

Northshore Fire Department
King County Fire Protection District No.16

**Standard of Response
Coverage**



**2008
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 2008 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 at which 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. In 2008, the District employed the equivalent of 49.5 full time employees (FTE's). These employees were 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 2008, the Northshore Fire Department employed forty-nine and a half (49.5) full time employees (FTE). The total numbers by their assigned areas of responsibility were as follows:

Two (2) Chief Officers

Two and a half (2.5) Administrative Assistants

Forty (40) Career Firefighters

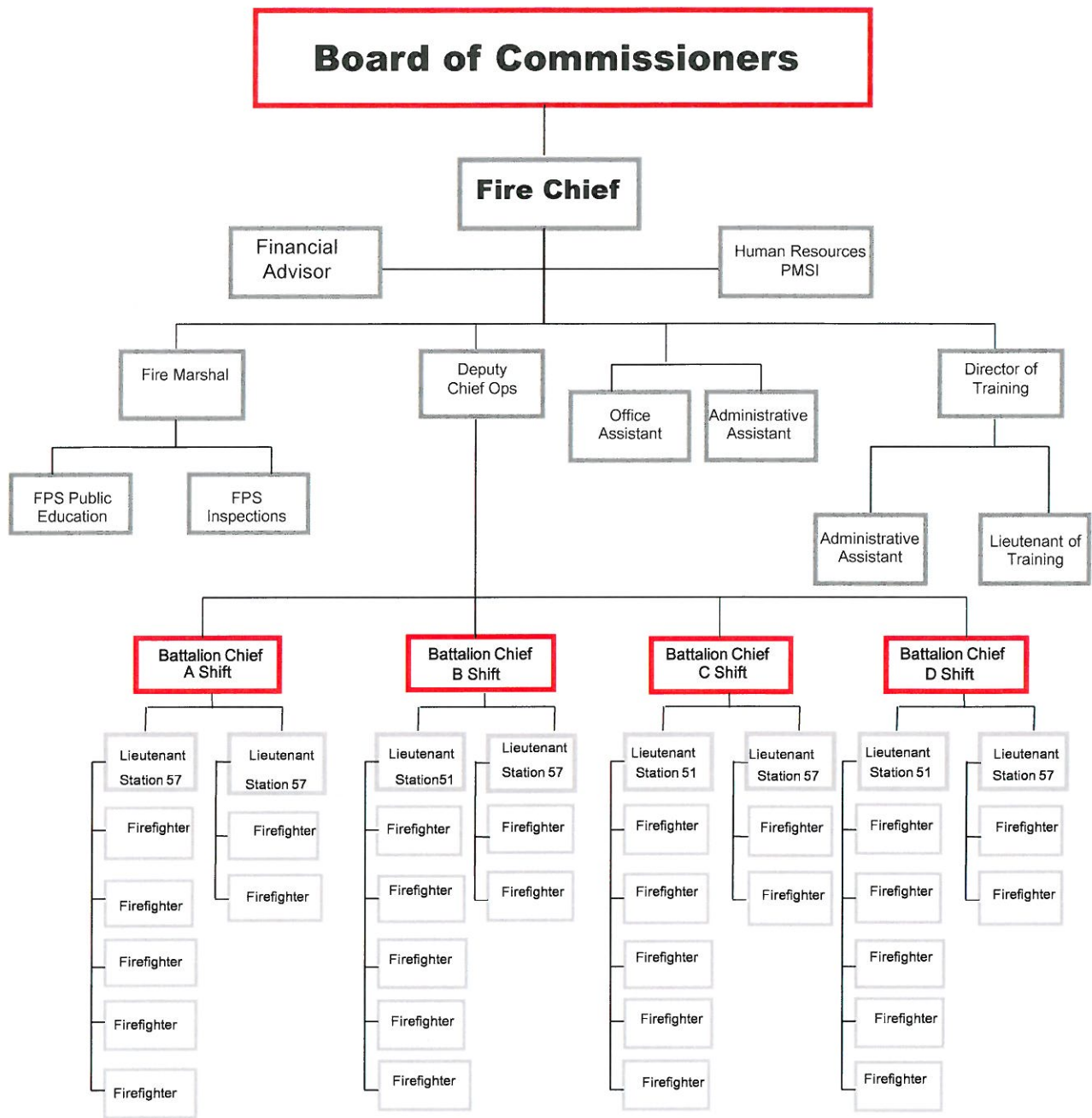
Two (2) Training Officers

Three (3) Fire Prevention Staff

Total 2008 staffing consisted of 49.5 FTEs

The staffing listed above reflects a reorganization of the administrative staff in the area of Finance and Human Resources that occurred in early 2008. Portions 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 did not have a substantial effect on response time performance.

The chart on the following page reflects the 2008 organizational structure.



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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 2008: The Northshore Fire Department met the turnout time objective eighty three percent (83%) 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 2008: The Northshore Fire Department met the first arriving engine response time objective sixty-seven percent (67%) 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 2008: The Northshore Fire Department met the Full Alarm Assignment response time objective twenty-eight percent (28%) 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 2008: The Northshore Fire Department met the first arriving BLS unit response time objective seventy-four percent (74%) 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 2008: The Northshore Fire Department met the first arriving response time objective fifty-six percent (56%) 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 mid-year 2009 will reduce the alerting time for responders who are not in quarters.

The department has purchased 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 improve the analysis process.

In addition to the utilization of new technologies, the District has modified its staffing matrix for apparatus. This new staffing matrix is designed to decrease turnout time by reducing the number of times personnel have to jump from one apparatus to another. The District continues to internally publish turnout time results for each shift by station in an effort to raise awareness of turnout time performance. Publishing the results and

an increased focus on improving turnout times should continue to have a positive impact on performance.

A decrease in turnout time will improve the overall compliance percentage for response times for both EMS and Suppression incidents. The objective for turnout time was established at two (2) minutes. This objective was not met in 2007 or 2008; however, there was a slight improvement in turnout time during 2008. The aforementioned improvements should continue to facilitate improvement in performance and potentially make possible an adjustment to the established objective. 2009 data should bear the results of the technological and cultural changes made in prior years.

Travel Time

Travel time is the duration of time from the point responders initiate a response (wheels rolling) until they arrive on scene. Except for adding fire stations or increasing the number of staffed apparatus the fire department is limited in its ability to impact travel time. This is due to the fact that travel time is directly related to the distance apparatus is required to travel to the scene of an incident. Several other factors can impact travel time such as: topography, traffic, traffic calming devices, road construction, weather and road conditions, access to response destination and the out of service status of a first-due apparatus that necessitates a response from a more distant unit.

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 aspects of the jurisdiction have a significant impact on apparatus travel time.

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.

In 2008 a major roadway reconstruction project was initiated in the Kenmore area. This project has adversely affected the travel time of emergency apparatus. Unfortunately, the routes impacted by this construction are those that are used to access service areas that have greater travel distances from District fire stations. It is anticipated that the construction and corresponding delays in response times will continue through the entire year of 2009.

With the turnout time objective established at two (2) minutes and an overall response time objective of six (6) minutes, apparatus must be able to travel the distance to the scene of an incident in four (4) minutes or less to meet the established standard. The map provided in Appendix 'E' provides an illustration of the projected distance

apparatus are capable of traveling in four (4) minutes. The map also provides a visual distribution of the incidents that occurred in 2008.

Response Time

Response time referenced in this report is the combined measurement of time from the point 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 data revealed the District met its response time objectives seventy-three percent (73%) of the time for emergency responses. The distribution of all 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 fully staffed apparatus at Station 51 with 62% of the total call volume being serviced by this station. The total number of responses that exceeded the established objectives was 692. The response time for 318 of these 692 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 to reduce response times.

The emergency responses in 2008 that fell outside of the established threshold were equally distributed between Kenmore and Lake Forest Park. For evaluation purposes each response area (Kenmore North, Kenmore South and Lake Forest Park) was examined. 344 responses in Kenmore exceeded the response time goal, 220 occurred south of the river and 124 occurred north of the river. Isolating these areas and comparing response data to the six (6) minute objective indicated a fifty-three percent (53%) compliance rate for the area south of the river and eighty-nine percent (89%) compliance for the area north of the river. The primary reason for non-compliance of the established response time goals in the Kenmore South area is directly related to the travel distance. Discussions with Kirkland Fire Department are under way to implement a closest unit agreement between the two agencies. Unfortunately, Kirkland Fire Department has similar difficulties with response times on their side of the boundary. This area is remote from staffed fire stations and generates a small number of responses. The recent economic downturn has forced Kirkland Fire to eliminate daytime staffing at Station 24 which will reduce the effectiveness of a closest unit agreement. However, such an agreement could still reduce the number of non-compliant responses in the far southern portion of the District since Kirkland's Station 25 is slightly closer than Station 51.

In 2008, 348 emergency responses in Lake Forest Park exceeded 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. 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.

Being a small jurisdiction, the District is reliant on automatic aid in the event of larger incidents, as are most of the neighboring jurisdictions. Apparatus traveling from neighboring jurisdictions are affected by the same limitations of the roadway infrastructure as are the first due local units. Lack of familiarity may compound these limitations adversely affecting travel time for outside agencies. In 2008 there were seven (7) incidents where a full alarm assignment was dispatched and arrived on scene. The response time objective was met for two (2) of these incidents. Two of the incidents where the response time objective was not met occurred during severe inclement weather which added to the time required to travel to the scene. Another of the non-compliant incidents occurred at a point when District apparatus was attached to other incidents. The relatively small sample set used for this comparison should be taken into account when analyzing this performance measure.

Responses to Hazardous Material and Technical Rescue incidents are very rare. These incidents require responders to jump to Rescue 51 from other apparatus for the response. Turnout time is greatly affected when responders have to jump to a different apparatus. The District has set a six (6) minute response time standard for these types of incidents. Compliance to the established goal for these types of incidents was fifty-three percent (53%). An evaluation of the established objective for these types of incidents should be conducted to determine if this benchmark 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.

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 2008, Eastside Communications complied with their established objective 82% 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 2008, Shoreline Fire Department responded to 669 medic responses within the jurisdiction. The response time objective established by Shoreline was met 92% of the time for these incidents. It is important to note that the benchmark established for ALS response time by the Shoreline Fire Department is two (2) minutes greater in comparison to the benchmarks set by Northshore for Fire Suppression and BLS response when compared to national standards. Analyzing the ALS response time using consistent criteria with other benchmarks, the ALS response time compliance was seventy-nine percent (79%) when a nine (9) minute benchmark was used.

In 2007, Medic 65 was a half time unit, in service between 08:00-20:00 hours each day. Medic responses occurring after 20:00 were serviced by units outside of 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 have been markedly improved from the 2007 results; however the statistical data has not supported this assumption.

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. 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	
2008	3248
Previous Year (2007)	3474

INCIDENT TYPES	51	57	ALL
FIRE RESPONSES	70	39	109
Structure Fires	21	13	34
Vehicle Fires	8	1	9
Other Fires	33	22	55
EMS/RESCUE	1498	887	2596
HAZARDOUS CONDITION	41	37	81
SERVICE CALL	81	48	132
GOOD INTENT/OTHER	180	130	402
FALSE CALL	146	91	318
TOTAL CALLS	2016	1232	3248

RESPONSE BY STATION	51	57	ALL
EMS/RESCUE RESPONSES	1498	887	2385
FIRE/SERVICE CALL RESPONSES	518	345	863
TOTAL	2016	1232	3248
AVERAGE / DAY	5.52	3.38	8.90

AUTOMATIC AID	Provided	Received
SHORELINE FD	292	166
BOTHELL FD	47	29
KIRKLAND FD	29	14
OTHER AGENCIES	8	3
TOTAL	376	212

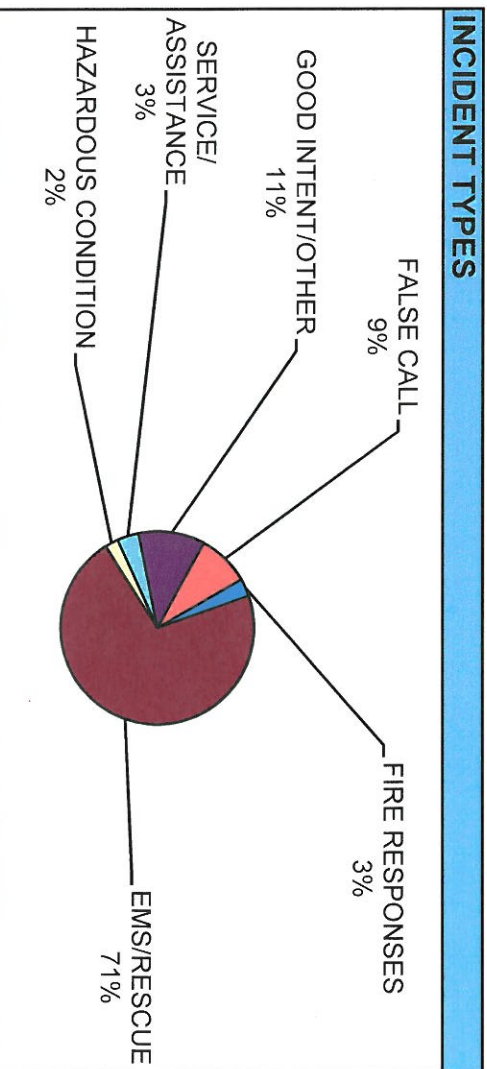
LOSS DUE TO FIRE	Occurrences	Loss
2008	57	\$3,187,295
2007	23	\$897,600

AVERAGE RESPONSE TIMES				
By Response Area	51S	51N	57	ALL
TURN OUT TIME	1:23	1:23	1:35	1:26
FIRE RESPONSE TIME	6:29	4:26	5:19	5:10
EMS RESPONSE TIME	5:47	3:36	5:32	4:41
FULL ALARM RESPONSE TIME	N/A	N/A	N/A	16:45

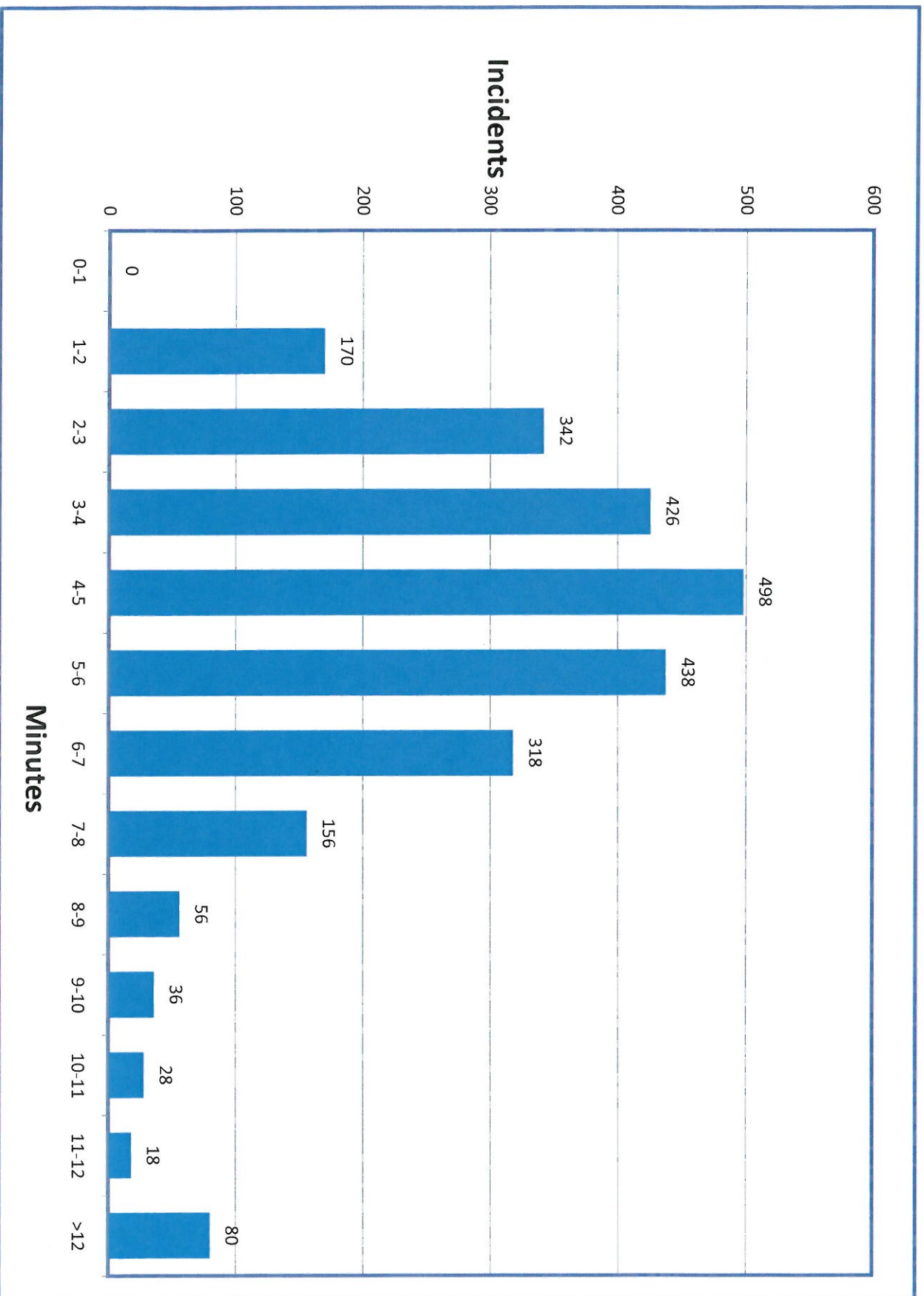
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STANDARD OF COVERAGE BENCHMARKS	COMPLIANCE
CALL PROCESSING TIME GOAL: 90% ≤ 1 Minute	82%
TURN OUT TIME GOAL: 90% ≤ 2 Minutes	83%
BLS RESPONSE TIME GOAL: 90% ≤ 6 Minutes	74%
FIRE RESPONSE TIME GOAL: 90% ≤ 6 Minutes	67%
FULL ALARM ASSIGNMENT GOAL: 90% ≤ 14 Minutes	28%
HAZMAT/RESCUE/SPECIAL OPS GOAL: 90% ≤ 6 Minutes	56%

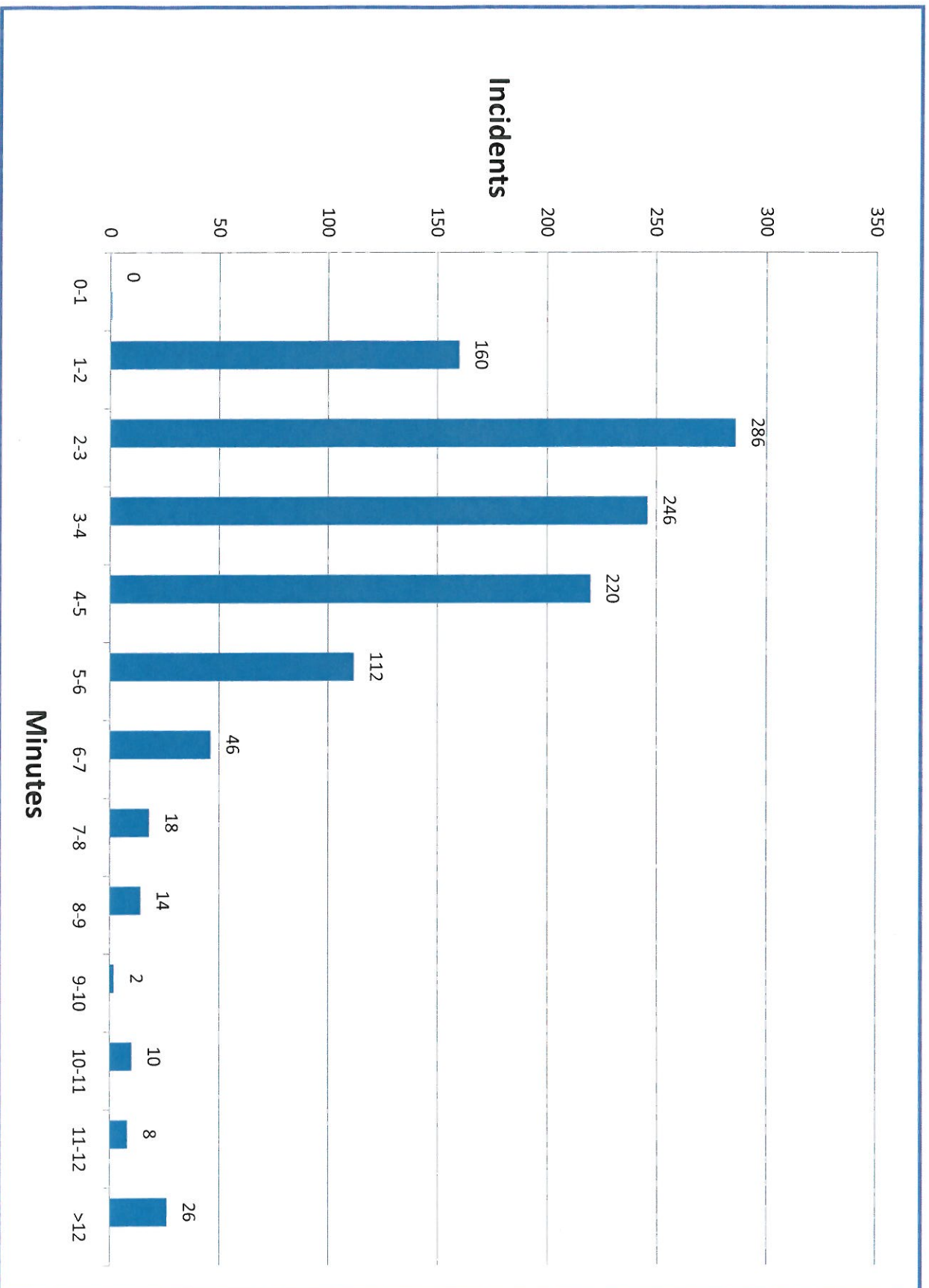
STANDARD OF COVERAGE BENCHMARKS	COMPLIANCE		
By Response Area	51S	51N	57
BLS RESPONSE TIME GOAL: 90% ≤ 6 Minutes	65%	89%	63%
FIRE RESPONSE TIME GOAL: 90% ≤ 6 Minutes	31%	88%	65%



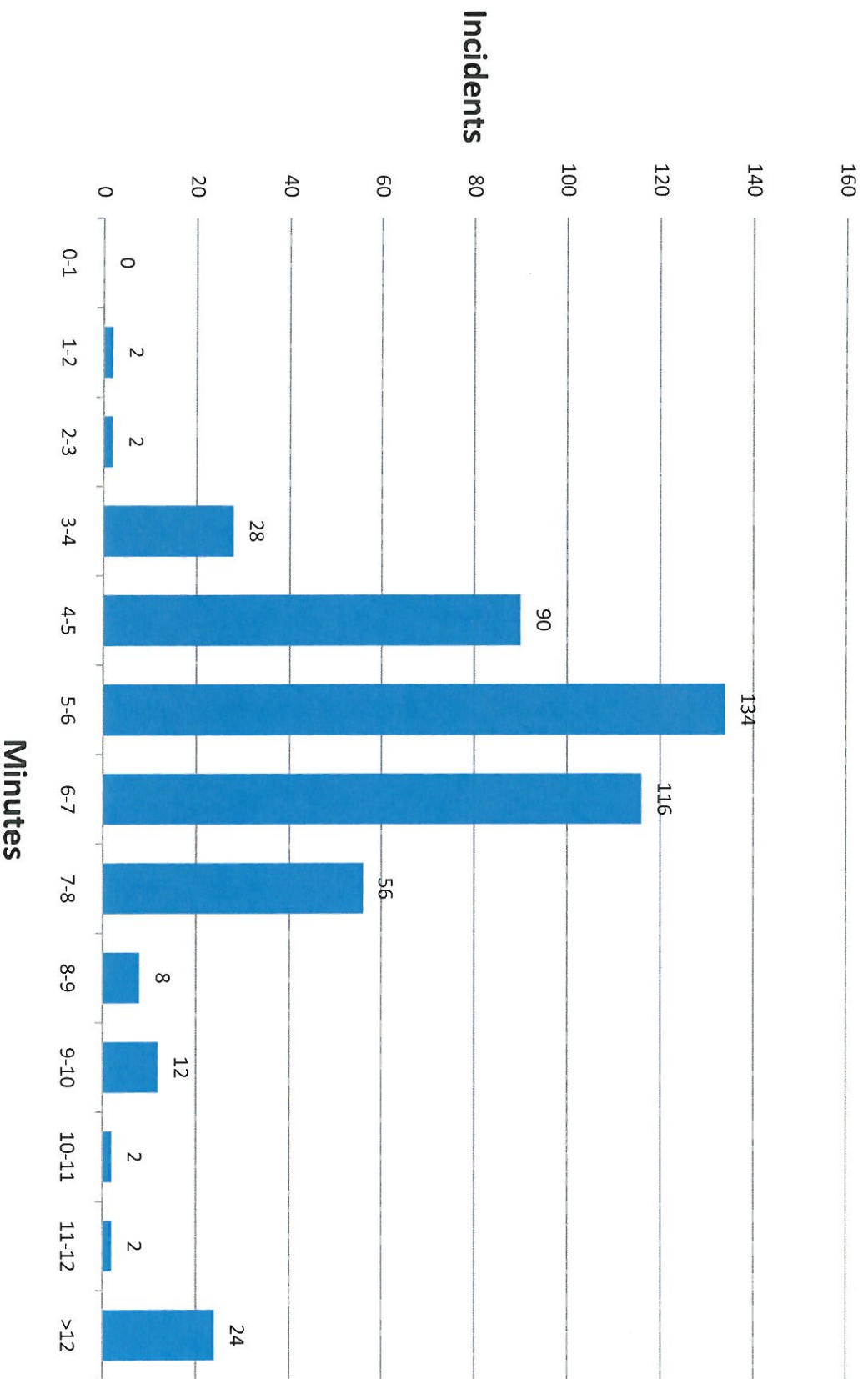
Fractal Response Times All Response Areas



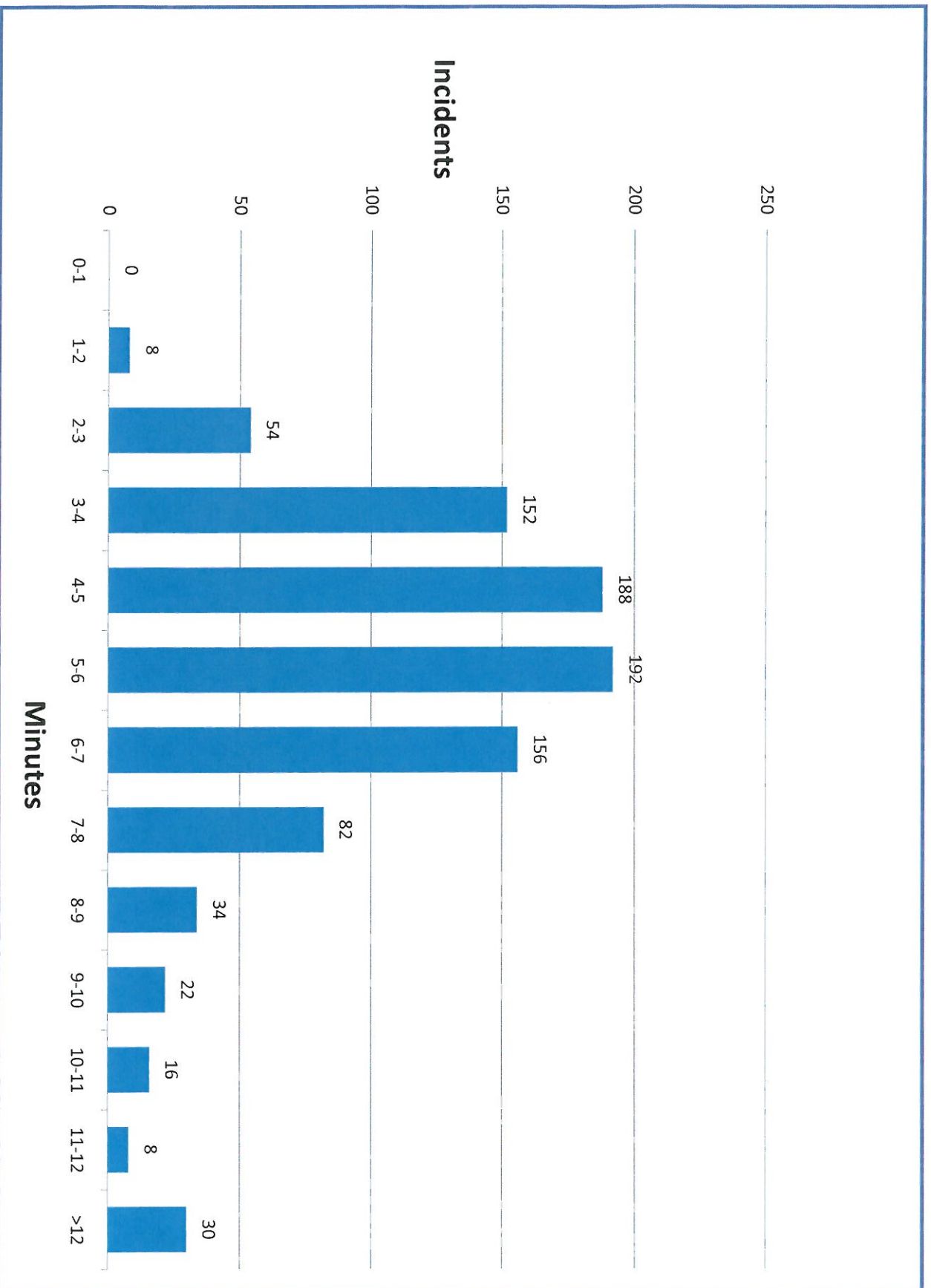
Fractal Response Times 51 North Response Area



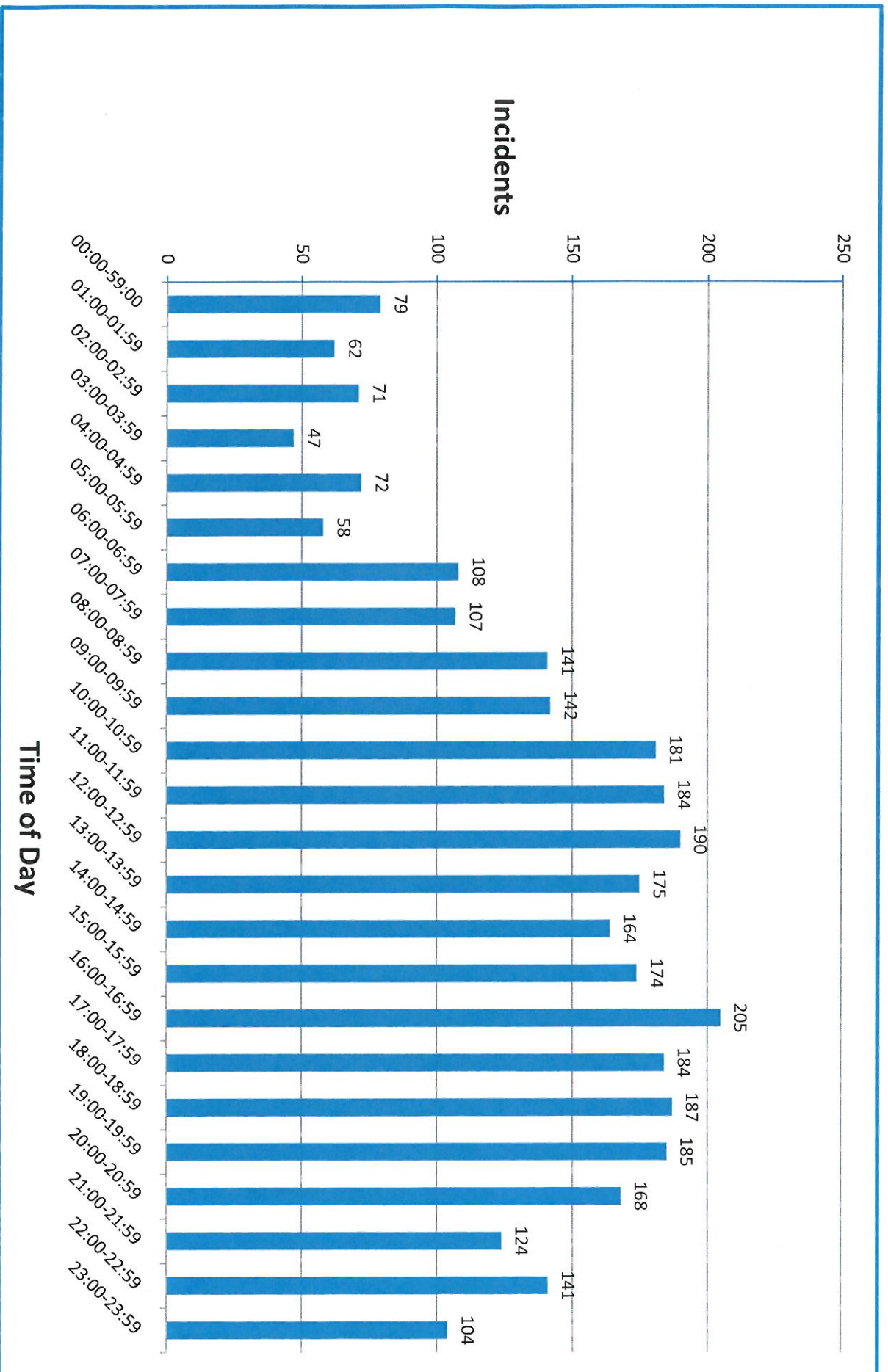
Fractal Response Times 51 South Response Area



Fractal Response Times LFP/57 Response Area



Incident by Time of Day



Fractal Response Times Advanced Life Support

