles


Milwaukee Fire Department
Projected Response at Eight Minutes of Drive Time
Current Staffing Levels
Legend
MFD Stations
Streets with # of Personnel
0
Less than full response
1 full response
2 full responses
3 full responses
4 full responses
5 or more full responses
City of Milwaukee
Water
N
0 1.5 3 6 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Response at Eight Minutes of Drive Time
Current Staffing Levels - Northern View
Legend
MFD Stations
Streets with # of Personnel
0
Less than full response
1 full response
2 full responses
3 full responses
4 full responses
5 or more full responses
City of Milwaukee
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Response at Eight Minutes of Drive Time
Alternative Staffing Levels - Southern View
Legend
MFD Stations
Streets with # of Personnel
0
Less than 1 full response
1 full response
2 full responses
3 full responses
4 full responses
5 or more full responses
City of Milwaukee
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.

In addition to the maps above, two sets of statistics were generated. The first shows the number of actual calls for service during June 1, 2004 to May 31, 2005 that are projected to receive a response within 4 minutes. The number of calls reached within this time is also shown by the number of units capable of responding:

Current Staffing Levels
4 Minutes of Drive Time

Personnel	# of Calls	Percent
0	384	1%
1 Unit	239	0%
2 Units	1,750	2%
3 Units	5,925	8%
4 Units	4,776	6%
5 Units	5,591	7%
More than 5 Units	57,472	75%
Total	**76,137**	**100%**

The following points summarize the information above:

- As shown above, the Milwaukee Fire Department is projected to be capable of reaching 99% of all calls for service within four minutes of drive time or less.
- Approximately 75% of all calls are projected to be reached by 5 or more units within four minutes of drive time.
- Approximately 96% of all calls are projected to be reached by 3 or more units.
- In sum, the Department is projected to be capable of meeting and exceeding the 90% fractile performance target for four minute drive time for the first responding unit.

The next table shows the number of calls projected to be reached by a full structure fire response (3 engines, 2 ladder trucks, 1 medic unit, and 2 chief cars) within eight minutes or less. Calls are also broken down by multiples of full responses to illustrate personnel overlap. These statistics are shown in the table on the following page:

Number of Calls Covered at Current Staffing Levels
8 Minutes of Drive Time

Personnel	# of Calls	Percent
0	4	0%
Less than 24	655	1%
24 to 47 (1 full response or more)	1,160	2%
48 to 71 (2 full responses or more)	1,521	2%
72 to 95 (3 full responses or more)	3,916	5%
96 to 119 (4 full responses or more)	4,749	6%
120 to 143 (5 full responses or more)	5,755	8%
144 to 167 (6 full responses or more)	11,218	15%
168 or more (7 or more full responses)	47,159	62%
Total	**76,137**	**100%**

The following points highlight the information above:

- Approximately 99% of all calls for service are projected to be reached by 1 full structure fire response or more.
- Approximately 62% of all calls for service are projected to be reached 7 or more full responses.
- Approximately 91% of all calls for service are projected to be reached by 4 or more full responses.

Please note that the above statistics show response coverage for all calls for service, which includes EMS, rescue, and service calls. The project team also evaluated response capabilities to any fire related call during 2004 to 2005. The table below shows statistics for response capabilities to fire related calls:

Current Staffing Levels
8 Minutes of Drive Time - Fire Calls Only

Personnel	# of Calls	Percent
0	-	0%
Less than 24	655	12%
24 to 47 (1 or more full response)	88	2%
48 to 71 (2 or more full responses)	159	3%
72 to 95 (3 or more full responses)	318	6%
96 to 119 (4 or more full responses)	302	5%
120 to 143 (5 or more full responses)	335	6%
144 to 167 (6 or more full responses)	954	17%
168 or more (7 or more full responses)	2,875	51%
Total	**5,686**	**100%**

The following points summarize the information above:

- Approximately 88% of all fire related calls are projected to receive at least one full structure fire response within eight minutes of drive time. *Please note that while a full response was not projected to reach 655 calls for service, approximately 94% or 613 or these calls, were projected to be reached by 16 or more personnel (3 or more engine or truck companies). In addition, fire related calls include several incidents of single units responses such as trash fires, car fires, etc.*

- Approximately 51% of all fire related calls for service were projected to be reached by seven or more full structure fire responses.

- Approximately 79% of all fire related calls for service were projected to be reached by four or more full structure fire responses.

Overall, despite underperforming the 90% structure fire response performance target, the Milwaukee Fire Department is capable of providing an extremely high level of structure fire response coverage to the City. The next section discusses the impact of alternative staffing of units on response time performance.

3. ANALYSIS OF THE CURRENT APPROACH TO LINE STAFFING

The project team next evaluated the Milwaukee Fire Department's current approach to staffing line units. This evaluation includes an assessment of procedures for managing leave and scheduling of overtime, as well as the number of personnel

needed based on current minimum staffing requirements. The first subsection, below, describes current staffing of front line fire and EMS apparatus.

(1) Current Approach to Staffing Front Line Units

This subsection discusses the project team's evaluation of current staffing of firefighting and EMS operations staffing. The table below shows the current allocation of positions for each front-line piece of apparatus.

Unit	Officer Positions	HEO Positions	FF Positions	Total Positions	Daily Minimum
BC1	3	0	0	3	1
Engine 1	3	3	9	15	4
Engine 2	3	3	12	18	4
Engine 3	3	3	12	18	5
Engine 6	6	6	12	24	5
Engine 12	3	3	12	18	4
Engine 20	3	3	12	18	5
Ladder 1	3	3	12	18	5
Ladder 2	3	3	12	18	5
Ladder 11	3	3	12	18	5
BC2	3	0	0	3	1
Engine 5	3	3	12	18	4
Engine 18	3	3	9	15	4
Engine 21	3	3	9	15	4
Engine 27	3	3	9	15	4
Engine 30	3	3	12	18	4
Engine 36	6	6	12	24	5
Ladder 5	3	3	9	15	5
Ladder 10	3	3	12	18	5
Ladder 12	3	3	12	18	5
Med 5	3	0	3	6	2
Med 6	3	0	3	6	2
Med 7	3	0	3	6	2
BC 3	3	0	0	3	1
Engine 10	3	3	9	15	4
Engine 25	3	3	12	18	5
Engine 26	3	3	12	18	5
Engine 28	3	3	12	18	4
Engine 29	3	3	9	15	4
Engine 33	6	6	9	21	4
Engine 35	3	3	9	15	4
Ladder 16	3	3	9	15	5
Ladder 17	3	3	9	15	5
Med 3	3	0	3	6	2

Unit	Officer Positions	HEO Positions	FF Positions	Total Positions	Daily Minimum
Med 14	3	0	3	6	2
Med 18	3	0	3	6	2
BC 4	3	0	0	3	1
Engine 7	3	3	9	15	4
Engine 11	3	3	9	15	4
Engine 14	3	3	9	15	4
Engine 17	3	3	9	15	4
Engine 23	3	3	9	15	4
Engine 31	6	6	9	21	4
Ladder 6	3	3	9	15	5
Ladder 8	3	3	9	15	5
Ladder 14	3	3	12	18	5
Med 15	3	0	3	6	2
Med 17	3	0	3	6	2
BC 5	3	0	0	3	1
Engine 13	3	3	12	18	5
Engine 22	9	9	6	24	4
Engine 24	3	3	9	15	4
Engine 32	3	3	12	18	4
Engine 34	3	3	12	18	4
Engine 37	3	3	9	15	4
Ladder 9	3	3	12	18	5
Ladder 13	3	3	12	18	5
Ladder 15	3	3	9	15	5
Med 13	3	0	3	6	2
BC 6	3	0	0	3	1
Squad 2	0	0	6	6	2
Engine 4	3	3	9	15	4
Engine 8	3	3	12	18	4
Engine 9	3	3	9	15	4
Engine 16	3	3	9	15	4
Engine 38	6	6	6	18	4
Engine 39	3	3	9	15	4
Ladder 3	3	3	9	15	5
Ladder 7	3	3	9	15	5
Med 4	3	0	3	6	2
Med 16	3	0	3	6	2
Total	**231**	**180**	**579**	**990**	**265**

As shown above, there are a total of 990 positions within the Firefighting Division of the MFD (excluding Deputy Chiefs). This includes 231 officer positions (Battalion Chief, Captain, and Lieutenant), 180 Heavy Equipment Operator positions, and 579

Firefighter / Firefighter Paramedic positions. Based on staffing requirements for each unit, the MFD needs a total of 265 personnel (does not include Deputy Chief) each shift.

The next step in the analysis was to determine the availability of personnel. Availability is defined as the number of hours actually available for work after time used for vacation, sick, holiday, and various other types of leave. To estimate this figure, the project team collected payroll data from the Department which details the total number of hours used for each type of leave for the past two years. This calculation is shown in the table below:

Leave Type	2003	2004
Sick Leave	71,670	53,614
FMLA	6,079	9,706
Injury	96,714	75,018
Vacation	191,776	191,293
Total Leave	366,239	329,630
Straight Time	2,240,507	2,259,230
Total Time	2,606,745	2,588,861
Availability Rate	**86%**	**87%**

As shown above, the estimated availability rate for line personnel if all leave is taken is approximately 86.5%. The project team next determined the total number of personnel needed by positions type based on the current minimum staffing plan and personnel availability. This calculation is shown on the following page.

Unit	Officer Positions Needed	HEO Positions Needed	FF/Medic Positions Needed	Officer Positions Needed (@ 49.8 hrs/wk)	HEO Positions Needed (@ 49.8 hrs/wk)	FF Positions Needed (@ 49.8 hrs/wk)	Officer Positions Needed (@ 86.5%)	HEO Positions Needed (@ 86.5%)	FF Positions Needed (@ 86.5%)
BC1	1.0	-	-	3.4	-	-	3.9	-	-
Engine 1	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 2	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 3	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Engine 6	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Engine 12	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 20	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 1	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 2	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 11	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
BC2	1.0	-	-	3.4	-	-	3.9	-	-
Engine 5	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 18	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 21	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 27	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 30	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 36	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 5	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 10	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 12	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Med 5	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
Med 6	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
Med 7	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
BC 3	1.0	-	-	3.4	-	-	3.9	-	-
Engine 10	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 25	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Engine 26	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Engine 28	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 29	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 33	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8

Unit	Officer Positions Needed	HEO Positions Needed	FF/Medic Positions Needed	Officer Positions Needed (@ 49.8 hrs/wk)	HEO Positions Needed (@ 49.8 hrs/wk)	FF Positions Needed (@ 49.8 hrs/wk)	Officer Positions Needed (@ 86.5%)	HEO Positions Needed (@ 86.5%)	FF Positions Needed (@ 86.5%)
Engine 35	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Ladder 16	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 17	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Med 3	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
Squad 1	-	-	2.0	-	-	6.7	-	-	7.8
Med 18	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
BC 4	1.0	-	-	3.4	-	-	3.9	-	-
Engine 7	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 11	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 14	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 17	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 23	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 31	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Ladder 6	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 8	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 14	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Med 15	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
Med 17	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
BC 5	1.0	-	-	3.4	-	-	3.9	-	-
Engine 13	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Engine 22	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 24	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 32	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 34	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 37	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Ladder 9	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 13	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 15	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Med 13	1.0		1.0	3.4	-	3.4	3.9	-	3.9
BC 6	1.0	-	-	3.4	-	-	3.9	-	-

Unit	Officer Positions Needed	HEO Positions Needed	FF/Medic Positions Needed	Officer Positions Needed (@ 49.8 hrs/wk)	HEO Positions Needed (@ 49.8 hrs/wk)	FF Positions Needed (@ 49.8 hrs/wk)	Officer Positions Needed (@ 86.5%)	HEO Positions Needed (@ 86.5%)	FF Positions Needed (@ 86.5%)
Squad 2	-	-	2.0	-	-	6.7	-	-	7.8
Engine 4	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 8	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 9	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 16	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 38	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Engine 39	1.0	1.0	2.0	3.4	3.4	6.7	3.9	3.9	7.8
Ladder 3	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Ladder 7	1.0	1.0	3.0	3.4	3.4	10.1	3.9	3.9	11.8
Med 4	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
Med 16	1.0	-	1.0	3.4	-	3.4	3.9	-	3.9
Total	**69.0**	**53.0**	**143.0**	**232.8**	**178.8**	**482.4**	**270.7**	**207.9**	**560.9**

As shown above, the Milwaukee Fire Department needs approximately 271 Officer positions, 208 Heavy Equipment Operator positions, and 561 Fire-fighter / Firefighter Paramedic positions. The table below compares the current allocation of positions by position type to the number of positions needed by the MFD to support front-line operations under the current staffing plan:

Position	Current Allocation	Need Based on Minimum Staffing	Difference
Officer	231	270.7	(39.7)
Heavy Equipment Operator	180	207.9	(27.9)
FF/FF Medic	579	560.9	18.1
Total	**990**	**1,040**	**(49.5)**

The following points highlight the information above:

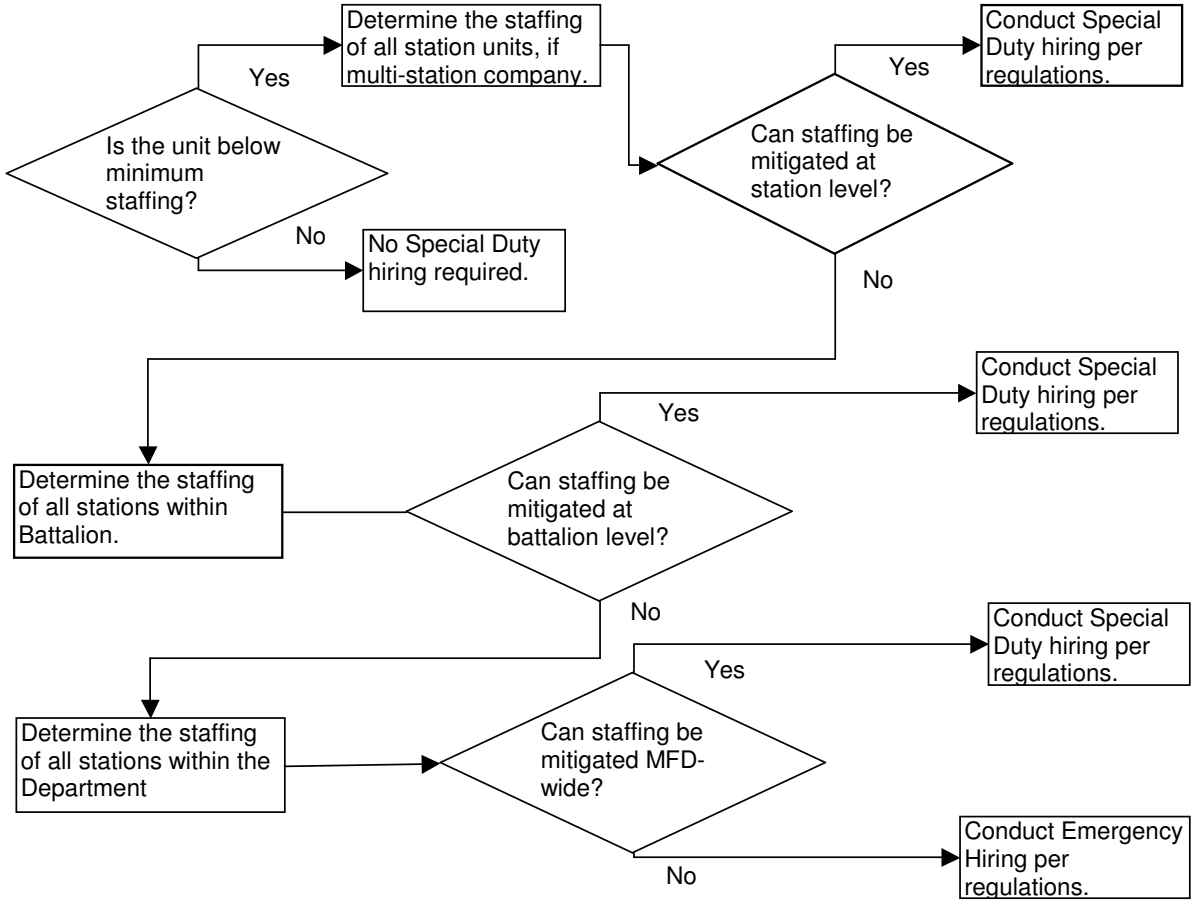
- As shown above, based on the current staffing plan, the Department is short approximately 50 full-time equivalents.
- The largest deficiency comes from the Officer classification where the Department is short approximately forty (40) FTEs.
- The table above also shows that the Department is overstaffed by approximately 18 full time equivalents at the Firefighter/Firefighter Paramedic classification.

The Department currently covers this shortage identified above by using overtime. The next section discusses the management of overtime and the costs associated with the shortage described above.

(2) Management of Overtime and Cost of Covering Staffing Shortage

This section discusses the fiscal impact of the current method of utilizing overtime to cover the personnel shortage identified in the prior section. In evaluating the management of overtime within the Department the project team documented the current approach to managing overtime and special duty assignments. Special duty is the hiring of personnel for a 24-hour period to maintain the MFD daily minimum staffing

requirement of 265 personnel. This is a process which involves coordination between the company officers, Battalion Chiefs, and the Deputy Chief on a shift per shift basis. The basic process for mitigating staffing issues is shown by the following:



Several points should be made concerning the process shown above:

- This process can be characterized as solving problems at the lowest possible level, from the unit level (company officer), to the station level (company officer), to the battalion level (battalion chief) and ultimately Department-wide (deputy chief).

- This process is a very efficient method for mitigating the impact of overtime since personnel can be drawn from other stations, companies, and battalions throughout the city.

The project team next evaluated the cost of utilizing overtime compared to hiring additional personnel to cover the staffing shortage identified in the prior section. In order to determine the savings and or additional cost of using overtime versus hiring personnel, the project team determined the average benefit rate for line personnel. The benefit rate is the cost of fringe benefits represented as a percentage of base salary. This calculation is based on budget information collected for fiscal years 2003 to 2005.

	2003	2004	2005
Firefighting Division			
Net Salaries and Wages	$63,141,159.0	$60,064,366.0	$59,620,308.0
Employee Fringe Benefits	$17,999,020.0	$18,619,954.0	$17,924,732.0
Benefit Rate	**29%**	**31%**	**30%**

As shown above, the benefit rate for line personnel has remained fairly consistent at approximately 30% of salary and wages. This rate is much lower than the 50% premium paid for overtime. The difference in hiring additional personnel to cover minimum staffing shortages versus utilizing overtime is shown in the table below. Please note that mid-step salaries are used for comparison and Lieutenants pay is used for officer shortage cost estimate. This was done since Lieutenants represent the largest share of officer staffing and because acting officer assignments are provided when similar rank personnel are not available.

Cost of Covering Shortage With Full-Time Positions

Position	Shortage	Mid-Step Salary	Benefits	Total Cost
Officer	39.6	54,225	16,267.37	2,791,480
Heavy Equipment Operator	27.9	49,541	14,862.35	1,796,859
Firefighter/Paramedic Surplus	*(18.1)*	*39,675*	*11,902.57*	*(933,558)*
Subtotal				**3,654,781**

Cost of Covering Shortage With Overtime

Position	Shortage	Mid-Step Salary	Premium	Total Cost
Officer	39.60	54,224.56	81,336.84	3,220,939
Heavy Equipment Operator	27.90	49,541.18	74,311.77	2,073,298
Firefighter/Paramedic Surplus	*(18.10)*	*39,675.22*	*59,512.83*	*(1,077,182)*
Subtotal				**4,217,055**
Difference				**(562,274)**

As shown above, by hiring additional personnel and eliminating the surplus firefighter/paramedic positions, the City of Milwaukee can save approximately $562,000 annually. This could be done partially by training the current surplus of Firefighter positions as Officers and Heavy Equipment Operators.

Recommendation: If the current staffing plan is maintained, the City of Milwaukee should hire 40 additional Officers (Lieutenants) and 28 additional Heavy Equipment Operators. These positions could be created by training the current surplus of Firefighter and Firefighter Paramedic personnel. By hiring additional personnel instead of using overtime, the Fire Department can save approximately $562,000 annually. These savings include both salaries and the value of City-paid benefits.

5. ANALYSIS OF ALTERNATIVE STAFFING

This section presents the project team's analysis of the impact of staffing ladder trucks with four (4) personnel instead of the current practice of staffing these units with five (5). This alternative was evaluated for several reasons including:

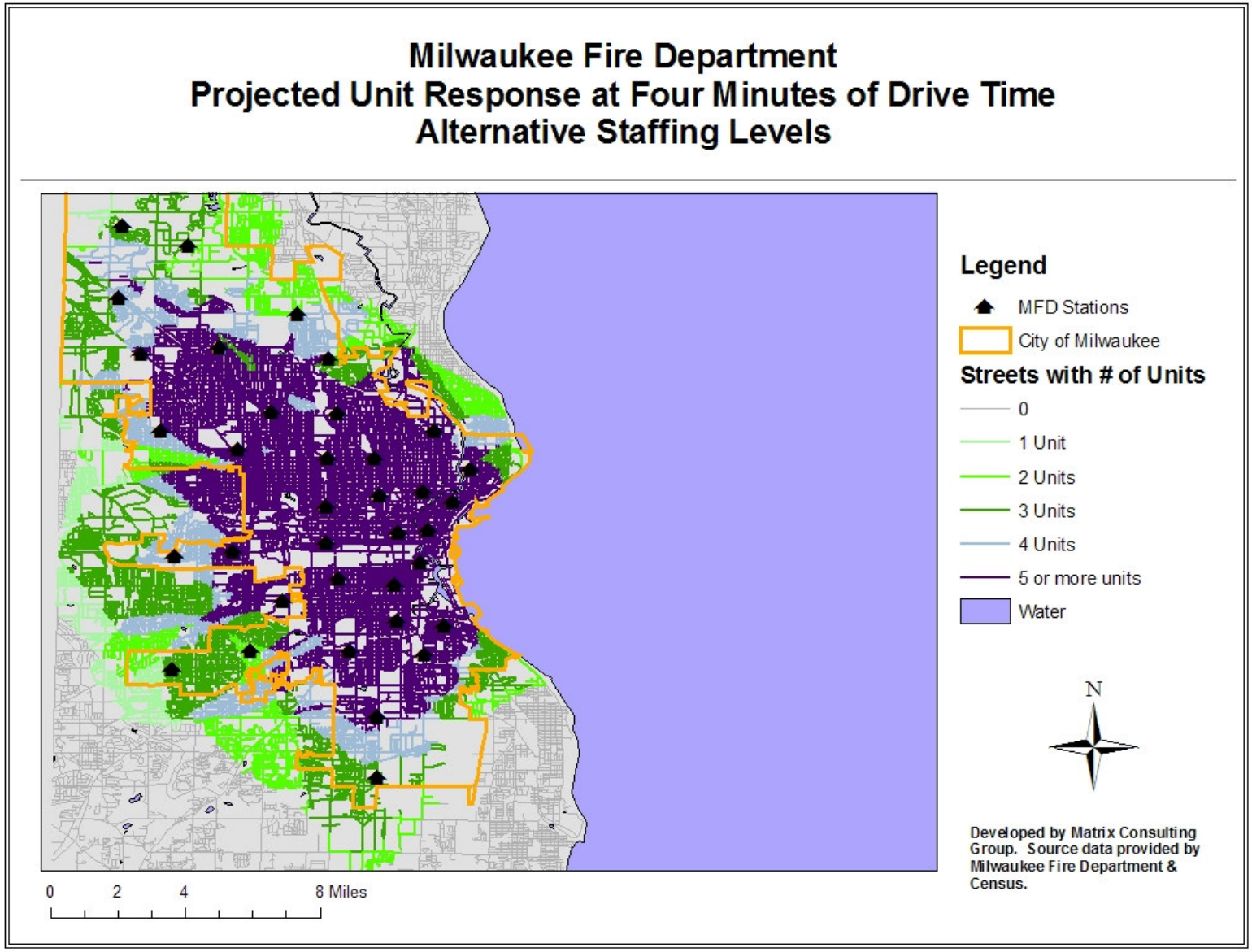
- As shown in the previous section, there is a significant level of overlap within the response network.
- The current practice of staffing ladder trucks with five (5) personnel represents a significant cost to the City of Milwaukee.
- As shown in the comparative survey results, only two (2) of the thirteen (13) responding agencies staffed ladder trucks with five (5) personnel. These agencies operated within some of the largest cities in the country including: Los Angeles, Houston, Dallas, Baltimore, Washington D.C., San Jose, Boston, Nashville, San Jose, Seattle, Oklahoma City, Indianapolis and Memphis.

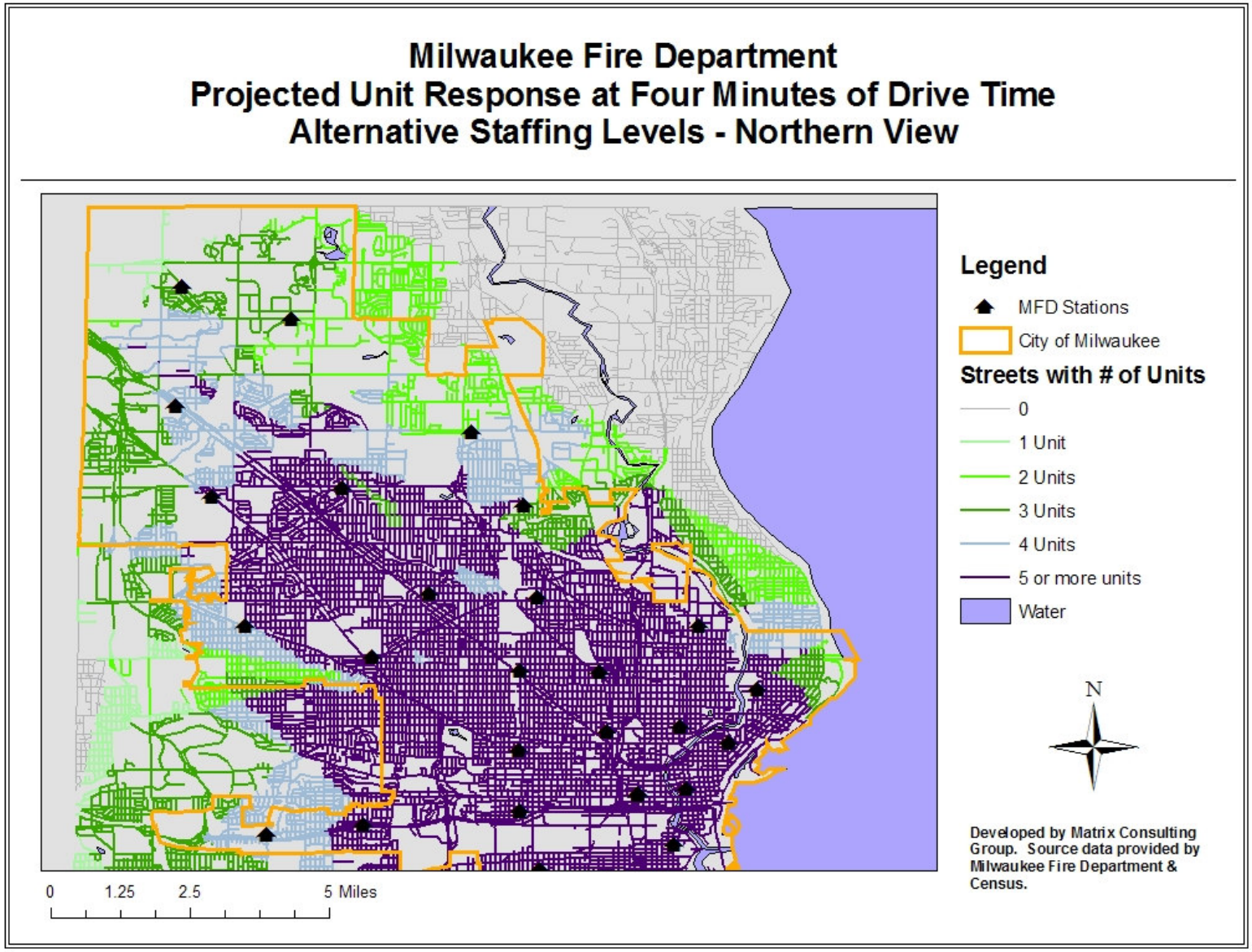
The initial step in this analysis was to evaluate the impact of these staffing changes to the current response capabilities of the Milwaukee Fire Department.

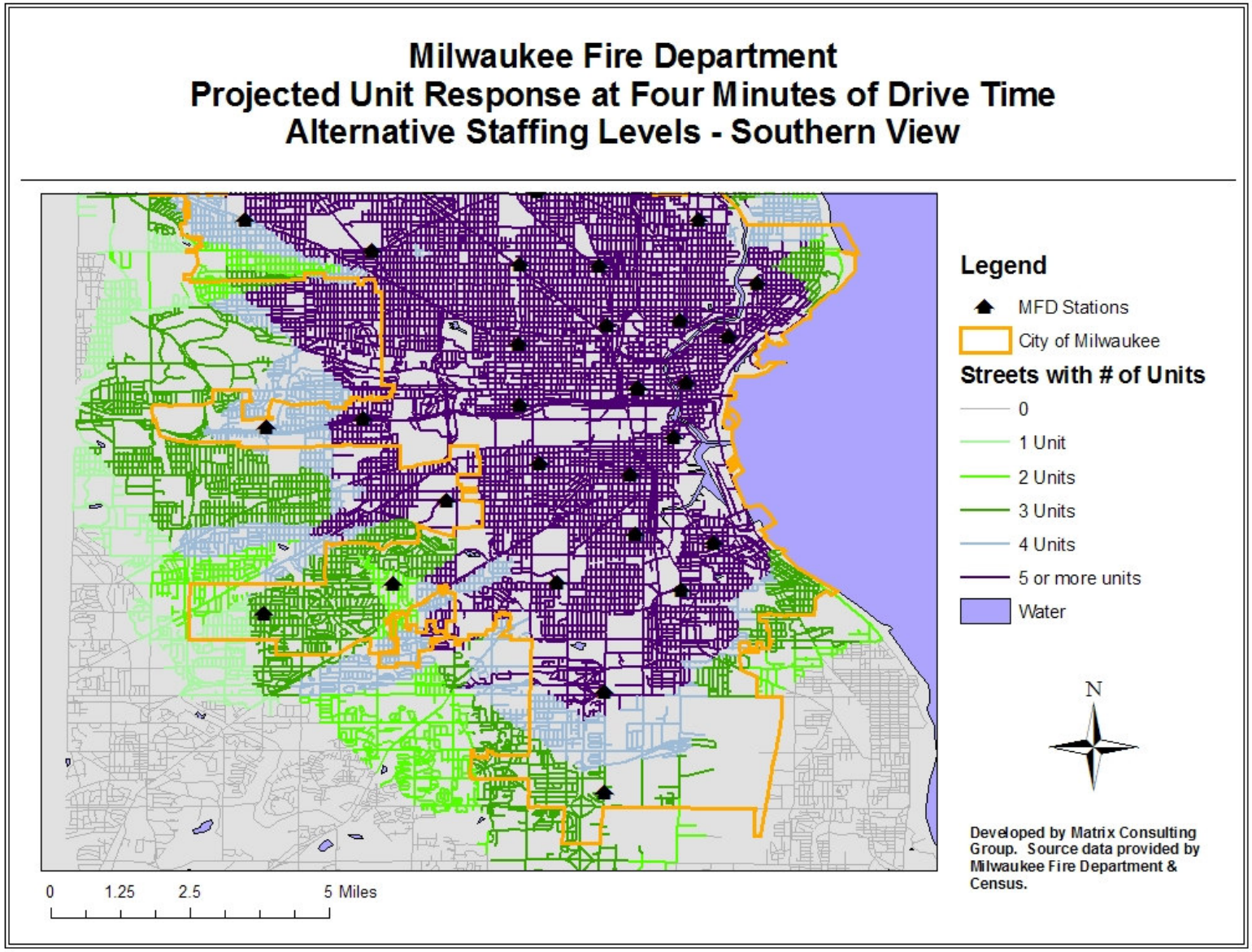
(1) Impact of Alternative Staffing to Response Capabilities

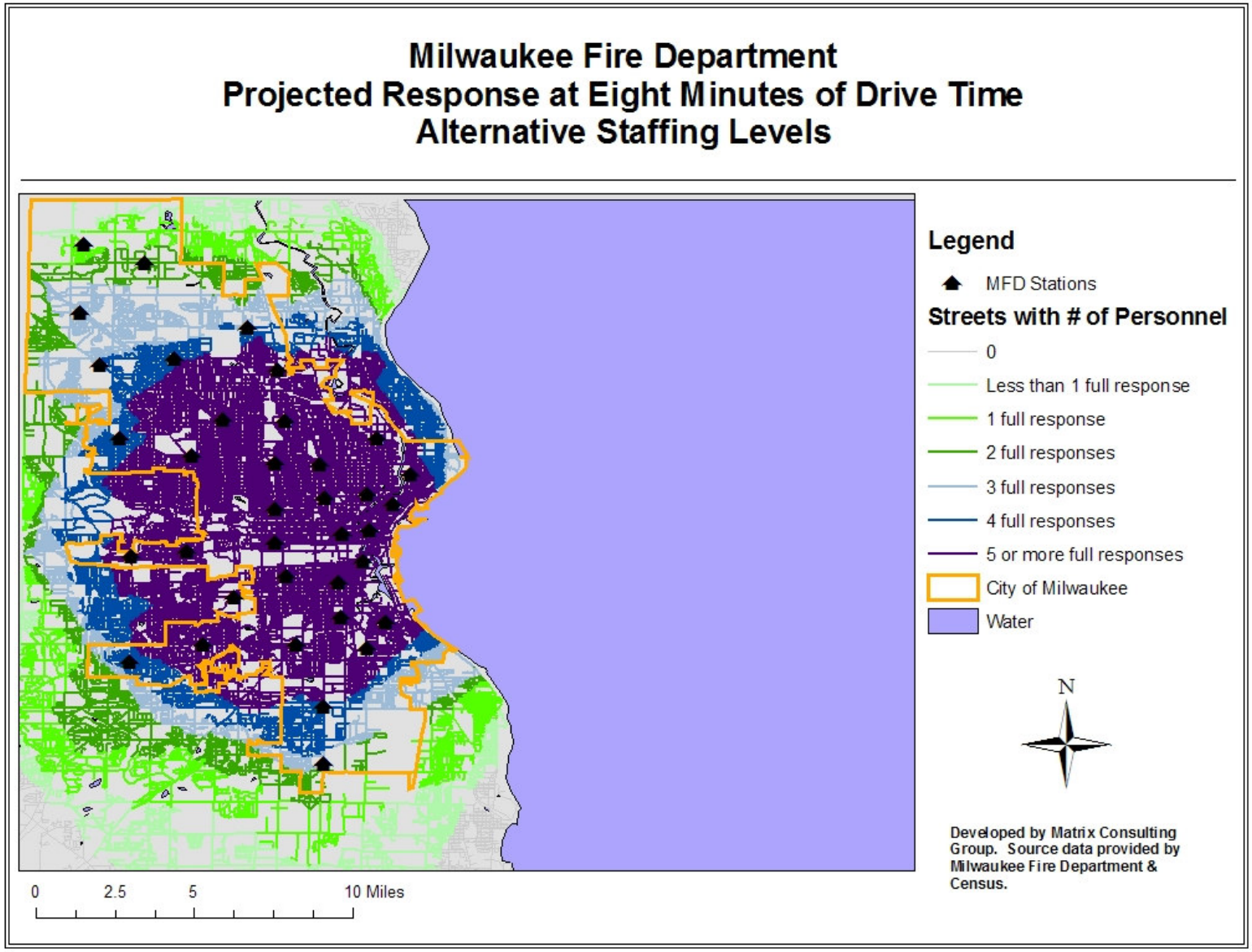
Utilizing the same methodology identified in the previous section, the project team generated GIS maps which illustrate the response capabilities under the modified system.

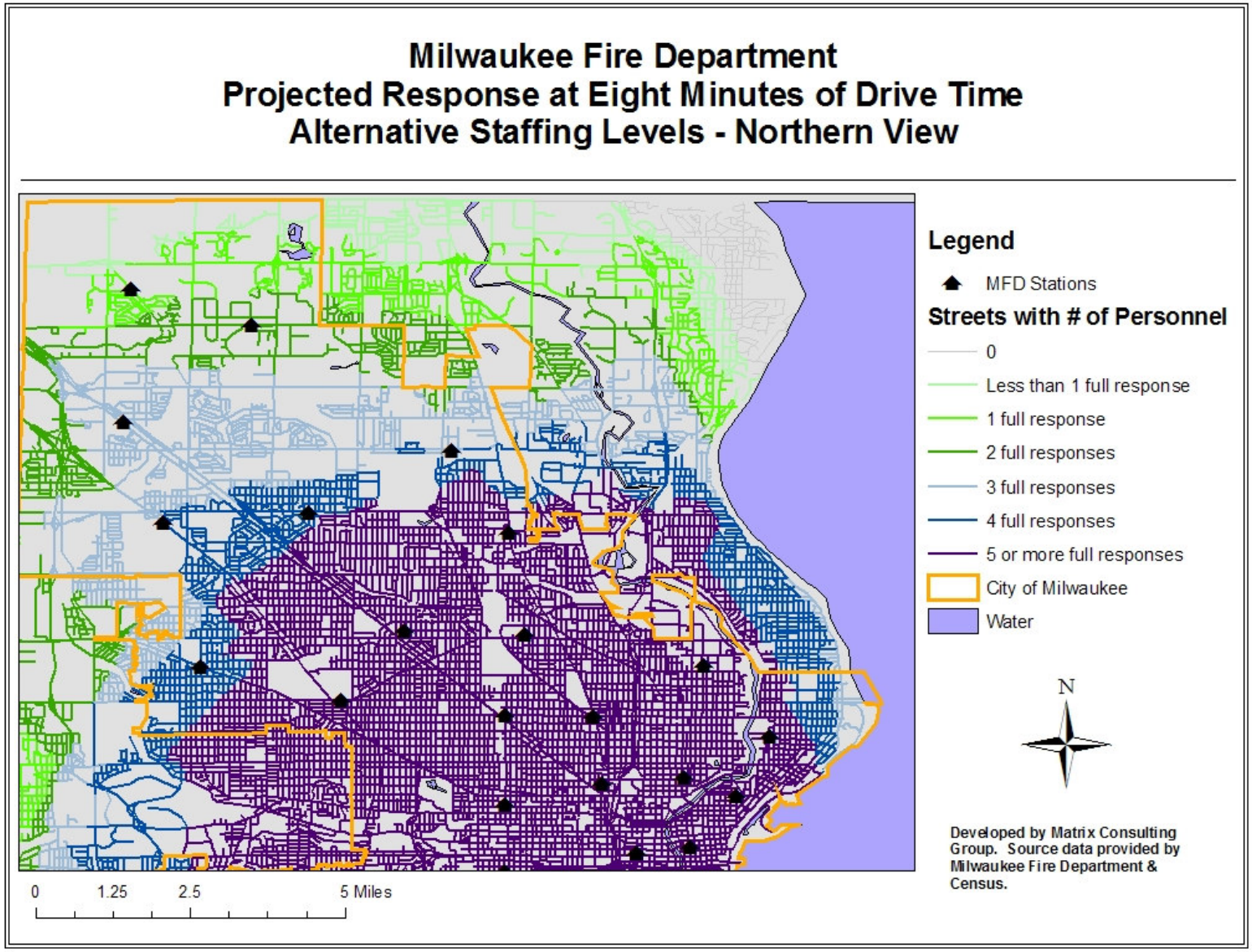
The maps that follow show four minute initial response capabilities and eight minute structure fire response capabilities under the system:

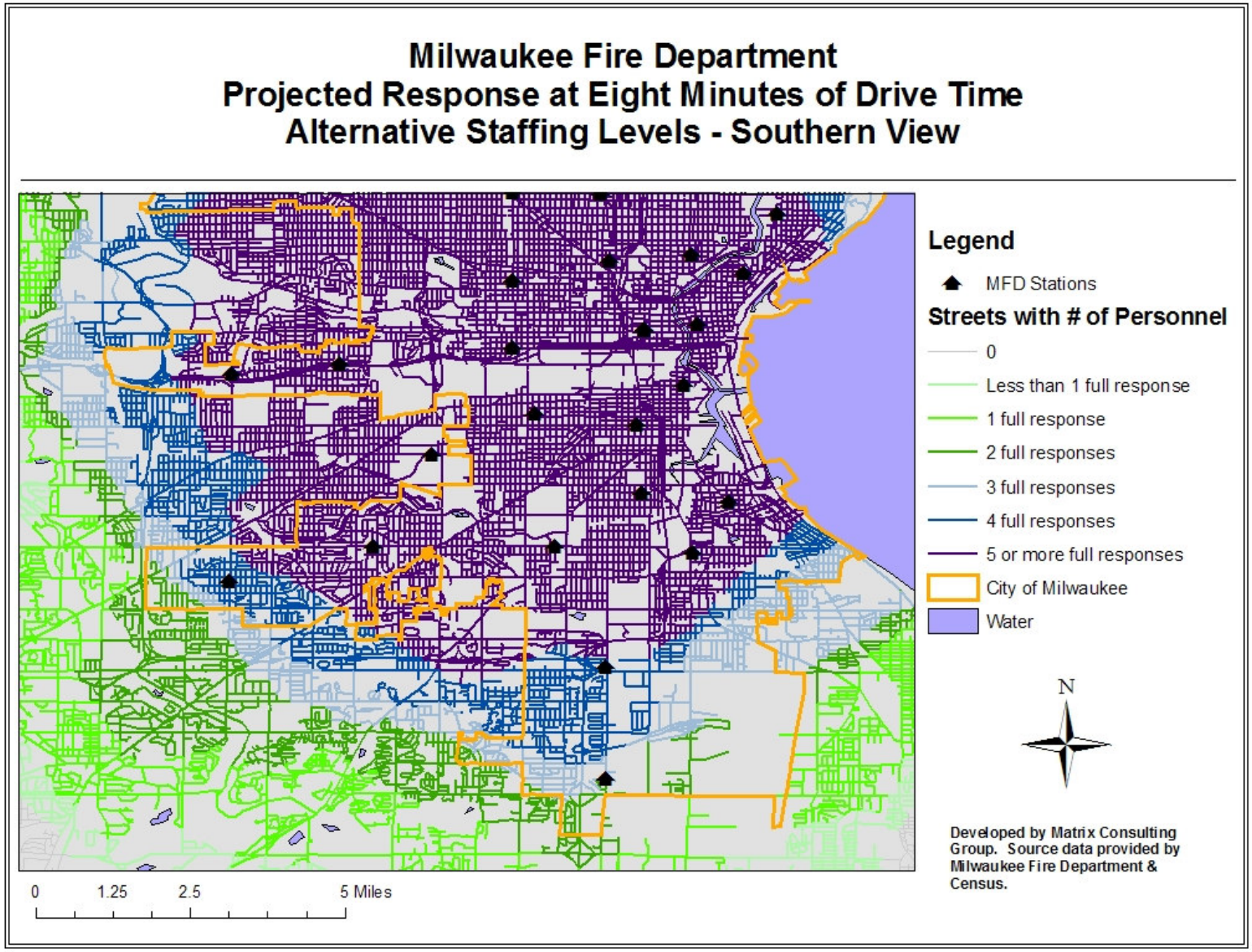

Milwaukee Fire Department
Projected Unit Response at Four Minutes of Drive Time
Alternative Staffing Levels
Legend
MFD Stations
City of Milwaukee
Streets with # of Units
0
1 Unit
2 Units
3 Units
4 Units
5 or more units
Water
N
0
2
4
8 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Unit Response at Four Minutes of Drive Time
Alternative Staffing Levels - Northern View
Legend
MFD Stations
City of Milwaukee
Streets with # of Units
0
1 Unit
2 Units
3 Units
4 Units
5 or more units
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Unit Response at Four Minutes of Drive Time
Alternative Staffing Levels - Southern View
Legend
MFD Stations
City of Milwaukee
Streets with # of Units
0
1 Unit
2 Units
3 Units
4 Units
5 or more units
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Response at Eight Minutes of Drive Time
Alternative Staffing Levels
Legend
MFD Stations
Streets with # of Personnel
0
Less than 1 full response
1 full response
2 full responses
3 full responses
4 full responses
5 or more full responses
City of Milwaukee
Water
N
0
2.5
5
10 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Response at Eight Minutes of Drive Time
Alternative Staffing Levels - Northern View
Legend
MFD Stations
Streets with # of Personnel
0
Less than 1 full response
1 full response
2 full responses
3 full responses
4 full responses
5 or more full responses
City of Milwaukee
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.


Milwaukee Fire Department
Projected Response at Eight Minutes of Drive Time
Alternative Staffing Levels - Southern View
Legend
MFD Stations
Streets with # of Personnel
0
Less than 1 full response
1 full response
2 full responses
3 full responses
4 full responses
5 or more full responses
City of Milwaukee
Water
N
0
1.25
2.5
5 Miles
Developed by Matrix Consulting Group. Source data provided by Milwaukee Fire Department & Census.

Once again, statistics were generated for each analysis to describe the response capabilities under the alternative staffing configuration. The first table, below, shows the number of calls projected to be reached within four (4) minutes or drive time, by unit overlap:

Response Coverage With 4 Person Ladder Companies
4 Minutes of Drive Time

Personnel	# of Calls	Percent
0	384	1%
1 Unit	239	0%
2 Units	2,850	4%
3 Units	5,815	8%
4 Units	5,897	8%
5 Units	4,648	6%
More than 5 Units	56,304	74%
Total	**76,137**	**100%**

The following points highlight the information above:

- Approximately 99% of all calls for service are projected to be reached by at least one unit within four (4) minutes of drive time. Note that this level of performance is identical to performance under the current system.
- Approximately 74% of all calls for service are projected to be reached by more than five units within four (4) minutes of drive time.
- Approximately 88% of all calls for service are projected to be reached by four or more units within four (4) minutes of drive time.

In sum, under the alternative staffing arrangement, performance on the four minute initial response target does not change. The next two tables provide statistics on response performance against the eight (8) minute structure fire response target. The first table below shows statistics for performance for all calls for service:

Response Coverage With 4 Person Ladder Companies
8 Minutes of Drive Time

Personnel	# of Calls	Percent
0	4	0%
Less than 24	660	1%
24 to 47 (1 or more full responses)	1,206	2%
48 to 71 (2 or more full responses)	1,685	2%
72 to 95 (3 or more full responses)	4,980	7%
96 to 119 (4 or more full responses)	5,467	7%
120 to 143 (5 or more full responses)	6,444	8%
144 to 167 (6 or more full responses)	16,241	21%
168 or more (7 or more full responses)	39,450	52%
Total	**76,137**	**100%**

The following points summarize the information above:

- As shown above, approximately 99% of all calls for service are projected to receive a full structure fire response within eight (8) minutes of drive time.
- Approximately 52% of all calls for service are projected to receive seven (7) or more, 168 or more personnel, full structure fire responses within eight (8) minutes of drive time.
- Approximately 88% of all calls for service are projected to receive four or more full structure fire responses, 96 or more personnel, within eight (8) minutes of drive time.

Once again, response capabilities do not change under the alternative staffing plan. The next table, below, shows projected coverage of all fire related calls for service:

Response Coverage With 4 Person Ladder Companies
8 Minutes of Drive Time - Fire Calls Only

Personnel	# of Calls	Percent
0	-	0%
Less than 24	660	12%
24 to 47 (1 or more full responses)	91	2%
48 to 71 (2 or more full responses)	176	3%
72 to 95 (3 or more full responses)	430	8%
96 to 119 (4 or more full responses)	280	5%
120 to 143 (5 or more full responses)	487	9%
144 to 167 (6 or more full responses)	1,339	24%
168 or more (7 or more full responses)	2,223	39%
Total	**5,686**	**100%**

The following points highlight the information above:

- As shown above, approximately 88% of all fire related calls are projected to receive a full structure fire response within eight (8) minutes of drive time. *Once again, please note that while a full response was not projected to reach 655 calls for service, approximately 94% or 613 or these calls, were projected to be reached by 16 or more personnel (3 or more engine or truck companies). In addition, fire related calls include several incidents of single units responses such as trash fires, car fires, etc*

- Approximately 39% of all fire related calls are projected to receive seven or more full structure fire responses within eight minutes of drive time. Note that this is a decrease of 12% from the current system.

- Approximately 77% of all fire related calls are projected to receive four or more full structure fire responses in eight minutes of drive time. Note this represents a decrease of approximately 2% from the current system.

Overall, under the alternative staffing plan, the Milwaukee Fire Department is still capable of meeting response targets for structure fire calls. In addition, a significant level of overlap would still exist to provide coverage for call concurrency. The next section discusses the fiscal impact of utilizing the alternative staffing plan.

(2) Fiscal Impact of Alternative Staffing Plan

The project team next evaluated the cost savings associated with the alternative staffing plan. In order to estimate the fiscal impact of this change, the following assumptions were made in developing this calculation:

- Staffing of ladder trucks will continue to include 1 Fire Captain, 2 Fire Lieutenants, and 3 Heavy Equipment Operators.
- Staffing of ladder trucks will be reduced from 12 firefighter positions to 9 firefighter positions.
- Shortages will be covered by full-time equivalents instead of overtime due to the low benefit rate.
- Mid-step salaries are used for all calculations. Officer positions were estimated at mid-step the Lieutenant pay rate for simplicity.

Based on the above, the following cost savings are expected under the alternative staffing plan:

Ladder Truck Costs Under Current Approach

Position	# Needed	Shift Factor	Needed (@ 86%)	Mid-Step Salary	Benefits (@ 30%)	Total Cost
Officer	1	3.4	3.9	54,225	16,268	276,519
HEO	1	3.4	3.9	49,541	14,862	252,634
Firefighter	3	3.4	11.8	39,675	11,903	606,968
Subtotal						1,136,120
Number of ladder trucks						16
Total ladder truck costs						**$18,177,916**

Ladder Truck Costs Under Alternative Approach

Position	# Needed	Shift Factor	Needed (@ 86%)	Mid-Step Salary	Benefits (@ 30%)	Total Cost
Officer	1	3.4	3.9	54,225	16,268	276,519
HEO	1	3.4	3.9	49,541	14,862	252,634
Firefighter	2	3.4	7.8	39,675	11,903	404,645
Subtotal						933,797
Number of ladder trucks						16
Total ladder truck costs						**$14,940,756**

Difference	**$ (3,237,160)**

As shown above, reducing ladder truck staffing to four personnel per unit per shift will result in cost savings of approximately $3.2 million. Given the current service levels and projected service levels under this alternative staffing plan, the reduction in staffing is justified.

Recommendation: The City of Milwaukee should reduce minimum staffing on front-line ladder trucks from five personnel to four personnel. This change will result in savings of approximately $3.2 million annually. These savings include both salaries and the value of City-paid benefits.

APPENDIX A:

MILWAUKEE FIRE DEPARTMENT IN A COMPARATIVE CONTEXT

The following provides the results of the comparative survey, which was distributed to a number of fire and emergency service departments in the largest cities throughout the United States. There were a total of 13 completed responses, which contain summary information on their respective community demographics and organizational and operational aspects of their fire and emergency medical services, including staffing levels, organization, equipment and apparatus, training, etc. The responding cities were as follows: Los Angeles, CA, San Jose, CA, San Diego, CA, Seattle, WA, Houston, TX, Dallas, TX, Oklahoma City, OK, Nashville, TN, Memphis, TN, Indianapolis, IN, Washington D.C., Baltimore, MD, and Boston, MA.

1. COMMUNITY DEMOGRAPHICS AND GENERAL DEPARTMENT INFORMATION

The tables on the following pages provide response results to questions regarding community population, geographic area, Department size in terms of personnel and budget, number of fire stations and number of fire companies.

Department	Milwaukee, WI	Nashville, TN	Memphis, TN	San Diego, CA	Houston, TX	Baltimore, MD	Dallas, TX
Resident population served?	**586,941**	545,524	645,978	1,292,400	2,009,690	628,670	1,208,318
Land area served?	**96**	533 sq. miles	350 Sq. Miles	342 sq miles	615 sq. miles	92 sq miles	368 sq miles
Total staffing of the Fire Department (by classification)?	**1,154 - 4 Chief's Office, 1,002 Suppression, 11-Admin, 26-Construction, 16-Training, 7-Special Ops, 35-Technical Services**	438 GSD, 746 USD	Suppression 1600/Bureaus 200	1,254	4,033		1900
Total budget for the department?	**$81,186,072**	$16,767,000	$117,000,000	$119,387,299	$292,942,005		168 million
Number of fire stations?	**36**	36	57	46	88	40	54
Number of engine Companies?	**37**	39	57	46	86	36	54
Number of ladder / truck companies?	**16**	12	28	14	37	19	21

Department	Milwaukee, WI	Los Angeles, CA	Boston, MA	Indianapolis, IN	San Jose, CA	Seattle, WA	Washington D.C.	Oklahoma City, OK
Resident population served?	**586,941**	3,819,915	581,616	783,438	898,349	569,101	563,384	523,303
Land area served?	**96**	471 sq miles	48.43	42.8 sq miles	206.3 sq mi	91	26	620
Total staffing of the Fire Department?	**1,154 - 4 Chief's Office, 1,002 Suppression, 11-Admin, 26-Construction, 16-Training, 7-Special Ops, 35-Technical Services**	3,562 uniformed and 338 civilian	1,706	751	822.75 FTEs	1,007		948
Total budget for the department?	**$81,186,072**	$465,879,457	$142,578,841 (2003)	$56,000,000	$126.5M	$121,864,729	$52,000,000	$98 million
Number of fire stations?	**36**	103	35	26	31	34	33	35
Number of engine Companies?	**37**	99	33	25	30	33	33	36
Number of ladder / truck companies?	**16**	49	20	14	8	11	17	13

The following points summarize the information above:

- The population of the responding agencies varied considerably, from a low of 523,300 in Oklahoma City, OK to a high of 3.8 million in Los Angeles, CA.
- The geographic area covered by the responding agencies also varied considerably, from a low of 42.8 square miles in Indianapolis, IN to a high of 620 square miles in Oklahoma City.
- Total fire department staffing ranged from a low of 751 personnel in Indianapolis to a high of 4,033 in Houston, Texas.
- Total fire department budgets ranged from a low of $54 million in Indianapolis to a high of $465,879,457 in Los Angeles.
- The number of fire stations operated by responding agencies ranged from a low of 26 in Indianapolis to a high of 103 in Los Angeles.
- The number of engine companies in each department ranged from a low of 25 in Indianapolis to a high of 99 in Los Angeles.
- The number of ladder/truck companies in each department ranged from a low of 8 in San Jose to a high of 49 in Los Angeles.

In order to make some meaningful comparisons of the information above, the project team tried to equalize the responding agencies to compare resource deployment. The first chart, below, shows a comparison of communities based on population density and number of stations:

City	Pop	Area	Pop/Sq. Mile	Stations
Milwaukee	**586,941**	**96**	**6,114**	**37**
Washington D.C.	563,384	26	21,669	33
Indianapolis	783,438	43	18,305	36
Boston	581,616	48	12,042	35
Los Angeles	3,819,951	471	8,110	103
Baltimore	628,670	92	6,833	40
Seattle	569,101	91	6,254	34
San Jose	898,349	206	4,355	31
San Diego	1,292,400	342	3,779	46
Dallas	1,208,318	368	3,283	54
Houston	2,009,690	615	3,268	88
Memphis	645,978	350	1,846	57
Nashville	545,524	533	1,023	36
Oklahoma City	523,303	620	844	35

The following points summarize the information above:

- The City of Milwaukee, based on 2003 population estimates, has a population density of 6,114 people per square mile. The responding agencies with the closest population density are Baltimore and Seattle with a population density of 6,833 and 6,254 persons per square mile respectively.

- As a comparison, the City of Baltimore has 40 stations and the City of Seattle has 34 stations.

- The City of Milwaukee has slightly more fire stations than cities with higher population densities such as Washington D.C., Indianapolis, and Boston.

The project team also looked at the number of engine and ladder companies taking into account population density:

City	Pop/Sq. Mile	Engine Companies	Ladder Companies	Total
Los Angeles	8,110	99	49	148
Houston	3,268	86	37	123
Memphis	1,846	57	28	85
Dallas	3,283	54	21	75
San Diego	3,779	46	14	60
Baltimore	6,833	36	19	55
Milwaukee	**6,114**	**37**	**16**	**53**
Boston	12,042	33	20	53
Nashville	1,023	39	12	51
Washington D.C.	21,669	33	17	50
Oklahoma City	844	36	13	49
Seattle	6,254	33	11	44
Indianapolis	18,305	25	14	39
San Jose	4,355	30	8	38

The following points highlight the information above:

- As shown above, the Milwaukee Fire Department has more total companies than cities like Boston and Washington D.C., which are have higher population densities.

- MFD also has fewer total companies than cities with lower population densities like Memphis, Dallas, San Diego, and Baltimore.

The final table shows the ratio of engine companies to ladder companies for each of responding community.

City	Pop/Sq. Mile	Engine Companies	Ladder Companies	Ratio of Engines to Ladders
Los Angeles	8,110	99	49	2.0
Houston	3,268	86	37	2.3
Memphis	1,846	57	28	2.0
Dallas	3,283	54	21	2.6
San Diego	3,779	46	14	3.3
Baltimore	6,833	36	19	1.9
Milwaukee	**6,114**	**37**	**16**	**2.3**
Boston	12,042	33	20	1.7
Nashville	1,023	39	12	3.3
Washington D.C.	21,669	33	17	1.9
Oklahoma City	844	36	13	2.8
Seattle	6,254	33	11	3.0
Indianapolis	18,305	25	14	1.8
San Jose	4,355	30	8	3.8

The following points highlight the information above:

- The average ratio of engine companies to ladder companies was 2.5 engines to 1 ladder company. Milwaukee FD was just below this figure at 2.3.
- Looking at similar density cities, Milwaukee is just above the ratio of engines to ladders in Baltimore, with a ratio of 1.9, and just below Seattle, with a ratio of 3.0.

The next section provides information on company staffing.

2. STAFFING AND SERVICES PROVIDED

This section provides information on staffing of companies and specialty units and services provided by responding agencies.

Department	Milwaukee, WI	Nashville, TN	Memphis, TN	San Diego, CA	Houston, TX	Baltimore, MD	Dallas, TX
Number/type of special units?	**3, 1 hazmat, 1 dive, 1 heavy urban rescue**		2 rescues, 31 ambulances	3 light & air, 2-hazmat, 1 environmental, 11-brush, 2-watertenders, 1-foam ARFF, 1-communications, 1-OES, 1 rescue, 1-EO, 39-ALS Amb, 23-BLS Amb, 4 Rescue/Medic		1 heavy rescue, 22 ALS Transport units (increased to 26 when heavily taxed), 2- Air cascade units (one each), 1 - hazmat truck, driver only (haz mat team meets up at scene), 1 large fireboat, 1 small boat	
Minimum staffing (engines)	**4**	19 engines have 4, the rest have 3	4	4		Minimum of 4	4
Minimum staffing (trucks)	**5**	3	4	4	4	Minimum of 4	4
Minimum staffing special units (Hazmat, Air, Technical Rescue, etc.) by type?	**5**	4	4	4	4	heavy rescue - minimum of 4, ALS units have at least one ALS provider (they are staffed with two)	2
Do you staff engines differently in single company houses than you do when they are with trucks?	**Yes**	No	No	No	No		No

Department	Milwaukee, WI	Los Angeles, CA	Boston, MA	Indianapolis, IN	San Jose, CA	Seattle, WA	Washington D.C.	Oklahoma City, OK
Number/type of special units?	**3, 1 hazmat, 1 dive, 1 heavy urban rescue**	128 ambulances, 5 fireboats, 5 helicopters	2	10	7 (3 USAR/3 airport/1 HIT)	Haz-mat, marine, de-con, tech rescue	10, RS, Haz-mat, fire boat, air unit	3
Minimum staffing (engines)	**4**	4 officer + 3	4	4	4	3 or 4	4	Min 4 on ALS engines (20) 3 min on BLS eng. (16)
Minimum staffing (trucks)	**5**	5 officer + 4	4	4	5 (includes USAR)	4	5	3
Minimum staffing special units (Hazmat, Air, Technical Rescue, etc.) by type?	**5**	Haz-mat = 4	5		4 Hazmat (HIT), 6 ARFF	Haz-mat 11, tech rescue 5, marine 6, decon 4	Haz-mat 5, RS 5, Air 1, FB 5	4 on Haz-Mat RS/ 1 on air
Do you staff engines differently in single company houses than you do when they are with trucks?	**Yes**	No	No	No	No		No	No

The following points summarize the information above:

- The number and types of specialty units used by responding agencies varied considerably.

- Minimum staffing on engine companies is four (4) personnel in all responding agencies with the exception of Nashville and Oklahoma City which have some engines staffed with three (3) personnel.

- Minimum staffing on truck/ladder companies is four (4) in all responding agencies with the exception of Los Angeles, Washington D.C., and Oklahoma City, which staff these units with five (5), five (5), and three (3) personnel respectively.

- Minimum staffing of specialty units varied significantly by type of unit. Typically, Haz-Mat units and Technical Rescue units are staffed with four (4) personnel, with the exception of Washington D.C. and Boston which staff these units with five (5).

- All responding agencies do not staff single company houses differently than multiple company houses.

The next set of tables, on the following pages, show response results for questions concerning organization of battalions and EMS services and staffing.

Department	Milwaukee, WI	Nashville, TN	Memphis, TN	San Diego, CA	Houston, TX	Baltimore, MD	Dallas, TX
Do you provide EMS?	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes
Are you providing 1st Response? BLS? ALS?	**ALS**	Both	Both ALS+BLS	Yes, both	Yes to all	All have BLS, some have ALS	Yes, ALS
Do you provide EMS transport? BLS? ALS?	**Yes**	yes	ALS	Yes, both	Yes to all		Yes, ALS
If so, minimum staffing on the ambulances?	**2**	2	1 paramedic, 1 EMT	2	2		2 paramedics
Number of battalions in the city?	**6**	7	13	7	21		9
Describe the Chief officer structure for the on-duty shift (i.e., 1 deputy chief, 6 battalion chiefs, etc.)	**1 Deputy Chief, 6 Battalion Chiefs**	1 Asst., 7 District Chiefs	13 Batt. Chiefs, 2 division chiefs, 1 Deputy	1 deputy chief, 1 division chief, 7 battalion chiefs	1 dep. Chief, 21 district chief per shift	City divided into east/west with on duty division chiefs working office hours only. Each division has 3 battalions. 1 of 4 shifts in each battalion has a bat commander	2 deputy chiefs, 9 battalion chiefs
Are there on-duty safety officers who are distinct from the Battalion Chiefs?	**No. But send second B.C.**	No	1 Safety Chief (B/C)	Yes, safety/training officer	Yes	No	No

Department	Milwaukee, WI	Los Angeles, CA	Boston, MA	Indianapolis, IN	San Jose, CA	Seattle, WA	Washington DC	Oklahoma City, OK
Do you provide EMS?	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are you providing 1st Response? BLS? ALS?	**ALS**	ALS and BLS	BLS	Yes	Yes, ALS	Both	Both	Both BLS and ALS
Do you provide EMS transport? BLS? ALS?	**Yes**	Both, 83 ALS + 45 BLS ambulances	No	Yes, both	Yes, ALS	Both	Both	No transport
If so, minimum staffing on the ambulances?	**2**	2 ALS = 2 PM'S, BLS = 22 FF-EMT-I	NA		2	2	2	N/A
Number of battalions in the city?	**6**	16		4	5	5	6	6
Describe the Chief officer structure for the on-duty shift (I.e., 1 deputy chief, 6 battalion chiefs, etc.)	**1 Deputy Chief, 6 Battalion Chiefs**	3 ass't chiefs + 16 batt. Chiefs (24-7)	2 Deputy Chiefs, 11 District Chiefs per shift	1 shift commander, 4 battalion chiefs, 1 company officers, 3 fire fighters	1 deputy fire chief, 5 battalion chiefs	1 dep ch, 5 batt ch	1 DFC, 1 DFC-Aide, 6 BFC's, 6 BFC Aides	1 deputy, 6 battalion chiefs
Are there on-duty safety officers distinct from Battalion Chiefs?	**No. But send second B.C.**	no, however, each chief has a staff assistant	Admin staff District Chiefs at headquarters		yes, 1 BC (40 hr shift)	yes	yes	yes

The following points summarize the information above:

- As shown above, all of the responding agencies provide emergency medical services. Most provide basic life support EMS or above.

- All responding agencies with the exception of Oklahoma City and Boston provide transport at the BLS level or above. Minimum staffing on ambulance units in all responding agencies is two (2) personnel.

- The number of Battalions within each responding agency ranged from a low of four (4) in Indianapolis to a high of 21 in Houston.

- On-duty chief officer staffing varied somewhat from agency to agency. All agencies utilized a Deputy or Division Chief. Division or Deputy Chief staffing (i.e. a shift-wide commander typically working day hours) ranged from a low of one (1) in Indianapolis, Seattle, Washington D.C., Oklahoma City, San Jose, Nashville, San Diego, and Houston, to a high of three (3) Chiefs in Los Angeles.

- Battalion Chief staffing varied significantly from a low of four (4) in Indianapolis, to a high of twenty-one (21) in Houston.

- Most agencies (8 out of 12 responses) utilize a dedicated Safety Officer to respond to major incidents.

The next set of tables provides information on response protocols to various types of incidents.

Department	Milwaukee, WI	Nashville, TN	Memphis, TN	San Diego, CA	Houston, TX	Baltimore, MD	Dallas, TX
What is your typical EMS response?	**1 Engine + Medic**	1 engine, 1 medic	1 ALS Company, 1 Ambulance	level #1 receives 1 engine & ambulance	1 eng, 1 BLS, and/or medic and/or squad		1 reserve unit
What is your typical residential fire response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	3 engines, 1 truck, 1 rescue, 1 chief	3 engines, 1 truck, 1 rescue, 1 B/C	3-engines, 1-truck, 1 batt chief	3 eng, 2 ladders, 1 chief, 1 Amb	Dispatch to any building fire is comprised of 4 engines, 2 trucks, one medic unit, two battalion chiefs and an engine dedicated to RIT duties.	3 eng, 1 trk, 1 reserve, 1 bat chief
What is your typical multi-occupancy residential response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	4 engines, 2 trucks, 1 rescue, 2 chiefs	3 engines , 2 trucks, 1 rescue, 1 B/C	4 engines, 2-trucks, 2-battchiefs	4 eng, 2 ladders, 2 chief, 1 safety, 1 Amb.	same as residential	Same
What is your typical commercial response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	same	4 eng, 2 truck, 1 rescue, 2 B/C	same as above	Same as multi-occup.	Heavy rescue is added to "boxes" in proximity to their downtown quarters	Same
What is your typical high-rise response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	same	4 eng, 2 truck, 1 rescue, 2 B/C, 1 division chief	5 engines, 2 trucks, 1 rescue, 2 BC, 1 Amb, 1 light unit	Same as multi-occup.	Nothing special for high rises or target hazards	3 eng, 2 trk, 1 reserve, 1 bat chief

Department	Milwaukee, WI	Los Angeles, CA	Boston, MA	Indianapolis, IN	San Jose, CA	Seattle, WA	Washington D.C.	Oklahoma City, OK
What is your typical EMS response?	**1 Engine + Medic**	BLS/ALS fire company and BLS/ALS ambulance	1 Engine or 1 Truck	yes	1 engine (If rescue, add 1 truck + 1 BC)	BLS - 1 unit, ALS 1 unit, 1 ALS	No response.	1 company
What is your typical residential fire response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	3 engine, 1 truck, 1 amb., 1 batt. Chief	3 engines, 2 trucks, 2 engines 1 trucks	1 eng (4 fire fighters)	2 engines, 1 truck, 1 BC	4 eng, 2 ladder, 2 BC, 1 DC, 1 Safety, 1 ALS, 1 Air unit	No response.	3 Eng. - 1 ladder, 2 BC's, air 1
What is your typical multi-occupancy residential response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	4 engine, 2 truck, 1 amb., 1 batt. Chief (BC)	3 engines,2 trucks, 1 district chief	2 eng + 2 ladders (16 firefighters)	2 engines, 1 truck, 1 BC	Same as above w/ 5 eng	No response.	4 engs, 2 ladders, 2 BC's, air 1
What is your typical commercial response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	4 engine, 2 truck, 1 amb, 1 haz-mat squad, 1 BC	3 engines,2 trucks, 1 district chief	3 eng + 2 ladders + 1 squad + 1 batt	2 engines, 1 truck, 1 BC	Same as above w/ 5 eng	No response.	4 engs, 2 ladders, 2 BC's, air 1
What is your typical high-rise response?	**3 Engines, 2 Trucks, Medic, 2 B.C.**	4 engine, 2 truck, 1 amb, 1 haz-mat squad, 1 BC	3 engines,2 trucks, 1 district chief	3 eng, 2 ladders, 1 sq, 1 batt	3 engines, 2 trucks, 1 BC	Same as above w/ 5 eng	No response.	4 engs, 2 ladders, 2 BC's, air 1

The following points highlight the information above:

- The majority of EMS responses consisted of a one unit response (engine, ladder truck, or rescue truck). Agencies that provide EMS transport respond with an ambulance unit in addition to the one unit response.

- Responses to residential structure fires varied significantly from one (1) engine in Indianapolis to four (4) engines, two (2) ladder trucks, two (2) Battalion Chiefs, one (1) Deputy Chief, one (1) ALS medic unit, and one (1) air unit in Seattle.

- Responses to commercial structure fires also varied significantly, from two (2) engines, one (1) ladder truck, and one (1) Battalion Chief in San Jose, to five (5) engines, two (2) ladder trucks, two (2) Battalion Chiefs, one (1) Deputy Chief, one (1) ALS medic units, and one (1) air unit in Seattle.

- Responses to high-rise building also varied greatly, from two (2) engines, on (1) ladder truck, and one (1) Battalion Chief in San Jose, to five (5) engines, two (2) ladder trucks, one (1) rescue unit, one (1) Battalion Chief, one (1) ambulance, and one (1) light unit in San Diego.

The next set of tables provides response results to questions regarding workload, and life and property loss due to fire.

Department	Milwaukee, WI	Nashville, TN	Memphis, TN	San Diego, CA	Houston, TX	Baltimore, MD	Dallas, TX
Total calls for service (2004)?	**92,168**	87,053	149,080	9,642 in 2003	556,593	106,822 suppression calls, 2,132 structure fires, 164 Haz-mat incidents	103,821 - emergency operations
EMS calls for service (2004)?	**77,094**	65,678	86,927	80041 in 2003	434,307	135,172	147,885 - EMS
Total unit runs for all calls (2004)?	**153,111**	87053	? N/A	94,549 in 2003	123,286		251,000
Number of fire deaths in 2004?		9 - 6 residential	2003-16, 2004-9	13 in 3 years	18	38 civilian deaths	18
Total value of property lost/damaged due to fire in 2004?		$19,274,392.00	$33,318,068	$29,967,557 in 2003	$46,831,251		$33,144,321
Number on-duty deaths/injuries in your Fire Department in the past 5 years?		1 death in last 5 years	5 deaths/614 injury on duty	0/232 in 3 years	5		3 deaths

Department	Milwaukee, WI	Los Angeles, CA	Boston, MA	Indianapolis, IN	San Jose, CA	Seattle, WA	Washington DC	Oklahoma City, OK
Total calls for service (2004)?	**92,168**	352,320	75,542	4 eng, 2 ladders, 1 sq, 1 B.C.	59,890	75,750	119,846	57,209
EMS calls for service (2004)?	**77,094**	289,756	36,470 medical incidents	81,000	40,646	56,269	89,817	28,257
Total unit runs for all calls (2004)?	**153,111**	714,658			73,404		268,984	N/A
Number of fire deaths in 2004?		26	9 (3 year avg. 2000-2002)	81,000	2	1	16	17
Total value of property lost/damaged due to fire in 2004?		$117.5 million			$24.4M	$18,555,315	$8,638,227	N/A
Number on-duty deaths/injuries in your Fire Department in the past 5 years?		Deaths = 5, injuries = 1,830+			0 deaths, 1976 injuries	0/1,918	None	0 deaths, 1197 injuries

The following points summarize the information presented in the tables above:

- As shown above, total calls for service ranged from a low of 57,209 in Oklahoma City, to a high of 352, 350 in Los Angeles.
- EMS calls for service ranged from a low of 28,257 in Oklahoma City, to a high of 289,756 in Los Angeles.
- The number of total unit runs, for those agencies that responded, ranged from a low of 73,404 in San Jose, to a high of 714, 658 in Los Angeles.
- The number of fire deaths in 2004 ranged from a low of one (1) in Seattle, to a high of 38 in Baltimore.
- The total value of property lost and or damaged due to fire, for those agencies that responded, ranged from a low of $8.6 million in Washington D.C., to a high of $117.5 million in Los Angeles.
- The number of on-duty injury and deaths varied significantly from agency to agency. Only Nashville, Memphis, Houston, Dallas, and Los Angeles reported on-duty deaths during the past five years. Injuries ranged from a low of two-hundred thirty-two (232) in San Diego, to a high of 1,830 in Los Angeles.

The final set of tables provides information on staffing and organization of support functions within responding agencies, including training, fleet and facility maintenance, and dispatch.

Department	Milwaukee, WI	Nashville, TN	Memphis, TN	San Diego, CA	Houston, TX	Baltimore, MD	Dallas, TX
Does your agency do its own fleet maintenance? If so, how are you staffed for this function?	**Yes - (26) 1 D.C., 1 Equipment Mngr., 1 Equipment Sup., 1 Clerk, 21 shop staff, 1 office assistant**	No	Yes, 1 div. chief, 2 supervisors, mechanics	Yes, 35 positions for fleet & facility maintenance	Yes, civilian & classified personnel	Fleet maintenance handled by Public Works in a facility dedicated to fire apparatus	No
Does your agency do its own facility maintenance? If so, how are you staffed for this function?	**Yes, Included in above.**	Yes	No, city general services division	Yes	No		Minor facility maintenance - painting, lawn care, etc.
Does your agency provide dispatch from within the Fire Department? If so, how are you staffed in this area? Per shift?	**Yes, 1 Deputy Chief, 1 Dispatch Manager, 1 Dispatch Supervisor, 21 Dispatchers, 1 Admin Assistant**	No	Yes, 1 watch commander, dispatchers	Yes, 50 positions (civilian)	Provide dispatch after transfer from 911, 18 per shift - 3 Se Disp, 8 Radio ops, 4 call talker		Yes, staffed w/ firefighters, 10 per shift
How is training staffed?	**16- 1 D.C., 1 Capt., 2 Vehicle Training Inst., 4 Fire Lt., 3 FFs, 1 Inventory, 1 AV Spec., 2 Office Asst.**		1 D/C, 1 B/C, 16 LT	8 positions		Academy with a division chief and 12 instructors - they do fire and EMS instruction	With officer-level employees

Department	Milwaukee, WI	Los Angeles, CA	Boston, MA	Indianapolis, IN	San Jose, CA	Seattle, WA	Washington D.C.	Oklahoma City, OK
Does your agency do its own fleet maintenance? If so, how are you staffed for this function?	**Yes 1 D.C., 1 Equip. Mngr., 1 Equip. Sup., 1 Clerk, 21 shop staff, 1 office assistant**	Yes		1	No, other city dept	No	Yes, 1 DFC, 1 captain, 35 civilians	Yes – civilians
Does your agency do its own facility maintenance? If so, how are you staffed for this function?	**Yes, Included in above.**	No - city of LA		No, contracted	No, other city dept	No	Yes, 1 DFC, 3 captains, 12 civilians	Yes – civilians
Does your agency provide dispatch from within the Fire Department? If so, how are you staffed in this area? Per shift?	**Yes, 1 D.C., 1 Dispatch Mngr., 1 Dispatch Sup., 21 Dispatchers, 1 Admin Assistant**	Yes - 25 FF dispatches on duty (24-7)	Yes,	No, contracted	Yes -- com. Mngr., sup. dispatcher, sr. dispatcher, pub. safety disp. II. Per shift: 1 sr disp., 4 p.s. dispatcher	Yes 6 per shift	No	Yes, uniformed, 5 per shift
How is training staffed?	**16- 1 D.C., 1 Capt., 2 Vehicle Training Inst., 4 Fire Lt., 3 FFs, 1 Inventory, 1 AV Spec., 2 Office Asst.**	Recruit training = 45+, in-serv. Training = 20		no, contracted	1 BC, 4 captains, 1 firefighter, 2 training specialists, 1 staff technician, 1 office specialist II		With members of the department -- 1 DFC, BFC, 2 capt., 3 lieutenants, 3 sergeants	Uniformed 5 EMS, 5 training officers, 10 total

The following points summarize the information above:

- Of those agencies that responded (11), six (6) departments reported that they have fleet maintenance personnel within the Department.

- Only four (4) of the eleven (11) agencies that responded reported that they have facilities maintenance personnel within their department.

- Nine (9) of the twelve (12) responding agencies reported that they have fire personnel handling emergency dispatch operations. Staffing in these agencies ranged from five (5) dispatchers in San Jose, to twenty-five (25) dispatchers in Los Angeles.

- Staffing for Training functions varied widely across responding agencies. For those agencies that have dedicated training personnel, staffing ranged from a low of eight (8) positions in San Diego, to twenty (20) dedicated positions in Los Angeles.

APPENDIX B

PROFILE OF THE FIRE DEPARTMENT

This profile of the Milwaukee Fire Department (MFD) Organizational, Effectiveness, and Efficiency Study provides summary information regarding the current organization and operations of the MFD. The information contained in this profile was developed through interviews of MFD management, review of available documents, and access to computerized records and statistics.

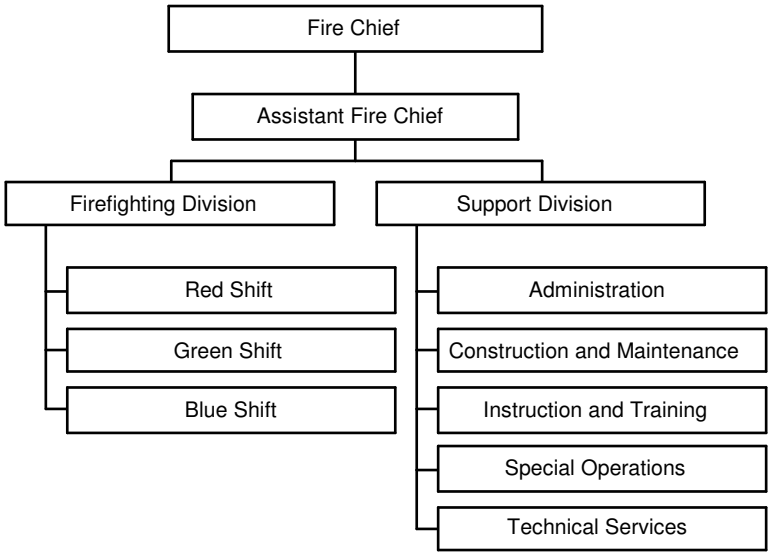
A summary of staffing and organization, roles and responsibilities, and operational / workload are provided for the following areas:

- General Overview
- Fire Chief
- Firefighting Division
  - Field Operations
- Support Division
  - Administration
  - Construction and Maintenance
  - Instruction and Training
  - Special Operations
  - Technical Services

The first section provides a general overview of the MFD, including the basic organizational structure and budget information.

1. GENERAL OVERVIEW OF THE MILWAUKEE FIRE DEPARTMENT

The Milwaukee Fire Department is organized into the Firefighting Division and Support Division, as shown below:



The following points summarize the overall functional responsibility of each of the above Divisions / Bureaus.

- **Firefighting Division.** Consists of 3 Field Operation shifts, whose personnel provide the emergency responses to calls for service on a daily basis from 36 fire station locations throughout the City.

- **Bureau of Administration.** Responsible for records maintenance and records keeping for fire loss, personnel, costs, etc., development and administration of the budget, preparation of payroll and other administrative assignments as appropriate.

- **Bureau of Construction and Maintenance.** Responsible for the maintenance and repair of all MFD facilities and equipment, including fire stations, fire apparatus, etc., as well as the preparation of specifications for new equipment, tools, etc.

- **Bureau of Instruction and Training.** Responsible for the identification, planning, and delivery of required and advanced training for all MFD personnel. This includes the research and development of proper firefighting techniques and integration into MFD policies and procedures. Responsibilities include development and delivery of public relations and public education programs.

- **Bureau of Special Operations.** Responsible for managing emergency medical services, coordinating the special teams of the MFD, including the dive, urban rescue, and hazardous materials, the safety coordination of special events in the City, and emergency and continuation planning relating to homeland security issues.

- **Bureau of Technical Services.** Responsible for the emergency dispatch communications of the MFD, research and development of communications policies and procedures, data entry and tracking, etc. Responsible for the management and maintenance of the MFD local area network. In addition provides all support to system servers, software and hardware to approximately 1,000 end users.

The following sub-sections provide the staffing and budget information for the City of Milwaukee Fire Department.

(1) To Provide These Services, the City of Milwaukee Fire Department has a 2005 Authorized Staffing of 1,154 Positions.

According to available budget documents, the MFD has a 2005 authorized staffing of 1,154 positions. The following table shows the authorized staffing since 2000:

	2000	2001	2002	2003	2004	2005
Full-time	1,146	1,148	1,148	1,146	1,107	1,106
Part-time (unfunded auxiliary)	0	0	0	0	44	48
Total Positions Authorized	1,146	1,148	1,148	1,146	1,151	1,154

As this data shows, while the number of authorized positions has not changed significantly over this time period, the number of full-time positions has. For example, in 2000, the number of full-time positions was 1,146. In 2005, the number of full-time positions decreased to 1,106 - a decrease of 40 positions or -3.5% from 2000.

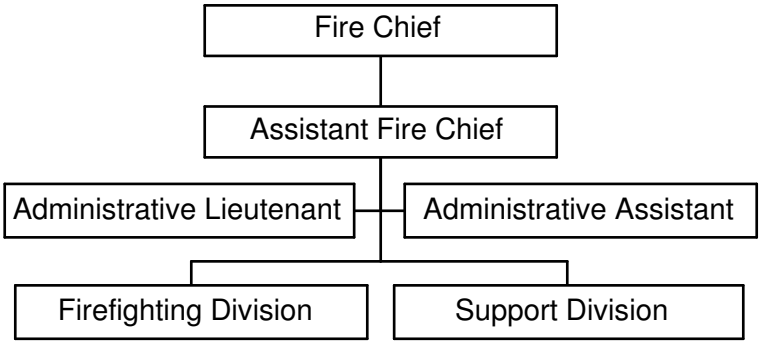
The Milwaukee Fire Department has a 2005 Budget of $88,404,023. The following table provides the MFD's budget between 2003 and 2005 for the Firefighting Division and Support Division:

	2003	2004	2005	2-Year % Change
Firefighting Division				
Net Salaries and Wages	$63,141,159.0	$60,064,366.0	$59,620,308.0	-5.6%
Employee Fringe Benefits	$17,999,020.0	$18,619,954.0	$17,924,732.0	-0.4%
Operating Expenditures	$2,880,054.0	$2,861,879.0	$3,080,801.0	7.0%
Equipment Purchase	$159,482.0	$514,388.0	$560,231.0	251.3%
Special Funds	$334.0	$0.0	$0.0	-100.0%
Sub-Total	**$84,180,049.0**	**$82,060,587.0**	**$81,186,072.0**	**-3.6%**
Support Services Division				
Net Salaries and Wages	$4,385,705.0	$4,834,799.0	$4,866,837.0	11.0%
Employee Fringe Benefits	$1,227,721.0	$1,500,839.0	$1,460,051.0	18.9%
Operating Expenditures	$372,410.0	$799,763.0	$762,888.0	104.9%
Equipment Purchase	$85,937.0	$94,118.0	$38,375.0	-55.3%
Special Funds	$113,105.0	$87,000.0	$89,800.0	-20.6%
Sub-Total	**$6,184,878.0**	**$7,316,519.0**	**$7,217,951.0**	**16.7%**
Fire Department Total	**$90,364,927.0**	**$89,377,106.0**	**$88,404,023.0**	**-2.2%**

As this data shows, the sub-total for the Firefighting Division decreased by 3.6%, from $84,180,049 in 2003 to $81,186,072 in 2005. The sub-total for the Support Services Division increased by 16.7%, from $6,184,878 in 2003 to $7,217,951 in 2005 by 2.2%. In total, the Fire Department budget has decreased by 2.2%, from $90,364,927 in 2003 to $88,404,023 in 2005.

2. FIRE CHIEF

This section provides summary information regarding the office of the Fire Chief, which is represented as follows:

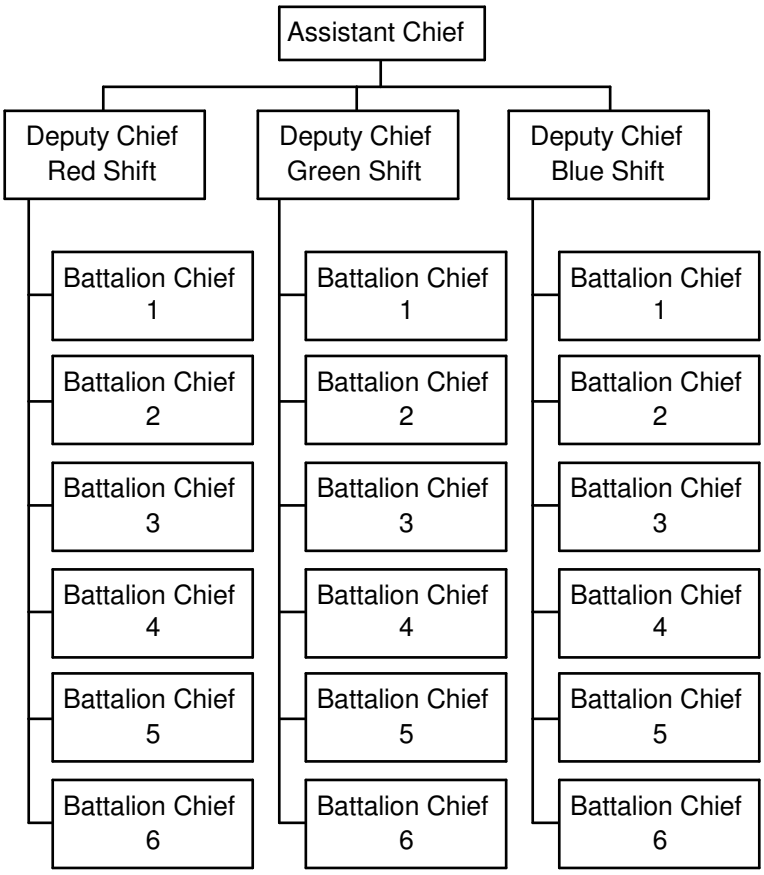


The following table provides the number of the positions authorized, as well as the key roles and responsibilities of each of the classifications:

Position / Classification	Positions	Key Roles and Responsibilities
Fire Chief	1	• Provides the executive management of the Fire Department, including the development of policies and procedures, providing leadership for future services, budget development, identifying service gaps, working with the elected officials and City management to ensure that the MFD interests are considered, etc. • Provides education regarding how the MFD operates, what its' services are, what the resource needs are, etc.
Assistant Fire Chief	1	• Provides the day to day management of the Milwaukee Fire Department. • Serves as the Fire Chief in his / her absence. • Provides supervision to the Firefighting Division, to ensure that the Deputy Chiefs are equipped with the necessary resources to support field operations. • Responds in the field to greater alarm incidents. • Serves as the chair for personnel investigations. • Works with the Fire Chief to develop and administer the budget, etc.
Administrative Lieutenant	1	• Works on special projects as requested by the Fire Chief and Assistant Fire Chief.
Administrative Assistant	1	• Provides the administrative support to the Fire Chief and Assistant Fire Chief, including developing correspondence scheduling, answering phones, etc.
Total	**4**	

3. FIREFIGHTING DIVISION

This section provides information regarding the organization, operations, and staffing of the Firefighting Division, which includes the 3 shifts for Field Operations, as shown by the following organization chart:



The following table summarizes the number of station and staffed units per battalion:

Battalion	# of Fire Stations	# of Staffed Units
1	5	• 6 Engines • 3 Ladders
2	6	• 6 Engines • 3 Ladders • 3 ALS Transport Units
3	7	• 7 Engines • 2 Ladders • 3 ALS Transport Units
4	6	• 6 Engines • 3 Ladders • 2 ALS Transport Units
5	6	• 6 Engines • 3 Ladders • 1 ALS Transport Unit • 1 Squad
6	6	• 6 Engines • 2 Ladders • 2 ALS Transport Units
Total	**36**	• **37 Engines** • **16 Ladders** • **11 ALS Transport Units** • **1 Squad**

(1) The Milwaukee Fire Department Assigns 331 Personnel to 36 Fire Stations per Shift to Meet a Minimum Daily Staffing Requirement of 266 Sworn Personnel.

The following table summarizes the number of personnel who are assigned under each general classification, along with the daily minimum staffing requirement, as well as the total number of personnel (all shifts) assigned to the Firefighting Division:

	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum Requirement	Company / Battalion Total
Division Total	79	60	193	331	**266**	996

As shown above, the total daily minimum staffing is 266 personnel, which consists of officers (includes the Deputy Chief, Battalion Chiefs, Captains, Lieutenants),

heavy equipment operators, and firefighters (includes firefighters, firefighter paramedics, etc.). The following sub-sections provide the assigned and daily minimum staffing information per battalion and apparatus.

(1.1) Battalion 1

The following table shows the number of assigned officers, heavy equipment operators, and assigned firefighters per unit, as well as the total shift assignment, the daily minimum per unit, and the company / battalion total:

Battalion 1	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum	Company / Battalion Total
BC	1	0	0	1	1	3
Engine 1	1	1	3	5	4	15
Engine 2	1	1	4	6	4	18
Engine 3	1	1	4	6	5	18
Engine 6	2	2	4	8	5	24
Engine 12	1	1	4	6	4	18
Engine 20	1	1	4	6	5	18
Ladder 1	1	1	4	6	5	18
Ladder 2	1	1	4	6	5	18
Ladder 11	1	1	4	6	5	18
TOTAL	**11**	**10**	**35**	**56**	**43**	**168**

As shown above, Battalion 1 has a total shift assignment of 56 personnel to meet a daily minimum staffing requirement of 43 personnel.

(1.1) Battalion 2

The following table shows the number of assigned officers, heavy equipment operators, and assigned firefighters per unit, as well as the total shift assignment, the daily minimum per unit, and the company / battalion total:

Battalion 2	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum	Company / Battalion Total
BC	1	0	0	1	1	3
Engine 5	1	1	4	6	4	18
Engine 18	1	1	3	5	4	15

Engine 21	1	1	3	5	4	15
Engine 27	1	1	3	5	4	15
Engine 30	1	1	4	6	4	18
Engine 36	2	2	4	8	5	24
Ladder 5	1	1	3	5	5	15
Ladder 10	1	1	4	6	5	18
Ladder 12	1	1	4	6	5	18
Med 5	1	0	1	2	2	6
Med 6	1	0	1	2	2	6
Med 7	1	0	1	2	2	6
TOTAL	**14**	**10**	**35**	**59**	**47**	**177**

As shown above, Battalion 2 has a total shift assignment of 59 personnel to meet a daily minimum staffing requirement of 47 personnel.

(1.3) Battalion 3

The following table shows the number of assigned officers, heavy equipment operators, and assigned firefighters per unit, as well as the total shift assignment, the daily minimum per unit, and the company / battalion total:

Battalion 3	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum	Company / Battalion Total
BC	1	0	0	1	1	3
Engine 10	1	1	3	5	4	15
Engine 25	1	1	4	6	5	18
Engine 26	1	1	4	6	5	18
Engine 28	1	1	4	6	4	18
Engine 29	1	1	3	5	4	15
Engine 33	2	2	3	7	4	21
Engine 35	1	1	3	5	4	15
Ladder 16	1	1	3	5	5	15
Ladder 17	1	1	3	5	5	15
Med 3	1	0	1	2	2	6
Med 14	1	0	1	2	2	6
Med 18	1	0	1	2	2	6
TOTAL	**14**	**10**	**33**	**57**	**47**	**171**

As shown above, Battalion 3 has a total shift assignment of 57 personnel to meet the daily minimum staffing requirement of 47 personnel.

(1.4) Battalion 4

The following table shows the number of assigned officers, heavy equipment operators, and assigned firefighters per unit, as well as the total shift assignment, the daily minimum per unit, and the company / battalion total:

Battalion 4	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum	Company / Battalion Total
BC	1	0	0	1	1	3
Engine 7	1	1	3	5	4	15
Engine 11	1	1	3	5	4	15
Engine 14	1	1	3	5	4	15
Engine 17	1	1	3	5	4	15
Engine 23	1	1	3	5	4	15
Engine 31	2	2	3	7	4	21
Ladder 6	1	1	3	5	5	15
Ladder 8	1	1	3	5	5	15
Ladder 14	1	1	4	6	5	18
Med 15	1	0	1	2	2	6
Med 17	1	0	1	2	2	6
TOTAL	**13**	**10**	**30**	**53**	**44**	**159**

As shown above, Battalion 4 has a total shift assignment of 53 personnel to meet a daily minimum staffing requirement of 44 personnel.

(1.5) Battalion 5

The following table shows the number of assigned officers, heavy equipment operators, and assigned firefighters per unit, as well as the total shift assignment, the daily minimum per unit, and the company / battalion total:

Battalion 5	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum	Company / Battalion Total
BC	1	0	0	1	1	3
Engine 13	1	1	4	6	5	18
Engine 22	3	3	2	8	4	24
Engine 24	1	1	3	5	4	15
Engine 32	1	1	4	6	4	18
Engine 34	1	1	4	6	4	18
Engine 37	1	1	3	5	4	15
Ladder 9	1	1	4	6	5	18

Ladder 13	1	1	4	6	5	18
Ladder 15	1	1	3	5	5	15
Med 13	1	0	1	2	2	6
Squad 2	0	0	2	2	2	6
TOTAL	**13**	**11**	**34**	**58**	**45**	**174**

As shown above, Battalion 5 has a total shift assignment of 58 personnel to meet a daily minimum staffing requirement of 45 personnel.

(1.6) Battalion 6

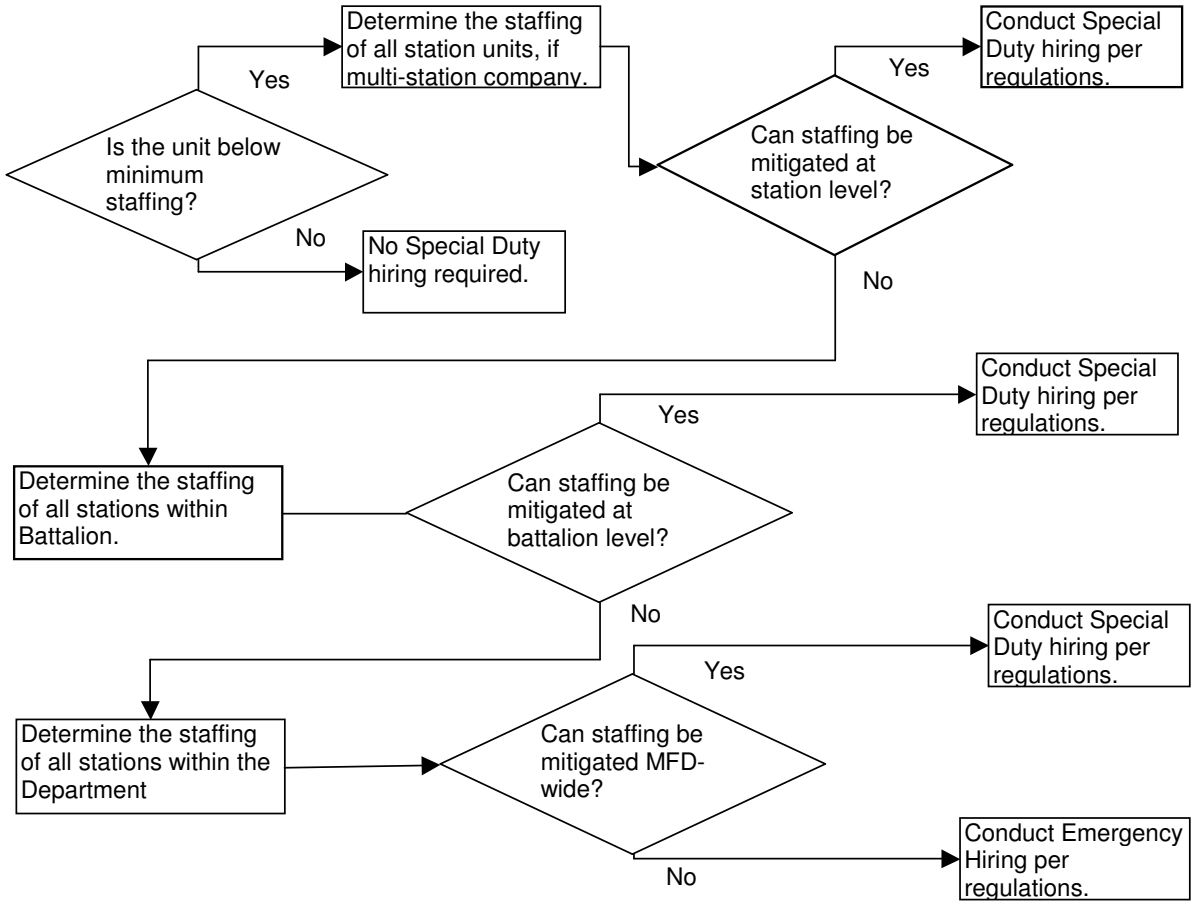
The following table shows the number of assigned officers, heavy equipment operators, and assigned firefighters per unit, as well as the total shift assignment, the daily minimum per unit, and the company / battalion total:

Battalion 6	Assigned Officer	Assigned HEO	Assigned FF	Total Shift Assignment	Daily Minimum	Company / Battalion Total
BC	1	0	0	1	1	3
Engine 4	1	1	3	5	4	15
Engine 8	1	1	4	6	4	18
Engine 9	1	1	3	5	4	15
Engine 16	2	1	3	6	4	18
Engine 38	1	2	2	5	4	15
Engine 39	1	1	3	5	4	15
Ladder 3	1	1	3	5	5	15
Ladder 7	1	1	3	5	5	15
Med 4	1	0	1	2	2	6
Med 16	1	0	1	2	2	6
TOTAL	**12**	**9**	**26**	**47**	**39**	**141**

As shown above, Battalion 6 has a total shift assignment of 47 personnel to meet a daily minimum staffing requirement of 39 personnel.

(2) The Fire Department Utilizes Special Duty for the Hiring of Personnel for a 24-Hour Period to Maintain a Minimum Staffing Complement.

Special duty is the hiring of personnel for a 24-hour period to maintain the MFD daily minimum staffing requirement of 266 personnel. This is a process which involves coordination between the company officers, Battalion Chiefs, and the Deputy Chief on a shift per shift basis. The basic process for mitigating staffing issues is shown by the following:



In sum, this process can be characterized as solving problems at the lowest possible level, from the unit level (company officer), to the station level (company

officer), to the battalion level (battalion chief) and ultimately Department-wide (deputy chief).

(3) Roles and Responsibilities

The following table provides a summary of the key roles and responsibilities of the Firefighter Division positions:

Position / Classification	Positions	Key Roles and Responsibilities
Deputy Chief	3	• Provides the overall management of the entire MFD shift, including responding to greater alarm incidents as the incident commander. • Ensures that daily staffing meets the minimum requirements and preparing staffing documents for the following shift. • Ensures that each of the Battalion Chiefs have the proper support and resources to meet the daily goals, objectives, policies and procedures of the MFD. • Responds to calls as specified in the current dispatch protocol including greater alarms, mass casualty events etc. • Performs as chairperson for designated department committees as appointed by the Chief.
Battalion Chief	21	• Provides the overall management of the respective battalion during a shift (includes 6 battalions for 3 shifts). • Responds to all working structure fires and additional incidents as specified in the current dispatch protocol. • Ensures that all staffing meets the minimum requirements per battalion. • Ensures that each of the station captains within the battalion have the proper support and resources to meet the daily goals, objectives, policies and procedures of the MFD. • Responsible for incident safety management • Responsible for providing public information at incident scenes • Responsible for inter-agency communications
Fire Captain	53	• Provides the field / station supervision of a unit crew during the respective shift. • Ensures that all responsibilities regarding company training, inspections, etc. are fulfilled. • Ensures that all responses to incidents in the field are handled safely within operating guidelines. • Overall responsibility for all three shifts including personnel, apparatus, building and grounds, reports, records, and inventory

Position / Classification	Positions	Key Roles and Responsibilities
Lieutenant (Suppression)	143	• Provides the field / station supervision of a unit crew during the respective shift. • Ensures that all responses to incidents in the field are handled safely within operating guidelines. • May assume some responsibilities of Captain as delegated
Lieutenant (Paramedic)	17	• Provides the field / station supervision of a unit crew during the respective shift. • Ensures that all responses to incidents in the field are handled safely within operating guidelines. • May assume some responsibilities of Captain as delegated
Heavy Equipment Operator	180	• Operates (drives) the apparatus of the respective assigned unit during emergency calls for service in the field.
Firefighter	532	• Provide firefighting duties during emergency calls for service in the field – including the laying of hoses, raising ladders, suppression activities, clean-up, etc. • Involved in training, inspections, public education, etc. as part of the unit crew.
Paramedic Firefighter	53	• Same duties as a firefighter, but is typically staffed on a paramedic unit. • Provides advanced life support evaluation and treatment.
Total	**1,002**	

4. BUREAU OF ADMINISTRATION

The following table summarizes the staffing and key roles and responsibilities for the personnel assigned to the Bureau:

Position / Classification	Positions	Key Roles and Responsibilities
Deputy Chief	1	• Provides the day to day management of the Administration Bureau, which includes personnel information processing, record keeping, financial management etc. • Involved in the hiring process of all non-sworn personnel, including the determining the process for hiring. • Involved in employee investigations, both on and off-duty, determining discipline, and implementing discipline. • Addresses citizen complaints which are taken by the Bureau, EEOC complaints, grievances, etc.
Business Finance Manager	1	• Manages the finances of the MFD, including grants management, purchasing, accounts payable, budget expenditures, etc. • Involved with developing and planning the budget. • Involved in contract negotiations, managing billings, accounts receivables, etc.
Fire Personnel Officer	1	• Manages the processes and resolves issues associated with promotions, new hires, retirement, resignations, etc. • Tracking personnel leaves, including long-term management of leave compensation, benefits tracking, sick leaves, etc.
MCSVA	1	• Manages all personnel data within the system (i.e., demographic information for personnel, personnel reporting, vacations, etc.) • Assists with payroll processing.
Management Accounting Officer	1	• Responsible for processing the bills and accounts receivables. • Handles upper-level payroll issues, works with personnel clerk to ensure all benefits are getting paid. • Inputting personnel data into the system.
PPRA2	1	• Manages the payroll system, including processing timecards, time adjustments, ensuring all payroll is accounted for, including deductions, taxes, etc. • Ensuring all paper documentation is complete and time is properly recorded.
Custodial Worker	1	• Custodian for the MFD headquarters. • Delivery inter-department mail.

Position / Classification	Positions	Key Roles and Responsibilities
Office Assistant	4	• 1 position deals with the day-day issues with sick leave, proper documentation, how many people are sick requiring documentation, long-term disabilities, track the sick leave, return to work training, family leave, etc. – manages the paperwork. Develops OSHA injury statistics. • 1 position shares similar duties as above, and acts as the secretary for Special Teams, manages the inventory of hard-copy forms, handles supplies, etc. • 1 position manages the incident reports and records which come in on a daily basis. • 1 position serves as the general office support function, answering phones, directing phone calls, handling front-counter duties, retrieving and printing out reports per request, other tasks as assigned.
Total	**11**	

5. BUREAU OF CONSTRUCTION AND MAINTENANCE

The following table summarizes the staffing and key roles and responsibilities for the personnel assigned to the Bureau:

Position / Classification	Positions	Key Roles and Responsibilities
Deputy Chief	1	• Responsible for ensuring the appropriate construction and maintenance of MFD facilities and equipment. • Involved in developing the capital budget for the MFD, liaison between the FF division and shop civilians, personnel issues relating to union negotiations, disputes, and grievances. • Handles physical plant issues, makes recommendations as to the efficient operations of the MFD, oversees the building / development of facilities, assists with specifications, accident investigations, and overall Bureau improvement.

Position / Classification	Positions	Key Roles and Responsibilities
Fire Equipment Manager	1	• Handles the day to day operations of the Bureau. • Primary job is the physical station repairs and maintenance. • Writes specifications, requisitions for purchases, evaluates bids, assures contractual requirements, etc. • Manages shop employees, including scheduling of employees, generating reports, developing budgets, etc. • Establishes outside repair services for firehouse mechanicals, replacement programs for deteriorating and aging structures i.e., windows, vehicle exhaust systems, A/C systems, garage doors, etc. Monitors quality and progress of work by contractors from inception through completion. • Participates on vehicle specification committee and accident review committee. • Determines the best means to handle service requests, both routine and emergency, 24 hours/day.
Fire Equipment Supervisor	1	• Supervises the day to day operations of the mechanics, including distributing work orders to make sure equipment is getting repaired and maintained. • Prepares maintenance schedules for department vehicles • Works with vehicle manufacturers to maintain and administer warranty repairs and claims • Participates on vehicle specification committee • Maintains knowledge of new vehicle design, emission requirements and safety features.
Fire Stock Clerk	1	• Responsible for shipping and receiving parts. • EMS supply ordering and stocking. • Responsible for purchasing and stocking all parts and supplies for vehicles, firehouses and equipment for the department.
Shop Staff	21	• 9 are assigned as the mechanics for the apparatus and equipment. • 1 position is the welder / fabricating (and grounds ladder testing and repair). • 2 positions are the air technicians for breathing apparatus and testing, refilling cylinders, fire extinguishers, first-aid kits and repairs, etc. One position deals with self contained breathing apparatus (SCBA) repair, testing, and record keeping. The pother position is for redundant secondary service in the absence of primary technician. Main function is to repair and refill SCBA cylinders, oxygen cylinders and portable fire extinguishers. • 1 position is for tires, including tire and hose repairs

Position / Classification	Positions	Key Roles and Responsibilities
		and maintaining stock of fire hose in the field and shop. Repairs firefighting hand tools-axes, pike poles, etc. • 1 position is for leather and upholstery for the stations, including blinds, drapes, windows, makes harnesses, hose covers, vinyl tops, etc. • 2 positions are carpenters, making tables, benches, day-to-day repairs of windows, ceilings, fixtures, floors, cabinets, etc. Build and install all replacement cabinet work in firehouse kitchens, dining areas and all other storage cabinets and bookshelves. • 2 positions are for building maintenance, including HVAC, electrical and plumbing, drains, sewers, sinks, etc. • 1 position is utilized as the delivery person for fire houses and units, picking up orders, etc. • 2 are for repairmen for small engines, tools, and equipment, including nozzles, monitors and gauges on apparatus, etc.
Office Assistant	1	• Primary duty is to function as office manager. • General office support, including answering phones, processing time cards, payroll, generates requisitions, etc. • Plans, coordinates and supervises all administrative activities of the bureau. Serves as administrative liaison between the Deputy Chief, other bureaus, city departments, outside vendors and the public.
Total	**26**	

6. BUREAU OF INSTRUCTION AND TRAINING

The following table summarizes the staffing and key roles and responsibilities for the personnel assigned to the Bureau:

Position / Classification	Positions	Key Roles and Responsibilities
Deputy Chief	1	• Responsible for the management of the Bureau, including identifying the training needs of the MFD, and ensuring that all training is delivered to keep the standards up in the Department. • Works with the Police and Fire Commission with entrance requirements, testing processes, subject matter development, exams, etc. • Involved in a number of committees that affect the Department, including changes in the SOPs, researching techniques to improve health and safety. • Ensures that training is delivered in a non-punitive, non-discriminatory manner.
Fire Captain	1	• Serves as the Department Training Coordinator. • Develops the training schedule in December for the following calendar year. • Involved in public education and working with the community. • Researches and develops the training curriculum and training programs. • For a 3-hour training course, it takes 15 total days, over 3 weeks for 5 companies / session. • 3 special teams train for 9 days each month.
Vehicle Operator Training Coordinator / Vehicle Operator Instructor	2	• Ensures that the drivers of emergency units have necessary skills to operate effectively. • Conducts research which will reduce accidents, including the review of MFD incidents. • Involved in the Specs committee. • Develops and delivers the HEO exam. • Coordinates pump-testing, develops SOPs, etc.
Fire Lieutenant	4	• 1 position coordinates the Survive Alive program, ensuring the visibility and viability of that program. • 1 position serves as a Fire Education specialist, ensuring all public education is addressed, community outreach, delivering FOCUS program, etc. • 2 positions work as recruit instructors, maintaining probationary program, updating, revising, and ensuring that the MFD is meeting mandates for new hires.

Position / Classification	Positions	Key Roles and Responsibilities
Firefighter	3	• These positions deliver the classes, discuss fire safety issues at various events, work with elected officials to delivery public education to their respective constituents, etc.
Inventory Control Assistant	1	• Involved in equipment inventory, including bar-coding, monitoring the maintenance, repair, and preliminary inspections of personal equipment. • Coordinates equipment repair with vendors.
Audio Visual Specialist	1	• Coordinates all the audio / visual needs of the MFD. • Responds to greater alarm fires to videotape MFD personnel actions, videotapes training sessions, etc.
Office Assistant	2	• 1 position serves as the office coordinator, including front-office / receptionist duties, computer work, etc. • 1 position assists in the development of the training calendar, sending out notices, data entry of training hours, etc.
Total	**16**	

7. BUREAU OF SPECIAL OPERATIONS

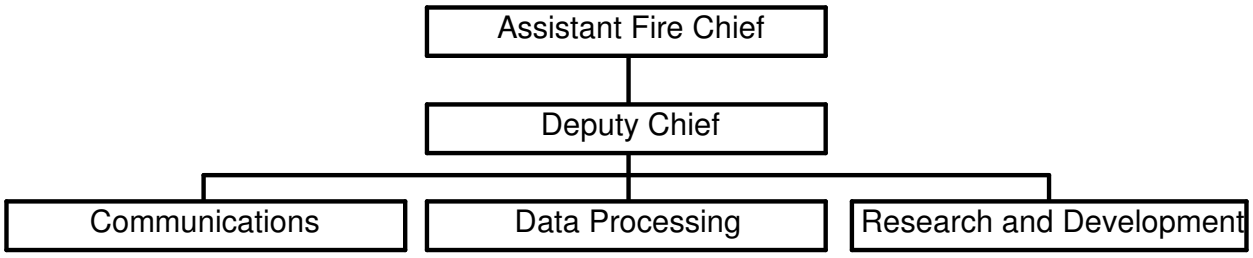
The following table summarizes the staffing and key roles and responsibilities for the personnel assigned to the Bureau:

Position / Classification	Positions	Key Roles and Responsibilities
Deputy Chief	1	• Responsible for the large-scale event response planning and emergency coordination for the City, including the special teams and emergency medical services. • Coordinates emergency medical services with Milwaukee County paramedic program, regional and State offices. • Manages the day to day operations of the personnel of the Bureau.
Battalion Chief	2	• 1 Battalion Chief position is responsible for the ALS and BLS issues for the City, including the development of EMS policies and procedures. • 1 Battalion Chief position is responsible for the management and coordination of the Special Teams, including the HazMat, Dive and HURT. Involved in homeland security and coordination with regional agencies.

Position / Classification	Positions	Key Roles and Responsibilities
Administrative Captain	3	• 1 position manages the EMS transport units, including the equipment, staffing, etc. • 1 position serves as the interface with Milwaukee County and in charge of Quality Assurance / Improvement Investigates complaints at the field level, receives complaints from citizens regarding EMS, involved in studies involving EMS programs, etc. • 1 position is the training position and is vacant. Involved in the development of training programs for EMS, CQI policies and procedures, addresses training issues, etc.
Office Assistant	1	• Involved in the licensing of the Paramedic / EMTs, coordinates information for staffing of special events, develops correspondence, quality assurance of reports, etc. • Serves as the office coordinator, including front-office receptionist duties, computer work etc.
Total	**7**	

8. BUREAU OF TECHNICAL SERVICES

This Bureau is generally organized into 3 separate sections, as shown in the following chart:



The following table summarizes the staffing and key roles and responsibilities for the personnel assigned to the Bureau:

Position / Classification	Positions	Key Roles and Responsibilities
Deputy Chief	1	• Manages the day to day operations of the various areas of the Bureau of Technical Services, including Communications, Research and Development, and Data Processing.
Administrative Captain	1	• Provides management to the enterprise system, looking at researching better ways of operating, making the system / process more efficient, incorporating new ideas, etc.
Administrative Lieutenant	2	• Serves as the supervisor for research and development, and data processing. • Involved in records management, including data entry of all personnel records which are updated daily.
Network Coordinator	2	• Provides support to the system, both network and software support, responsible for mobile units on all emergency vehicles, updating software, etc.
Database Specialist	1	• Serves as the "help desk" for the enterprise system, manages the movement of personnel on the database, including personnel information.
Fire Dispatch Manager	1	• Manages the communications center, including the development of policies and procedures for dispatching, supervising and training. • Ensures calls are handled properly, that appropriate equipment is being utilized to process incidents, and ensuring equipment is functioning properly.
Dispatch Supervisor	5	• Manages the 3 shifts of 8-hours each. 2 supervisors are assigned to Shift 1 (0730-1530), 2 supervisors are assigned to Shift 2 (1530-2330), and 1 supervisor is assigned to Shift 3 (2330-0730).
Dispatcher	21	• Function as the call-takers and line dispatchers for the MFD, responsible for handling the calls for service and dispatching the appropriate MFD units based on CAD.
Administrative Assistant	1	• Provides general office support and other special duties as required by the Deputy Chief or other personnel.
Total	**35**	