

Northshore Fire Department

King County Fire Protection District No.16

Standard of Response Coverage



2007 Compliance Report

Jim Torpin
Deputy Fire Chief

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Introduction

On April 15, 2005, the Washington State Legislature passed into law HB 1756. The law required fire departments in Washington State to determine and develop performance standards and report their relative compliance with the established standards on an annual basis.

HB 1756 was derived from the National Fire Protection Association Standard 1710 *Standards for the Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Departments*. HB 1756 would best be described as a modified version of this national standard.

On December 4, 2007, the Northshore Fire Department Board of Commissioners took action to comply with the requirements of HB 1756 with the adoption of Board Resolution 07-20. This report shall serve to comply with the reporting requirements of HB 1756 and Resolution 07-20.

Background and Significance

One of the major issues the fire service has been addressing is defining levels of service relative to standards, comparable data and levels of acceptable risk for the community they serve. The Northshore Fire Department has used response times as part of its performance measures for many years. Response times have historically been reported to the Board in terms of averages rather than the more definitive methods required by HB 1756.

Response times have long been a national standard of measurement of service within the fire service. However, this data has never been used in setting standards which can be used on a comparison basis or as the basis of legal action against local government bodies.

In 2001, NFPA 1710, the first national standard for response times, was adopted. As a standard, it was not legally binding for fire departments, though it has and will carry increasingly significant weight in legal actions resulting from negligent incidents attributable to response times.

The establishment of response standards for the fire service continues to develop momentum. Increasingly, jurisdictions are being directed to establish policies in regard to the delivery of fire and EMS services. HB 1756 is Washington State's solution to addressing the issue of setting response time standards.

Requirements of HB 1756

Fundamentally, HB 1756 simply requires, through ordinance, a community to determine the level of Fire & EMS services it wishes to provide to its community, and set performance measures that will be annually reported by fire departments to their governing bodies.

The bill required the following:

- Board Resolution – Policy Statements
 - ✓ Existence of Fire Department
 - ✓ Services provided by Fire Department
 - ✓ Expected number of Fire Department employees
 - ✓ Functions performed by employees

- Adopted Standards
 - ✓ Turnout Time
 - ✓ Response Time – Deployment of First Alarm Assignments at Fire Suppression Incidents
 - ✓ Response Time – First arriving unit at Fire Suppression Incidents
 - ✓ Response Time – Basic Life Support Incidents
 - ✓ Response Time – Hazardous Material Incidents
 - ✓ Response Time – Technical Rescue Incidents

- Annual Fire Department Performance Measures Reporting
 - ✓ Includes Policy Statements
 - ✓ Provides the established standard
 - ✓ Reports on Departments Performance against established standard
 - ✓ Explanation and definitions where the standard is not being met.
 - ✓ Predictable consequences of any deficiencies and necessary improvements needed to correct these.

Definitions

Advanced Life Support (ALS) Advanced Life Support incidents are those incidents where the involved patients have more critical or life threatening injuries and illnesses. ALS services are provided by personnel trained to the paramedic level.

Alarm Time The point of time that the public safety answering point (PSAP) receives a call with notification of an emergency incident.

Alarm Processing Time The measure of time from when a call is received at the PSAP until the appropriate units are dispatched.

Basic Life Support (BLS) Basic Life Support response is the first level of response to emergency medical incidents. BLS personnel are firefighters who are trained as Emergency Medical Technicians (EMTs).

Dispatch Time The time when the dispatcher, having selected appropriate units for response with assistance from the CAD system, initiates the notification of response units.

Emergency Response A response to an incident where an imminent threat to life or property exists or is believed to exist. Units responding to emergency incidents respond with lights and sirens activated.

Fire Suppression Incident An incident where property or life is threatened or believed to be threatened by fire.

Full Alarm Assignment Full alarm assignment is the number of apparatus and personnel that is required to establish an effective firefighting force at an incipient stage structure fire. Full alarm assignment has been established by the District as a minimum of three (3) Engines, one (1) additional Engine or Ladder and one (1) Battalion Chief.

Operations Level Responder Personnel who are trained at a basic level in specialized fields such as hazardous materials and technical rescue. Operations level training provides personnel with the knowledge and ability to mitigate smaller incidents and the awareness to request personnel with a higher level of training when appropriate.

Response Time The combined measure of time from the point units are notified of an alarm and their arrival on scene (turnout and travel time).

Turnout Time The measure of time from the point units are notified of an alarm until the point of time when the response is initiated (wheels rolling).

Travel Time The measure of time from the point at which units initiate their response until they arrive on scene.

Policy Statement and Response Time Objectives

WHEREAS, King County Fire Protection District No. 16 was organized in the year 1942, and therefore the Board of Fire Commissioners intends to declare it as being heretofore “established”; and

WHEREAS, the Washington State Legislature adopted House Bill 1756 during 2005, and such bill is codified as chapter 52.33 of the Revised Code of Washington; and

WHEREAS, such statute requires that each substantially career fire department be declared “established”, that the services provided by the district or department be listed, and among other requirements, that standards for service be adopted locally; and

WHEREAS, such statute also requires that an annual report be prepared each year, describing compliance with the local standards and otherwise reporting to the public; and

WHEREAS, such statute also requires compliance with the locally established response time standards 90% of the time; and

WHEREAS, the purpose and intent of this resolution is to provide policies and standards so as to comply with the intent of the new legislation;

NOW THEREFORE BE IT HEREBY RESOLVED AS FOLLOWS:

Section 1. Since the King County Fire Protection District No. 16 was formed in 1942 and thereafter a substantially career fire department has been established, the Board of Fire Commissioners officially declares the fire department to be established.

Section 2. The public services provided by the District, in accordance with the mission and statutes that govern fire protection districts and fire departments, are as follows:

- Fire suppression
- Emergency Medical Services (EMS), Basic Life Support (BLS)
- Hazardous Materials Response-Operations Level
- Technical Rescue/Special Operations
- Fire Code Inspections
- Public Education

Section 3. The organizational structure of the fire department is best understood by reference to the attached organizational chart for the department, which is hereby officially adopted by the Board, and incorporated, herein by reference. However, the organization is generally described as managed overall by the elected policy-making and governing body, the Board of Fire Commissioners, whose policies are implemented on a day-to-day basis by the appointed Fire Chief. The Board and the Chief are aided in

accomplishing the mission of the department by an appointed District Secretary, whose primary duties are administrative, including maintaining Board meeting minutes and records. Various fire service officers, firefighters, emergency medical technicians (EMTs), and other staff personnel round out the district's work force and accomplish the delivery of vital services to the public.

Section 4. On the effective date of this Resolution, the District employs the equivalent of 49 full time employees (FTE's). Any changes or projected changes in these numbers will be addressed in the 2008 annual report. These employees are responsible for the functions described in Section 2 above, and delivery of services.

Section 5. The fire protection district hereby establishes the following service delivery objectives, including specific response time objectives for the following major service components, as applicable:

- A. Turnout time (All Emergency Incidents):
 - Two (2) minutes;
- B. Fire Suppression:
 - (1) Response time, first arriving engine company: Six (6) minutes;
 - (2) Response time, full first alarm assignment: Fourteen (14) minutes;
- C. EMS:
 - Response time, BLS, first unit staffed with EMTs: Six (6) minutes;
- D. Hazardous Materials Response-Operations Level:
 - Response time, Hazardous Materials Response, first unit with "Operations Level Responder" or higher: Six (6) minutes;
- E. Technical Rescue/Special Operations:
 - Response time, Technical Rescue/Special Operations, first unit with "Operations Level Responder" or higher: Six (6) minutes;

Section 6. The foregoing objectives shall be achieved at least 90% of the time in accordance with the statute. Annually, commencing in 2007, the department shall evaluate its levels of service, deployment, and the achievement of each response time objective throughout the district. The annual report shall define any geographic areas and circumstances in which the requirements of these standards are not being met. The annual report shall explain the predictable consequences of any deficiencies and address the steps that are necessary to achieve the objectives.

Section 7. All terms used herein, such as "turnout time", "response time", "basic life support" and "fire suppression", shall be defined as defined in RCW 52.33.

Staffing

In 2007, the Northshore Fire Department employed forty-one (41) career firefighters, three (3) fire prevention staff, one (1) training officer and five (5) administrative staff. The total numbers by their assigned areas of responsibility were as follows:

Two (2) Chief Officers

One (1) Finance and Human Resource Director

Two (2) Administrative Assistants

Forty (40) Career Firefighters

One (1) Training Officer

One (1) Public Educator

Two (2) Fire Prevention Staff

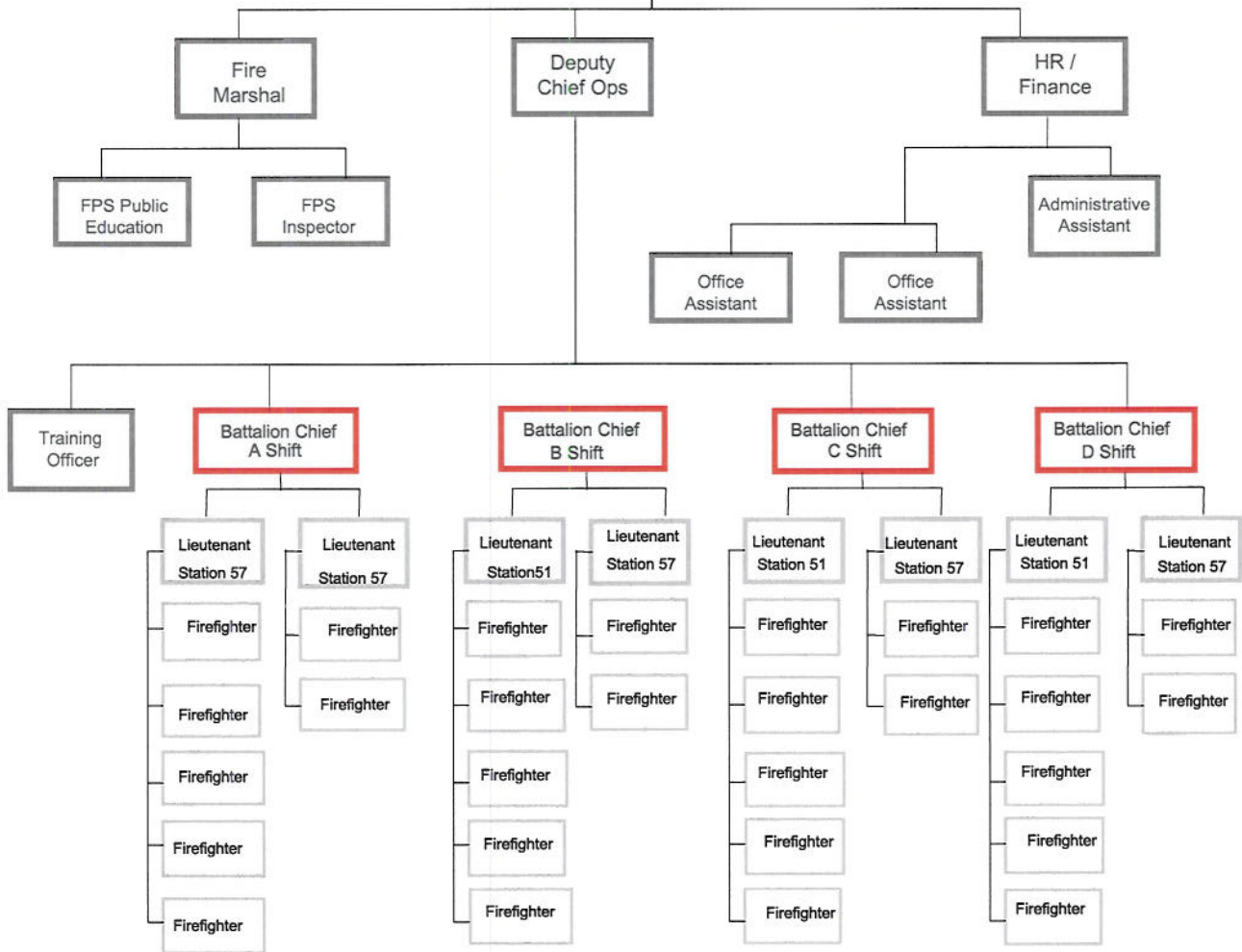
Total 2007 staffing consisted of 49 full time employees (FTE)

In 2008, the District reorganized the administrative staff in the area of Finance and Human Resources. A portion of these functions were outsourced in an effort to gain increased effectiveness and efficiencies. The Training Division was also expanded in 2008 due to the withdrawal of the Shoreline and Bothell Fire Departments from the Northlake Training Division. The net change in staffing for 2008 was limited to an increase of one half (.5) FTE. The changes to the Administrative and Training Division structure will not have a substantial effect on response time performance.

The chart on the following page reflects the 2007 organizational structure.

Board of Commissioners

Fire Chief



Northshore Fire Department King County Fire District #16

2007 Compliance Report

Data retrieved from the Computer Aided Dispatch (CAD) system's database was used to compare the fire department's performance against the established objectives. Emergency responses, where the dispatched unit arrived on scene were used for this comparison; information from non-emergent incidents, reduced emergency responses and responses that were canceled while the unit was in route were culled from the sample set. The following section provides the benchmark objective followed by the fire department's actual performance.

A. Turnout Time

Turnout Time Objective: The Northshore Fire Department has adopted a turnout time objective of two (2) minutes, ninety percent (90%) of the time.

Actual Department Comparison for the Year 2007: The Northshore Fire Department met the turnout time objective eighty-two percent (82%) of the time.

B. Arrival of 1st Arriving Engine Company at Fire Suppression Incident

Response Time Objective: The Northshore Fire Department has adopted a response time objective of six (6) minutes for the first fire engine to arrive when responding to a fire suppression incident ninety percent (90%) of the time.

Actual Department Comparison for the Year 2007: The Northshore Fire Department met the first arriving engine response time objective seventy-two percent (72%) of the time.

C. Arrival of Full Alarm Assignment at Fire Suppression Incident

Response Time Objective: The Northshore Fire Department has adopted a response time objective of fourteen (14) minutes for the arrival of a full alarm assignment at fire suppression incidents ninety percent (90%) of the time.

Actual Department Comparison for the Year 2007: The Northshore Fire Department met the Full Alarm Assignment response time objective fifty-seven percent (57%) of the time.

D. Arrival of 1st Arriving BLS Unit at Emergency Medical Incidents

Response Time Objective: The Northshore Fire Department has adopted a response time objective of six (6) minutes for the first BLS unit to arrive when responding to an EMS incident ninety percent (90%) of the time.

Actual Department Comparison for the Year 2007: The Northshore Fire Department met the first arriving BLS unit response time objective seventy-seven percent (77%) of the time.

E. Arrival of 1st Arriving Unit with “Operations Level Responder” for a Hazardous Material and Technical Rescue Responses.

Response Time Objective: The Northshore Fire Department has adopted a response time objective of six (6) minutes for the first unit to arrive with “Operations Level Responders” when responding to a Hazardous Material and Technical Rescue incidents ninety percent (90%) of the time.

Actual Department Comparison for the Year 2007: The Northshore Fire Department met the first arriving response time objective sixty-four percent (64%) of the time.

Explanation of Results and Corrective Actions

Turnout Time

Turnout Time is the one element of response time that the fire department can influence. A wide array of factors affect turnout time including: station design and layout, paging and alerting technology, the use of Mobile Data Computers (MDC), non-emergency tasks conducted by responders (training, inspections, physical fitness, etc), responders required to jump to a different apparatus (Jump Crews), awareness of performance and the established culture.

Turnout time was evaluated for all emergency responses and not reported separately by incident type. Turnout time for Suppression incidents is slightly higher than for EMS responses. Responders are required to don personal protective equipment when responding to suppression incidents which adds substantial time to the response.

The Northshore Fire Department is in the process of implementing several steps designed to improve turnout time. A new digital paging and alerting system has recently been installed at both of the District’s stations. This technology has already reduced the alerting interval by five (5) to fifteen (15) seconds or more. New pagers that are scheduled for deployment by years-end will reduce the alerting time for responders who are not in quarters.

The department is moving forward with the purchase of Mobile Data Computers (MDC) for its front line apparatus. The MDCs will increase the amount of information available to responders from the dispatch center. This additional information will assist responders to initiate a response more rapidly. The MDCs provide Automated Vehicle Locator (AVL) technology which will facilitate the closest unit being dispatched to incidents. These devices will also provide more accurate response data that will facilitate improved analysis.

In addition to the utilization of new technologies, the District is now publishing turnout time results for each shift and station in an effort to raise awareness of turnout time performance. Publishing the results and an increased focus on improving turnout times should have a positive impact on performance.

A decrease in turnout time will improve the overall compliance percentage for response times to both EMS and Suppression incidents. The objective for turnout time was established at two (2) minutes. This objective was not met in 2007, although, the aforementioned improvements should facilitate an overall improvement in performance and potentially make possible an adjustment to the established objective.

Travel Time

Travel time is the duration of time from when responders initiate a response (wheels rolling) until they arrive on scene. Other than adding fire stations and increasing the number of staffed apparatus the fire department has little impact on travel time. Travel time is dictated primarily by the distance the apparatus is required to travel. Other factors can impact travel time such as: topography, traffic, traffic calming devices, weather and road conditions, access to response destination and the out of service status of first-due apparatus necessitating a response from a more distant unit.

With the established turnout time objective of two (2) minutes and a response time objective of six (6) minutes, apparatus have to travel the distance to the scene of an incident in four (4) minutes or less. The map provided in Appendix 'E' provides an illustration of the projected distance apparatus should be capable of traveling in four (4) minutes. The map also provides a visual distribution of the incidents that occurred in 2007.

Response Time

Response time referenced in this report is the combined measurement of time from the point of time responders are notified of an emergency until they arrive on scene of the incident. Simply said, response time equals turnout time plus travel time.

The area served by the District is very unique in terms of geography and topography. The jurisdiction wraps around the northern portion of Lake Washington. Lake Forest Park was constructed on numerous rolling hills and deep ravines with several small stream drainages throughout. The construction of roads and streets in Lake Forest Park was done in a manner that was designed not to disturb the natural setting of the area. The City of Kenmore is divided by the Sammamish River and has its fair share of topographical challenges. The geographical aspect of the jurisdiction makes for a wonderful place to live and work, but a difficult place to provide emergency service.

The Sammamish River has only one public bridge suitable for emergency response. The bridge located at 68th Avenue NE does not facilitate direct route response for incidents that occur south of the river. Additionally, the 68th Avenue Bridge is frequently congested with traffic during peak commute hours. Due to this limitation, some of the response times in areas of Kenmore, south of the river fall outside the established objectives. In 2007, 158 emergency responses south of the river exceeded the six (6) minute objective. Isolating this area and comparing response data to the six (6) minute objective indicated a sixty percent (60%) compliance rate.

Access to several neighborhoods in Lake Forest Park requires apparatus to ascend and descend through numerous steep hills and encounter frequent stops and sharp corners. These obstacles have a significant impact on the heavy apparatus' ability to maintain proper speeds while en-route to incidents. Station 57 serves this area and is located within an acceptable "as the crow flies" distance from most of its service area. Although, due to the routes required to access some areas of Lake Forest Park, meeting the established response time objectives in these areas is difficult. In 2007, 299 emergency responses took longer than the six (6) minute objective. Isolating Lake Forest Park and comparing response data to the six (6) minute objective indicated a sixty-three percent (63%) compliance rate.

Being a small jurisdiction, the District is reliant on automatic aid in the event of larger incidents, as are most of the neighboring jurisdictions. In 2007 there were seven (7) incidents where a full alarm assignment was dispatched and arrived on scene. The response time objective was met on four (4) of these incidents. Apparatus traveling from neighboring jurisdictions are affected by the same limitations of the roadway infrastructure as the first due units. Lack of familiarity may compound these limitations adversely affecting their travel time. Another note that must be mentioned, is a concern related to the relatively small sample set used for this comparison. The lack of occurrences may not have allowed for an accurate assessment.

Responses to Hazardous Material and Technical Rescue incidents are very rare. These incidents require responders to jump to Rescue 51 for the response. Turnout time is greatly affected when responders have to jump to a different apparatus. An evaluation of the established objectives for these types of incidents should be conducted to determine if the established objective is reasonable. As was mentioned regarding the full alarm assignment, it is important to note the sample set used for this comparison may be too small for an accurate analysis.

The data revealed the District met its response time objectives seventy-five percent (75%) of the time for emergency responses. The distribution of emergency incidents between the three response areas referenced in this report is as follows: Kenmore North 44%, Kenmore South 18% and Lake Forest Park 38%. The data supports the placement of the second apparatus at Station 51 with 62% of the total call volume being handled by this station. The total number of responses that exceeded the established objectives was 543. The response time of 260 of these 543 incidents was between six (6) and seven (7) minutes. Taking this into account, an improvement of 10-15% is possible with the steps currently being taken. Data collected for this report will serve as a valuable baseline to evaluate the effectiveness of the steps currently being taken as well as other future enhancements.

Evaluation of Services not provided by the District

HB 1756 does not require jurisdictions to report on services that are not directly provided by the reporting jurisdiction. Two critical services, alarm processing and

advanced life support, are provided by outside agencies. The performance of these agencies is worthy of mention due to the interdependence their performance has on our success.

Alarm Processing

The alarm processing interval is a critical component of our overall response time. Eastside Communications, which is operated by the City of Bellevue, processes the 911 calls for service within the jurisdiction. The City of Bellevue has established an alarm processing time objective of one (1) minute for emergency incidents. In 2007, Eastside Communications complied with their established objective 81% of the time.

Advanced Life Support

Advanced Life Support (ALS) services are provided to the District through King County Emergency Medical Services (KCEMS). The Shoreline Fire Department, through KCEMS, is the primary provider of ALS services. The District houses Medic 65 at Station 57 in Lake Forest Park.

The Shoreline Fire Department has established a response time objective of eleven (11) minutes for the arrival of ALS apparatus to the scene of such incidents. In 2007, Shoreline Fire Department responded to 723 medic responses within the jurisdiction. The response time objective established by Shoreline was met 92% of the time for these incidents.

In 2007, Medic 65 was a half time unit, in service from 08:00-20:00 hours each day. Medic responses occurring after 20:00 would be covered by units outside the jurisdiction. In 2008, funding was secured to staff M65 the full twenty-four hours each day. Response times for advanced life support services in 2008 should be markedly improved from the 2007 statistical data.

Conclusion

The Northshore Fire Department Board of Commissioners and the Administration of the District are committed to continually evaluating the level of service it provides. The firefighters are very interested in improving response times as well; they understand the correlation between response times and their overall safety and effectiveness.

As mentioned in this report numerous steps are being taken to improve response times. A comprehensive analysis of the District's response times is currently underway. The goal of this research project is to identify further strategies to improve service. The District is also working with neighboring jurisdictions in an effort to identify collaborative approaches that could improve service.

Northshore Fire Department Response Statistics



TOTAL CALL VOLUME	
2007	3474
Previous Year (2006)	3536

INCIDENT TYPES	51	57	ALL
FIRE RESPONSES	61	50	111
Structure Fires	30	21	51
Vehicle Fires	5	6	11
Other Fires	26	23	49
EMS/RESCUE	1577	863	2651
HAZARDOUS CONDITION	36	36	75
SERVICE CALL	77	42	122
AUTOMATIC FIRE ALARMS	173	128	393
OTHER / GOOD INTENT	252	179	512
TOTAL CALLS	2176	1298	3474

RESPONSE BY STATION	51	57	ALL
EMS/RESCUE RESPONSES	1577	863	2440
FIRE/SERVICE CALL RESPONSES	599	435	1034
TOTAL	2176	1298	3474
AVERAGE / DAY	5.96	3.56	9.52

AUTOMATIC AID	Provided	Received
SHORELINE FD	349	188
BOTHELL FD	64	59
KIRKLAND FD	35	17
OTHER AGENCIES	14	3
TOTAL	482	267

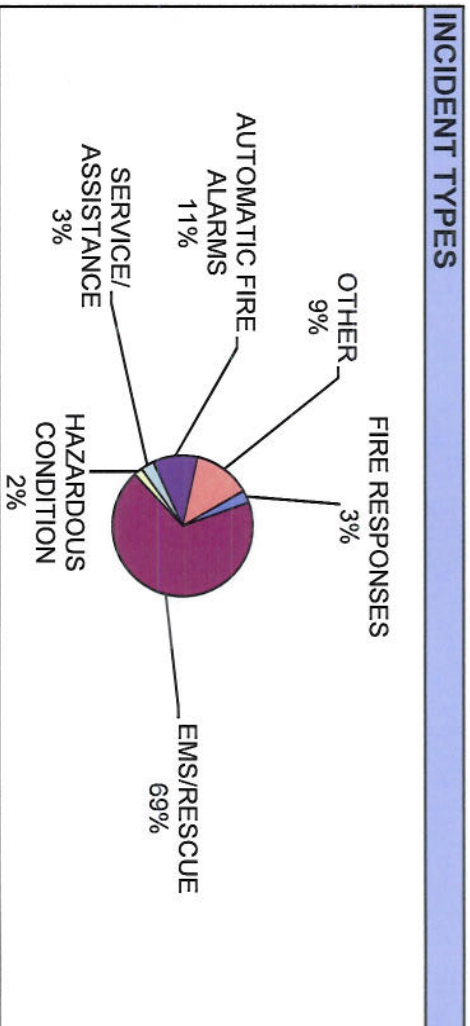
LOSS DUE TO FIRE	Occurrences	Loss
2007	23	\$897,600
2006	24	\$3,530,200

AVERAGE RESPONSE TIMES				
By Response Area	51S	51N	57	ALL
TURN OUT TIME	1:28	1:28	1:38	1:30
FIRE RESPONSE TIME	6:08	4:08	5:37	4:59
EMS RESPONSE TIME	5:56	3:49	5:44	4:53
FULL ALARM RESPONSE TIME	N/A			14:55

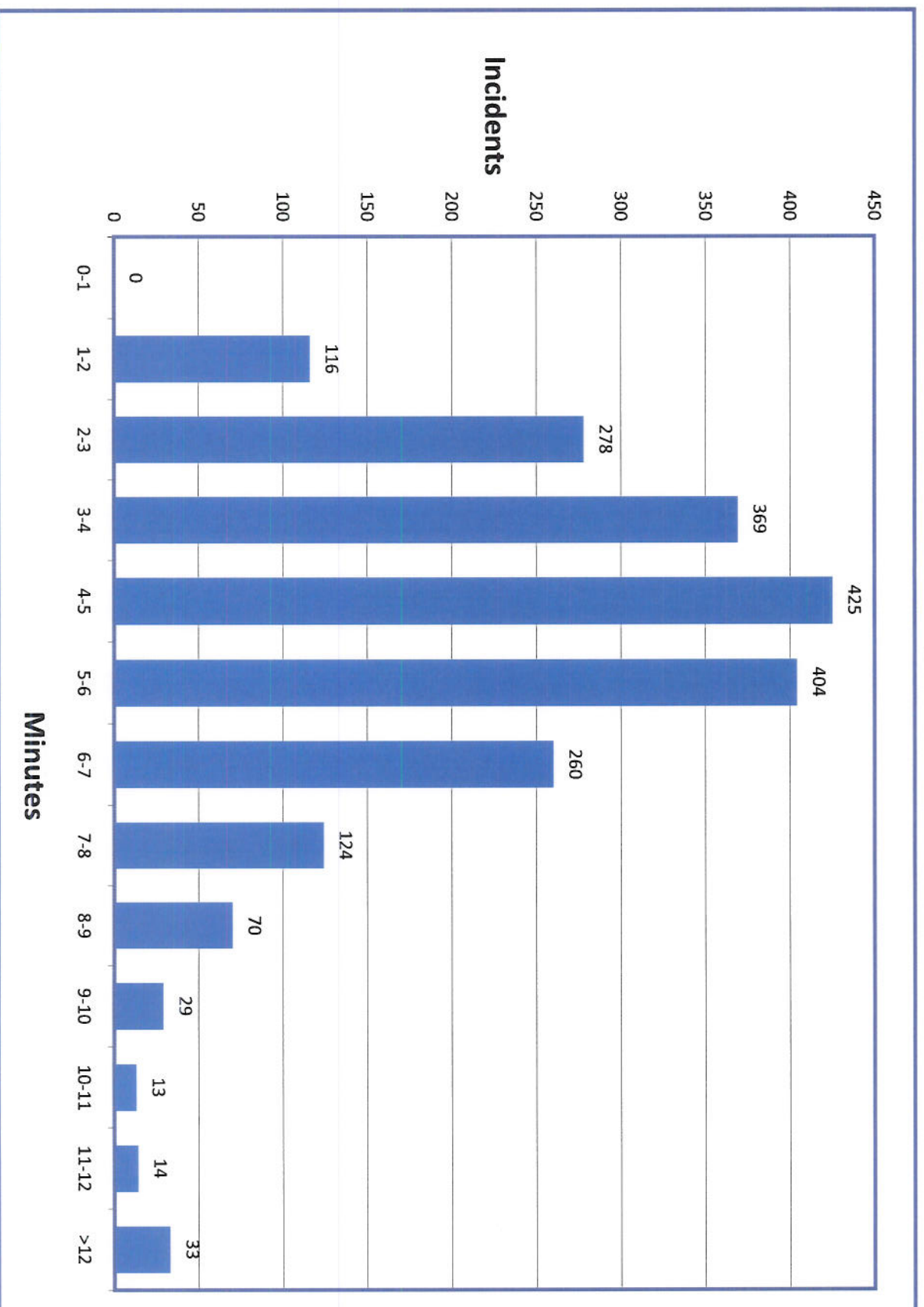
**2007
ANNUAL**

STANDARD of COVERAGE BENCHMARKS	COMPLIANCE
CALL PROCESSING TIME GOAL: 90% ≤ 1 Minute	81%
TURN OUT TIME GOAL: 90% ≤ 2 Minutes	82%
BLS RESPONSE TIME GOAL: 90% ≤ 6 Minutes	77%
FIRE RESPONSE TIME GOAL: 90% ≤ 6 Minutes	72%
FULL ALARM ASSIGNMENT GOAL: 90% ≤ 14 Minutes	57%
HAZMAT/RESCUE/SPECIAL OPS GOAL: 90% ≤ 6 Minutes	64%

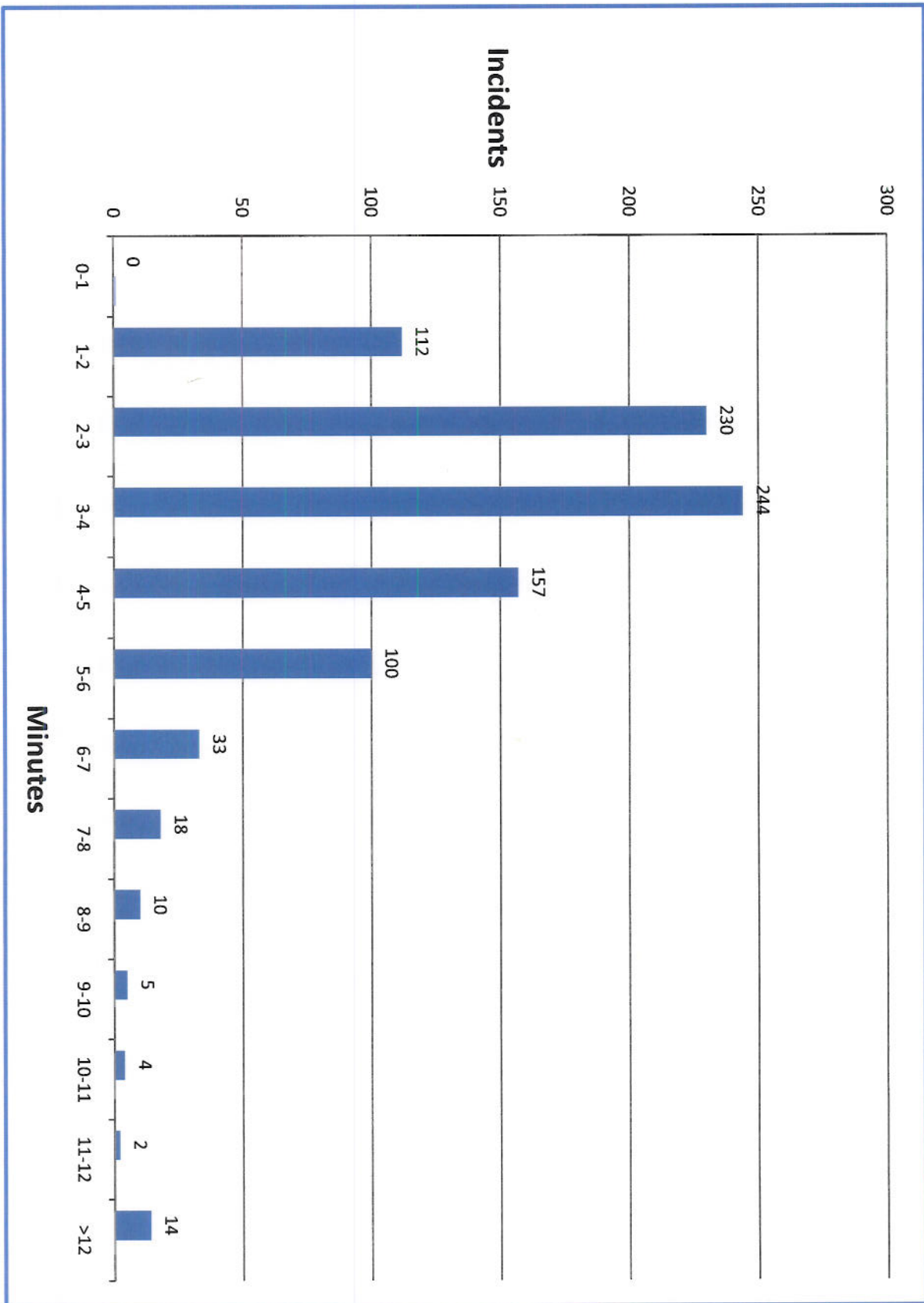
STANDARD of COVERAGE BENCHMARKS	COMPLIANCE		
By Response Area	51S	51N	57
BLS RESPONSE TIME GOAL: 90% ≤ 6 Minutes	62%	92%	65%
FIRE RESPONSE TIME GOAL: 90% ≤ 6 Minutes	50%	91%	58%



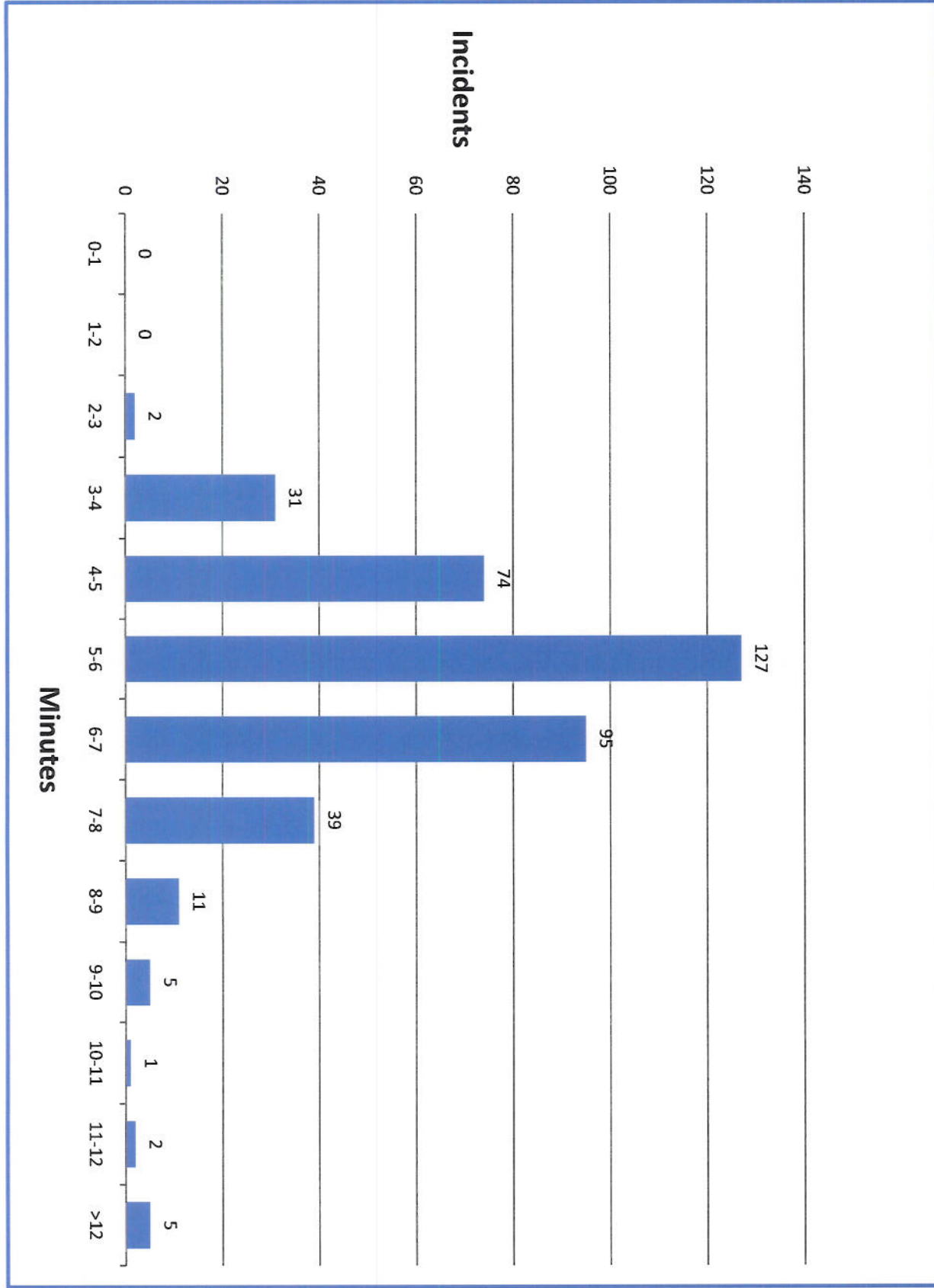
Fractal Response Times All Response Areas



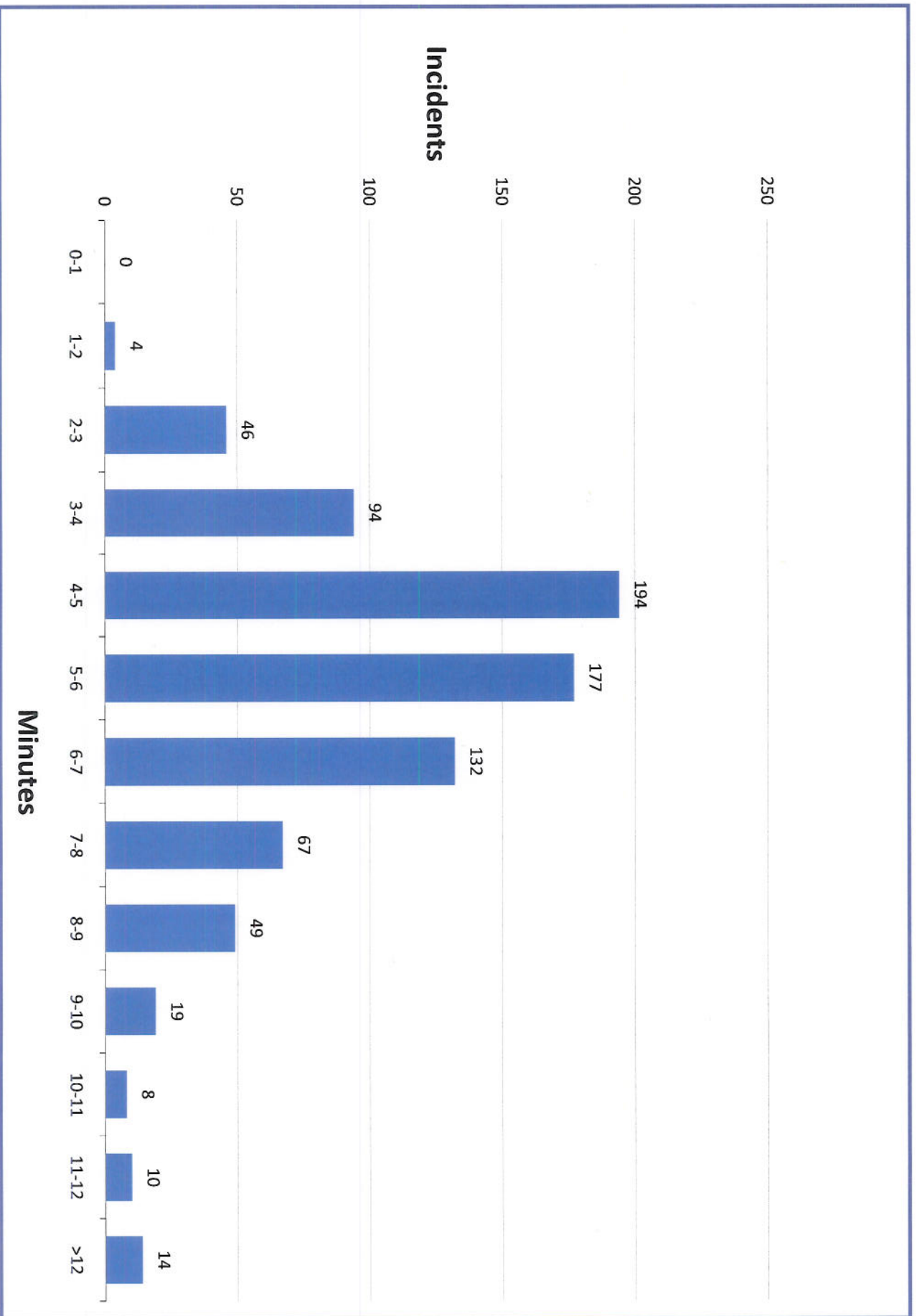
Fractal Response Times 51 North Response Area



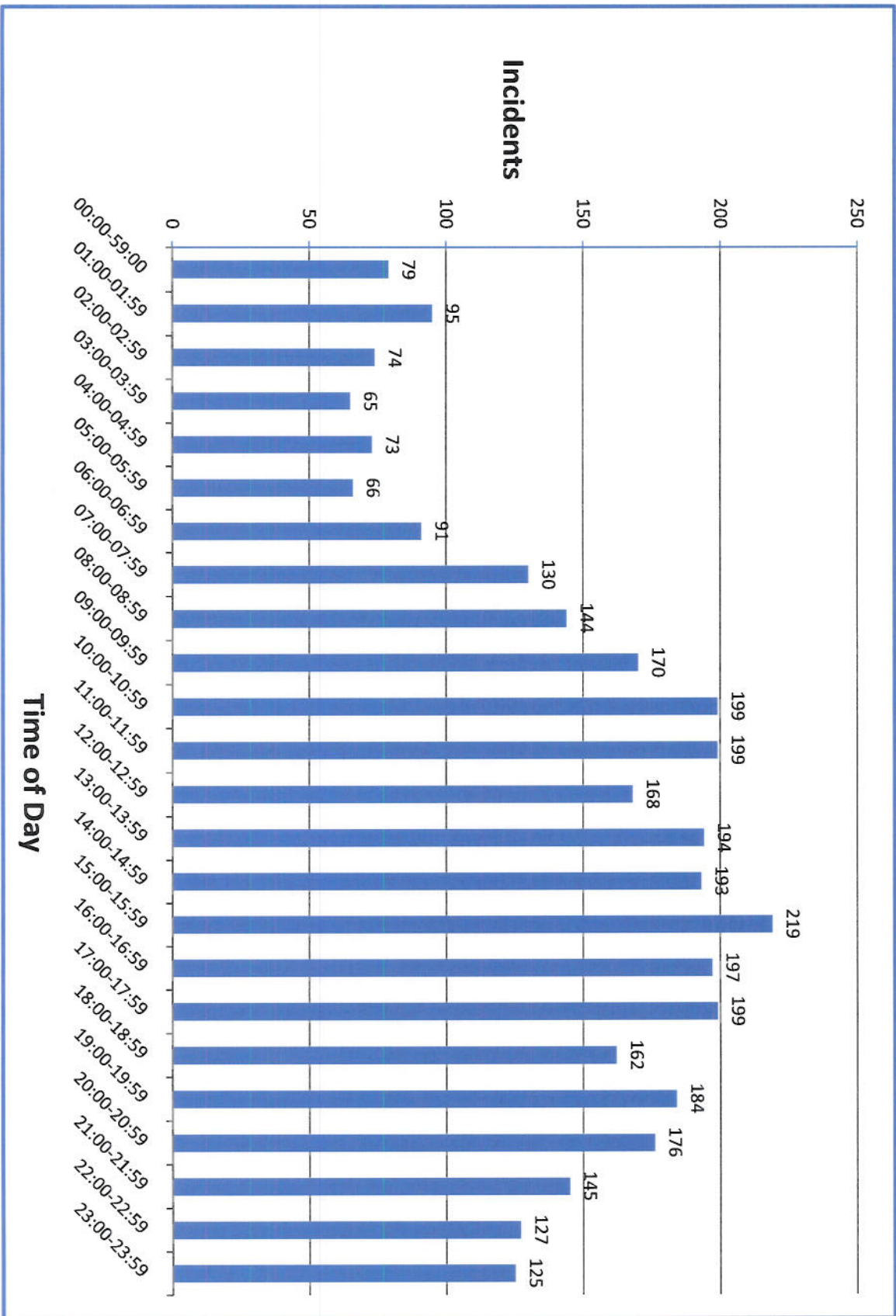
Fractal Response Times 51-South Response Area



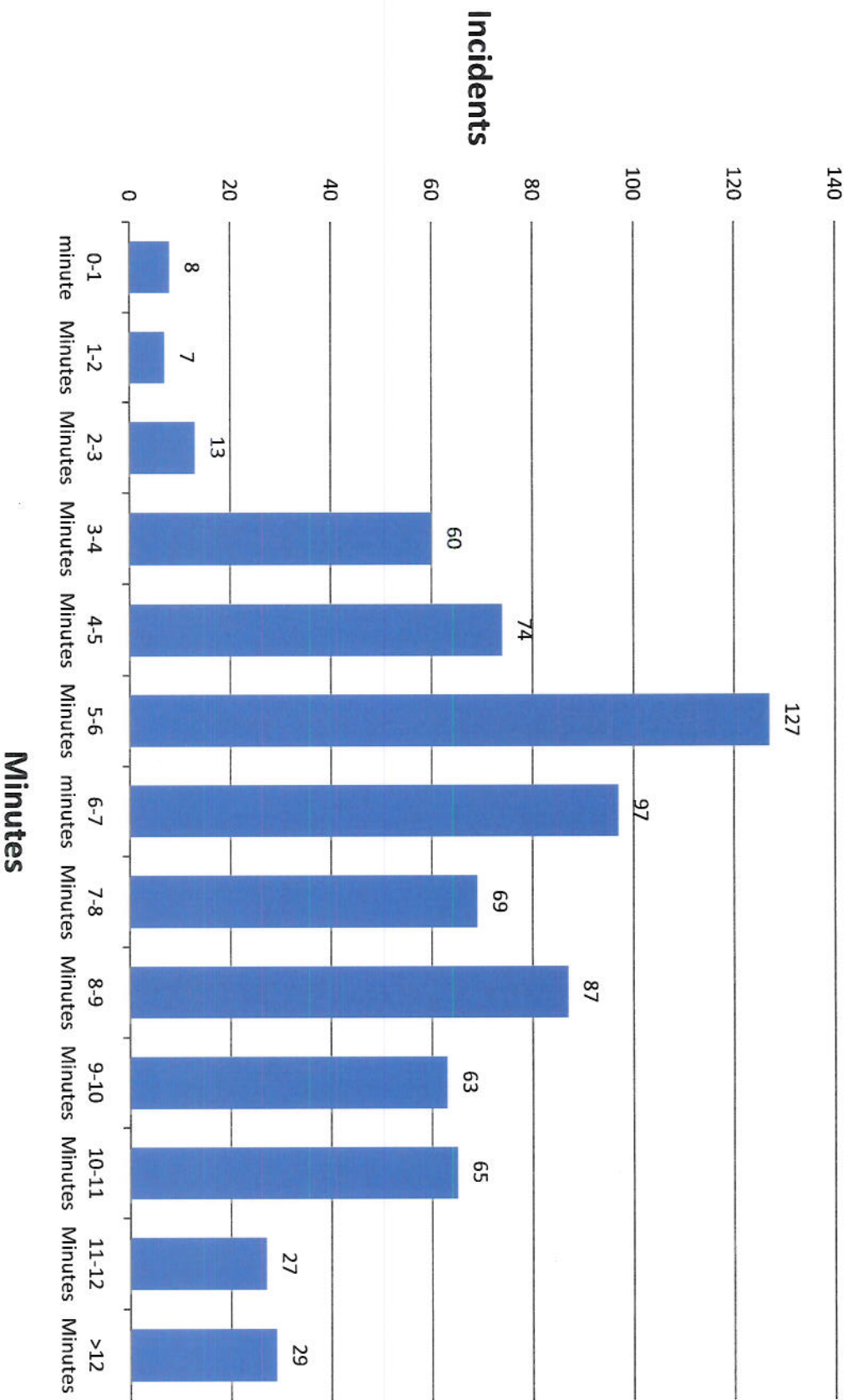
Fractal Response Times LFP/57 Response Area



Incident by Time of Day



Fractal Response Times ALS Medic Unit



Northshore Fire 4 Minute Service Areas & Incidents in 2007

