

LAKE STEVENS FIRE DEPARTMENT
ANNUAL REPORT
2010



In accordance with RCW 52.33 the Lake Stevens Fire Department submits this report for the citizens of the Lake Stevens Fire Department.

Purpose:

The Lake Stevens Fire Department shall evaluate its level of service and deployment delivery and response time objectives on an annual basis. The evaluations are based on data relating to level of service, deployment, and the achievement of each response time objective in each geographic area within the Lake Stevens Fire Department. This report includes:

1. Geographic areas and circumstances in which the requirements of the standard are not being met.
2. Explains predictable consequences or any deficiencies and addresses the steps that are necessary to achieve compliance.

Supporting Documentation:

Appendix A: Lake Stevens Fire Resolution No 2006-12-28-01.

- Resolution of the board of fire commissioners for Lake Stevens Fire declaring an established fire department, listing the services provided by the department, describing the organizational structure and the number of employees and volunteers, and adopting standards for service.

Appendix B : Lake Stevens Fire – Standard of Response Coverage

LAKE STEVENS FIRE
RESPONSE TIME OBJECTIVES - EVALUATION
2010
Suburban Response Area

1) Turnout Time

Turnout Time Objective:

The Lake Stevens Fire Department has adopted a turnout time objective of 60 seconds, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the turnout time objective 17% of the time. 90% of the fire department incidents experienced a turnout time of 166 Seconds.

2) Initial Response Unit at a Single Engine Response

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Single Engine Response, which the department should meet 90% of the time..

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 49% of the time. 90% of single engine responses had the first unit arrive at the scene within 6 minutes: 58 seconds of response time

3) Arrival of 1st Arriving Unit at a Residential Structure Fire.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving unit with appropriately trained personnel on board which can begin mitigation of a Residential Structure Fire, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 53% of the time. 90% of residential structure fire incidents had the 1st unit arrive at the scene within 6 minutes: 38 seconds of response time.

4) **Deployment of Full First Alarm Assignment at a Residential Structure Fire.**

Response Time Objective for Full 1st Alarm Response:

The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the full complement of a 1st alarm response to a Residential Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 2 engine companies, 1 aid unit, and 1 medic unit.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the full deployment response time objective 73% of the time. 90% of residential structure fire incidents had the full deployment of 1st alarm responding personnel and equipment arrive at the scene within 10 minutes: 00 seconds of response time.

5) **Initial Response Unit at a Commercial Structure Fire**

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving unit with appropriately trained personnel on board which can begin mitigation of a Commercial Structure Fire, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 75% of the time. 90% of commercial structure fire incidents had the 1st unit arrive at the scene within 4 minutes: 06 seconds of response time.

6) Deployment of Full First Alarm Assignment at a Commercial Structure Fire.

Response Time Objective for Full 1st Alarm Response:

The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the full complement of a 1st alarm response to a Commercial Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 3 engine companies, 1 rescue unit, 1 aid unit, and 1 medic unit.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the full deployment response time objective 75% of the time. 90% of commercial structure fire incidents had the full deployment of 1st alarm responding personnel and equipment arrive at the scene within 9 minutes: 00 seconds of response time.

7) Initial Response Unit at a Brush Fire Incident

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Brush Fire Incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 33% of the time. 90% of Brush Fire responses had the first unit arrive at the scene within 5 minutes: 54 seconds of response time.

8) Deployment of Full First Alarm Assignment at a Brush Fire Incident.

Response Time Objective for Full 1st Alarm Response:

The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the full complement of a 1st alarm response to a brush fire incident, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 1 engine company, 1 brush truck, and 1 aid unit.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the full deployment response time objective 100% of the time. 90% of brush fire incidents had the full deployment

of 1st alarm responding personnel and equipment arrive at the scene within 5 minutes: 54 seconds of response time.

9) Arrival of First Responder of Higher Level Capability at an Emergency Medical Incident.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the arrival of the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of an emergency medical incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 64% of the time. 90% of emergency medical incidents had the 1st unit arrive at the scene within 6 minutes: 15 seconds of response time.

10) Arrival of Advanced Life Support Unit at an Emergency Medical Incident (where ALS is required).

Response Time Objective:

Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of an advanced life support unit with appropriately trained personnel (paramedics) which can begin mitigation of an ALS emergency medical incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 97% of the time. 90% of emergency medical incidents had the Advance Life Support unit arrive at the scene within 6 minutes: 19 seconds of response time.

11) Arrival of Hazardous Materials Trained and Equipped Technicians.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of fifteen (15) minutes for the arrival of the first unit with appropriately trained and equipped Hazardous Materials Technicians on board which can begin mitigation of a hazardous materials incident, which the department should meet 90% of the time. The Lake Stevens Fire Department does not currently provide this level of service and relies on mutual aid.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

12) Arrival of Technical Rescue Trained and Equipped Technicians.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel objective of six (6) minutes for the arrival of the first unit with appropriately trained and equipped Technical Rescue Technicians on board which can begin mitigation of a technical rescue incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

13) Arrival of Marine Rescue and Firefighting Trained and Equipped Personnel.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the first unit with appropriately trained and equipped Marine Rescue and Firefighting personnel on board which can begin mitigation of a marine incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

Lake Stevens Fire Department met the response time objective 100% of the time. 90% of marine rescue of firefighting incidents had trained and equipped Marine Rescue and Firefighting personnel arrive at the scene within 4 minutes: 52 seconds of response time.

LAKE STEVENS FIRE
RESPONSE TIME OBJECTIVES - EVALUATION
2010
Rural Response Area

1) Turnout Time.

Turnout Time Objective:

The Lake Stevens Fire Department has adopted a turnout time objective of 60 seconds, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the turnout time objective 17% of the time. 90% of the fire department incidents experienced a turnout time of 179 Seconds.

2) Initial Response Unit at a Single Engine Response

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Single Engine Response, which the department should meet 90% of the time..

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 30% of the time. 90% of single engine responses had the first unit arrive at the scene within 8 minutes: 23 seconds of response time

3) Arrival of 1st Arriving Unit at a Residential Structure Fire.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving unit with appropriately trained personnel on board which can begin mitigation of a Residential Structure Fire, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 50% of the time. 90% of residential structure fire incidents had the 1st unit arrive at the scene within 6 minutes: 24 seconds of response time.

4) Deployment of Full First Alarm Assignment at a Residential Structure Fire.

Response Time Objective for Full 1st Alarm Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the full complement of a 1st alarm response to a Residential Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 2 engine companies, 1 aid unit, and 1 medic unit.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the full deployment response time objective 100% of the time. 90% of residential structure fire incidents had the full deployment of 1st alarm responding personnel and equipment arrive at the scene within 8 minutes: 00 seconds of response time.

5) Initial Response Unit at a Commercial Structure Fire

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving unit with appropriately trained personnel on board which can begin mitigation of a Commercial Structure Fire, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

6) *Deployment of Full First Alarm Assignment at a Commercial Structure Fire.

Response Time Objective for Full 1st Alarm Response:

The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the full complement of a 1st alarm response to a Commercial Structure Fire, which the department should meet 90% of the

time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 3 engine companies, 1 rescue unit, 1 aid unit, and 1 medic unit.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

7) Initial Response Unit at a Brush Fire Incident

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Brush Fire Incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

8) Deployment of Full First Alarm Assignment at a Brush Fire Incident.

Response Time Objective for Full 1st Alarm Response:

The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the full complement of a 1st alarm response to a brush fire incident, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 1 engine company, 1 brush truck, and 1 aid unit.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

9) Arrival of First Responder of Higher Level Capability at an Emergency Medical Incident.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the arrival of the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of an emergency medical incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 35% of the time. 90% of emergency medical incidents had the 1st unit arrive at the scene within 12 minutes: 19 seconds of response time.

10) Arrival of Advanced Life Support Unit at an Emergency Medical Incident (where ALS is required).

Response Time Objective:

Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of an advanced life support unit with appropriately trained personnel (paramedics) which can begin mitigation of an ALS emergency medical incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

The Lake Stevens Fire Department met the response time objective 52% of the time. 90% of emergency medical incidents had the Advance Life Support unit arrive at the scene within 9 minutes: 54 seconds of response time.

11) Arrival of Hazardous Materials Trained and Equipped Technicians.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of seventeen (17) minutes for the arrival of the first unit with appropriately trained and equipped Hazardous Materials Technicians on board which can begin mitigation of a hazardous materials incident, which the department should meet 90% of the time. The Lake Stevens Fire Department does not currently provide this level of service and relies on mutual aid

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

12) Arrival of Technical Rescue Trained and Equipped Technicians.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel objective of eight (8) minutes for the arrival of the first unit with appropriately trained and equipped Technical Rescue Technicians on board which can begin mitigation of a technical rescue incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

13) Arrival of Marine Rescue and Firefighting Trained and Equipped Personnel.

Response Time Objective:

The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the first unit with appropriately trained and equipped Marine Rescue and Firefighting personnel on board which can begin mitigation of a marine incident, which the department should meet 90% of the time.

Actual Department Comparison for the Year 2010:

No reportable calls for 2010

Predictable consequences: The most vital consequences are base on the scientific data identified in NFPA 1710.

1. Increased frequency of brain death in patients who require defibrillation to treat cardiopulmonary arrest that presents with ventricular fibrillation.
2. Increased property loss in structural fires that have reached or exceeded the flashover phase of fire growth.

Necessary steps to achieve compliance:

1. **Improve Data Collection:** Current practices for data collection are achieved through the use of multiple fire department personnel manually entering call information into the RMS program. Below are some possible solutions.
 - Develop policy for data entry.
 - Provide formal initial and refresher training for all department personnel.
 - Hire one individual to input all data into the departments RMS system.
 - Develop a QA program.
 - Eliminate the use of soft data.
 - Outfit all department emergency vehicles with MDC's
2. **Evaluate Resource Distribution:** Because driving distance between the fire station and the call location is limited by safe driving speeds, topography and traffic flows. Current fire station locations must be evaluated based not only on current call volumes but also projected call volumes. The data used for this report is inadequate to make such a determination. Below are recommendations for further evaluation.
 - Evaluation of call density as it relates to each grid of the department over the past 3 years.
 - Evaluation of response times to each grid in the department over the past 3 years
 - Project the impact that future growth will have to the department as it relates to call density.
 - Complete a simulated response model for each grid.
 - Determine if the current first due station response areas are the most effective.
 - Feasibility study of future fixed sites. To include predictable benefits and cost.
3. **Evaluate Resource Concentration:** the amount of resources stationed at a fixed site. The data used for this report is inadequate to make such a determination. Below are recommendations for further evaluation.
 - Complete a task analysis for each of the major services provided by the department (Fire, EMS and Rescue).
 - Evaluation of resources outside each stations first due area as it related to the task analysis and response time from each location.
 - Determine risk/benefit of allocating resource amounts and types at a fixed site to begin mitigation vs. the capability o completely mitigate an emergency.

4. **Evaluate Resource Reliability:** Direct impact on the availability of a resource or resources at its assigned fixed site to respond to alarms in their first due area and to areas that depend on their resources to complete a full alarm assignment when needed. The data used for this report is inadequate to make such a determination. Below are recommendations for further evaluation.
- Evaluate out of service times for each resource.
 - Identify and evaluate the causes that contribute to a resource being away from its assigned fixed site.
 - Eliminate or minimize unnecessary out of service times.

Appendix A

Lake Stevens Fire Resolution No 2006-12-28-01

**LAKE STEVENS FIRE
RESOLUTION NO. 2006-12-28-01**

**A RESOLUTION OF THE BOARD OF FIRE COMMISSIONERS FOR LAKE STEVENS FIRE,
DECLARING AN ESTABLISHED FIRE DEPARTMENT, LISTING THE SERVICES
PROVIDED BY THE DEPARTMENT, DESCRIBING THE ORGANIZATIONAL
STRUCTURE AND THE NUMBER OF EMPLOYEES AND VOLUNTEERS, AND ADOPTING
STANDARDS FOR SERVICE.**

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 first prepared in 2007, 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:

Section 1 Since Lake Stevens Fire was formed in 1947 as an all volunteer fire department 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 municipal services provided by the district and the department, in accordance with the mission and statutes that govern fire protection districts and fire departments, are as follows:

- Fire suppression;
- Emergency Medical Services (EMS) (BLS & ALS services)
- Hazardous Materials Response-Operations;
- Technical Rescue/Special Operations;
- Wildland Fire Fighting
- Fire Prevention/Public Education
- Participation in Local Emergency Management
- Chaplains program

Note: Lake Stevens Fire does not have an airport within the jurisdiction, therefore there are no standards developed for aircraft rescue and firefighting.

Note: Lake Stevens Fire does not have navigable waterways or ports that require Marine Firefighting capabilities, therefore there are no standards developed for Marine firefighting.

**LAKE STEVENS
FIRE**

Phone: (425) 334-3034
Fax: (425) 334-6981
www.lakestevensfire.org

"Touching Lives Today ~ Planning for Tomorrow"

Fire Commissioners:
Troy Elmore, Dan Loranzen, Michael J. Peters
Fire Chief Gary L. Faucett

9811 Chapel Hill Road
Lake Stevens, WA 98258

Section 3 The organizational structure of the fire department is best illustrated by reference to the attached organizational chart for the department, which is incorporated herein by reference. However, the organization is generally described as governed overall by the elected policy-making and governing body – the Board of Fire Commissioners – whose policies are implemented and managed on a day-to-day basis by the appointed Fire Chief. Various fire service Officers, Firefighters, Emergency Medical Technicians (Including Basic and Advanced), volunteer administrative personnel, and other staff persons comprise 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 43 full time employees (FTE’s), and enjoys the benefit of approximately 27 Part-Paid firefighters and 5 volunteer support personnel. Any changes or projected changes in these numbers will be addressed in each year’s annual report. These employees and volunteers together are responsible for the functions described in Section 2 above, and delivery of services.

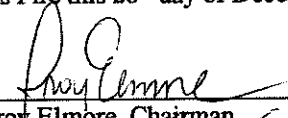
Section 5 The fire protection district hereby establishes service delivery objectives, including specific response time objectives for major service components, as identified in the district’s Standard of Response Coverage 06-01.

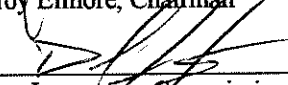
Section 6 The measurement of these performance standards provides a challenge to the District in that the current methods of measurement do not adequately capture the accurate times as described. The District is working on improved time documentation using improved technology. Until an accurate system is in place to capture the time measurements the district will utilize a combination of today’s time measurements as captured by our dispatch agency and random samplings of each time measurement to attain its data for time measurement reporting.


Section 7 Lake Stevens Fire shall develop an Annual Report, commencing in 2007 and every year thereafter, which meets all the requirements of RCW 52.33. The annual report shall include an evaluation of its levels of service, deployment, and the achievement of each response time objective throughout the district. The Annual Report shall also 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 adopted by the fire district. The Annual Report shall be made available to any and all citizens who make an inquiry.

Within this resolution, the terms “Lake Stevens Fire” and “the District” shall be synonymous.

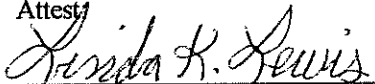
ADOPTED by the Board of Fire Commissioners of Lake Stevens Fire this 28th day of December, 2006.


Troy Elmore, Chairman


Dan Lorentzen, Commissioner


Michael J. Peters, Commissioner

Attest/


Linda K. Lewis, District Secretary

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Appendix B

Lake Stevens Fire – Standard of Response Coverage

LAKE STEVENS **FIRE**

Standard of Response Coverage



Purpose

This document serves as the Fire District's Standard of Response Coverage, hereafter referred to as "The Standard". The "Standard of Response Coverage" are those written standards that determine the distribution and concentration of the fixed and mobile resources of a fire and EMS organization.

Accuracy of Data

An analysis of the Fire District's present practices and historical response data was the main contributing factor in developing this standard. The results of the analysis were used to make formal statements regarding the level of service that the Fire District should be expected to deliver.

It is anticipated that service level will improve over time as even greater localized data is collected and further research is conducted on fire and emergency medical techniques. The data used to create this document are therefore not to be considered as absolutes but as the most accurate available at the time of adoption.

Existing Standard Statements

The Board of Commissioners through Resolution 2006-12-28-01 adopts this Standard of Response Coverage.

Maintenance of the Standard

An annual review will be conducted to assure that the standard reflects the intent of the Standard, the nature of the community, position of the Commissioners, and meets the current fire service needs.

Risk Assessment

There exists in every community, whether specifically stated or not, a level of risk and corresponding loss accepted by the community and the Fire District itself. In our present society, as long as there are people in the community and materials to burn, there will be injuries, illnesses and fires with resultant loss of life and property. While an admirable goal, it is unrealistic to expect to curtail all fire and medical losses; thus a risk/loss management system is established to identify the boundaries of acceptable risk/loss.

This Standard considered the risks to its community and itself at any given moment (based on assessments) and established acceptable standards, which will yield the best possible overall standard level of response coverage with its available resources.

Risk to Fire District

This Standard establishes the Fire District's acceptable risks as an organization and its members. An evaluation to determine the level of risk was conducted by the Fire District. The evaluation performed assessed each Emergency Grid for fire, EMS, and non fire risk potential exposure to the Fire District. The evaluation also reviewed alarm data, fire risk(s), and area of responsibility, demographics, economic indicators, fire loss data, water supply and automatic

fire protection system information. A risk classification as defined in section 3 of the CFAI manual has not been assigned to our Emergency Grids at this time. However, in the best judgment of our staff and professionals we believe our community is assessed to be in a moderate to low risk classification.

Risk to Members

This Standard further recognizes that the vast majority of emergency scenes where our members can get in trouble are emergencies, which are very complex in nature, and can develop and change rapidly. The Fire District understands that because structure fires, haz-mat, specialty rescues, etc. are high priority, the best possible resources must be made available to mitigate these types of emergencies.

Fire fighting itself has become a science and it is difficult to maintain the high level of skills required to mitigate emergencies. The fire service is in continuously changing conditions that are many times unpredictable, volatile, ill-defined, with immense time pressures, and severe consequences that can occur if things are not done right.

The evaluation determined it is imperative the Fire District utilizes its resources wisely when dealing with emergencies. Historically, the Fire District has not distinguished that there are degrees (Priorities) of emergencies (or events). The Fire District's evaluation in conjunction with NFPA's adoption of 1710 reveal there are distinct degrees of emergency events and that the Fire District should make a clear distinction between them. This Standard addresses such issues and introduces those degrees of emergencies throughout this Standard. Care in this Standard was given not to unnecessarily place our highly skilled resources on non-priority events as much as possible. This would make no sense when placed under the microscope of risk assessment, yet conversely makes good sense when viewed from a reliability perspective when high priority events occur.

Risk to Citizen

NFPA 1710 has been referenced for developing the statistical probable emergency and critical tasking. Specific management plans have been established for emergencies involving the larger or high-risk structures and non-fire emergencies through the pre-planning processes and specific emergency operating procedures.

In the end, it is the community through its elected officials that determine the acceptable risk/loss to a community and the standard that will be adopted. By its economic decisions with respect to taxation, the community buys a level of "fire and life safety protection" that is consistent with its perceived needs and its available resources. While these decisions may be influenced by such factors as the State Initiative I-747, Washington State Survey and Rating Bureau, NFPA 1221/1710, etc. the level of protection in any community is a local decision that should be made only after rigorous studies of local needs, resources and abilities.

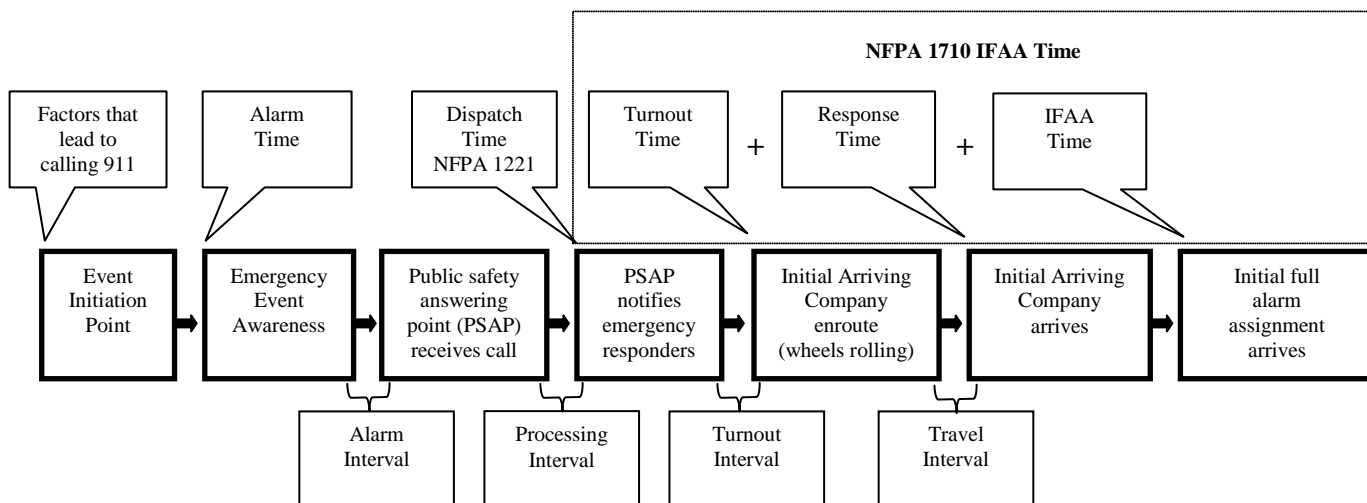
Cascade of Events

The CFAI has defined response time elements as a cascade of events. This cascade is similar to that used by the medical community to describe the events leading up to the initiation, mitigation, and ultimate outcome of a cardiac arrest. It is imperative to keep in mind that certain intervals described can be directly influenced by the fire service (turnout and travel time). Others factors can be influenced indirectly such as the alarm interval through public education and engineering initiatives. The fire service can also influence the call-processing interval through its ability to define standards and compel performance by its dispatch centers.

Measures

Careful definition of terminology is essential to any conversation about response performance standards. It becomes even more critical when an organization attempts to benchmark its performance against other providers. The following definitions are standardized for discussion of response performance parameters within the Fire District.

The figure below shows the Cascade of Events in a general overview diagram.



Definition of Cascade Events

Event Initiation Point - The point at which factors occur that may ultimately result in an activation of 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 Awareness - The point at which a human being or technologic “sentinel” (i.e., smoke detector, infrared heat detector, etc.) becomes aware that conditions exist requiring and activation of the emergency response system. This is considered the emergency event awareness.

Alarm Interval - Measured time between emergency event awareness and the alarm time.

Alarm Time - The point of receipt of the emergency event at the public safety answering point (PSAP) to the point where sufficient information is known to the dispatcher to deploy applicable units to the emergency. (Time-stamp)

Call Processing Interval - The first ring of the 9-1-1 telephones at the dispatch center and the time the CAD operator activates station and/or company alerting devices. This can, if necessary, be broken down into two additional parameters: "*call taker interval*" (the interval from the first ring of the 9-1-1 telephone until the call taker transfers the call to the dispatcher) and "*dispatcher interval*" (the interval from the time when the call taker transfers the call to the dispatcher until the dispatcher (CAD operator) activates station and/or company alerting devices. This time shall be 60 seconds. (Measured time between alarm time and dispatch time)

Dispatch Time - Is the time when the dispatcher, having selected appropriate units for response with assistance from the CAD system, initiates the notification of response units. (Time-stamp)

Turnout Interval - Measured time between dispatch time and turnout time.

Turnout Time - When units acknowledge notification of the event to the beginning point of response time (wheels rolling). The turnout time shall be 60 seconds. (Time-stamp)

Travel Interval - Measured time between turnout time and on scene time of initial company.

Initial Company Time - The point at which the initial company arrives on scene. (Time-stamp)

Initiation of Action - The point at which operations to mitigate the event begin. This may include available to respond to another request for service.

Initial Full Alarm Assignment Interval - Measured time between initial company on scene time and Initial Full Alarm Assignment is completed.

Initial Full Alarm Assignment - Time when all of the personnel, equipment, and resources ordinarily dispatched upon alarm arrives on the scene. (Time-stamp)

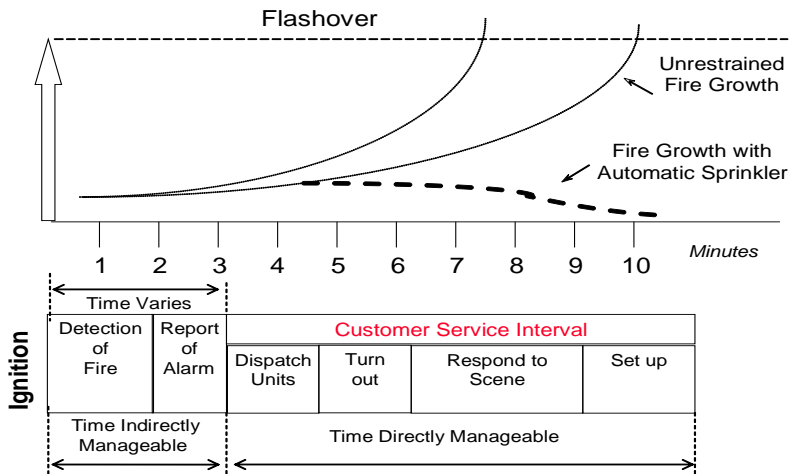
Response Time -the time immediately following the turnout time that begins when units are en route to the emergency incident and ends when units arrive at the scene. (Time-stamp)

Controlled Time - Time when the forward progress of the fire has been stopped or when ABC's have been addressed and managed. (Time-stamp)

Termination of Event - The point at which unit(s) have completed the assignment and are available to respond to another request for service. (Time-stamp)

Time – Temperature Standard

The “time-temperature curve” standard in figure 2 is based on data from the National Fire Protection Association (NFPA) and the Insurance Services Organization (ISO), which have established that a typical point source of ignition in a residential house will “flash over” at some time between 5 and 10 minutes after ignition, turning a typical “room and contents” fire in to a structural fire of some magnitude.

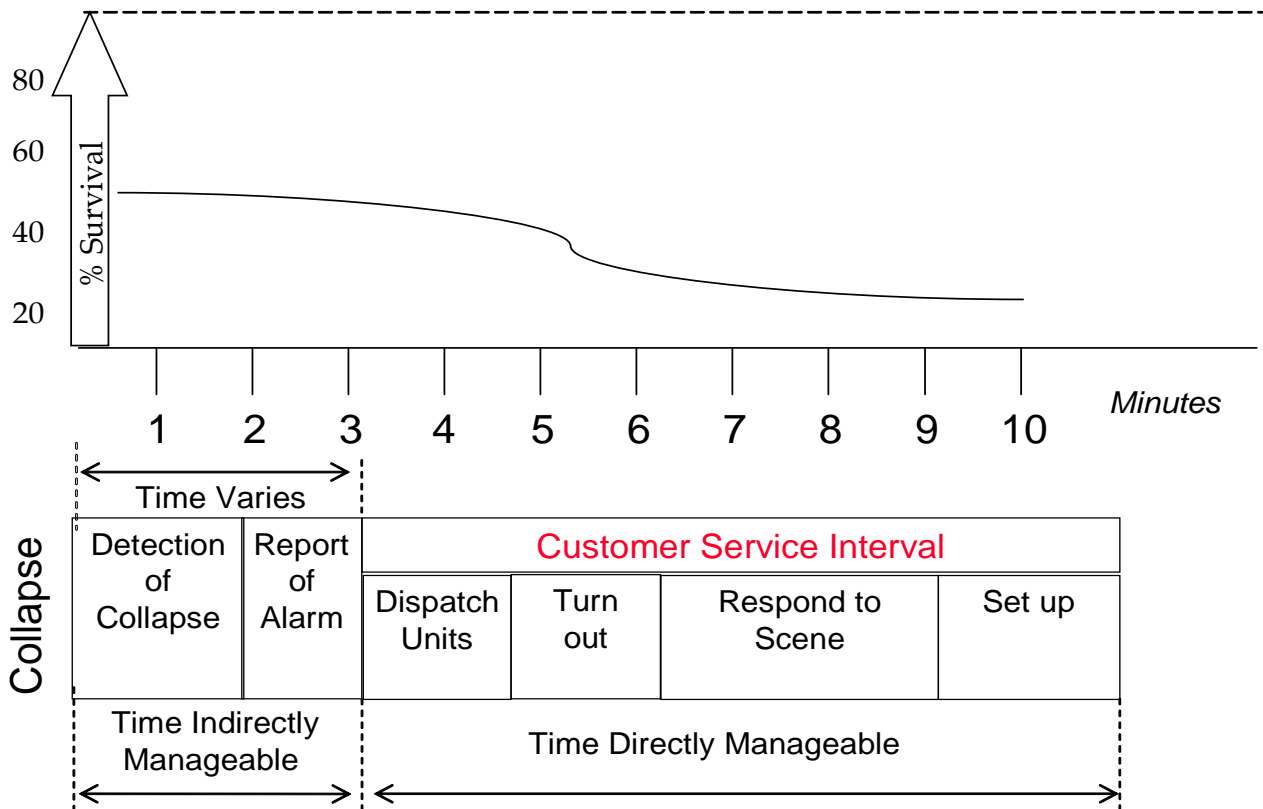


The utility of the time-temperature curve for fire station placement is limited a number of factors.

- 1) It does not account for the time required for the existence of a fire to be “discovered” and reported to the Fire District’s via our 911 system.
- 2) The time from ignition to flashover varies widely (5-30 minutes depending on building characteristics); thus it cannot provide a valid basis for the allocation of resources.
- 3) The curve is constantly shifting, given the numerous changes in building construction, built in suppression systems, the increased use of fire resistive materials for furniture and other items typically found in the interior of occupied buildings.

Cardiac Arrest Survival Standard

In communities like the Fire District where the fire service is the principal provider of EMS first response, the “chain of survival” standard shown in figure 3 was developed by the American Heart Association often is used to provide guidance for distribution of resources. The chain of survival suggests that basic life support (CPR and defibrillation) should be available to the victim of a cardiac arrest within 4 minutes of the event, and that advanced life support (paramedic service) should be available within 8 minutes or less of the event. Early notification, distribution and concentration of emergency response services are thus paramount to successful resuscitation efforts.



The Golden Hour Standard

In trauma events, the golden hour is the historic benchmark applied to victims with significant critical traumatic injuries. The golden hour reflects the concept that survivability decreases significantly if the patient isn't in the operating room within one hour of receiving a critical traumatic injury. The Fire District facilitates this by using helicopter air transportation to the Region level 1 verified trauma center in Seattle Washington.

Response Time Objectives

Response Time Objectives are critical elements in determining optimal resource concentration and distribution. Statistical analysis generally focuses on turn out and response time for the initial company to arrive. While this is certainly an important factor, other factors are equally significant, such as dispatch and the customer service interval time.

The Fire District is comprised of 2/3's rural and 1/3 suburban areas. These areas can be defined as urban growth or rural areas. All urban growth areas within our community only meet the criteria for suburban as outlined in the benchmarking survey manual from the CFAI. Response time objectives are established for these 2 geographical areas.

Performance measures are assessed by events that have a risk of life or significant property loss. This Standard considers only emergency responses. However it is anticipated that within 2009 the Fire District further define these types of events as "Priority and Non-Priority Events"

The District recognizes the need for timely and reliable service for its citizens during critical incidents. Therefore the District has adopted response time objectives for the following events.

- 1) Turnout Time
- 2) Arrival of a Company at a Single Engine Response Fire
- 3) Arrival of 1st Arriving Company at a *Residential Structure Fire*
- 4) Deployment of Full First Alarm Assignment at a *Residential Structure Fire*
- 5) Arrival of 1st Arriving Company at a *Commercial Structure Fire*
- 6) Deployment of Full First Alarm Assignment at a *Commercial Structure Fire*
- 7) Arrival of 1st Arriving Company at a *Brush Fire Incident*
- 8) Deployment of Full First Alarm Assignment at a *Brush Fire Incident*
- 9) Arrival of First Responder of Higher Level Capability at an Emergency Medical Incident
- 10) Arrival of Advanced Life Support Unit at an *Emergency Medical Incident (where ALS is required)*
- 11) Arrival of Hazardous Materials Trained and Equipped Technicians
- 12) Arrival of Technical Rescue Trained and Equipped Technicians
- 13) Arrival of Marine Rescue and Firefighting Trained and Equipped Personnel

Definitions:

- 1) **Turnout time:** The time beginning when units receive notification of the emergency to the beginning point of response time.
- 2) **Response time:** The immediately following the turnout time that begins when units are en route to the emergency incident and ends when units arrive at the scene.
- 3) **Initial Response Unit:** Indicated by the arrival of the first arriving response unit with appropriately trained personnel on board which can begin mitigation of the emergency.
- 4) **Full Alarm Assignment:** Indicated by the predetermined apparatus assigned to each 1st alarm response standard or the minimum apparatus needed to mitigate the incident type.
- 5) **Single Engine Response:** Has a final dispatch code of Fire Single and response mode of Red.
- 6) **Residential Structure Fire:** Must meet NFIRS incident type 111-118 or 120-123 criteria and have a final dispatch type code of Fire Residential.
- 7) **Commercial Structure Fire:** Must meet NFIRS incident type 111-118 or 120 -123 criteria and have a final dispatch type code of Fire Commercial.
- 8) **Brush Fire:** Must meet NFIRS incident type 140-143, 150-155, 160, 170-173, 480, 561, 631, or 632 criteria and have a final dispatch type code of Brush Fire.
- 9) **Emergency Medical Incident:** Must meet NFIRS 100-243, 311, 321-323, 351-381, 400-431, 451, or 900 criteria and have a final dispatch code of Basic Life Support Red, Medic, MedX, Motor Vehicle Accident Red, or Motor Vehicle Accident Medic.
- 10) **Emergency Medical Incident (where ALS is required):** Must meet NFIRS 100-243, 311, 321-323, 351-381, 400-431, 451, or 900 criteria and have a final dispatch code of Medic, MedX, or Motor Vehicle Accident Medic.
- 11) **Hazardous Materials Incident:** Meets NFIRS incident type - 100-243, 321-324, 371, 400-431, 451, 671 or 900 criteria; Final dispatch type code of Hamat-Team or Tech.
- 12) **Technical Rescue:** Meets NFIRS incident type 300-381 criteria and a final dispatch code of Tech rescue High/low, confined space, structural collapse, or trench.
- 13) **Marine Rescue or Fire:** Meets NFIRS incident type 134 or 360-365 criteria and a final dispatch type of Water Rescue, Technical Rescue Water, or Fire.

ADOPTED SUBURBAN RESPONSE TIME OBJECTIVES:

- 1) Turnout Time
The Lake Stevens Fire Department has adopted a turnout time objective of 60 seconds, which the department should meet 90% of the time.
- 2) Initial Response Unit at a Single Engine Response
The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Single Engine Response, which the department should meet 90% of the time.
- 3) Initial Response Unit at a Residential Structure Fire
The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Residential Structure Fire, which the department should meet 90% of the time.
- 4) Deployment of Full First Alarm Assignment at a Residential Structure Fire
The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the full complement of a 1st alarm response to a Residential Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 2 engine companies, 1 aid unit, and 1 medic unit.
- 5) Initial Response Unit at a Commercial Structure Fire
The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Commercial Structure Fire, which the department should meet 90% of the time.
- 6) Deployment of Full First Alarm Assignment at a Commercial Structure Fire
The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the full complement of a 1st alarm response to a Residential Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 3 engine companies, 1 rescue unit, 1 aid unit, and 1 medic unit.
- 7) Initial Response Unit at a Brush fire incident
The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Brush Fire Incident, which the department should meet 90% of the time.

- 8) Deployment of Full First Alarm Assignment at a Brush fire Incident
The Lake Stevens Fire Department has Adopted a response/travel time objective of eight (8) minutes for the arrival of the full complement of a 1st alarm response to a Brush Fire Incident, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 1 engine company, 1 brush truck, and 1 aid unit.
- 9) Arrival of First Responder of Higher Level Capability at an Emergency Medical Incident
The Lake Stevens Fire Department has adopted a response/travel time objective of four (4) minutes for the arrival of the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of an emergency medical incident, which the department should meet 90% of the time.
- 10) Arrival of Advanced Life Support Unit at an Emergency Medical Incident (where ALS is required)
Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of an advanced life support unit with appropriately trained personnel (paramedics) which can begin mitigation of an ALS emergency medical incident, which the department should meet 90% of the time.
- 11) Arrival of Hazardous Materials Trained and Equipped Technicians
The Lake Stevens Fire Department has adopted a response/travel time objective of fifteen (15) minutes for the arrival of the first unit with appropriately trained and equipped Hazardous Materials Technicians on board which can begin mitigation of a hazardous materials incident, which the department should meet 90% of the time. The Lake Stevens Fire Department does not currently provide this level of service and relies on mutual aid.
- 12) Arrival of Technical Rescue Trained and Equipped Technicians
The Lake Stevens Fire Department has adopted a response/travel objective of six (6) minutes for the arrival of the first unit with appropriately trained and equipped Technical Rescue Technicians on board which can begin mitigation of a technical rescue incident, which the department should meet 90% of the time.
- 13) Arrival of Marine Rescue and Firefighting Trained and Equipped Personnel
The Lake Stevens Fire Department has adopted a response/travel time objective of eight (8) minutes for the arrival of the first unit with appropriately trained and equipped Marine Rescue and Firefighting personnel on board which can begin mitigation of a marine incident, which the department should meet 90% of the time.

ADOPTED RURAL RESPONSE TIME OBJECTIVES:

- 1) Turnout Time
The Lake Stevens Fire Department has adopted a turnout time objective of 60 seconds, which the department should meet 90% of the time.

2) Initial Response Unit at a Single Engine Response

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Single Engine Response, which the department should meet 90% of the time.

3) Initial Response Unit at a Residential Structure Fire

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Residential Structure Fire, which the department should meet 90% of the time.

4) Deployment of Full First Alarm Assignment at a Residential Structure Fire

The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the full complement of a 1st alarm response to a Residential Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 2 engine companies, 1 aid unit, and 1 medic unit.

5) Initial Response Unit at a Commercial Structure Fire

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Commercial Structure Fire, which the department should meet 90% of the time.

6) Deployment of Full First Alarm Assignment at a Commercial Structure Fire

The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the full complement of a 1st alarm response to a Residential Structure Fire, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 3 engine companies, 1 rescue unit, 1 aid unit, and 1 medic unit.

7) Initial Response Unit at a Brush Fire Incident

The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of a Brush Fire Incident, which the department should meet 90% of the time.

8) Deployment of Full First Alarm Assignment at a Brush Fire Incident

The Lake Stevens Fire Department has Adopted a response/travel time objective of ten (10) minutes for the arrival of the full complement of a 1st alarm response to a brush fire incident, which the department should meet 90% of the time. Further, the Lake Stevens Fire Department has adopted a 1st alarm response of 1 engine company, 1 brush truck, and 1 aid unit.

- 9) Arrival of First Responder of Higher Level Capability at an Emergency Medical Incident
The Lake Stevens Fire Department has adopted a response/travel time objective of six (6) minutes for the arrival of the 1st arriving response unit with appropriately trained personnel on board which can begin mitigation of an emergency medical incident, which the department should meet 90% of the time.
- 10) Arrival of Advanced Life Support Unit at an Emergency Medical Incident (where ALS is required)
Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of an advanced life support unit with appropriately trained personnel (paramedics) which can begin mitigation of an ALS emergency medical incident, which the department should meet 90% of the time.
- 11) Arrival of Hazardous Materials Trained and Equipped Technicians
The Lake Stevens Fire Department has adopted a response/travel time objective of seventeen (17) minutes for the arrival of the first unit with appropriately trained and equipped Hazardous Materials Technicians on board which can begin mitigation of a hazardous materials incident, which the department should meet 90% of the time. The Lake Stevens Fire Department does not currently provide this level of service and relies on mutual aid.
- 12) Arrival of Technical Rescue Trained and Equipped Technicians
The Lake Stevens Fire Department has adopted a response/travel objective of eight (8) minutes for the arrival of the first unit with appropriately trained and equipped Technical Rescue Technicians on board which can begin mitigation of a technical rescue incident, which the department should meet 90% of the time.
- 13) Arrival of Marine Rescue and Firefighting Trained and Equipped Personnel
The Lake Stevens Fire Department has adopted a response/travel time objective of ten (10) minutes for the arrival of the first unit with appropriately trained and equipped Marine Rescue and Firefighting personnel on board which can begin mitigation of a marine incident, which the department should meet 90% of the time.