

City of Bellevue Fire Department



Standards of Response Coverage

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Bellevue Fire Department
Standard of Response Coverage
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Executive Summary

About this Document

This document identifies Bellevue Fire Department's Standards of Response Coverage for the City of Bellevue and adjacent cities served by the Bellevue Fire Department. An analysis of response resources, deployment strategies, operational elements and the overall community risks have been included within this document. It establishes response time goals and standards for measuring the effectiveness of resources within the department and the deployment of those resources.

The department completed its first Standards of Response Coverage in 1998, as an essential element of the fire accreditation process. Subsequently, the department has reviewed and updated the document on a regular basis. This document represents a comprehensive update of the Standards of Response Coverage document to reflect both changes within the department and changes from the Commission of Fire Accreditation International, as outlined in the 4th edition of *Creating and Evaluating Standards of Response Coverage for Fire Departments*, and the 7th edition of *Fire & Emergency Service, Self-Assessment Manual*.

The Bellevue Fire Department

The Bellevue Fire Department was first organized in 1965 as an emergency response agency with one fire station and 16 employees with a daily staffing of four. Today, the department has 235 full time equivalent positions, including 200 uniformed and 35 civilian personnel. The department provides fire suppression and rescue, emergency medical services, fire prevention and emergency preparedness services to the City of Bellevue, and by contract to eight adjacent cities. Currently, the total population served is approximately 138,000, over approximately 35 square miles.

Additionally, the Bellevue Fire Department provides advanced life support services (ALS) to a larger geographical area of approximately 300 square miles and a total population of about 250,000, through a contract with King County Emergency Medical Services.

The Department currently has a Class II fire suppression rating, as awarded by the Washington Surveying and Rating Bureau.

Analysis of Community Risk

A comprehensive analysis of risk factors specific to Bellevue, including topography, transportation systems, water supply, and geographical area served, was conducted to determine overall community risk levels. Additionally, the department utilized the risk assessment matrix developed for military agencies (DODI 6055.6), which examines eight specific factors including life hazard, mission criticality, special hazards, water supply, building usage, building construction, number of stories, and square footage, to further evaluate community risk levels.

The department then utilized the King County Geographical Information Systems (KCGIS) to calculate information specific to each of the eight factors to determine a Total Risk Factor, which is separated into LOW risk, MODERATE risk, HIGH risk, and SPECIAL risk levels. Each of the over 40,000 occupancies was analyzed using this methodology and plotted geographically to determine the predominant risk factor or risk level for each of the nine fire station districts. This analysis is contained in Section Four.

Performance Standards

Response times for emergency incidents remain the key performance measurement for fire agencies. Total response times include three essential elements, call processing time, turnout time and travel time.

While the Bellevue Fire Department has historically reported average response times, we have recognized that percentage or fractile measurements of response times represents a more accurate and thorough measurement of this essential element of service to the community. The City of Bellevue and the Bellevue Fire Department have adopted industry standards for total response times of six minutes or less, 90% of the time as a benchmark or target standard.

Despite steady improvement and numerous initiatives specific to lowering total response times, the department, to date, has not achieved the benchmark standard for total response time. Based upon the measurement and analysis of response times and community risk levels, the department has established response time goals that indicate levels of service that can be expected by members of the community. These goals are detailed in Section Six.

Distribution of Resources

The department operates from nine fire stations, and one medic facility at Overlake Hospital. Current resource distribution concerns include;

- The central business district of the City is currently experiencing rapid and explosive growth in both the number of buildings/occupancies and total population. The need for an additional fire station and staffing in this area has been identified as the top priority for the department.
- Total population increases throughout the City and specifically in the central business district, as well as the Bellevue/Redmond Road Corridor will present significant challenges for the department without additional resources. These resources have been identified in the department Strategic Plan and will be included in future budget development.
- Areas south of Interstate 90 continue to experience greater response times than incidents north of I-90. An additional staffed Aid Unit is scheduled to be implemented in January 2008, and the department is currently reviewing the deployment of current and future resources in response to this issue.

Recommendations

Following the analysis of community risks and performance standards, the Bellevue Fire Department makes the following recommendations:

- Plan for and develop options to site an additional fire station in the central business district. Estimated population and building growth in this area will require additional resources to maintain current levels of service.
- Transition from Light Force model for ladder company operations to a dedicated ladder company model. The Light Force model incorporates a tillered aerial ladder truck and a triple combination pumper operating as a single unit.
- Add a second battalion chief to the minimum on duty staffing. A second battalion chief has been identified as a resource necessary to handle the current and future call volume, and to provide an appropriate span of control for routine supervision.
- Continue to seek funding for dedicated staffing of Aid Units. The current deployment model in five of the fire stations provides staffing for the engine company and the aid unit through the use of “cross staffing”. The department has dedicated staffing of Aid Units at three of the fire stations and has identified the need to add staffing for the five remaining stations to eliminate the use of cross staffing in the future.

SECTION ONE:
INTRODUCTION



SECTION ONE: INTRODUCTION

Purpose

Standards of response coverage are defined as those written policies and procedures that establish the distribution and concentration of fixed and mobile resources of an organization.

The Bellevue Fire Department has historically established general response time goals as a target for measuring performance and based upon industry standards for both fire suppression and emergency medical incidents. The department formally defined standards of response coverage in 2003, which was adopted by the City Council. This document provides an update of the initial Standards of Response Coverage document and incorporates both benchmark performance goals and baseline levels of service.

The department has and will continue to utilize performance data, as outlined in this document, to address staffing levels, deployment options, appropriate emergency response levels, the location and number of current and future fire facilities in response to the needs of the community.

The purpose of this study is to determine a baseline for the Bellevue Fire Department's current performance levels and to provide a means for planning with regards to maintaining current performance levels as the community changes. These changes include projected increases in population, shifting demographics, and significant increases in commercial and residential construction in the central business district of the City of Bellevue.

Elements of the document include:

- Baseline Service Levels which define emergency response performance standards.
- An examination of the risk assessment and historical performance throughout the community.
- An analysis of policies and procedures specific to emergency scene tasks including staffing levels and strategic goals.
- Recommendations for maintaining current levels of service and defined by performance measures.

Standards of Response Coverage typically consist of three key elements:

- **Distribution** – the station and resource locations needed to assure rapid response deployment and to minimize and mitigate emergencies.
- **Concentration** - the spacing of multiple resources configured to provide an initial “effective response force” within sufficient time frames to mobilize and control the escalation of an emergency consistent with specific risk categories.
- **Staffing levels** – the number of personnel available to response to emergency incidents.

The Standards of Response Coverage were developed using the BFD historical response data from 2005-2007. Several staffing and technology changes were implemented in 2007, which

were funded with the intent of reducing total response times. As of this writing, there is limited response data to validate these assumptions.

Several new initiatives are being evaluated by the City of Bellevue, including the creation of a new regional communications center. If implemented, the new communications center would require subsequent decisions regarding a new computer aid dispatch system (CAD), a new fire records management system (RMS), several potential enhancements to wireless systems. These changes may further reduce total response times.

Maintenance of the Standard

An annual review of the standard will be conducted during the completion of the Annual Compliance Report, to assure that it reflects the changes within the community, the department and the City. The Deputy Chief of Support Services will be primarily responsible for the annual review of this standard.

SECTION TWO:
COMMUNITY BASELINES



SECTION TWO: COMMUNITY BASELINES

Overview and Legal Jurisdiction

The City of Bellevue is the fifth-largest city in Washington State, with a population of approximately 117,000 within a 32 square mile area. Located on the east side of King County, the City is surrounded by Lake Washington to the west, and Lake Sammamish to the east, and the cities of Kirkland and Redmond to the north and the Renton to the south.

The current city charter was adopted on March 31, 1953, and the Bellevue Fire Department was established on January 1, 1965 under Bellevue City Ordinance No 698.

The City operates under a council/manager form of government. The City Council develops and adopts legislation and policies for the City of Bellevue, and hires a City Manager to manage and oversee all City personnel and operations. The City has ten major departments: City Attorney, City Manager, Finance, Fire, Human Resources, Information Technology, Parks and Community Development, Police, Transportation and Utilities Department.

The City Council has seven members and is elected at large for staggered four-year terms. The Mayor is elected amongst the seven members of the City Council and serves as the chair of the City Council.

The Bellevue Fire Department was first organized in 1965 as an emergency response agency with one fire station and 16 employees with a daily staffing level of four. In 1969, the Department merged with King County Fire District 14, which added three additional stations primarily staffed by volunteers. Since that time, the Department has experienced continual growth.

Currently, the department provides fire suppression, rescue, emergency medical, code enforcement and emergency preparedness services to the citizens of Bellevue and to eight neighboring cities through long standing contractual agreements. See Table below.

Table 2.1 Primary Service Area Statistics (2006)

Legal Jurisdiction	Population	Area (sq. mi)	Assessed Property Value
City of Bellevue	118,100		\$ 26,611,627,294
Beaux Arts Village	310		98,023,718
Town of Clyde Hill	2,810		1,305,490,976
Town of Hunts Point	480		699,734,116
City of Medina	2,950		2,461,265,142
Town of Yarrow Point	975		669,062,412
City of Newcastle	9,550		1,793,402,602
King County Fire District No. 14	3,742		433,556,135
TOTALS	138,917		\$ 34,072,162,395

In addition, the Bellevue Fire Department provides advanced life support services (ALS) to a larger geographical area of approximately 300 square miles and a total population of about 250,000, through a contract with King County Emergency Medical Services.

Historically, the department has experienced steady and continuous growth as the City of Bellevue has grown in both population, occupancies and stature as an economic center within the King County region. The department has increased in size and capabilities with the assistance of several significant planning efforts including a comprehensive Fire Protection Master Plan, completed in 1979. This plan, adopted in principle by the City Council through the Public Safety Bond Issue of 1980, provided an integrated means of addressing existing and future service level needs with the Fire Department service area for many years.

Additional studies and evaluations have served to assist the department with strategic planning and risk assessment. These include the following:

- **2007-2012 Bellevue Fire Department Six Year Strategic Plan.** An updated version of the previous strategic plan for the department with specific recommendations for each of the divisions within the department. Used specifically to support requests in the biennial budget process.
- **2004-2013 Bellevue Fire Department Ten Year Strategic Plan.** A detail strategic plan for the department with specific recommendations for each of the divisions within the department.
- **2002 TriData Study: Downtown Bellevue Fire Protection/Life Safety Implementation Plan.** An evaluation on the effects of downtown development on the operations, fire prevention efforts, and associated support services.
- **1995-2000 Biennium Community Budget Surveys.** An analysis of community satisfaction and importance of the 47 city services provided to the community.
- **1999 TriData Deployment Study.** An analysis on current overtime expenditures and personnel deployment.

- **1996 Gilmore Research Citizens Surveys.** Collected information from residents about community needs and service priorities to help determine resource levels and allocations in budgets.
- **1993 Fire Services Master Plan Study Update.** Update of the 1979 Master Plan and review of department staffing and performance.
- **1989 Fire Department Performance Audit.** External audit of the department efficiency and effectiveness by Arthur Young co.
- **1979 Bellevue Fire Department Master Plan.** Comprehensive analysis of existing and future fire service needs and a detailed plan to improve levels of service.

As the department and the community have grown over the forty-two year history of the department, staffing levels and facilities have increased and service capabilities have been enhanced. The following represents a partial list of the significant changes to the Bellevue Fire Department since its inception in 1965.

Table 2.2: Fire Department Key Resource Changes

Year	Total Personnel	Fire Stations	Significant Changes/Events
1965	16	1	One station located in old Bellevue.
1969	34	4	Merged with Fire District 14, added stations 2, 3, and 4 (Station 4 volunteer) 1 st Training Officer hired
1972	65	4	Medic One program began. Second training position established.
1980	99	5	Added staff for Station 5 and Services Coordinator (new Supply & Maintenance Commander)
1981	111	5	Added staff for Station 4
1982	114	5	Improve paramedic service response
1983	131	6	Added staff for Station 6
1984	135	6	Started training personnel for new Station 7
1985	140.5	7	Added Station 7, increased staffing for Fire Prevention and expanded hazardous materials inspection program. Eliminated Management Assistant, Administrative Clerk, and Floating Lieutenant (budget cuts)
1987	141.5	7	Added administrative support for data entry of fire/aid incidents
1988	144.5	7	Started phasing of Ladder Company staffing. Eliminate Fire Inspector (budget cut)
1989	152.5	7	Added Medical Services Officer, second phasing of Ladder Company staffing
1990	156.5	7	Completed phasing third phase of implementing

			the ladder company
1991	162	7	Improve staffing levels: implemented Emergency Preparedness Division, and added inspector for code compliance
1992	168	7	Increased EMS Service (EMT-P) North Bend, enhanced Emergency Preparedness, added administrative assistant. Eliminated Fire Investigator (budget cut)
1993	168.7	7	Added mail/supplies delivery person
1994	174.7	8	Converted Truck Company to Light Force concept, Station 9 in Newport Hills, reduced work week, and additional inspector for Factoria annexation. Eliminated Services Coordinator (budget cut)
1995	186.7	9	Station 8 opened, added 12 firefighters
1996	188	9	Added 1 Firefighter and administrative assistant for Training Division
1997	191	9	Added 2 Firefighters due to reduced work week and administrative support for Operations/EMS. Added Medic 14 part-time
1998	193.2	9	Added Fire Protection Engineer and converted Fire Investigator to Fire Inspector. Transferred .5 Clerk to Police Dept.
1999	193.2	9	No change.
2000	199.2	9	Added LTE Fire Prevention Officer, reinstated Supply & Maintenance Coordinator. Added Firefighters due to Tri-Data study results – reduced overtime allocation
2001	201.2	9	Added LTE Fire Prevention Officer and administrative support
2002	209.2	9	Establish second Light Force
2003	221.5	9	Added 13 Firefighters for the transition of Medic 14 from a part-time unit to full-time effective January 1 st and Medic 3 from an EMT-P unit staffed with 2 FF/Paramedics effective July 1 st , and establishing a Lieutenant/EMS Training Officer. Addition of 1 Sr. Administrative Assistant for the EMS Division. Reduction of two Fire Prevention Officer LTE positions and one administrative support position reassigned to the Information Technology Department as a result of centralization of ITD responsibilities.
2004	220.5	9	Reduction of one administrative staff support LTE position and one reassigned to the Finance Department as a result of implementing the new ERP system. Added one Fire Prevention LTE position to respond to significant increase in

			construction activity.
2005	222.5	9	Added one Fire Prevention LTE position and Fire Plans Reviewer position to respond to continued increase in construction activity.
2006			
2007		9	Implemented 12-hour staffing of Aid 4 (south of I-90) effective July 1 st .

Department Resources

The department operates out of 9 fire stations located strategically throughout the community. Staffing minimums are shown below as the minimum number of personnel assigned to each company or unit per shift. Specialized equipment is staffed by on-duty crews in a cross staffing deployment model.

Table 2.3 Emergency Response Staffing

Location	Staffing
Station 1 – 766 Bellevue Way S. E.	
Battalion 1/Staff Assistant	2
Engine 1	3
Aid 1	2
Station 2 – 2802 148th Ave SE	
Engine 2	3
Aid 2	3*
Medic 2	2
Medical Services Officer	1
Station 3 – 16100 NE 8th Street	
Light Force 3	4
Aid 3	2
Rescue 3	Staffed by Engine 3 crew as needed
Station 4 – 4216 Factoria Boulevard SE	
Engine 4	3
Aid 4	3*
Station 5 – 9621 NE 24th Street	
Engine 5	3
Aid 5	3*
Station 6 – 1850 132nd Ave NE	
Engine 6	3
Aid 6	3*

Haz Mat 1	Staffed by Engine 6 crew as needed
Station 7 – 11900 SE 8th Street	
Light Force 7	5
Station 8 – 5701 Lakemont Boulevard SE	
Engine 8	3
Aid 8	3*
Air Unit	Staffed by Engine 8 crew as needed
Station 9 – 12412 SE 69th Way	
Engine 9	3
Aid 9	3*
Overlake Hospital – 1035 116th Ave NE	
Medic 1	2

*These units are cross-staffed; personnel respond with apparatus that is required for the emergency.

City of Bellevue Bellevue Fire Department Neighborhood Fire Stations

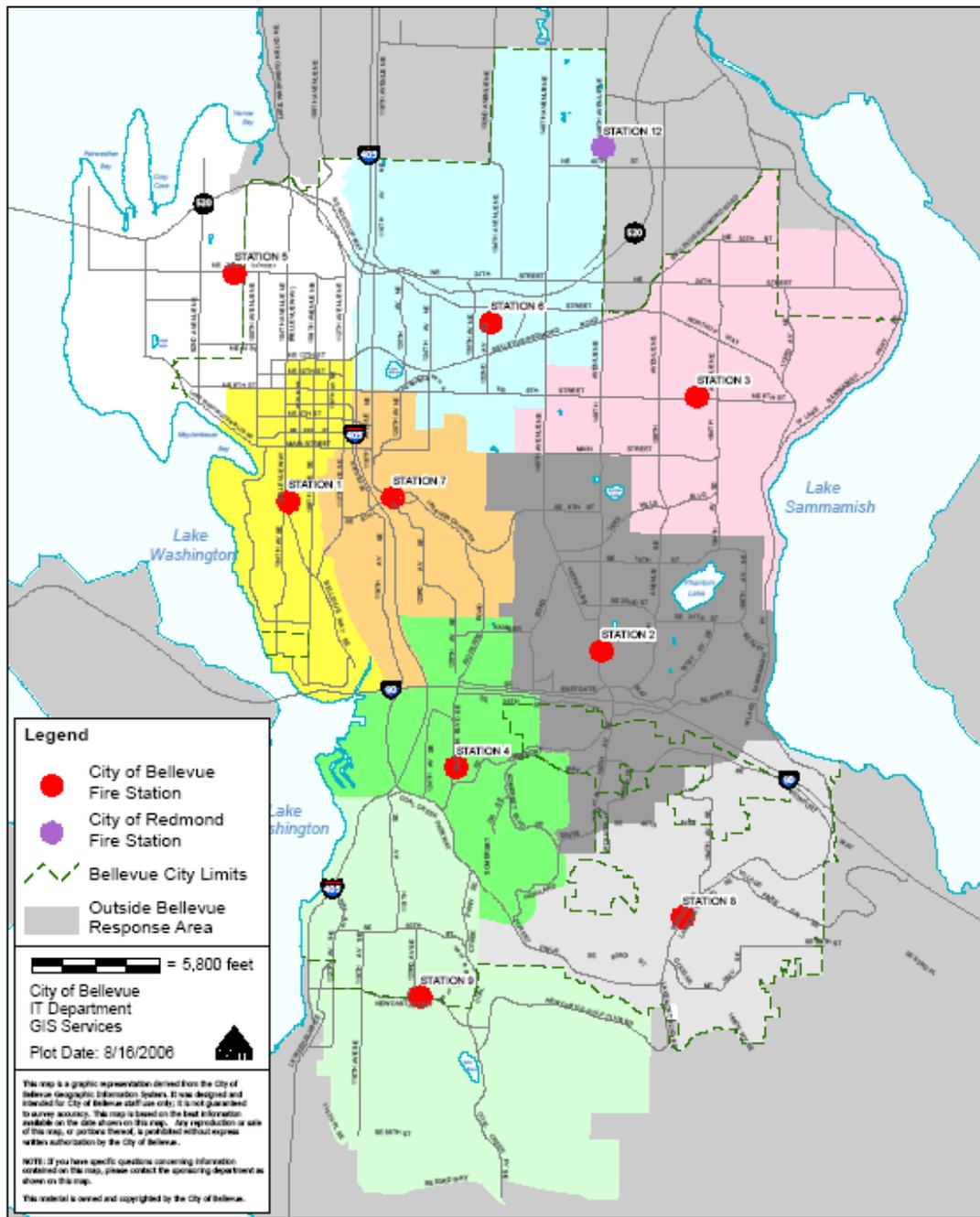


Figure 2.1: Locations and first-in response areas of each Bellevue Fire Station.

SECTION THREE:

MISSION, GOALS AND OBJECTIVES



SECTION THREE: MISSION, GOALS AND OBJECTIVES

Bellevue Fire Department Mission Statement

It is the mission of the Bellevue Fire Department to assist the public in the protection of life and property by minimizing the impact of fire, medical emergencies and potential disaster or uncontrolled events that affect the community and environment.

Department Vision:

Continuous Improvement

Department Goals:

- Respond to customer service requests and needs in the most effective, cost-efficient and professional manner possible.
- Provide for a well-trained, safe, and diverse work force.
- Provide a program to ensure that current facilities, equipment, and apparatus are properly maintained.
- Provide for timely and effective budget development and expenditure controls to ensure that needed resources are properly requested and that resources are efficiently utilized.
- Continue to search for methods of improving efficiencies and effectiveness with the organization.
- Continue to provide code enforcement, prevention, and self-help programs in life safety and emergency preparedness.
- Provide for simple and timely access to fire department offices for the media and all members of the community.

The department incorporates both the Mission Statement and the Goals into specific Objectives on an annual basis. Each of the divisions within the department is directed to submit detailed and specific objectives for each calendar year, which are monitored and reviewed on a quarterly basis throughout the calendar year. Additionally, the Goals and Objectives are reviewed during the annual Management Planning Retreat.

A representative example of the 2006 Annual Goals and Objectives for Fire Administrative are listed below. A complete list of all divisions can be found in Category 3 of the Self Accreditation Manual.

FIRE CHIEF'S OFFICE	
FIRE ADMINISTRATION	
<i>Objective: Monitor the Operating and CIP budgets to ensure expenditure of funds in a timely and judicious manner.</i>	
Action Plan	Status
<p>Management Staff will prepare the 2007-2008 Operating and CIP budgets. <i>Department Goal: A, B, C, D, E, F, G, H</i> <i>Target Date: Third Quarter</i></p>	<p>1st Qtr: Fire Department staff prepared and forwarded proposals for the 2007-2008 budget for consideration. 2nd Qtr: Fire Department management staff reviewed, prioritized, and submitted capital and operating budget requests. A budget overview presentation was made to Council in June. 3rd Qtr: Staff continues to work with the Finance Department to refine and finalize proposals and other budget elements. Staff is also continuing to refine revenue estimates for 2007 and 2008 based on current budget information. 4th Qtr: Staff continued to work with the Finance Department and the City Manger's Office to refine proposals moving forward to Council for consideration. The 2007-2008 Operating and CIP budgets were adopted by Council on December 11th.</p>
<p>The Fire Chief will continue to request the resources to ensure compliance with the mandated regulations and training. <i>Department Goal: A, B, C, D, E, F, G, H</i> <i>Target Date: Ongoing</i></p>	<p>1st Qtr: As a follow-up to last year's FD Management Planning seminar, Fire Department staff began working on workload analysis in several areas of the Department's organization; i.e. emergency response, fire prevention, and administrative support. 2nd Qtr: Fire Department staff continues to evaluate growth in the CBD and impacts to response times. A document was developed to respond to Council's questions regarding response times and resource needs. 3rd Qtr: Fire Department staff continues to work with the City Managers Office and the Finance Department to evaluate department resource needs. 4th Qtr: Through the budget process, the Fire Department was successful in receiving authorization to increasing staffing levels to staff</p>

	<p>an Aid unit south of I-90 beginning in 2008 and to hire two support positions for the EMS Division.</p>
Action Plan	Status
<p>The Fiscal Manager will continue to monitor expenditures to ensure compliance with the Department and City policies/procedures. <i>Department Goal: A, B, C, D, E, F, G, H</i> <i>Target Date: Ongoing</i></p>	<p>1st Qtr: On a monthly basis, the Fiscal Manager prepares monitoring information relative to budgetary expenditures and projected revenues. This information is shared with Fire Department management team and the City's Budget Office. 2nd Qtr: On-going. 3rd Qtr: Due to retirements and an increase in long-term disabilities, overtime expenditures have accelerated during this quarter. As such, the Department is critically reviewing all expenditures in order to meet budget goals. 4th Qtr: Efforts to monitor the increased overtime expenditures and other discretionary expenditures continued throughout the 4th quarter. The December 14th windstorm will impact the Department's year-end expenditures due to the need to hire additional staffing on overtime to respond emergency calls. It is anticipated that City will be able to receive some reimbursement from the State of Washington for these expenditures.</p>
<p>The Fire Department management team will participate in citywide efforts to analyze service delivery outcomes with comparative cities. <i>Department Goal: A, B, C, E, F, G, H</i> <i>Target Date: Ongoing</i></p>	<p>1st Qtr: The Department completed the submittal of the ICMA templates for 2005. 2nd Qtr: Completed the ICMA Comparative Cities write-ups for the 2004 Comparative Cities report. 3rd Qtr: No activity. 4th Qtr: Staff attended orientation meeting in December regarding the write-ups for 2005 and data collection for 2006.</p>
<p>Administrative staff will work with the Finance Department to complete a business process review of purchasing, contracts, and accounts payable. <i>Department Goal: A, B, C, E, F, G, H</i> <i>Target Date:</i></p>	<p>1st Qtr: The Fiscal Manager participated in the selection process to hire a consultant to review Citywide purchasing, accounts payable, and contracting procedures. 2nd Qtr: The Deputy Chief – Commander, Bureau of Support Services, participated in focus group meetings relating to the business process improvements for Citywide purchasing, accounts payable, and contracting procedures. 3rd Qtr: On-going.</p>

	4 th Qtr: A formal process was completed by the Finance Department. The Fire Department continues to work with Finance staff to refine departmental procedures relating to these disciplines.
<i>Objective: Complete update of the Accreditation Self-Assessment Manual.</i>	
Action Plan	Status
<p>Fire Department management team will review and monitor to ensure timely implementation of identified continuous improvement issues.</p> <p><i>Department Goal: A, B, C, E, F, G, H</i></p> <p><i>Target Date: December, 2006</i></p>	<p>1st Qtr: No activity; preparing to relocate to the new City Hall building.</p> <p>2nd Qtr: Enhanced reporting capabilities to track and monitor response time components; specifically focused on turn-out by station and platoon. A report is provided monthly to each Station Captain, Deputy Chief of Operations, Battalion Commanders, and Training Division.</p> <p>3rd Qtr: Working with the Communications Center to track and monitor at patient's side (vertical response time) data. The implementation of tracking this information was just initiated several months ago and significant data set has yet to be compiled.</p> <p>4th Qtr: The Department has established a 'vertical response' time component in the RMS to track and monitor information regarding when emergency units arrive at the patient's side or location of emergency incident.</p>
<p>Fire Department management team will review the Accreditation Manual for updates.</p> <p><i>Department Goal: A, B, C, E, F, G, H</i></p> <p><i>Target Date: August, 2006</i></p>	<p>1st Qtr: The update of the Self-Assessment manual is deferred until next year due to the time commitment necessary to prepare budgetary documents and the relocation to the new City Hall building. A plan will be in place to update the Manual and exhibits to prepare for a site visit to become re-accredited in early 2008.</p> <p>2nd Qtr: Staff reviewed the annual Self-Assessment Accreditation report and submitted appropriate updates for review.</p> <p>3rd Qtr: The annual Self-Assessment Accreditation report was submitted to the Commission on Fire Accreditation International as required in order to retain current Accreditation.</p> <p>4th Qtr: No activity.</p>
<p>Fire Department management team will review the Fire Strategic Plan for updating.</p> <p><i>Department Goal: A, B, C, E, F, G, H</i></p> <p><i>Target Date: August, 2006</i></p>	<p>1st Qtr: The update of the Fire Strategic Plan is deferred until next year due to the time commitment necessary to prepare budgetary documents and the relocation to the new City</p>

	Hall building. 2 nd Qtr: No activity. 3 rd Qtr: No activity. 4 th Qtr: No activity.
Action Plan	Status
Fire Department personnel will provide requested status report on standard of coverage, response times, performance outcomes for Accreditation. <i>Department Goal: A, B, C, H</i> <i>Target Date: Ongoing</i>	1 st Qtr: Fire Department staff continue to review response times and performance outcomes for Accreditation, evaluation of needed resources, and Engine Company performance. 2 nd Qtr: On-going. 3 rd Qtr: On-going. 4 th Qtr: On-going.
<i>Objective: Implement new and upgrade computerized systems.</i>	
Fire Department staff will work with Information Technology Dept. (ITD) to implement the new Paging/Station Alerting System. <i>Department Goal: A, B, H</i> <i>Target Date: Third Quarter</i>	1 st Qtr: In late 2005, the City Council approved the amendment to the Fire Dispatch Customers Interlocal Agreement to implement a Station and Paging Alerting System to reduce the dispatch/notification element of response time. Department is receiving signed agreements from other agencies. 2 nd Qtr: Fire Department staff worked with Eastside Communications Center and Information Technology Department to determine scope of work for project management and design consultant for this project. 3 rd Qtr: A consultant was selected and Council has approved a contract with ADCOMM Engineering to perform this work. 4 th Qtr: Fire Department staff continues to work with Eastside Communications, Information Technology Department, and ADCOMM Engineering to implement a Station and Paging Alerting System.
Administrative staff will work with ITD to prepare for an upgrade to Microsoft Office (2003). <i>Department Goal: H</i> <i>Target Date: Second Quarter</i>	1 st Qtr: No activity. 2 nd Qtr: No activity. 3 rd Qtr: ITD is preparing to push out Service Pack II to upgrade the Microsoft Office operating system. 4 th Qtr: Microsoft delayed the release of Vista Operating System; project is on hold until released.
Fiscal Manager will work with the Finance Department to implement the new budget development system (Gov Max). <i>Department Goal: H</i>	1 st Qtr: Fiscal Manager and other department staff participated in training sessions for the new Gov Max budget system. 2 nd Qtr: Training continued; staff began entering

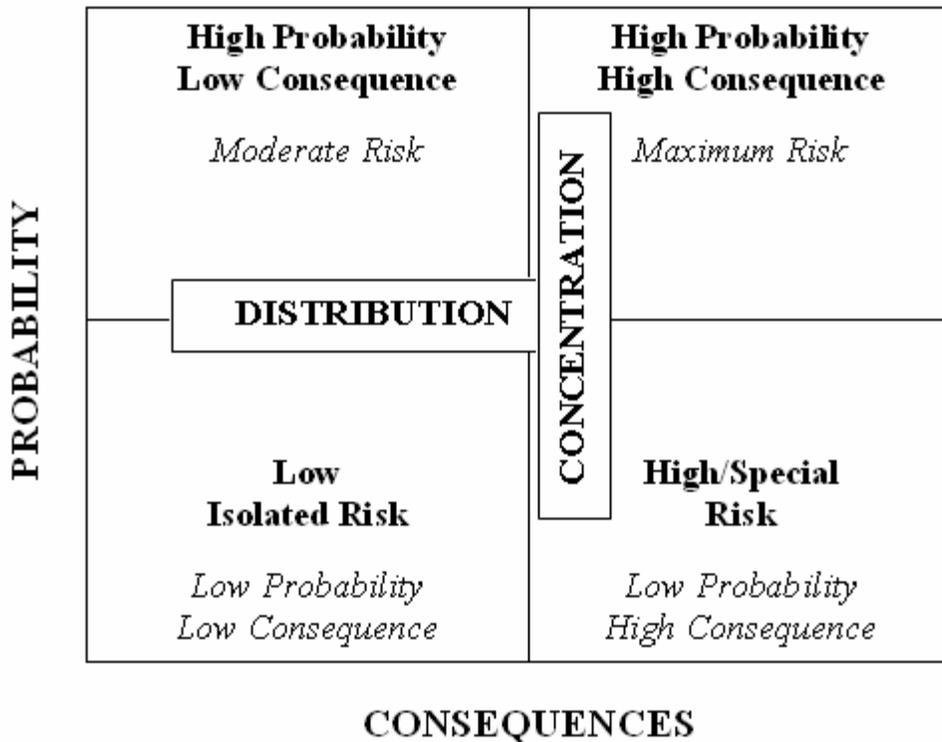
<i>Target Date: Second Quarter</i>	budget data and requests into the new Gov Max budget system. 3 rd Qtr: Data entry and reporting continues. 4 th Qtr: No activity.
Action	Status
Administrative staff will work with the Finance Department to implement Human Resources Payroll Self-Serve program. <i>Department Goal: H</i> <i>Target Date: Third Quarter</i>	1 st Qtr: This project has been delayed to 2007 by the ERP Project Team. No activity is planned to occur this year. 2 nd Qtr: No activity. 3 rd Qtr: No activity. 4 th Qtr: No activity; delayed until 2007.

SECTION FOUR:
RISK ASSESSMENT



SECTION FOUR: RISK ASSESSMENT

A comprehensive analysis of the risks identified within the community is a vital element of risk assessment. This analysis of risks within the Bellevue Fire Department service area includes the probability that an event will occur and the consequences of that event occurring. The following chart divides the risk assessment into four quadrants.



A community risk assessment may include defining the differences between a single-family occupancy, multi-family occupancy, large commercial occupancy and a high-rise structure and assigning each occupancy to a different level of risk as represented by the above matrix.

The concentration and distribution of fire stations and emergency apparatus must be a result of the risk assessment of occupancies throughout the community served. Distribution is the number of resources placed throughout the community, while concentration is the number of resources needed in a given area.

Fire facilities and resources may be distributed uniformly throughout a community to provide standard responses for all emergency incidents, or they may be concentrated in high consequence areas to effectively assembly a larger group of resources in a shorter period of time.

Community Risk Assessment Elements

A comprehensive risk assessment of any community will include an analysis of several key components. These components apply to all emergency incidents types, including fire suppression, rescue, specialized rescue, emergency medical services and other calls for service.

Fire Flow – An assessment of the available and needed water necessary should be outlined, and any deficiencies in existing water supplies should be identified.

Probability – Is the likelihood that a particular event will occur within a given period of time. An event that occurs daily is highly probable. An event that occurs only once in a century is very unlikely. Probability is an estimate of how often an event will occur with a given period of time, and should be evaluated for each type of emergency event to which the agency responds.

Consequence – There are several categories of consequential risk, including *life safety* (risk to the lives of occupants from life threatening situations that include fire and emergency medical incidents), *economic impact* (the loss of property, income or irreplaceable assets, and *environmental impact* (the risk of repairable or long-term damage to the environment).

Occupancy Risk – An assessment of the relative risk to life and property resulting from a fire inherent in a specific occupancy or in generic occupancy classes.

Fire Management Zones – Geographic areas used to assist in defining the management of risk. A zone can be single building or a group of buildings; typically they will share similar risk characteristics.

Community Risk – An overall profile of the community based on the unique mixture of demographics, socioeconomic factors, occupancy risk, fire management zones and the level of services currently provided.

A detailed examination of these essential components will identify the risks inherent with the community and define the strategies necessary to appropriately deploy resources to meet the specific needs. Distribution and concentration of resources needs to be consistent with the identified risks throughout the community.

Service Area Factors Specific to the Bellevue Fire Department

The Bellevue Fire Department provides both fire and emergency medical services to the citizens of the City of Bellevue and to surrounding neighborhoods, including the towns of Beau Arts Village, Medina, Hunts Point, Yarrow Point, Clyde Hill, Newcastle and King County Fire District 14. The department also provides advanced life support services to a larger geographical area, through contract with King County Emergency Medical Services.

The City of Bellevue is currently experiencing rapid growth in the central business district with extensive development involving high rise construction. There are currently nineteen high rise construction projects with numerous projects during in the planning stage. Additionally, the city is reviewing a potential redevelopment of a section of the Bellevue/Redmond Industrial region for mixed use. The concentration of high rise buildings, both commercial and residential, will require resources necessary to response to an estimated 40-50% increase in population over the next 5-10 years.

The area is served by three major shopping and recreational centers, including Bellevue Square, Crossroads Shopping Center and the Factoria area. Each of these centers draws citizens and workers from outside the community, and significantly adds to the daytime population.

Topography

The topography of the service area protected by Bellevue Fire is diverse in nature. The central business district is fairly flat, while the communities south of Interstate 90 (I-90) contain hills and steep terrain. Large bodies of fresh water define the eastern and western boundaries of city, with Lake Washington on the west and Lake Sammamish on the east. Waterfront access is limited to private long and narrow driveways in many areas and represents a significant risk for property damage to single family residences and several marinas.

Water rescue and access to waterfront occupancies is provided through mutual aid agreements with several agencies. Mercer Island Fire Department maintains two vessels capable of responding to incidents in Lake Washington, within minutes of any request. The King County Sheriff's Office and the Seattle Fire Department maintain vessels in Lake Washington that can respond to incidents, as well. The King County Sheriff's Office will respond to incidents on Lake Sammamish upon request.

The area south of I-90, contains wildland/urban interface areas with steep slopes adjacent to dense residential communities. Despite mild temperatures and above average annual rainfall, this area experiences dry conditions throughout the summer and represents a risk for wildland/urban interface fires.

Transportation System

The roads, streets and highways within the service area are primarily urban in nature. The city is served by several major highways including, Interstate 90, running east and west, and connecting Bellevue with Mercer Island and the City of Seattle. State Route 520 is the other major east/west highway, with Highway 405 running through the middle of Bellevue in a north/south direction.

Each of these major highways experience very heavy traffic volumes during a large percentage of the daytime hours, which negatively effect emergency response vehicles during peak traffic periods.

The vast majority of surface streets are concrete or asphalt and serve as a network of roadways to adequately reach the occupancies within the community. Several of the larger waterfront and

high-scale residential communities consist of private roadways that are long, narrow and steep, which general slow emergency response vehicles.

As growth continues throughout Bellevue and surrounding communities, traffic congestion will continue to be a challenge for emergency response vehicles during peak traffic periods, and will contribute to longer travel times.

Water Supply

The majority of the service area is provided water supply through the City of Bellevue Utilities Department via a network of underground fire hydrants. More than 8000 fire hydrants are located throughout the community and maintained on a regular basis by the Utility. In addition, there are several hundred private hydrants, which are inspected and maintained by departmental personnel on an annual basis.

The volume and pressure of both public and private hydrants are reliable and adequate for fire protection. The hydrants within the residential areas of the city are generally placed approximately 600 feet apart, while a minimum distance of 300 feet is required in the industrial and commercial areas of the city.

Area Protected by Initial Response Companies

The Bellevue Fire Department’s service area totals approximately 35 square miles, including the surrounding neighborhoods serviced through fire service contracts. The initial response needs are provided through a distribution of resources located at nine fire facilities, and include seven engine companies, two combination ladder/engine companies (Light Force), three dedicated Aid Units, five cross-staffed Aid Unit and four Advanced Life Support Units (Medic Units). Thus, the average area covered by each staffed fire crew is 3.9 square miles.

Types of Calls

Calls for service are divided into seven main call types – Fire, EMS/Rescue, False Alarms, Service Calls, Hazardous Materials Calls, Cancelled and Other Incidents. The department Records Management System (RMS) separates the calls of service in greater detail, for further analysis.

Table 4.1 Total Calls for Service by Type of Call

Type of Call	2005	2006	2007	Total	% Total
Fire	441	509	385	1335	2.57%
EMS/Rescue	12381	13068	12815	38264	73.73%
False Calls	1610	1682	1446	4738	9.13%
Service	441	506	450	1397	2.69%
Haz Mat	284	355	340	979	1.89%
Cancelled	1142	1439	1077	3658	7.05%
Other	407	752	364	1523	2.93%
TOTAL	16706	18311	16877	51894	100.00%

The distribution pattern is consistent to other fire departments of similar size, with seventy-five percent of the incidents being EMS/Rescue, and twenty-five percent Fire related incidents. The majority of the incidents are specific to the population, both daytime and residential, as compared to the occupancies throughout the service area.

When considering the community risk assessment, the department and the City of Bellevue have been proactive in requiring fixed fire protection systems in all new construction projects. The fire prevention division has been very successful with both code adoption and fire education in reducing the fire risk in all commercial occupancies.

Risk Evaluation

The Bellevue Fire Department analysis of risk assessment utilized the risk assessment matrix developed for military agencies (DODI 6055.6), which examines eight specific factors including life hazard, mission criticality, special hazards, water supply, building usage, building construction, number of stories, and square footage. Each of these factors were assigned a point total ranging from 1-3, and the total number of points determine the risk factor associated with the occupancy and the corresponding response requirements, as outlined below:

**Standard of Response Coverage Worksheet
DODI 6055.6**

Occupancy address: _____
Date: _____

Life Hazard

High Life Hazard (100>)	3
Medium Life Hazard (25-99)	2
Low Life Hazard (<25)	1

Mission Criticality

Mission Critical	3
Part Mission Critical	2
Non-mission Critical	1

Special Hazards

Hazmat or Explosives Rack Storage/Flammables	3
Small quantities hazmat or explosives	2
No Special hazards	1

Water Supply within 800 Feet

One hydrant less than 1000 GPM	3
One hydrant less than 1000 GPM, and one hydrant between 500 to 700 GPM	2
Two hydrants 1000 GPM or greater	1

Building Usage

Industrial/Commercial	3
Single Family	2
Office	1

Building Construction

Type 5 Construction Combustible	3
Type 4 and Type 3 Construction	2
Type 2 and Type 1 Construction	1

Number of Stories

Three or more stories (40 feet or more)	3
Two story building	2
Single Story building	1

Square Footage

15,000 square feet or greater	3
7,501 square feet to 14,999 square feet	2
7,500 square feet or less	1

TOTAL NUMBER _____

The total numbers will be added and the following Risk Factor (RF) will be assigned to the occupancy.

Total Number	Risk Factor	Response Requirements
8 to 11	RF 1 = Low Risk	Single Engine Response
12 to 16	RF 2 = Moderate Risk	Full Response
17 to 21	RF 3 = High Risk	High Value Response
22 to 24	RF 4 = Special Risk	High Value Response

The department utilized the King County Geographical Information Systems (KCGIS) to calculate information specific to each of the eight factors identified in the military model (DODI 6055.6). Each building type resulted in a report created to determine a Total Risk Factor for each Parcel Identification Number (PIN)/Assessor’s File Number (AFN) located within the Bellevue Fire Department’s, Fire Suppression/Basic Life Support (BLS) coverage zone. Separate reports were created for Apartments, Single Family Residential, Condominiums, and Commercial buildings.

DODI 6055.6 defines eight assessment criteria with a numerical value between 1-3 assigned to each criteria. The minimum possible score results in a Total Risk Factor (TRF) equal to eight and the maximum score of twenty-four. A TRF between eight (8) and eleven (11) is LOW risk, twelve (12) and sixteen (16) is MODERATE risk, seventeen (17) and twenty-one (21) is HIGH risk, and twenty-two (22) and twenty-four (24) is SPECIAL risk.

After determination of the Total Risk Factor for each (PIN/AFN) was made, the data was exported to MS Excel and forwarded to the City of Bellevue Information Technology Department (ITD), Geographic Information Services (GIS) for plotting and graphic representation.

Additionally, ITD GIS evaluated the water supply within 500 feet and available fire flow assessment criteria, as this information was not contained in the KCGIS data. Therefore, a value of two (2) was assigned as the default value for all buildings and ITD GIS adjusted any value which did not meet this assessment criteria.

After this evaluation, each PIN/AFN was plotted and color coded based on the Total Risk Factor determined during the evaluation process. Each Risk factor range was then assigned a color by ITD GIS and a graphic representation was generated to display the corresponding risk factor geographically (Figure 4.1), and the predominant risk factor within a given geographic zone (Figure 4.2)

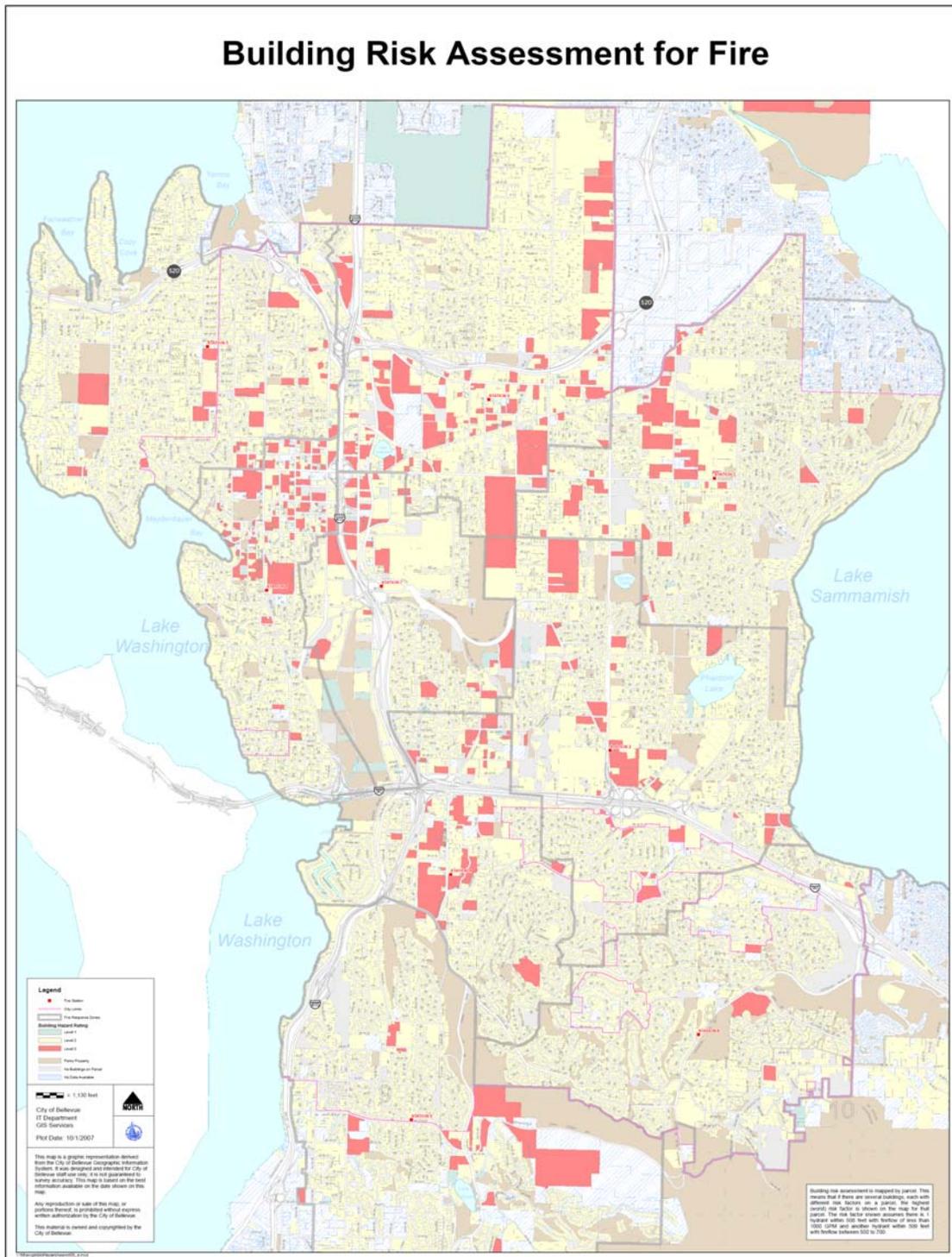


Figure 4.1, represents a plotting of all the occupancies, sorted by risk factor, and color coded to reflect High Risk Levels, Medium Risk Levels and Low Risk Levels.

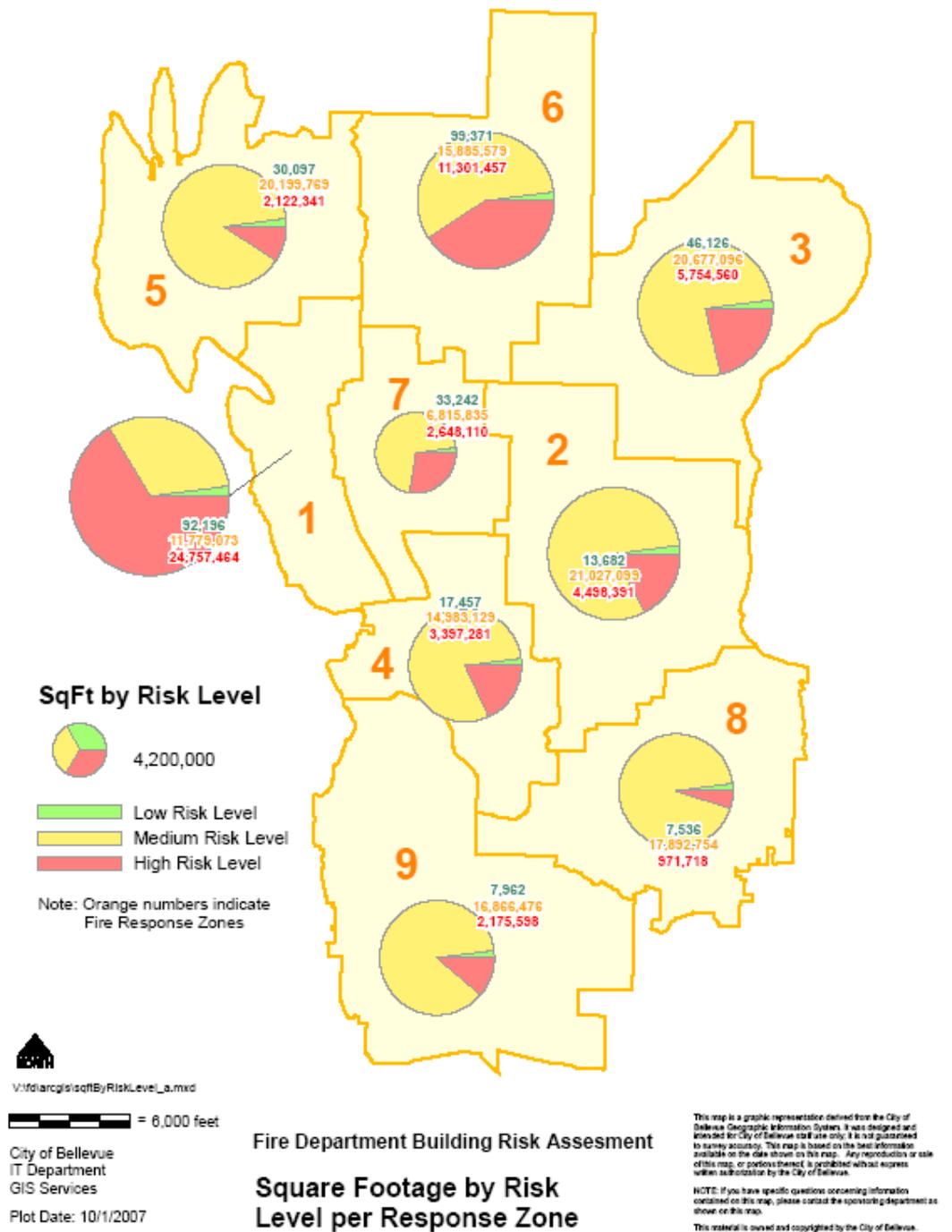


Figure 4.2, represents a plotting of the square footage sorted by risk factor, and color codes to reflect High Risk Levels, Medium Risk Levels, and Low Risk Levels with each of the fire station districts.

Based upon the above evaluation, the vast majority of the Bellevue Fire Department service area has been determined to be either predominantly HIGH risk or MODERATE risk. Essentially, the concentration of commercial development within the Central Business District, the Factoria region, the Crossroads region and the light industrial region fall into the HIGH risk category. Residential areas of the community rank as MODERATE risk areas.

Additionally, it has been identified that high rise structures represent a special risk and a subsequent challenge for fire suppression and rescue operations. The associated life risk and high density of occupants, the personnel and equipment necessary to sustain high rise fire operations cause high rise fires to fall into the HIGH risk category for many reasons.

The department has strategically placed resources in the fire stations closest to the central business district (CBD), in an attempt to provide the resources necessary to react to the presence of concentrated high rise buildings. The two ladder companies are located proximal to the CBD (Station 7), and in the Crossroads area (Station 3).

High value response plans and specific Standard Operating Procedures for high rise operations have been developed to maximize the efficiency of the first arriving units and have identified the need for the automatic request of additional resources in the event of a confirmed fire in a high rise building.

The following figures represent the number and type of buildings within the service area for the department, for each of the nine fire station districts.

Table 4.2: Number of Occupancies within Each Category

Description	FS 1	FS 2	FS 3	FS 4	FS 5	FS 6	FS 7	FS 8	FS 9	Totals
Group A	49	36	33	46	24	36	5	17	13	259
Group B	120	87	75	56	56	274	72	8	21	769
Group E	19	44	51	37	20	13	8	4	15	211
Group F	4	13	3	14	7	85	20	2	6	154
Group I	1	1	3	1	0	7	1	0	1	15
Group M	92	22	51	27	25	100	18	6	10	351
Group R	2363	5673	7394	3313	4921	3056	1263	4715	5671	38,369
Group S	14	22	49	88	12	204	33	1	15	438
Other	9	0	1	0	5	0	5	0	0	20
TOTALS	2671	5898	7660	3582	5070	3775	1425	4753	5752	40,586

Further analysis of the occupancies is provided in the following table, which examines the total square footage of occupancies with each of the categories.

Table 4.3: Square Footage (thousands) of Occupancies within Each Category

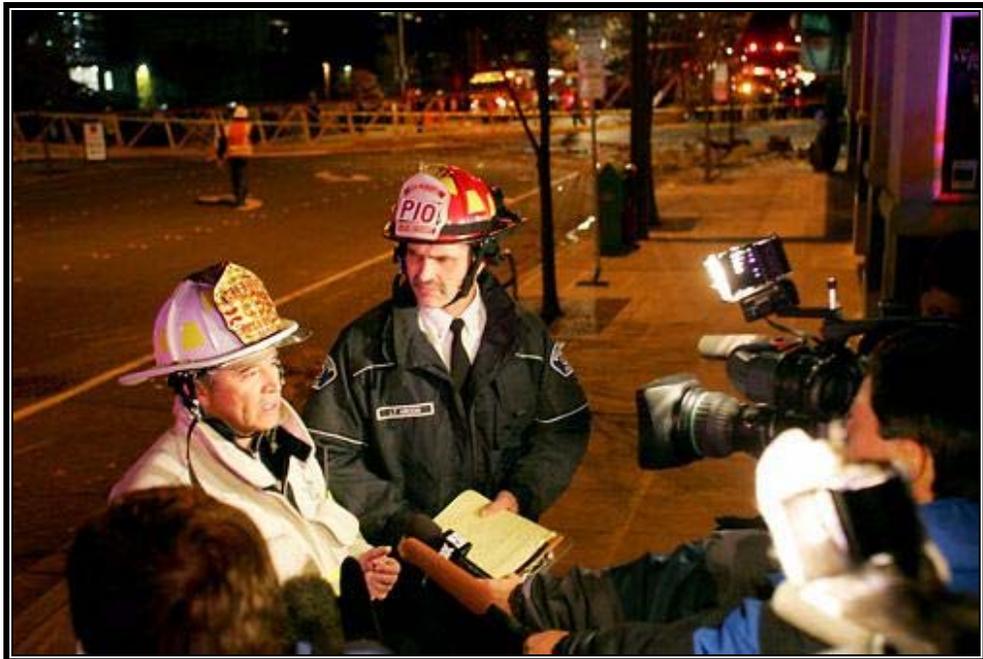
Description	FS 1	FS 2	FS 3	FS 4	FS 5	FS 6	FS 7	FS 8	FS 9	Totals
Group A	667	841	371	395	440	942	237	33	56	3,986
Group B	12,546	4,772	1,223	2,022	1,810	4,424	2,489	139	180	29,609
Group E	237	1,305	780	516	292	96	201	92	265	3,788
Group F	35	298	27	158	80	1,397	186	1	37	2,223
Group I	3	2	69	2	0	577	66	0	2	725
Group M	5,479	454	951	802	317	1,735	417	52	202	10,412
Group R	16,390	16,920	22,945	12,286	19,215	14,768	5,502	18,552	17,983	144,565
Group S	992	953	94	2,211	131	3,343	371	.8	321	8,421
Other	274	0	14	0	56	0	25	0	0	370
TOTALS	36,628	25,549	26,477	18,397	22,344	27,286	9,497	18,872	19,050	204,104

Summary

The department has conducted a comprehensive analysis of the risks identified within its service area. This analysis includes the review of 40,586 specific occupancies, including single family residences, and 204,104,098 square feet of structures. The predominant risk level was identified in each of the fire station districts throughout the community, and the department has deployed resources to address the specific risk levels.

Staffing levels and resources have been identified and deployed in direct response to the risks identified through this analysis.

SECTION FIVE:
**ON-SCENE OPERATIONS,
CRITICAL TASKS**



SECTION FIVE: ON-SCENE OPERATIONS, CRITICAL TASKS

On scene operations, critical tasking and effective response force are the key elements of the Departments standards of response coverage that determines staffing levels, number of units needed and duties to be performed at an incident. The department has determined what tasks need to be completed in order to have a positive influence on the outcome of the situation and the number of personnel and apparatus required to complete necessary tasks.

On-scene Operations

The variables of fire growth dynamics, along with property and life risks, combine to determine the fire ground tasks that must be accomplished to mitigate loss. The tasks are interrelated but can be separated into two basic types, suppression and rescue. Suppression tasks are those related to getting water on the fire and fire load, while rescue tasks are those related to finding trapped victims and safely removing them from the structure.

Fire control tasks are generally accomplished by using one of two methods, hand held hose lines or master streams. The decision to use hand lines or master streams depends upon the stage of the fire, water supply, personnel available and the recognized threat to life and property. If the fire is in the pre-flashover stage, fire fighters can make a make an offensive fire attack into the building by using hand lines by to attack the fire and shield trapped victims until they can be removed from the building.

If the fire is in the post-flashover stage and has extended beyond the capacity or mobility of hand held hoses or if structural damage is a threat to fire fighters safety, the structure is declared lost and master streams are deployed to extinguish the fire to keep it from advancing to surrounding exposures. First arriving fire fighters may use a transitional “defensive to offensive” strategy (discussed below) to limit or remove an environment suspected of presenting an immediate danger to life or health (IDLH) for trapped victims while awaiting the arrival of additional resources to mount an offensive attack.

Life safety tasks are based upon a number of variables including, the number of occupants, their location, their status and their ability to take self-preserving action. For example, ambulatory adults need less assistance than non-ambulatory adults. The very young and the elderly may require more assistance.

Before operations can be initiated, the Incident Commander must select an appropriate initial strategy, namely offensive, defensive or transitional.

- **Offensive Strategy** – This strategy is an aggressive interior fire attack. The top priority with this strategy is to rescue trapped victims. Because the response agency is attempting to limit the number the spread of fire beyond the room or origin and to limit fire related deaths and injures, the aggressive offensive attack is utilized wherever possible, taking into account the safety of personnel, and the availability of on-scene resources and the

size and scope of the emergency situation. The objective of an offensive attack is to stop the fire and confine it to the area of origin.

- **Defensive Strategy** – This strategy generally consists of an exterior attack designed to confine the fire to the structure of origin. No attempts are made to rescue civilian fire victims from the interior of a structure, due to the extent of the fire and the assumption that victims not already evacuated are presumed to be beyond rescue. Nearly all firefighting is performed from outside the structure.
- **Transitional Strategy** - A transitional strategy is utilized in the face of changing resource levels or changing fire conditions. In the case of a transitional “defensive to offensive” attack, an initial exterior attack would be utilized while awaiting the arrival of sufficient resources to safely mount an offensive attack, or until a large fire can be controlled sufficiently to permit a safe interior attack. Conversely, a transitional “offensive to defensive” strategy may be employed when fire spread renders a building unsafe for continued interior operations.

Apparatus Types

Fire Engines – The department currently staff seven triple combination pumping trucks. These are apparatus equipped with a fire pump, hose complement, and water tank. Bellevue’s fire engines are rated at a minimum of 1500 GPM.

The units are staffed with a minimum of three personnel, one company officer, one engineer, and at least one fire fighter. The role of the engine company during fire suppression efforts is to provide water supplies adequate for firefighting purposed through the use of a variety of fire hoses and appliances.

Light Forces - The department currently staff two Light Forces. A Light Force is a tillered aerial ladder truck and a pumping truck utilized as a single unit, which provides the capability to perform truck company operations and engine company operations. The current minimum staffing for the Light Force located at Station 7 is five personnel, and the minimum staffing for the Light Force located at Station 3 is four personnel.

The role of the Light Force company during fire suppression efforts is to provided forcible entry, vertical and positive ventilation, search and rescue, salvage and overhaul, and above ground ladder operations if utilized as a Truck Company, and to assume the role of an engine company if necessary.

Aid/Medic Units – The department currently provides Basic Life Support services (BLS) through the deployment of eight Type III ambulances. Three of the BLS units are staffed with a minimum of two personnel with EMT certifications, while the remaining five BLS units are cross staffed with personnel assigned to the respective station.

The primary role of these units is the treatment and transport of sick and injured citizens as defined by emergency medical dispatch protocols as basic life support patients.

The department provides Advanced Life Support services (ALS) through the deployment of four Type II ambulances. Two of the units are located within the City of Bellevue and two of the units are located in neighboring fire agencies. All of the ALS units are staffed with a minimum of two personnel with King County Paramedic Certifications.

The primary role of these units is the treat and transport of sick and injured citizens as defined by emergency medical dispatch protocols as advanced life support patients.

Critical Tasks

Critical task are those that must be conducted in a timely manner by fire personnel on a fire suppression incident in order to control the fire prior to flashover or to extinguish the fire in a timely manner. A fire department is responsible for assuring that responding companies are capable of performing all of the described tasks.

Initial Deployment

Initial deployment includes the following:

Table 5.1--Personnel Required for Initial Deployment Tasks

TASK	FULL RESPONSE	HIGH VALUE RESPONSE
Size-Up/Command	1	1
Pump Ops/Water Supply	1	2-3
Offensive Fire Attack	2-4	6
Accountability	1-2	1-2
Sub Total: Initial Attack Personnel	5-8	10-12

Initial Support

Support functions including salvage, overhaul and staffing of rehabilitation, air supply, etc. may be performed by initial personnel after completion of an initial assignment or by additional units assigned to the emergency scene.

Table 5.2--Personnel Required for Initial Support Tasks

TASK	FULL RESPONSE	HIGH VALUE
Search & Rescue	2	4
Rapid Intervention Teams	2	2-4
Salvage & Overhaul	2	2-4
Back-up Hose Lines	2	2-4
Incident Safety Officer	1	1
Ventilation	2	2-4
Air Support	1-2	1-2
Rehab	1-2	2
Sub-total	13-15	16-25
Total Personnel	18-23	26-37

Greater Alarms

When additional resources are required, the Incident Commander will request additional resources, which can include engine companies, truck companies, emergency medical resources, special rescue units, and chief officers. These resources are available through automatic aid agreements, and mutual aid agreements within King County, and regional and statewide through the Washington State Mobilization Act.

Emergency Medical Services

The Bellevue Fire Department provides both BLS and ALS services to the citizens of Bellevue and surrounding contract cities, and extended ALS services to a larger section of eastern King County through a contract with King County Emergency Medical Services. All personnel within the department are certified as Emergency Medical Technicians (EMT's) and all Aid Units (BLS) are staffed with a minimum of two EMT certified fire fighters for providing basic medical and trauma care.

Advanced Life Support (ALS) functions are provided through the staffing of four Medic Units (ALS). Minimum staffing for all Medic Units is two King County certified paramedics.

Special Operations

Technical Rescue

All personnel assigned to the Light Force companies receive training in technical rescue practices including confined space operations, high angle rescue, and trench rescue. A minimum of nine fire fighters are trained to the technician level in each of the specialized rescue operations on a daily basis. This provides the department the ability to initiate a rescue and stabilize a technical rescue incident.

For extended operations, the department can request additional resources through the King County Mutual Aid Agreement, which will provide similarly trained and equipped technical resources from surrounding agencies. All truck companies within Zone One, which represents the closest agencies to the City of Bellevue, participate in regional training on an annual basis.

The department has very limited water rescue capabilities but has developed strong relationships with several agencies that staff boats capable of effecting water rescue on Lake Washington and Lake Sammamish. These agencies include Mercer Island Fire Department, King County Sheriff's Office, and the Seattle Fire Department.

Hazardous Materials

All department personnel assigned to the Operations Bureau are trained to the operations level for hazardous materials. Command staff has been trained to the incident command level. The department is the lead agency of the Eastside Hazardous Materials Consortium. The hazardous materials response vehicle is located at Fire Station 6, and all personnel assigned to Station 6 have been trained to the technician level in hazardous materials response.

All hazardous materials responses within the region (Zone One) receive a deployment of resources that includes technician level fire fighters from all of the Zone One agencies.

Establishment of an Effective Response Force

An effective response force is defined as the number of personnel and amount of equipment that must reach an emergency incident within a specific time period. An effective response force must be trained and equipped to wide variety of emergency incidents. In order to accomplish these activities, companies and units must be located close enough to the incident to effectively mitigate the emergency incident.

A minimum effective initial response force has been determined based on fire flow capabilities, critical fire ground tasking, rapid emergency medical intervention, and special rescue and hazard mitigation functions.

The following table attempts to identify key tasks associated with suppressing a fire based upon the hazard associated with specific occupancies.

Table 5.3 Typical Staffing Resources for Risk Type Occupancies

Task	Maximum/Worst	High Risk	Moderate Risk	Low Risk
Attack Line	4(16-18*)	4	2	2
Search and Rescue	4	2	2	
Ventilation	4	2	2	
Back-Up Line	2	3	3	
Pump Operator	1	1	1	1
Water Supply	1	1	1	
Utilities Support	1	1	1	
Command/Safety	2	2	1	1
Forcible Entry	*			
Accountability	1			
Salvage	*			
Overhaul	*			
Communication*	1*			
Chief's Aide	1			
Operations Officer	1	1		
Administration	*			
Logistics	1			
Planning	1*			
Staging	1*			
Rehabilitation	1			
Sector Officers	1(4*)			
High-Rise Evacuation	10-30*			
Stairwell Support	10*			
Relief	*			
Investigation	*			
Totals	25-65*	17	13	3-4

*Indicates that at high risk or maximum fires, additional resources will be necessary in these areas

Call Types and Effective Response Force

The Bellevue Fire Department provides the following resources for each of identified call types.

Service Call (Non emergency)

- One Engine Company or One Light Force

Fire – Single Family Dwelling

- 3 Engine Companies, 1 Light Force, 1 Medic Unit, 1 Medical Services Officers, 1 Battalion Chief

Fire – Commercial/ Industrial/Multi-Family Dwelling (High Value)

- 3 Engine Companies, 2 Light Forces, 1 Medic Unit, 1 Medical Services Officer, 1 Battalion Chief

Fire – High-Rise

- 3 Engine Companies, 2 Light Forces, 1 Medic Unit, 1 Medical Services Officer, 1 Battalion Chief

Fire – Non Structural

- 1 Engine Company or 1 Light Force

Emergency Medical (BLS)

- 1 Engine Company or 1 Aid Unit

Emergency Medical (ALS)

- 1 Engine Company or 1 Aid Unit, 1 Paramedic Unit

Specialized Rescue (Confined Space/Trench Rescue/High Angle Rescue)

- 1 Engine Company, 1 Light Force, 1 Aid Unit, 1 Medic Unit, 1 Medical Services Officer, 1 Battalion Chief

Automatic Fire Alarm

- 2 Engine Companies and/or 1 Engine Company, 1 Light Force

Automatic Fire Alarm (High Value)

- 3 Engine Companies, 1 Light Force, 1 Medical Services Officer, 1 Battalion Chief

Automatic Fire Alarm (Targeted)

- 2 Engine Companies, 1 Light Force, 1 Battalion Chief

SECTION SIX:
SERVICE LEVEL OBJECTIVES



SECTION SIX: SERVICE LEVEL OBJECTIVES

The Bellevue Fire Department has adopted the response time standards set forth in this section. These standards are based on the risk analysis of the service area, the critical task analysis conducted by the department, and historical performance of the department. Established service level objectives will allow the Bellevue Fire Department to define the level of risk for both the citizens of the community and the City Council.

While the department will continue to seek efficiencies and request additional resources, in an attempt to reduce overall response times consistent with nationally recognized standards for staffing and deployment such as NFPA 1710, these response time standards serve as the service level objectives for the department.

Response Performance Standards

Response time has been difficult to define and standardize throughout the fire service. Many agencies use the various components within the response time model differently, making a comparison of total response time difficult from one agency to another.

The Commission of Fire Accreditation International (CFAI) defines response time elements as a cascade of events. The department has direct control over many of the elements and indirect control over the remainder. By analyzing response time elements individually as well as collectively, the Bellevue Fire Department can measure and evaluate the level of service it is providing to the community.

Definitions

It is important to provide specific definitions to each of the elements contained within the total response time model. The following definitions are provided by CFAI, and consistent with the department.

Event Initiation Point – the point at which factors occur that may ultimately result in an activation for the emergency response system. Precipitating factors can occur seconds, minutes, hours or even days before emergency event awareness is reached. An example is the patient who ignores chest discomfort for days until it reaches a critical point at which he/she makes the decision to seek assistance (emergency event awareness). It is rarely possible to quantify the point at which event initiation occurs.

Emergency Event - The point at which an awareness of conditions exists that requires an activation of the emergency response system.

Alarm – The point at which emergency response system activation is initiated. The transmittal of a local or central alarm to public safety answering point is an example of this time point.

Alarm Time – The time point at which an alarm is received by the public safety answering point (PSAP) or communication center.

Alarm Processing Time – The time interval from the point at which a request or alarm is received and transmitted to emergency responders. The benchmark for this element of response time is a 60 second time frame.

Turnout Time – The time points at which responding units acknowledge receipt of the call from the dispatch center. Total turnout time begins at this point and ends with the beginning of travel time. For staffed fire stations the benchmark is 60 seconds from 0700 - 2200 hours and 90 seconds from 2201 – 0759 hours.

Travel Time - The point at which units are en-route to the call. When responding from a fixed facility, the point at which the apparatus exits the facility. Total travel time begins with this initial time point and ends with the on-scene time.

On Scene Time – The time point at which the responding unit arrives on the scene.

Termination of Incident – The time point at which unit(s) have completed the assignment and are available to respond to another assignment or emergency incident.

Total Response Time – The time interval from point at which the alarm is reported (notification) to the time point when units arrive at the emergency event (on scene).

Historical Response Performance

The Bellevue Fire Department utilized emergency response data from 2005, 2006 and 2007 to establish baselines for performance in responding to alarms. All emergency responses were analyzed throughout the service area for the department with respect to the total response time. Total response time, as defined earlier in the document, is the total of the following elements, [call processing time, + turnout time + travel time].

Response Time Goals, All Emergencies

Bellevue Fire Department Service Level Objective, is as follows:

Service Level Objective Statement

For 80 percent of all incidents, the first due unit shall arrive within 4.5 minutes travel or 8 minutes total reflex time. The first-due unit shall be capable of advancing the first line for fire control or starting rescue or providing basic life support for medical incidents

With the adoption of this document, response time goals for the Bellevue Fire Department are the following for all emergency responses.

- **Call Processing Time:** **1.5 minutes or less for 80% of all incidents.**

- **Turnout Time:** 2 minutes or less for 80% of all incidents.
- **Travel Time:** 4.5 minutes or less for 80% of all incidents.
- **TOTAL RESPONSE TIME FOR FIRST ARRIVING UNIT:**
8 minutes or less for 80% of all incidents.

Response Time Goals, Structure Fires

Additionally, the department has established the following goals for response to structure fires, that reflect the time necessary to assemble an effective response force. An effective response force is defined as the minimum amount of staffing and equipment that must reach a specific emergency location within a maximum prescribed response time.

- **Travel time for all units needed for an effective response force:** 8.5 minutes or less for 80% of all incidents.
- **TOTAL RESPONSE TIME:** 12 minutes or less for 80% of all incidents.

Response Time Performance

Performance standards have two basic components. The first is the measurable task, or in this case the response time. The second part is the level of performance. This is normally stated in terms an average or a percentage (fractile) of the amount of such tasks that fall at or below the desired level, (i.e. 80%).

Response time performance has been measured in a number of ways, including average (mean) and percentage or fractile. An average is the sum of all the values in the data set divided by the number of pieces of data. In this measurement, every piece of data is counted and the value of that data has an impact on the overall performance. An argument for not using averages for performance standards is that it does not accurately reflect the performance for the entire data set.

Average Response Time

Because the Bellevue Fire Department has historically recorded and reported average response times as a performance measure, we are including this measurement of response time. Table 6.1, illustrates the average response time for all emergency incidents for the time period January 1, 2005 – December 31, 2007.

January 1, 2005 – December 31, 2005

	Call Processing	Turnout	Travel	Response Time
Average	1:02	1:35	3:26	6:04

January 1, 2006 – December 31, 2006

	Call Processing	Turnout	Travel	Response Time
Average	1:02	1:24	3:24	5:49

January 1, 2007 – December 31, 2007

	Call Processing	Turnout	Travel	Response Time
Average	1:00	1:21	3:24	5:46

Percentage or Fractile Response Time

With the use of percentages or fractile, the actual value of the individual data does not have the same impact as it does when using averages. The reason is that the fractile is nothing more than the ranking of the data set. The 80th percentile means that 20 percent of the data is greater than the value stated and all other data is at or below this level.

While no single measure tells the entire story, Bellevue Fire Department has chosen to use fractile measures as its primary performance standard because they represent the large majority of tasks completed in specific timeframes and give a good indication of the level of service our community can expect to receive.

January 1, 2005 – December 31, 2005

	Call Processing	Turnout	Travel	Response Time
Fractile Percentage	86%	76%	82%	90%

January 1, 2006 – December 31, 2006

	Call Processing	Turnout	Travel	Response Time
Fractile Percentage	85%	83%	80%	89%

January 1, 2007 – December 31, 2007

	Call Processing	Turnout	Travel	Response Time
Fractile Percentage	86%	84%	80%	90%

Note: Service Goals for this performance measurement:

- Call Processing: < = 1.5 minutes or less, 80% of the time
- Turnout: < = 2.0 minutes or less, 80% of the time
- Travel: < = 4.5 minutes or less, 80% of the time
- Response Time: < = 8.0 minutes or less, 80% of the time.

Baseline and Benchmark Standards

The Bellevue Fire Department has established and maintained response time standards for many years and specifically established response time standards when developing initial Standards of Response Coverage document in 2003. At the time, the department viewed the standards as a goal and consistent with nationally recognized standards such as those outlined in NFPA 1710. We recognize that these standards are more clearly defined by the CFAI, as benchmark standards.

This section defines baseline standards for the department based, in part, on historical data regarding the total response times and each of key elements including call processing time, turnout time and travel time. While the baseline standards are not as high as the benchmark standards, they do represent the service levels currently provided by the Bellevue Fire Department.

The City Council determines the level of risk for the community, as defined by the number of resources available for responding to emergency incidents. The department will continue to seek additional resources and efficiencies to improve response times, using the benchmark standards as the goal. The City of Bellevue and the department view the response time standards as a valuable tool to measure the effectiveness of the department to provide adequate levels of

service, while recognizing that outcomes are equally important to the citizens we protect. Outcomes such as cardiac resuscitation rate, percentage of fires confined to the room of origin, percentage of fires confined to the structure of origin, total property loss and the number of civilian injuries or death due to structure fires represent key issues in evaluating the effectiveness of the department.

All of these elements are evaluated and balanced with respect to taxation, budgeting, and competing needs by the City Council in determining the level of service, provided by the fire department. The level of protection available in any community is a local decision that should be made only after thorough evaluation of the local needs and resources.

SECTION SEVEN:
DISTRIBUTION OF RESOURCES



SECTION SEVEN: DISTRIBUTION OF RESOURCES

Distribution Policy Statement

For 80% of all incidents, the first due unit shall arrive within 4.5 minutes travel or 8 minutes total reflex time. The first-due unit shall be capable of advancing the first line for fire control or staging rescue or providing basic life support for medial incident.

The term distribution is defined by CFAI as the locating of geographically distributed, fire-due resources, for all-risk intervention. These station locations are needed to assure rapid deployment to minimize and terminate average, routine emergencies. Distribution is measured by the percentage of the jurisdiction covered by first-in response companies within the adopted response time goals.

The Bellevue Fire Department assumes the static deployment of fire and EMS resources in existing fire facilities located strategically throughout the community. Recently, the department has implemented an automatic vehicle locator (AVL) component to the commuter aid dispatch protocols that will dispatch the closest unit to the address of the emergency, regardless of station locations.

The department uses a variety of factors to determine optimal site locations for its fire facilities. Historical response time data, as provided by the computer aided dispatch (CAD) records are utilized with DECCAN software to geographically display response times for each of the geocodes (½ mile x ½ mile square) identified within the departments service area.

Bellevue’s current fire station locations provide for an efficient distribution of the available emergency resources. When considering fire facility locations, a number of variables are considered including geographical spacing between fire stations, proximity and access to streets, freeways and population centers, and available property.

Currently, the department operates out of ten (10) fire facilities and nine (9) fire stations located strategically throughout the community including the areas serviced through fire service contracts located outside the city limits. The area serviced by the Bellevue Fire Department is 34 square miles and the fire stations are approximately equal distance from one another. A greater concentration of fire facilities and resources is found in the northern sections of the City, in response to a greater concentration of businesses and population centers. Staffing minimums are represented below as the minimum number of personnel assigned to each company or unit per shift.

Station One – 766 Bellevue Way Ave SE, 98004

Battalion One	(2)
Engine One	(3)
Aid One	(2)
Engine One A	(Reserve)

Station Two – 2802 148th Ave. SE, 98007

Engine Two (3)
Aid Two (3)*
MSO-5 (1)
Medic Two (2)
MCI Unit (Staffed by Engine Two crew when needed)
Truck Two A (Reserve)

Station Three – 16100 NE 8th Street, 98008

Light Force Three (4)
Aid Three (3)
Rescue Three (Staffed by Light Force Crew when needed)

Station Four – 4216 Factoria Blvd. SE, 98006

Engine Four (3)
Aid Four (2)
Engine Four A (Reserve)

Station Five – 9621 NE 24th Street, 98004

Engine Five (3)
Aid Five (3)*

Station Six – 1850 132nd Ave NE, 98005

Engine Six (3)
Aid Six (3)*
HazMat One (Staffed by Engine Six crew when needed)

Station Seven- 11900 SE 8th Street, 98005

Light Force Seven (5)

Station Eight – 5701 Lakemont Blvd SE, 98006

Engine Eight (3)
Aid Eight (3)*
Air Unit One (Staffed by Engine Eight crew when needed)
Engine Eight A (Reserve)

Station Nine – 12412 SE 69th Way, 98006

Engine Nine	(3)
Aid Nine	(3)*
Engine Nine A	(Reserve)

Overlake Hospital – 1035 116th Ave NE, 98004

Medic One	(2)
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Historical Growth of Fire Facilities

The department has experienced continual growth since 1965, when initially organized with one fire station. Shortly thereafter, in 1969, the department acquired three additional fire stations with the merger with King County Fire District 14. Significant growth occurred as a result of a Public Safety Bond Issue, which resulted in the construction of two new fire stations, the relocation of an existing fire station and the construction of a Public Safety Training Center with a six story burn tower.

In 1994 and 1995, two additional fire stations were added as a result of a large annexation in the south area of Bellevue and to specifically address a demonstrated need to improve response times in the Lakemont area of Bellevue. Fire Station Nine was acquired through the annexation process and currently serves both the citizens of south Bellevue and the City of Newcastle through a fire service contract. The site for Fire Station Eight was determined through the analysis of response times in the southeast section of Bellevue, and has significantly improved response times for this area.

Several changes in deployment of staffing and apparatus resources have accompanied these facility changes, in response to population changes, calls for serve and changing demographics. Most recently, additional staffing for dedicated staffing of Aid 4 was approved by the City Council, in response to an analysis of response times south of Interstate 90. The three fire stations located south of I-90, were experiencing longer response times than those in the northern section of the City. This analysis was conducted with the assistance of DECCAN software.

The City of Bellevue continues to experience explosive growth, specifically in the Central Business District, with nineteen high rise building currently under construction and many additional projects in the plans review phase. With the projected change in daytime and nighttime population, changing demographics and increased building and occupancy, the department is strongly recommending a new downtown fire facility. This recommendation is discussed in more detail in Section 10.

SECTION EIGHT:

**CONCENTRATION OF
RESOURCES**



SECTION EIGHT: CONCENTRATION OF RESOURCES

Concentration is the spacing of multiple resources arranged so that an initial “effective response force” can be assembled on scene within adopted public policy time frames. An initial effective response force is that which will most likely stop the escalation of a fire emergency, stabilizing a medical scene, and/or affecting a rescue.

Concentration Policy Statement

That in a moderate risk area, an initial effective response force shall arrive within 8.5 minutes travel or 12 minutes total reflex time, 80 % of the time and be able to provide 1500 GPM for fire fighting, or be able to handle a five patient emergency medical incident.

In addition to the resources outlined in Section Seven, the Bellevue Fire Department is reliant on automatic and mutual aid agreement with neighboring agencies to provide sufficient resources for significant or greater alarm incidents.

Our existing concentration of resources will allow the department to meet the goal of providing an initial effective response force in less than 12 minutes 80 percent of the time. The Bellevue Fire Department’s initial full alarm assignment, outlined in Table 5.3 of this document, provides personnel in excess of the national standard established in NFPA 1710. NFPA 1710 establishes a minimum staffing of 14 to address critical task such as the placement of attack lines, search and rescue, ladder placement, water supply and ventilation.

Washington Industrial Safety and Health Administration (WAC 296-305) outlines additional safeguards for fire fighters. The regulations state that fire fighters must not engage in interior structural firefighting in the absence of at least two standby firefighters, except when circumstances indicate immediate action may be necessary to mitigate the loss of life to citizenry or fire fighters. Under these circumstances, at least one fire fighter must be assigned in a standby status.

The initial effective response force of 18 fire fighters, as outlined in Table 5.3, is established with the following minimum staffing levels:

TYPES OF COMPANIES/UNITS	NUMBER OF COMPANIES/UNITS	MINIMUM STAFFING
Engines	3	9
Light Force	1	4
Medic Unit	1	2
Battalion Chief/Staff Asst	1	2
Medical Services Officer	1	1

Additionally resources for the department are under evaluation including new fire facilities and additional staffing at existing fire facilities. These additional resources are outlined in Section Ten of this document.

SECTION NINE:
**HISTORICAL PERFORMANCE
AND RELIABILITY**



SECTION NINE: HISTORICAL PERFORMANCE & RELIABILITY

Historical Performance:

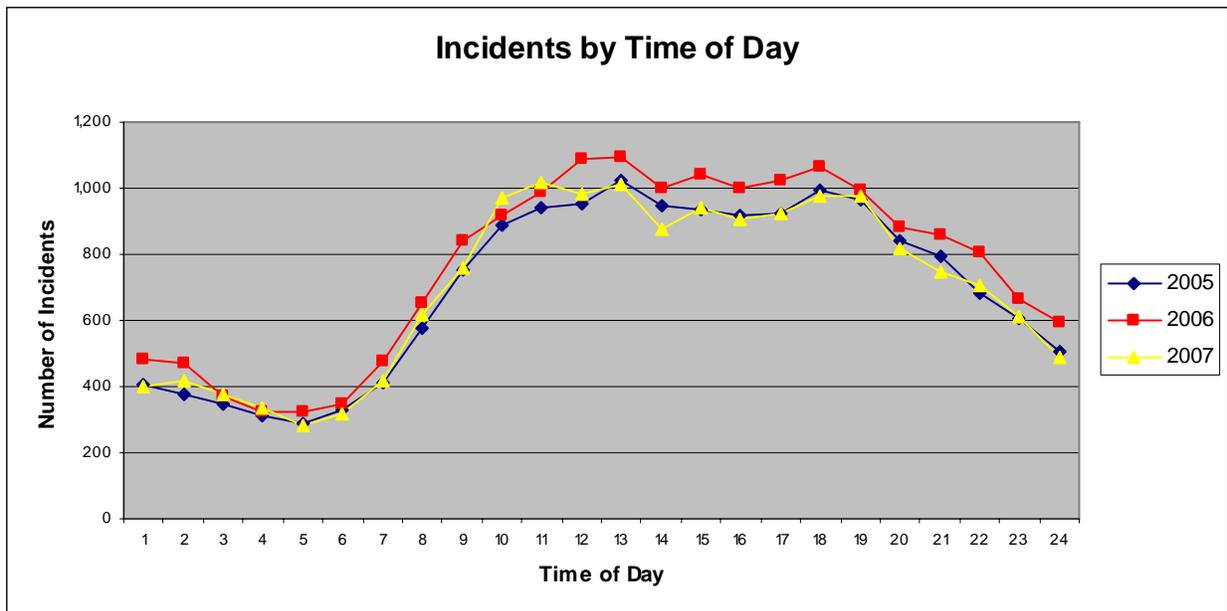
The following is an analysis of historical response activity for the Bellevue Fire Department for the period, January 1, 2005 through December 31, 2007. Analysis of past performance is vital to the planning process for allocating resources and equipment throughout the area serviced by the department. The data shows an increase in call volume over the two and one half year period, with the largest percentage of incidents being EMS in nature. By analyzing historical data, the Bellevue Fire Department is better able to assess response needs and identify any deficiencies.

The following table shows total incidents by fire station for the period January 2005 – December 31, 2007.

Table 9.1 Total Incidents by Fire Station

Fire Station	2005	2006	2007	Totals
FS-1	2788	3166	3047	9001
FS-2	2089	2289	2176	6554
FS-3	3661	3784	3458	10993
FS-4	1707	1983	1788	5478
FS-5	1459	1643	1306	4408
FS-6	2402	2549	2398	7349
FS-7	1841	1645	1562	5048
FS-8	723	900	658	2281
FS-9	1136	1308	1094	3538
TOTAL	17806	19357	17487	54650

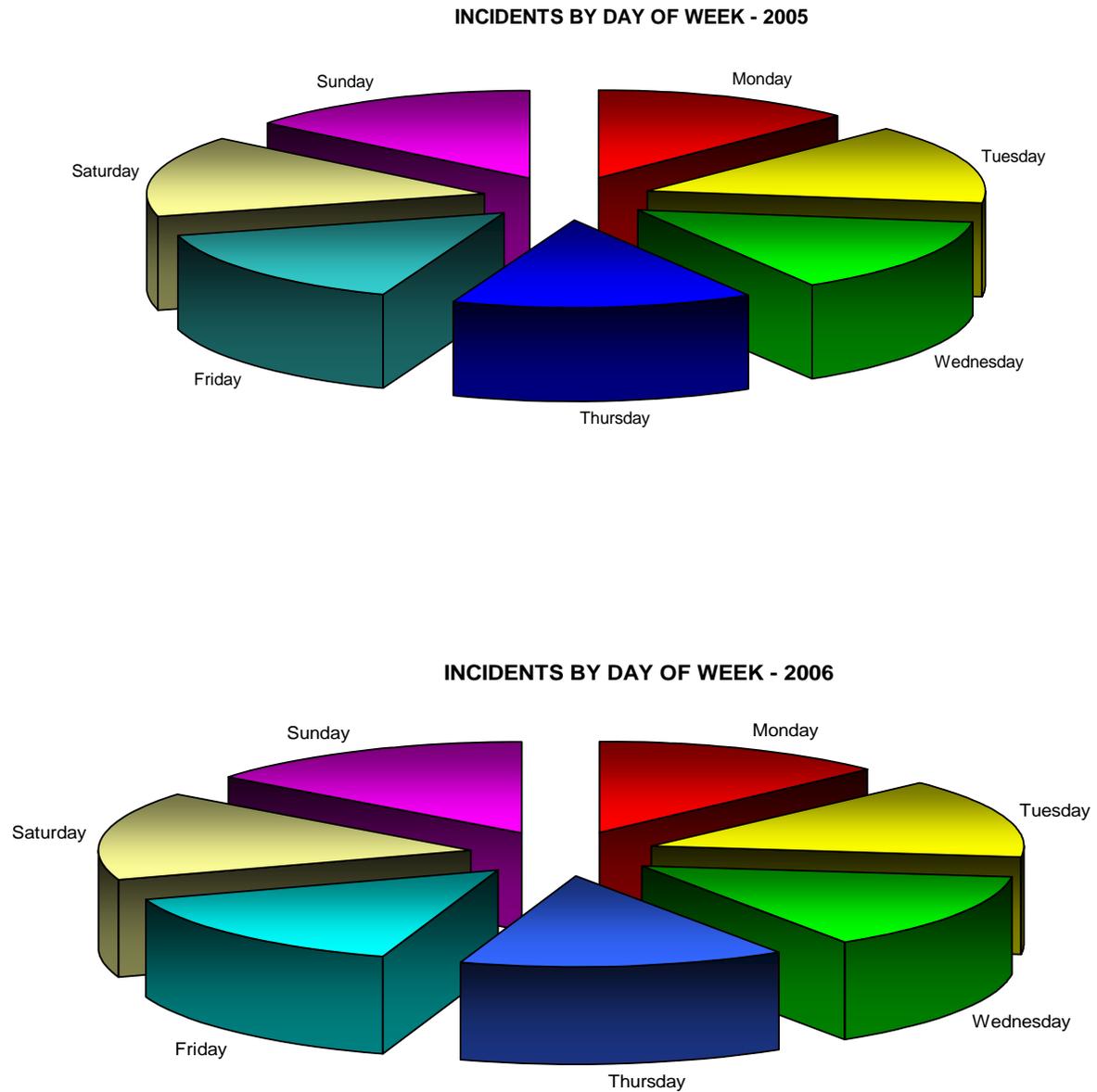
Figure 9.1, shows total incidents by time of day for the period January 1, 2005 –December 31, 2007.



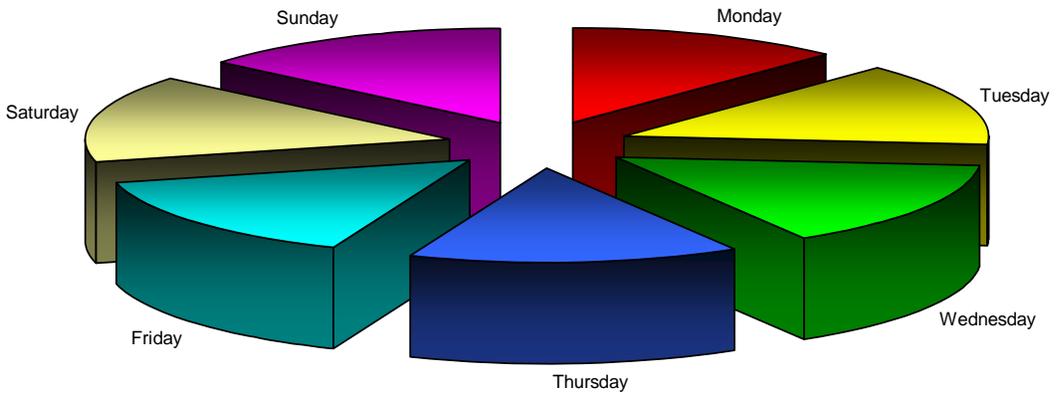
The highest time concentration of emergency responses for the department was between the hours of 1100 and 2000 hours.

The following chart show daily incident concentrations for the time period January 1, 2005 – December 31, 2007.

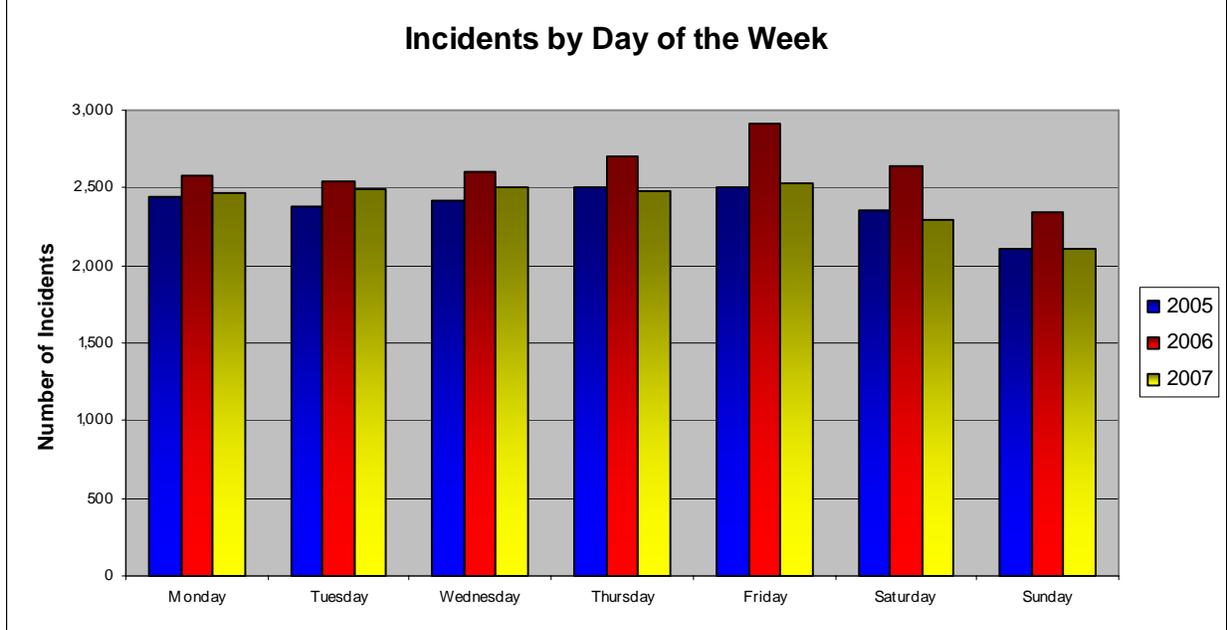
Figure 9.2 Total Incidents by Day of the Week



INCIDENTS BY DAY OF WEEK - 2007

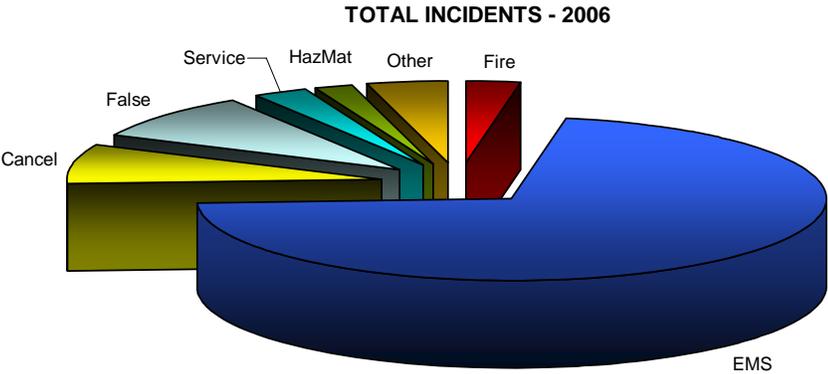
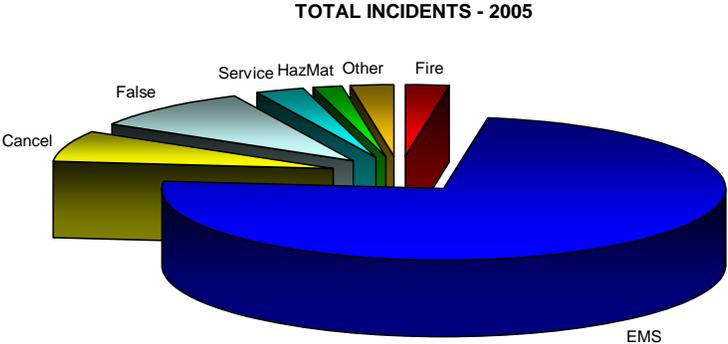


Incidents by Day of the Week

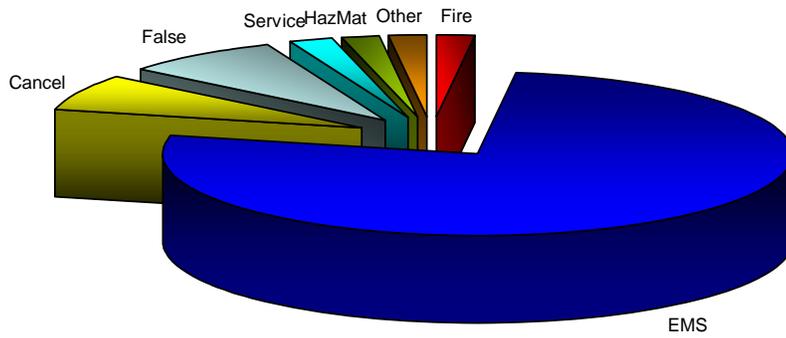


For the same time period, January 1, 2005 – December 31, 2007, the Bellevue Fire Department responded to a total of 51,894 alarms. The figures below indicate the types of incidents and the relative percentage of the total incidents.

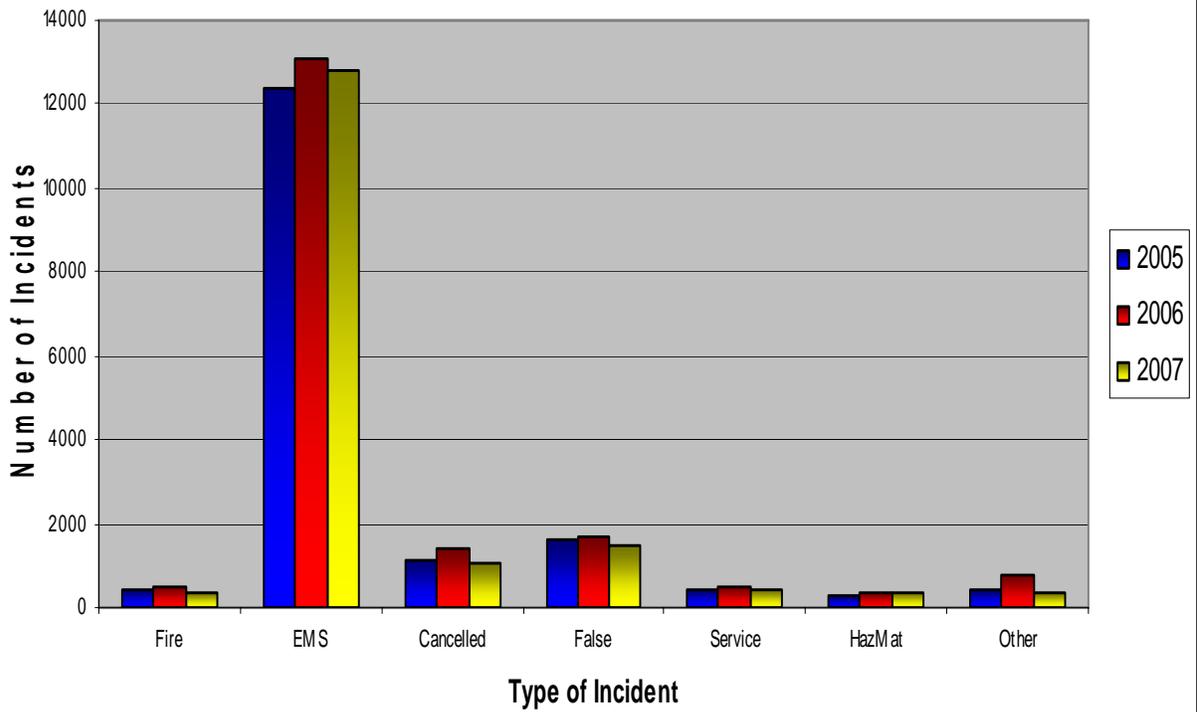
Figure 9.3 Total Incidents by Types of Emergency



TOTAL INCIDENTS - 2007



Incidents by Type



Response Reliability:

Response reliability is the probability that the required resources assigned to a geographical area will be available to respond to a fire or emergency medical incident when an emergency occurs. If every company remained its primary response area and was available to handle every incident, reliability would be 100%. In reality, there are several instances when the resources are out of area or unavailable due to a previous emergency incident. This requires that the second closest unit, as identified by automatic vehicle locators (AVL), be assigned to the emergency incident. This results in response times that may not meet the specific response time goals set by the department, which lowers the respective fire station's reliability.

As the total number of emergency incidents increase, and factors such as training requirements, building inspections and other routine activities increase, the probability that the first-due unit will be out of the area or unavailable increases, which lowers their reliability.

Table 9.2 Response Reliability – January 1, 2005 – December 31, 2007

Fire Station Response Area	Emergency Incidents	1st Due Company Dispatched	1st Due Company Not Dispatched	Response Reliability
FS-1	7,470	7,263	207	97.23%
FS-2	5,355	4,886	469	91.24%
FS-3	9,239	8,625	614	93.35%
FS-4	3,906	3,559	347	91.12%
FS-5	3,500	3,144	356	89.83%
FS-6	5,984	4,836	1,148	80.82%
FS-7	1,835	1,721	114	93.79%
FS-8	1,804	1,704	100	94.46%
FS-9	3,068	2,857	211	93.12%
Total	42,161	38,595	3,566	91.54%

SECTION TEN:

**FUTURE NEEDS,
RECOMMENDATIONS**



SECTION TEN: FUTURE NEEDS, RECOMMENDATIONS

Throughout the brief history of the Bellevue Fire Department, we have strived to provide the best level of service for the citizens of Bellevue and surrounding contract cities. As the City of Bellevue has grown, the Bellevue Fire Department has continued to grow in size, capability and status. The Bellevue Fire Department is recognized as a regional leader, currently has a Class II rating from the Washington Survey and Rating Bureau, was granted accredited status in 1998 and re-accredited in 2003 by the Commission on Fire Accreditation International.

Looking forward, the department has outlined specific needs in response to the explosive growth throughout the service area, particularly in the Central business district. Future annexations are limited by natural boundaries such as Lake Washington and Lake Sammamish to the west and east and formal city boundaries to the north and south.

The growth currently underway in the Central business district is primarily high rise in nature and brings additional challenges for the fire department. In addition to increasing building density, daytime and nighttime population increases, and increased traffic congestion, the fire department recognizes a new element within the response time model. After arriving on scene, fire personnel must travel vertically 20-40 stories before reaching the fire or medical emergency. The department has begun collecting data specific to this element of response time and has titled it "vertical response time". Preliminary data indicates that this element of response time may add 2-3 minutes to the total response time.

The following recommendations have been incorporated into the department Strategic Plan and will serve as specific needs in the next biennial budget process, which includes an update to the Capital Improvements Projects (CIP) budget.

- The need for an additional fire station in the downtown or central business district area has been identified as the number one priority over the last 3-4 years. Development in this area is rapidly increasing the number of occupancies, residencies and population with projected call volumes that will extend the department's resources in the near future.

The department is currently contracting with a consultant to evaluate various sites and concepts, including partnering with a developer to incorporate a fire station into a high rise building, within the central business district.

- Staffing for a new downtown fire station, with an initial minimum of new Engine Company (Staffed with three personnel) will be needed to respond to the growth in the central business district.
- The department is currently evaluating the need to transition from a Light Force model for truck company operations to a dedicated truck company model. The Light Force model incorporates a tillered aerial ladder truck and a triple combination pumper operating as a single unit.

As the number of emergency incidents increases, the department is studying the effectiveness of establishing two dedicated truck companies, with minimum staffing of four, and additional engine companies, with minimum staffing of three.

- A second battalion chief has been identified as a resource necessary to handle the current and future call volume, and to provide an appropriate span of control for routine supervision. With only one battalion chief on duty the current span of control includes the direction supervision of nine companies, and with the addition of a new downtown fire station, the span of control would exceed recommendations.
- A third dedicated truck company, located in the southern section of the City is also recommended in the future. Consultant studies and NFPA recommendations have concluded that an appropriate ratio of engine companies to truck companies would require a third truck company for the department. Geographically, a truck company south of Interstate 90 would provide the best response times for structure fires and rescue incidents in that section of the current service area.
- The current deployment model in five of the fire stations provides staffing for the engine company and the aid unit through the use of “cross staffing”. This implies that the same three member crew staffs the aid unit for BLS and ALS incidents and the Pumper for Engine Company responses. If the crew responds to an EMS incident the Engine Company is placed out of service and unavailable, and conversely if the crew responds to an Engine Company incident the Aid Unit is placed out of service.

The department has dedicated staffing of Aid Units at three of the fire stations and has identified the need to add staffing for the five remaining stations to eliminate the use of “cross staffing” in the future.

Appendix A: NFPA 1710

NFPA 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.

This standard, adopted by the Nation Fire Protection Association in 2001, though not binding on specific jurisdictions, attempts to establish a national standard for fire and rescue response. While the Bellevue has not adopted this standard, it is important to address our deployment and response time performance in light of this standard.

NFPA 1710 includes the following standards for fire response and deployment:

Response	Staffing	Time
Turnout Time	N/A	60 seconds
Arrival of Initial Arriving Company	Four (4) *	4 minutes or less 90% of the time
Arrival of Initial Full Alarm Assignment Capability	Fourteen (14); fifteen (15) if Aerial Ladder is Deployed	8 minutes or less 90% of the time

*Personnel are not required to arrive on the same apparatus.

*The standard actually indicates a goal of a 4 minute response time for the initial arriving company, and/or an 8 minute response time for a full alarm assignment. In order to meet this standard only one of the time would need to be met on any given fire incident.

NFPA 1710 Initial Full Alarm Prescribed Assignments and Functions:

1. Establishment of Incident Command outside of the hazard area for overall coordination of the first alarm assignment.
2. Establishment of an uninterrupted water supply providing a minimum of 400 gpm for 30 minutes.
3. Establishment of an effective water flow application rate of 300 gpm from two hand lines, each of which shall have a minimum of 100 gpm flow. Attack and backup lines shall be operated by a minimum of two personnel each to effectively and safely maintain the line.
4. Provision of one support person for each attack and backup line deployed to provide hydrant hookup and to assist in line lays, utility control, and forcible entry.
5. A minimum of one victim search and rescue team. Each search and rescue team shall consist of a minimum of two personnel.
6. A minimum of one ventilation team. Each ventilation team shall consist of a minimum of two personnel.

7. If an aerial device is used in operations, one person shall function as an aerial operator who shall maintain primary control of the aerial device at all times.
8. Establishment of a Rapid Intervention Team (RIT) that shall consist of a minimum of two properly equipped and trained personnel.

The five basic EMS system functions covered in NFPA 1710 include the following. The standard indicates that the department shall be involved in providing any or all of these functions.

1. Initial response to provide medical treatment at the location of the emergency (first responder with AED capability or higher)
2. BLS response
3. ALS response
4. Patient transport in an ambulance designed to provide for uninterrupted patient care at the ALS or BLS level while en route to a medical facility.
5. Assurance of response and medical care through a quality management program.

Staffing for EMS is specified as the minimum numbers of personnel necessary to the level of EMS provide. Personnel deployed to ALS emergency responses shall include a minimum of two members trained at the EMT-Paramedic level and two member trained at the EMT-Basic level. (It does not include EMT- Intermediate, since not all states offer this level of certification.)

Service delivery deployment is specified as follows;

Response	Staffing	Time
Turnout Time	N/A	60 seconds
Arrival of unit with first responder or higher level capability	Two (2)	4 minutes or less 90% of the time
Arrival of ALS unit	Two (2)	8 minutes of less 90% of the time

The standard further states that the department is to evaluate its level of service and response time objectives on an annual basis. In addition, the department is to provide the authority having jurisdiction with a written report, based on these annual evaluations, every four years.