

# Gladstone Fire Department

Gladstone, Oregon

## Survey Update & Service Delivery Options Analysis

February 2017



**Emergency Services Consulting International**  
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## Executive Summary

### PURPOSE OF THE SURVEY

This study updates the information contained in the 2010 Gladstone Organizational Survey conducted by ESCI for the Gladstone Fire Department. It follows a similar survey style approach in order to make the two reports comparable side-by-side, but emphasizes the growth and change that has occurred since the original report was conducted. Further, it does not include a comparison of the cities nor develop options that change governance structure. It does, however, go into much greater detail in the current service delivery and performance of the Gladstone Fire Department (GFD).

Now, as then, the purpose of this report was to provide the department and the elected officials with a means to evaluate emergency services and to plan for the future of that service. The surveys provide a detailed assessment of the agency's governance and structure; financial analysis; management; human resources and staffing; service delivery and performance; training; fire prevention; and capital. ESCI provides brief recommendations where a recommendation or consideration would be appropriate. Where no recommendation exists, ESCI believes the element observed warrants no comment. This should be interpreted as an appropriate activity or function as is. No imminent action is required. This is not to say the element observed is perfect, but that it is at least an acceptable, normal practice in the industry.

Emergency Services Consulting International (ESCI) thanks the three career chief officers of GFD for their cooperation throughout the development of this report. All three chiefs were candid and open in providing ESCI with information necessary to thoroughly complete this report. Much of the information requested fell on Chief O'Connor to provide, and we are very appreciative for his assistance in this process.

### METHODOLOGY

The approach used by ESCI in performing the evaluation includes a thorough review of each of the major elements that make up a fire department, as well as interviews with full time staff members, direct observation of facilities, apparatus, and analysis of the available response data. Information was collected on the level and quality of fire and emergency medical service. That information was compared to industry best practices for comparable agencies, which lead to specific recommendations.

### BACKGROUND INFORMATION

The survey includes a detailed review of the fire department and its programs. It is arranged by the nine major elements that make up a fire department as shown below:

1. Service Delivery Overview
2. Governance & Structure Overview
3. Fiscal Overview
4. Management Overview
5. Human Resources Overview
6. Staffing Overview
7. Training Overview
8. Fire Prevention Overview
9. Capital Overview

In addition, a detailed service delivery section explores the actual emergency services provided to the citizens of Gladstone. Included are service demand forecasts and a community risk assessment. The criteria used to evaluate GFD overall have been developed by ESCI over many years and after hundreds of other similar surveys. We consult relevant National Fire Protection Association (NFPA) Standards, the Center for Public Safety Excellence (CPSE), health and safety requirements, federal and state mandates relative to fire protection, and generally accepted practices within the fire and emergency medical services.

Each survey table provides the reader with the various elements it contains, as well as the GFD-specific observations made by ESCI. Observations are generally supported by data collected as part of the survey and/or interview process. Recommendations are included to target and resolve identified issues and/or concerns or to take advantage of opportunities that may exist.

#### SUMMARY OF MAJOR FINDINGS

- **Overnight Staffing:** Providing for on-site or near on-site overnight staffing will improve turnout time and thus, total response time by as much as four minutes.
- **Organization Chart Changes:** Realign existing structure to include a training/safety division, a community risk reduction division, and an operations division.
- **Regional Cooperation:** GFD enjoys a robust relationship with neighboring agencies, which is required to achieve its effective response force for moderate or higher risks in the community. While beyond the scope of work of this report, integration with neighboring agencies will not likely result in significantly improved services, and will likely result in significantly higher cost.
- **Community Risk Reduction:** Implementation of this philosophy will result in a safer community, reduced demand for emergency services, engage the community in a partnership with GFD, and improve emergency management preparation.

## Organization Survey Tables

The remainder of this report is an update of the 2010 survey. Where appropriate, recommendations are made for improvement or caution is offered where reason for concern is identified. Additional commentary may follow each table as appropriate. Not all survey tables are an exact match to the 2010 report, since the fire service, as well as ESCI, evolves over time.

### SERVICE DELIVERY OVERVIEW

Figure 1: Service Delivery Overview Table

Service Delivery Overview	2016 Observation	Recommendation
<b>1. Notification and Response</b>		
A. Emergency dispatch agency	C-COM	
i) 911 service level	Enhanced	
B. Computer assisted dispatch (CAD)	All positions	
i) hardware used	Stratus Continuum Server	
ii) software used	Tiburon public safety software for computer aided dispatch.	
iii) method used to dispatch equipment	Page and voice	
iv) method used to notify personnel	Voice followed by alphanumeric pager, or active 911 via cell phone.	
C. Emergency medical dispatch (EMD)	Medical priority dispatch system.	
D. Geo database	County GIS	
E. 911 time standards adopted	By C-COM Member Board.	
i) call answering/taking standards adopted	Answer call within 10 seconds (three-rings) 95% or greater reliability.	
F. Evaluation of response times	Monthly report to Member Board. Additional data available by request.	
i) by time/day/month	Provided	
ii) by alarm type	Provided	
G. Hard data available	Available by request.	
H. Hard data analyzed	Available by request.	
I. Emergency communications system	800 megahertz with primary talk group.	
i) 911 Calls monitored by department?	No	
<b>2. Fire Stations</b>		
A. Total area protected	2.48 square miles	
B. Total number of fire stations	One	

Service Delivery Overview	2016 Observation	Recommendation
i) number of stations staffed full-time	None	
ii) number of stations staffed part-time	One	
iii) number of unstaffed stations	None	
C. Stations per square mile	1 per 2.48 square miles	
D. Response time goals adopted	Informal only	Formal performance goals should be adopted by City Council.
i) for fire emergencies	N/A	Formal goals should be adopted for each major element of the total response.
ii) for EMS emergencies	N/A	Formal goals should be adopted for each major element of the total response.
iii) actual response times documented	Yes	Performance goals should be compared to actual performance annually.
E. Standard response protocols adopted	One response zone	
i) by alarm type (apparatus per alarm)	Number and type of apparatus matched to alarm type.	
ii) by apparatus type (persons per app)	Number of apparatus only. No minimum staffing specified.	
F. Call back system	Smartphones and legacy pagers	
<b>3. Apparatus</b>		
A. Availability for dispatch		
i) engine	2	
ii) quint	1	
iii) rescue	1	
iv) command	3	
v) utility, safety van	2 (2 others being surplus)	
B. Availability of reserves (response ready)		
i) engine	1	
ii) ladder truck	0	
iii) rescue	0	
<b>4. Risk (Hazard) Analysis</b>		
A. History of fire loss documented	Fire loss is tracked and available via Oregon Fire Bridge software.	
B. Major hazards identified and mapped?	Yes, target hazards.	

Service Delivery Overview	2016 Observation	Recommendation
C. Fire inspections conducted	Three-year cycle for inspections of multi-family and commercial properties.	
D. Pre-incident plans used	Implemented First Look Pro software in 2016.	This is a significant operational enhancement.
E. Disaster plans in existence	No	GFD not responsible for disaster planning—no disaster plan available.
F. Maps in all vehicles	Yes, all front-line units.	
G. Mutual aid agreements in effect	Yes, Clackamas County Mutual Aid Compact.	
H. Duty officer system in place	Duty Officer 109 (unit available for this purpose)—not staffed 24/7—will sometimes staff a primary response unit, leaving DO109 out of service.	Tighten up response protocols—DO109 should be browned out when not staffed to ensure next command officer is dispatched.
i) scene accountability maintained	Passport Accountability System is used.	
I. Liaison with public works	No	Fire Marshal should play this role on behalf of GFD.
i) hydrant location/placement	N/A	Public Works needs to test hydrant system annually.
ii) main installation	N/A	Grid system map should be provided to GFD.
iii) fire flows calculated	N/A	Public Works needs to test hydrant system regularly.
iv) fire hydrants marked	N/A	
v) water sources identified	N/A	City is well protected by fire hydrants.

**Comments:** None.

GOVERNANCE & STRUCTURE

Figure 2: Governance & Structure Table

Governance & Structure Overview	2016 Observation	Recommendation
<b>1. Authority</b>		
A. Governance	Municipal Fire Department	
i) elected officials	Mayor and 6 council members, one of whom serves as president, all elected at large.	
ii) head of governing body	Mayor Thomas Mersereau (Mayor-elect Tammy Stempel)	
iii) key employee of governing body	City Administrator Eric Swanson	
iv) meetings	Second and fourth Tuesday of each month at 7:30 p.m.	
B. Elected official authority defined	City Charter—City Council Rules	
C. Fire Chief position	Full time (Tom O'Connor)	
i) hired by contract	Employment letter	
ii) periodic performance evaluation	Currently performing for all subordinate personnel—Fire Chief received six-month evaluation.	Fire Chief is approaching timeline for another six-month evaluation, or an annual evaluation in March this year.
D. Oversight of Fire Chief	City Administrator GMC 2.12.030 Duties	
E. Fire Chief authority defined	GMC 2.32.030 Fire Chief—Authority	
F. Policy and administrative roles defined	Resolution 1028 Exhibit A—City Council Rules & City Charter	
<b>2. Organizational Foundation</b>		
A. Founding document(s) of fire department	GMC 2.32.010 Department responsibilities and duties established	
B. Rules and regulations maintained	An updated employee handbook is in place and serves this purpose.	
i) process for revision provided	Not formally	SOGs should spell out how they are to be revised and how often they are reviewed.
C. Legal counsel maintained	Outside counsel by contract with the City.	
i) GFD consultation available	Same as above	
ii) labor counsel	Same as above	
D. Financial controls		

Governance & Structure Overview	2016 Observation	Recommendation
i) financial control system	Separation of duties is intact.	Clarify the process when Fire Chief places orders.
ii) financial review		
iii) auditor	City in process of changing auditor right now.	
iv) frequency of review	Annual	
E. Governing body minutes maintained	City Charter, Section 15. Record of Proceedings.	
i) availability of minutes	City Charter, Section 16. Proceedings to be Public.	
<b>3. Organizational Structure</b>		
A. Structure type	Does not flow well (See Appendix A).	Deputy Chief position appears extraneous—need to reassess this position.
B. Descriptions of all jobs maintained	Being revised/created	Follow through on position descriptions.
i) job descriptions updated	Not at this time.	Update position descriptions at least as frequently as each time a position is vacated.
C. Employment agreements	No	
<b>4. Chain of Command</b>		
A. Unity of command	All chief officers report to Fire Chief—inefficient chain of command	Consider adopting the organizational chart presented in Appendix B of this report.
B. Span of control	Not clear, since most go directly to the Fire Chief informally.	Adoption of Appendix B organizational chart will improve span of control.
C. Hiring/Firing authority	<p>New Municipal Code— Association is completely separate from FD [501c(4)]. Hiring and firing authority rests with HR. Fire Chief usually handles issues requiring separation, usually a participation issue (POCs).</p> <p>City Administrator approves based on recommendations from Fire Chief.</p> <p>All personnel (other than full-time) are part-time paid-on-call. Any separation letter is signed by City Administrator.</p>	

Governance & Structure Overview	2016 Observation	Recommendation
<b>5. Formation and History</b>		
A. Organization formed	1911	
B. History maintained	Website developed	
B. Individual or group responsible	Battalion Chief Smith	
<b>6. Fire Department Overview</b>		
A. Agency type	Municipal paid and paid-on-call department	
B. Area, square miles	2.48 square miles	
C. Headquarters	555 Portland Avenue, Gladstone, Oregon.	
D. Fire stations	One	
E. Other facilities	None—garage in Public Works where one apparatus stored (reserve).	
G. Emergency vehicles		
i) engine	2 (+1 reserve)	
ii) quint	1	
iii) rescue	1	
iv) command	3	
v) utility, safety van	2 (plus 2 surpluses)	
H. ISO rating	Class 4	Improved over last rating.
i) date of most recent survey	July, 2012	
ii) fire department creditable points	28.76	2.6% improvement over last rating.
iii) divergence	-1.84	Disparity between fire protection and water supply has narrowed since last rating.
iii) total creditable points	60.84	2.1% improvement over last rating.
<b>7. Demographics</b>		
A. Population estimate—2010 Census Blocks	11,660	
i) percent urban	100%	
ii) percent suburban	0%	
iii) percent rural	0%	
B. Total residential units, estimated by city-data.com	4779	
i) occupied units	4540	
ii) owner occupied	2680	
iii) renter occupied	1860	
iv) renter percentage	41%	
C. Major employer	Auto Dealerships (multiple)	

**Figure 3: Alarms Per Year**

Alarms Per Year					
	2011	2012	2013	2014	2015
False alarm	67	51	72	82	63
Fire	32	45	30	46	39
Good intent	168	171	173	158	235
Hazard condition	24	35	6	16	26
Medical	1051	1144	1164	1107	1072
Overpressure	2	3	1	2	1
Public service	87	116	121	103	138
Rescue	Included in Medical				
Non-categorized	3	4	4	4	3
<b>Total</b>	<b>1434</b>	<b>1569</b>	<b>1571</b>	<b>1518</b>	<b>1577</b>

**Comments:** GFD is no longer a volunteer department, but a paid on-call department, where people are receiving up to \$20,000 a year. Decisions that are made affect paychecks. The 29 POC members and three full-time staff make up the GFD. No sleeping quarters are located at the fire station, limiting immediate response.

Hiring full time firefighters to augment or replace the current work force would likely lead to unionization. All professional firefighters in the Portland metropolitan area are members of the International Association of Fire Fighters (IAFF). The IAFF does not organize part time or paid on call (POC) firefighters; however, ESCI is aware of at least one POC fire department (in Minnesota) being organized as an AFSCME (Association of Federal, State, County, and Municipal Employees) bargaining unit. The Minnesota AFSCME model could affect the POC program if the GFD expands their duties/hours.

FISCAL OVERVIEW

Figure 4: Fiscal Overview Table

Fiscal Overview	2016 Observation	Recommendation
<b>1. Budgetary Controls</b>		
A. Designated fiscal year	July 1 to June 30	
i) budget cycle	Biennial	
B. Budget officer	City Administrator	
C. City budget development process	In accordance with Oregon Law.	
i) city governance	City Council/budget committee.	
ii) fire department administration	GMC 2.32.070, which had previously provided for Fire Chief formulation of annual fire department budget, has been removed.	While no longer specifically addressed in GMC, from a practical standpoint, the Fire Chief develops a fire department budget as directed by the City Administrator.
iii) fire department budget management	City Administrator directs all department heads to develop and administer budget.	
iv) fire department staff	This first-year budget for new Fire Chief will be delegating development of proposals to subordinates, with final approval by Fire Chief.	This is an excellent training and development tool for subordinate personnel, while increasing understanding and buy-in on the budget process.
v) community	At the City level through budget committee and budget hearings citizens participate.	
D. Budget adoption process	In accordance with Oregon Law.	Switching to a biennial budget in 2017–19.
i) budget adoption	By the budget committee.	
ii) funding approval	Tax levied by City Council in accord with Oregon Law.	
E. Financial control officer	Finance Director	All financial matters of significance have the City Administrator’s active involvement prior to action
i) financial reporting	Fire Chief relies upon the finance director to provide regular monthly reports to the City Council. Fire Chief will augment as requested	
ii) financial review	Annual in accordance with Oregon law (audit).	

Fiscal Overview	2016 Observation	Recommendation
F. Basis of accounting	Switched from a cash basis to a modified accrual basis in FY 2016–17.	
G. Fire department purchasing	Fire Chief performs department purchasing.	
i) purchasing policy	Purchasing (P) cards issued to all chief officers and the lieutenant of the dive team. \$10,000, \$2,000 for A/C's, \$1,000 for other chiefs and lieutenant.	This is a significant improvement over the previously informal process identified in the 2010 report.
ii) credit cards	None	
iii) purchase orders	P Cards	
iv) open accounts	Home Depot, Harbor Freight, Platt Electric	Tighter controls should be instituted for open charge accounts to ensure authorization and reconciliation.
v) petty cash accounts	None	
vi) central supplies/logistics	No—using Clackamas Fire more often.	Formal agreement with Clackamas Fire for logistical support should be explored.
vii) joint agreements/ventures	Apparatus maintenance with Clackamas Fire—exploring possibility of Wellness/Fitness IGA also.	Very efficient model.
viii) JPAs	None for the fire department.	

**Comments:** None.

MANAGEMENT OVERVIEW

Figure 5: Management Overview Table

Management Overview	2016 Observation	Recommendation
<b>1. Fire Department Administration</b>		
A. Chief executive officer	Fire Chief Tom O'Connor	
B. Professional education	BA-Management and Organizational Leadership, EFO enrollee.	
C. Professional certification(s)	State of Oregon Paramedic, NFPA Fire Officer 2, WUI Strike Team/Task Force Leader, NFPA Fire Instructor 2, HazMat On-Scene Incident Commander, others.	
D. Experience/background	Progressively responsible positions in the Oregon fire service for 23 years.	
E. Tenure in position	New—9 months	
<b>2. Mission, Vision, Strategic Planning, Goals, and Objectives</b>		
A. Mission statement adopted	Protect and preserve life loss by fire, accident, sudden illness, or disaster in the community. Further, to prevent fire, protect the environment, enhance the quality of life, and to minimize suffering whenever possible.	
i) displayed	Section 1.1 of SOGs	
ii) periodic review	N/A	Should be reviewed each time strategic plan is revised/updated.
B. Vision established and communicated	No current vision statement created.	This element is created in a strategic plan, but can be developed separately.
C. Values of staff established	No current values statements created.	This element is created in a strategic plan, but can be developed separately.
D. Strategic or master plan	No fire department plan.	GFD should develop a FD-specific strategic plan that align with overall city plan.
i) adopted by elected officials	N/A	
ii) published and available	N/A	
iii) periodic review	N/A	
E. Agency goals and objectives established	No formal goals and objectives created.	This element is created in a strategic plan, or can be developed separately.

Management Overview	2016 Observation	Recommendation
i) date developed	N/A	
ii) periodic review	N/A	
iii) tied to division/personnel performance statements/plans	N/A	
iv) objectives linked to programs	N/A	
v) performance objectives established	N/A	
F. Code of ethics established	Yes, adopted in 2013.	
<b>3. Availability of SOPs, Rules and Regulations, Policies</b>		
A. Copies of rules provided	Yes, in Personnel Handbook.	
i) last date reviewed	2016	
B. Copies of SOGs or guidelines available	Yes, 2013.	Should be reviewed and updated as needed; at least biannually.
i) regular update	“As needed” is identified.	Should be required as an (bi)annual review.
ii) process for development of new SOGs	Section 1 Administration— process outlined.	
iii) SOGs used in training evolutions	Trainings are loosely based on SOGs.	A training schedule should include short review of SOGs/policies annually.
C. Policy manual available	Essentially, SOGs also serve as policy manual.	
i) reviewed for consistency	No	Should be reviewed at least biannually.
ii) reviewed for legal mandates	Not automatic	Should be reviewed at least biannually.
iii) training on policies provided	Training are loosely based on SOGs.	A training schedule should include short review of SOGs/policies annually.
<b>4. Critical Issues</b>		
A. Critical issues are identified		
i) 1st critical issue	Slow or no response	
ii) 2nd critical issue	Recruitment and retention of personnel.	
iii) 3rd critical issue	Underfunded for the staffing needed for an urban FD.	

Management Overview	2016 Observation	Recommendation
<b>5. Internal and External Communications</b>		
<b>A. Internal communications</b>		
i) regularly scheduled staff meetings (fire department)	Monthly newsletter goes to everybody internally (anyone can add info to it with edit authority of Fire Chief), face-to-face discussions with line, weekly update citywide.	Restructured organizational chart will help with communication flow, accountability.
ii) staff meeting minutes	No	
iii) memos	Email	
iv) member newsletter	Yes, monthly.	
v) member forums	Monthly department meeting, separate from association meetings.	
vi) open door	Yes, if it does not violate the chain of command.	
vii) bulletin board	Yes, moving to electronic calendar system.	
viii) vertical communication path clearly identified	Should be tightened—Chief is setting the tone, but allows open door when appropriate.	Organizational chart needs to be restructured for improved communication flow.
ix) email	Yes	
x) employee mail boxes	Email	
xi) voice mail	Email	
<b>B. External communications</b>		
i) community newsletter	Yes, the city does. FD always includes information in the newsletter.	
ii) website	City website is being updated and highlights each department, including the FD.	
iii) advisory committee(s)	No	Consider using advisory committees for issues of broad community interest.
iv) complaint process	No	Develop a formal citizen complaint process.
v) email	No	
vi) community survey	No	Consider using community surveys for issues of broad community interest.
vii) local community planning organizations	N/A	
viii) focus groups	No	Consider using focus groups for issues of broad community interest.

Management Overview	2016 Observation	Recommendation
<b>6. Decision Making Process</b>		
A. Management methodology	Admin exists to support operations. Situational leadership style. Delegate with responsibility and accountability, but coaches and mentors along the way.	
B. Management process identified	Situational	
C. Decision making process established	Lowest appropriate level makes decision—chief reviews and is available for consultation.	
<b>7. Document Control</b>		
A. Process for public access established	Oregon Attorney General publication “Public Records and Meetings Manual” guides agency.	
B. Hard copy files protected	Secured in locked file drawers.	
C. Computer files backed up	Networked and backed up off site.	
<b>8. Security</b>		
A. Building security	Locked	
B. Office security	Not locked—no sensitive records kept there. Personnel files at HR.	
C. Computer security	Users are assigned passwords—six-month reassignment of password.	
D. Vehicle security		
E. Capital inventory maintained	No	Develop and maintain a capital inventory—conduct annually.
i) asset security system used	No	Identify threshold for asset values and adopt tag system.
<b>9. Reporting and Records</b>		
A. Records kept by computer		
i) type of platform	Microsoft	
ii) operating system	Windows 7	
B. Periodic reporting		
i) financial report	Provided by finance director	
ii) management report	Upon request	
iii) operational report	Weekly report to City Administrator	
iv) distributed to others	Also goes to City Council	

Management Overview	2016 Observation	Recommendation
C. Annual report produced	No	Industry best practice indicates that publishing an annual fire department report facilitates open communication with policy-makers and public.
i) distributed to others	N/A	Should be provided to City Administrator and City Council, copy to website.
ii) analysis of data provided	N/A	Should explain technical data contained in the report suitable for laypersons.
D. Required records maintained		
i) incident reports	Yes, FireBridge	
ii) patient care reports	Yes, FireBridge	
iii) exposure records	Hard copy files	
iv) SCBA testing	Yes, annually	
v) hose	By contract to 3 <sup>rd</sup> party	
vi) ladder	By contract to 3 <sup>rd</sup> party	
vii) pump	By contract to 3 <sup>rd</sup> party	
viii) breathing air	By contract to 3 <sup>rd</sup> party	
ix) vehicles	Clackamas Fire	

**Comments:** None.

HUMAN RESOURCES OVERVIEW

Figure 6: HR Overview Table

HR Overview	2016 Observation	Recommendation
<b>1. Policies, Rules, Regulations, and Operational Guidelines</b>		
A. Human resource manager (HRM) identified	Fire Chief in partnership with City administration.	
B. Personnel policy manual maintained	City employee handbook.	
i) manual provided at initial hiring	Yes	
ii) policy training provided	Employees read and sign the handbook.	Best practice would be to develop a schedule for policy review.
iii) periodic review & update	As needed or assigned.	
C. Rules and regulations provided	GFD has implemented the earlier recommendation for separating rules & regulations from procedures & guidelines. The setting of a schedule for review and adoption is in process. As recommended earlier, rules are available on-line, but only when members are in station.	Continue the process of bringing city policies and fire department policies into accord. (Example: "smoking" vs. "tobacco" policies).
D. Operational guidelines provided	See above	Continue the updating in progress.
E. Desk manuals	Key job descriptions still needed.	
F. Retention program established	No	Exit interviews with leaving personnel may result in information that would be useful for developing a retention program.
<b>2. Compensation, Point System, and Benefits</b>		
A. Uniformed employee compensation, 2016-17	POC employees are paid for all work—this is closely monitored to ensure compliance and awareness of changing minimum wage rates in Portland Metro area.	
i) Fire Chief, full-time	\$90,764	
ii) Assistant Chief, Fire Marshal, full-time	\$80,285	
iii) Battalion Chief, Volunteer Coordinator, full-time	\$67,493	

HR Overview	2016 Observation	Recommendation
iv) Assistant Chief, part-time	Variable	
v) seasonal position, 1 <sup>st</sup> season	\$9.52/hr.	Seasonal part-time employees will need hourly rates adjusted with the increase in Oregon's minimum wage law, effective January 1, 2017.
vi) seasonal position, 2 <sup>nd</sup> season	\$10.23/hr.	Seasonal part-time employees will need hourly rates adjusted with the increase in Oregon's minimum wage law, effective January 1, 2017.
vii) seasonal position, lead	\$10.93/hr.	Seasonal part-time employees will need hourly rates adjusted with the increase in Oregon's minimum wage law, effective January 1, 2017.
<b>B. Additional compensation</b>		
i) EMT premium pay	None—GFD pays full tuition reimbursement for completion of EMT-B and EMT-I certifications.	
ii) paramedic pay	None—GFD pays up to \$1500 tuition reimbursement (in two installments) for completion of EMT-P certification.	
iii) uniform allowance	No	
iv) longevity pay	No	
<b>C. Non-uniformed employee compensation</b>		
Not applicable		
<b>D. Full-time employee benefits</b>		
i) social security	Yes	
ii) Medicare	Yes	
iii) unemployment	Yes	
iv) worker's compensation	Yes	
v) pension	PERS	
vi) deferred compensation	Yes—2 options	
vii) medical insurance	Yes—90/10 split on premiums; choice of Moda or Kaiser.	
viii) dental insurance	Yes	
ix) disability insurance	Yes	
x) life insurance	Yes, per ORS	
xi) vision insurance	Yes	
<b>E. Paid-on-call compensation</b>		
	Fire Chief is reviewing paid-on-call practices for coherency and fairness.	As part of this review, include an analysis of Oregon's new minimum wage rules.

HR Overview	2016 Observation	Recommendation
i) compensation paid to:	Individual, based on tenure and position.	
ii) rate of compensation	Drill or event: \$10.02 per hour Alarm: varies from \$6.68-13.72 per hour Night Duty: \$10 Weekend Duty: \$180 per duty weekend Assistant Instructor: \$15 Lead Instructor: \$35	How these levels of compensation are to be applied needs to be well-documented in written policy form.
iii) retirement	Yes—if minimum work hours are achieved. Estimated that 6-7 POC employees are PERS-eligible.	Close monitoring and documentation are required.
iv) additional compensation or benefits	Individual members are paid varying amounts for services (such as vehicle maintenance) on a case by case basis.	GFD should create and adopt a policy if this practice is to be continued.
<b>F. Payroll deductions</b>		
i) deferred comp	By employee election	
ii) WBF workday assessment	Yes, for all.	
iii) FICA employee portion	Yes, for all.	
iv) Medicare employee portion	Yes, for all.	
v) state income tax	Yes, for all.	
vi) PERS employee portion	Paid by City for full-time employees only.	
vii) PERS p & f units	Paid by City for full-time employees only.	
viii) federal income tax	Full-time employees.	
ix) direct deposit	Yes, for all.	
x) GFD Association dues	\$25 per month, deducted from paid-on-call accruals.	
<b>3. Reports and Records</b>		
<b>A. Personnel records maintained</b>		
i) application retained	Yes	
ii) historical records retained	Yes	
iii) performance evaluations retained	Currently being done for chief officers.	Develop and implement an evaluation process for all members of GFD, as required by City policy.
iv) injury and accident records retained	Yes, by Chief Smith.	If retained in the fire department office, these records must be secured (as confidential).

HR Overview	2016 Observation	Recommendation
v) health and exposure records maintained	Yes, by Chief Smith.	If retained in the fire department office, these records must be secured (as confidential).
<b>4. Disciplinary Process</b>		
A. Disciplinary policy established	Included in City's employee handbook.	Provide training for all GFD personnel.
B. Disciplinary process communicated	Yes, as part of new hire process.	In addition to training for new hires, incumbent members should review the process on a scheduled basis.
C. Appeal process provided	Yes, grievance procedure.	
<b>5. Counseling Services</b>		
A. Critical incident debriefing	Informally on scene or through Chaplain.	Connect GFD to the regional Critical Incident Stress Debriefing community.
B. Employee assistance program	Yes	
C. Intervention program	Yes, as part of the City's Drug and Alcohol Policy.	All supervisors should be trained in their responsibilities under the policy and resources available to members.
<b>6. The Application and Recruitment Process</b>		
A. Recruitment program	GFD has been making some recruitment efforts since 2012.	GFD should increase awareness of itself through the City's electronic newsletter, its own website, and any social media that GFD may subscribe to with an eye towards enhancing recruiting in the future.
B. Application process		
i) qualification check	Done by City HR	
ii) reference check	Done by City HR	
iii) background check	Done by City HR	
iv) physical standards established	GFD parallel's Clackamas Fire #1's standards.	
v) knowledge testing	GFD uses a written general knowledge test.	When job descriptions have been adopted, the written knowledge test should be reviewed for relevance and applicability.

HR Overview	2016 Observation	Recommendation
vi) interview	GFD membership committee.	This practice should be reviewed. Interviewers should be trained in best practices and City HR and the Fire Chief should review questions and process.
vii) medical exam required	Yes	Assure that current standards are up to date with best practices in the fire service.
<b>7. Testing, Measuring, and Promotion Process</b>		
A. Periodic competence testing	Through written tests.	Add practical skills evaluations.
B. Periodic physical competence testing	Yes	Ensure that annual practical skills evaluations are consistent with a clear policy for fire ground participation.
C. Periodic performance review	No	See the above comments. Performance and competence can be evaluated at the same time if properly designed.
D. Promotional testing	Yes, for apparatus officer and lieutenant; other promotions are by Fire Chief's appointment.	GFD uses written, practical, and interview boards to make promotions, but job descriptions and standards need to be developed and/or revised.
<b>8. Health and Safety</b>		
A. Medical standards established	NFPA compliant	
i) periodic medical exam	Medical exams are performed periodically.	GFD should revise and clarify its policy regarding who is examined, the extent of the examination, and on what schedule.
B. Safety committee established	Yes	GFD should establish a safety committee (separate from the City's committee) chaired by a chief officer who is the fire department delegate to the City's Safety Committee. Safety issues can then be discussed with all members during monthly meetings.
i) membership	All members	
ii) meetings	Monthly	

HR Overview	2016 Observation	Recommendation
iii) function	Make recommendations to the Fire Chief.	
iv) meeting minutes	Yes	

**Comments:** GFD or the City should conduct exit interviews with members of GFD who leave the organization. The information uncovered in these interviews can help improve quality of participation and retention of personnel. GFD and the City need to review the department’s on-call compensation in relation to Oregon’s minimum wage and wage and hour laws.

All GFD personnel should receive annual evaluations. GFD should be connected to the Critical Incident Stress Debriefing (CISD) community in the metro area. The department needs to develop and use a policy defining those incidents requiring debriefing.

GFD should improve its community outreach both to tap potential future recruits and to educate the public about its services.

Consider separating the Safety Committee from the volunteer association with a smaller membership and stronger focus on overall safety issues.

STAFFING OVERVIEW

Figure 7: Staffing Overview Table

Staffing Overview	2016 Observation	Recommendation
<b>1. Administration and Other Support Staff</b>		
A. Fire Chief, full-time, FLSA Exempt	The hiring of a full-time Fire Chief was recommended in an earlier evaluation.	
B. Assistant Chief, part-time, paid-on-call	This is the former, paid-on-call Fire Chief.	The FTE represented by this position should transfer to a subordinate officer position (BC or Captain) through attrition.
C. Assistant Chief/Fire Marshal, full-time, FLSA Exempt	The Assistant Chief is in the process of achieving full certification with the State of Oregon.	
D. Deputy Chief, paid-on-call		
E. Battalion Chief/Volunteer Coordinator, full-time	GFD personnel are not “volunteers;” is this the proper title for this member?	If deemed of interest, task this member with developing additional options for staffing.
F. Battalion Chief, part-time and paid-on-call	This staff member is serving as GFD’s EMS Officer and doing emergency pre-planning.	
G. Total administrative & support, full-time, part-time, and paid-on-call	6	Executive staff should identify what percentage of the tasks they perform could be addressed by an administrative assistant and propose that a fractional FTE be committed to the GFD.
E. Percent administrative and support to total	25%	
<b>2. Emergency Service Staff</b>		
A. Captain, paid-on-call	1	
B. Lieutenant, paid-on-call	4	
C. Firefighter, paid-on-call	20 (many are also AOs)	
D. Total operational staff, paid-on-call	26	The paid-on-call firefighter staff has fallen by 20% in recent years. GFD should identify multiple options for maintaining adequate staffing into the future.
E. Percent of operational officers to total operational	25%	

Staffing Overview	2016 Observation	Recommendation
<b>3. Use of Career and Paid-on-Call Personnel</b>		
A. Full-time employee schedule	Chief and Assistant Chief work M-F, 40+ hours; The BC works M-TH, 40 hours.	
i) length of normal duty period	8 or 10 hours per day	
ii) hours per week	40	
iii) normal workday begins	0700 or 0800	
iv) callback requirements	Yes	
v) residency requirements	No	
vi) standby duty requirements	Current standby expectations result in under-staffing at times.	Clarify participation expectations (and requirements) through policy and policy enforcement.
B. Part-time employee schedule	POC Deputy Chief: 40 hours per month, flexible POC BC: 30+ hours per month, flexible	These employees should be tracked for hours and for productive work.
i) length of normal duty period	Unspecified	
ii) hours per week	Flexible	
iii) normal workday begins	Flexible	
iv) callback requirements	Per POC guidelines.	Employees with a fixed hourly rate cannot be called back to work and paid according to the POC reimbursement schedule (if the resulting compensation is less than they would have received if being paid hourly).
v) residency requirements	No	
vi) standby duty requirements	Officers and AOs are expected to sign up for night duty; officers are assigned weekend duty several times per year.	Clarify policy regarding standby requirements and performance expectations.
C. Paid-on-call schedule	Officers and AOs are expected to sign up for night duty; officers are assigned weekend duty several times per year.	
i) residency requirements	No	
ii) assignment to company/station	No	GFD should clarify staffing assignments.
iii) alarm notification system	Active 9-1-1; cell phone; voice pagers.	
D. Paid-on-call services		
i) fire suppression	Yes	
ii) EMS/rescue, first response	Yes	
iii) EMS intermediate	30% of responders	

Staffing Overview	2016 Observation	Recommendation
iv) EMS, advance life support	10% of responders	
v) specialized rescue	Dive Rescue & some (Rope) Technical Rescue.	Clarify technical rescue policies.
vi) fire prevention inspections	One POC member in training to do fire safety inspections.	Consider recruiting for a POC, non-emergency responding, Inspector, if work load warrants.
vii) public education	As assigned	Consider recruiting for a POC, non-emergency responding, Educator, if work load warrants.
viii) hazardous materials response (level)	Operations	
<b>4. Responsibilities &amp; Activity Levels of Personnel</b>		
A. Assignment of routine duties:	Informal	The Fire Chief should be responsible for assigning all duties within the department based upon standards, qualifications, skill, and interest.
i) by position	A/O's responsible for apparatus checks; FFs may do them as well	Company Officers should have assigned duties or areas of responsibilities.
ii) by areas of personal interest	Still encouraged	
B. Special duties assigned by:		
i) bid	No	
ii) duty assignment	No	
iii) areas of personal interest	Yes	
C. Committees and work groups		
i) membership	Function of the GFD Association; not the City.	
ii) budget	Function of the GFD Association; not the City.	
iii) scholarship	Function of the GFD Association; not the City.	
iv) executive	Function of the GFD Association; not the City.	
v) EMS quality management	Charts are reviewed; there is Physician Advisor oversight.	GFD should establish a quality assurance process (Q/A) with the input of its Physician Advisor.
vi) Chaplain	Chaplain program shared with Gladstone Police. GFD has one Chaplain; GPD has four.	The Chaplain program should be coordinated with the overall Wellness program.
vii) training	About half the members of the department are certified as fire trainers.	

Staffing Overview	2016 Observation	Recommendation
viii) safety	See Safety Committee comments above.	
ix) building development	No	Should building remodeling or other buildings be considered, establish a committee to develop desirable building feature concepts.

**Comments:** GFD needs to further clarify its staffing model. Set stipend amounts for various responses are not uncommon for volunteer firefighters but have come under the scrutiny of both State and Federal regulators. Generally, if set payments fall below the minimum wage an on-call firefighter would have made (if paid hourly) are a risky compensation models. With the upcoming increases in minimum wage in Oregon, GFD may want to consider using its current payment model as a “floor,” depending upon the number of hours worked on a particular call or assignment.

The number of paid-on-call firefighters has dropped 20 percent in recent years. Two-thirds of the current on-call force have from 10 to 30+ years of service to the community. GFD may need to explore other models of providing adequate staffing, especially for evening and weekend hours. This might include “resident” or “intern” firefighters drawn from a pool of fire science students and/or volunteer firefighters from neighboring fire agencies. Some fire departments augment response force and reduce response times by maintaining resident members who stay in their fire stations (or in nearby residences provided by the department) and are available to respond immediately when called.

Paid staff at GFD (and other mostly volunteer or paid-on-call departments) are usually seen as managers, but they also serve as first out responders during the hours that they are at work. Traditionally, paid staff have been assigned Monday through Friday, 8AM to 5PM (approximately) work schedules because those “normal” work hours are hardest to cover with volunteer firefighters (who are, presumably at their paid jobs). GFD should analyze its paid-on-call staffing trends to assure that these assumptions are still valid. Some improvements in first response may be possible through changes in the regular work schedules of daytime administrative staff.

After analyzing paid-on-call response trends, GFD may need to develop a list of options for filling in any discovered gaps in coverage. All members of the organization should be invited to participate.

Fire prevention and public education in life safety and accident prevention have become an important part of the fire service mission. Fire departments still organized in a more traditional pattern may be missing an opportunity to recruit individuals from their community who, while not physically or psychologically fit for emergency response work, would be interested in serving in support, inspection, or educational capacities that the general public might not include in their perception of what a fire department does. GFD should consider exploiting this potential.

GFD does not report having an established quality assurance (Q/A) system for its emergency medical responses. Such a Q/A process should be developed with the input of the department’s Physician Advisor. GFD could partner with Clackamas Fire #1’s existing system.

TRAINING OVERVIEW

Figure 8: Training Overview Table

Training Overview	2016 Update	Recommendation
<b>1. Training Administration</b>		
A. Director of training program	BC Jeff Smith	Adopt a job description for this position.
B. Education or background	Instructor III; Fire Officer I and multiple fire service-related certifications. Environmental Consultant.	
C. State and Federal certification	See above	
D. Goals and objectives identified	Not formally	Both annual and long-term training goals and objectives should be established that complement overall department goals and objectives.
E. Governing body support and concurrence	The City is supportive of the Fire Department in general.	
<b>2. General Training Competency</b>		
A. Incident command system	GFD is in the process of becoming “blue card” certified.	Assure that all incident commanders are trained and certified before assigned the control of emergency incidents.
B. Accountability procedures	In place, but GFD struggles with accountability with mutual aid companies.	GFD should schedule drills with mutual aid companies, focusing on accountability procedures.
C. Policy and procedures	In place; working to clarify certification and qualification requirements for positions and assignments.	Follow through with the vision/plan.
D. Safety procedures	Yes	
E. Recruit academy	Annual	
F. Special rescue (high angle, confined space, etc.)	The Dive Team and Rope Rescue have annual training requirements.	Clarification of Technical Rescue protocols is needed.
G. Hazardous materials	All personnel are certified to at least Awareness level; all duty chiefs receive refresher training annually on HazMat IC.	

Training Overview	2016 Update	Recommendation
H. Wildland firefighting	Annual training required for all personnel.	
I. Vehicle extrication	Included in Technical Rescue training and requirements.	
J. Defensive driving	Offered but not regularly.	Consider periodic refresher training.
K. Use and care of small tools	Part of routine training.	
L. Radio communications & dispatch protocol?	Provided during recruit academy; existing policy addresses apparatus radio use.	Review Policy 32 for update.
M. CPR/AED	Required of all personnel.	
N. SCBA and respiratory protection	Annual training and mask fit test.	
O. Blood-borne/airborne pathogens	Required of all personnel annually.	
<b>3. Training Facilities &amp; Resources</b>		
A. Training facilities (tower, props, pits)	The department uses target hazards in the community as fire training grounds, schedules the use of Clackamas Fire #1's training facility, and is looking for opportunities within the city to create its own training facility.	
B. Classroom facilities	Available in the fire station.	
C. VCR, projectors, computer simulations	Available in the fire station classroom.	GFD should update training software.
D. Books, magazines, instructional materials	IFSTA library maintained.	
<b>4. Training Procedures Manual</b>		
A. Manual developed and used	GFD is in the process of developing a formal training curriculum ("Blue Card") for company and chief officers; it maintains training materials and programs for firefighters and apparatus operators and for EMS providers.	GFD should complete the "Blue Card" program for its company and chief officers.
B. IFSTA manuals used	IFSTA 6 <sup>th</sup> Edition issued to all personnel.	
<b>5. Training Methodologies</b>		
A. Manipulative	Covered in the course of routine training.	
B. Task performances	GFD maintains both company and individual task manuals.	Company tasks need to be updated.

Training Overview	2016 Update	Recommendation
C. Annual training hours	Fire: 608 hours; EMS: 46 hours	Training hours should be broken up more specifically than just "Fire" and "EMS" and should reflect person hours trained rather than number of hours scheduled.
D. Use of lesson plans	IFSTA 6 <sup>th</sup> Edition	
E. Night drills	Scheduled semi-annually, but since weekly drills are conducted at night 7-8 months of the year, night training occurs often.	
F. Multi-agency drills	Scheduled semi-annually, but since so many GFD calls involve mutual aid, the department has significant exposure to its neighboring agencies.	Use multi-agency drills to focus on inter-agency communications and personnel accountability.
G. Inter-station drills	Scheduled by Training	
H. Physical standards or requirements	Entry only	Develop incumbent standards.
I. Annual performance evaluation conducted	No	GFD should try to adapt the Wellness program shared with Clackamas Fire #1 to a model appropriate for a POC organization, and use established individual and company task performance evaluations to confirm both fitness and competency.
<b>6. Operations and Performance</b>		
A. Disaster drills conducted	Quarterly, in conjunction with GPD and county-wide.	
B. Attention to safety	Internally, believed to be high.	To address external concerns about company and incident command officers' commitment to safety, GFD should complete implementation of its "Blue Card" training initiative.
C. Post incident critique	Conducted on selected incidents.	GFD should have a policy regarding which incidents are to be critiqued.
D. Priority by management toward training	High	

Training Overview	2016 Update	Recommendation
<b>7. Record Keeping</b>		
A. Individual training files maintained	Yes	
B. Records and files computerized	Some	All GFD training records should be digitized.
C. Daily training records	Yes	
D. Training equipment inventoried	Yes	
E. Lesson plans used	Yes	
F. Pre-fire planning included in training	Yes	
G. Check-out system on training materials	Each member has a personal IFSTA manual and access to the department's IFSTA library.	
<b>8. Personnel to be Trained</b>		
A. Training objective (who, level, etc.)	All firefighters are trained to FF-II and HazMat Operations.	
B. Employee development program used	GFD identifies/defines "training tracks" for all levels from firefighter to Chief Officer.	Adopt job descriptions that match training tracks.
C. Goals and objectives identified	Not formally.	As part of annual evaluations, identify individual training goals and objectives.
<b>9. Administrative Priority</b>		
A. Budget allocated to training		
B. Using certified instructors	Thirteen (13) internal instructors certified per NFPA and the Fire Chief plans to mandate that all officers maintain at least the Instructor I rating.	
C. Annual training report produced	2016 is the first year that training will provide an annual report to the Fire Chief.	
D. Adequate training space/facilities/equipment	Limited by numerous factors—space, funding, available time.	
E. Maintenance of training facilities	Yes, within limitations.	

Training Overview	2016 Update	Recommendation
<b>10. Clerical Support for Training</b>		
A. Administrative secretary support	Yes	GFD staff should identify the number of hours of needed administrative assistance and apply for such support from the City.
B. Records computerized software used	Yes	
C. Adequate office space, equipment, and supplies	Limited	

**Comments:** GFD should focus on personnel accountability training, especially during training with mutual aid agencies. GFD needs to assure that its updated radio communications protocols are consistent with those of its mutual aid agencies. When setting annual training goals and objectives, assure that attention is paid to “high risk, low frequency” events. Company level trainers need to be reminded (and supported) in offering this type of training. GFD should adopt fitness standards for incumbent members, and encourage wellness through continued partnering with Clackamas Fire #1. GFD should develop a clear policy regarding post-incident critiques. Training records should be digitized. Annual goals and objectives for both individual and department-wide training should be a part of the annual evaluation process. As with other management functions, GFD staff should calculate the level of administrative assistant support it needs and communicate that need to the City.

#### FIRE PREVENTION OVERVIEW

**Figure 9: Fire Prevention Overview Table**

Fire Prevention Overview	2016 Update	Recommendation
<b>1. Fire Prevention Administration</b>		
A. Director of fire prevention program	Assistant Chief/Fire Marshal Funk	Continue cross training FF Sotin as a Fire Inspector.
B. Education or background	Fire and Life Safety Specialist II and other certifications.	Continue supporting Chief Funk’s training program until he is fully qualified as a Fire Marshal under ORS.
C. Goals and objectives identified	Per GFD’s earlier evaluation, fire prevention goals and objectives are on a 3-year cycle with some targets inspected more often.	
D. Governing body support and concurrence	Yes	

Fire Prevention Overview	2016 Update	Recommendation
<b>2. Code Enforcement</b>		
A. Fire codes adopted	2015 IFC and 2016 Oregon Fire Code	
B. Local codes or ordinances adopted	No local amendments	
C. Sprinkler ordinance in place	No	
D. Person(s) responsible for application of fire code and their competency level(s)		
i) Tom O'Connor, Fire Chief	Fire Chief meets the requirements of OAR 837-039-0110 and OAR Division 039.	
ii) Mike Funk, Fire Marshal	Chief Funk continues to work toward the scope of practice defined by OAR 837-039-0110 and 0120.	The City should continue to support Chief Funk's on-going training.
<b>3. New Construction Inspections and Involvement</b>		
A. Consulted in proposed new construction	Yes, with Clackamas County.	
B. Perform fire and life safety plan review	Involved from pre-planning stage to certificate of occupancy (COO).	
C. Sign-off on new construction	Yes, required prior to COO.	
D. Charges for inspections or reviews	No	GFD should charge for re-inspections required beyond the second visit.
E. Perform existing occupancy inspections	Yes, on a 3+ year cycle.	
F. Special risk inspections	Yes	Should be scheduled annually or as required.
G. Storage tank inspections	None	
H. Key-box entry program in place	SUPRA (required on all new business construction)	
I. Hydrant flow records maintained	Yes, by seasonal fire employees.	GFD should partner with the City's public works department to establish an effective hydrant testing program.
<b>4. General Inspection Program</b>		
A. Self-inspection program in place	No	GFD should monitor work load and consider implementing self-inspections for simple B-2 occupancies.
B. Frequency of inspections		
C. Inspection program	Scheduled according to occupancy type and risk.	

Fire Prevention Overview	2016 Update	Recommendation
D. Citation process in place and formally documented/adopted	Yes, though City municipal code, but it hasn't been used in 20 years.	
i) court cited to	Municipal Court	
E. Inspections computerized	GFD is currently experimenting with an iPad platform and observing what other area fire departments are doing.	Complete the "experimental" stage and adopt a commercially available code enforcement software.
F. Community feedback system in place	Only through participation City open house and PR activities.	GFD should add a customer feedback component to its own PR component (web site and social media).
G. Fees for specialty inspections	No	
<b>5. Fire Safety—Public Education</b>		
A. Public education/information officer in place	AC Funk functions as PEO. A POC member (Kirk Stempel) functions as PIO.	Formalize (through job description or policy) expectations of the PIO.
B. Feedback instrument used	Only informally	See recommendation above.
C. Public education in the following areas:		
i) calling 911	Yes	
ii) EDITH (exit drills in the home)	Yes—current program is "Get Out, Stay Out."	
iii) smoke alarm program	Yes	
iv) fire safety (heating equipment, chimney, electrical equipment, kitchen/cooking, etc.)	No, but seasonally appropriate messages are sent out in community newsletter and on City website.	
v) injury prevention (falls, burns/scalding, bike helmets, drowning, etc.)	No	GFD should follow best practices in the fire service and develop or participate in an injury/fall protection program.
vi) fire extinguisher use	Yes	
vii) fire brigade training	No	
viii) elderly care and safety	No	With the aging of the general population, GFD should be adding this issue to its annual goals and objectives.
ix) curriculum used in schools	No, only handouts.	
x) baby-sitting classes offered	No	
xi) CPR courses, blood pressure checks offered	Yes, when, and as, requested.	
D. Publications available to public	Yes	

Fire Prevention Overview	2016 Update	Recommendation
E. Bilingual information available	Limited	GFD should survey for the need of information in a second language.
F. Annual report distributed to community	No	2016 will be the first year that the Fire Chief receives a report. In coordination with the City, such a report should become available to the public.
G. Juvenile fire setter program offered	Yes, referred to County Mental Health.	GFD should provide basic intake training to its responders—when to recognize a potential problem.
H. Wildland interface education offered	Not applicable	
<b>6. Fire Investigation</b>		
A. Fire origin and cause determination	Yes	
B. Arson investigation and prosecution	After cause and origin are determined, arson cases are turned over to State police.	
i) arson investigation training provided	Yes	Continue to improve certification and training in this area.
C. Person responsible for investigations	A/C Fire Marshal Funk	
D. Local FIT membership (Fire Investigation Team)	Yes—Clackamas County	
E. Process for handling juvenile suspects	Intake by GFD personnel; referred to County Mental Health.	
F. Liaison with law enforcement	With both GPD and OSP.	
G. Scene control practices in place	GFD maintains control of the scene until the investigation is complete.	GFD should implement a policy describing expectations and performance at secured scenes.
H. Photographer available	2 members of the department are trained	
I. Adequate and appropriate equipment issued/supplied	Limited	As budgets allow, acquire appropriate equipment.
J. Evidence collection process in place	Yes	
K. Release required for entry	Yes	
L. Reports and records of all incidents made	Yes	
M. File, record, and evidence security	GPD maintains the evidence locker.	

Fire Prevention Overview	2016 Update	Recommendation
<b>7. Data Collection &amp; Statistical Analysis</b>		
A. Records kept by computer	Yes	
i) type of operating platform	Yes	
ii) software used	Yes	
B. Information collected in the following areas:		
i) fire incidents	Yes	
ii) time of day and day of week	Yes	
iii) method of alarm (how received)	Yes	
iv) dispatch times	Yes	
v) response times	Yes	
C. Information analyzed & used for planning	No	Using annual reporting, GFD should use data to plan for the future.
D. Reports made & distributed	GFD has started producing monthly reports by division with the plan to use them to create annual reports for the City; the Fire Chief gives a written report to the City Administrator on a weekly basis.	Follow through with this plan and utilize the data for planning training, recruiting, and deployment into the future.
E. FTEs used in data collection & analysis	An earlier evaluation recommended the use of shared administrative personnel to compile documentation. There is no evidence that GFD has tried to do this yet.	Look for ways to provide appropriate administrative support for management staff at GFD.
F. Are fire facilities networked	N/A	
i) email used	Email, through Outlook, was implemented this year.	
ii) intranet/shared software programs	Yes	
iii) fax used	Yes	
G. EMS software	Image Trend	

**Comments:** GFD needs to continue to support the Assistant Chief's efforts to obtain all required certifications for the Fire Marshal designation. This assures redundancy for that function (with the Fire Chief). Also, continue to cross train a current POC firefighter on fire inspection functions. This provides cross-training depth for the fire inspection program. Simple B-2 occupancies should be considered for annual self-inspections (with the three-year fire department on-site inspection maintained). Eligible B-2s should have a low occupancy and no overnight occupants.

Partner with Gladstone Public Works for an effective hydrant testing program.

Add a customer feedback component to emergency and inspection services. Some department leave post cards with citizens they have served. Customer feedback can also be solicited through the City’s website.

The Public Education and Public Information functions should be formalized through job descriptions and policy. With the aging of the population, many fire agencies are adding fall prevention and other senior-oriented education programs to their public education outreach. GFD should also survey to determine if fire and life safety information should be made available in one or more second languages.

Finally, annual reporting data should be used for planning future fire prevention and life safety education goals and objectives.

## CAPITAL OVERVIEW

**Figure 10: Capital Overview Table**

Capital Overview	2016 Update	Recommendation
<b>1. Fire Stations/Structures</b>		
A. Plan maintained	The previous evaluation recommended the development of a capital improvement plan (CIP) as part of the overall department planning process. To date, such a CIP has yet to be established.	Best practice in the fire service is to develop a CIP independently from considerations of how to fund the plan. Then, understanding the size of the “problem,” funding options can be developed.
i) period of plan (from – to)	Informal plan is current to 2018	
ii) funding mechanism	Not identified	The Fire Chief and the City Administrator should discuss how to proceed with this discussion and in what form it should be presented to the Council.
B. Construction or improvement schedule	There is no such schedule	GFD should develop a construction or improvement schedule.
<b>2. Apparatus</b>		
A. Plan maintained	The previous evaluation recommended the development of a capital improvement plan (CIP) as part of the overall department planning process. To date, such a CIP has yet to be established.	Best practice in the fire service is to develop a CIP independently from considerations of how to fund the plan. Then, understanding the size of the “problem,” funding options can be developed.
i) period of plan (from – to)	2016–2018	The apparatus plan should be extended to 7–10 years’ out.
ii) funding mechanism	Not identified	

Capital Overview	2016 Update	Recommendation
B. Purchase or refurbishment schedule	None	GFD should develop an apparatus replacement schedule.
<b>3. Support Equipment</b>		
A. Plan maintained	The previous evaluation recommended the development of a capital improvement plan (CIP) as part of the overall department planning process. To date, such a CIP has yet to be established.	Best practice in the fire service is to develop a CIP independently from considerations of how to fund the plan. Then, understanding the size of the “problem,” funding options can be developed.
i) period of plan (from – to)	None	GFD should develop an inventory of support equipment and a schedule for replacements.
<b>4. Methods of Financing</b>		
A. General revenue	City general fund	
B. Reserve fund(s)	City general fund	
C. Revenue fund(s)	N/A	
D. General obligation bond	N/A	
E. Serial levy	N/A	
F. Lease-Purchase	N/A	
G. Grants or gifting	N/A	
H. Special fees	N/A	

**Comments:** The City of Gladstone appears to have made capital purchases on an ad hoc basis. Best practices would be for the City to require the Fire Department to develop a capital plan for buildings—fire station(s) and a training facility are examples. If GFD develops a plan to add overnight, on-site staffing, planning for residential quarters (as an addition to an existing structure or as a separate, residential structure) must be included. The Fire Department should also develop a schedule for the replacement of its apparatus, based upon expected useful life and maintenance costs over time. GFD’s current apparatus maintenance contractor can probably assist in the development and monitoring of such a plan. GFD should also create an inventory of critical tool and support equipment in order to plan for the replacement of items like turnouts, breathing apparatus, small tools, and any other items that represent significant budgetary impact when they require replacement.

**Figure 11: Gladstone Fire Station**  
**Address: 555 Portland Avenue, Gladstone**



SURVEY COMPONENT	OBSERVATIONS
<b>STRUCTURE</b>	
Physical address	555 Portland Avenue, Gladstone
Construction type	Cinderblock, unreinforced, one story, concrete pad floor, approximately 60 ft. by 100 ft. area
Date of construction	Original construction in the 1940's. Remodeled unspecified date(s).
Seismic protection/energy audits	Upgraded for seismic in 2010
Auxiliary power	Diesel-powered generator
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	Mixed gender bathrooms, exhaust filtration systems on all apparatus.
Square footage	6,000 square feet
<b>FACILITIES AVAILABLE</b>	
Exercise/workout	Limited area in apparatus bay
Kitchen/dormitory	One small kitchen; no sleeping quarters.
Lockers/showers	One shower
Training/meetings	Combination training/meeting room—880 sq. ft.; three offices totaling 486 sq. ft.
Washer/dryer	Extractor washer and normal dryer
<b>FACILITIES AVAILABLE</b>	
Sprinkler system	No
Smoke detection	Yes, integrated with City Hall's system.
Security	Electronic locks on all doors
Apparatus exhaust system	Yes
Units/staffing levels assigned	Not applicable

**Comments:** If GFD ever considers maintaining on-site overnight staffing, it will need to add dormitory-type facilities. One solution could be the purchase or lease of a nearby residential facility appropriate for the number of personnel to be housed overnight. Examples might be a small apartment building or one or more houses.

**Figure 12: Apparatus**

Apparatus Designation	Type	Year	Make/Model	Condition	Minimum Staffing	Pump/Tank (gpm/gal.)
Rescue 101	Rescue	2010	Ford F-550	Good	2	NA
Engine 101	Pumper	2014	Pierce Velocity	Excellent	3	1500/750
Engine 103	Pumper	1996	Pierce Saber	Good	3	1500/750
Engine 102	Pumper	1991	Pierce Lance	Fair	3	1500/750
Truck 106	Quint	2008	Pierce	Good		250/350, aerial
C100	Command	2016	Ford Explorer	Excellent	1	Fire Chief
FM100	Command	2016	Ford Explorer	Excellent	1	Fire Marshal
DO109	Command	2011	Ford F-350	Good	1	On-call DO
Utility		1987	GMC Half Ton	Fair		Rebuilt Engine
Utility		1996	Ford F-450	Fair		Tow vehicle
Utility		1998	Jeep Cherokee	Fair/Poor		For Sale
Utility		1996	GMC Safari Van	Poor		For Sale

**Comments:** None.

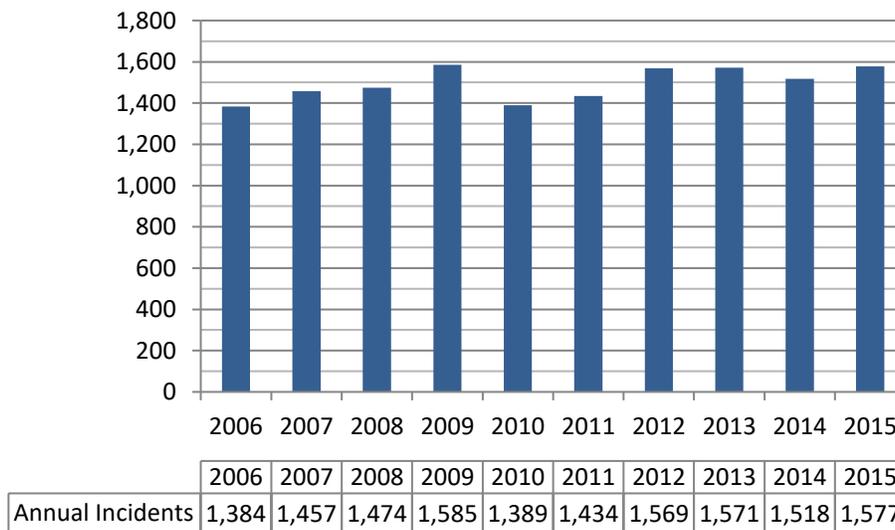
SERVICE DELIVERY AND PERFORMANCE

The delivery of fire suppression, rescue, and emergency medical services is no more effective than the sum of its parts. It requires efficient notification of an emergency and rapid response from well-located facilities, in appropriate apparatus, with enough well-trained personnel, following a well-practiced plan of action. This section of the report provides an analysis of the current service delivery components of the Gladstone Fire Department (GFD). National Fire Incident Records System (NFIRS) data, incident response data, and apparatus response data collected by the department is used in this section of the report.

*Demand Analysis*

The following figure displays GFD service demand for the previous 10 calendar years. The annual incidents displayed below represent all incident types including mutual/automatic aid given to neighboring fire jurisdictions.

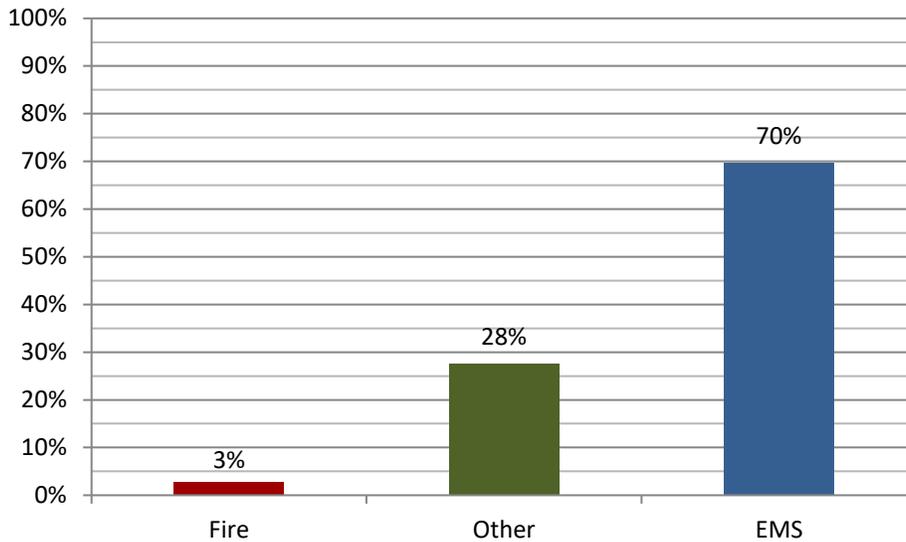
**Figure 13: GFD Annual Service Demand, 2006–2015**



GFD service demand has fluctuated in a range from approximately 1,400 to 1,600 incidents annually over the 10-year period displayed in this figure. Examination of 2016 incident data through November reveals that service demand is down by 8.7 percent compared to 2015 (2015=1,452; 2016=1,326).

In the next figure, ESCI examines GFD service demand by incident category from July 2014 to July 2016. In this analysis, ESCI has grouped the NFIRS incident types into three broad categories. “Fire” includes all fires (structure, vehicle, wildland, etc.). The “Other” category includes incidents such as hazmat responses, alarms (medical and fire), public assists, dispatched and cancelled enroute, and other incident types. “EMS” refers to any medical incident including motor vehicle accidents and rescue incidents.

**Figure 14: GFD Service Demand by Incident Category, July 2014–July 2016**

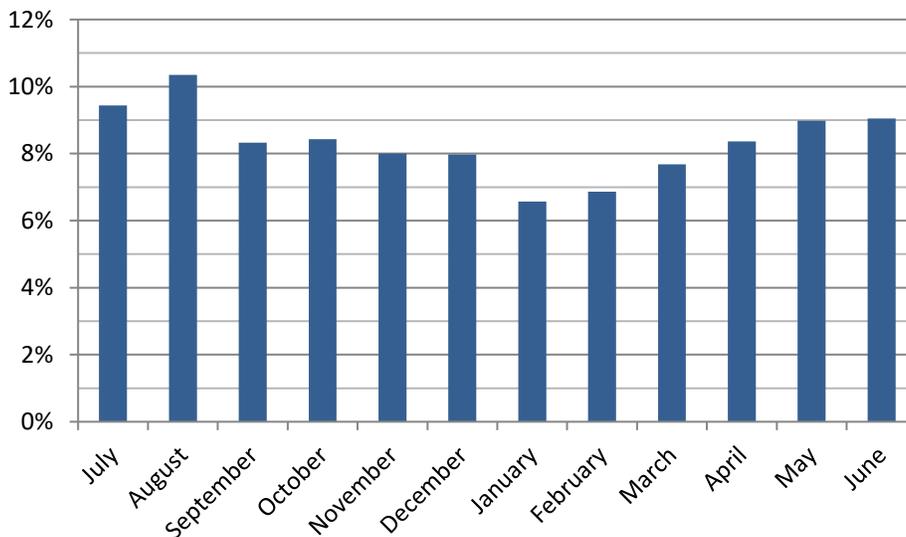


As with most modern fire jurisdictions that provide emergency medical first responder service, EMS incidents make up most service demand in the GFD service area. Fires comprise the smallest portion of service demand.

*Temporal Variation*

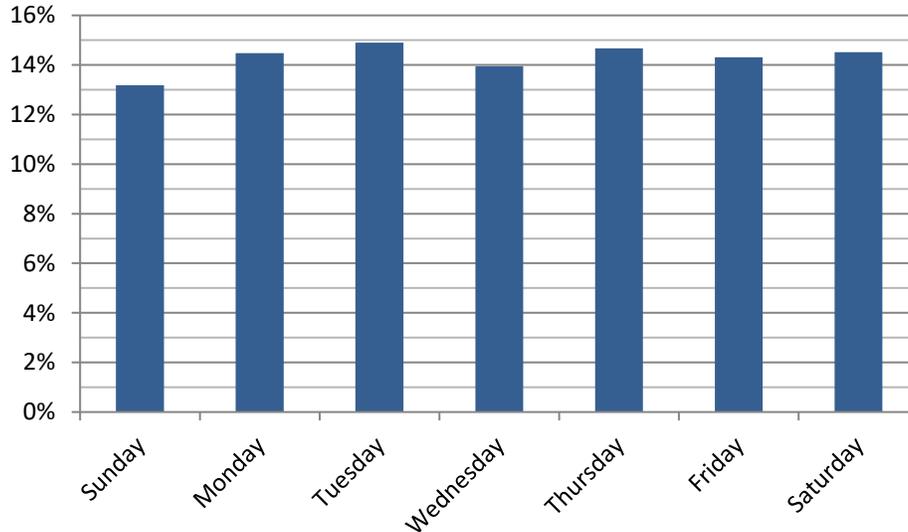
Service demand is not static, and GFD’s workload varies by temporal variation. The following figures illustrate how GFD’s service demand varied by month, day of week, and hour of day during the study period (July 2014 to July 2016) to identify any periods of time that pose significantly different risks and hazards. This analysis begins by evaluating service demand by month.

**Figure 15: GFD Service Demand by Month, July 2014–July 2016**



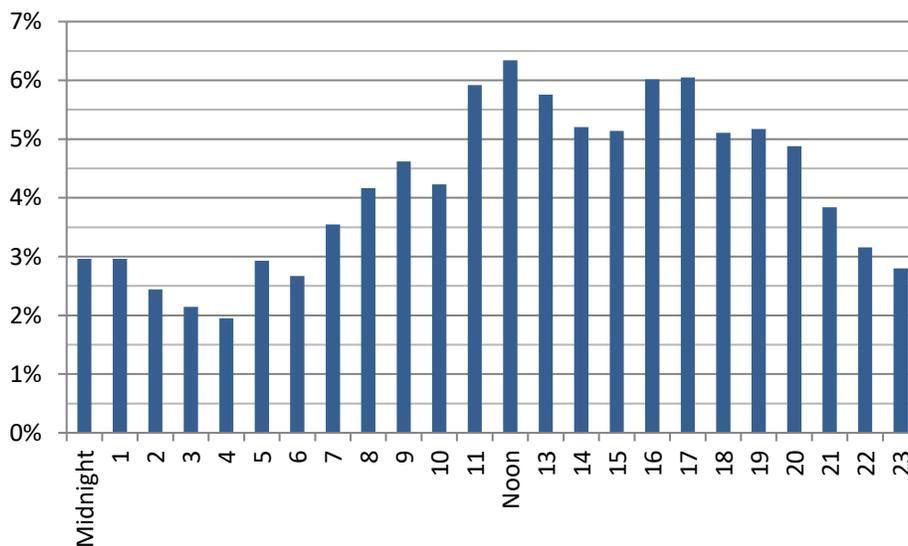
Overall service demand varies throughout the year, with the lowest demand in January (6.6 percent) and the highest number of calls for service in August (10.3 percent). The range is slightly less than four percent during the study period. The next figure looks at service demand by day of the week.

**Figure 16: GFD Service Demand by Day of the Week, July 2014–July 2016**



As with monthly service demand, service demand varies throughout the week. The range is relatively narrow (approximately 1.5 percent) between the lowest demand on Sundays and the highest demand on Tuesdays. The last analysis of temporal variation demonstrates workload by hour of the day.

**Figure 17 GFD Service Demand by Hour of the Day, July 2014–July 2016**



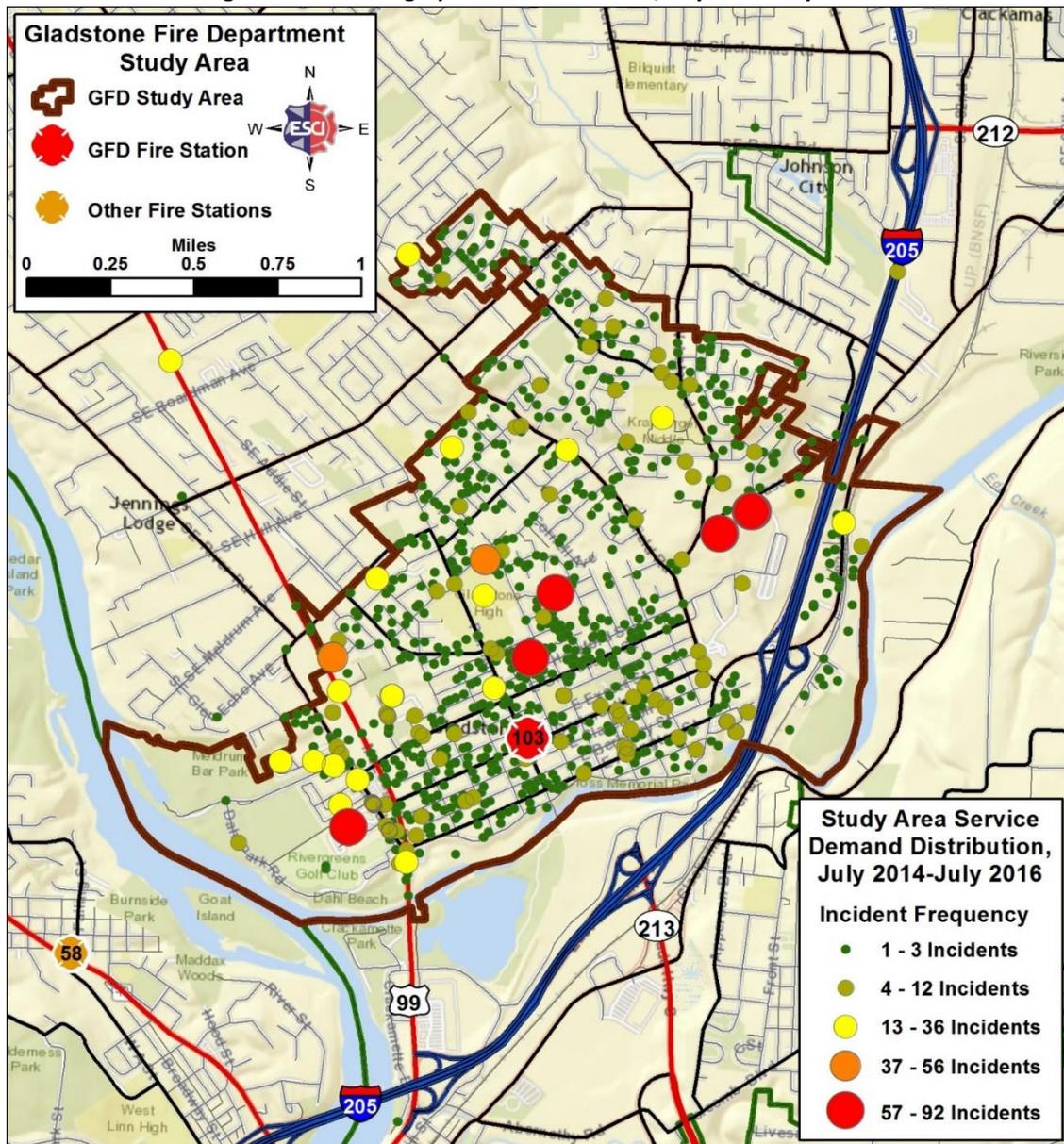
Service demand directly correlates with the activity of people, with workload increasing during daytime hours and decreasing in the evening and early morning hours as shown in this figure. Incident activity is at its highest during the day. Over 64 percent (64.4 percent) of the service demand displayed above

occurred between the hours of 9AM and 9PM in the study period. Agencies such as GFD that rely on volunteer staffing for emergency responders may experience staffing issues during the workday when demand is the highest and volunteer availability is lowest. GFD utilizes administrative staff at Station 103 and mutual or automatic aid resources to offset the lack of volunteer personnel during the workday.

**Geographic Service Demand**

In addition to the temporal analysis of service demand, it is useful to examine the geographic distribution of service demand. In the following figure, ESCI plots incident locations and identifies the number of incidents at particular locations in the July 2014–July 2016 data.

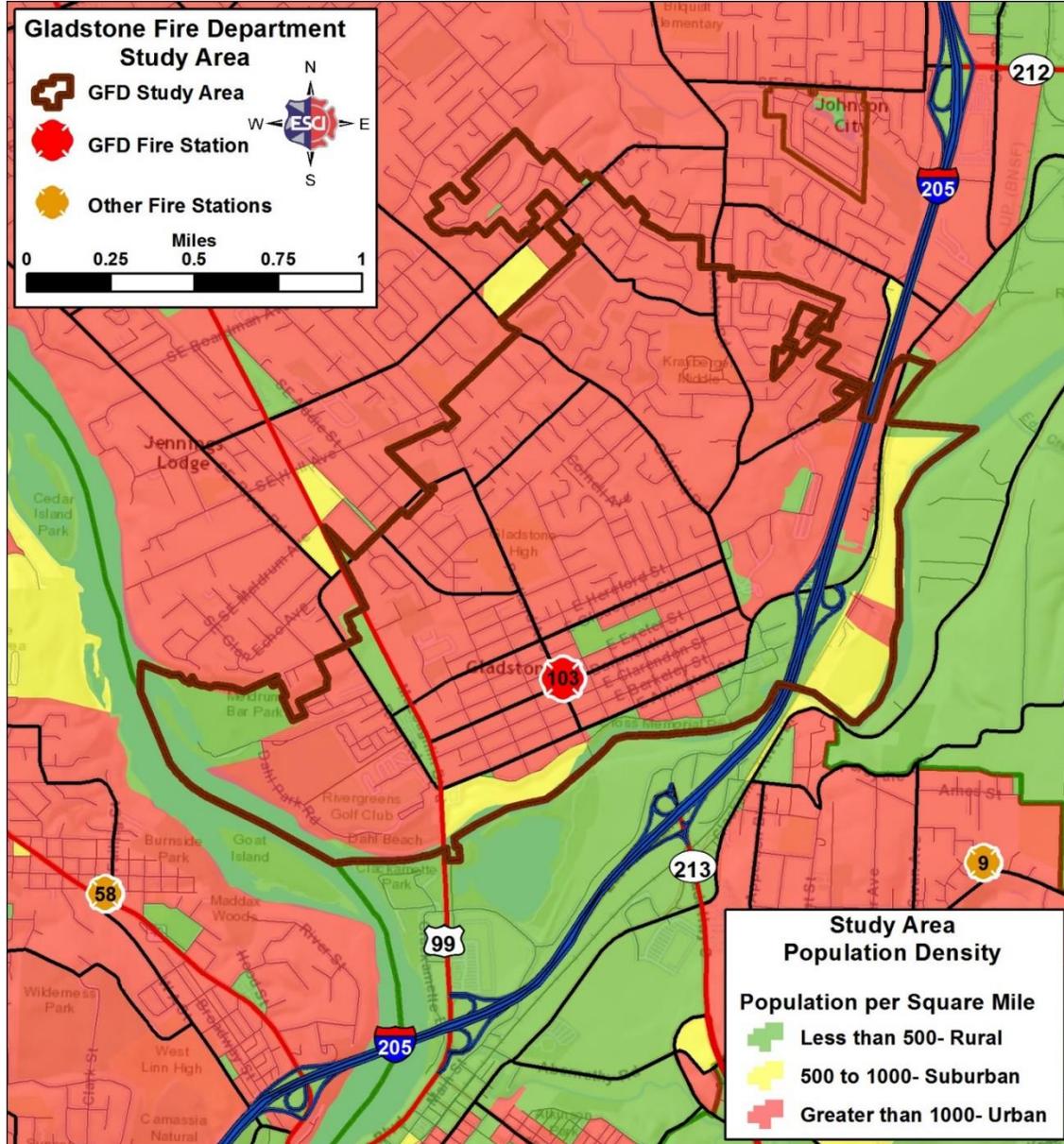
**Figure 18: GFD Geographic Service Demand, July 2014–July 2016**



### Distribution Analysis

The distribution analysis presents an overview of the current distribution of fire department resources within the GFD service area.

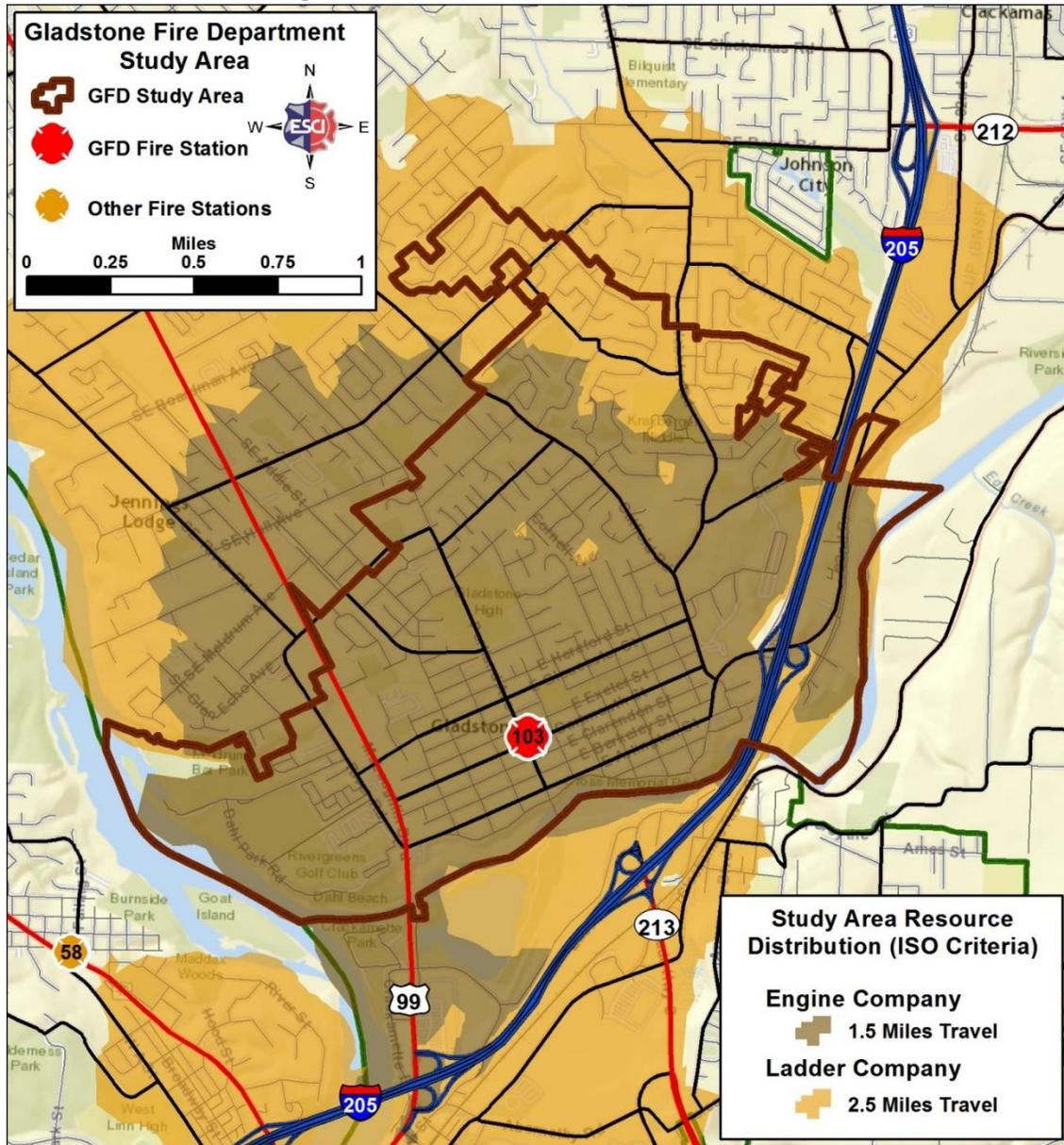
Figure 19: GFD Population Density, 2010 Census Blocks



The Gladstone Fire Department serves the incorporated City of Gladstone from a single station centrally located at 555 Portland Avenue. The calculated area of Gladstone is approximately 2.5 square miles with an estimated population of approximately 11,660. The overall population density inside the City of Gladstone is approximately 4,664 per square mile. As displayed in the figure above, the GFD service area is primarily a high density urban community.

The Insurance Services Office (ISO) is a national insurance industry organization that evaluates fire protection for communities across the country. A jurisdiction’s ISO rating is an important factor when considering fire station and apparatus distribution; since it can affect the cost of fire insurance for individuals and businesses. For ISO purposes, response areas are measured at 1.5 miles of travel distance for each engine company; and 2.5 miles for a ladder company (aerial apparatus) on existing roadways.

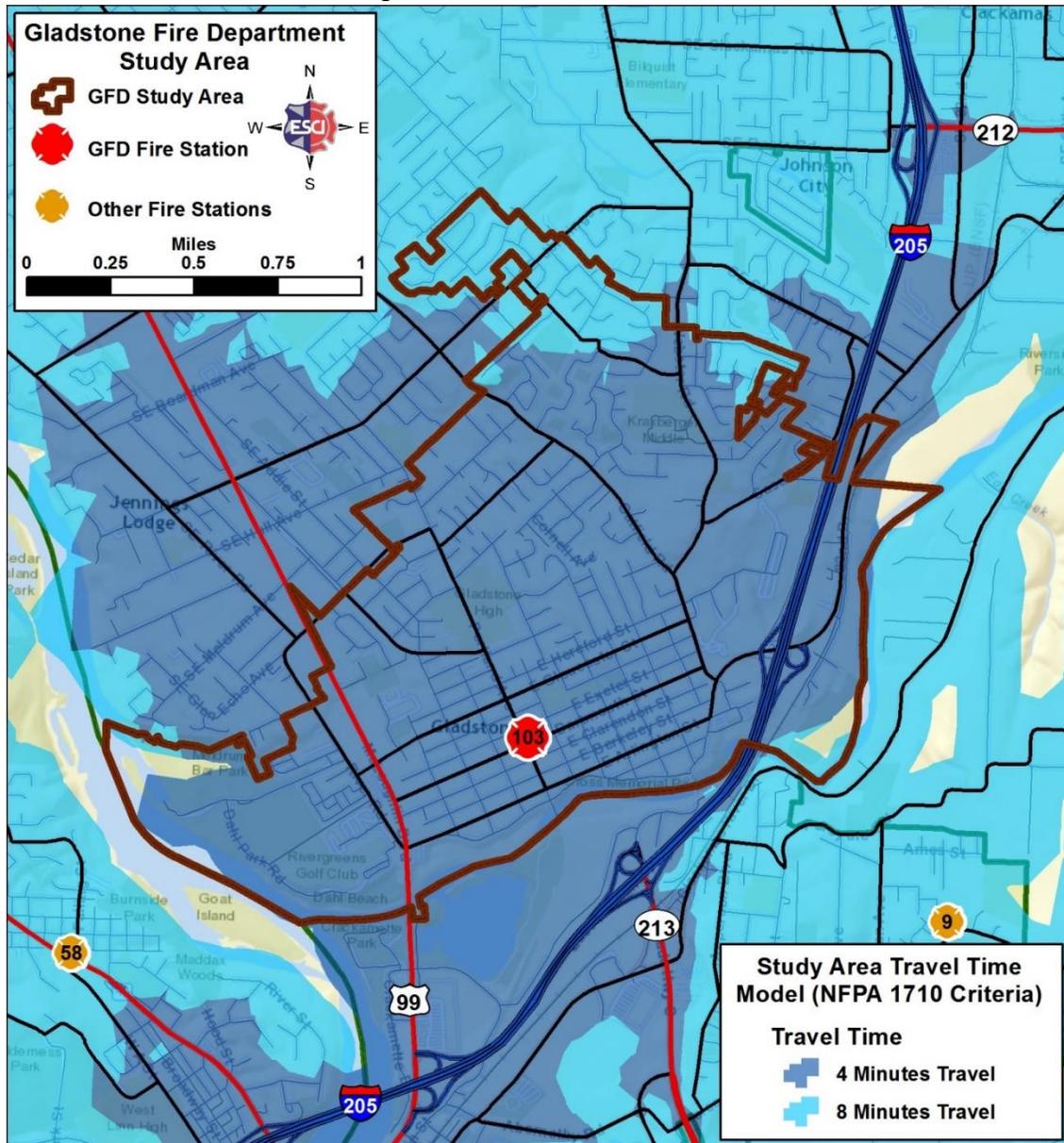
Figure 20: GFD Resource Distribution, ISO Criteria



Approximately 84 percent of the road network within Gladstone is within 1.5 miles of GFD Station 103. All built upon portions of the GFD service area are within 2.5 miles travel of the ladder truck at Station 103. Note that the GFD ISO rating improved from a Public Protection Class (PPC) 5 at the time of the 2010 ESCI study, to currently a PPC of Class 4 (Class 1 represents exemplary fire protection, Class 10 is no fire protection classification).

The ISO Public Protection Classification program only addresses fire suppression activities and is primarily concerned with the geographic coverage of property. For jurisdictions such as GFD that respond to all types of emergencies, the travel time required to respond from a fire station to any type of emergency call for service is of equal importance. The following figure demonstrates travel time over the existing road network. Travel time is calculated using the posted speed limit and adjusted for negotiating turns and intersections. One way street network directionality is also respected.

Figure 21: GFD Travel Time Model



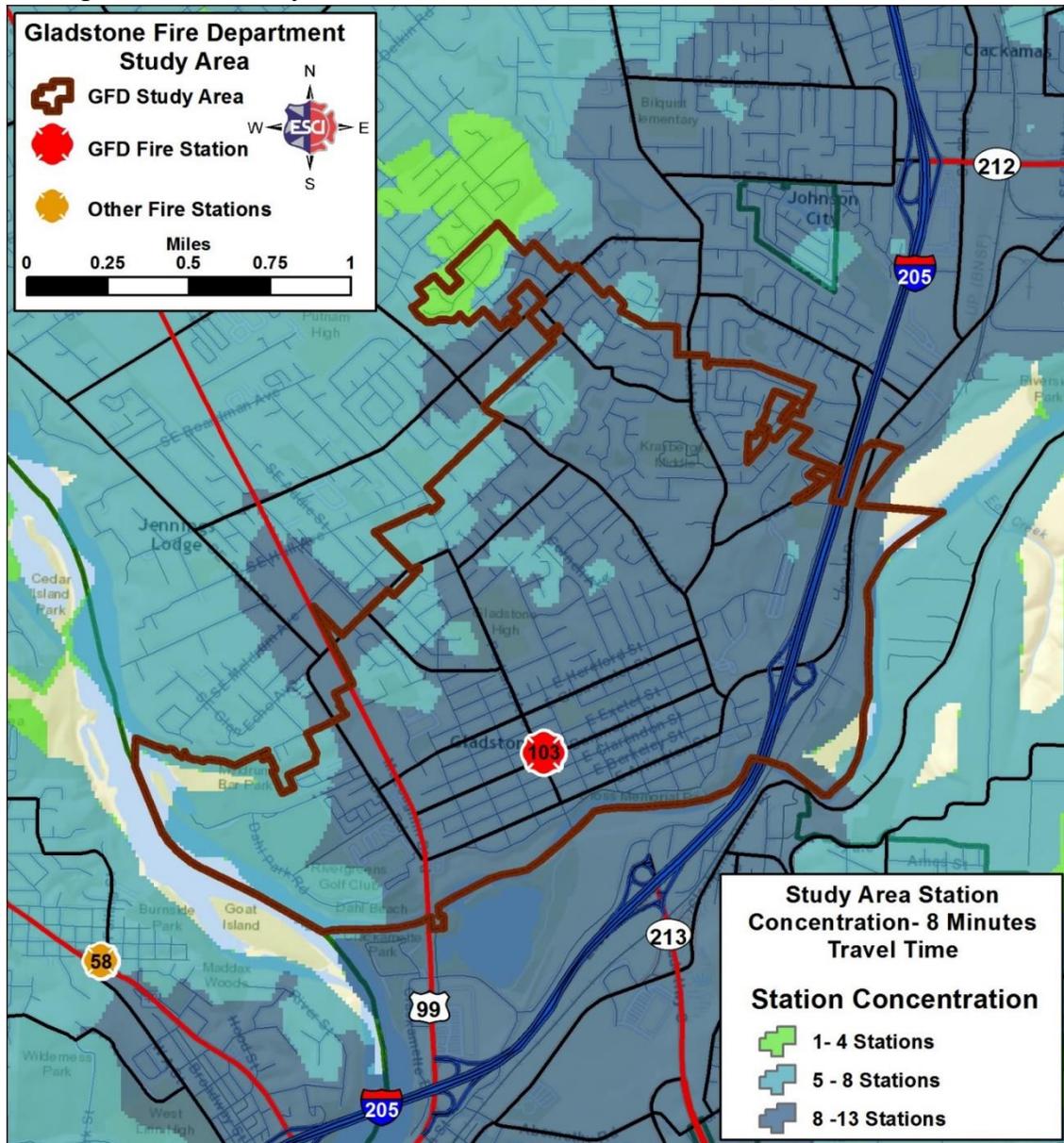
The quality and connectivity of the street network, traffic, geography, and barriers can all affect potential travel time performance. The street network in the GFD service area provides good access through the approximately 2.5 square mile Gladstone service area. GIS analysis reveals that over 95 percent of the July 2014 to July 2016 service demand is within four minutes' travel or less of Station 103. The entire service area is within eight minutes' travel of the single GFD station.

Note that the travel time model demonstrates potential travel time from the GFD station, assuming all apparatus are in quarters and available. Actual GFD response time performance is discussed in the Response Performance Analysis.

### Concentration Analysis

The concentration analysis examines GFD's ability to assemble multiple resources (both apparatus and people) in a timely manner. This is to ensure that enough people and equipment arrive soon enough to safely control a fire or mitigate any emergency before there is substantial damage or injury. The following figure displays the concentration of GFD and adjacent fire jurisdiction (CFD 1 and TVFR) stations in the study area in eight minutes or less travel time.

Figure 22: GFD and Adjacent Fire Jurisdictions Station Concentration, 8 Minutes Travel Time



GFD routinely relies on mutual or automatic aid resources to assemble an effective response force (ERF) to mitigate emergency incidents beyond the capabilities of a single first due fire apparatus or EMS rescue unit. This figure demonstrates that numerous mutual or automatic aid resources are available in eight minutes' travel or less of the GFD service area. Most of the service area can be reached by five or more fire stations (includes Station 103) in eight minutes' travel or less. Automatic aid resources are appropriately included as part of the first alarm assignment for structure fires and other higher risk incidents.

As with the travel time model, **Figure 23** demonstrates potential travel time capability, assuming apparatus are in quarters and available. Actual response performance related to the assembly of an ERF will be discussed in the response performance analysis.

*Reliability*

The workload of emergency response units can be a factor in response time performance. The busier a given unit, the less available it is for the next emergency. If a response unit is unavailable, then a unit from a more distant station (or mutual aid department) must respond, increasing overall response time. Although fire stations and response units may be distributed in a manner to provide quick response, that level of performance can only be obtained when the response unit is available in its primary service area.

Simultaneous or concurrent incidents can affect a fire department's ability to muster sufficient resources to respond to additional emergencies.

**Figure 23: GFD Concurrent Incidents, July 2014–July 2016**

Concurrent Incidents	Percentage
Single Incident	89.8%
2	9.6%
3	0.6%

Nearly 90 percent of GFD incidents during the two-year study period occurred as a single event. Approximately 10 percent of the time two or more incidents were in progress in the GFD service area. The percentage of concurrent is similar to that of comparable fire jurisdictions with similar service demand; and is not at a level that would be expected to negatively affect response time performance.

Unit hour utilization (UHU) describes the amount of time that a unit is not available for response because it is already committed to another incident. The larger the number, the greater its utilization and the less available it is for assignment to subsequent calls for service. The following figures display the total time GFD operational apparatus were committed to an incident and expresses this as a percentage of the total hours in a year.

**Figure 24: GFD Unit Hour Utilization (UHU) July 2014–July 2016**

Apparatus	Average Time Committed	Total Time Committed	UHU Rate
DO109/1009	21:31	326:19:47	1.9%
E101	22:33	247:21:53	1.4%
E102	22:50	18:16:17	0.1%
E103	18:45	35:37:17	0.2%
FM100	23:34	110:43:51	0.6%
R101	20:56	692:40:00	4.0%
T106	27:22	83:54:13	0.5%

On average, GFD first out apparatus (DO109, E101, R101, and T106) are committed to an incident for approximately 21 to 27 minutes. Rescue 101 demonstrates the highest annual UHU during the study period. In ESCI’s experience, GFD unit hour utilization is not at a level that would negatively affect response performance. Note that this analysis only looks at incident activity and does not measure the amount of time dedicated to training, public education and events, station duties, or additional duties as assigned.

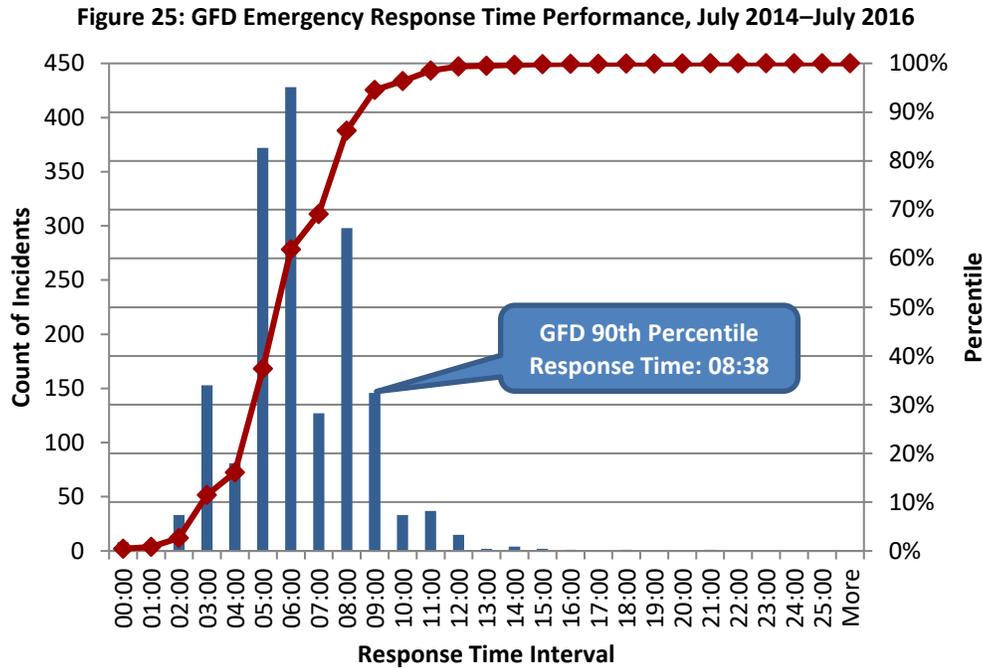
### **Response Performance**

Perhaps the most publicly visible component of an emergency services delivery system is that of response performance. Policy makers and citizens want to know how quickly they can expect to receive emergency services. In the performance analysis, ESCI examines emergency response performance within the GFD service area. The data used for this analysis is July 2014 to July 2016 emergency responses extracted from the GFD records management software (RMS). In some cases, additional incident response data provided by C-COM, the Clackamas County emergency dispatch center, is utilized. Non-emergent incidents, mutual/automatic aid incidents outside the GFD service area, incidents cancelled prior to arrival, data outliers, and invalid data points are removed from the data set.

ESCI calculates GFD emergency response performance at the 90<sup>th</sup> percentile. The use of percentile calculations for response performance follows industry best practices and is considered a more accurate measure of performance than “average” calculations. Fire service best practice documents such as the Center for Public Safety Excellence (CPSE) *Community Risk Assessment: Standards of Cover, 6<sup>th</sup> Edition* and the *NFPA 1710 and NFPA 1720 Standards* recommend measuring emergency response time performance at the 90<sup>th</sup> percentile; meaning 90 percent of emergency responses occur in less than the stated value.<sup>1</sup>

<sup>1</sup> Center for Public Safety Excellence (CPSE) *Community Risk Assessment: Standards of Cover, 6<sup>th</sup> Edition*; *NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (National Fire Protection Association 2010) and *NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* (National Fire Protection Association 2014).

Gladstone Fire measures response time from the time units are notified of an emergency to when the first GFD apparatus arrives on the scene of an emergency. The following figure displays GFD emergency response time performance during the July 2014 to July 2016 study period.



The most frequently recorded GFD response time is between five and six minutes. The average response time during the study period is 5 minutes, 49 seconds. The first apparatus arrived at 90 percent of GFD emergency incidents in 8 minutes, 38 seconds or less (08:38) from the time the GFD units were dispatched to the time the first GFD apparatus arrived on scene. The first GFD unit arrived at over 96 percent (96.4 percent) of GFD emergencies in less than ten minutes. Ten minutes is the informal GFD response time performance goal for emergency incidents.

The response time performance demonstrated in the preceding figure is composed of the following components:

- Turnout Time—The time interval between when units are notified of the incident and when the apparatus are en route.
- Travel Time—The amount of time the responding unit spends travelling to the incident.
- Response Time—Response Time equals the combination of “Turnout Time” and “Travel Time.”

Call processing time is not included in the GFD measurement of response time performance. Call processing time is the time interval that begins from when the caller contacts the 911 center to when the fire department is notified of the emergency. National consensus standards (NFPA 1710, NFPA 1221) specify that call processing should be completed in 60 seconds for 90 percent of all emergency incidents. Examination of GFD incident data provided by C-COM reveals that 90<sup>th</sup> percentile call processing performance during the study period was 1 minute, 15 seconds (01:15). This exceeds the call processing

performance goal for emergency incidents by 15 seconds. ESCI encourages GFD to work with C-COM to monitor call processing time performance.

*Components of GFD Emergency Response Time Performance*

Tracking the individual elements of response time performance enables jurisdictions to identify deficiencies and areas for improvement. Fire service best practice documents recommend that fire jurisdictions monitor and report the components of total response time.<sup>2</sup> The following figure displays GFD emergency response performance for the first apparatus on scene from July 2014 to July 2016.

**Figure 26: GFD Response Performance—Components of Response Time, July 2014–July 2016**

	Turnout Time	Travel Time	Response Time
Average	03:04	02:46	05:49
90th Percentile	05:02	04:30	08:38

In addition to the 90<sup>th</sup> percentile performance, ESCI displays the GFD average measurement for each of the components of response time. This illustrates the difference between measuring the performance of approximately 50 percent of emergency incidents as opposed to measuring the performance of 90 percent of the data set.

*Turnout Time*

Turnout time is one area of response time performance that fire departments have some ability to control. GFD turnout time performance exceeds five minutes (05:02) measured at the 90<sup>th</sup> percentile. This is similar to that of other agencies that utilize paid-on-call personnel to staff emergency apparatus. The time required for operational personnel to respond from their home or place of work to the fire station, affects overall emergency response performance. Implementing a resident program or other process whereby personnel can get to the station more quickly would significantly enhance turnout time, and thus, overall response time.

*Travel Time*

As discussed in the Distribution Analysis, GFD Station 103 is within four minutes’ travel of approximately 95 percent of current service demand. **Figure 26** demonstrates that GFD apparatus require 4 minutes, 30 seconds (04:30) to arrive at 90 percent of emergency incidents. Traffic congestion, intersections, construction, and distance all play crucial roles in travel time. Traffic control devices—such as signal pre-emption devices—are examples of a technology that can improve travel time performance. Actual travel time performance and the predicted travel time model indicate that the current GFD station is well located to serve the GFD service area.

<sup>2</sup> NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2010); NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* (2014); Center for Public Safety Excellence (CPSE) *Community Risk Assessment: Standards of Cover, 6<sup>th</sup> Edition*.

*First Unit On-Scene Response Performance*

The following figure displays annual GFD emergency response performance (90<sup>th</sup> percentile) for the 24-month study period from July 2014–July 2016.

**Figure 27: GFD Annual Response Performance, July 2014–July 2016**

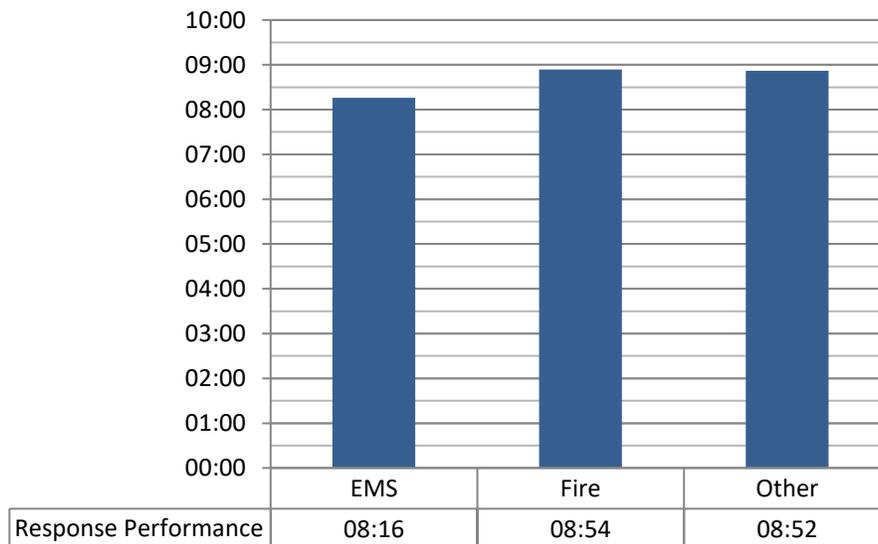
Annual 90 <sup>th</sup> Percentile Performance—Components of Response Time			
	Turnout Time	Travel Time	Response Time
July 2014–July 2015	05:05	04:14	08:06
July 2015–July 2016	05:00	04:58	08:56

This figure displays a 44 second increase in GFD travel time performance between the end of June 2015 and July 2016; which has also affected response time performance. This should be carefully monitored for to determine if there is a trend that should be investigated to determine the cause.

*Emergency Response Performance by Incident Category*

In the following figure, “Fire” refers to any incident coded as a fire in the National Fire Incident Reporting System (NFIRS) data. The “EMS” category includes all calls for medical service including MVAs and rescues; and the “Other” category refers to incidents such as hazmat, false alarms, service calls, or weather-related incidents.

**Figure 28: GFD Response Performance by Incident Category, July 2014–July 2016**

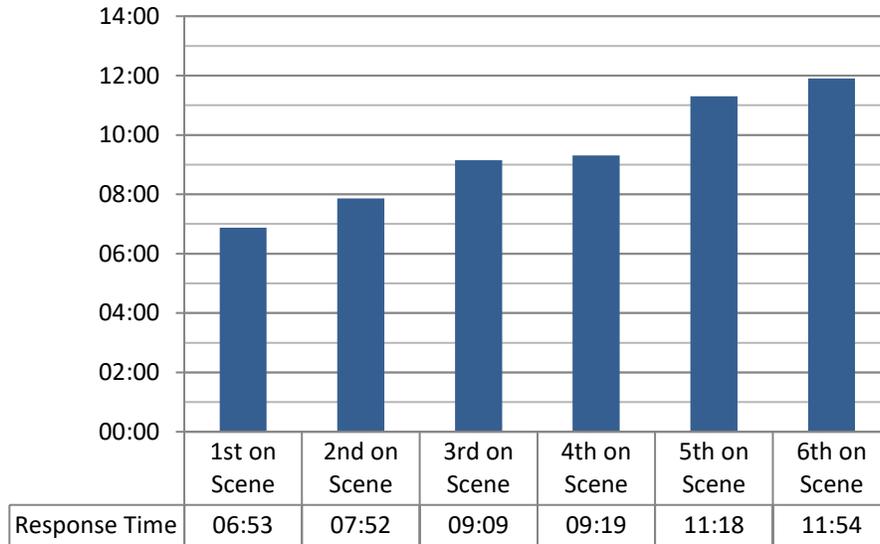


Response times may vary depending on the type of emergency reported. EMS calls (other than MVAs) do not require donning protective equipment, fire calls require firefighters don protective equipment prior to the apparatus leaving the station, and some incidents require a specific apparatus that may result in a delay waiting for specially trained personnel to staff the apparatus.

*Effective Response Force Response Performance*

Up to this point, the performance analysis has been concerned with response time performance for the first arriving apparatus. The following figure examines response performance as it pertains to the assembly of multiple resources. For this analysis, ESCI uses C-COM data to measure response performance (90<sup>th</sup> percentile) through the sixth apparatus on scene at a structure fire in the GFD service area. This analysis includes GFD and automatic or mutual aid resources.

**Figure 29: GFD Structure Fire Response Performance (90<sup>th</sup> Percentile) by Arrival, July 2014–July 2016**



The GFD dispatch protocol (run card) for a structure fire calls for four engines, one truck, and a Battalion Chief. This brings anywhere from 15 to 18 personnel to the scene of a structure fire. As discussed in the concentration analysis, the majority of the GFD service area is within eight minutes’ travel of five or more fire stations. The figure above illustrates the response time required to assemble GFD and adjacent fire jurisdiction resources at the scene of a structure fire. The time difference between the first and second apparatus is approximately one minute (00:59). There is an approximately five-minute (05:01) difference between the arrival of the first unit on scene to the sixth apparatus.

*Mutual and Automatic Aid Systems*

There are numerous mutual aid agreements, both formal and informal, in place between fire, police, and emergency medical agencies in the study area. In practice, mutual aid is handled on an “as needed” basis where units are called for and specified one by one through an Incident Commander. Automatic aid agreements differ from mutual aid agreements in that under certain criteria, resources are automatically dispatched as part of the initial response.

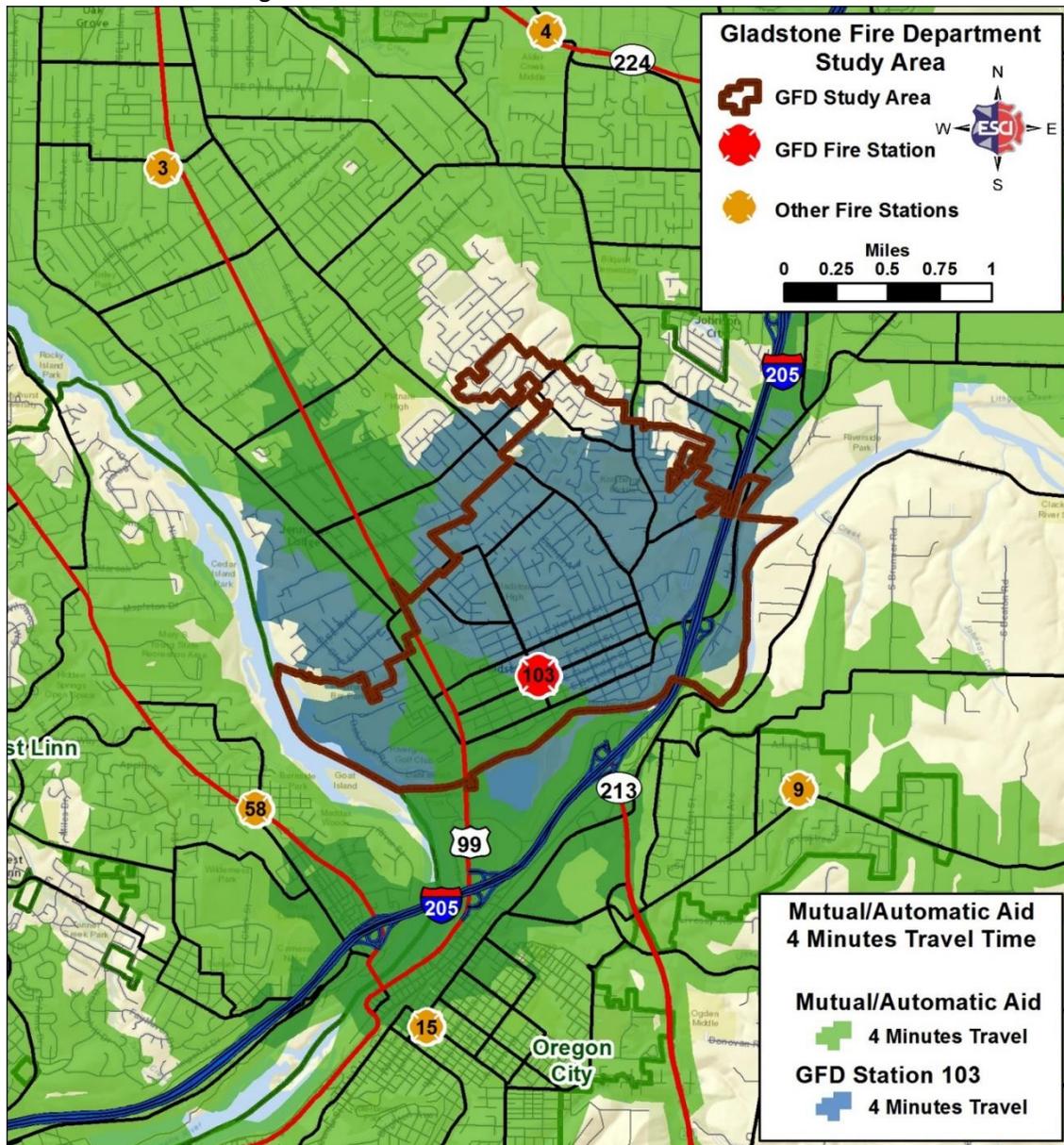
GFD is a participant in a very robust regional mutual and automatic aid system. This system provides for the automatic dispatch of adjacent agency response units into Gladstone and from GFD to adjacent agencies to ensure the closest appropriate units are sent to an emergency. The following figure displays the distribution of mutual or automatic aid given or received by Gladstone.

**Figure 30: Mutual/Automatic Aid Responses, July 2014–July 2016**

Mutual/Automatic Aid	Count of Incidents
Mutual/Automatic Aid Received	65
Mutual/Automatic Aid Given	229

GFD received mutual or automatic aid from adjacent fire jurisdictions 65 times in the two-year period displayed. Gladstone responded to 229 requests for aid during the same period. As previously discussed, GFD relies on aid primarily to provide additional resources for incidents beyond the capability of the first GFD apparatus on scene. The entire GFD service area is within 8 minutes’ travel of multiple stations, which provides a good concentration of additional resources. The following figure demonstrates the portions of the GFD service area within four minutes’ travel of the GFD service area.

**Figure 31: GFD Mutual Aid Within 4 Minutes’ Travel Time**



Twenty-six (26) percent of the current GFD service demand (July 2014–July 2016) is within four minutes’ travel of a mutual aid resource. As discussed previously, approximately 95 percent of these incidents are within four minutes’ travel of Station 103. Actual GFD travel time performance was approximately 4 minutes, 30 seconds to reach 90 percent of these incidents. GFD appropriately utilizes resources from adjacent jurisdictions to increase the concentration of resources in the GFD service area. However, increased utilization of these mutual or automatic aid resources as first responders could potentially increase travel time, which could negatively affect emergency response performance.

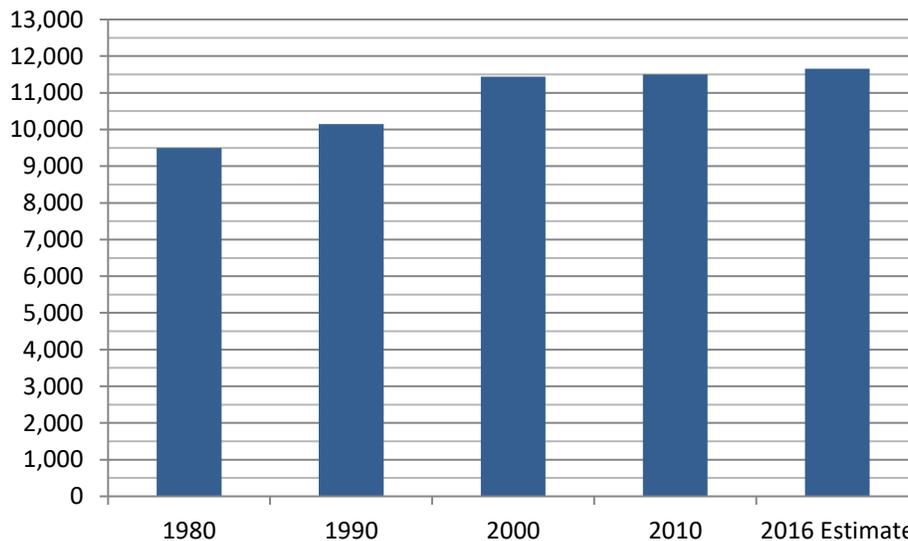
#### FUTURE SYSTEM DEMAND PROJECTIONS

Future demand for fire department services is largely dependent on changes over time to population, demographics, and future community conditions. US Census Bureau data, local population estimates, the City of Gladstone Comprehensive Plan, and other regional planning documents are utilized in this section of the report.

#### *Population History and Growth Projections*

The current preliminary population estimate for the City of Gladstone is 11,660.<sup>3</sup> The following figure illustrates historical population change using US Census Bureau data.

**Figure 32: Historical Population Change, 1980–2016 (Census Bureau and PSU 2016 Estimate)**



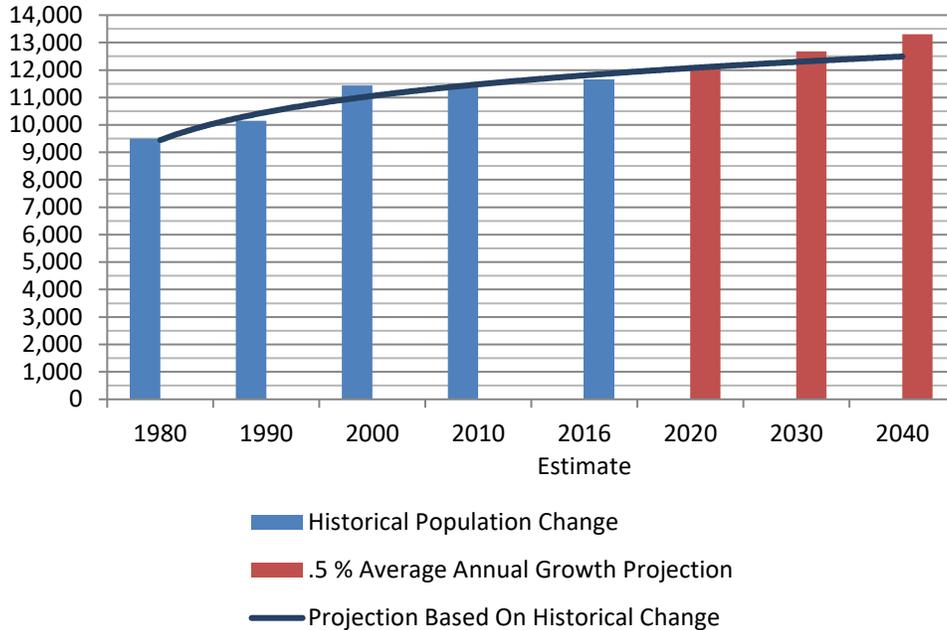
The population grew by over 20 percent (20.4 percent) between 1980 and 2000. However, since 2000, population growth in Gladstone decreased to a rate of 1.9 percent. In the time period between 2000 and 2016, the population grew from 11,438 to an estimated 11,660 as of July 1, 2016. This can be attributed to Gladstone reaching buildout within the Gladstone city limits and the urban growth boundary (UGB).

<sup>3</sup> Portland State University, Population Research Center, July 2016 Preliminary Annual Population Estimate.

*Population Growth Projections*

Regional population forecasts and a 2011 population forecast document prepared for the Tri-City Service District (Gladstone, Oregon City, and West Linn) by the Portland State University Population Research Center project future population growth in the Gladstone service area at approximately .5 percent average annual growth over approximately the next 25 years (2040). The following figure illustrates two possible population projections for Gladstone, one based on an average annual growth rate of .5 percent and a mathematical projection based on the historical population change between 1980 and 2016.

**Figure 33: Gladstone Population Projections, 2016–2040**



Based on the projections presented above, the population of Gladstone grows from 11,660 (2016 PSU estimate) to anywhere from 12,500 to over 13,000 (13,309) by 2040. Note that these projections assume there are no changes to the current city or UGB boundaries. In addition, ESCI notes that a current downtown revitalization project is in progress in Gladstone that may affect future development and growth in the GFD service area.

*Service Demand Projections*

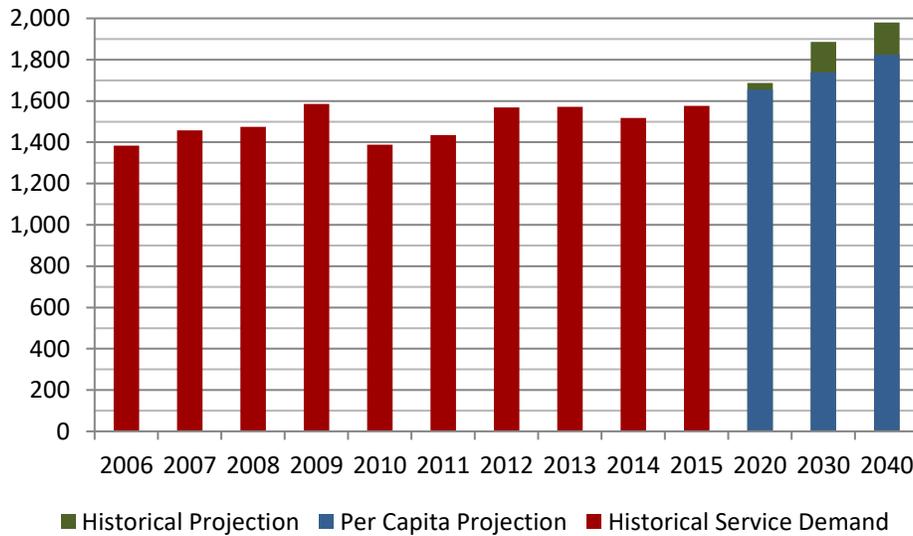
In evaluating the deployment of facilities, resources, and staffing, it is imperative to consider potential changes in workload that could directly affect such deployment. Any changes in service demand can require changes and adjustments in the deployment of staff and resources to maintain acceptable levels of performance.

Probably the most significant predictor of incident workload is population and the activity of the population. All requests for emergency medical services are driven by people residing in a fire department’s service area, or the activity of people passing through or working in the service area. The National Fire Protection Association reports that approximately 70 percent of all fires are the result of

people either doing something they should not have (i.e., misuse of ignition source) or not doing something they should have (i.e., failure to maintain equipment). Thus, it is reasonable to use future population growth to predict future fire department response workload.

GFD service demand has fluctuated and grown modestly over the previous ten years (2006–2016). This is similar to the population growth in the GFD service area. The following figure presents two projections of possible GFD future service demand.

**Figure 34: GFD Service Demand Projections, 2015–2040**



This figure displays GFD historical service demand from 2006 through 2015 and two projections of GFD future service demand through 2040. As discussed in the Demand Analysis, GFD fluctuated within a narrow range during this period. Overall service demand increased by approximately 14 percent or an average annual rate of 1.4 percent. ESCI applies this rate of change to arrive at the “Historical” service demand projection. The “Per Capita” projection is derived by applying the 2015 per capita incident rate of 137 incidents per 1,000 residents to the projected population (.5 percent average annual growth rate). As displayed above, GFD service demand increases anywhere from approximately 1,824 responses (Per Capita Projection) to nearly 2,000 incidents (Historical Projection) by 2040.

It is not the intent of this study to be a definitive authority for the projection of future population in the service area, but rather to base recommendations for future fire protection needs on a reasonable association with projected service demand. Since human activity is a primary driver of emergency service demand, it is important to have a population-based projection of the future size of the community.

ESCI regards the service demand projections presented above as conservative estimates of future service demand in the GFD service area. Factors such as increased growth and economic activity in Clackamas County, demographics, and other changing conditions will likely contribute to increased demand for GFD services.

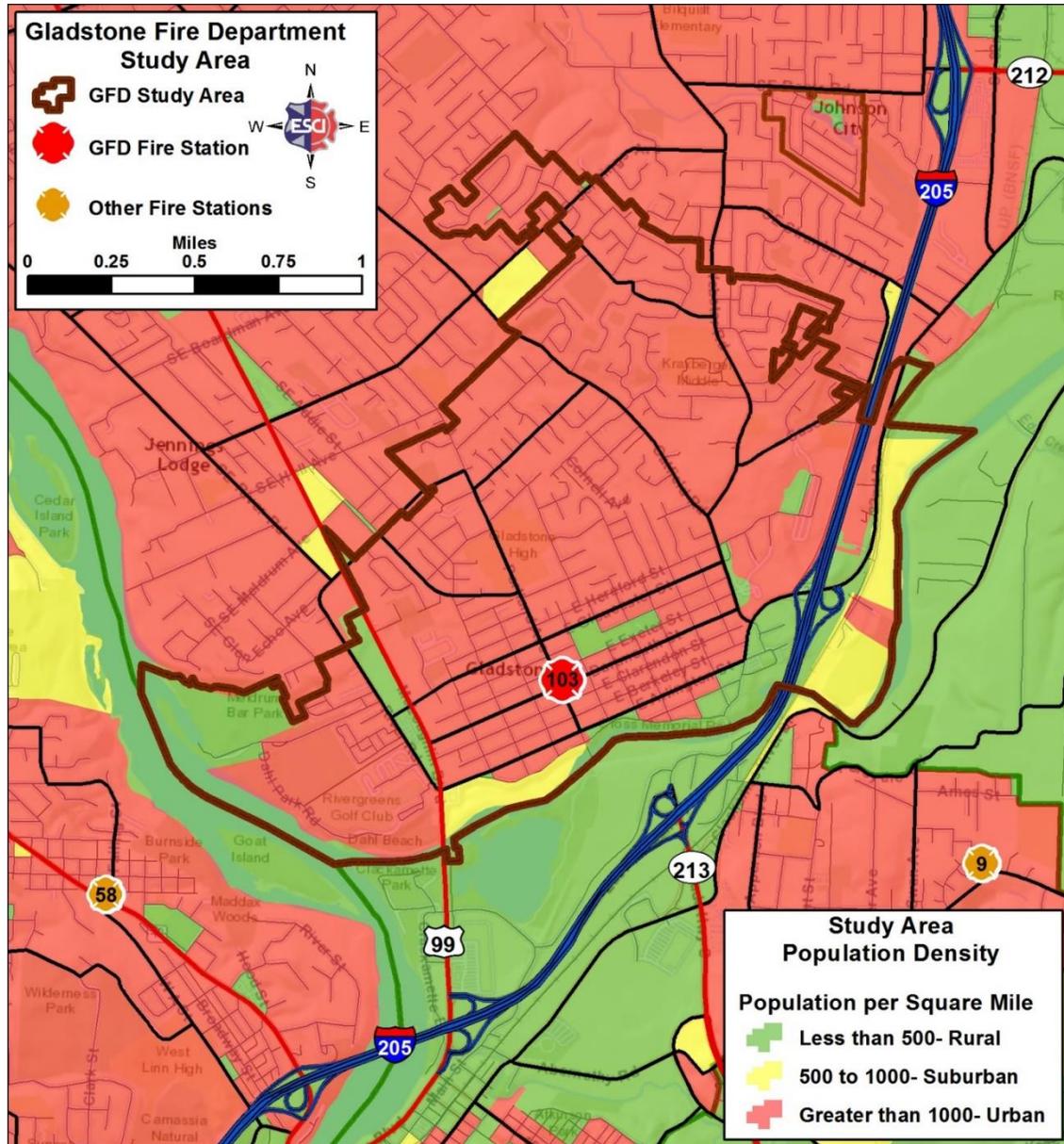
### Community Risk Overview

Community risk is assessed based on several factors. The service area population and population density, the demographics of the population served, and local zoning and land use regulations all influence the nature and location of risk throughout a fire department's service area.

### Population Density and Demographics

The following figure illustrates the population density in the GFD service area.

Figure 35: GFD Service Area Population Distribution, 2010 Census Blocks



The overall population density within the GFD service area is approximately 4,664 per square mile; this constitutes a high density urban community. In addition, the area around Gladstone is also demonstrates an urban population density.

The median age in Gladstone is 39.7 according to 2015 US Census Bureau data. Approximately 14.6 percent of the population in Gladstone is 65 years of age or older and six percent of the population is under five years of age. This places a total of approximately 21 percent of the area's population within target groups identified by the National Fire Protection Association (NFPA) as high risk for fatalities in residential structure fires. Studies indicate that the individuals over age 65 are frequent users of fire department EMS services. This age group is identified as the fastest growing age group in the United States.

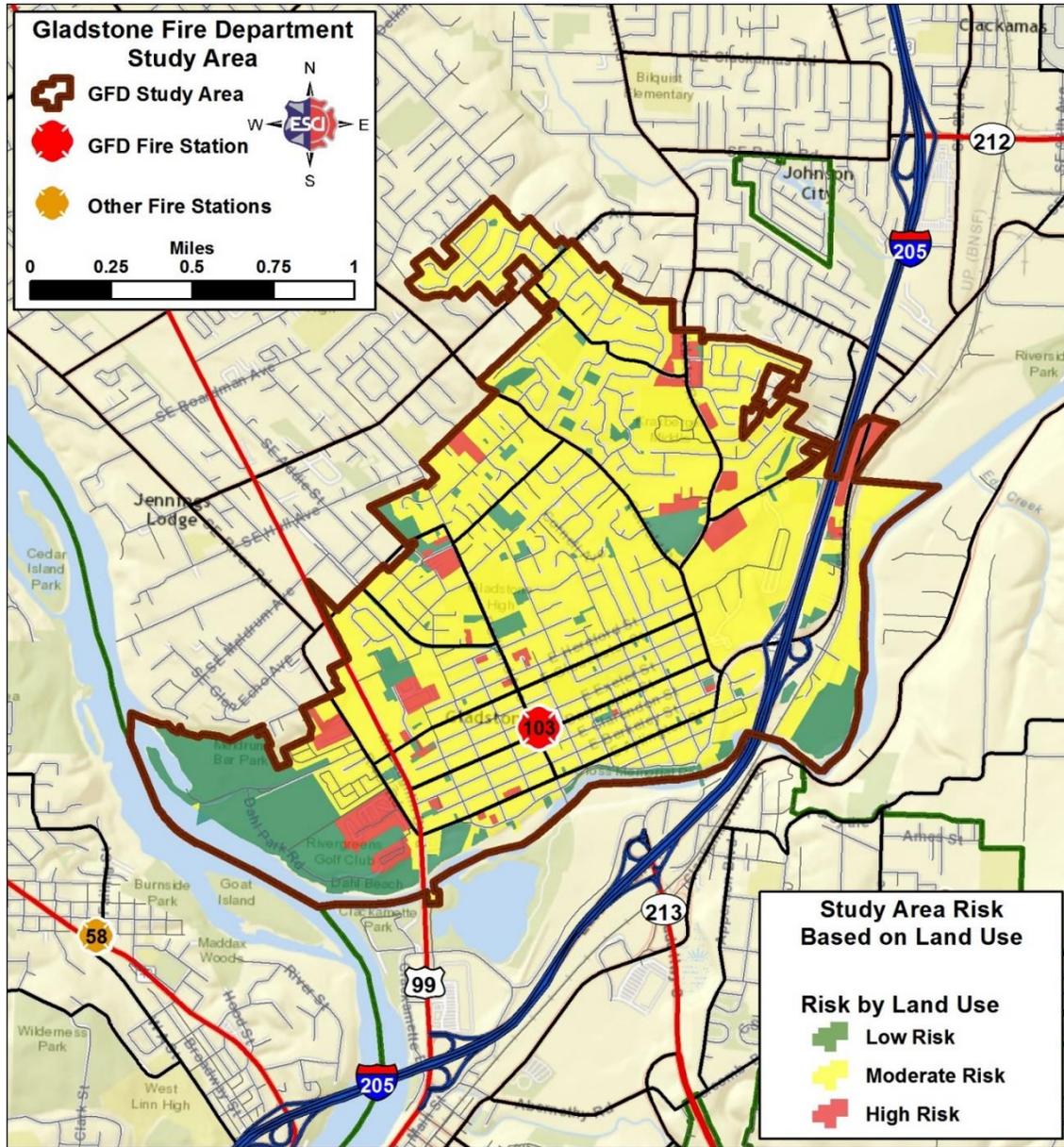
#### *Community Characteristics and Risk*

The fire service assesses the relative risk of properties based on a number of factors. Properties with high fire and life risk often require greater numbers of personnel and apparatus to effectively mitigate a fire emergency. The following figure uses current GIS parcel data from Clackamas County to categorize risk, based on the current land use designation for individual parcel.

The existing land use designation for parcels is translated to risk categories of relative fire and life safety as follows:

- Low risk—Areas designated as open space, vacant, or very low density residential.
- Moderate risk—Areas designated as single family residential properties, small commercial and office uses, low-intensity retail sales, and equivalently sized business activities.
- High risk—Areas designated for higher intensity business districts, mixed use areas, high density or multi-family residential, industrial, warehousing, and large mercantile centers.

Figure 36: GFD Community Risk by Current Land Use

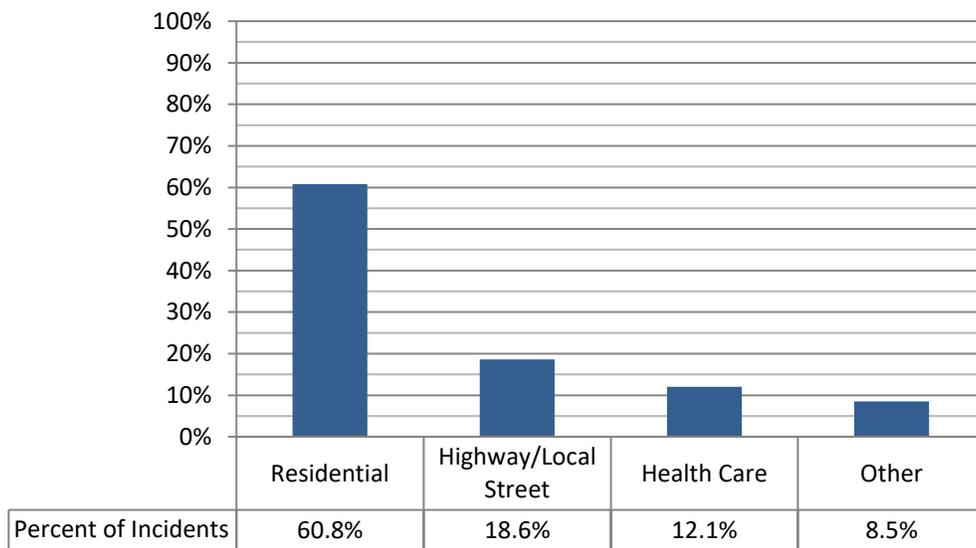


The GFD service area consists of primarily moderate risk single family residential units. Over 88 percent of the parcels categorized as Moderate Risk in this figure are designated as residential. The remainder of the Moderate Risk category is primarily comprised of commercial properties. Properties with a land use designation of Industrial or Multi Family Residential are categorized as High Risk. The Low Risk category is largely open space, parks, or vacant parcels.

According to 2015 US Census Bureau data, approximately 94 percent of the housing units in Gladstone are occupied, which is a similar to the percentage of other neighboring communities and Clackamas County. Fifty-eight (58) percent of the occupied housing units are owner occupied, the remainder is renter occupied. The percentage of renter occupied housing units is approximately 10 percent higher than the number of renter occupied housing units in Clackamas County. Examination of Census Bureau data reveals approximately 72 percent of housing units in Gladstone were constructed prior to 1980 as compared to 49 percent of housing units in Clackamas County.

The following figure utilizes GFD incident data to display the types of property use that generate service demand in the GFD service area.

**Figure 37: GFD Service Demand by Property Use, July 2014–July 2016**



Gladstone is primarily a residential community consisting of moderate risk single family dwellings. 60.8 percent of GFD service demand occurred at residential properties (primarily single family dwellings). Over 18 percent of the service demand during the study period occurred on the highways or streets Gladstone. Health care facilities (primarily 24-hour nursing care facilities) generated slightly over 12 percent of service demand. The remaining 8.5 percent occurred at retail businesses, commercial properties, and assembly properties.

## DEVELOPMENT OF RESPONSE STANDARDS & TARGETS

The previous sections of this report detail a considerable volume of observations and minor recommendations relating to GFD current conditions, as well as project future population growth and the impact of service demand on the fire department. The process of developing response targets and understanding, prioritizing, and implementing recommended enhancements can be daunting, simply due to the amount of work that may be involved and the potential cost associated with these changes. The following section addresses these issues.

### *Critical Tasks, Risk, and Staffing Performance*

The goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective action to minimize the impacts of the emergency. This need applies to fires, medical traumas, and any other emergency to which the fire department responds. Obtaining and understanding the desires and expectations of community stakeholders is an important first step. It will become increasingly important to emphasize public process and inter-agency communication as the demand for service increases throughout the community. The input received will help guide GFD vision, planning efforts, policy decisions, and service delivery.

Before discussing the City of Gladstone's emergency service goals, it is important to gain an understanding of the dynamics of fire and medical emergencies. This information is provided for civilian readers that may not be familiar with the dynamics of fire suppression and emergency medical treatment.

### *Dynamics of Fire in Buildings*

Most fires within buildings develop in a predictable fashion, unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take several minutes or even hours from the time of ignition until a flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, since large amounts of highly toxic smoke may be generated during this phase.

Once flames do appear, the sequence continues rapidly. Combustible material adjacent to the flame heats and ignites, which in turn heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and highly toxic.

The spread of the fire from this point continues quickly. Soon the flammable gases at the ceiling reach ignition temperature. At that point, an event termed "flashover" occurs; the gases ignite, which in turn ignites everything in the room. Once flashover occurs, damage caused by the fire is significant and the environment within the room can no longer support human life.

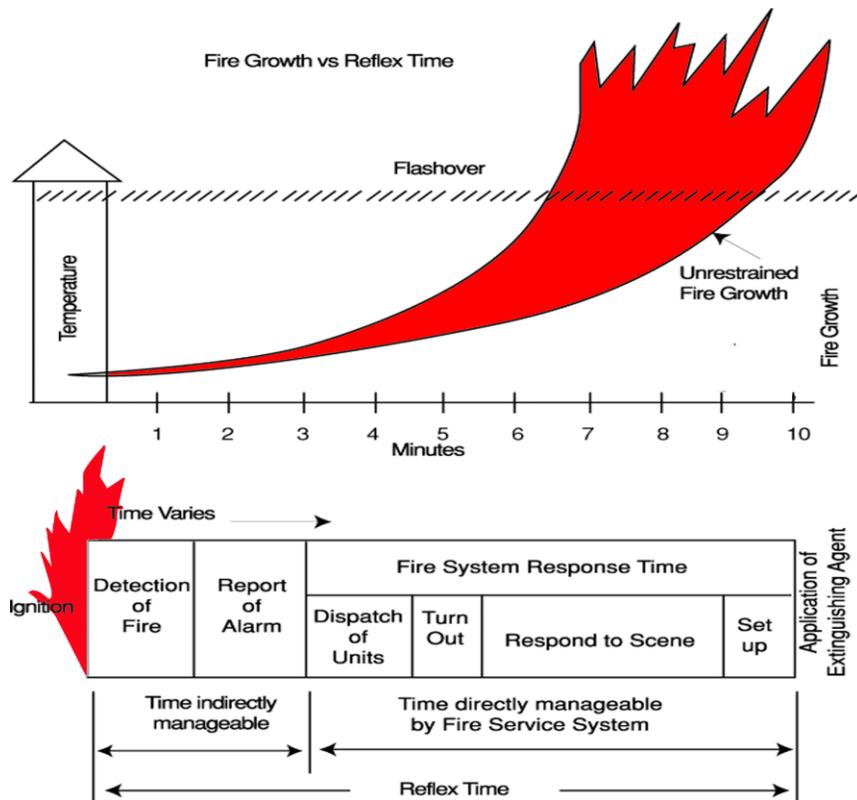
Flashover usually occurs about six to nine minutes from the appearance of flame in typically furnished and ventilated buildings. Since flashover has such a dramatic influence on the outcome of a fire event, the goal of any fire agency is to apply water to a fire before flashover occurs.

Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are often less fire resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials that are more easily weakened by the effects of fire. “Light weight” roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. This creates a very dangerous environment for firefighters.

In addition, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerate fire spread and increase the amount of water needed to effectively control a fire. These factors make the need for early application of water essential to a successful fire outcome.

Several events must take place quickly to make it possible to achieve fire suppression prior to flashover. The figure below illustrates the sequence of events.

**Figure 38: Fire Growth vs. Reflex Time**



The reflex time continuum consists of six steps, beginning with ignition and concluding with the application of (usually) water. The time required for each of the six components varies. The policies and practices of the fire department directly influence four of the steps, but two are only indirectly manageable. The six parts of the continuum are:

1. **Detection:** The detection of a fire may occur immediately if someone happens to be present or if an automatic system is functioning. Otherwise, detection may be delayed, sometimes for a considerable period.
2. **Report:** Today most fires are reported by telephone to a 911 center. Call takers must quickly elicit accurate information about the nature and location of the fire from persons who are apt to be excited. A citizen well trained in how to report emergencies can reduce the time required for this phase.
3. **Dispatch:** The dispatcher must identify the correct emergency units, subsequently dispatch them to the emergency, and continue to update information about the emergency while the units respond. This step offers a number of technological opportunities to speed the process, including computer aided dispatch and global positioning systems.
4. **Turnout:** In Gladstone's case, often firefighters must travel from their remote location to the fire station to don personal protective equipment, assemble on the response vehicle, and begin travel to the emergency. Developing programs which either provide for firefighters being at the station when alarms occur or decreasing the distance of travel required to get to the station, as well as good training can minimize the time required for this step.
5. **Response:** The distance between the fire station and the location of the emergency influences reflex time the most. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions are also a factor. Gladstone has an advantage in that travel distances within the city from the fire station are relatively short.
6. **Set up:** Last, once firefighters arrive on the scene of a fire emergency, fire apparatus are positioned, hose lines are placed, additional equipment is assembled, and certain preliminary tasks are performed (such as rescue) before entry is made to the structure and water is applied to the fire.

As is apparent by this description of the sequence of events, application of water in time to prevent flashover is a serious challenge for any fire department. It is critical, though, as studies of historical fire loss data can demonstrate.

The National Fire Protection Association found that fires contained to the room of origin (typically extinguished prior to or immediately following flashover) had significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). Incidents in which a fire spreads beyond the room where it originates are likely to experience six times the amount of property loss and have almost nine times greater chance of resulting in a fatality.

### *Emergency Medical Event Sequence*

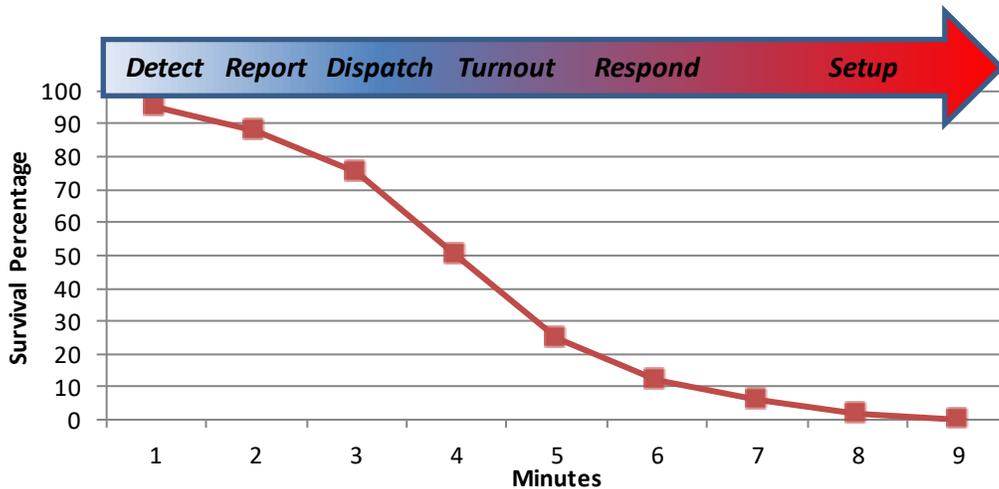
Cardiac arrest is the most significant life-threatening medical event in emergency medicine today. A victim of cardiac arrest has mere minutes in which to receive lifesaving care if there is to be any hope for resuscitation.

The American Heart Association (AHA) issued a set of cardiopulmonary resuscitation guidelines designed to streamline emergency procedures for heart attack victims, and to increase the likelihood of survival. The AHA guidelines include goals for the application of cardiac defibrillation to cardiac arrest victims.

Cardiac arrest survival chances fall by seven to 10 percent for every minute between collapse and defibrillation. Consequently, the AHA recommends cardiac defibrillation within five minutes of cardiac arrest.

As with fires, the sequence of events that lead to emergency cardiac care can be graphically illustrated, as in the following figure.

Figure 39: Cardiac Arrest Event Sequence



The percentage of opportunity for recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for a fire response. Recent research stresses the importance of rapid cardiac defibrillation and administration of certain medications as a means of improving the opportunity for successful resuscitation and survival.

### *People, Tools, and Time*

As described in the previous paragraphs, time matters a great deal in the achievement of an effective outcome to an emergency event. Time, however, is not the only factor. Delivering sufficient numbers of properly trained, appropriately equipped personnel within the critical time period completes the equation.

For medical emergencies, this can vary based on the nature of the emergency. Many medical emergencies are not time critical. However, for serious trauma, cardiac arrest, or conditions that may lead to cardiac arrest, a rapid response is essential.

Equally critical is delivering enough personnel to the scene to perform all the concurrent tasks required to deliver quality emergency care. For a cardiac arrest, this can be up to six personnel; two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct patient care.

Thus, for a medical emergency, the real test of performance is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not just the time it takes for the first person to arrive.

Fire emergencies are even more resource critical. Again, the true test of performance is the time it takes to deliver sufficient personnel to initiate application of water to a fire. This is the only practical method to reverse the continuing internal temperature increases and ultimately prevent flashover.

The fire service assesses the relative risk of properties and occurrences based on a number of factors. Properties with high fire risk often require greater numbers of personnel and apparatus to effectively mitigate the fire emergency. Staffing and deployment decisions should be made with consideration of the level of risk involved.

Many communities across the nation contain varying levels of population density that allow agencies to specify response performance objectives based on risk. Those population densities are typically identified as:

- Metropolitan—geography with populations of over 200,000 people in total and/or a population density of over 3,000 people per square mile. These areas are distinguished by mid-rise and high-rise buildings, often interspersed with smaller structures.
- Urban—geography with a population of over 30,000 people and/or a population density of over 2,000 people per square mile. This describes the City of Gladstone.
- Suburban—geography with a population of 10,000 to 29,999 and/or a population density of between 1,000 and 2,000 people per square mile.
- Rural—geography with a total population of less than 10,000 people or with a population density of less than 1,000 people per square mile.
- Wilderness/Frontier/Undeveloped—geography that is both rural and not readily accessible by a publicly or privately maintained road.

The City of Gladstone has an urban population density. Based on this fact, the service delivery performance objectives discussed in this section of the report will be measured against standards that will apply to an urban setting. Urban settings present a number of challenges that are not present in suburban and rural communities. Gladstone is fortunate to be surrounded by other urban density communities with greater depth of resources. Despite these mutual assistance resources, the GFD must determine what the expectations of the community are as well as what the "acceptable" level of risk is. Acceptable risk is defined as, "the potential fire loss a community is willing to accept rather than provide resources to reduce such losses."<sup>4</sup>

Most communities expect these three key elements:

- Trained and capable personnel
- Reliable and appropriate equipment and tools
- Quick responses from the fire department for fire and medical emergencies

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<sup>4</sup> Firewise Communities, 2007.

ESCI recommends that departments engage the community to validate that these three key elements do in fact reflect the communities' expectations. Whatever the expectations of the community are, they should be taken into consideration as departmental objectives and goals are developed, implemented, and measured.

Within the urban environment, and more specifically within the City of Gladstone, a number of risks exist, as was discussed within the "Community Risk Overview" section of this document. To generalize these risks enables the fire department to evaluate current resourcing and make changes as necessary to reduce the potential for loss based on the level of risk. The specific risk categories contained with the GFD response area vary dependent upon the type of incident. In other words, each type of incident may fall into one of four risk categories: Fire, Medical, Rescue, and Hazardous Materials. Within each risk category, there are varying levels of risk including low, moderate, high, and maximum.

As the actual or potential risk increases for each of the risk categorizations, the necessity for higher numbers of personnel and apparatus also increases. With each type of incident and corresponding risk, specific critical tasks need to be accomplished. The next portion of this section of the report considers the aforementioned risk categories and illustrates the number of personnel that are necessary to accomplish the critical tasks.

Tasks that must be performed at a fire can be broken down into two key components: life safety and fire flow. Life safety tasks are based on the number of building occupants, and their location, status, and ability to take self-preservation action. Life safety related tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks and complete some in chronological order, rather than concurrently. These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Backup/rapid intervention

Critical tasks must be conducted in a timely manner in order to control a fire or to treat a patient. Three scenarios routinely encountered are commonly utilized by fire departments when conducting field validation and critical tasking. They are a medium risk structure fire, a traffic collision with a trapped victim, and a cardiac arrest. Each scenario is conducted using standard operating procedures and realistic response times based on actual system performance. Each scenario is normally run multiple times with a variety of fire companies to validate and verify observations and times.

To further validate the analysis process, results are compared with records from actual working fires and similar incidents from previous years. Overall results are reviewed to determine if the actions taken within the early minutes of an incident resulted in a stop loss or not, and if additional resources were required. The critical task analysis process demonstrates the rate at which the current deployment plan results in stopping loss a high percentage of time within initial critical time goals.

The critical task analysis may demonstrate important differences based on apparatus configuration and staffing in the ability to enter a building on a working structure fire when it comes to executing the *two in, two out* rule and fire ground operations.

Again, critical tasks are those activities that must be conducted in a timely manner by firefighters at emergency incidents in order to control the situation, stop loss, and to perform necessary tasks required for a medical emergency. GFD is responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner. As discussed in the “Service Delivery & Performance” section of this report, Gladstone’s dispatch run cards (protocol) for a structure fire calls for four engines, one truck, and a Battalion Chief. This brings anywhere from 15 to 18 personnel to the scene of a structure fire, relying significantly on mutual aid resources to reach those numbers.

Critical tasking for fire operations is the minimum number of personnel to perform the tasks required to effectively control an incident in the listed risk category. Major fires beyond first alarm will require additional personnel and apparatus, likely from outside GFD. Critical tasking for emergency medical incidents is the minimum number of personnel necessary to perform the tasks required to support an identified strategy based on the department’s adopted medical protocol.

The CPSE has a *sample* critical tasking analysis for the number of personnel required on scene for various levels of risk. This information is illustrated in the following figure as an example of critical tasking only and is not intended to conclusively define the actual personnel necessary based on risk.<sup>5</sup>

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<sup>5</sup> Based on examples provided in the publication Commission on Fire Accreditation International, Inc. (now Center for Public Safety Excellence), *Creating and Evaluating Standards of Response Coverage for Fire Departments*, 5th edition.

**Figure 40: Sample of Critical Task Staffing by Risk**

Sample Critical Task Analysis Firefighter Personnel Needed Based on Level of Risk				
	Structural Maximum Risk	Structure Significant Risk	Structure Moderate Risk	Non- Structure Low Risk
Attack line	4	4	2	2
Back-up line	4	2	2	(2)
Support for hose lines	4	3	2	
Search and rescue	4	4	2	
Ventilation	4	2	2	
Rapid intervention team	4	4	2	
Pump Operator	2	1	1	1
2nd apparatus/ladder operator	1	1	(1)	
Command	2	1	1	1#
Safety	2	1	1#	
Salvage	4			
Rehabilitation	2			
Division/group supervisors	(2)			
<b>Total</b>	<b>37-39</b>	<b>23</b>	<b>14-16</b>	<b>3-6</b>

*() Indicates tasks may not be required at all such incidents.*

*# Indicates task may, at times, be completed concurrently with other position.*

The first 15 minutes is the most crucial period in the suppression of a fire. In the previous two years, GFD achieves the necessary staffing level (with significant reliance upon mutual aid agencies) for a moderate risk structure fire (typical single family home) in under 12 minutes, 90 percent of the time. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations.

#### *All Risk Critical Resource Tasking*

Fire departments respond to many incidents other than structure fires, including hazardous materials (dangerous goods) releases, motor vehicle collisions, basic and advanced life support medical emergencies, technical (complex) rescues and non-structural fires. Personnel responding to these types of incidents should be assigned tasks similar to structure fires.

The following figures are provided as an example for these types of incidents, although ESCI recommends GFD conduct field validation exercises with its crews and mutual aid companies to verify the critical task analyses provided. After field validation is complete, the department may find that the critical tasking can be adjusted appropriately upward or downward for each incident type.

**Figure 41: Non-Structure Fire Critical Tasks**

Task	Personnel
Command	1
Pump Operator	1
Primary Attack Line	2
<b>Total</b>	<b>4</b>

**Figure 42: Hazardous Materials Incident Critical Tasks**

Task	Personnel
Command	1
Pump Operator	1
Primary Attack Line	2
Back-Up Line	2
Support Personnel	7
<b>Total</b>	<b>13</b>

**Figure 43: Motor Vehicle Collision with Entrapment Critical Tasks**

Task	Personnel
Command	1
Pump Operator	1
Primary Attack Line	2
Extrication	3
Patient Care	2
<b>Total</b>	<b>9</b>

**Figure 44: Emergency Medical Incident Critical Tasks**

Task	Personnel
Ambulance Transport	2
First Responder	4
<b>Total</b>	<b>6</b>

The aforementioned minimum staffing criteria should be used in setting specific service level objectives for each of the incident types, with specific numbers determined by field validation.

### *Call-Handling Performance Criterion*

In many areas of the country, call-handling or call-processing are not functions under direct control of the fire department, as is the case in Gladstone. However, the fire department should be able to at least influence performance within the communications center since they are a customer of that organization.

Based on NFPA 1221 standards, call processing time—the time between when the call is answered and when the call is dispatched to responding units—should be less than 60 seconds, 90 percent of the time. The fire department should work with the communications center to establish the following call processing performance objective.

***For 90 percent of all calls for service received, the communications center will notify and dispatch the appropriate units in less than 60 seconds. Call intake and dispatch personnel will continue to receive and relay vital information until all instructions have been issued or the initial unit arrives on scene.***

### *Turnout Time Performance Criterion*

Turnout time is one area that the fire department can significantly impact with creative approaches. Turnout time, or the time between when the call is received by the response units (dispatched) and when the unit is actually en route to the scene (responding), can have dramatic effects on overall response times. Reducing this single response time component reduces total response time.

NFPA 1720 recommends a turnout time performance objective only for staffed fire stations.<sup>6</sup> If a station is not staffed (as in GFD's circumstance), there is no turnout time standard, but a total response time standard for an effective response force (15 firefighters) in urban communities is nine minutes, 90 percent of the time (not including call processing time). In ESCI's opinion, GFD is close to achieving this today. Given that turnout time is one area in which field personnel can dramatically improve overall response time, an aggressive approach to shortening turnout time is recommended. GFD should establish a program of maintaining on-site overnight staffing, or at least nearby overnight staffing, given that the current fire station lacks sleeping facilities. This could result in improving total response time by as much as four minutes.

### *Distribution Performance Criterion*

A fire department's *distribution* is essentially the location of resources to assure an initial intervention within the specific time frame identified in the community's performance goals. It is ESCI's opinion that the current single station configuration and its current location are optimum for service delivery to the entire City of Gladstone. By adding overnight staffing on-site or nearby, thus shortening turnout times, a realistic performance standard for total response time is as follows:

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<sup>6</sup>NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations & Special Operations to the Public by Volunteer Fire Departments.

***For 90 percent of all emergency incidents, the first due unit shall arrive within six minutes from the time the GFD units were dispatched for medical emergencies and six minutes, twenty seconds for fire emergencies. The first due unit shall be capable of advancing an initial hose line for fire control or providing basic life support for medical incidents.***

### ***Concentration Performance Criterion***

A fire department's *concentration* is the spacing of multiple resources close enough together so that an initial "Effective Response Force" (ERF) for a given risk can be assembled on the scene of an emergency within the specific time frame identified in the community's performance goals for that risk type. An initial effective response force is defined as that which will most likely be sufficient to stop the escalation of the emergency. The ERF for a moderate (typical) structural fire risk in Gladstone is programmed for 15 to 18 personnel on four engines, one truck, and one Battalion Chief, which also relies upon mutual aid agencies.

***For a moderate risk incident, GFD and its mutual aid partners shall assemble an Effective Response Force (ERF) within 12 minutes, 90 percent of the time. This ERF shall be able to establish command and fire attack for fire incidents; or able to handle a multiple casualty emergency medical incident.***

### SERVICE DELIVERY OPTIONS

The following discussion identifies and defines a number of considerations as well as non-traditional approaches to service delivery which ESCI believes are important factors in providing sustainable service delivery to the community.

#### ***Overnight Staffing***

As has been mentioned in this report several times, having on-site (or nearly on-site) staffing is the single most significant improvement in service delivery and response time that Gladstone can implement. This doesn't have to be additional career firefighters, but can be paid-on-call staff residing at or near the fire station. While it does not seem feasible to accommodate overnight staffing within the existing footprint of the fire station, taking up residence in nearby residential facilities (homes or apartments near the fire station), can substantially decrease turnout time and provide as much as a four minute improvement in turnout time and therefore total response time. This concept should be further explored.

#### ***Organization Chart Changes***

As identified in this report in several locations, the organization chart appears to have evolved to accommodate people rather than flow to make the department efficient and effective. While it is important to consider the impact on individuals when changes are made, it is also critical to focus on the effective and efficient delivery of emergency services to the community. This is especially true when budget dollars are tight.

ESCI recommends that changes be made in the rank structure and flow of the organization similar to Appendix B of this report. Realignment of the existing structure to include a training/safety division, a community risk reduction division (which includes a logistics function), and an operations division creates better flow and aligns functions appropriately. This can be done as a gradual change over time.

### ***Regional Cooperation***

Regional cooperation, in the context used here by ESCI, is not elimination of the fire department in exchange for a new provider or being absorbed by another agency, but cooperation between regional partners for greater efficiency, potentially better cost containment, and leveraged service capability and capacity. It is broadly recognized that jurisdictional boundaries seldom create efficient and effective service delivery parameters. Citizens often recognize and appreciate regional approaches to service delivery as an excellent example of governmental cooperation and efficiency.

In the case of Gladstone, regional cooperation is already at an extremely high level. It is beyond the scope of work to delve deeply into merger or other integration options, these actions would likely increase costs in Gladstone without appreciably improving service.

### ***Community Risk Reduction***

An emerging trend in the fire service nationally is a concept called Integrated Community Risk Reduction (CRR). CRR is an integrated approach to risk management that marries emergency operations and prevention strategies into a more cohesive approach to reducing risks in any community. It includes the fire department partnering with the community, non-profit organizations, and any private sector agencies with a nexus to an identified community risk.

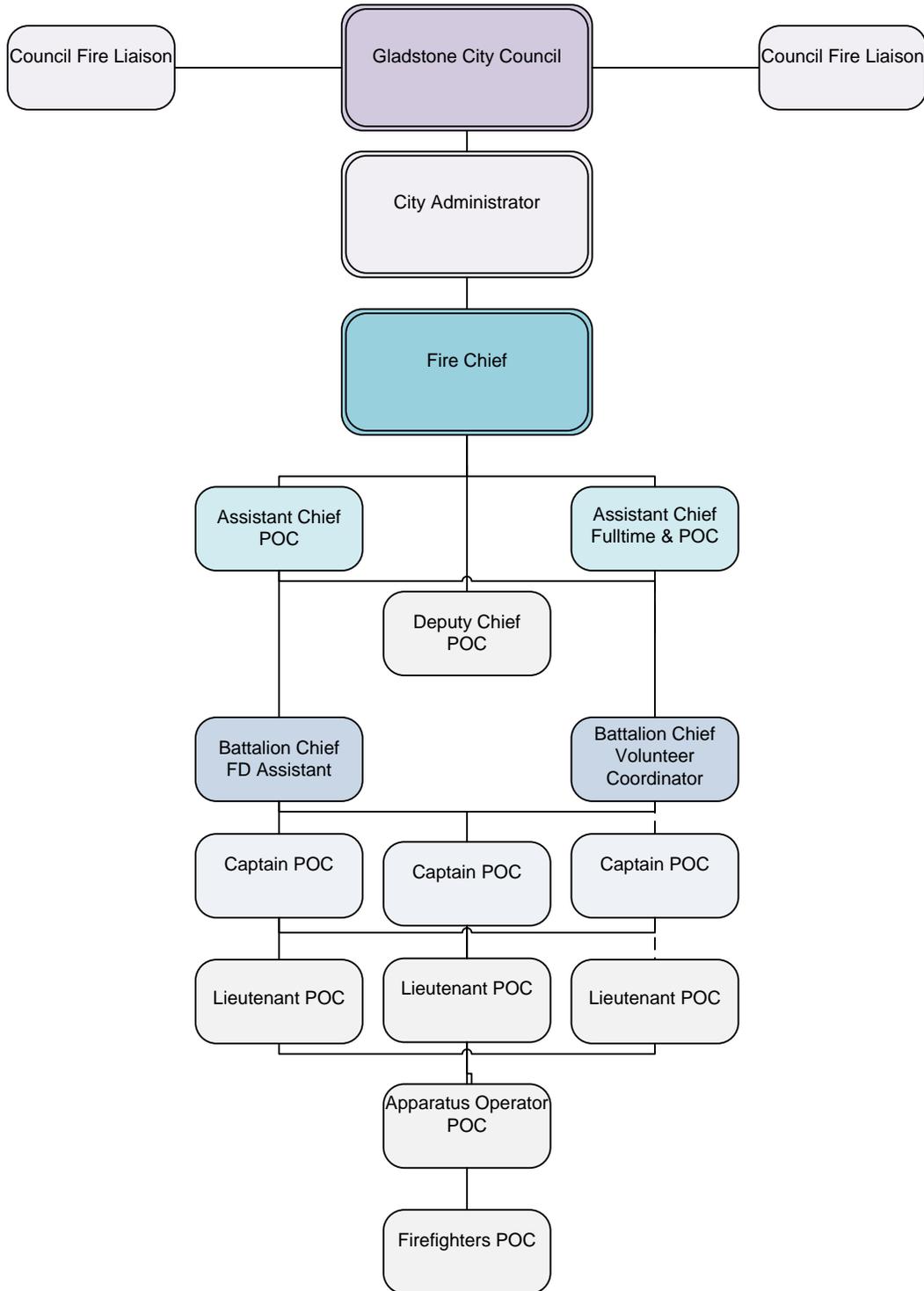
The concept starts with the fire department mining data to quantify community risk. Once the community risks have been identified, they are prioritized based on frequency of emergency service demand or consequence (to the victim, to the community, to the local economy). Upon prioritizing the risks, strategies are developed to mitigate the risks. These strategies are incorporated into a CRR plan, which integrates resources across the fire department, partner agencies and the community to implement the various strategies in a cohesive manner. After plan implementation, the results are reviewed to determine the impact on the risks. Adjustments are made, as necessary, based on the results and the process is refined and continuously re-implemented.

The risks are not limited to structure fires. They can include falls, drowning, interface exposure, disasters, or any risk requiring fire department response. Station officers, in collaboration with fire prevention staff and community groups, can develop and manage a specific CRR plan which addresses the specific risk patterns identified in the GFD historical response data. CRR lends itself well to a volunteer supported effort. CRR also includes public education for risk reduction. A prepared and informed community is a safer community.

In this case, Gladstone Fire Department can partner with emergency management, leveraging the skills of each discipline for fire prevention, emergency management and community risk reduction strategies. Leveraging fire prevention and emergency management with a CRR team or plan results in a more disaster resilient community, and one that reduces emergency demand. Emphasis is on training and equipping the populace in education for prevention, preparedness, and self-help strategies. If the community is better prepared, they will need to rely less on local government.

Appendix A

Figure 45: Existing Organization Chart



Appendix B

Figure 46: Proposed Organization Chart

