GARLAND

AGENDA

CITY COUNCIL WORK SESSION
City of Garland
Work Session Room, City Hall
William E. Dollar Municipal Building
200 North Fifth Street
Garland, Texas
Monday, July 31, 2023
6:00 p.m.

DEFINITIONS:

Written Briefing: Items that generally do not require a presentation or discussion by the staff or Council. On these items the staff is seeking direction from the Council or providing information in a written format.

Verbal Briefing: These items do not require written background information or are an update on items previously discussed by the Council.

NOTICE: The City Council may recess from the open session and convene in a closed executive session if the discussion of any of the listed agenda items concerns one or more of the following matters:

(1) Pending/contemplated litigation, settlement offer(s), and matters concerning privileged and unprivileged client information deemed confidential by Rule 1.05 of the Texas Disciplinary Rules of Professional Conduct. Sec. 551.071, Tex. Gov't Code.

(2) The purchase, exchange, lease or value of real property, if the deliberation in an open meeting would have a detrimental effect on the position of the City in negotiations with a third person. Sec. 551.072, Tex. Gov't Code.

(3) A contract for a prospective gift or donation to the City, if the deliberation in an open meeting would have a detrimental effect on the position of the City in negotiations with a third person. Sec. 551.073, Tex. Gov't Code.

(4) Personnel matters involving the appointment, employment, evaluation, reassignment, duties, discipline or dismissal of a public officer or employee or to hear a complaint against an officer or employee. Sec. 551.074, Tex. Gov't Code.

(5) The deployment, or specific occasions for implementation of security personnel or devices. Sec. 551.076, Tex. Gov't Code.

(6) Discussions or deliberations regarding commercial or financial information that the City has received from a business prospect that the City seeks to have locate, stay, or expand in or near the territory of the City and with which the City is conducting economic development negotiations; or to deliberate the offer of a financial or other incentive to a business prospect of the sort described in this provision. Sec. 551.087, Tex. Gov't Code.

(7) Discussions, deliberations, votes, or other final action on matters related to the City's competitive activity, including information that would, if disclosed, give advantage to competitors or prospective competitors and is reasonably related to one or more of the following categories of information:

- generation unit specific and portfolio fixed and variable costs, including forecasts of those costs, capital improvement plans for generation units, and generation unit operating characteristics and outage scheduling;
- bidding and pricing information for purchased power, generation and fuel, and Electric Reliability Council of Texas bids, prices, offers, and related services and strategies;
- effective fuel and purchased power agreements and fuel transportation arrangements and contracts;
- risk management information, contracts, and strategies, including fuel hedging and storage;
- plans, studies, proposals, and analyses for system improvements, additions, or sales, other than transmission and distribution system improvements inside the service area for which the public power utility is the sole certificated retail provider; and
- customer billing, contract, and usage information, electric power pricing information, system load characteristics, and electric power marketing analyses and strategies. Sec. 551.086; Tex. Gov't Code; Sec. 552.133, Tex. Gov't Code]

1. Public Comments on Work Session Items

Persons who desire to address the City Council on any item on the Work Session agenda are allowed three minutes to speak. Speakers are taken only at the beginning of the meeting, other than invited testimony.

Speakers are grouped by Work Session item and will be taken in the order of the Work Session agenda. Speakers must submit to the City Secretary a completed speaker's card before the beginning of the meeting. Speaker cards will not be accepted after the Mayor calls the meeting to order. Speaker cards are available in the lobby, at the visitor's side of the Work Session Room, and from members of staff.

Speakers are limited to addressing items on the Work Session agenda – any item relating to a Regular Session agenda item should be addressed at the Regular Session and any item not on an agenda may be addressed during the open microphone at the end of the Regular Session.

2. Consider the Consent Agenda

A member of the City Council may ask for discussion or further information on an item posted as a consent agenda item on the next Regular Meeting of the City Council. The Council Member may also ask that an item on the posted consent agenda be pulled from the consent agenda and considered for a vote separate from consent agenda items on the regular agenda. All discussions or deliberations on this portion of the work session agenda are limited to posted agenda items and may not include a new or unposted subject matter.

3. Written Briefings:

a. Resolution Authorizing Use of Eminent Domain - GP&L Transmission

Written staff presentation and recommendation regarding the reconstruction of a portion of the Garland Power & Light College Avenue to Brand Road 138kV transmission line, prepared by Brian England, City Attorney. This item is scheduled for formal consideration at the August 1, 2023 regular meeting.

b. Resolution Authorizing Execution of a Project Specific Agreement with Dallas County for Jupiter Road Maintenance Improvements

Written staff presentation and recommendation to City Council authorizing the City Manager to execute a Project Specific Agreement (PSA) with Dallas County for transportation improvements on portions of Jupiter Road from Forest Lane to the west Garland city limit, prepared by Tony Irvin, Streets Directors. Unless otherwise directed by Council, this item will be scheduled for formal consideration at the August 15, 2023 regular meeting.

4. Verbal Briefing:

a. Garland Fire Department Master Plan

Hear a presentation prepared by Mark Lee, Fire Chief, and Joe Pozzo, Center for Public Safety Management, and receive Council direction regarding the Garland Fire Department Master Plan. Unless otherwise directed by Council, this item will be scheduled for formal consideration at a future regular meeting.

b. Consideration and Discussion Regarding a Future Bond Program

Hear a presentation prepared by Matt Watson, Chief Financial Officer, and receive Council direction regarding a future bond program.

c. Preview of the proposed FY 2023-24 Budget

Hear a presentation prepared by Allyson Bell Steadman, Budget Director, and Judson Rex, City Manager, regarding the proposed FY 2023-24 operating budget. The proposed budget will officially be presented to City Council at the August 1, 2023 regular meeting.

5. Discuss Appointments to Boards and Commissions

a. Deputy Mayor Pro Tem Ed Moore

- Adam Greenup - Library Board

6. Announce Future Agenda Items

A member of the City Council, with a second by another member, or the Mayor alone, may ask that an item be placed on a future agenda of the City Council or a committee of the City Council. No substantive discussion of that item will take place at this time.

7. Council will move into Executive Session

EXECUTIVE SESSION
AGENDA

NOTICE: The City Council may recess from the open session and convene in a closed executive session if the discussion of any of the listed agenda items concerns one or more of the following matters:

a. **The City Council will adjourn into executive session pursuant to Sections 551.071, 551.072, and 551.087 of the Texas Government Code to deliberate or discuss: Economic development matters related to commercial or financial information that the City has received from one or more business prospects that the City seeks to have locate, stay, or expand in or near the Historic Downtown District and with which the City is conducting economic development negotiations (551.087); the purchase, exchange, lease or value of real property related to the same (551.072); and attorney/client matters concerning privileged and unprivileged client information related to the same (551.071).**

8. **Adjourn**

GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Work Session Agenda **3. a.**

Meeting Date: July 31, 2023

Item Title: Resolution Authorizing Use of Eminent Domain - GP&L Transmission

Submitted By: Brian England, City Attorney

Summary of Request/Problem

GP&L, as part of its ongoing operation of an electrical utility in the State of Texas, is seeking to reconstruct a portion of the Garland Power & Light College Avenue to Brand Road 138kV transmission line located in the City of Garland.

The City already owns property where the existing transmission line is located. However, as a result of the rebuild, GP&L requires the acquisition of additional property rights, as the new line has a slightly different footprint and, in some places, has a slightly different path. The City has not successfully negotiated a final purchase price with some of the property owners and is seeking authorization to initiate condemnation.

The resolution currently being considered is related solely to the reconstruction of the GP&L College Avenue to Brand Road 138kV transmission line project.

Recommendation/Action Requested and Justification

Council is requested to approve a resolution authorizing the acquisition of the property rights described in the proposed resolution. The City has been able to negotiate with some of the property owners in the program/project area to acquire the necessary property interests.

However, the City has not been able to successfully negotiate a final purchase price with all of the property owners. The owners with whom agreement could not be reached are named in the proposed resolution. State law requires particular wording to be used in a motion to adopt a resolution authorizing the initiation of condemnation proceedings. The City Attorney will provide in written form the appropriate wording of the motion.

Attachments

Resolution Authorizing Eminent Domain

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF GARLAND, TEXAS FINDING AND DETERMINING THAT THE PUBLIC NECESSITY AND CONVENIENCE REQUIRE THE ACQUISITION OF VARIOUS PROPERTY RIGHTS LOCATED NEAR THE EXISTING GARLAND POWER AND LIGHT 138KV TRANSMISSION LINE BETWEEN COLLEGE AVENUE AND BRAND ROAD, IN THE CITY OF GARLAND, TEXAS, SAID PROPERTY INTERESTS BEING MORE PARTICULARLY DESCRIBED BELOW; PROVIDING AUTHORIZATIONS TO ACQUIRE SUCH PROPERTY RIGHTS BY PURCHASE OR CONDEMNATION AND MAKING CERTAIN FINDINGS PERTAINING THERETO; PROVIDING FURTHER AUTHORIZATIONS AS MAY BE NECESSARY TO CARRY OUT THE PURPOSES OF THIS RESOLUTION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Garland, ("Garland"), has found and determined the need to acquire property rights necessary to rebuild an existing 138kiV transmission line from College Avenue to Brand Road in the City of Garland ("Project"), which will necessitate the acquisition of property interests the existing transmission line;

WHEREAS, public convenience and necessity requires the acquisition of the properties described below (referred to as "Properties"), which exhibits are attached hereto and incorporated herein by reference, for the construction, operation, and maintenance of the Project;

WHEREAS, Garland is required to make an initial offer as defined by, and in compliance with, Texas Property Code §21.0111 ("Initial Offer"), and a bona fide offer, as defined by, and in compliance with, Texas Property Code §21.0113 ("Final Offer") to acquire the Properties for public use from the Property Owners (as hereinafter defined) voluntarily before beginning the acquisition of the Properties through a condemnation proceeding;

WHEREAS, the Properties are located in the City of Garland, Dallas County, Texas as described below, and the fee owners of the Properties are as follows:

Iglesia Ni Christo - 2310 College Avenue – fee simple to a 40,456 square foot (0.855 acre) tract, and an electrical utility easement in a 13,730 square foot tract of land located in the John W. Keen Survey, Abstract No. 738, Dallas County, Texas, and being part of Lot 1, Block 1, Westwood Addition No. 6, an addition to the City of Garland, Texas according to the plat thereof recorded in Volume 88178, at Page 4768 of the Deed Records of Dallas County, Texas

Amount Offered: $27,200.40

DFW Metro Family of Churches, Inc. - 318 N. Shiloh - fee simple to a 37,248 square foot (xxx) tract, and an electrical utility easement in a 11,219 square foot tract of land located in the John W. Keen Survey, Abstract No. 738, Dallas County, Texas, and being part of Lot 6, Block A, Westwood No. 2, 2nd Installment, according to the plat thereof recorded in Volume 71202, at Page 506 of the Deed Records of Dallas County, Texas

Amount Offered: $58,078.00

John L. & Mimica K. Snyder - 1400 N. Shiloh - an electrical utility easement in a 5,650 square foot tract of land in the Isham Browder Survey, Abstract No. 70, City of Garland, Dallas County, Texas, and being part of Lot 1, Block 1 of Snyder Estates, according to the plat thereof recorded in Instrument 20080098891 of the Official Public Records of Dallas County, Texas

Amount Offered: $1,166.00

Transatlantic Alliance Corp - 2434 Belt Line – an electrical utility easement in a 2,221 square foot tract of land in the Benjamin Frost Survey, Abstract No. 480, City of Garland, Dallas County, Texas, and being part of Lot 1, Block A of M&T Subdivision, an addition to the City of Garland, Texas, according to the plat thereof recorded in Volume 77193, at Page 1238 of the Deed Records of Dallas County, Texas

Amount Offered: $30,877.00

QSR 30 Land, LLC - 1436 Belt Line – an electrical utility easement in a 1,099 square foot tract of land in the Benjamin Frost Survey, Abstract No. 480, City of Garland, Dallas County, Texas, and being part of Lot 1-R1, Block 1 of a Minor Replat of North Star Market Addition, Lot 1-R, Block 1, an addition to the City of Garland, Texas, according to the plat thereof recorded in Instrument No. 201600201979 of the Official Public Records of Dallas County, Texas

Amount Offered: $21,760.00

Interproperty Investment, Inc. - 1201 Belt Line – an electrical utility easement in a 3,403 square foot tract of land in the Onofre Alvarado Survey, Abstract No. 2, City of Garland, Dallas County, Texas, and part of Lot 15, Block 6, Century Park Addition, an addition to the City of Garland, Texas, according to the plat thereof recorded in Volume 73055, at page 430 of the Deed Records of Dallas County, Texas, and being part of that certain 38,738

square foot trac tor parcel of land described in the deed from Beltline/Brand Partners, Ltd to Interproperty Investments, Inc. dated the 21st day of October, 2002, and recorded in Volume 2002221, at Page 4013 of the Deed Records of Dallas County, Texas

Amount Offered: $24,502.00

Interproperty Investment, Inc. - 1225 Belt Line – an electrical utility easement in a 1,014 square foot tract of land in the Onofre Alvarado Survey, Abstract No. 2, City of Garland, Dallas County, Texas, and part of Lot 15, Block 6, Century Park Addition, an addition to the City of Garland, Texas, according to the plat thereof recorded in Volume 84156, at page 3918 of the Deed Records of Dallas County, Texas

Amount Offered: $7,301.00

WHEREAS, independent professional appraisal reports of the Properties have been submitted to the City as required by Chapter 21 of the Texas Property Code, and the City Manager or his designee has established a certain amount determined to be just compensation for the Properties based on the appraisals and fair market values of the Properties and any applicable fees necessary to acquire the Properties;

WHEREAS, Garland, through agents or representatives employed by or contracted with Garland, has entered into good faith negotiations with the owners of the Properties in order to acquire necessary property rights on the Properties for the Project, and has been unsuccessful in acquiring the necessary property rights on the Properties; and

WHEREAS, in conjunction with the enactment of this Resolution, Garland authorized the initiation of eminent domain proceedings to acquire property rights to the Properties at a public meeting by a record vote, and the notice for the public meeting included all required information, including the consideration of the use of eminent domain to condemn property as an agenda item;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GARLAND, TEXAS:

Section 1

That Garland, its staff, its designees, and its attorneys are specifically authorized to purchase property rights of the Properties; that the public convenience and necessity requires the acquisition of easement rights on the Properties for the public

purpose of the Project; that Garland has made a good faith effort to negotiate a voluntary acquisition of easement and/or right-of-way rights on the Properties; that it appears to Garland that further negotiations to purchase easement rights on the Properties voluntarily would be futile; that the public necessity requires the condemnation of Properties for the Project; and that Garland, its staff, and its attorneys are hereby authorized and directed to institute proceedings in eminent domain against the owners of the Properties, and against all other owners, lienholders, or holders of an interest in the Properties, in order to acquire easement rights on the Properties.

Section 2

That Garland, its staff, and its attorneys are hereby authorized to do all things necessary and proper to carry out the intent and purpose of this Resolution, including determination of the property rights that are proper and necessary for the Project.

Section 3

It is the intent of the City Council that this Resolution authorizes the City Manager and City Attorney, or their designees, to perform all steps necessary to obtain the Properties necessary for the Project, whether through negotiation or condemnation, including the expenditure of funds.

Section 4

It is the intent of the City Council that this Resolution authorizes the condemnation of all property rights required for the construction, improvement, maintenance, and reconstruction of bottleneck improvements on the properties at the intersection of Belt Line and Shiloh Roads and at the intersection of Buckingham and Shiloh Roads, located in the City of Garland, to serve the public and citizens of the City.

Section 5

If it is determined that there are scrivener errors in the descriptions contained herein or if later surveys contain more accurate revised descriptions, the City Attorney or his designee is authorized to have such errors corrected or revisions made without the necessity of obtaining a new City Council Ordinance authorizing condemnation of the corrected or revised property.

Section 6

Following an award by the Special Commissioners or a judgment of a court of competent jurisdiction on appeal from a Special Commissioners' award, the City Manager or his designee, is hereby authorized to make payment in an amount not to exceed the Special Commissioners' award or the judgment of a court of competent jurisdiction, to enable the City to take possession of the Properties without further action of the City Council. However, nothing contained herein shall be interpreted to limit the spending authority of the City Manager granted by Council Resolution or Policy. It is the intent of the City Council that this Resolution grants the City Manager the authority, in addition to the authority granted by Council policy, to settle disputes related to the value of the Properties.

Section 7

That this Resolution shall take effect immediately from and after its adoption.

PASSED AND APPROVED this the _____ day of _____, 2023.

CITY OF GARLAND, TEXAS

_____
Mayor

ATTEST:

_____
City Secretary

GARLAND
POLICY REPORT

City Council Work Session Agenda **3. b.**

Meeting Date: July 31, 2023

Item Title: Resolution Authorizing Execution of a Project Specific Agreement with Dallas County for Jupiter Road Maintenance Improvements

Submitted By: Tony Irvin, Streets Director

Strategic Focus Areas: Well-Maintained City Infrastructure

ISSUE

Consider a resolution authorizing the City Manager to execute a Project Specific Agreement (PSA) with Dallas County for transportation improvements on portions of Jupiter Road from Forest Lane to the west Garland city limit.

OPTIONS

1. Adopt a resolution which authorizes the City Manager or the Manager's designee to execute the Project Specific Agreement with Dallas County.
2. Take no action.

RECOMMENDATION

Option 1: Adopt a resolution which authorizes the City Manager or the Manager's designee to execute the PSA with Dallas County. Unless otherwise directed by Council, this item will be scheduled for formal consideration at the August 15, 2023 Regular Meeting.

BACKGROUND

1. On December 13, 2022, City Council authorized approval of a Master Interlocal Agreement with Dallas County that provides for a 50/50 cost share participation program for maintenance and repairs on certain qualifying roadways in the City.
2. The Master Agreement allows cities to then submit qualifying roadway repair projects to Dallas County for approval. Execution of a PSA is then required to identify specific projects, agency responsibilities, and funding commitments.
3. The general scope of the 2.4-mile Jupiter Road project consists of repairing deficient concrete pavement panels to proactively maintain the pavement service life.
4. The PSA establishes a total estimated cost of $4,100,000, split equally between the City and Dallas County at $2,050,000, respectively.

CONSIDERATION

1. Council action is required to authorize the City Manager to execute the PSA with Dallas County.
2. The PSA was reviewed by the City Attorney's Office.

Attachments

Resolution for PSA signature

Dallas County & COG PSA Agreement-Jupiter

Location Map

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO EXECUTE A PROJECT SPECIFIC AGREEMENT WITH DALLAS COUNTY FOR TRANSPORTATION IMPROVEMENTS ON PORTIONS OF THE FOLLOWING ROAD WITHIN THE CITY OF GARLAND, DALLAS COUNTY, TEXAS: JUPITER ROAD, FROM THE GARLAND AND DALLAS CITY LIMITS TO FOREST LANE; AND PROVIDING AN EFFECTIVE DATE.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GARLAND, TEXAS:

Section 1

That the City Manager or his designee is hereby authorized to execute a Project Specific Agreement with Dallas County for transportation improvements on Jupiter Road from the Garland - Dallas city limit to Forest Lane. A copy of this PSA is attached hereto as Exhibit "A" and incorporated herein by reference.

Section 2

That this Resolution shall be and become effective immediately upon and after its adoption and approval.

PASSED AND APPROVED this the _____ day of July, 2023.

CITY OF GARLAND, TEXAS

_____
Mayor

ATTEST:

_____
City Secretary

PROJECT SPECIFIC AGREEMENT
RE: VARIOUS ROADS, "TYPE B" PUBLIC ROADWAY -- MADE PURSUANT TO ROAD & BRIDGE MASTER INTERLOCAL AGREEMENT BETWEEN DALLAS COUNTY, TEXAS AND THE CITY OF GARLAND, TEXAS

This Project Specific Agreement, (hereinafter "PSA"), supplemental to the Master Interlocal Agreement, is made by and between Dallas County, Texas (hereinafter "County") and the City of Garland, Texas (hereinafter "City"), acting by and through their duly authorized representatives and officials, for the purpose of transportation-related maintenance, repairs, and improvements to be undertaken on public roadway located on Jupiter Road from the South City Limits to Forest Lane, which is within the territorial limits and jurisdiction of the City of Garland as more fully set forth and described in Attachments "A" and "B," which are attached hereto and incorporated herein by reference (hereinafter "Project").

WHEREAS, Chapter 791 of the Texas Government Code and Chapters 251 and 472 of the Texas Transportation Code provide authorization for local governments to contract amongst themselves for the performance of governmental functions and services; and

WHEREAS, on or about January 24, 2023, County and City entered into a Master Interlocal Agreement (hereinafter "Master Agreement"), whereby County agreed to provide partial funding for such duly qualified "Type B" road and bridge maintenance, improvement, and repair projects, said projects being situated within the territorial limits and jurisdiction of the City, and

WHEREAS, City now desires County to provide partial funding for such a duly qualified project consisting of maintenance, repairs, and improvements of enumerated public roadway situated in the City of Garland, Texas, as more fully described in Attachments "A" and "B."

NOW THEREFORE THIS PSA is made by and entered into by County and City, for the mutual consideration stated herein.

Witnesseth

Article I
Project Specific Agreement

This PSA is specifically intended to identify a Project authorized under the Master Agreement. This PSA sets forth the rights and responsibilities of each of the parties as set forth in the Master Agreement, and all supplements and amendments thereto are incorporated herein by reference. This PSA will be an addition to the Master Agreement and incorporates each term and condition thereof as if set forth herein. All terms of the Master Agreement remain in full force and effect, except as modified herein. In the event of any conflict between the Master Agreement and this PSA, this PSA shall control.

Article II
Incorporated Documents

This PSA incorporates, as if fully reproduced herein word for word and number for number, the following items:

1. Master Agreement authorized by County Commissioners Court Order 2023-0089,

dated January 24, 2023, and additions thereto as incorporated herein.

2. The Construction Estimate, which is attached hereto as Attachment "A" and incorporated herein by reference.
3. The Road List Map/Diagram of proposed work sites, which is attached hereto as Attachment "B" and incorporated herein by reference.

Article III
Term of Agreement

This PSA becomes effective when signed by the last party whose signature makes the agreement fully executed and shall terminate upon the completion and acceptance of the Project by City or upon the terms and conditions in the Master Agreement.

Article IV
Project Description

This PSA is entered into by the parties for the purpose of jointly identifying and funding repairs, maintenance, and improvements on duly qualified "Type B" public roadway within the City of Garland, Texas. The Project shall consist of repairs, maintenance, and improvements of Jupiter Road from the South City Limits to Forest Lane, in the City of Garland, Texas, within Dallas County Commissioner's District 1 ("Project"), and as more fully described in Attachment "A," which is attached hereto and incorporated herein by reference. The Project is authorized by the aforementioned Master Agreement, with the parties' obligations and responsibilities governed thereby, as well as by the terms and provisions of this PSA. The Project will facilitate the safe and orderly movement of public transportation to benefit both the City and County. The City has and hereby does give its approval for the expenditure of County funds for the construction, improvement, maintenance, or repair of a street located within the municipality.

Article V
Fiscal Funding

Notwithstanding anything to the contrary herein, this PSA is expressly contingent upon the availability of County funding for each item and obligation contained herein. City shall have no right of action against the County of Dallas as regards this PSA, specifically including any funding by County of the Project in the event that the County is unable to fulfill its obligations under this PSA as a result of the lack of sufficient funding for any item or obligation from any source utilized to fund this PSA or failure of any funding party to budget or authorize funding for this PSA during the current or future fiscal years. In the event of insufficient funding, or if funds become unavailable in whole or part, the County, at its sole discretion, may provide funds from a separate source or terminate this PSA. In the event that payments or expenditures are made, they shall be made from current funds as required by Chapter 791, Texas Government Code.

Notwithstanding anything to the contrary herein, this PSA is expressly contingent upon the availability of City funding for each item and obligation contained herein. County shall have no right of action against the City as regards this PSA, specifically including any funding by City of the Project in the event that the City is unable to fulfill its obligations under this PSA as a result of the lack of sufficient funding for any item or obligation from any source utilized to fund this PSA or failure of any funding party to budget or authorize funding for this PSA during the current or future

fiscal years. In the event of insufficient funding, or if funds become unavailable in whole or part, the City, at its sole discretion, may provide funds from a separate source or terminate this PSA. In the event that payments or expenditures are made, they shall be made from current funds as required by Chapter 791, Texas Government Code.

Article VI
Agreements

I. City's Responsibilities**:**

1. City, at its own expense, shall be responsible for the following: (a) posting appropriate and required notices to inform the public of the proposed maintenance, repairs, improvements, or reconstruction activity of the Project; (b) locating all manholes, water valves, and other utilities within the Project; (c) making or causing to be made all utility relocations or adjustments necessary for execution and completion of the Project; (d) acquiring any right-of-way necessary to complete the Project; (e) remediating any hazardous or regulated materials, or other environmental hazard on or near the Project sites; (f) funding the purchase of all materials necessary to perform the Project construction; (g) managing construction of the Project; (h) receiving and processing all payments due contractors the City hires to work on the project; (i) contracting through formal bidding procedures to acquire the services of contractors; and (j) where necessary providing appropriate traffic control support, including but not limited to flagging, cones, barricades, shadow vehicles, arrow boards, signage, police presence, etc., to enable the Project to be completed in a timely and safe manner.
2. City shall be responsible for maintaining the Project sites once the Project is completed.
3. City shall be in compliance with the Manual on Uniform Traffic Control Devices ("MUTCD") standards in ensuring safety during operations as outlined in the scope of work in Attachment "A."

II. County Responsibilities**:**

1. County shall reimburse the City for proportionate Project Costs, as more fully set forth in Section III below.
2. County, its Auditor or its designated representative(s) shall have the unrestricted right to audit any and all accounting or other records regarding any funds paid or claimed under this PSA, including, but not limited to all books, records, reports, tickets, deposits, expenditures, budget or any item therein, supporting data, computer records and programs, and all items of hardware, software or firmware, or any other item utilized by the City regarding this PSA. City agrees that all related records shall be retained for a period of time not less than four (4) years from the date of termination of this PSA. Such records shall be provided to the County in Dallas County, Texas and available for any audit at any time upon request. The results of any audit may be furnished to the City for comment.

III. Funding:

County and City mutually agree that the initial and anticipated total Project cost is approximately $4,100,000.00 as set forth in Attachment "A." The parties hereto further agree that City shall be responsible to pay a total of $2,050,000.00 for its portion of the "Type B" roadwork. The parties hereto further agree that City shall be totally responsible for the construction and maintenance of said Project.

The parties hereto also further agree that the County shall only be responsible to City for a contribution, in the form of reimbursements, of an amount not to exceed $2,050,000.00, which amount shall not exceed Fifty Percent (50%) of the actual total Project cost.

City and County further agree as follows:

1. Should the final actual total costs of the Project exceed the initial and anticipated Project costs, City agrees to either reduce the scope of the Project, or to seek additional funding to facilitate its completion. In either event, City shall be solely responsible for all such costs in excess thereof, and County shall bear no additional responsibilities beyond those contemplated herein.
2. City shall submit invoices to the County, which invoices shall provide complete information and documentation to substantiate the City's charges. County's acceptances of the City's invoices are contingent upon the City's compliance with the County's invoicing procedures. County may withhold any disputed amounts until such time as the underlying dispute is resolved to the County's satisfaction, but shall pay all undisputed amounts timely.

Article VII
Miscellaneous:

I. **Indemnification. County and City agree that each shall be responsible for its own negligent acts or omissions or other tortious conduct in the course of performance of this Agreement, without waiving any sovereign/governmental immunity available to County or City or their respective officials, officers, employees, or agents under Texas or other law and without waiving any available defenses under Texas or other law. Nothing in this paragraph shall be construed to create or grant any rights, contractual or otherwise, in or to any third persons or entities.**

II. No Third Party Beneficiaries. The terms and provisions of this PSA are for the benefit of the parties hereto and not for the benefit of any third party. It is the express intention of County and City that any entity other than County or City receiving services or benefits under this PSA shall be deemed an incidental beneficiary only. This PSA is intended only to set forth the contractual right and responsibilities of the parties hereto.

III. Applicable Law. This PSA is and shall be expressly subject to the County's and City's Sovereign Immunity and/or Governmental Immunity, pursuant to Title 5 of the Texas Civil Practice and Remedies Code, as amended and all applicable federal and state laws. This PSA shall be governed by and construed in accordance with the laws of the State of Texas. Exclusive venue for any legal action regarding this PSA shall lie in Dallas County, Texas.

IV. Notice. All notices, requests, demands, and other communication under this PSA shall be tendered in writing and shall be deemed to have been duly given when either delivered in person, via

e-mail, or via certified mail, postage prepaid, return receipt requested to the respective parties as follows:

COUNTY:

Director of Public Works
Dallas County
500 Elm Street, Suite 5300
Dallas, Texas 75202

and

Commissioner Dr. Theresa Daniel
Road & Bridge District #1
500 Elm Street, Suite 7100
Dallas, Texas 75202

CITY:

Assistant City Manager
Crystal Owens
City of Garland
200 Fifth Street
Garland, Texas 75040

Either party may change its address for notice by giving the other party written notice thereof.

V. Assignment. This PSA may not be assigned or transferred by either party without the prior written consent of the other party.

VI. Binding Agreement; Parties Bound. Upon execution by the parties, this PSA shall constitute a legal, valid and binding obligation of the parties, their successors and permitted assigns.

VII. Amendment. This PSA may not be amended except in a written instrument specifically referring to this PSA and signed by the parties hereto.

VIII. Counterparts. This PSA may be executed in multiple counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument.

IX. Severability. If one or more of the provisions in this PSA shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality or unenforceability shall not cause this PSA to be invalid, illegal or unenforceable, but this PSA shall be construed as if such provision had never been contained herein, and shall not affect the remaining provisions of this PSA, which shall remain in full force and effect.

X. Entire Agreement. This PSA embodies the complete agreement of the parties, and except where noted, it shall supersede previous and/or contemporary agreements, oral or written, between the parties and relating to matters in the PSA.

XI. Contingent. This PSA is expressly subject to and contingent upon formal approval by the Dallas County Commissioners Court and by resolution of the City Council of the City of Garland.

XII. Effective Date. The Contract shall commence on the Effective Date. The Effective Date of this Contract shall be the date it is executed by the last of the parties. Reference to the date of execution shall mean the Effective Date.

XIII. No Joint Enterprise/Venture. The parties agree that no party is an agent, servant, or employee of the other parties. The parties, including their agents, servants, or employees, are independent contractors, and not an agent, servant, joint enterprise/venture, or employee of any other party, and

are responsible for their own acts, forbearance, negligence, and deeds, and for those of their agents, servants, or employees in conjunction with this Contract. No joint enterprise/venture exists between the parties.

The City of Garland, State of Texas, has executed this PSA pursuant to duly authorized City Council Resolution _____, Minutes _____, dated the ___ day of _____, 2023.

The County of Dallas, State of Texas, has executed this PSA pursuant to Commissioners Court Order Number _____ and passed on the _____ day of _____, 2023.

Executed by the City of Garland this the _____ day of_____, 2023.

CITY OF GARLAND:
City Manager

By:_____
Assistant City Manager

APPROVED AS TO FORM:
BRIAN C. ENGLAND
City Attorney

By:_____
Assistant City Attorney

Executed by the County of Dallas this the _____ day of _____, 2023.

COUNTY OF DALLAS:

_____
CLAY LEWIS JENKINS
COUNTY JUDGE

APPROVED AS TO FORM:*
JOHN CREUZOT
DISTRICT ATTORNEY

_____
Jana Prigmore Ferguson
Assistant District Attorney

*By law, the District Attorney's Office may only advise or approve contracts or legal documents on behalf of its clients. It may not advise or approve a contract or legal document on behalf of other parties. Our review of this document was conducted solely from the legal perspective of our client. our approval of this document was offered solely for the benefit of our client. Other parties should not rely on this approval, and should seek review and approval by their own respective attorney(s).

ATTACHMENT A

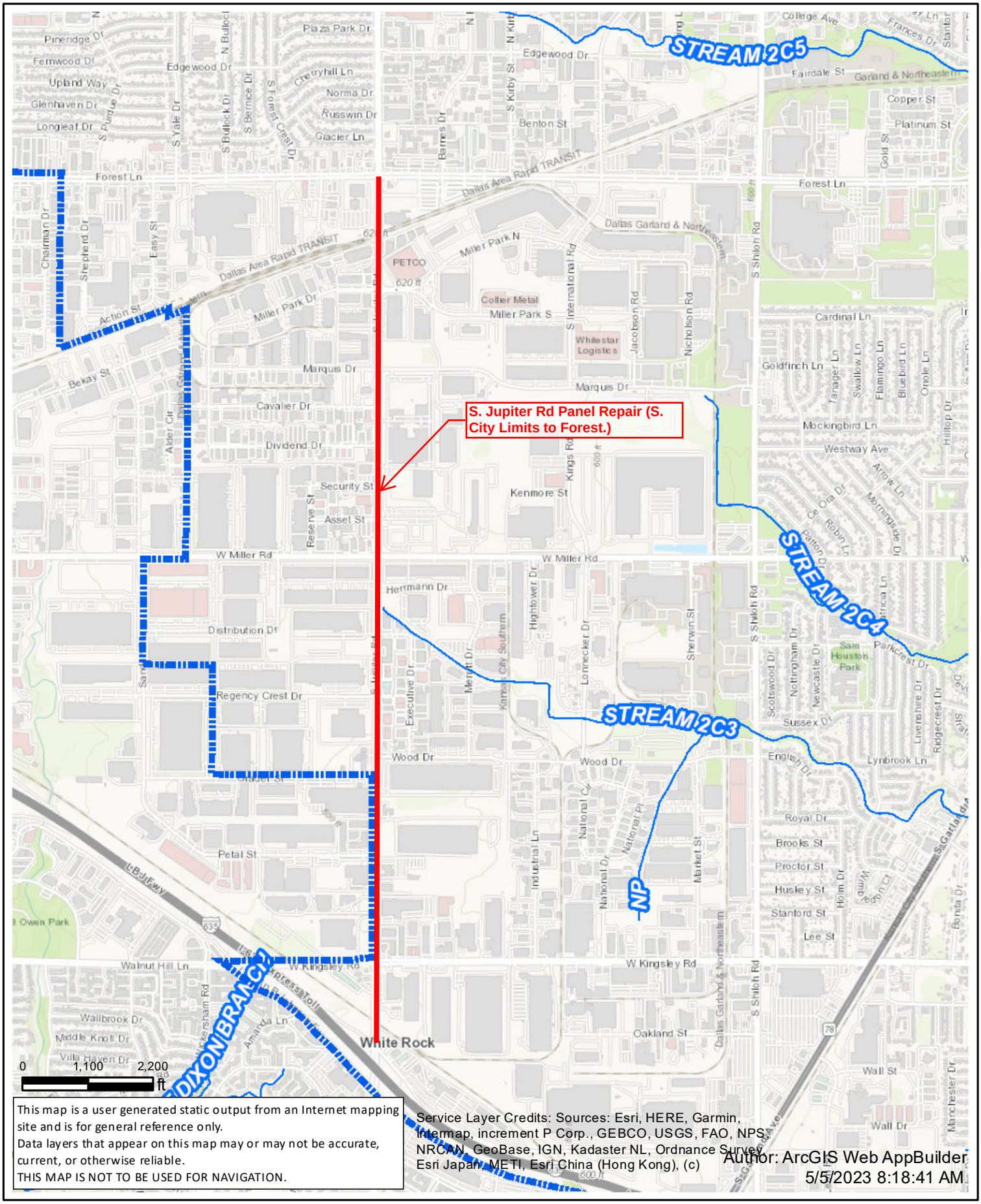
City of Garland

Dallas County Type B Roads - FY 23 Cost Share Candidate

Block	Name	From Name	To Name	Pavement Type	Func Class	Lane Miles	OCI	Comissioner District	FY 23 Maint. Plan	**Cost Estimate**	
	Jupiter Road	S. City Limits	Forest Lane	Concrete	Arterial	2.35	82.7	1	Concrete Repair	$4,100,000.00	$2,050,000.00
									Subtotal:	$4,100,000.00	
									Total Project Cost	$4,100,000.00	
									Dallas County Share	$2,050,000.00	
									City of Garland Share	$2,050,000.00	
									Total Project Costs	$4,100,000.00	

ATTACHMENT B

S. Jupiter Rd. (S. City Limits to Forest Ln.)



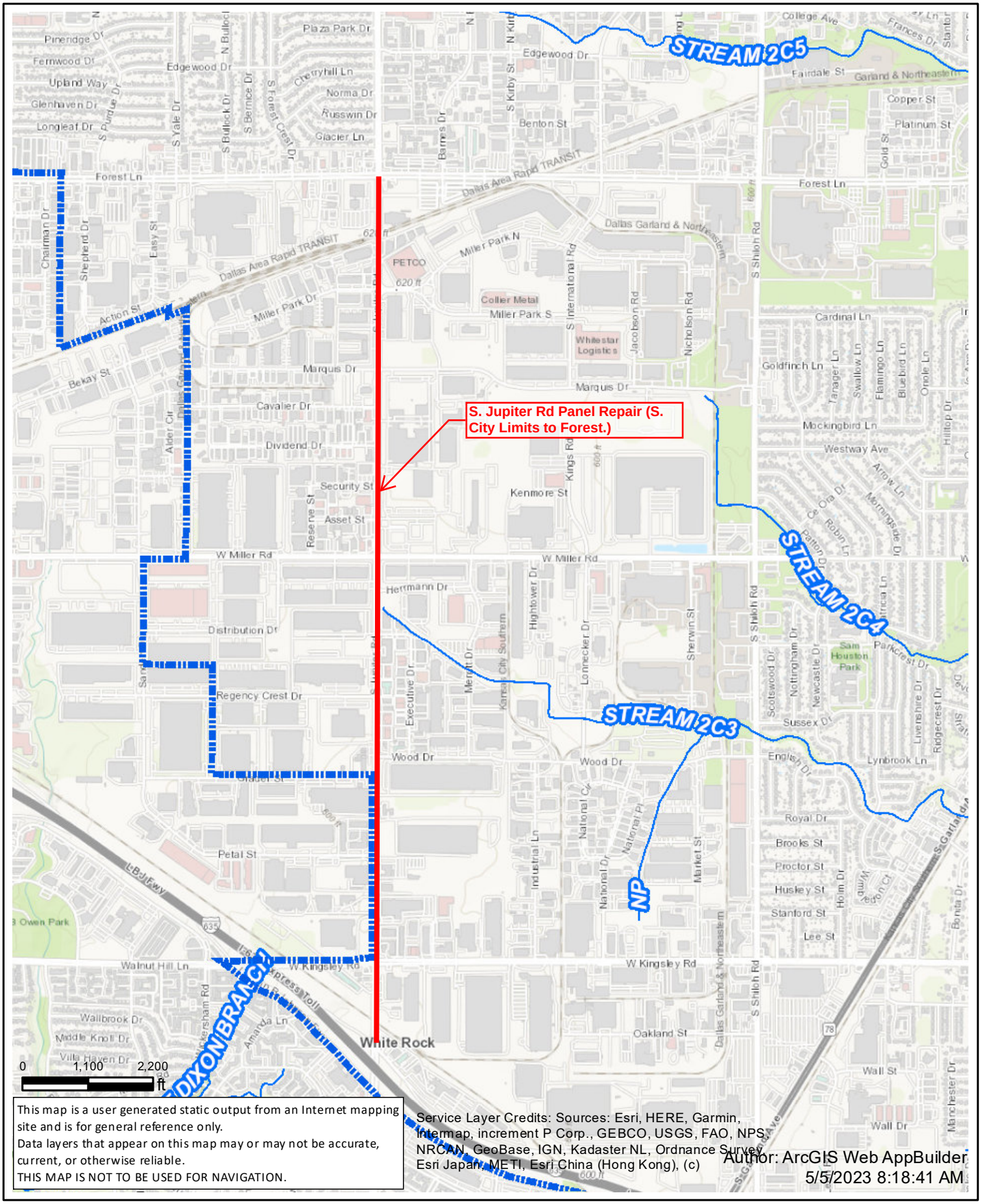
This map is a user generated static output from an Internet mapping site and is for general reference only.
Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

Author: ArcGIS Web AppBuilder
5/5/2023 8:18:41 AM

ATTACHMENT B

S. Jupiter Rd. (S. City Limits to Forest Ln.)



This map is a user generated static output from an Internet mapping site and is for general reference only.
Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

Author: ArcGIS Web AppBuilder
5/5/2023 8:18:41 AM

GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Work Session Agenda **4. a.**

Meeting Date: July 31, 2023

Item Title: Garland Fire Department Master Plan

Submitted By: Mark Lee, Fire Chief

Summary of Request/Problem

The Garland Fire Department Master Plan will go over strategic planning for the delivery of Fire, EMS, Community Risk Reduction, Training and Education, and department support programs. This will cover the near, mid, and long terms.

This will cover five planning and objective goals which will include discussions about staffing a highly trained workforce to meet demands, recruiting and training quality staff members, deploying and maintaining resources, strategies for clear communication between all levels of staff, and community outreach work to help improve fire safety response.

Recommendation/Action Requested and Justification

Requesting Council feedback and direction.

Attachments

GFD Master Plan

CENTER FOR PUBLIC SAFETY MANAGEMENT, LLC

Fire Master Plan

Garland, Texas

Draft Final Report-April 2023

CPSM®

CENTER FOR PUBLIC SAFETY MANAGEMENT, LLC
475 K STREET NW, STE. 702 • WASHINGTON, DC 20001
WWW.CPSM.US • 716-969-1360

ICMA

Exclusive Provider of Public Safety Technical Services for
International City/County Management Association

THE ASSOCIATION & THE COMPANY

The International City/County Management Association is a 109-year old, nonprofit professional association of local government administrators and managers, with approximately 13,000 members located in 32 countries.

Since its inception in 1914, ICMA has been dedicated to assisting local governments and their managers in providing services to its citizens in an efficient and effective manner. ICMA advances the knowledge of local government best practices with its website (www.icma.org), publications, research, professional development, and membership. The ICMA Center for Public Safety Management (ICMA/CPSM) was launched by ICMA to provide support to local governments in the areas of police, fire, and emergency medical services.

ICMA also represents local governments at the federal level and has been involved in numerous projects with the Department of Justice and the Department of Homeland Security.

In 2014, as part of a restructuring at ICMA, the Center for Public Safety Management (CPSM) was spun out as a separate company. It is now the exclusive provider of public safety technical assistance for ICMA. CPSM provides training and research for the Association's members and represents ICMA in its dealings with the federal government and other public safety professional associations such as CALEA, PERF, IACP, IFCA, IPMA-HR, DOJ, BJA, COPS, NFPA, and others.

The Center for Public Safety Management, LLC, maintains the same team of individuals performing the same level of service as when it was a component of ICMA. CPSM's local government technical assistance experience includes workload and deployment analysis using our unique methodology and subject matter experts to examine department organizational structure and culture, identify workload and staffing needs, and align department operations with industry best practices. We have conducted 341 such studies in 42 states and provinces and 246 communities ranging in population from 8,000 (Boone, Iowa) to 800,000 (Indianapolis, Ind.).

Thomas Wieczorek is the Director of the Center for Public Safety Management.
Leonard Matarese serves as the Director of Research & Program Development.
Dr. Dov Chelst is the Director of Quantitative Analysis.

CENTER FOR PUBLIC SAFETY MANAGEMENT PROJECT CONTRIBUTORS

Thomas J. Wieczorek, Director
Leonard A. Matarese, Director, Research & Project Development
Dov Chelst, Ph.D. Director of Quantitative Analysis
Joseph E. Pozzo, Senior Manager for Fire and EMS
Dr. Randa Matusiak, Senior Associate
Xianfeng Li, Data Analyst
Monicque Lee, GIS Specialist
Dennis Kouba, Senior Editor

CONTENTS

SECTION 1. INTRODUCTION

Purpose of the Plan

The 2023 Garland Fire Department *Fire Master Plan* serves as a strategic planning guide for the delivery of Fire, EMS, Community Risk Reduction, Training and Education, and department support programs over the near, mid, and longer terms. The Fire Master Plan strives to provide a balanced approach between Fire and EMS services and fiscal responsibility, while also considering the demand for service and meeting that demand with essential resources. The Fire Master Plan is constructed to meet the needs and circumstances of the City of Garland as assessed against the community risk, planned community growth, industry trends and benchmarks, and the current Garland Fire Department (GFD) operating platform.

The Fire Master Plan is citywide and department wide in scope and includes a gap analysis of: Fire and EMS service delivery; training and education; succession planning; health, safety, and wellness of fire department employees; review of policies and procedures; fire department connection to the city's 911-dispatch center; all-hazards community risk profile; fire department infrastructure that includes the fleet and facilities; and current and planned station locations and staffing. Throughout the gap analysis, the current GFD operating platform was benchmarked against national standards that include the National Fire Protection Association, Insurance Services Office, and the Center for Public Safety Excellence best practices.

The primary objective of the Fire Master Plan is to provide all stakeholders with a document that includes measurable and achievable strategic planning goals and objectives, which are recommendations to improve all facets of Fire and EMS service deliverables and reduce community risk.

The Fire Master Plan contains five strategic planning goals and objectives that focuses on priority areas of the GFD and the city in terms of Fire and EMS service delivery, the community, and the GFD as an organization, as outlined in the gap analysis, and information received through stakeholder meetings. These include:

- Goal 1: Staff a highly trained workforce to meet the demand for calls for service.
- Goal 2: Recruit and retain quality staff.
- Goal 3: Deploy and maintain resources efficiently and effectively.
- Goal 4: Communicate clearly to and between all levels of staff.
- Goal 5: Work with the community to improve fire safety response.

Additionally, this plan updates the GFD's Mission and Vision statements, as well as the Value Statements of the department.

Project Methodology

To develop this Fire Master Plan, CPSM followed two paths that intersected in the development of the strategic planning goals and objectives.

The first path included the collection of documents, information, and response data from the fire department. This included data from the computer-aided dispatch (CAD) system for response time and workload information and GFD's National Incident Reporting System (NFIRS) records management system. CPSM consultants were also furnished with numerous reports and

summary documents that included information specific to the GFD and the city. Follow-up phone calls, emails, and virtual meetings were used to clarify information as needed.

The second path included on-site and virtual meetings with GFD staff and the public to learn more about the organization and the city, and to gather stakeholder input regarding the GFD's strengths and weaknesses, vision, values, and operations. During the site visit CPSM visited each fire station for the purpose of visualizing facility and fleet infrastructure. During the facility visits CPSM took the opportunity to dialogue with on-duty crews regarding strengths and weaknesses of the department. The site visit was also utilized for the purpose of gathering valuable first-hand knowledge of the building risks in the city.

Once all information was obtained, CPSM developed the Fire Master Plan gap analysis (current state-where the GFD should be), which then served, along with master planning meetings with internal and external stakeholders, to build the strategic planning goals and objectives that serve as the path forward for the GFD.

Historical Fire and EMS Planning

Since 1996, the GFD has evolved Fire and EMS service deliverables into what they are currently, and which includes an eleven station Fire and EMS agency that provides services through six engines (a 7th is cross staffed with a truck company), five ladder apparatus, one heavy rescue (cross-staffed at station 1) and an additional rescue (cross-staffed at station 8), a light & air unit (cross-staffed at station 10), a type 6 engine (cross staffed at Station 7), and eleven advanced life support ambulances. Prior to the eleven station concept the GFD currently operates under, the GFD operated fourteen pieces of fire apparatus and six ambulances. The evolution includes:

- 1996: Former Fire Chief unveils 11 station concept.
- 1997: Stations 8 and 9 open.
- 2002: Old Station 4 closes as new Station 4 opens.
- 2004: New Station 11 opens.
- 2005: Old Station 2 closes as new Station 2 opens.
- 2006: Construction begins on new fire administration building and fire training tower/facility.
- 2007: New Station 10 opens.
- 2007: New fire administration building, and fire training tower/facility opens.
- 2008: Old Station 3 closes as new Station 3 opens.
- 2008: 2 engine companies close, and staff are shifted to open 3 ambulances.
- 2008: Reduced staffing by 4 personnel.
- 2015: Staffing reduced by 1.
- 2017: Old Station 5 closes as new Station 5 opens.
- 2017: 3 new firefighter positions added.
- 2019: 7 new firefighter positions added.
- 2022: 3 new FD positions added.
- 2023: 9 new FD positions added.

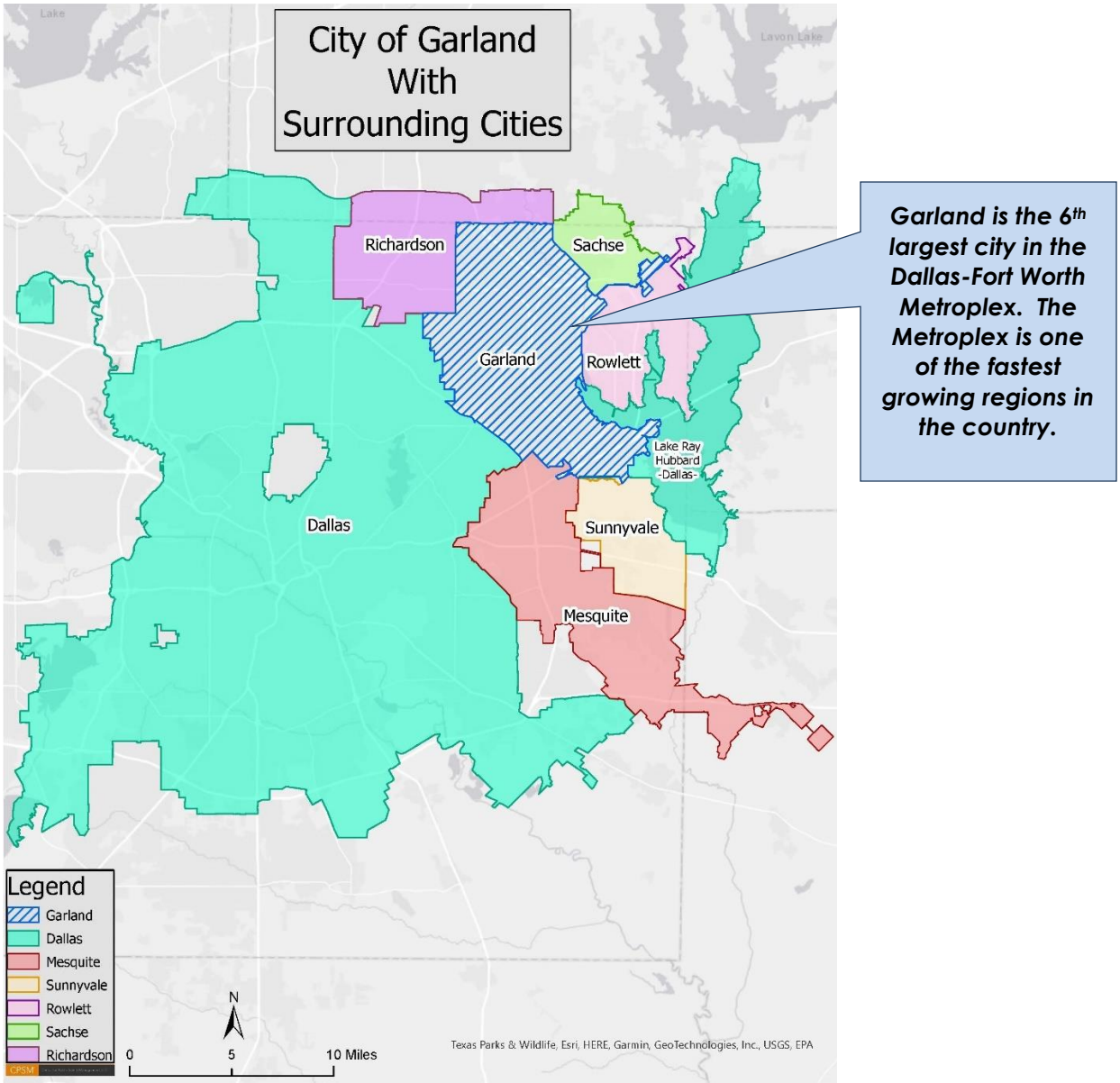
17 positions added 2008-2023

SECTION 2. ORGANIZATIONAL CHARACTERISTICS

City of Garland and GFD Overview

Garland is located in northeast Dallas County and is included in the Dallas-Fort Worth metroplex. Contiguous municipalities include Richardson, Sachse, Dallas, Rowlett, Sunnyvale, and Mesquite. Lake Ray Hubbard serves as a boundary to the south and southeast portions of the city. The total area of the city is 57.1 square miles, and the 2020 decennial census population is 246,018.

Figure 1: City of Garland and Surrounding Jurisdictions

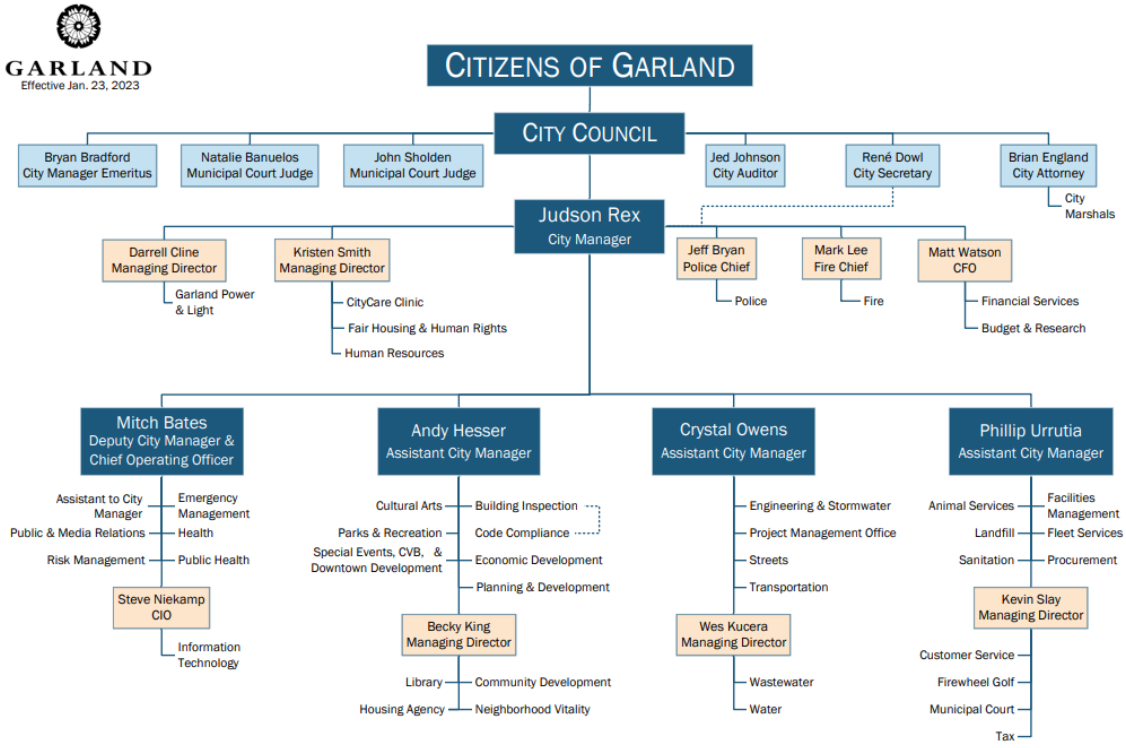


The city is a chartered Home Rule City (first adopted in 1951) and operates under the Council-Manager form of government. The City Manager is the Chief Executive Officer of the city. The Mayor and City Council enact local legislation, adopt budgets, determine policies, and appoint officials as outlined in the Charter, to include the City Manager who shall execute the laws and administer the government of the City.[1] [2]

Article VII §1 of the Charter establishes what departments shall be established in the City. This includes the Public Safety departments, which includes the fire department. Article VII §2 establishes the head of each department shall be a Director. In the case of the fire department this is the Fire Chief.[3]

Chapter 21 of the City of Garland Code of Ordinances (Fire Prevention and Protection) addresses the establishment and duties of fire prevention and the relevant fire code applicable to enforcement of same. Chapter 21 also establishes that the Garland Fire Department shall provide emergency ambulance services in the city and applicable user fees for same.[4]

Figure 2: City Organizational Chart



The GFD is a career fire department that employs full-time administrative, community risk reduction, training, support staff, and operational officers and firefighters. The GFD deploys seven engine companies (one is cross staffed), five truck companies, two rescue units (one heavy; cross-staffed with station staffing), one Type 6 engine (cross-staffed with station staffing), one light & air unit (cross staffed with station staffing), eleven EMS ground transport units, two

1. City Manager's Office | Garland, TX (garlandtx.gov)
2. City of Garland Home Rule Charter §2 Form of Government.
3. City of Garland Home Rule Charter VII §1, V11§2 Departments of the City.
4. City of Garland Code of Ordinances, Chapter 21.

operational Battalion Chiefs, and one EMS Captain/Supervisor from eleven operational stations. The operational Battalion Chiefs serve as district commanders (north and south) providing day-to-day operational supervision to assigned stations, as well as serving as the incident commander on assigned incident responses. Coordinating the day-to-day operations of EMS ground transport is a shift EMS Captain. The EMS Captain is city-wide.

Five of the truck companies are Quints (apparatus that has a fire pump; hose; water tank; engine and truck company equipment; and an elevated aerial device), which means they respond primarily as an engine company, but can serve as a ladder (truck) company as needed. The truck company apparatus at Station 1 (Truck 1) is cross staffed with personnel from Engine 1. Also, Engine 8 cross-staffs Rescue 8 and Ambulance 10 cross-staffs Squad 10.

There are 79 positions assigned to each operational shift. The deployment model outlined above requires minimum operational shift level staffing of 61 personnel per shift. The GFD allots 18 personnel per shift to cover scheduled and unscheduled leave. The GFD operates with a typical 24-hour shift. There are three operational shifts or platoons (A, B, C shifts).

Administrative, community risk reduction, training and support services staff and functions operate from a joint facility and compound that includes administrative office space, training classrooms, fleet and logistics areas, and a training complex that includes a training tower/live burn building and props, and other props for specific training.

The GFD is led by a Fire Chief who has overall responsibility for the management and leadership of the department. The Fire Chief is assisted by three Assistant Chiefs who are direct reports. Additional support to the Fire Chief includes civilian administrative support and technical staff that have assignments to include special projects, public life safety education, recruitment, and the day-to-day administrative, management, and technical work that a large agency such as the GFD includes. The Fire Chief's staff includes nine officers, uniform, and civil staff.

The Assistant Chief of Operations manages the three operational shifts as described above. This includes all operational components and staffing. There are two operational Battalion Chiefs on duty each day (north and south). Each of the operational shift Battalion Chiefs as well as the Battalion Chief of EMS report directly to the Assistant Chief of Operations. The EMS shift operational Captains report to the shift Battalion Chiefs, and an EMS Program Manager reports to the Battalion Chief of EMS. The Assistant Chief of Operations also liaisons with the 911 Dispatch Center, which is managed by the Garland Police Department. There are 242 positions assigned to the Assistant Chief of Operations.

The Assistant Chief of Support Services/Training manages Fire and EMS training, which includes a Battalion Chief, two Lieutenants, and a firefighter who coordinate and manage department training and the training complex. The Assistant Chief of Support Services/Training also manages the department's supply chain, fleet services, clothing to include personal protective equipment, radios and operational equipment. This division has additional support personnel that includes a mix of uniform and civilian staff. In all there are ten positions (not including the Assistant Chief) assigned to this division.

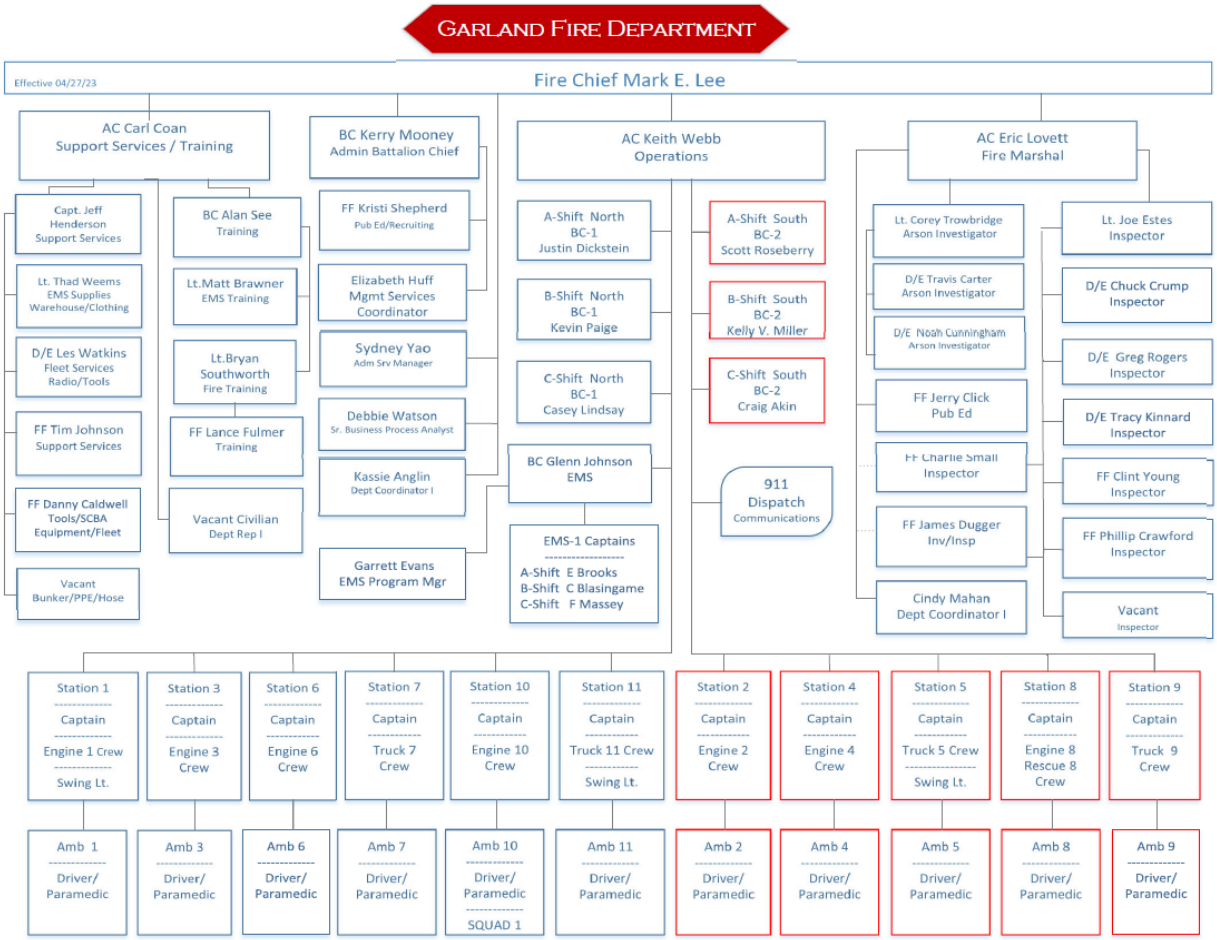
The Assistant Chief/Fire Marshal manages the community risk reduction (fire prevention) and fire origin and cause to include arson investigation. The community risk reduction component is

responsible for fire prevention code enforcement, fire protection plans review, and fire and life safety education. This division includes fourteen positions (civilian and sworn) not including the Assistant Chief.

The key elements of the GFD include:

- Fire protective services.
- EMS first-tier response (ALS level) and ground transport (ALS level).
- Fire prevention, fire code enforcement, fire protection plans review.
- Fire cause and origin/arson investigation.
- Technical rescue response and mitigation.
- Hazardous materials response and mitigation.
- Community outreach and life safety education.
- Employee training and education.
- Fleet, facility, and logistical support and management.
- Special event support.

Figure 3: GFD Organizational Chart



Organizational Supportive Elements

Training and Education

Training is, without question, one of the most essential functions that a fire and EMS department should be performing on a regular basis. One could even make a credible argument that training is, in some ways, more important than emergency responses because a department that is not well trained, prepared, and operationally ready will be unable to fulfill its emergency response obligations and mission. Education and training are vital at all levels of fire service operations to ensure that necessary functions are completed correctly, safely, and effectively. A comprehensive, diverse, and ongoing training program is critical to the fire department's level of success.

An effective fire and EMS department training program must cover all the essential elements of that department's core missions and responsibilities. The level of training or education required, given a set of tasks, varies with the jobs to be performed. The program must include an appropriate combination of technical/didactic training, manipulative or hands-on/practical evolutions, and training assessment to gauge the effectiveness of these efforts. Most of the training, but particularly the practical, standardized, hands-on training evolutions should be developed based upon the department's own operating procedures and operations while remaining cognizant of widely accepted practices and standards that could be used as a benchmark to judge the department's operations for any number of reasons.

Certain Occupational Safety and Health Administration (OSHA) regulations dictate that minimum training must be completed on an annual basis. The state of Texas does not operate an approved state OSHA program for public employees at the state or political sub-division (e.g.: municipal) level. OSHA Regulations and Standards Regulated employers located in the state of Texas are governed by the Federal OSHA health and safety standards found in the 29 Code of Federal Regulations (CFR). As such, the GFD should ensure the following courses are included in the training matrix for all uniform personnel:

- Annual review of the respiratory protection standard, self-contained breathing apparatus (SCBA) refresher and user competency training, SCBA fit testing (29 CFR 1910.134).
- Annual Blood Borne Pathogens Training (29 CFR 1910.1030).
- Structural & Wildland Firefighting Training, Officer Training, Emergency Vehicle Driving, Hazardous Materials, MAYDAY & Rapid Intervention Team and other emergency services related training (29 CFR 1910.156).

Other training requirements the GFD must manage include:

- The ISO-PPC has certain training requirements for which fire departments receive credit during the ISO-PPC review.
- Texas Commission on Fire Protection Certifications and maintenance of certifications dependent of department position and includes:
    - Structural Fire Suppression
    - Fire Services Instructor
    - Fire Investigator and Fire Inspector
    - Head of Department

Because so much depends upon the ability of the emergency responder to effectively deal with an emergency, education and training must have a prominent position within an emergency responder's schedule of activities when on duty. Education and training programs also help to create the character of a fire service organization. Agencies that place a real emphasis on their training tend to be more proficient in performing day-to-day duties. The prioritization of training also fosters an image of professionalism and instills pride in the organization. Overall, the GFD has a planned training program and there exists a dedicated effort focused on a wide array of training activities for all three shifts.

Training and education in the GFD are managed by a Battalion Chief who reports to the Assistant Chief of Support Services/Training. The Battalion Chief of Training is supported by two Lieutenants and one firefighter. Together this group plans, develops, and coordinates the various Fire and EMS training for the department (EMS training is coordinated with Medical Control/MCP who also provides the majority of this training).

The GFD has an external training facility located on the campus of the GFD fire administration building. This includes a burn building (gas fed props) incorporated into a training tower. Additional emergency scene props are also located on the training grounds. Formal classroom training occurs as well on the fire administration campus. This includes a contemporary auditorium, classrooms, and digital training. Company level training also occurs in GFD stations and is led by station officers. Multicompany training and specific building or risk training occurs on-site of the actual building or identified risk. Much of the multi-company live fire company level practical training is developed and coordinated by Shift Training Officers (STOs). There are three STOs on each shift.

The GFD has Administrative Directives that pertain to training and training compliance that include:

- Fire Training Division
- Probationary Skill and Knowledge Assessments
- Flashover Chamber Fires
- EMS Credentialing and Recertification

There are many operational Standard Operating Procedures as well that are incorporated into recruit and incumbent training. This training is completed at the station level and fire training facility for incumbents, and in recruit training where the probationary employees are provided their initial fire and EMS training.

Professional development occurs outside of the required state certifications. Department staff are availed to training opportunities at the national Fire Academy in Emmitsburg, MD, as well as Texas Commission of Fire Protection course offerings. Staff must be approved for these courses and any cost or time off must be approved as well.

The GFD should include in any strategic master planning strategies that are aimed at budgeting for and encouraging professional development of all staff members. Strategies should have a focus on leadership development opportunities and a training program that prepares and develops all staff for an all-hazards response that are present in Garland, and mitigation of emergencies involving these risks and hazards.

Succession Planning

One important organizational concept, which is or will experience turnover of personnel at the management and leadership ranks, is to implement programs that identify the future leaders of the organization; that is, programs that go beyond the technical courses for career advancement preparation. A key to this is to develop and implement a formal succession plan, focused on developing potential successors (company officers, middle managers such as battalion and division level chiefs, and senior level chief officers) to ensure organizational leadership stability, and also serve as a retention plan. This type of planning is typically designed to identify, develop, and nurture potential future leaders.

There are a few examples of succession planning that work well in fire departments:

- Development-Based Processes: A succession planning model that equips an employee or group of employees for future roles and responsibilities through diverse organizational program exposure and assignments.
- Replacement Planning: A process of identifying replacement staff for key positions and functions and developing these employees over the short term.
- Career Path Training: A program that identifies technical and organizational development courses and/or formal education that must be completed as employees prepare to elevate responsibility or position in the organization. Ideally the officer candidate for any officer level in the department is experienced and has the foundational technical and formal education and training to be successful with each new level promoted to. To ensure this and to ensure the GFD is preparing future officers, a formal program that identifies those foundational technical and organizational courses germane to each level in the organization should be selected and implemented. A growing number of fire departments are employing task books for personnel who aspire to (or in some cases have already been promoted to) higher rank. For the GFD, task books would be appropriate for firefighters, lieutenants, and captains. The successful completion of any task book for promotion to higher rank including captain, or alternatively, can be a required element of the post-hire/promotional evaluation process.
- Succession Planning: A more future-focused process of categorizing the knowledge, skills, and abilities needed to perform organizational functions. Linked to this is the development of a plan that has the intent of preparing multiple employees to potentially perform those functions and which creates opportunity for advancement in the organization.

Critical to the success of succession planning is the engagement and commitment of the senior leaders to the program, as well as the commitment of other members of the organization to their own personal and professional development. To be a part of the succession plan, one must commit to one's own professional development to be able to compete for and fill critical organizational leadership roles.

The recruitment of new employees is equally important as tenured employees retire, are promoted, or move on to other departments or career choices. Considerations for recruitment include:

- Proactive recruitment and hiring process planning will prevent long term disruption of the business activities (staffing and deploying emergency services) of the GFD.
- The department should continually evaluate its present and future staffing requirements such as planned retirements and promotions and be prepared to recruit, test, and hire new employees as often as needed.

- Continuation of the expansion of the recruitment and talent/applicant pool will create a wider and more diverse pool of qualified candidates. By this, recruitment should occur across the metro-plex through participation in job fairs and recruiting opportunities outside of Garland on a regular basis.

Basic recruiting involves discovering applicants, then testing each, hiring them to fill available positions, and completing the on-boarding process, which includes recruit training and the probationary period. Effective recruiting, on the other hand, is a mix of art and science and includes thinking outside the box to locate and hire the most diverse and brightest individuals the organization can.

The GFD should include in any strategic master planning near, mid, and long term strategies that focus on succession planning, employee professional development, and preparing the workforce for the future. Planning should include the development of a succession plan that is diverse, includes the entire organization, and has a focus on preparing current and future members to take on additional roles and responsibilities, and as well as prepares members for advancement and promotion into key roles in the organization.

The GFD should include in any strategic master planning a focus on recruitment and retention of employees. Recruitment should make every effort to continue to capture the best and the brightest candidates possible who meet the city and department requirements, and who are reflective of the City of Garland. Retention should be focused on professional development; the health, safety, and wellness of all employees; a shared vision; open and honest communication; and an inclusive organization where all employees feel they are being listened to and their input is received and considered.

Health, Safety, and Wellness

The prevention and reduction of accidents, injuries and occupational illnesses should be established goals of any fire-rescue department and should be primary considerations at all times (emergency and non-emergency activities). This concern for safety and health must apply to all members of the fire-rescue department and should include others who may be involved in fire department activities.

The GFD should strive to make every reasonable effort to provide a safe and healthy work environment, recognizing the dangers involved in the types of service fire-rescue departments deliver. Included in this effort should be appropriate and continuous training, supervision, procedures, program support and review to achieve department health and safety objectives in all department functions and activities.

Firefighting and to some degree EMS service delivery are inherently dangerous activities occurring in environments over which the participants have no engineering control. NFPA 1500, *Standard on Fire Department Occupational Safety and Wellness Programs* was developed to provide a "consensus standard for an occupational safety and health program for the fire service." NFPA 1500 is intended to be an umbrella document, establishing the basic framework for a comprehensive safety and health program, and providing for its implementation and management.

The Health and Safety function in the GFD is handled primarily by the Assistant Chief of Operations and operational officers. The following GFD policies and or procedures address health and safety:

- Directive 123 addresses tobacco usage.

- Directive 126 addresses the Fire Department Safety Officer (incident safety officer).
- Directives 127 and 144 address a Peer Support Team to promote good mental health.
- Directive 133 addresses hearing protection.
- Directive 235 addresses Health and Wellness (annualizes medical evaluation).
- Directive 236 addresses bi-annual physical fitness evaluations.
- Directive 238 addresses the Personal Alert Safety System utilized when personnel have donned a self-contained breathing apparatus and are operating in an immediately dangerous to life and health atmosphere.
- Directive 608 addresses Workforce Self-Screening (to prevent exposure of others to one's own illness).
- Directive 612 addresses isolation procedures for COVID-19.
- Directive 646 & 654 addresses employee self-protection from violent/belligerent persons.
- Directive 647 addresses the department's Infection Control Plan and Policy.
- Directive 665 addresses staff contaminated clothing.
- Directive 705 addresses protective clothing for fire investigators.

The GFD has a comprehensive collection of Standard Operating Procedures (SOPs) that address emergency response and emergency scene procedures, guidelines, and specific direction. Almost all of these SOPs address the health and safety of responding members of the GFD.

In 2021, the NFPA produced *The Fifth Needs Assessment of the U.S. Fire Service* and revealed the following:

- 72 percent of departments lack a program to maintain basic firefighting fitness and health.
- 61 percent of departments don't provide medical and physical evaluations for all firefighters that comply with *NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments.*
- 73 percent of departments lack a behavioral health program (larger departments are much more likely to have such a program).
- 56 percent of fire stations aren't equipped for exhaust emissions control; this number rises to 82 percent in the smallest communities.
- Many departments don't engage in cancer prevention best practices.[5]

A successful health, safety, and wellness program requires:

- Senior Management buy-in.
- The establishment of a Health & Wellness Committee (The GFD currently does not have in place).
- A department needs assessment.
- The establishment of obtainable goals and objectives.

5. Creating a Health & Wellness Program for Your Department, Firehouse Magazine, October 2022.

- The establishment of a budget for health, safety, and wellness.
- Implementation.
- Evaluation.[6]

Primary goals of a comprehensive health, safety, and wellness should include:

- Reducing injury leave and light duty due to on-the-job injuries.
- Potentially lowering workers' compensation and employee health care costs.
- Reduction of injuries.[7]

Firefighter injuries and deaths are devastating to families, fellow responders, local governments, and the community. The National Institute for Occupational Safety and Health (NIOSH) has studied firefighter fatality root causes, and found five key factors, which are commonly referred to as the NIOSH 5:

- Lack of fireground firefighter accountability.
- Lack of fireground communication methods.
- Lack of standard operating procedures related to response and fireground operations.
- Lack of incident management/command.
- Lack of appropriate risk assessment of the incident as whole, the building, the emergency scene, and basic fireground knowledge to understand the risk.

These five fireground factors should be etched in every firefighter's brain. A fire department training regimen, equipment, guidelines, and culture should center on these five factors. A lack of understanding of these five factors leads to sloppy, ineffective, and unsafe fireground operations. ***They should be taken seriously.***

Managing the health, safety, and wellness components of a fire and EMS department are as important as any other, as the concepts of health, safety, and wellness apply to both emergency and non-emergency activities. For the GFD this takes dedicated staff hours and oversight from a command and station level.

That said, the GFD should include in any strategic master planning, strategies that focus on the health, safety, and wellness of the workforce with an emphasis on reducing carcinogenic exposures, employee behavioral health issues and challenges, and safety during emergency and non-emergency work. This should include a health, safety, and wellness committee, which includes the City's Human Resources Department, and the development of a contemporary comprehensive health, safety, and wellness initiative that aligns with NFPA 1500, Standard on Fire Department Occupational Safety and Wellness Programs, 2021 edition.

Policies and Procedures

The GFD operates under policy guidance from the city regarding employment, human resources, and related municipal matters. In addition, the fire department operates under Standard Operating Procedures (SOPs) and Administrative Directives that are specific to its

6. ibid
7. ibid

internal operations. Fire departments typically manage and direct operational and administrative matters in the same manner as described here.

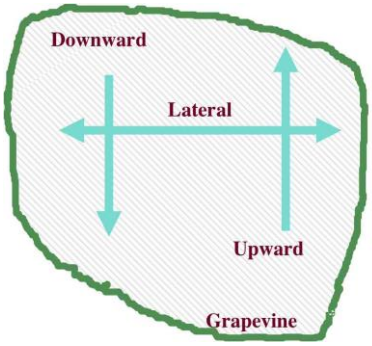
In review of the GFD SOPs and Administrative Directives in place, we found most which are oriented to operations, which is normal in Fire and EMS organizations. Although these policies and procedures are necessary and establish the basis for all department operations in the station and on the emergency scene, CPSM found that, due to the large number of these documents, understanding and following all policies can be cumbersome and complicated.

Additionally, we found that there are current SOPs and Administrative Directives that have considerable age and may have exceeded their life expectancy (some date back to the late 1980s). While older policies may still have their relevancy in part, the Fire and EMS disciplines are dynamic and evolve with each new NFPA standard, contemporary medical field intervention or protocol, or other innovation or health and safety issue or theme these disciplines contend with. For these reasons, fire and EMS departments should make every effort to maintain up-to-date policies and directives, which are consistent with NFPA documents, particularly those that involve Fire and EMS operations and health and safety.

The GFD should include in any strategic master planning the reorganization and reformatting of department Standard Operating Procedures and Guidelines with a focus on consistency, and to ensure they represent a contemporary Fire and EMS department.

Organizational Communication

In any organization, effective communication is critical to success. Fire and EMS departments operate in a decentralized format meaning, with exception of fire administration staff and other staff assigned the fire administration building or office, the largest component of the workforce is in facilities external to department leadership. Further complicating organizational communication in a fire and EMS department is shift work. The shift work schedule of rotating 24-hour shifts complicates communication in that two-thirds of the largest component of the organization is not at work when a communication is directed out and down from organizational leadership.

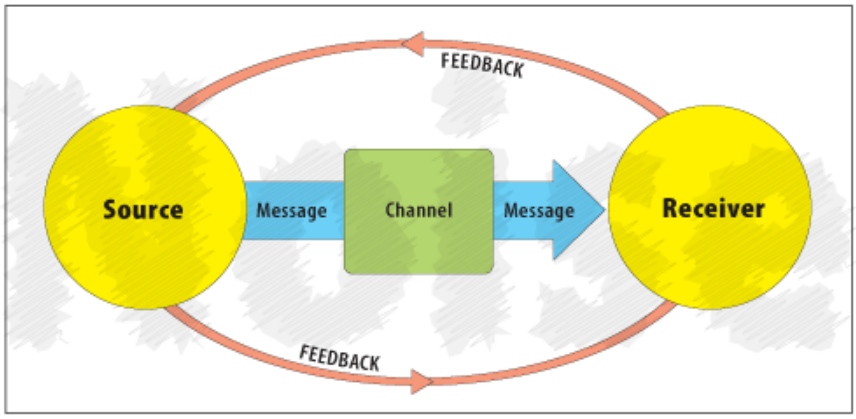


The inherent communication challenges and breakdowns in an organization, both vertically and laterally, with a decentralized workforce and one that deploys employees on shift work, often result in miscommunication. Usually, the lack of formal communication channels will feed communication through the "grapevine," which is where most employees will get their information. These organizational communication challenges feed the fodder for the rumor mill. In discussion with the GFD senior leadership, they communicated that the GFD experiences these communication challenges.

Despite the tremendous advances in communication and information technology, communication among people in organizations leaves much to be desired. The importance of effective communication, established communication processes, and ongoing follow-up cannot be overstated. The development of a communication model that provides a consistent means for communication within and among various levels of the organization and encourages

feedback that can be integrated into continuous improvement and accountability supports a healthy organizational culture. [8]

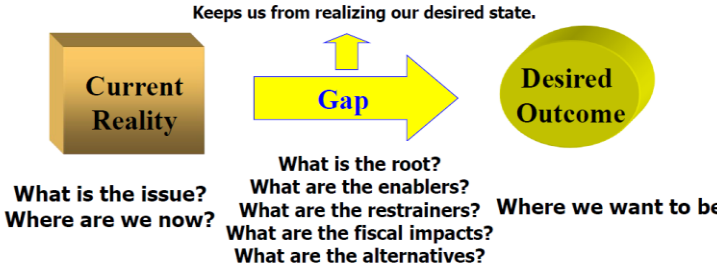
Developing a basic communication model that, when followed, enhances communication across any organization, particularly those experiencing communication challenges regardless of where the root cause lies. Having a "channel" by which information flows is key to ensuring effective ongoing communication - written and oral. The lateral flow of information between the fire chief, fire senior staff, and mid-level managers affects the vertical flow of information to the frontline staff. A lack of effective communication and direction, or disconnect at the channeling stage, particularly between senior staff and middle managers creates morale issues, promotes inconsistencies, and fuels grapevine communication and informal leadership.



From Communication Model, Sanctioning Agent Communication Consultancy

Before the GFD will be able to improve the efficiency or effectiveness of its organizational communications, it must first improve the delivery of messages from senior staff to middle managers, who are the conduit to the front-line personnel (uniform and civilian staff). Managers must seek to understand the people they manage, provide, and encourage feedback, ***and follow up on the communication that takes place.***

High performing organizations communicate effectively both laterally and vertically with fact and not perception regarding organizational planning; issues and challenges and the resolutions to the issues and challenges; and decision-making. Consideration is given to the current reality of the issue and where the organization is in the present, and where the organization wants to be. Communication generally occurs when the root cause is not communicated, or when enablers, restrainers, fiscal impacts, and alternatives are clearly and factually communicated.



8. See James L. Gibson, John M. Ivancevich, James H. Donnelly, and Robert Konopaske, *Organizations: Behavior, Structure, Processes,* Eighth Edition (New York: Irwin/McGraw-Hill, 2002).

The GFD should include in any strategic master planning strategies that are aimed at closing communication gaps in the organization, improving consistent messaging and actions across the organization, and creating a shared vision all members of the organization can work towards.

911-Dispatch

911-dispatch services for all emergency services in Garland are handled by the Garland Police Department Communications Unit (911-Center). The 911-Center also serves as the primary Public Safety Answering Point (PSAP) for fire and EMS calls for service. Once the call is received in the 911-Center, the call is processed as law enforcement, fire, or EMS and the appropriate units are dispatched according to public safety discipline. The GFD has a response matrix for Fire and EMS responses, which is outlined later in this report.

From a fire and EMS perspective, the communications center is measured on three critical points in the overall cascade of events linking the event to the incident response force. These are ***how the call is routed through the public safety network and its capabilities*** (wireline phone, wireless phone, E911capabilities, Voice over Internet Protocol (VoIP), mobile satellite services, telematics, and Text Telephone Devices (TTYs)), ***time to answer*** (the time it takes to answer an incoming and call on the emergency phone line), ***and alarm processing time*** (the time it takes to process and create the event and then notify the emergency response unit(s)).

National Fire Protection Association (NFPA) Standard 1710, *Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2020 edition, includes national consensus standards (performance objectives) for emergency communication PSAPS and dispatch centers. Section 4.1.2.3 of this standard outlines several performance objectives for communications center operations for fire and EMS events. Included in the benchmarks are the following components:

Call answering time: The call arrives at the PSAP by phone or other means such as text and is processed as outlined in the standard as follows:

- 95 percent of alarms shall be answered in not more than 15 seconds, and no more than 40 seconds 99 percent of the time.

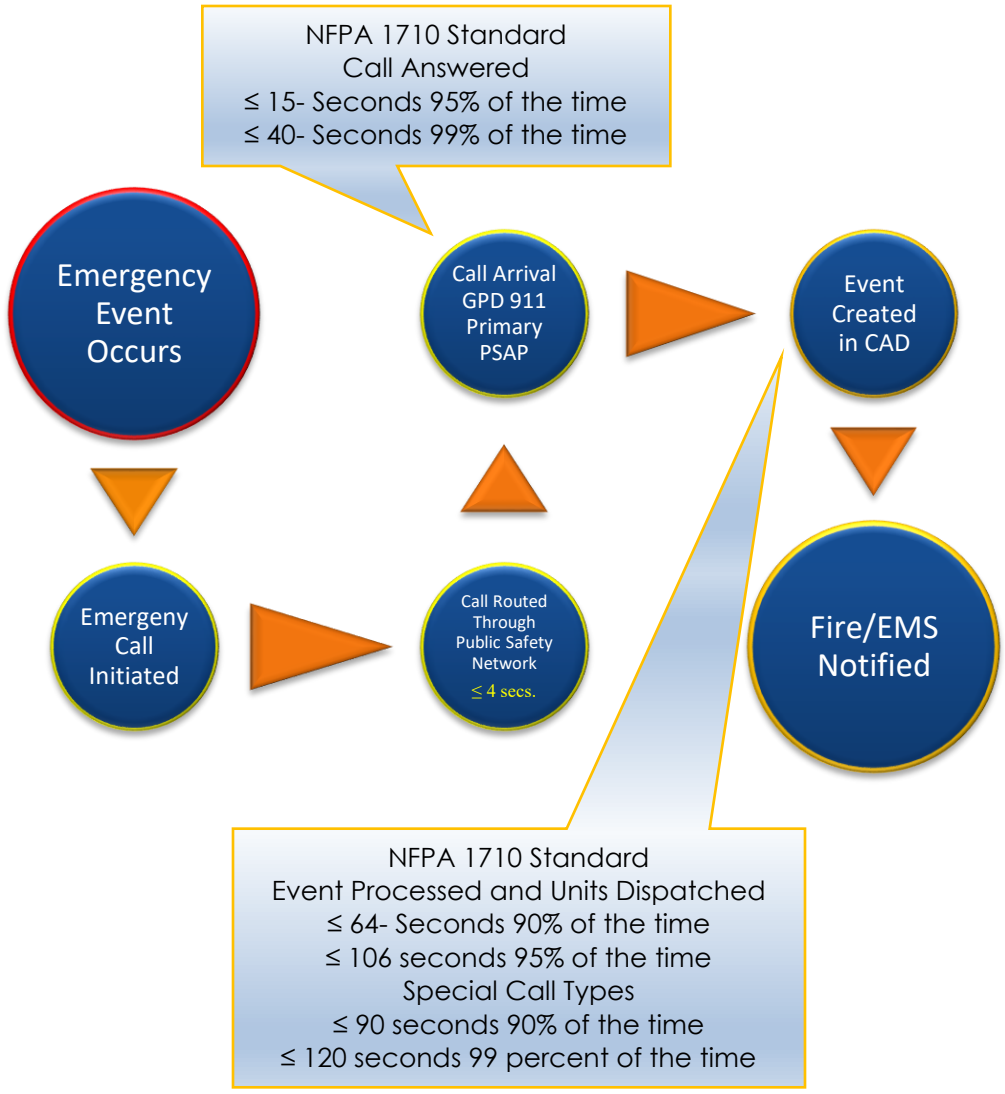
Alarm processing time: Event processing times at the 911-Center shall be completed in no more than 64 seconds 90 percent of the time and not more than 106 seconds 95 percent of the time.

Alarm processing time for the following call types shall be completed within 90 seconds 90 percent of the time and within 120 seconds 99 percent of the time:

- *Calls requiring Emergency Medical Dispatch.*
- *Calls requiring language translation.*
- *Calls requiring TTY/TTD receipt of events.*
- *Calls of criminal activity that require information vital to emergency responder safety prior to dispatching units.*
- *Haz-Mat incidents.*
- *Technical rescue incidents.*
- *Incomplete location.*
- *Calls received by text message to the communications center.*

The next figure illustrates the event timeline when the primary PSAP receives a 911 call, processes the call, and then dispatches the appropriate Fire or EMS unit(s).

Figure 4: Event Timeline for 911 Call Receipt, Transfer, and Processing



The 911-Center call processing times as analyzed by CPSM in our data analysis are:

- On average for EMS: 66 seconds
- On average for Fire: 72 seconds
- 90th percentile for EMS: 126 seconds
- 90th percentile for Fire: 138 seconds

This is outside of GFD control and responsibility, but internal to city operations.

At the 90th percentile the 911-Center is deficient when benchmarked against the NFPA standard.

The 911-Center has an emergency medical dispatch (EMD) program that has been modified. It was communicated to CPSM that the current modifications are not allowing the EMD system to function to its fullest potential.

An EMD system utilizes clinical protocols and call taking processes to assign a response determinant or code to an EMS request generated in the 911-Center. These response determinants or codes are used in EMS systems to determine the priority of a response, and the appropriate level of care likely necessary to meet the patient's clinical needs. The response determinants also aid in informing the responding units specifically what type of medical call to which they are responding. If approved by local protocol, an EMD system can also be used to assign *response priorities* and *modes of response* such as lights and siren or a cold response without lights and siren (low acuity calls), as well as make determinations regarding the response configuration for the EMS response (ambulance only; engine and ambulance).

Appropriate use of an EMD system typically includes the active engagement of a physician Medical Director, and a robust quality assurance (QA) process, which helps assure that EMD call taking, EMD determinant or code assignments, and pre-arrival instructions if included in the program, are being conducted appropriately and reliably.

Many EMS systems across the country are using EMD, to reduce the incidence of HOT responses so as to make providers and the public safer, as well as preserve crucial first medical response resources for 911 medical calls that are time-sensitive (cardiac arrest, choking, heart attack, etc.). Lights and siren (HOT) responses dramatically increase the risk of crashes and injuries to responding personnel and the public. In February 2022, 14 national EMS associations, including the International Association of Fire Chiefs, and the National Association of EMS Physicians, published a joint position statement ***encouraging EMS systems to reduce HOT responses to less than 30 percent of EMS calls, and less than 5 percent of ambulance transports***.[9]

The EMD system can be used effectively to determine which EMS responses are time-sensitive and if the presence of a medical first response unit could make an impact on patient outcomes. The effective use of this system would preserve crucial first response medical units for those responses that are time sensitive.

The GFD should include strategic master planning strategies that focus on reducing the deployment of heavy fire apparatus responding to EMS incidents through the use of Medical Priority Dispatch in the city's 911-center. This effort will take dedicated resources in the 911-center, will reduce overall response of heavy fire apparatus on EMS incidents, which will create efficiencies, and will create resilience in the GFD overall response workload.

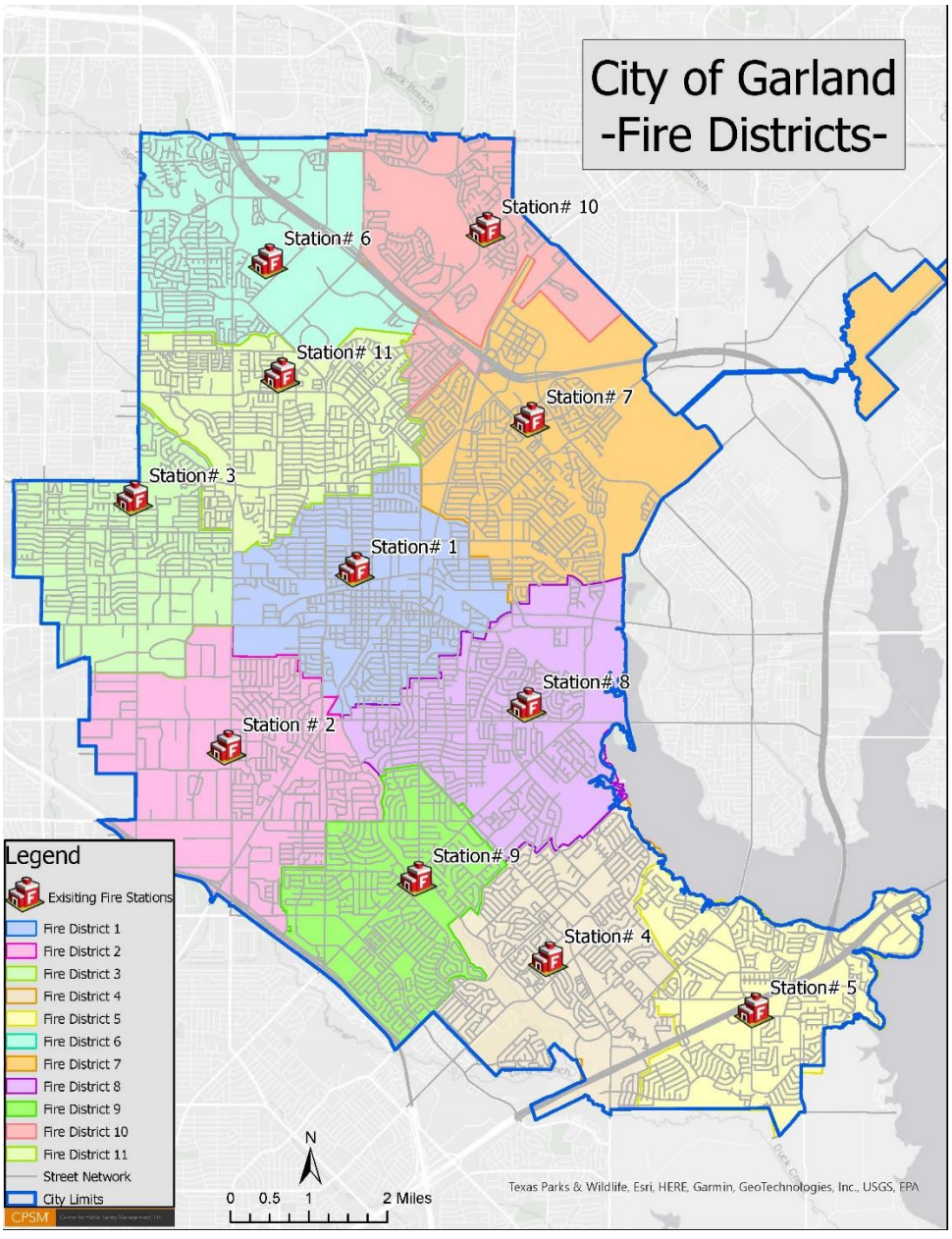
§§§

9. https://www.hmpgloballearningnetwork.com/site/emsworld/news/top-ems-groups-issue-joint-statement-ls-responses

GFD Service Area and Call Demand

The service area for the GFD includes 57 square miles of urban and suburban neighborhoods that includes single and multi-family residential buildings of varying number of floors and heights; commercial; industrial; parks; mass transit; local roads and limited access highways/freeways; lakefront boundary, and contiguous urban and suburban municipalities.

Figure 5: City of Garland Boundaries and Fire Station Locations



*Truck 1 is cross staffed with Engine 1 crew.

GFD Fire and EMS Resources

Station 1
Engine, Truck*, Ambulance

Station 2
Engine
Ambulance

Station 3
Engine
Ambulance

Station 4
Engine
Ambulance

Station 5
Truck
Ambulance

Station 6
Engine
Ambulance

Station 7
Truck
Ambulance
Utility 7

Station 8
Engine
Ambulance
Rescue 8

Station 9
Truck
Ambulance

Station 10:
Engine
Ambulance
Squad 10

Station 11
Truck
Ambulance

The service demands on the department generated from the service area are numerous and include EMS first response; fire suppression; technical rescue; hazardous materials; and transportation emergencies to include extensive vehicle traffic, and other non-emergency responses typical of an urban/suburban fire departments.

CPSM analyzed GFD workload for a one year period (April 1, 2021-March 31, 2022). In all, the GFD responded to 28,790 incidents during this time period as outlined in the next table.

Table 1: GFD Fire Incident Workload by Call Type

Call Type	Total Calls	Calls per Day
False alarm	1,326	3.6
Good intent	626	1.7
Hazard	572	1.6
Outside fire	402	1.1
Public service	3,174	8.7
Structure fire	220	0.6
Technical rescue	44	0.1
Fire total	**6,364**	**17.4**

22% of all calls

Table 2: GFD EMS Workload by Call Type

Call Type	Total Calls	Calls per Day
Breathing difficulty	3,297	9.0
Cardiac and stroke	2,604	7.1
Fall and injury	3,381	9.3
Illness and other	6,473	17.7
MVA	2,011	5.5
Overdose and psychiatric	451	1.2
Seizure and unconsciousness	2,450	6.7
EMS total	**20,667**	**56.6**

72% of all calls

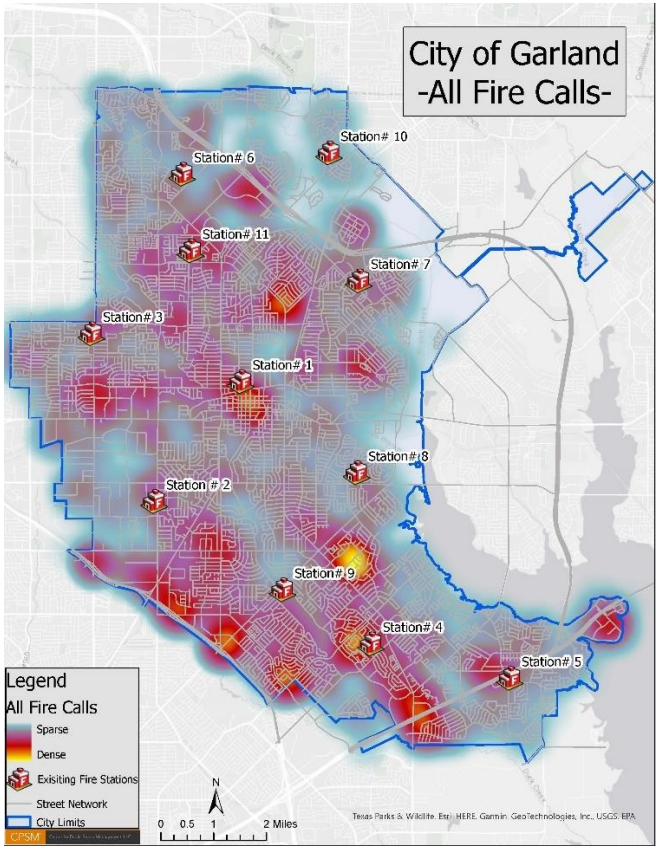
Included in the overall workload are cancelled calls, which calls the GFD was dispatched to, and whether cancelled enroute or prior to responding (issue resolved and GFD not needed). There were 1,690 canceled calls during the study period. Additionally, the GFD provided 69 automatic/mutual aid responses to neighboring jurisdictions.

Analyzing where the Fire and EMS incidents occur, and the demand density of Fire and EMS incidents, helps to determine adequate fire management zone resource assignment and deployment. The following figures illustrate all Fire and EMS demand in the city.

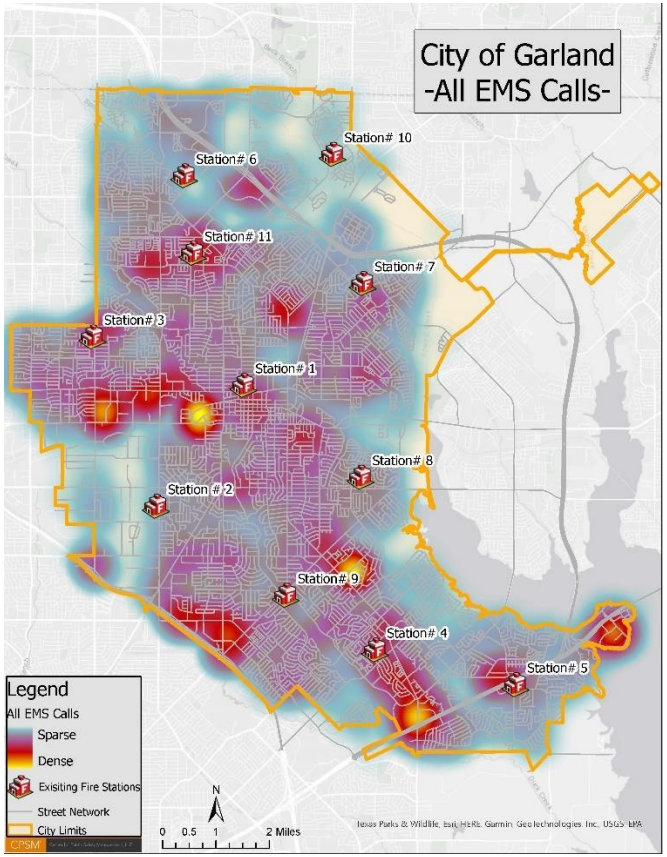
As indicated in the demand maps below, all fire districts with the exception of Station 10 have a densified Fire and EMS call demand. Stations 1, 3, 4, 9, and 11 have the highest workload for EMS. Stations 1, 2, 4, 9, and 11 have the highest workload for fire responses.

Figure 6: Fire, EMS, MVA Call Demand

Fire Demand



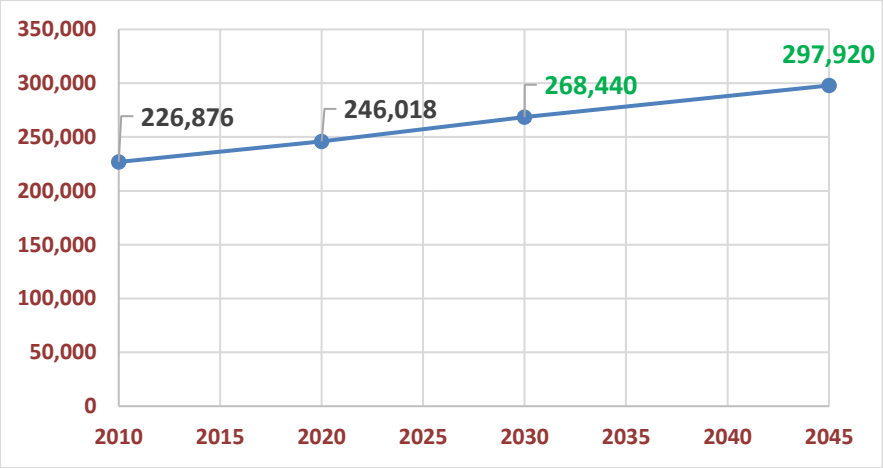
EMS Demand



Population and Growth

The U.S. Census Bureau indicates the population of the City of Garland in 2020 was 246,018. This is an 8.4 percent increase in population since the 2010 census of 226,876 (July 1, 2022 estimates: 240,854; -2.1%). The city has 57 square miles of land mass. The population density is 4,306 people per square mile. This is an increase of 332 people per square mile over the 2010 census numbers. The North Central Texas Council of Governments estimates the city's population will grow to 268,440 by 2030 and to 297,920 by 2045.

Figure 7: City of Garland Projected Population Growth: 2030-2045



In terms of fire and EMS risk, the age and socio-economic profiles of the population can have an impact on the number of requests for fire and EMS services. Evaluation of the number of seniors and children by fire management zones can provide insight into trends in service delivery and quantitate the probability of future service requests. In a 2021 National Fire Protection Association (NFPA) report on residential fires, the following key findings were identified for the period 2015–2019:[10]

- Males were more likely to be killed or injured in home fires than females and accounted for larger percentages of victims (57 percent of the deaths and 55 percent of the injuries).
- The largest number of deaths (19 percent) in a single age group was among people ages 55 to 65.
- 59 percent of the victims of fatal home fires were between the ages of 39 and 74, and three of every five (62 percent) of the non-fatally injured were between the ages of 25 and 64.
- Slightly over one-third (36 percent) of the fatalities were aged 65 or older; only 17 percent of the non-fatally injured were in that age group.
- Children under the age of 15 accounted for 11 percent of the home fire fatalities and 10 percent of the injuries. Children under the age of 5 accounted for 5 percent of the deaths and 4 percent of the injuries.
- Adults of all ages had higher rates of non-fatal fire injuries than children.

10. M. Ahrens, R. Maheshwari "Home Fire Victims by Age and Gender," Quincy, MA: NFPA, 2021.

- Smoking materials were the leading cause of home fire deaths overall (23 percent) with cooking ranking a close second (20 percent).
- The highest percentage of fire fatalities occurred while the person was asleep or physically disabled and not in the area of fire origin, key factors to vulnerable populations.

In Garland, the following age and socioeconomic factors are considered herein when assessing and determining risk for fire and EMS preparedness and response:[11]

- Children under the age of five represent 6.8 percent of the population.
- Persons under the age of 18 represent 26.6 percent of the population.
- Persons over the age of 65 represent 12.2 percent of the population.
- Female persons represent 50.3 percent of the population.
- There are 3.08 persons per household in Garland.
- The median household income in 2020 dollars was $65,278.
- People living in poverty make up 12.7 percent of the population.

Hispanic or Latino represent 43.1 percent of the population. The remaining percentage of population by race includes White alone at 27.2% percent (not Hispanic or Latino), Black or African American alone at 15 percent, Asian alone at 10.9 percent, two or more races at 14.9 percent, and American Indian or Alaska Native alone at 0.8 percent.

The demographics in Garland overall pose a moderate risk in totality. While not a high risk, a single call involving vulnerable population (Fire or EMS) poses a higher risk on that particular response. Through pre-fire planning and response district knowledge of residential and other structures housing a vulnerable population as identified above, the GFD will have the necessary situational awareness and be better prepared on arrival at the incident.

Certain socioeconomic characteristics will help to identify those individuals or target populations most likely to use and/or benefit from public sector programs and services, and community outreach programs. This includes Fire and EMS services (more predominately EMS).

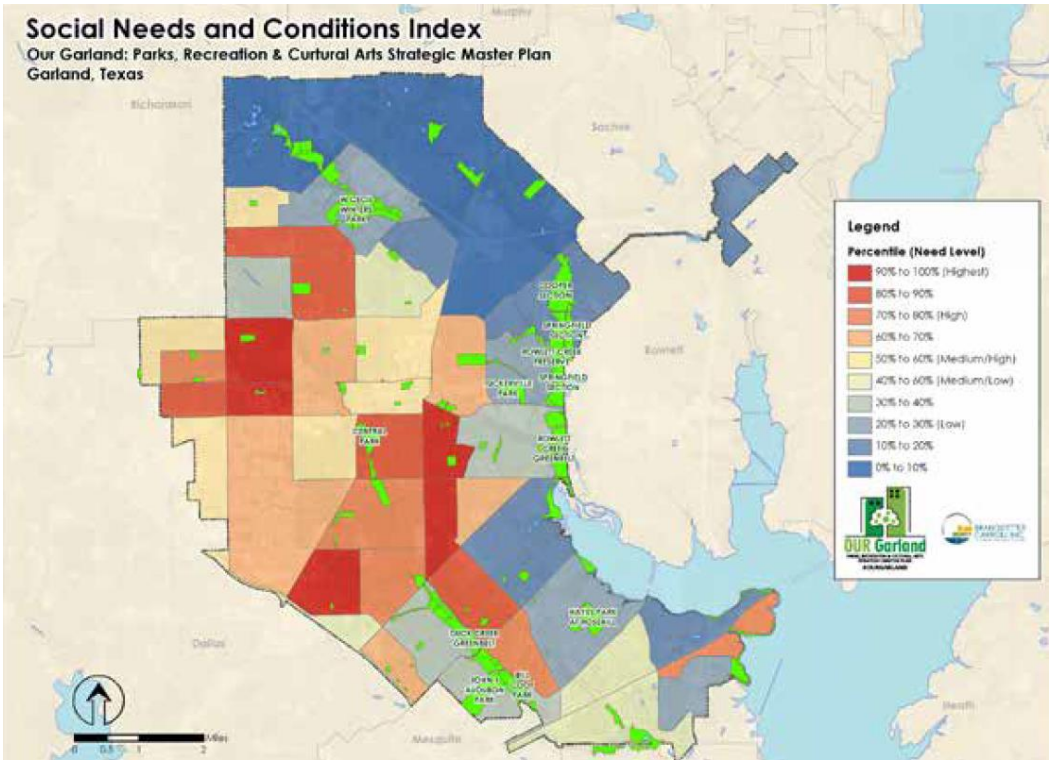
The *Garland Parks, Recreation & Cultural Arts Strategic Master Plan* includes a social needs and conditions analysis. The process in this plan included ten demographic and socioeconomic factors to measure the need in the 46 census tracts in the city. The results point to what areas of the city would most likely benefit from community services. The ten factors include:[12]

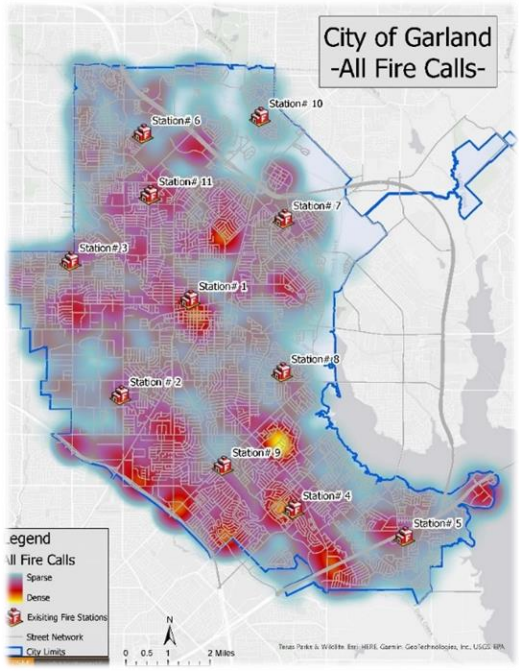
- Median Household Income
- Education Level
- Unemployment
- Single Parent Households
- Crime
- Residents Under the Age of 18
- Residents Over the Age of 18
- Residents with Disabilities
- Poverty (weighted by 2)[13]
- Population Density (weighted by 2)[14]

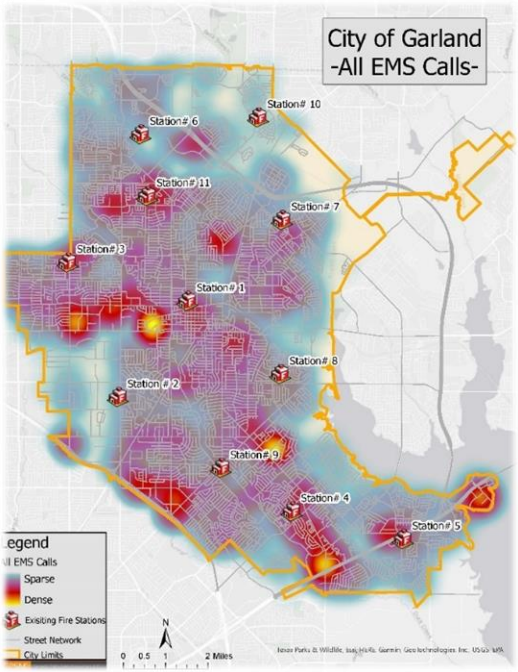
11. U.S. Census Bureau QuickFacts: Garland, Texas
12. Our Garland: Parks, Recreation & Cultural Arts Strategic Master Plan, 2020
13. Mathematical formula used to reflect the average poverty as experienced by residents of the urban area within their subareas.
14. Mathematical formula used to reflect the average density as experienced by residents of the urban area within their subareas.

The next figure illustrates the results of the social needs and conditions analysis. The GFD Fire and EMS demand maps are included to illustrate the similarities of Fire and EMS demand in the higher percentile need level areas.

Figure 8: Garland Social Needs and Conditions Analysis with GFD Fire and EMS Demand







Regarding future growth, the City of Garland *2030 Comprehensive Plan* has determined that the city faces build out (all of the vacant land available for development has been utilized). This challenge drives the future development of redeveloped and/or renovated properties.

When the *2030 Comprehensive Plan* was published in 2012, the predominate land use in Garland was residential (48%). Residential land use remains the highest percent today. Other land use types outlined in the *2030 Comprehensive Plan* are illustrated in the next figure.

The *2030 Comprehensive Plan* outlines the current and future land use for the city and includes:

- Traditional Neighborhoods

  Traditional neighborhoods are currently found throughout Garland and provide areas for low to moderate density single-family detached residential housing. Traditional neighborhoods also accommodate convenience retail (goods and services), office space, and public services.

- Compact Neighborhoods

  Compact neighborhoods provide areas for moderate increases in residential density, including single-family attached and single-family detached housing. It expands housing options through infill and redevelopment, while continuing walkable development patterns. The Compact Neighborhood is primarily characterized as moderate residential (between six and twelve dwelling units per acre).

- Urban Neighborhoods

  Urban neighborhoods are higher density residential developments. This residential option may utilize vertical mixed-use integrated into the surrounding area, reflecting the area's dominant character or, when desired, promoting a new character. Urban neighborhoods are characterized by moderate to high density single-family attached and multifamily residential units, greater than 12 dwelling units per acre.

- Neighborhood Centers

  Neighborhood centers provide a mix of retail, services and community gathering places. This center should be appropriately scaled to adjacent residential areas. Neighborhood centers are generally five to ten acres. Developments within this land use pattern generally consist of one or more buildings including 30,000 to 100,000 square feet of leasable area.

- Community Centers

  Community centers are areas with compact development, primarily non-residential, serving a collection of neighborhoods. This type of development consists of a mix of uses, including retail, services, office use, multi-family residential, and entertainment. Community centers are generally ten to 30 acres. Developments within this land use pattern generally consist of one or more buildings including 100,000 to 450,000 square feet of leasable area.

- Regional Centers

  Regional centers are areas with a higher concentration of activity that serve as a destination for residents and visitors. Uses within this development type provide a mix of retail, services, entertainment, and employment and may include residential uses. Regional centers generally cover an area greater than 30 acres and consist of one or more buildings with more than 450,000 square feet of gross leasable area.

- Transit Oriented Centers

  Transit-oriented centers are areas of concentrated activity and increased density with maximum access to public transportation options. This type of center should be developed as mixed-use with live/work/play/shop opportunities. Transit-oriented development is characterized by moderate to high density residential greater than twelve dwelling units per acre. Land use opportunities for four identified transit-oriented development areas should be unique to the needs and character of the larger area.

- Business Center

  Business centers provide a cluster of business offices and/or low impact industry, including campus-type development, that cumulatively employ large numbers of people.

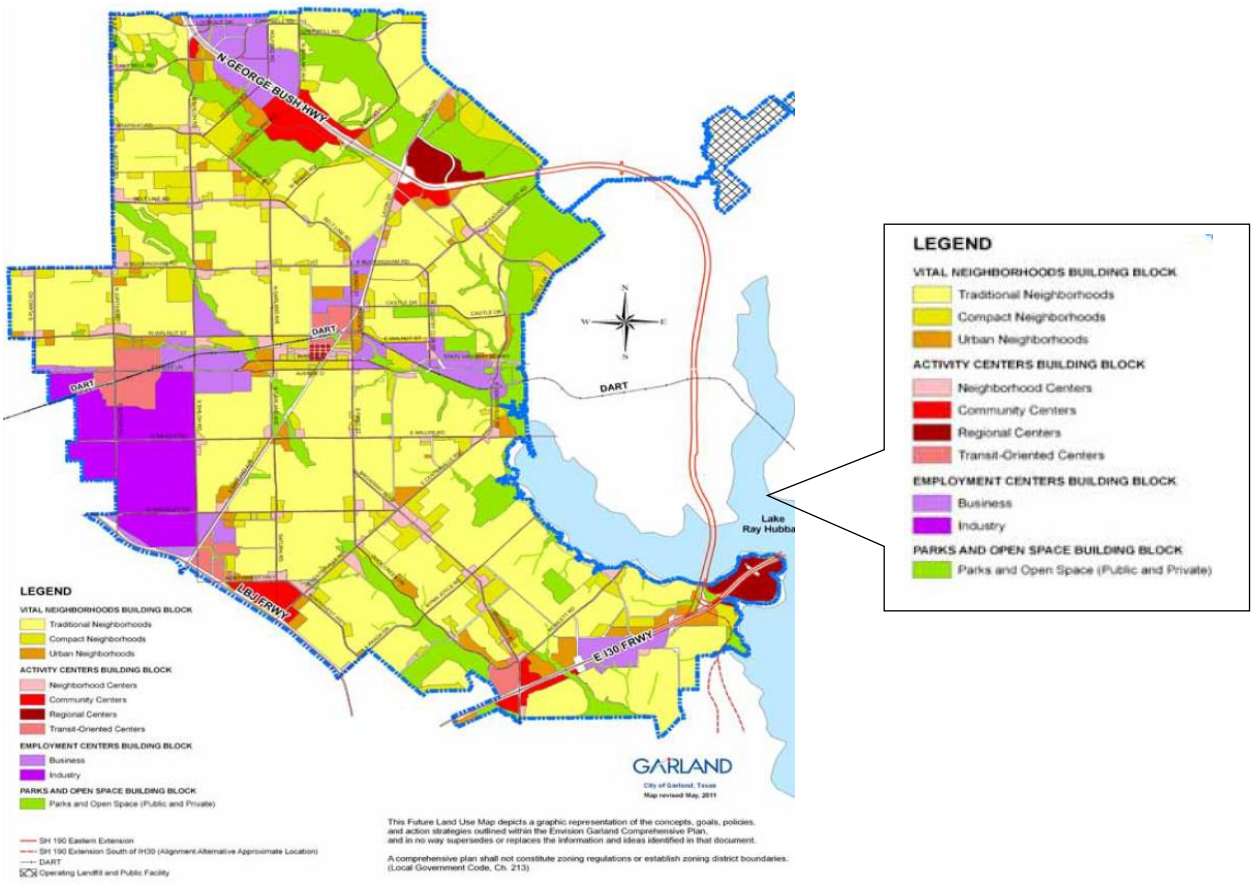
- Industry Center

  Industry centers provide a cluster of trade and industry that cumulatively employ large numbers of people.

- Parks and Open Space

  Public and Private Parks and Open Space areas include the vast array of parks, recreation, and open space lands. Public Parks and Open Space areas offer a variety of publicly owned parks, plazas, and natural areas for passive and active recreation as well as informal gathering places.

Figure 9: *2030 Comprehensive Plan* Future Land Use Map



The following residential projects are either under construction, recently completed, or in the permitting process.

Single-Family Developments

■ Heritage Park 74 single-family residential homes	■ Parks at Rosehill 127 single-family home lots
■ Pulte Homes: Bridgewater 89 single-family residential homes	■ Parkside 149 single-family home lots
■ Riverplace 143 single-family home lots	■ Crescent Heights Townhouses 43 Townhomes
■ Hidden Oaks 67 single-family home detached lots	■ My Possibilities/Mission Hills 300 single-family homes

Multi-Family Developments

■ Wolff Development 300 units	■ Alta Firewheel 250 multi-family units
■ The Draper 155 units in phase 1 30 units in phase 2 (Chase Bank Bldg. adaption)	■ The Lively at Firewheel 319 multi-family units
■ Senior Living-Woodlands Area 74 independent living units 46 assisted living units	■ The Reserve at Shiloh 106 multi-family units
■ Carriage Homes on the Lake 184 units	■ ParcHaus 242 single-family style-multi-family rentals
■ Embree Eastside Apartments 107 dwelling units	■ Urban Village at Rosehill 300 multi-family units (urban style mixed-use development) 58 townhouses
■ PDG Bunker Hill 356 multi-family units	■ Trumont Group-Firewheel Apartments 298 multi-family units
■ ArchCo Bunker Hill 148 townhouse style multi-family units	■ LCG Firewheel 344 multi-unit units
■ Millennium Village 199 multi-family units	

Population, demographics, and growth impacts on the GFD must be included in any strategic master planning the GFD conducts in the near, mid, and long terms. Increases in development will increase call demand and will impact the deployment analysis in future ISO-PPC community ratings, and the ability of the GFD to meet NFPA deployment benchmarks.

Environmental Risk

The City of Garland is prone to and will continue to be exposed to certain environmental hazards and risks that may impact the community and which will create call demand for the GFD. The most common natural hazards prevalent to the region, according to the City of Garland Hazard Mitigation Action Plan, include:[15]

Hazard	Frequency	Severity of Impact	Risk Rank
Tornado	Highly Likely	Substantial	High

The City of Garland lies in Tornado Alley, a portion of the united states that is prone to tornadic activity. Since 1952 there have been ninety seven tornados recorded in Dallas County. On December 16, 2015, an EF4 Tornado impacted Garland impacting 440 single family homes, 753 Apartment units, 17 commercial buildings, and 2 places of worship.[16]

Hazard	Frequency	Severity of Impact	Risk Rank
Severe Winter	Highly Likely	Substantial	High

The entire Dallas-Fort Worth Metroplex is prone to severe winter weather including extreme low temperatures, ice, wind, snow, and sleet. These events can last for several days. Impacts include freezing precipitation on roadways and sidewalks, increased use of auxiliary heating devices, carbon monoxide emergencies, increase in medical and injury emergencies, increase in fire responses, and stress on utility infrastructure.

Hazard	Frequency	Severity of Impact	Risk Rank
Flood	Highly Likely	Major	Moderate

Flooding in Garland will typically occur from heavy rains and include urban type flooding that occurs when heavy downpours overpower the urban stormwater drainage system; and fluvial flooding that may occur if Lake Ray Hubbard or Duck Creek, Rowlett Creek, Spring Creek, Mills Branch or its tributaries rise above their banks and spill over to adjacent land and or roads. The Garland Hazard Mitigation Action Plan discusses several flood events that have occurred in the city between 1949 and 2015. The City is prone to flooding as described above.

Hazard	Frequency	Severity of Impact	Risk Rank
Earthquake	Likely	Major	Moderate

According to the Garland Hazard Mitigation Action Plan, the City does have a propbaility of earthquake activity. As recent as January 6, 2015, Dallas County has recorded earthquake activity. There were eleven eartchquake activities recorded between 2008-2012. Garland is vulnerable to earthquake activity and the impacts (building-structural, to infrastructure, life safety, and interuption of businesses).

15. City of Garland Hazard Mitigation Action Plan, 2017.
16. ibid

Hazard	Frequency	Severity of Impact	Risk Rank
Severe Thunderstorm/Wind/Lightning	Highly Likely	Minor	Moderate

Garland is subject to severe weather that includes severe thunderstorms producing heavy rain, straight-line winds, tornadic activity, and lightning. Impacts include power outages, power surges, property damage, and the potential for lightning strikes to persons causing traumatic injury and to structures causing damage and fire.

Hazard	Frequency	Severity of Impact	Risk Rank
Drought	Likely	Minor	Moderate

Drought occurs when substantial rainfall is absent from a locality/region and persists from year to year. Droughts impact vegetation (triggering wildfires), drinking water, agriculture, livestock, and structure damage (primarily foundations) from expansive soil. Historically Garland has experienced droughts that includes seven drought years (28 months) since 1996.[17]

Hazard	Frequency	Severity of Impact	Risk Rank
Extreme Heat	Highly likely	Limited	Low

Extreme heat is characterized as a combination of high temperatures and humidity. If these conditions persist, the event is classified as a heat wave. While buildings and infrastructure can be damaged by extremely high temperatures, the impacts of these events are typically life safety. Garland is subject to extreme heat events. According to the Garland Hazard Mitigation Action Plan, a number of extreme heat events have occurred in Dallas County since 1996.

Hazard	Frequency	Severity of Impact	Risk Rank
Expansive Soil	Highly Likely	Limited	Low

Expansive soils contain minerals such as smectite clays that are capable of absorbing water. When they absorb water, they increase in volume. The more water they absorb, the more their volume increases. Expansions of ten percent or more are not uncommon. This change in volume can exert enough force on a building or other structure to cause damage. Expansive soil will also shrink when they dry out. This shrinkage can remove support from buildings or other structures, and result in damaging subsidence. Fissures in the soil can also develop. These fissures can facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that places repetitive stress on structures.[18] The entire City of Garland is subject to expansive soils.

Hazard	Frequency	Severity of Impact	Risk Rank
Hail	Highly Likely	Limited	Low

Hail (formation of ice pellets of balls) typically occurs with severe thunderstorms. Primary impacts include property damage and may include injury to persons from direct strikes or from slip and fall events, or motor vehicle accident events.

§§§

17. ibid
18. ibid

Building and Target Hazard Risk

A community risk and vulnerability assessment will evaluate the community, and regarding buildings, it will review all buildings and the risks associated with each property and then classify the property as either a high-, medium-, or low-hazard depending on factors such as the life and building content hazard and the potential fire flow and staffing required to mitigate an emergency in the specific property. According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

High-hazard occupancies: Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life-hazard (vulnerable population) or large fire-potential occupancies.

Medium-hazard occupancies: Apartments, Condos, mixed use residential, offices, and mercantile and industrial occupancies that may require extensive rescue by firefighting forces.

Low-hazard occupancies: One-, two-, or three-family dwellings and scattered small business and industrial occupancies.[19]

Garland has the following building types.

- 62,589 Single family housing units.
- 24,484 Multifamily housing units (townhomes, duplexes, etc.).
- 170 Apartment building units–garden style (2 + stories).
- 1,356 Commercial/industrial structures.
- 222 Strip malls.
- Educational and day-care facilities.
- Multi-story Hotel/Motel buildings.
- Multi-story office buildings.

Residential over commercial does exist in the city posing additional risks.

In terms of identifying target hazards, consideration must be given to the activities that take place (public assembly, life safety vulnerability, manufacturing, processing, etc.), the number and types of occupants (elderly, youth, handicapped etc.), and other specific aspects related to the construction of the structure.

Garland has a variety of target hazards that have been assigned a hazard class by the GFD and which include:

High Hazard

- Hospital and medical facilities that may be occupied 24/7/365.
- Commercial facilities that include assisted living/nursing/development disability.
- Residential facilities for senior/assisted living.
- Public and private educational and day care facilities.
- Facilities classified as high hazards due to processes/hazardsous materials use.

[19]. Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), 12.

Medium Hazard

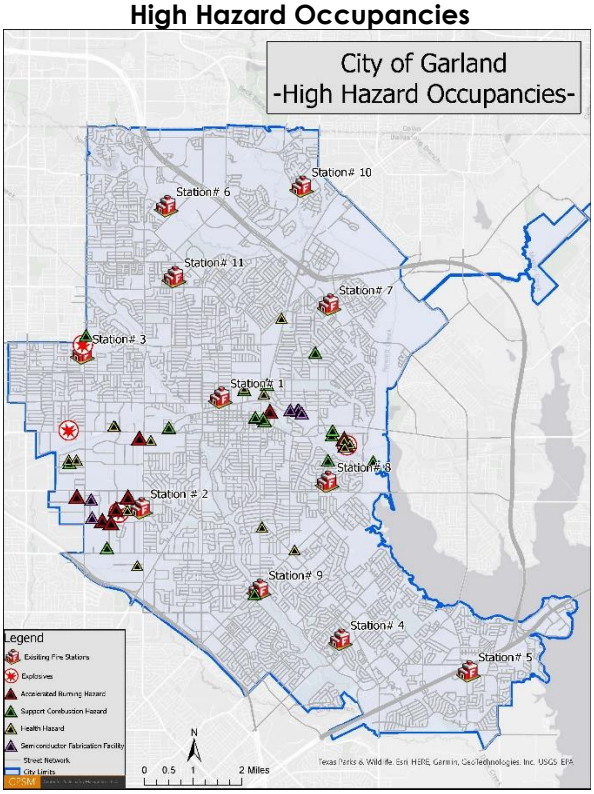
- Commercial properties of 100,000 square feet or more.
- 38 Garland Power and Light Substations.
- 6 Oncor substations.
- 700+ businesses classified as Public Assembly.
- 38 shopping centers/retail suites/strip malls.
- Federal, state, and local government buildings/offices.

The greatest amount of building risk in Garland is of a low hazard (single family dwellings-predominately wood frame construction). Garland does have a significant number of high risk/vulnerable population risks (nursing/assisted living facilities), educational facilities and multifamily residential structures (apartments/condos). All of these buidling risks present the GFD with life-safety concerns. The industrial and mercantile building risk, and large footprint commercial buildings while a lower life safety risk, is gernerally a higher hazard risk based on processes, storage, and overall occupancy type.

The following figures illustate GFD-designated target hazards in Garland.

Figure 10: GFD Target Hazards

High Hazard Occupancies



Vulnerable Population

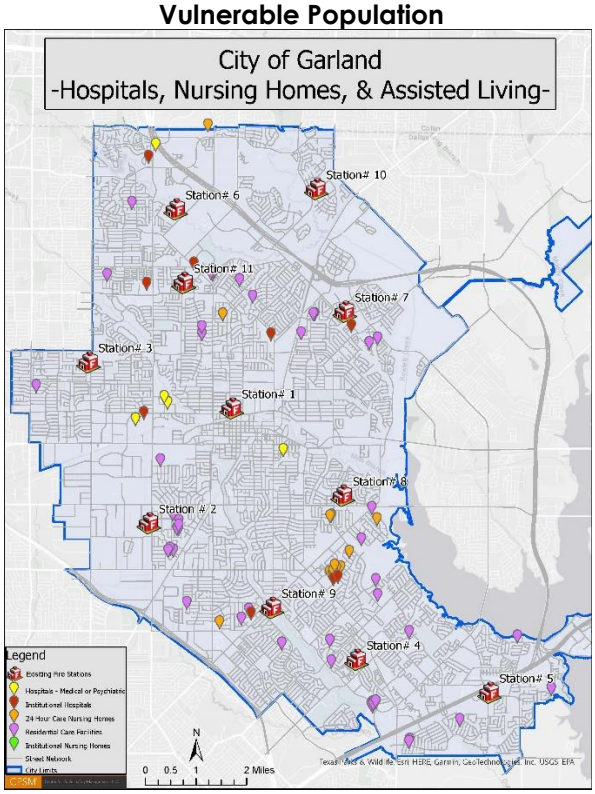
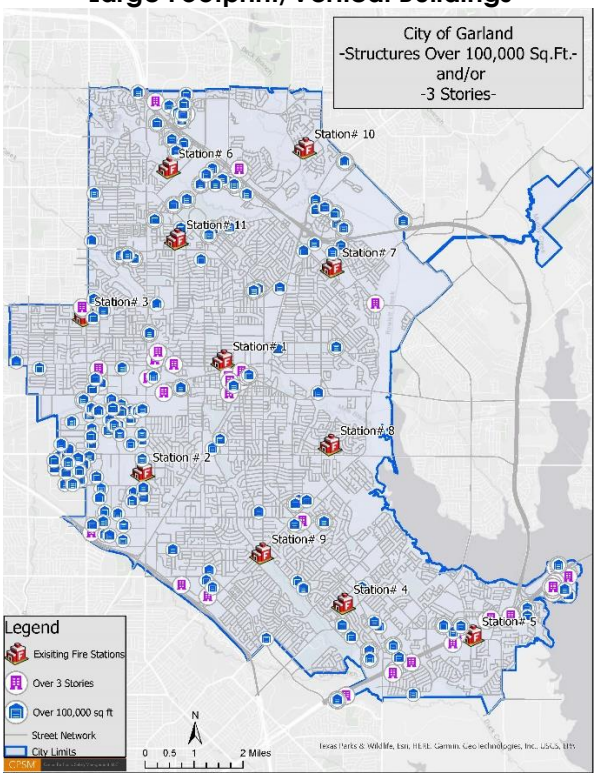
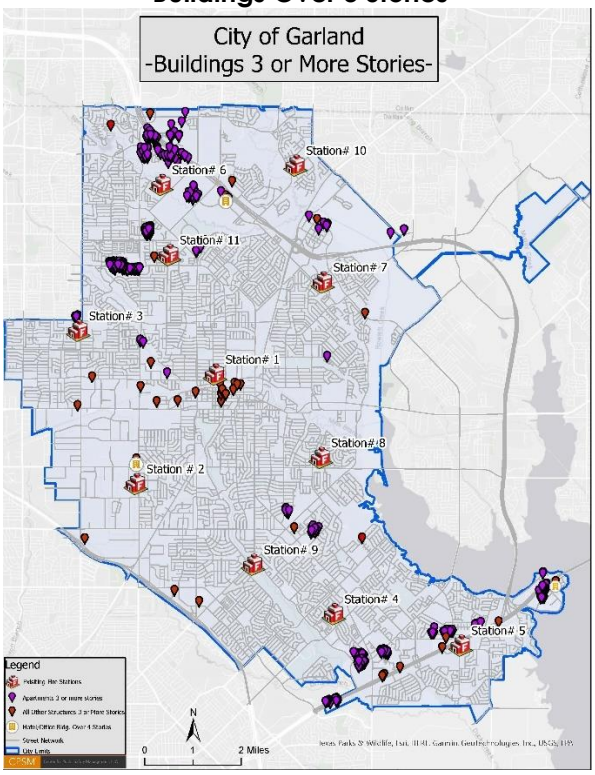


Figure 11: GFD Target Hazards

Large Footprint/Vertical Buildings



Buildings Over 3 Stories



Garland Fire Department should include in any strategic master planning the GFD conducts over the near, mid, and long terms, planning objectives focused on increasing deployable assets (apparatus and staffing) to respond to high and medium risk target hazards that include high risk/vulnerable population risks (nursing/assisted living facilities), educational facilities, multifamily multi-story residential structures (apartments/condos), mercantile building risk, and large footprint commercial buildings while a lower life safety risk, is gernerally a higher hazard risk based on processes, storage, and overall occupancy type. This should include the addition of staffed/separate ladder companies in strategically located stations in the city.

Transportation Risk

The Garland road transportation system is typical of urbanized municipalities and includes:[20]

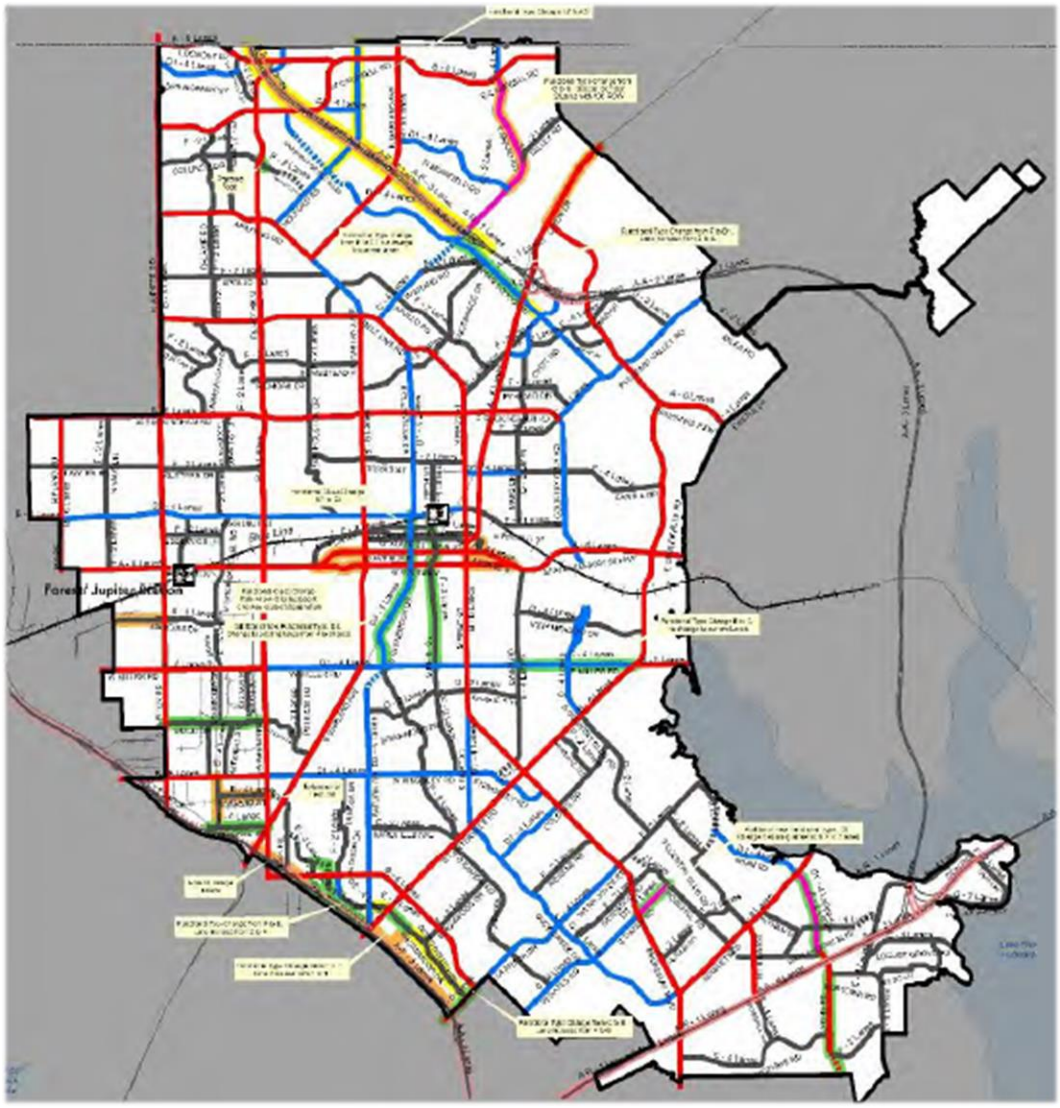
- Regional arterials: High traffic volumes with moderate to high speeds; 6 lanes.
- Arterials: Connect different areas of the city moderate volume and moderate speeds; 4 lanes.
- Major collectors: Provide access to and from neighborhoods and commercial areas with moderate volume and moderate speed; 2-4 lanes.
- Minor collectors: Provide access to and from neighborhoods and commercial areas with low volume and low speed; 2-4 lanes.

20. Garland thoroughfare plan map, 2015.

- Local roads: provides access to residential and businesses with low volume and low speed; 2 lanes.
- Highway/Freeway/Tollway with main lanes, frontage lanes, and access ramps; lanes, speed, and volume vary.

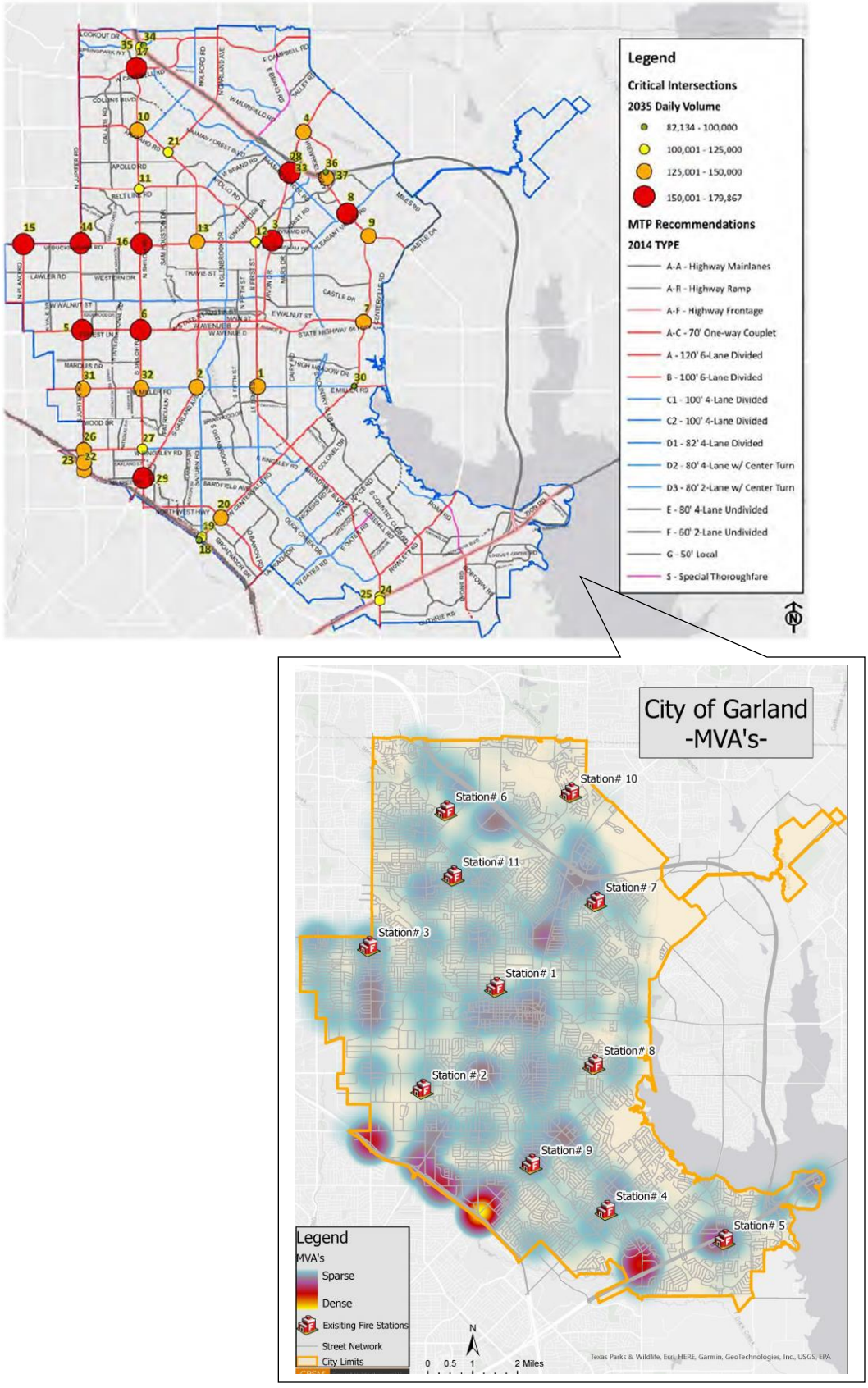
The next figures illustrate this road network in Garland and motor vehicle accident activity.

Figure 12: Garland Road Network[21]



21. ibid

Figure 13: Garland Road Network: Critical Intersections



The Dallas Area Rapid Transit (DART) operates a ground mass transit system in Garland that includes bus services, paratransit, and on-demand transit through GoLink. Bus routes include: Route 22; and the South Garland Transit Center that connects Routes 20, 18, and 16.

The road and transportation network described herein poses risks for a vehicular accident, some at medium to greater than medium speeds, as well as vehicular-versus-pedestrian risks. There are additional transportation risks since tractor-trailer and other commercial vehicles traverse the roadways of Garland to deliver mixed commodities to business locations. Fires involving these products can produce smoke and other products of combustion that may be hazardous to health.

Garland also has rail transportation risks that include freight and light rail (mass transit).

Light rail: DART also operates a mass transit systems (Light Rail) that link riders to Dallas and twelve surrounding cities. Light rail is available in Garland from two train stations. These stations are:

- Forest/Jupiter located in central-west Garland near the intersection of S. Jupiter Rd. and Forest Ln.
- Downtown Garland station in central east Garland located near the intersection of W. Walnut St. and N. 5th Street.

Freight rail includes east-west and north-south track with many spurs serving the heavy industrial and commercial industry in Garland. Rail lines operating in Garland include:

- Dallas, Garland, and Northeastern Railroad
- Kansas City Southern Railroad

Both rail lines interchange freight in Garland

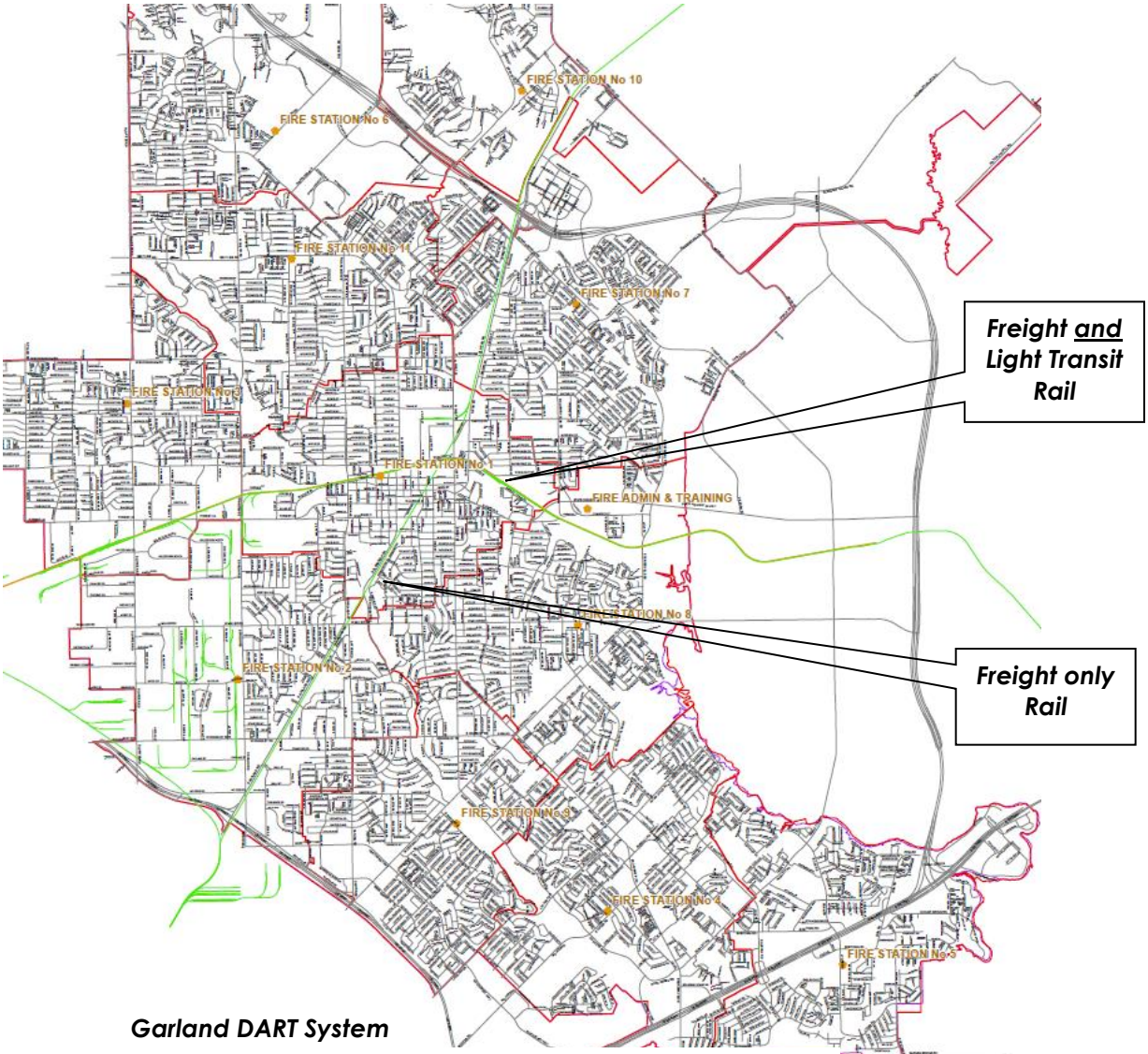
Typical consists for both railroads include: chemicals (some hazardous); food products in various forms; lumber and paper products; equipment; plastic resins; textiles; pipe; electronics; scrap metals, and aggregates such as stone and sand.

The Dallas, Garland, and Northeastern Railroad has a transloading location in Garland that includes warehousing (248,000 square feet) and transloading operations (up to six railcar spots for this operation).[22] The Kansas City Southern Railroad also has a transloading location in South Garland.[23]

Fires involving the potential commodities passing through and stored in sidings in Garland can produce smoke and other products of combustion risks that may be hazardous to health. Hazardous materials (existing or waste) themselves present hazards to health risks if being transported and involved in a rail accident.

22. Custom Form Transportation – Genesee & Wyoming Inc. (gwrr.com)
23. Network Map | Kansas City Southern | US & Cross-border Railroad (kcsouthern.com)

Figure 14: Rail and Bus Routes in Garland



Garland DART System

Garland Fire Department should include in any strategic master planning the GFD conducts over the near, mid, and long terms, annual planning objectives focused on mass-transit/mass-casualty incidents involving DART commuter rail and bus transportation.

Community Loss and Save Information

Fire loss is an estimation of the total loss from a fire to the structure and contents in terms of replacement. Fire loss includes contents damaged by fire, smoke, water, and overhaul. Fire loss does not include indirect loss, such as business interruption.

In a 2021 report published by the National Fire Protection Association on trends and patterns of U.S. fire losses, it was determined that home fires still cause the majority of all civilian fire deaths, civilian injuries, and property loss due to fire. Key findings from this report include:[24]

- Public fire departments responded to 1,338,500 fires in 2020, a 7.5 percent increase from the previous year.
- 490,500 fires occurred in structures (37 percent). Of these fires, 379,500 occurred in residential structures and 86,000 occurred in apartments or multifamily structures.
- 2,230 civilian fire deaths occurred in residential fires, and 350 deaths occurred in apartments or multifamily structures.
- Home fires were responsible for 11,500 civilian injuries.
- An estimated $21.9 billion in direct property damage occurred as a result of fire in 2020 (includes fires in the California wildland-urban interface and a large loss naval ship fire in California).

The following table shows overall fire loss in Garland in terms of dollars for the year as assessed and estimated by the GFD. This information should be reviewed regularly and discussed in accordance with response times to actual fire incidents, company level training, effectiveness on the fireground, and effectiveness of incident command. Property loss information should also be included in any strategic planning discussions regarding response times, training, incident command, staffing, and deployment of resources.

Table 3: Historical Property and Content Loss in Garland[25]

2017	2018	2019	2020	2021
$5,713,260.00	$5,119,426.00	$4,521,342.00	$4,281,819.00	$5,449,680.00

Resiliency

Resiliency is an organization's ability to quickly recover from an incident or event, or to adjust easily to changing needs or requirements. Greater resiliency can be achieved by constant review and analysis of the response system and focuses on three key components:

- Resistance: The ability to deploy only resources necessary to control an incident and bring it to termination safely and effectively.
- Absorption: The ability of the agency to quickly add or duplicate resources necessary to maintain service levels during heavy call volume or incidents of high resource demand.

24. *Fire Loss in the United States During 2020*, National Fire Protection Association.
25. Based on GFD reporting-reflects estimates from NFIRS fire reports.

- Restoration: The agency's ability to quickly return to a state of normalcy.

For the CPSM data analysis study period, GFD Fire and EMS units responded to 28,790 calls for service. The following tables and figure analyze GFD resiliency. In this analysis, CPSM included all calls that occurred inside and outside Garland (to include cancelled calls). We did this because responses outside of the city (although few) and canceled calls impact the resiliency of the department to respond to calls.

The first two tables examine the workload in terms of runs for each station. Station 1 has the highest workload in the North District; Station 4 has the highest workload in the South District.

Each station's availability to respond to calls in their first due area is examined in the third table. The lower the percentage the less resilient the entire station's fire management zone (district) is. Station 10 has the least resiliency. Station 5 is the most resilient.

Table 4: Station Workload-South Fire District (Runs) *Primary Units Highlighted*

Station	Unit	Unit Type	Minutes per Run	Total Hours	Total Pct.	Minutes per Day	Total Runs	Runs per Day
S2	A2	Ambulance	43.2	1,715.0	5.8	281.9	2,380	6.5
	BK2	Blocker	53.6	67.0	0.2	11.0	75	0.2
	E2	Engine	23.2	938.1	3.2	154.2	2,429	6.7
	Total		**33.4**	**2,720.0**	**9.2**	**447.1**	**4,884**	**13.4**
S4	A4	Ambulance	42.8	1,887.2	6.4	310.2	2,645	7.2
	E4	Engine	23.2	992.5	3.4	163.2	2,567	7.0
	Total		**33.2**	**2,879.7**	**9.7**	**473.4**	**5,212**	**14.3**
S5	A5	Ambulance	40.4	1,400.3	4.7	230.2	2,081	5.7
	BK5	Blocker	59.9	147.8	0.5	24.3	148	0.4
	T5	Truck	23.3	676.0	2.3	111.1	1,744	4.8
	Total		**33.6**	**2,224.1**	**7.5**	**365.6**	**3,973**	**10.9**
S8	A8	Ambulance	49.7	1,828.7	6.2	300.6	2,209	6.1
	E8	Engine	22.4	732.4	2.5	120.4	1,966	5.4
	RES8	Rescue	41.6	36.8	0.1	6.0	53	0.1
	Total		**36.9**	**2,598.0**	**8.8**	**427.1**	**4,228**	**11.6**
S9	A9	Ambulance	47.6	2,065.6	7.0	339.5	2,604	7.1
	BC2	BC	29.3	167.6	0.6	27.5	343	0.9
	T9	Truck	24.8	1,025.0	3.5	168.5	2,477	6.8
	Total		**36.0**	**3,258.2**	**11.0**	**535.6**	**5,424**	**14.9**
Total			**34.6**	**13,680.0**	**46.3**	**2,248.8**	**23,722**	**65.0**

§§§

Table 5: Station Workload-North Fire District (Runs) *Primary Units Highlighted*

Station	Unit	Unit Type	Minutes per Run	Total Hours	Total Pct.	Minutes per Day	Total Runs	Runs per Day
S1	A1	Ambulance	56.8	2,867.6	9.7	471.4	3,028	8.3
	A17	Ambulance	61.5	17.4	0.1	2.9	17	0.0
	BC1	BC	29.5	156.1	0.5	25.7	317	0.9
	E1	Engine	20.7	909.9	3.1	149.6	2,640	7.2
	EMS1	EMS Sup	28.3	205.9	0.7	33.8	437	1.2
	T1	Truck	23.7	26.8	0.1	4.4	68	0.2
	Total		**38.6**	**4,183.7**	**14.2**	**687.7**	**6,507**	**17.8**
S3	A3	Ambulance	43.6	1,894.8	6.4	311.5	2,609	7.1
	E3	Engine	20.3	785.8	2.7	129.2	2,327	6.4
	Total		**32.6**	**2,680.5**	**9.1**	**440.6**	**4,936**	**13.5**
S6	A6	Ambulance	41.6	1,245.1	4.2	204.7	1,796	4.9
	E6	Engine	26.0	685.2	2.3	112.6	1,583	4.3
	Total		**34.3**	**1,930.3**	**6.5**	**317.3**	**3,379**	**9.3**
S7	A7	Ambulance	43.4	1,413.0	4.8	232.3	1,952	5.3
	MULE7	Utility	103.1	5.2	0.0	0.8	3	0.0
	T7	Truck	23.0	682.1	2.3	112.1	1,781	4.9
	UTIL7	Utility	46.0	4.6	0.0	0.8	6	0.0
	Total		**33.7**	**2,104.8**	**7.1**	**346.0**	**3,742**	**10.3**
S10	A10	Ambulance	46.4	560.3	1.9	92.1	724	2.0
	E10	Engine	24.1	342.9	1.2	56.4	855	2.3
	S10	Squad	126.4	627.9	2.1	103.2	298	0.8
	Total		**48.9**	**1,531.1**	**5.2**	**251.7**	**1,877**	**5.1**
S11	A11	Ambulance	42.6	1,873.4	6.3	308.0	2,639	7.2
	T11	Truck	41.2	1,557.6	5.3	256.0	2,268	6.2
	Total		**42.0**	**3,431.0**	**11.6**	**564.0**	**4,907**	**13.4**

§§§

Table 6: Station Availability to Respond to Calls

Station	Calls in Area	First Due Responded	Percent Responded	First Due Arrived	Percent Arrived	First Due First	Percent First
1	3,373	3,320	98.4	3,266	96.8	3,084	91.4
2	2,761	2,717	98.4	2,678	97.0	2,505	90.7
3	2,914	2,895	99.3	2,869	98.5	2,747	94.3
4	3,135	3,110	99.2	3,074	98.1	2,922	93.2
5	2,356	2,337	99.2	2,326	98.7	2,266	96.2
6	1,995	1,952	97.8	1,927	96.6	1,784	89.4
7	2,224	2,210	99.4	2,192	98.6	2,103	94.6
8	2,490	2,453	98.5	2,429	97.6	2,270	91.2
9	2,837	2,800	98.7	2,773	97.7	2,528	89.1
10	856	833	97.3	818	95.6	741	86.6
11	2,910	2,866	98.5	2,828	97.2	2,623	90.1
Total	**27,851**	**27,493**	**98.7**	**27,180**	**97.6**	**25,573**	**91.8**

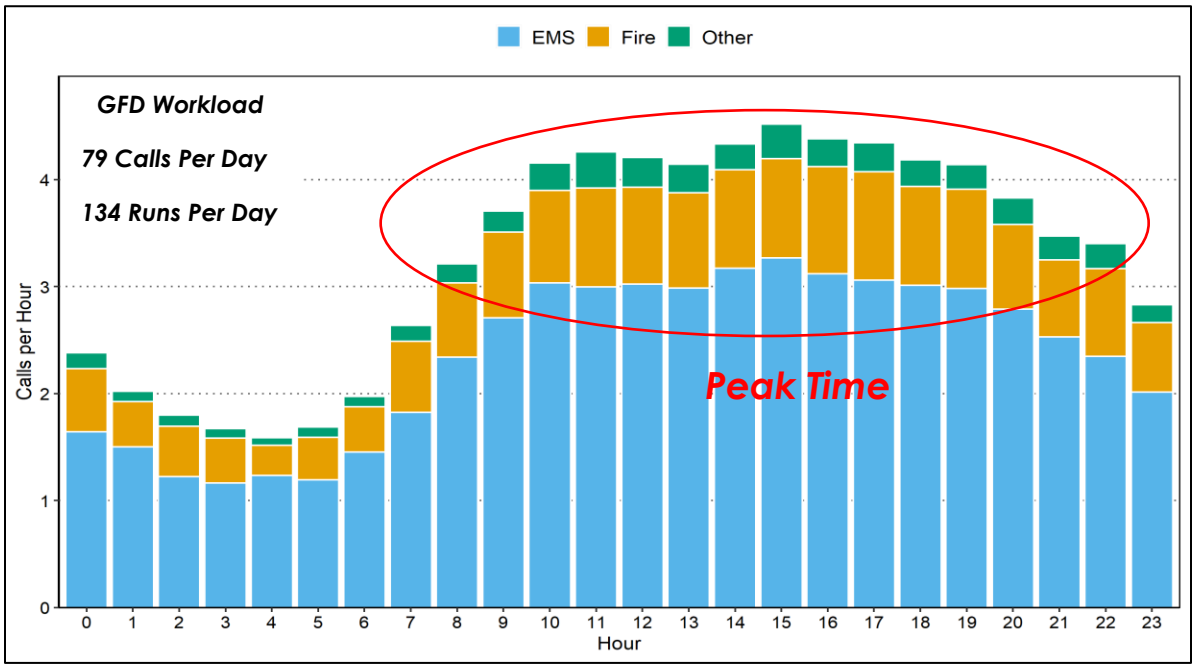
The next resiliency measure is the frequency distribution of calls, or how many calls are occurring in an hour. The next table tells us that citywide, 79 percent of the time there are two or more concurrent or overlapping calls.

Table 7: Frequency Distribution of the Number of Calls

Calls in an Hour	Frequency	Percentage
0	579	6.6
1	1,282	14.6
2	1,649	18.8
3	1,607	18.3
4	1,379	15.7
5	967	11.0
6	615	7.0
7	359	4.1
8	177	2.0
9	83	0.9
10	40	0.5
11+	23	0.3
Total	**8,760**	**100.0**

The next figure looks at when calls are occurring over a 24-hour period. In Garland, the peak time for calls is between the hours of 8:00 a.m. and 10:00 pm, with the greatest number of calls being EMS. This data should be a primary input when deciding future peak time EMS resources.

Figure 15: Average Calls by Hour of Day



Note: A call is an emergency service request or incident. A run is a dispatch of a unit (i.e., a unit responding to a call). Thus, a call may include multiple run (units).

The next table looks at frequency of overlapping calls in each fire management zone.

Table 8: Frequency of Overlapping Calls for Each Station

Station	Scenario	Number of Calls	Percent of All Calls
1	No overlapped call	2,637	76.4
	Overlapped with one call	727	21.1
	Overlapped with two calls	81	2.3
	Overlapped with three calls	6	0.2
	Overlapped with four calls	1	0.0
2	No overlapped call	2,487	85.7
	Overlapped with one call	394	13.6
	Overlapped with two calls	22	0.8
3	No overlapped call	2,516	83.4
	Overlapped with one call	468	15.5
	Overlapped with two calls	31	1.0
	Overlapped with three calls	1	0.0
4	No overlapped call	2,634	82.1
	Overlapped with one call	532	16.6
	Overlapped with two calls	42	1.3
	Overlapped with three calls	2	0.1
5	No overlapped call	2,121	86.8
	Overlapped with one call	293	12.0
	Overlapped with two calls	29	1.2
	Overlapped with three calls	1	0.0

Station	Scenario	Number of Calls	Percent of All Calls
6	No overlapped call	1,871	89.5
	Overlapped with one call	210	10.0
	Overlapped with two calls	9	0.4
	Overlapped with three calls	1	0.0
7	No overlapped call	1,927	83.4
	Overlapped with one call	360	15.6
	Overlapped with two calls	23	1.0
8	No overlapped call	2,152	84.0
	Overlapped with one call	392	15.3
	Overlapped with two calls	16	0.6
	Overlapped with three calls	1	0.0
	Overlapped with four calls	1	0.0
9	No overlapped call	2,434	83.4
	Overlapped with one call	451	15.5
	Overlapped with two calls	33	1.1
10	No overlapped call	850	94.5
	Overlapped with one call	47	5.2
	Overlapped with two calls	2	0.2
11	No overlapped call	2,350	78.7
	Overlapped with one call	588	19.7
	Overlapped with two calls	42	1.4
	Overlapped with three calls	4	0.1
	Overlapped with four calls	1	0.0

Stations 1 and 11 have the lowest percentage of no overlapped calls, meaning they frequently have concurrent calls. Stations 2, 5, 6, and 10 have higher percentages of no overlapping calls meaning they have concurrent calls less frequently.

The next table looks at the duration of calls, a measure that contributes to overlapping calls in a fire management zone, particularly those that last one or more hours.

In Garland

- 45 percent of all calls were handled in 30 minutes or less
- 29 percent of all calls were handled in 30 minutes to one hour
- 25 percent of all calls were handled in one to two hours
- 1 percent of all calls were handled in two or more hours.

§§§

Table 9: Calls by Type and Duration

Call Type	Less than 30 Minutes	30 Minutes to One Hour	One to Two Hours	Two or More Hours	Total
Breathing difficulty	1,047	1,199	1,027	24	3,297
Cardiac and stroke	747	928	903	26	2,604
Fall and injury	929	1,025	1,376	51	3,381
Illness and other	1,836	2,493	2,092	52	6,473
MVA	685	726	552	48	2,011
Overdose and psychiatric	101	174	174	2	451
Seizure and unconsciousness	609	924	883	34	2,450
EMS Total	**5,954**	**7,469**	**7,007**	**237**	**20,667**
False alarm	1,171	138	15	2	1,326
Good intent	562	51	11	2	626
Hazard	327	107	75	63	572
Outside fire	259	93	41	9	402
Public service	2,869	259	40	6	3,174
Structure fire	87	44	47	42	220
Technical rescue	37	3	3	1	44
Fire Total	**5,312**	**695**	**232**	**125**	**6,364**
Canceled	**1,662**	**22**	**5**	**1**	**1,690**
Aid given	**32**	**17**	**18**	**2**	**69**
Total	**12,960**	**8,203**	**7,262**	**365**	**28,790**

The GFD does have moderate resistance issues based on the response matrix. Overall, 50 percent of calls where units arrived included two or more GFD units. EMS calls make up the highest percentage of two or more units responding (62 percent of all EMS calls).

The next set of tables reviews EMS transport resiliency.

Table 10: EMS Call to Transport Conversion Rate

Call Type	Number of Calls			Conversion Rate
	Non-transport	Transport	Total	
Breathing difficulty	1,394	1,903	3,297	57.7
Cardiac and stroke	1,031	1,573	2,604	60.4
Fall and injury	1,255	2,126	3,381	62.9
Illness and other	2,594	3,879	6,473	59.9
MVA	1,421	590	2,011	29.3
Overdose and psychiatric	135	316	451	70.1
Seizure and unconsciousness	922	1,528	2,450	62.4
EMS Total	**8,752**	**11,915**	**20,667**	**57.7**

Overall, the EMS call to transport ratio is 57.7 percent. There is ground transport resiliency built in to this conversion rate.

Table 11: Time Component Analysis for Ambulance Transport Runs by Call Type (in Minutes)

Call Type	Average Time Spent per Run				Number of Runs
	On Scene	Traveling to Hospital	At Hospital	Deployed	
Breathing difficulty	16.2	13.1	29.3	64.2	1,905
Cardiac and stroke	16.8	13.3	30.2	65.6	1,574
Fall and injury	18.1	15.9	29.6	69.4	2,132
Illness and other	16.8	14.3	27.0	63.8	3,884
MVA	15.2	15.2	33.4	70.2	677
Overdose and psychiatric	15.8	13.5	29.0	64.0	317
Seizure and unconsciousness	16.5	13.8	30.5	66.2	1,531
EMS Total	**16.8**	**14.2**	**29.1**	**65.8**	**12,020**

This table outlines an efficient EMS transport system with efficient on-scene times, efficient travel times to the hospital, and reasonable off-load times at the hospital.

Table 12: Calls by Call Type and Number of Arriving GFD Units

Call Type	Number of Units				Total Calls
	One	Two	Three	Four or More	
Breathing difficulty	314	2,971	9	1	3,295
Cardiac and stroke	191	2,393	18	2	2,604
Fall and injury	2,431	925	15	10	3,381
Illness and other	4,629	1,831	12	1	6,473
MVA	199	1,359	377	75	2,010
Overdose and psychiatric	39	409	3	0	451
Seizure and unconsciousness	149	2,288	11	2	2,450
EMS Total	**7,952**	**12,176**	**445**	**91**	**20,664**
False alarm	1,279	37	0	5	1,321
Good intent	480	96	9	37	622
Hazard	455	55	16	46	572
Outside fire	326	43	12	20	401
Public service	2,894	253	14	6	3,167
Structure fire	40	28	19	133	220
Technical rescue	32	8	1	3	44
Fire Total	**5,506**	**520**	**71**	**250**	**6,347**
Canceled	**568**	**255**	**9**	**8**	**840**
Aid given	**34**	**22**	**1**	**1**	**58**
Total	**14,060**	**12,973**	**526**	**350**	**27,909**

Overall, the GFD has moderate resiliency issues at Stations 1 and 11 in terms of workload. Stations 6, 9, and 10 have moderate resiliency issues when analyzing this station's ability to arrive first in its fire management zone. ***Stations 1 and 11 have the lowest percentage of no overlapped calls, meaning they more frequently have concurrent calls.*** All stations have concurrent calls that occur. When call concurrency goes beyond two calls in an hour, the fire management zone may not have a resource in the district station, as no station has more than two staffed primary response units.

The workload of all companies in terms of runs (calls where there are more than one unit responding) will have an effect on resiliency, as demand overall is high, and there are only two primary staffed resources available in each district station (1 fire; 1 EMS).

The GFD's ability to absorb multiple calls and restore response capabilities to a state of normal can be challenging at certain times such as during working structural fires and other multi-company responses (runs). Stations 1 and 11 should be monitored as they have the lowest percentage of no overlapped calls. Stations 6, 9, and 10 should also be monitored, as they are below the 90th percentile of arriving first in their fire management zone.

Garland Fire Department should include in any strategic master planning the GFD conducts over the near, mid, and long terms, planning objectives focused on deployable assets (staffing and apparatus) that has a focus on resiliency of fire and EMS assets in high call demand fire management zones. This should include a peak-time ambulance at Station 1 or Station 11 from 8 a.m. to 10 p.m.

The GFD should include strategic master planning strategies that continue and strengthen the liaison the department has with social and community services in the city regarding high users of the EMS and fire services.

Automatic and Mutual Aid

Automatic aid is a system whereby fire, rescue, and EMS units respond automatically to another community through agreement based on closeness of resources. Mutual aid is a system whereby surrounding communities provide fire, rescue, and EMS resources to another community through agreement and specific request (not automatically). In an automatic aid scenario, resources from neighboring jurisdictions are built into run cards in the home jurisdiction for again, an automatic response; this aid is designed to supplement and bolster the Effective Response Force of the home jurisdiction.

The GFD participates in automatic and mutual aid with contiguous and surrounding municipalities. This aid is both received and reciprocated with GFD providing resources external to Garland when needed. Aid given and received can be either emergency response of fire suppression, EMS ground transport, special or technical services, or command staff.

§§§

Table 13: Aid Provided to and Received By

Aid Provided To	Aid Received By
Dallas City	Dallas City
Sunnyvale	Richardson
Sachse	Sachse
Rowlette	Rowlett
Richardson	Mesquite
Plano	
Mesquite	

The GFD should include in any strategic master planning the GFD conducts the continuation of mutual and automatic aid from contiguous jurisdictions with a focus on strengthening regional ties and the automatic aid concept and benefits.

Three-Axis Risk Analysis

A comprehensive risk assessment is a critical aspect of assessing and creating a deployment analysis to meet the community's risk and can assist the GFD in quantifying the risks that it faces. Once those risks are known and understood, the department is better equipped to determine if the current response resources are sufficiently staffed, equipped, trained, and positioned.

In this component, the factors that drive the service needs are examined and then link directly to discussions regarding the assembling of an effective response force (ERF) and when contemplating the response capabilities needed to adequately address the existing risks, which encompasses the component of critical tasking.

The risks that the department faces can be natural or manufactured and may be affected by the changing demographics of the community. With the information presented here, the GFD can begin to analyze the community's risks, and develop strategies to mitigate and minimize their effects through the proper deployment of resources.

Risk is often categorized in three ways: the probability the event will occur in the community, the impact on the fire department, and the consequence of the event on the community. The following three tables look at the probability of the event occurring, which ranges from unlikely to frequent; consequence to the community, which is categorized as ranging from insignificant to catastrophic; and the impact to the organization, which ranges from insignificant to catastrophic.

§§§

Table 14: Event Probability

Probability	Chance of Occurrence	Description	Risk Score
Unlikely	2%-25%	Event may occur only in exceptional circumstances.	**2**
Possible	26%-50%	Event could occur at some time and/or no recorded incidents. Little opportunity, reason, or means to occur.	**4**
Probable	51%-75%	Event should occur at some time and/or few, infrequent, random recorded incidents, or little anecdotal evidence. Some opportunity, reason, or means to occur; may occur.	**6**
Highly Probable	76%-90%	Event will probably occur and/or regular recorded incidents and strong anecdotal evidence. Considerable opportunity, means, reason to occur.	**8**
Frequent	90%-100%	Event is expected to occur. High level of recorded incidents and/or very strong anecdotal evidence.	**10**

Table 15: Impact on GFD

Impact	Impact Categories	Description	Risk Score
Insignificant	Personnel and Resources	One apparatus out of service for period not to exceed one hour.	**2**
Minor	Personnel and Resources	More than one but not more than two apparatus out of service for a period not to exceed one hour.	**4**
Moderate	Personnel and Resources	More than 50 percent of available resources committed to incident for over 30 minutes.	**6**
Significant	Personnel and Resources	More than 75 percent of available resources committed to an incident for over 30 minutes.	**8**
Catastrophic	Personnel, Resources, and Facilities	More than 90 percent of available resources committed to incident for more than two hours or event which limits the ability of resources to respond.	**10**

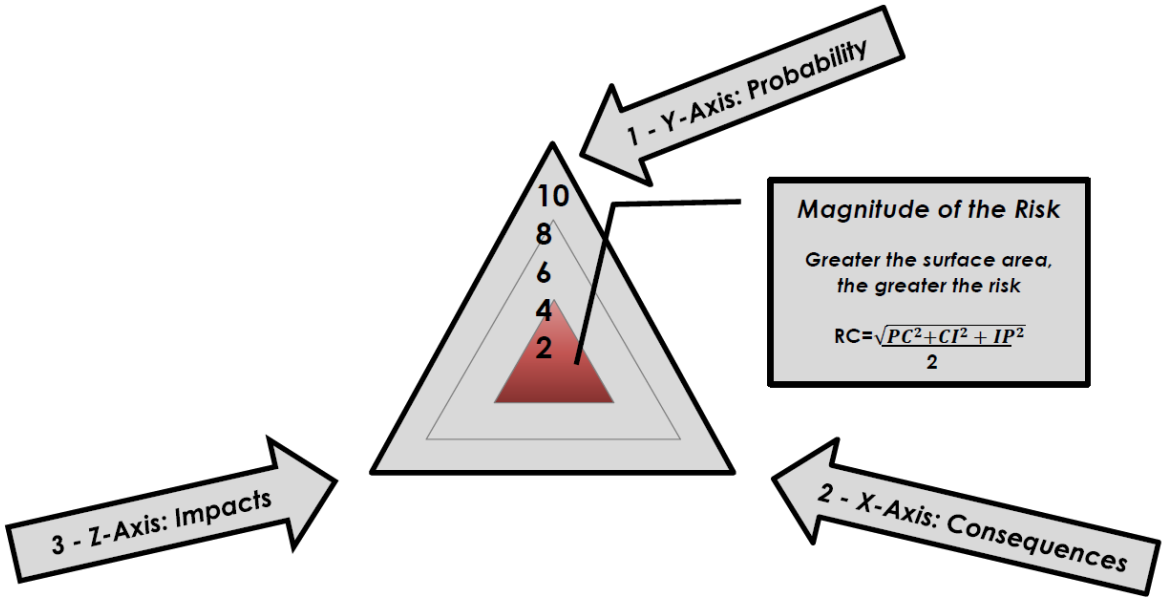
§§§

Table 16: Consequence to Community Matrix

Impact	Consequence Categories	Description	Risk Score
Insignificant	Life Safety	▪ 1 or 2 people affected, minor injuries, minor property damage, and no environmental impact.	**2**
Minor	Life Safety Economic and Infrastructure Environmental	▪ Small number of people affected, no fatalities, and small number of minor injuries with first aid treatment. Minor displacement of people for <6 hours and minor personal support required. ▪ Minor localized disruption to community services or infrastructure for <6 hours. Minor impact on environment with no lasting effects.	**4**
Moderate	Life Safety Economic and Infrastructure Environmental	▪ Limited number of people affected (11 to 25), no fatalities, but some hospitalization and medical treatment required. Localized displacement of small number of people for 6 to 24 hours. Personal support satisfied through local arrangements. Localized damage is rectified by routine arrangements. ▪ Normal community functioning with some inconvenience. Some impact on environment with short-term effects or small impact on environment with long-term effects.	**6**
Significant	Life Safety Economic and Infrastructure Environmental	▪ Significant number of people (>25) in affected area impacted with multiple fatalities, multiple serious or extensive injuries, and significant hospitalization. ▪ Large number of people displaced for 6 to 24 hours or possibly beyond. External resources required for personal support. Significant damage that requires external resources. Community only partially functioning, some services unavailable. Significant impact on environment with medium- to long-term effects.	**8**
Catastrophic	Life Safety Economic and Infrastructure Environmental	▪ Very large number of people in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalization; serious injuries with long-term effects. General and wide-spread displacement for prolonged duration; extensive personal support required. Extensive damage to properties in affected area requiring major demolition. ▪ Serious damage to infrastructure. Significant disruption to, or loss of, key services for prolonged period. ▪ Community unable to function without significant support. ▪ Significant long-term impact on environment and/or permanent damage.	**10**

Prior risk analysis has only evaluated two factors of risk: probability and consequence. Contemporary risk analysis considers the impact of each risk to the organization, thus creating a three-axis approach to evaluating risk as depicted in the following figure. A contemporary risk analysis now includes probability, consequences to the community, and impact on the organization, in this case the GFD. In this analysis, information presented and reviewed in this section (Community Risk Profile) has been considered. Risk is categorized as Low, Moderate, High, or Special.

Figure 16: Three-Axis Risk Calculation (RC)



The following factors/hazards were identified and considered:

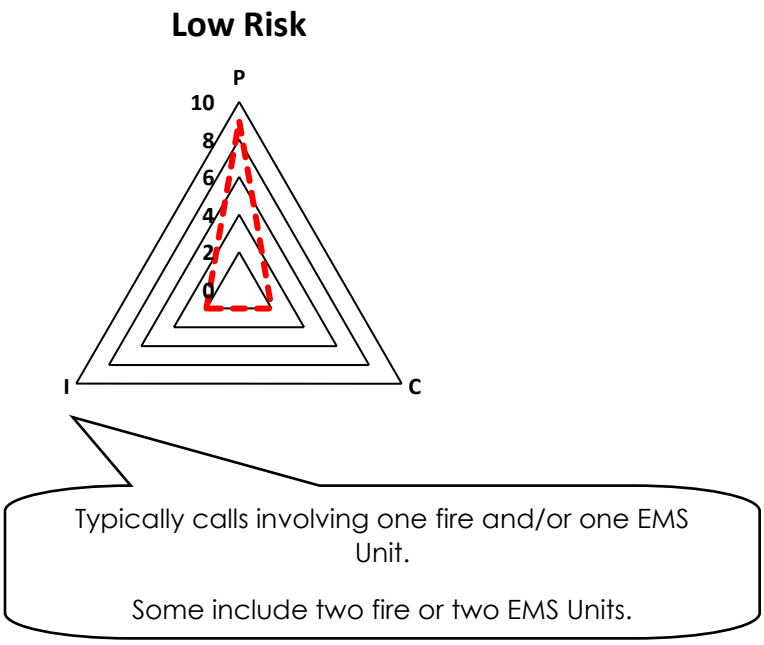
- **Demographic factors** such as age, socio-economic, vulnerability.
- **Natural hazards** such as flooding, snow and ice events, wind events, summer storms.
- **Manufactured hazards** such as transportation risks (road and rail) and target hazards.
- **Structural/building risks**.
- **Fire and EMS incident numbers and density**.
- **Resiliency.**

The assessment of each factor and hazard as listed below took into consideration the likelihood of the event, the impact on the city itself, and the impact on GFD's ability to deliver emergency services, which includes GFD resiliency and mutual aid capabilities as well. The list is not all inclusive but includes categories most common or that may present to the city and the GFD.

Low Risk

- Automatic fire/false alarms.
- Low-acuity BLS EMS Incidents.
- Low-risk environmental event.
- Motor vehicle accident (MVA)-no entrapment, 1-2 patients, low hazards.
- Good intent/hazard/public service fire incidents with no life-safety exposure.
- Outside fires such as grass, rubbish, dumpster, vehicle with no structural/life-safety exposure.

Figure 17: Low Risk

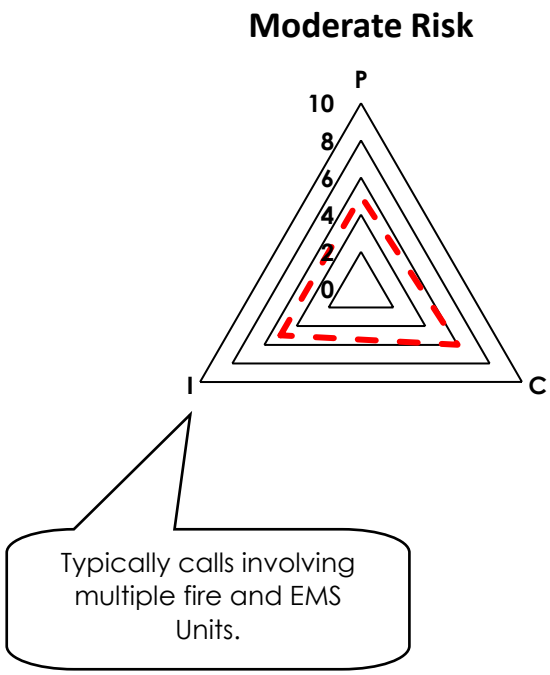


§§§

Moderate Risk

- Fire incident in a single-family dwelling where fire and smoke or smoke is visible, indicating a working fire.
- Suspicious substance investigation involving multiple fire companies and law enforcement agencies.
- ALS EMS incident.
- MVA with entrapment of passengers.
- Grass/brush fire with structural endangerment/exposure.
- Low-angle rescue involving ropes and rope rescue equipment and resources.
- Surface water rescue.
- Good intent/hazard/public service fire incidents with life-safety exposure.
- Rail or road transportation event with no release of product or fire, and no threat to life safety

Figure 18: Moderate Risk

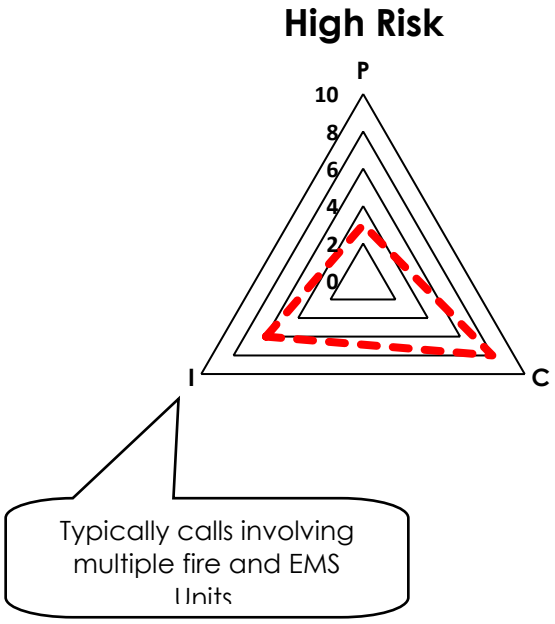


§ § §

High Risk

- Working fire in a target hazard.
- Cardiac arrest.
- Mass casualty incident of more than 10 patients but fewer than 25 patients.
- Confined space rescue.
- Structural collapse involving life-safety exposure.
- High-angle rescue involving ropes and rope rescue equipment.
- Trench rescue.
- Suspicious substance incident with multiple injuries.
- Industrial leak of hazardous materials that causes exposure to persons or threatens life safety.
- Weather events that create widespread flooding, heavy snow or ice, heavy winds, building damage, and/or life-safety exposure.

Figure 19: High Risk

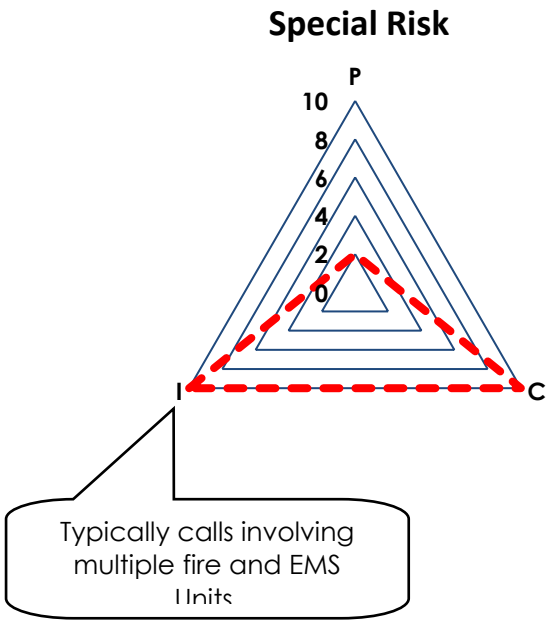


§ § §

Special Risk

- Working fire in a structure of more than three floors.
- Fire at an industrial building or complex with hazardous materials.
- Fire in an occupied targeted hazard with special life-safety risks such as age, medical condition, or other identified vulnerabilities.
- Mass casualty incident of more than 25 patients.
- Rail or transportation incident that causes life-safety exposure or threatens life safety through the release of hazardous smoke or materials and evacuation of residential and business occupancies.
- Explosion in a building that causes exposure to persons or threatens life safety or outside of a building that creates exposure to occupied buildings or threatens life safety.
- Massive estuary flooding, fire in an occupied public assembly or medical institution, high-impact environmental event, pandemic.
- Mass gathering with threat fire and threat to life safety or other civil unrest, weapons of mass destruction release.

Figure 20: Special Risk



§§§

Community Risk Reduction

Community Risk Reduction activities are important undertakings of a modern-day fire department. A comprehensive fire protection system in every jurisdiction should include, at a minimum, the key functions of fire prevention, code enforcement, inspections, and public education. Preventing fires before they occur, and limiting the impact of those that do, should be priority objectives of every fire department.

Fire investigation is a mission-important function of fire departments, as this function serves to determine how a fire started and why the fire behaved the way it did, providing information that plays a significant role in future fire prevention efforts.

Educating the public about fire safety and teaching them appropriate behaviors on how to react should they be confronted with a fire is also an important life-safety responsibility of the fire department.

Fire suppression and response, although necessary to protect property, have negligible impact on preventing fire. Rather, it is public fire education, fire prevention, and built-in fire protection systems that are essential elements in protecting citizens from death and injury due to fire, smoke inhalation, and carbon monoxide poisoning. The fire prevention mission is of utmost importance, as it is the only area of service delivery that dedicates 100 percent of its effort to the reduction of the incidence of fire.

Fire prevention should be approached in a systematic manner, and many community stakeholders have a personal stake and/or responsibility in these endeavors. It has been estimated that a significant percentage of all the requirements found in building/construction and related codes are related in some way to fire protection and safety. Various activities such as plan reviews, permits, and inspections are often spread among different departments in the municipal government and are often not coordinated nearly as effectively as they should be. Every effort should be made to ensure these activities are managed effectively between departments.

The Fire Marshal's Office is staffed by the Fire Marshal (Assistant Fire Chief) a Lieutenant who supervises the fire investigation section, and a Lieutenant who supervises the fire code enforcement section. The fire investigation section has four positions assigned to handle cause and origin and arson investigations. The fire code enforcement section has six positions assigned to handle fire inspections, plans review and related fire code work. There is also one position dedicated to public life safety education and one position assigned to assist with the administrative functions of a community risk reduction division.

The fire code enforcement section has a two-pronged role in terms of services: first, in a community capacity, as the entity responsible for assisting businesses to successfully occupy and continue to provide business services or maintain a residence in buildings covered by the fire code safely in accordance with established fire safety codes, and second, as the enforcement agency responsible for compliance with fire safety-related legislation.

At the time of this analysis the GFD Fire Marshal's Office was utilizing the following Building and Fire Codes:

- International Fire Code, 2015 edition with city amendments.
- International Building Code, 2015 edition with city amendments.
- The National Electrical Code, 2014 edition

- The International Mechanical Code, 2015 edition
- The International Plumbing Code, 2015 edition
- The International Fuel Gas Code, 2015 edition
- The International Residential Code, 2015 edition
- The International Energy Conservation Code, 2015 edition
- The International Property Maintenance Code, 2015 edition

At the time of this report, there were 7,590 occupancies in Garland that require fire code inspections. Annualized inspections are required pursuant to the adopted fire code and the Texas Administrative Code for certain public assembly, educational, high hazard, mercantile, auto repair facilities, and institutional occupancies. These may include occupancy inspections and/or inspection of fire protection system inspection/testing documents to ensure compliance with the fire code. The next table provides a historical analysis of GFD fire code inspections.

Table 17: GFD Fire Marshal's Office Fire Inspections Completed

2019	2020	2021	2022
4,587	3,754	2,307	

The investigation of the cause and origin of fires is also an important part of a comprehensive fire prevention system. Determining the cause of fires can help with future prevention efforts. Officers on scene initiate the fire origin and cause determination process. When needed, particularly when the on-scene officers cannot determine the origin and cause of the fire, or they believe a crime has been committed, the Fire Marshals office will respond to determine the cause and origin of the fire. The next table provides a historical analysis of GFD fire investigations.

Table 18: GFD Fire Marshal's Office Fire Investigations

2019	2020	2021	2022
104	115	100	

The Fire Marshal's Office also conducts building plan reviews to ensure fire protection and fire code elements are met pursuant to the adopted fire and building code. These include:

- Above Ground Storage Tanks
- Access Control/Egress Delay
- Automatic Extinguishing Systems/Non-Sprinkler
- Carnivals and Fairs-rides, tents, and temporary membrane structures
- Gates/Barricades Across Access Roads
- High Piled Storage
- Pyrotechnic and Special Effects Materials
- Fire Alram and Fire Detection Systems
- Fire Legacy Permits-Permits Plus Migrate
- Fire Protection Pumps and Related Equipment
- Fire Sprinkler Systems
  The largest number of reviews
- Standpipe Systems
- Temporary Membrane Structures and Tents
- Underground Fire Lines

The next table provides a historical analysis of GFD plan reviews.

Table 19: GFD Fire Marshal's Office Plan Reviews

2019	2020	2021	2022
377	436	343	

It should be noted that many plan reviews, particularly those involving fire protection systems, site plan review, and fire department ingress and egress require a final fire inspection, which are coordinated and conducted by the Fire Marshal's Office as well.

The Fire Marshal's Office also delivers and coordinates fire operations life safety public education. These include educational deliveries such as:

- Public CPR
- Fire Drills
- Fire Safety
- First Aid/Stop the Bleed Training
- Emergency Preparedness
- Citizens Fire Academy
- GFD Recruiting Events/Fire Safety
- Fire Safety
- Fire Extinguisher Training
- Fire Evacuation Routes

The next table provides a historical analysis of GFD plan reviews.

Table 20: GFD Fire Marshal's Office Life Safety Education (count in persons)

2019	2020	2021	2022
7,506	2,895*	2,577**	

*COVID-19 restricted **COVID-19 and staff restricted

The Fire Marshal's Office in Garland is a busy unit conducting regular fire code inspections and re-inspections, plans review, and plans review inspections, issuing permits, and conducting inspections on same when required, managing special events and permits associated with these events, and conducting fire investigations and life safety public education events. According to the Fire Marshal, not all occupancies in Garland are inspected annually, which is reflected in the data provided. This is not atypical in cities that have the type and number of building occupancies such as Garland. It is important though that occupancies requiring annualized inspections be completed as a priority. Through a realistic and comprehensive fire code inspection plan, those occupancies not included as required in the annual inspection plan, should be inspected bi-annually or others tri-annually as allowable though local and state laws. This will ensure these occupancies are inspected on a regular basis.

The GFD should include in any strategic master planning a focus on Community Risk Reduction that includes the expansion of public life safety education staff and programs over the midterm; a comprehensive fire prevention code enforcement plan that ensures the completion of required annualized inspections, and which details the remaining occupancy types and schedule identifying a bi-annual or tri-annual inspection of these occupancies; the expansion of fire code enforcement staff that matches the growth and demand of inspectable properties and plans review; and the development, implementation, and compliance methodology of a fire operations pre-fire plan program. In the near, mid, and long term this may include the addition of an additional fire code inspector in each planning period.

ISO-PPC Community Rating

In 2016, the City of Garland received a Class 1 Public Protection Classification (PPC) rating from the Insurance Services Office (ISO), a subsidiary of Verisk Analytics. The Verisk hazard mitigation team collects and evaluates information from communities across the United States regarding their capabilities to provide municipal fire protection. This information is analyzed utilizing the Fire Suppression Rating System from which individual section credits and points are tabulated and a Public Protection Classification for the community is assigned. Classifications range from 1 through 10, with one being the highest rating a community can achieve.[26]

It is important to understand the PPC is not just a fire department classification, but a compilation of community services that include the fire department, the emergency communications systems, the water supply system that includes an evaluation of available water matched to the amount needed to suppress fires (referred to as fire flow), and community efforts to reduce the risk of fire, including fire prevention codes and enforcement, public fire safety education, and fire investigation programs.[27]

A lower PPC does not always guarantee a lower property insurance rating as many factors feed into the formulas insurance companies utilize to determine rates. However, a PPC rating of 1, 2, or 3 alerts the property insurance underwriter that the service area of that fire department is well-equipped, positioned, and staffed to extinguish, mitigate, and prevent fires. Additionally, although insurance companies may use the Verisk-ISO-PPC information when deciding property insurance premiums, Verisk-ISO has nothing to do with insurance premium pricing.

A community's PPC grade depends on:

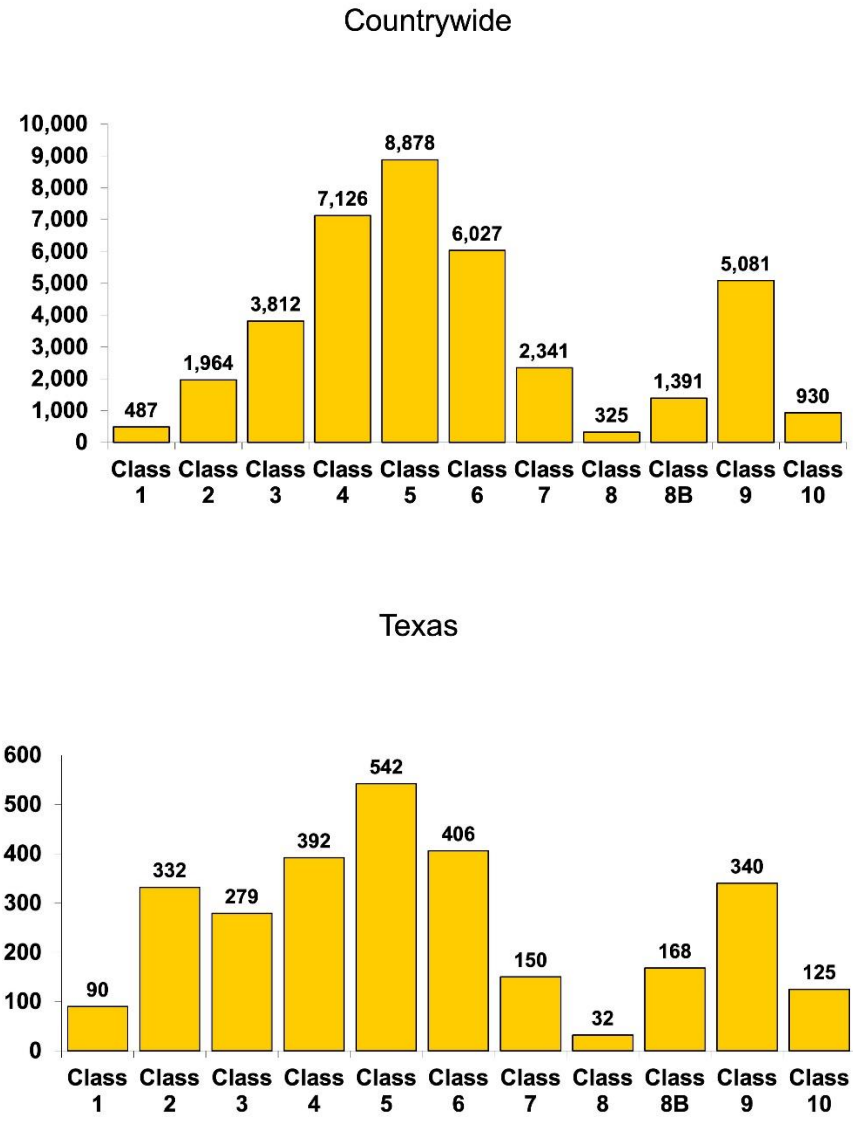
- **Needed Fire Flows** (building locations used to determine the theoretical amount of water necessary for fire suppression purposes).
  - The basic fire flow for Garland was determined to be 3500 gallons per minute (GPM).
- **Emergency Communications** (10 percent of the evaluation).
  - 9.40/10.00 credits earned.
- **Fire Department** (50 percent of the evaluation).
  - 39.10/50 credits earned.
- **Water Supply** (40 percent of the evaluation).
  - 39.20/40 credits earned.
- **Community Risk Reduction** (Additional credits received for Fire Prevention/Inspection, Public Education, and Fire Investigation activities)
  - 5.39/5.50 credits earned.

Overall, the community PPC rating yielded 90.13 earned credit points/106.50 credit points available. There was a 3.96 point diversion reduction assessed as well, which is automatically calculated based on the relative difference between the fire department and water supply scores. Additionally, the GFD received 1.00 credits for utilizing Compressed Air Foam (CAFS). **90.00 points or more qualify a community for a rating of 1.**

26. Verisk's Community Hazard Mitigation Services (isomitigation.com)
27. ibid

The following figures illustrate the PPC ratings across the United States and in Texas.

Figure 21: PPC Ratings in the United States and Texas[28]



The next table outlines credits earned by the GFD.

§§§

28. https://www.isomitigation.com/ppc/program-works/facts-and-figures-about-ppc-codes-around-the-country/

Table 21: Garland Earned Credit Overview

FSRS Component	Earned Credit	Credit Available
414. Credit for Emergency Reporting	2.55	3
422. Credit for Telecommunicators	4.00	4
4.32. Credit for Dispatch Circuits	2.85	3
440. Credit for Emergency Communications	**9.40**	**10**
513. Credit for Engine Companies	6.00	6
523. Credit for Reserve Pumpers	0.50	0.50
532. Credit for Pump Capacity	3.00	3
549. Credit for Ladder Service	1.95	4
553. Credit for Reserve Ladder and Service Trucks	0.27	0.50
561. Credit for Deployment Analysis	6.80	10
571. Credit for Company Personnel	9.53	15
581. Credit for Training	8.73	9
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	**39.10**	**50**
616. Credit for Supply System	30.00	30
621. Credit for Fire Hydrants	3.0	3
631. Credit for Inspection and Flow Testing	6.20	7
640. Credit for Water Supply	**39.20**	**40**
Divergence	**-3.96**	-
1050. Community Risk Reduction	**5.39**	5.50
Texas Addendum Credit-CAFS	**1.00**	1.00
Total Credit	**90.13**	**106.50**

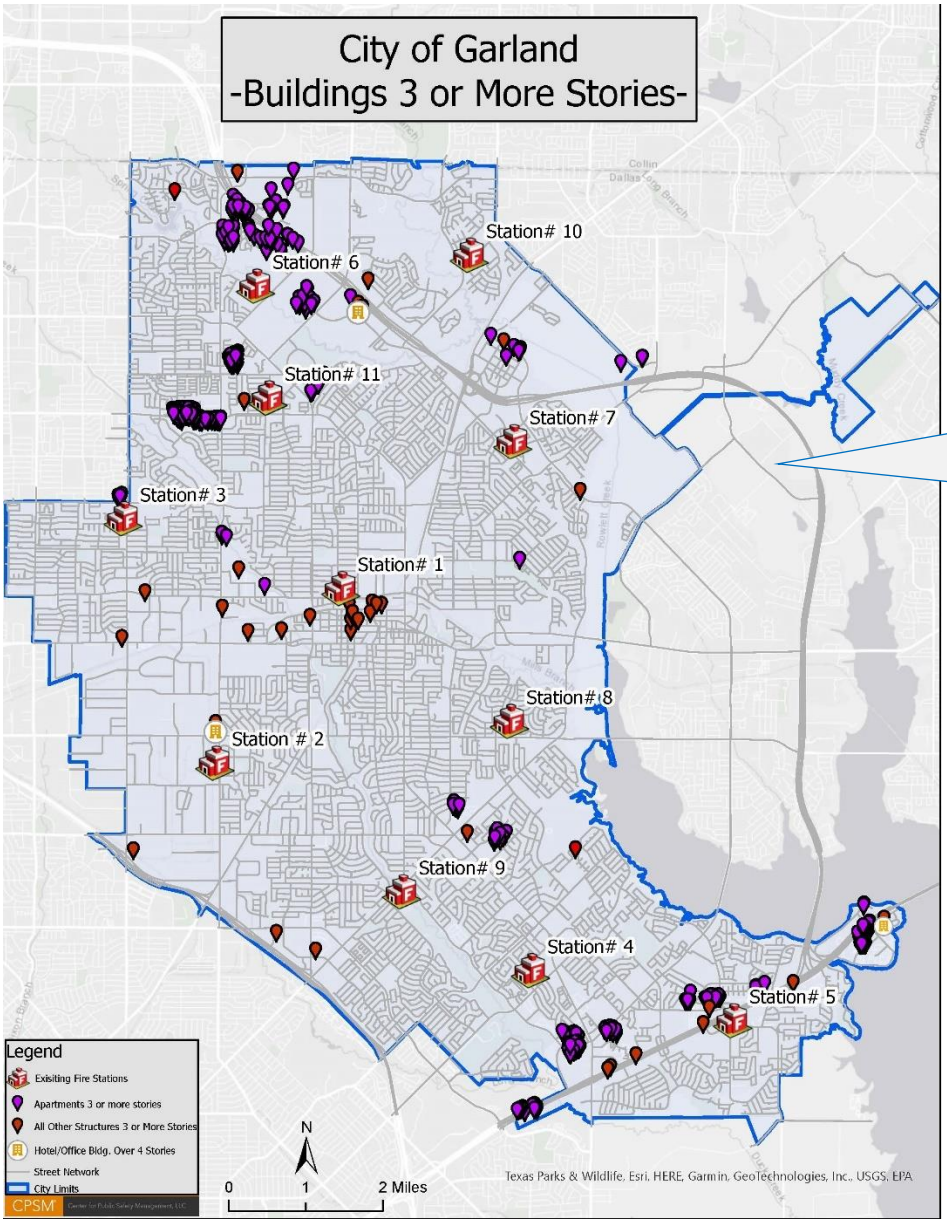
Areas of scoring that should be reviewed further internally by the city and the GFD for improvement and to sustain the current rating include:[29]

- Credit for Ladder Service: #549 (1.95/4.00).
  - This item reviews the number of response areas within the city with five buildings that are three or more stories (or 35 or more feet in height), or with five buildings that have a needed fire flow greater than 3,500 gallons per minute, or a combination of these two criterion. The number of ladder companies in the city is compared to the number needed and credit is given. The GFD deploys Quint apparatus as a combination engine/ladder response platform (four total) and cross staffs a Quint apparatus at Station 1 with the engine crew. The GFD receives credit for five ladder companies, however, is deficient in the total needed in the city. ***There are over 550 addresses in the city of buildings that are three or more stories and include each fire district.*** *This category has an expanded discussion later in this report.*

§ § §

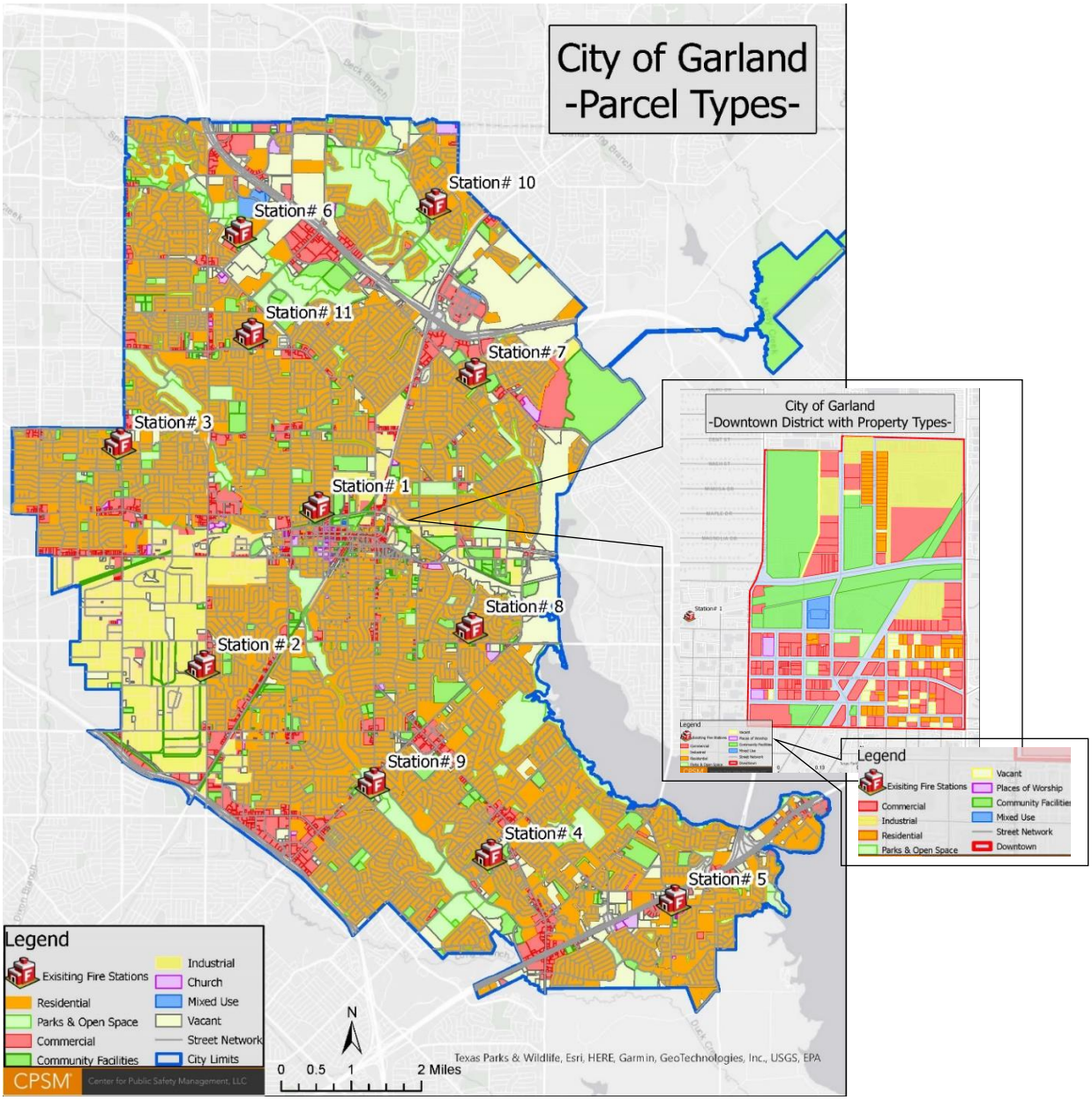
29. Public Protection Classification Summary Report, Garland, Texas, 2016.

Figure 22: Buildings Three Stories of More



- Credit for Deployment Analysis: #561 (6.80/10 credits).
  - This category contemplates the number and adequacy of engine and ladder companies to cover the built-upon areas of the city. Credits for engine companies (#513 - 6.00/6.00) and ladder companies (#549 – 1.95/4.00) are considered in this rating section. An alternative is to utilize the performance objectives from the NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Departments*, 2020 edition. This alternative contemplates a department's ability to meet the initial engine company response objective of 240 second travel time, and the accumulation of the initial alarm assignment in 480 seconds. *This category has an expanded discussion later in this report.*

Figure 23: Garland Parcel Types-Built Upon Land



- Credit for Company Personnel: #571 (9.53/15.00 credits).
  - This category contemplates the average number of existing firefighters able to respond to structure fires. Firefighters staffing ambulances are counted, however they receive credit to the extent they are available to respond to fire calls. In Garland, EMS accounts for 72% of all calls. GFD minimum staffing is 61/day. The ISO-PPC credit in this category is 61 personnel. This category links to the deployment analysis and deficiencies in ladder companies.

Deficiencies in the ISO-PPC should be discussed and included in any strategic master planning the GFD conducts in the near, mid, and long terms. This should include the addition of staffed ladder apparatus (truck companies in stations that currently house single engine companies), which will create opportunity for a gain in deployment analysis, company personnel analysis, and ladder service analysis credit points, which will assist in sustaining optimum service deliverables and the ISO-PPC 1 community rating.

The City of Garland ISO-PPC community rating of 1 is vulnerable, as the total score achieved in 2016 to elevate to this level was 90.13 (90.00 -106.50 qualifies a community as ISO 1).

GFD Infrastructure: Fleet

The procurement, maintenance, and eventual replacement of response vehicles is one of the largest expenses incurred in sustaining a community's fire-rescue department. While it is the personnel of the GFD who provide emergency services within the community, the department's fleet of response vehicles is essential to operational success. Modern, reliable vehicles are needed to deliver responders and the equipment/materials they employ to the scene of dispatched emergencies within the city.

The GFD has a robust fleet of frontline and reserve heavy fire apparatus and ambulances. Additional fleet includes administrative vehicles and light response vehicles and trailers for specialty fire and EMS incidents. GFD apparatus maintenance is performed by the city's fleet services. Apparatus-specific work that cannot be performed in-house is performed by a vendor who specializes in fire and EMS apparatus work. This combination of maintenance and repair work is common practice across the country. The intricacies and scope of fire pumps and fire pump controls, aerial ladder hydraulic systems and controls, and apparatus electrical control systems (the main components outside of the motor, chassis, and drive train) are best left in the hands of specialists for diagnosis, maintenance, and repair.

Table 22: GFD Frontline EMS Apparatus

Unit Number	Year of Purchase
Ambulance 1	2022
Ambulance 2	2018
Ambulance 3	2018
Ambulance 4	2020
Ambulance 5	2022
Ambulance 6	2019
Ambulance 7	2020
Ambulance 8	2022
Ambulance 9	2020
Ambulance 10	2019
Ambulance 11	2022

The GFD also has six reserve ambulances. The year of purchase for these units is:

- 2016
- 2017
- 2018
- 2017
- 2018
- 2018

Table 23: GFD Frontline Fire Apparatus

Unit Number	Year of Purchase
Engine 1	2015
Truck 1 (Quint)	2020
Engine 2	2020
Engine 3	2018
Engine 4	2020
Truck 5 (Quint)	2013
Engine 6	2015
Truck 7 (Quint)	2020
Engine 8	2015
Truck 9 (Quint)	2014
Engine 10	2018
Truck 11 (Quint)	2017

The GFD also has five reserve engine apparatus and three reserve ladder apparatus. The year of purchase for these units is:

Engines
- 2004
- 2004
- 2004
- 2006
- 2006

Ladders
- 2006
- 2006
- 2007

The GFD also utilizes other first-line apparatus that is not staffed per-se, meaning if needed staffing is committed from on-duty station resources typically assigned to fire apparatus. These include:

- Blocker 2: 1994 engine apparatus-primarily utilized for blocking emergency scenes on high speed limited access highways/freeways/toll roads.
- Blocker 5: 2004 engine apparatus-primarily utilized for blocking emergency scenes on high speed limited access highways/freeways/toll roads.
- Rescue 8: 1999 commercial chassis-utilized for special rescue response.
- Squad 10: 2006 custom chassis- light & air response unit.
- Utility 7: 2020 Dodge Ram 5500, 4x4 chassis with 400 gallon water tank and pump.

NFPA 1901, *Standard for Automotive Fire Apparatus*, serves as a guide to the manufacturers that build fire apparatus and the fire departments that purchase them. This document is updated every five to eight years (or shorter time periods) using input from the public and industry stakeholders through a formal review process. The committee membership is made up of

representatives from the fire service, manufacturers, consultants, and special interest groups. The committee monitors various issues and problems that occur with fire apparatus and attempts to develop standards that address those issues. A primary interest of the committee over the past years has been improving firefighter safety and reducing fire apparatus crashes.

The Annex Material in NFPA 1901 (2016) contains recommendations and work sheets to assist in decision making in vehicle purchasing. With respect to recommended vehicle service life, the following excerpt is noteworthy:

> *"It is recommended that apparatus greater than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status and upgraded in accordance with NFPA 1912, Standard for Fire Apparatus Refurbishing (2016), to incorporate as many features as possible of the current fire apparatus standard. This will ensure that, while the apparatus might not totally comply with the current edition of the automotive fire apparatus standards, many improvements and upgrades required by the recent versions of the standards are available to the firefighters who use the apparatus."*

The impetus for these recommended service life thresholds is the continual industry advances in vehicle and occupant safety. Despite good stewardship and maintenance of emergency vehicles in sound operating condition, there are many advances in occupant and vehicle component safety, such as fully enclosed cabs, enhanced rollover protection and air bags, three-point restraints, antilock brakes, increased visibility, cab noise abatement/hearing protection, a clean cab free from carbon products, and a host of other improvements as reflected in each revision of NFPA 1901. These improvements provide safer response vehicles for those providing emergency services within the community, as well those "sharing the road" with these responders.

Many departments use a 10-5 rule (10 years front-line service, then 5 years of reserve service) when programming replacement of fire apparatus such as engines, ladders, water tenders, heavy rescues, and heavy squad type haz-mat vehicles. Annex D of the current NFPA 1912 edition states:

> *To maximize firefighter capabilities and minimize risk of injuries, it is important that fire apparatus be equipped with the latest safety features and operating capabilities. In the last 10 to 15 years, much progress has been made in upgrading functional capabilities and improving the safety features of fire apparatus. Apparatus more than 15 years old might include only a few of the safety upgrades required by the recent editions of the NFPA fire department apparatus standards or the equivalent Underwriters Laboratories of Canada (ULC) standards. Because the changes, upgrades, and fine tuning to NFPA 1901, Standard for Automotive Fire Apparatus have been truly significant, especially in the area of safety, fire departments should seriously consider the value (or risk) to firefighters of keeping fire apparatus more than 15 years old in first-line service.*
>
> *It is recommended that apparatus more than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status, be upgraded in accordance with NFPA 1912, and incorporate as many features as possible of the current fire apparatus standard. This will ensure that, while the apparatus might not totally comply with the current editions of the automotive fire apparatus standards, many of the improvements and upgrades required by the current editions of the standards are available for firefighters who use the apparatus.*

Given that NFPA 1901 targets specifications for only fire suppression vehicles, NFPA 1917, *Standard for Automotive Ambulances*, was published in 2013 (updated in 2019) to provide similar recommendations governing the design and construction of ambulances. The U.S. General Services Administration also promulgates ambulance standards under KKK-A-1822. Additionally, the Commission on Accreditation of Ambulance Services (CAAS) has established a Ground Vehicle Standard (2016). While NFPA 1917, KKK, and CAAS standards do not include recommended service-life replacement standards for EMS vehicles, common industry practice suggests typical replacement intervals of four to eight years. This schedule depends on a number of variables, most notably vehicle mileage, escalation of annualized repair expenses, and frequency with which the subject vehicle is out of service. After replacement, serviceable vehicles may be retained in ready-reserve status for an additional two to four years. In light of the inherently shorter service life of ambulances, owing to a higher frequency of emergency responses handled than corresponding suppression vehicles, there are fewer legitimate concerns regarding "missing" essential improvements in occupant/operator safety standards.

According to GFD command staff, the current GFD replacement program follows the NFPA 1901 model. When the apparatus goes into reserve status it is eventually cycled out as frontline apparatus is replaced.

Garland Fire Department should include in any strategic master planning the GFD conducts over the near, mid, and long terms, planning objectives focused on following the NFPA 1901 standard for fleet replacement and include in this planning a focus on not utilizing heavy fire apparatus once the apparatus reaches the 25-year age ceiling.

GFD Infrastructure: Facilities and ISO, NFPA Response Time Benchmarking

Sound community fire-rescue protection requires the strategic distribution of an adequate number of station facilities to ensure that effective service area coverage is achieved, that predicted response travel times satisfy prevailing community goals and national best practices, and that the facilities are capable of supporting mission-critical personnel and vehicle-oriented requirements and needs.

Fire facilities must be designed and constructed to accommodate both current and forecast trends in fire service vehicle type and manufactured dimensions. A facility must have sufficiently sized bay doors, circulation space between garaged vehicles, and departure and return aprons of adequate length and turn geometry to ensure safe response.

Fire department facilities are exposed to some of the most intense and demanding uses of any public local government facility, as they are occupied 24 hours a day. Personnel-oriented needs in fire facilities must enable performance of daily duties in support of response operations. For personnel, fire facilities must have provisions for vehicle maintenance and repair; storage areas for essential equipment and supplies; and space and amenities for administrative work, training, physical fitness, laundering, meal preparation, and personal hygiene/comfort.

As discussed above, the GFD responds from eleven fire facilities. Fire administration is located in a city facility space that includes fire administration, the fire marshal's office, and fire training. The following table describes each fire facility related to operational use.

§ § §

Table 24: GFD Station Facilities

Station Number	Address	Year Built	Square Footage	# of Bays	Gender Separation
1	1019 Austin Street	1967	13,951	5	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
2	2501 Wood Street	2005	7,415	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
3	1301 N. Jupiter St.	2008	7,415	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
4	4931 Gatewood Road	2002	7,415	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
5	5626 Lyons Road	2017	10,186	3	Yes-Shower/Bathroom Yes-Bunkroom
6	2009 Holford Rd.	1980	4,814	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
7	2545 Naaman School Rd.	1895	5,950	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
8	1426 E. Miller Road	1997	6,199	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
9	4320 O'Bannon Road	1999	6,386	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
10	1555 Provence Road	2007	7,415	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front
11	1940 Beltline Road	2004	7,415	3	Yes-Shower/Bathroom Bunkroom: beds separated by lockers-open front

The GFD has and continues to renovate facilities that has a focus on improving the living spaces in each fire station, and the health and safety of staff. Additionally, and when feasible, the department and city work collaboratively on replacing facilities that have reached their life cycle.

The GFD should include in any strategic master planning near, mid, and long term strategies that focus on the continued renovation of fire facilities to include consideration of integrating NFPA 1500 (health and safety considerations), NFPA 1851 (maintenance and care of station wear and protective ensembles), and NFPA 1710 (turnout time).

When siting fire stations for the most efficient response, several factors must be considered. These include the road network the assigned apparatus will use to serve the response district the station is built to serve, which directly ties to response travel time. As discussed above, and

reviewed here, travel time is key to understanding how fire and EMS station location influences a community's aggregate response time performance. 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*, establishes benchmark travel times for first arriving fire units as:

- ≤ 240 seconds for the first arriving engine company to a fire suppression incident 90 percent of the time.
- ≤ 240 seconds for the first arriving engine company to an EMS incident with automated external defibrillator (AED) or higher level capability.

The NFPA 1710 standard also benchmarks the travel time of the second arriving unit on a fire incident, and the travel time to assemble the first alarm assignment of apparatus and staff on low/medium hazards as:

- ≤ 360 seconds for the second company 90 percent of the time.
- ≤ 480 seconds to assemble the initial first alarm assignment on scene 90 percent of the time for low/medium hazard.

The location of responding units is one key factor in response time; reducing response times, which is typically a key performance measure in determining the efficiency of department operations, often depends on this factor. The goal of placement of a single fire station or creating a network of responding fire stations in a single community is to optimize coverage with short travel distances, when possible, while giving special attention to natural and manmade barriers, and response routes that can create response-time problems.[30]

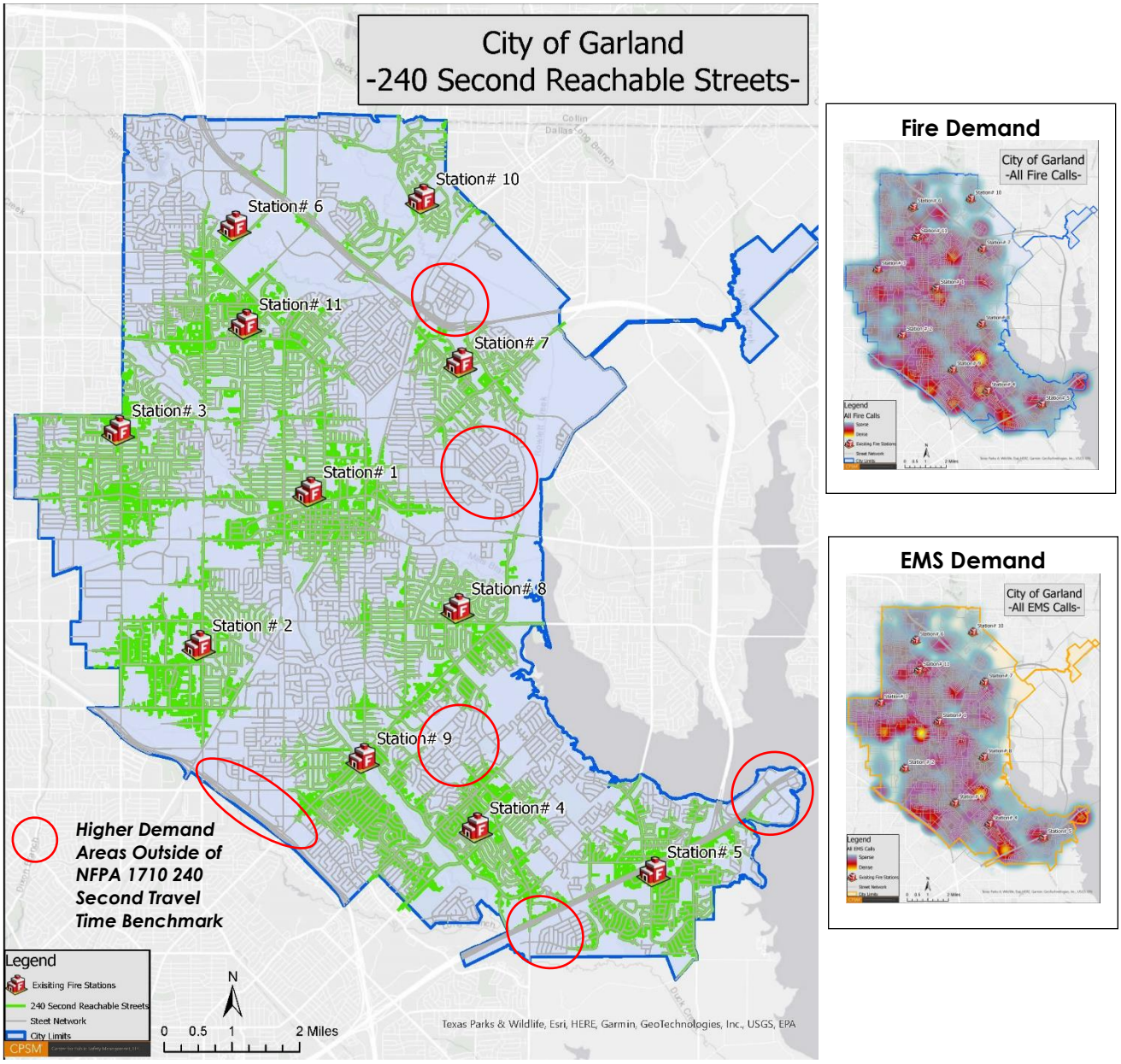
An additional benchmark is the ISO Public Protection Classification rating system. Under this system, one element a jurisdiction is graded on is the distribution within built-upon areas of engine companies and ladder companies (deployment analysis). For full credit in the Fire Suppression Rating Schedule (FSRS), a jurisdiction's fire protection area with residential and commercial properties should have a first-due engine company within 1.5 road miles and a ladder service company within 2.5 road miles.[31] As engine and ladder companies both respond from fire facilities, and because engine companies are the more prevalent fire suppression company, fire facilities are predictably sited based on the response needs of engine companies.

Finally, the current and potential for future demand for service is a consideration for the siting of fire facilities. Demand is the number and types of calls for services provided by the entire fire department. When demand is evaluated, it is important the number of incidents is not confused with the number of unit responses. An emergency call may require the response of more than one unit, but only one incident number is generated. This is a direct accelerator of demand. CPSM measures a call as a single event, which may be handled by a single unit, and a run as a response made by a unit to a call that involves more than one unit.

The next figures and tables outline the GFD's current stations as benchmarked against the NFPA 1710 standard, the ISO standard for engine company and ladder company placement, and how the response coverage changes with some stations relocated.

30. NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Departments*, 2020 Edition.
31. Insurance Services Office, ISO Mitigation, Deployment Analysis.

Figure 24: Current Stations: 240 Second Travel Time Bleeds (NFPA 1710 Benchmark)



In analysis of the NFPA 1710, 240 second benchmark, there are gaps across the city as noted in the above map. When comparing the 240 second travel time benchmark to where the higher demands areas are (Fire and EMS demand maps), there are high demand areas that are outside of the 240 second benchmark.

Response travel times are hampered by many things that include: speed limit of roads traveled to the incident; road layout of a community; weather; road construction; at grade rail crossings; time of day traffic congestion to name the most notable impediments.

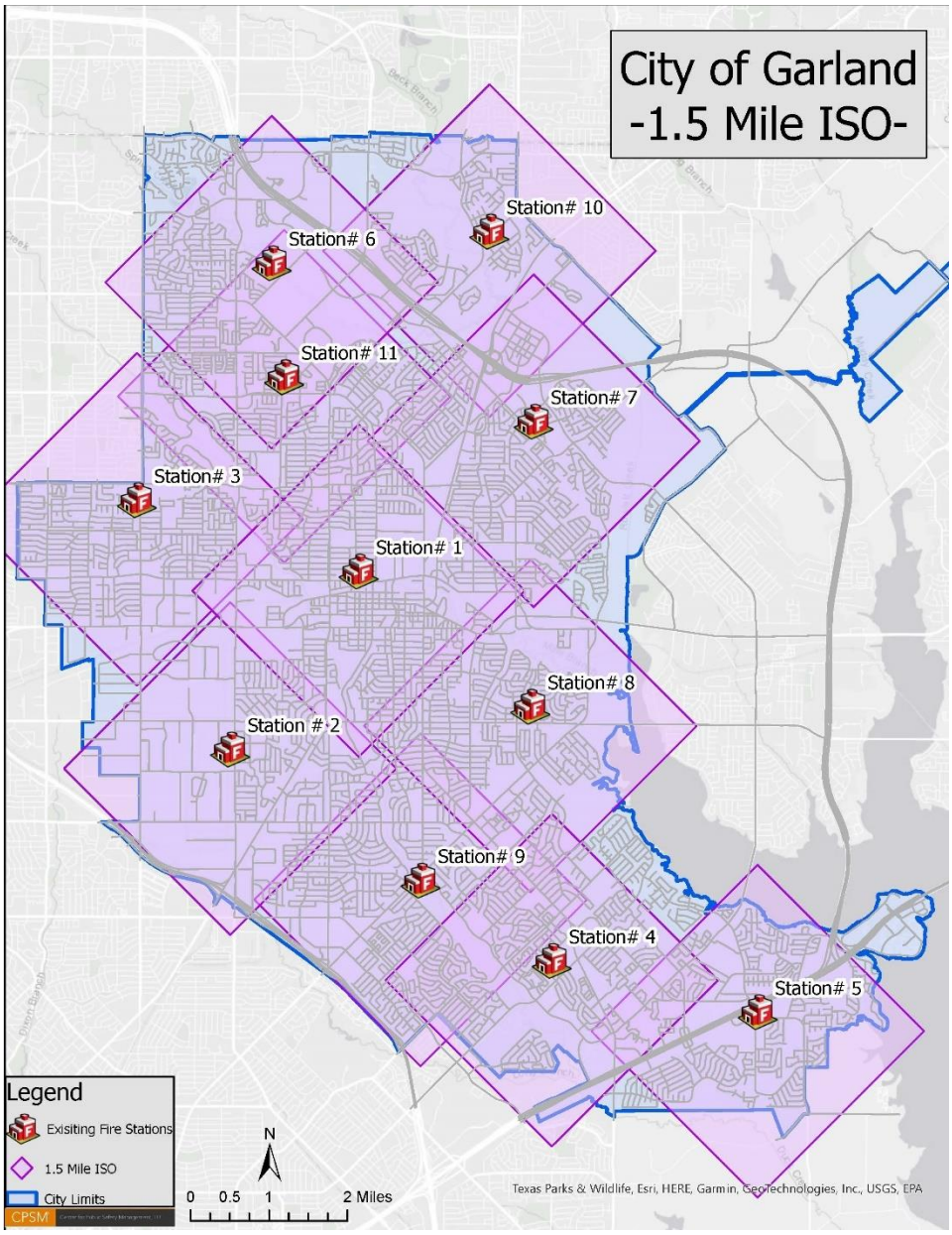
The next tables outline the GFD's response times as analyzed during the CPSM data analysis study period April 1, 2021-March 31, 2022.

Table 25: Average and 90th Percentile Response Time of First Arriving Unit, by Call Type (Minutes)

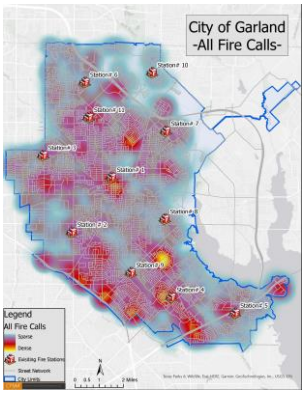
Call Type	Average Response Time				90th Percentile Response Time			
	Dispatch	Turnout	Travel	Total	Dispatch	Turnout	Travel	Total
Breathing difficulty	1.1	1.2	3.5	5.9	2.0	2.2	5.1	8.0
Cardiac and stroke	1.1	1.2	3.5	5.8	2.0	2.1	5.1	7.8
Fall and injury	1.0	1.2	4.1	6.4	2.1	2.1	6.1	8.8
Illness and other	1.2	1.3	4.1	6.6	2.4	2.2	6.0	9.1
MVA	0.9	1.3	3.9	6.2	2.0	2.2	6.8	9.8
OD	1.1	1.3	3.6	6.0	2.2	2.2	5.1	8.2
Seizure and UNC	1.0	1.2	3.5	5.7	1.9	2.1	5.0	7.6
EMS Total	**1.1**	**1.3**	**3.8**	**6.2**	**2.1**	**2.2**	**5.6**	**8.5**
False alarm	1.3	1.7	4.0	7.0	2.4	2.6	6.1	9.6
Good intent	1.3	1.4	3.8	6.6	2.5	2.3	6.1	9.5
Hazard	1.3	1.5	4.0	6.8	2.4	2.5	6.2	9.6
Outside fire	0.9	1.7	4.0	6.6	1.8	2.4	6.5	9.9
Public service	1.2	1.6	4.7	7.4	2.3	2.5	7.6	10.7
Structure fire	1.1	1.2	3.3	5.6	2.2	2.2	4.6	7.6
Technical rescue	1.4	1.3	4.5	7.2	2.7	2.1	7.4	10.3
Fire Total	**1.2**	**1.6**	**4.3**	**7.1**	**2.3**	**2.5**	**6.8**	**10.2**
Total	**1.1**	**1.3**	**4.0**	**6.4**	**2.2**	**2.3**	**6.0**	**9.0**

- Travel times at the 90th percentile for structure fires is just slightly above the NFPA 1710 benchmark of four minutes (≤ 240 seconds for the first arriving engine company to a fire suppression incident 90 percent of the time).
- Aggregate travel times at the 90th percentile for EMS calls is above the NFPA 1710 benchmark of four minutes when measured against a fire suppression unit only (≤ 240 seconds for the first arriving engine company to an EMS incident with automated external defibrillator (AED) or higher level capability). When measured against the NFPA 1710 benchmark for the arrival of an Advanced Life Support unit, (fire suppression units and ambulances in Garland) (≤ 480 seconds or less travel time of an Advanced Life Support (ALS) unit at an EMS incident where the service is provided by the fire department provided a first responder with an AED or basic life support unit arrived in 240 seconds or less travel time), the GFD exceeds the standard.
- In both EMS and Fire responses, the GFD exceeds turnout time when benchmarked against the NFPA 1710 standard. ***This should be addressed by the Assistant Chief of Operations.***

Figure 25: Current Stations: 1.5 Mile Engine Company Locations
(ISO-PPC Benchmark)

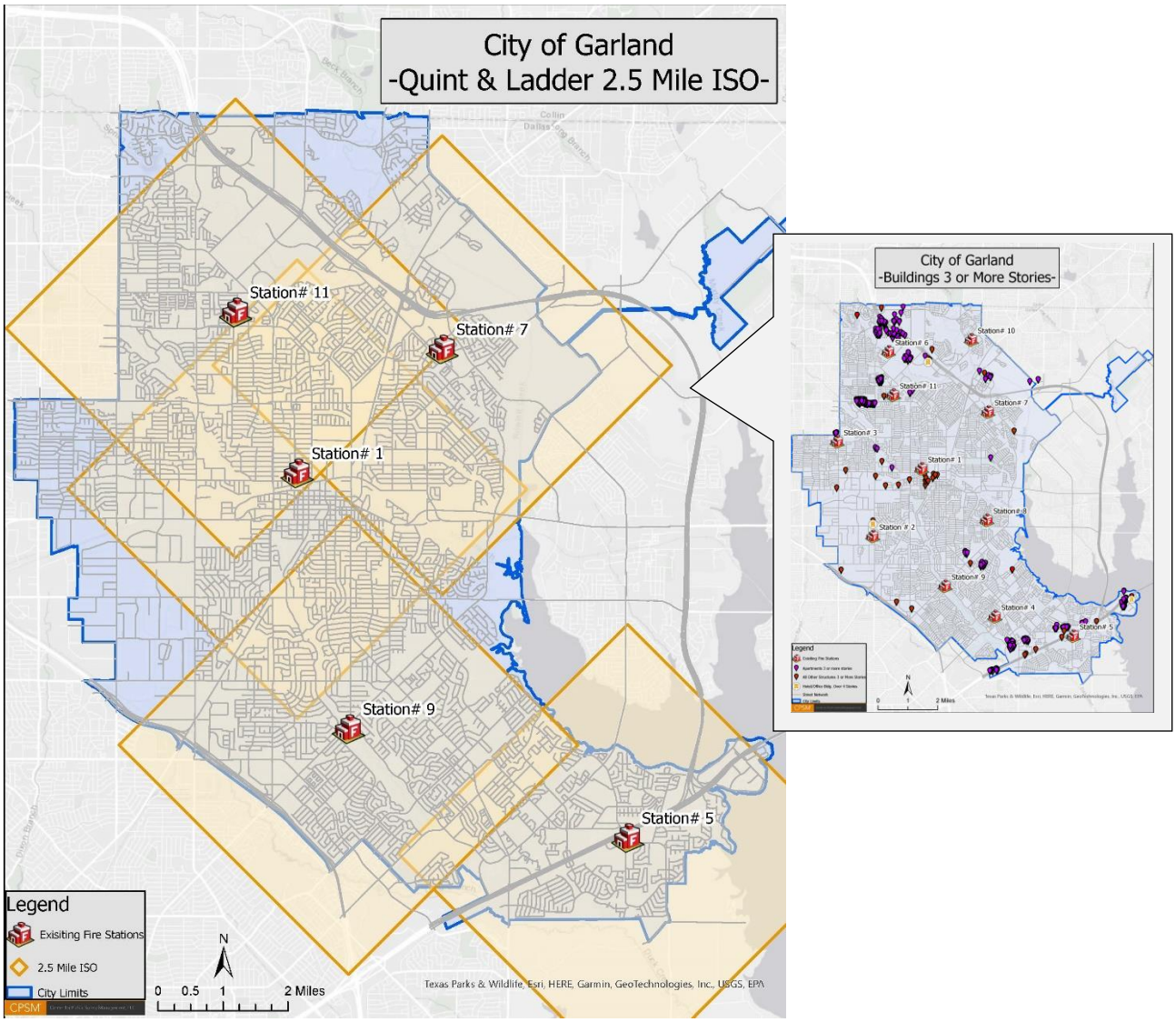


Fire Demand



In analysis of the ISO-PPC 1.5 mile engine company placement, the city has excellent coverage with this resource. This is noted as well in the current ISO-PPC report where the GFD earned 6.00/6.00 credits for engine companies and 3.00/3.00 for pump capacity as it relates to the needed fire flow for the city. There is some overlapping coverage, however this occurs in the engine company placement more commonly than ladder company placement, as engine companies are the primary response resource of fire departments, and it takes multiple engine companies to achieve the needed fire flow in a community, which in the case of Garland, is 3,500 gallons per minute.

Figure 26: Current Stations: 2.5 Mile Ladder Company Locations
(ISO-PPC Benchmark)



In analysis of the ISO-PPC 2.5 mile ladder company placement, the city has overlapping coverage with minimal gaps overall regarding this resource. This resource is also graded on the number of response areas within the city with five buildings that are three or more stories (or 35 or more feet in height), or with five buildings that have a needed fire flow greater than 3,500 gallons per minute, or a combination of these two criterion. Generally, and from a first due ladder perspective, these are covered.

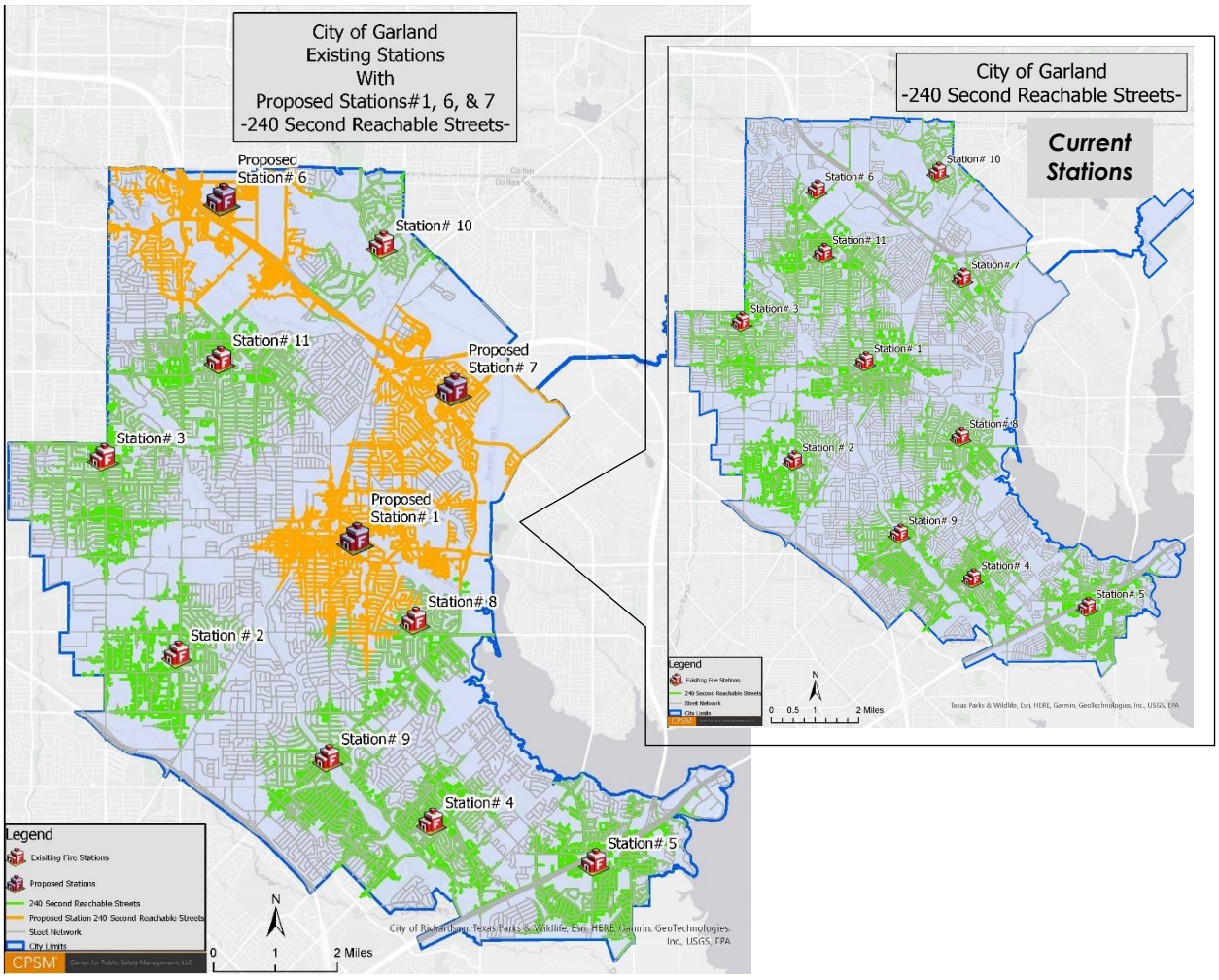
From the perspective of additional ladder service needed in these response areas, the distance is greater than 2.5 miles. Additionally, the current GFD ladders are Quint apparatus, and also serve as engine apparatus with the same crew. Therefore, the city does not get full credit for these apparatus as a ladder apparatus. The is noted in the current ISO-PPC report where the GFD earned 1.95/4.00 credits for ladder/truck companies.

Understanding the NFPA 1710, 240 second travel time gaps, and ISO-PPC ladder company deficiencies, the city and the GFD are working on a station relocation plan that moves the following stations:

- Station 1: Move approximately .5 miles east to an area in the city known as the triangle. The property has been acquired and a land use study is underway with programming scheduled as the next step.
- Station 6: Move to Northbound President George Bush Tollway and Campbell Road (northeast corner). The land has been acquired and station and design and construction documents have been completed. When completed this be a 12,000 square foot, three bay station.
- Station 7: Move to Pleasant Valley Drive and Firewheel Parkway. Programming and design review are in the early stages as of the completion of this report.

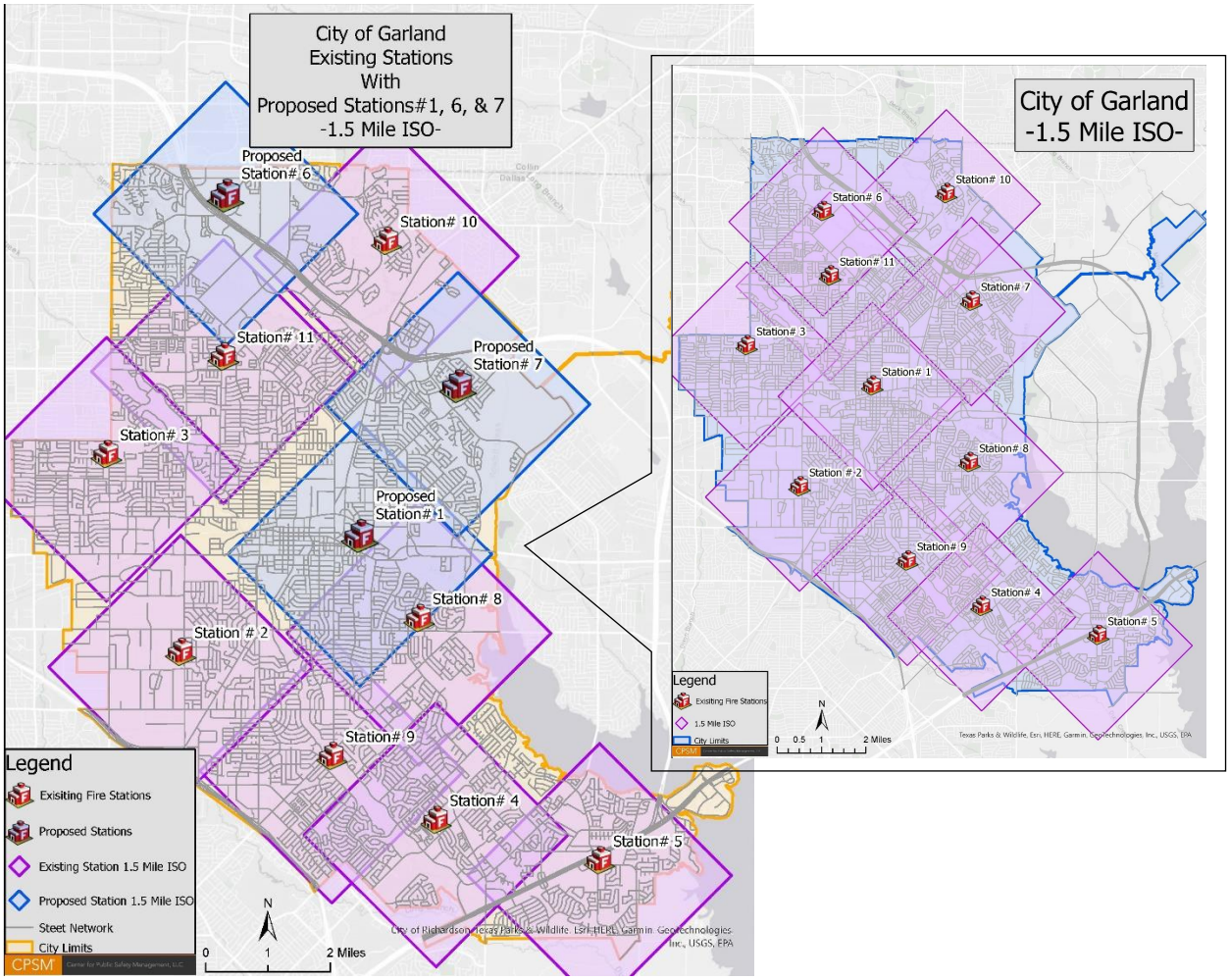
The next set of figures illustrates impacts (pro and con) these new station locations will have on the NFPA 240 second travel time and the ISO-PPC 1.5 mile engine location benchmarks.

Figure 27: 240 Second Travel Time Bleeds (NFPA 1710 Benchmark)
Current and Re-Located Stations 1, 6, 7



In analysis of the proposed station map above, the northwest area of the city gains considerable coverage at the 240 second benchmark. Additionally, south, and east of Station 1 has improvement when measured against the benchmark, as well as north, east, and south of Station 7. There is a new gap created northwest and southwest of the new Station 1.

Figure 28: 1.5 Mile Engine Company Locations (ISO-PPC Benchmark) Current and Re-Located Stations



In analysis of the proposed station map above, the northwest area of the city gains some coverage at the ISO-PPC 1.5 mile benchmark, there is also some loss in this same area of the city. The gain and loss here is somewhat equal, however. Additionally, the movement of Station 7 reduces overlap of the 1.5 mile benchmark in the north central area of the city. There is a new gap created northwest, west, and southwest as a result of moving Station 1.

When siting new stations or moving current stations, the Garland Fire Department should include in any strategic master planning the GFD conducts over the near, mid, and long terms the ISO-PPC engine and ladder company benchmarks for service to built-upon land, and the NFPA 1710 travel time benchmarks for first and second arriving fire suppression and EMS unit (240 seconds and 360 seconds respectively), as well as the NFPA 1710 standard for assembling an Effective Response Force in 480 seconds for building fires other than high-rise responses, and 610 seconds for high rise responses.

Staffing and Deploying Fire and EMS Resources

When exploring staffing and deployment of fire departments it is prudent to design an operational strategy around the actual circumstances that exist in the community and the fire and risk problems that are identified. The strategic and tactical challenges presented by the varied hazards that a department protects against need to be identified and planned for through a community risk analysis planning and management process as completed in this report.

Effectively managing a fire department requires an understanding of and an ability to demonstrate how changes to resources will affect community outcomes. It is imperative that fire department leaders, as well as policy makers, know how fire department resource deployment in their local community affects community outcomes in three important areas: firefighter injury and death; civilian injury and death; and property loss. If fire department resources (both mobile and personnel) are deployed to match the risk levels inherent to hazards in the community, it has been scientifically demonstrated that the community will be far less vulnerable to negative outcomes in all three areas.[32]

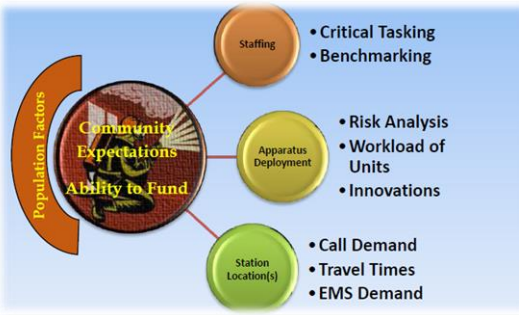
Even with a thorough risk evaluation, staffing fire and EMS companies continues to remain a hotly debated topic among firefighters and governmental leadership since risk assessment models include high risk / low frequency situations. While there are situations that may be low frequency, they can and do occur and thus require operational readiness to mitigate.

While NFPA 1710 and OSHA provide guidelines as to the level of staffing and response of personnel, the acceptance of these guidelines varies from state to state and department to department. NFPA 1710 addresses recommended staffing in terms of four types of occupancies. The needed staffing to accomplish the critical tasks for each specific occupancy are determined to be the *Effective Response Force* (ERF). The ERF for each of these occupancies is detailed in NFPA 1710 (2020 edition), Section 5.2.4, Deployment. An additional standard, the GFD follows originates with the Texas Commission on Fire Protection standards. This standard is specific to operating in immediately dangerous to life or health (IDLH) environments, where there is a requirement of two firefighters outside of the building or entry point to the IDLH, while there are two firefighters operating inside the building or other vessel that has an IDLH.

One of the factors that has helped the fire service in terms of staffing is technology. The fire service continues to incorporate technological advances that help firefighters extinguish fires more effectively. More advanced equipment in terms of nozzles, thermal imaging systems, advancements in self-contained breathing apparatus, incident command strategies, compressed air foam, and devices used to track personnel air supply are some of the advancements of technologies and techniques that help firefighters extinguish fires faster and manage the fireground more effectively. While some of these technologies do not reduce the staffing required, they can have an impact on workload, property loss, and crew fatigue.

§ § §

32. Fire Service Deployment, Assessing Community Vulnerability, Metropolitan Chiefs, 2011.



Staffing and deployment of fire services are not exact sciences. While there are many benchmarks that communities and management utilize in justifying certain staffing levels, there are certain considerations that are data driven and reached through national consensus that serve this purpose as well. CPSM has developed metrics it follows and recommends that communities consider when making recommendations regarding staffing and deployment of fire resources.

In addition to metrics, staffing is also linked to station location, what type of apparatus is responding, whether engine, ladder, or specialty piece such as a rescue company. These combined factors help to determine what level of fire and EMS service is going to be delivered in terms of manpower, response time, and resources. Linked to these components of staffing and deployment are 11 critical factors that drive various levels and models from which fire and EMS departments staff and deploy. These factors are:

Fire Risk and Vulnerability of the Community: The community risk and vulnerability assessment are used to evaluate the community. With regard to individual property, the assessment is used to measure all property and the risk associated with that property and then segregate the property as either a high-, medium-, or low-hazard depending on factors such as the life and building content hazard and the potential fire flow and the staffing and apparatus types required to mitigate an emergency in the specific property. Factors such as fire protection systems are considered in each building evaluation. Included in this assessment should be both a structural and nonstructural (weather, wildland-urban interface, transportation routes, etc.) analysis.

Population, Demographics, and Socioeconomics of a Community: Population and population density drive calls for local government service, particularly public safety. The risk from fire is not the same for everyone, with studies telling us age, gender, race, economic factors, and what region in the country one might live all contribute to the risk of death from fire. Studies also tell us these same factors affect demand for EMS, particularly population increase and the use of hospital emergency departments. Many uninsured or underinsured patients rely on emergency departments for their primary and emergent care, utilizing a pre-hospital EMS transport system as their entry point.

Call Demand: Demand is made up of the types of calls to which units are responding and the location of the calls. This drives workload and station staffing considerations. *Higher population centers with increased demand require greater resources.*

Workload of Units: The types of calls to which units are responding and the workload of each unit in the deployment model. This tells us what resources are needed and where; it links to demand and station location, or in a dynamic deployed system, the area(s) in which to post units.

Travel Times from Fire Stations: Looks at the ability to cover the response area in a reasonable and acceptable travel time when measured against national benchmarks. Links to demand and risk assessment.

NFPA Standards, ISO, OSHA Requirements (and other national benchmarking). CPSM considers national benchmarks, standards, and applicable laws when making recommendations or alternatives regarding the staffing and deployment of fire and EMS resources.

EMS Demand: Community demand; demand on available units and crews; demand on non-EMS units responding to calls for service (fire/police units); availability of crews in departments that utilize cross-trained EMS staff to perform fire suppression.

Critical Tasking: The ability of a fire and EMS department to collect an effective response force as benchmarked against national standards when confronted with the need to perform required critical tasks on a fire or EMS incident scene defines its capability to provide adequate resources to mitigate each event. Department-developed and measured against national benchmarks. Links to risk and vulnerability analysis.

Innovations in Staffing and Deployable Apparatus: The fire department's ability and willingness to develop and deploy innovative apparatus. Compressed air foam systems, deploying quick response vehicles (light vehicles equipped with medical equipment and some light fire suppression capabilities) on those calls (typically the largest percentage) that do not require heavy fire apparatus.

Community Expectations: Measuring, understanding, and meeting community expectations.

Ability to Fund: The community's ability and willingness to fund all local government services and understanding how the revenues are divided up to meet the community's expectations.

While each component presents its own metrics of data, consensus opinion, and/or discussion points, aggregately they form the foundation for informed decision making geared toward the implementation of sustainable, data- and theory-supported, effective fire and EMS staffing and deployment models that fit the community's profile, risk, and expectations.

Deployable Resources

The GFD service area has a mix of industrial, commercial, public assembly, professional office buildings, multifamily and single-family residential structures (multi-story with varying densification), mixed use, and healthcare facilities. The service area has a diverse mix of buildings ranging from new to older construction with single and/or mixed occupancy types with multiple stories and access issues. There are also urban and suburban areas of the city that are built upon.

As discussed, the GFD responds with fire suppression apparatus with crews from eleven fire station locations deploying fire, rescue, and EMS ground transport units. The GFD also utilizes automatic aid from contiguous jurisdictions to assist in strategic areas of the city and to augment the assembling of an Effective Response Force. The GFD primary deployable resources include:

Engine Companies, which are primarily designed for firefighting operations, the transport of crew members, hose (fire attack and larger supply), tank water, ground ladders, self-contained breathing apparatus, and storage of an assortment of hand tools used for a broad spectrum of fire operational tasks. As engines are often utilized as first response units on EMS calls, they also carry an assortment of EMS gear to treat patients and provide life-saving measures prior to the arrival of EMS transport units. The GFD engines are set up for this as well and are staffed with advanced emergency medical technicians. Staffing complements for engine apparatus are discussed below. GFD currently responds to emergencies with an inventory of seven frontline engines.

Ladder Company, which is also primarily designed for firefighting operations but differs from engines in that it also has a hydraulically operated aerial device designed to reach above grade floors to transport crew members, effect rescues, and provide an elevated water stream. Ladder trucks also transport crew members, ground ladders, self-contained breathing

apparatus, various forcible entry tools, ventilation equipment, and hydraulic rescue tools as well as other equipment to deal with an assortment of fires and technical rescues. The GFD currently responds to emergencies with an inventory of five frontline ladder trucks that are Quint apparatus (described next). When needed, these units respond with a crew capable of performing ladder company functions such as ventilation, utility control, above-grade firefighting tasks, and elevated master stream application.

Quint Companies, which is primarily designed for firefighting operations to offer both engine and ladder operations. A quint includes a hydraulically operated aerial ladder, fire pump, water tank, fire hose, and ground ladders. Quint apparatus transport crew members, a broad spectrum of engine company tools and equipment as well as ground ladders, self-contained breathing apparatus, various forcible entry tools, ventilation equipment, and hydraulic rescue tools, and other equipment to deal with an assortment of fires and technical rescues. As Quints are typically the single piece of fire apparatus assigned to a station they are often utilized as first response units on EMS calls, so they carry an assortment of EMS gear to treat patients and provide life-saving measures prior to the arrival of EMS transport units. The GFD currently responds to emergencies with an inventory of four Quint apparatus. When needed, and based on current staffing levels, (three Quint apparatus have a minimum staffing of 3; two Quint apparatus have a minimum staffing of 4), the Quints may only be capable of performing either engine or ladder company functions.

EMS Ground Transport Units, which are primarily designed to respond to EMS calls for service with crew members and provide on-scene treatment and then transport while continuing care to the hospital emergency department. Equipment includes both basic and advanced life support targeted at timely intervention and patient stabilization. The GFD currently responds to emergencies with an inventory of eleven staffed ambulances. All are staffed with paramedics.

Rescue Company, which is primarily designed for firefighting and rescue operations and transports crew members, self-contained breathing apparatus, various hand and forcible entry tools, ventilation equipment, hydraulic rescue tools as well as other specialty equipment such as rope and rope equipment, vehicle stabilization devices, various mechanical cutting and burning tools, water rescue, and other specialty tools and equipment to deal with an assortment of fire and technical rescue incidents. The GFD currently responds to emergencies with an inventory of one heavy rescue truck (cross staffed). When needed, the unit is cross-staffed and responds with a crew capable of performing ladder and engine company functions, as well as vehicle and technical rescue functions.

Command Vehicles, which are typically SUV-type vehicles with command centers built into the cargo compartment, are designed to carry a command level officer to the scene and equipped with radio and command boards as well scene personnel-tracking equipment and associated gear. The GFD has two operations command vehicles assigned to the shift Battalion Chiefs while on duty, and other command capable units assigned to the Fire Chief and Assistant Fire Chiefs. Operational Battalion Chiefs respond to fire and EMS incidents and establish command and control of the incident.

Fire, rescue, and emergency medical system (EMS) incidents, and the fire department's ability to respond to, manage, and mitigate, them effectively, efficiently, and safely, are mission-critical components of the emergency services delivery system. In fact, fire, rescue, and EMS operations provide the primary, and certainly most important, basis for the very existence of the fire department.

The next table outlines the GFD's staffing matrix.

Table 26: GFD Minimum Staffing Matrix

Station	Apparatus	Minimum Staffing
Station 1	Engine 1, Truck 1(**Quint**) (Cross staffed) Ambulance 1 Battalion 1 EMS Captain/Supervisor	**4** 2 2 1
Station 2	Engine 2 Ambulance 2 Blocker 2	3 2 Cross-staffed
Station 3	Engine 3 Ambulance 3	3 2
Station 4	Engine 4 Ambulance 4	3 2
Station 5	Truck 5 (**Quint**) Ambulance 5 Blocker 5	**4** 2 Cross-staffed
Station 6	Engine 6 Ambulance 6	3 2
Station 7	Truck 7 (**Quint**) Ambulance 7	3 2
Station 8	Engine 8 Ambulance 8	3 2
Station 9	Truck 9 (**Quint**) Ambulance 9 Battalion 2	3 2 1
Station 10	Engine 10 Ambulance 10	3 2
Station 11	Truck 9 (**Quint**) Ambulance 9	3 2

Effective Response Force and Critical Tasking

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*, 2020 edition, outlines organization and deployment of operations by career, and primarily career fire and rescue organizations. It serves as a benchmark to measure staffing and deployment of resources to certain structures and emergencies. Questions of legal responsibilities are often discussed in terms of compliance with NFPA standards. NFPA standards are consensus standards and not the law. Many cities and counties strive to achieve

these standards to the extent possible without an adverse financial impact on the community. Cities and communities must decide on the level of service and compliance they can deliver based on budgetary constraints and operational capabilities.

NFPA 1710 details staffing levels for fire departments in terms of fire, EMS, and special operation incidents. According to NFPA 1710, fire departments should base their capabilities on a formal community risk assessment, as discussed in this report, and taking into consideration:[33]

- Life hazard to the population protected.
- Provisions for safe and effective firefighting performance conditions for the firefighters.
- Potential property loss.
- Nature, configuration, hazards, and internal protection of the properties involved.
- Types of fireground tactics and evolutions employed as standard procedure, type of apparatus used, and results expected to be obtained at the fire scene.

NFPA 1710 addresses standards for an *Effective Response Force* across several types of occupancies. An effective response force (ERF) is defined as the minimum number of firefighters and equipment that must reach a specific emergency incident location within a maximum prescribed travel [driving] time. The maximum prescribed travel time acts as one indicator of resource deployment efficiency.

NFPA 1710 provides a staffing deployment model and critical tasking guidelines for four specific occupancies. These occupancies are:

- Single-Family Dwelling.
- Open-Air Strip Mall/Commercial Building.
- Garden Style Apartment.
- High Rise.

The Center for Public Safety Excellence (CPSE) has also established benchmarks regarding staffing and deployment. CPSE sets standards for agencies desiring accreditation through the Commission on Fire Accreditation International (CFAI). CFAI uses standards set forth in the *Quality Improvement for the Fire and Emergency Services* manual, to provide guidance in staffing and deployment to agencies desiring accreditation through Core Competencies.

Fire Critical Tasking

Both CPSE and the NFPA have defined *critical tasking*. CPSE defines critical tasking as the application of tasks assigned to the human and physical resources that are minimally required to effectively mitigate pain, suffering, and loss of life and/or property. Critical tasking is relevant to risk classifications and risk categories.[34]

33. NFPA 1710, 5.2.1.1, 5.2.2.2
34. Center for Public Safety Excellence, Quality Improvement for the Fire and Emergency Services, 2020

FACT SHEET

KEY REQUIREMENTS FOR EMERGENCY SERVICES IN NFPA 1710

The minimum requirements for provision of emergency services by career fire departments can be found in 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.*

NFPA 1710 addresses the structure and operation of organizations providing such services, which include fire suppression and other assigned emergency response responsibilities such as EMS and special operations.

The requirements intend to provide effective, efficient, and safe protective services to help prevent fires, reduce risk to lives and property, deal with incidents that occur, and help prepare for anticipated incidents.

The requirements are listed in NFPA 1710 for fire department service deployment based on the type of occupancy, along with the appropriate response staffing levels for each. The minimum staffing level for each occupancy is listed below. For the full breakdown of staffing requirements by position, refer to the subsections specific to each occupancy in 5.2.4.

KEY REQUIREMENTS

Occupancy Type: Single-Family Dwelling
Deployment: Minimum of 16 members or 17 if aerial device is used

The initial full alarm assignment to a structure fire in a typical 2000 ft² (186 m²), two-story, single-family dwelling without a basement and with no exposures must provide for a minimum of 16 members (17 if an aerial device is used).

Occupancy Type: Garden-Style Apartment
Deployment: Minimum of 27 members or 28 if aerial device is used

The initial full alarm assignment to a structure fire in a typical 1200 ft² (111 m²) apartment within a three-story, garden-style apartment building must provide for a minimum of 27 members (28 if an aerial device is used).

Occupancy Type: Open-Air Strip Mall
Deployment: Minimum of 27 members or 28 if aerial device is used

The initial full alarm assignment to a structure fire in a typical open-air strip shopping center ranging from 13,000 ft² to 196,000 ft² (1203 m² to 18,209 m²) in size must provide for a minimum of 27 members (28 if an aerial device is used).

Occupancy Type: High-Rise
Deployment: Minimum of 42 members or 43 if building is equipped with fire pump

The initial full alarm assignment to a fire in a building with the highest floor greater than 75 ft (23 m) above the lowest level of fire department vehicle access must provide for a minimum of 42 members (43 if the building is equipped with a fire pump).

Critical tasks as defined by NFPA 1710 are those activities that must be conducted on time by responders at emergency incidents to control the situation and stop loss. Critical tasking for fire operations is the minimum number of personnel needed to perform the tasks needed to effectively control and mitigate a fire or other emergency. To be effective, critical tasking must assign enough personnel so that all identified functions can be performed simultaneously. However, it is important to note that initial response personnel may manage secondary support functions once they have completed their primary assignment. Thus, while an incident may end up requiring a greater commitment of resources or a specialized response, a properly executed critical tasking assignment will provide adequate resources to immediately begin bringing the incident under control.

There are 93 Core Competencies required for a department to achieve accreditation status as defined by CPSE. Competency 2C.4 is under the heading of Current Deployment and Performance and addresses critical tasking.

Criterion 2C: Current Deployment and Performance

The agency identifies and documents the nature and magnitude of the service and deployment demands within its jurisdiction. Based on risk categorization and service impact considerations, the agency's deployment practices are consistent with jurisdictional expectations and with industry research. Efficiency and effectiveness are documented through quality response measurements that consider overall response, consistency, reliability, resiliency, and outcomes throughout all service areas. The agency develops procedures, practices, and programs to appropriately guide its resource deployment.[35]

Core Competency 2C.4

A critical task analysis of each category and risk class is conducted to determine the first due and effective response force capabilities, and a process is in place to validate and document the results. Core competency 2C.4 requires that the agency conduct a critical task analysis of each risk category and risk class to determine the first-due and effective response force capabilities, and to have a process in place to validate and document the results. The process considers the number of personnel needed to perform the necessary emergency scene operations. Completion of the process also helps to identify any gaps in the agency's emergency scene practices.

35. Center for Public Safety Excellence, Quality Improvement for the Fire and Emergency Services, 2020

The specific number of people required to perform all the critical tasks associated with an identified risk or incident type is referred to as an Effective Response Force (ERF). The goal is to deliver an ERF within a prescribed period.

The GFD has a response matrix for structure fires that includes:

Structural Fire-Residential

- Battalion Chief: 1
- EMS Supervisor: 1
- Engines: 2
- Trucks: 2
- Ambulances: 2

Structural Fire: Commercial/Multifamily

- Battalion Chief: 2
- EMS Supervisor: 1
- Engines: 3
- Trucks: 2
- Ambulances: 2

The GFD has a response matrix for EMS incidents that includes:

Low Acuity EMS Call

- Ambulance: 1 with 2 firefighters (2 PMs)

High Acuity EMS Call

- Ambulance: 1 with 2 firefighters (2 PMs)
  Engine or Truck: 1 with 3 or 4 staff

Building the Effective Response Force

The following discussion and tables will outline how critical tasking and assembling an effective response force is measured, first using the NFPA 1710 criterion, and then how the GFD is benchmarked against this standard for the building types existing in Garland. This discussion will cover single-family dwelling buildings, open-air strip mall buildings, apartment buildings, and high-rise buildings as outlined in the NFPA standard.

In addition to the staffing criterion for the various building types, the NFPA 1710 also has travel/response time criterion to assemble an Effective Response Force as discussed earlier:

- ≤ 480 seconds to assemble the initial first alarm assignment on scene 90 percent of the time for low/medium hazard.

The travel/response time criterion is not discussed here. *CPSM does recommend that the GFD examine each fire district individually to evaluate how the department benchmarks against this criterion.*

Single-Family Dwelling: NFPA 1710, 5.2.4.1

The initial full alarm assignment (ERF) to a structural fire in a typical 2,000 square-foot, two-story, single-family dwelling without a basement and with no exposures must provide for a minimum of 16 members (17 if an aerial device is used). The next table outlines the critical task matrix. Single family dwellings represent the majority of building risk in Garland.

Table 27: Effective Response Force for Single-Family Dwelling Building

Critical Tasks	Personnel
Incident Command	1
Continuous Water Supply	1
Fire Attack via Two Handlines	4
Hydrant Hook Up - Forcible Entry - Utilities	2
Primary Search and Rescue	2
Ground Ladders and Ventilation	2
Aerial Operator if Aerial is Used	1
Establishment of IRIC (Initial Rapid Intervention Crew)	4
Total Effective Response Force	**16 (17 If aerial is used)**

Note: Single-family dwellings in Garland greater than 2,000 square feet with a basement should be considered a more moderate risk, particularly if built with lightweight wood-frame construction.

The next table outlines how the GFD assembles staffing and deployable resources as measured against NFPA 1710 benchmarking for an effective response force for a single-family dwelling fire.

Table 28: GFD Effective Response Force for Single-Family Dwelling Building

Apparatus	Personnel
GFD Battalion Chief	1-2
GFD EMS Supervisor	1
GFD Engine	3
GFD Engine	3-4*
GFD Truck	3
GFD Truck	3-4*
GFD Ambulance	2
GFD Ambulance	2
Total GFD Effective Response Force	**18-21**

*Engine/Truck 1 is staffed with 4; Truck 5 is staffed with 4; Battalion 1 is staffed with 2

As a single responding agency, the GFD meets the minimum benchmarks of NFPA 1710 for an effective response force for a single-family dwelling fire. NFPA 1710 permits fire departments to use established automatic/mutual aid agreements to comply with section 5.2 of this standard.

Open-Air Strip Mall/Commercial Building, NFPA 5.4.2

The initial full alarm assignment (ERF) to a structural fire in a typical open-air strip center/commercial building ranging from 13,000 square feet to 196,000 square feet in size must provide for a minimum of 27 members (28 if an aerial device is used). The following table outlines the critical tasking matrix for these building types.

§§§

Table 29: Effective Response Force for Open-Air Strip Mall/Commercial Building

Critical Tasks	Personnel
Incident Command	2
Continuous Water Supply	2
Fire Attack via Two Handlines	6
Hydrant Hook Up - Forcible Entry - Utilities	3
Primary Search and Rescue	4
Ground Ladders and Ventilation	4
Aerial Operator if Aerial is Used	1
Establishment of IRIC (Initial Rapid Intervention Crew)	4
Medical Care Team	2
Total Effective Response Force	**27 (28 If aerial is used)**

The next table outlines how the GFD assembles staffing and deployable resources as measured against NFPA 1710 benchmarking for an effective response force for an open-air strip mall and commercial building fires.

Table 30: GFD Effective Response Force for Open-Air Strip Mall/Commercial Building

Apparatus	Personnel
GFD Battalion Chief	1
GFD Battalion Chief	2
GFD EMS Supervisor	1
GFD Engine	3
GFD Engine	3
GFD Engine	3-4*
GFD Truck	3
GFD Truck	3-4*
GFD Ambulance	2
GFD Ambulance	2
Total GFD Effective Response Force	**23-26**

*Engine/Truck 1 is staffed with 4; Truck 5 is staffed with 4; Battalion 1 is staffed with 2

The GFD does not meet the minimum benchmarks of NFPA 1710 for an effective response force for an open-air strip mall/commercial building, however the GFD response is comparable dependent on the building and the critical tasks assignments on the initial alarm. NFPA 1710 permits fire departments to use established automatic aid and mutual aid agreements to comply with section 5.2 of this standard.

Apartment Building, NFPA 1710, 5.2.4.3

The initial full alarm assignment (ERF) to a structural fire in a typical 1,200 square-foot apartment within a three-story, garden-style apartment building must provide for a minimum effective response force (ERF) of 27 members (28 if an aerial device is used).

The next table outlines the critical tasking matrix for this type of building fire.

Table 31: Effective Response Force for Apartment Building

Critical Tasks	Personnel
Incident Command	2
Continuous Water Supply	2
Fire Attack via Two Handlines	6
Hydrant Hook Up - Forcible Entry - Utilities	3
Primary Search and Rescue	4
Ground Ladders and Ventilation	4
Aerial Operator if Aerial is Used	1
Establishment of IRIC (Initial Rapid Intervention Crew	4
Medical Care Team	2
Total Effective Response Force	**27 (28 If aerial is used)**

The next table outlines how the GFD assembles staffing and deployable resources as measured against NFPA 1710 benchmarking for an effective response force for an apartment building or other multi-unit housing type building fire.

Table 32: GFD Effective Response Force for Apartment Building Fire

Apparatus	Personnel
GFD Battalion Chief	1
GFD Battalion Chief	2
GFD EMS Supervisor	1
GFD Engine	3
GFD Engine	3
GFD Engine	3-4*
GFD Truck	3
GFD Truck	3-4*
GFD Ambulance	2
GFD Ambulance	2
Total GFD Effective Response Force	**23-26**

As a single responding agency, the GFD does not meet the minimum benchmarks of NFPA 1710 for an Effective Response Force for an apartment building fire, however the GFD response is comparable dependent on the building and the critical tasks assignments on the initial alarm. NFPA 1710 permits fire departments to use established automatic aid and mutual aid agreements to comply with section 5.2 of this standard.

§ § §

High Rise, NFPA 5.2.4.4

The initial full alarm assignment to a fire in a building where the highest floor is greater than 75 feet above the lowest level of fire department vehicle access must provide for a minimum of 42 members (43 if the building is equipped with a fire pump). The following table outlines the critical tasking matrix for this type of building fire.

Table 33: Effective Response Force for High-Rise Building

Critical Tasks	Personnel
Incident Command	2
Continuous Water Supply	1/1 1 FF for continuous water. If fire pump exists an additional 1 FF will be required for a total of 2
Fire Attack via Two Handlines	4
One Handline above the Fire Floor	2
Establishment of IRIC (Initial Rapid Intervention Crew	4
Primary Search and Rescue Teams	4
Entry Level Officer with Aide near entry point of Fire Floor	2
Entry Level Officer with Aide near the entry point above the Fire Floor	2
Two Evacuation Teams	4
Elevation Operations	1
Safety Officer	1
FF Two floors below Fire to coordinate Staging	1
Rehabilitation Management	2
Officer and FFs to Manage vertical Ventilation	4
Lobby Operations	1
Transportation of Equipment below Fire Floor	2
Officer to Management Base Operations	1
Two ALS Medical Care Team	4
Total Effective Response Force	42 (43) If building is Equipped with Pump

The following table outlines how the GFD assembles staffing and deployable resources as measured against NFPA 1710 benchmarking for an effective response force for a high-rise building.

§§§

Table 34: GFD Effective Response Force for High-Rise Building

Apparatus	Personnel
GFD Battalion Chief	1
GFD Battalion Chief	2
GFD EMS Supervisor	1
GFD Engine	3
GFD Engine	3
GFD Engine	3-4*
GFD Truck	3
GFD Truck	3-4*
GFD Ambulance	2
GFD Ambulance	2
Total GFD Effective Response Force	**23-26**

As a single responding agency, the GFD does not meet the minimum benchmarks of NFPA 1710 for an Effective Response Force for a high rise/high hazard building fire. NFPA 1710 permits fire departments to use established automatic aid and mutual aid agreements to comply with section 5.2 of this standard.

As already stated and relevant to assembling an Effective Response Force on building fires, the Garland Fire Department should include in any strategic master planning the GFD conducts over the near, mid, and long terms, planning objectives focused on increasing deployable assets (apparatus and staffing) to respond to high and medium risk target hazards that include high risk/vulnerable population risks (nursing/assisted living facilities), educational facilities, multifamily multi-story residential structures (apartments/condos), mercantile building risk, and large footprint commercial buildings while a lower life safety risk, is gernerally a higher hazard risk based on processes, storage, and overall occupancy type. This should include the addtion of staffed/separate ladder companies (4 staffing) in strategically located stations in the city. This can be in combination with increasing staffing on some Qunit appratus to four, so that the single response unit can achieve dual use (engine and ladder) more readily on intial arrival. This planning should also include staffing the heavy rescue unit at Station 1 with three intially, with a goal of staffing this unit with four over the longer term.

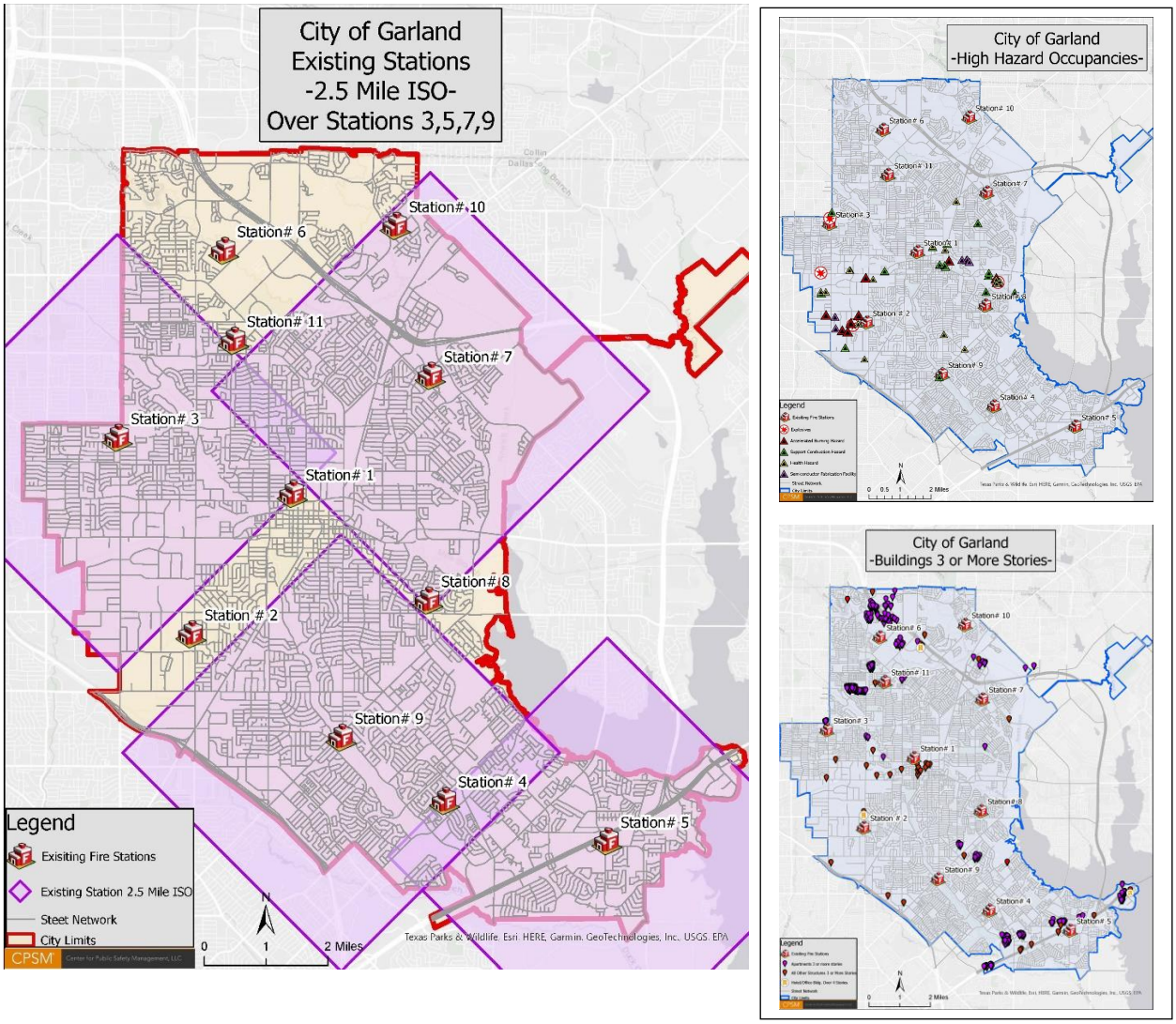
CPSM evaluated the GFD's current deployment of apparatus and staffing as it compares to national standards (NFPA 1710 and ISO-PPC). The GFD deploys four Quint apparatus as single housed units in four stations and cross-staffs one other with an engine crew. While Quint apparatus is efficient in that a department can deploy an aerial truck with a fire pump, water tank, and hose, unless this apparatus is staffed with a minimum of four or five, when it arrives first or even sometimes second on a building fire, the officer must make a choice as to what function the apparatus and crew will initially and sometimes continually operate as.

When a Quint apparatus is deployed with a staffing of three, a choice must be made as to what function (engine or ladder) this apparatus will function as. The driver/operator can effectively operate the fire pump or the aerial device but not both safely and effectively as they are separated by distance and apparatus location. The officer and jump seat firefighter deploy as a team of two to either engage engine company functions by stretching a hose line, or a truck company to complete ventilation, search and rescue, or other truck company critical tasking.

An additional firefighter (staffing of four) allows for a pump operator and aerial operator, and a team of two for assigned critical tasking either as an engine crew or truck crew.

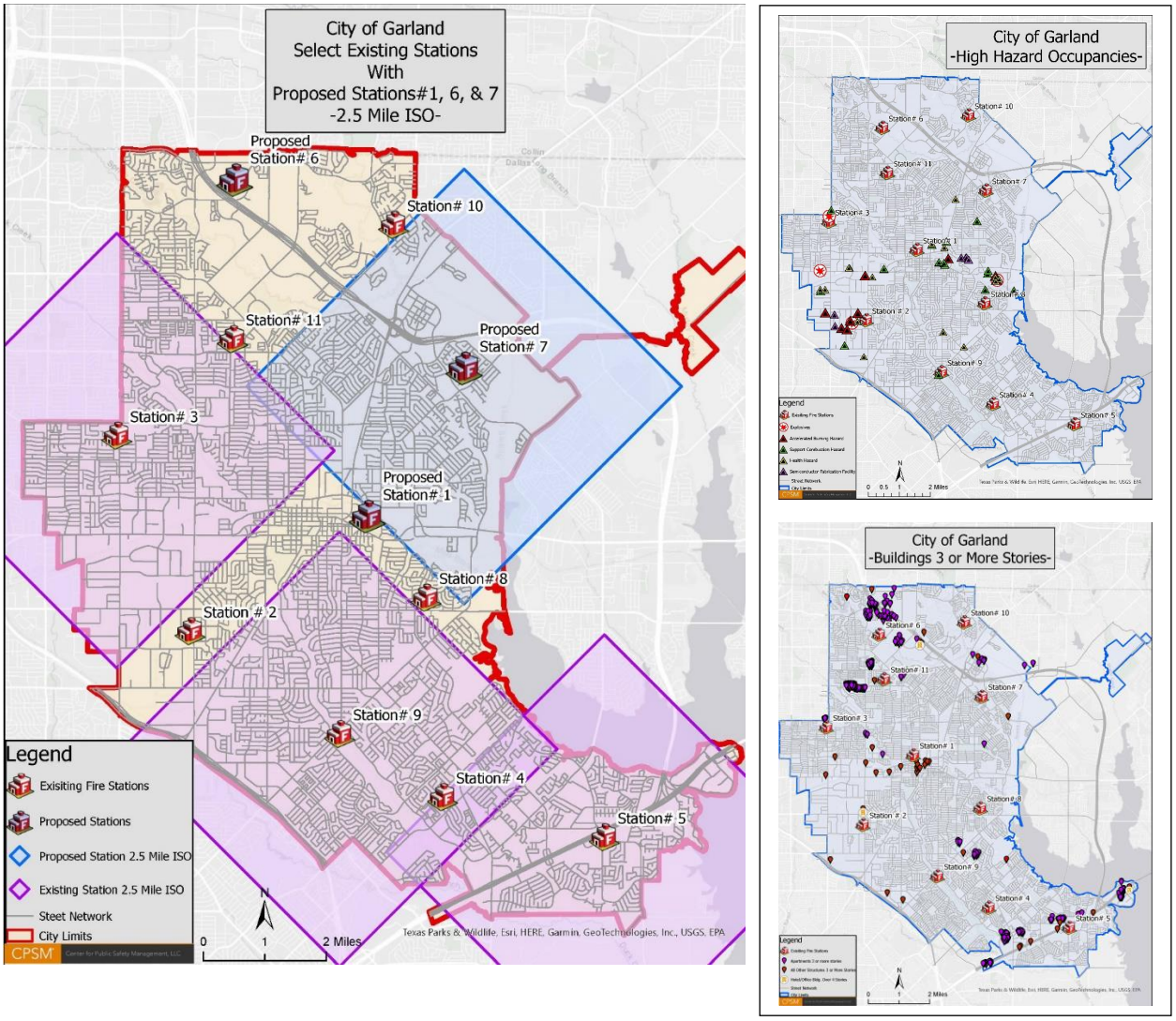
The next step for GFD is to consider and strategically plan for, over the near, mid, and longer terms, to locate four ladder trucks strategically in the city as separate truck companies in stations with engine companies. The next figures illustrate station locations that would be most beneficial for coverage across the city and building risks, and when benchmarked against the ISO-PPC. We start with ladder apparatus at Stations 3, 5, 7, 9 as dual company stations (engine/ladder). As stated in the strategic planning statement, this ladder placement can be all dual company stations (engine-ladder), or a combination of dual company stations and Quint stations, but with 4-person staffing on the Quints.

Figure 29: Proposed Ladder Apparatus Stations with ISO-PPC 2.5 Mile Benchmark



The next figure considers the movement of Stations 1, 6, 7 and discussed earlier.

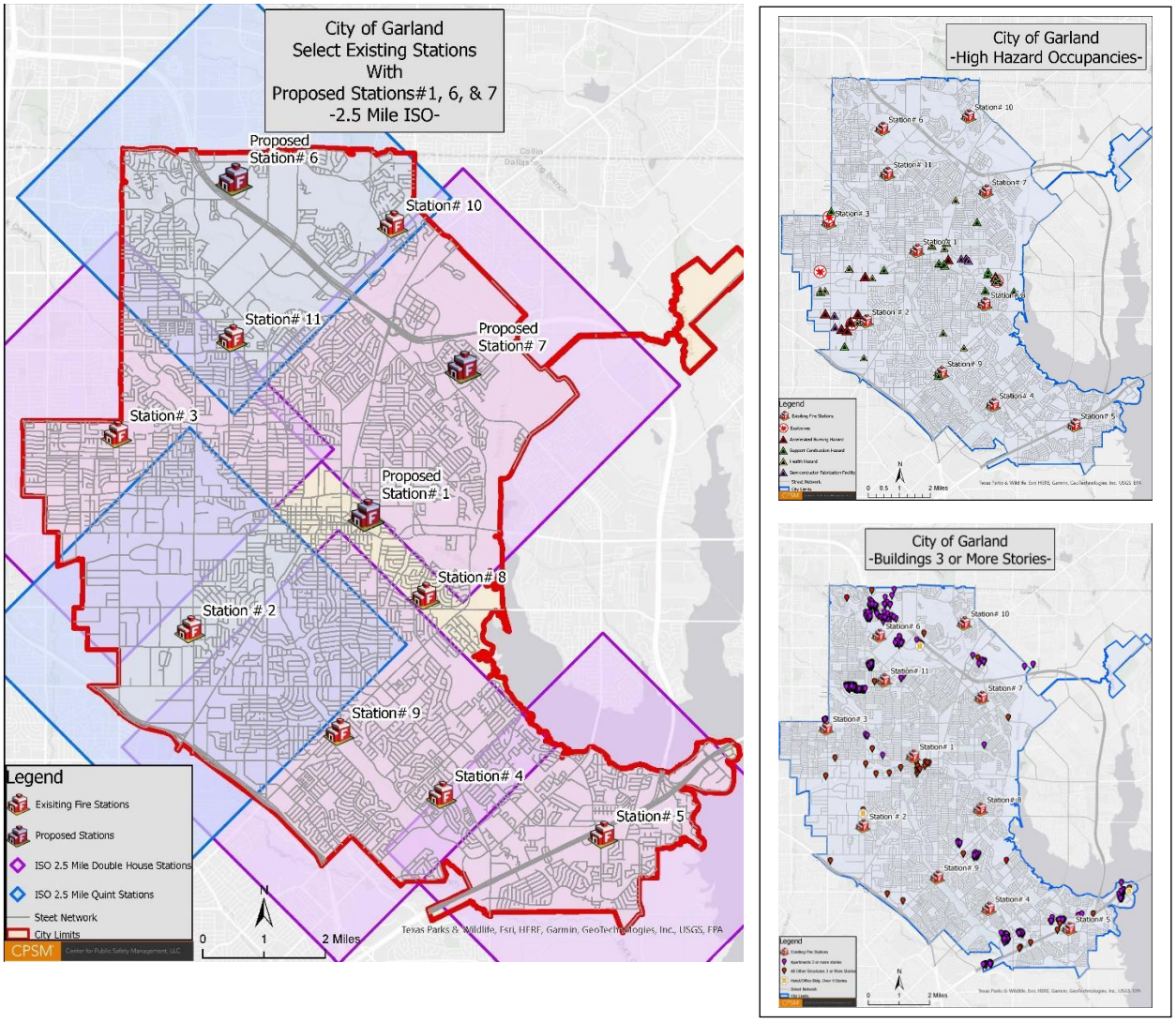
Figure 30: Proposed Ladder Apparatus Stations with ISO-PPC 2.5 Mile Benchmark With the Movement of Stations 1, 6, 7



Each of these illustrations of potential ladder apparatus placement are favorable for coverage across the city, and when benchmarked against the ISO-PPC.

The next figure contemplates additional Quint apparatus as single companies, with a staffing of four, at Stations 2, and 6. The Station 2 location is practical due to the high hazard occupancies, nursing homes and assisted living facilities, and large footprint buildings in this fire district. The Station 6 location is practical as it has many buildings (apartments) over three stories and large footprint buildings located in this fire district. Both locations also serve as second ladder apparatus responses on commercial and multifamily, multi-story fire responses.

Figure 31: Proposed Ladder Apparatus Stations 3, 5, 7, 9 with Stations 2 and 6 With the Movement of Stations 1, 6, 7



EMS Critical Staffing

EMS is a vital component of the comprehensive emergency services delivery system in any community. Together with the delivery of police and fire services, it forms the backbone of the community's overall public safety net.

In terms of overall incidents responded to by the emergency agencies in most communities, it could be argued that EMS incidents constitute the greatest number of "true" emergencies, where intervention by trained personnel makes a difference, sometimes literally between life and death. Heart attack and stroke victims require rapid intervention, care, and transport to a medical facility. The longer the time duration without care, the less likely the patient is to fully recover. Contemporary pre-hospital clinical care deploys many clinical treatments one will receive in the emergency department; truly matching the long-time EMS saying, "we bring the emergency room to you."

Critical tasks by specific call type in EMS-only agencies assisted by fire departments are not as well-defined as those in the fire discipline. Notwithstanding, *Critical Tasking* in EMS is typical of that in the fire service in that there are certain critical tasks that need to be completed either in succession or simultaneously. EMS on-scene service delivery is based primarily on a focused scene assessment, patient assessment, and then followed by the appropriate basic and advanced clinical care through established medical protocols. EMS critical tasking is typically developed (in fire-based EMS Standards of Cover documents) in accord with the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services (CMS), as:

- Basic Life Support (BLS), which is an emergency response by a ground transport unit (and crew) and the provision of medically necessary supplies and services occurs.
- Advanced Life Support, Level 1 (ALS1), which is the transportation by ground ambulance vehicle and the provision of medically necessary supplies and services including the provision of an ALS assessment or at least one ALS intervention.
- Advanced Life Support, Level 2 (ALS2), which is the transportation by ground ambulance vehicle and the provision of medically necessary supplies and services including:
  - *at least three separate administrations of one or more medications by intravenous push/bolus or by continuous infusion (excluding crystalloid fluids) or*
  - *(2) ground ambulance transport, medically necessary supplies and services, and the provision of at least one of the ALS2 procedures listed below:*

    a. Manual defibrillation/cardioversion.

    b. Endotracheal intubation.

    c. Central venous line.

    d. Cardiac pacing.

    e. Chest decompression.

    f. Surgical airway.

    g. Intraosseous line.

The next set of tables reviews the current critical tasking for the GFD continuum of care. As indicated above, the critical tasking is based on the current CMS ground transport definition of ambulance services. In each, the GFD is following national best practices.

Table 35: BLS Critical Tasking

Critical Task	# Responders
Primary Patient Care Incident Command	1
Secondary Patient Care Vehicle Operations	1
Effective Response Force	2

Resource Deployment

1 Transport Ambulance

Table 36: ALS1Critical Tasking

Critical Task	# Responders
Incident Command	1
Primary Patient Care	1
Secondary Patient Care Vehicle Operations	2 1
Effective Response Force	5

Resource Deployment

1 Transport Ambulance
1 GFD Fire Crew

Table 37: ALS2 Critical Tasking

Critical Task	# Responders
Incident Command	1
Primary Patient Care	1
Secondary Patient Care	1
Tertiary Patient Care Provider	2
Vehicle Operations	1
Effective Response Force	6

Resource Deployment

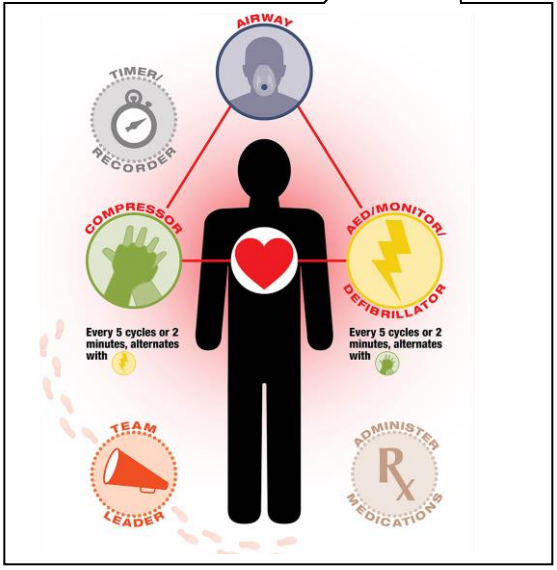
1 Transport Ambulance
1 EMS Supervisor
1 GFD Fire Unit

Table 38: Pulseless/Non-Breathing Critical Tasking

Critical Task	# Responders
Incident Command	1
Primary Patient Care	1
Secondary Patient Care	1
Tertiary Patient Care Provider	2
Vehicle Operations	1
Effective Response Force	6

Resource Deployment

1 Transport Ambulance
1 EMS Supervisor
1 GFD Fire Unit



In Garland, 72% of all calls are EMS related. Of these calls, approximately 36% are potentially higher acuity (ALS2 and above).

Currently the GFD has one EMS Captain/Supervisor to cover the city. Comparably, there are two Fire Battalion Chiefs (north and south) to cover the city.

The GFD should include in any strategic master planning the GFD conducts over the near, mid, and long terms, planning objectives that include increasing the EMS Captain/Supervisor by one per shift and pairing this EMS Captain/Supervisor position with the Fire Battalion Chiefs in a north/south deployment model.

SECTION 4. MASTER PLANNING

Summary of Gap Analysis Findings

The analysis above includes a number of recommendations that will be addressed in the strategic planning portion of this master plan. Additionally, an analysis of the strengths, weaknesses, opportunities, and threats was conducted with Garland Fire Department that will inform strategic planning as well. The highlights from the above gap analysis are provided below for review.

- Population, demographics, and growth impacts on the GFD must be included in any strategic master planning the GFD conducts in the near-, mid-, and long-terms. Increases in development will increase call demand and will impact the deployment analysis in future ISO-PPC community ratings, and the ability of the GFD to meet NFPA deployment benchmarks.
- The GFD should include in any strategic master planning the GFD conducts over the near-, mid-, and long-terms, planning objectives focused on increasing deployable assets (apparatus and staffing) to respond to high and medium risk target hazards that include high risk/vulnerable population risks (nursing/assisted living facilities), educational facilities, multifamily multi-story residential structures (apartments/condos), mercantile building risk, and large footprint commercial buildings while a lower life safety risk, is gernerally a higher hazard risk based on processes, storage, and overall occupancy type. This should include the addtion of staffed/separate ladder companies in strategically located stations in the city.
- Garland Fire Department should include in any strategic master planning the GFD conducts over the near-, mid-, and long-terms, planning objectives focused on mass-transit/mass-casualty incidents involving DART commuter rail and bus transportation.
- Garland Fire Department should include in any strategic master planning the GFD conducts over the near-, mid-, and long-terms, planning objectives focused on deployable assets (staffing and apparatus) that has a focus on resiliency of fire and EMS assets in high call demand fire management zones. This should include a peak-time ambulance at Station 1 or Station 11 from 8:00 a.m. to 10:00 p.m.
- Deficiencies in the ISO-PPC should be discussed and included in any strategic master planning the GFD conducts in the near-, mid-, and long-terms. This should include the addition of staffed ladder apparatus (truck companies in stations that currently house single engine companies), which will create opportunity for a gain in deployment analysis, company personnel analysis, and ladder service analysis credit points, which will assist in sustaining optimum service deliverables and the ISO-PPC 1 community rating.
- Garland Fire Department should include in any strategic master planning the GFD conducts over the near-, mid-, and long-terms, planning objectives focused on following the NFPA 1901 standard for fleet replacement and include in this planning a focus on not utilizing heavy fire apparatus once the apparatus reaches the 25-year age ceiling.
- When siting new stations or moving current stations, the Garland Fire Department should include in any strategic master planning the GFD conducts over the near-, mid-, and long-terms the ISO-PPC engine and ladder company benchmarks for service to built-upon land, and the NFPA 1710 travel time benchmarks for first and second arriving fire suppression and EMS unit (240 seconds and 360 seconds respectively), as well as the NFPA 1710 standard for assembling an Effective Response Force in 480 seconds for building fires other than high-rise

responses, and 610 seconds for high rise responses (should these building heights become a reality in Garland).

- The GFD should include in any strategic master planning the GFD conducts the continuation of mutual and automatic aid from contiguous jurisdictions with a focus on strengthening regional ties and the automatic aid concept and benefits.
- The GFD should include in any strategic master planning near, mid-, and long-term strategies that focus on succession planning, employee professional development, and preparing the workforce for the future.
- The GFD should include in any strategic master planning strategies that focuses on the health, safety, and wellness of the workforce with a focus on reducing carcinogenic exposures, behavioral health, and safety during emergency and non-emergency work.
- The GFD should include in any strategic master planning strategies that are aimed at closing communication gaps in the organization, improving consistent messaging and actions across the organization, and creating a shared vision all members of the organization can work towards.
- The GFD should include strategic master planning strategies that focus on the regular rotation of staff on and off EMS ambulances that has a focus on reducing the length of an operational staff member's time permanently assigned to an ambulance so that each can better develop their professional Fire and EMS careers.
- The GFD should include strategic master planning strategies that focus on reducing the deployment of heavy fire apparatus responding to EMS incidents through the use of Medical Priority Dispatch in the city's 911-center. This effort will take dedicated resources in the 911-center, will reduce overall response of heavy fire apparatus on EMS incidents, which will create efficiencies, and will create resilience in the GFD overall response workload.
- The GFD should include strategic master planning strategies that continue and strengthen the liaison the department has with social and community services in the city regarding high users of the EMS and fire services.
- The GFD should include in any strategic master planning near, mid-, and long-term strategies that focus on the continued renovation of fire facilities to include consideration of integrating NFPA 1500 (health and safety considerations), NFPA 1851 (maintenance and care of station wear and protective ensembles), and NFPA 1710 (turnout time).
- The GFD should include in any strategic master planning the reorganization and reformatting of the department Standard Operating Procedures and Guidelines with a focus on consistency, and to ensure they represent a contemporary fire and EMS department.
- The GFD should include in any strategic master planning a focus on Community Risk Reduction that includes the expansion of Public Life Safety Education; a fire prevention code enforcement annual plan that includes the identification and inspection of all group homes; the completion of required annualized inspections; and the development, implementation, and compliance methodology of a fire operations pre-fire plan program.
- The GFD should include in any strategic master planning a focus on recruitment and retention of employees. Recruitment should make every effort to capture the best and the brightest candidates possible who meet the city and department requirements, and who are reflective of the City of Garland. Retention should be focused on professional development; the health, safety, and wellness of all employees; a shared vision; open and honest communication; and an inclusive organization where all employees feel they are being listened to and their input is received and considered.

Strategic Planning Process

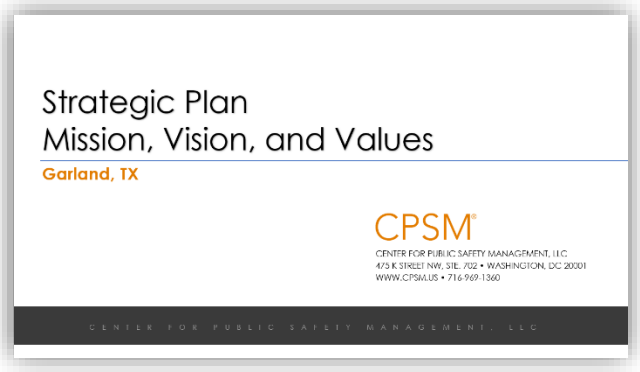
Strategic planning is an important process for organizations, as it provides a clear and concise roadmap for the future. This process can be challenging for agencies to undergo because strategic planning requires an honest assessment of the department's current state of performance, and a realistic understanding of paths to improvement. The Garland Fire Department chose to undergo this process in an effort to identify ways in which fire rescue services for the residents of Garland could be improved.

The strategic planning process addresses the following:

As mentioned above, strategic planning requires an honest assessment of the department's current state of performance. Garland Fire Department accomplished this assessment through an analysis of the department's strengths, weaknesses, opportunities, and threats (commonly referred to as a SWOT analysis). Then, a review of the department's current mission, vision, and values statements was conducted, and sessions were held to align those statements more clearly with current and anticipated future perspectives. Goals and objectives were then developed in line with the SWOT analysis, updated mission, vision, and values, as well as the gap analysis that was conducted concurrently by CPSM staff with the strategic planning process.

Virtual strategic planning/gap analysis sessions were held with personnel from GFD on the below dates to gather input from department stakeholders.

- June 2, 2022: Kick-off meeting with Chief Lee, Assistant Chief Coan, and Assistant Chief Webb.
- June 30, 2022: Meeting with Chief Lee, Mr. Rex, and Mr. Bradford.
- Battalion Chief and Company Officer stakeholder meetings.
- December 16, 2022.
- December 17, 2022.
- December 18, 2022.
- Drivers and Fire Fighter stakeholder meetings.
- December 16, 2022.
- December 17, 2022.
- December 18, 2022.
- March 6, 2023: External stakeholder meeting.



A staff survey was also conducted to ensure all staff were allowed to participate in the SWOT process regardless of whether they were available to attend a virtual session. The survey included questions on perceived importance of certain fire department tasks, perceived strengths, or weaknesses of department characteristics, and provided respondents the opportunity to provide open-ended feedback regarding issues they saw as particular strengths or weaknesses for the department.

Mission, Vision, and Values

Mission Statement

The Mission of the Garland Fire Department is to serve compassionately, professionally, and efficiently to help the community through prevention, preparedness, response, and restoration.

Vision Statement

To build an exemplary department that is dedicated to creating a safer and healthier community through prevention, outreach, and response.

Values

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

The SWOT analysis was conducted over the course of eight virtual meetings. Both internal and external stakeholder groups participated in the SWOT analysis and provided their unique perspectives. Several interesting findings emerged from the survey as well. For instance, fire suppression and emergency medical services ranked as most important to staff, but fire station tours were ranked as not important. Figure 32 below demonstrates the ranking of fire department tasks. Rankings were based on a scale of 1 to 5, with 1 representing "Not Important at All" and 5 representing "Very Important."

Figure 32: Staff's Perceived Rank of Importance for Fire Department Tasks

Task	Average Ranked Score
Fire Suppression	4.88
Emergency Medical Services	4.80
Vehicle Extrication	4.56
Training of all staff	4.46
Mass Casualty/Injury Response	4.27
Disaster Preparedness	4.19
Fire Safety Inspections of all Businesses	3.80
Community Engagement	3.75
Public Education	3.72
Smoke Detector Checks	3.34
Blood Pressure Checks	3.16
CPR Classes	3.11
Station Tours	2.81

The items listed below are those that were consistently noted across the variety of sessions and are used in combination with the gap analysis above to develop the goals and objectives for the strategic planning portion of the master plan.

It should be noted that weaknesses or threats identified in this process place no value judgement on the organization. Additionally, it is noted that some stakeholder input discussed here may be perception or assumptions offered by stakeholders, who may not have all of the information germane to their statement. However, and to ensure inclusiveness, CPSM has included all information received from stakeholder sessions.

All organizations undergoing a process of continuous improvement should identify potential weaknesses and threats to the organization in order to focus and prioritize efforts toward improvement. Garland Fire Department should be commended for participating in the process and for including such an array of stakeholder groups.

Strengths

- The professionalism of departmental staff, dedication to their work, and care and concern for the citizens of Garland best describes the Garland Fire Department.
- Garland Fire Department provides quality training opportunities beyond minimum training requirements that includes a hands-on, up-to-date, and challenging Shift Training Officer program.
- GFD has access to a variety of resources to include opportunities related to mutual aid/auto, state call-ups, and hospitals throughout the region.
- The culture of GFD is characterized by high morale, established peer support systems, camaraderie, and pride in their work as members of the fire department.

Picture retrieved from Garland Fire Department

- GFD responds to calls for service in a highly skilled and efficient way, utilizing its resources in the most effective way possible.
- GFD frequently engages with the community in a positive way through educational opportunities, participation in community events, visibility in the community, and interaction with diverse groups throughout the community.
- Equipment and apparatus (Fire and EMS) at GFD is characterized by the latest technology.
- GFD has several staff who are willing to participate in committees established to research various new equipment, policies, or standard operating procedures and these committees are used to help inform the administration's decision-making process.
- Stations are located appropriately to respond quickly to calls for service.
- GFD has highly experienced staff who frequently respond to volatile emergency calls for service.
- GFD offers competitive pay given its tax base.
- The Office of the Fire Marshal communicates with the community well in terms of education and explanation of the fire code.
- The Garland Fire Department is highly respected among its peer departments in the region.
- New recruit hiring focuses on recruiting from the local population, as familiarity and concern of the city is paramount.

Weaknesses

- The lack of local hospitals within the Garland city limits burdens EMS apparatus through extended travel times to and from the hospital for transport.
- Because EMS calls are the most frequent type of call, paramedics have a higher workload than others, leading to potential burn-out.

- Additional staff are required to achieve 4-person stations throughout the city, rotate personnel off the ambulance post, and minimize the need for mandatory overtime. GFD lags behind neighboring departments with regard to staffing.
- Garland Fire Department struggles with communication between administration and line personnel which leads to inconsistent messaging or frequent changes in direction.
- Staffing levels leave schedulers struggling to fit training in for staff or staff ambulances on training day.
- Though committees are formed to help in decision-making, their recommendations are not always followed, but with little explanation. This leads staff to assume decisions are made without input. Expectations of advisory committees should be clarified.
- The Computer-Aided Dispatch (CAD) system currently used is out of date and does not meet the needs of the GFD.
- Equipment seems to be prioritized over personnel in budget decisions.
- The department is losing staff to neighboring departments (although many return).
- IT issues present persistent challenges with regard to the computers that are used and their functionality, a reliable connection to the internet, and the CAD software used.
- Purchases seem to be made only considering budget; the least expensive option is always chosen, which can pose challenges integrating with other least expensive options.
- Staff requests or recommendations are met with red tape or not heard.
- GFD has struggled to work effectively with other departments who do not understand the 24/7 nature of their work.

Additional staff are required to achieve double house stations in the city, rotate personnel off the ambulance post, and minimize the need for mandatory overtime.

- SOPs are written without input from the rest of the staff.
- People with specific knowledge and skills are underutilized.
- GFD is lacking in diversity of all forms (race, ethnicity, gender, etc.) and should more appropriately reflect the community.
- Recruiters should reflect the community they're recruiting from.
- GFD lacks opportunities for advancement in the current rank structure; staff are concerned about getting 'stuck' in office positions.

Opportunities

- GFD can look to other fire departments in the region for mutual aid or other support.
- GFD enjoys support from the local community, elected officials, and city management.
- Redevelopment and in-fill growth in Garland will create several opportunities as the tax base grows and additional areas require more services.

- Highway improvements may help response times.
- GFD has a willing workforce that wants to participate in various projects in the department; administration could look to these willing staff to delegate activities or look to for feedback.
- There are several training opportunities locally or in the metroplex that staff can take advantage of either on their own or through departmental support.
- Other local agencies provide tested models for staffing or pay that GFD can use as learning tools.
- Training opportunities could be expanded, and the training facility has the capacity to increase its use.
- GFD receives a diverse pool of applicants that can be mentored to successful hiring processes.
- GFD should further grow established connections with the local independent school district and other technical schools from the current High School Academy to continue to create career learning opportunities that lead to GFD recruitment efforts.
- The Office of the Fire Marshal can strengthen relationships with businesses to better educate them on why certain regulations are in place beyond just what the cost of implementing requirements are; education can extend to the elected leaders.





Threats

- Garland has no local hospital within the city limits.
- GFD is overloading current resources at the current call volume, and significant growth is anticipated.

- The potential for change in local government support and the subsequent resources provided is always a consideration for local government agencies.
- Changes to tax regulations can impact funding to the City of Garland and thus the Garland Fire Department.
- While other local fire departments are good resources, it can be a threat to rely on them too heavily as their primary responsibilities lie in their own municipality.
- Other city departments do not operate to support the department 24 hours a day/7 days a week.
- Lack of communication has led to an inability for line staff to share ideas for improvement or concerns.
- Lack of funding to hire additional staff limits the possibilities for GFD.
- GFD may lose staff to other departments due to better pay in surrounding departments.
- Long-term health effects of firefighting may begin to impact GFD staff.
- The number of people in the recruitment pool is shrinking, making it more difficult for GFD to hire quality candidates.
- Lack of communication leads to unclear goals and objectives established by fire administration.
- Issues with scheduling staff training appropriately have led to an underutilization of the training facility.
- Outside influences (elected officials, community members, etc.) have some control over the fire department and its operations.
- Inadequate succession planning, training, and mentoring for administrative positions discourages staff from seeking out promotional opportunities.
- Working for a fire department is a difficult career.
- Advisory boards do not have the power to address potential threats or concerns.

Garland has no local hospital within the city limits. This leads to extended travel and response times.

Goals and Objectives

Five (5) goals and corresponding objectives developed through the SWOT analysis, gap analysis, and site visits are presented below. Goals are presented as overarching directions for the department whereas objectives are presented as actionable steps to achieve the stated goals. The objectives indicated are intended to provide steps to be accomplished to the extent possible, in the short term, over one (1) to three (3) years. Some objectives are not as urgent and would be considered mid-term (within 3 to 5 years) objectives whereas others are considered long-term (5 to 10 years), as indicated.

The SWOT analysis included several aspects related to increased staffing and succession to improve services in Garland, TX.

Goal 1:

Staff a highly trained workforce to meet the demand for calls for service.

- **Objective 1 (short term):** Increase the number of GFD paramedics to improve rotation of staff off of the ambulances.
  - Contiue candidate recruitment efforts that has a focus on recruiting credentialed paramedics who deisre a career in the fire service.
  - Continue internal support (financial assistance, work schedules, tutoring, mentoring) for staff to achieve paramedic status.
- **Objective 3 (short-term):** Increase the number of specialized training opportunities.
  - Create additional training opportunities for staff to become proficient in responding to high-and medium-risk hazards and mass-casualty incidents.
    - Conduct table-top exercises.
    - Conduct large-scale training exercises that enlist the assistance of the community.
  - Balance training efforts between fire suppression, emergency response, and EMS skills so that staff are confident in responding to any call for service.

The most common comment from current staff, including command staff, was that additional staff are needed to appropriately staff current apparatus and align with NFPA standards for collecting an effective response force. Additionally, a particular weakness of Garland Fire Department was the tendency for staff to get "stuck" on an ambulance assignment or shift. By increasing the number of paramedics who can work ambulance shifts, the GFD will be able to rotate people out of the ambulance shift, which tends to be the busiest assignment in the fire station.

Additionally, Garland, like many other municipalities in Texas, must be prepared to meet increasing demand levels over the mid-longer term. The increase in demand, changing demographics, and shifts in property development (vertical density) require that the GFD continuously assess and adjust deployment of resources. There is an identified need to add separate ladder companies (dual company-engine and ladder) in identified GFD fire stations as well as adjust response to EMS call types to conserve heavy apparatus resources.

Goal 1:

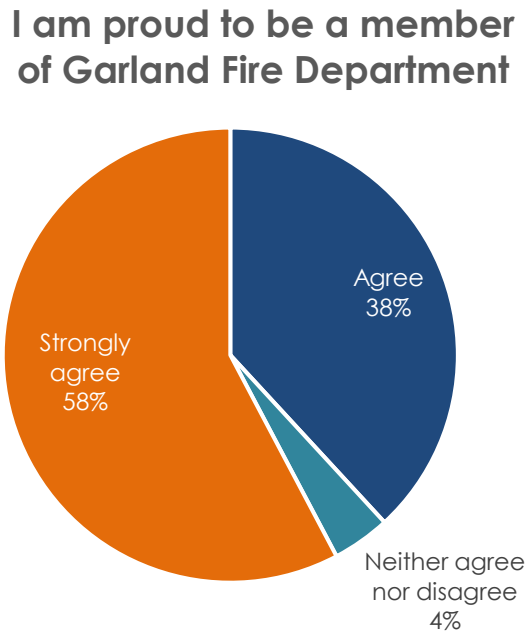
Staff a highly trained workforce to meet the demand for calls for service.

- **Objective 3 (long-term):** Add additional fire fighters to staff single ladder companies and/or enhance staffing on quint companies to four.
  - Add fire fighters each year through the long term to achieve staffing for single ladder companies and/or increase staffing on quints to four.
    - Stations prioritized for additional staffing should align with plans to add ladder companies throughout Garland (discussed more thoroughly in Goal 3 below).
    - Staffing increases should also consider the needs of a growing community, increased demand, and identified risks if additional fire stations are needed.
- **Objective 4 (long-term):** Increase staffing to align with additional ladder companies as they are added to the fleet.
  - As ladder companies are added to the fleet and deployment plan, additional staff are necessary. A quint company and a dedicated ladder company in a dual company station requires staffing of four to operate effectively.
  - The staffing component of ladder companies are, of course, dependent upon adding the apparatus to Garland Fire Department's deployment strategy. The gap analysis identified a need for dedicated ladder companies to combat building risks, meet the needs for collecting an effective response force, and meeting ISO requirements.
  - The recommended additional apparatus are separate from the current quint deployment strategy.

Staffing is a multi-faceted issue. Beyond staffing appropriately given the department's service needs, fire departments must also pay close attention to retention as well as recruitment of staff who represent the community that they serve.

One critical issue regarding retention is the attitude of current staff. The staff survey and stakeholder interviews reflect pride of current staff in the department and a true sense of camaraderie among line staff.

These are invaluable aspects of Garland Fire Department that can be highlighted in retention efforts.



Goal 2:

Recruit and retain quality staff.

- **Objective 1 (short-term):** Continue to provide peer support and training to deal with critical incidents.
  - Establish defined peer-support team to serve as leaders in the department. These staff can assist in identifying meaningful mental health training opportunities or serving as trainers for the department.
  - Draft policy to address debriefing process after critical incidents.
  - Provide training such as critical incident stress management to members throughout the department to improve awareness and understanding of mental health and trauma-related issues.
- **Objective 2 (short-term):** Assess extent of employee turn-over and burn-out.
  - Conduct exit-interviews with departing staff to identify reason(s) for leaving.
  - Track resignations and analyze departure information to identify patterns.
  - Meet regularly with staff to discuss concerns over workload and task assignments.

Goal 2:

Recruit and retain quality staff.

- **Objective 3 (short-to-mid-term):** Continuously review and update policies and procedures to focus on the well-being of staff.
  - Review and update policies and procedures to address health, safety, and wellness of staff.
  - Review and update policies and procedures to focus on reducing carcinogenic exposures.
    - Facilities and equipment should be evaluated for the propensity to expose staff to carcinogens and adjustments should be made to reduce exposure when necessary.
  - Review and update policies and procedures to focus on safety/OSHA standards during emergency and non-emergency work.
    - Safety considerations should be priority in all work tasks and locations.
- **Objective 4 (mid-term):** Develop strategies to address findings from exit interviews as well as real or perceived reasons for burn-out.
  - Enlist the assistance of other city agencies (public and private) as necessary to address concerns of staff.
  - Improve communication with staff to share goals and vision of the department.
  - Set clear expectations of staff who participate in administrative decision-making groups.
    - Some staff expressed appreciation that collaborative groups are utilized in decision-making processes, but they also expressed frustration when the groups' recommendations were not followed.
  - Develop staffing plan to rotate staff on and off amublance posts to prevent burn out.

Goal 2:

Recruit and retain quality staff.

- **Objective 5 (mid-term):** Continue to improve the diversity of the applicant pool to more adequately reflect the Garland community.
  - Continue to partner with local independent school district to engage high school students in recruitment activities and preparation for qualifying exams.
  - Partner with local technical colleges to establish fire training opportunities, mentoring opportunities to establish pathways to careers in Garland Fire Department.
  - Engage in purposeful outreach to underrepresented communities to educate community members about careers in the fire department and establish mentoring relationships to help those interested succeed in the application process (i.e., provide tutorials for qualifying exams).
- **Objective 6 (long-term):** Establish career development pathways to allow for improved management and succession planning.
  - Clarify the current role of the swing lieutenant position and phase the rank out through attrition.
    - Because each station staffing plan includes the rank of captain, additional lieutenants create an unnecessary level of supervision. Swing lieutenants may be utilized, however, to ride up when captains are missing from shifts across Garland. Otherwise, they represent additional staffing necessary in three stations across Garland.
  - Create opportunities for staff to rotate through administrative positions for professional development and succession planning.
  - Increase the number of management and leadership training opportunities that allow staff to develop skills necessary for advancement.

Goal 3: Deploy and maintain resources efficiently and effectively.

- **Objective 1 (short-term):** Continue mutual aid and automatic aid agreements with contiguous jurisdictions.
  - Garland Fire Department currently takes advantage of regional resources to supplement fire and EMS responses, and it should continue this in the future.
  - Agreements should pay particular attention to automatic aid to incorporate contiguous jurisdictions into response plan.
    - Auto aid agreements help to reduce the immediate need to add resources, but it should be noted that they are not reliable if large-scale emergencies occur in the partnering jurisdiction.
- **Objective 2 (short-to-mid-term):** Reevaluate the deployment of heavy apparatus to EMS call types.
  - Identify appropriate basic life support (BLS) calls that can be addressed by ambulances only.
  - Identify other call types that can be addressed with ambulance-only responses to save heavy apparatus for other emergency response.
  - Implement changes to run cards into emergency medical dispatch and CAD software.
  - Consider implementing Priority Medical Dispatch to assist in triaging call types.
- **Objective 3 (mid-term):** Establish replacement plan for fleet to meet NFPA 1901 standards.
  - Continue to develop and update fleet replacement schedule that links to funding plan.
  - Establish funding plan to consistently replace fleet apparatus and maintain safe and current equipment.
  - Ensure heavy apparatus is not utilized for service calls beyond its 25-year lifespan.

Goal 3: Deploy and maintain resources efficiently and effectively.

- **Objective 4 (mid-term):** Ensure maintenance or revonations of current fire stations focus on health and safety of staff as well as response needs
  - Continuously assess stations for health and safety needs.
  - Create renovation schedule to address deficiencies in health and safety standards.
  - Establish funding plan for renovations.
- **Objective 5 (long-term):** Assign current assets to improve response resiliency for fire and EMS calls.
  - Staff apparatus to meet effective response force based on needs of structures in each district.
  - Staff apparatus in high call volume areas to meet demand for services if two or three calls are received at the same time (resilliency). This should include a peak-time ambulance at Station 1 or Station 11 **or both**, from 8 a.m. to 10 p.m.
  - Staff and deploy assests in areas of growth, high demand, and increased building risks to meet NFPA standards for assembling an effective response force.
  - Add one EMS Captain/Supervisor to each shift and devlop and north/south deployment model that mirrors the fire Battallion Chief operations model.
- **Objective 6 (short-mid-long term): Reimagine ladder company deployment.**
  - Add single-staffed ladder companies to stations 3, 5, 7, 9 (4 staffing). These stations will be dual staffed and equipped with engine and ladder companies.
  - Maintain quint companies at stations 2 and 6 (4 staffing).
  - Staff the heavy rescue apparatus as a separate company at Station 1 (3 staffing)
  - Establish funding plan for additional apparatus.
  - Build apparatus into aforementioned fleet replacement schedule.

This Master Plan represents a major step forward for Garland Fire Department by helping to establish goals and objectives for the next five years. However, it will be up to fire administration to ensure these goals are clearly communicated to staff. Continuous and consistent messaging from fire administration will allow line level staff to understand the direction of the department, and including staff in decision-making processes can help with buy-in.

Goal 4:

Communicate clearly to and between all levels of staff.

- **Objective 1 (short-term):** Establish clear lines of communication from fire administration to line staff and vice versa.
  - Ensure command staff are visible at stations and communicate with line staff regularly.
  - Establish practice of sending important announcements out via email.
  - Provide montly newsletter to staff with review of important iniatives or updates.
    - Updates should clearly communicate mission and vision of the department regularly and align initiatives.
  - Develop communication plan to encourage suggestions from staff and include process for response.
- **Objective 2 (short-to-mid-term):** Develop staff participation groups that provide input into the decision-making process.
  - Establish staff feedback groups for major initiatives and set expectations for participation.
  - Develop selection process for feedback groups to ensure adequate representation of line staff.
  - Encourage feedback groups to solicit thoughts from peers prior to group meetings.
- **Objective 3 (mid-term):** Form an SOP work group to review all SOPs and update as necessary to align with contemporary fire and EMS department best practices.
  - Include staff in the review of SOPs to ensure buy-in.
  - Commnicate updated SOPs through previously established lines of communication with the assistance of staff group involved in the updates.

Picture retrieved from Garland Fire Department Facebook page.

Another major strength of the Garland Fire Department was its connection to the community. Both external and internal stakeholders expressed how important the fire department is to the community and vice versa. GFD recognizes, too, how crucial quality fire prevention education and efforts are toward progressing a safe community. Thus, the final goal for GFD includes efforts to continue working with the community to improve fire safety and response.

Goal 5:

Work with the community to improve fire safety and response.

- **Objective 1 (short-term):** Continue to engage the public in community risk reduction efforts.
  - Expand Public Life Safety education opportunities.
    - Public education opportunities should include business owners to improve understanding of fire code and requirements.
  - The Garland Fire Department website could be improved with additional fire prevention and educational materials.
- **Objective 2 (mid-term):** Establish annual fire prevention code enforcement program.
  - Businesses should be inspected annually to ensure compliance with the fire code.
    - Quarterly goals should be established to ensure annual checks.
  - Pre-plans should also be reviewed annually.
    - Stations can be enlisted to assist with annual pre-plan checks.
    - Quarterly goals should be established to track progress.

Goal 5:

Work with the community to improve fire safety and response.

- **Objective 3 (mid-term):** Continue to work with community services to identify frequent users of fire and EMS services to address the root problem causing multiple calls for service.
  - Conduct analysis of annual calls to identify patterns of repeat customers.
  - Assess call type to determine reason for frequent utilizers of services.
  - Partner with community services to determine degree of overlap with services.
- **Objective 4 (long-term):** Establish program to address frequent users of fire and EMS services.
  - Establish partnerships with community services to provide case management to frequent utilizers of emergency services.
  - Connect frequent utilizers with other support services to minimize the need for emergency services.
  - As needs are identified, create partnerships with tertiary service providers (e.g., transportation, food services, etc.) that can assist frequent utilizers to prevent calls to 911.

Frequent utilizers of emergency services place a burden on the system especially when calls for service are based on non-emergency needs. Often, transportation or support services needs lead to calls to 911 because community members have no other options to reach medical care.

Other issues that lead to multiple calls for service include poor medication management or poorly managed chronic conditions. By addressing the root causes of the calls for service, GFD could prevent calls to 911 and free up much needed resources for emergencies.

While prevention programs can take considerable time and effort to implement, there is a potential payoff of fewer calls for service. Additionally, preventive efforts lead to better health outcomes for community members.

Implementation Plan

An implementation plan for the goals and objectives is provided below. This includes necessary resources and task assignments. This allows GFD to chart a path to realizing the established goals.

Goal 1			Time Frame	Resources	Leader Assigned
Staff a highly trained workforce to meet the demand for calls for service.	**Objective 1: Increase the number of GFD paramedics to improve rotation of staff off of ambulances.**	Continue candidate recruitment efforts that has a focus on recruiting credentialed paramedics who desire a career in the fire service.	Short-Term	Staff	EMS BC
		Continue internal support (financial assistance, work schedules, tutoring, mentoring) for staff to achieve paramedic status.	Short-Term	Staff	EMS BC
	Objective 2: Increase the number of specialized training opportunities.	Create additional training opportunities for staff to become proficient in responding to high- and medium-risk hazards and mass-casualty incidents.	Short-Term	Staff; Training facilities; Training curriculum	AC Support Services/Training
		Balance training efforts between fire suppression, emergency response, and EMS skills so that staff are confident in responding to any call for service.	Short-Term	Staff	AC Support Services/Training

Goal 1			Time Frame	Resources	Leader Assigned
Staff a highly trained workforce to meet the demand for calls for service.	**Objective 3: Add additional firefighters to staff single ladder companies and/or enhance staffing on quint companies to four.**	Incrementally add fire fighters each year through the long term to achieve staffing for single ladder companies and/or increase staffing on quints to four. Stations prioritized for additional staffing should align with plans to add ladder companies throughout Garland. Staffing increases should also consider the needs of a growing community, increased demand, and identified risks if additional fire stations are needed.	Long-Term	Staff; Funding for additional positions	Fire Chief
	Objective 4: Increase staffing to align with additional ladder companies as they are added to the fleet.	As ladder apparatus are added to the fleet and deployment plan, additional staff are necessary. A quint company and a dedicated ladder company requires staffing of four to operate effectively.	Long-Term	Staff; Funding for additional positions	Fire Chief

§ § §

Goal 2			Time Frame	Resources	Leader Assigned
Recruit and retain quality staff.	**Objective 1: Continue to provide peer support and training to deal with critical incidents.**	Establish defined peer-support team to serve as leaders in the department.	Short-Term	Peer support team; Staff	Fire Captain
		Draft policy to address debriefing process after critical incidents.	Short-Term	Staff	AC Support Services/Training
Recruit and retain quality staff.	**Objective 1: Continue to provide peer support and training to deal with critical incidents.**	Provide training such as critical incident stress management to members throughout the department to improve awareness and understanding of mental health and trauma-related issues.	Short-Term	Staff; CISM training	AC Support Services/Training
	Objective 2: Assess extent of employee turn-over and burn-out.	Conduct exit-interviews with departing staff to identify reason(s) for leaving.	Short-Term	Staff	Admin BC
		Track resignations and analyze departure information to identify patterns.	Short-Term	Staff	Admin BC
		Meet regularly with staff to discuss concerns over workload and task assignments.	Short-Term	Staff	Admin BC

§ § §

Goal 2			Time Frame	Resources	Leader Assigned
	Objective 3: Continuously review and update policies and procedures to focus on the well-being of staff.	Review and update policies and procedures to address health, safety, and wellness of staff.	Short-To-Mid Term	Staff	Admin BC
		Review and update policies and procedures to focus on reducing carcinogenic exposures.	Short-To-Mid Term	Staff	Admin BC
		Review and update policies and procedures to focus on safety/OSHA standards during emergency and non-emergency work.	Short-To-Mid Term	Staff	Admin BC
Recruit and retain quality staff.	**Objective 4: Develop strategies to address findings from exit interviews as well as real or perceived reasons for burn-out.**	Enlist the assistance of other city departments as necessary to address concerns of staff.	Mid-Term	Staff; Other Garland Departments	Admin BC
		Improve communication with staff to share goals and vision of the department.	Mid-Term	Staff	Fire Chief
		Set clear expectations of staff who participate in administrative decision-making groups.	Mid-Term	Staff	Fire Chief
		Develop staffing plan to rotate staff on and off amublance posts to prevent burn out.	Mid-Term	Staff	AC Operations

§ § §

Goal 2			Time Frame	Resources	Leader Assigned
	Objective 5: Continue to improve the diversity of the applicant pool to more adequately reflect the Garland community.	Continue to partner with local independent school district to engage high school students in recruitment activities and preparation for qualifying exams.	Mid-Term	Staff	Recruiter
		Partner with local technical colleges to establish fire training opportunities, mentoring opportunities to establish pathways to careers in Garland Fire Department.	Mid-Term	Staff	Recruiter
Recruit and retain quality staff.	**Objective 5: Improve the diversity of the applicant pool to more adequately reflect the Garland community.**	Engage in purposeful outreach to underrepresented communities to educate community members about careers in the fire department and establish mentoring relationships to help those interested succeed in the application process (i.e., provide tutorials for qualifying exams).	Mid-Term	Staff	Recruiter
	Objective 6: Establish career development pathways to allow for improved management and succession planning.	Clarify the current role of the swing lieutenant position and phase the rank out through attrition.	Long-Term	Staff	Fire Chief
		Rotate ranking staff in administrative positions to avoid burn-out and improve professional development.	Long-Term	Staff	Fire Chief
		Increase the number of management and leadership training opportunities that allow staff to develop skills necessary for advancement.	Long-Term	Staff	Fire Chief

Goal 3			Time Frame	Resources	Leader Assigned
Deploy and maintain resources efficiently and effectively.	**Objective 1: Continue mutual aid and automatic aid agreements with contiguous jurisdictions.**	Garland Fire Department currently takes advantage of regional resources to supplement fire and EMS responses, and it should continue this in the future.	Short-Term	Regional fire departments	Fire Chief
		Agreements should pay particular attention to automatic aid to incorporate contiguous jurisdictions into response plan.	Short-Term	Regional fire departments	Fire Chief
	Objective 2: Reevaluate the deployment of heavy apparatus to EMS call types.	Identify appropriate basic life support (BLS) calls that can be addressed by ambulances only.	Short-To-Mid Term	Staff; Emergency Medical Dispatch	Medical Director
		Identify other call types that can be addressed with ambulance-only responses to save heavy apparatus for other emergency response.	Short-To-Mid Term	Staff; Emergency Medical Dispatch	Medical Director
		Implement changes to run cards into emergency medical dispatch and CAD software.	Short-To-Mid Term	Staff; Emergency Medical Dispatch; CAD	Medical Director; Communications Director
		Consider implementing Priority Medical Dispatch to assist in triaging call types.	Short-To-Mid Term	Staff; Emergency Medical Dispatch	Medical Director

Goal 3			Time Frame	Resources	Leader Assigned
Deploy and maintain resources efficiently and effectively.	**Objective 3: Establish replacement plan for fleet to meet NFPA 1901 standards.**	Continue to develop and update fleet replacement schedule that links to funding plan.	Mid-Term	Staff	AC Support Services/Training
		Establish funding plan to consistently replace fleet apparatus and maintain safe and current equipment.	Mid-Term	Staff; Funding	AC Support Services/Training
		Ensure heavy apparatus is not utilized for service calls beyond its 25-year lifespan.	Mid-Term	Staff; Replacement Fleet	AC Support Services/Training
	Objective 4: Ensure maintenance or revonations of current fire stations focus on health and safety of staff as well as response needs	Continuously assess stations for health and safety needs.	Mid-Term	Staff	AC Operations
		Create renovation schedule to address deficiencies in health and safety standards.	Mid-Term	Staff	AC Operations
		Establish funding plan for renovations.	Mid-Term	Staff; Funding	Fire Chief
	Objective 5: Assign current assets to improve response resiliency for fire and EMS calls.	Staff apparatus to meet effective response force based on needs of structures in the area.	Long-Term	Staff; Apparatus	AC Operations
		Staff and deploy apparatus in high call volume areas to meet demand for services if two or three calls are received at the same time (resiliency).	Long-Term	Staff; Apparatus	AC Operations

Goal 3			Time Frame	Resources	Leader Assigned
	Objective 5: Assign current assets to improve response resiliency for fire and EMS calls.	Add one EMS Captain/Supervisor to each shift and develop a north/south deployment model that mirrors the fire Battalion Chief operations model.	Long-Term	Staff; Apparatus	AC Operations
Deploy and maintain resources efficiently and effectively.	**Objective 6: Reimagine ladder company deployment.**	Add single-staffed ladder companies to stations 3, 5, 7, 9 (4 staffing). These stations will be dual staffed and equipped with engine and ladder companies.	Short-Mid-Long-Term	Land; Station Construction	AC Operations
		Maintain quint companies at stations 2 and 6 (4 staffing).	Short-Mid-Long-Term	Ladder trucks; Staff	Fire Chief
		Staff the heavy rescue apparatus as a separate company at Station 1 (3 staffing).	Long Term		
		Establish funding plan for additional apparatus.	Short-Mid-Long-Term	Staff; Funding	Fire Chief
		Build apparatus into aforementioned fleet replacement schedule.	Mid-Long-Term	Staff	AC Support Services/Training

Goal 4			Time Frame	Resources	Leader Assigned
Communicate clearly to and between all levels of staff.	**Objective 1: Establish clear lines of communication from fire administration to line staff and vice versa.**	Ensure command staff are visible at stations and communicate with line staff regularly.	Short-Term	Staff	Fire Chief
		Establish practice of sending important announcements out via email.	Short-Term	Staff	Fire Chief
		Provide montly newsletter to staff with review of important iniatives or updates.	Short-Term	Staff	Fire Chief
		Develop communication plan to encourage suggestions from staff and include process for response.	Short-Term	Staff	Fire Chief
Communicate clearly to and between all levels of staff.	**Objective 2: Develop staff participation groups that provide input into the decision-making process.**	Establish staff feedback groups for major initiatives and set expectations for participation.	Short-To-Mid Term	Staff	Fire Chief
		Develop selection process for feedback groups to ensure adequate representation of line staff.	Short-To-Mid Term	Staff	Fire Chief
		Encourage feedback groups to solicit thoughts from peers prior to group meetings.	Short-To-Mid Term	Staff	Fire Chief

§ § §

Goal 4			Time Frame	Resources	Leader Assigned
	Objective 3: Form an SOP workgroup to review all SOPs and update as necessary to align with contemporary fire and EMS department best practices.	Include staff in the review of SOPs to ensure buy-in.	Mid-Term	Staff	Fire Chief
		Commnicate updated SOPs through previously established lines of communication with the assistance of staff group involved in the updates.	Mid-Term	Staff	Fire Chief

§ § §

Goal 5			Time Frame	Resources	Leader Assigned
Work with the community to improve fire safety and response.	**Objective 1: Continue to engage the public in community risk reduction efforts.**	Expand Public Life Safety education opportunities.	Short-Term	Staff	Public Education
		The Garland Fire Department website could be improved with additional fire prevention and educational materials.	Short-Term	Staff; Website Designer; Educational Materials	Public Education
	Objective 2: Establish annual fire prevention code enforcement program.	Quarterly goals should be established to ensure annual checks.	Mid-Term	Staff	Fire Marshal
		Stations can be enlisted to assist with annual pre-plan checks.	Mid-Term	Station Staff	Fire Marshal
		Quarterly goals should be established to track progress.	Mid-Term	Staff	Fire Marshal
	Objective 3: Continue to work with community services to identify frequent users of fire and EMS services to address the root problem causing multiple calls for service.	Conduct analysis of annual calls to identify patterns of repeat customers.	Mid-Term	Staff; Call Data	EMS Program Manager
		Assess call type to determine reason for frequent utilizers of services.	Mid-Term	Staff; Call Data	EMS Program Manager
		Partner with community services to determine degree of overlap with services.	Mid-Term	Staff; Community Services; Other Community Partners	EMS Program Manager

Goal 5			Time Frame	Resources	Leader Assigned
Work with the community to improve fire safety and response.	**Objective 4: Establish program to address frequent users of fire and EMS services.**	Establish partnerships with community services to provide case management to frequent utilizers of emergency services.	Long-Term	Staff; Community Services	EMS Program Manager
		Connect frequent utilizers with other support services to minimize the need for emergency services.	Long-Term	Staff; Community Services; Other Community Partners	EMS Program Manager
		As needs are identified, create partnerships with tertiary service providers (e.g., transportation, food services, etc.) that can assist frequent utilizers to prevent calls to 911.	Long-Term	Staff; Community Services; Other Community Partners	EMS Program Manager

End of Master Plan

CPSM®
Center for Public Safety Management, LLC

GARLAND
POLICY REPORT

City Council Work Session Agenda **4. b.**

Meeting Date: July 31, 2023
Item Title: Consideration and Discussion Regarding a Future Bond Program
Submitted By: Matt Watson, Finance Director
Strategic Focus Areas: Sound Governance and Finances

ISSUE

Discuss a proposed timeline of events for a future bond program and selection of a Bond Study Committee.

CONSIDERATION

Staff is seeking direction from the City Council regarding a future bond program election.

Attachments

Future Bond Program Presentation

GARLAND
TEXAS MADE HERE

Preliminary Bond Program Timeline and Council Direction

City Council Work Session

July 31, 2023

GARLAND
TEXAS MADE HERE

Future Bond Program

Why a Bond Program is being considered?

- **Build upon the 2019 Bond Program Success.**
  - 2019 Bond Program placed an emphasis on improving, expanding, and enhancing public facilities and infrastructure (Parks, Public Safety, and Streets).
  - 2019 Bond Program expected to be 90% complete by 2025 (Based on current CIP schedule).

- **Garlands Property Tax and Sales Tax Base is modest.**
  - SB 2 passed in 2019 has limited the growth of property tax revenue in the General Fund.
  - Future Revenue Growth is important to support current service levels and establish new initiatives to improve on Garland residents' quality of live.

- **Garland has limited funding capacity for Economic Development initiatives without a voter-approved bond program.**
  - Opportunity to make additional investment in the community without a tax rate increase.
  - Focus on making investments that can improve Garlands Property Tax and Sales Tax base.
  - Targeted investment in catalyst areas as well as funding to support Citywide initiatives to maximize economic impacts within Garland.
  - $46 million of Economic Development funding approved by voters in 2019 has been a "game changer" on the Economic Development front.

GARLAND
TEXAS MADE HERE

Future Bond Program
Next Steps & Council Direction

1. Establish a Timeline for Council Consideration of a Bond Program?

Preliminary Bond Schedule (Assuming May Election)

Item	Preliminary Dates
Bond Study Committee Appointment	September 19, 2023
Bond Study Committee Reviews Projects	September – December 2023
Bond Study Committee Reports to Council	First Regular Meeting January 2024
City Adopts Ordinance Calling Election	February 6, 2024
City Publish Notice of Election	April 4-20th, 2024
Election Day	May 4, 2024

2. Establish Bond Study Committee and number of residents in Committee?

- City Charter requires a Bond Study Committee be established prior to an Election. Committee must be made up of at-least 9 residents.
- 2019 Bond Study Committee Made up of 19 individuals
  - 2 residents per Council District and 3 at-large members appointed by Mayor.
- How many residents should be appointed to Bond Study Committee?

GARLAND
CITY COUNCIL ITEM SUMMARY SHEET

City Council Work Session Agenda **4. c.**

Meeting Date: July 31, 2023

Item Title: Preview of the proposed FY 2023-24 Budget

Submitted By: Allyson Bell Steadman, Budget Director

Summary of Request/Problem

Staff will provide an overview of the City Manager's Proposed Budget for FY 2023-24. The FY 2023-24 Proposed Budget document will officially be presented to City Council at the August 1, 2023, Regular Meeting.

Recommendation/Action Requested and Justification

Preview only. Discussions will occur at future Budget Work Sessions after City Council has received the Budget document.

GARLAND

City Council Work Session Agenda **5. a.**

Meeting Date: July 31, 2023

Item Title: Board and Commission Appointment

Submitted For: Tracy Allmendinger, Deputy City Secretary, City Secretary

Summary:

Deputy Mayor Pro Tem Ed Moore

- Adam Greenup - Library Board